The Analysis and Evaluation of Profitability in Accepted Companies in Tehran Stock Exchange with ROA and Roe Approaches in Industrial Companies

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Abstract

Return on Equity (ROE) is one of the most important factors influencing the investor's decisions. By analysing the financial statements, the financial analysts are always trying to evaluate or identify the future profitability changes of the companies. In this study, the relation between ROE of industries entered into Tehran Stock Exchange was investigated. Herein the significant role of industry is expressed through operating and financial drives. The study data is taken from a sample consisting of four industries including 70 companies entered into Tehran stock Exchange during a 7-year time duration (from March 21st, 2012 to March 20th, 2019). Results indicate that there is a significant relation between ROE and its elements as per the industry and future profitability.

Introduction

A major part of the academic studies has presented evidences regarding the benefits of profitability components to predict the future profitability. In the beginning, these studies were empirical, but this approach has been evolved as a structural approach based on the analysis of financial statements for valuation of the capital [1]. Relative profitability of a company in the industry as a measure of competitiveness reflects the company's commercial strengths and weaknesses and influences the stock return's reflection to the industry news. Relative profitability is influenced by the firm's operating decisions connected with the decisions of other firms of the industry. Therefore, this relational interdependence among the competing firms influences the cash flows of the firms and affects stock return behaviour of the companies. Thus, the stock returns of the firms with operational strengths have less sensitivity to industry news compared to weak companies [2].

Comparing the financial ratios of the firms with average ratios of industry is a common method for analysing the performance of a company. It has long been recognized that the financial ratios of the companies, which are a member of an industry, are delineated to that industry's averages due to competitive forces. This concept is based on the assumption that averages of the industry show a type of optimal operational structure. Accordingly, the financial analysts view the industry average as a good criterion to judge a firm (Palpo et al., 2020). Present research aims at presenting strong empirical evidences about usefulness of including the information related to the industry to improve anticipation of profitability levels.

Relevant Literature

Amor Tapia and Fernandez (2017) [1] studied the average relative effect (ROE) of industry in anticipating the firm's future profitability. The empirical studies required for this hypothesis show that profitability of a company in a competitive environment lead to return and tendency of profitability toward average. The companies with higher profitability attract the attention of other competitors and the newcomers cause reduction of profitability. Therefore, in two levels of high profitability and low profitability, average values of the (ROE) are more unstable and the profitability changes are more too. A firm research process has been created in the strategic management; the purpose of this type of research is to discover the importance of firm's specific impacts on industry and vice versa, which is measured by various profitability formulas and has led to establishment of definitive results. Although, the previous evidences have been partly distorted due to characteristics of statistical techniques and diversity of independent variables such as years, countries, industries and firms included in an industry to determine these effects, they have proved the unquestioned role of the industry's impact on the firm's profitability. Kordastani and Babhitaripur (2016) [2] studied the impact of relative profitability of the firms on sensitivity of stock returns to industry news. As expected, the results obtained using the average returns of firms of the industry as a criterion for industry news showed that there is a reverse relationship among relative profitability of a firm and sensitivity of stock returns to industry news. This relationship can be interpreted using the competitiveness concept of industry’s firms. The firms active in an industry have competitive strategies which create a relationship between operational decisions of the firms and thus, the cash flows of the firms are influenced by decisions of other companies in the firm and a dependence is created in stock returns of each industry's firms; the relationship can be interpreted using the competitiveness concept of industry's firms. The firms active in an industry have competitive strategies which create a relationship between operational decisions of the firms and thus, the cash flows of the firms are influenced by decisions of other companies in the firm and a dependence is created in stock returns of each industry's firms; the relationships among profitability, stock returns and future profitability have been partly related to the industry.

In Cornet competition model, bipolar monopoly (an industry where two companies produce the same product) has been investigated. Thomas and Zhang (2018) [5], studied the overreaction to information transfer inside the industry. Namazi and Rostami (2016) [6] studied and analysed the relationship between the stock returns rate and financial ratios. The results obtained from evaluating all of the companies and studying the industries separately showed that there is a significant relationship among the liquidity ratios, efficiency ratios, performance ratios, profitability ratios and market ratios with stock returns rate.

