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# Study of Quality and Sustainability of Earnings in Corporate Life Cycles

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**Abstract**: Following the asymmetry phenomenon of information between managers and other users, the financial statements, and in particular investors in accounting profit, as one of the most important financial information gets special importance as an indicator for decision making. In this article we investigate the profit quality and constancy of the life cycle of companies listed in Tehran Stock Exchange. Considering the ratio of cumulative profit and also adopting financing policy, we divide the sample companies into three groups: stages of birth, growth and matured. Having evaluated the profit quality of sample companies by using accruals and multi-variables regression, we also test the profit constancy. This research is applied in respect of goal, and it is descriptive-correlation in respect of data collection method. The research results show that the average of profit quality unlike hypotheses does not have significant difference with each other in those companies which are at birth stage. Considering next three hypotheses, the general conclusion indicates increase order of profit constancy of those companies which are at birth stage compared to other companies. The research results show that the exchange companies have somehow different reactions with regard to the life cycle compared to the profit quality and constancy.

**Keywords:** Quality, Sustainability of Earnings, Corporate Life Cycles

## INTRODUCTION

On the one hand investment development results in attraction of people's investments and leading them into economic productive sectors, and on the other hand considering the investors' directing (based on the risk and return), the investments would lead to those industries which have more profit and less risk. This would ultimately lead to the optimal allocation of resources. Considering the events occurring in today's' world, the countries need to find appropriate solutions for better use of their available possibilities and wealth for solving their economic problems. In this respect, one of the important solutions is to develop investment.

Profit figure is identified and calculated according to accruals. Based on commitment approach in the event of realization of revenues and occurrence of

expenses, we can report the profit. Since in commitment base, identification of revenues and expenses are not necessarily accompanied with receiving and paying cash, and the predictions and estimations are also used in calculating the profit, when taking decision this question arises that to what extent this figure can be trusted. Responding to this question is important in this respect that taking inaccurate decision due to inadequate and inexact information results in sharing resources unjustifiably .

Moreover, the life cycle theory is based on this assumption that economic enterprises like all other living creatures have life cycle too. These living systems in each stage of their life cycle show specific behavioral patterns of themselves in order to dominate periodical problems confronting with or to transfer them into the next cycles. Adizes [1] attributes five stages for the life cycle (birth or introduction, growth, maturity, stagnation and bankruptcy). In this article three stages of them including birth, growth, and maturity are studied.

Considering the mentioned cases, in addition to considering the profit quality and constancy issues, the decision makers and users of statements are required to enter life cycle as another indicator in their decision makings. Hence, they can observe companies' reaction in the life cycle towards profit quality and constancy. By performing present research, some evidences are obtained for investigating the relationship between the profit quality and constancy in the life cycle.

The profit quality theory was firstly raised by financial analyzers and exchange agents. Because they felt that the reported profit does not show the ratio of profit power of a company as they envisage. They found out that predicting future profits based on reported results due to numerous weak points in measuring accounting information is a difficult work.

Profit constancy is one of the criteria and structures of profit quality. Stability or constancy deals with this issue that to what extent a specific innovation remains in realizing future profits. Lipe [2] defines the constancy as autocorrelation in the profit as: "Regardless of the magnitude and signs of profit innovation, the constancy deals with the issue that to what extent does the innovations of new era join the permanent part of the time series of profit?" The profit which is not due to unusual or unexpected activities has more constancy. In other word, sustainability and repeatability of profit is defined as profit constancy. Financial analyzers and investors do not consider accounting profit figure as the only determinant indicator in determining future cash flows. But what is very important for them is the constancy and repeatability of profit.

Chang and Shiva [3] say that the profit management generally results in decreasing the power of predicting profit. They ultimately conclude that their research does not strongly support opportunistic profit management. Iatridis [4] research results show that performing International Financial Reporting Standards (IFRS) increases the quality of accounting figures and decreases the freedom of action of profit management. This is because of on time identification of the loss,

and hence it results in reporting accounting information that has more relationship with the value. Huang et al. [5] investigate potential effect of artificial and real smoothing on the value of company. Their research results show that increase of artificial (real) smoothing of profit results in decrease (increase) of the value of company. They declare that the companies can increase informing the company's profit by real smoothing and reduce costs of company representation.

