

Effect of Capital Structure on Cumulative Abnormal Returns in the Companies Listed in T.S.E

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ABSTRACT

Finance and capital structure is determined by one of the most important tasks of financial management and plays an essential role in determining firm value the company's main objective is to maximize shareholder wealth. This study examines the impact of capital structure on cumulative abnormal returns in listed companies in Tehran Stock Exchange. This study will try to finance companies and how it affects abnormal returns, obtained information. In total, 121 companies were selected from various industries between the years 1380-1390. Data collected from this study are analyzed using a theoretical model proposed software Eviews. In statistical analysis was performed the aim is to examine the relationship between cumulative abnormal returns and the factors presented in series of cross-sectional periods of time. Statistical analysis will be used to test the significance of the Pearson correlation coefficient, Hausman test, Panels, D-W and test F (Fisher) and t. The results indicate that capital structure does not significantly affect the cumulative abnormal returns.

Keywords: Cumulative abnormal returns, Financial leverage, Capital structure.

Introduction

In today's world, one of the principal concerns is create competition ability in different markets. Management in this regard, always trying to value creation using a tools available for enterprise until in addition, access to the targets set forth able their shareholder wealth people to maximum. So far, much research has been done on capital structure, there is however, little information finance companies and although this method how it affects on abnormality return. Since one

of the main tasks of managers, is maximization shareholder wealth, impact of financing methods and how to consumption the proceeds of these methods on cumulative abnormal returns, the benefit of great importance for them. Also, method of financing may affect earnings per share, financial risk and in ownership stakeholders. Try this research is to examine method finance companies that this method how it affects on abnormality return. So the main problem

with this study is that what effect does capital Structure on cumulative abnormal returns in listed companies the Tehran Stock Exchange? Financing decisions and investment companies, decisions are that both are made with anticipating the future. In the decisions financing the company will use the desired funds at the moment to act in the future its obligations about financial resources suppliers. Sources of corporate financing according to its financial policies, is divided to two parts "Inner Financial resources" and "External financing" company. Internal financial resources, company profits from where the action is financing so the question arises, which how to apply to companies financing to maximize their positive impact on profit and efficiency shareholders. For example, the nature of activity may be such that cash flows provided input easily. In the situation of debt instead of stock (Financed by debt) it is cheaper than equity and adds on corporate profits. Therefore in this study, be checked that is considered capital structure and related value for capital investors.

In this study, the effect of financial leverage on abnormality return it is estimated considering the several risk factors, included office value to market and other factors described by Fama and French (1992).

Theoretical Foundations

Capital Structure refers to combination of financing sources such short-term debt and long-term debt and preference shares and ordinary. Its capital structure planning to so that is able utilization of funds up to and their status to adapt the more easily with changing circumstances. Capital structure decisions the rate of return risk and shareholders influenced and the value of stock market also may be affected with effect from capital structure decisions. Characteristics of securities effective on capital structure:

- 1- Proprietary rights
- 2-Requirements for debt repayment
- 3-Claims than assets
- 4-Claims than benefits

Table 1. Summarizes the Characteristics of the securities

Common stock	Preferred Stock	Bond	Description
Full rights If shareholders do not willing to their ownership rights are shared with new investors instead of ordinary shares use of preferred stock or bonds.	None, Unless with the right vote their ownership rights are shared with new investors instead of ordinary shares use of preferred stock or bonds.	None, In most cases	Proprietary rights
None	None, it may be redeeming	Full obligation to repay	Repayment obligations
If the companies not wish to be confronted with repayment obligations, preference shares or ordinary is preferred to bonds.			
A downstream securities, The last claim If the company will not grant relative priority assets to new investor's common stock is the preferred.	The preferred than ordinary shares, The second claim	Preferred securities and privileged, The first claim	Claim than assets
Full claims on the remaining profit If the company wants to limit new investment the company's share bonds or preferred stock is preferred.	The first claim, but only up to the amount specified	None, but first must be paid interest	Claim than profits

The relationship between risk and return

Basically, the more risks, by investors are associated with increased risk of expected

returns. This means that their risks are more demanding greater efficiency from market portfolio than risk-free investments (Structure, such as treasury bills). "The difference between the market return and interest rates the so-called only markets risk. Only risk market expectations $\times b =$ only expected risk one contribution

$$r_i - r_f = (r_m - r_f)\beta$$

Expected return on shares $r_i : i$

Market efficiency rate: r_m

Rate of return without Risk: r_f

Slope of the line securities market also in terms called only market risk.

$$E(R_M) - R_f$$

Arbitrage Pricing Theory 1 (APT)

