Does firm size influence on firm’s Profitability? Evidence from listed firms of Sri Lankan Hotels and Travels sector

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Abstract
The aim of this research study is to examine the influence of firm’s size on firm’s profitability in listed firms of Sri Lankan hotels and travels sector firms. For this purposes, this study performed fixed and random effect econometric estimation models and used the data for the time period from 2008 to 2012.

The study results indicate that between the two econometric estimation models, Hausman specification test recommended the estimation of the fixed effects model. According to the fixed effect model result firm’s size is positively related to profitability measure of return on assets. Further this study reveals those total debt ratio has a negative relationship with firm’s profitability.

This research explores the influence of firm’s size on firm’s profitability in listed firms of Sri Lankan hotels and travels sector firms and laid some contribution to the existing literature as Sri Lankan firms’ context. Moreover that observed findings could assist the corporate sector management as well as policy makers to take appropriate decisions in their fields.

Based on the knowledge of authors, this is the first study that reveals the influence of firm’s size on firm’s profitability in listed firms of Sri Lankan hotels and travels sector firms. Moreover, influence of firm’s size on firm’s profitability is misty; hence this study continues that search by the help of Sri Lankan hotels and travels sector firm’s data.

Keywords: Firm’s size; Firm’s profitability; Sri Lanka

1. Introduction
Generally the firm’s size, profitability, and survival differ from firm to firm in the market economy. The question is what are the factors determining that observed variations, and how do they operate? and it has been active research topic of industrial economics theory (Luttmer, 2010).

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 current world’s trend, due to the phenomenon of economies of scale, size of a firm plays vital role in competing with competitors through the cost reduction and, take and hold more opportunities. Further based on this concept the firm’s size is a factor in determining the firm’s profitability and reveals a positive association between size and firm’s profitability. Doğan (2013) also supportive to this concept 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 little competition is expected.

The firm’s performance has vital role in running businesses and, measuring performance helps to identify firms’ position in a given time. Firm can optimize its capability through understanding the determinant factors of its performance. In this way finding the relationship between Firm’s 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’s size and firm’s profitability. Some of the authors found that firm’s size have a positive relationship with firm’s profitability (Gleason et al., 2000; Zeitun and Tian, 2007; Salihia and Abdessatar, 2011; Shubitah and Alsawalhah, 2012; Akbas and Karaduman, 2012 and Doğan, 2013) whereas in contrast, some other researchers have found a negative influence of firm’s size on firm’s profitability (Becker-Blease et al., 2010 and Banchuenvijit, 2012), more than above, some other researchers have found an insignificant influence of firm’s size on firm’s profitability (Mudambi and Nicosia, 1998; Lauterbach and Vaninsky, 1999; Durand and Coeuderoy, 2001; Tzelepis and Skuras, 2004 and Khatab et al., 2011).

Based on the above arguments, influence of firm’s size on firm’s profitability is misty and continuing debate on this issue and, still whether size led to market power and economic rents is questionable. So further empirical studies are necessary and also studies on theses firm’s 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 influence on its profitability? and this study hopes to answers this question as well as gives a further understanding to this topic.
The following part of this paper is structured as objective of the study, review of literature and followed by methodology, results and discussions, and finally Conclusions of this study.

2. Objective of the study

Inconsistent nature of past studies as we discussed, the key objective of this present study is to examine the influence of firm’s size on firm’s profitability in listed firms of Sri Lankan hotels and travels sector.

3. Review of literature

The effect of firm’s size on firm’s 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 firm’s 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’s size and firm’s profitability (Doğan, 2013). As well as theoretically also firm’s size explores positive relationship with firm’s profitability according to the economies of scale. Bankruptcy costs decrease when firm’s size increases. Firm’s 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 firms.

