

## Research Article

### The Relationship between Financial Flexibility and Capital Structure Decisions

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**Abstract:** Making decisions about capital structure is one of the most challenging and problematic issues companies face and thereby it is the most crucial decisions companies have to make for their survival. The aim of this study was to investigate the relationship between financial flexibility and capital structure decisions in accepted companies in Tehran Stock Exchange with using Falkner and Wang Model. Results of testing hypothesis which are based on a sample- that is consisted of 82 firms for a period of five years from 2006 to 2011- using multivariate linear regression models as well as panel data method, implied that marginal value of cash is negative in terms of market, i.e. the market is not willing to raise funds and will not evaluate this increase to be positive in funds. Furthermore, findings represent that there is no significant relationship between marginal value of financial flexibility and capital structure decisions of firms and firms would not pay attention to financial flexibility level in their decisions regarding increasing or decreasing debts, which in long term would result in losing financial flexibility as well as profitable investment opportunities.

**Keywords:** Abnormal returns, capital structure, financial flexibility, financial leverage, marginal value of cash

## INTRODUCTION

Today, as firms become bigger and bigger and technology develops, there will be increasing need for financial sources as well as large capital sources which as a result lead to the fact that capital budgeting and financing decisions of the firms will be subjected to one of main areas of decision which financial managers of public stock firms had to make. Theoretical discussions about capital structure pursuit reaching a balance between two major sources of financial sources, i.e., debt and capital equity rights in order to increase firms' shareholder value at that point to a maximum value and in contrast decrease financing costs to a minimum value. Such point (balance) is called an optimal capital structure. Improper capital structure would affect all fields of activities associated with a firm and could lead to emergence of problems like increasing firm's capital cost, decreasing firm's value, increasing firm's risk taking and finally entity insolvency.

The goal of all firms is to maximize its value. Capital structure has a more limited concept than financial structure. Financial structure refers to how a firm's equity is provided while capital structure refers to the combination of long term financial resources. Accordingly a firm's capital structure is a part of its Financial structure (Myers, 1984b).

Several factors affect on the capital structure decisions. The first factor is the commercial risk or

equities- related risk value when debt is not used. The higher the commercial risk the lower the optimal debt ratio. The second key factor is the financial status of a firm. The most important use of debt is to be acceptable for the Ministry of Economy and Finance which reduce effective cost of debt. The third one is financial flexibility (Clarc, 2010). Financial flexibility refers to the ability of a business entity to adopt effective measures to change the amount and time of cash flow in a way that enable the entity to respond to unexpected events and opportunities.

On the other hand, another subject which is related typically to firms' capital structure is financial flexibility. Financial flexibility is a degree of a firm's capacity which would enable firm to mobilize resources for response activities in order to increase firm's value to a maximum value (Byoun, 2007).

Problems of capital market made firms to maintain financial flexibility for purpose of using profitable opportunities. In fact, financial flexibility is commercial institution's capability to mobilize their financial resources against uncertain conditions in future. A commercial firm needs financial flexibility in practice when expectations had not met or unexpected occurrences had occurred (Byoun, 2011).

In this regard, this study attempted to investigate the relationship between financial flexibility and leverage ratio of firms listed in Tehran Stock Exchange and also how impact of capital structure of active firms

in market is defined by financial flexibility. Low maintenance of cash and high leverage ratio of Iranian firms make double the necessity of taking into account financial flexibility, capital structure decisions and relationship between these two. Moreover, regarding various opinions and theories researchers provided in context of financing methods-even sometimes they had breached each other's theories- this study is important investigating this issue and its obtained results lead to extend and resolve conflicts seen between various theories and previous opinions.

The main objective of the present study is to study the relationship between financial flexibility and capital structures decisions of the firms listed in Tehran Stock Exchange. To achieve the goal first the relationship between the final value of cash and abnormal stock return of firms has been focused upon. Its effect type and how abnormal stock return affects on the final value of cash was tested by Faulkender and Wang (2006).

#### **THEORETICAL LITERATURE OF THE RESEARCH**

Choosing optimal capital structure and various financing methods is the main concern of firms' financial managers. Inadequate capital structure in each firm, particularly in small firms, will affect various contexts of firms' activities and can lead to emergence of issues like inefficiency in product marketing, lack of efficiency of firms and failure to use proper human resources and similar cases in this regard.

