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The Effect of Financial Leverage on the Growth of the Companies Listed in Tehran Stock Exchange

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Abstract

This study examines the effect of financial leverage on the growth of companies listed in Tehran Stock Exchange. The study population includes pharmaceutical companies listed in Tehran Stock Exchange. The study interval is 2010-2014. Using variable data software brings a new approach, and is calculated by Excel. Variables of the study were calculated by data of Rahavard Novin Software and Excel. Data was analyzed by SPSS using descriptive and inferential statistics such as the Kolmogorov-Smirnov test, Pearson correlation and linear regression in order to test hypotheses of the study. According to the tests and analyses, it could be concluded that hypotheses were accepted. Thus, we can claim that there was an inverse relationship between leverage and company's growth.

Keywords: financial leverage, company's growth, pharmaceutical industry

Introduction

Today, performance of the stock exchange in developed countries is used as an indicator to assess financial, economic and trade policies and decisions. Considering that businesses institutionsaim to maximize the value and shareholders' wealth in private companies, the institutions are trying to adopt appropriate policies and decisions to achieve this aim. One of efforts to get closer to this goal is financial management tasks of organizations. These tasks can be classified in three main groups:

- Investment decisions
- Financing decisions
- Dividend decisions

Each of these decisions must be associated with the company's goal. Optimum combination of all three decisions leads to maximize the value of the companies. Therefore, financing decisions are one of the important tasks of the company to determine the best combination of financing. According to its specific features and characteristics, each company will be able to achieve a favorable financial context, through which maximizes the company's stock market value or share. Access to appropriate financial structure to minimize the cost of capital and thereby maximizing the value of the company is of great importance. One of the main economic variables is the amount of investment made in the economy and its' realization in economy results in the improvement of all economic variables, including employment and production. When a company acquires a leverage it means that it gets the loan, spends money to buy assets that means investment. There is no doubt that the increase in production is one of the first steps of the development process, requires increased investment and thus some theories are considered in economic science that saw a lack of development of some countries as the lack of investment and capital. Financing and investment are considered two sides of the same coin. Funds obtained from financial resources will be spent for investment. The question is that what is the relationship between financing via debts (creation of financial leverage) and investment decisions? In more accurate sense, it should be said that does acquisition of financial leverage mean that debts affect the company's overall and fiscal policies and what is the effect of such debts on the domestic and foreign growth of pharmaceutical companies?

The problem discovered in this study is that to what extent financial leverage make changes in the company's risk and return of a debt must be greater than its interest. In this regard, this study determined the effect of financial leverage on the growth of companies listed in the stock exchange. Here, growth means the incremental value of assets (current assets) and improvement of the quality of investment decisions (p/e ratio). When the assets of a company increase compared to the assets of the last year, it reflects the growth of its assets. Moreover, when the assets surplus to the debts of a company increases compared to the previous year, it reflects the growth of that company's assets. When p/e ratio of a company increases compared to the previous year, it reflects quality of investment decisions at the company (Namazi & Heshmati, 2007).

Review of the literature

Theoretical framework

"Financial ratios" of are concepts and tools in the field of economics and business that analysts and economic experts use them to determine the financial position of the firms. Financial ratios generally include four categories of liquidity, leverage, activity ratio and profitability ratio. Accordingly, the financial leverages are one of the most important index determining the capital and income of a company that also affect the company's financial ratios. What is important in the new strategies for the country's economic system is the focus on individual and private investment in the production and our research field (pharmaceutical industry) is not an exception.

Therefore, this issue will be examined from the specific perspective of our research. Thus, the capital structure of pharmaceutical companies listed in Tehran Stock Exchange is the focus of this research. To understand the topic whether the acquisition of leverage; that is, the amount of debt (through the purchase of securities, government bonds or bank loans and purchase of fixed assets) has a specific effect on general policies of the intended companies and financial policies. Although acquisition of leverage increases the fixed asset ratio inthe company's investment combination against variables and costs, it should be observed that to what extent the increased debts affect the asset growth.