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In level of the whole firms, the liquidity ratios, efficiency ratios and market ratios and in-group of different industries, liquidity and profitability ratios have high correlation coefficients. Soliman (2014) [7] used the Adjusted DuPont analysis based on type of the industry, to predict the future profitability. The conducted research emphasises the analysis of financial statements using DuPont ratio in predicting the future profitability of the firms. This article has studied whether the averages of profit margin (PM) and asset turnover operating (ATO) go back to values of economy level or the industry average is a better criterion. In addition, it has been investigated whether applying the DuPont analysis using industry criteria will improve the future ROE predictions or not. Dichev et al. (2019) [8] examined that correlation analysis between relative profitability variable of a firm with other variables show that the firms with more profitability compared to their other competitors in the industry, are larger and have a lower ratio of book value to market value and a lower level of financial advantage. The firms with a higher level of profitability are expected to have a greater capital gain compared to their rivals in industry; in other words, more investors are expected to invest in their stocks (According to findings of Zhang, 2006; Biddle et al., 2019) [9,16]. Since the initial studies by Maguire (2016), Schmalensee (2016), Rumelt (2017)[10-12] until today, several factors have been mentioned as the reasons for industry’s impact. Following this initial study, other articles have also focused on operating profitability aimed at determining the relationship among market value of ROE components and predicting the future profitability. Despite the idea that profitability of a firm should mainly originated from the operating activities, we should know that the financial activities also play a role in profitability in a broader criterion.

Research Hypotheses

The research hypotheses are presented as follows:

1. Relative profitability condition of the firms in industry has a significant relationship with firm’s next year profitability.
2. Components of ROE (net return on operating assets, financial leverage, surplus of asset returns compared to financial costs) have a significant relationship with the firm’s next year profitability.

Research Design

This research has attempted to study the relationship among predicting the next year’s levels (ROE) considering the firm’s relative position of returns on equity (ROE) in the industry for the companies listed in Tehran stock exchange. In the first section, the variables are examined individually and the relationship among them is not considered. In this section, the central and dispersion indexes are calculated to obtain a general image of the studied population. Then, appropriate parametric and non-parametric tests are selected for the bivariate analysis, considering the type of the variables and their relationships in terms of dependence and independence. In this part, since all of the research variables have a rank scale of multi-valued type, so the appropriate test for determining independency and dependency of the variables is Pearson’s correlation test. Finally, data panel (model fitting) will be performed for the third chapter and multivariate analysis. The statistical data analysis in this research has been done using the Eviews Software.

Research population and sample

Population of this research includes all of the firms present in Tehran Stock Exchange Organization from the beginning of 2012 to the end of 2019 and the model presented in Table (1) has been used for sample selection. In this research, 70 firms or 490 years of firm are selected using the systematic elimination sampling method.

Research variables

Dependent variable

Dependent variable of this research includes:

a. Next year’s returns on equity (ROE,

b. Returns on equity Calculation Method:

ROE= Net Income / Share Holders Equity

Independent variable

SPINDU index (SPINDU). SPINDU is the firm’s ROE minus the Industry’s average value of ROE per country and year, deflected by the standard deviation of industry ROE.

Control variable

i. The current returns on equity

ii. Current year’s RNOA: RNOA is Return on Operating Assets (Operating Income/Net Operating Assets)

ROE relationship can be broke into the following:

ROE = ROA + (FLEV.SPREAD)

FLEV: FLEV is Financial Leverage (Net Financial Obligations/Book value of common equity).

Spread: SPREAD is the difference between RNOA and Net Borrowing Cost (Net Financial Expense/Net Financial Obligations)

Size of the Company: previous researches show that size of the company may affect the performance. Size of the company is calculated through natural logarithm of the assets.

