Determinants of Capital Structure: The Evidence from European Energy Companies

Ayberk Nuri Berkman[1], Ömer İskenderoğlu[2], Erdin çKaradeniz[3] & Nazif Ayyildiz[4]

[1] Ömer Halisdemir University, Faculty of Economics and Admisintrative Sciences, Department of Banking and Finance, Nigde, Turkey

[2] Ömer Halisdemir University Faculty of Economics and Admisintrative Sciences, Department of Business, Nigde, Turkey

[3] Mersin University, Faculty of Tourism, Department of Tourism Management, Mersin, Turkey

[4] Harran University, Suruc Vocational School, Sanliurfa, Turkey

Correspondence: Ayberk Nuri Berkman, Department of Banking and Finance, Ömer Halisdemir University, Nigde, Turkey. Tel: 90-388-225-4256.

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Abstract

The main aims of this study are to determine the factors which affect capital structure of corporations operating in energy sector and to detect capital structure theories with which capital structure of energy sector companies would comply. In this context, a panel data analysis was performed on totally 79 European energy companies operated between the years 2009 - 2012. According to results of the study; diminishing leverage rate caused by increased liquidity in European energy companies can be explained with the Pecking Order Theory, while escalating leverage rate caused by increased tangible fixed assets or equity turnover would be defined with the Trade-off Theory.

Keywords: capital structure, Pecking Order Theory, Trade-off Theory, European energy sector

1. Introduction

Contemporary corporate managers have an optimal capital structure, described as a combination of debt, equity and preferred stocks that cause the stock prices to be maximized. Thus, an optimal capital structure will be determined and later on new capital will be raised by value-maximizing companies in such a way that the actual capital structure will be kept on target over time (Bauer and Bub âk, 2003).

Since especially 1950's, factors that affect capital structures of companies and their impacts on firm values have been investigated by many academicians as companies acknowledged firm value maximization as an ultimate purpose. In that context, the optimal capital structure that would render a company's capital cost minimum and the firm value maximum is sought. Besides, factors that have an effect on the corporate capital structure are examined. As a result of theoretical and practical studies, alternative theories and approaches regarding capital structure are developed; however, these theories and new approaches with which capital structure of the complying corporations are still in dispute.

The energy sector, by all means, is considered as one of the most rapidly growing sectors in terms of its contribution to employment, national income, and today's global economies. Researchers and policymakers have always been interested in the relationship of economic growth with energy consumption and energy prices. The results of these studies had strong evidence that the development of energy sector had a positive impact on GDP. Lee (2006), Mozumder and Marathe (2007), Naranpanawa and Bandara (2012) are the significant studies that revealed the energy consumption and GDP growth causality. While the significant results of energy consumption are evaluated on several studies, so far there had been merely a limited number of empirical studies on how energy sector firms consider variables that affect their capital structure decisions. The patterns in which capital structures of energy sector companies are formed assume great importance regarding the sustainability of those companies.

Within the scope of this study, determination of the factors that have an effect on the capital structure of energy sector companies and detection of capital structure theories with which capital structure of those energy companies would

comply are aimed. In this context, a panel data analysis is performed on totally 79 European energy companies operated between the years 2009 - 2012. The study is comprised of 6 sections in terms of determined objectives: In the second section, general information is given on capital structure theories to be tested. The third section provided the related literature review. Data and methodology for the analysis defined in the fourth section. Findings of the analysis are explained in the fifth section. Finally, the conclusion section of the study revealed a general evaluation and a recommendation for similar future studies.

2. Conceptual Framework

A company's capital structure refers to its continuous financial resources (Moyer *et al.,* 2002). Nonetheless, decisions on the capital structure can relate to the abundance of owner's equity and liabilities (Van Horne and Wachowicz, 1995).

As a result of the studies conducted in order to explicate decisions on capital structure, various numbers of capital structure theories have been developed. The Pecking Order and the Trade-off Theories are rendered to loom large over others in terms of their alternative assumptions. Capital structure theories (The Pecking Order and the Trade-off) are applicable for most of the studies focusing on the determinants of capital structure decisions.

2.1 The Trade-off Theory

According to this theory, companies should consider a trade-off between the costs (financial distress and bankruptcy) and benefits (interest tax shield value) of debt finance which would cause an optimum (target) capital structure and estimate advantages and disadvantages of additional debt (Brounen *et al*., 2005). As emphasized by the Trade-off Theory, the optimal capital structure would be determined whenever the net tax advantages of debt financing can balance leverage-relevant costs of bankruptcy and financial distress (Buferna *et al.,* 2005).

