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Free Cash Flow, Capital Structure and the Value of Listed Companies in Tehran Stock Exchange

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Abstract

The current research attempts to investigate the relationship between the free cash follow and capital structure and value of listed companies in Tehran Stock Exchange. For this reason, 80 companies were investigated during 2009-2013. Lehn. & poulsen and debt leverage models were used to measure the free cash flow and capital structure respectively. The firm value was also calculated by Tobin's Q. Findings showed that free cash flow and capital structure have significant and positive effects on firm value.

Keywords: Free cash flow, capital structure, firm value

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Introduction

The functions of a firm's financial manager in modern financial theories are decision making about the investment, financing and division of profit among shareholders. The decisions related to the financing are the main functions of a firm in determination of the best financial mix and in other hand capital structure. Capital structure is the most important parameter influencing value of firms which is considered in capital market in order to direct it. The current evolving and changing environment has already linked the credit grading of companies into their capital structure. In this environment,

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maximization of firms' value requires implementation of profitable plans. In the current world, it is necessary to determine the appropriate method of financing for the purpose of increasing the firm profitability and survival with regard to the competitive market condition. Investors analyze the firm performance and capital structure to find a proper investment method since they need to finance their businesses and increase their wealth.

In addition to the capital structure, it is needed to consider the concept of free cash flow in order to increase the firm value. Managers do not like to distribute the free cash flow among the shareholders since payment of cash to them contributes to the reduction of those resources which are under their control resulting in reduction in their power. Regarding the difference between managers' and owners' goals, the existence of free cash flow in firms will lead to the waste of organizational resources. Hence, agency theory states that extreme existence of free cash flows in firms can be leaded to waste of organizational resources and agency cost and will consequently reduce the firm value.

Literature review

Capital structure and firm value

Regarding the capital structure and its effect on firm performance, it can be mentioned that financing through the debt can create value due to its financial benefit. While it can eliminate the value due to the bankruptcy costs. There are many researches about the effect of capital structure on firm value which some of them will be discussed further.

Fosberg and Ghosh (2006), in a research in New York Stock Exchange, showed that there is a significant and negative relationship between capital structure and return on assets as the measure of financial performance. Naser and Mazhar (2007) indicated that there is significant and negative relationship between capital structure and return on shareholders' equity. Ebaid (2009) stated that there is a significant but weak relationship between capital structure and firm performance in normal situations. The Crnigoj and Mramor (2009)' research findings illustrated a significant relationship between financial leverage (short-term debt to total assets, long-term debt to total assets and total debts to total assets) and firm performance. Mahfuzah and Raj (2012) concluded that there is a negative relationship between firm performance and short-term, long-term and total debts. Tobin's Q also indicated that there would be a significant and positive relationship between short-term and long-term debts. They finally presented that total debts will have a significant and negative relationship with firm performance. Fosu (2013) found also that financial leverage has a significant and positive effect on firm performance.

Free cash flow and firm value

Free cash flow shows the money that company possess after payment of required expenses for maintenance or development of assets. Its positive value indicates that the firm has excessive cash after payment of expenses and investments. Its negative value means that the company has not made adequate profit in order to cover its costs and investment activities.

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Jensen (1986) was the first one that proposed the concept of free cash flow. He stated that managers of companies with high free cash flows may invest them in marginal projects and plans with negative net present value. They do not like to distribute the free cash flow among shareholders since cash payment to them contributes to the reduction in their under control resources and consequently decrease their power. Since the managers goals is different from owners' ones, the existence of free cash flow in firms will be leaded to the waste of resources. Thus, it can be concluded that managers' such opportunistic behaviors in dealing with free cash flows can reduce the profit and share price subsequently. Then, it would be possible that shareholders attempt to change managers for this reason. So, it is expected that, based on free cash flows theory, the firm performance would be ruined due to the increase in free cash flows.

Wang (2010) tested the relationship between the free cash flows and agency costs and then investigated the effects of both factors on Taiwanese companies. The results showed that agency costs have a significant and negative effect on operational performance and stock returns. In return, there is a significant and positive relationship between free cash flows and performance measures; it means that there are no adequate evidences to support the hypothesis of free cash flows.

