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Research Article

EFFECTS OF FLEXIBILITY ON CAPITAL STRUCTURE DECISIONS IN FAMILY FIRMS LISTED AT TEHRAN STOCK EXCHANGE

Mahdi Azizzadeh[1] and *Shayesteh Heravi[2]
[1]Department of Science in Accounting
[2]Department of Accounting, Parandak University
**Author for Correspondence*

ABSTRACT
The present study evaluates marginal value of cash for investors. It also undertakes to examine the relationship between financial flexibility and capital structure, as well as effects of financial flexibility on capital structure decisions in family firms listed at Tehran Stock Exchange. A total number of 60 companies are sampled between the years 2008 to 2013. A panel-pool data analysis method is used for testing hypotheses. Results indicate that marginal value of cash using the methodology of Faulkender is positive. Also, a significant and reverse relationship is found between financial flexibility and debt ratio. On the other hand, marginal value of cash highly affects capital structure decisions family firms.

Keywords: *Marginal Value of Cash, Family Ownership, Financial Flexibility, Capital Structure*

INTRODUCTION
Capital structure is an essential parameter that influences corporate valuation and its orientation in the capital markets. In today's dynamic world, credential rating of a firm is at stake of its capital structure. This makes firms construct their strategic planning for picking effective resources based on maximization of shareholder wealth (Douglas, 2001). Accordingly, dynamic variables and factors on capital structure can undermine corporate effectiveness and profitability in realizing the objectives in the framework of the theory of agency and hierarchy Considering financing resources, firms differ in risk-taking attitude and returns in financing markets. Thus, capital structure decisions have significant effects on corporate credit and efficiency on the side of financing institutes. However, scope of operation, profitability, growth facilities, size and field of business are factors that determine financial dependency of a company. Nevertheless, resources gained from liabilities tend to increase fixed costs and leverage and consequently, systematic risk. As rightly point out, considering capital costs of different financing approaches is likely to build opportunities for profitability or lead to financial crisis. As a result, evaluating perspectives of financial managers contributes to establishing the firm in financial markets and promoting their rating by creditors.

Deciding on capital structure is a challenging, yet vital, issue for corporate survival. Determining optimal capital structure is essential for financing in firms. That is why managers are suggested to care for financial flexibility as a key factor affecting capital structure. Managers who fail to sustain financial flexibility and increase corporate liabilities are more likely to miss potential investment opportunities and pose serious threats to the firm in the future. Considering the fact that family members tend to be managers in family firms, the following questions arise as whether flexibility has any effects on capital structure decision makings in family firms? Is there a reversed relationship between flexibility and leverage? And whether flexibility is of any value for investors in family firms? The present study seeks to provide reasonable answers for the above questions.

Theoretical Background
According to traditional theories on capital structure, such as static tradeoff theory, firms try to pick and realize an optimum debt ratio which is determined by a tradeoff between costs and resources. Myers and Majluf's theory of hierarchy (1984) holds that firms follow a certain pattern of hierarchy to absorb required financial resources. This hierarchy is a result of information asymmetry. Managers prefer internal financing in cases information of managers and investors are asymmetric. These traditional theories have been criticized since they don't take flexibility into account (DeAngelo and DeAngelo,

2007). They also fail to seize investment opportunities and waste corporate potential in investment, while ignoring corporate life and its tendency to preserve their debt capacity in young firms with high growth rate.

However, studies reveal that young firms with high growth rate are eager to preserve their debt capacity. In other words, they tend to more flexible to react to new investment opportunities and guarantee corporate growth. The present study undertakes to examine flexibility in defining the structure of family ownership as a new concept in Iranian firms.

Before we proceed, it is proper here to define family-owned companies. Membership in board of directors, owning part of shares, and considerable influence or control, are factors that are taken into account while defining family ownership. Of these, membership in board of directors and owning part of shares are frequently found in different definitions of family ownership. Ownership of at least 5% and at most 50% of all shares is reported in different definitions of family ownership (Ehrhardt & Nowak, 2000; Mcconaughy *et al.*, 2001; Anderson & Reeb, 2003; Colli *et al.*, 2003; Villalonga & Amit, 2006; Wang, 2006; Yong & Tsai, 2008; Chakrabarty, 2009).

With the above-mentioned definitions in mind, we define family ownership with regard to Iran‟s rules and regulations. As said earlier, different levels of concentration have been proposed for family ownership. Before determining a certain level of ownership in Iran, it should be established that how influential shareholders are on a company?