Financing decisions is one of important tasks of firms in defining the best capital structure composition. Recognition and valuation of companies based on assets as well as how to finance, depends on recognition of capital structure (Modigliani and Miller, 1963).

Miller and Modigliani (1958), by presenting some theories, expressed that under particular hypothesis-including existence of perfect competitive market, no income taxes, no bankruptcy costs, no agency costs and information asymmetry between active market participants and replacement of internal or external financial sources- managers cannot modify firm's value just by modifying financial source composition. In other words, firm's value is independent of capital sources. This theory which is known as the first theory of Miller and Modigliani, expressed that, assuming no income taxes, value of a firm in debt (leveraged) is equal to value of a firm not in debt (non-leveraged).

Scott and Martin (1979) (quoted by Sibilco) in a research that they performed in capital structure context in USA, concluded that type of industry is an effective and determining factor in firms' financial structure.

In other research done by Myres and Majluf (1984) (quoted by Sibilco) determining factors of capital structure regarding information asymmetry hypothesis

perspective were defined. In this research, which corresponded with independent research of Myers in the same year, it was claimed that in case of existence of information asymmetry between firms and capital market, profitable firms preferred to use internal financing sources over external ones. But if they needed more resources, at first they tend to borrow more resources and finally (or after that) they try to offer equity.

Warner (1977) in a research performed on a sample of railway companies, debt influence on increasing firms' value was confirmed.

Another one of these fundamental researches include joint research performed by Titman and Wessels (1988) which is known as one investigating determining factors of capital structure in which the most important determining factors of capital structure-including tax advantages other than debt, company development, exclusiveness of company products, type of industry, profit fluctuations and profitability of company- were studied. Research result was that debt ratio to firm's capital had negative relationship with exclusiveness of company products. Moreover, short term debt of firm had negative relationship with size of firm. In this research, no significant relationship between tax advantages other than debt, profit fluctuations, collateral value of assets and future growth of the company were found.

Anderson (1990) investigated the relationship between firms' capital structure and their technology and concluded that capital-intensive firms had higher debts compared to work-intensive firms.

The most comprehensive and prominent research associated with capital structure is performed by Rajan and Zingales (1995) which is called what do we know about capital structure? Obtained results of this research showed that financial leverage in each one of these countries had negative relationship with two factors of market value ratio to office value and firm's profitability had positive relationship with two factors of eminent fixed assets and size of firm. Thereby with some connivance it can be said that factors associated with capital structure pattern in these seven countries except Germany could be expressed as general ones in term of capital structure.

Fama and French (2005) performed a research called represented patterns by parallel and preferred theory about dividends and debt in USA Population consisted of USA firms during period of 1965 to 1999. In this research, financing and welfare firms were excluded from the sample. Obtained results of research showed that: by controlling variable of investment opportunities, firms which paid higher dividends, had lower leverage ratio to office value. Furthermore, by controlling profitability variable of firms which had higher current and expected investment, these would pay higher dividends. Moreover, according to simple

model of this theory, firms which had higher investment, had higher leverage ratio to office value; finally according to complex model of this theory, when firms made a balance between current financing and expected one in future. Firms which face higher net cash flow fluctuations pay lower dividends and maintain lower leverage. Firms (particularly firms which pay dividends) had lower short term leverage by higher expected investment. Relationship between leverage and paid dividends ratio is also negative (Myers and Majluf, 1984a).

Marchica and Mura (2007) had done researches about the relationship between financial flexibility and investment decisions. They concluded that there is a strong relationship between financial flexibility and investment. In other words, after a period of low leverage policy, firms which had financial flexibility had more potential (capability) to perform capital costs (Marchica and Mura, 2007).

Byoun (2008a, b) conducted a research in USA, which is called "how and when firms would modify their capital structure toward defined objectives?" Population in this research consisted of all USA firms during period of 1971 to 2003 in which following previous studies, financing and welfare firms were excluded from the sample. Results showed that most of changes in capital structure occur when firms have cash surplus and their level of debt is higher than defined debt capacity or when firms have cash deficit and their level of debt is lower than defined debt capacity. Then pace of these changes is reduced. Moreover, pace of changes in firms-which have cash surplus and their level of debt is higher than defined debt capacity-was higher than one which have cash deficit and their level of debt is lower than defined debt capacity. This higher pace of changes could be due to the fact that costs associated with changes because of reduced debt is lower than defined debt capacity. Byoun concluded that firms which have lower debt ratio to defined debt capacity would use debt for financing in contrast to firms which have higher debt ratio to defined debt capacity.