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’s 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. Furth 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’s size on firm’s 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’s size. Study provides evidence that insignificant effect of firm’s size on firm’s performance. One of the Pakistan study Khatab et al. (2011) investigated the relationship between corporate governance and firm’s 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

Data

This study mainly used its source of data as financial statements, which published in the annual report of the
listed companies at CSE, Sri Lanka. Mainly the data from balance sheets and income statements were taken over
5 years from 2008 to 2012. The purpose of getting 5 years period of data as balanced panel data set, our study
only considered the firms that are listed in CSE since 2007. According to the CSE records 30 firms were listed
under the hotels and travels sector since 2007 thus, 30 firms’ data were taken as a balanced panel.

Variable measures

The dependent variable of return on assets measured with net profit divided by total assets. The key independent
variable of this study is firm’s size. Logarithm of total sales has been used as firm’s size measure.

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.

Model

The estimation of the pooled OLS model performs under the hypothesis of “there are no groups or individual
effects among the included sample data”. While the pattern of panel data enclosed the observations for the same
cross-sectional units over time series (several time periods), so there might be cross-sectional effects on each
firm or might be on a set of group of firms. To deal with such problem, there are several techniques are existing
in practice, even though, the panel econometric techniques of the fixed and the random effects models are widely
used as important models to avoid such problems. The fixed effects model estimates as “the individuality of each
firm or cross-sectional unit included in the sample by letting the intercept vary for each firm but still assumes
that the slope coefficients are constant across firms”. While, the random effects model takes as “the coefficients
under the assumption that the individual or group effects are uncorrelated with other explanatory variables and
can be formulated”.

When it believes as some of the omitted variables might be fixed over the time however vary among panels, at
the same time some of others might be constant among panels but fluctuate over time. In these situations random
effects model regression can be applied.

Based on these arguments this study decided to perform fixed and random effect models only and avoided the
pooled model because of the nature of panel data as stated above. Furthermore this study performed Hausman
(1978) specification test to select the suitable model from fixed and random effect models for the best
interpretation of our estimation. And the description of two econometric estimation models can be written as follows;

\[
\text{ROA}_{it} = \beta_0 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{TDR}_{it} + \beta_3 \text{GROW}_{it} + \mu_i + \mu_t
\]

Where;

\begin{align*}
\text{ROA}_{it} & \quad \text{return on asset of firm i at time t} \\
\beta_0 & \quad \text{intercept} \\
\beta_1 \text{ to } \beta_3 & \quad \text{coefficients of concerned explanatory variable.} \\
\mu_i & \quad \text{intercept of firm i.} \\
\text{SIZE}_{it} & \quad \text{firm’s size of firm i at time t} \\
\text{TDR}_{it} & \quad \text{dept ratios of firm i at time t} \\
\text{GROW}_{it} & \quad \text{firm’s growth of firm i at time t} \\
\mu_t & \quad \text{random error term of firm i at time t} \\
\epsilon_i & \quad \text{error component of firm i.}
\end{align*}
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 and discussions

Results

Table 1 explains the summary statistics of the dependent and independent variables used in the study. This critical descriptive statistics examination of the dependent and independent variables discloses several issues. The return on asset (ROA) is used as performance measure, which varies from negative 49.75% to positive 39.28% with average ratio of 1.63%. The difference in return on assets ranged from profitability of 39.28% (maximum value) to a loss of 49.75% (minimum value) for the firms. This explores a great disparity among the firms in their profitability.

The average value of the firm’s size is 537.62% with the rage from 0 to 697.04 % whereas the average firm’s growth rate is 2598.4% with the rage from negative 3234.24% to 93644.75% for the firms tested, and this explores a great disparity among the firms in their size and growth rate.

When considering the measure of leverage, which states an average ratio of 40.80%. This means that amount of about 40 percent of total assets values financed by total liabilities at the Sri Lankan hotels and travels sector firms.

