

SURAT TUGAS

Nomor: 239/ST//LPPM-Ikopin.Univ/IX/2022

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THE EFFECT OF EXCHANGE RATE AND INTEREST RATE ON SHARE PRICES IN THE MANUFACTURING SECTOR WITH INFLATION AS MODERATION


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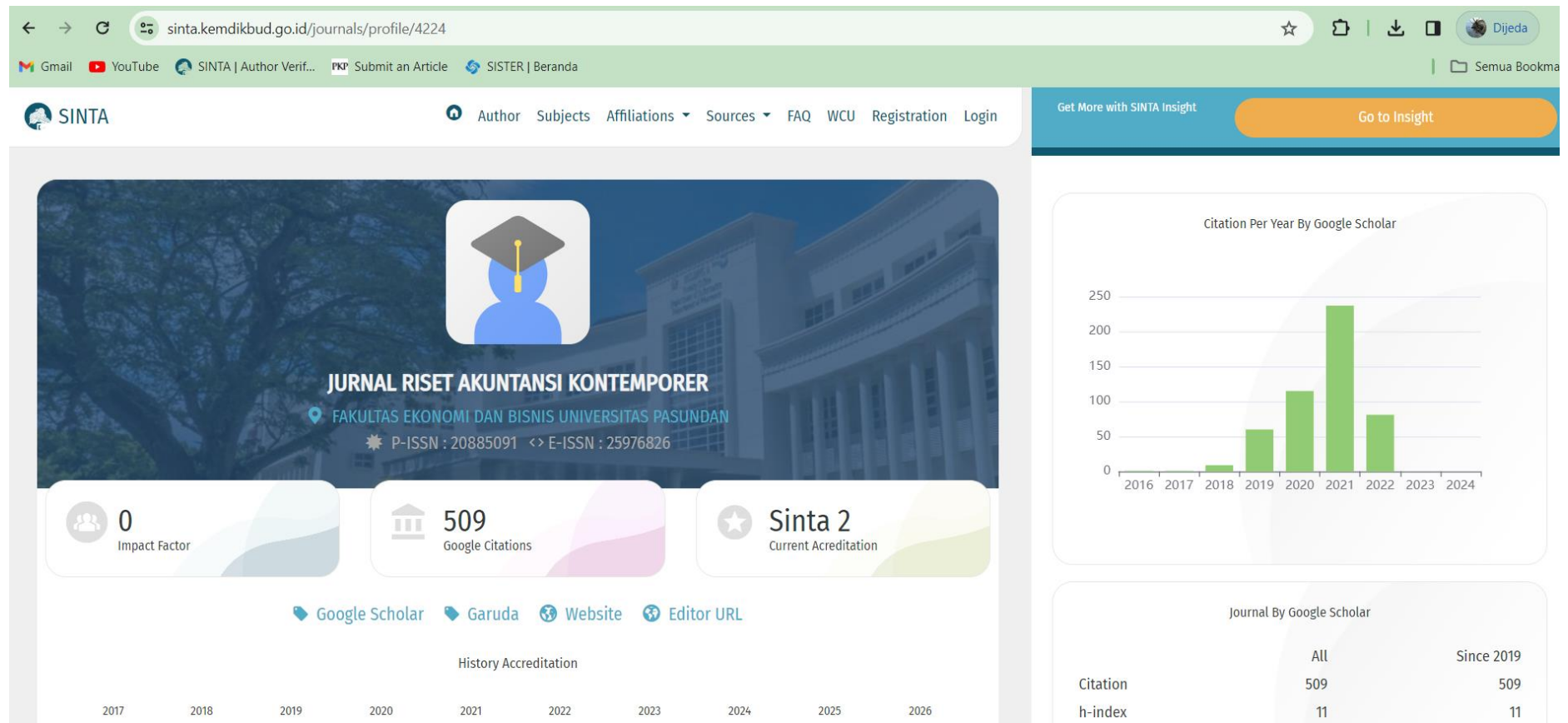
ACREDITATION

SK No. 164/E/KPT/2021



URL

<https://journal.unpas.ac.id/index.php/jrak/article/view/5648>



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The articles in this issue were influenced by authors from Indonesia, and China. Furthermore, the topics mostly discussed were Financial Accounting, and Auditing. We kindly invite you to read several of our articles

DOI: <https://doi.org/10.23969/jrak.v14i2>

Published: 2022-10-10

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ACREDITATION

SK No. 164/E/KPT/2021



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THE EFFECT OF EXCHANGE RATE AND INTEREST RATE ON SHARE PRICES IN THE MANUFACTURING SECTOR WITH INFLATION AS MODERATION



<https://journal.unpas.ac.id/index.php/jrak/index>

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Article Info

History of Article

Received: 12/6/2022

Revised: 24/9/2022

Published: 24/10/2022

Jurnal Riset Akuntansi Kontemporer

Volume 14, No. 2, October 2022, Page 226-236

ISSN 2088-5091 (Print)

ISSN 2597-6826 (Online)

Keywords: inflation; exchange rates; interest rates; manufacturing; share price

Abstract

The movement of stock prices during the COVID-19 pandemic crisis has shown significant changes, this can be seen from the decline in the Composite Stock Price Index (JCI). This condition encouraged research in the field of macroeconomics to be able to understand this phenomenon. This research aims at examining the effect of macroeconomics on stock prices by using the manufacturing sector as the object of research. This research used the 2020 period, where in that period the JCI fell. The results showed that only the exchange rate had an effect on stock prices in the manufacturing sector, while inflation and interest rates had no effect on stock prices in the manufacturing sector. Inflation which is used as a moderating variable can moderate the effect of exchange rates and interest rates on stock prices in the manufacturing sector.

