



THE EFFECT OF CAPITAL STRUCTURE AND AUDIT QUALITY ON FINANCIAL PERFORMANCE WITH THE MODERATING ROLE OF ECONOMIC INDICATORS OF COMPANIES ADMITTED TO THE TEHRAN STOCK EXCHANGE

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Abstract

The current research aims to investigate the effect of capital structure and audit quality on financial performance with the moderating role of economic indicators of companies admitted to the Tehran Stock Exchange. For this purpose, a sample consisting of 182 companies admitted to the Tehran Stock Exchange was analyzed between 2011 and 2020. The multivariable regression and partial least squares method were used to test the hypotheses. The results showed that capital structure has a negative and significant effect on financial performance. In addition, the type of auditor has a negative and significant effect on the company's financial performance but the auditor's expertise did not affect the company's performance. In addition, economic indicators do not have a moderating role in the relationship between capital structure and financial performance. Economic indicators significantly affect the relationship between audit expertise and financial performance but economic indicators did not significantly affect the relationship between audit type and financial performance.

Keywords: capital structure - audit quality - financial performance - economic indicators

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Introduction

In recent years, there has been an increasing discussion about capital structure, the mechanism of influence of this structure, and macroeconomic factors on the companies' financial performance between different countries (Gamaini, 2015). Changes in commercial growth rates and the resulting results are the basis of many decisions inside and outside the company. Due to the role of the stock exchange in the financial system of our country, the efficiency and development of the capital market depend on the activeness of this institution in the country (Onya and Okagbob 2015).

The value of auditing increases due to the

sufficient motivation of companies for profit management because auditing reduces management's opportunistic motivation in financial statements (Meto et al., 2016). Various research has shown that companies with large and quality auditors have lower profit management than companies with small auditing institutions (Azizgerd and Fekori 2014). In addition, based on the various research, a strong and efficient audit committee with internal and independent audits increases the quality of the audit, helps the management in improving the management of the organization with useful recommendations, and increases the level of accountability to the stakeholders (Jobadeh 2015).

Profit quality is one of the important features of financial reports that affect the optimal allocation

of resources because profit is one of the main inputs of investors' and analysts' evaluation models. Efficient markets and financial institutions are one of the characteristics of developed countries, which have an important role in the country's economy and are the basis for the country's economic growth and development. Tehran Stock Exchange is the main pillar of the capital market in the country, which can accelerate this growth and development in addition to equipping stagnant savings in the country and pushing them towards production in the required sectors. Macroeconomic factors including exchange rate, inflation, and interest are factors that can

directly or indirectly affect manufacturing companies and enterprises. Many micro and macroeconomic factors affect the stock market and companies admitted to the stock exchange. Therefore, it is necessary to examine the factors affecting the stock returns of companies listed on the stock exchange and determine and measure the type of relationship and the effect of each of these variables on the country's capital market. This research seeks to answer this question: does the capital structure and audit quality affect financial performance with the moderating role of economic indicators of companies admitted to the Tehran Stock Exchange? The conceptual model of the research is shown in Figure 1.

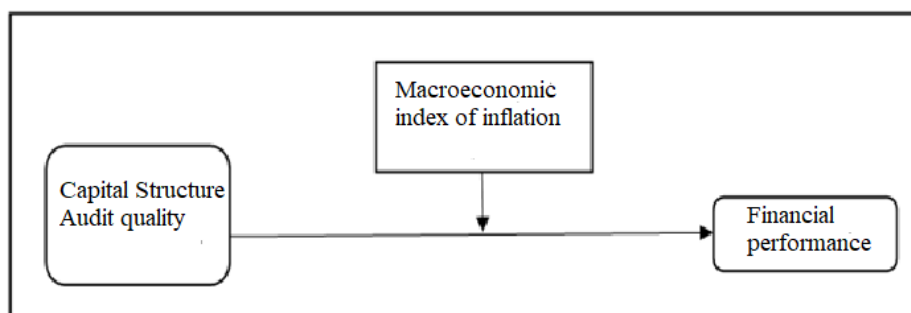


Figure 1: Conceptual model of the research

Research method

This research is applied in terms of its purpose. The research statistical population includes all the companies admitted to the Tehran Stock Exchange. According to the disclosure of the stock exchange organization, all 536 companies admitted to Tehran Stock Exchange are on the Kodal website. The criteria and conditions for selecting the sample are as follows:

- Their trading symbol should not be removed from the stock market during the studied years of 2011 to 2020 and their financial year ends on March 29 (continuous and stable activity in the capital market).
- The studied companies should not have changed their financial year and activity during the desired periods (homogeneity of the financial year and activity during the study period).
- The required financial information should be available, especially the notes accompanying the financial statements.
- The studied company should be continuously active during the research period and its shares have been traded and

the trading break should not be more than six months.

