

The Impact of Financial Flexibility on Short-Term Financial Leverage of Industry of Pharmaceutical and Chemical Substances Listed in the Tehran Stock Exchange

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Abstract: The purpose of the research was to investigate the impact of financial flexibility on short-term leverage of industry of pharmaceutical and chemical substances listed in the Tehran Stock Exchange. The research method was descriptive from the correlational kind. The population included all the corporates listed in the Tehran Stock Exchange from 2001 to 2014. A sample of systematic elimination was used. Integrated data were used to achieve the objectives of the study. The results showed that financial flexibility on short-term leverage of industry of pharmaceutical and chemical substances had a negative and significant impact.

Keywords: Financial Flexibility, Financial Leverage, Short-Term Financial Leverage.

Introduction

Understanding financial decisions of the corporate is a key challenge in the studies of financial economy. For this purpose, in the past decades, various methods including agency costs or market imperfections are raised. However, the research evidence among corporate decision makers indicates that there is another factor which so far only little attention in the academic literature is dealt with that this is a financial factor of flexibility. Gamba and Tristan (2008) defines flexibility as follows that the flexibility is the corporate's ability to obtain and restructure financing financial structure with the lowest cost (Gamba and Tristan, 2008, quoted by Lin & Rowe, 2011).

According to this view, there are two valuable policies through financial flexibility for the corporate. First, the corporate with the financial flexibility can reduce difficulties of the investment less than about restrictions of the access to the capital. Second, this can reduce costs arising from the financial crisis using financial flexibility and can prevent imposing such costs. One important reason for lack of evidence in this regard is that the value of financial flexibility for the corporates is not directly visible. The level of financial flexibility is endogenous and is determined through financial decisions.

Therefore, such a measure cannot explain the reason of the corporates from choosing fiscal policies resulting in high and low flexibility and this cannot play an important role in this regard. The most important issues which affect management decisions for borrowing and increasing debt in the capital structure is the corporate's financial flexibility. Financial flexibility is for the lack of using the full capacity of the debt, future investment opportunities and unexpected needs to cash performed based on discussions performed by Myers and Majof (1984) and Myers (1984). The difficulties of the capital market made essential maintaining flexibility for the corporates to take advantage of profitable opportunities. The corporates with financial flexibility keep the borrowing power of the storage reserves so that they can invest most in later years of conservative policy (Eriotis, 2017). Financial flexibility is meant the business units (profit) to provide cash within a short time of getting information about unforeseen financial needs or not finding information on opportunities for investment. Financial flexibility is the ability to supply adequate financial resources to respond to unforeseen events, etc., to maximize the corporate's value.

The corporates with financial flexibility can resist against the financial pressures and when profitable opportunities are created, they should provide the necessary funds to invest at low cost. The corporates with financial flexibility have the ability to avoid financial distress in the face of negative shocks and when profitable opportunities increase, they invest at a low cost (Altman, 2008). Financial flexibility can be considered as a degree of the corporate's capacity which can equip their financial resources to response activities so that the value of the corporate can be maximized and all uses of flexibility in financial literature are related to the aspects of the reactive and protective nature. Financial flexibility comes in two general ways that some companies are trying to keep their cash of financial flexibility using policies related to holdings and others adopt this policy with a conservative debt policy based on having excess debt capacity.

Generally, the financial flexibility is the most important part of the corporate's capital structure determination. Therefore, the purpose of the research was to investigate the impact of financial flexibility on short-term leverage of industry of pharmaceutical and chemical substances listed in the Tehran Stock Exchange.

Materials and Methods

The research method was descriptive from the correlational kind. The population included all the corporates listed in the Tehran Stock Exchange from 2001 to 2014. A sample of systematic elimination was used. That is, the corporates which had had the following conditions were selected as a sample.

1. The corporates should be considered from the beginning of 2001 to the end of 2014 in stock exchange;
2. The corporates considered should not be for leasing and investment corporates;
3. They should not have trading interval more than 6 months;
4. No data defectives.