INTRODUCTION

The stock price index varies every day as a result of the daily changes in market prices and the addition of new shares. In addition to fresh issuances, corporate activities including splits, rights, warrants, stock dividends, bonus shares, and convertible shares have also contributed to the rise in the number of outstanding shares. The price of equities is considered to be the primary indicator of economic activity (Stock & Watson, 2003; Rapach & Weber, 2004), making it crucial to understand the forces that drive these markets. While financial characteristics are the primary determinants of stock prices (Ferrer et al., 2018), the influence of macroeconomic variables cannot be discounted (Rapach & Zhou, 2013). Unquestionably, inflation is one of the most significant macroeconomic variables known to affect stock values (Gupta & Inglesi-Lotz, 2012).

Due to monetary non-neutrality, inflationary shocks may have no long-term influence on real stock returns, but it is commonly accepted that inflation can have a short-term impact on stock prices (Bjrnland and Jacobsen, 2013). In this sense, inflation may impact stock prices through a variety of pathways, with positive or negative consequences depending on the theory under discussion. According to Gordon's (1962) growth model, stock prices are inversely correlated with the needed rate of return on equity and directly correlated

with both the existing and projected growth rates of dividend returns. Thus, there are two ways that inflation affects stock prices: Initial dividend growth rates would benefit from monetary easing that increased inflation and the economy. The demand for stocks would increase as a result of a monetary expansion that lowers bond yields, which would cause the average investor to lower the expected rate of return on shares (Antonakakis et al., 2017).

For the years 2008-2012, Kitatia., (2015) conducted research in Kenya and concluded that stock prices are negatively impacted by inflation, interest rates, and exchange rates. Given that Singapore's economy consists mostly of exports and imports, Maysami & Koh (2000) argue that a stronger domestic currency reduced the cost of imported inputs and makes local producers more globally competitive. Maysami., (2005) continually assert that a strong Singapore currency limits import inflation and, as a result, is perceived favourably by the Singapore stock market, generating profits. According to research by the Federal Reserve, exchange rates had a positive influence, interest rates have a negative impact, and inflation has a negative impact on stock values. Gan et al., (2006) done in New Zealand during the period 1990-2003.

The important macroeconomic components of a country, such as the exchange rate, the relationship between exchange rates and stock prices, and how these factors interact, are thoroughly studied by economists and financial professionals. There are two different kinds of theoretical benchmarks for comparing stock prices to exchange rates. First, Dornbusch & Fischer (1980) gave an illustration of a "flow-oriented" exchange rate model that contended fluctuations in exchange rates affect the trade balance and global competitiveness, which in turn affected real income and production. Exchange rate fluctuations are reflected in stock prices, which also created a link between current investment and consumption choices, interest rate innovation, and future profitability. They are frequently seen as the future cash flows of a company's present value.

According to Zhao (2010), innovation in the stock market influences aggregate demand via wealth and liquidity effects, hence impacting the demand for money and exchange rates. Dahir (2018) gave an illustration of a "flow-oriented" exchange rate model that contended fluctuations in exchange rates affect the trade balance and global competitiveness, which in turn affect real income and production. Exchange rate fluctuations are reflected in stock prices, which also created a link between current investment and consumption choices, interest rate innovation, and future profitability. They are frequently seen as the future cash flows of a company's present value.

The interest rate is an incentive for investors to invest in the form of deposits or SBI, hence enhancing the competitiveness of share investments. According to Rahardjo (2010), a fall in stock prices could result from an increase in interest rates for one of two causes. The investment return map is initially altered by the rise in interest rates. Second, a rise in interest rates would make businesses less profitable. Two ways for this to happen. Increased interest costs for the issuer would allow for a decline in earnings as interest rates rise. Furthermore, when interest rates were high, production costs and product prices would increase, forcing consumers to put off purchases and place cash in banks. As a result, the business's revenues dropped. Share values would decrease as a result of the decline in the company's sales and earnings (Rahardjo, 2010).

Indonesia's industrial industry is expanding. According to IHS Markit research, the Indonesian Purchasing Managers' Index (PMI) in January 2021 was 52.2. This is a rise from the December 2020 reading of 51.3. The recovery of the manufacturing sector in Indonesia accelerated in January, as both output and new demand grew at a rapid rate and company confidence reached its best level in four years. Ike Widiawati, the head of research at Kiwoom Sekuritas Indonesia, remarked in the reaction that issuers in the industrial sector were attempting to recover and solve the situation. The manufacturing sector was awaiting the impetus to match the decrease in community activities. Whether they liked it or not, issuers in the manufacturing sector must adjust and put the brakes on their expansion, so that the amount of supply produced is at least steady with the level of demand, as the infection condition remains high (Putri et al., 2022; Santoso & Nugrahanti, 2022). In light of this, it is not unexpected that stock price fluctuations in the industrial sector are now mild. However, Ike remained enthusiastic about the future potential of industrial sector equities. Simply, we must await the momentum and increase of people's purchasing power (Kontan.co.id, 2021).

The Arbitrage Pricing Theory is a method for valuing assets based on the idea that to understand the macroeconomics of stock prices, the return on an asset may be projected using the relationship between the asset and risk factors in general. This theory was created by Stephen Ross in 1976. Lorenz & Trück (2008) the Arbitrage Pricing Theory combined a large number of independent macroeconomic parameters linearly to anticipate the relationship between the rate of return of a portfolio and the return of a single asset.

The differences in the results of this research indicated that APT was not consistently showing correspondence with the reality that occurred in the field, this encouraged writers to conduct research based on sectors contained in the Stock Exchange. The search for data that is more focused on one sector is an affirmation of the correspondence of macroeconomic effects on stock prices. This condition indicated an urgency in testing

APT in the context of stock prices so that both academics and practitioners can understand macroeconomic studies more validly.

