Vol.4, No.1 Special Issue on New Dimensions in Economics, Accounting and Management
ISSN 1805-3602

Relationship between Capital Structure, Free Cash Flow and Performance in Companies Listed on Tehran Stock Exchange

Maryam Najmi[1], Fatemeh Sarraf[2*], Roya Darabi[3]
[1]Department of Management and Accounting, South Tehran Branch, Islamic Azad University (IAU), Tehran, Iran; [2]Assistant Professor of Accounting, Raja University, Qazvin, Iran;
[3]Department of Accounting, Islamic Azad University, South Tehran Branch, Tehran, Iran
*E-mail: aznyobe@yahoo.com

Abstract

Financial performance criteria are a part of a company's performance criteria, which are used for measuring financial performance. stakeholder groups such as the government, customers and public should enter the scene and with taking advantage of various mechanisms should impose their goals on these companies. The other perspective claims that for-profit companies, considering the effort they make toward obtaining profit, are considered as the best tool for demanding economic productivity and efficiency and that, it is not necessary for them to consider any other goals other than the goals of capital owners (increasing the company's value). This indicates to the importance of performance of companies and in order to obtain maximum outcome in this regard, the effective factors on company performance should be studied carefully. To this end, the aim of the present study is to explore the relationship between capital structure, free cash flow and performance of companies listed on Tehran Stock Exchange and for this purpose, all the companies listed on Tehran Stock Exchange during the time period of 2007 - 2013 were selected by using systematic elimination sampling method as research sample and were studied. Finally, research data were analyzed by multiple regression test and results indicated that there is a significant relationship between equity ratio of a company and its performance. Also, there is a significant relationship between debt ratio (capital structure) of a company and its performance and there is a significant relationship between free cash flow and company performance. Finally, there is no significant relationship between debt ratio (capital structure) and free cash flow in a company.

Keywords: Capital structure, free cash flow, company performance, companies listed on Tehran Stock Exchange

Introduction

Capital structure refers to the composition of different financial resources in a company (Ghalibaf Asl, 2005). In studying capital structure of companies, it is tried to explain the composition of various financial resources used by them in financing the necessary activities and investments. It can be said that the aim of specifying capital structure of a company, is to specify the composition of financial resources of a company for maximizing the wealth of its shareholders (Baker et al., 2004). It is because, since capital costs of a company is a function of its capital structure, selection of a desirable capital structure, reduces capital costs of a company and increases its market value (Khaleghi Moghaddam & Baghoomiyan, 2009). Financial mangers should select a capital structure which needs less capital costs, in order to achieve a better performance for their companies. Therefore, financial managers should determine the weighted average cost of capital (WACC) and final capital cost for specifying optimized capital structure. Also, managers with consideration of incoming and outgoing cash flows of their companies, should determine the borrowing capacity of their companies and then with consideration of other necessary conditions should borrow their necessary funds. A desirable capital structure refers to determining the

percentage of items forming capital which minimizes weighted average cost of capital (WACC) of a company and hence, maximizes a company's return (Zahmatkesh, 2005).

Selecting between securities and stock has been studied in financial literature extensively. However, as Weston and Bringham (1981) have mentioned, there is a broad disagreement about what determines capital structure and how this selection affects the performance of an agency. On the contrary, Barton and Gordon (1987), have stated that business strategy perspective in managerial selections leads to a more accurate understating of capital structure and its impacts. In the same stream, Andrews (1987), claims that decisions related to capital structure on the basis of managerial perspective about agency value are made in terms of internal and external business factors, which is referred to as "strategic capital structure" (Adhikari & Dura, 2006). This concept says that a business capital structure and strategic behavior are more accurately perceived through a general approach which integrates business strategic perspectives and extensive financial studies. The present study, with following strategy - capital structure perspective, has studied internal relationships between capital structure, free cash flow, diversity and agency performance, simultaneously.

On the other hand, free cash flow is a criterion for measuring value of companies and their performance and incites to the cash level a company has at its disposal after making the necessary expenses for maintaining or developing assets which is distributable among investors (Gregory & Wang, 2009). The word free in "free cash flow" doesn't mean that the company certainly distributes the remaining cash among the investors and the board and company's policies determine the way this cash is to be used (Bukit & Iskandar, 2009). In using this criterion, it should be noted that in some cases, especially in newly established companies, it is possible for the free cash flow to be negative which can be a sign of overinvestment of the company in its assets during its initial years. Jensen (1986), is the first researcher who has studied this criterion with considering the conflict of interests among owners and managers. In his studies, he has found that managers for maintaining their power, the resources under their control and their own interests (reward), might not pay the net present value in form of profit to investors and might invest them in some other projects (Peikani, 2012).

