

# The Cause-Effect Relationship between Growth and Profitability: Evidence from Listed Manufacturing Companies in Sri Lanka

Sanjaya R.A.A<sup>a\*</sup>, Jayasiri N.K.<sup>b</sup>

*<sup>a</sup>Graduate, Department of Finance and Accountancy, Faculty of Business Studies, Vavuniya Campus of the University of Jaffna, Sri Lanka*

*<sup>b</sup>Lecturer, Department of Accounting, Faculty of Management and Finance, University of Colombo, Sri Lanka*

\*amal.sanjaya@gmail.com

## Introduction

Organizations have different mission and objectives which predominantly can be observed in their strategies. Some of the major aims are size, growth and profitability. There is a long debate that which factor either size or growth becomes the major source of the increase in profitability. Lots of researches have been done to conclude this debate. As far as growth is concerned it is a very critical factor for the success of the business, moreover, it also becomes the source of evolution and development of a country's economy (Asimakopoulos, Samitas and Papadogonas, 2009).

The relationship between growth and profitability is needed to be identified by considering the industry factors, Economic conditions and competition because those factors have great influence on growth and profitability. Growth and profitability are closely related to the firm size, which is an important indicator of both of them. Companies need to create a balance between growth and profitability in order to work efficiently and also for the progress of the stakeholders. The study intends to find out: Is there any relationship between growth and profitability? There is a lack of studies have been conducted to find the real agreement on how the growth is related to firm profitability. Then the researcher going to finds out those relationships through this research while filling of this research gap. The major objectives of this study are, empirically test the relationship between firm's growth and profitability, as measured by ROA and Net profit, find out the effect of Sales growth on the ROA and Net profit and examine the effect of Assets growth on the ROA and Net profit.

The objective of the study is related to the relationship between growth and profitability is needed to be identified for measure the effect on each other of variables of this study, such as the relationship between growth and profitability as measured by return on assets from assets growth and net profit from sales

growth. Other than that industry factors, economic conditions and competition have a great influence on growth and profitability.

This research raises the research questions of, is the Sales growth effect to firm's Profitability? And is the Assets growth effect to firm's Profitability? Those questions oriented to find out the relationship between growth and profitability.

## **Literature Review**

The study on the small and medium size Australian firms defined that growth rates are highly volatile over time and the relationship with profitability is not always clear, one aim of this study was to determine if firms intentionally traded off profits for growth or whether there was evidence of growth enabling profits. The research utilizes data from the Business Longitudinal Survey by the Australian Bureau of statistics over the period of 1994-95 through to 1997-98. Using a regression equation with lagged profit and growth variables, they found no evidence of a relationship between growth and profitability, for those study researchers used 2330 numbers of Australian small and medium firms as a large sample (Fitzsimmons et al, 2005).

Another study of Velnampy and Nimalathan (2007) indicated that sales are positively associated with profitability ratios except for Return on equity, and numbers of depositors are negatively correlated to the profitability ratios except for Return on equity, likewise, a number of advances are also negatively correlated with the Return on investment and Return on average assets.

## **Methodology**

It is vital to present a framework for a research and also useful to get the idea behind this research. Through conceptualization, one may identify the relationship between variables that are taken into consideration. Based on the research hypotheses, growth as the independent variable, where the profitability as the dependent variable, sales growth and assets growth consider for determining the firm's growth and return on assets (ROA) and net profit has been taken to determine for firm's profitability. To illustrate the relationship between those, the following conceptual model was developed.

Frame for drawing sample included those manufacturing companies having at least five (5) years of annual reports at the website of Colombo Stock Exchange in Sri Lanka, therefore, it will be a random selection. Twenty (20) companies were selected with five (5) years data sample from 2009/10 to 2013/14 as balanced panel data sample. Here secondary data were used for the study and data were collected from annual reports as Quantitative methods approach

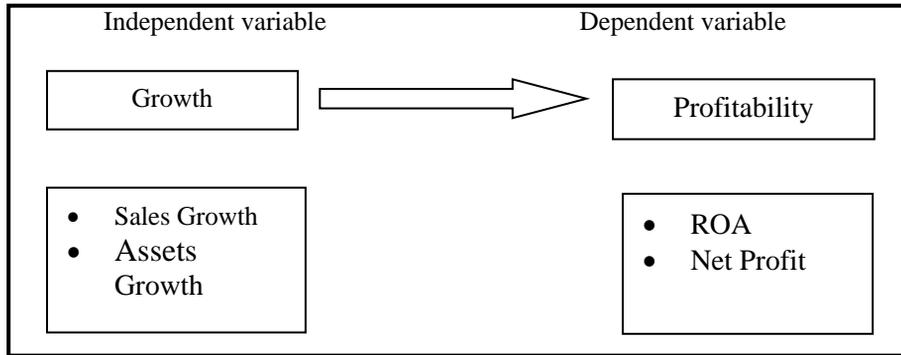


Fig. 1: Conceptual Framework

With quantitative data, the task of the test of research hypotheses can be done through the E-views Statistical Package. The method of Descriptive statistics with the Pearson Coefficient of Co-relation and Lag Regression was incorporated to analyze the data. The researcher has constructed Panel Regression model to study the effect of exploratory variables, if there is a serial correlation problem researcher will be used Lag Regression model to skips that serial correlation problem. The equation of Lag Regression model is;

$$\text{Model 1} \quad : \quad \text{NPR}_{it} = \beta_0 + (\beta_1 * \text{SGR}_{it}) + (\beta_2 * \text{AGR}_{it}) + \text{NPR}_{it-1} + e$$

$$\text{Model 2} \quad : \quad \text{ROA}_{it} = \beta_0 + (\beta_1 * \text{SGR}_{it}) + (\beta_2 * \text{AGR}_{it}) + \text{ROA}_{it-1} + e$$

