

# The Comparative Investigation of the Relationship Between Internal and External Financial Constraints in Leveraged and Capital-Intensive Companies in Tehran Stock Exchange (TSE)

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## *Abstract*

*The aim of this study is to compare the relationship between internal and external financial constraints in leveraged and capital-intensive companies in TSE. Firm's size index (total assets) is considered as a proxy for external constraint and operating cash flows is a proxy for internal constraint. Total sample firms are 138 firms during the period of 2005 to 2010 which calculating firms total debt ratio are separated into two groups of leveraged (62 firms) and capitalized (76 firms) firm (firms with debt ratio more than debt ratio of total sample is considered as leveraged firms, capital-intensive companies otherwise). T-statistic and ordinary least square (OLS) are used to test hypotheses. The results of T-statistic in leveraged firms show positive effect of firm's size and operating cash flow and neutral effect of sale and equity capital on capital assets investment and in capital-intensive companies indicate positive effect of firms size and equity capital and negative effect of operating cash flow and neutral effect of sale on equity capital. In addition, the results of OLS estimation after testing the reliability of all variables by ... in both leveraged and capital-intensive companies demonstrate negative and significant relationship between operating cash flow (internal financial constraint) and capital assets investment and less internal financial constraint leads to more investment sensitivity to cash flow.*

**Keywords:** *internal and external financial constraints, capital assets, capitalized and leveraged firms.*

**JEL classification:** M10, M19, G19.

## **Introduction**

One of the important aims of financing is investment in firms for more profitability. Firm's managers are looking for maximizing firm's value by conducting profitable investments. Performing profitable projects require financing

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for them. Different ways of financing include internal financing, external financing and or mix of them. Organizational complexity and business activities development in the most of countries cause that organization manager with regard to their responsibility to achieve organization goals and to insure of managing resources in the right way emphasis more on decision making. One of the most important items in decision making is decisions about capital expenditures. These sorts of decisions often bring financial commitments which are related to organizations policy and strategy (Bahramfar & Stiyri, 2001). Allocation of significant resources to investment projects requires making financing strategy of firms which affect on optimal structure of capital. In the whole, there are two procedures regarding capital structure. The first procedure is traditional procedure postulating that there is an optimal level of capital structure and firm`s value increases though increasingly usage of leverage. The second procedure is contemporary postulating that there are so many factors affecting on the determination of the level of debt and stock by firms. In this regard there are various theories, Trade of Theory (TOT) and Pecking Order Theory (POT), to explain these factors (Karimi & Sadegi, 2009). Financial constraints are two groups: internal constraint and external constraint. These financial constraints affect on firm`s investment plan. Internal financial constraints are constraints regarding internal resources and refer to agency theory. External financial resources are constraints regarding external financial resources and are gathered through issuance of bonds etc. these constraints refer to information asymmetry.

Fazzari et al. (1988) argue that firms with low payout rate have more investment sensitivity to cash flows. However, Kaplan and Zingles (1997) document that investment cash flows sensitivity does not show that firms have constraints. They classify firms into two main groups. First group is the firms with propensity to use capital equity to finance and so-called capital-intensive companies. Second group is the firms with propensity to use debt and so-called leveraged companies. However, in this research considering the leveraged and capital-intensive companies in TSE, we develop comparative investigation of the relationship between internal and external financial constraints in leveraged and capital-intensive companies in Tehran Stock Exchange (TSE).

## **1. Research review**

The decisions about financial and investment in the firms are decisions made taking the future into account. In financing decisions, firms use these funds to satisfy their commitments against financial providers. In investment decisions, firms ignore some present benefits for achieving more benefits in the future. Investment in plant and equipment can be an indication of foresee in achieving profit and investment return. According to firms financing policy, their financing resources are separated into two groups of internal and external financing. In internal financing, firms finance from the gained profit, which means they invest their gained profit in operation for more return instead of distributing it among

stockholders. In outsourcing, the firms finance from resources such as debts and dividend. In selection of the suitable financing method, this issue rises that how firms can finance to maximize their profit and stockholders return? There are many factors affecting firms financing such as asset and activities nature and firm's characteristics for instance, firms activity may be in a form that cash inflows is readily provided. In this situation, using of debt instead of issuing stock is generally cheaper and increases firm's value.