Byoun investigated the relationship between financial flexibility and firms' capital structure and used steps associated with firms' lifetime as an alternative for defining financial flexibility. Results of his research showed that new companies-new-emerged companies which had newly begun to develop and make profit-offer equity shares for financing and maintain smaller leverage. Growing companies-which had already begun to grow and develop- us debt for financing and maintained larger leverage. Immature companies use internal sources and maintained a balanced leverage.

## RESEARCH HYPOTHESIS

Based on the theoretical literature and the conducted studies, research hypotheses were developed

as follows. The present study has three primary hypotheses.

- H1:** There is a significant relationship between marginal cash value and abnormal returns of shareholders
- H2:** There is a significant relationship between flexibility final value and leverage ratio
- H3:** There is a significant relationship between flexibility final value and firms' capital structure decisions.

## MATERIALS AND METHODS

In this research, correlation analysis method was used to test hypotheses. Population in this research consisted of all firms that had been listed in Tehran Exchange Stock and been active during period of 2006 to 2011. Screening method (elimination method) had been used in order to select a sample which would act as a proper representative of the population. For this reason, 5 criteria were considered. If a company had established all criteria, it would be selected as research sample.

- Firm should have been listed in Tehran Exchange Stock and be active till end of in 2011 Exchange Stock
- Firm should have not changed (its) financial year during period of 2006 to 2011
- Firm should have continuous activity and at least have 80 contracts each year
- Firm should not be among investing or financial intermediation companies

After considering all above-mentioned criteria, 82 firms remained as the screened population. All of them were selected as sample of research. Therefore our observation included 410 years-firms that were classified in 22 industrial formats.

**Data collection method:** Research required data for testing hypotheses were collected through referring to audited financial statements of firms -which had been listed in Tehran Exchange Stock- (available in Tehran Exchange Stock' library) as well as Tadbir Pardaz software (containing information of firms listed in Tehran Exchange Stock including financial statements, price, various indexes and etc.). Different tools were used to collect data including statistical tests, information databases, Eviews software and Excel software. Information associated with theoretical research principle were also collected throughout libraries using books, Persian and Latin articles.

**Research variables:** According to following introduced model, independent variables included: market response to cash changes ( $\Delta C_{i,t}/M_{i,t-1}$ ) and

marginal cash value (Mvoc); dependent variable included: abnormal returns of shareholders ( $r_{i,t}$ ), leverage ratio ( $L_{i,t}$ ). In this research, Faulkender and Wang (2006) model were used for testing hypotheses which is defined as follows (Faulkender and Wang, 2006).

Model (1):

$$r_{i,t} = \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 \frac{C_{i,t-1}}{M_{i,t-1}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_3 L_{i,t} \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_4 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_5 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_6 \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \beta_7 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_8 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \beta_9 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_{10} L_{i,t} + \beta_{11} \frac{NF_{i,t}}{M_{i,t-1}} + \varepsilon_{i,t}$$

In continuation with use of the model proposed by Clark (2010) and outputs of Faulkender and Wang's model (2006) final value of financial flexibility will be calculated (Clark, 2010).

Model (2):

$$MVOC_{FW} = \beta_1 + \beta_2 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_3 L_{i,t}$$

After the calculation of the final value of financial flexibility the relationship between the final value of financial flexibility and leverage ratio and the extent of the effect of the final value of financial flexibility on the capital structure decisions of the firms are analyzed by the following regression model.