Thus, it is necessary to identify financial ratio indicators in the comparison and analysis of the capital structure of the firms and examine how to manage them in order to protect and promote the capital, and the growth rate of the products and profits. The study will surely determine the amount of debts and the effect of financial performance on the improvement or worsening of financial situations of the companies. Considering the need of the managers, investors and researchers in the field to evaluate the capital markets, current and quick ratios, merchandise inventory turnover and so forth, we can understand the effect of leverage in financial policies on the growth and profits of pharmaceutical companies. It should be noted that each of the above ratios indicates certain aspects of the company's financial strength or weakness according to p/e of the structure constituents (Salehnejad, 2009: 18).

According to the theories of capital structure, managers at companies with good growth opportunities must use less leverage because they can no longer take advantage of investment opportunities with the increase in foreign debt. Therefore, we can see that the use of financial leverages affects also on financial performance and operations, internal and external growth and financial power of the companies. This study investigated the effect of financial leverage on the growth of the pharmaceutical companies listed in Tehran Stock Exchange. With the use of debts, changes are made in the company's risk and its shares to buyers (Sinaei & Khorram, 2004).

Experimental review

Myers (1975) examined a large sample of companies operating in nine different industries in five countries. The results showed that significant differences existed in financial structure across

industries in France and Japan while the difference was not observed in different industries in the United States, the Netherlands and Norway.

Bradley, Jarl and Kim (1984) studied the relationship between optimal capital structure in conjunction with the factors affecting the company's financial structure. The effects of key factors such as type of industry and business risk on the financial structure of companies were examined. The results of the study conducted on 80 companies indicated that the type of industry to contribute effectively to the company's debt ratio.

Chehab (1995) also examined the constituents of the capital structure (debt, financing). The result suggests that there is a direct relationship between levels of debt and growth, dividend and the increase in fixed assets and the ownership and an inverse relationship between them and profitability and business risk.

Good Friend Bookpin (1996-2006) explored capital structure decisions in companies with macroeconomic variables through data from 34 developing countries, and found a negative linear relationship between the growth rate of gross product and capital structure, as well as between bank interest rates and the level of long-term debt.

Freider and Martel (2006) examined the interaction between stock liquidity and capital structure of the companies listed in New York Stock Exchange for 1988 to 1998. The results showed that 27% of changes in financial leverage are explained by changes in the independent variables. In addition, 1% increase of the price difference proposed for the sale and purchase of shares resulted in 3% increase of financial leverage. The results of hypothesis-testing indicated that the reduced liquidity of the stock (the increased difference) would increase the leverage. This is compatible with the idea that directors tend to finance via debts if financing is done by issuing expensive shares.

Sandra Mortal and Mark Lipson (2009) examined the relationship between stock liquidity and capital structure in Nasdak's stock market and confirmed a significant relationship between them and concluded that equity declines by increasing the liquidity of the cost stock, and companies prefer to finance via shares.

Derifield and Ital (2005) studied whether external financing has lower output in the four East Asian countries of Malaysia, Indonesia, Korea and Thailand. The researchers concluded that all returns from internal and external sources of financing are not regulated and sometimes they are random. They presented a model to discover random effects. They found that the average return of external financing options is symmetric and long-term debt return is more than short-term loans.

Namazi and Shirzade (2005) studied the relationship between capital structure and profitability of the firms listed in the Tehran Stock Exchange with emphasis on the types of information industry of 108 companies from 1996 to 2000 and the following results were achieved:

1. The relationship between capital structure and profitability depends on the industry, in which the company operates.

2. The relationship between capital structure and profitability depends on the definition of profitability.

Sinaei and Rezaeian (2005) examined the effect of the characteristics of companies on capital structure and financial leverage. They aimed to see whether the corporate use of financial leverage is subject to specific parameters within the companies or factors other than the characteristics of the company is effective in changing it.

After various studies and hypothesis-testing, the effect of each of the parameters was studied in terms of efficiency of the studied resources. Unscientific and subjective conditions governing the financial system in money and capital markets were determined. Despite the necessary adjustments on the data analyzed, the results obtained in this method are not far from reality. Since the lack of

coordination in the money and capital markets and differences in ownership governing the performance of the markets led to lose the diversity of financing in the companies that are working in this format, emergence of internal and external issues affecting the monetary and fiscal policies reveals the lack of attention to issues within the company.