Capital asset pricing model checks how to choose efficiency portfolio by investors while the arbitrage pricing model which is provided by Astfanras instead of being efficient portfolio, consider the important factor in economic and information about the company. The theory says the return per share the widespread impact of macroeconomic (Systematic risk) that in terms called "Factors" and the events that are located for certain companies (unsystematic risk) it depends or as news of company-specific information.

$$a + b_1(r_1) + b_2(r_2) + b_3(r_3) + \dots + \text{news} = \text{Expected Returns}$$

Arbitrage pricing theory says the only expected Risk a contribution expected risk premium associated with is associated with every agent and sensitivity of the stock relative to each factor ($b_1, b_2, b_3 \dots$).

$$b_1(r - r_f) + b_2(r - r_f) + \dots = r - r_f = \text{Only expected risk}$$

Note that should be raised here this is market portfolio plays a major role the pricing model capital assets not worth in arbitrage pricing theory so other was not

concerned for measurement problems market portfolio. The arbitrage pricing model can we tested even if only have information for a sample proportion risky.

Materials and Methods

This research is the descriptive method, and the inductive logic, and in terms of practical results. Since the study of time series data of several companies in one or more fiscal years shall be determined, thus, according to the outline of the required data collection, this research is the kind of solidarity after the event. Material gathered in this research is libraries. The model used in this study, it is taken from the research is that way) Khajavi 1389):

$$CAAR_{i,t} = a + b_1 LEVERAGE_{i,t} + b_2 BETA_{i,t} + b_3 SIZE_{i,t} + b_4 BM_{i,t} + b_5 PE_{i,t} + e_t$$

LEVERAGE = Financial leverage (main variable)

Control variables:

BETA = β

SIZE = Company size

BM = Ratio of stock price to book value of net assets

P/E = Price to earnings per share ratio

Dependent variable

The dependent variable in this study is as abnormal returns. The efficiency is calculated by the difference between the actual price that comes stock price of a capital asset pricing model (CAPM). But according to research that has been conducted in Iran, since stock returns generally do not follow the same trend, the capital asset pricing model can not provide a good model to predict stock returns. Hence, the following model is used to calculate stock returns and we consider return equal to the yield loss in the period t and $t-1$ (Lashkari Amri, 1387).

$$R_{it} = [D_t + P_t(1 + \alpha_1 + \alpha_2) - (P_{t-1} + C_{a1})] / P_{t-1} + C_{a1} \times 100$$

$$AR_{it} = R_{it} - R_{it-1}$$

D_t = cash dividends paid

α_1 = percent capital increase brought of receivables and cash

α_2 = % increase brought of receivables and cash

P_t = stock price In end of period t

P_{t-1} = price of the stock at the beginning of t

C = the nominal amount paid by investors for the capital increase of cash and receivables (in 1000 Rls).

$AR_{i,t}$ = Abnormality return;

$R_{i,t}$ = return true

R_m = expected return

$R_{i,t}$ = return on share i In year t

Financial leverage: There are companies that have high leverage, the increase in net profit to be strengthened and increase the safety of bonds and other corporate debt such that good news about net profit placed welcome to bondholders (and no shareholders), hence response rates for companies that have net profit heavy loans in contrast, companies that have no debt (If all other factors remain constant) makes the reaction rate decreases against net profit. Also Dali Wall, Lee and Fargr (1991) and Billings (1999) in its investigation concluded that the companies with heavy debt with reaction rate against lower profit and also in companies that debt ratio was higher to equity response rate was lower than Against net profit (Scott, 1972)

To review capital structure used from financial leverage, based on a balance sheet approach to calculate the financial leverage the ratio of corporate debt it is measured by total assets. Also the same method was used in this study and companies in which it is larger than the median as firms with high financial leverage as well as other fit in portfolio companies with low financial leverage. For

measuring of financial leverage (LEVERAGE) is used in the following proportions:

$$\frac{\text{Total Debts}}{\text{Total Assets}}$$

Control Variables

Size: This research was also used to calculate the amount of knowledge providers use the share price of its size. Company size is calculated using the following formula.

$$SIZE = \ln(mv)$$

Mv = size of the company is equal to multiplied number of ordinary shares × The market price

Systemic risk

The total market risk can be divided into two general categories of risk, systematic risk and unsystematic. Unsystematic risk is the risk that is due to the firm-specific characteristics among product Type of shareholder capital structure and so on. The systemic risk arising from overall market and economic developments and is not specific to only to certain companies in other words, systematic risk arises due to the overall market. According to portfolio theory fill species of portfolio the unsystematic risk can be eliminated but remains systemic risk. Beta Index is an index to measure conformance move one company with moves overall market and or indicator for measurement Systemic risk. In this study, for calculation of systemic risk is used the following formula:

$$R_i = \alpha_i + \beta_i(R_m) + \varepsilon$$

$$\bar{R}_m = \Sigma(R_m/n)$$

$$\bar{R}_i = \Sigma(R_i/n)$$

$$COV(R_i, R_m) = (R_i - \bar{R}_i)(R_m - \bar{R}_m) / n - 1$$

$$\beta_i = COV(R_i, R_m) / \sigma^2(R_m)$$

(Earnings per share) / (price per share) (P / E) is the price relative to earnings per

share which represents the amount of time that is required back to the future funding of the local share of the proceeds (Ghaemi, 1385). BM: ratio of stock price to net book value of assets.

