

EFFECT OF CAPITAL STRUCTURE AND LIQUIDITY ON FIRM VALUE

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Abstract: *This study examines the effect of capital structure and liquidity on firm value. Investors consider the market value and its effective factors when deciding to buy more stocks. In literature, capital structure and liquidity are the factors effective on firm value. This study highlights the role of ownership in monitoring the actions of management, as well as the change in ownership after privatization, to determine the optimal capital structure and liquidity according to their different effects on firm value. For this purpose, the data related to companies listed in TSE during 2002 to 2012 was studied. The results indicate a positive relationship between operating cash flows, intangible assets and firm size and a negative relationship between financial leverage and firm value. Moreover, the relationship between liquidity and market value showed that an increase in liquidity reduced the firm value by eliminating investment opportunities.*

Keywords: *Firm value, capital structure, liquidity.*

1. INTRODUCTION

Economic development, globalization and industrial revolution have emerged large companies. Most of these companies are joint stock companies which need to finance by selling shares to survive and increase their competitiveness. Investors consider the market value and its effective factors when deciding to buy more stocks.

In fact, investors predict the changes in price and value with a knowledge of factors effective on firm value and accordingly adopt the necessary decisions to buy or not buy shares (Neveu, 1981). The formation of large companies and increased number of owners have separated ownership from management and raised the agency theory. This theory assumes the conflicts of interests between owners and managers; these conflicts cause the costs of agency.

Capital structure shows the relationship between liability and equity. Liability constrains management while capital improves flexibility and decisions. Although liability used in financial structure increases in the return expected by shareholders, it can also increase the risk. On the other hand, cash is a very vulnerable asset to

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the actions of managers; managers act conservatively and aggressively in spending cash. Conservatively, they try to keep cash for future payments and investment opportunities; aggressively, they invest in projects with risks. In this way, they use aggressive strategies in spending cash. This may lead to investment in unprofitable projects and ultimately reduce the firm value. On the other hand, investment in risky projects can also lead to greater return.

Investment decisions are one of the important decisions of the firm. Investment decisions are key elements of competition and survival in modern world and should be taken to maximize the value and growth. Dependence of investment on internal cash resources is not favorable, because external financing is costly. The reasons for the gap between the cost of internal and external financing can be mainly attributed to asymmetric information and agency problems. For this reason, it is important to consider cash management and cash holding as well as the balance of cash flows and cash holdings. In addition, it is essential to consider financial constraints on cash holdings to control these constraints in order to provide cash for investment and use investment opportunities for promoting growth and value.

The purpose of this study is to determine the effects of capital structure and liquidity on market value of companies. The main goal of companies is to increase firm value and maximize the wealth of owners; for this purpose, they use methods which help them to achieve this goal. Capital structure is considered as the most important parameter effective on valuation and orientation of firms in capital markets in order to increase and maintain profitability and guarantee their operation.

2. LITERATURE REVIEW

Stock prices representing the firm value are one of the prominent criteria for investments and valuation of companies. The origins of these values and their effective factors have been allocated many research areas. In literature, ownership structure, capital structure and liquidity are factor effective on firm value.

2.1. Capital Structure and Firm Value

In fact, capital structure management is divided into two opportunistic strategy and efficient behavior strategy. The opportunistic strategy refers to the judgment and supervision of managers on financial reports to adjust and optimize financial reports and attract investors to invest and buy shares; this strategy increases the number of profitable transactions (Chang & Dasgupta, 2009).

Firms with public ownership have lower earnings quality than similar firms with private ownership due to the less tendency of their managers for earnings management. Managers of publicly owned firms have a greater incentive for earnings management because their stock prices are very attractive, while this is not true for privately owned firms. These findings are supported by Betty et al (2002)

and Pino and Simon (1986) (Katz, 2008). Behavior of opportunistic strategies along with efficient behavior theory has underlain many studies. The studies with proving attitude use one of these two theories as the basis for their analysis. Efficiency is often regarded as a retrospective view (Deegan, 2004). Review of definitions and views of experts suggests that opportunistic behavior is a pervasive concept and its ultimate goal is to achieve accountability, justice (fairness), transparency and respect for equities (Appelbaum & Banerji, 2010). In fact, the ultimate goal of opportunistic behavior is to not only eliminate the agency problem and align the interests of ownership and management, but to provide the interests of all stakeholders in businesses. Therefore, characteristics of a managerial strategy are theoretically expected to influence capital structure, because the effective governance strategy leads to reduced poor outcomes due to a conflict of interest between managers and owners, such as abuse of power. If managers have no incentive to use their authorities in the capital structure, shareholders will tend to monitor capital structure (Chung et al., 2002). However, still some believe that institutions do not properly control their capital structure because they recognize them in competent or express the internal problems as the reason for this belief (Admat et al., 1999). The same argument can be made for managers who personally supervise and control.