The independent variable was financial flexibility. Financial flexibility can be considered as a degree of the corporate's capacity which can equip their financial resources to response activities so that the value of the corporate can be maximized. In other words, financial flexibility is the entity's ability to take effective action to change the amount and timing of cash flows such that the trade unit can react against the unexpected events and opportunities. To calculate the financial flexibility, the research of Jung et al (2015) of the value of the financial flexibility is used (quoted by Chen & Strange, 2015). First, unexpected changes of cash are estimated. In this model using past information about expected cash flows are estimated using the following model.

$$\frac{C_{i,t} - C_{i,t-1}}{M_{i,t-1}} = \alpha_0 + \alpha_1 TobQ_{i,t} + \alpha_2 \frac{CFAL_{i,t}}{M_{i,t-1}} + \alpha_3 Logsize_{i,t} + \varepsilon_{i,t}$$

(Equation 1)

$C_{i,t}$: Cash and short-term investments of the corporate of i in period of t ; $M_{i,t-1}$: The market value of equity of the corporate of I in period of $t-1$; $TobQ_{i,t}$: Q TOBIN (the market value of the asset to the book value of assets) of the corporate of I in period of t ; $CFAL_{i,t}$: Gross profit of the corporate of I in period of t ; $Logsize_{i,t}$: Logarithm of the corporate's assets of I in period of t .

Then, using the following model, the impact of unexpected changes in cash holdings and some unusual attributes the company's performance is evaluated. In fact, the market reaction to the changes made will be checked.

$$\begin{aligned}
 r_{i,t} - R_{i,t} = & \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 SGR_{i,t} + \beta_3 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_4 T_{i,t} + \beta_5 Spread_{i,t} + \beta_6 Tang_{i,t} + \beta_7 SGR_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_8 \frac{\Delta E_{i,t}}{M_{i,t-1}} * \frac{\Delta C_{i,t}}{M_{i,t-1}} \\
 & + \beta_9 T_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_{10} Spread_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_{11} Tang_{i,t} * \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_{12} \frac{C_{i,t}}{M_{i,t-1}} + \beta_{13} \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_{14} \frac{\Delta RD_{i,t}}{M_{i,t-1}} \\
 & + \beta_{15} \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_{16} \frac{\Delta D_{i,t}}{M_{i,t-1}} + \beta_{17} L_{i,t} + \beta_{18} \frac{\Delta NF_{i,t}}{M_{i,t-1}} + \beta_{19} Z_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

(Equation 2)

Here, $r_{i,t} - R_{i,t}$: Abnormal returns of firm i in period t; $M_{i,t-1}$: The market value of equity i in period of t-1; $C_{i,t}$: Unexpected changes in cash holdings company i in period t; extracted from the model (1); $E_{i,t}$: Gross profit of firm i in period t; $NA_{i,t}$: Total assets minus cash of firm i in period t; RD: The cost of R & D i in period t; $I_{i,t}$: Interest expense i in period t; $D_{i,t}$: Cash dividends i in period t; $L_{i,t}$: Financial leverage the company's market i in period t is obtained by dividing the total debt to the market value of assets. The book value of the market is obtained by the value of equity and the book value of debt. $NF_{i,t}$: Net financing firm i in period t; (net cash from the sale of shares + net cash from borrowing). $T_{i,t}$: The effective tax rate of firm i in period t; $SGR_{i,t}$: Company sales growth i in period t; (sales of the current year minus the previous year divided by sales in last year); $Tang_{i,t}$: Tangible fixed assets divided by total assets of the company i in period t; $Spread_{i,t}$: Suggested price difference of bid and selling securities of firm i in period t; $Z_{i,t}$: a sum of industry and year of the firm i in period t; β_0 : width from the source; β : Constant variables; $\varepsilon_{i,t}$: model error.

2) Then, the value of financial flexibility by using the following model is used:

$$VOFF_{i,t} = \beta_0 + \beta_7 TobQ_{i,t} + \beta_8 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_9 T_{i,t} + \beta_{10} Spread_{i,t} + \beta_{11} Tang_{i,t} + \varepsilon_{i,t}$$

(Equation 3)

$VOFF_{i,t}$: The value of the company's financial flexibility i in period t extracted from the model (1)

Other components in model 2 are explained.

