Relation of the Market Value Ratio to the Asset Book Value with Leverage Ratio (The study of Pharmaceutical Companies)

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Abstract: Financing and investment decisions of companies, both are the decisions that are taken by forward-looking. In the financing decisions, the company applies the needed funds already so that in the future to be able to perform their obligations to the sponsors. The investment decision, the company will ignore some of the current benefits in the hope of further benefits in the future. Investment in machinery and equipment can apply to prospective profit Return on investment. The purpose of this paper is to examine the components between the market value to the asset book value with leverage ratio in the industry of pharmaceutical companies using the two control variables of the size and profitability. In this paper, for data collection, data of 32 petrochemical companies listed in Tehran during the years of 1388 to 1392 has been analyzed using spss software. The results show that the ratio of market value to book value of property assets with a book leverage and market leverage significant relationship exists.

Keywords: market value ratio to book value of assets, the ratio of market leverage, book leverage ratio, profitability, firm size

I. INTRODUCTION

Decisions on capital structure means the finance company, like other decisions affects the management of the company. Directors as representatives of shareholders, should set the composition of the capital structure of the company to increase shareholder wealth in the process of increasing the value of the company, which has a positive effect (Bok pin, 2009). On the other hand, in the recent period due to rapid changes in technology and increased expectations of shareholders, financial decisions will depend on the expertise of managers and given the importance of financial and accounting information in decisions and resource allocation if properly the information is analyzed in the market and long-term goals now are to be determined right, on the one hand it would lead to the optimum allocation of resources and on the other hand to maximize the company's value in the market (Zarifian, 1387).

II. IMPORTANCE OF PROBLEM

One of the most important components of any economic activity is providing the financial resources required; that these resources can be provided from the equity or debt.

Revised Version Manuscript Received on November 21, 2016.

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In this regard, financial managers in companies ensure the best combination of sources of financing or the capital structure and the decisions taken in this regard in order to increase the company's value (Keshavarz, 1390). Since investment markets and production and service companies are involved in the booming economy of any country attention to the factors that led to the development of these factors is important. Therefore, the investment is a necessary and vital to the growth and economic development of any country. In order to provide funds for investment, a number of sources should be used to finance. Financial managers must consider the various sources of financing, and also consider the risk and company return and its impact on the risk and return of ordinary shares in the stock market. There are many factors that determine a company's risk. One of these factors are the company's capital structure including company in their capital structure how much has brought and shareholders have how much debt. For this reason that the use of debt, creating a series of fixed obligations (financial costs) for the company; this constant commitment, increases the company risks because if the company fails to repay the loan principal and interest to be involved in financial distress (Shams, Babalooyan July, 1389).

The purpose of this study was to investigate the relationship between the ratio of market value to book value ratio of assets to leverage ratio in the pharmaceutical and chemical companies accepted in the Tehran Stock Exchange. Company managers can identify these areas for better decision-making for different groups of users that use accounting data.

III. THEORETICAL PRINCIPLES AND LITERATURE

Financing and investment decisions of companies, both are decisions that are taken with the forward-looking. In the financing decisions, the company applies the needed funds already so that in the future to be able to perform their obligations to the sponsors. The investment decision, the company will ignore some of the current benefits in the hope of further benefits in the future. Financial sources of companies according to their financing policies are divided into internal and external financing resources of the company.

A. Capital structure

Capital structure consists of a combination of debt and equity that a company uses as financing resources (Antoniou, 2002). Capital structure consists of a combination of common stock, preferred stock and related infrastructure, retained earnings and debt that the business unit uses it to finance assets (Dimitris and Maria, 2010).