In case of a gap between managers and shareholders, managers feel less pressure from financial markets to raise the rating and pay less attention to the financial reports (Clabrese, 1999). Therefore, shareholders tend to manipulate capital structure, because the lack of management discipline in the market allows others to take decisions related to financial resources for their own interests not the company (López-Gracia, & Sánchez-Andújar, 2007). Control of market management and business is less effective in orientation of management in taking decisions. This is because high ownership of management means sufficient voting power to secure employment in the future (Al-Fayoumi et al., 2010).

2.2. Liquidity and Firm Value

Now, decision to determine the amount of cash reserves has become one of the significant factors in the finance literature. Cash holding is also associated with costs. For example, managers and controlling shareholders may have an incentive to hold cash in order to pursue their objectives which do not coincide with goals of the company (Guney et al., 2009). On the other hand, the efficient capital markets have no reason to hold liquidity. If the costs of wrong external financing or expenses of financial crisis are significantly higher, companies will try to have high liquidity in order to deal with unexpected shortages of cash and finance the investments with a positive net value.

Managers prefer to use internal financing to avoid external financing constraints, including transaction costs and other financial constraints. Companies determine their optimal level of liquidity through a balance between cost and ultimate return

of cash holding. The ultimate cost of cash holding is the opportunity cost of a capital generated by reducing returns due to the cash holdings and not using them in profitable activities (Euler & Picon, 2010).

Nicholas (2007) used the panel data test for Greek market and found a negative relationship between capital structure and interest rate coverage and the expected growth and acid ratio and as well as a positive relationship between firm size and capital structure.

La Rocca et al. (2011) concluded that the interaction between directors, financial shareholders, and non-financial shareholders influence the capital structure, mechanisms, corporate governance activities and value creation process. In addition, the investigation on the relationship between strategies, financial aspects and capital structure of a company can act as a competitive weapon in the capital markets.

Chittenden et al. (2010) studies the growth of small businesses, access to financial markets and financial structure. They concluded that large companies are exposed to lower risk of bankruptcy; thus, they face fewer constraints on financing. Large companies with economic advantages tend to use long-term liability for lower fixed costs and easier access, while their smaller competitors adopt shorter maturity and short-term bonds for funding.

Appelbaum and Banerji (2010) examined the relationship between capital structure and coalition and opportunism of shareholders. They concluded that firms use capital structure to reduce the cost of opportunism. They reduce their liability until the likelihood of multilateral opportunities becomes zero; they will adopt the optimal capital structure if the multilateral opportunism is likely to minimize liability for financing.

Doong et al. (2011) analyzed the capital structure and profitability management of the companies listed in Taiwan Stock Exchange during 1997 to 2007. They show that managers will turn to opportunistic strategy when their ownership is less than 9.67%, while they tend to use optimal revenue management if their ownership is above 9.67%.

According to Farooq and El Jai (2012), the annual estimates of accruals show that firms with large shareholders operate weaker in capital structure strategy management. Their results showed that the Moroccan companies with large domestic and foreign shareholders operated weaker in capital structure and profitability management compared to other companies. They also stated that the concentration of ownership reduces supervision of shareholders on the capital structure; this causes opportunistic behavior of managers for personal benefit.

Salavati and Rasaiian (2007) found no significant relationship (95%) between capital structure and independent variables including liquidity of shares and income received before the loan, tax and amortization (profitability).

Kordestani and Najafi (2008) examined the determinants of capital structure. They found a positive significant relationship between firm size, growth opportunities, income volatility, dividend payout ratio and debt ratio based on the book value and a negative significant relationship between non-debt tax savings, asset visibility, profitability and debt ratios based on the book value and market value.

Setayesh, Kazemnejad and Shafie (1388) examined the correlation between capital structure and profitability (return on assets) of 300 companies listed in 12 industries and ensured a significant relationship between these two variables to determine the optimal capital structure.

3. MATERIALS AND METHODS

3.1. Hypotheses

Hypothesis 1: There is a significant relationship between capital structure and market value.

Hypothesis 2: There is a significant relationship between liquidity and market value.

3.2. Population

The population of this study included companies listed in Tehran Stock Exchange (TSE). This study used classified and audited data of manufacturing firms listed in TSE to test hypotheses.

3.3. Samples

The studied population included all companies listed in TSE during 2002 to 2012. The samples were taken considering the spatial and temporal scope of the research based on the following criteria:

- Companies listed in TSE by the March 20, 2002;
- Companies with fiscal year ending in March 20 without any shift in fiscal year during the study;
- Companies with available financial information to extract variables;
- Companies not operating in the financial sector (investment, holding, banks, insurance, financial institutions, credit institutions);
- Companies not eliminated from the TSE board by the end of the study;
- Unusual observations such as negative returns were ignored during the study.