This APT theory explained the anticipated asset mispricing. APT is occasionally viewed as a substitute for the Capital Asset Pricing Model (CAPM) due to its laxer assumption requirements. The APT used the expected rate of return for the hazardous asset and the principal risk of several macroeconomic factors, whereas the CAPM technique required the market's expected rate of return. The Arbitrage Pricing Theory concept is used in the arbitration to capitalize on mispriced assets (Asri et al., 2017). A security that is mispriced would have a price that is different from what the model forecasts. Arbitrageurs might theoretically make risk-free returns by having a short position on expensive assets and a long position on a portfolio utilizing the APT algorithm.

Empirically the problem of consistency for investors to find out changes in stock prices in the manufacturing sector is an obstacle because the uncertainty in investing in the manufacturing sector is very high. This condition is supported by various research that showed the inconsistency of influence. On that basis, it is important to examine the effect of macroeconomics on the stock price of the manufacturing sector, as an effort to validate the APT and develop financial studies.

The following research hypothesis was developed based on the research's problems: 1) There was a relationship between exchange rates and share prices in the manufacturing sector; 2) There was a relationship between exchange rates and share prices in the manufacturing sector, and 3) There is a relationship between exchange rates and share prices in the manufacturing sector.

The purpose of this research is to examine the APT on the effect of macroeconomics on stock prices, so that it can be found patterns of macroeconomic influences on stock prices in Indonesia, especially in the manufacturing sector.

METHOD

In performing this research, the author used research methodologies based on empirical investigation. According to Geiger and Gross (2018), empirical studies are procedures that can be noticed by the human senses, allowing others to examine and comprehend the methods employed. In this research, due to the variables that would be evaluated in connection to it, the author employed an associative descriptive technique to provide an organized, factual, and correct account of the facts and the relationship between the studied variables.

In this research, a descriptive method would be utilized to determine the elements comprising the IDX-listed manufacturing sector. A research statement employing the associative technique to inquire about the link between two or more variables (Sannigrahi et al., 2020). During the COVID-19 period, this associative method is used to macroeconomic indicators included in the stock price of the manufacturing sector in Indonesia.

This research focused on the macroeconomic dynamics and stock prices of the Indonesian manufacturing industry in 2020. This research's population consisted of Indonesian enterprises that are part of the manufacturing industry. This research's population consisted of inflation, exchange rate, and interest rate information acquired from the IDX website, BPS, and Bank Indonesia. This research used a saturation sampling method, which used entire population data as a sample. This research's data analysis method employed the traditional assumption test and multiple regression analysis to test the hypothesis concurrently or in part.

The population in this research are manufacturing companies listed on the Composite Stock Price Index. The analysis technique in this research used validity and reliability tests, the classical assumption test, and the heteroscedasticity test determined if there is an inequality of variance from the residuals of one observation to another observation in the regression model, and the normality test determines whether the research data is normally distributed., autocorrelation aims to show the correlation of members of the observation sorted by time or space, linearity aims to determine whether two or more variables tested have a linear relationship or not significantly, and multicollinearity aims at testing and finding out whether in a regression model there was a high or perfect correlation between independent variables. Hypothesis testing using t-test, f-test, and moderation test. The test tool used was e-views 10, the use of the application supports regression testing using secondary data.

The stock price variable indicator is the price per share, the exchange rate indicator is the rupiah exchange rate against the dollar, the interest rate indicator is the government's monetary policy, and the inflation indicator is the consumer price indicator. The data was obtained from the website of Bank Indonesia and the Indonesia Stock Exchange for 12 months in 2020. The data collection was based on economic conditions in 2020 which experienced a crisis, so it is interesting to research the economic crisis in Indonesia.

RESULTS

The validity of the research data was assessed using the traditional assumption test, and multiple regression analyses were then run to ascertain the relationship between the variables. The research's findings were as follows.

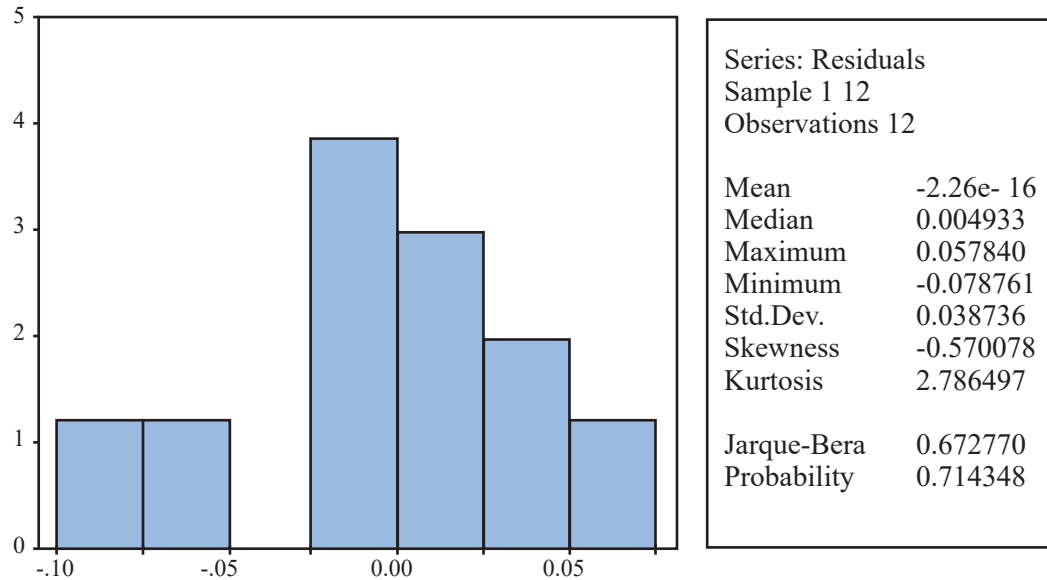


Figure 1. Normality Test Results

If you use an alpha level of 0.05 and the estimated JB (Jarque-Bera) probability value, you can tell if the residuals are normally distributed or not (5 per cent). If the Prob. JB count is greater than 0.05, it is presumed that the residuals are normally distributed; if it is smaller, there is insufficient data to make this assumption. Probable worth. Because JB count 0.7143 > 0.05, the residuals may be assumed to be normally distributed, implying that the traditional conditions concerning normality have been fulfilled.