- Insurance companies, banks, investment, and financial-monetary intermediation were deleted from society due to the difference in the nature of the activity of such companies.

After applying the mentioned conditions and restrictions, 182 companies from the statistical population were selected to perform the tests. The research period is 10 consecutive years; therefore, the number of years of the company is 1820. The following regression model was used to measure the first hypothesis of the research:

$$ROA_{it} = \beta_0 + \beta_1 DEBT_{it} + \beta_2 Economic\ Growth_{it} + \beta_3 Inflation\ Rate_{it} + \beta_4 Exchange\ Rate_{it} + \beta_5 Interest\ Rate_{it} + \beta_6 Economic\ Growth_{it} * DEBT_{it} + \beta_7 Inflation\ Rate_{it} * DEBT_{it} + \beta_8 Exchange\ Rate_{it} * DEBT_{it} + \beta_9 Interest\ Rate_{it} * DEBT_{it} + \beta_{10} Size_{it} + \beta_{11} Age_{it} + \varepsilon_{it}$$

The following regression model was used to measure the second hypothesis of the research:

$$ROA_{it} = \beta_0 + \beta_1 Qaudit_{it} + \beta_2 Audit\ Financial_{it} + \beta_3 Economic\ Growth_{it} + \beta_4 Inflation\ Rate_{it} + \beta_5 Exchange\ Rate_{it} + \beta_6 Interest\ Rate_{it} + \beta_7 Economic\ Growth_{it} * Qaudit_{it} + \beta_8 Inflation\ Rate_{it} * Qaudit_{it} + \beta_9 Exchange\ Rate_{it} * Qaudit_{it} +$$

$$\beta_{10}\text{Interest Rate}_{it} * \text{Qaudit}_{it} + \beta_{11}\text{Economic Growth}_{it} * \text{Audit Finanacial}_{it} + \beta_{12}\text{Inflation Rate}_{it} * \text{Audit Finanacial}_{it} + \beta_{13}\text{Exchange Rate}_{it} * \text{Audit Finanacial}_{it} + \beta_{14}\text{Interest Rate}_{it} * \text{Audit Finanacial}_{it} + \beta_{15}\text{Size}_{it} + \beta_{16}\text{Age}_{it} + \varepsilon_{it}$$

where i represents cross-sectional effects and t represents time effects.

Variables

Modulating variables

Four criteria (inflation rate, interest rate, exchange rate, and economic growth) have been used to measure economic indicators according to the research of Zaranejad and Motamedi (2013), Moghadam and Sezavar (2014), Baghomian et al. (2015), Shekarkhah and Ghasedi Dizji (2015).

Independent variables

- Capital structure (DEBT): It is equal to the ratio of liabilities to assets
- Audit quality (AUDIT): Three criteria of auditor type and auditor expertise are used to measure audit quality
- The type of auditor (Qaudit): It is a two-dimensional variable. If the company has been examined by the audit organization, the number is one, otherwise, zero.

- The expertise of the auditor (Financial Audit): It is a two-dimensional variable. If the auditor has a degree in auditing, the number is one, otherwise (accounting, financial management), the number is zero.

Dependent variable

- Financial performance (ROA)
- The ratio of net profit to total assets is used to measure financial performance.
- Control variables
- Company size (Size): It is equal to the natural logarithm of total assets
- Company Age (AGE): It is equal to the number of years of the company's activity

This research data has been extracted from the website of the Tehran Stock Exchange and also from Rahavard Novin software. The final collected data is analyzed using the STATA econometric software.

Results

It is necessary to be familiar with the descriptive statistics related to the variables to examine the general characteristics of the variables and their detailed analysis. Table (1) shows the descriptive statistics of the data related to the variables used in the research.

