

The Effect of Capital Structure on Financial Performance “Applied study in Turkish Stock Exchange”

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Abstract

The requirements for businesses to have an effective and efficient capital structure have become critical to the health and survival of businesses today. The goal of this research is to investigate the effect of capital structure (CS) on the company's performance (FP). The quantitative data for the 6 years (2007-2012) was taken from the annual reports of pharmaceutical companies in the Turkish stock exchange. In this research, the assessment of measuring the independent and dependent variables was found by the regression analysis model. The dependent variable is financial performance and it is measured by return on equity (ROE) and return on assets (ROA). The independent variable is capital structure and it is measured by net profit margin (NPM), earnings per share (EPS), long-term debt to total assets (LDTA), short-term debt to total assets (SDTA) and total debt to total assets (TDTA). The correlation study empirically proves that capital structure has a positive and significant impact on the organizational performance of pharmaceutical industries listed in the Turkish stock exchange (TSX). Thus, H1 is accepted and H0 is rejected in this study. In addition, the study also recommended that firms in the Turkish pharmaceutical sector must use less long-term loans to generate cash because it will affect the organizational performance negatively.

Keywords: capital structure, organizational performance, pharmaceutical industry, Turkish stock exchange.

1. Introduction

1.1 Background of the study

Financing can be seen as the most significant aspects of a business. A financial manager is considered in determining his company's best financing mix of equity and debt. Thus, A

company's capital structure can be seen as the combination of equity and debt, which use them to finance their operations (Damodaran, 2001). It is also one of the reasons for the relevance of capital that is closely linked to a company's order to meet the needs of multiple stakeholders. The capital structure reflects a corporation's major claims on its assets, which include various sorts of both equities and liabilities (Riahi- Belkaoui, 1999 and Ahmad et al., 2012). There are other debt equity ratio options available, including 0% debt, 0% equity, 100% debt, 100% equity, Y% debt and X% equity (Dare and Sola 2010).

The second option is a company with no stock capital. This approach may not be realistic or feasible in a real-world economic environment, because no funder will invest in a company that lacks equity capital. This partially explains the term "trading on equity," which refers to the equity component of the company's capital structure that motivates debt providers to contribute their limited resources to the company. Option three is the most feasible because it mixes a set percentage of debt and equity in the capital structure, allowing leverage benefits (if any) to be taken as an advantage.

In addition, structure on capital, the value of market and business theories have a lot of discussion in both theoretically and empirically (Modigliani and Miller 1958 & 1963). Debates have emphasized on whether a particular company's capital structure is ideal or the amount of the debt that used is related to the company's worth (Berger et al., 2006 and Baxter, 1967). Despite the fact that several scholars have put significant effort into deciding what appears to be an optimal "CS" for enterprises. Globally, there is no acknowledged concept in the research that explains the business debt to equity decision. However, in recent decades, a number of ideas have evolved to describe how enterprises' capital structures affect their market prices. Donaldson's (1961) pecking order concept, Modigliani and Miller's (1963) the agency costs theory, trade-off theory, capital structure relevancy is among these theories (Bokpin and Isshaq, 2008 and Ebaid, 2009). As a result, the goal of this research is to see how financial performance is affected by the capital structure.

1.2 The Problem Statement

The prospects for future potentials of the manufacturing sector of the Turkey's economy are quite substantial. Since the goals of every organization is to grow and expand its operation through new start-ups, acquisitions and mergers, the required financing strategies should be determined to

find out which option is economically prudent to add value to shareholders wealth. A more prudent capital structure will greatly improve firms' profitability; on the contrary an impulsive structure will negatively affect firms' profitability. Thus, the problem is the difficult to design a common optimal Capital Structure model for all firms, in different countries and economies, the ideal capital structure has varying ratios, which lead to the difficulty of determining their effect on organizational performance, value for shareholders and profitability.

1.3 The goals of the study

The research investigates to obtain the following goals:

1. To determine the extent to which the capital structure or composition or opus of firms in turkey impact on their profitability or performance.
2. To ascertain the percentage of financing that emanates to firms via debt or equity sources of financing.
3. To investigate the extent to which company's assets are being financed by debt or equity sources.

2. Literature Review

2.1 Theoretical review

Modigliani and Miller established a capital structure hypothesis in 1958, which asserts that the method of funding used by a corporation has no bearing on its value. Some scenarios were also postulated in this concept, such as agency without cost, no information asymmetry and free taxes. Thus, the impact of capital structure and their theories on company's financial performance have stayed a hot topic among accounting and finance researchers. According to Modigliani and Millers (1963), where financial leverage exists, it has two effects on the performance of companies.

