

The Effect of Business Strategies on the Relationship between Leverage Relative and Financial Performance of Listed Companies in Tehran Stock Exchange

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Abstract
This study empirically investigates the effects of business strategies on the relationship between financial leverage and the performance of firms. The research data is collected from 45 firms in the Tehran Security Exchange (TSE) during 2005-2014.The statistical technique is used to examine the assumption of multiple regressions. To test the assumptions, firms were divided into 2 groups: firms with cost leadership strategy and firms with product differentiation strategy. The results indicated that in the firms with cost leadership strategy, there were positive relationships between leverage; cost leadership strategy and dividend payout with performance. The results also suggested that there were positive relationships between leverage and firm's size with performance in the firms with product differentiation strategy, but the relation between product differentiation strategy and dividend payout with performance was negative.
Keywords: Cost leadership Strategy, product differentiation strategy, financial leverage, performance.

1. INTRODUCTION

The purpose of joint stock companies and their managers is maximizing the value of equity and on the other hand it is maximizing the value of the company and its stock. The maximizing of the company's value is required to use the financial resources and optimal strategy by managers and their correct performances. The first time capital structure and its optimal composition were issued by Modigliani and Miller (1958) and it was used in the more financial research and this research also resulted in new theories.

Ever since Modigliani and Miller (1958) proposed that capital structure is irrelevant in determining firm's value, and the theory of capital structure has been studied extensively. According to this ‘‘irrelevance proposition’’, a firm cannot change the total value of its securities just by splitting its cash flows into different streams because the firm’s value is determined by its real assets, not by the securities it issues (Jermias, 2008).

Jensen and Meckling (1976) opposed this idea and argued that the amount of leverage in a firm’s capital structure affects the choice of operational activities by managers and these activities will affect company performance.

Nevertheless, previous studies that tried to solve the leverage–performance puzzle continued to report mixed and often contradictory findings (Ghosh, 1992; Harris and Raviv, 1991, Jermias, 2008). However, O’Brien (2003) argued that the effect of financial leverage on performance may be contingent upon competitive intensity and the strategy pursued by the firm and researchers noted the need for studies that examine the influence of these variables (Jermias,2008).

Results show that other factors besides capital structure also influence company’s performance, and the intensity of competition and the strategy chosen by the companies will affect these factors. Strategies often include both product differentiation strategy and the cost leadership strategy (Porter, 1996).

The findings contradict with equity accounting theory and the theory of irrelevance of capital structure issued by Modigliani and Miller (1958), but they support financial decisions, intense competition and the strategy chosen by the company’s managements that affect company’s performance (Jensen, 1986; Harris, 1994 Jermias, 2008).

Two empirical studies by Barton and Gordon (1988) and O’Brien (2003) found that business strategy and financial leverage interact significantly to affect firm's performance. Thus, there is some empirical evidences that support the argument that a firm’s choice of business strategy may affect the relationship between financial leverage and performance (Jermias, 2008).

The purpose of this study is to investigate the effects of business strategies on the relationship between financial leverage and company’s performance in companies accepted at Tehran Stock Exchange.

2. LITERATURE REVIEW

Porter's Strategies

- **Cost leadership strategy**

The purpose of this strategy is the company's low-cost products offers in an industry.Cost leadership strategy takes place through experience, investment in production facilities, conservation and careful monitoring on the total operating costs (through programs such as reducing the size and quality management).

The existing literature contains some discussions of why the relationship between leverage and performance depends on a firm's choice of strategy. Firms pursuing a strategy of cost leadership will benefit more from the use of leverage in terms of the increased managerial efficiency which corresponds to be monitored by lenders. According to Jensen (1986), monitoring by lenders also limits managers' opportunistic behaviors by reducing the resources available for discretionary spending. Hence, Jensen (1986) proposed that the control function of debt is more important for companies that strive to be efficient (Jermias, 2008). Accordingly, Porter (1985) suggested that cost leadership firms need to control costs tightly, refrain from incurring too many expenses from innovation or marketing, and cut prices when selling their products.

- **Product differentiation strategy**

This strategy requires the development of goods or unique services from unmatched by relying on customer loyalty to the brand. A company can be offered higher quality, performance or unique features that each of them can justify the higher prices.

