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Investigating the relationship between finance index and effective factors on determining the capital structure of accepted companies in Tehran stock exchange.

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Abstract: In the present study , the main issue is the finance index and effective factors on determining capital index in Tehran stock exchange .The sample study includes 162 companies in the time period from 2005-2006. The results of this study show that finance indexes are affected by effective factors on capital structure of accepted companies in Tehran stock exchange and basically dependent on free cash flow ,fixed assets of company ,profitability and investment opportunities variables. Although the findings of this study does not envy the prediction of finance options hierarchy theory and .information asymmetry hypothesis, is seems that companies at Tehran stock exchange practically pass finance options to provide their required financial resources. Taxonomic Diversity of Understorey Vegetation in Kumaun Himalayan Forests.
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Key words: finance index, effective factors on capital structure, finance index options hierarchy theory, fixed balance theory

Introduction

One of the major decision making area of the corporation financial managers is capital budgeting and financing (Barely and Mayerze, 2004).

Capital cost is one of the important factors in capital budgeting decisions because capital cost is used as cash flow discount rate resulted from capital projects. Therefore, the companies choose the best rate to reject or accept the investment projects. Now the major question is that "Is there a favorite structure in which capital cost of company minimized and firm value become maximum?"And if so, what are influential factors in determining it?

Modigiani_Miller theorem about financial leverage and capital cost

In 1958, Modigiani_Miller in their famous article rejected traditional theory and expressed that the firm value in all usage levels of leverage remains fixed.

In other words, any change in the financial leverage level has on influence on capital cost of company .This theory suggested on the basis of the following assumptions:

1. Market capital is complete and assesses to the information has no cost.
2. There is on tax in corporations (this view was modified because of criticisms)
3. Investors can use of personal leverage instead of firm leverage.
4. All cash flows are permanent, that is the firm has zero growth ratio and revenue is predictable before tax and return.
5. Firms are exposed to the same risk level and trading risk can be measured through revenue stand arid deviation before return and tax.

On the basis of the above mentioned assumptions, particularly based on the second assumption the Modigiani_Miller theorem is presented in two ways irrespective of tax and in regarding to the tax.

Modigiani_Miller theorem first theory which does not consider tax forms the basis for modern thinking on capital structure. The basic theorem states that ,under a certain market price process , in the absence of taxes of taxes , bankruptcy costs, agency cost and asymmetric information ,and in an efficient market ,the value of a firm is unaffected by how that firm is financed . It does not matter if the firm's capital is raised by issuing stock or selling debt .It does not matter what the firm's dividend policy is. A firm that sells bounds and common stock , in fact , presents

actual revenue in the form of collection of investors .In doing so, they selected two grows of firms (levered and unlevered firms) and finally they concluded that value of two firms is the same.

Modigiani_Miller also that (second theorem considering tax) expected return ratio for common stock of levered firm increases as debt ratio increases and it's become of increasing capital risk.

Therefore, expected return ration for common shareholders in levered firm equals common stock cost of unlevered firm in the same trading risk level plus the risk, as much the difference between common stock cost and loan cost for a levered firm.

On the basis of this, return ratio for unlevered firm, a firm that has no any debt, equals total return. That is: key=kef

Key=common stock return kef=unlevered firm return (total capital cost)

And if the firm uses debt, the firm cost does not change, but common stocks capital cost (common stock return) will be as follow:

Ke=expected return (capital/cost) for unlevered firm, kf=the required rate of return (cost) on common stocks, ki=cost of debt rate

Modigiani_Miller theorem of levered firm and capital cost with tax

Modigiani_Miller considered tax in their new theorem and expressed the firm value a follow:

T=tax ratio of revenue

In this way the capital cost of firm remains and as debt increases become tax saving, the firm value increases and capital cost of firm decreases. In other words , capital cost of levered firm depends on capital cost of unlevered at the same level and with the same trading risk level and depends on the difference between common stocks cost and debt cost of levered firm , leverage level degree and tax rate .

Modigiani_Miller considered the "with tax" assumption and recommended that the firms should use of too percent of debt to maximize their value and benefit from tax advantages (tax saving).

We tried to recognize the capital structure pattern of the firms accepted in Tehran stock exchange and determine the most important effective factors which influence this pattern.

Research background

Different theories have been presented to justify not reflecting 100 percent of firms for borrowing to obtain their financial resources.

