



Firms' Size Moderating Financial Performance in Growing Firms: An Empirical Evidence from Pakistan

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ABSTRACT

The main determination of the research is to pinpoint the moderating inspiration of firm size between the relationship of firm growth and firm performance. In the study Null and alternative hypothesis have been constructed, Null hypothesis is concerning the negation of the moderating effect of firm size, while alternative hypothesis is pertaining to the acceptance of the moderating inspiration of firm size between the relationship of firm growth and firm performance. For this purpose, the secondary cross-sectional data has been gathered from 50 firms listed in Karachi stock Exchange. Before application of regression equation the formality of stationary of data has been fulfilled, in addition the issue of the multi-co-linearity has also been resolved. The results of the regression analysis are demonstrating that the alternative hypothesis of the research that firm size has moderating inspiration between independent variable (Firm growth) and dependent variable (Firm performance) is accepted. The study is cooperative for the management to keep an eye on firm size along with firm growth while enhancing the firm performance. The future aspects of the research have also been discussed.

Keywords: Firm Size, Firm Growth, Firm Performance

JEL Classifications: G30, G32, M10

1. INTRODUCTION

The evaluation of the firm performance for entrepreneurial and small and medium enterprises is a complex process. Although firm evaluation is very old title to research in Finance, however, still has a charm to explore more gaps and bridge the same that is why is called evergreen topic for research purpose. The main determination of the research is to scrutinize the moderating inspiration of firm size between the relationship of firm growth (Independent variable) and firm performance (Dependent variable). Every firm want to maximize the shareholder's wealth and this objective may be achieved by reducing the cost (Shah and Khan, 2007) and enhancing the profitability of the firm. Furthermore, the firm performance (profitability) has its further influence on cost of equity as because of high profitability the firm's may have more retained earnings, which caused the reduction of cost of equity (Myers, 1977; Wald, 1999). Therefore, the firm performance has its own significance for research purpose. Recently, a research has been done to investigate the moderating influence of product diversity between the independent variable (Leverage) and dependent variable (firm performance) and findings are showing

that the product diversity has moderating inspiration in the relationship of these variables (Soon and Razak, 2012).

In this study the paradigm of the moderating inspiration has been shifted towards the firm size as the purpose of this study is investigate the moderating inspiration of firm size between the relationship of firm growth (independent variable) and firm performance (dependent variable).

2. LITERATURE REVIEW

Firm performance have been reflected by market growth or sales, satisfied customers, establishment of base for future growth as well as financial outcomes without a specific order (Dvir et al., 1993). Return on assets (ROA) is taken as a measure of profitability. Ritab et al. (2004) in their research concluded that ROA taken into account of assets, being highly important for revenue generation. ROA have been used as an indicator of performance (Yammessri and Loth, 2004). Growth of firm is not for the sake of growth but sometimes inherent to their existence. It is quite critical aspect of the organization lifecycle. Those must continuously grow to sustain

their competitive position especially where other competitive firms have faster growing pace (Kazmi, 2002; Johnson et al., 2008). Whereas few researches have different opinion that growth may not be target for all organizations, but an ability of organization is critical, as they suggest that organization without growth or low growth are generally tends to fail (Headd and Kirchoff, 2007). It is not necessary that newly established organizations show growing trend but those mature and well established organizations also show high growth (Coad, 2009; Honjo and Haranda, 2006).

Size is an important predictor of the performance. Larger firms show better profitability while smaller firms do not have an ability to compete larger firms in this regards. Chi (2004) clarified the relationship and concluded that organizational size is having significant impact on performance as well as rights of the shareholders. Larger firms have better chances to obtain credits from financial institutions. They may obtain loan at cheaper rates, as they have better credit worth and low chances of bankruptcy. The same aspect has been confirmed by Gedajlovic and Shapiro (1998). They confirmed that relationship between size and profitability of the organization is positive in nature. On the other hand another study conducted by Yi and Tzu (2005) concluded different results. Their study depicted that size of the firm does not have any impact on the performance.

Studies related to organizational economics tried to clarify the relationship of firm size and growth (Dosi et al., 1995; Jovanovic, 1982) furthermore an impact of diversification on performance of the organizations (Palepu, 1985; Choi and Russell, 2005) as diversification in the market is generally considered one of the possible corporate strategy to grow and reduce market related risk. More diversified firms depict better performance as they ensure risk reduction compared to those less diversified. Pandya and Rao (1998) highlighted the presence of volatility in the performance of specialized or less diversified firms in comparison to more diversified firms which tends to show better performance on average.