Miller (1987) argued that product differentiation firms tend to invest heavily in research and development activities in order to increase their innovative capability and enhance their ability to keep up with their competitors' innovations (Jermias, 2008).

The constraints of increased debt and requirements to satisfy debt covenants will likely impede managers' creativity and innovation, qualities which are critical to maintain competitive advantage for product differentiation firms (Balakrishnan and Fox, 1993; Simerly and Li, 2000; Jermias, 2008).

Biggadike (1979) argued that product differentiation firms face high uncertainty, as their strong emphasis on innovation requires them to engage in more risky activities and bet on products that have not yet crystallized. This might make it both difficult and undesirable for firms to use a greater amount of debt (Jermias, 2008).

- **Business strategies, financial leverage and performance**

Several studies on financial leverage and performance are done, for example:

Dimitor and Jan (2005) evaluated the effect of financial leverage on return of stock. Their results showed there was a negative relationship between debt to equity ratio and return of stock.

Ahn et al, (2006) investigated the relationship between investment patterns and financial leverage. They showed that companies with diversified investments have higher financial leverage rather than focused investment firms.

Hou and Robinson (2006) investigated the effects of concentration and industry average on the stock return. After that control factors such as size and ratio of book value to market, they found that firms in the competitive industries took higher return of stock and had a higher leverage.

The inconsistent findings of prior studies on the relationship between financial leverage and performance may be due, in part, to the researchers' approach. Most of the researchers who conducted these studies used the universal approach, which examines the direct or main effects of financial leverage on performance. O'Brien (2003) notes that these prior studies overlooked the effects of a firm's business strategy and contends that this may account for their contradictory results (Jermias, 2008).

Porter (1985) developed a framework that outlines how firms might choose a business strategy in order to compete effectively. He argued that a firm must choose between competing as the lowest-cost producer in its industry (i.e., a cost leadership strategy) or competing by providing unique products in terms of quality, physical characteristics, or product related services (i.e., a product differentiation strategy). In addition, he emphasized that the essence of a firm's business strategy is its ability to deliberately choose a set of activities which will deliver a unique mix of values to its customers (Porter, 1996; Jermias, 2008).

The two empirical studies by Barton and Gordon (1988) and O'Brien (2003) shed important light on the impact of business strategy on the relationship between leverage and performance.

Jermias (2008) investigated "Relative intensity of business competition and business strategy on the relationship between financial leverage and corporate performance". He concluded that there was a negative relationship between financial leverage and performance; this relation was more negative when product differentiation strategies were chosen rather than cost leadership strategy

3. RESEARCH HYPOTHESES

Considering that the basic aim of this study is to analysis the influence of cost leadership and product differentiation strategies on relation between financial leverage and company performance, the research hypotheses are classified in two groups as follow:

3.1. The first group of hypotheses: The companies that used the cost leadership strategy.

H_1: There is a significant relationship between cost leadership strategy and company's performance.
H_2: There is a significant relationship between financial leverage and company's performance.
H_3: There is a significant relationship between company's size and company's performance.
H_4: There is a significant relationship between dividend payout and company's performance.

3.2. The second group of hypotheses: the companies that used the product differentiation strategy.

H_1: There is a significant relationship between product differentiation strategy and company's performance.
H_2: There is a significant relationship between financial leverage and company's performance.
H_3: There is a significant relationship between company's size and company's performance.
H_4: There is a significant relationship between dividend payout and company's performance.

4. VARIABLES DEFINITIONS

4.1. Dependent variable

- **Company's performance:** Two criteria are used to assess a company's performance:

1 - The Accounting basis
2 - The Market basis

While accounting-based performance measures such as return on equity (ROE) and return on investment (ROI) tend to be more controllable by managers, they can be manipulated more easily than market-based measures. Furthermore, accounting-based measures tend to underestimate the performance of firms that makes heavy investments in the current period (such as innovators) which are expected to accrue benefits in future. In contrast, market-based performance measures such as the market value of equities tend to be more objective and beyond managers' control (Merchant and Van der Stede, 2007, Jermias, 2008).

Therefore, this study uses market-to-book ratio to measure firm performance. The main advantage of this proxy for performance is that it incorporates future expectations of firm's performance. Market-to-book ratio was calculated by dividing the market value of the firm (year end share price multiplied with the number of common shares outstanding) by the book value of total assets (Jermias, 2008).

