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# Inter-Relationship between Profitability, Growth and Size: A Case of Non-Financial Companies from Pakistan

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**Abstract**

The purpose of this paper is to provide an in-depth description of the inter-relationship between firm size, growth, and profitability of non-financial companies listed at Karachi stock exchange. The study is based on the sample of 70 (seventy) non-financial companies listed at Karachi Stock Exchange of Pakistan, selected on the basis of their market capitalization. Panel data techniques were employed using 700 observations of each of the variables of study; size (log natural of total assets), growth (sustainable growth rate for firm) and profitability (return on assets). Observations are collected for ten years (2001-2010). The study concluded that there is study reveals that all the profitability has strong positive relationship with the growth of the firm; however size has less significant and negative impact on the profitability. One suggestion for further research would be to replicate the study in order to get more cases. Furthermore, it would be valuable to take a more long-term focus to examine the described relationships in the long run. The paper highlights the importance of these measures which are generally used for performance evaluation. Paper sets out the criteria that under which situations the company should focus which of the measure, so that company may derive its strategies on that way. This paper improves our preferences about the three major measures of the firm. Moreover, it contributes to the literature of financial management that how these three measures have trade-off between them.

**Keywords**: Profitability, Growth, Size, Pakistan.

## 1. 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 increase in profitability. Lots of researches have been done to conclude this debate.

As far as growth is concerned it is very critical factor for the success of the business, more over it also become the source of evolution and development of a country's economy (Asimakopoulos, Samitas and Papadogonas, 2009). According to Vijayakumar and Devi (2011) growth is considered an ongoing, orderly and organized process, and the profitability has a great influence on it.

Increase in growth requires a formal behavior of employees and the employer at the workplace, and this behavior takes a long time to achieve. It requires the elimination of informal relationship that also reduces the profitability of the firm. According to another point of view, employees are motivated to achieve growth for their future benefits associated with profitability and growth of the firm. The dedication of employees improves their performance resulting in higher growth and profitability (Serrasqueiro, 2009).

Growth is a gradual process and in the context of the firm, it can be defined as an increase in the sales of company, expansion of business through acquisition or merger, growth of the profits, product development, and diversification and also an increase in the number of employees of the firm. Current year sales minus prior year sales and the whole divided by prior year sales is used by many studies to measure the growth rate. This is also called growth in sales. Many studies have chosen sales growth because it is easy to calculate. Change in demand of product or service of the company also changes the sales of that company, and demand is the predictor of growth (Vijayakumar and Devi, 2011). The other measures of the growth can be the increase in asset, increase in the number of employees and increase in the branches of the organization. We have used sustainable growth rate (SGR) for this purpose because SGR tells us that how much growth a company can achieve without external financing in business. In other words, the growth achieved through internal sources of company is called sustainable growth rate.

Profitability is one of the main subjects of concern in this study. It can be defined as the earning of the firm or consistency of cash inflows of the firm. It is influenced by a number of factors such as firm size, exports of the firm, reliance on debt, age, fixed asset growth and sales growth. There are many methods to measure profitability such as return on assets (ROA), return on equity (ROE) and return on sales (ROS). We are using all of these three measures in our study. ROA is the measure of how well a company uses its assets to generate profit. ROS is earning of the firm from every rupee of the sale and shows a short-term performance of the company. ROE is the measure of the firm to earn a profit from the money invested by the shareholders. ROA and ROE give a long-term view of the performance of the firm (Vijayakumar and Devi, 2011).

Most of the studies showed disagreement on the measure of firm size. It can be measured through total assets, total sales, and employment or through total profits. We have chosen the log natural of total assets for that purpose which is mainly adopted by other researches as well.

Owing to these reasons, the relationship between growth and profitability is needed to be identified. The industry factors, economic conditions and competition have great

influence on growth and profitability. These two factors are also closely related to the firm size which is an important indicator of both, of them. Companies need to create balance between them to work efficiently and for the progress of the stakeholders.

