Journal Akuntansi Manajerial
ISSN (E): 2502-6704
Vol. 10, No 01 Jan-Juni 2025 Hal. 118 - 124
http://journal.uta45jakarta.ac.id/index.php/JAM/index

ANALYSIS AND COMPARING THE EFFECT OF FINANCIAL RATIOS ON STOCK RETURNS OF AUTOMOTIVE AND COMPONENTS COMPANIES LISTED IN INDONESIA STOCK EXCHANGE AND TAIWAN STOCK EXCHANGE

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Abstract—This study aims to determine the effect of financial ratios on stock returns in automotive sector companies and components listed on the Indonesia Stock Exchange and Taiwan Stock Exchange for the 2018-2022 period. It finds out how financial ratios influence stock returns in the years before covid, during covid, and after covid. Through this research, it can also be seen how the situation in these two countries, especially with the limited circumstances in the era of the Covid-19 pandemic. This research is a documentation study, where the data used are secondary data obtained from available company reports. The population in this study is all companies in the automotive sector and components listed on the IDX and TWSE in a predetermined period. A total of 12 companies were taken from the IDX and 27 companies were taken from the TWSE. The results show that from Indonesian data, EPS has a positive and significant effect on stock returns. ROA has a negative and significant effect on stock returns. CR, TATO, ROE, and PER have a positive and insignificant effect on stock returns. DER and ITO have a negative and insignificant effect on stock returns. Meanwhile, from Taiwan data, CR and DER have a positive and significant effect on stock returns. ROE has a negative and significant effect on stock returns. TATO, ROA, and EPS have a positive and insignificant effect on stock returns. ITO and PER have a negative and insignificant effect on stock. In addition, there is no significant difference on the regression coefficient between Indonesia and Taiwan based on the Chow test..

Kata Kunci—financial ratios, stock return, IDX, TWSE

I. INTRODUCTION

Indonesia in its economic proportion can be categorized as an industrial country. That is because the industrial sector provides the largest contribution to the national economy. The targeted industrial sectors are in accordance with the priorities of the Making Indonesia 4.0 road map such as food and beverage industry, textile and clothing industry, automotive industry, chemical industry, and the electronics industry. Indonesian automotive industry has been chosen to receive development priority isn't without reason. The industry has become important pillar in the country's manufacturing sector since many world-famous car companies open car manufacturing factories or increase their production capacity in Indonesia. Based on that data, the prospect of car sales in Indonesia is very promising because if only one unit increases from 87 to 88 units, it means sales will increase by around 260 thousand units. In Indonesia, with population of 260 million people, the room to grow for this industry is huge. This is what boosted national GDP to become the top 10 in the world by 2030. The government targets around 20 percent of total national production, or 2 million units in 2025, to be electric motorcycles. Then the production of electric powered cars can reach 400 thousand units or 20 percent of total production in 2025, and is expected to continue to increase until 2029. To make it happens, the government invites the automotive component and supporting industries together to prepare themselves to enter the era of electric vehicles and other environmentally friendly technologies through enhancing human

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resources and industrial management, and mastery of technology through research and development activities. In order to achieve this, the Ministry of Industry undertakes various similar approaches to relate industries from various countries, Taiwan is no exception. Taiwan is one of the important countries in the automotive world, especially two-wheeled types of automatic scooters that are environmentally friendly". In the global market, Taiwan is one country that has an important role in the world automotive industry. It became one of the backbones in the automotive parts and accessories industry. Therefore, every year, Taiwan holds an exhibition of spare parts and accessories called Taipei AMPA (Taipei International Auto Parts & Accessories Show). Indonesia is known as one of the countries that have the capacity to produce vehicles. While Taiwan is known for its parts and accessories products. Before making a decision for investment, investors are faced with a desire to obtain the maximum return on investment value, and the level of risk faced, because investing in the capital market is an activity that is faced with a variety of risks and uncertainties that are difficult to predict, according to investment principles in the capital market "low risk low return, high risk high return". Thus, to reduce uncertainty in getting profits and bear the risk that occurs, investors need a variety of information as a guide to decide on investment in the capital market. In order to increase investment, one of the investments that investors can make is investing in the capital market which has many investment products. In Taiwan, there is a financial institution that is called Taiwan Stock Exchange Corporation (TWSE) with Chinese name 臺灣證券交易所. In Indonesia, there is a capital market called the Indonesia Stock Exchange (IDX) which is a stock exchange based in Jakarta, Indonesia. There are two approaches to analysing stock prices and selecting stocks, namely technical analysis and fundamental analysis. Fundamental analysis as a stock analysis tool was chosen because it is considered to be able to provide information about the condition of the company's financial performance which has an impact on the profits generated by the company to be able to obtain a picture of the company's financial development, it is necessary to conduct an analysis or interpretation of the financial data of the company concerned, where the data can be reflected in the financial statements. The measure often used in fundamental analysis is financial ratios. These financial ratios are liquidity, solvency, profitability, activity and market value (Fitriani, 2022) [1].