Table 1: Selection Process of Research Sample Firms.

| Description | Number |
|-------------|--------|
| Number of the companies which have entered the Stock Exchange within the research time domain | 592 |
| Number of the companies which have got out of the Stock Exchange within the research time domain | 79 |
| Number of the companies which have changed their fiscal year in time domain of the research | 98 |
| Number of the companies which have changed their fiscal year in time domain of the research | 110 |
| Number of the companies which have entered the Stock Exchange within the research time domain | 47 |
| Number of the companies which have entered the Stock Exchange within the research time domain | 522 |
| Number of the companies which have entered the Stock Exchange within the research time domain | 70 |

Regression Models of the Research

Hypothesis test model 1

\[ ROE_{t+1} = \alpha_0 + \alpha_1 ROE_t + \alpha_2 (SPINDU)_t + \alpha_3 SIZE_t + \epsilon_{t+1} \]  

Hypothesis test model 2

\[ ROE_{t+1} = \alpha_0 + \alpha_1 RNOA_t + \alpha_2 (FLEV)_t (SPREAD)_t + \alpha_3 SPINDU_t + \alpha_4 SIZE_t + \epsilon_{t+1} \]

Research Data Analysis

Descriptive statistics

Descriptive statistics includes mean, median, and standard deviation, minimum, maximum, Skewness and kurtosis for the variables studied in this research presented in Table (2). Normality of the remains of the regression model is one of the regression hypotheses, which show the validity of regression tests. Further, distribution normality of dependent variables was studied using the Jarque-Bera Test. Normality of dependent variables leads to normality of the Model’s remainders. Thus, normality of the dependent variable is required to be controlled before estimating the parameters and in case of absence of this condition, a suitable solution must be adopted to normalize them (including transferring them). The results from Jarque-Bera Test is presented in

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Table 2: Descriptive Statistics of Research Variables.

| Variables | Mean   | Median | Maximum | Minimum | Std. Dev | Skewness | Kurtosis |
|-----------|--------|--------|---------|---------|----------|----------|----------|
| ROE       | 36.848 | 29.875 | 85.415  | 10.472  | 18.375   | 0.789    | 2.583    |
| SIZE      | 5.316  | 5.348  | 7.067   | 3.367   | 0.715    | -0.325   | 2.986    |
| LEV.SPREAD| -144.014 | 1.717 | 118.845 | -15922  | 872.5    | -13.307  | 224.495  |
| RNOA      | 20.659 | 12.659 | 99.000  | 0.000   | 23.347   | 1.893    | 6.356    |
| SPINDNU   | 3.69   | 0.026  | 3.477   | -21.211 | 1        | -19.42   | 415.252  |

Table 3: Dependent Variable Normality Test of the Research.

| Jarque-Bera Test | Probability |
|------------------|-------------|
| Statistic        | 54.3        |

Table 4: Descriptive Statistics of Dependent Variable after Normalization.

| Variables | Mean   | Median | Maximum | Minimum | Std. Dev | Skewness | Kurtosis | Jarque-Bera Test |
|-----------|--------|--------|---------|---------|----------|----------|----------|------------------|
| ROE(i+1)  | 53.755 | 54.005 | 195.072 | 58.63   | 40.995   | 0.079    | 3.002    | 0.096            |

Testing the Hypotheses

The reasons for selecting the statistical method: Since there are, more than one type of independent and control variables, panel or pooled regression model is used to study the influence of this variable on dependent variable. In other words, panel or pooled regression is used considering the significance level of Limter test, in order to study the relationship between independent and dependent variables. In this test, when the significance level is smaller than 0.05, panel (pooled) regression is selected to fit the model. The panel fit itself has two forms of random effect and fixed effect. Considering the Hausman test, random or fixed fitting is used. In this test, random fit is used whenever the significance level is higher than 0.1. F Limter Test and Fit of the Models in terms of Industry: According to the econometric literature of panel data, before estimating the model, it is required to be tested using the F Limter data homogeneity test statistic and as a result, using the pooled data estimation method. The results from F test statistic imply the significance of using the pooled data method instead of panel method. The results from this test have been presented in the following table. First Model of F Limter Test: Different tests are used to determine the type of the model applied in pooled data. The test results from determining model of the first hypothesis have been summarized in Table (5). Therefore, the research model will be tested using the pooled regression method. The results from regression model test of the first hypothesis have been presented in Table (6). The model estimation results using the pooled regression model shows that an increase in ROE variable or its increase has an effect on profitability, because significance level for this variable has been obtained using the T statistic which is larger than 0.05. Therefore, in level of 0.05, this variable affects the profitability of the company. Increase in SIZE variable or its decrease has no impact on profitability, because the significance level for this variable has been obtained by T statistic which is larger than 0.05. The Durbin-Watson statistic amount is placed within range of 1.5 to 2.5, namely the errors have no correlation in the model.