Table 1. Heteroscedasticity Test Results

F-statistic	2.309081	Prob. F(3,8)	0.1530
Obs*R-squared	5.568806	Prob. Chi-Square(3)	0.1346
Scaled explained SS	4.033999	Prob. Chi-Square(3)	0.2578

These results indicated that the value of Prob F 0.1530 was greater than 0.05, so there was no heteroscedasticity.

Table 2. Autocorrelation Test Results

F-statistic	1.139454	Prob. F(2,6)	0.3807
Obs*R-squared	3.303201	Prob. Chi-Square(2)	0.1917

Probability. F(2,6) equals 0.3807 is also known as the determined F probability value. Probability. The estimated F is larger than the alpha threshold of 0.05 (5 per cent), hence H0 is accepted, indicating that there was no autocorrelation, based on the hypothesis test. Alternatively, if the value of Prob. If the F count is less than 0.05, it is possible to conclude that autocorrelation exists.

Table 3. Linearity Test Results

	Value	df	Probability
t-statistic	1.257283	7	0.2490
F-statistic	1.580761	(1, 7)	0.2490
Likelihood ratio	2.443350	1	0.1180
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	0.003041	1	0.003041
Restricted SSR	0.016505	8	0.002063
Unrestricted SSR	0.013465	7	0.001924
LR test summary:			
	Value		
Restricted LogL	22.50661		
Unrestricted LogL	23.72829		

The F Prob value was 0.2490, more than 0.05 and indicated that the linearity requirements have been met by the regression model.

Table 4. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centred VIF
C	0.207970	1209.616	NA
Exchange rate	0.000502	625.8626	1.247669
Interest rate	0.002243	58.87142	4.795012
Inflation	0.005286	559.7894	4.483440

The multicollinearity test results are displayed in the Centered VIF column table. For all variables, the VIF value cannot exceed 10. There was no multicollinearity in the two independent variables since their VIF values were not larger than 10 or 5 (many books need no more than 10, but there were others that required no more than 5). A good linear regression model is devoid of multicollinearity, according to the traditional assumptions of linear regression using OLS. As a result, the given model has no multicollinearity.

Table 5. t Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.909097	0.456037	6.379082	0.0002
Exchange rate	-0.112228	0.022407	-5.008678	0.0010
Interest rate	-0.006370	0.047363	-0.134497	0.8963
Inflation	-0.009120	0.072703	-0.125447	0.9033

The research's conclusions indicated that only the currency rate, not interest rates or inflation, had an effect on the stock price of Indonesia's industrial sector during the Covid-19 period.

Table 6. f Test Results

R-squared	0.802695	Mean dependent var	1.216000
Adjusted R-squared	0.728706	S.D. dependent var	0.087206
S.E. of regression	0.045422	Akaike info criterion	-3.084435
Sum squared resid	0.016505	Schwarz criterion	-2.922800
Log-likelihood	22.50661	Hannan-Quinn criter.	-3.144279
F-statistic	10.84881	Durbin-Watson stat	2.155986
Prob(F-statistic)	0.003422		

According to the findings, stock prices in the manufacturing sector are influenced by inflation, exchange rates, and interest rates all at the same time. This research methodology accounts for 80% of variations in the manufacturing sector's stock price.

Table 7. Moderation Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.185659	0.335373	6.517107	0.0001
Exchange rate*Inflation	-0.019295	0.006976	-2.765961	0.0219
Interest rate*Inflation	0.025967	0.013055	1.989035	0.0379
R-squared	0.873110	Mean dependent var		1.216000
Adjusted R-squared	0.850468	S.D. dependent var		0.087206
S.E. of regression	0.068640	Akaike info criterion		-2.307557
Sum squared resid	0.042403	Schwarz criterion		-2.186331
Log-likelihood	26.84534	Hannan-Quinn criter.		-2.352440
F-statistic	14.77670	Durbin-Watson stat		1.716643
Prob(F-statistic)	0.000001			

The results showed that inflation was able to moderate the effect of the exchange rate on stock prices in the manufacturing sector in a negative direction, as well as inflation was able to moderate the effect of interest rates on stock prices in the manufacturing sector in a positive direction. This research model has an effect of 87% on changes in the stock price of the manufacturing sector during the COVID-19 pandemic. Based on this, it showed that the limit of this research focused on conditions during the crisis, the results of this research may be different when the economy is in a stable period.

DISCUSSION

The results of an exhaustive analysis based on past research on the influence of macroeconomics on stock prices have shown contradictions. According to Aggarwal (1981), the trade-weighted dollar and US stock prices are positively connected. Soenen & Hennigar (1988), on the other hand, discovered a high negative association between the US stock index and the value-weighted dollar of fifteen other currencies. Donnelly & Sheehy (1996) showed that exchange rates and market values of key British exporters have a considerable contemporaneous link. Research, however, had reflected on the relationship or causation between exchange rates and stock prices. According to Bahmani-Oskooee & Sohrabian (1992), there was a two-way causality between stock prices and the effective dollar exchange rate as assessed by the S&P 500 index. In rich economies, Ajayi et al., (1998) establish unidirectional causation from stock to currency markets, but no consistent causal link in developing markets.

