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The Investigation of Financing Sensitivity Through Debt and the Sale of Shares to the Free Cash Flow under Financial Constraints

Saeed Chagha Mirza and Babak Jamshidi Navid
Department of Accounting, College of Humanities, Islamic Azad University,
Kermanshah Branch, Kermanshah, Iran

Abstract: The main purpose of this study was to evaluate the sensitivity of financing, through debt and the sale of shares in free cash flow is under financial constraints. Sensitive sources of financing to the company's cash flow is an issue that has received considerable attention in recent decades. The sources of financing sensitivity of cash flows, cash stretch sources of financing or the percent change in the sources of financing to changes in cash flows of the company. In this study, the cash flow generated inside the company as the first strategy chosen financing and debt and equity, respectively next priorities, funding was elected. The research from the perspective of objective research, applied research, Methods on how to apply is that the data related to the calculation and measurement of variables related to the model, Exchange databases and software obtaining new rahavard and then calculating the variables using the techniques of descriptive and inferential statistics, the variables were analyzed and tested hypotheses. The study based on the data type, a quantitative. The population consisted of 112 companies of all listed companies in Tehran Stock Exchange in the period 2009-2013. The results of the test hypotheses of this study showed that between that the financing through debt and free cash flow in companies with financial constraints, there is a significant and negative relationship and between the financing through the sale of shares and free cash flow in companies with financial constraints, there is a significant and negative relationship. The results showed that a strong long-term relationship between the variables there.

Key words: Financing sensitivity, sale of shares, free cash flow, financial constraints, Iran

INTRODUCTION

Methods of financing one of the main areas of decision-making managers is to increase shareholder wealth, growth and continued of the company activities require financial resources that supply these resources are often limited. Financing for long-term investments a major part of the concerns of managers established firms this. According to the theory of Miller-Modigliani's entire capital market conditions, the difference in the cost of financing from domestic resources or foreign company does not exist. In this case, companies can without any problems with the rate of cost of capital specific to the necessary financing through the capital market act. The company access to external sources of capital market more difficult, the larger part of the financial resources needed to meet the company's resources. The company called the company suffered financial constraints called. The firm's reliance on domestic resources through "cash flow sensitivity of investment the company is determined (Fazzari *et al*., 1988). Claims that companies with financial constraints the sensitivity of investment-greater cash flow. To determine the financial constraints of the index such as size and service life is used which in both traditional and modern classified (Arslan-Ayaydin *et al*., 2006).

Discussion of financial constraints as one of the key issues facing all companies, common way to examine the relationship between financial constraints, the value of cash and investments segregated into two groups of companies with financial constraints and without financial constraints. Fazzary *et al*. (1988) argue that companies with financial constraints are severe when investment decisions on cash flows greater emphasis. In other words, by increasing the difference between internal and external financing costs sensitivity of investment to internal cash flow increases. Theories also hold cash in the company and it suggests that these theories are theory exchange and the theory of hierarchical. According to the theory of exchange, the companies desired level of cash holdings based on a balance between the interests and maintenance costs the cash determine. The major three

Corresponding Author: Saeed Chagha Mirza, Department of Accounting, College of Humanities, Islamic Azad University, Kermanshah Branch, Kermanshah, Iran

motives for holding cash can be motivated trading, speculative motive and precautionary motive named. Companies often for motivated speculation and the use of investment opportunities, the company held cash alternative. The purpose of precautionary motives can be to deal with the crisis and prevent liquidity problems and reduce financing costs noted. According to the hierarchical theory stated that procedures the financing with of hierarchical procedures comply and internal resources are preferred over external sources. The purpose of this study is to answer the question whether the company's cash flow, in terms of financial constraints, the need for outside funding for the company, required or not?