Table 1, descriptive statistics of research variables

| variable | Mean | Maximum | Minimum | Standard deviation | Skewness | Skewness |
|-------------------|--------|---------|---------|--------------------|----------|----------|
| Company age | 19.005 | 53 | 1 | 9.342 | 1.200 | 4.355 |
| Company size | 14.405 | 20.768 | 10.166 | 1.604 | 0.846 | 4.121 |
| Capital structure | 0.561 | 1.938 | 0.031 | 0.211 | 0.353 | 4.782 |
| Economic growth | 0.033 | 0.166 | -0.077 | 0.083 | 0.221 | 1.587 |
| Inflation rate | 24.16 | 41.2 | 9 | 11.463 | -0.033 | 1.442 |
| Interest rate | 18.95 | 23 | 15.25 | 2.076 | 0.120 | 2.714 |
| Exchange rate | 0.223 | 1.793 | 0.833 | 0.676 | 1.018 | 3.729 |
| Asset return | 0.132 | 0.705 | -0.581 | 0.148 | 0.479 | 4.296 |

Table 2- Stationarity (Hadri) test for research variables

| Variable | statistical test | significance | result |
|-------------------|------------------|--------------|------------|
| Auditor type | 6.547 | 0.000 | stationary |
| Company age | 13.347 | 0.000 | stationary |
| company size | 15.764 | 0.000 | stationary |
| Capital Structure | 8.500 | 0.000 | stationary |
| Economic Growth | -40,739 | 0.000 | stationary |
| Inflation | -5.687 | 0.000 | stationary |
| Interest rate | 38.807 | 0.000 | stationary |
| exchange rate | 56.193 | 0.000 | stationary |
| Auditor expertise | 10.581 | 0.000 | stationary |
| return on assets | 12.791 | 0.000 | |

As observed in Table 2, the significance level of all variables is less than 5% and it indicates the stationarity of the variables.

The Shapiro-Wilk was used to check the normality of the research variables.

Table 3, results of normal distribution test

| Variable | Statistic test | Significance level | Result |
|-------------------|----------------|--------------------|-----------------------------|
| Auditor type | 3.621 | 0.000 | Without normal distribution |
| Company age | 11.723 | 0.000 | Without normal distribution |
| company size | 9.724 | 0.000 | With normal distribution |
| Capital Structure | 7.744 | 0.000 | Without normal distribution |
| Economic Growth | 10.470 | 0.000 | Without normal distribution |
| Inflation | 11.241 | 0.000 | Without normal distribution |
| Interest rate | 8.357 | 0.000 | Without normal distribution |
| exchange rate | 13.588 | 0.000 | Without normal distribution |
| Auditor expertise | 7.612 | 0.000 | Without normal distribution |
| return on assets | 9.168 | 0.000 | Without normal distribution |

According to the test results, the significance level of all variables is less than 5%. Therefore, they do not have a normal distribution.

According to the central limit theorem, there is no need to establish the normality assumption because the number of observations is more than 30.

Table 4, the results of the F-limer (Chow) and Hausman test

| Model | Limer test statistics | Significance level | Result |
|---------|-----------------------|--------------------|------------------------------------|
| Model 1 | 0.64 | 0.999 | Integrated data |
| Model 2 | 12.35 | 0.000 | Panel data |
| Model | Hausman test | Significance level | Result |
| Model 1 | - | | |
| Model 2 | 124.62 | 0.000 | Fixed effects of width from origin |

According to Table 3, the significance level of the F-limer test in all models (except the third model) is less than 5%. Therefore, the panel data approach is accepted instead of the integrated data approach. In addition, the significance test level of all models is less than 5%. Therefore, fixed effects of width from the origin are accepted versus random effects.

The variance homoscedasticity in error values
The statistical assumptions of this test are as follows.

The null hypothesis (H0): the variance of the error values is the same.

The alternative hypothesis (H1): the variance of the error values is not the same.

Table 5- Results of variance heteroscedasticity test (Breusoch-Pagan-Godfrey)

| Research models | Test statistics | significance level | Result |
|-----------------|-----------------|--------------------|-----------------------------|
| Model 1 | 2.801 | 0.002 | variance heteroscedasticity |
| Model 2 | 2.538 | 0.005 | variance heteroscedasticity |

As observed in Table 4, the significance level of the Breusch-Pagan-Godfrey test in all four models is less than 5% and indicates the variance heteroscedasticity in the disturbance sentences. This problem was solved in the final estimation of the models (by weighting the data through the gls command).

Hypothesis testing

Hypothesis 1

H0: Economic indicators do not have a moderating role in the relationship between capital structure and financial performance.

H1: Economic indicators have a moderating role in the relationship between capital structure and financial performance.