The review of financial constraint on investment procedure and policies and firms financing has been a subject of scrutiny among researchers. This filed of accounting research is divided into two groups of financial constraint effect on investment cash flows sensitivity and review of financial constraint effect on cash flows. Lambert et al. (2003) found that agency problem can affect on investment efficiency and also if an investor anticipates that managers may misuse the resources, he or she increases cost of capital (Biddle et al, 2008). Morgado and Pindado (2000) in the review of the relationship between firm's value and investment in order to test over and underinvestment found that there is an optimal level for investment and the firms that invest lower than that face underinvestment problem and the firms that invest more than optimal level face overinvestment problem. In addition, he shows that firms with more investment opportunities than others hold their investment level more than others close to the optimal level (Morgado and Pindado, 2000). Guariglia (2008) in a research investigated the relationship between internal and external financial constraints and decision making for capital. The research population consisted of 24184 firms during the period of 1997-2003. The results of data analysis using Generalized Method of Moments (GMM) show that investment cash flows sensitivity is related to different degrees of internal and external financial constraint. Other researches show that when external financial constraint is high and internal financial constraint is low, investment cash flows sensitivity is high.

Cleary et al. (2007) investigated the effect of internal and external financial constraints on investment cash flows sensitivity. They predicted a model to show this sensitivity by interactions between revenue and expense. According to which, high level of investment leads to more cost and consequently more risk that shows a positive relationship between cash flows and investment. On the other hand, high level of investment results in more revenue for firm and consequently reduces firm's risk. This effect shows a negative relationship between cash flows and investment.

Jahankhani and Kanani (2006) in a research using accounting data introduced a model for capital expenditure determination in listed firms in TSE. They conducted a comparative forecast related to investment sensitivity in the firms and its relationship with stocks future returns and Tobin's Q using regression model. Their results show that capital expenditure in capital-intensive companies has more Tobin's Q than leveraged firms. Kashnipour and Naginejad (2007) investigated the impact of changes in cash holding level against changes in cash flows. They show that cash flows have no significant impact on cash holdings level

and there is no significant difference among constrained and unconstrained firm's cash flow sensitivity. They assert that investment cash flow sensitivity is more suitable proxy for determination of financial constraint than cash flow sensitivity. Chen et al. (2011) show that, following 1997 and 2003 cuts in U.S. individual shareholder taxes, financially constrained firms, and particularly those with disproportionate ownership by U.S. individuals, enjoyed larger reductions in their cost of equity capital than did other firms. Their results are consistent with the incidence of the tax reductions falling mostly on firms with the most pressing needs for capital. Furthermore, they find that non-dividend-paying firms are more financial constrained than dividend-paying firms are.

Gautam (2010) argues that using investment-cash flow sensitivity as a metric to represent finance constraint of firms can be misleading because cash flow apart from signaling change in net worth may also signal investment opportunities of firms. He used funds obtained from voluntary asset sales rather than cash flow to represent internal liquidity of firms because use of funds obtained from voluntary asset sales is justified as it is unlikely to be related to the firm's future investment opportunities unless they are financially constrained.

Lamont et al. (2001) show that constrained firms stock returns move together over time. They also added to this by indicating that constrained firms have low average stock returns in 1968-1997. Overall, they found no evidence that relative performance of constrained firms reflects monetary policy, credit conditions and business cycles.

## **2. Methodology**

### **2.1. Population and data collection method**

Population of this study consists all leveraged and capital-intensive companies listed in TSE that their fiscal year ends at the end of year and also their information is available. Systematic elimination sampling is applied to sampling purpose. The required data are driven from TSE database, RahavardNovin and Tabirpardaz software. The method of data collection is documental using articles, theses, etc.