The relationship of size and performance is searched by researchers and found presence of significant relationship (Vijayakumar and Tamizhselvan, 2010), as well as an inverse relationship (Hall, 1987). The inverse relationship have been supported by other researchers as well in near past (Barret et al., 2010). Size is not only been studied as an independent variable for measuring performance of the firms but Rauch et al. (2009) concluded that size of firms is an important moderator. Rauch et al. (2009) in that analysis deeply observed number of researches which were conducted taking size of firm as a moderator and inferred a result that severity of impact of all the environmental factors changes with change in the size of organizations. Size of the organization as well as environmental munificence played a role of moderator variable between entrepreneurial orientation and performance (Dess et al., 1997; Zahra, 1996).

Tradeoff between external and internal mode of financing is been discussed in trade of theory. Static trade-off theory argues that firms larger in size intend to have more debt as compared to those of smaller ones due to less chances of bankruptcy. Argument of

trade off theory regarding obtaining more debt by larger firm have been supported by assumption that firms with larger size having more diversified portfolio, are low chances of becoming bankrupt (Titman and Wessels, 1988). Reason behind lower chances of bankruptcy is that larger firms generally have better capabilities as well resources and obtain economies of scale. Hence firm size has inverse relation to bankruptcy, furthermore direct relation to profitability. Another important aspect of larger firms is that they are expected full of resources and therefore more efficient to collect account receivables from their credit clients. All of the factors play an important role to the enhanced ability of large size firms in maintenance of lower levels of liquidity as well as cash cycle, while comparing those smaller in size (Frank and Goyal, 2003). Size of the organization is being used as control variable for the research to check the differences in the operating environment of the organization. In their study natural log of assets was used as a proxy for size of the organization to check an impact on performance. Another study by Eljelly (2004) concluded that there would be an inverse relation between liquidity and profitability of the organization. Furthermore they concluded that organization size and performance has direct and significant relation. Albayrak and Akbulut (2008) concluded that there is significant and positive relationship in size and profitability. In recent past another study conducted by Şahin (2011) for manufacturing organizations of the Turkey also concluded the same positive relationship between size and profitability.

Both academic as well as industry practitioners considered firm growth, size as well as their inter relationship an important aspect (Goddard et al., 2009). In spite of its importance, precise relationship of growth rate and profitability has not been obtained yet. Theories by some of the researchers argues that firm growth have positive impact on profitability of the firm (e.g, Jang and Park, 2011). The positivity of the relationship been confirmed by Kaldor-Verdoorn Law. Kaldor (1966) and Verdoorn (1949) concluded that fast growth in output enhances productivity resulted in increasing rate of profit. Another aspect linked with growing firm is economies of scale. Economies of scale may be obtained as a result of firm growth which in turn enhances profits. Contrary to that, as per neoclassical view, organizations undertake those projects which are most profitable with growth opportunities, afterwards they considers less profitable projects. The process continues until marginal profit of the last growth opportunity (project) equals zero. The profitability of the profit earning firms reaches at maximum level by incorporating growth opportunities in their portfolio, but this may decrease the rates of profit. Puzzle of the relationship between growth and profitability of the firms is still been a focal point for the researchers. Previously Cowling (2004) and recently Davidsson et al. (2009) concluded that relationship between growth and performance is inconclusive. Latest empirical studies to elaborate the relationship between firm growth and profitability (Coad, 2009; Jang and Park, 2011) still consider the relationship as inconclusive. On the other hand Cowling' study (2004) concluded that there is significant positive relation between growth obtained in the form of sales and profit rates. But contrary conclusion was provided by Jang and Park (2011). They claimed that firm growth has negative impact on the firm's profitability. Another aspect of the issue was highlighted by Davidsson et al.

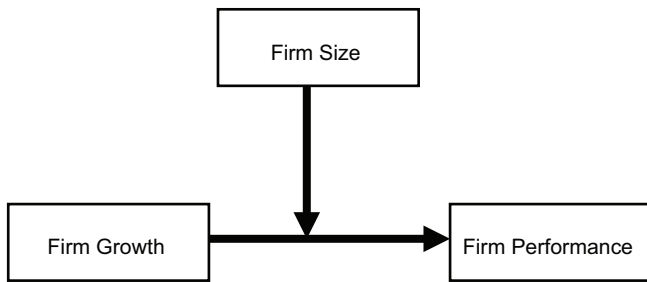
(2009). They concluded that those firms earning profits but having low growth rate have better chances to reach targeted state of higher growth and enhanced profitability. Growth is not only considered as an element for profitability but it has been considered a critical element for attainment of sustainable competitive advantage along with enhanced profitability (Markman and Gartner, 2002).

2.1. Construction of the Hypothesis

Ho: There is no moderating influence of firm size between the relationship of firm growth and firm performance.

H1: There is moderating influence of firm size between the relationship of firm growth and firm performance.