The Trade-off Theory suggests maintaining moderate debt levels (Brealey *et al.,* 1995). The Trade-off Theory asserts that the optimal debt ratio is estimated by offsetting the advantages (i.e. interest tax shield) and disadvantages (i.e. cost of financial distress) of debt finance (Bauer, 2004). While leverage rises, the marginal tax shield from each currency unit of extra debt plunges. It is due to the high likelihood that the corporations would be exempt from tax payments because of not having positive taxable incomes. Meanwhile, the expectation for financial distress costs increases along with leverage. Again, the marginal cost of financial distress inevitably has greater significance than the interest tax shield while leverage rises. The optimal debt ratio strikes a balance between the rise in the present value of tax savings from extra debt and the rise in the present value of the financial distress costs (Brounen *et al*., 2005).

2.2 The Pecking Order Theory

According to this theory which is popularized by Myers (1984) and Myers and Majluf (1984), finance policies of companies adhere to a hierarchy of financing sources. Most companies prioritize internal financing in order to maintain dividend disbursement or to finance investment opportunities. It is followed by short-term debt with low-risk and long-term debt with high-risk. Issuance of new equity is considered as the last resort. Corporations tend to minimize the necessity of external funding, in accordance with the Pecking Order Theory of capital structure, by relating growth and profit occasions to their own long-term target dividend payout ratios.

While the Trade-off Theory suggests debt utilization at rather higher rates, the companies would prefer internal equity instead (Beattie *et al*., 2004). Debt level differences are, being independent of predetermined capital structures as ever, contingent upon the need of further debt following the use of equity choice in order to attain new profitable investment opportunities. According to this theory, companies do not aim for target leverage and leverage ratios are realized in compliance with the difference between retained earnings and investments (Daskalakis and Psillaki, 2008; Frydenberg, 2004; Mira and Gracia, 2003). Companies' debt financing requirements are defined by their own debt ratios.

3. Literature Review

Capital structure concept has always been a centre of attraction for the high level of on-going dispute in the field of financial management. The pursuit of the possible existence of a certain debt – equity combination that would maximize firm value and factors that would determine the corporations' optimal capital structure have ever been triggering the frequent debate in the literature on capital structure. A major portion of the literature on capital structure pursues the very essence of interactions among the concept of capital structure and the corporate-specific attributes in developed and developing economies. Most of the studies on capital structure considered manufacturing sector companies. Modern approaches regarding capital structures of companies are based on studies of Modigliani

and Miller. Modigliani and Miller (1958) emphasized that, upon satisfying certain conditions (such as the absence of taxes, transaction costs and information asymmetry problems), the firm value was not based on its capital costs and capital structure. Again, Modigliani and Miller (1963) stated that companies were likely to increase their market values by utilizing tax-shield as they take on debt along with the consideration of tax variable. The study of Miller (1977) included personal taxes into the Modigliani and Miller model besides corporate taxes, under the assumption of corporations with similar effective tax rates.

Jensen and Meckling (1976) defined agency costs, while Myers (1977) described bankruptcy and financial distress costs. These two studies constituted a baseline for the Trade-off Theory. Myers and Majluf (1984) and Myers (1984) assumed an issue of asymmetric information among the managers; who are inside the organization and the investors; who are outside the organization and they developed the Pecking Order Theory.

Karadeniz *et al.* (2009) reported negative relationships between leverage and several other variables such as tangibility of assets, effective tax rates and return on assets of Turkish lodging firms; while the tendency of growth, non-debt tax shields, free cash flows and firm size were not proven to be relevant to leverage.

Following is the list of those studies mostly investigated determinants of capital structure of energy sector companies in Pakistan:

Saeed (2007) examined variables that affect the capital structures of 22 energy sector companies trading at Karachi Stock Exchange in Pakistan between the years 2001 - 2005 by utilizing panel data analysis. The results of the study confirmed the consistency of related companies with both the Trade-off Theory and the Pecking Order Theory.

Ghani and Bukhari (2010) investigated the capital structures of 20 petroleum and natural gas companies operating in Pakistan for the period spanning from 2004 to 2008. Results of this study suggested that energy companies with strong tangible fixed assets would tend to practice efficient securitization and to utilize leverage effect.

Mahvish and Qaisar (2012) observed the capital structures of 5 petroleum and natural gas sector companies operating in Pakistan between the periods of 2005 - 2010 and analyzed their relationship between the market value of the firms. The study concluded that liquidity and size have a positive relationship with leverage while profitability has a negative relationship with leverage.