Results and Discussion

Statistical society the desired research is included selected companies stock and financial year study period (1380) to (1390). Due to the limitations explained 121 Companies was selected as the research community that explains it is in Table 2.

Table 2. Name of companies statistical Society

Company Name	Row	Company Name	Row	Company Name	Row	Company Name	Row
Kaf	91	Shahdiran	61	Tile Esfahan	31	Manganese Mines of Iran	1
Loabiran	92	Pak Dairy	62	Tile Alvand	32	Damavand Mineral	2
Iran Amlah	93	Noush Mazandaran	63	Tile Sina	33	Ema	3
Pars Pamchal	94	Esfahan Pegah	64	Tile Niloo	34	Welding and oxygen	4
Iran Transfo	95	Nab	65	Sand supply	35	Soliran	5
Pars Switch	96	Alborz drug	66	Oil Behran	36	Industrial Sepahan	6
Bakhtar Kabul	97	Iran drug	67	Pars Oil	37	Aluminum Rolling	7
Pars Shahab lamp	98	Pars drug	68	Plastic Shahin	38	Alumtek	8
Martyr Ghandi	99	Tehran drug	69	Pipe Gas	39	Mineral Processig	9
Power Trans	100	Saipa Diesel	70	Sahand Rubber	40	Calcimine	10
Absal	101	Casting Iran	71	Saipa Plascokar	41	Bahonar Copper	11
Bootan	102	Zar Shock absorber	72	Industrial Yarez	42	National Pb and Zinc	12
Tractor Manufacturing	103	Shock absorber Indamyn	73	Abadan Petrochemical	43	Rolled Steel Parts	13
Aboureihan drug	104	Group Bahman	74	Esfahan Petrochemical	44	Forging Tractor	14
Osveh drug	105	Brake pads	75	Khark Petrochemical	45	Iran Khodro	15
Elixir Drug	106	Mehvarsazan	76	Farabi Petrochemical	46	Iran Khodro Diesel	16
Amin drug	107	The driving force	77	Sarma Afarin	47	Pars Khodro	17
Jaber Hayan drug	108	Iran Fiberglass	78	Combine manufacturing	48	Swing Trader	18
Damloran Pharmaceutical drug	109	Iran China Clay	79	Propulsion	49	Iran Radiator	19
Razak drug	110	Glass Qazvin	80	Techno Tar	50	Casting tractor	20
Zahravi drug	111	Glass and Gas	81	Agricultural Services	51	Zamyad	21
Abidi drug	112	Varziran	82	Pars Household Appliances	52	Saipa	22
Farabi drug	113	Iran Refractories	83	Iran Tractor Manufacturing	53	Saipa Azin	23
Loqman drug	114	Azar Refractories	84	Firouza Engineering	54	Sepahan Cement	24
Broadcast drug	115	Urmia Cement	85	Iran Contour Manufacturing	55	Cement Sufis	25

Kosar pharmaceutical	116	Tehran Cement	86	Behnoush	56	Kerman Cement	26
Sina drug	117	Tolypers	87	Biscuits Georgian	57	Mazandaran Cement	27
Chemistry of Drug Distribution	118	Pars Industrial soot	88	Pars Minoo	58	Karoon Cement	28
Injectable products	119	Sina Chemical	89	Pars Animal Feed	59	Cement Hegmatan	29
Materials distributed medicine	120	Carbon Iran	90	Agroindustrial Piazar	60	Iran China	30
Jam drug	121						

Based on multivariate regression the relationship between the dependent variable is the cumulative abnormal returns other variables is obtained as follows:

$$CAAR_{i,t} = 0.985 + 0.224 LEVERAGE_{i,t} + 0.183 BETA_{i,t} + 0.119 SIZE_{i,t} + 0.638 BM_{i,t} + 0.410 PE_{i,t} + \epsilon_t$$

The coefficient of determination for this model is equal to 0.283 which indicates that the independent variables have power

explanation dependent variable at level 0.283. Also statistics D - W in acceptable efficiency (less than 2) that indicative this is that are independent residuals. Because see which models of the pool or panel can use to estimate the model used from F method Limer (Abbasi-Nejad, 1380).