Ramasamy & Yeung (2002) researchers in six Asian nations examined the link between foreign currency and stock markets, as well as the implications for capital regulation, between 1995 and 2001. As they investigated further, they found that the relationship between stock prices and exchange rates did not follow a consistent bivariate causation pattern. It was investigated by these experts how the NTD/JPY exchange rate influenced stock prices in both Japan and Taiwan. Yau & Nieh (2009), discovered a long-run equilibrium and asymmetric causal link.

The results of this research indicated that both during the crisis and non-crisis periods, there was a macroeconomic effect on stock prices. This indicated that theoretically, APT is very consistent with research conducted in developed countries. Especially the influence on the exchange rate, because it became an important factor for investors in making investments.

Changes in interest rates had a considerable impact on the stock price index, according to Yunita & Robiyanto (2018). Meanwhile, according to Moradoglu et al., (2000), research on stock price behaviour had been widely conducted, particularly in connection to macroeconomic factors. For example, Geske & Roll (1983) found that stock prices are impacted by macroeconomic fluctuations in their research. The inflation rate, interest rate, currency rate, industrial output index, and oil price are some of the macroeconomic factors utilized.

Ajayi & Mougoue (1996) also used stock prices and exchange rates as macroeconomic factors. They examined the dynamic relationship between stock prices and exchange rates in the "Big Eight" stock markets using a bivariate error correction model. Their research showed a significant connection between exchange rates and stock prices (capital market and money market). Further evidence that the rupiah exchange rate (exchange rate) significantly affects the JCI comes from Sitinjak & Kurniasari (2003).

Gupta et al., (2001) found no causal association between interest rates, currency rates, and stock prices after conducting research in Indonesia from 1993 to 1997. In contrast, Sitingjak & Kurniasari (2003) discovered that the exchange rate and the SBI interest rate had an impact on the JCI. However, Saadah & Panjaitan (2006) showed that stock prices and currency rates had no substantial dynamic connection.

Economic analysis is linked to macroeconomic analysis, which had an overall influence on a country's economy by impacting all sectors. This analysis is a non-systematic risk factor. However, the stock market and business value are affected by the dynamics of the interaction of macroeconomic variables and stock prices when investors are doubtful of the company's future performance (Kitati., 2015). The macroeconomic environment is the one that has an impact on the company's day-to-day activities. In this case, an investor must be able to comprehend and forecast future economic situations. Furthermore, investors should evaluate several macroeconomic variables while making judgments. The exchange rate, interest rate, money supply (supply money), and inflation (inflation) are the most dependable macroeconomic elements that can explain stock price variations (Graham & Harvey, 2001; Yau & Nieh, 2006).

Macroeconomic indicators like the industrial output index, according to Fama (1981), are positively associated with stock market performance. Stock returns would rise in tandem with the industrial production index. According to Mukherjee & Naka (1995), the influence of macroeconomic factors on stock market values is mostly concentrated in industrialized Western nations such as the United States and the European Union. According to research undertaken by (Cheung & Ng, 1998; Nasseh & Strauss, 2000; Mukherjee & Naka, 1995; & Chaudhuri & Smiles, 1995), industrial production and interest rates in Germany had a positive link with returns on other European markets such as the UK, France, and Italy.

The results of this research indicated that there was an affirmation of the effect of macroeconomics on stock prices in developed countries, this was due to stock volatility in developed countries not being as strong as in developing countries. These conditions had an impact on the level of influence between developed and developing countries showing different effects. Research conducted before the world crisis also showed different things, because macroeconomic influences during normal times tended to be stable, whereas during the crisis many factors were influential, especially the issue of panic buying by investors.

Dubravka Benakovi & Petra Posedel (2010) analyzed the returns on fourteen stocks on the Croatian capital market, and factors such as inflation, industrial production, interest rates, market indices, and oil prices were employed. The results showed that the index has the highest statistical significance across all equities and is positively correlated with stock performance. In addition, although inflation is not strongly correlated, so are interest rates, industrial production, and oil prices.

Al-Zubi & Salameh (2009) investigated the influence of macroeconomic factors on stock returns in Jordan's industrial sector (industrial production, expected inflation, unanticipated inflation, term structure). While evaluating its no-dividend yield, the research indicated that both expected and unplanned inflation affected stock returns. However, the only variable that influenced the rate of return when factoring in dividends is unexpected inflation. Furthermore, the results from this research revealed that the factors have a long-term link but not a short-term one. Furthermore, Engsted & Tanggaard (2002) found a somewhat positive association between predicted stock returns and inflation estimated in the United States, as well as a largely positive relationship in Denmark.

After the 1980s, research on the link between macroeconomic factors and stock prices in Emerging Stock Markets (ESMs) began. Over the last decade, interest in investing in developing economies has exploded. According to Graham & Harvey's (1995) research, ESM returns and risks are higher than in developed markets. Research have been carried out to investigate the factors that influence stock price changes (Fama & French, 1988; Bulmash & Trivoli, 1991; Abdullah & Hayworth, 1993). According to all available research, there is a strong correlation between macroeconomic conditions and stock prices in developing market countries.

With the estimated test in the Singapore stock market, Maysami & Koh (2000) discovered that interest rates had a positive association with stock returns in the short term but a negative link with stock returns in the long run. They also discovered that exchange rates are a macroeconomic element that influenced stock market performance favourably. They discovered that Singapore's large imports, exports, and domestic currency would boost local producers' domestic market competitiveness. According to prior research, the Nigerian stock market is influenced by inflation, broad money supply, real production growth, and currency rates (Abayomi, Akinhanmi & Adelufosi, 2015).