Literature review: Moradzadeh and coauthors examine the relationship between free cash flow the company's with stock market value on the stock exchange and It concluded that in all companies between the company's free cash flow and the stock price at the level of 5% there is no significant relationship and This conclusion is true in different industries, there is a significant association only in non-metallic mineral industries. Hesarzadeh and Tehrani in the study, the effect of free cash flows and financial constraints on more investment and low investment paid. The results show that the relationship between free cash flow and more investment is direct and significant. However, the findings indicated no significant relationship between financial constraints and low investment is in companies listed in Tehran Stock Exchange. Linsink *et al*. (2003) effect business groups on the behavior of the firm's investment in India were investigated. They have found evidence that showed sensitivity of investment to cash flow for business groups to other companies better access to foreign funds for debt financing, Almeida *et al*. (2004), based on the precautionary motive for holding cash argue that companies with financial constraints, in order to take advantage of profitable investment opportunities for the future and avoid wasting this valuable opportunity, a large portion of its cash flows store them. One of the methods of financing, borrowing, since borrowing from internal cash reserves prevents exit, it can be considered a negative cash reserves. Karami (2010) examine the relationship between free cash flow company's stock market value on the stock exchange and concluded that the total level of free cash flow of the company and the stock price at the level of 5% significant relationship not and this conclusion is true in various industries, there is a significant association only in non-metallic mineral industries. Kashani Poor and Nezhad (2009) examined the effect of the financial constraints on changes in levels of cash holdings for their cash flow changes. This research using dynamic panel data from data 78 company were studied during 6 year. The results show that the cash flow significant effect on the levels of cash holdings not and also a significant difference between the cash flow sensitivity of firms with financial constraints and without financial constraints do not exist. The results show that the cash flow sensitivity of investment to cash flow sensitivity of cash, appropriate criteria for determining the existence of financial constraints. Smith (2007) in a study using 150 samples to determine the effect of earnings management on the relationship between free cash flow and shareholder value payments, The results show that with 95% confidence, changes in free cash flows with changes in shareholder wealth relationship significant. He also showed that the positive free cash flow and shareholder value there is a direct relationship but the negative cash flows and shareholder value, there is no direct relation. In the second hypothesis to the conclusion that with 99% confidence, earnings management in the entire surface of the sample and the level of positive cash flows, undermines the relationship between the cash flows of wealth creation for shareholders. Ozkan (2004) in a study as excess free cash flow, earnings management and the Audit Committee discussed how much free cash flow surplus is related to earnings management. In this study, it is assumed that managers of companies that have high free cash flows severity good practice in the earnings management control. The results show that the independent audit committee to firms with free cash flow helps to monitor earnings management practices. Arslan-Ayaydin *et al*. (2006). The relationship between financial constraints and the sensitivity of investment to cash flow with an emphasis on cash holdings as a separate variable for two groups of companies to companies with financial constraints and without financial constraints of their study. Analyze them for an emerging market (Turkey) and before the financial crisis took place during a financial crisis. The results are consistent with previous expectations they showed that companies with financial constraints, the sensitivity of investment to cash flow higher than firms without financial constraints show. The results indicate that cash holdings an effective factor for companies especially during the financial crisis.

Research theoretical foundations

Free cash flow: Cash flow is a measure of the profitability of the company, after all costs and investment measures (Rezvaniraz and Haghighat, 2010).

$$FCF = CFO_t - Investment_t$$

Where:

FCF = Free Cash Flows of the entity in period t

CFO = Cash from Operations business unit in period t

Investment = Free cash flow expected in period t (George *et al*., 2008)

Financed through debt: Financing through debt due to tax savings and lower rates compared with the expected return of shareholders, the solution is more favorable for financing. The only criterion for the creation of debt as leverage for a company, compared of return on capital with the average rate interest paid is. Enterprises should choose a combination of funding sources such as long-term debt, preferred stock and common stock for the purpose of financial investments by several factors used to evaluate and select the most appropriate method.

Funded through the sale of shares: Another source of financing, issuing shares in theory, the injection of cash into the economy is derived from the belief that economic growth and development capitalist economists know. Capital-based financing, involves a transfer of part of the project profits in return of capital. In fact, in this way, using cash and non-cash shareholders and increase the amount of equity in companies or projects, capital requirements will be recognized. Brought equity in project activities promote, consumption and benefits from the project entirely in the future will be distributed to the shareholders.

$$\Delta = \text{Equity} = \Delta I/XFi,t = I/XFin\ i,t$$

Where:

ΔXFin i,t = Net change in financing firm i at time t, these variables include changes in external financing through take stock and changes in the debt created for the purpose financing

I/XFi,t = Internal finance division on external finance company i at time t (Opler *et al*., 1999)

Financial constraints: The most complete and most accurate definition in this case is that, when companies are in the range of funding between the costs of internal and external costs, the funds allocated are faced with a gap (Rezvaniraz and Haghighat, 2010). In order to separate the company into two firms with financial constraints and companies without financial constraints, the appropriate measure is needed. The theoretical and principles of the different criteria is used as an indicator of financial constraints. The study of traditional measures of firm size, firm age, the dividend payout ratio and trade group is used as a measure of financial constraints:

- Firm size: logarithm of total assets
- Firm age: the number of years the company's activity
- The dividend payout ratio

$$\text{Dividend per share} = \frac{\text{Dividend divided}}{\text{Weighted average number of ordinary shares outstanding}}$$