4.2. Independent variables

- **Business strategies:** Classification of strategies is based on the Porter's strategies (1985). Thus strategies are categorized into two groups: cost leadership strategy and product differentiation strategy that calculated as follows:

Cost leadership strategy: The ratio of total sales to total assets.
Strategy of product differentiation: the proportion of research and development reserve to total sales.

- **Financial leverage:** The financial leverage measure for each firm is based on the book value of debt and assets. While the theory of capital structure suggests that financial leverage should be measured in market value terms, most empirical works tend to use book value rather than market value, mainly because book values are more objective. In addition, a survey by Stonehill et al. (1974) showed that those financial managers tend to think in terms of book-value rather than market-value ratios when discussing financial leverage (Jermias, 2008).

Financial leverage is defined as the ratio of total debt in this study (current liabilities+ long-term liabilities+ other liabilities) to total book value of assets.

4.3. Control variables:

- **Firm's size:** Size is a control variable that measures the size of the firm (Kouki and Guizani, 2009). Firm's size variable has become a key variable in prior. Firms can be categorized according to their size (measured by market capitalization, total sales or total assets) for the purpose of statistical analyses (Al-Najjar and Hussainey, 2). For the present paper, we use total assets as a proxy for the firm size.
- **Dividend payout:** Dividend payout is a major corporate decision that managers have to make. (Al-Najjar and Hussainey, 2009). A large number of studies have examined the extent to which dividends provide value relevant information for investors to predict firms' future performance (Hanlon et al., 2007). In this study dividend payout calculated from total dividend distributed dividends to the number of outstanding equity

These Variables are summarized in the table (I).

(Table I)
Description of the variables

Variables	Proxies	Calculations
PERFORM	Performance	Market to book value of equity.
STRA	business strategies	Cost leadership Strategy: ratio of total sales to total assets
		Product differentiation strategy: the proportion of research and development reserve to total sales.
LEV	financial leverage	Ratio of total debt (current liabilities+ long-term liabilities+ other liabilities) to total book value of assets.
SIZE	Size of the firm	A logarithmic function of total assets
DIV	Dividend per share	Total dividend distributed / the number of outstanding equity

5. METHODS OF DATA ANALYSIS

In this study, the multiple regressions are used for data analysis. Initial data was inserted in Excel spreadsheet and SPSS software was applied to analyze the data statistically. Also Rahavard Novin software, Tadbir Pardaz software, stock organization library and stock sites such as www.rdis.ir and www.irbourse.com were used.

6. RESEARCH METHOD AND REGRESSION MODEL

The correlation research method was used to determine the relationship between financial leverage, business strategies, firm's size and dividend pay-out with performance. Multiple regressions were applied to test the relationship between these variables.

We examine the relationship between these variables in a panel multiple regression framework. Also we determine an optimal model to predict the performance. We consider the empirical model described as follows:

$PERFORM_{it}= \beta_0 + \beta_{1i}\ STRA_{i.t}+ \beta_{2i}\ LEV_{it}+ \beta_{3i}\ STRA_{it}*LEV_{i,t}+ \beta_{4i}\ SIZE_{it}+ \beta_{5i}\ DIV_{it}+\varepsilon_i$

7. SAMPLE SELECTION

The sample was chosen from the firms listed on the Tehran stock exchange (TSE), for the period 2003 to 2010, using the following criteria:

1). Firms were listed in TSE during 2005-2014.
2). Data was available for all years under study.
3). The company didn't have change in the fiscal year for study period.
4). Banks, Insurance and Investment firms didn't consider in this study.

The data used in the analysis were collected from the annual reports of the official bulletins of the Tehran stock exchange. The final sample contains 60 firms.

8. DATA ANALYSIS

Pearson Correlation Coefficient and Multivariate Regression were used to analyze data.

Ho= Data is normal
H_1= Data is abnormal

(Table II)
One-sample Kolmogorov-Smirnov Test

		DIV
N		600
Normal parameters[a.b]	Mean	.946394
	Std. Deviation	1.0424150
Most Extreme Differences	Absolute	.074
	Positive	.074
	Negative	-.070
Kolmogorov-Smirnov Z		1.212
Asymp. Sig. (2-tailed)		.106

a. Test distribution is normal.
b. Calculated from data.

Following the table (II), Sig = 0.106>0.05. Thus result show that data is normal.

