

The Determinants of Earnings in Turkey Evidence from Panel Analysis

Azize ESMERAY¹
Murat ESMERAY²

^{1,2}Erciyes University, Turkey, ¹E-mail: azizeesmeray@gmail.com, ²E-mail: mesmeray@erciyes.edu.tr

Abstract Turkish economic growth that had been going on for more than a decade has created a strong economy that is based on high demand for energy. This paper examines the effects of debt, net assets, net sales and capital on firms' profitability in Turkey's energy sector between 2005 and 2015. It is concluded that total debt, capital, net sales has positive effect on earnings. This result illustrate us that companies in energy market use their resources efficiently.

Key words Earnings, energy market, Turkey

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I. Introduction

Firm profitability and its determinants is a well addressed research subject in the field of industrial organization. Modern literature presents two schools of competing models of firm profitability. The structure-conduct-performance (SCP) model assumes that the degree of concentration in an industry determines firm behavior and profitability. A higher concentration permits collusion between firms which can lead to higher profits. Firm effect models argue that differences in firm-level characteristics, such as efficiency level, organizational structure or quality of management, exist, persist and cause differences in profitability. Research on the determinants of firm profitability has focused on the impact of macroeconomic factors such as equity and borrowing levels. There has been a substantial amount of empirical research undertaken in the area of profits, market structure and firm-level effects (Stierwald, 2009).

2. Literature review

Albayrak and Akbulut (2008) study on the profitability of the businesses which are in the industrial and service sectors of Istanbul Stock Exchange. To find out the factors that affect the profitability of the businesses eighteen indicators are chosen. It is aimed to find out which of these indicators are related to profitability. As a result of this survey it is understood that indicators such as liquidity, capital structure, market value, firm size and activity efficiency are the most important criteria that define the profitability.

Korkmaz and Karaca (2014) aim to show relationship between variables of profitability and financial indicators. The results which are found at the end of the study are that businesses should keep their debt in minimum if they want to bring their profitability in a maximum level.

In their study Karadeniz and Iskenderoğlu (2011) analyze the variability that affect the profitability in publicly held tourism businesses. The result of their study show that leverage ratio has negative effect on profitability but net working capital size turnover, asset turnover, market share have positive effect on profitability.

In their study Raheman and Nasr (2007) show the negative relationship not only between the working capital and profitability; but also between the liquidity and profitability in Pakistani businesses. But they find out that the most important liquid measure which affects the profitability is the current ratio. They emphasize that there is a positive relationship between size and profitability.

Delof (2003) studies on the relationship between profitability and working capital management in Belgian non-financial businesses. He finds out a negative relationship between accounts payable and profitability and he says that in order to pay their bills less profitable businesses wait longer.

In his study Malik (2011) aims to find out the factors that affect the profitability in the insurance companies in Pakistan. And he comes to a conclusion that there is no relationship between the age of company and profitability, but a positive relationship between the profitability and size. The study also shows a positive and important relationship between the volume of capital and profitability.

Ukaegbu (2014) aims to find out the relationship between working capital efficiency and profitability in developing economies in Africa. In this study a positive relationship not only between the size of business and profitability but also between inventory turnover and profitability of a business is seen. The study shows that small businesses are less profitable than large businesses.

In his study Okuyan (2013) analyzes the data of 1000 businesses determined by Istanbul Chamber of Industry. He finds out that there is a negative relationship between debt and profitability. He also finds a positive relationship workforce efficiency and level of exports of a business. In addition to these results it is seen that domestic businesses are less profitable than foreign partnership businesses and public limited companies are less profitable than private businesses.

Akbulut (2011) finds a negative relationship between profitability and working capital management. Mahmoud (2006) studies on the relationship between profitability and structure of the business. He finds out that the structure of business has an important role in profitability. The result Show that the relationship between some of independent variables such as size and age of businesses and profitability is weak but the relationship between debt ratio and profitability is strong.

In their study Asimakopoulos *et al.* (2009) find out that there is a positive relationship between profitability and size, sales growth and investment and they find a negative relationship between profitability and leverage and current assets in the non-financial firms in Athens Stock Exchange.

In their study Çakır and Küçükkaplan (2012) aim to find out the effect of working capital management on the profitability of a business. For this aim the data of 122 manufacturing businesses are used. The results Show that there is a negative relationship between profitability and current ratio and leverage ratio which are representative of working capital management. On the other hand there is a positive relationship between profitability and asset turnover, inventory turn and quick ratio.