2.2. Research Model



3. METHODOLOGY

The purpose of the study is to investigate the moderating effect of firm size in the relationship of firm growth and firm financial performance. For this purpose, 50 non-financial firms concerning to different sectors have been targeted to get the data for year 2012. The data has been collected from the financial statements of the companies, listed in Karachi stock Exchange, for year 2012. Before application of the regression analysis, the unit root test, variance inflationary factor (VIF) have been applied to check the stationary of the data and to resolve the problem of multi-co-linearity if exist. The researcher used the following Regression equation.

$$ROA = f(Size, growth, Growth * size)$$

Model 1

$$ROA = \beta + \beta_1 Size_i + \beta_2 Growth_i + \epsilon_i$$

Model 2

$$ROA = \beta + \beta_1 Size_i + \beta_2 Growth_i + \beta_3 Growth * Size_i + \epsilon_i$$

The following proxies have been used for the variables of the study.

Firm performance is measured by ROA, which is measured as:

$$ROA = \frac{Earning\ before\ Tax}{Total\ assets}$$

The following proxies have been taken into account for firm size and firm growth.

$$Size = \ln(Market\ Capitalization)$$

$$Growth = Growth\ of\ total\ assets$$

$$Growth = \frac{Current\ year\ assets - previous\ year\ assets}{previous\ year\ assets}$$

$$Growth = \ln\left(\frac{current\ year\ assets}{Previous\ year\ assets}\right)$$

4. RESULTS AND DISCUSSION

After application of the statistical techniques by using software the following results have been obtained.

To feel the data, the findings pertaining to descriptive statistics have been presented in Table 1. Moreover, the results regarding the stationary of the series and issues of the multi-co-linearity are discussed in Table 2.

4.1. Performance of the Firm (ROA) (Dependent Variable)

Table 1 is elaborating the average value of ROA is 0.1046, which means the average ROA of a firm is 0.1046 times. Anyhow, this value may vary from firm to firm as the value of the Standard deviation i.e., 3.5 is showing that there is 350% variation is existed in the series of the ROA. The value of skewness is showing that the series of ROA is positively skewed as the value of skewness is positive and Kurtosis is >3, which is depicting that the curve of the series of ROA is leptokurtic. The value of Jarque-Bera is significant, which shows that the data is non-normal, but unit root test (Table 2) is demonstrating that the series of ROA is stationary as the Augmented Dickey-Fuller (ADF)-test is significant. Therefore, usage of the series of ROA has no series issue for regression analysis.

Table 1: Descriptive statistics

	Growth	ROA	Size
Mean	4.292200	0.104600	6.669800
Median	-0.305	0.065000	6.630000
Maximum	18.51000	11.10000	11.91000
Minimum	-0.99	-10.67	2.430000
Standard deviation	7.055876	3.528696	2.077154
Skewness	0.836222	0.063864	0.133755
Kurtosis	1.843278	7.272905	2.693633
Jarque-Bera	8.614735	38.07091	0.344630
Probability	0.013469	0.000000	0.841714

ROA: Return on assets

Table 2: Unit root test and VIF

Variables	Unit root test (ADF test statistic)		VIF	
	T-statistic	P	Co-efficient variance	Centered VIF
Firm size	-4.696646	0.0004	0.057305	1.010551
Firm growth	-6.920828	0.0000	0.004966	1.010551
ROA	-6.340160	0.0000		

ADF: Augmented Dickey-Fuller, ROA: Return on assets, VIF: Variance inflationary factor

4.2. Firm Growth

Table 1 is showing the average value of firm growth is 4.29, which means the averagely firm growth is Rs. 4.29 million per annum, however, this value may differ from firm to firm as showing by the value of standard deviation i.e. 7.05, which means the series of firm growth has 705% variation. The value of skewness is showing that the series of firm growth is positively skewed as the value of skewness is positive and Kurtosis <3, which is depicting that the curve of the series of firm growth is Mesokurtic. The value of Jarque-berra is significant, which shows that the data is non-normal, but unit root test (Table 2) is demonstrating that the series of ROA is stationary as the ADF-test is significant. In addition Table 2, is also showing the results regarding VIF, which is <10 so this series has no series problem of multi-co-linearity (Chen and Keshin, 2011). Therefore, usage of the series of firm growth has no series issue for regression analysis.

4.3. Firm Size

Table 1 is elaborating the average value of Firm size is 6.67, which means the average market capitalization of a firm is Rs. 789 Million (Anti-natural log [6.67]) as the In (Market capitalization) has been used as a proxy of a firm size. Anyhow, this value may vary from firm to firm as the value of the Standard deviation i.e. 2.07 is showing that there is 270% variation is existed in the series of the firm size. The value of skewness is showing that the series of firm size is positively skewed as the value of skewness is positive and Kurtosis is <3, which is depicting that the curve of the series of firm size is Mesokurtic. The value of Jarque-berra is insignificant, which shows that the data is normal and unit root test (Table 2) is demonstrating that the series of firm size is stationary as the ADF-test is significant. In addition, the value of VIF (Table 2) is <10, which means there is no series issue of multi-co-linearity (Chen and Keshin, 2011). Therefore, usage of the series of ROA has no series issue for regression analysis.