Free cash flow has a great importance in a sense that allows a company to seek out opportunities which increase the value of shareholders. Without having cash, development of new products, payment of cash dividends to shareholders and reducing debts are not possible. On the other hand, cash holdings should be kept at a certain level to create balance between the cost of holding cash and the cost of insufficient cash (Rahmani & Gholamzadeh Ladari, 2009).

In general, performance evaluation is an activity which aide’s shareholders in their decision-making process for optimized investment. Financial decision-makers, considering the complexity of business relations and for making the correct decision, make use of various new techniques with strong correlation relationships in combination for performance evaluation. In most of the studies conducted in Iran, the relations between economy, market and accounting variables such as Tobin's Q, ROA (rate of assets) were studied.

So far, these factors have been studied separately in strategic managerial and financial studies. Although, previous studies have carefully studied the relationships between these factors, however, they have not presented any consistent results due to error in studying critical business strategy and financial factors. Therefore, the general approach, including strategy - capital structure allows us to estimate the existing complex relations between these four critical factors. Therefore, this approach can provide use with a more complex results in comparison with the separate studies conducted previously on these factors. In addition, previous empirical studies related to determining factors of capital structure, have studied the diversity and performance of large manufacturing agencies. However, these relations might differ in companies listed in Tehran Stock Exchange.

Hence, in this study we sought to answer the main question of whether there is a sufficient relationship between capital structure, free cash flow and financial performance of companies or no? For this purpose, in the following sections, research method, findings and conclusion are presented.

Methodology

The method used in this study was correlation in terms of the nature and content of the study, because in this study, the relationship and correlation between research variables was studied by using regression analysis. Also, the present study is a library and analytic-causative study and is based on panel data analysis (panel data). The present study, in terms of goal is an applied and in terms of method is a descriptive - correlation study. On the other hand, considering the fact that the data used is based on past data, this study can be also considered as an Ex post facto research.

Research model and variables measurement and study

Model for testing research hypotheses 1 to 3

Ln (Tobin' s q)i,t = α + β1eri,t+ β2dri,t + β3fcfi,t + β5Cashflowi,t +β6 Sales -gri,t + β7ln (sales)i,t + εi,t

Model for testing research secondary hypothesis 4

Fcfi,t =α + β1 dri,t + β2 Dummy-Dividend i,t + β3ln (sales)i,t + εi,t

Dri,t = α + β1fcfi,t + β2qri,t + β3Wcapi,t + β4 ln (Capx)i,t + β5ln (sales)i,t + εi,t

Dependent variables

Ln (Tobin' s q): Conversion logarithm of Tobin's Q, which was calculated as the market value ratio of the company divided to The replacement value of assets. Market value of the company is equal to the sum of market value of equity, The market value of preferred shares and book value of total debts. The replacement value of assets is the book value of total assets.

DR: Ratio of total debts to total assets of the company.

FCF: Free cash flow for company i at the time of t, which was calculated by Richardson's correction presented in 2006.

Independent variables

ER: Ratio of equity to total company assets.

DR: Ratio of total debts to total assets of the company.

FCF: Free cash flow for company i at the time of t, which was calculated by Richardson's correction presented in 2006.

Control variable

Cashflow: Cash flow of company i, at the time of t, which was calculated as: [(operating income before depreciation - total tax on income - changes in deferred taxes from the previous year to the current year - gross interest expense - preferred stock dividends for intended cumulative stock and dividends paid to non-cumulative preferred stock - total amount of dollars resulting from dividends declared on common stock) / total assets].

Sales-GR: Growth of net sales [(net sales of company i, at the time of t - net sales of company i, at the time of t-1/ net sales of company i, at the time of t-1)].

Ln(sales): Conversion logarithm of net sales for company i, at the time of t.

Dummy-Dividend: It will take a value of 1, if company i, has dividend payment at the time of t, and otherwise, 0.

QR: Quick ratio for company i at the time t [(cash short-term investment + total receivables) / total current debt.

Wcap: Working capital for company i, at the time of t, which was calculated as the different between current assets and current debts divided to total assets.

Ln (Capx): Logarithm of capital costs of company i, at the time of t.

Method and data collection instruments

In this study, data related to capital cost and mangers' earnings forecast were extracted from Trading and regulatory system of Tehran Stock Exchange organization. For collecting financial statements data related to research sample companies, Tadbir Pardaz software available in Stock Exchange organization was used. For analyzing the obtained data and achieving a reliable result, SPSS and EVIEWS software were used. Information related to theoretical foundations were collected by using bibliographical studies and from books and articles both in Farsi and English.

Statistical population and sample

Research population of the present study includes all companies listed on Tehran Stock Exchange during the time period of 2007 to 2013; however, these companies should been listed before March 19th, 2008 on Tehran Stock Exchange. On this basis, those companies were selected as sample for the time period of 2007 to 2013, who have the following conditions:

Their financial year-end should be 19th march.