Almumani (2013) examines the bank's profitability of the Jordanian commercial banks listed in Amman Stock of Exchange (ASE). Almumani (2013) employs descriptive, financial ratios analysis, Pearson correlation analysis, regression analysis, analysis of variance (ANOVA) and the natural logarithm to implicate the results with the hypotheses. He concludes that higher Liquidity may lead to lower profitability but with less significant impact on overall profitability. Heirany *et al.* (2013) examine the impact of corporate governance mechanisms on earnings quality. They conclude that there is a significant relationship between the board independence and earnings quality. Izadinia *et al.* (2014) investigate the relationship between earnings management and social responsibility, with an emphasis on new paradigms of accounting - profit companies listed in Tehran Stock Exchange for the year 2007-2012. They show a negative relationship between earnings management and corporate social responsibility, and about 15% of corporate social responsibility of the variation in the inverse variables is affected by the size of the company, financial and earnings management. ALghusin (2015) investigates the impact of financial leverage, Company's Growth, non-current/total assets ratio, and firm's Size as independent variables on profitability in proxy of Return on Assets ratio (ROA) as dependent variable. The results of the research show that there is a significant effect of the Financial Leverage and Growth on profitability of industrial companies for Amman Stock Exchange.

In this paper, unlike the previous literature, the profit determinants are examined for energy market in Turkey, since the Turkish electricity market is one of the fastest growing in the world, with an average of approx. 9% annual growth in 2010 and 2011. Similar to the electricity market, natural gas consumption in Turkey is growing as well. Natural gas consumption in Turkey reached approx. 46 bcm in 2012 demonstrating an increase of 4.7% compared to the previous year. Natural gas demand is expected to grow by 2.9% annually until 2020 according to Turkish Ministry of Energy and Resources¹.

¹ <http://www.invest.gov.tr/en-US/infocenter/publications/Documents/ENERGY.INDUSTRY.pdf>

3. Data and Methodology

In order to analyze profit determinants in the Turkey energy market, we use a panel data set for five companies (AKENR, AKSEN, AKSUE, AYEN, BMEK, ODAS and ZOREN) which survive between from 2005:Q1 to 2015:Q3 in Borsa Istanbul (BIST). Annual net earnings (after taxes), net assets, net sales, capital and total debt data of companies is obtained from the FINNET database (www.finnet.com.tr).

Researchers who want to answer the question of whether or not series is stationary have tried to gain power by developing new test in the panel studies as illustrated Table 1.

Table 1. IPS-Unit Root Results

Variables	Without Trend		With Trend	
	Statistic	Prob.	Statistic	Prob.
Net earnings	-1.2645	0.18	-1.6348	0.26
d(Net earnings)	-12.3372	0.00	-11.135	0.00
Net assets	-0.52952	0.49	-0.0484	0.63
d(Net assets)	-10.6916	0.00	-10.1501	0.00
Net sales	-1.0858	0.25	-1.8437	0.03
d(Net sales)	-2.5999	0.00	-1.5243	0.06
Capital	-1.5508	0.06	-0.3945	0.34
d(Capital)	-7.6930	0.00	-6.9594	0.00
Total debt	-1.2917	0.72	-1.9000	0.77
d(Total debt)	-11.911	0.00	-11.0467	0.00

IPS results illustrate us that variables are I(1). After the variables have same integration level, we can examine the determinants of profit in energy market by utilizing Panel Least Squares (PLS).

Table 2. Panel Least Squares Results

Dependent Variable: NET EARNINGS				
Sample (adjusted): 2004Q1 2015Q3				
Periods included: 47				
Cross-sections included: 5				
Total panel (unbalanced) observations: 213				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1248663.	12224395	0.102145	0.9188
NET ASSETS	-1.215028	0.401245	-3.028142	0.0029
NET SALES	0.033460	0.034350	0.974078	0.3315
CAPITAL	1.291144	0.399901	3.228662	0.0015
TOTAL DEBT	1.189627	0.400768	2.968365	0.0035
R-squared	0.548231	Mean dependent var	-9141168.	
Adjusted R-squared	0.393829	S.D. dependent var	54469117	
S.E. of regression	42408017	Akaike info criterion	38.18131	
Sum squared resid	2.84E+17	Schwarz criterion	39.04925	
Log likelihood	-4011.309	Hannan-Quinn criter.	38.53207	
F-statistic	3.550671	Durbin-Watson stat	1.219180	
Prob(F-statistic)	0.000000	Mean dependent var	-9141168.	

According to PLS results, total debt has positive effect on the profitability for Turkish companies in the energy markets. On the other hand, capital is also a positive element on net earnings. This result can be interpreted as firm uses capital efficiently. While net assets have negative effect on profitability, net sales has positive effect on profit rates.

4. Conclusions

Turkey has become one of the fastest growing energy markets in the world. Despite the latest monetary policies of Central Bank of Turkey on interest rates which were implemented against to currency risk, Turkish electricity consumption rate are estimated to mount up to 4.5 % annually in parallel with GDP. In this study, we examine the determinants of profit in energy market as a panel for the period 2004:Q1 - 2015:Q4. By utilizing Panel Least Squares technique, we conclude that total debt, capital, net sales has positive effect on earnings. This result illustrate us that companies in energy market use their resources efficiently.

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