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An investigation on the effects of the profit quality structures on Iranian Co. capital cost

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A B S T R A C T

This paper evaluates the effect of profit quality structures on capital cost and the primary objective is to disclose the effect to investors. The research methodology is practical based on its goal and its research design is Expose-Facto. The study selects 36 Iranian firms as statistical sample over the period 2006-2010 from some Iranian firms and the study selects post performances from their financial reports. The statistical parameters, statistical plots, multiple-variables linear-regression and correlation analysis are implemented for data analysis. The results show that the estimated model could explain 22 percentages of variable changes. This means that there is a weak linear relationship between cost of capital and profit persistence, profit predictability and other variables. Based on the regression estimation we concluded that there was a direct relationship between earnings persistence and cost of capital and there was a reverse relationship between earnings predictability and cost of capital.

1. Introduction

During the past few years, we have witnessed a number of corporate scandals created the public perception that accounting information provided in a corporate culture fixated on stock price performance could not be trusted. While media attention has concentrated on a few high-profile cases of fraudulent accounting schemes, e.g., at Enron and WorldCom, recent empirical studies imply that the practice of earnings management is prevalent among publicly traded firms. The findings show that firms manage earnings to influence stock market perceptions, to increase management's compensation, to reduce the likelihood of violating lending agreements, and to prevent regulatory intervention. In this paper, we perform an investigation on the role of earnings management in affecting a firms' cost of capital. Given the relative importance of a firm's cost of capital for a variety of corporate decisions, from determining the hurdle rate for investment projects to influencing the composition of the firm's capital structure, it is surprising that the link between cost of capital and earnings management has received little attention. To date, the theoretical literature has primarily

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concentrated on detecting circumstances in which earnings manipulation emerges in a single firm setting. While this literature has provided many useful insights, its applicability to cost of capital issues is limited. In a single-firm setting, firm-specific risk is priced, because there are no alternative securities, which could permit investors to diversify away idiosyncratic risk. It is unclear, however, to what extent accounting information could reduce non-diversifiable risks in a multi-asset economy.

In this paper, we take up this task, and present a simple but rigorous model of earnings manipulation with multiple firms whose cash flows are correlated. Important features of our model are risk adverse investors, myopic managers, and resource costs of manipulation. Managers are concerned more on short-term stock prices because of their compensation contract. The increasingly and rapid changes on economic relationship could lead to higher competition for commercial and industrial activities. All of firms need to on-time and suitable investment for their survival and these firms prepare financial reports for their purposes. One of the most important parameters on these reports is accounting profit. The investors and other user financial report users have pay special attention for profit quality. Experimental effects of profit are implemented instead of profit quality. Schipper and Vincent (2003) considered four criteria for profit quality evaluation including profit trend, relationship between profit and liquidity, quality profit specifications and decision-making.

Francis at el. (2004) introduced two categories for profit quality including accounting and market criteria. The “Profit quality” is a useful criterion for decision-making and it is profit used with decision-maker from financial reports. This profit influences on the investor risk and has a reverse relationship with cost of capital. As profit quality increases, the uncertainty to profit decreases and investor risk rate decreases too. In this paper, we evaluated the relation between profit quality structure with cost of capital or minimum of the investor rate of return. We evaluated “earnings persistence” and “earnings predictability” as Profit Quality stricture elements.

Bellovary at el. (2005) reported that profit quality could be described with one of four criteria including profit trend, relationship between liquid and commitment profit, conceptual specifications and decision-making criteria. Frankel at el. (2009) evaluated relationship between predictability of past profits with shares return and profit sustainability and reported that the profit changes could not predict shares returns. Ghadiri Moghaddam (2011) studied earning components information content and earning persistence. Jeon et al. (2004) studied the relationship between persistence of abnormal earnings and usefulness of accounting information in hotel companies.

2. Research hypotheses

The proposed study of this paper considers the following main hypotheses,

Main hypothesis: There is a relationship between earning quality structure with cost of capital.

The main hypothesis of this paper is divided into the following sub-hypotheses

1) There is a relationship between earning persistence with cost of capital.