Interest rates, bond yields, currency exchange rates, market cap, price-to-income ratios, and CPI all have an impact on the market index in both the short and long term. Clarke & Islam (2005) on the Thailand Stock Exchange. Tunal (2011) examined the relationship between macroeconomic conditions and stock returns in the Turkish stock market by way of arbitrage pricing theory. The analysis found a consistent relationship between the most important macroeconomic indicators of the Turkish economy and stock returns across time

and market capitalizations.

In 1985-1997, Bilson et al., (2001) the ability of local macroeconomic parameters to explain the rate of return on stocks in 20 developing nation exchanges was examined. These factors included the money supply, the price of goods, and real economic activity. The exchange rate component is certainly the most significant, according to the findings. Compared to other macroeconomic factors, the money supply had a stronger influence on the economy. Using the Pakistan Stock Exchange Price Index 100, we looked at the long-term link between several macroeconomic parameters such as money, stock prices, the money supply, CPI, IPI, and foreign exchange rates between 1974 and 2004. A correlation between stock prices and macroeconomic indicators appeared to have been found. The unit root method was typically used to stabilize non-stationary time series data. This research's findings also demonstrated the enormous effect that industrial production had on macroeconomic indicators. With the use of the Granger causality test, which analyzed the connection between the two outcome variables, it is proven that interest rates and stock price increases are not causally related to one another.

Kandir (2008) used a wide number of macro factors to forecast asset returns in his analysis. Industrial production, agricultural production, money supply, interest rates, foreign exchange reserves, and inflation are all factors that impact the rate of return on assets, according to the research. Based on empirical investigations, Gallagher & Taylor (2002) claimed that expected and unexpected inflation harms stock returns. Yu Hsing (2011) in his analysis, looked at the relationship between important macroeconomic issues and the Hungarian stock market index. The results show that the real GDP, government debt-to-GDP ratio, nominal effective exchange rate, and the German stock market index are all positively correlated with the Hungarian stock market index. Furthermore, evidence points to an inverse relationship between the Hungarian market index and real interest rates, inflation rates, and anticipated government bond yields in the Eurozone.

Flannery & Protopapadakis (2001) investigated the influence of seventeen macroeconomic risk indicators on the level and conditional volatility of daily stock returns by assessing the impact of these economic variables' announcements. Six of them were chosen to account for nominal and actual pricing. CPI, PPI, and money aggregates are included in the nominal category, whereas employment reports, housing starts, and trade balances are included in the real category. For South Africa, Chinzara (2011) examines the connection between stock market volatility and macroeconomic uncertainty. The results showed that stock market volatility is significantly impacted by macroeconomic uncertainty. While inflation and the volatility of the oil price have little bearing on stock market volatility, foreign exchange rate and short-term interest rate variations do.

Based on the results of previous research showed many inconsistent results with the APT, this condition indicated that the macroeconomic influence on stock prices is sectoral, periodic, and state conditions. This confirmed that not all stock price conditions can be understood through APT's way of thinking. Because of the differences in the research period and the varied research objects, the pattern of macroeconomic effect on stock prices exhibited discrepancies based on this analysis. On this premise, it is clear that macroeconomics had a casuistic influence on stock prices that cannot be applied generally. Novelty in this research showed that there are differences in the pattern of influence between the economic crisis period and the normal period, research in developed and developing countries. This condition emphasized that the APT theory was dominantly influenced by the internal conditions of a country which caused investors to buy or sell shares.

CONCLUSION

The findings demonstrated that the sole factor influencing stock prices in the industrial sector, as opposed to inflation and interest rates, was the exchange rate. The moderating effect of inflation can lessen the effects of interest rates and currency fluctuations on stock prices in the manufacturing sector. When the findings of this research were compared to those of prior investigations, contradictions were discovered. Comparison with previous research demonstrates the erratic nature of the macroeconomic effect on stock prices, particularly in developing market countries with significant volatility. This situation is different from what happened in developed countries, which showed that macroeconomic considerations constantly affected stock values. This demonstrates how the macroeconomic impact of the stock price is influenced by the distance between the research period and the research object.

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PAPER NAME

2022 MENULIS THE EFFECT OF EXCHANGE RATE AND INTEREST RATE ON SHARE PRICES-Sept.pdf

AUTHOR

Sugiyanto

WORD COUNT

6736 Words

CHARACTER COUNT

37931 Characters

PAGE COUNT

11 Pages

FILE SIZE

843.5KB

SUBMISSION DATE

Feb 28, 2024 9:04 AM GMT+7

REPORT DATE

Feb 28, 2024 9:05 AM GMT+7

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THE EFFECT OF EXCHANGE RATE AND INTEREST RATE ON SHARE PRICES IN THE MANUFACTURING SECTOR WITH INFLATION AS MODERATION



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Article Info

History of Article

Received: 12/6/2022

Revised: 24/9/2022

Published: 24/10/2022

Jurnal Riset Akuntansi Kontemporer

Volume 14, No. 2, October 2022, Page 226-236

ISSN 2088-5091 (Print)

ISSN 2597-6826 (Online)

Keywords: inflation; exchange rates; interest rates; manufacturing; share price

Abstract

The movement of stock prices during the COVID-19 pandemic crisis has shown significant changes, this can be seen from the decline in the Composite Stock Price Index (JCI). This condition encouraged research in the field of macroeconomics to be able to understand this phenomenon. This research aims at examining the effect of macroeconomics on stock prices by using the manufacturing sector as the object of research. This research used the 2020 period, where in that period the JCI fell. The results showed that only the exchange rate had an effect on stock prices in the manufacturing sector, while inflation and interest rates had no effect on stock prices in the manufacturing sector. Inflation which is used as a moderating variable can moderate the effect of exchange rates and interest rates on stock prices in the manufacturing sector.