Table 6- Final Estimation of regression model 1

| Variables | coefficients | standard deviation coefficients | z statistic | significance level |
|-------------------------------------|--------------|---------------------------------|-------------|--------------------|
| Capital Structure | -0.070 | 0.105 | -0.66 | 0.506 |
| Economic Growth | 0.246 | 0.093 | 2.62 | 0.009 |
| Inflation | 0.007 | 0.000 | 10.08 | 0.000 |
| Interest rate | 0.008 | 0.002 | 2.88 | 0.004 |
| exchange rate | -0.009 | 0.007 | -1.22 | 0.224 |
| Economic growth * Capital structure | -0.120 | 0.164 | -0.73 | 0.465 |
| Inflation rate* capital structure | -0.006 | 0.001 | 5.21- | 0.000 |

| | | | | |
|---|---------|-------|-------|-------|
| Interest rate* capital structure | 0.007 | 0.013 | 0.57 | 0.570 |
| Exchange rate* capital structure | -0.008 | 0.004 | -1.77 | 0.077 |
| company size | 0.005 | 0.002 | 2.55 | 0.011 |
| Company age | -0.000 | 0.000 | -1.91 | 0.056 |
| Width from the origin | -0.068 | 0.068 | -1.00 | 0.318 |
| Other information statistics | | | | |
| The adjusted coefficient of determination | 0.512 | | | |
| Wald statistic- Its significance level | 1050.31 | | 0.000 | |
| Durbin-Watson | 1.992 | | | |

As observed in Table 5, the variable indicating the interactive effect (economic growth * capital structure) has a significance level greater than 5%. Therefore, economic indicators do not have a moderating role in the relationship between capital structure and financial performance.

The interactive effect (inflation rate* capital structure) has a significant level of less than 5% and has a negative coefficient. Therefore, the inflation rate has a negative and significant moderating role on the relationship between capital structure and financial performance.

The interactive effect (interest rate * capital structure) has a significant level of more than 5%. Therefore, the interest rate does not have a significant moderating role in the relationship between capital structure and financial performance.

The interactive effect (exchange rate * capital structure) has a significant level of less than 5%

and has a negative coefficient. Therefore, the exchange rate has a negative and significant moderating role on the relationship between capital structure and financial performance.

The adjusted coefficient of determination is equal to 51%, which shows that the independent and control variables in the model can explain 51% of the changes in the dependent variable. Fisher's statistic has a significance level of less than 5%. Therefore, the fitted model has sufficient validity. In addition, Durbin-Watson's statistic is between 1.5 and 2.5, which shows the lack of first-order autocorrelation in the model.

Hypothesis 2

H0: Economic indicators do not have a moderating role in the relationship between audit quality and financial performance.

H1: Economic indicators have a moderating role in the relationship between audit quality and financial performance.

Table 7- Final estimation of regression Model 2

| Variables | coefficients | standard deviation coefficients | z statistic | significance level |
|---------------------------------|--------------|---------------------------------|-------------|--------------------|
| Auditor expertise | -0.275 | 0.031 | -8.77 | 0.000 |
| Auditor type | 0.084 | 0.049 | 1.73 | 0.084 |
| Economic growth * Auditor type | -0.128 | 0.071 | -1.80 | 0.073 |
| Inflation rate* type of auditor | -0.000 | 0.000 | -0.85 | 0.395 |
| Exchange rate* auditor type | 0.023 | 0.007 | 3.17 | 0.002 |

| | | | | |
|---|--------|-------|-------|-------|
| Interest rate* Auditor type | -0.004 | 0.002 | -2.22 | 0.026 |
| Economic growth * auditor expertise | 0.410 | 0.054 | 7.56 | 0.000 |
| Inflation rate* auditor expertise | 0.005 | 0.000 | 13.31 | 0.000 |
| Exchange rate* auditor expertise | -0.019 | 0.004 | -4.35 | 0.000 |
| Interest rate* Auditor expertise | 0.007 | 0.001 | 4.96 | 0.000 |
| company size | 0.014 | 0.002 | 5.21 | 0.000 |
| Company age | -0.000 | 0.000 | -2.42 | 0.015 |
| Width from the origin | -0.054 | 0.040 | -1.35 | 0.177 |
| Other information statistics | | | | |
| The adjusted coefficient of determination | 0.433 | | | |
| Fisher's statistic - its significance level | 303.56 | | 0.000 | |
| Durbin-Watson | 1.997 | | | |

As observed in Table 6, the variable indicating the interactive effect (economic growth * auditor type) has a significant level of less than 5% and has a negative coefficient. Therefore, the economic indicators have a negative and significant moderating role in the relationship between audit quality and financial performance.