Syed *et al.* (2012) identified the factors which affect the portion of debt financing of 20 energy sector companies operating in Pakistan for the period of 2006 - 2010 and analyzed capital structure determinants by utilizing panel data analysis. Results of the study indicated a positive relationship between size and firm leverage in favor of the Trade-off Theory and negatively related firm leverage and profitability in favor of the Pecking Order Theory.

Rashid (2013) empirically examined the impacts of uncertainty over companies' leverage decisions by using a sample of 102 energy companies operating in the UK between the years 1981 - 2009. Results of the study suggested that both macroeconomic and company-specific uncertainty have been negative to target leverage of the UK energy sector companies. The results further implied that energy companies' profitability levels largely account for leverage - uncertainty relationship by altering total impacts of uncertainty over leverage. As highly lucrative business companies are likely to increase their own leverage with respect to ascending concept of uncertainty in macroeconomic terms, they become even less prone to company-specific uncertainty.

Pierru *et al.* (2013) empirically observed the financing patterns of contemporary projects on gas pipelines. The results of the study indicated that projects and operations launched within the boundaries of countries with high level of risks tend to indicate less-concentrated equity ownerships and lower levels of debt ratios. Similarly, larger projects have less concentrated ownership of equity which showed that the country's risk has an impact on firms' and projects' capital structure decisions.

4. Econometric Methodology

This study has utilized the statements of accounts of 79 energy companies trading in various European stock markets which are obtained via an internet website, namely, http://investing.businessweek.com. The complete list of those 79 energy companies and their fields of activity are shown below in Table 1.

Table 1. European energy companies

ENERGY COMPANIES	COUNTRY (MARKET)
Afren Plc, Anglo Pacific Group, Bg Group, Bp, Bumi, Cairn Energy, Enquest, Essar Energy, Exillon Energy, Fortune Oil, Fisher&Sons, Genel Energy, Hardy Oil&Gas, Hardy Oil&Gas, Jkx Oil&Gas, Ophir Energy, Premier Oil, Ophir Energy, Salamander Energy, Soco International, Tullow Oil, Salamander Energy, Royal Dutch Shell-A Shs, Jkx Oil&Gas	UK (London)
Det Norske Oljeselskap, Dno International, Frontline Ltd, Norwegian Energy Co, Panoro Energy, Statoil, Frontline Ltd, Hoegh Lng Holdings Ltd,	Norway (Oslo)
Alliance Oil Company, Lundin Petroleum Ab, Tethys Oil	Sweden(Stockholm)
Esso Ste Anonyme Francaise, Maurel Et Prom, Mpi, Total Gabon, Total Sa	France (Paris)
Gaslog, Tsakos Energy Navigation, Navios Maritime Acquisition	(New York)
Eni Spa Erg Spa, Saras Spa	Italy (Borsa Italiana)
Hellenic Petroleum Sa, Motor Oil (Hellas) Sa,	Greece (Athens)
Euronav Sa, Exmar Nv	Belgium (Brussels)
Tupras-Turkiye Petrol Rafine, Turcas Petrol A.S	Turkey(Istanbul)
Repsol Ypf Sa	Spain(Madrid)
Dragon Oil Plc	Ireland (Dublin)
Neste Oil Oyj	Finland (Helsinki)
Omv Ag	Austria (Vienna)
Vopak	Holland (Amsterdam)
Golar Lng Ltd, Stealthgas Inc	(Nasdaq Gs)
Cropenergies Ag	(Xetra)

Source: http://investing.businessweek.com

Table 1 indicates the fact that majority of European energy companies trade at London Stock Exchange in the UK. However, due to its convenient reputation of being a leading financial centre, this fact might often lead to a common misconception that most of those multinational companies are located in the UK. Besides the UK, Oslo Stock Exchange (Norway) and Paris Stock Exchange (France) are among other stock exchanges on which energy companies mostly traded. Within the scope of this study, a panel data analysis is performed on the related data obtained from those 79 energy companies' balance sheet reports and statements of income between the years 2009 - 2012. The total number of observations is 316. Panel data analysis is a method of estimating economic relationships by using cross-sectional time-series data.

In comparison to cross-section and time-series analysis, panel data analysis is likely to reflect relatively more information (Greene, 1997). Upon evaluation of obtainable data, panel data analysis is determined as the most convenient statistical method for the study, as most of the studies on capital structures of companies within the literature utilized this methodology. In light of empirical studies in the literature, the ratio of total debt to total assets is used as the dependent variable; while asset structure, profitability, current ratio and asset turnover ratio are used as the independent variables in panel data analysis. The former studies in the literature that used related variables are shown below in Table 2.