Norosh and Yazdani (2001) investigated the effect of financial leverage on investments in companies listed in Tehran Stock Exchange. The results showed that there is a negative relationship between leverage and investment and the relationship between investment leverage for companies with low growth opportunities is stronger than companies with high growth opportunities. Finally, robustness of the estimates was examined. For this purpose, the variables were adjusted using the industry average. Results of adjusted variable approach based on industry average were similar to previous results.

Hashemi and Kamali (2010) studied the effect of a gradual increase in financial leverage, the free cash flow and the company's growth on the management of profit of the companies listed in Tehran Stock Exchange. Hypothesis-testing results showed that there is no significant difference between the profit management in companies that have always high financial leverage with companies that are gradually involved in the increased financial leverage. Other results showed that free cash flow and company's growth are the factors affecting the opportunistic behavior by managers that affected profit management.

Karimi, Akhlaghi and Rezaei Mehr (2010) explored the effect of financial leverage and growth opportunities on the investment decisions of the companies listed in Tehran Stock Exchange. Thus, two hypotheses were formulated. The first hypothesis tested financial leverage effect on investment decisions, and the second hypothesis tested the effect of the growth opportunities on the investment decisions. According to the theoretical framework and literature, a regression model was developed and used to analyze the data. Population of the study included the manufacturing firms listed in the Tehran Stock Exchange from 2001 to 2008. Systematic removal method was used to determine the study sample and finally 104 companies were evaluated. The results of data analysis confirmed the first hypothesis and rejected the second hypothesis using panel data. In addition, findings showed a significant negative relationship between leverage and investment decisions.

Izadnia (2009) examined the relationship between financial leverage and liquidity of assets in Tehran Stock Exchange. This study aimed to determine the relationship between these factors and the liquidity of assets with financial leverage of the companies listed in Tehran Stock Exchange. Thus, 154 companies were selected from the statistical population of the study; the information needed for the study was available for a ten years period (1997-2006). Multivariate regression analysis was used to test the hypotheses of the study.

The results of hypothesis-testing indicate that about 0.65 of changes in financial leverage is explained by the variables of the rate of return on assets, firm size, the ratio of market value to book value of equity, net property, machineries and equipment and the liquidity of assets. Variables of the rate of return on assets and the size of the company have a significant negative effect on financial leverage; however, other variables do not have a significant effect on financial leverage.

Hypotheses of the study

The main objective of this study was to explain the relationship between financial leverage and growth of companies in the pharmaceutical industry of Tehran Stock Exchange. Thus, the following hypotheses were examined to achieve the above objective:

Major hypothesis of the study

There is a significant relationship between financial leverage(ratio of debt to net assets) and growth of pharmaceutical companies listed in the stock exchange.

Minor hypotheses of the study

1. Financial leverage has a significant negative effect on the investment decisions of the pharmaceutical companies listed in the stock exchange.

2. Companies with high leverage do not have a good asset growth and cannot use their future growth opportunities.

Research methodology

Methodology

In fact, the present study is an applied research. Applied research aims to develop practical knowledge in a particular field. Applied research is directed to the use of scientific knowledge and is considered as survey research in view of the nature and method. Given the nature of this study, the correlation analysis was used to examine hypotheses.

The needed information was collected by Rahavard Novin software that archives information of the stock exchange companies. Variables of the study included independent variable of financial leverage and dependent variable of the company's growth. The study determined the effect of independent variables on the dependent variable in the financial sector.

Independent variable: financial leverage

This variable is obtained by dividing total liabilities to total assets.

Dependent variable: growth of companies

Two components of investment decisions and asset growth were used to calculate the growth of companies.

The ratio p/e was used for investment decisions (the dividend growth). This ratio is obtained by dividing the price per share to earnings per share. Current ratio, quick ratio and merchandise inventory turnover were used for growth assets.