Model (3):

$$\hat{L}_{i,t} = \alpha_0 + \alpha_1 \frac{CF_{i,t}}{TA_{i,t}} + \alpha_2 MB_{i,t} + \alpha_3 \frac{Dep_{i,t}}{TA_{i,t}} + \alpha_4 Size_{i,t} + \alpha_5 \frac{FA_{i,t}}{TA_{i,t}} + \alpha_6 \frac{RD_{i,t}}{TA_{i,t}} + \alpha_7 MVOC_{i,t} + \varepsilon_{i,t}$$

$r_{i,t}$  = Cumulative abnormal returns of firm  
 $L_{i,t}$  = Firm's leverage ratio which is calculated as follows:

$$L_{i,t} = \frac{Total\ Debt}{Total\ Assets}$$

$\Delta C_{i,t}$  is changes in cash and short-term investment of firm in current year compared to previous year. It is obtained by difference between changes in cash and short-term investment of current year and changes in cash and short-term investment of precedent year.

$M_{i,t-1}$  is market value at the beginning of research. It is obtained by multiplying equity number to price at the beginning of each firm period.

$\Delta E_{i,t}$  is changes in profit before firm's interest and tax. In fact, it is obtained by difference between profit before interest and tax (EBIT) of current year and profit before interest and tax of precedent year.

$\Delta NA_{i,t}$  is changes in all assets except short term cash and investment and is calculated as follows:

$$\Delta NA_{i,t} = (Total\ Assets_{i,t} - Cash_{i,t} - marketable\ Securities_{i,t}) - (Total\ Assets_{i,t-1} - Cash_{i,t-1} - marketable\ Securities_{i,t-1})$$

$\Delta RD_{i,t}$  is changes in research and development costs. If financial statement was not reported,  $\Delta RD_{i,t}$  would be considered to 0.

$\Delta I_{i,t}$  is changes in interest costs and is calculated the same as above-mentioned variables, i.e., difference between interest costs of current year and precedent year.

$\Delta D_{i,t}$  is overall changes in company dividends.

$NF_{i,t}$  is overall firm's financing that is calculated as follows:

$$NF = (\Delta Debt_{i,t} + \Delta Equity_{i,t})$$

Equity in above term is overall capital; it is not shareholder's rights.

- $CF_{i,t}$  = Firm's cash flow that is obtained from firm's cash flow statement
- $TA_{i,t}$  = Overall firm's assets
- $Size_{i,t}$  = Firm's depreciation expense
- $FA_{i,t}$  = Overall fixed assets of firm
- $RD_{i,t}$  = Firm's research and development cost in current year

**Analysis method:** In this research, multivariate correlation method was used for analyzing information and testing hypotheses. Statistical method used here is panel data method. For testing hypotheses, at first bound F-test were used to test accuracy of data integration and then test method type (fixed effects or random effects) were defined based on results of Husman test. Model estimation was done according to method type. F statistics were used in order to test significance of overall model and t statistics were used in order to test significance independent variables coefficient in each model. Accepting or rejecting hypothesis was decided in 95% confidence level. Moreover, Jarq-Bara test, Pagan-Broush test and d statistics of Durbin-Watson were used respectively, in order to test normality of variables, equivalency of errors variance and errors independence.

## EMPIRICAL RESULTS

**Result of research's first hypothesis:** The aim of testing research's first hypothesis was to study that whether there is a significant relationship between marginal value of cash and abnormal capital returns or not? And its statistic hypothesis is defined as follows:

- H<sub>0</sub>**: There is no significant relationship between marginal value of cash and abnormal capital returns
- H<sub>1</sub>**: There is a significant relationship between marginal value of cash and abnormal capital returns

Table 1: Results of Chave test for model (1)

| Test  | Statistics | Statistics value | Degree of freedom | p-value |
|-------|------------|------------------|-------------------|---------|
| Chave | F          | 2.658            | (81.318)          | 0.000   |

Table 2: Results of Hussman test for model (1)

| Test    | Statistics | Statistics value | Degree of freedom | p-value |
|---------|------------|------------------|-------------------|---------|
| Hussman | $\chi^2$   | 60.689           | 10                | 0.000   |