Safarzadeh [6] finds out that the indicator offered for shareholders' equities has significant and negative relationship with criteria of profit constancy, profit smoothing, and profit conservatism, and it has significant and positive relationship with criterion of on time profit. But it does not have significant relationship with the criteria of accruals quality, profit predictability and profit value relationship.

Piri et al. [7] having concentrated on the life cycle and profitability issue show that adding the life cycle variable increases the predicting ability of profitability model more than 40 % compared to its primary mode.

## MATERIALS AND METHODS

The subject of this research is to investigate the companies listed in Tehran stock exchange within the period of 2006 to 2011. By using descriptive statistical methods such as mean, average, variance, standard deviation and default regression tests, Watson-Durbin, factor analysis, Kolmogorov-Smirnov test, Pearson's correlation coefficient and panel analysis of data for normality assessment, and for testing the hypotheses, the F and T tests in linear and multi-variables regression are analyzed by using SPSS software.

### Research Model

Model (1)

**Earnings Quality = α + β(Life cycle of corporations) + β Cont Var +**

Model 2:

**Earnings Persistence = α + β(Life cycle of corporations) β Cont Var +$\varepsilon$**

In order to investigate the profit quality and constancy in the companies' life cycle, the profit quality is calculated by Jones' justified model (1991). For this purpose, firstly the accruals are calculated according to regression models 1 to 4, and the profit quality is obtained in model 5. The profit quality and constancy in the companies' life cycle are ultimately investigated in model 6.

Model (1)

$$\frac{\boldsymbol{TCA_{j,t}}}{\boldsymbol{A_{j,t-1}}} = \boldsymbol{\alpha_0}\left(\frac{\mathbf{1}}{\boldsymbol{A_{j,t-1}}}\right) + \boldsymbol{\alpha_1}\left(\frac{\boldsymbol{\Delta REV_{j,t}} - \boldsymbol{\Delta AR_{j,t}}}{\boldsymbol{A_{j,t-1}}}\right) + \boldsymbol{\alpha_2}\left(\frac{\boldsymbol{PPE_{j,t}}}{\boldsymbol{A_{j,t-1}}}\right) + \boldsymbol{\alpha_2 ROA} + \boldsymbol{\varepsilon_{j,t}}$$

$\mathrm{TCA_{j,t}}$ : All the commitments, $\mathrm{A_{j,t-1}}$: all of the company's assets at the beginning of the year, $\Delta\mathrm{REV_{j,t}}$: change in the sale revenue,$\Delta\mathrm{AR_{j,t}}$: change in the receivable accounts, $\mathrm{PPE_{j,t}}$ :tangible constant assets, ROA :return on assets.

Model (2)

$$\overline{TAC_{j,t}} = Earnings_{j,t} - CashFlows_{j,t}$$

Model (3)

$$\mathbf{E_t(Acc_{it})} = \frac{\sum_{k=1}^{3} \mathbf{Acc_{it-k}}}{\sum_{k=1}^{3} \mathbf{Sales_{it-k}}} \times \mathbf{Sales_{it}}$$

$\mathrm{E}_t(\mathrm{Acc}_{\mathrm{it}})$ : predicting accruals of the company i in the period t.

$\mathrm{Sales}_{\mathrm{it-k}}$: is the company's sale and k is time period 3 years before this desired year.

To calculate discretionary accruals which is the profit quality indicator and has reverse relationship with it, the predicted accruals should be subtracted from accruals of this year:

Model (4)

**DAC=$\overline{TAC_{j,t}}$-$\mathbf{E_t(Acc_{it})}$**

DAC are discretionary accruals, and $\overline{\mathrm{TAC}_{\mathrm{j,t}}}$ are real accruals.

**Profit Quality:**

The following multi-variables regression model 4 is used to calculate the profit quality:

Model (5)

$$\mathbf{EQ_{j,t} = \beta_0 + \beta_1 DAC_{j,t} + \beta_2 ROA_{j,t} + \beta_3 Size_{j,t} + \beta_4 BM_{j,t}}$$

$\mathrm{ROA}_{\mathrm{j,t}}$ : Revenue on assets is measured through dividing the profit before unusual and unexpected items by total assets at the beginning of the year. $\mathrm{Size}_{\mathrm{j,t}}$: is the company's size which is the logarithm of total assets, and$\mathrm{BM}_{\mathrm{j,t}}$: is the ratio of book value to market value of shareholders' equities at the end of the year.