The study intends to answer: Is there any relationship between firm growth, size and profitability? There is no general agreement on how the firm size and growth are related to firm profitability. The gap is found in past literature. Up till now there is no study in Pakistan that covered the gap. So we are going to fill that gap. The major objectives of the research are:

a) To empirically test the relationship between firm size and profitability.
b) To empirically test the relationship between firm growth and profitability.
c) To empirically test the relationship between firm size and the growth.

## 2. Literature Review

### *2.1 Early Theories of Profitability and Growth*

There are many theories on growth and profitability that show different perspectives of the relationship between them. Some of them are given below:

a. Persistence of Profit

This theory was presented by Mueller in 1977. According to him due to tough market competition among companies, the profit of the firm reaches up to an average value called certain value. This study reveals that there are no barriers for entry and exit so the profit of the company in the long run reaches an average value.

b. Growth of the Fitter

This theory was presented by Alchian in 1950. According to this theory, fitness is depicted by the firm profit, and the profitable firms grow and survive in the market while the other firms exit due to poor performance.

c. Theory of Financing Constraint

This theory states that the companies which generate profit and then retain it use that profit to avail good growth opportunities while the companies having no or low profits cannot avail good investment opportunities, so they do not grow rapidly; Jang and Park (2011).

d. Classical Recardian Hypothesis

The profitable companies avail growth opportunities and further exploit more opportunities either more or less profitable than previous growth options so generate more profits. This theory describes three things:

1. In the long run, profit rates reach to zero.
2. Growth is enhanced by high profits.
3. Profit is impeded by the increase in growth.

e. New Classical Theory

This theory states that most advantageous growth options are availed first by a firm and after that less advantageous options are exploited.

f. Agency Theory

When the managers have internal finance, they can invest it in less profitable projects or even in the projects of negative net present value due to their personal interest. So the profitability of the firm is declined (Soininen, Martikainen, Puumalainen and Kylaheiko, 2011).

g. Hypothesis of Growth Maximization

This hypothesis states that the managers choose the growth maximization as an objective of the firm and not the profit. So the competitive relationship exists between firm profit and firm growth (Marris, 1964; Mueller, 1972).

h. Kaldor-Verdoorn Law

According to this law, the productivity of a firm can be increased by enhancing the firm growth and when productivity is increased, the sale also increases thus increasing the profit of the organization (Kaldor, 1966).

*2.2 Relationship between the Profitability and Growth*

Growth and profitability both are of great concern for the organization but there is still no generalized relationship between them. Lot of research has been conducted to find that relationship but there is no mutual agreement among all of them. Different studies showed the different results, some of them are given here. Jang and Park (2011) worked to find out relationship between firm profitability and growth. They argued that increasing profit also increases growth, but the profitability is impeded by an increase in growth. The other researchers argue that profit of the firm has a positive effect on the growth (Goddard et al. 2004; Coad 2007, 2009). Bottazzi et al. (2001) used productivity as a measure of profit rate and argued that profit is not related to growth. Chandler and Jansen (1992), Mendelson (2000) and Cowling (2004) used increase in sales as the growth predictive and found that profit and sales growth are positively correlated to each other. According to Markman and Gartner (2002) there is no relationship between growth and profitability. Reid (1995) found that profitability is negatively affected by growth. Greiner (1972) said that the relationship could be positive or negative between the profitability and growth of the company. Lieberman and Mongomery (1988) viewed that the firms moving first in the market capture the large market share and create long lived competitive advantage, and due to this companies grow and earn the profit.