8.1. Firms that used from Cost leadership Strategy

Testing Results of the first group hypothesis:
(Table III)
Variables Entered

Model	Variables Entered	Method
1	Cost leadership Strategy (STRA)	Step wise
2	LEV	Step wise
3	STRA *LEV	Step wise
4	DIV	Step wise

A total optimum model was used to predict the performance based on Cost leadership Strategy. We entered variables into the model respectively. 4 models were defined and finally the last model (4) including 4 variables was defined as an optimum model to predict the performance. As a result, the regression model came as the followings:

$PERFORM_{it}= \beta_0+ \beta_{1i}\ STRA_{it}+ \beta_{2i}\ LEV_{it}+ \beta_{3i}\ STRA_{it}*LEV_{it}+ \beta_{4i}\ DIV_{i,t} + \varepsilon_{it}$

(Table IV)
Excluded Variables

model	Variable	Beta ln	t	Sig	Partial Correlation	VIf
1	size	0.036	0.659	0.511	0.041	1.023

As it is seen, size significance level is equal to 0.511 > 0.05, therefore, this variable was not entering the model.

Presenting total optimum model based on model 4 (T-test)
Optimum model was model 4, which had a more determination coefficient than the previous ones. In fact, when most variables were beside each other, they could present a more precise prediction of the performance and in the first group hypothesis, the optimum model was model 4.

(Table V)
Coefficients of model 4

Model4	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Stl. Erro	Beta			
Constant	-0.058	0.132		-0.439	0.000	
STRA	0.715	0.146	0.447	4.913	0.000	1.100
LEV	1.042	0.253	0.485	4.126	0.000	1.367
STRA*LEV	-0.752	0.256	-0.439	-2.942	0.004	1.187
DIV	0.017	0.008	0.114	1.975	0.049	1.168

The optimal regression model was written as the following:
$PERFORM_{it}$= -0.058+ 0.715 $STRA_{it}$+ 1.042 LEV_{it} -0.752 $STRA_{it}$*LEV_{it}+ 0.017 DIV_{it}

As it is seen in optimum model, Cost leadership Strategy entered with coefficient equal to 0.715. Thus, there is a positive relationship between Cost leadership Strategy with performance. Coefficients of **LEV** and **DIV** variables interred to optimal model are positive, thus relations between **LEV** and **DIV** with performance are positive. In other hand Coefficient of **STRA *LEV** are negative, thus there is a negative relationship between **STRA *LEV** with performance. Meanwhile, based on the results of table (V), VIF coefficient related to the variables entered to the final model indicated that there isn't major change in coefficient in relation with figure 1, and there aren't collinear between independent variables in the final model.

8.2. Firms that used from Product differentiation strategy
Testing Results of the second group hypothesis:
(Table VI)
Variables Entered

Model	Variables Entered	Method
1	STRA *LEV	Step Wise
2	Size	Step Wise
3	Product differentiation strategy (STRA)	Step Wise
4	LEV	Step Wise
5	DIV	Step Wise

A total optimum model was used to predict the performance based on Product differentiation strategy. We entered variables into the model respectively. 5 models were defined and finally the last model (5) including all variables was defined as an optimum model to predict the performance.

As a result, the regression model came as the followings:
$PERFORM_{it}= \beta_0+ \beta_{1i}\ STRA_{it}*LEV_{it} + \beta_{2i}\ SIZE_{it}+ \beta_{3i}\ STRA_{it} + \beta_{4i}\ LEV_{i,t} + \beta_{5i}\ DIV_{i,t}+ \varepsilon_{it}$

Presenting total optimum model based on model 5 (T-test)
Optimum model was model 5, which had a more determination coefficient than the previous ones. In fact, when all variables were beside each other, they could present a more precise prediction of the performance and in the second group hypothesis; the optimum model was model 5.