2.1.1 Pecking order theory:

This theory describes how businesses understand which form of money to use for long-term investments. The company's final option for financing its assets is to raise funds from outsiders by issuing shares. When a company's performance is strong, the insider money is being used first, and then they may borrow more money (Donaldson, 1961). According to the pecking order theory, externals are much less knowledgeable of the firm's actual condition than internals, hence managers usually offer a higher price than the actual rate when giving it (Myers and Majluf, 1984).

2.1.2 Agency Theory:

This concept explains the relationship between the shareholders and managers. This relationship has been established when owners or shareholders hire agents to delegate the decision-making authority to the management. The agency problem arises when managers make their own interests rather than the interests of the company. It was discovered in this research that agency costs are separated into two categories. One is when a stockholder prioritizes its own interests over the interests of other investors, resulting in a cost referred to as external investors. Since external financing contributors collaborate in collecting gain from the stockholder, the former may engage in unethical and harmful methods in order to raise their worth. (Jensen and Meckling, 1976; Grossman and Hart, 1983; Jensen, 1986; Parrino and Weisbach, 1999; Ahmed and Muhammed, 2018 and Abdullah and Tursoy, 2021).

2.1.3 Trade off theory:

According to this hypothesis, a company's business is boosted when it uses money owed to finance its operations and expect the exchange benefit, example, increasing the debt usage can generate greater advantages, such as tax savings and lower costs, which can appear in the context of bankruptcy (Altman, 1984 and Baxter, 1967). As a result, firms may set a limit on the level of leverage for which they make every effort. This level is reached by which they gain more benefits than costs (Karadeniz et al., 2009).

2.2 Empirical Literature

Modigliani and Miller (1958), abbreviated as MM, released their seminar article more than 50 decades ago, which paved the way for contemporary capital structure hypothesis. They demonstrated that, in certain conditions (the presence of a market society, the lack of taxes, and the lack of trading costs), capital expenses had no effect on capital structure. That is, debt in the structure of capital was not bearing on their value. As a result, this theory is considered to be unimportant theory.

When the assumptions of no taxes or transaction costs were eliminated, Modigliani and Miller (1963) updated the irrelevant theory by providing evidence that cost of equity affects capital structure and consequently the worth of the enterprise. They went on to say that financing has a tax benefit since the tax subtracted from the tax shields by interest results, which lowers cost of borrowing and increases company performance (Modigliani and Miller, 1963). This necessitates an exchange between the cost of borrowing and the advantages of borrowing.

Bauer (2004) applied the impact of size of growth opportunities, tax, non-debt tax shields, volatility, and industry classification, profitability and tangibility, on capital structure using the data provided. The researcher came to the conclusion that leverage is favorably associated to size and adversely related to profitability. There was also a connection between leverage and tangibility that was unfavorable. This because the relationship among proxy for future growth chances and leverage is negative. Thus, enterprises with larger future opportunities growth must rely on capital structure. Leverage is favorably connected with tax and adversely related with non-debt tax shielding, according to research. There was no correlation between volatility and leverage.

On the other hand, scholars have proposed a number of different elements as predictors of a company's capital structure. According to Petersen and Rajan (1994), firm age, size and cash flow are all important considerations. Olowe (2011) pointed that "in order to maximize shareholders' wealth, the practical factors a financial manager should consider in the choice of capital structure include: business risk, nature of the firm's assets, growth rates of the firm, stability of sales, profitability, taxes, control, management attitudes, lender and rating agency attitudes, conditions in the stock market, perceived undervaluation of equity shares in the Stock market, and reserve borrowing capacity".

Furthermore, Pandey (2010) illustrated that feasibility and sustainability, marketability and timing issue costs, control, assets, growth opportunities, debt and non-debt tax shields, loan covenants, financial slack, financial flexibility and operating strategy are part of the decision of strong capital structure. Also, Huang and Song (2002), pointed that theoretical and empirical research have revealed that tangibility, profitability, growth potential rate, tax shields, and other factors may influence capital structure (Huang and Song, 2002).

2.3 Research Hypothesis

The researchers intended to test the following statement to prove the validity of the research:

H1: There is an actual relationship between the company's financial performance and capital structure.

H0: There is an adverse relationship between the company's financial performance and capital structure.

