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Effects of R&D Costs on Profit of Producers of Oil Productions in Tehran Stock Exchange

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Abstract. In this paper, we survey effects of firm' size, firm' age, capital to endowment, debt to endowment, advertisement cost and R&D cost on profit of producers of oil productions in Tehran stock exchange. We use from data of period 2004-2014 and estimate model with panel method. Results of estimation reveal that capital to endowment, age and R&D cost have positive effect on these firm's profit and firm' size, debt to endowment and advertisement cost have negative effect on our firm's profit.
Keywords. R&D Cost, Oil Productions, Profit, Advertisement Cost.
JEL. Q54, H27, E31.

1. Introduction

Profit is an important variable in economic policies. This variable is a measure, which is used by managers and finance analyzers. Therefore many researches effort to identify effective factors on firm's profit. In firms that produce and sale oil productions, R&D (Research and Development) is so important and affects their profits, because oil industry has so many international trades, therefore using from new technologies will have positive effects on these firms profit. In this paper, we want to survey this hypothesis that, R&D has positive effect on profit of producers of oil productions in Tehran stock exchange.

As second hypothesis, we want to survey effects of advertisement cost on profit of producers of oil productions in Tehran stock exchange. At least we survey effects of some other major factors such as size, age debt and capital on profit of these firms.

At follow, introduction in section 1, literature review in section 2, R&D in section 3, method in section 4 and conclusion in section 5 are revealed.

2. Literature Review

Sadraei & Zabihidan (2012) surveyed effects of R&D on firm's operations in Iran factories. They showed that more R&D will cause to decrease profits in a factory because R&D increase firm's costs more than revenues.

Eriotis (2007) showed that rise in relation of debt to endowment in Greece firms, is caused to decrease in their profit. Verbeek and Debackere (2006) showed that R&D in American firms will cause to profitability of these firms in future.

Cinca, et al (2005) revealed that, there is a meaningful positive relation between size of European firms and their profits.

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Komonen (2002) surveyed effects of firm' sale, labor and stock of capital on profit of firms. He revealed that, labor' cost and firm's sales are so affected on profits of firms.

Loeb (1983) surveyed relation between growth, R&D cost and firm's profit with data of 303 firms at 1971. They showed that there is a negative relation between these factors in short run.

Graham & Frankenberger (2000) surveyed relation between advertisement costs and profitability of American firms in 1985-1996. They showed that advertisement cost has positive effect on profit of firms for 3 years and it's effect decreases duration of time. They revealed that in business firms, effects of advertisement cost on profit are 2 years.

3.R&D

Usually R&D is an important factor on firm's duration in oil industry. Oil industry is a global industry and international trades invite R&D process. R&D has many costs in short run but can leading to more profits in long run, especially in oil industry.

In this paper, we want to survey this hypothesis that, R&D has positive effect on profit of producers of oil productions in Tehran stock exchange.

Advertisement is another factor which is affected on profit of producers of oil productions too. More advertisement about oil productions has costs but will cause to more sale and obviously more profits at least. In this paper, as second hypothesis, we want to survey effects of advertisement cost on profit of producers of oil productions in Tehran stock exchange.

4. Method

In this paper, we use from daily data of period 2004 to 2014 for producers of oil productions in Tehran stock exchange. We collect our data from amar sector of Tehran stock exchange. Our sample is consist of 14 firms and we use from panel method for estimation. Our variables are, ROA (firm's profits), firm's size (number of firm's employers), Age (firm's age), DA (relation of debt to endowment), CA (relation of capital to endowment), AD (advertisement cost) and RD (R&D cost).

We have equation (1) as below:

$$ROA_{it} = \alpha_0 + \alpha_1 size_{it} + \alpha_2 Age_{it} + \alpha_3 DA_{it} + \alpha_4 CA_{it} + \alpha_5 RD_{it} + \alpha_6 AD_{it} \quad (1)$$

We use from F-Limer test and it shows our model is panel. Then Hasman test is used and reveals that there is a fixed effect between our data. Estimation results with panel fixed model are showed in Table (1).

Table 1. *Estimation Results*

Variable	Coefficient	t-static
Size	-1.08	2.18
Age	0.055	1.98
DA	-0.348	2.22
CA	0.175	2.91
AD	-0.072	2.35
RD	0.047	2.46

Note: $R^2 = 0.87$

As table (1), firm's size has negative meaningful effect on firm's profit because rise in it's employers is caused to increase costs. Relation of capital to endowment has positive and meaningful effect on firm's profit. Debt has negative effect on firm's profit because firms with more debt can not pay their loans and heir profit will decrease.

R&D cost has positive and meaningful effect on firm's profit but advertisement cost has negative effect on profit of these firms. Firm's age effect on firm's profit is positive because old firms are so known and consumers can confidence to them and buy their products more, which is caused, that these firms be profitable.

5. Conclusion

In this paper, we want to survey effects of effective factors such as age, size, debt, capital, advertisement cost and R&D cost on profits of producers of oil productions in Tehran stock exchange. We use from daily data of period 2004-2014 and panel model to estimate. Estimation results reveal that R&D cost has positive and meaningful effect on oil firms but advertisement cost has a negative effect on profit of these firms.

Therefore we can offer to oil firms that allocate some money to R&D process which will cause to positive profits for these firms.

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