### **2.2. Hypotheses development**

Considering the main question of the study, the hypotheses are developed in a way to first test whether there is a relationship between external and external constraint and investment sensitivity and then examine the difference in capitalized and leveraged firms as following:

H<sub>1</sub>: internal financial constraint affects on investment sensitivity

H<sub>2</sub>: external financial constraint affects on investment sensitivity

H<sub>3</sub>: internal financial constraint affects on investment sensitivity in the leveraged and capital-intensive companies listed in TSE.

H<sub>4</sub>: external financial constraint affects on investment sensitivity in the leveraged and capital-intensive companies listed in TSE.

### 2.3. Data analysis method

This study is the inductive research since it is to extend the obtained results from samples to studied population (TSE). Moreover, since uses the past data, it is post hoc study and in object is the applied research. In the study the correlation and regression methods are used to analyze data. Finally, the research is descriptive study which is to explain the relationships between variables. Using OLS model, coefficients of independent variables (internal and external constraint variables) on dependent variable (investment in capital assets) is determined.

## 3. Research models

### 3.1. Dependent variable

Dependent variable in this study is investment in capital assets which is calculated by total amounts expended on acquiring tangible assets (property, plant and equipment) minus cash obtained from selling them.

### 3.2. Independent variable

Internal financial constraint is measured by operating cash flows to capital equity ratio. Operating cash flow is cash flows from operating activity (revenue from continues and principal activities). Nominal value of equity is nominal value of contributed capital, reserves and retained profit and loss.

Firm's size is used as a proxy for external financial constraint which is measure by firm's total tangible assets. The reason of selecting these variables as a proxy for internal and external constraint is the research conducted by Guariglia et al. (2008 and 2011). In addition, other studies presented in literature review also prove this fact.

### 3.3. Control variables

Considering that dependent variable of the study is investment in capital assets and according to Capital Asset Pricing Model (CAPM), other than financial constraint, firm's investment is sensitive to sale and equity capital in current and past periods. Therefor, the following control variables are used:

$K_{i(t-1)}$ : market value of equity capital in t-1

$t-1$ :  $S_{it}\Delta$ : Sale's logarithm in period t minus sale logarithm in t-1

$S_{i(t-1)\Delta}$ : Sale's logarithm in period t-1 minus sale logarithm in t-2

Regression model is used to test hypothesis 3. First, multivariable model is used to test the relationship between operating cash flows and investments in assets as following:

$$\frac{I_{it}}{K_{i(t-1)}} = \alpha_L + \beta_1 \frac{I_{i(t-1)}}{K_{i(t-1)}} + \beta_2 \Delta S_{it} / K_{i(t-1)} + \beta_3 \Delta S_{i(t-1)} / K_{i(t-1)} + \beta_4 CF_{it} / K_{i(t-1)} \quad (1)$$

$I_{it}$ : Investments in assets as dependent variable

$\Delta S_{it}$ : Changes in sale logarithm of firm i in year t

$\Delta S_{i(t-1)}$ : Changes in sale logarithm of firm i in year t-1

$CF_{it}$ : Operating cash flows of firm i in year t

$K_{i(t-1)}$ : Nominal value of equity used to harmonize data

$I_{i(t-1)}$ : Investments in assets of firm i in year t-1

In fact using above model, the effects of cash flows on investments in assets are determined. Since we are to investigate the effect of financial constraint (internal and external) on sensitivity of investment in capital assets, the firms are divided by the level of operating cash flows and firm's size- large, average and small.