**Profit Constancy:**

The multi-variables regression 6 will be used to investigate the relationship between profit quality and profit constancy. On this basis, it is expected that those companies which have stronger relationship between investment and net profit the current profit coefficient ($\alpha_6$) is greater, indicating that the profit of such companies are more constant.

Model (6)

$$\left(\frac{\mathrm{E_{it+1}}}{\mathrm{TA_{t-1}}}\right) = \alpha_0 + \alpha_1\left(\frac{\mathrm{E_{it}}}{\mathrm{TA_{t-1}}}\right) + \alpha_2\mathrm{EQ_{it}} + \alpha_3\mathrm{R} + \alpha_4\mathrm{ACCRUALS} + \alpha_5\mathrm{DIV} + \alpha_6\mathrm{EQ_{it}}\left(\frac{\mathrm{E_{it}}}{\mathrm{TA_{t-1}}}\right) + \alpha_7\mathrm{R}\left(\frac{\mathrm{E_{it}}}{\mathrm{TA_{t-1}}}\right) + \alpha_8\mathrm{ACCRUALT}\left(\frac{\mathrm{E_{it}}}{\mathrm{TA_{t-1}}}\right) + \alpha_9\mathrm{DIV}\left(\frac{\mathrm{E_{it}}}{\mathrm{TA_{t-1}}}\right) + \varepsilon_{\mathrm{it}}$$

According to model (5) accruals is the value of commitment items obtained by the difference between accounting profit and its cash component. R is the stock return extractable from exchange databases, and DIV is the paid stock profit that is given number (1) provided that it is paid, and it is given number (0) provided that it is not paid.

Classification of companies into birth, growth and maturity: based on the deciles ranking, the companies are classified and distinguished into first decile (birth stage), second decile (growth stage), and third decile (maturity stage) [8].

Control Variables: the size of companies is equal to the logarithm of total assets of the companies. Financial leverage of them is equal to the average of total debts added to the assets and profitability ratio is equal to the average of net profit to the average of total assets.

## RESULTS

### A) Profit Quality

The ratio of profit quality and various stages of life cycle (birth, growth, and maturity) have significant difference with each other. At first we calculate the profit quality coefficients by factor analysis coefficients.

**Table 1.** Factor Analysis Coefficients of Profit Quality

| Item | Component |
|---|---|
| **DAC** | .361 |
| **Return on Assets** | .917 |
| **Company's Size** | .339 |
| **BM Ratio** | .772 |

The results obtained from the statistical tests of first research hypothesis.

**Table 2:** Analysis Results for Research Hypothesis 1

| Life cycle | Profit Quality Average | Standard Deviation | Minimum | Maximum | Rank |
|---|---|---|---|---|---|
| Stage of Birth | 197511.8290 | 539710.49756 | -101363 | 3155122 | 1 |
| Stage of Growth | 184889.5959 | 414337.25118 | -87181.0 | 2050300 | 2 |
| Stage of Maturity | 8702.0575 | 693676.63965 | -1521564 | 2032470 | 3 |
| **F=1.133 , p=0.327** | | | | | |

With regard to the above table, the profit quality average in the stage of maturity had the lowest value with the mean of 8702.06, and the standard deviation of 693676.6, and it had the next rank in the stage of growth with the mean of 184889.6, and the standard deviation of 414337.2, and it had the highest value in the stage of birth with the mean of 197511.8, and the standard deviation of 539710.5. But considering the result of analysis of variance performed at 95% assurance level, these averages did not have significant statistical difference with each other. In other word, three minor hypotheses or the first hypothesis of research are not confirmed, and there is not a significant relationship between the profit quality and the companies' life cycle. But considering the above statistical

table, those companies which are at birth stage have a higher profit quality compared to those companies which are matured.