Hoy (1992) reported that firm profitability is negatively correlated with the increase in growth. Fitzsimmons, Stephen and Douglas (2005) referred Sexton et al. (2000) as when a company grows at a constant rate, which is also called sustainable growth rate, and then the growth is correlated to the profit of the firm. Marris (1967) was also in favor of achieving maximum sustainable growth. According to Macmillan and Day (1987) when firms work on a large-scale and rapidly enter into the market then these firms realize high profits due to the high and rapid growth of the business. Greiner (1972) said that there can be positive or negative relationship between the profitability and growth depending on the management behavior. He reported that when managers motivate employees, they perform better and then companies grow and earn profitability. Bartel (1995) stated that job performance is improved by increase in productivity, and productivity can be increased by the proper training of employees. This increase in job performance also enhances profitability of the firm. Roper (1999) and Gschwandtner (2005) found no relationship between these two terms. Serrasqueiro (2009) worked on the Portuguese companies and found a positive relationship between profitability and growth.

The small firms usually rely on internal finance for the expansion of their business and avoid the external financing. This creates a positive relationship between growth and profitability. When organizations do no diversify and reduce margins to earn the profit from existing market then growth achieved may has a negative relationship with profitability (Glancy, 1998).

Statistical properties of growth and profit are totally changed from each other. The consistency is found in profit rates, and they show positive correlation (Mueller, 1977; Dosi, 2005). Random walk is followed by the growth rates (Geroski, 2000). According to Geroski and Mazzucato (2002) the profit and the growth are in harmony with each other. According to Penrose (1959) profit rates experience reduction due to the increase in growth.

Chandler (1996) studied that growth of the firms vary with the time. The sales growth of one year cannot truly show the position of the firm. Delmar et al., (2003) argued that growth patterns at different time spans cannot be predicted by the mean growth. The studies often use sales growth as the measure of the firm growth and these want a high growth rate to show a better performance (Fitzsimmons et al., 2005). The high growth does not always mean that company is performing well. Similarly the low growth also does not mean that the company is performing poorly (Chandler and Baucus, 1996).

*2.3 Relationship between Size and Profitability*

Size is an important determinant of profitability. There are a few studies that discussed this relationship. Papadogonas (2005) stated that size is positively related to the profitability. McConnell (1946) and Alexander (1949) could not find any relationship between firm size and average rate of return. According to Glancey (1998) when larger firms take advantage of the scale economies then a positive relationship is expected between profitability and size of the firm. When owners of a firm struggle to gain profit for expending business or increasing their personal income, then organizations become large. When the management of small firms is interested in non-monitory returns then the firms gain low profitability. There can be a positive relationship of firm size and profitability but at a specific threshold size, it may become negative (Amato and Wilder, 1985).

*2.4 Relationship between Size and Growth of the Firm*

Firm size and the growth relationship are studied by many researchers and the work of some of them is given here. Gibrat in 1931 worked on the relationship of firm size and growth. His findings are known as Law of Proportionate Effect (LPE). According to this law, size and growth are not dependent on each other. When the size and growth are independent and unrelated then firm growth increases or decreases arbitrarily and there is unlimited variance of firm size. This law also foretells that past growth does not depict future growth of the firm. Many researches were conducted to check LPE and past studies verified the law (Hart and Paris, 1956; Simon and Bonini, 1958; Hymer and Pashigian, 1962). Gibrat law was denied by many new researches (Singh and Whittington, 1975; Chesher, 1979; Kumar, 1985; Evans, 1987; Hall, 1987; Contini and Revelli, 1989; Wanger, 1992; Dune and Hughes, 1994; Reid, 1995; Hart and Oulton, 1996; Harhoff et al., 1998; Audsetsch et al., 1999; Wilson and Morris, 2000; Rufin, 2007). Evans (1987) and Hall (1987) commented that the acceptability of LPE is dependent on different classes of firm size.

Hart and Paris (1956) worked on the quoted companies in UK and the result supported Gibrat's law. They also found that small firms grew faster than old firms. Simon and Bonini (1958) worked on the US industrial firms. They took the sample of 500 corporations and depicted that firm's growth was unconnected to the size of the firm. Hymer and Pashigian (1962) took a large sample of 1000 firms in US. They measured the growth as the change in the assets of the company from one year to the other. No

relationship was detected between size and growth of the firm. They also investigated that the growth variance was negatively associated with firm size.