Table 2. The former studies in the literature that used related variables

Gross Debt / Total Assets	Demirhan (2007), Kabakci (2007), Saeed (2007), Ata and Ag (2010), Sayilgan *et al.* (2006), Mahvish and Qaisar (2012), Syed (2012), Sarioglu *et al.* (2013)
Tangible Fixed Assets / Total Assets	Shah and Hijazi (2004), Demirhan (2007), Terim and Kayali (2009), Sayilgan and Uysal (2011), Kiran (2013)
Net Profit / Equity	Demirhan (2007), Kabakci (2007), Sarioglu *et al.* (2013), Terim and Kayali (2009)
Current Assets / Current Liabilities	Demirhan (2007), Ata and Ag (2010), Mahvish and Qaisar (2012)
Net Sales / Equity	-

The ratios of total debt to total assets and / or total debt to equity are commonly used as leverage ratio in the literature. The leverage ratio is utilized as the capital structure variable in the study. Among applicable studies on capital structure, there is not a single study that included Net Sales / Equity data into the analysis. Unlike similar studies, the impact of equity turnover variable on leverage ratio is also examined. The variables to be used in the analysis and their symbols are shown below in Table 3.

Table 3. Variables of the analysis and their calculation

Variable	**Symbol**	**Calculation**
Capital Structure	LEV	Total Debt / Total Assets
Asset Structure	TFA	Tangible Fixed Assets / Total Assets
Return on Equity	ROE	Net Profit / Equity
Liquidity	CAR	Current Assets / Current Liabilities
Turnover	ODH	Net Sales / Equity

In light of the foregoing literature, as the leverage ratio representing the capital structure (in other words, the ratio of total debt to total assets), the Trade-off Theory is considered as dependent variable; while independent variables consisted of the ratio of tangible fixed assets to total assets, return on equity, current ratio and equity turnover in the analysis.

In the study, asset structure variable is determined as the ratio of net tangible fixed assets to total assets. According to the Trade-off Theory, the share of fixed assets and leverage are positively related. Because, companies possessing more fixed assets tend to have more collateral in debt financing (Harris and Raviv, 1990; Myers, 1977; Myers and Majluf, 1984; Williamson, 1988; Frank and Goyal, 2003; Thornhill *et al*., 2004; Akhtar, 2005). In accordance with the Pecking Order Theory, since companies with higher levels of fixed assets would have lower levels of information asymmetry, they are much likely to provide more equity. For the purposes of terms, on the other hand, the share of fixed assets is negatively related with short-term debt and positively related with long-term debt according to the Pecking Order Theory (Feikadis and Rovolis, 2007; Qian *et al*., 2007).

There are dissident opinions in the literature concerning the impacts of profitability of companies on debt financing. The Pecking Order Theory suggests that level of profitability and leverage are negatively related with profitability and leverage; while profitability is positively related with leverage according to the Trade-off Theory, because high profitability level accompanied by high capacity of debt leads to tax-shield utilization. Therefore, the Trade-off Theory acknowledges that level of profitability and financial leverage are positively related. According to the Pecking Order Theory, corporations follow a hierarchical path for financing their operations and they are likely to prefer equity financing instead of debt financing. If investments and dividend disbursements are fixed, profitable companies tend to take on less debt.

In that context, the Pecking Order Theory assumes that leverage and the level of profitability are negatively related

(Myers, 1984; Myers and Majluf, 1984; Krasker, 1986; Narayanan, 1988; Um, 2001; Bontempi, 2002; Benito, 2003; Frank and Goyal, 2003; Frank and Goyal, 2005; Qian *et al*., 2007). In the study, the ratio of net profit to equity is considered as profitability variable. Current ratio (current assets to current liabilities) is utilized as the liquidity variable. Liquidity ratios express companies' ability to repay short-run creditors out of their total cash. According to the Trade-off Theory, an increase in liquidity of companies promotes leverage; while liquidity and leverage are negatively related according to the Pecking Order Theory (Bontempi, 2002).