INTRODUCTION

The stock price index varies every day as a result of the daily changes in market prices and the addition of new shares. In addition to fresh issuances, corporate activities including splits, rights, warrants, stock dividends, bonus shares, and convertible shares have also contributed to the rise in the number of outstanding shares. The price of equities is considered to be the primary indicator of economic activity (Stock & Watson, 2003; Rapach & Weber, 2004), making it crucial to understand the forces that drive these markets. While financial characteristics are the primary determinants of stock prices (Ferrer et al., 2018), the influence of macroeconomic variables cannot be discounted (Rapach & Zhou, 2013). Unquestionably, inflation is one of the most significant macroeconomic variables known to affect stock values (Gupta & Inglesi-Lotz, 2012).

Due to monetary non-neutrality, inflationary shocks may have no long-term influence on real stock returns, but it is commonly accepted that inflation can have a short-term impact on stock prices (Bjrnland and Jacobsen, 2013). In this sense, inflation may impact stock prices through a variety of pathways, with positive or negative consequences depending on the theory under discussion. According to Gordon's (1962) growth model, stock prices are inversely correlated with the needed rate of return on equity and directly correlated

with both the existing and projected growth rates of dividend returns. Thus, there are two ways that inflation affects stock prices: Initial dividend growth rates would benefit from monetary easing that increased inflation and the economy. The demand for stocks would increase as a result of a monetary expansion that lowers bond yields, which would cause the average investor to lower the expected rate of return on shares (Antonakakis et al., 2017).

For the years 2008-2012, Kitatia., (2015) conducted research in Kenya and concluded that stock prices are negatively impacted by inflation, interest rates, and exchange rates. Given that Singapore's economy consists mostly of exports and imports, Maysami & Koh (2000) argue that a stronger domestic currency reduced the cost of imported inputs and makes local producers more globally competitive. Maysami., (2005) continually assert that a strong Singapore currency limits import inflation and, as a result, is perceived favourably by the Singapore stock market, generating profits. According to research by the Federal Reserve, exchange rates had a positive influence, interest rates have a negative impact, and inflation has a negative impact on stock values. Gan et al., (2006) done in New Zealand during the period 1990-2003.

The important macroeconomic components of a country, such as the exchange rate, the relationship between exchange rates and stock prices, and how these factors interact, are thoroughly studied by economists and financial professionals. There are two different kinds of theoretical benchmarks for comparing stock prices to exchange rates. First, Dornbusch & Fischer (1980) gave an illustration of a "flow-oriented" exchange rate model that contended fluctuations in exchange rates affect the trade balance and global competitiveness, which in turn affected real income and production. Exchange rate fluctuations are reflected in stock prices, which also created a link between current investment and consumption choices, interest rate innovation, and future profitability. They are frequently seen as the future cash flows of a company's present value.

According to Zhao (2010), innovation in the stock market influences aggregate demand via wealth and liquidity effects, hence impacting the demand for money and exchange rates. Dahir (2018) gave an illustration of a "flow-oriented" exchange rate model that contended fluctuations in exchange rates affect the trade balance and global competitiveness, which in turn affect real income and production. Exchange rate fluctuations are reflected in stock prices, which also created a link between current investment and consumption choices, interest rate innovation, and future profitability. They are frequently seen as the future cash flows of a company's present value.

The interest rate is an incentive for investors to invest in the form of deposits or SBI, hence enhancing the competitiveness of share investments. According to Rahardjo (2010), a fall in stock prices could result from an increase in interest rates for one of two causes. The investment return map is initially altered by the rise in interest rates. Second, a rise in interest rates would make businesses less profitable. Two ways for this to happen. Increased interest costs for the issuer would allow for a decline in earnings as interest rates rise. Furthermore, when interest rates were high, production costs and product prices would increase, forcing consumers to put off purchases and place cash in banks. As a result, the business's revenues dropped. Share values would decrease as a result of the decline in the company's sales and earnings (Rahardjo, 2010).

Indonesia's industrial industry is expanding. According to IHS Markit research, the Indonesian Purchasing Managers' Index (PMI) in January 2021 was 52.2. This is a rise from the December 2020 reading of 51.3. The recovery of the manufacturing sector in Indonesia accelerated in January, as both output and new demand grew at a rapid rate and company confidence reached its best level in four years. Ike Widiawati, the head of research at Kiwoom Sekuritas Indonesia, remarked in the reaction that issuers in the industrial sector were attempting to recover and solve the situation. The manufacturing sector was awaiting the impetus to match the decrease in community activities. Whether they liked it or not, issuers in the manufacturing sector must adjust and put the brakes on their expansion, so that the amount of supply produced is at least steady with the level of demand, as the infection condition remains high (Putri et al., 2022; Santoso & Nugrahanti, 2022). In light of this, it is not unexpected that stock price fluctuations in the industrial sector are now mild. However, Ike remained enthusiastic about the future potential of industrial sector equities. Simply, we must await the momentum and increase of people's purchasing power (Kontan.co.id, 2021).

The Arbitrage Pricing Theory is a method for valuing assets based on the idea that to understand the macroeconomics of stock prices, the return on an asset may be projected using the relationship between the asset and risk factors in general. This theory was created by Stephen Ross in 1976. Lorenz & Trück (2008) the Arbitrage Pricing Theory combined a large number of independent macroeconomic parameters linearly to anticipate the relationship between the rate of return of a portfolio and the return of a single asset.

The differences in the results of this research indicated that APT was not consistently showing correspondence with the reality that occurred in the field, this encouraged writers to conduct research based on sectors contained in the Stock Exchange. The search for data that is more focused on one sector is an affirmation of the correspondence of macroeconomic effects on stock prices. This condition indicated an urgency in testing

APT in the context of stock prices so that both academics and practitioners can understand macroeconomic studies more validly.