Furthermore this result explores that the most volatile variable among the examined variables is growth with a S.D of 92.31774 followed by firm’s size with 1.173878, whereas the least volatile (most stable) variable is ROA with a S.D of .1104419 and followed by total debt ratio with .762736.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>150</td>
<td>0.0163754</td>
<td>.1104419</td>
<td>-0.4975591</td>
<td>0.3928262</td>
</tr>
<tr>
<td>SIZE</td>
<td>150</td>
<td>5.376297</td>
<td>1.173878</td>
<td>0</td>
<td>6.97042</td>
</tr>
<tr>
<td>TDR</td>
<td>150</td>
<td>0.4080045</td>
<td>0.762736</td>
<td>0.0074641</td>
<td>6.577187</td>
</tr>
<tr>
<td>GROW</td>
<td>150</td>
<td>25.984</td>
<td>92.31774</td>
<td>-32.34248</td>
<td>936.4475</td>
</tr>
</tbody>
</table>

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.

Correlation Matrix

The correlation matrix of the dependent and independent variables is presented in Table 2 below for the purpose of examining the existing correlation among the variables. The results reveal that ROA positively correlated with firm’s size as 34.72% whereas negatively correlated with total debt ratio and growth rate as 72.96% and 1.47% respectively. The firm’s size has a negative correlation with total debt ratio and growth rate as 49.78% and 9.68% respectively, but in case of total debt ratio it has a very weak negative relationship of 0.98% with growth rate.

Hence these outputs reveal that firm’s size has a positive influence with accounting performance measure ROA whereas total debt and growth rate have negative influence with ROA of Sri Lankan hotels and travels sector firms.

<table>
<thead>
<tr>
<th>Variable</th>
<th>ROA</th>
<th>SIZE</th>
<th>TDR</th>
<th>GROW</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.3472</td>
<td>1.0000</td>
<td></td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>TDR</td>
<td>-0.7296</td>
<td>-0.4978</td>
<td>1.0000</td>
<td>1.34</td>
<td></td>
</tr>
<tr>
<td>GROW</td>
<td>-0.0147</td>
<td>-0.0968</td>
<td>-0.0098</td>
<td>1.0000</td>
<td>1.01</td>
</tr>
</tbody>
</table>

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.
Normally when we are doing the regression analysis, the statistical problem of multicollinearity issue should be considered among the independent variables. Hence prior to the regression analysis, the previous defined explanatory variables were examined for appropriateness of the regression model. As per the recommendation of Gujarati (2003) Variance inflation factor (VIF) was used to diagnostic of multicollinearity issues among the explanatory variables. VIF measures express that none of the VIF value indicates above 1.35 (cutoff value is 10); that shows multicollinearity problem does not exist among the explanatory variables used in this study.

As per stated above in the methodology, fixed and the random effects models were performed. The following Table 3 and Table 4 reveal output of those estimations. Furthermore both models consisting firm’s size, total debt ratio and growth rate given to be significant at 1% level of confidence as wholly.

As it is presented in Table 5, the Hausman chi-square statistic indicates as significant at 1% level. And the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator is rejected, because that is statistically significant. So difference in coefficients of the models are systematic, then it is better to use fixed effects model for the influence of firm’s size on the ROA with two other independent variables.

Table 3: Effect of independent variables on the ROA using the fixed effects model

| Variables | Coefficient | SE  | t     | Prob.>|t| |
|-----------|-------------|-----|-------|-------|
| SIZE      | .0770678    | .019158 | 4.02  | 0.000 |
| TDR       | -.1101564   | .011098 | -9.93 | 0.000 |
| GROW      | -.000023    | .000063 | -0.37 | 0.715 |
| Constant  | -.3524215   | .1032999 | -3.41 | 0.001 |

Note: R² = 0.7404; Adjusted R² = 0.6694; F (3, 117) = 40.86; 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.

Table 4: Effect of independent variables on the ROA using random effects model

| Variables | Coefficient | SE   | t     | Prob.>|t| |
|-----------|-------------|------|-------|-------|
| SIZE      | .0050081    | .0079568 | 0.63  | 0.529 |
| TDR       | -.1061565   | .0099606 | -10.66 | 0.000 |
| GROW      | -.000000884 | .000063 | -0.01  | 0.989 |
| Constant  | .0327855    | .045547 | 0.72  | 0.472 |

Note: R² = 0.5288; Wald chi² (3) = 140.96; Prob > chi² = 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.