The researcher formulates the following four hypotheses for this study.

**H<sub>1</sub>**: There is a significant relationship between Sales Growth and ROA.

**H<sub>2</sub>**: There is a significant relationship between Sales Growth and Net Profit.

**H<sub>3</sub>**: Assets Growth exhibit a significant relationship with ROA.

**H<sub>4</sub>**: Assets Growth exhibit a significant relationship with Net Profit.

## Results and Discussions

The researcher is using E-views statistical package for analyzing quantitative data of the present study to achieve the research objectives. E-views offer academic researchers, corporations, government agencies, and students access to powerful statistical, forecasting, and modelling tools through an innovative, easy-to-use object-oriented interface.

The minimum value of NPR, ROA, AGR and SGR is -112.56%, -0.24:1 of total average assets, -29.16% and -94.49% in respectively. The maximum value of NPR and ROA is 112.75% and 0.44:1 of total average assets with respect as well as the maximum value of AGR and SGR is 139.36% and 756.44% in respectively.

Mean of NPR become to 6.62% and mean of ROA become to 0.04:1 of total average assets, as a percentage it is 4% and it is not demonstrated remarkable financial performance, because normally financially sound companies show average ROA in between 15% - 20%. Mean of AGR and SGR is 10.81% and 17.24% respectively. The standard deviation of NPR, ROA, AGR and SGR is 24.04%, 0.09:1 of total average assets, 21.87% and 81.96% respectively.

Table 2: Lag Regression and Pearson Coefficient of Co-Relation Analysis

<b>Results of Panel Data – Lag Regression Analysis</b>				
<b>Description</b>	<b>Pooled Regression Model (With one period of Lag)</b>		<b>Random Effect Model (With one period of Lag)</b>	
<b>Dependent Variables</b>	<b>NPR</b>	<b>ROA</b>	<b>NPR</b>	<b>ROA</b>
Constant (C, $\beta_0$ )	4.255321* [1.84**],[0.070***]	0.022675 [2.15],[0.035]	4.255321 [2.05],[0.043]	0.022675 [2.24],[0.028]
SGR	-0.028506 [1.09],[0.278]	-0.000137 [1.28],[0.203]	-0.028506 [1.22],[0.227]	-0.000137 [1.34],[0.185]
AGR	0.198887 [2.09],[0.040]	0.000708 [1.70],[0.094]	0.198887 [2.33],[0.023]	0.000708 [1.77],[0.081]
R- squared ( $R^2$ )	0.206	0.234	-	-
Adjusted $R^2$	0.175	0.204	-	-
F statistics	6.585	7.729	-	-
Prob. (F-statistic)	0.001	0.000	-	-

\*Coefficient of Correlation, \*\*t-statistic, \*\*\*Significant value (Prob.)

Source: Data analysis results from e-views statistical package

The researcher found the figures of correlation ( $\beta$ ) and the probability of t-test (P value) from the Pooled Regression model and Random Effect Model under the Lag Method-Panel Regression model. According to the statistical analysis from E-views Statistical Package, table 2 can be abstracted for the present to research findings.

Table 2 shows the significant and coefficient statistic for two sub-methods of Pooled Regression and Random Effect models. According to the Pooled Regression model SGR shows -0.028506 of coefficient and 0.278 of P value on NPR, which shows SGR, is insignificant on NPR without correlation. Therefore, the researcher expressed that Sales Growth hasn't any significant relationship on Net Profit. In the same model SGR shows -0.000137 of the coefficient and 0.203 of P value on ROA, which shows SGR, is insignificant on ROA without correlation. Therefore, the researcher expressed that Sales Growth hasn't any significant relationship on ROA.

On the other hand, Pooled Regression model shows that AGR has 0.198887 of the coefficient and 0.040 of P value on NPR, which shows AGR is significant at 5% of significance level on NPR with weekly and positive correlation. Therefore, the researcher expressed that Assets Growth has a positive significant relationship on Net Profit. In the same model, AGR has 0.000708 of coefficient and 0.094 of P value on ROA, which shows AGR is significant at 10% of significance level on ROA with weekly and positive correlation. Therefore, researcher expressed that Assets Growth has positive and marginal significant relationship on ROA.