3. Research Methodology

The aim of this research is to investigate the connection among capital structure and the financial position in the pharmaceutical industry. To obtain this objective, an ordinary least squared and regression method are used for this estimation. The independent variable is capital structure. For this purpose, long term debt to total assets ratio (LDTA), short term debt to total assets (SDTA), total debt to total assets (TDTA), net profit margin (NPM) and earnings per share (EPS) are applied to measure the independent variable. The dependent variable is the financial performance and it is calculated by return on assets (ROA) and return on equity (ROE).

3.1 Research Data

This study sampled three manufacturing companies listed on the Turkish stock exchange. The selection of these firms was mainly based on firms for which we were able to obtain financial statements quickly and easily looking at the limited time available to complete the study. The data for the experimental analysis were found from audited financial statements of the selected firms between (2007-2012). The data consist of statements of financial position, statements of income, financial ratio and statement of cash flow.

3.2 Research Variable Definition

To formalize financial success, the research utilized accounting performance measures such as Return on Assets (ROA) and Return on Equity (ROE). ROA is the ratio of income before tax divided by total assets of the company and ROE is the ratio of income after tax divided by the equity of the company. In addition, the company's leverage is examined as total debt divided by the Equity (book value). Jensen and Meckling (1967) argued that debt is a disciplinary tool that helps to resolve agency issues between shareholders and management. Control factors that have a tendency to impact the value of the company are measured by the business's leverage that has been included in the research. To adjust the size of disparities among the selected firms, the logarithmic of total assets is used as a measure of company size. The value of a company can also be influenced by its long-term investment opportunities. Sales growth is also utilized as a proxy for potential investment.

3.3 Data Analysis Model

Panel data approach is being used to investigate the association among both capital structure and financial performance of the selected corporations. The panel data character allows for the use of this methodology. Panel data are created by combining observations on a cross-sectional basis of

units over several time periods, allowing for the detection of impacts that would otherwise be undetectable in pure time series or cross-section investigations. A double subscript connected to each variable distinguishes the panel data regression formula from a standard time series or cross section analysis. The panel data model's overall shape can be stated more succinctly as follows:

$$\text{ROE} = \beta_0 + \beta_1\text{NPM} + \beta_2\text{EPS} + \beta_3\text{SDTA} + \beta_4\text{LDTA} + \beta_5\text{TDTA} + \varepsilon$$

$$\text{ROA} = \beta_0 + \beta_1\text{NPM} + \beta_2\text{EPS} + \beta_3\text{SDTA} + \beta_4\text{LDTA} + \beta_5\text{TDTA} + \varepsilon$$

Where;

β_0 = Constant

ROE = Return on equity

ROA = return on assets

NPM = Net profit margin

EPS = Earnings per share

SDTA = Short term debt to total assets

LDTA = Long term debt to total assets

TDTA = Total debt to total assets

β_1 to β_5 = coefficients of concerned variables

ε = Error term

The effects of company's sales and size growth on the financial performance would be established through the analysis of the outcome of regression result. Statistical tables and graphs were also used to facilitate the analysis. Panel data methodology has been by various researchers (Abor, 2005 and Amidu, 2007). The researcher selected a comprehensive framework for panel data to allow them to predict panel data with better flexibility and formulate differences in the behavior of the cross-section parts.

4. Results and Discussion

The researchers will attempt to assess the relationship between capital structure, organizational performance, and shareholder equity as well. By examining organizational performance ratios such as ROE and ROA to assess their performance in light of each company's key capital structure. Long term debt to total assets ratio (LDTA), short term debt to total assets (SDTA), total debt to total assets (TDTA), net profit margin (NPM) and earnings per share (EPS) are used to analyze the relationship between capital structure and

organizational performance. In order to interpret the research conclusion in quantitative language, the researchers are utilized the regression analysis of data.

4.1 Descriptive statistics:

Table 1: Descriptive Analysis

	N	Min.	Max.	Mean	St. Dev.
NPM	4	-49.24	18.84	1.13	11.14
ROE	4	-361.41	388.54	17.20	87.87
ROA	4	-75.89	49.75	5.42	18.03
EPS	4	-28.51	216.83	14.22	42.77
SDTA	4	.00	59.69	23.55	15.91
LDTA	4	.00	53.69	13.97	13.25
TDTA	4	.00	12.72	15.35	71.57
Valid N(Listwise)					

Table 1 shows the descriptive statistics findings. It shows a mean value 1.13% for NPM, 17.2% for ROE, 4.42% for ROA and 14.22% for EPS. When NPM is employed as a measure, the percentage of NPM suggests that the performance of pharmaceutical companies is poor. However, EPS with ROE are 14.22%, and 17.20% accordingly, demonstrated that pharmaceutical industries have strong performance. The average ROE value indicates that average pharmaceutical companies provide a high return to their owners, and EPS is also favorable. ROE ranges from 388.54% to -361.41%, indicating that there is a wide range in ROE among selected pharmaceutical companies. The average return on assets (ROA) is 5.42%, implying that the market as a whole has been generating a 5.42% return on resources.