Research Hypotheses

H_1: There is a significant and negative relationship between free cash flow and firm value.

H_2: there is a significant and negative relationship between capital structure and firm value.

Population and sample

Testing the research hypotheses, 80 firms were investigated in time period of 2009-2013.

$$Ln\ (Tobin'\ Q) = \alpha + \beta_1\ FCF_{i,t} + \beta_2\ Ln\ (\ TDL)_{i,t} + \beta_\varepsilon\ Size_{i,t} + \varepsilon_{i,,t} \quad (1)$$

In which:

Ln (Tobin' Q): the firm value is calculated by Tobin's natural logarithm which is equal to market value of the firm divided by substitution value of assets. The market value equals total value of common and premium stocks plus book value of all debts. The substitution value of assets is also equal to their book value.

FCF: Lehn and Poulsen (1989)'s model were used to measure free cash flow. According to this model, FCF equals to operating profit before depreciation and after payable tax, interest, and premium and common stock dividends which is calculated as follows:

$$FCF_{i,t} = (INC_{i,t} - TAX_{i,t} - INTEXP_{i,t} - PSDIV_{i,t} - CSDIV_{i,t}) / A_{i,t-1}$$

$FCF_{i,t}$: cash flow of firm *i* in the year *t*

$INC_{i,t}$: operating profit before depreciation of firm *i* in year *t*

$TAX_{i,t}$: all payable tax of firm *i* in year *t*

$INTEXP_{i,t}$: all payable interest of firm *i* in year *t*

$PSDIV_{i,t}$: payable premium stock profit of firm *i* in year *t*

$CSDIV_{i,t}$: payable common stock profit of firm *i* in year *t*

$A_{i,t-1}$: total book value of assets in year t-1

Ln(TDL): natural logarithm of debt leverage as the representative of capital structure which is equal to all debt divided by assets.

Size: firm size as the control variable which is equal to natural logarithm of all assets.

Research findings

A proper regression model has been selected before testing the above hypotheses. The F Limer test was used to select the panel data against pool data. The results, presented in table 1, showed that panel data have to be used for testing the hypotheses.

Table 1 F Limer test for the regression model

Model	$\text{Ln (Tobin' Q)} = \alpha + \beta_1 FCF_{i,t} + \beta_2 \text{Ln}(TDL)_{i,t} + \beta_3 Size_{i,t} + \varepsilon_{i,,t}$		
Test Type	Statistics	df	Prob.
F Limer	2.058	(5.632)	0.068

The regression model in panel data is presented in table 2. The results of F statistics show that the model is totally significant. Since Durbin-Watson ranges between the critical area of 1.5 to 2.5, the model does not have the problem of autocorrelation. Since the t statistic probability for the free cash flow is equal to 0.047, the cash flow has a significant and positive effect on firm performance. Since the t statistic probability for capital structure variable (debt leverage) is 0, it shows that capital structure has a significant and positive effect on firm performance.

Table 2 Panel regression model for testing the research hypotheses

Variables statistics	Regression coefficients	t value	t prob.
Fixed value	0.124	1.214	0.225
Free cash flow	0.252	1.984	0.0476
Debt leverage	0.164	4.447	0.000
Firm size	0.010	1.436	0.151
R^2	Adjusted R^2	F prob.	Durbin-Watson
0.65	0.64	0.000	1.6

Conclusion and discussion

The purpose of the current research was investigation of the relationship between capital structure and free cash flow with value of firms listed in Tehran Stock Exchange. For this reason, 80 firms investigated in periods of 2009-2013. Debt leverage was used to measure the capital structure. Tobin's Q index considered as the measure of firm value and free cash flow evaluated by Lehn and Poulsen (1989)' measure.

The results showed that free cash flow has a significant and positive effect on firm value and the firm performance can be improved by its increase which is contrary to the agency theory and consistent with the Wang (2010). Debt leverage has a significant and positive effect on firm value which is contrary to the Fosberg and Ghosh (2006) and Naser and Mazhar (2007) but it is along with Fuso (2013).

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