However, modified multivariable model is used to test the relationship between operating cash flows and sensitivity of investments in assets according to the level of internal financial constraint as following:

$$\frac{I_{it}}{K_{i(t-1)}} = \alpha_L + \beta_1 \frac{I_{i(t-1)}}{K_{i(t-1)}} + \beta_2 \frac{\Delta S_{it}}{K_{i(t-1)}} + \beta_3 \frac{\Delta S_{i(t-1)}}{K_{i(t-1)}} + \beta_4 \frac{CF_{it}}{K_{i(t-1)}} * LOWCF_{it} + \beta_5 \frac{CF_{it}}{K_{i(t-1)}} * MEDCF_{it} + \beta_6 \frac{CF_{it}}{K_{i(t-1)}} * HIGHCF_{it} + \varepsilon_{it} \quad (2)$$

I: dependent variable

$I_{it}$ : Investment in capital assets

$\Delta S_{it}$ : Changes in sale's logarithm of firm i in year t

$\Delta S_{i(t-1)}$ : Changes in sale's logarithm of firm i in year t-1

$CF_{it}$ : Operating cash flows of firm i in year t

$K_{i(t-1)}$ : Nominal value of equity used to harmonize data

$I_{i(t-1)}$  : Investments in assets of firm i in year t-1

$LOWCF_{it}$ : dummy variable which set to 1 if operating cash flows is in first quarter, and 0 otherwise.

$MEDCF_{it}$ : Dummy variable set to 1 if operating cash flows is in second and third quarter and 0 otherwise.

$HIGHCF_{it}$ : Dummy variable set to 1 if operating cash flows is in fourth quarter and 0 otherwise.

Finally to investigate the relationship between firm's size and investment sensitivity to operating cash flows, modified multi-variable model is used according to the level of external financial constraint as following:

$$\frac{I_{it}}{K_{i(t-1)}} = \alpha_L + \beta_1 \frac{I_{i(t-1)}}{K_{i(t-1)}} + \beta_2 \frac{\Delta S_{it}}{K_{i(t-1)}} + \beta_3 \frac{\Delta S_{i(t-1)}}{K_{i(t-1)}} + \beta_4 \frac{CF_{it}}{K_{i(t-1)}} * SMALL_{it} + \beta_5 \frac{CF_{it}}{K_{i(t-1)}} * MEDIUM_{it} + \beta_6 \frac{CF_{it}}{K_{i(t-1)}} * LARGE_{it} + \varepsilon_{it} \quad (3)$$

Where:

$SMALL_{it}$ : Dummy variable set to 1 if firm's size is in first quarter and 0 otherwise.

$MEDIUM_{it}$ : Dummy variable set to 1 if firm's size is in second and third quarter and 0 otherwise.

$LARGE_{it}$ : Dummy variable set to 1 if firm's size is in fourth quarter and 0 otherwise.

#### 4. Empirical results

Descriptive statistic is presented in Table 1.

**Table 1. Descriptive statistic for leveraged firms**

Statistic variable	observation	minimum	maximum	mean	Standard deviation	skewness	kurtosis
Investment in capital assets	62	8633.00	6.63E6	3.1896E5	9.81736E5	.809	1.5646
Firms size	62	1.13E5	9.90E6	1.4040E6	1.79295E6	.601	1.10023
Debt ratio	62	.25	2.50	.7456	.28907	1.041	0.89754
Operating cash flows	62	1958.00	6.94E5	1.3143E5	1.16765E5	1.112	1.40049
Sale logarithm	62	10.54	13.97	11.8310	.88749	.884	1.2054
Nominal value of equity capital	62	34.00	6.66E6	1.6424E5	8.48336E5	.505	1.31200
Small size	62	.00	1.00	.2419	.43175	.578	1.04566
Medium size	62	.00	1.00	.3871	.49106	.612	1.3430
Large size	62	.00	1.00	.3710	.48701	1.003	1.4412
Low operating cash flows	62	.00	1.00	.2742	.44975	.900	1.6678
Average operating cash flows	62	.00	1.00	.3387	.47713	.943	1.2243
Large operating cash flows	62	.00	1.00	.3871	.49106	.882	1.0667

Skewness and kurtosis are used to investigate symmetry or asymmetry of the probability distribution. If skewness is more than 1.96, distribution is asymmetric and if it is less than 1.96, distribution is symmetric. Positive or negative sign of skewness shows skewness to right or left. If kurtosis is more than 1.96 it means that distribution has kurtosis and if it is less than 1.96, it means that distribution is normal. With respect to the coefficient of skewness in Table 1 which is less than 1.96 for all variables, it can be concluded that distribution is symmetric. In addition, since coefficient of kurtosis is less than 1.96 for all variables, the distribution is normal.