Glancey (1998) reported that the relationship between size and growth depends on managerial ability and objectives of the firm. If the entrepreneurs have ability and set objectives to increase the size of the organization then there can be a positive relationship between size and growth. Mansfield (1962) used data from US and found a negative relationship between firm size and growth. Das (1995) also found the same results. Hall (1987) also showed same results by the use of US data. Singh and Whittington (1975) used UK data and depicted a positive relationship between firm size and growth.

Kumar (1985), Evans (1987), Hall (1987), Dunne and Hughes (1994), Mata and Protugal (1994), Wanger (1994) and Baldwin (1995) showed that small firms rapidly grow than large firms. The reason behind is that small firms struggle to achieve economies of scale. Small firms grow rapidly than the large firms while the firms that have gained economies of scale cannot grow further, due to the reduction of cost up to a minimum level (Park and Jang, 2011). If they further move towards scale economies their fixed cost increases so growth is reduced. Kumar (1985) observed 1700 firms in UK that included both manufacturing and service oriented firms. His results depicted that the average growth of the small firms was greater than the average growth of the large firms. Mata in 1994 worked out on 550 Portuguese firms of manufacturing sector. He used the number of employees as a growth measure and found negative relationship between size and growth. Heshmati (2001) observed 8000 small firms in Sweden and measured the growth in three different ways. He used number of employees, sales and the assets as the measure of the growth. The results showed nonlinear relationship between the two. Andretch et al., (2004) argued that size and growth relationship depends on the nature of industry. Giardano, (2003) argued that this negative relationship decreases as the firm size increases and vice versa.

Every study has some limitations due to the scarcity of the resources. Some gaps of the previous studies are given below.

1. No study has generalized results about the relationship of profit and growth, size and growth and size and profitability.
2. No study has used all the possible measures of growth, profitability and size.
3. Most of the work is done on the large firms.
4. Only few researches have studied the interrelationship among firm size, growth and profitability together.
5. Most of the studies have not considered the time effect on growth.

*2.5 Hypotheses of Study*

The hypotheses are developed to test the relationship of the particular variables of study. Based on the previous literature and variables under study following hypothesis are designed:

*$H_1$: ROA is significantly determined by firm size.*

*$H_2$: ROA is significantly determined by growth.*

*$H_3$: Growth is significantly determined by firm size.*

**3. Research Methodology**

Based on the data type and previous research studies, we chosen panel data regression techniques. Panel data is the combination of the both cross sectional and time series observations. This sort of data is better to use for statistical inference, as discussed by Gujrati and Porter, (2005) and Baltagi and Recherche, (2009).

Jang and Park (2011) also applied the fixed effects to test the relationship between firm growth and profitability of US restaurant industry. Here "α" is the intercept, "β1" is the slope coefficient of firm size, LNTA is the log natural of total assets that is used as measure of the firm size, "β2" is the slope coefficient of growth rate, "SGR" is representing the sustainable growth rate of the firm and "ε" is the error term. So the research model can be described as following:

$$ROA = \alpha + \beta 1 LNTA + \beta 2\ SGR + \varepsilon$$

Here ROA represents return on assets, ROE is abbreviation of return on equity and ROS represents return on sales. This model can be applied in two ways. In traditional way the regression is applied on the firm- year data. But the most effective approach is the panel regression analysis and we used it.

*3.1 Variables of Study*

The study includes three variables, the profitability, firm size and the growth. The profitability is further operationalized into return on assets, return on equity and return on sales, so there are five variables of study.

There are different ways to measure these variables and different studies have used different dimensions to measure it. For example the profit rate can commonly be measured through ROA (return on assets), ROS (return on sales) and ROE (return on assets). Many researchers have used ROA as the measure of profitability (Amato and Wildor, 1985; Glancey, 1998; Fitzsimmons et al., 2005; Asimakopoulous et al., 2009; Vijayakumar and Devi, 2011) because it truly reflects the positions of the company. It reflects that how much income is earned through the assets of the firm. Hall and Weiss (1967) have used ROE because it shows the profit earned by the equity holders. ROS is also used by many researchers (Fitzsimmons et al. 2005; Jang and Park, 2011; Vijayakumar and Devi, 2011) because it reflects the profit generated by the sales of the company. We used ROA as a proxy for the profitability.