In line with International Accounting Standard 28, this influence in defined in Iran's Financial Standards Committee in Paragraph 8 of Standard N0. 20 as:

Exerting considerable influences without enough authority seems to be impractical. Therefore, a certain level of authority in the investee unit is believed to be essential for this purpose. To achieve a reasonable level of uniformity in practice, it is assumed that in the absence of contravening evidence, when the investor unit has 20% direct or indirect authority upon the investee unit, it is considered to be influential on that unit. Otherwise, when this authority falls under 20%, the investor unit is not influential, unless it is proved in some other ways.

Accordingly, owning 20% of all shares is considered to be one of the conditions of family firms. In addition, membership of the family in supervisory board is another influential factor in this regard. Thus, a family firm is defined as one which is, individually or jointly, owned up to 20% of all shares by a family. Also, a member of this family is part of the board of directors or has active presence in it.

A family firm is defined as one where members of a family own 20% of shares and are actively involved in the board. Capital structure determines corporate personality and influences corporate performance. Understanding the theory of capital structure helps managers realize optimum capital structure to maximize shareholder wealth.

Capital structure policy balances risk and returns. On the one hand, relying on more debt increases corporate profitability flow, while leading to greater expected rate of returns, on the other. Risk of resorting to more debt decreases share price, but expected rate of returns tends to increase it. Thus, capital structure is optimum only when it maximizes share price.

Managers of family firms, like others, have to consider a large number of factors in determining capital structure in order to maximize shareholder wealth. Flexibility is a key factor which, if neglected, can cause liquidity problems, waste investment opportunities and even hinder corporate growth. Therefore, managers are suggested to consider flexibility as an output and direct capital structure decisions in favor of sustaining and promoting flexibility.

Review of Literature

Zélia *et al.*, (2011) found in their study that family firms are able to realize their objectives in terms of short-term and long-term ratios, which confirms hypotheses of business theory. However, non-family firms exclusively follow the theory of hierarchy in predicting behavior. For example, when internal financial resources of a firm are insufficient, it relies on increasing short-term debt.

In "Theory of the firm: Managerial behavior, agency costs and ownership", Jensen and Meckling (1976) examined theoretical basis for choosing capital structure pattern from the lens of agency theory and

implicitly explained static tradeoff theory. They believed that a tradeoff between benefits of debt and agency costs of debt help achieve an optimum capital structure.

Allen, (1991) studied capital structure of 48 companies listed at Australian Stock Exchange. His results confirmed predictions of preferred theory regarding financial resources and preserving an appropriate level of debt capacity, while rejecting predictions of static tradeoff theory.

Clark, (2010) evaluated effects of financial flexibility on capital structure in American companies during 1971 to 2001 to figure out the role of flexibility in deciding to release debt or increase capital. He used marginal value of cash as the measure for marginal value of flexibility. Results of his study showed that when marginal value of flexibility is considered in capital structure decisions, other variables are undermined. In other words, flexibility was found to be the most influential factor on capital structure. Clark (2010) also reported that firms with higher marginal value of flexibility were more likely to preserve their debt capacity for the future. His findings are in agreement with results of DeAngelo *et al.*, (2010). Moreover, these firms preferred to increase capital to finance through the release of debt, which is mostly for preserving debt capacity.

Gamba and Triantis, (2008) measured value of flexibility and reported that it depends on external financing, rate of tax, opportunity cost of cash holding, potential growth opportunities and capital reversibility in the firm. They concluded that firms struggling with financial challenges need to release and rely on debt simultaneously.

Sunder & Myers, (1999) examined predictions by preferred and static tradeoff theories in 157 American companies during 1971-1989 and found that the preferred theory had a higher level of confidence, compared to static tradeoff theory.

Gaud *et al.*, (2003) studied factors on capital structure in 106 companies listed at Swiss Stock Exchange during 1994-200 and realized that both preferred and static tradeoff theories are influential in explaining patterns of capital structure in these companies.

Drobetz & Fix (2004) in their study, "Determinants of Capital Structure of Swiss Companies", found no difference between preferred and static tradeoff theories. They found that companies with greater investment opportunities in both theories tend to rely less on leverage. However, unlike static tradeoff theory, profitable companies and those with higher liquidity tended to rely less on leverage in the preferred theory.