**Table 2. Descriptive statistic for capital-intensive companies**

Statistic variable	observation	minimum	maximum	mean	Standard deviation	skewness	kurtosis
Investment in capital assets	76	8446.00	1.52E6	1.2666E5	2.74966E5	.700	1.575
Firms size	76	69814.00	1.75E7	1.7791E6	3.03723E6	1.109	1.600
Debt ratio	76	.00	.48	.2662	.12519	1.229	0.902
Operating cash flows	76	1813.00	4.32E6	2.6854E5	6.22525E5	0.994	1.601
Sale logarithm	76	10.13	13.00	11.3964	.67801	.801	1.001
Nominal value of equity capital	76	519.00	4.04E5	3.4051E4	66486.11763	.446	0.667
Small size	76	.00	1.00	.3158	.46792	.884	1.005
Medium size	75	.00	1.00	.4533	.50117	.772	1.121
Large size	76	.00	1.00	.2368	.42797	1.230	1.341
Low operating cash flows	76	.00	1.00	.5263	.50262	1.090	1.454
Average operating cash flows	76	.00	1.00	.2500	.43589	.556	1.444
Large operating cash flows	76	.00	1.00	.2237	.41948	.662	1.077

#### 4.1. T-statistic for testing the hypotheses for leveraged firms

Using t-statistic, we can conclude whether independent variable affects on dependent variable and when using paired samples t-statistic, the relationship between two variables can be estimated. In this section the relationship between independent variables- firms size, operating cash flow, and sale and equity capital and dependent variable- investment in capital assets, is explored.

#### 4.2. The relationship between firm's size and investment in capital assets

Although variable of size is entered as a dummy variable to the regression model, we investigate whether there is a relationship between firm's size (firm's total tangible assets) and investment in capital assets. Then, we postulate following hypothesis.

There is a significant relationship between firm's size and investment in capital assets in leveraged firms.

**Table 3. Paired t-statistic between firms size and investment in capital assets**

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
Size	investment	1.08505	1.83714	-4.65	0.000	0.05	0.228	<b>0.004</b>

According to Table 3 which shows that significance level is less than error level ( $0.00 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted manifesting that firm's size affects on investment in capital assets in leveraged firms. In addition, apart from the investigation of independent variable, correlation of variables also explored through paired t-statistic test which is 0.004 indicating that there is a correlation (0.228) between firm's size and investment in capital assets.

#### **4.3. The relationship between operating cash flows and investment in capital assets**

In addition to the firm's size, although variable of operating cash flows is entered as a dummy variable to the regression model, we investigate whether there is a relationship between operating cash flows and investment in capital assets. Then, we postulate following hypothesis:

There is a significant relationship between operating cash flows and investment in capital assets in leveraged firms.

**Table 4. Paired t-statistic between operating cash flows and investment in capital asset**

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
operating cash flows	investment	1.87536	1.00414	6.471	0.004	0.05	0.135-	<b>0.001</b>

According to Table 4 which shows that significance level is less than error level ( $0.004 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted manifesting that operating cash flows affects on investment in capital assets in leveraged firms. In addition, according to the table and significance level (0.001) there is a negative correlation (-0.135) between operating cash flows and investment in capital assets.

#### 4.4. The relationship between sale and investment in capital assets

Table 5. Paired t-statistic between sale and investment in capital asset

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
sale	investment	3.18951	9.81736	1.58	0.063	0.05	0.231-	<b>0.071</b>

According to Table 5 which shows that significance level is more than error level ( $0.063 > 0.05$ ), so  $H_0$  is accepted and  $H_1$  is rejected manifesting that sale does not affect on investment in capital assets in leveraged firms. In addition, according to the table and significance level (0.071) there is no correlation between sale and investment in capital assets.

