



## FIRM SIZE INFLUENCE ON PROFITABILITY OF SRI LANKAN DIVERSIFIED HOLDINGS FIRMS

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**Abstract:** *The objective of this study is to examine the influence of firm size on profitability of Sri Lankan diversified holdings companies listed in Colombo stock exchange. For this purposes, this study performed econometric estimation models and used the data for the five years time period from 2008.*

*The study results indicate that firm size is positively related to profitability measure of return on assets. Further this study reveals those total debt ratio has a negative relationship with profitability.*

*This study explores the influence of firm size on profitability of diversified holdings companies listed in Colombo stock exchange and laid some contribution to the obtainable literature as Sri Lankan firms' context. Furthermore that observed findings might assist the corporate sector management as well as policy makers to take appropriate decisions.*

*Based on the author's knowledge, this is the first study that discloses the influence of firm size on profitability of diversified holdings companies listed in Colombo stock exchange. Furthermore, influence of firm size on profitability is hazy; hence this research continues that search with the help of Sri Lankan companies of diversified holdings sector.*

**Keywords:** *Firm size; Total dept; Growth rate; Profitability; Colombo stock exchange*

### 1. INTRODUCTION

In the market economy, generally the firm size, profitability, and survival differ from firm to firm. The thing is what are the factors cause to that observed variations, and how do they function? And it has been active research topic of manufacturing economics theory (Luttmer, 2010). An important aspect of a research study into a business activity must include the firm size also. The firm size means that "the ability of a firm possesses and the variety and number of production capability or the quantity and multiplicity of services a firm can be offered concomitantly to its customers."

In the present world's trend, due to economies of scale, size of a firm plays very important role in competing with competitors through the cost reduction and, take and hold more



opportunities. Further based on this concept the firm size is a factor in determining the firm's profitability and reveals a positive association between size and firm's profitability by several experts. Akinyomi and Olagunj(2013) states as "Firm size has been recognized as an essential variable in explaining organizational profitability and a number of studies have tried to explore the effect of firm size on profitability". Doğan (2013) also supportively said to this as big firms have the opportunity to have more profit since they have a bigger market share. So based on these situations, the big size firms work in more profitable with less competition.

In corporate finance Empirical researchers also consider firm size an important and fundamental firm characteristic, and, observe the "size effect" - firm size matters in determining the dependent variables in many situations. In capital structure example, Rajan and Zingales (1995) show that leverage and firm size have positive relationship; Frank and Goyal (2003) found that pecking order is only in large firms.

In this way firm can optimize its capability through understanding the determinant factors of its performance and finding the relationship between Firm size and profitability is valuable to the industry.

At the same time the existing empirical studies provide the mixed results evidence for the relationship between firm size and profitability. Some of the authors found that firm size have a positive relationship with profitability (Shubita and Alsawalhah, 2012; Akbas and Karaduman, 2012; Doğan, 2013 and Akinyomi and Olagunj, 2013) whereas in contrast, some other researchers have found a negative influence of firm size on profitability (Becker-Blease et al., 2010 and Banchuenvijit, 2012), more than above, some other researchers have found an insignificant influence of firm size on profitability (Durand and Coeuderoy, 2001; Tzelepis and Skuras, 2004 and Khatab et al., 2011).

The above arguments explore, influence of firm size on profitability is hazy and continuing debate on this topic and, still whether size led to market power and economic rents is questionable. So further empirical studies are vital and also studies on theses firm size issues have not much more consideration in Sri Lanka. Hence the main motivation of this study arises from the questions of Does firm size have effect on its profit? And this study hopes to answers this question as well as gives a further understanding to this topic.



## **2. STUDY OBJECTIVE**

The key objective of this study is to examine the influence of firm size on profitability in listed firms of Sri Lankan Diversified holdings sector.

## **3. LITERATURE REVIEW**

The effect of firm size on its profitability has been examined by several studies since the famous study of “effect of size and growth” conducted by Gupta (1969). Size has been found to be a vital factor in determining profitability through the capital structure decision. After that, size was included as one of the firm’s specific factor by many scholars in their studies. In the Literature most of the scholars found that a positive relationship between firm size and firm’s profitability (Doğan, 2013). As well as theoretically also firm size explores positive relationship with profitability according to the economies of scale. Bankruptcy costs decrease when firm size increases. Firm size should be positively related to borrowing capacity, because potential bankruptcy costs make up as smaller part of value for larger firms than smaller firms. In addition to that, larger firms enjoying economies of scale in transactions costs allied with long-term debt that is not available to smaller size firms.