(Table VII)
Coefficients of model 5

Model 4	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Stl. Erro	Beta			
Constant	-3.485	0.576		-6.046	0.000	1.4
STRA*LEV	41.028	3.163	0.913	12.971	0.000	1.031
size	0.752	0.099	0294	7.560	0.000	1.392
STRA	-23.505	4.035	-0.355	-5.825	0.000	1.302
LEV	0.674	0.235	0.124	2.864	0.005	1.274
DIV	-0.028	0.013	-0.096	-2.104	0.036	1.250

The optimal regression model was written as the following:

$PERFORM_{it}$= -3.485+ 41.028 $STRA_{it}$*LEV_{it} + 0.752 $SIZE_{it}$ -23.505 $STRA_{it}$+ 0.674 LEV_{it} – 0.028 DIV_{it}

As it is seen in optimum model, Product differentiation strategy entered with coefficient equal to -23.505. Thus, there is a negative relationship between Product differentiation strategies and performance. Coefficients of **STRA *LEV**, **SIZE** and **LEV** variables interred to optimal model are positive, thus relations between **STRA *LEV**, **SIZE** and **LEV** with performance are positive. On the other hand Coefficient of **DIV** is negative, thus there is a negative relationship between **DIV** with performance. Meanwhile, based on the results of table (VII), VIF coefficient related to the variables entered to the final model indicated that there isn't any major changes in coefficient in relation with figure 1, and there isnt collinear between independent variables in the final model.

9. RESULTS OF THE FIRST GROUP HYPOTHESIS TEST

Results of the first group hypotheses test (shows in appendix),indicated that four variables with significant relationship with firm performance, explained 25% of behavior of the dependent variable.

As the relationship between the variables in the model showed, if companies' strategy is based on cost leadership strategy; cost leadership strategy, financial leverage and dividend variables have a direct link relationship with company's performance. Thus, if the company's strategy is based on cost leadership strategy, with increase in financial leverage and Dividend payments; the performance will be increased. The financial leverage multiplication strategy variable has inversely relationship with company's performance.

The overall results of the first group hypotheses tests suggest that, financial leverage, business strategy and dividends payout have positive and significant impact on company's performance. It should be noted that outcome isn't the same as the results of Jermias (2008) that examined "the relative influence of competitive intensity and business strategy on the relationship between financial leverage and performance". He showed that if the companies use cost leadership strategy, the relationship between financial leverage and performance will be negative. But the results of this study are the same as the results of Barton and Gordon (1988) and O'Brien (2003). They found that cost leadership strategies had an important influence on financial leverage.

10. RESULTS OF THE SECOND GROUP HYPOTHESIS TEST

Results of the second group hypotheses test (shows in appendix), Indicated that all variables with significant relationship with firm performance, explained 61% of behavior of the dependent variable.

As the relationship between the variables in the model showed, if companies' strategy isbased on product differentiation strategy; thefinancial leverage, firm's size and financial leverage multiplication strategy variables, will have a direct link relationship with company's performance. Thus, if the company's strategy is based on product differentiation strategy, with increase in financial leverage, firm's size and financial leverage multiplication strategy; the performance will be increased. The financial leverage multiplication strategy variable has inversely relationship with company's performance. Also with increase in product differentiation strategy and dividend payout; the performance decreases.

The overall results of the second group hypotheses tests suggest that, financial leverage and size of company have a positive and significant impact on company's performance while dividend payout and product differentiation strategy have a negative and significant impact on company performance. It should be noted that outcome isn't the same as the results of Jermias (2008). He showed that if the companies use product differentiation strategy, the relationship between financial leverage and performance will be negative. But the results of this study are the same as the results of Barton and Gordon (1988) and O'Brien (2003). They found that product differentiation strategies had an important influence on financial leverage.

11. COMPARISON OF TWO GROUP HYPOTHESIS RESULTS

Results ofcomparison of two groups hypotheses confirms: the positive relationship exists between financial leverage and performance; and if the companies chose Product differentiation strategies rather than cost leadership strategy, this relationship is more positive. If the company chose cost leadership strategy; the company's performance increases. While if the company chose product differentiation strategy; the company's performance increases. It shows that the Iranian companies tend to choose cost leadership strategy as Business strategy. Such results aren't consistent with the results of Jermias (2008). He showed that there was a negative relationship between financial leverage and performance. And if the companies chose Product differentiation strategies rather than cost leadership strategy, this relationship will be more negative.

In the first group of hypotheses (the cost leadership), dividend pay-out has a positive significant relationship with Performance but in the second group of hypotheses (product differentiation) dividend pay-out has a negative significant relationship with performance.

In the first group of hypotheses (the cost leadership), the firm's size does not have a significant relationship with firm's performance, but in the second group of hypotheses (product differentiation), the firm's size has a positive relationship with firm's Performance.