Chen & Hammes (2004) studied select companies from Canada, Denmark, Germany, Italy, Sweden, Britain and the U.S and reported that tangible assets and size had direct relationship with leverage, while profitability had a negative relationship with leverage. These findings are in agreement with results obtained by typical theories on capital structure, such as preferred theory and static tradeoff theory.

Wu *et al.*, (2007) showed that family involvement in corporate management has significant, yet reversed effects on financing in small firms. That is to say, family involvement in corporate management and ownership decreases capital supply and increases financing through debt. They also proved that, in early stages of growth, small firms rely on supervisory activities of the board and other third parties to cater for agency challenges.

Lashgary and Azizzadeh, (2013) evaluated effect of family ownership and institutional ownership on dividends policy of companies listed at Tehran Stock Exchange and reported that family ownership had significant relationship with dividends policy while institutional ownership had no relationship with dividends policy. No significant relationship was observed for average dividends policy in companies with low or high family or institutional structure of ownership. However, a significant relationship was reported for average amount of dividends in companies with low or high family or institutional structure of ownership.

Hypotheses

The following hypotheses are tested in the present study.

1. Marginal value of flexibility using Wang and Faulkender's methodology is significantly positive.
2. There is a reversed relationship between marginal value of flexibility and rate of leverage.
3. Marginal value of flexibility is the most influential factor on capital structure decisions in family firms.

Research Article

Population and Samples

Population of the study includes all companies listed at Tehran Stock exchange during 2008 to 2013. Samples are taken by elimination, considering the following criteria:

1. Companies listed at Tehran Stock Exchange before 2006.
2. Companies whose fiscal year ends in March.
3. Companies that don't involve in investment activities.
4. Companies with fixed fiscal year during the study.
5. Companies with clear family ownership (20% shares and family members in the board).

Considering the above criteria, a total number of 60 companies were sampled and required information was obtained from Stock Exchange Organization, and Rahavard Novin Software.

Hypotheses Testing Models

Model (1):

$$r_{i,t} = \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 \frac{C_{i,t-1}}{M_{i,t-1}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_3 L_{i,t} \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_4 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_5 \frac{\Delta NA_{i,t}}{M_{i,t-1}} +$$

$$\beta_6 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_7 \frac{NF_{i,t}}{M_{i,t-1}} + \beta_8 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \beta_9 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_{10} L_{i,t} + \varepsilon_{i,t}$$

Model (2):

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

Model (3):

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

Model (4): The above Model Represents Factors on Leverage, where these Factors Replace L_{it} in Model 1 and Give the Following Model

$$r_{i,t} = \lambda_0 + \lambda_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \lambda_2 \frac{C_{i,t-1}}{M_{i,t-1}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \lambda_3 \frac{CF_{i,t}}{TA_{i,t}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \lambda_4 MB_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}} +$$

$$\lambda_5 \frac{Dep_{i,t}}{TA_{i,t}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \lambda_6 Size_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \lambda_7 \frac{FA_{i,t}}{TA_{i,t}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \lambda_8 \frac{FA_{i,t}}{TA_{i,t}} + \lambda_9 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \lambda_{10} \frac{\Delta NA_{i,t}}{M_{i,t-1}} +$$

$$\lambda_{11} \frac{Dep_{i,t}}{TA_{i,t}} + \lambda_{12} \frac{\Delta I_{i,t}}{M_{i,t-1}} + \lambda_{13} \frac{\Delta D_{i,t}}{M_{i,t-1}} + \lambda_{14} \frac{C_{i,t-1}}{M_{i,t-1}} + \lambda_{15} \frac{NF_{i,t}}{M_{i,t-1}} + \lambda_{16} \frac{CF_{i,t}}{TA_{i,t}} + \lambda_{17} MB_{i,t} + \lambda_{18} Size_{i,t} + \varepsilon_{i,t}$$

Model (5):

$$MVOC_c = \lambda_1 + \lambda_2 \frac{C_{i,t-1}}{M_{i,t-1}} + \lambda_3 \frac{CF_{i,t}}{TA_{i,t}} + \lambda_4 MB_{i,t} + \lambda_5 \frac{Dep_{i,t}}{TA_{i,t}} + \lambda_6 Size_{i,t} + \lambda_7 \frac{FA_{i,t}}{TA_{i,t}}$$

Model (6):

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

Dependent Variable

According to Moradi and Nikbakht (2004), long and frequent trading intervals in Iran inflict negative impacts on the relationship between corporate returns and market returns. Therefore, calculation of

abnormal returns by market-adjusted model is not reliable in such a situation. On the other hand, since β_i and α_i are statistically insignificant in most of the cases (Saghafi and Kordestani, 2004), this methodology is unreliable. However, in the present study two methods are used: market-based abnormal returns, difference of current returns with average returns in the last three years as an indicator of abnormal returns.