- Business groups: dummy variable indicating membership of a company, business group (1) or do not belong (0) (Arslan-Ayaydin *et al*., 2006)

MATERIALS AND METHODS

The research from the perspective of objective research, applied research, Methods on how to apply, is that the data related to the calculation and measurement of variables related to the model, exchange databases and software obtaining new Rahavard and then calculating the variables, using the techniques of descriptive and inferential statistics, the variables were analyzed and tested hypotheses. The study based on the data type, a quantitative. The population consisted of 112 companies of all listed companies in Tehran Stock Exchange in the period 2009-2013.

Research hypothesis:

- Between financing through the sale of shares and free cash flow in companies with financial constraints there is a significant negative relationship
- Between financing through debt and free cash flow in companies with financial constraints there is a significant negative relationship

RESULTS AND DISCUSSION

Panel data unit root test: Based on the results of stability tests in Table 1, at 95% of the dependent variable (free cash flow) in the model intercept, In tests Levin, Lin and Chu and Phillips-Perron Fisher and in tests Im, Pesaran and Shin, Augmented Dickey-Fuller has been a steady Fisher. Since the dependent variable is zero probability (prob<0.05), this variable is stable surface and do not measure the difference. According to the results in the Table 2, independent variables include sale of shares, debt and financial constraints in all four test levels are stable.

$$CASH_{it} = \alpha + SALE_{it}X_1 + DEBT_{it}X_2 + CONSTRAINTS_{it}X_3$$

$$CASH_{it} = \alpha + SALE_{it}X_1 + DEBT_{it}X_2$$

Table 1: Shows the results of panel data unit root test, intercept model

	Stationary tests-the width of the source							
Tests	LLC	Prob.	IPS	Prob.	ADF-Fisher	Prob.	PP- Fisher	Prob.
Dependent variables								
CASH	-10.655	0.000	3.000	0.000	36.650	0.025	42.323	0.005
Rating stationary	In level		In level		In level		In level	

Table 2: Combines data unit root test results, the model intercept

	Stationary tests - the width of the source							
Tests	LLC	Prob.	IPS	Prob.	ADF-Fisher	Prob.	PP-Fisher	Prob.
Variables								
SALE	-10.831	0.000	9.025	0.000	41.272	0.000	44.174	0.000
Rating stationary	In level		In level		In level		In level	
DEBT	-9.254	0.000	12.287	0.005	55.582	0.006	61.307	0.000
Rating stationary	In level		In level		In level		In level	
CONSTRAINTS	-24.312	0.000	-73.214	0.000	119.531	0.000	139.440	0.000
Rating stationary	In level		In level		In level		In level	

Calculations research

Table 3: Test results F-Limer and hausman test

Model	Type test	Limr F-test	Test Hausman
The first model (CASH 1)			
	The statistics	1.328	28.985
	p-value	0.024	0.000
	Type model	Panel	Fixed effects
The second model (CASH 2)			
	The statistics	1.200	19.808
	p-value	0.002	0.000
	Type model	Panel	Fixed effects

Calculations research

Where:

CASH = Free cash flow, the company i in year t

SALE = The sale of shares, the company i in year t

DEBT = Debt, the company i in year t

CONSTRAINTS = Financial constraints, the company i in year t

α = Constant number

Based on the F-Limer in Table 3, the two models of hypothesis, given that the p-value at 95%, close to (0.000) is, in other words, $p<0.05$. Therefore, the null hypothesis that pooling model (hypothesis is the intercept for all grades) was rejected and the opposite hypothesis is accepted. So for each of the periods studied (firms) should be considered a separate intercept, so can be used to estimate the panel method. Also, according to the results of the Hausman test for the first hypothesis, given that in exchange $\alpha = 0.05$, the Hausman statistic (for the first model 1.314 and 1.846 for the second model) and the other the $p<0.05$, so the null hypothesis is rejected. The null hypothesis is rejected. Reject the null hypothesis (H_0) shows that the random effects model is incompatible and should be fixed effect model. The final regression models research:

Table 4: The results of the fixed effects model

Fixed effects model	Coefficients	Standard deviation	t-statistics	p-value
The first model (CASH 1)				
SALE	-0.139	0.051	-2.718	0.006
DEBT	0.121	0.041	2.919	0.003
CONSTRAINTS	-1.386	0.080	-17.145	0.000
C	-1.875	1.017	-1.843	0.065
R^2	0.877			
$\bar{R}^2$	0.845			
D.W	2.290			
F Fisher	27.394			0.000
The second model (CASH 2)				
SALE	0.607	0.041	14.543	0.000
DEBT	-0.241	0.041	-5.757	0.000
C	6.789	0.563	12.051	0.000
R^2	0.733			
$\bar{R}^2$	0.665			
D.W	2.422			
F Fisher	10.855			0.000