Considering above conditions, the number of 99 companies were selected in the studied period. Accordingly, information was extracted from the financial statements of companies during 2002 to 2012.

3.4. Models Used to Test Hypotheses

The following models were used to test hypotheses:

$$MV_{it} = \beta_0 + \beta_1(\text{cash}) + \beta_2(\text{intangible}) + \beta_3(\text{size}) + \beta_4(\text{lev}) + \varepsilon_{it}$$

$$MV_{it} = \beta_0 + \beta_1(\text{CFLOW}) + \beta_2(\text{liq}) + \beta_3(\text{intangible}) + \beta_4(\text{size}) + \beta_5(\text{lev}) + \beta_6(\text{bankd}) + \varepsilon_{it}$$

3.5. Variables and Measurement

Table 1 describes the variables and their measurement.

Table 1
Operational definition of variables

Type	Name	Symbol	Calculations
Dependent	Market value	MV_{it}	Stock price at the end of the year multiplied by the number of ordinary shares
Independent	Financial Leverage	lev	Total liabilities divided by total assets
	Bank debts	bankd	Bank loans divided by total debt
	Liquidity	CFLOW	Profit after tax plus depreciation divided by net sales
Control	Operating cash flows	cash	Operating cash flow divided by total assets
	Intangible assets	intangible	Intangible assets to total assets
	Firm size	size	The natural logarithm of the market value of equity
	Cash working capital	liq	Working capital minus cash and short-term investments divided by total assets of the beginning of the period

4. RESULTS

In order to analyze the data, descriptive statistics of the data were calculated. Table 2 lists the central and distribution parameters of the variables.

Table 2
Descriptive analysis of variables

Variable	Symbol	No.	Mean	Standard deviation	Minimum	Maximum	Skewness	Kurtosis
Market Value	MV	1089	2.202	1.842	0.011	9.871	1.684	5.872
Operating cash flows	Cash	1089	0.451	1.617	0.962	3.461	3.071	4.019
Intangible assets	Intangible	1089	0.632	0.348	0.031	0.891	2.928	4.175
Size	SIZE	1089	21.961	1.002	19.158	25.251	0.466	3.313
Financial Leverage	LEV	1089	0.080	0.083	0.000	0.574	2.253	9.301
Liquidity	CFLOW	1089	.1705	0.2697	-1.613	2.4807	2.0628	21.074
Cash working capital	liq	1089	-0.008	0.3224	-1.482	2.6208	0.5381	13.078
Bank debt	bankd	1089	0.048	0.106	0.002	0.96	3.740	18.588

The matrix of correlation between variables is presented in Table 3.

Table 3
Correlation variables

<i>Symbol</i>	<i>MV</i>	<i>Cash</i>	<i>Intangible</i>	<i>SIZE</i>	<i>LEV</i>	<i>CFLOW</i>	<i>liq</i>	<i>bankd</i>
MV	1							
Cash	-0.017	1						
Intangible	-0.014	-0.016	1					
SIZE	0.052	0.084	0.061	1				
LEV	0.032	0.017	0.035	0.052	1			
CFLOW	0.014	0.021	0.041	0.029	-0.021	1		
liq	0.016	0.032	0.036	0.072	0.078	0.015	1	
bankd	0.082	0.029	0.015	0.042	0.092	0.062	0.018	1

First Hypothesis

The first hypothesis of this study was to investigate whether there was a significant relationship between capital structure and market value. This hypothesis is expressed as follows:

H0 = there is no significant relationship between capital structure and market value.

H1 = there is a significant relationship between capital structure and market value.

Table 4
Independent variable factor analysis

$MV_{it} = \beta_0 + \beta_1(\text{cash}) + \beta_2(\text{intangible}) + \beta_3(\text{size}) + \beta_4(\text{lev}) + \varepsilon_{it}$			
<i>Explanatory variables</i>	<i>Factor</i>	<i>T-statistics</i>	<i>Significance level</i>
C	0.1061	3.4519	0.0001
cash	0.0318	5.6720	0.0000
intangible	0.0812	4.3715	0.0000
size	0.0729	6.2490	0.0000
lev	-0.0612	-3.0025	0.0018
F statistic		4.702	
Significance		0.0000	
Durbin-Watson		1.733	
F Limer test		1.164	
Significance		0.081	
Adjusted coefficient of determination		0.61	
Variance inflation factor		2.1	
$MV_{it} = 0/1061 + 0/0318 (\text{cash}) + 0/0812 (\text{intangible}) + 0/0729 (\text{size}) - 0/0612 (\text{lev})$			