$r_{i,t}$: accumulated abnormal returns of the firm which is calculated as,

$$AR_{it} = R_{it} - [a_i + \beta_i R_{mt}]$$

Equation (7) is used for calculating abnormal returns. First, expected return is measured, using market model obtained as below,

$$R_i = a_i + \beta_i R_m$$

Since β_i and α_i are not available to calculate expected return, it is measured for the first 96 months (for 5 years from 208 to 2013) from which β_i and α_i are obtained by regression analysis of model 8. Then, β_i and α_i obtained from model 8 is placed in model 7 to calculate real stock returns by $Ln(P_{it} / P_{i(t-1)})$ which equals R_{it} in model 7. Finally, market return is measured by $Ln(I_t / I_{t-1})$ and using the obtained β_i and α_i in model 7, abnormal return is calculated. Accumulated abnormal return is calculated as follows, and he result is our dependent variable.

$$CAR = \sum_{t=1}^{T} AR_t$$

Model 7 is calculated monthly and is put in model 9 to obtain accumulated abnormal return of 12 months.

$MVOC_{FW}$= marginal value of cash as the measure for evaluating marginal value of flexibility and reflects corporate capacity in utilizing potential investment opportunities.

It is based on the model proposed by Faulkender and Wang, (2006) and is calculated separately for each company using model 2. Coefficients of β_1, β_2, andβ_3 are measured by model 1 and put into model 2 to obtain MVOC. Other independent variables in model 2 are available. Dependent variable is obtained by calculation rather than regression.

$\hat{L}_{i,t}$ = leverage calculated as follows,

$$L_{i,t} = \frac{debt}{assets}$$

MVOCc= marginal value of cash as the measure for evaluating marginal value of flexibility and reflects corporate capacity in utilizing potential investment opportunities. It is based on the model proposed by Clark, (2010) which is calculated using model 5.

Coefficients of λ_1, λ_2, and $\lambda_3, \lambda_4, \lambda_5, \lambda_6, \lambda_7, \lambda_8$ are measured by model 4 and put into model 5 to obtain MVOC. Other independent variables in model 4 are available. Dependent variable is obtained by calculation rather than regression.

Independent Variables

$\Delta C_{i,t}$ = changes in corporate cash and short-term investment compared to previous year which is calculated as cash and short-term investment of the current year deducted from that of the previous year.

$C_{i,t-1}$ = total amount of cash at the beginning of the current period or the end of the previous period.

$M_{i,t-1}$ = market value at the beginning which is obtained from corporate shares multiplied at their prices at the beginning.

$\Delta E_{i,t}$ = changes in earnings before interest and tax which is derived from earnings before interest and tax of the current year deducted from earnings before interest and tax of the previous year.

$\Delta NA_{i,t}$ = changes in non-cash assets and short-term investments calculated as follows,

total assets of the current year - cash of the current year – short-term investments of the current year - total assets of the previous year - cash of the previous year – short-term investments of the previous year

$\Delta RD_{i,t}$ = changes in costs of research and development which is taken be zero when financial statements are not reported.

$\Delta I_{i,t}$ = changes in costs of interest which is calculated as the difference between costs of interest of the current and previous years.

$\Delta D_{i,t}$ = changes in dividends.

$NF_{i,t}$ = corporate net financing calculated as below,

NF= changes in debt + changes in capital

In the above equation, total capital of company is considered not equity.

$CF_{i,t}$ = cash flow which is derived from cash flow statement.

$TA_{i,t}$ = total assets of the company.

$Dep_{i,t}$ = depreciation costs of the company.

$Size_{i,t}$ = firm size which derived from logarithm of total assets of the company.

$FA_{i,t}$ = total fixed assets of the company.

$MB_{i,t}$ = market value to book value of the company.

The following were considered in regression:

- Autocorrelation: Durbin-Watson test was used to check whether error statements were auto correlated or not.
- Coefficient of determination: is a measure for explaining the strength of the relationship between dependent and independent variables. In fact, it explains effects of independent variable on dependent variables.
- Significance of the regression model, which was tested by F-statistics, and then significance of hypotheses coefficients, which were tested by t-statistics.