Regression model related to the first minor hypothesis:

Equation (1) $P/E = \alpha + \beta_1 FL + \epsilon$Regression model related to the second minor hypothesis:

Equation (2) $CR = \alpha + \beta_1 FL + \epsilon$

Equation (3) $QR = \alpha + \beta_1 FL + \epsilon$

Equation (4) $MITO = \alpha + \beta_1 FL + \epsilon$

P/E: The ratio of price to earnings per share

$\propto$: intercept (constant)

FL: financial leverage

CR: current ratio

QR: quick ratio

MITO: Merchandise Inventory Turn Over

βi: Volatility coefficients of the variables (slope of the regression line)

ε: the error

Population and sample of the study

The study statistical population in the companies listed in Tehran Stock Exchange in 2010-2014. The companies active in the pharmaceutical industry were considered as the sample of the study. Companies active in this industry are 30 companies in 2010.

Findings of the study

The main hypothesis: financial leverage (ratio of liabilities to total assets) has a significant effect on the development of pharmaceuticals companies listed in the stock exchange.

This hypothesis is dealt with the two following minor hypotheses.

1. The first minor hypothesis:financial leverage has a significant negative effect on the investment decisions of the pharmaceutical companies listed in the stock exchange.

Table 1: Pearson correlation between financial leverage and investment decisions

Coefficient		Financial leverage	Earnings per share
Financial leverage	Pearson correlation	1	-0.172
	Sig.		0.035
	No.	150	150

With regard to Table 1, it can be seen that there is an inverse relationship (-0.172) between financial leverage and earnings per share in the companies studied. According to the significance level (0.035), the relationship is significant. Thus, the first minor hypothesis is accepted.

When a linear relationship is confirmed between two variables, a mathematical relationship (regression model) should be fitted between the variables. As this linear relationship exists between the financial leverage and earnings per share, we will fit the model.

Table 2: Summary of regression model

Model	Correlation coefficient	Determination coefficient	Adjusted determination coefficient	Standard error of estimate	Durbin-Watson
1	0.172	0.030	0.023	22.394	2.079

According to Table 2, the adjusted coefficient of determination calculated shows 0.023. It indicates only 0.023 of changes in earnings per share is predicted by financial leverage. Durbin-Watson's statistic is 2.079 that shows the errors are independent of each other and there is no correlation between the errors. Thus, the hypothesis of correlation between errors is rejected and regression can be used.

Table 3: The regression coefficients for the variables of financial leverage and earnings per share

Model		Non- standardized values		Standardized values	t-statistic	Sig.
		B-statistic	SD	Beta		
1	Constants	13.967	4.164		2.226	0.025
	Financial leverage	-21.144	9.958	-0.172	-2.123	0.035

Column B of Table 6 presents constants and coefficients of independent variables in regression equation. The equation is as follows:

Equation (5) p/ei =13.967-21.144FL + ei

The second minor hypothesis: companies with high financial leverage do not havegood asset growth and cannot take advantage of their future growth opportunities.

The three criteria of current ratio, quick ratio and merchandise inventory turnover were used to measure asset growth.

Table 4: Pearson correlation between financial leverage and asset growth criteria

		Financial leverage	Current ratio	Quick ratio	Inventory turnover
Financial leverage	Pearson correlation	1	-0.782	-0.355	0.084
	Sig.		0.000	0.000	0.309
	No.	150	150	150	150

According to Table 4, there is a strong inverse relationship (0.782) between financial leverage and current ratio in the companies studied, and this relationship is significant with regard to the significance level (0.000).

Moreover, there is an inverse relationship (0.355) between financial leverage and quick ratio at the companies, and relationship is significant (0.000). However, there is a significant relationship between financial leverage and merchandise inventory turnover in the companies. Therefore, we can accept the second minor hypothesis.

a. Regression tests for the variables of financial leverage and current ratio

Table 5: Summary of regression model

Model	Correlation coefficient	Coefficient of determination	Adjustedcoefficient of determination	Standard error of estimation	Durbin-Watson
1	0.782	0.611	0.609	0.61749	2.085

According to Table 5, the adjusted coefficient of determination calculated shows 0.609 that indicated 0.6 of the changes in the current ratio is predicted by financial leverage. Watson-Durbin statistic is 2.085 indicating that the errors are independent of each other and there is no correlation between the errors and the correlation between errors is rejected. Thus, regression can be used.