### B) Profit Constancy

**Table 3.** Items Used In the Model for Investigating the Relationship between Profit Constancy and the Companies' Birth Stage

| **Dependent variable: profit constancy by using the above model in the companies' life cycle in the birth stage** | | | | |
|---|---|---|---|---|
| **Variable** | Coefficients | Standard Deviation | t-statistic | P |
| **(Constant)** | -.161 | .335 | -.480 | .633 |
| **(E/TA)** | 1.616 | 1.055 | 1.532 | .130 |
| **EQ** | -3.39E-005 | .001 | -.038 | .970 |
| **R** | -.001 | .001 | -1.267 | .209 |
| **ACC** | 1.35E-007 | .000 | .768 | .445 |
| **DIV** | -5.25E-008 | .000 | -.218 | .828 |
| **EQ*E/TA** | .005 | .013 | .349 | .728 |
| **R*E/TA** | .011 | .004 | 2.462 | .016 |
| **ACC*(E/TA)** | -1.30E-006 | .000 | -.696 | .489 |
| **DIV*(E/TA)** | -4.55E-007 | .000 | -.186 | .853 |
| **Size of Company** | .030 | .054 | .560 | .577 |
| **Financial Leverage** | .019 | .052 | .359 | .721 |
| **Profitability** | -1.180 | 1.248 | -.946 | .348 |
| | | | | |
| **Determinant Coefficient** | 0.307 | Probability of F-statistic | | 0.005 |
| **Justified Determinant Coefficient** | 0.192 | Durbin-Watson Statistic | | 1.864 |

The probability value (or significance level F) is 0.005. Since this value is lower than 0.05, therefore the null hypothesis i.e. the relationship between two variables is confirmed at 95 percent assurance level. It means that there is a significant model. In other word, there is a significant relationship between profit constancy and the companies' life cycle in the birth stage. The ratio of determinant coefficient is equal to 0.307; meaning that 30.7 percent of the changes of dependent variable are declared by control and independent variables. This determinant coefficient value practically is a medium value. The Durbin-Watson statistic value is equal to 1.86 indicating lack of autocorrelation (confirmation of another one of the model defaults).

How to judge is as follows that provided that the t value is located at rejection zone, the null hypothesis is rejected. Hence, as it is observed in the above table in those companies which are at birth stage, the t statistic value for intercept is equal to -0.161 indicating failure to reject the null hypothesis for intercept.

**Table 4.** Items Used In the Model for Investigating the Relationship between Profit Constancy and the Companies' Growth Stage

| **Dependent variable: profit constancy by using the above model in the companies' life cycle in the growth stage** | | | | |
|---|---|---|---|---|
| **Variable** | Coefficients | Standard Deviation | t-statistic | P |
| **(Constant)** | -.630 | .773 | -.816 | .417 |
| **(E/TA)** | -.223 | 1.434 | -.155 | .877 |
| **EQ** | .000 | .002 | .125 | .901 |
| **R** | .001 | .001 | .805 | .423 |
| **ACC** | 2.32E-007 | .000 | .662 | .510 |
| **DIV** | 7.29E-007 | .000 | .716 | .476 |
| **EQ*E/TA** | -.002 | .035 | -.060 | .952 |
| **R*E/TA** | .006 | .008 | .773 | .442 |
| **ACC*(E/TA)** | -3.66E-007 | .000 | -.102 | .919 |
| **DIV*(E/TA)** | -4.45E-006 | .000 | -.722 | .473 |
| **Size of Company** | .126 | .132 | .959 | .340 |
| **Financial Leverage** | .006 | .113 | .057 | .955 |
| **Profitability** | .329 | 1.240 | .265 | .792 |
| | | | | |
| **Determinant Coefficient** | 0.070 | Probability of F-statistic | | 0.932 |
| **Justified Determinant Coefficient** | -0.083 | Durbin-Watson Statistic | | 2.1 |

The probability value (or significance level F) is 0.932. Since this value is higher than 0.05, therefore the null hypothesis i.e. the relationship between two variables is confirmed at 95 percent assurance level. It means that there is not a significant model. In other word, there is not a significant relationship between profit constancy and the companies' growth stage. The ratio of determinant coefficient is equal to 0.07; meaning that 7 percent of the changes of dependent variable are declared by control and independent variables. This determinant coefficient value practically is a low value. The Durbin-Watson statistic value is equal to 2.1 indicating lack of autocorrelation (confirmation of another one of the model defaults). How to judge is as follows that provided that the t value is located at rejection zone, the null hypothesis is rejected. Hence, as it is observed in the above table in those companies which are at birth stage, the t statistic for intercept is equal to -0.816 indicating failure to reject the null hypothesis for intercept.