According to Table 4, significance level of Limer F-statistic was >0.05 ; therefore, panel data was used. Variable coefficient of operating cash flows was 0.0318, indicating that the increase in this variable by 100 units increases the dependent variable by 3 units. Given the significant level of this variable, there is a significant relationship between operating cash flows and market value. Variable coefficient of intangible assets was 0.0812, indicating that the increase in this variable by 100 units increases the dependent variable by 8 units. Given the significant level of this variable, there is a significant relationship between intangible assets and market value. Variable coefficient of firm size was 0.0729, indicating that the increase in this variable by 100 units increases the dependent variable by 7 units. Given the significant level of this variable, there is a significant relationship between firm size and market value. Variable coefficient of financial leverage was -0.0612, indicating that the increase in this variable by 100 units decreases the dependent variable by 6 units. Given the significant level of this variable, there is a significant relationship between financial leverage and market value.

Second Hypothesis

The second hypothesis of this study was to investigate whether there was a significant relationship between liquidity and market value; this hypothesis is expressed as follows:

H0 = there is no significant relationship between liquidity and market value.

H1 = there is a significant relationship between liquidity and market value.

Table 5
Independent variable factor analysis

$MV_{it} = \beta_0 + \beta_1(\text{CFLOW}) + \beta_2(\text{liq}) + \beta_3(\text{intangible}) + \beta_4(\text{size}) + \beta_5(\text{lev}) + \beta_6(\text{bankd}) + \varepsilon_{it}$			
<i>The explanatory variables</i>	<i>Factor</i>	<i>T-statistics</i>	<i>Significance level</i>
C	0.1172	6.0125	0.0000
CFLOW	0.0329	2.4519	0.0317
liq	-0.0529	-3.3291	0.0000
intangible	0.0833	4.3612	0.0000
size	0.0731	6.2495	0.0000
lev	-0.0631	-3.1934	0.0000
bankd	-0.0214	-0.0342	0.0628
F statistic		6.192	
Significance		0.0000	
Durbin-Watson		2.061	
LimerF test		0.192	
Significance		0.068	

$MV_{it} = \beta_0 + \beta_1(\text{CFLOW}) + \beta_2(\text{liq}) + \beta_3(\text{intangible}) + \beta_4(\text{size}) + \beta_5(\text{lev}) + \beta_6(\text{bankd}) + \varepsilon_{it}$			
<i>The explanatory variables</i>	<i>Factor</i>	<i>T-statistics</i>	<i>Significance level</i>
Adjusted coefficient of determination		0.76	
Variance inflation factor		3	
$MV_{it} = 0/1172 + 0/0329(\text{CFLOW}) - 0/0529(\text{liq}) + 0/0833(\text{intangible}) + 0/0731(\text{size}) - 0/0631(\text{lev}) - 0/0214(\text{bankd})$			

According to Table 5, significance level of Limer F-statistic was >0.05 ; therefore, panel data was used. Variable coefficient of liquidity was 0.0329, indicating that the increase in this variable by 100 units increases the dependent variable by 3 units. Given the significant level of this variable, there is a significant relationship between liquidity and market value. The co-linearity of independent variables is examined by variance inflation factor. There will be no co-linearity if $1 < \text{VIF} < 10$.

5. CONCLUSION

The first hypothesis examined the relationship between capital structure and market value. The results indicate a positive relationship between operating cash flows, intangible assets and firm size and a negative relationship between financial leverage and firm value. The second hypothesis examined the relationship between liquidity and market value. The result showed that the increase in liquidity would reduce firm value by eliminating opportunities for investment, (Table 6).

Table 6
Results of fitness

<i>Hypothesis</i>	<i>Subject</i>	<i>Result</i>
First	There is a significant relationship between capital structure and market value.	Supported
Second	There is a significant relationship between liquidity and market value.	Supported

Managers, shareholders and creditors are recommended to consider the effect of capital structure and liquidity on firm value in their financial decisions.

First hypothesis: In general, the richer the capital structure, the higher the market value is. Therefore, it is recommended to take proper actions to increase operating cash flows, intangible assets, and firm size and vice versa in order to reduce financial leverage.

Second hypothesis: Because the increase in liquidity increases the firm value, financial decision-makers are recommended to use high liquidity for the sake of higher firm value in order to use investment opportunities optimally.

Future works need to:

- Use other models to test hypotheses of this study.
- Examine financial constraints as a moderating variable in the relationship between capital structure and firm value.
- Examine the relationship between these variables in different industries and the effect of industry on the relationship between variables.
- Divide the sample companies in terms of investment opportunities into two groups with high and low opportunities and examine the relationships between variables in these two groups separately.

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