Dependent variable was short-term financial leverage. The following equation was used to measure short-term financial leverage.

$$STD_{i,t} = \frac{Std_{i,t}}{TA_{i,t}}$$

(Equation 4)

$STD_{i,t}$: Short-term financial leverage i in period t; $Std_{i,t}$: Total short-term liabilities i in period t; $TA_{i,t}$: Total assets of company i in period t.

Control variables including net working capital (current assets which is obtained by the difference of the current liabilities minus working capital); retained earnings (accumulated profit divided by total assets), return on equity (this ratio is obtained by dividing the net profit on equity).

$$ROE_{i,t} = IN_{i,t}/E_{i,t}$$

(Equation 5)

$ROE_{i,t}$: Return on equity for the company i in period t; $IN_{i,t}$: Net profit for firm i in period t; $E_{i,t}$: Total assets for firm i in period t.

4. Return on assets: the ratio is obtained from net income divided by total assets.

$$ROA_{i,t} = IN_{i,t}/TA_{i,t}$$

(equation 6)

$ROA_{i,t}$: Return on assets for the company i in period t; $IN_{i,t}$: Net profit for firm i in period t; $TA_{i,t}$: Total assets for firm i in period t.

5. Firm size: firm size is obtained using the natural logarithm of the total assets of the company

To investigate the hypothesis of the analysis, the following regression model was used.

$$STD_{i,t} = \alpha + \beta_1 VOFF_{i,t} + \beta_2 WC_{i,t} + \beta_3 RE_{i,t} + \beta_4 ROE_{i,t} + \beta_5 ROA_{i,t} + \beta_6 size_{i,t} + \varepsilon_{i,t}$$

$VOFF_{i,t}$: The value of the company's financial flexibility i in period t ; $Lev_{i,t}$: Financial leverage for the company i in period t ; $STD_{i,t}$: Short-term financial leverage for the company i in period t ; $LTD_{i,t}$: Long-term financial leverage for the company i in period t ; $WC_{i,t}$: Working capital of firm i in period t ; $RE_{i,t}$: The ratio of retained earnings divided by total assets for the company i in period t ; $ROE_{i,t}$: Return on equity for the company i in period t ; $ROA_{i,t}$: Return on asset of firm i in period t ; $SIZE_{i,t}$: Size of the company i in period t .

A = width from the source; β = constant variables and $\varepsilon_{i,t}$ = model error

For data analysis, regression, F Fisher tests, t test and Hausman test were used. Also, F Limer test was used to choose between methods of panel data and integrated data, Durbin Watson test for test of autocorrelation, White test for the test of heterogeneity of variances and also Fisher test was used for stationary test of the variables.

Results

The results of the regression analysis are presented in Table 1.

Table 1. The results of the model study.

$STD_{i,t} = \alpha + \beta_1 VOFF_{i,t} + \beta_2 WC_{i,t} + \beta_3 RE_{i,t} + \beta_4 ROE_{i,t} + \beta_5 ROA_{i,t} + \beta_6 size_{i,t} + \varepsilon_{i,t}$						
Dependent variable: short-term financial leverage / methodology: Panel EGLS/ financial period -2001						
The variable name	Symbol	The value of coefficient	t-statistic	The significance level	Direction of the relation	
Financial Flexibility	VOFF	-1.41E-05	2.366277	0.0155	Negative	
capital in circulation	WC	1.15E-08	1.575999	0.1162	Positive	
Retained earning	RE	-0.242210	5.566772	0.0000	Negative	
Return On Equity	ROE	0.263288	13.29489	0.0000	Positive	
Return on Assets	ROA	-0.666428	-12.01949	0.0000	Negative	
Company size	SIZE	0.049112	4.767156	0.0000	Positive	
Fixed model	C	0.1169506	2.908584	0.0039	-----	
The coefficient of determination	92%	F statistic		86.92		
Adjusted coefficient of determination	91%	(P-Value) significance		0.0000		
		Durbin-Watson statistic		1.519309		