REFERENCES

Ahn, S., Denis, D. J, and Denis, D. K. (2006), "Leverage and investment in diversified firms", Journal of Financial Economics79, 317-337

Al-Najjar, B. and Hussainey, K. (2009), "The association between dividend payout and outside directorships", Journal of Applied Accounting Research, *41*, 4-19.

Balakrishnan, S., Fox, I., (1993), "Asset specificity, firm heterogeneity and financial leverage", Strategic Management Journal, 14 (1), 3–16.

Barton, S.L., Gordon, P.J., (1988), "Corporate strategy and financial leverage", Strategic Management Journal 9 (6), 623–632.

Dimitro, V., Jain, PC, (2005), "The Value Relevance of Changes in Financial Leverage", HUhttp://ssrn.com/ =708281U 230-250

Ghosh, D.K., (1992), "Optimum financial leverage redefined", Financial Review 27, 411–429.

Hanlon, M., Myers, J. and Shevlin, T. (2007), "Are dividends informative about future earnings?", working paper, University of Michigan, Ann Arbor, MI.

Harris, F.H.deB., (1994), "Asset specificity, capital intensity, and capital structure": an empirical test, Managerial and Decision Economics 15, 563–577.

Harris, M., Raviv, A., (1991), "The theory of financial leverage", Journal of Finance 46, 297–355.

Hou, K, and Robinson, DT, (2006), "Industry Concentration and Average stock returns", Journal of Finance 61, 1927-1956

Jensen,M, (1986), "Agency costs of free cash-flow, corporate finance and Takeovers", AEA paper and proceeding;May.

Jensen, MC, Meckling, WH, (1976), "Theory of the firm, managerial behavior, agency costs and ownership structure", Journal of Financial Economics 3, 305–360.

Jermias, J., (2008), "The relative influence of competitive intensity and business strategy on the relationship between financial leverage and performance", The British Accounting Review 40, 71–86

Kouki, M. and Guizani, M. (2009), "Ownership Structure and Dividend Policy Evidence from the Tunisian Stock Market", European Journal of Scientific Research, 25 , 42-53

Merchant, KA, Van der Stede, WA, (2007), "Management Control Systems: Performance Measurement, Evaluation and Incentives". Prentice-Hall, New York.

Modigliani, F., Miller, MH, (1958), "The cost of capital, corporate finance, and the theory of investment", American Economic Review 53, 433–443.

O'Brien, JP, (2003), "The financial leverage implications of pursuing a strategy of innovation", Strategic Management Journal 24, 415–431.

Porter, ME, (1985), "Competitive Advantage". Free Press, New York, 250-270

Porter, M.E., (1996), "What is strategy?" Harvard Business Review, November–December.

Simerly, R.L., Li, M., (2000), "Environmental dynamism, financial leverage and performance": a theoretical integration and an empirical test. Strategic Management Journal 21 (1), 31–49.

Stonehill, T.N.A., Remmers, L., Wright, R., Beekhuisen, T., 1974. Comparative international study of growth, profitability, and risk asdeterminants of corporate debt ratios in the manufacturing sector. Journal of Financial and Quantitative Analysis 9, 875–886.

APPENDIX

First group hypothesis:

Model Summary [e]

Model	R	R Square	Adjusted R Square	Std. Error the Estimate	Durbin- Watson
1	.409[a]	.167	.164	.9568820	
2	.455[b]	.207	.201	.9357160	
3	.489[c]	.239	.230	.9183434	
4	.500[d]	.250	.239	.9132998	1.993

a. Predictors: (Constant), STRA
b. Predictors: (Constant), STRA, LEV
c. Predictors: (Constant), STRA, LEV, STRA*LEV
d. Predictors: (Constant), STRA, LEV, STRA*LEV, DIV
e. Dependent Variable: PERFORM

ANOVA [e]

Model		Sum of Squares	df	Mean square	F	Sig
1	Regression	48.568	1	48.568	53.043	.000[a]
	Residual	241.725	354	.916		
	Total	290.292	355			
2	Regression	60.019	2	30.009	34.274	.000[b]
	Residual	230.273	353	.876		
	Total	290.292	355			
3	Regression	69.333	3	23.111	27.404	.000[c]
	Residual	220.959	352	.843		
	Total	290.292	355			
4	Regression	72.588	4	18.147	21.756	.000[d]
	Residual	217.704	351	.834		
	Total	290.292	355			

a. Predictors: (Constant), STRA
b. Predictors: (Constant), STRA, LEV
c. Predictors: (Constant), STRA, LEV, STRA*LEV
d. Predictors: (Constant), STRA, LEV, STRA*LEV, DIV
e. Dependent Variable: PERFORM