Table 5: The Test Results from Significance of Fixed Effects versus the Accumulate Least Squares Method for the Research Model.

| Results      | Significance | Statistic | Industry | Test | Hypothesis |
|--------------|--------------|-----------|----------|------|------------|
| Pool model   | 0.42         | 1.0007    | Industry1|      |            |
| Pool model   | 0.98         | 0.186     | Industry2|      |            |
| Pool model   | 0.78         | 0.53      | Industry3|      |            |
| Pool model   | 0.99         | 0.084     | Industry4| Pooled| First hypothesis |

Table 6: Model Estimation Results of First Hypothesis.

| Variable                  | Industry(1) | Industry(2) | Industry(3) | Industry(4) |
|---------------------------|-------------|-------------|-------------|-------------|
| C                         | -28.878     | 67.323      | 55.301      | 18.636      |
| ROE                       | 0.463*      | 0.618*      | 0.919*      | 0.934*      |
| SPINDU                    | 335.554*    | 436.513*    | 671.815*    | 663.380*    |
| SIZE                      | -5.309      | -7.159      | -9.025      | -2.015      |
| R2                        | 0.46        | 0.606       | 0.987       | 0.926       |
| F Statistic               | 43.53       | 132.49      | 537.12      | 602.07      |
| Durbin-Watson statistic   | 2           | 2.05        | 1.7         | 1.93        |

Table 7: The Significance Test Results of Fixed Effects versus the Accumulate Least Squares Method for the Research Model.

| Results | Significance | Statistic | Industry | Test | Hypothesis |
|---------|--------------|-----------|----------|------|------------|
| Pool model | 0.509     | 0.88      | Industry1|      |            |
| Pool model | 0.98      | 0.15      | Industry2|      |            |
| Pool model | 0.82      | 0.46      | Industry3|      |            |
| Pool model | 0.99      | 0.069     | Industry4| Pooled| Second hypothesis |

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The aim of this research was to estimate next year’s profitability, considering the relative profitability condition of the firms for the industry. The results imply that both hypotheses have been proved. To estimate the investment returns, the information content resulted by last year and current year’s profitability of the research can be used, while by arrival of profitability average index of the industry, determination coefficient of future profitability prediction is increased. The underlying idea of this conclusion is clear too, because investment returns is affected by industry’s structure too. Industry supports the distinctiveness of the product, which leads to competition. On the other hand, absence of desirable structure results in decrease in profitability. Results of this research are consistent with the research conducted by Amor Tapia and Fernandez (2017). By considering the relative condition of returns on equity to the industry in their research, they attempted to improve the firm’s next year returns on equity estimation, the results of which are consistent with the results of the first variable. They also presented evidences on impacts of first level stimuli (operation factor, financial factor) and second level stimuli (profit margin, asset turnover rate, financial leverage and return of the difference among net returns of the operating assets and net cost of borrowing) based on the industry, in estimating the future profitability which are consistent with results of the second hypothesis. Among the other similar researches consistent with present research results from their research showed that declaring the interests of a company include level stimuli (profit margin, asset turnover rate, financial leverage and return of the difference among net returns of the operating assets and net cost of borrowing) based on the industry, in estimating the future profitability which are consistent with results of the first variable. They also presented evidences on impacts of first level stimuli (operation factor, financial factor) and second level stimuli (profit margin, asset turnover rate, financial leverage and return of the difference among net returns of the operating assets and net cost of borrowing) based on the industry, in estimating the future profitability which are consistent with results of the second hypothesis. Among the other similar researches consistent with present research results from their research showed that declaring the interests of a company include level stimuli (profit margin, asset turnover rate, financial leverage and return of the difference among net returns of the operating assets and net cost of borrowing) based on the industry, in estimating the future profitability which are consistent with results of the first variable. They also presented evidences on impacts of first level stimuli (operation factor, financial factor) and second level stimuli (profit margin, asset turnover rate, financial leverage and return of the difference among net returns of the operating assets and net cost of borrowing) based on the industry, in estimating the future profitability which are consistent with results of the second hypothesis.