#### 4.5. The relationship between equity capital and investment in capital assets

The hypothesis is developed as following:

There is a significant relationship between equity capital and investment in capital assets in leveraged firms.

Table 6. Paired t-statistic between equity capital and investment in capital asset

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
capital equity	investment	1.54720	1.10945	1.098	0.276	0.05	0.272	<b>0.033</b>

According to Table 5 which shows that significance level is more than error level ( $0.276 > 0.05$ ), so  $H_0$  is accepted and  $H_1$  is rejected manifesting that equity capital does not affect on investment in capital assets in leveraged firms. In addition, according to the table and significance level (0.033) there is no correlation between equity capital and investment in capital assets.

#### 4.6. T-statistic for testing the hypotheses for capital-intensive companies

After performing T-statistic for leveraged firms, we conduct the same tests for capital-intensive companies. That is, the relationship between independent variables- firm's size, operating cash flow, and sale and equity capital and dependent variable- investment in capital assets, is explored in capital-intensive companies.

#### 4.7. The relationship between firm's size and investment in capital assets

Table 7. Paired t-statistic between firms size and investment in capital assets

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
Size	investment	-1.65245	2.79281	-5.158	0.000	0.05	0.898	<b>0.000</b>

According to Table 7 which shows that significance level is less than error level ( $0.00 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted manifesting that firm's size affects on investment in capital assets in capital-intensive companies. In addition, apart from the investigation of independent variable, correlation of variables also explored through paired t-statistic test which is 0.000 indicating that there is a correlation (0.898) between firm's size and investment in capital assets.

#### 4.8. The relationship between operating cash flows and investment in capital assets

Hypothesis is postulated as following:

There is a significant relationship between operating cash flows and investment in capital assets in capital-intensive companies.

Table 8. Paired t-statistic between operating cash flows and investment in capital asset

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
operating cash flows	investment	-1.41880	7.01495	-5.763	0.002	0.05	0.085-	<b>0.018</b>

According to Table 4 which shows that significance level is less than error level ( $0.002 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted manifesting that operating cash flows affects on investment in capital assets in capital-intensive companies. In addition, according to the table and significance level (0.018) there is a negative correlation (-0.085) between operating cash flows and investment in capital assets.

#### 4.9. The relationship between sale and investment in capital assets

Variable of sale's logarithm is control variable. Although there is no separate hypothesis developed for it, we should test as to whether there is a relationship between sale and dependent variable. The hypothesis is developed as following:

There is a relationship between sale and investment in capital assets in capitalized firm.

**Table 9. Paired t-statistic between sale and investment in capital asset**

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
sale	investment	1.26653	2.74967	0.916	0.090	0.05	0.125-	<b>0.202</b>

According to Table 9 which shows that significance level is more than error level ( $0.090 > 0.05$ ), so  $H_0$  is accepted and  $H_1$  is rejected manifesting that sale does not affect on investment in capital assets in capital-intensive companies. In addition, according to the table and significance level (0.202) there is no correlation between sale and investment in capital assets.

#### 4.10. The relationship between equity capital and investment in capital assets

The hypothesis is developed as following:

There is a significant relationship between equity capital and investment in capital assets in capital-intensive companies.

**Table 10 Paired t-statistic between equity capital and investment in capital asset**

Independent variable	Dependent variable	mean	Standard deviation	t-statistic	Significance level	Error level	Coefficient of correlation	sig
capital equity	investment	9.26136	2.44325	3.305	0.001	0.05	0.556	<b>0.000</b>

According to Table 10 which shows that significance level is less than error level ( $0.001 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted manifesting that equity capital affects on investment in capital assets in capital-intensive companies. In addition, according to the table and significance level (0.000) there is a correlation (0.55) between equity capital and investment in capital assets.