Calculations research

$$CASH_{it} = -1.875-0.139X_1 +0.121X_2-1.386X_3$$

$$CASH_{it} = 6.789+0.607X_1-0.241X_2$$

According to the results presented in Table 4 in the studied companies, in the first model and when the dependent variable CASH 1 (free cash flow), according to the statistic t (-2.718) and the probability of it (0.006), negative and significant relationship between variable selling shares with free cash flow so the relationship between the two variables is confirmed. As well as between financial constraints and free cash flow in year t and year t-1 there is a significant negative relationship. But when the dependent variable free cash flow (CASH 2) is between sales and free cash flow there is a significant positive relationship.

The correlation coefficient (R^2) obtained in the first and second model shows that model explanatory variables, 0.877 and 0.733 percent, respectively are able, to explain the dependent variable. According to the coefficient of determination adjusted 0.845 and 0.665 is

Table 5: Co-integration test results Kao

	Co-integration test Kao	
Relationship long-term variables	Statistics test	p-value
The first model (dependent variable: CASH 1)	-16.982	0.000
The second model (dependent variable: CASH 2)	-13.446	0.000

Calculations research

Table 6: Summarizes the result of the influence of independent variables on the dependent variables

Variables	Dependent variable	Free cash flow	Approve or reject the hypothesis	Sample level
Independent variables (first model)	SALE	Significant negative relationship	Reject H_0	Financial constraints
	Debt	Positive and significant relationship	Accept H_0	Financial constraints
	CONSTRAINTS	Significant negative relationship	Reject H_0	Financial constraints
Independent variables (second model)	SALE	Positive and significant relationship	Reject H_0	Financial constraints
	Debt	Significant negative relationship	Reject H_0	Financial constraints

specified, the index is high and the concept of ability to explain perfect model. Durbin Watson calculated (D.W = 2.290 and D.W = 2.422) indicates the absence of autocorrelation in the model is based on the test statistic F-Fisher (27.394 and 10.855) and (prob. = 0.0000), the fit of the regression is valid.

Co-integration test: Integration test due to the use of panel data in the study Kao method played. According to Kao integration test results in Table 5, long-term relationship between the independent variables in the model and dependent (free cash flow) at a confidence level of 5% is accepted. Given that the value of the test statistic in this case more than the critical value and the probability is <0.05, the null hypothesis of no co-integration is rejected the opposite hypothesis (Co-integration and long-term relationship) will be accepted. These results suggest that a strong relationship long-term, there are between variables.

CONCLUSION

Free cash flow is important in this respect that allows managers to look for opportunities that can increase shareholder value. Without cash, develop new products, pay cash dividends to shareholders and debt reduction is not possible. On the other hand, the cash should be kept at a level which, between the cost of holding cash and cash cost inadequate, balance. Investors and financial analysts consistently sought to use new measures and related to analysis evaluate the performance of companies. On the other hand, according to past research and financial analysts, including Martin and Patti together using several performance appraisal criteria, cause the decision to be satisfactory.

Suggest the first hypothesis: Between financing through the sale of shares and free cash flow in companies with financial constraints there is a significant negative relationship. The proportion of profits paid to shareholders would provide more investment in the company can have a positive effect on the liquidity of the company. In any case, to assess the sale of shares knowledge to predict future profits for investors and financial analysts is required. Not only notice of the normal course of corporate profits but notice of the unexpected benefits the company, to expected increase or decrease the effective prices. Because it was a direct relationship between stock prices and changes in corporate profits is available, to predict a company's stock price may be factors that contributed to the company's earnings are considered and the anticipated profits. Factors affecting in the change dividends can be compared ratio the capital of the company for each share of ratio profit to sales (profit margin) and the ratio of sales to capital, respectively.

Suggest the second hypothesis: Between financing through debt and free cash flow in companies with financial constraints there is a significant negative relationship. To owners and managers who played an important role in decision making and evaluating the performance of the stock companies are recommended to take steps to provide financial reports to the market with more quality; Because the quality of financial reporting increases and investors have more confidence in the company, it can participate more easily, in order to meet their financial needs, to financing through the stock market and in resulting better performance.

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