Equity turnover indicates how well a company utilizes its stockholders' equity in order to generate sales revenue. The higher this ratio, the more efficiently a company is utilizing its equity. It should not be disregarded that low equity turnover would affect equity profitability of companies (Cabuk *et al.*, 2013). In order to reflect originality, unlike similar studies, equity turnover variable is included in the analysis of this study. Thus, the impact of the efficient use of equity on debt financing is tried to be explained. The study considered the ratio of net sales to equity as equity turnover. In the analysis, the following model which happens to be constructed upon examination of similar studies such as Rashid (2013), Syed *et al.* (2012), Mahvish and Qaisar (2012), Saeed (2007) that examined capital structure in energy sector is used:

$$LEV_{i,t} = \alpha + \beta_1.TFA_{i,t} + \beta_2.ROE_{i,t} + \beta_3.CAR_{i,t} + \beta_4.\ ODH_{i,t} + \varepsilon \quad (1)$$

Table 4. Definition of variables of the analysis

Variable		Definition
$LEV_{i,t}$	:	The ratio of total debt of company *i* at time *t* to its total assets
$TFA_{i,t}$	:	The ratio of tangible fixed assets of company *i* at time *t* to its total assets
$ROE_{i,t}$	:	The ratio of net profit of company *i* at time *t* to its equity
$CAR_{i,t}$	:	The ratio of current assets of company *i* at time *t* to its current liabilities
$ODH_{i,t}$	:	The ratio of net sales of company *i* at time *t* to its equity
α	:	Constant term
ε	:	Error term

5. Results

In this section of the study, determinants of capital structures of European energy sector companies are investigated with panel data analysis method. Prior to panel data analysis, descriptive statistics and correlation table for main variables are examined. In this study, Pooled Regression Analysis and Panel Fixed-Effects Method are utilized. Hausman test developed by Hausman (1978) and Hausman – Taylor (1981) is performed in order to determine which method to be chosen (fixed or random effects) to be utilized in the constructed models' solution, and by considering results of related test, utilization of fixed effects method is found to be appropriate. Descriptive statistics for main variables utilized in Panel data analysis are shown below in Table 5.

Table 5. Descriptive statistics for main variables of Panel Data Analysis

	LEV	TFA	ROE	CAR	ODH
Mean	0.551	0.474	0.081	1.822	1.904
Median	0.578	0.444	0.096	1.299	1.012
Maximum	1.077	2.356	1.992	21,61	34.277
Minimum	0.019	0.015	-3.291	0.046	-0.950
Standard Deviation	0.188	0.325	0.341	1.952	2.967
Number of Observation			316		

Source: own calculation

Upon examining the descriptive statistics for main variables, the average value of leverage ratio is revealed as 0.551 which implies a high prevalence of debt compared to owners' equity within capital structure of the companies. Average equity profitability rate is found to be 0.081. Standard deviation values conclude that equity turnover has the highest volatility while leverage ratio has the lowest volatility compared to other main variables.

Relationships between the dependent variable and independent variables are investigated with correlation analysis. Correlation results for the variables are shown below in Table 6.

Table 6. Correlation results for variables of Panel Data Analysis

	LEV	TFA	ROE	CAR	ODH
LEV	1	-	-	-	-
MDV	0.195	1	-	-	-
ROE	-0.110	-0.046	1	-	-
CAR	-0.483	-0.145	0.068	1	-
ODH	0.324	-0.126	0.043	-0.162	1

Source: own calculation

Upon reviewing correlation table above, the highest correlation coefficient is found to be between leverage ratio and current ratio; while the lowest correlation coefficient is found to be between equity turnover and equity profitability. Correlation results for the variables do not indicate any multicollinearity problem. Determinants of capital structure of European energy companies are investigated with Pooled Regression Analysis Method and related results of this analysis are revealed below in Table 7.

Table 7. Pooled Regression Analysis results

Variable	Coefficient	Standard Error	t statistics	Probability
C	0.362	0.102	3.523	0.001
TFA	0.384	0.203	2.034	0.043
ROE	-0.020	0.025	-0.805	0.421
CAR	-0.008	0.005	-2.153	0.032
ODH	0.012	0.002	5.469	0.000
$R^2 = 0.839$ Adjusted $R^2 = 0.782$			F-statistics = 14.839 F-statistics Probability = 0.000 Durbin-Watson statistics = 2.098	

Source: own calculation

Panel analysis indicates that asset structure, current ratio, and equity turnover variables have probability values of 0.043, 0.032 and 0.000, respectively. These variables reveal significant results with a 95% level of confidence. Current ratio negatively affects leverage ratio, while asset structure and equity turnover affect leverage ratio positively. Equity profitability variable does not indicate any statistically significant results. The adjusted R^2 ratio shows that independent variables explain the 83% of the dependent variable. Panel Fixed-Effects Method Estimation Results of Hausman test developed by Hausman (1978) and Hausman-Taylor (1981) are shown below in Table 8.