SDTA, LDTA and TDTA are also the variables that applied to compute capital market structure in the pharmaceutical industry. The average SDTA value is 23.5%, indicating that the industry as a whole only 23.5% is financed by debt. The mean value of LDTA is 13.97%, indicating the industry's 13.97% assets are financed with long-term debt. Lastly, TDTA has an overall average of 12.72%, which means only 12.72% of assets financed by debt.

4.2 Correlation Analysis:

Table 2: Correlation Matrix Analysis

	<i>NPM</i>	<i>ROE</i>	<i>ROA</i>	<i>EPS</i>	<i>SDTA</i>	<i>LDTA</i>	<i>TDTA</i>
<i>NPM</i>	1						
<i>ROE</i>	0.388**	1					
<i>ROA</i>	0.469**	0.338*	1				
<i>EPS</i>	0.412**	0.351*	0.578**	1			
<i>SDTA</i>	-0.044	0.032	-0.002	-0.174	1		
<i>LDTA</i>	-0.499**	-0.178	-0.329*	-0.266	0.066	1	
<i>TDTA</i>	-0.016	-0.031	-0.665**	-0.063	-0.224	-0.145	1

At the 0.05 level, the correlation is significant (2-tailed).

Table 2 shows the correlation data for the selected firms from 2007 to 2012. Correlation is used to determine whether there is a weak or strong relationship between the variables, as well as whether the relationship is positively or negatively behaved.

EPS and SDTA have a strong correlation with ROE at (0.351) and (0.032) respectively. ROA also have appositve and significant relationship with EPS at (0.578). This illustrates a positive relationship between capital structure and firms' performance. The findings suggest that NPM and LDTA have a substantial negative association (-.499), whereas NPM and SDTA, TDTA (-.044), (-.016) have a negative and insignificant connection. EPS and NPM are discovered to have a significant but insignificant association with (0.412). The findings also demonstrated the negative relationship between ROE and (LDTA and TDTA) at (-0.178) and (-0.031) respectively. and ROA has an adverse relationship with SDTA, LDTA AND TDTA at (-0.002, -0.329 and -0.665) accordingly. Finally, the analysis demonstrated a positive and significant connection between NPM and ROE and ROA at 0.388 and 0.469 respectively. Thus, capital structure has positive influence on organizational performance in pharmaceutical firms that listed in Turkish Stock Exchange (TSX).

4.3 Regression analysis:

Linear regression analysis was applied in this study that used to ascertain the key objectives, which is the effect of capital market structure on organizational performance of selected firms that is registered in Turkish stock exchange (TSX) for the years of 2007-2012.

Table 3 Model Summaries

Variables	r	R sq.	Adj. R sq.	St. Er.
NPM	.510	.260	.193	10.00897
ROE	.687	.472	.424	66.70720
ROA	.807	.651	.619	11.13143
EPS	.339	.115	.034	42.03039
SDTA	.602	.362	.304	17.57407
LDTA	.279	.255	.301	15.65480
TDTA	.334	.245	.298	16.34760

Table 3 indicated R square at 0.260 for NPM, 0.472 for ROE, 0.651 for ROA, 0.115 for EPS, 0.362 for SDTA, 0.255 for LDTA and 0.245 for TDTA. This reveals that the capital structure is responsible by 26%, on net profit margin, 47%, return on equity, 65% on return on assets, 11.5% earnings per share, 36% short term debt to total assets, 25% long term debt on total assets and 24% on total debt to total assets. As a result, capital structure and firms' performance have a positive and significant connection between them in pharmaceutical company that listed in Turkish Stock Exchange (TSX).