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B. Leverage ratio:

Leverage ratio is defined as total debt to total assets ratio of the company. This ratio can be a sense of what remains after the treatment of the company to shareholders. However, this ratio is generally not able to give a good approximation of the probability of bankruptcy in the near future. The second definition of the leverage ratio of debt ratio of companies (total of short-term and long-term financial liabilities) is to the total assets. This definition only includes that debt s of companies that has interest; and the last measurement of leverage ratio, is defined as Total debt to equity ratio of the company. Another important issue in corporate leverage ratio is choice between book value or market value in calculating equity of company. Some believe that the book ratios reflect debt ratios are intended better; the market value of equity is dependent on several factors that are often beyond the control of the firm.

C. Firm Size:

The company can demonstrate the ability to manage projects, accounting and quality. Company size is an indicator of strong management using accounting scheme to maximize the use of economic resources. Firm size could represent a competitive advantage. The size of the company can represent overall risk. More funds can reduce the overall risk (Champion, 1386).

The ratio of book value to market value:

Most studies have emphasized the importance of the role of book value to market value of the shares. This ratio is obtained by dividing the stock's book value of shares. Book value per share is measured by dividing Shareholders equity by the number of shares of company and it expressed of the balance sheet value of each share of the company. In view of the distance between the book value and the market value of the company is called margin of confidence that how much more is that the investor will be hit from the market (Tehran and Bajlan, 1386). Companies that have a larger ratio of book value to market value of shares is likely to be with more risk because with a market shock, the market value will be equal or close to book value. Another point of view is much smaller this ratio is it would show that the company established a long time ago, where the majority of companies due to tax problems will not re-evaluate its assets. So this is the difference between the gross book value to market value (Saleh Fard, 1387).

Literature:

Yazdi Arab Mazar and Arab Ahmadi (1390) investigated the relationship between the components of book value to market value paid with future stock returns and Research results show, the data in which the said ratio is less than one, again, the operation component has a significant relationship with stock return. Kurdistani and Akbari (1390) investigated the effect of leverage and operational components of book value to market value on account of their stock returns. The results showed that the relationship between the operational components of the range of future stock is positive. But the relationship between the levers with future stock returns is negative and significant. Yaghoobnejad, Saeedi and Rozeh'ee (1389), investigated estimation of the market risk considering leverage market of Tehran Stock Exchange. In this study, the method of calculating the market risk with respect to leverage of market (Lali model) is presented and this model was compared possible models of to predict stock returns. The results show that the Lali model (the effect of market levers), in comparison with models of Sigl and Eibotson explained stronger the return on equity. Tehrani and Rahnama (1387), examined the ratio Book to value Market value as a variable alternative by the use of leverage approaches. According to the results of the study, the effect of book value to market value, is because of the book value leverage and market value leverage, and can be an alternative to risk. Farid and Dehghanizadeh (1387), examined the company's forecast of profit with book value ratio to market value. The results showed that the there is no significant relationship between ratio of B/M and Stock Return. Ahmad-Pur and Rahmani (1386), examined the three factors of market, company size and the ratio of book value to market value of shares on the stock returns. The results show that using a multi-factor model can explain the dispersion of stock returns better than a one-factor model.

Fama and French (1993), concluded that stock return has inverse relation with leverage with book values and direct relation with leverage with the market value. Mahajan and Tartaroglu (2006), investigated the relationship of B/M ratio and financial leverage in Japan, America, France and Germany in explaining stock returns. The results of the relationship between the levers with future stock returns are positive. But the relationship between leverage of future stock returns is negative and significant. Drobetz et al. (2007), at the research showed that there is a relationship between economic variables and capital structure indicating that vibrations generated in each of the macroeconomic variables of USA can quickly affect in determining the capital structure of corporates and concluded the past ratio B/M and past Return of the stock, has a significant effect on financial leverage. Sang Shin and Azarian (2009), showed that economic favorable conditions or unfavorable ones as well as macroeconomic variables of a country are effective on the development of the capital structure of the companies and to determine the optimal capital structure, not only within the company but also of the economic situation and fluctuations of macroeconomic variables and policies on them should be considered.

Hypotheses:

1. There is a significant relationship between the market value of assets on market leverages ratio
2. There is a significant relationship between market value ratios of assets with a book value of assets on the book leverages ratio.