The interactive effect (inflation rate*auditor type) has a significant level of more than 5%. Therefore, the inflation rate does not have a significant moderating role in the relationship between audit type and financial performance.

The interactive effect (exchange rate*auditor type) has a significant level of less than 5% and has a positive coefficient. Therefore, the exchange rate has a positive and significant moderating role on the relationship between audit type and financial performance.

The interactive effect (interest rate*auditor type) has a significance level of less than 5% and has a negative coefficient. Therefore, the interest rate has a negative and significant moderating role on the relationship between the type of audit and financial performance.

The interactive effect (economic growth * auditor expertise) has a significant level of less than 5% and has a positive coefficient. Therefore, economic growth has a positive and significant moderating role in the relationship between audit expertise and financial

performance.

The interactive effect (inflation rate* auditor expertise) has a significant level of less than 5% and has a positive coefficient. Therefore, the inflation rate has a positive and significant moderating role in the relationship between audit expertise and financial performance.

The interactive effect (exchange rate * auditor expertise) has a significant level of less than 5% and has a negative coefficient. Therefore, the exchange rate has a negative and significant moderating role on the relationship between audit expertise and financial performance.

The interactive effect (interest rate* auditor expertise) has a significant level of less than 5% and has a positive coefficient. Therefore, the interest rate has a positive and significant moderating role in the relationship between audit expertise and financial performance.

The adjusted coefficient of determination is equal to 43%, which shows that the independent and control variables in the model can explain 43% of the changes in the dependent variable. Fisher's statistic has a significance level of less than 5%. Therefore, the fitted model has sufficient validity. In addition, the Durbin-Watson statistic is between 1.5 and 2.5, which shows the lack of first-order autocorrelation in the model.

Conclusion

The first hypothesis results showed that inflation rate, economic growth, and interest rate affect the performance of the company and their change causes increase and decrease in the performance of the company, but they cannot be expressed as a moderating role in the relationship between capital structure and financial performance.

The results obtained from the second hypothesis of the research showed that the auditor's expertise acts as a moderating role in the relationship between capital structure and financial performance.

Choosing the capital structure is one of the strategic decisions in the management of companies, which is a combination of debt and shares because excessive use of equity increases the expected return of shareholders and increases the cost of financing companies. On the other hand, excessive use of short-term or long-term debts can increase the company's financial risk and reduce its financial flexibility. Therefore, the optimal capital structure pattern is determined when the role of important factors affecting it is given sufficient attention. In this regard, factors such as financial leverage, market-to-book asset ratio, asset liquidation value, accumulated profit, and company size are among the most important internal factors that determine the company's capital structure, which is mentioned in the studies of Meto et al. (2016). Macroeconomic conditions as an external factor can affect the capital structure and thus the performance of companies.

Due to the negative and significant effect of capital structure on the financial performance of the companies admitted to the Tehran Stock Exchange, it is suggested to use less short-term debt in the capital structure of the companies because the performance of companies decreases with the increase of short-term debt.

References

Azizgerd, Seyed Hossam Vaqfi, Fakuri, Mohsen, (2014)., "Investigation of the relationship between the financial leverage criteria of capital structure and performance evaluation criteria", *Accounting Research*, No. 15, Winter 2013, Pages: 1-18.

Rindu Rika Gamayuni, (2015), "The Effect of Intangible Asset, Financial Performance, and Financial Policies On The Firm Value", *INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH* Volume 4, Issue 01, January 2015 Issn 2277-

8616.

Oino, I, Ukaegbub, B, (2015), "The impact of profitability on capital structure and speed of adjustment: An empirical examination of selected firms in Nigerian Stock Exchange", Contents lists available at ScienceDirect Research in International Business and Finance journal homepage: www.elsevier.com/locate/ribaf, 111-121.

Mathew Adeolu Abata, Stephen Oseko Migiro, (2016), Nigeria capital structure and firm performance in listed companies, *Journal of Economics and Behavioral Studies* (ISSN: 2220-6140), Vol. 8, No. 3, pp. 54-74, June 2016.

Jubaedah, Ivan Yulivan (2015), the Influence of Capital Structure and Macroeconomic Factor on Financial Performance and its Implications on Firm Value (An Empirical Study in Textile and Textile's Products Companies Listed in Indonesia Stock Exchange (IDX)), *I J A B E R*, Vol. 13, No. 7 (2015): 5869-5898.