Hausmanand Chow tests were used to determine an appropriate estimation model. Then, reliability and truth of regression analysis were tested.

In the present study, key data including abnormal returns and independent variables were normalized using Jonson methodology. Model validity and evaluation of classical regression were performed before testing hypotheses.

1. Durbin-Watson test was used to check whether error statements were auto correlated or not.
2. Breusch-Pagan test was used to ensure variance homogeneity.
3. A Jarque-Bera test was used to ensure that residual statements were normal.

RESULTS AND DISCUSSION

Findings

Here, abnormal returns are calculated by market-adjusted model and past three-year return model. In fact, the first hypothesis is considered in 2 conditions.

Analysis of Hypothesis 1: Marginal value of flexibility using Wang and Faulkender's methodology is significantly positive. This hypothesis is statistically shown as:

$$H_0 : \beta_1 \leq 0$$

$$H_1 : \beta_1 > 0$$

As can be seen in Table 1, the relationship between cash flow fluctuations and market value of the firm is evaluated using past three-year return model.

Table 1: No-Effects Panel

Description	Value	T-Value	Significance Level
C	0.695747	3.731408	0.0001
$\frac{\Delta C_{i,t}}{M_{i,t-1}}$	2.866807	7.086264	0.0000
$\frac{\Delta C_{i,t}}{M_{i,t-1}} * \frac{C_{i,t-1}}{M_{i,t-1}}$	0.443830-	7.643170-	0.0000
$L_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}}$	2.81142-	5.758006-	0.0000
$\frac{\Delta E_{i,t}}{M_{i,t-1}}$	0.234749	6.638558	0.0000
$\frac{\Delta NA_{i,t}}{M_{i,t-1}}$	0.015065-	0.470080-	0.5714
$\frac{\Delta I_{i,t}}{M_{i,t-1}}$	1.170461	2.300848	0.0164
$\frac{NF_{i,t}}{M_{i,t-1}}$	0.107802-	2.327319-	0.0153
$\frac{\Delta D_{i,t}}{M_{i,t-1}}$	0.396344	1.104001	0.2187
$\frac{C_{i,t-1}}{M_{i,t-1}}$	0.327344	4.021534	0.0001
$L_{i,t}$	0.884796-	3.736338-	0.0001

Table 1 shows that marginal value of cash is positive investors. That is to say, for 1 Rial increase in cash, shareholders and investors increase corporate value by 2.81. This coefficient is also positive. Coefficients of $L_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}}$ and $L_{i,t}$ have negative relationship with abnormal returns, indicating that increased rate of debt decreases abnormal returns. These coefficients are significant. Coefficient of $\frac{\Delta E_{i,t}}{M_{i,t-1}}$ is positive and significant, implying that for 1% increased earnings, abnormal returns increases by 0.23%. Coefficient of $\frac{NF_{i,t}}{M_{i,t-1}}$ is negative and significant, implying that increase in debt and equity leads to decrease abnormal returns. In addition, coefficient of $\frac{\Delta I_{i,t}}{M_{i,t-1}}$ shows that increased interest expenses increases abnormal returns. However, increased company credits increase interest expenses while earnings from facilities tend to increase abnormal returns. Other variables show no significant coefficients.

Analysis of Hypothesis 1: Marginal value of flexibility using Wang and Faulkender's methodology is significantly positive. This hypothesis is statistically shown as:

$H_0 : \beta_1 \leq 0$

$H_1 : \beta_1 > 0$

Results of using market-adjusted model for evaluating abnormal returns show that it is not significant.

Table2. No-Effects Panel

Description	Value	T-Value	Significance Level
C	0.056625	0.424982	0.6710
$\frac{\Delta C_{i,t}}{M_{i,t-1}}$	0.484413-	-0.46408	0.6428
$\frac{\Delta C_{i,t}}{M_{i,t-1}} * \frac{C_{i,t-1}}{M_{i,t-1}}$	0.40064-	-1.84707	0.0653
$L_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}}$	1.446390	0.958530	0.3382
$\frac{\Delta E_{i,t}}{M_{i,t-1}}$	0.034021	0.883481	0.3774
$\frac{\Delta NA_{i,t}}{M_{i,t-1}}$	0.00671	1.272817	0.2036
$\frac{\Delta I_{i,t}}{M_{i,t-1}}$	0.280360-	-0.727251	0.4674
$\frac{NF_{i,t}}{M_{i,t-1}}$	0.105083-	-1.191893	0.2338
$\frac{\Delta D_{i,t}}{M_{i,t-1}}$	0.033186	0.148393	0.8821
$\frac{C_{i,t-1}}{M_{i,t-1}}$	0.020178	0.451571	0.6518
$L_{i,t}$	0.070126-	-0.354787	0.7229