Discussions and Conclusion

Results of this research have important implications for the investors, financial analysts and other users of financial statements, because they can achieve higher competitiveness, considering the industry-related information with simple methods. The firms can also, take a step forward by determining their own profitability position and condition in the related industry, toward improving the future profitability and eventually, gaining capital. In addition, results of this research are applied to evaluate advantages of the divided financial statements based on operating and financial activities.

### Table 8: Model Estimation Results of the Second Hypothesis.

| Variable | Industry(1) | Industry(2) | Industry(3) | Industry(4) |
|----------|-------------|-------------|-------------|-------------|
| C        | 35.949      | 49.208      | 49.442      | 17.891      |
| NROA     | 9.909       | -0.696      | 0.545       | -0.01       |
| LEVSPREAD| -4.902      | 0.253       | -0.229      | 0           |
| SPINDU   | 332.549*    | 440.703*    | 669.250*    | 663.571*    |
| SIZE     | -3.105      | -3.141      | -9.072      | -1.929      |
| R2       | 0.47        | 0.609       | 0.91        | 0.926       |
| F Statistic | 22.09       | 66.32       | 266.92      | 259.04*     |
| Durbin-Watson statistic | 2          | 2.06        | 1.68        | 1.94        |

*Significance in 95% level

Industry (1): cement, lime, plaster, non-metallic minerals of industry, (2): foods except sugar loaf and sugar, and sugar loaf and sugar in the industry, (3): Chemicals and pharmaceutical substances, industry, (4): textiles

### References

1. Amor Tapia, Borja T (2017) Tascón Fernández, Marta. (2017) Estimation of future levels and changes in profitability: The effect of the relative position of the firm in its industry and the operating-financing disaggregation. Spanish Accounting Review 17(1): 30-46.
2. Kordestani Gh, Bakhtiarpour M (2016) Investigating the Impacts of Relative Profitability of the Companies on Sensitivity of Stock Returns in Industry News. Accounting Information Journal, (4th year), No. 15: 7-32.
3. Ijadinia N, Tayebi SK, Keshif AA (2015) Determination of Operating Profit Power and Its Changes in Explaining and Predicting the Stock Returns; a case study of Tehran Stock Exchange Market. Accounting Knowledge 3(9): 7-32.
4. Hao S, Jin Q, Zhang G (2019) Relative firm profitability and stock return sensitivity to industry-level news. The Accounting Review 86 (4): 1321-1347.
5. Thomas J, Zhang F (2018) Overreaction to intra-industry information transfers. Journal of Accounting Research 46 (4): 909-940.
6. Namazi M, Rostami N (2016) Investigating the Relationship Among Financial Ratios and Stock Returns Rate of the Companies Accepted in Tehran Stock Exchange. Accounting and Auditing Evaluations 44.
7. Soliman TM (2014) Using industry-adjusted DuPont analysis to predict future profitability.
8. Dechow P, Hutton A, Sloan R (2019) An empirical assessment of the residual income valuation model. Journal of Accounting and Economics 26: 1-34.
9. Zhang G (2020) Accounting information, capital investment decisions, and equity valuation. Theory and empirical implications. Journal of Accounting Research 38(2): 271-295.
10. Mager RP (2018) Industry-wide commonalities in earnings. Journal of Accounting Research 12(2): 270-287.
11. Schmalensee R (2017) Do markets differ much. American Economic Review 75(3): 41-351.
12. Rumelt RP (2019) How much does industry matter? Strategic Management Journal 12(3): 167-185.
13. Palepu KG, PM Healy, VL Bernard (2020) Business Analysis and Valuation. South Western College Publishing.
14. Biddle G, Chen P, Zhang G (2019) when capital follows profitability: Nonlinear residual income dynamics. Review of Accounting Studies 6(2-3): 229-265.
15. Dechow P, Hutton A, Sloan R (2019) An empirical assessment of the residual income valuation model. Journal of Accounting and Economics 26: 1-34.

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