Excluded Variables [e]

Model		Beta In	t	Sig	Partial Correlation	Co linearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	LEV	.240 [a]	3.616	.000	.218	.684	1.462	.684
	SIZE	.058 [a]	1.027	.306	.063	.999	1.001	.999
	DIV	.185 [a]	3.241	.001	.196	.936	1.069	.936
	STRA*LEV	.094 [a]	1.065	.288	.066	.403	2.480	.403
2	LEV							
	SIZE	.065 [b]	1.177	.240	.073	.997	1.003	.682
	DIV	.144 [b]	2.496	.013	.152	.884	1.132	.646
	STRA*LEV	-.491 [b]	-3.323	.001	-.201	.133	7.524	.133
3	LEV							
	SIZE	.043 [c]	.784	.434	.048	.981	1.019	.131
	DIV	.114 [c]	1.975	.049	.121	.856	1.168	.129
	STRA*LEV							
4	LEV							
	SIZE	.036 [d]	.659	.511	.041	.977	1.023	.127
	DIV							
	STRA*LEV							

a. Predictors: (Constant), STRA
b. Predictors: (Constant), STRA, LEV
c. Predictors: (Constant), STRA, LEV, STRA*LEV
d. Predictors: (Constant), STRA, LEV, STRA*LEV, DIV
e. Dependent Variable: PERFORM

Residual Statistics [a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.178041	6.052359	.948084	.5211556	359
Residual	-1.377527	4.467954	.000816	.9060194	359
Std. Predicted Value	-1.476	9.748	-.004	.996	359
Std. Residual	-1.508	4.892	.001	.992	359

a. Dependent Variable: PERFORM

Second group hypothesis:

Model Summary [f]

Model	R	R Square	Adjusted R Square	Std. Error the Estimate	Durbin watson
1	.676[a]	.458	.456	1.4757277	
2	.731[b]	.535	.531	1.3691829	
3	.773[c]	.597	.593	1.2761245	
4	.780[d]	.608	.602	1.2612381	
5	.784[e]	.615	.607	1.2531307	1.918

a. Predictors: (Constant), STRA*LEV
b. Predictors: (Constant), STRA*LEV, SIZE
c. Predictors: (Constant), STRA*LEV, SIZE, STRA
d. Predictors: (Constant), STRA*LEV, SIZE, STRA, LEV
e. Predictors: (Constant), STRA*LEV, SIZE, STRA, LEV, DIV
f. Dependent Variable: PERFORM

ANOVA [e]

Model		Sum of Squares	df	Mean square	F	Sig
1	Regression	490.563	1	490.563	225.259	.000[a]
	Residual	581.465	357	2.178		
	Total	1072.028	358			
2	Regression	573.368	2	286.684	152.926	.000[b]
	Residual	498.660	356	1.875		
	Total	1072.028	358			
3	Regression	640.477	3	213.492	131.098	.000[c]
	Residual	431.551	355	1.628		
	Total	1072.028	358			
4	Regression	652.078	4	163.019	102.481	.000[d]
	Residual	419.951	354	1.591		
	Total	1072.028	358			
5	Regression	659.030	5	131.806	83.935	.000[e]
	Residual	412.028	353	1.570		
	Total	1072.028	358			

a. Predictors: (Constant), STRA*LEV
b. Predictors: (Constant), STRA*LEV, SIZE
c. Predictors: (Constant), STRA*LEV, SIZE, STRA
d. Predictors: (Constant), STRA*LEV, SIZE, STRA, LEV
e. Predictors: (Constant), STRA*LEV, SIZE, STRA, LEV, DIV
f. Dependent Variable: PERFORM

Residual Statistics [a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.728565	19.608133	1.108380	1.5681408	359
Residual	-2.127228	11.944304	.000	1.2413860	359
Std. Predicted Value	-1.171	11.797	.000	1.000	359
Std. Residual	-1.698	9.532	.000	.991	359

a. Dependent Variable: PERFORM