Onaolapo and Kajola (2010) performed a “capital structure and firm performance” research and they examined the impact of capital structure on firm's financial performance using thirty non- financial firms which are listed at the Nigerian Stock Exchange for the seven- year period from 2001 to 2007 as sample. In this study they assessed the relationship between firm size, age and performance. Their findings explore that there is a significant relationship between firm size and firm financial performance.

Asimakopoulos et al. (2009) explored that the large firms, measured in term of total sales, are more profitable compare to small firms. Due to the economies of scale the large firms enjoying more profit and take advantages on negotiating the price of inputs and quantity of output. Another study by Lee (2009) also states that advantage of economies of scale by supporting its finding of the larger total assets provides the higher profitability. Some other recent studies also provides positive relationship evidences such as Shubita and Alsawalhah (2012) studied 39 listed Jordanian industrial companies’ data to examine the effect of capital structure on profitability with size as a control variable during a six-year period (2004-2009) in Jordan. That study results also revealed that profitability increases along with the control variables of size and sales growth.



Akbas and Karaduman (2012) studied the affect of firm size on profitability on the firms operating in manufacturing sector, listed in Islamabad stock exchange (ISE), Pakistan for the period from 2005 to2011. Results of this study revealed that firm size has a positive effect on profitability. Like that, Doğan (2013) also examined the relation between firm size and firm's profitability in Turkey between the years 2008-2011 and summarized that there was a positive relation between size indicators (total assets, total sales and number of employees) and profitability of the firms in all three models. In other words it can be said that, the firms listed in Turkey have higher profitability as their size expands.

Ghafoorifard et al. (2014) study intended to assess the relationship of firm size and age with financial performance in Listed Companies on Tehran Stock Exchange, Iran and the conclusion was drawn as there is a significant positive relationship between firm size and its financial performance. Further this study stated as findings of this study are consistent with findings of Akbas and Karaduman (2012), Kipesha (2013) and Ehi-Oshio, Adeyemi and Enofe (2013).

Whereas there is some contradictory results also can be found such as Becker-Blease et al. (2010) and Banchuenvijit (2012) studies. Becker-Blease et al. (2010) examined the relationship between firm size and profitability within 109 Standard Industrial Classification (SIC) four-digit U.S manufacturing industries. This study found that the relation between size and profitability is industry specific, but, regardless of the shape of the size profitability function, further they found that profitability is negatively correlated with the number of employees for firms of a given size measured in terms of total assets and sales. Banchuenvijit (2012) study used two types of firm size in term of total sales and in term of total assets, and some other explanatory variables to examine the influence on three types of profitability measures of return on assets (ROA), return on sales (ROS) and return on equity (ROE) in listed companies of Vietnam. The result found the firm size in term of total assets is negatively related to ROA.

Beyond this positive and negative relationship some of the scholars found insignificant influence of firm size on profitability. In this way, Tzelepis and Skuras (2004) examined that the effect of capital subsidization on four dimensions of the financial performance of firms, that is efficiency, profitability, capital structure, and growth with the firm's specific factor of firm size. Study provides evidence that insignificant effect of firm size on firm's performance.



One of the Pakistan study Khatab et al. (2011) investigated the relationship between corporate governance and performance of twenty firms listed at Karachi Stock Exchange. Performance of the firm is measured by two measures of return on assets (ROA) and return on equity (ROE). And result reveals size of the firm's relationship in all the three models is remained insignificant.

Consequently when we considering these above contradictory findings regarding influence of firm's size on firm's profitability still it is ambiguity and empirical investigation is needed.

#### **4. METHODOLOGY**

##### ***Sample and Data***

This study used its source of data as financial statements, which published in the annual report of the listed companies at Colombo Stock Exchange (CSE), Sri Lanka. Mainly the data were taken from the financial statements over 5 years from 2008 to 2012. This study only considered the firms that are listed in CSE since 2007. According to the CSE records 11 firms were listed under the Diversified holdings sector since 2007 thus, 11 firms' data were taken as a balanced panel.

##### ***Variables***

Firm size is the key independent variable of this study and Logarithm of total sales has been used as firm size measure. Return on assets measured with net profit divided by total assets as dependent variable. Further two more independent variables; total debt and firm's growth are also used in this study. Total debt ratio measured with total debt divided by total assets and growth measured with change in total assets. Many scholars such as Khatab et al. (2011) and Saliha and Abdessatar (2011) have used these proxies as their studies' variable measure previously.