Table 6: The regression coefficients for the variables of financial leverage and current ratio

Model		Non-standardized values		Standardized values	t-statistic	Sig.
		B-statistic	SD	Beta		
1	Constants	4.011	0.170		23.600	0.000
	Financial leverage	-4.189	0.275	-0.782	-15.258	0.000

Column B of Table 6 presents constants and coefficients of independent variables in regression equation. The equation is as follows:

Equation (6) CRi=4.011-4.189FL + ei

b. Regression test for the variables of financial leverage and quick ratio

Table 7: Summary of the regression model

Model	Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of estimation	Durbin-Watson
1	0.355	0.126	0.120	0.7417	1.951

According to Table 5, the adjusted coefficient of determination calculated shows 0.120. This means that 0.12 of the changes in quick ratio is predicted by financial leverage. Watson-Durbin statistic is 1.951 indicating that the errors are independent of each other and there is no correlation between the errors and correlation between errors is rejected. Thus, regression can be used.

Table 8: Regression coefficients for the variables of financial leverage and quick ratio

Model	Non-standardized values		Standardized values	t-statistic	Sig.
	B-statistic	SD	Beta		
Constants	1.861	0.204		9.117	0.000
Financial leverage	-1.552	0.330	-0.355	-4.616	00.000

Column B of Table 8 presents constants and coefficients of independent variables in regression equation. The equation is as follows:

Equation (7) QRi=1.861-1.522 FL + ei

Conclusion

The main objective of this study was to determine the effect of financial leverage on the growth of pharmaceutical companies listed in Tehran Stock Exchange (main hypothesis). The component of investment decisions was used for assets growth (minor hypothesis I) and corporate

growth (hypothesis II). Criterion of earnings per share was used for investment decisions and the current ratio, quick ratio and inventory turnover were usedfor the growth of companies.

The first minor hypothesis of the study is accepted after testing hypotheses. We conclude that there is a significant inverse relationship between financial leverage and investment decisions (earnings per share). This means that the greater the company's financial leverage, the less the company's earnings per share.

Moreover, the second minor hypothesis of the study is accepted. Therefore, we conclude that there is a significant inverse relationship between financial leverage and growth of companies (current ratio and quick ratio). This means that the company's financial leverage increases as the current ratio and quick ratio of the company are reduced.

In general, it could be concluded that there is a significant negative relationship between financial leverage and growth of companies, and the company's financial leverage increases (i.e., the ratio of debt to assets grows) as the company's growth is reduced.

Given the negative relationship between financial leverage and growth of companies, it could be argued that the greater the financial leverage of the company, its growth will be less.

Suggestions

1. With regard to the confirmation of the existence of an inverse relationship between earnings per share and financial leverage in the pharmaceutical companies listed in Tehran Stock Exchange, the managers of these companies are recommended to keep debts of corporates they manage at a low level. This makes the company's financial leverage (the ratio of debt to assets) is shown at a lower level and finally (according to the established inverse relationship between financial leverage and earnings per share), earnings per share increases. To hold down the financial leverage, the managers of these companies can use internal resources to finance that reduce financial leverage of the company and increase earnings per share. This makes investors to be more eager to invest in the company and probably will increase the value of its shares, which can result in an increase in the company's shareholder wealth.

2. With regard to the inverse relationship between financial leverage and growth of the assets of pharmaceutical companies listed in Tehran Stock Exchange, it is recommended to the potential investors who intend to invest in the companies listed in Tehran Stock Exchange because those companies have lower financial leverage compared to other companies and will be followed by higher earnings per share for the investors.

3. With regard to the inverse relationship between financial leverage and growth of pharmaceutical companies, we can express that companies that have lower financial leverage have higher growth. Therefore,it is recommended to all users of the financial statements of companies listed in the stock exchange to usefinancial leverage ranking along other criteria. This means that firms with less financial leverage assign higher rank and companies with greater financial leverage allocate lower rank.

4. According to the statistical analyses conducted in this study, it can be concluded that the lower the company's financial leverage, the more favorable the degree of growth of the company as well as the profitability (earnings per share) will be. With regard to the above argument, it is recommended to the users of the financial statements of the above-mentioned companies that select companies as target investment companies that have financial leverage lower than other companies.

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