IV. RESEARCH METHODOLOGY

The research in terms of division based on target is an applied one and the type of research is correlation and in terms of methodology is a post-event research. The purpose of this study was to investigate the relationship between the variables and data of the natural environment or the past events that occurred and they are analyzed.

The population, the sampling and samples

The population, according to the period of study (1388-1392) of those companies listed in Tehran Stock Exchange's pharmaceutical industry who meets the following criteria:

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1. Financial year ended 29 March each year (Stock Exchange listed companies have different dates for the end of the financial year. The reason to differences in financial years proved the difference between the activities of various and so the cycle of production. For the same reporting period, seasonal effects are removed and also because most companies in exchange end at the end of March, these companies are selected)
2. The data used to calculate the variables of the company, is available during the investigation.
4. During the period of investigation it does not change the fiscal year.
After taking into account the above conditions, 32 companies were selected as member companies.
The hypothesis test

1) RLM =B_0+B_1 B/M + B_2SIZE+€

2) RLB =B_0+B_1 B/M + B_2SIZE+€

That:
RLM= market leverage ratio
B/M=the ratio of market value of assets to book value of assets
RLB= book leverage ratio
SIZE= company size (The natural logarithm of assets)
Descriptive statistics

Table 2: Results of Descriptive statistics for the variable of ratio of market value to book value

Maximum	Minimum	Standard deviation	Average		
9.33089500	.10373685	1.00936446354	1.8142544513	ratio of market value to book value	
3.78066780	.05713318	.67756661015	.7422510962	market leverage ratio	
54.77431500	.24635826	4.35636724769	3.9102792271	book leverage ratio	
78713407.0000	4241.0000	5966546.9869763	1480215.418095	Company size	

Checking the first hypothesis:
Hypothesis H0: there is no significant relationship between the ratio of market value of assets to book value of assets and the ratio of Market leverages

Hypothesis H1: there is a significant relationship between the ratio of market value and the ratio of Market leverages
The results are as follows:

Table (4): The correlation between the dependent variable and independent variables

Market Leverage ratio (the dependent variable)		
Significance level	Pearson correlation coefficients	
.000	**-.505****	The ratio of market value to book value
.078	**.104**	**Company size**

As observed correlation between the ratio of market leverage and market value ratio to book value is inverse and equal to -0.505 that it is significantly different from zero, but the correlation between company size and market leverage ratio is 0.104 that with little significant difference is rejected.

Table (5): the variables in and out of the model with the dependent variable of market leverage ratio

Out variables	In variables	Model
.	Size, the ratio of market value to book value	**1**
Size	.	**2**

As seen in the model one both the size and the ratio of market value to book value is in the equation. In the model two, the size is not important and removed from the model.

Table (6): Tidal Statistics of coefficient of determination, Coefficient of determination and statistics of Durbin Watson

statistics of Durbin Watson	coefficient of determination	Tidal coefficient of determination	Model	
	.264	***.514***	**1**	dimension0
2.226	***.255***	***.505***	**2**	

The coefficient of determination for the second model, the final model, a model that contains only the independent variable of the ratio of market value to book value is equal to 0.255. In other words, about 26% of the dependent variability can be explained by the independent variable of market value ratio to book value; i.e. about 0.26 percent of the total dependent variation is related to the variable of the ratio of market value to book value. Statistics of Watson was used to check the autocorrelation of regression's residuals.

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Assuming the lack of autocorrelation in the regression residuals is necessary. Usually the values close to number two (between 1.5 and 2.5) for this statistic indicates a lack of autocorrelation of residuals. Durbin Watson is equal to 2.226 for the model that is acceptable.