LITERATURE REVIEW

According to Arkan (2016) [2], financial ratios are defined as numerical values that are made from two or more values taken from the company's financial statements, namely the balance sheet, income statement or cash flow statement. Typically, financial ratios are presented as metrics that are measured in terms of percentages, lots or ratios aimed at evaluating the company's financial, operational and competitive performance. Enekwe (2015) [3] defines financial ratios as the interpretation, reinforcement and translation of facts and data contained in financial statements, the goal is to draw relevant conclusions so as to make conclusions for business operations, financial position and future prospects. Meanwhile, according to Munawir in Dewi (2017) [4], financial ratio analysis is an analysis that describes a relationship or balance between a certain amount and another, and uses an analysis tool in the form of a ratio that can explain or provide an overview to the analyzer about the good or bad state of the financial position. a company especially if the ratio figure is compared with the comparison ratio figure used as the standard. Another case with Igben in Nuhu (2018) [5], which argues that financial ratios are proportions or fractions or percentages that state the relationship between one item in a set of financial statements and other items in financial statements. Based on some of the definitions above, it can be concluded that financial ratios are a process of simplifying information that describes the relationship between certain items and other items. With this simplification, the relationship between these items will be obtained. Stock returns are usually defined as changes in value between periods t +1 with period t plus other income that occurred during the period t (Awalakki and Archanna, 2021) [6]. Returns are the results obtained from stock investments consists of capital gain (loss) and yield. Capital gain is the difference in profit (loss) of the current investment price relative to the price of the previous period. Yield represents the percentage of period cash receipts against period investment prices certain of an investment (Jogiyanto, 2020) [7]. The concept of stock returns can be used various concepts including actual returns is a capital gain or capital loss, which is the difference between the period stock price current (Pt) with the stock price in the previous period (Pt-1). Capital gain is the difference from the current investment relative to the price of the previous period (Christian, 2020) [8]. Several researchers have conducted similar research. Suciati (2018) [9] found out the effect of financial ratios and firm size on stock return. The object of the research was property and real estate companies listed on the Indonesia Stock Exchange 2012-2016. The independent variables used in this study were financial ratios, consisting of liquidity, profitability, activity and leverage, and firm size, while the dependent variable was stock return. Data analysis method used was multiple linear regression analysis. The results of this study showed that leverage had a significant effect on stock return, but liquidity, profitability, activity, firm size had no effect on stock return. The variable equations used are leverage, liquidity, profitability, activity, and stock return. Sampling in the study also has an equation, namely both using multiple regression data analysis tools. The differences between the previous research with this research are the years of the research, the sample, the object, and some of ratios that had been chosen. Meanwhile, Ozturk and

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Karabulut (2020) [10] examined the relationship between financial ratios and the technology and telecommunication stock returns listed on the Istanbul Stock Exchange. The academic work aimed to determine, through the application of panel data analysis, using both the Parks-Kmenta estimator and the Two-way Mixed Effects Model, whether the Price-to-Sales, Earnings per Share (EPS), Debt-to-Equity, and EBITDA Margin financial ratios affect the returns of technology and telecommunication stock returns listed on the Istanbul Stock Exchange. According to empirical findings, Earnings per Share (EPS), EBITDA Margin, and Price-to-Sales ratios have statistically significant effects on technology and telecommunication companies' stock returns. Higher EPS and EBITDA Margin ratios generate higher returns for the next quarters, and lower Price-to-Sales ratios lead to higher returns for the following periods. Furthermore, the results obtained using the Two-way Mixed Effects Model show that the Debt-to-Equity ratio is negatively related to stock returns. The similar things with the research are using EPS, DER, and stock return as the variables. Sampling in the study also has an equation, namely both using multiple regression data analysis tools. The differences between the previous research with this research are the years of the research, the object, and some of ratios that had been chosen.

II. METHODS

The research method used in this study is a quantitative approach research method that includes descriptive methods. The analytical tool used in this research is the statistical program which used mainly for time-series oriented econometric analysis, Eviews. Meanwhile, to see the difference of regression result between Indonesia and Taiwan data, MATLAB software is used for this research. So those software help researchers in answering problems in research. The population in this study amounted to 13 companies from IDX, of which 12 companies were taken before multiplied 5 years backward and multiplied 4 quarterly to get the number 240. The calculation was done to avoid data out layers. Meanwhile, from TEJ, of which 27 companies were taken before multiplied 5 years backward and multiplied 4 quarterly to get the number 540. So, the total of data is 780. The dependent variable is the variable that is influenced by the independent variable, while the independent variable is the variable that affects the dependent variable. The dependent variable in this study is the stock returns (Y). While the independent variable is financial ratios (X) which has eight variables as the measurement. The first one is current ratio (X1), the second one is debt to equity ratio (X2), the third one is total asset turnover (X3), the forth one is inventory turnover (X4), the fifth one is return on asset (X5), the sixth one is return on equity (X6), the seventh one is price earning ratio (X7), and the eighth one is earning per share (X8). Since the independent variables have eight variables, so it can be categorized as multiple regression linear.