The required information for them should be available.

Their stock should be been traded from 2007 to 2013 in Tehran Stock Exchange.

These companies should not be among investment, financial and monetary brokers.

Research findings

Table 1 presents descriptive statistics of research variables including average, mean, standard deviation, coefficient of skewness, coefficient of kurtosis

Table 1. Descriptive statistics of research variables

Parameter		Average	Mean	Standard ratio	Coefficient of skewness	Coefficient of Kurtosis
Tobin' s q	Tobin's q ratio	0.581	0.362	0.387	0.150	0.217
ER	Equity ratio	0.522	0.498	0.583	0.329	-0.259
DR	Debt ratio	0.813	0.533	0.538	0.175	0.029
FCF	Free cash flow	0.1928	0.1913	0.0692	-0.0097	-1.2541
TDL	Total debt leverage	0.434	0.094	0.132	0.564	0.752
Cashflow	Cash flow	0.376	0.387	0.134	0.194	0.581
Ln (Capx)	Capital costs	5.1455	5.1056	0.6371	0.6164	0.5105
Dummy-Dividendi,t	Dividends	0.5193	1.0000	0.5001	-0.0773	-1.0014
QR	Quick ratio	0.134	0.111	0.108	0.000	0.835
Wcap	Working capital	0.390	0.387	0.067	0.194	0.581
Sales-GR	Net sales growth	0.005	0.003	0.025	0.000	0.977

Results obtained from regression model fit test

Testing research hypotheses 1 to 3

"There is a significant relationship between equity ratio of a company and its performance".

"There is a significant relationship between debt ratio (capital structure) of a company and its performance."

"There is a significant relationship between free cash flow of a company and its performance."

$$\text{Ln (Tobin' s q)}_{i,t} = \alpha + \beta 1 eri,t + \beta 2 dri,t\ \beta 3 fcfi,t + \beta 5 Cashflowi,t + \beta 6\ \text{Sales -gri,t} + \beta 7 \ln (\text{sales})i,t + \varepsilon i,t$$

After testing regression assumption and ensuring that they are satisfied, results obtained from above regression equation fit test are presented in table 2. F-test value (13.843) indicated that the whole regression model is significant. Coefficient of determination and adjusted coefficient of

determination of the above model are 52.8% and 48.1%, respectively. Therefore, it is concluded that in this regression equation, about 48.1% of changes in dependent variables of companies under study are explained by independent and control variables. In this table, positive (negative) figures in the column of coefficient value, indicate the extent to which each of the variables directly (reversely) affect performance in companies.

Table 2. Results of regression equation fit test

Variable		Variable's coefficient	Coefficient value	T-value	Sig. Level
Constant		B0	0.743	2.873	0.004
Equity ratio	ER	B 1	0.256	2.231	0.046
Debt ratio	DR	B 2	0.338	2.876	0.021
Free cash flow	FCF	B 3	0.427	3.111	0.028
Operating cash flow	Cash flow	B 4	0.714	2.909	0.031
Sales growth	Sales -GR	B 5	0.602	2.921	0.016
Net sales	Ln (sales)	B 6	0.288	2.129	0.041
Coefficient of determination		0.587	F-value		13.843
Adjusted coefficient of determination		0.529	(P-Value) Sig.		0.00061
			Durbin-Watson test		2.367

As per table 2, significance level (sig.) of the variables of equity ratio (0.046), debt ratio (0.021) and free cash flow (0.028) is smaller than the assumed significance level in this study (5%). At the same time, absolute value of t-test related to these variables is larger than the obtained t-test value from the above table with the same freedom degree. Hence, H0 hypothesis is rejected at 95% confidence level and secondary research hypotheses 1, 2 and 3 are confirmed.

Testing hypothesis 4

"There is a significant relationship between debt ratio (capital structure) and free cash flow."

$Fcfi,t = \alpha + \beta 1\ dri,t + \beta 2\ Dummy\text{-}Dividend\ i,t + \beta 3 ln\ (sales) i,t + \varepsilon i,t$

Results obtained from above regression equation fit test are presented in table 3. F-test value (10.342) indicated that the whole regression model is significant. Coefficient of determination and adjusted coefficient of determination of the above model are 51.3% and 45.5%, respectively. Therefore, it is concluded that in this regression equation, about 45.5% of the changes in dependent variables of companies under study are explained by independent and control variables. In this table, positive (negative) figures in the column of coefficient value, indicate the extent to which each of the variables directly (reversely) affect free cash flow in companies.