2) There is a relationship between earning predictability with cost of capital.

3. Research methodology

The research methodology is practical based on its goal and its research design is Expose-Facto. The study selects 36 Iranian firms as statistical sample over the period 2006-2010 from some Iranian firms and the study selects post performances from their financial reports. The statistical parameters, statistical plots, multiple-variables linear-regression and correlation analysis are implemented for data analysis. We use descriptive methods such as statistical parameters computation. The multi variables

linear-regression has been used for variables relation estimation. The statistical analysis was performed with SPSS17 & Rviews7 packages. Our research model generally formulated as follows:

$$y = f(x_1, x_2, x_3, x_4, x_5),$$

where x_1= persistence, x_2= Predictability, x_3=firms size, x_4=BM and x_5=Beta. This relationship is estimated with multi-variables linear- regression as follows:

$$Y = a_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5$$

The dependent variable (y) in this relationship is the cost of capital, which is computed as follows,

$$y = r_{PEG} = \sqrt{\frac{eps_2 - eps_1}{p_0}}$$

where eps_1 is the next –year earns per share, eps_2 is the second consecutive year's earn per share and p_0 is current stock price. Earning persistence is computed as follows,

$$x_{j,t} = \emptyset_{0,j} + \emptyset_{1,j} x_{j,t-1} + V_{j,t}$$

where $\emptyset_{1,j}$ is estimated correlation estimated,$x_{j,t}$ is current year earn before abnormal items to shares number and persistence equals$-\emptyset_{1,j}$. Earning predictability is computed as follows,

$$x_{j,t} = \emptyset_{0,j} + \emptyset_{1,j} x_{j,t-1} + V_{j,t}$$

where earning predictability is $\sqrt{\partial^2(V_j)}$. The firm size is firm value logarithm; Beta is computed Beta with Rahavard package and BM is log of firm s book-to-market value ratio.

4. Findings

As mentioned earlier, we gathered data about our statistical community in this section summarized research results. On the first descriptive results about research variables was described. On the second the pre-assumptions research hypothesis were evaluated. Finally, the relationship between variables were measured.

4.1 Descriptive results

Table 1 demonstrates some basic statistics on data.

Table 1

Variables Descriptions

Variables	Minimum	Maximum	Average	Medium	Std. Deviation	Skewkness	Kurtosis
Cost of Capital	0	1267.09	299.6	259.3	212.54	1.351	2.803
Adjust Cost of Capital	3.24	7.14	5.27	5.6	0.70	-0.443	0.231
Earning Persistence	0.03	1.74	0.75	0.80	0.65	0.297	0.369
Earning Predictability	91.832	1654.43	1217.6	1165.5	338.98	0.231	-1.514
Size	24.03	30.62	26.47	26.2	1.36	0.617	-0.195
Book Value to Market value	-9.55	0.93	-0.97	-0.76	1.6	-3.326	14.384
Beta	-26.3	95.45	1.44	0.18	8.85	8.530	91.132

As we can observe from the results of Table 1, there are seven research variables including cost of capital, adjusted cost of capital, earning persistence, earning predictability, size, book value to market value and Beta. The cost of capital was at least 0 and the average and maximum were 299.6 and 1267, respectively. These parameters for adjusted cost of capital are 1.48, 5.27and 7.14. Minimum, average and maximum earning persistence are 0.03, 0.75 and 1.74, respectively.

Minimum, average and maximum of earning predictability are 91.832, 1217.6 and 1654.43, respectively. Minimum, average and maximum of size are 24.03, 26.47 and 30.62, respectively. Minimum, average and maximum of Book Value to Market value are -9.55,-0.97 and 0.93, respectively. Minimum, average and maximum of Beta are -26.3, 1.44 and 95.45, respectively. As we said before this research, method is descriptive. Therefore, we evaluated model pre-assumption with descriptive statistical methods.

4.2. Normality test for variables

We have used skewness and kurtosis standard coefficients given in Table 1 for normality test. These coefficients were 1.351 and 2.808, respectively and for cost of capital variable, that there were greater than 0.1, which means this variable is not normally distributed. We substituted these variables with logarithm quantities. The skewness and kurtosis coefficient are -0.444 and 0.231, respectively and this means that dependent variable is normally distributed.