The growth rate in many researches (Fitzsimmons et al., 2005; Serrasquerio, 2009; Asimakopoulous et al., 2009; Jang and Park, 2011) is sales growth because it is easy to get sales figures and it reflects the users' demand of products and services of company. We have used the sustainable growth rate because it is the growth rate that company can achieve without raising more capital. It is a true measure of the growth of a firm. The size of the firm is also an important determinant of firm profitability.

The proxies used by different researches to calculate size are employment, sales and assets. We have used the LNTA (log natural of total assets) and it is also used by different researchers (Hall and Weiss, 1967; Sumeuls and Smyth, 1968; Ammar, Hanna, Nordheim and Russell, 2003).

The proxies used in this study and their measurements are following:

1) Firm growth rate (sustainable growth rate = [(Retained earnings / Net income) * ROE]
2) Firm size (log natural of total assets)
3) Profit ((net profit before taxes / total assets)

*3.2 Population and Sampling*

To determine the relationship between firm size, growth and profitability the study intends to include all companies of non-financial sector of Pakistan listed in Karachi stock exchange based on the classification made by SBP (State Bank of Pakistan) in the statistical analysis report named "Balance Sheet Analysis" of Joint Stock Companies listed in Karachi Stock Exchange. The study is using the total '10' years of accounting data of non-financial companies of Pakistan.

Sample includes the units from the population. These units represent the whole population. Different statistical methods are used to draw the sample for example random sampling, systematic sampling, cluster sampling etc. We are using the stratified systematic sampling for this study.

The sample is selected on the basis of market capitalization of the companies at a particular time period. The top companies of each stratum are chosen in the same proportion which those strata have in the population. For example the textile sector is 7% of total population according to market capitalization. We have taken 14% from the textile sector due to the issues of unavailability of data. The same procedure is applied on the sectors that make up the total non-financial sector. The market capitalization and sampling detail is taken from Azeem and Kouser (2011).

The sample of study includes the 70 companies from non-financial sector listed in KSE Pakistan. The proportion of the companies in total sector and the number of companies included in the analysis from each sector are given in Table-1.

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**4. Empirical Findings**

We conducted the diagnostic tests for the panel data techniques. We conducted Chow's structural break test for checking whether the groups have a common intercept. Following are the results in order for each hypothesis.

*4.1 ROA Regressed over LNTA*

To test first hypothesis "Profitability can be significantly determined by the Size" we conducted the Chow test of structural break to test whether companies have a common intercept or not. The results disclosed that intercept is not common for companies. Following are the output for chow test computed using gretl-1.9.9.

*Test for differing group intercepts*

Null hypothesis: The groups have a common intercept,

Test statistic: F(69, 620) = 8.304

p-value = P(F(69, 620) > 8.304) = 0.000

Based on the above test we are unable to choose the pooled OLS (ordinary least squares), so we used the fixed effects model. Fixed effects model is of two types, first in which only cross sectional effect is added, the second in which both the cross sectional and time period effect is created. Results of fixed effects are given below.

**Panel 1: Fixed-effects, using 700 observations**
**Included 70 cross-sectional units**
**Time-series length = 10**
**Dependent variable: ROA**

| | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* | |
|---|---|---|---|---|---|
| Const | 19.42 | 6.25 | 3.11 | 0.00 | *** |
| LNTA | -3.07 | 1.84 | -1.67 | 0.10 | * |
| dt_2 | -0.22 | 1.84 | -0.12 | 0.90 | |
| dt_3 | 3.71 | 1.84 | 2.01 | 0.04 | ** |
| dt_4 | 4.92 | 1.87 | 2.63 | 0.01 | *** |
| dt_5 | 4.77 | 1.91 | 2.50 | 0.01 | ** |
| dt_6 | 3.91 | 1.97 | 1.99 | 0.05 | ** |
| dt_7 | 3.51 | 2.02 | 1.74 | 0.08 | * |
| dt_8 | 2.73 | 2.08 | 1.31 | 0.19 | |
| dt_9 | 2.24 | 2.11 | 1.06 | 0.29 | |
| dt_10 | 5.84 | 2.21 | 2.64 | 0.01 | *** |