##### ***Model***

The fundamental advantage of a panel data set over a cross section is that it will allow the researcher great flexibility in modeling differences in behavior across individuals (Greene, 2003). The pooled OLS model performs under the hypothesis of "there are no groups or individual effects among the included sample data". So, this study also decided to perform the pooled model. And the description of estimation models can be written as follows;

$$ROA_{it} = \beta_{0i} + \beta_1 SIZE_{it} + \beta_2 TDR_{it} + \beta_3 GROW_{it} + \varepsilon_{it}$$



Where;

$ROA_{it}$  – return on asset of firm  $i$  at time  $t$ .

$\beta_0i$ - intercept of firm  $i$ .

$\beta_1$  to  $\beta_3$  – coefficients of concerned explanatory variable.

$SIZE_{it}$  – firm size of firm  $i$  at time  $t$ .

$TDR_{it}$  - dept ratios of firm  $i$  at time  $t$ .

$GROW_{it}$  – firm's growth of firm  $i$  at time  $t$ .

$\varepsilon_{it}$ - error term of firm  $i$  at time  $t$ .

### **Analysis**

Analysis was carried out in two methods of descriptive statistics method and inferential statistics method. Mainly data were collected from the annual reports by the primary survey, then sorted and analyzed by using a computerized data analysis package known as Stata12. Tables were used for purposes of presenting and analyzing the findings of the study. Pearson correlation and regressions were used to measure the relationships and strength between the studied variables.

## **5. RESULTS**

Table 1 explains the descriptive statistics of both, dependent and independent variables used in the study. This critical statistics examination of the dependent and independent variables reveals a number of issues. Here the return on asset (ROA) is used for performance measure, which varies from negative 4.16% to positive 13.61% with average ratio of 6.17%. So, the difference in return on assets ranged from profitability of 13.61% (maximum value) to a loss of 4.16% (minimum value) for the diversified holdings firms. This explores a great disparity among the firms in their profitability of the diversified holdings firms.

The average value of the diversified holdings firm's size is 727.82% with the range from 604.02% to 793.22% whereas the average growth rate of diversified holdings firms is 1606.7% with the range from negative 3363.76% to 9867.63% for the diversified holdings firms tested, and this explores a great disparity among the diversified holdings firms in their size and growth rate.

When considering the measure of total debt ratio (TDR), which indicates an average ratio of 51%. This says that amount of about 51 percent of total assets values financed by total debt at the Sri Lankan diversified holdings firms listed in CSE.



Additionally this result explores that the most volatile variable among the examined variables is growth with a standard deviation of 20.26766 followed by firm size with 0.4666577, while the least volatile (most stable) variable is ROA with a standard deviation of 0.0354409 and followed by total debt ratio with 0.1774795.

**Table 1: Descriptive statistics of the dependent and independent variables**

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
ROA	55	.061711	.0354409	-.0416225	.1361048
SIZE	55	7.278232	.4666577	6.040293	7.932257
TDR	55	.5100318	.1774795	.1572525	.9561036
GROW	55	16.06703	20.26766	-33.63764	98.67637

**Note:** ROA = the return on assets (net profit/ total assets); SIZE = logarithm of sales. TDR = total debt divided by total assets; GROW = change in total assets.

**Source:** Results obtained from the data analysis using the statistical software package of Stata12.

### Correlation Matrix

For the purpose of examining the existing correlation among the variables, the correlation matrix of the dependent and independent variables are tested and presented in Table 2. The results disclose that ROA positively correlated with firm size and growth rate 38.67% and 36.36% respectively, while correlated with total dept ratio is 44.3% negatively. The firm size 26.94% positively correlated with growth rate but 20.53% negative correlation with total debt ratio, while total debt ratio has a weak negative relationship with growth (-2.86%).

Hence these outputs disclose that firm size and growth rate have a positive relationship with accounting performance measure of ROA whereas total debt have negative influence with ROA of diversified holdings sector firms in Sri Lanka.

**Table 2: Correlation Matrix of the Variables**

	ROA	SIZE	TDR	GROW	VIF
ROA	1.0000				
SIZE	0.3867	1.0000			1.13
TDR	-0.4430	-0.2053	1.0000		1.04
GROW	0.3636	0.2694	-0.0286	1.0000	1.08

**Note:** ROA = the return on assets (net profit/ total assets); SIZE = logarithm of sales. TDR = total debt divided by total assets; GROW = change in total assets; VIF = Variance Inflation Factor.

**Source:** Results obtained from the data analysis using the statistical software package of Stata12.

Before we are doing the regression analysis, the statistical problem of multicollinearity issue should be considered among the independent variables. Therefore find out appropriateness of the regression model, the previous defined explanatory variables were examined.