## Conclusions

The aim of this study is to compare the relationship between internal and external financial constraints in leveraged and capital-intensive companies in Tehran Stock Exchange (TSE). The results of study in many cases are consistent with those of other researches (Kaplan and Zingales, 1997; Verdi, 2006; Lambert et al. 2003; Biddle, 2008; Biddle and Hilary, 2006; Beatty, 2007; Guariglia, 2008; Jahankhni and Kanani, 2006; Kashnipour and Naginejad, 2009). In this research, investment in capital assets in year t-1 to equity capital and investment in capital assets in current period have positive and significant relationship in both leveraged and capital-intensive companies. Of course this relationship is stronger (two times) in leveraged firms than capital-intensive companies. However, we can conclude that overall, investment in capital assets in year t-1 to equity capital and investment in capital assets in current period have positive and significant relationship. Variables of sale's logarithm in current period to equity capital and sale's logarithm in pervious period to equity capital have no significant relationship with investment in capital assets in current period in both leveraged and capital-intensive companies. However, we can conclude that overall, sale has no impact on investment in capital assets. The other variable is operating cash flows to equity capital and results show that there is positive and significant relationship between operating cash flows to equity capital and investment in capital assets in both leveraged and capital-intensive companies. However, this relationship is stronger (three times) in capital-intensive companies than leveraged firms. Therefore, investment firms should pay attention to this variable since a little change in operating cash flows drives in dramatic changes in investment. About dummy variables of model we can say that there is negative and significant relationship between firms with low, average and high operating cash flows and investment in capital assets in both leveraged and capital-intensive companies (in other words, investment sensitivity and operating cash flows have significant relationship). However, this relationship is stronger for firms with low operating cash flows and it can be concluded that reducing of internal financial constraint leads to increasing of investment sensitivity to cash flows. Finally, the hypothesis of the relationship between internal financial constraint and investment sensitivity is accepted. However, the difference between capitalized and leveraged firms regarding internal financial constraint is that leveraged firms investment sensitivity to internal constraints is more than capital-intensive companies. With respect to dummy variable of firm's size (as a proxy for external financial constraint), the results show that there is a significant relationship between firm's size and investment in capital assets sensitivity in both leveraged and capital-intensive companies. However, in leveraged firms, sign and type of this relationship is negative for small and average firms and positive for large firms which shows that in leveraged firms more external constraint leads to increase in capital assets investment sensitivity. However, the difference between leveraged and capital-intensive companies in external financial constraint is that, first, the magnitude of the relationship between

external financial constraint and investment sensitivity in leveraged firms is more than capital-intensive companies. Second, the relationship between small and average firms and investment sensitivity is positive while it is negative for large firms in both leveraged and capital-intensive companies. The analysis of studied firm's balance sheet shows that large amounts of firms debts is of short-term and for long term debts, it is of employee termination-pay provision. In this situation, long term decisions about investment may not be made accurately through debts which have positive effect on long-term profitability. In other words, firms have no suitable leverage to access profitability. Because firms are in their early stage of life cycle, new listed firms are not willing to retain profits versus they distribute it, signaling that firm is involved in profitable projects. However, in semi-efficient markets, not distributing good profit is not the sign of unsuccessful position, rather market participant are aware of existence of suitable situations in the future.

### **Suggestion remarks**

With respect to the existence of the significance relationship between external financial constraint and firm's size and investment in capital assets and investment cash flows sensitivity, it is suggested that investors and managers consider external constraint, firm's size, in financing. In addition, in application of short-term and long-term financing methods consider the point that more external financial constraint leads to more investment in capital assets sensitivity. However, to cater stockholders and minimize risk and investment sensitivity, consider the determinants of external financial constraint and use scientific models (genetic programming, nerves network, fuzzy, etc.).

With respect to the existence of the significance and negative relationship between internal financial constraint (operating cash flows) and investment sensitivity, it is suggested to managers that to minimize investment sensitivity, maximize operating cash flow in order to use its benefits in mitigating liquidity risk and optimizing capital and investment structure.

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