Table 7: Analysis of variance for regression model with the dependent variable of market leverage ratio

Significance level	Fisher statistics	**Average of squares**	**Freedom degree**	The sum of squares	Source, model changes	
.000	**32.995**	**2.812**	**2**	**5.625**	**Regression**	
		.085	**184**	**15.684**	Residuals	**1**
			186	**21.309**	**Total**	
.000	**63.251**	**5.429**	**1**	**5.429**	**Regression**	
		.086	**185**	**15.880**	Residuals	**2**
			186	**21.309**	**total**	

For model A and model B, the significance level is equal to 0.000 that is less than 0/05, so both regression models are meaningful. In the first model, the independent variables exist but in the model two, only independent variable of ratio of market value to book value exists and the size variable is excluded.

Table (8): coefficients of the regression model with the dependent variable of market leverage ratio

Significance level	**T statistics**	**Standard coefficient**	Non-standard coefficients		**Model of variables**	
			Standard deviation	**Coefficient**		
.005	**2.830**		**.199**	**.564**	**Constant value**	
.000	**-7.955**	**-.503**	**.021**	**-.165**	The ratio of market value to book value	**1**
.131	**1.515**	**.096**	**.015**	**.023**	**Company size**	
.000	**19.107**		**.045**	**.858**	**Constant value**	
.000	**-7.953**	**-.505**	**.021**	**-.165**	The ratio of market value to book value	**2**

For the final model, the second model, the only independent variable is ratio of market value to book value, the significant level of independent variable is 0.000, which is less than 0/05 and the significance level for a fixed value is equal to 0.000 and less than 0/05 which indicates that they must be at model and must have influence on the dependent variable so the hypothesis H0 is rejected indicating that there is a significant relationship between the market value to book value and ratio of market leverage.

V. REVIEW OF THE ADEQUACY OF THE FINAL MODEL OF HYPOTHESIS ONE:

A) Investigating normality of model errors

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One of the assumptions is regression of normality of residuals. Kolmogorov-Smirnov test confirms normality of errors at the level of 0.01 (Because the Kolmogorov-Smirnov test's significant level in Table 10 is more than 0.01 that is calculated)

Table (9): Kolmogorov-Smirnov test for errors in the final model, hypothesis one

Kolmogorov-Smirnov test			
Significant level	**Freedom degree**	Statistics	
.017	**187**	**.073**	**Errors of final model, hypothesis one**

B) Check zero average of model errors

As you see the average is very close to zero and 95% confidence interval for the errors mean involves zero which means that at the error level of 0.05, the average of errors is not significantly different from zero. It also states that skewness is calculated near zero indicating errors distribution is almost like normal.

Table 10: Results of descriptive statistics related to errors in the final model of hypothesis one

Standard deviation	**Statistics**			
.02136704	**.0000000**	**Mean**		**Errors of final model, hypothesis one**
	-.0421529	**Low limit**	95% confidence interval for the mean	
	.0421529	**High limit**		
.178	**.433**	**Skewness**		
.354	**-.248**	**Kurtosis**		

Checking the test of the second hypothesis:

Hypothesis H0: there is no significant relationship between the ratio of market value to book value of assets and book leverage ratio

Hypothesis H1: there is a significant relationship between the ratio of market value of assets and book leverage ratio

To test the second hypothesis the multiple regressions with backward methods were used. Although the goal is to investigating the relationship between the ratio of market value of assets to book value of assets (independent variable) and the ratio of book leverages (the dependent variable), however, the data on the size of the company in the model was used.

Table (11): The correlation coefficient between the dependent variable and independent variables

Book leverage ratio (the dependent variable)		
Significance level	Pearson correlation coefficients	
.011	***-.167*****	The ratio of market value to book value
.403	***.018***	Size

The coefficient of determination for the second model, the final model, a model that contains only the independent variable of the ratio of market value to book value is equal to 0.028. In other words, about 3% of the variability of dependent variable can be explained by the independent variable of ratio of market value to book value. It means that about 3 percent of the total dependent variable related to variable of ratio of market value to book value. Durbin Watson's statistics is used to check the autocorrelation residuals at regression. Assuming the lack of autocorrelation of residuals in the regression is necessary. Usually the values close to two (between 1.5 and 2.5) for this statistic indicates a lack of autocorrelation of residuals. Durbin Watson statistics equal to 2.146 is acceptable.