4.3. Normality test for residuals

The next is to test whether regression estimation of residuals is normally distributed or not. The residuals are the differences between actual and estimated values of dependent variables. Table 2 demonstrates details of statistics associated with residuals.

Table 2

Residuals parameters

Number	Average	Medium	Standard Deviation	Skewers	Kurtosis
104	0	0.14	0.64	-0.576	0.476

As we observe from the results of Table 2, the skewness and kurtosis standard coefficients are -0.0576 and 0.0476, respectively and they are less than 0.1. Therefore, we can conclude that residuals are normally distributed.

4.4. Stability of variance

The third pre-assumption of multi-variable Linear-regression is variance stability. For this reason, we evaluated residuals plot and realized that there was not any certain trend and, therefore, variance stability has been accepted.

4.5. Linear in-dependency variables

We have evaluated linear independency variables with correlation analysis. As we showed on Table3, the correlation coefficient among independent variables is near to zero, then these variable have linear independency. We have summarized linear in-dependency analysis on Table 3. As we can see from the results of Table 3, all of correlations coefficients are near to zero, therefore, linear independency variables is accepted.

Table 3
Linear Independency Variables

	Earning Persistence	Earning Predictability	Size	BM	Beta
Earning Persistence	1	0.000	-0.044	-0.80	0.129
Earning Predictability	0.000	1	0.011	-0.70	-0.133
Size	-0.044	0.011	1	-0.153	-0.101
BM	-0.080	-0.070	-0.153	1	0.70
Beta	0.129	-0.133	-0.101	0.70	1

4.6 Variables relationship Analysis

As we showed the based on previous section analysis all of the multi-variables linear-regression are established. Then we used multi-variables linear-regression for variables relation analysis. The regression estimation was summarized on Table 4 as follows,

Table 4
Regression Estimation

variable	Beta	Error
constant	12.21878	1.337141
Earning Persistence	0.132459	0.100227
Earning Predictability	-0.000147	0.000198
Size	-0.245076	0.049460
BM	-0.007310	0.39953
Beta	-0.006131	0.006661

Table 4 summarizes the results of regression analysis and the results are summarized as follows,

Y=12.21878 + 0.132459 Persistence - 0.000147 Predict - 0.245076 Size - 0.007310BM - 0.006131Beta

Our results show that the determination coefficient is 0.219 and then the linear relation between variables is low, because the determination coefficient is near zero. If we delete the constant from regression equation and analyze other parameters regression, relationship among all variables can be summarized in Table 5 as follows,

Table 5
Variable Relation Type

Variable	Coefficient	Relation Type
Earning Persistence	0.132459	Direct
Earning Predictability	-0.000147	Inverse
Size	-0.245076	Inverse
BM	-0.007310	Inverse
Beta	-0.006131	Inverse

As we can observe from the results of Table 5, except profit stability, other variables have inversed relationship with dependent variable or cost of capital.

5. Conclusion

As we have already stated, our research method was descriptive and we studied all statistical community. We used multi-variable linear- regression for variables relationship evaluation. Our results showed that the estimated model could explain 22 percentage of variable changes because

determination coefficient was 0.219. This means that there was a weak linear relationship between cost of capital and profit persistence, profit predictability and other variables. In summary, we have

1. There is a direct relationship between cost of capital and profit persistence.
2. There is an inverse relationship between cost of capital and profit predictability, market to book value, size and Beta.

Our results are consistent with Fransis at el. (2004) where they found that there was an inverse relationship between profit quality and cost of capital. In addition, Ghorban at el. (2011) found that there was an inverse relationship between cost of capital with profit predictability and stability. Bolo (2007), Bolo at el. (2009) found that there is a direct relation between profit stability and cost of capital. Tayefe (2007) found that there was an inverse relationship between predictability with cost of capital and finally another research results indicated that there was a reverse relationship between predictability and cost of capital.

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