The results pertaining to the relationship between variables is presented in Table 3. The finding of co-efficient of correlation is demonstrating that there is weak correlation between the variables.

Table 3: Correlation matrix

Variables	Size	Growth	ROA
Size	1.000000	-0.102178	0.259582
Growth	-0.10218	1.000000	0.068391
ROA	-0.259582	0.068391	1.000000

ROA: Return on assets

Table 4: Regression analysis

Variables	Dependent variable is firm performance (ROA)							
	Model 1				Model 2			
	Beta	SE	T-statistic	P value	Beta	SE	T-statistic	P value
Constant	-3.151	1.726	-1.826	0.074	-0.320	0.569	-0.562	0.577
Growth	0.048	0.070	0.680	0.500	-1.280	0.264	-4.855	0.000
Size	0.457	0.239	1.911	0.062	0.127	0.203	0.624	0.536
Size*Growth					0.200	0.039	5.157	0.000
R ²	0.076				0.415			
Adj R ²	0.037				0.377			
Change R ²					0.370***			
F-statistic	1.944				10.868***			

ROA: Return on assets, SE: Standard error

Firm size has negative and weak relationship with firm growth, but there is positive and weak correlation between firm size and ROA. Firm growth has weak and positive relationship with ROA. The intensity of relationship between firm size and firm growth is -0.10218, which is low and negative relationship between these variable. The degree of the strength of relationship between firm size and firm performance (ROA) is 0.259582, which weak and positive relationship. However, the magnitude of relationship between firm growth and firm performance is 0.068391, which positive and weak relationship between both these variables. These weak relationships between the explanatory variables are also the indication that there is no severe issue of multi-co-linearity.

Table 4 is demonstrating the findings of the regression analysis. Model 1 is expressing the effect of independent variable (Firm growth) and moderator (Firm size) on firm performance (ROA). In this model firm size is showing the positive influence on firm performance at significant level 10%. However, firm growth has insignificant positive inspiration on ROA. Furthermore, value of F-stat is insignificant, so Model 1 is mis-specify. The value of R² is showing that the Model 1 has explanatory power extend to 7.6%. Whereas, by incorporating the interaction term (Size*growth), the results have improved (Model 2). The firm growth is showing the negative and significant inspiration on firm's performance (ROA) and interaction term is showing the highly significant moderating inspiration in the relationship between independent variable (Firm growth) and dependent variable (ROA). In addition the explanatory capability of the model has increased significantly up to 41.5% as the R² has changed up to 0.377 significantly. Model 2 is also specified as shown by the value of F-statistic, which is significant. As the value of Interaction term is significant and R² change is also significant, which is the indication that Null hypothesis (Ho) of the study is not accepted and the alternate hypothesis (H1). Therefore, the hypothesis (H1) of the research that the firm size has moderating effect between the relationship of firm growth and firm performance is accepted on the basis of the statistical results.

5. CONCLUSION AND POLICY IMPLICATIONS

The purpose of the research is to pinpoint the moderating influence of the firm size in the relationship of firm growth and firm performance. For empirical analysis, the cross sectional secondary data has been gathered from 50 firms listed in KSE for year 2012.

Afterwards, the results have been obtained with findings that Interaction term (Size*growth) has significantly its inspiration on the firm performance, furthermore, by adding this interaction term, the explanatory power of the model (R^2) is also showing the significant change, which support the hypothesis of the research. Therefore, the hypothesis of the research that the firm size has moderating effect between the relationship of firm growth and firm performance is accepted on the basis of the statistical results. The similar results have also been found in study done by Soon and Razak (2012) whereas in this research the moderating effect of product diversity was taken into account and leverage (Debt to equity ratio) was taken as independent variable.

The study has the contribution in existing literature by adding the moderating effect of firm size between the relationship of firm growth and firm performance. The study is helpful for the management to focus not only the firm growth but also the firm size, while studying the firm performance. This study is limited to few sectors and requires incorporating the further sectors. Sample size is too low and future study may be done by incorporating the more firms. Furthermore, the same study may be done by taking panel data and in different country. The same study may be done by using other proxies e.g. sale for growth, total assets for firm size and return on equity for firm performance and some other variables may be used as control variables. Furthermore, the paradigm may be shifted to cost of equity instead of firm performance and the same study be done to check the mediating effect of leverage (Debt equity ratio) between firm growth and firm performance.

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ANNEXURE