Analysis of Hypothesis 2: There is a reversed relationship between marginal value of flexibility and rate of leverage. This hypothesis is statistically shown as:

$H_0 : \alpha_6 \geq 0$

$H_1 : \alpha_6 < 0$

Table 3: Fixed Effects Panel

Description	Value	T-Value	Significance Level
C	1.667174	283.4903	0.0000
$\frac{CF_{i,t}}{TA_{i,t}}$	-0.003329	-1.403479	0.1611
$MB_{i,t}$	-2.49E-05	-1.493805	0.1359
$\frac{Dep_{i,t}}{TA_{i,t}}$	0.045758	3.140196	0.0018
$Size_{i,t}$	-0.005971	-2.112590	0.0352
$\frac{FA_{i,t}}{TA_{i,t}}$	-0.030225	-2.213148	0.0274
MVOC(FW)	-1.866300	-283.6567	0.0000

As shown in Table 2, there is a reversed and significant relationship between marginal value of flexibility and rate of leverage and hypothesis 2 is confirmed. Here, Wang and Faulkender's methodology is used in the marginal value of cash model. Firm size and rate of fixed assets to total assets have positive and reversed relationship.

Analysis of Hypothesis 3: Marginal value of flexibility is the most influential factor on capital structure decisions in family firms. This hypothesis is statistically shown as:

$H_0 : R^2_{MVOCH} \leq R^2_{NO}$

$H_1 : R^2_{MVOCH} > R^2_{NO}$

R^2_{NO} = coefficient of determination of model 6 without marginal value of cash.

R^2_{MVOCH} = coefficient of determination of model 6 with marginal value of cash.

Table 4: Decimal Approximation of Marginal Value of Cash (MVOC(FW))

Decillion	1	2	3	4	5	6	7	8	9	10
R^2	36.07	6.07	6.08	2.44	6.40	5.43	7.43	20.81	11.34	22.15

Results of Table 4 shows that coefficient of determination is descending from the first to seventh decillion. By comparing first and last decillions we can say that the hypothesis is confirmed but this is not statistically significant. Therefore, the hypothesis is reevaluated. First, rate of debt to marginal value of cash is tested and its coefficient of determination is obtained.

Table 5: Testing Model 6, Coefficient of Determination and Effects of Marginal Value of Cash on Capital Structure

Description	Without Marginal Value of Cash	Only Marginal Value of Cash	Marginal Value of Cash and Other Variables
R^2	90.39	99.81	99.82

As can be seen from the above table, coefficient of determination for model 6 without marginal value of cash is 90.39. In simple words, variables of model 6 without marginal value of cash explain 90% of changes in dependent variable (leverage). However, variables of model 6 with marginal value of cash explain 99.81% of changes in dependent variable. Adding other variables to model 6 only leads to change coefficient of determination to 99.82%. It is concluded that marginal value of cash is the most influential factor on capital structure of family firms.

Results

Investors reaction is a key measure of flexibility. In fact, firms with higher levels of cash holding are more likely to be more flexible. Results of hypothesis 1 are in agreement with findings of Wang and Faulkender (2006). There is a negative relationship between financial flexibility and debt rate. More flexibility leads to less debt rate. That is to say, more financial flexibility (cash and short-term investment) reduces the need to financing from credits and debts. Thus, it can be said that family firms pay more attention to and rely on internal financing and this is in agreement with the theory of hierarchy. These findings are in agreement with findings of Wang and Faulkender (2006) and Pindado and Requejo (2015). Hypothesis 3 indicates that flexibility is the most influential factor on capital structure in family firms. Results of hypothesis 3 are in agreement with findings of Wang and Faulkender (2006).

In today's economic world where companies have to seize any opportunity for investment and profitability, family firms are expected to be flexible enough to raise their future earnings. It is suggested that investors rate family firms according to their flexibility in order to be able to make optimal decisions. Also, managers of family firms are suggested to exploit results of the present study to measure marginal

value of cash in their firms and consider that in financial credits. They are also suggested to build their capital structure focused on maintaining or promoting flexibility.

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