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Table 14: variance analysis for regression model with dependent variable of book leverage ratio

Significance level	Fisher statistics	Average of squares	Freedom degree	The sum of squares	Source, model changes	
.070[a]	2.691	8.326	2	16.652	Regression	1
		3.094	187	578.507	Residuals	
			189	595.158	Total	
.021[b]	5.390	16.589	1	16.589	Regression	2
		3.077	188	578.570	Residuals	
			189	595.158	total	

At model one, level of significance for regression is more than 0.05 that with a small non-significant difference in the regression error is 0.05. At model two, the significant level is 0/021, which is less than 0/05, so the second regression model at error level of 0.05 is significant. In this model, the final model, there is only independent variable of ratio of market value to book value, and the size variable of the model is excluded.

Table (15): coefficients of the regression model with the dependent variable of book leverage ratio

Significance level Coefficient	T statistics	Standard coefficient	Non-standard coefficients		Model of variables	
			Standard deviation	Coefficient		
.003	3.031		1.144	3.468	Constant value	1
.022	-2.307	-.166	.122	-.281	The ratio of market value to book value	
.887	.143	.010	.086	.012	Company size	
.000	14.110		.257	3.627	Constant value	2
.021	-2.322	-.167	.121	-.282	The ratio of market value to book value	

As seen in the model one the achieved coefficient of variable of size of the company at error level 0.05 is not significantly different from zero (level of significance was achieved for it was more than 0.05). For the final model, the second model, that there is only independent variable of ratio of market value to book value, the significant level for the independent variable is 0/021 that is less than 0/05. The significant level for a fixed amount is equal to 0.000 and less than 0/05 which indicates that the model must be present. So the hypothesis H0 is rejected that indicates that there is a significant relationship between the ratio of market value to book value and book leverage ratio.

VI. REVIEW OF THE ADEQUACY OF THE FINAL MODEL, HYPOTHESIS 2

A) Investigating normality of model errors

One of the assumptions is regression of normality of residuals. Kolmogorov-Smirnov test confirms normality of errors at the level of 0.01 (Because the Kolmogorov-Smirnov test's significant level in Table 10 is more than 0.01 that is calculated)

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Table (16): Kolmogorov-Smirnov test for errors in the final model, hypothesis one

Kolmogorov-Smirnov test			
Statistics	Statistics	Statistics	
.083	**190**	**.061**	**Errors of final model, hypothesis one**

B) Checking zero average of model errors

Table 11 is about Descriptive Statistics of errors related to the final model of the hypothesis two. As you see, the average is very close to zero and 95 percent for the errors average involves zero which means that the error level of 0.05 of error average is not significantly different from zero. The skewness and elongation is close to zero and expresses the distribution of errors is almost like normal.

Table 17: Descriptive statistics related to errors in the final model, hypothesis two

Standard deviation	**Statistics**			
.12693117	**.0000000**	**Mean**		**The errors of final model in hypothesis two**
	-0.250384	**Low limit**	95% confidence interval for the mean	
	0.250384	**High limit**		
.176	**.290**	**Skewness**		
.351	**-.813**	**Elongation**		

The first hypothesis test results

Significant level for independent variable is equal to 0.000, which is lower than 0/05 also the significant level for a fixed amount is equal to 0.000 and less than 0/05, indicating that must be present at the model and have an impact on the dependent variable. So the hypothesis H0 is rejected indicating that there is a significant relationship between market value to book value and ratio of market leverage.

The second hypothesis test results

There is the ratio of market value to book value, the significant level for the independent variable is 0/021 that is less than 0/05 also the significant level for a fixed amount is equal to 0.000 and less than 05/0, indicating that the it must be present in model. So the hypothesis H0 is rejected indicating that there is a significant relationship between the market value to book value and book leverage ratio.