*Significant at 10%
** Significant at 5%
*** Significant at 1%

| | | | | |
|---|---|---|---|---|
| R-squared | 0.49 | | Adjusted R-squared | 0.42 |
| F(79, 620) | 7.52 | | P-value(F) | 0.00 |

*Wald test for joint significance of time dummies*
Asymptotic test statistic: Chi-square (9) = 18.41with p-value = 0.031
Results of the regression show that LNTA has the significance determination power for ROA. The relationship between both of them is negative as shown by negative sign with 3.07. However precision is low, as LNTA is significant at 10%. However time dummies show that each year has a significant impact on this relationship for the sample companies included in the analysis. R-squared (the coefficient of determination) is also good: 49%. Over all model's goodness of fit is also 42%. F-stat about the coefficients is also significant showing that slope coefficient is not zero.

*4.2 ROA Regressed over SGR*

The second hypothesis of the study is about profitability and growth. Diagnostic test to choose between the OLS and Fixed Effects again provide evidence in favor of Fixed Effects.

*Test for differing group intercepts*
Null hypothesis: The groups have a common intercept

Test statistic: F(69, 629) = 7.802 with p-value = P(F(69, 629) > 7.802) = 0.000
Fixed effects regression show that there is strong positive and significant relationship between the firm profitability and size. 49% R-squared shows high coefficient of determination and adjusted R-squared is 43%which is also good. F-stat is also significant and showing the model's overall validity. This show that increase in the growth will lead to the increase in profitability. Slope coefficient of growth however is low but there is high precision as shown by low value of the standard error (0.5).

**Panel 2: Fixed-effects, using 700 observations**
**Included 70 cross-sectional units**
**Time-series length = 10**
**Dependent variable: ROA**

| | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* | |
|---|---|---|---|---|---|
| Const | 11.221 | 0.500 | 27.392 | <0.00001 | *** |
| Growth | 0.020 | 0.005 | 4.401 | 0.00001 | *** |

*Significant at 10%
** Significant at 5%
*** Significant at 1%

| | | | | |
|---|---|---|---|---|
| R-squared | 0.489 | | Adjusted R-squared | 0.433 |
| F(70, 629) | 8.614 | | P-value(F) | 0.000 |

*4.3 SGR Regressed over LNTA*
Testing for third hypothesis produced almost similar results; groups don't have common intercept. So we used the fixed effect test.
*Test for differing group intercepts*
Null hypothesis: The groups have a common intercept
Test statistic: F(69, 629) = 2.701 with p-value = P(F(69, 629) > 2.70) = 0.000
Results based on fixed effects estimation show that relationship between growth and size is also negative but not significant.However R-squared is 25% and adjusted R-squared is 16%, which is very low.Standard error of the estimator is large showing less precise results.

**Panel3: Fixed-effects, using 700 observations**
**Included 70 cross-sectional units**
**Time-series length = 10**
**Dependent variable: Growth**

| | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* | |
|---|---|---|---|---|---|
| Const | 35.152 | 41.019 | 0.857 | 0.392 | |
| LNTA | -7.502 | 11.220 | -0.669 | 0.504 | |

*Significant at 10%
** Significant at 5%
*** Significant at 1%

| | | | | |
|---|---|---|---|---|
| R-squared | 0.248 | | Adjusted R-squared | 0.164 |
| F(70, 629) | 2.961 | | P-value(F) | 0.000 |

**5. Conclusion**

Various studies exhibited various findings. The Gibrat law also called Law of Proportionate Effect and the Law of Persistence of Profit are well known in literature. The findings of the previous research work cannot be generalized due to the changes in economic conditions of the countries, the limitation of the availability of the data and the sample biases.