4.4 Model of Coefficient:

Table 4 Coefficients

Models	Unstandardized Coefficient		Standardized coefficient	T	Sig
	B	Std. Error	Beta		
a.(Constant) ROE	8.567	2.045	3.756	3.001	.019
b.(Constant) ROA	7.957	3.083	4.065	2.581	.013
EPM	.033	.081	.054	.407	.688
EPS	.021	.012	.24	.11	.080
SDTA	.022	.093	.032	.241	.811
LDTA	.437	.112	.520	3.905	.10
TDTA	.212	.250	.099	.735	.466

a. (constant) refers to dependent variable ROE.

b. (constant) refers to dependent variable ROA.

$$\text{ROE} = 8.567 + 0.033 + 0.021 + 0.022 + \beta_4 0.437 + 0.212 + 2.045$$

$$\text{ROA} = 7.957 + 0.033 + 0.021 + 0.022 + \beta_4 0.437 + 0.212 + 3.083$$

Table 4 also shows the findings of each independent variable's regression coefficient and significance. Each indicator of financial structure has affected by net profit margin positively. According to the regression B coefficient, "SDTA" has a coefficient beta of .022 with value of P at .811, which indicates $p > .05$, this shows a positive and significant impact with capital structure. The beta coefficient for "LDTA" in the above table is significant at .437, that is extremely big, and $p > .05$, indicating that it has a highly significant effect on capital structure. Regression with a beta coefficient of .212 for the debt to total assets and a p value of .466 which means $p > .05$, that means total debt to total assets have affected by LDTA positively. NPM has significant and positive effect on capital market structure, with a beta coefficient of .033 with $p = .688$, which means $p > .05$. Lastly, the beta for "EPS" in the above table is positive and significant at .021, and $p = .080$, which shows $p > .05$, indicating that it has a highly significant effect on capital structure. Hence, capital market structure has strong impact on organizational performance in pharmaceutical industry that listed in Turkish Stock Exchange (TSX).

Table 5 ANNOVA

Variables	Squ. Sum.	Df.	M. Sq.	F.	Sign.
NPM Regression	1551.299	1	386.574	3.870	0.008
Residual	4307.896	2	99.178		
Total	5859.196	3			
EPS Regression	10093.776	1	2523.444	1.428	0.240
Residual	77728.377	2	1766.554		
Total	87822.152	3			
SDTA Regression	174803.156	1	43700.789	9.821	0.16
Residual	195793.427	2	4449.851		
Total	370596.583	3			
LDTA Regression	10157.807	1	2539.452	20.495	0.07
Residual	5451.987	2	123.909		
Total	15609.794	3			
TDTA Regression	7710.911	1	1927.728	6.242	0.12
Residual	13589.310	2	308.848		
Total	21300.221	3			

a. Dependent variables: ROE and ROA.

b. Independent variables: NPM, EPS, SDTA, LDTA and TDTA.

Table 5 investigates the association between the independent variables (net profit margin, earnings per share, short term debt to total assets, long term debt to total assets and total debt to total assets), which designed to measure capital structure and the dependent variable (return on equity and return on assets) that applied to measure organizational performance. The phrase "sig" relates to the value of P, which is used to assess the importance of the existing model and also provide hypothesis outcomes; if p is less than 0.05, it is significant, which means serious influence has been observed, and results are significant if F is large. Table 5 shows the value of F with 3.87 for NPM, 1.42 for EPS, 9.82 for SDTA, 20.49 for LDTA and 6.24 TDTA. Also, it shows p value of 0.008, 0.240, 0.16, 0.07 and 0.12 indicating that $p > 0.05$. Hence, the p value findings illustrated that organizational performance have been affected by capital structure in positive way.

5. Conclusion and recommendation**5.1 Conclusion**

This study is aimed to examine any impact on firms' performance caused by capital structure. The quantitative data for the six years (2007-2012) was gathered from the individual financial statements of three pharmaceutical companies listed on Turkish stock exchange. In this paper, the regression analysis method was utilized to evaluate the differences between dependent and independent variables. The capital Structure (CS) of the three pharmaceutical companies was measured by utilizing the following independent variables (NPM, EPS, SDTA, LDTA and TDTA). The dependent variables are (ROE and ROA), which is measured to calculate financial performance (FP).

The conclusion to be drawn that capital structure and financial performance have a significant relationship between them. The empirical findings indicated that the CS have considerable impact on FP. Thus, H1 is accepted and H0 is rejected. The descriptive statistic results indicate that the financial performance of pharmaceutical industry is excellent when utilizing ROE and ROA. Short-term bank loans have positive impact and are financed by a large share of the assets in the pharmaceutical sector, as opposed to long term borrowings, such as 10-to-20-year bonds or borrowings. As a results, the regression analysis show that (NPM, EPS, SDTA, LDTA and TDTA) have considerable positive and significant on company's performance.

5.2 Recommendations

1. The researchers prefers that companies in Turkish pharmaceutical sector should utilize less long-term borrowing to generate funds because long-term borrowing reduces performance.
2. This study recommends that companies in Turkish pharmaceutical industry should avoid taking on excessive debt or exceeding an optimal debt limit because debt reduces performance and high debt might lead to company insolvency.

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