These are as follow:

1. **Information asymmetry hypothesis** :managers have more and better information about firms in comparison to market in the world of information asymmetry .Managers know more about the firms because they have more private and secret information ,that is , they access to particular type of more firm information before the market become aware of it .For example , Meyers and Major (1984) suggest that if investors have less information about the actual value of firm, they may misprice the shares of the firm . If the firm has to financial the new projects through stocks selling, the pricing may be less that market value and new investors gain more that the net present value of the project and the previous stockholders face with losing .The rare, in such a situation the firm has to ignore the new project investment with positive net present value (Harris and Rio, 1991).
2. **Fixed or stable balance theory**: This theory says that tax debt advantage increases the value of a firm which has debt.
   On the other hand, bankruptcy and financial crisis costs resulted from not doing obligations on time decreases the firm value. So we can consider the capital structure of the firm as the balance between tax debt advantage and probable bankruptcy and financial crisis cost resulted from debt (Braila and Mayors, 2004).
3. **Financing options hierarchy theory**: On the basis of this theory the firms pass the determined hierarchy to gain required finance .the forming of this hierarchy is the result for consequence of asymmetry .According this theory, when there is information asymmetry between managers and external investor, managers prefer financing from internal sources of the firm to the external resources, that is, they first finance through accumulated profit or finance savings.
4. **Cost agency theory**: this theory was presented by Jenson and Cackling in 1976 for the first time .the capital structure of the firm was determined via agency costs resulted from interest conflict between different stakeholders of the firm. Jenson and Macklin recognized two types of interest conflict in enterprise framework a) interest conflict between managers and stockholders b) interest conflict between stockholders and firm debt securities holders.
5. **Free cash flow theory:** is another theory which explains the capital structure and has a suitable back ground .studies which was introduced in

1986 by Michel Jenson .They theory has important reactions for capital structure .According this hypothesis paying dividends to the shareholders increases the free cash flow of the firm. therefore , it is expected that increasing the payable dividends with reduction managers ability to follow the goals or activities which are in conflict with stockholders interest, the interest of stockholders increases .looking at other researchers conducted in other countries:

The low cost rate in comparison with other capital resources and tax saving resulted from debt interest that is considered as an acceptable tax cost , the financial experts believe that the proper combination of shares and debt in financial structure of firms can be an influential factor in increasing market value of firm and shareholders .since paying attention to the firm value increasing to help the combination of capital structure ,different studies conducted to investigate the effective factors on capital structure form and how the finance is done .Is this regard the famous theory of Modigiani_Miller in 1958 expressed that capital structure does not have effect on firm value and this was a start for conducting researches in this field . A year later in 1959 David Durand published an article and criticized Modigiani_Miller theory and in 1963 Furrow stone in 1965 Brow Rojacob and between 1977-1979 Morton and Jack Bicker strongly criticized this theory. So that these two persons had to defend their theory via publishing articles in the years of 1957, 1963, 1965 and finally in 1966 and they also modified their theory .including considering tax saving of borrowing finance cost and finance method on firm value.

In 1977 a person called Varner emphasized on finance effect through borrowing on firm value and in 1973 Block pointed that the issue of tax saving through borrowing has effect on firm value, although is not shown high.

On the other hand scot and Martin in the U.S.A concluded that the industry type is a determinant and effective factor in capital structure of firms.

In 1990 found out this point that capital firms have higher debt ratio and this shows the relationship between capital structure of firms and their technology.

The findings of Bent Stuart and David Galls research in relation to the interest resulted from renewing capital structure showed that the use of financial leverage is the best method of renewing capital structure and pointed out that financing through debt causes tax saving and this is because of finance cost payment . Moreover, with accrued loan the installment will be resulted which reduces the improper reinvesting surplus.

Rimerz in a research in relation to industry type and the extent of its relation to capital structure pointed out this issue that the capital structure type in countries like Japan, France is significant in different industries while this is not true about some countries like Netherland and Norway.

Free and Johns investigated the relationship between firm size, business risk, industry type and return, operational leverage of firms and debt leverage .In this research 233 firms were investigated during 5 years and the findings suggest that firm size, industry type, the operational leverage degree of the firm have effect on applying debt risk in the firm while business risk has no relationship with the degree and applying financial leverage in the firm.

Charles Kim and Badly investigated 851 firms in service industries (electricity, telephone, gas and airline) and concluded that leverage ratio fluctuating ratio in the earning of firms have opposite relationship.

Research Hypotheses:

1. There is a significant relationship between debt ratio (financial leverage) and sale volume
2. There is a significant relationship between debt ratio (financial leverage) free cash flow.
3. There is a significant relationship between debt ratio (financial leverage) and fixed tangible properties ratio.
4. There is a significant relationship between debt ratio (financial leverage) and investment opportunities.
5. There is a significant relationship between debt ration and abnormal return.
6. There is a significant relationship between debt ration and profitability.