Asimakopolous et al., (2009) used ROA as the measure of profitability and sales growth as the measure of growth. They depicted a positive relationship of growth and profitability. Vijayakumar and Devi (2011) worked on Indian automobile firms. They used ROA, ROE and ROS as the measure of profitability and growth was measured by compound growth rate of net sales in current price. The results also showed the positive relationship between profitability and growth. The positive relationship of profitability and growth was determined by Coad (2007). His sample was drawn from French manufacturing firms. He used the difference of logarithm of size and operating surplus / value added as the measures of growth and profitability respectively. The non-parametric analysis illustrated no clear relationship between growth and profit rate. The regression analysis showed a significant and positive relationship of profit rate and growth. Serrasquerio (2009) also found positive relationship of growth and profitability.

There are many studies which revealed different results from our study. Fitzsimons et al. (2005) could not find any relationship between profitability and growth. They studied the small and medium sized firms in Australia. Glancy (1998) also found the same results. Jang and Park (2011) analyzed the lag structure of growth and profitability in U.S hospitality industry. They illustrated that profit has a positive impact on growth but the profit is reduced by the growth of the firm.

There are many studies which worked on the firm size and firm growth. The negative relationship of size and growth was found by Jang and Park (2011). Das (1995) studied the firm size and growth in Indian computer hardware industry. He measured size by nominal sales deflated by CPI and growth as difference in logarithm of size of t+1 and t. the results revealed a strong negative relationship of growth and the size. No relationship between size and growth was found by Hymer and Pashigian (1962). Glancey (1998) worked on small manufacturing firms in Tayside region, the findings revealed a positive relationship of growth and size which is opposite to our results.

Asimakopolous et al. (2009) depicted that large firms have high profit. They found positive relationship of size and profitability. Ammar et.al, (2003) found negative relationship of profitability and size. Serrasqueiro (2009) also found positive relationship of size and profitability.

This study reveals that all the profitability has strong positive relationship with the growth of the firm; however size has less significant and negative impact on the profitability. The size and the growth have negative relationship. When the size of the firm is small, it grows faster. The profitability is not significantly influenced by the size of the firm but it is highly affected by the growth of the firm.

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**Table 1: Statistics of Companies used in the Study**

| *Sectors* | *X1* | *X2* | *X3* | *X4* | *X5* | *X6* | *X7* | *X8* |
|---|---|---|---|---|---|---|---|---|
| Cotton Textile sector | 167 | 31 | 125 | 7% | 8 | 2 | 16 | 16 |
| Other Textile Sector | | | 11 | 2% | 0 | 2 | 0 | 0 |
| Chemical Sector | 34 | 5 | 29 | 23% | 7 | 2 | 14 | 14 |
| Engineering Sector | 38 | 3 | 35 | 8% | 3 | 2 | 6 | 6 |
| Sugar Sector | 35 | 4 | 31 | 2% | 1 | 2 | 2 | 2 |
| Paper and board sector | 9 | 3 | 6 | 1% | 0 | 2 | 0 | 0 |
| Cement Sector | 20 | 4 | 16 | 5% | 1 | 2 | 2 | 2 |
| Fuel and Energy Sector | 24 | 3 | 21 | 19% | 4 | 2 | 8 | 8 |
| Transport and Communication Sector | 7 | 2 | 5 | 8% | 0 | 2 | 0 | 0 |
| Tobacco Sector | 67 | 14 | 3 | 1% | 0 | 2 | 0 | 0 |
| Jute Sector | | | 3 | 1% | 0 | 2 | 0 | 0 |
| Vanaspati and Allied Industries Sector | | | 3 | 0% | 0 | 2 | 0 | 0 |
| Miscellaneous Sector | | | 44 | 25% | 11 | 2 | 22 | 22 |
| Total | 401 | 69 | 332 | 100% | 35 | - | 70 | 70 |