Table 3: First hypothesis test results using one-way fixed effects

Dependent variable:  $r_{i,t}$  number of observations: 410 years-firm

| Variable                           | Coefficient | t-statistics | p-value | Relationship    |
|------------------------------------|-------------|--------------|---------|-----------------|
| C                                  | -0.0149     | -0.218       | 0.8275  | No significance |
| $\Delta C_{i,t}/M_{i,t-1}$         | -0.9482     | 5.579        | 0.0004  | Negative        |
| $C_{i,t-1}/M_{i,t-1}$              | 0.5699      | 3.345        | 0.0009  | Positive        |
| $*\Delta C_{i,t}/M_{i,t-1}$        |             |              |         |                 |
| $L_{i,t} \Delta C_{i,t}/M_{i,t-1}$ | 0.2004      | 0.970        | 0.3327  | No significance |
| $\Delta E_{i,t}/M_{i,t-1}$         | 0.3054      | 6.513        | 0.0000  | Positive        |
| $\Delta NA_{i,t}/M_{i,t-1}$        | -0.0405     | -0.412       | 0.6803  | No significance |
| $\Delta I_{i,t}/M_{i,t-1}$         | -0.0703     | -2.870       | 0.0044  | Negative        |
| $\Delta D_{i,t}/M_{i,t-1}$         | 0.0011      | 0.022        | 0.9817  | No significance |
| $C_{i,t-1}/M_{i,t-1}$              | 0.8789      | 10.759       | 0.0000  | positive        |
| $L_{i,t}$                          | 0.1327      | 1.747        | 0.0814  | No significance |
| $NF_{i,t}/M_{i,t-1}$               | 0.0397      | 0.480        | 0.3615  | No significance |
| Model determining coefficient      |             |              |         | 0.3863          |
| F-statistics                       |             |              |         | 2.199           |

This hypothesis was estimated as Panel data using model (1). If  $\beta_1$  coefficient was significant in 95% confidence level, then it would be approved/confirmed.

$$r_{i,t} = \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 \frac{C_{i,t-1}}{M_{i,t-1}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_3 L_{i,t} \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_4 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_5 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_6 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_7 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \beta_8 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_9 L_{i,t} + \beta_{10} \frac{NF_{i,t}}{M_{i,t-1}} + \varepsilon_{i,t}$$

$$\begin{cases} H_0 : \beta_1 = 0 \\ H_1 : \beta_1 \neq 0 \end{cases}$$

**Selecting pattern for research's first model:** Cahve test or bound - test were used in order to determine whether using panel data method -to estimate considered model- is efficient or not. In this test,  $H_0$  represent equality of intercepts and if it is rejected, using panel data method is approved and Panel data method can be used. Obtained results are presented in Table 1.

$H_0$  hypothesis is rejected in 95% confidence level according to results of test and its p-value (0.000). Therefore panel data method can be used.

Moreover, Husman test was used in order to determine which method (fixed effects or random effects) is more appropriate for model estimation (determining fixed or random sectional units' differences). In this test,  $H_0$  hypothesis represents that there is no relationship between disruption of the intercept and the explanatory variables, i.e. they are independent. In Hussman test, if  $H_0$  test would be rejected fixed effects method would be used and if  $H_0$  would be accepted, random effects method would be

used. Obtained results of this test are presented in Table 2.

According to test results and its p-value (0.000) - which is lower than 0.05-  $H_0$  hypothesis is rejected in 95% confidence level and  $H_1$  hypothesis is accepted.

According to results of Chave and Hussman test and also results of hypothesis testing of classic regression statistic, model 1 is estimated as fixed effects using panel data method. Final results of model estimation are provided in Table 3.

According to results presented in Table 3, since t statistics probability for coefficient variable of cash change ( $\Delta C_{i,t}/M_{i,t-1}$ ) is lower than 0.05, i.e. it is 0.0004, then as a result a significant relationship between cash marginal value (final flexibility value) and abnormal capital return in 95% confidence level would be approved and research first hypothesis would be accepted. Negative nature of variable coefficient (-0.9482) implies a reverse relationship between cash marginal value and abnormal capital returns, i.e., increasing capital marginal value ( $\Delta C_{i,t}/M_{i,t-1}$ ) to 1 Rails would decrease abnormal return level to 0.9482. Above finding is in contrast with results presented by Clark (2010) -which was done in USA capital market, i.e., according to experimental results presented by him, relationship between cash marginal value and abnormal capital return of USA firms was positive and significant. One reason for this contrast might be associated with terms of inflation and low interest rates of Iranian banks.