III. RESULTS AND DISCUSSION

Autocorrelation Test The autocorrelation test aims to test whether in the linear regression model there is a correlation between confounding error in period t and confounding error in period t-1. In the number of samples (n) 160, the dL value is 1.638 and the dU value is 1.847 so that the 4-dL value is 2.362 and the 4-dU value is 2.153. Based on the table above, the DW value obtained is 1.988045. Because the dW value is between the dU (1.847) and 4-dU (2.153) values, it is concluded that there is no positive or negative autocorrelation. Meanwhile in Taiwan, the number of samples (n) 240, the dL value is 1.720 and the dU value is 1.858 so that the 4-dL value is 2.280 and the 4-dU value is 2.142. Based on the table below, the DW value obtained is 1.882617. Because the dW value is between the dU (1.858) and 4-dU (2.142) values, it is concluded that there is no positive or negative autocorrelation.

Heteroscedasticity Test

Heteroscedasticity test is intended to test whether in the regression model there is a similarity of variance from different observation residuals. Based on the output, the prob value. of chi square obtained is 0.2338. Because the value is higher than 0.05, which means that there is no heteroscedasticity.

Table 1. Indonesia Heteroscedasticity Test

F-statistic	1.321083	Prob. F(8,151)	0.2370
Obs*R-squared	10.46605	Prob. Chi-Square(8)	0.2338
Scaled explained SS	11.11612	Prob. Chi-Square(8)	0.1952

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Based on the output, the prob value. of chi square obtained is 0.8924. Because the value is higher than 0.05, it is concluded that there is no heteroscedasticity violation in the regression model.

Table 2. Taiwan Heteroscedasticity Test

F-statistic	0.438080	Prob. F(8,231)	0.8974
Obs*R-squared	3.586768	Prob. Chi-Square(8)	0.8924
Scaled explained SS	3.505370	Prob. Chi-Square(8)	0.8988

Comparison of Regression between Indonesia and Taiwan

The result had been done by MATLAB. The test was performed by chow test. It shows that there is no evidence show the existence of any difference of the regression result between Indonesia and Taiwan.

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RESULTS SUMMARY

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Test 1

Sample size: 400
Breakpoint: 160

Test type: breakpoint
Coefficients tested: All

Statistic: 1.2083
Critical value: 1.9044

P value: 0.2882
Significance level: 0.0500

Decision: Fail to reject coefficient stability
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Figure 1. Chow Test Indonesia and Taiwan Data

Table 3. is a combined regression between data from Indonesia and Taiwan. With the p- value or significance that has been obtained through the previous MATLAB, it can be seen that this value is greater than 0.05. This means that there is no significant difference between Indonesia and Taiwan. In other words, the coefficient between Indonesia and Taiwan regression has no difference.

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Table 3. Chow Test P Value of Indonesia and Taiwan Data

Dependent Variable=SR	Indonesia			Taiwan		
	Constant	t-Statistic	Probability	Constant	t-Statistic	Probability
Constant	-0,0820	-1,4926	0,1376	-0,7419	-1,9130	0,0570
X1_CR	0,0364	1,8653	0,0641	0,0047	3,2853	0,0012
X2_DER	-0,0005	-0,0826	0,9343	0,0049	2,5883	0,0103
X3_TATO	0,0811	0,6936	0,4890	0,0361	0,0839	0,9332
X4_ITO	-0,0208	-1,5512	0,1230	-0,0245	-0,8477	0,3975
X5_ROA	-3,6144	-5,1937	0,0000	0,1411	1,3538	0,1771
X6_ROE	0,0136	0,5062	0,6134	-0,0494	-2,4323	0,0158
X7_PER	0,0010	1,7081	0,0897	-0,0026	-0,7247	0,4694
X8_EPS	2,1648	4,8615	0,0000	0,0745	1,4321	0,1535
P Value						0,2882

Significance Test Results

Coefficient of Determination (R^2) and F-Test

This test is carried out to measure the level of the model's ability to explain the independent variables. Based on the Table 4, the value of the coefficient of determination obtained is 0.197460, meaning that the dependent variable SR is influenced by the variables CR, DER, TATO, ITO, ROA, ROE, PER, and EPS of 19.75% while the rest is the influence of other variables not examined in this study. In making a decision in the F test is to compare the probability of the independent variable as a whole between the independent variables on the dependent variable with the alpha or degree of confidence used which is 0.05. The estimation results obtained by the probability value of F-statistic are 0.000043, significant at *a* 5%. This means that simultaneously the independent variables CR, DER, TATO, ITO, ROA, ROE, PER, and EPS have an effect on the dependent variable SR.