**Table 5.** Items Used In the Model for Investigating the Relationship between Profit Constancy and the Companies' Maturity Stage

| **Dependent variable: profit constancy by using the above model in the companies' life cycle in the maturity stage** | | | | |
|---|---|---|---|---|
| **Variable** | Coefficients | Standard Deviation | t-statistic | P |

| | | | | |
|---|---|---|---|---|
| **(Constant)** | -.829 | .329 | -.518 | .43 |
| **(E/TA)** | -.994 | .639 | -1.556 | .124 |
| **EQ** | .000 | .001 | .266 | .791 |
| **R** | -.001 | .001 | -1.016 | .313 |
| **ACC** | 1.63E-007 | .000 | .728 | .469 |
| **DIV** | -5.28E-007 | .000 | -2.473 | .016 |
| **EQ*E/TA** | .003 | .003 | .882 | .381 |
| **R*E/TA** | .005 | .003 | 1.533 | .130 |
| **ACC*(E/TA)** | -2.46E-007 | .000 | -.261 | .794 |
| **DIV*(E/TA)** | 2.56E-006 | .000 | 3.531 | .001 |
| **Size of Company** | .121 | .056 | 2.144 | .035 |
| **Financial Leverage** | .142 | .022 | 6.512 | .000 |
| **Profitability** | 1.202 | .775 | 1.550 | .126 |
| | | | | |
| **Determinant Coefficient** | 0.497 | Probability of F-statistic | | 0.001 |
| **Justified Determinant Coefficient** | 0.414 | Durbin-Watson Statistic | | 1.768 |

The probability value (or significance level F) is 0.001. Since this value is lower than 0.05, therefore the null hypothesis i.e. the relationship between two variables is confirmed at 95 percent assurance level. It means that there is a significant model. In other word, there is a significant relationship between profit constancy and the companies' maturity stage. The ratio of determinant coefficient is equal to 0.497; meaning that 49.7 percent of the changes of dependent variable are declared by control and independent variables. This determinant coefficient value practically is a medium value. The Durbin-Watson statistic value is equal to 1.76 indicating lack of autocorrelation.

How to judge is as follows that provided that the t value is located at rejection zone, the null hypothesis is rejected. Hence, as it is observed in the above table in those companies which are at birth stage, the t statistic for intercept is equal to -0.518 indicating failure to reject the null hypothesis for intercept.

**Table 6:** Manner of Relationship between Profit Constancy And the Companies' Life Cycle Stage

| Life Cycle | Ratio of Profit Constancy | Rank |
|---|---|---|
| Stage of Birth | 0.005 | 1 |
| Stage of Growth | -0.002 | 2 |
| Stage of Maturity | 0.003 | 3 |

Considering the model offered for obtaining the ratio of profit constancy or variable coefficient of current profit in regression equation for each one of the life cycle stages, this ratio of constancy was investigated and compared in the above table. With regard to it, the highest profit constancy is related to the stage of birth

and after it the stage of maturity and it is located at the lowest position of growth stage. Considering the statistical investigations of these three minor hypotheses or the second research hypothesis, it should be stated that the profit constancy has significant relationship with the companies' life cycle in the stages of growth and maturity. But no significant relationship was found between the profit constancy and the stage of maturity, while the ratio of profit constancy is at the highest ratio in the stage of birth.

## DISCUSSION

With regard to the role of profit reported in decision making of the users of financial statements, its quality and constancy in the companies' life cycle requires special attention by investors and other users of financial statements. The increase of profit constancy as one of the structures of profit quality due to time series properties will result in increase of profit quality, and this feature can also inform users of financial statements and investors in particular about the real value of the commercial unit, and it can expand investment market.

The results obtained from research tests show:

The overall results of research about the first three hypotheses show that there is a difference between the profit quality averages of the report of three groups. This point is symmetric with the issue that the companies have special behavioral patterns in the life cycle, and it is consistent with Piri's et al. [7] researches. Although the research results correspond with Iatridis's research [4] with regard to the existence of profit quality in these three groups of the companies, since the difference among three groups of companies is not a significant difference, actually the first, second, and third hypotheses indicating the difference among the profit quality of these groups are not confirmed.

### Profit Constancy

Concerning calculation of profit constancy, the research results show that the relationship between profit quality and constancy indicates correspondence with the results of Chang and Shiva [3] and Safarzadeh [6]. But since the relationship between profit quality and constancy is higher in the stage of birth compared to other groups, all three hypotheses are rejected. Moreover, the research results correspond with life cycle theory in respect of the point that the companies have specific behavioral patterns in the life cycle.

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