**Results of testing second research hypothesis:** The aim of testing second research hypothesis was to investigate whether there is a significant relationship between flexibility final value and leverage ratio or not. Statistic hypothesis is defined as follows:

- H<sub>0</sub>:** There is no significant relationship between flexibility final value and leverage ratio.
- H<sub>1</sub>:** There is a significant relationship between flexibility final value and leverage ratio.

For testing this hypothesis, at first flexibility final value is calculated using model 2 as well as results obtained from model 1 estimation as follows:

$$MVOC_{FW} = \beta_1 + \beta_2 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_3 L_{i,t} \tag{2}$$

After calculating flexibility final value, flexibility final value would be introduced in model 3 same as follows and would be estimated as panel data using linear regression method. In this model, if  $\alpha_6$  was significant in 95% confidence level, second research hypothesis would be approved.

Table 4: Chave test results for model 3

| Test  | Statistics | Statistics value | Degree of freedom | p-value |
|-------|------------|------------------|-------------------|---------|
| Chave | F          | 70.095           | (81, 322)         | 0.000   |

Table 5: results of Hussman test for model 3

| Test    | Statistics | Statistics value | Degree of freedom | p-value |
|---------|------------|------------------|-------------------|---------|
| Hussman | $\chi^2$   | 21.048           | 6                 | 0.0018  |

Table 6: Second hypothesis test results using one-way fixed effects method

Dependent variable:  $L_{i,t}$ , no of observations: 328 year-firm

| Variable             | Coefficient | t-statistics | p-value | Relationship    |
|----------------------|-------------|--------------|---------|-----------------|
| C                    | 0.0413      | 1.008        | 0.3143  | No significance |
| $CF_{i,t}/TA_{i,t}$  | -0.0603     | -3.119       | 0.0020  | negative        |
| MB                   | 0.0003      | 0.339        | 0.7342  | No significance |
| $Dep_{i,t}/TA_{i,t}$ | -0.1326     | -1.619       | 0.1066  | No significance |
| Size                 | 0.5372      | 5.002        | 0.0000  | Positive        |
| $FA_{i,t}/TA_{i,t}$  | -0.0501     | -0.682       | 0.4953  | No significance |
| $MVOC_{i,t}$         | -0.0420     | -0.922       | 0.3573  | No significance |
| AR (1)               | 0.3244      | 2.473        | 0.0141  | Positive        |

$$L_{i,t} = \alpha_0 + \alpha_1 \frac{CF_{i,t}}{TA_{i,t}} + \alpha_2 MB_{i,t} + \alpha_3 \frac{Dep_{i,t}}{TA_{i,t}} + \alpha_4 Size_{i,t} + \alpha_5 \frac{FA_{i,t}}{TA_{i,t}} + \alpha_6 MVOC_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$\begin{cases} H_0 : \alpha_6 = 0 \\ H_1 : \alpha_6 \neq 0 \end{cases}$$

**Selecting pattern for second research model:** Bound F-test or Chave test were used in order to determine whether using panel data method would be effective or not. In this test,  $H_0$  shows equality of intercepts. If  $H_0$  would be rejected, using panel data method would be approved. Results of this test are provided in Table 4.

According to test results and its p-value (0.000),  $H_0$  hypothesis is rejected in 95% confidence level and panel data method could be used.

Moreover, Hussman test is used in order to determine which method (fixed effects or random effects) is more appropriate (useful) for estimation (determining fixed or random differences of sectional units). In this test,  $H_0$  shows that there is no relationship between disruption component of intercept and explanatory variables and actually these are independent. In Hussman test, if  $H_0$  hypothesis would be rejected fixed effects would be used and on the other hand, if  $H_0$  hypothesis would be accepted, random effects would be used. Obtained results of this test are presented in Table 5.

According to test results and its p-value (0.0018) which is lower than 0.05,  $H_0$  hypothesis is rejected in 95% confidence level and  $H_1$  hypothesis is accepted.

According to test results of Chave and Hussman test and also test results of statistic hypothesis of classic regression, research model (3) is estimated as fixed effects using panel data method after introducing AR self-correlated first order variable to model (in order to resolve problem of non-independence of remains). Final results of model estimation are presented in Table 6.