Research Variables:

Debt ratio (financial leverage):four criteria for measuring financial leverage or debt ratio have been used in this that everyone measured based on two book value (BV)and market value (MV) criteria .the market value and market value of equity to debt are as follow:

$$(BV1)=\frac{\text{total long-term liabilities +business credits}}{\text{Total assets}}$$

$$(MV1)=\frac{\text{Total long-term liabilities +business credits}}{\text{Total assets-book value of equity +market value of equity}}$$

$$(BV1)=\frac{\text{Total liability}}{\text{Total assets}}$$

$$(MV2)=\frac{\text{Total liability}}{\text{Total assets -book value of equity +market value of equity}}$$

Total debt to total assets

$$(BV3)=\frac{\text{Total liability}}{\text{Total liability + book value of equity}}$$

$$(MV3)=\frac{\text{Total liability}}{\text{Total liability +market value of equity}}$$

Adjusted debt to adjusted capital

$$(BV4)=\frac{\text{Total liability -cash - readily marketable securities}}{\text{Total liability -owners equity - cash - readily marketable securities}}$$

$$(MV4)=\frac{\text{Total liability - cash _ readily marketable securities}}{\text{Total liability- market value of equity-cash- readily marketable securities}}$$

Investment opportunity

$$(MB\ Asset)=\frac{\text{Sum of book value of assets -book value of common stocks +sum market value of common stocks}}{\text{Sum of book value of common stocks}}$$

$$(MBEQUII)=\frac{\text{Sum of market value of common stocks}}{\text{Sum of book value of common stocks}}$$

$$EP=\frac{\text{Each share profit}}{\text{Each share price}}$$

Sale Volume:

The nature logarithm (LN) of firm annual net sale volume is used to measure this variable .In regression model; LNS symbol has been used for sale variable. Abnormal return of this variable is written from USB.

Free cash flow is as follow:

Fixed tangible assets ratio which for measuring it the book value of fixed tangible assets to total assets has been used.

$$\frac{\text{Book value of total fixed tangible assets}}{\text{Total assets value}}$$

In regression model TANG has been used as the symbol of fixed tangible assets ratio.

Profitability:

$$(EBITD)=\frac{profit\ before\ tax\ and\ depreciation}{book\ value\ of\ total\ assets}$$

Methodology

The required information for the present study were obtained from information in annual financial statements (balance sheet, accumulated income statement and statement of cash flow)of nonfinancial firms selected in the time period of research and the market value of share of every firms the end of the year. time period of this research was four years which began from the end of 2005 to the 2009.the subject are all nonfinancial firms accepted in Tehran stock exchange and include 120 firm in which the "criteria –filtering technique was used .

The first step was generally knowing about debt ratio and consequently capital structure of firms , and every of debt ratio was calculated on the basis of book value and market value to total investigated subjects .the results of calculations are as follow:

Table 1 .Summary of descriptive information of 162 investigated firms form 2005-2009.

Variable	Median	Ratio	Mean	Observation
				Book values
Noncapital debt to total assets	BV1	%46	%44	162
Total debt to total assets	BV2	%31	%31	162
Total debt to total capital	BV3	%23	%22	162
Adjusted debt to adjusted capital	BV4	%19	%12	162
				Market values
Noncapital debt to total assets	MV1	%35	%32	162
Total debt to total assets	MV2	%22	%20	162
Total debt to total capital	MV3	%20	%19	162
Adjusted debt to adjusted capital	MV4	%16	%12	162

Then, to verify or reject the hypothesis, on the basis of the provided information, regression model was used and the result is in the following table2. As table 2 shows , approximately all coefficients (except few) are significant at %1 level .it also shows that when dependent variable (debt ratio)is measured on the basis of market value, it keeps all its expected coefficients.

Table 2. Results of time analysis to debt at the end of 205

D.M	CONSTANT	IOS	AR	FCF	TANG	EIT	LNS	ADJ	F-STAT
BV_1	0/48	0/02	0/09	0/11	0/27	0/69	0/06	0/17	46/15
BV_2	0/20	0/06	0/08	0/18	0/16	0/49	0/08	0/14	24/04
BV_3	0/18	0/03	0/09	0/12	0/12	0/50	0/11	0/14	32/12
BV_4	0/22	0/09	0/12	0/19	0/19	0/62	0/12	0/11	18/40
MV_1	0/61	0/06	0/08	0/10	0/30	0/62	0/04	0/16	47/03
MV_2	0/39	0/12	0/06	0/19	0/16	0/40	0/07	0/19	20/01
MV_3	0/48	0/04	0/13	0/13	0/11	0/56	0/12	0/20	28/16
MV_4	0/36	0/12	0/15	0/16	0/20	0/59	0/12	0/12	20/20

Firm sale volume (LNS): as it is seen in the table2 , sale volume has positive relationship with debt ratio , this relationship confirms the hypothesis 4.In spite of positive relationship between sale value of the firm and debt ratio , it is not consistent with nonce of theories or capital structure hypothec thesis.