Table 8. Panel Fixed-Effects Method results

Variable	Coefficient	Standard Error	t statistics	Probability
C	0.472	0.047	9.869	0.000
TFA	0.165	0.075	2.184	0.029
ROE	-0.014	0.026	-0.572	0.567
CAR	-0.017	0.006	-2.591	0.010
ODH	0.015	0.002	5.328	0.000
$R^2 = 0.210$ Adjusted $R^2 = 0.200$ Hausman Test statistics = 27.171 Hausman Test Probability = 0.000			F-statistics = 20.778 F-statistics Probability = 0.000 Durbin-Watson statistics = 1.979	

Source: own calculation

The results of current ratio, asset structure, and equity turnover variables are found to be statistically significant within the analysis. Moreover, F- statistics value that serves as a criterion to determine the over-all significance of the model is also statistically significant. According to Durbin–Watson test results, related estimation value is detected to fall within the interval between D_u and D_l values. Thus, the analysis does not contain autocorrelation. The coefficient of determination in the model is found as $R^2 = 0.210$.

Within the scope of the findings in panel data analysis, upon inspection of coefficients between dependent and independent variables; statistically significant relationships between independent variables such as asset structure, current ratio, and equity turnover and leverage ratio are detected with an exception of the relationship between equity profitability and leverage ratio which is not statistically significant. Asset structure variable positively affects leverage ratio in accordance with results of the analysis. In other words; as the share of fixed assets in total assets increases, leverage also increases. Furthermore, current ratio affects leverage ratio negatively. Therefore, as liquidity of a company increases, its leverage decreases. Consequently, equity turnover positively affects leverage ratio. It means that as equity is used more efficiently, the leverage ratio is also increased.

6. Conclusion

Capital structure that is meticulously managed by today's companies prevents the eradication of the firm value. The main purpose of corporate decisions on capital structure is to maximize the firm value by means of a convenient combination of long-term funding sources; namely, the optimal capital structure which would minimize the corporations' total cost of capital.

The literature on corporations' capital structure decisions is comprised of a large number of studies that aimed to explore the very essence of corporations' financial structure. Although finance literature has some research studies on optimal leverage degree that would yield the highest value concerning shareholders; in general, a model that would explain optimal leverage degree could not be constructed. The most important reason for this is the variability of capital structure decisions in terms of country, sector, company and time. Capital structure, however, unlike the energy concept, is a rather frequently disputable concept of both empirical and theoretical importance in the finance literature. In this context, the patterns in which capital structures of energy sector companies are formed are within the scope of this study.

Therefore, detection of the variables that have impacts on capital structure of European energy companies and determination of capital structure theories with which capital structure of those energy companies would comply become the aim of this study. A panel data analysis on 79 European energy companies that operated between the years 2009 - 2012 is performed with utilization of their financial reports. Upon examination of panel data analysis findings; statistically significant relationships between asset structure, current ratio, equity turnover and leverage ratio are detected. Thus, asset structure positively affects the leverage ratio. In accordance with the Trade-off Theory; the companies' leverage increase as the share of fixed assets in total assets increases. This result is consistent with empirical studies conducted by Mahvish and Quasar (2012) and Ghani and Bukhari (2010).

The current ratio has a negative impact on the leverage ratio. Leverage decreases as liquidity increases in compliance

with the Pecking Order Theory. Equity turnover, however, appears to have a positive impact on the leverage ratio. Therefore, companies with efficient equity utilization would expect to go into debt with more convenient costs commensurate with equity turnover increase. Moreover, equity turnover increase would stem from efficient debt utilization as well as a decrease in the share of equity in total assets. Regardless of the underlying reason, the finding which asserts that equity turnover increase would promote leverage is thought to be supported by the Trade-off Theory. Thereby, efficient equity utilization would be recognized as the elevation of optimal debt levels of related companies and their urge to attain a new debt equilibrium point in compliance with the theory.

Although the literature consists of many studies pertaining capital structure theory, only a limited number of them are performed especially on the energy sector. In that context, results of this study are thought to contribute to the literature accordingly. Future studies to be performed with more data sets and with different analysis methods would contribute to capital structure decisions of energy companies. Furthermore, comparative sector studies would mainly focus on more explicit impacts of sectorial differentiation on capital structure decisions. Furthermore, this study has constituted a significant, although preparatory, correspondence among the capital markets and the corporate management of the companies.

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