Variance inflation factor (VIF) was used to diagnostic of multicollinearity issues among the explanatory variables (Gujarati, 2003). VIF measures express that none of the VIF value indicates above 1.13 (cutoff value is 10); that shows multicollinearity problem does not exist among the explanatory variables used in this study.

According to the above methodology, regression analysis was performed. The following Table 3 reveals output of those estimations. Furthermore model consisting firm size, total debt ratio and growth rate given to be significant at 1% level of confidence as altogether.

**Table 3: Effect of independent variables on the dependent variable of ROA**

Variables	Coefficient	SE	t	Prob.>   t /
SIZE	.0173695	.0089843	1.93	0.049
TDR	-.0774222	.0227591	-3.40	0.001
GROW	.0005087	.0002025	2.51	0.015
Constant	-.0333936	.0680541	-0.49	0.626

**Note:**  $R^2 = 0.3660$ ; Adjusted  $R^2 = 0.3287$ ;  $F(3, 51) = 9.81$ ;  $\text{Prob} > F = 0.0000$

ROA = the return on assets (net profit/ total assets); SIZE = logarithm of sales; TDR = total debt divided by total assets; GROW = change in total assets

**Source:** Results obtained from the data analysis using the statistical software package of Stata12.

## 6. DISCUSSION

The firm size effect on profitability is the key objective of this study. For this purpose present study used data of 11 companies which were active in diversified holdings sector of CSE for the five years period from year 2008. In addition to that, total debt ratio and firm growth rate were considered as independent variable with dependent variable of ROA.

Based on the experimental results when we see the variables as individually, firm size has a significant positive influence on profitability. This positive influence expresses that firms have increasing profitability prefer to increase their firm size in diversified holdings sector of Sri Lankan firms. In other words, it can be said as the diversified holdings sector firms listed in CSE have higher profitability as their size expands. This positive relationship of firm size on profitability is consistent with many developing and developed countries recent past studies such as Akbas and Karaduman (2012), Doğan (2013) and Ghafoorifard et al. (2014).

This situation may be due to the scale of economies effect, because of that big firms are able to be more effective than smaller firms. Or may be decreased Bankruptcy costs, because firm size should be positively related to borrowing capacity by the way of potential bankruptcy costs become as smaller part of value for larger firms than smaller firms. In





addition to this, larger firms can enjoy economies of scale in the transactions costs allied with long-term debt too, which is not available to smaller firms. So the above arguments are conformed that, this study finding along with the phenomenon of economies of scale.

At the same time, other independent variable of total debt ratio has 7.74 % significant negative relation with firm's profitability. In a manner corresponding to the pecking order theory profitable firms might have lower leverage than unprofitable firms may be financial distress cost for debt might decrease the efficiency of operations, or present debt may be signal information for expected future operating profitability. This issue suggests that further analysis of a capable area for the future study. However, based on the results of this study, the relationship is negative between total debt and profitability. Further these above two independent variables, this study examined growth rate also as third independent variable but it has a too weak negative relation with profitability but that is also significant at 1% level.

## **7. CONCLUSIONS**

Throughout this present study, it is interested to explore the influence of firm size on profitability of listed Sri Lankan diversified holdings sector firms. In other words, this research paper tried to expand the literature on the topic of the influence of firm size on profitability. Lack of Sri Lankan firms' studies on this topic and benifites of finding the relationship between firm sizes on profitability of listed companies' concentration have motivated this research study. To achieve this task, we empirically examined the influence of firm size on profitability by using the econometric methods on a balanced panel of 11 listed Sri Lankan companies of diversified holdings sector observed for five years from 2008.

Findings of this study indicate that firm size is positively related to return on assets as profitability measure. There are several experiential agreements and disagreements were observed among the scholars regarding this study topic. This study has placed some keystone by surveying the influence of firm size on profitability leading which a more thorough assessment of Sri Lankan diversified holdings sector firm size might be a based.

Our study used the data obtained from year 2008 to year 2012 period only the firms listed in CSE operating under the diversified holdings sector have been included, these factors may be as barriers to generalize this finding to other sector firms or unlisted firms. So, these can



be seen the limitations of this study. Furthermore this study proposes that, future research should examine generalizations of the findings beyond the diversified holdings firms.

## 8. RECOMMENDATIONS

Future studies could examine effects on the relationship between firm size and profitability to other sectors which are listed in CSE. Also, an assessment could be made with firms of other developing countries which have similar economic environment with Sri Lanka.

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