Logically, we can argue that, in big firms in comparison to small firms, information asymmetry of firm managers and market is lower. Therefore, it's expected that big firms are not faced with serious problems in publishing the stocks and consequently use less debt.

As it was in table2, the research finding, in spite of expectations the prediction of finance options hierarchy theory was not verified. To investigate and known more about the issue , the information of board activities reported to the general assembly of stockholders was used and firms that increased the capital along with the financial resources were identified .The results are reported in the relationship between financial leverage and cash flow has been investigated in hypothesis 2 and the findings show that there is a relationship between free cash flow and debt ratio and it confirms Jensen theory in 1968 , Biking and Ferdinand theory in 1999 and Ferdinand and Tipsy theory in 1998.

Fixed tangible assets ratio (TANG): As expected, there is a positive relationship between fixed tangible assets ratio and debt ratio. The logical reason is that, fixed tangible assets of the firm has mortgage value and consequently the borrowing agency cost decreases .so , it's expected that the firms which have fixed tangible assets and mortgage value , prefer borrowing to the stock publishing to provide the required financial resources .therefore , the third hypothesis is verified .

The relationship between financial leverage and investing opportunities has been investigated in hypothesis. Since the measurement of investment opportunities the daily values are used and the market value is used for financial leverage, the financial of this hypothesis, like researches conducted in abroad (Ferdinand parch, 1999), are confirmed.

The confirmed financial background is that those firms that have higher market value to book value, their financial crisis cost is also higher .therefore, it's expected that there is a negative relationship between market value to firm assets and its debt ratio . of course , it may be for other reasons .for example , the shares of the firms that face with financial crisis are reduced with the higher expected rate by investors(Fame and French , 1992).if this reason be valid , it's expected that this negative relationship bestiality found in the firms which has the lower market value ratio to book value ratio. But it seems that there is a negative coefficient between market value to book value and debt ratio in the firms that has higher market value ratio to book value ratio. Anyhow, the financial crisis is not the only reason for this coefficient.

On the basis of research financial, there is a significant relationship between debt ratio (financial leverage) and abnormal return ratio which is consistent with Tesangarlkiss.

Profitability of the firm (EBITD): both financial options hierarchy hypothesis and information asymmetry hypothesis predict that those firms that have higher profitability are less dependent on the borrowing. The sixed hypothesis is based on this

idea .if spite of the prediction, the negative relationship between firm profitability and its debt ratio was observed. So on the basis of the finding the hypothesis is not verified. The findings the hypothesis confirms prediction of finance options hierarchy theory and information asymmetry theory.

The finding of the study report a positive relationship between debt ratio and firm profitability in most cases, these findings are consistent with the finding of Vessel and Titman (1998), Harris and Roy (1991), Raja and Zing les(1995) and Bionand Danbolet (2002).

To justify the positive relationship between debt ratio and profitability of firms in Tehran stock exchange, we can argue that the firms which have move profitability art more able to do their obligations and pay their debt on time and can attract the creditors to invest for long –time. On the other hand creditors do well to credit to these firms or renew credit.

Conclusion and suggestions:

Miller and Modigliani believe that under special assumptions, the economic unit value is independent of its capital structure. In other words, they believe that managers cannot change the value of the firm only through changing in the capital structure form. Miller and Modigliani believe that with the assumption that capital markets do their main duties there would be on any cost on stock exchange, bankruptcy costs and tax, and also with the assumption of complete replanting of internal and external finance resources, the financing method does not have any effect on total value of firm. But, unfortunately in the real world none of Modigliani –Millers assumption is practical .Moreover, the firms are facing some proems to provide their financial resources from outside of the firm and the costs of different external financial resources are different .in these situations, the firms try to chose a suitable level of debt and stock in the financial resources form to reach to a proper capital structure. Therefore, it seems that the capital structure has relationship with firm value.

The findings of this research show that capital structure pattern of the firms accepted in Tehran stock exchange basically dependent directly on variables like assets ratio of firm, sale volume of the firm investment opportunities, abnormal return ratio, free cash flow and its profitability. Keep it another way, in Tehran stock exchange, the firms that have higher investment opportunities from sale volume point of view, are more dependent on debt rather than stock. The main reason may be the easy access to bank resources or potential market capital .In addition, it seems that information asymmetry between big firms and market capital is less than small firms .Moreover, according to the findings of this research, in Tehran stock exchange, those firms which have the mortgage assets are more dependent on debt rather than stocks. The main reason may be the easy access to bank financial resources.

This is suggested to the researchers to investigate the mentioned theories in the research in different industries. Moreover, they study the relationship between short-term financial leverage and long-term in capital structure and firm performance from risk and return point of view. Investigating the relationship between with product type/ firm product and its exclusiveness in the market, and also studying the relationship between managers' ownership level in the firm and firm financial leverage are other interesting issues in this study which implies further investigation.

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