$$F_0 = \frac{(RRSS - URSS)(N - 1)^{H_0}}{2a} \sim F_{N-1, N(T-1) - K}$$

Table 3. Result of F Limer

$F_{N-1, N(T-1) - K}$	K	T	N	URSS	RRSS
4.96185	5	5	1.3	379.190	2765.802

As regards amount $F_{N-1, N(T-1) - K}$ is larger than the Table so used from Panel method for the estimated model. In this section will be referred to two Important the fixed or random effects: First, the all people are equal in panels or sections in this case, no need to worry are the intercept different for any person or section. In fact, Panel data approach could well show heterogeneity among individuals. It is one advantage of the panel models than sectional or time-series models. Second, the intercept suppose that fixed sentence

for any person or section regression model. Random effects model assumes that are the intercept is random sentence for each group, but each time period the random distribution only one occurrence of the same forms enter every term in the regression model. In other words, for the entire period for each individual there are only are the intercept (and invertebrates Ashrafzadeh 1387). The choice between fixed and random effects used from Hausman test the results of which are presented in the following table.

Table 4. Results of the Hausman test

Meaningful	Degrees of freedom	Xi statistic 2
1.97612	5	1.22451

As regards Prob is more than 0.05 so be rejected suppose H_0 and random effects are accepted with 95% confidence. The null hypothesis we formed this way and it reaffirm test using the analysis of variance Null hypothesis: relationship is not linear. Null hypothesis: relationship is linear. As seen in Table 4, according to F obtained we conclude that the least one of the independent variable (predictor) is effective in predicting the dependent variable (response) and also due to the significant level model is 0.000 and the amount is smaller than 0.01, so assuming H_0 (is not linear relationship) will not be accepted with

a confidence level of 99 percent. The can be said is linear regression model. The most effective variables are in the model. First, financial leverage, Secondly Beta and afterwards is price relative to book value of assets given that mark coefficients mode the relationship is characterized by between these three variables and dependent variable. Table 5 coefficients and estimate the model shown in this mode. According to the results obtained in this table sig shows that between financial leverage and the dependent variable has no influence (Cumulative abnormal returns). So will not be accepted hypothesis.

Table 5. Coefficients and Estimation Model

Dependent Variable: Cumulative Abnormal Returns		Regression		
Probability	t-statistics	Beta coefficients	Variable	
0.103	2.06	0.014	Financial Leverage	
0.000	4.757	0.18	Price ratio to book values jointly assets	
0.000	3.974	0.119	Company size	
0.000	4.31	0.164	p/e	
0.001	5.326	0.206	Beta	
5.843	F -statistics	0.341	The coefficient of determination	
0.000	Probability F	0.283	Adjusted coefficient of determination	
0.477			D.W	

Now to see how is the importance of each of these variables we use of Friedman test to investigate this issue. To check the status of the research component used from Friedman

test and assumptions are expressed as follows:

H_0 : All components are identical research

H_1 : At least two components are not the same research.

Table 6. Friedman test

Number of samples	121
Chi-square	95.448
Degrees of freedom	3
Asymp. Sig.	.000

Table 7. Rated components in aspect excellent organization

Component	Average
Financial Leverage	3.34
Price ratio to book values jointly assets	3.78
Company size	3.11
P/E	4.03
Beta	4.19

ERP systems and higher education

According to the above table it can be concluded that be accepted H_1 hypothesis two components are not the same research least.

According to Table 7, the Beta and P / E Ratio are the most significant than other research variables.

Conclusion

Since the results of the hypothesis show that capital Structure no significant impact on cumulative abnormal returns so we can conclude that financial leverage factor did not influence abnormality return. The results of the hypothesis show that financial leverage has no significant impact on cumulative abnormal returns. In this respect Muradoglu and Sivaprasad (2007) resolution 9 Industry (Oil and gas, basic materials, industrial, consumer goods, healthcare, consumer services, telecommunications, utilities and technology) reviewed the impact of capital structure on cumulative abnormal returns. They each of these industries assigned a group of risk and concluded that return on equity; with financial leverage, increases for some of risk groups. Companies in industries such as general Industry have been cumulative abnormal returns that increase with financial leverage. The result were obtained from the test is contrary to expectations and because it can search in lack of investigate financial Leverage in various industries in Stock Exchange. Since the finance and determining the capital structure is one of the main tasks of financial management and plays an essential role

determining firm value so recommended that the Corporate have paid little attention determining investment portfolio financial leverage factor because this research show that, this factor is unaffected on cumulative abnormal returns.

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