VII. SUGGESTIONS FOR FUTURE RESEARCH

1. Investigating Relationship between the ratio of book value to market value, growth opportunities and Leverage ratios
2. With regard to the economy are separate from the public sector, the researchers recommended to examine the relationship of Ownership structure (in terms of public and private) on book leverage and market leverage
3-examine the relationship between the ratio of book value to market value of various industries

REFERENCES

1. Ahmadpur, Ahmad Majid Rahmani (1386) "The effect size ratio of book value to market value on stock returns," Journal of Economic Research, No. 79, Summer, pp: 19-37
2. Yaghoobnehad, Ahmad Saeedi, Ali, Mansur Roze,ee (1389) "market risk premium estimates regarding the market leverage" Financial Research, Volume 11, Number 28, Winter, pp: 105-120
3. Arab Mazar-Yazdi, Mohammad Farhad Ahmadi Arab (1390), "The relationship between the components of book value to market value with future stock returns" Journal Stock Exchange, No. 15, Vol. IV, pp: 107-123
4. Tehrani,Reza, Roohollah Rahnama Flavarjany (1387) "The ratio of book value to market value as a variable risk using an alternative Leverage approach "The accounting and auditing, Volume 15, Number 52, pp: 37-54
5. Farid, Darioosh and Marzieh Dehghanizadeh (1387) "can now predict the ratio of book value to market value Svavry" Journal of Human Sciences and Economic, eighth year, No. 3, pp: 98-122
6. Kurdistani, GH. and M. Akbari. (1390) "Effect of Leverage and operational components of book value to market value in explaining stock returns", Journal of Accounting Studies, No. 29, pp: 39-64
7. Sinai, Hasan Ali and Abdulsini (1382) "investigating factors of financial leverage" empirical studies of financial accounting, No. 4, pp: 148-129
8. Pahlevan, Rahim (1386) "The effect of firm size on income smoothing" MS Thesis, University of Nishapur
9. Tehrani, Reza and Saeed Bajelan (1386), "Relationship between the property company's financial success, a research executive management, (1)

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10. Beik, M (1381), "The relationship between the ratio of book value to market value of the company stock return, Master Thesis, University Mashhad
11. Slalehfard, D. (1387) "the relationship between the ratio of price to earnings ratio of book value to market value" of the master's thesis, University of Nishapur
12. Sinai, Hasan Ali and Ali Rezaeian (1384) "Effect of the characteristics of the company's capital structure," Journal of Social and Human Sciences, No. 19, pp: 124-148
13. Shams Shahabuddin, Babaloyan SH, July, J. (1389) "Evaluation of portfolio companies provided in Article 44 of the Tehran Stock Exchange" Stock Exchange Bulletin, Vol. 3, No. 10; Of pages: 77-90
14. GA Bokpin (2009)" Macroeconomic development and capital structure decisions of firms: Evidence from emerging market economies" Studies in economics and finance,- emeraldinsight.com
15. Ratio, Equity Market Timing and Capital Yiaolei Liu,Laura(2008) "Historical Market-to- Book and Past Returns in a partial adjustment Model of Leverage www.bm.ust.hk/fnliu/cs,
16. Mahajan,Arvind and Semih Tartaroglu(2006) "Historical Market to Book Ratio, Equity Market Timing and Capital Structure",fma.org/slc/papers,..
17. Fama, E., French, K., (1993). Common risk factors in the returns on stocks and bonds. Journal of Financial Economics 33, 3-56.
18. A Antoniou, Y Guney, K Paudyal(2002) The Determinants of Corporate Capital Structure: Evidence from European Countries (book) webkuliah.unimedia.ac.id
19. Margaritis, Dimitris, Psillaki, Maria,(2010)."Capital structure, equity ownership and firm performance", Journal of Banking & Finance 34 ,P: 621–632

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