According to the Random Effect model of above table SGR shows -0.028506 of coefficient and 0.227 of P value on NPR, which shows SGR, is insignificant on NPR without correlation. Therefore, the researcher expressed that Sales Growth hasn't any significant relationship on Net Profit. In the same model, SGR shows -0.000137 of coefficient and 0.185 of P value on ROA, which shows SGR is insignificant on ROA without correlation. Therefore, the researcher expressed that Sales Growth hasn't any significant relationship on ROA.

On the other hand, Random Effect model shows that AGR has 0.198887 of coefficient and 0.023 of P value on NPR, which shows AGR is significant at 5% of significance level on NPR with weekly and positive correlation. Therefore, the researcher expressed that Assets Growth has a positive significant relationship on Net Profit. In the same model, AGR has 0.000708 of coefficient and 0.081 of P value on ROA, which shows AGR is significant at 10% of significance level on ROA with weekly and positive correlation. Therefore, the researcher expressed that Assets Growth has a positive significant relationship on ROA.

### **Lag Regression Model**

$$\text{Model 1: } \text{NPR}_{it} = \beta_0 + (\beta_1 * \text{SGR}_{it}) + (\beta_2 * \text{AGR}_{it}) + \text{NPR}_{it-1} + e$$

Above table shows statistical data for one dependent variable of NPR under the Lag model for Pooled Regression model, the researcher is using that statistical data for point out the model 1 of Lag regression. According to the table 2 value of the coefficient of determination factor ( $R^2$ ) is 0.206 at 5% of significance level. That result implied that 20.6% of the total variance in NPR could be explained by the independent variables, it is showing 20.6% of the independent variable (Growth) impact on the dependent variable (Measurement of NPR).

The value of  $R^2$  range normally at a percentage of 0 to 100 therefore according to  $R^2$  value of NPR remaining 79.4% of the variability was not explained, here  $R^2$  value is 20.6% normally that is lower than the 50%, therefore, there is an impact of an independent variable on a dependent variable which was significant at 5% level. Further, the probability of F statistics is 0.001 that was lower than 0.05, that means by the model was significant. Adjusted  $R^2$  value (0.175) is always a bit

lower than the  $R^2$  value (0.206) because it reflects the number of variables as it relates to data.

$$\text{Model 2: } ROA_{it} = \beta_0 + (\beta_1 * SGR_{it}) + (\beta_2 * AGR_{it}) + ROA_{it-1} + e$$

Above table shows statistical data for another dependent variable of ROA under the Lag model for Pooled Regression model, the researcher is using that statistical data for point out the model 2 of Lag regression. According to the table 2 value of the coefficient of determination factor ( $R^2$ ) is 0.234 at 10% of significance level. That result implied that 23.4% of the total variance in ROA could be explained by the independent variables, it is showing 23.4% of the independent variable (Growth) impact on the dependent variable (Measurement of ROA).

The value of  $R^2$  range normally at a percentage of 0 to 100 therefore according to  $R^2$  value of NPR remaining 76.6% of the variability was not explained, here  $R^2$  value is 23.4% normally that is lower than the 50%, therefore, there is an impact of an independent variable on a dependent variable which was significant at 10% level. Further, the probability of F statistics is 0.000 that was lower than 0.05, that means by the model was significant. Adjusted  $R^2$  value (0.204) is always a bit lower than the  $R^2$  value (0.234) because it reflects the number of variables as it relates to data.

Hypotheses testing shows, H1 and H2 are rejected by saying if there is no any relationship between Sales Growth and Profitability as measured by Net Profit and ROA, while that H3 and H4 are accepted at 10% and 5% of significance level respectively by saying of Assets Growth exhibits positive significant relationship with Profitability as measured by Net Profit and ROA.

## **Conclusion and Recommendations**

First research objective can be achieved when the Growth of firm measured by the Assets Growth because Assets Growth is indicated positive significant relationship on Profitability. Second research objective cannot be achieved, because Sales Growth hasn't indicated any effect on Profitability, but third research objective can be achieved when the Growth of firm measured by the Assets Growth because Assets Growth is indicated positive significant relationship on Profitability

According to the findings of the present study, both models of Pooled Regression and Random Effect models show that Sales Growth hasn't any significant relationship on Net Profit and Return on Assets, therefore one of the Growth measurements of Sales Growth did not show any relationship on Profitability as measured by Net Profit and Return on Assets. But, Assets Growth has a positive significant relationship on Net Profit and Return on Assets, therefore, another Growth measurement of Assets Growth show Positive significant relationship on

Profitability as measured by Net Profit and Return on Assets. Therefore, the researcher can say, Independent variable of firms' Growth is positively impacting on the dependent variable of firms' Profitability when the firms' Growth measured by the Assets Growth.

Manufacturing companies are one of the major parts of the economy of Sri Lanka, therefore the profitability of the manufacturing companies highly influence on the economic growth and gross domestic product (GDP). On the other hand, that manufacturing companies included exporting activities with their operations, therefore manufacturing companies of Sri Lanka positively impact on foreign exchange and growth of the economy. Then the researcher further suggests to, achieve the survival of those manufacturing companies and contribute to the economy of Sri Lanka by considering the growth of assets for profitability.

## **References**

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