According to presented results in Table 1 and 2, since t statistics probability for variable coefficient of final flexibility value ( $MVOC_{i,t}$ ) is higher than 0.05 (0.3573), as a result a significant relationship between final flexibility value and leverage ratio is rejected in 95% confidence level and second research hypothesis will not be approved. Therefore, it can be said that there is no significant relationship between final flexibility value and leverage ratio in 95% confidence level and second research hypothesis will not be approved. Above finding does not match with results presented by Clark (2010) in USA stock market.

**Test results of third research hypothesis:** The aim of testing third research hypothesis was to investigate whether final flexibility value has higher effect on firms' capital structure decisions or not? And its statistic is defined as follows:

$H_0$  : Flexibility value has no greatest impact on firms' capital structure decisions

$H_1$  : Flexibility value has the greatest impact on firms' capital structure decisions.

In order to test third hypothesis, model 3 is tested without presence of final flexibility value (model 4) for the first time and it is tested with presence of final flexibility value (model 5) for the second time and determining coefficient of models will be compared. If determining coefficient level of models would be increased by introducing final flexibility value, third research hypothesis would be approved.

$$L_{i,t} = \alpha_0 + \alpha_1 \frac{CF_{i,t}}{TA_{i,t}} + \alpha_2 MB_{i,t} + \alpha_3 \frac{Dep_{i,t}}{TA_{i,t}} + \alpha_4 Size_{i,t} + \alpha_5 \frac{FA_{i,t}}{TA_{i,t}} + \varepsilon_{i,t} \quad (4)$$

$$L_{i,t} = \alpha_0 + \alpha_6 MVOC_{i,t} + \varepsilon_{i,t} \quad (5)$$

Table 7: Results of Chave and Hussman test for model (4)

| Test    | Statistics | Statistics value | Degree of freedom | p-value |
|---------|------------|------------------|-------------------|---------|
| Chave   | $F$        | 68.854           | (81.323)          | 0.000   |
| Hussman | $\chi^2$   | 18.815           | 5                 | 0.0021  |

Table 8: Test results of model (4) using one-way fixed effects

Dependent variable:  $L_{i,t}$  No of observation: 328 year-firm

| Variable                      | Coefficient | t-statistics | p-value | Relationship    |
|-------------------------------|-------------|--------------|---------|-----------------|
| $C$                           | 0.0423      | 1.238        | 0.2167  | No relationship |
| $CF_{i,t}/TA_{i,t}$           | -0.0689     | -2.455       | 0.0148  | Negative        |
| MB                            | 0.0004      | 0.155        | 0.8763  | No relationship |
| $Dep_{i,t}/TA_{i,t}$          | -0.1340     | -1.784       | 0.0756  | No relationship |
| Size                          | 0.5066      | 2.395        | 0.0174  | positive        |
| $FA_{i,t}/TA_{i,t}$           | -0.0385     | -0.472       | 0.6370  | No relationship |
| AR (1)                        | 0.3189      | 5.378        | 0.0000  | Positive        |
| Model determining coefficient |             |              |         | 0.9049          |
| F-statistics                  |             |              |         | 26.252          |
| (P-value)                     |             |              |         | (0.000)         |

Table 9: Test results of model (5) using one-way fixed effects method

Dependent variable:  $L_{i,t}$  No of observations: 328 year-firm

| Variable                      | Coefficient | t-statistics | p-value | Relationship    |
|-------------------------------|-------------|--------------|---------|-----------------|
| $C$                           | 0.0695      | 2.097        | 0.0370  | Positive        |
| MVOC <sub>i,t</sub>           | -0.0502     | -1.342       | 0.1807  | No significance |
| AR (1)                        | 0.3130      | 5.298        | 0.0000  | Positive        |
| Model determining coefficient |             |              |         | 0.8940          |
| F-statistics (p-value)        |             |              |         | 24.794 (0.000)  |

**Selecting pattern for research model (4):** Obtained results of Hussman and Chave test is presented in Table 7 for selecting pattern.

According to results of Chave test and its p-Value,  $H_0$  hypothesis will be rejected in 95% confidence level and panel data method can be used. Moreover, according to results of Hussman test and its p-Value (0.0021), which is lower than 0.05,  $H_0$  hypothesis, will be rejected in 95% confidence level. Therefore it is necessary to estimate model using fixed effect.