After the test of regression assumptions and their ensuring, the results of the fitted regression equation above are presented in Table 1. The value of F statistics (86, 82) also indicates the significance of the total regression model. As specified in the bottom of Table, the coefficient of determination and adjusted coefficient of determination models are 92% and 91%, respectively. Therefore, it can be concluded that in the regression equation, approximately 91% of short-term financial leverage changes of the firms considered are determined through the independent and control variables which seem very good. In this Table, positive numbers (negative) in the column of the coefficient represent the direct impact (reverse) of each of the variables on financial leverage firms under investigation. Therefore, the above results show that the model is fitted well and goodness is approved. The estimated coefficient for the variable of the financial flexibility in the Table indicates a negative relationship between this variable and short-term corporate financial leverage because the significance level of the coefficient (0.15) is less than 0.05. Therefore, it can be said

that there is a significant impact between financial flexibility to short-term financial leverage of the corporates. The impact factor variable of working capital in the Table represents a significant positive correlation with short-term financial leverage which this coefficient is significant statistically because the significance level of the coefficient is less than 0.05. Therefore, the variable of working capital on short-term financial leverage has a significant positive impact. The variable impact factor of retained earnings in the Table represents a significant negative correlation with short-term financial leverage which the coefficient is statistically significant because the significance level of the coefficient is less than 0.05. Therefore, the variable of short-term leverage ratio of retained earnings of the corporate has a significant negative impact. The impact factor of the variable of return on equity in the Table represents a significant positive correlation with short-term financial leverage which the coefficient is statistically significant because the significance level is less than 0.05. Therefore, equity variable has positive and significant impact on short-term financial leverage. The impact factor of the variable of return on assets ranging in the Table represents a significant negative correlation with short-term financial leverage which the coefficient is statistically significant because the significance level is less than 0.05. Therefore, the variable of return on assets has a significant negative impact on short-term financial leverage. The impact factor of corporate size variable indicates a significant positive correlation with short-term financial leverage which the coefficient is statistically significant because the significance level is less than 0.05. Therefore, the variable of the firm size has a significant positive impact on short-term financial leverage.

Discussion and Conclusion

The purpose of the research was to investigate the impact of financial flexibility on short-term leverage of industry of pharmaceutical and chemical substances listed in the Tehran Stock Exchange. The results showed that financial flexibility on short-term leverage of industry of pharmaceutical and chemical substances had a negative and significant impact. This means that short-term financial leverage will decrease by increasing the financial flexibility. Front companies of investment often create leverage for their assets using derivative instruments; for example, such a company could spend \$ 1 million capital margin to crude oil trading deal with \$ 20 million and in this way, gains and losses accrue. But in this study, the results show that the greater financial flexibility, the less short-term financial leverage. In other words, an inverse relationship is between the two.

According to the theoretical foundations raised, Gamba and Tristan (2008), define the flexibility as follow: flexibility is the company's ability to obtain financing and financial restructuring cost (Jandik & Makhija, 2014). Also, the flexibility can be the ability of the firm in being flexible to changes. But in this hypothesis, it was specified that the financial flexibility of the company's financial leverage had a significant relationship. This result can be explained such that the more flexibility for the corporate, the more financial leverage and the corporates with high flexibility are more willing to increase their debt. Compared to other studies, since no direct relationship between financial flexibility and financial leverage has been studied, the results of the study cannot be compared with other studies. But Sheri Anaqiz et al (2015) in a research studied the financial flexibility and speed of capital structure adjustment (quoted by Kiyoumars, 2016). For this purpose, among the companies listed in the Tehran Stock Exchange, 108 companies were selected and financial information from 2003 to 2013 were studied.

The results indicate that for the corporates over the optimized leverage, financial flexibility is not a determining factor for the speed of the adjustment of the lever of this type of companies but for companies that are below optimal leverage, a significant positive correlation with the speed adjustment lever is obtained.

According to the results, it is recommended that considering the results, the companies should be selected to investment which there greater flexibility is observed in them because more flexibility expects lower short-term financial leverage.

Conflict of Interest

The authors declare no conflict of interest.

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