Table 4. Indonesia F-Test Result

R-squared	0.197460	Mean dependent var	-0.012248
Adjusted R-squared	0.154942	S.D. dependent var	0.239052
S.E. of regression	0.219754	Akaike info criterion	-0.138012

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Sum squared resid	7.292048	Schwarz criterion	0.034966
Log likelihood	20.04098	Hannan-Quinn criter.	-0.067772
F-statistic	4.644084	Durbin-Watson stat	2.041954
Prob(F-statistic)	0.000043		

Based on the table above, the value of the coefficient of determination obtained is 0.090565, meaning that the dependent variable SR is influenced by the variables CR, DER, TATO, ITO, ROA, ROE, PER, and EPS of 9.05% while the rest is the influence of other variables not examined in this study. The F test is used to determine how much influence the independent variable as a whole affects the dependent variable. In making a decision in the F test is to compare the probability of the independent variable as a whole between the independent variables on the dependent variable with the alpha or degree of confidence used which is 0.05. The estimation results obtained by the probability value of the F-statistic amounted to 0.004540, significant at *a* 5%. This means that simultaneously the independent variables CR, DER, TATO, ITO, ROA, ROE, PER, and EPS have an effect on the dependent variable SR.

Table 5. Taiwan F-Test Result

R-squared	0.090565	Mean dependent var	0.408848
Adjusted R-squared	0.059070	S.D. dependent var	1.309073
S.E. of regression	1.269821	Akaike info criterion	3.352408
Sum squared resid	372.4751	Schwarz criterion	3.482932
Log likelihood	-393.2890	Hannan-Quinn criter.	3.405000
F-statistic	2.875492	Durbin-Watson stat	1.860204
Prob(F-statistic)	0.004540		

Based on the results of data analysis and discussion that has been carried out, it can be concluded that the estimation results obtained by the probability value of F-statistic are 0.000043, significant at *a* 5%. This means that simultaneously the independent variables CR, DER, TATO, ITO, ROA, ROE, PER, and EPS have an effect on the dependent variable SR. The estimation results obtained by the probability value of the F-statistic amounted to 0.004540, significant at *a* 5%. This means that simultaneously the independent variables CR, DER, TATO, ITO, ROA, ROE, PER, and EPS have an effect on the dependent variable SR.

The results show that from Indonesian data, EPS has a positive and significant effect on stock returns. ROA has a negative and significant effect on stock returns. CR, TATO, ROE, and PER have a positive and insignificant effect on stock returns. DER and ITO have a negative and insignificant effect on stock returns. Meanwhile, from Taiwan data, CR and DER have a positive and significant effect on stock returns. ROE has a negative and significant effect on stock returns. TATO, ROA, and EPS have a positive and insignificant effect on stock returns. ITO and PER have a negative and insignificant effect on stock. In addition, there is no significant difference on the regression coefficient between Indonesia and Taiwan based on the Chow test.

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IV. CONCLUSION

Berdasarkan hasil studi kepustakaan, dapat disimpulkan bahwa Coretax System memiliki peran penting dalam mendorong kepatuhan wajib pajak di Indonesia. Sistem ini memberikan kemudahan akses, meningkatkan transparansi, dan mempercepat proses administrasi perpajakan. Telah terbukti bahwa implementasi Coretax yang efektif dapat merampingkan proses pelaporan dan pembayaran pajak, memberikan kemudahan, kejelasan, dan kepercayaan yang lebih besar kepada pembayar pajak terhadap sistem pemerintah (Lestari and Selfiani 2025). Coretax juga berpotensi menjadi solusi dalam reformasi perpajakan di Indonesia untuk mendukung pembangunan ekonomi dan meningkatkan kepercayaan public terhadap sistem perpajakan (Maliki 2025). Melalui integrasi data dan otomatisasi, Coretax System membantu pengawasan yang lebih efektif sehingga dapat mengurangi kesalahan dan kecurangan. Meskipun demikian, implementasi coretax system menghadapi tantangan yang cukup besar, yaitu tantangan teknis dan operasional, seperti sistem yang belum memadai, kurangnya edukasi dan pelatihan, perubahan peraturan dsb. Keberhasilan implementasi Coretax System sangat bergantung pada kesiapan literasi digital wajib pajak serta ketersediaan infrastruktur teknologi yang memadai di seluruh wilayah Indonesia yang disediakan oleh pemerintah. Namun jika tantangan ini dapat diatasi, coretax dapat menjadi langkah maju menuju sistem perpajakan yang lebih akuntabel dan berkelanjutan.

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