**Selecting pattern for research model (5):** Results of Chave and Hussman test is presented in Table 7 for selecting pattern. According to Chave test results and its p-Value (0.000),  $H_0$  hypothesis is rejected in 95% confidence level and panel data method can be used. Moreover, according to Hussman test results and its p-Value (0.0122), which is lower than 0.05,  $H_0$  hypothesis will be rejected in 95% confidence level and  $H_1$  hypothesis will be accepted. Therefore, it is necessary to estimate model using fixed effects method.

According to results of Chave and Hussman tests as well as test results of classic regression statistic hypothesis, research model (4) is estimated as fixed effects using panel data method after introducing AR self-correlated first order variable to model (in order to resolve problem of non-independence of remains). Determining coefficient of model shows that 90.54% of changes in leverage ratio are defined by independent variables introduced in model (Table 8)

According to results of Chave and Hussman tests as well as test result of classic regression statistical hypothesis, research model (5) is estimated as fixed effects using panel data method after introducing AR

self-correlated first order variable to model (for resolving problem of non-independence of remains). Final results of model estimation are presented in Table 9.

Model (5) determining coefficient shows that 89.04% of changes in leverage ratio are defined by independent variables introduced in model.

According to presented results in 8-1 and 9-1 tables as well as lower nature of determining coefficient of model 5 (89.04) compared to model 4 (90.49), it can be concluded that effects of final flexibility results on firms' capital structure decisions is lower than one expected. Therefore, third hypothesis is rejected. Above finding does not match with results presented by Clark (2010) in USA stock market.

## DISCUSSION AND CONCLUSION

Obtained results of testing hypothesis are presented in Table 10.

Research's results show that:

- Cash marginal value which is negative through market response in abnormal return format compared to measured cash changes. That is to say market would decrease 0.9482% firm's return per 1 Rials increase in firm's cash. This fact shows that market has no tendency to increase cash and will not evaluate increasing cash
- There is a negative relationship between financial flexibility and debt ratio but this relationship is not significant statistically and hypothesis -which is

Table 10: Summary of test results of research hypothesis

| Hypothesis | Description   | Conclusion |
|------------|---|------------|
| H1         | There is a significant relationship between cash marginal value and shareholders' abnormal return         | Accepted   |
| H2         | There is a significant relationship between final flexibility value and leverage ratio                    | Rejected   |
| H3         | There is a significant relationship between final flexibility value and firms' capital structure decision | Rejected   |

associated with this problem-, is not accepted too.

Above finding shows that there is no relationship between firms' capital structure decisions and firms' financial flexibility. In Iran, firms do not take into account flexibility level when they make decisions about increasing or decreasing their debts. This issue in long term would lead to losing inflexibility as well as profitable investment opportunities and ensuring future profitability

- Cash changes variables, office value ratio to market value, cost of depreciation, firm's size, amount of fixed assets regardless of final flexibility value have the greatest impact on capital structure because their determining coefficient are more than the a model in which only financial flexibility is introduced. Therefore, it can be said that final flexibility value has no effect on firms' capital structure.

Results of this research do not correspond with experimental findings presented by Faulkender and Wang (2006), Marchica and Mura (2007), Byoun (2008a) and Clark (2010). One reason for this difference between results of this research and other researches done abroad is that inflation rate is too low in abroad. Thereby cost of losing investment opportunities in these countries is low, i.e. if firms keep cash in firms, they will not undergo losses associated with keeping cash and monetary assets due to low inflation rate, but instead they have financial flexibility. This financial flexibility is valuable because of profitable investment opportunities. For this reason, in abroad or-it is better to say that- in countries with low inflation rate, there is a positive relationship between cash changes and abnormal return but surprisingly it is negative in Iran. That is to say, in Iran there is losses associated with keeping monetary assets due to high inflammation rate and keeping cash and also cost of losing opportunities is high, i.e. if assets will be kept as cash or be deposited, firm would also undergo loss because in Iran inflammation is higher than interest rates on bank deposits. This loss is not hidden from investors' perspective, thereby this relationship is negative. Moreover, there is no significant relationship between final financial value and leverage ratio in Iran stock market in contrast to other financial markets is due to borrow structure in Iran as well as no regard to firms' flexibility by banks during granting facilities. This issue led to the reason why firms' managers do not take into account flexibility when making decisions on capital structure.

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