Table 5: Hausman specification test for fixed and random effect test comparison

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed effects</th>
<th>Random effects</th>
<th>Difference</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>.0770678</td>
<td>.0050081</td>
<td>.0720597</td>
<td>.0174275</td>
</tr>
<tr>
<td>TDR</td>
<td>-.1101564</td>
<td>-.1061565</td>
<td>-.0039998</td>
<td>.0048942</td>
</tr>
<tr>
<td>GROW</td>
<td>-.000023</td>
<td>-.000000884</td>
<td>-.0000221</td>
<td>.</td>
</tr>
</tbody>
</table>

Note: chi²(3)= 14.13; Prob>chi² = 0.0027
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.

Discussion

Examining the influence of firm’s size on profitability is the key objective of this study. In this purpose this study used data of 30 companies which were active in Colombo stock exchange (CSE) for the period from year 2008 to 2012. Further, Firm’s size, total debt ratio and firm’s growth rate were considered as independent variable with dependent variable ROA. Between the two econometric estimation models, Hausman specification test recommended the estimation of the fixed effects model by the result of rejected its’ null hypothesis.

Based on the experimental results when we see the variables as individually, firm’s size has a significant positive influence on profitability in the fixed effect model. This positive influence expresses that firms have increasing profitability prefer to increase their firm’s size in hotels and travels sector of Sri Lankan firms. In other words, it can be said as the hotels and travels sector firms listed in Colombo stock exchange have higher profitability as
their size expands. This positive relationship of firm’s size on profitability is consistent with many recent developing and developed country studies also such as Shubita and Alsawalhah (2012), Akbas and Karaduman (2012), Doğan (2013), Kipesha (2013), Ehi-Oshio, Adeyemi and Enofe (2013) and Ghafoorifard et al. (2014).

This situation may be due to the fact that big firms are able to be more effective than smaller firms while they make use of the scale economies. Or may be decreased Bankruptcy costs, because firm’s 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 times this study result is inconsistent from the findings of the studies of Tzelepis and Skuras (2004), Becker-Blease et al. (2010), Khatab et al. (2011) and Banchuenvijit (2012).

And other independent variable of total debt ratio has 11.05 % significant negative relation with firm’s profitability. According to the pecking order theory profitable firms might have lower leverage than unprofitable firms because of 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 two independent variables, this study examined growth rate as third independent variable but it has a too weak negative relation with profitability but that is insignificant at 5% level.

6. Conclusions

During this empirical study, it is interested to explore the influence of firm’s size on firm’s profitability of listed Sri Lankan hotels and travels sector firms. In other words, this research paper tried to expand the literature on the topic of the influence of firm’s size on firm’s profitability. Lack of Sri Lankan firms’ studies on this topic and benifites of finding the relationship between firm’s sizes on firm’s profitability of listed companies’ concentration have motivated this research study. To achieve this task, we empirically examined the influence of firm’s size on firm’s profitability by using the panel econometric techniques methods on a balanced panel of 30 listed Sri Lankan companies of hotels and travels sector observed in the period from 2008 to 2012.

The study results indicate that firm’s size is positively related to profitability measure of return on assets. There are several empirical agreements and disagreements were observed among the researchers regarding this research study topic. Further this study reveals those total debt ratio has a negative relationship with firm’s profitability.

In gist, this study has placed some keystone by surveying the influence of firm’s size on profitability leading which a more thorough assessment of Sri Lankan hotels and travels sector firms’ size could be based.

This study used the data period from year 2008 to year 2012 and only the firms listed in CSE operating under the hotels and travels sector have been included, these factors may be as barriers to generalize this finding to other sector listed firms or unlisted firms. So, these can be seen as the limitations of this study. Furthermore this study proposes that, future research should examine generalizations of the findings beyond the hotels and travels sector firms.

Reference:


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