Table 3. Results of regression equation fit test

Variable		Variable coefficient	Coefficient value	T-test	Sig. Level
Constant		B0	-0.416	-0.223	0.823
Debt ratio	DR	B1	0.836	3.336	0.001
Dividend	Dummy-Dividend	B2	-0.726	-2.451	0.043
Net sales	Ln (sales)	B3	-0.847	-3.711	0.001
Coefficient of determination		0.513	F -test		10.342
Adjusted coefficient of determination		0.455	(P-Value) Sig. Level		0.014
			Durbin-Watson test		1.886

As per table 3, significance level (sig.) Of the variable of debt ratio (0.001) is smaller than the assumed sig. Level in this study (5%). At the same time, absolute value of t-test related to this variable is larger than the obtained t-test value from the above table with the same freedom degree.

Hence, H0 hypothesis is rejected at 95% confidence level and H1 research hypotheses indicating that there is a significant relationship between debt ratio (capital structure) and free cash flow is confirmed.

Testing hypothesis 4

"There is a significant relationship between debt ratio (capital structure) and free cash flow."

$Dri,t = \alpha + \beta 1 fcfi,t + \beta 2 qri,t + \beta 3 Wcapi,t + \beta 4 \ln (Capx)i,t + \beta 5 \ln (sales)i,t + \varepsilon i,t$

Results obtained from above regression equation fit test are presented in table 4. F-test value (8.676) indicated that the whole regression model is significant. Coefficient of determination and adjusted coefficient of determination of the above model are 47.6% and 41.58 respectively. Therefore, it is concluded that in this regression equation, about 41.8% of the changes in dependent variable of companies under study are explained by independent and control variables. In this table, positive (negative) figures in the column of coefficient value, indicate the extent to which each of the variables directly (reversely) affect debt ratio (capital structure) in companies.

As per table 4, significance level (sig.) of the variable of free cash flow (0.332) is larger than the assumed sig. Level in this study (5%). At the same time, absolute value of t-test related to this variable is smaller than the obtained t-test value from the above table with the same freedom degree. Hence, H0 hypothesis is confirmed at 95% confidence level and secondary hypothesis 4, indicating that there is a significant relationship between debt ratio (capital structure) and free cash flow, is rejected.

Table 4. Results of regression equation fit test

Variable		Variable coefficient	Coefficient value	T-test	Sig. Level
Constant		B0	-0.442	-0.223	0.823
Free cash flow	FCF	B1	0.517	1.451	0.332
Quick ratio	QR	B2	0.386	1.339	0.288
Working capital	Wcap	B3	-0.502	-2.711	0.032
Capital costs	Ln (Capx)	B4	0.199	3.073	0.013
Net sales	Ln (sales)	B5	0.201	2.543	0.041
Coefficient of determination		0.476	F-test		8.676
Adjusted coefficient of determination		0.418	(P-Value) Sig.		0.025
			Durbin-Watson test		1.909

Conclusion

Free cash flow might be the result of an Increase or decrease in value of a company with consideration to its application and use (McCabe & Yook, 1997). Efficient use of assets increases the value of a company and inefficient use of assts in turn, reduces the value of a company. Free cash flows urge management to use the existing resources in various activities which might increase the value of the company or might not make any change in company's value (Jensen, 1986). Hence, free cash flows are one of the factors which affect financial performance of a company.

On the other hand, with reference to financial management literature and studies, it is seen that a major reason for failure of companies is their lack or insufficiency of investment and improper and insufficient financing. Improper capital structure for any company might affect all the activities of that company and can cause the occurrence of issues and problems such as lack of efficiency in product marketing, lack of efficiency or inability in proper application and use of manpower and as a result cause a drop in company's financial performance (Sajadi et al., 2011).

Hence, considering the importance of free cash flows and capital structure and their relation with performance in companies, conducting a study on these factors appeared to be necessary and to

this end, the present study explore the relationship between capital structure, free cash flow and performance in companies listed in Tehran Stock Exchange and results indicated that research hypotheses 1 to 3, indicating the existence of a relationship between equity ratio, debt ratio (capital structure) and free cash flows in a company with its performance were confirmed and that research hypothesis 4, indicating to the existence of a significant relationship between debt ratio (capital structure) and free cash flows was rejected. Considering the above stated research results, the following recommendations are presented on the basis of these results:

Investors are recommended to pay specially attention to return on equity in selection of optimized stock portfolios, because, desirable return on equity indicates to the desirable performance of a company in operating dimensions as well as usage of capital in that company.

In order to optimize financial performance and operating performance in a company, in financing policies of that company, The ratio of debt established in accordance with the operational activities of the company should be determined.

Investment of the company in long-term operating activities should be planned with consideration of sufficient free cash flows for the company and using free cash flows in long-term investments should be avoided as much as possible.

Managers are recommended to pay attention to the level of cash flows in their companies in their financing policies.

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