This APT theory explained the anticipated asset mispricing. APT is occasionally viewed as a substitute for the Capital Asset Pricing Model (CAPM) due to its laxer assumption requirements. The APT used the expected rate of return for the hazardous asset and the principal risk of several macroeconomic factors, whereas the CAPM technique required the market's expected rate of return. The Arbitrage Pricing Theory concept is used in the arbitration to capitalize on mispriced assets (Asri et al., 2017). A security that is mispriced would have a price that is different from what the model forecasts. Arbitrageurs might theoretically make risk-free returns by having a short position on expensive assets and a long position on a portfolio utilizing the APT algorithm.

Empirically the problem of consistency for investors to find out changes in stock prices in the manufacturing sector is an obstacle because the uncertainty in investing in the manufacturing sector is very high. This condition is supported by various research that showed the inconsistency of influence. On that basis, it is important to examine the effect of macroeconomics on the stock price of the manufacturing sector, as an effort to validate the APT and develop financial studies.

The following research hypothesis was developed based on the research's problems: 1) There was a relationship between exchange rates and share prices in the manufacturing sector; 2) There was a relationship between exchange rates and share prices in the manufacturing sector, and 3) There is a relationship between exchange rates and share prices in the manufacturing sector.

The purpose of this research is to examine the APT on the effect of macroeconomics on stock prices, so that it can be found patterns of macroeconomic influences on stock prices in Indonesia, especially in the manufacturing sector.

METHOD

In performing this research, the author used research methodologies based on empirical investigation. According to Geiger and Gross (2018), empirical studies are procedures that can be noticed by the human senses, allowing others to examine and comprehend the methods employed. In this research, due to the variables that would be evaluated in connection to it, the author employed an associative descriptive technique to provide an organized, factual, and correct account of the facts and the relationship between the studied variables.

In this research, a descriptive method would be utilized to determine the elements comprising the IDX-listed manufacturing sector. A research statement employing the associative technique to inquire about the link between two or more variables (Sannigrahi et al., 2020). During the COVID-19 period, this associative method is used to macroeconomic indicators included in the stock price of the manufacturing sector in Indonesia.

This research focused on the macroeconomic dynamics and stock prices of the Indonesian manufacturing industry in 2020. This research's population consisted of Indonesian enterprises that are part of the manufacturing industry. This research's population consisted of inflation, exchange rate, and interest rate information acquired from the IDX website, BPS, and Bank Indonesia. This research used a saturation sampling method, which used entire population data as a sample. This research's data analysis method employed the traditional assumption tests and multiple regression analysis to test the hypothesis concurrently or in part.

The population in this research are manufacturing companies listed on the Composite Stock Price Index. The analysis technique in this research used validity and reliability tests, the classical assumption test, and the heteroscedasticity test determined if there is an inequality of variance from the residuals of one observation to another observation in the regression model, and the normality test determines whether the research data is normally distributed., autocorrelation aims to show the correlation of members of the observation sorted by time or space, linearity aims to determine whether two or more variables tested have a linear relationship or not significantly, and multicollinearity aims at testing and finding out whether in a regression model there was a high or perfect correlation between independent variables. Hypothesis testing using t-test, f-test, and moderation test. The test tool used was e-views 10, the use of the application supports regression testing using secondary data.

The stock price variable indicator is the price per share, the exchange rate indicator is the rupiah exchange rate against the dollar, the interest rate indicator is the government's monetary policy, and the inflation indicator is the consumer price indicator. The data was obtained from the website of Bank Indonesia and the Indonesia Stock Exchange for 12 months in 2020. The data collection was based on economic conditions in 2020 which experienced a crisis, so it is interesting to research the economic crisis in Indonesia.

RESULTS

The validity of the research data was assessed using the traditional assumption test, and multiple regression analyses were then run to ascertain the relationship between the variables. The research's findings were as follows.

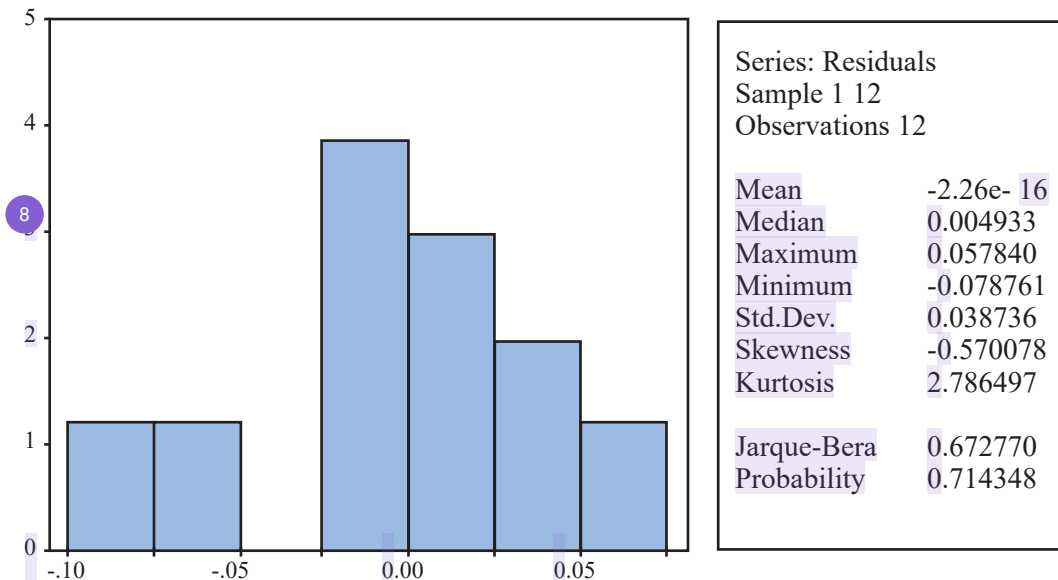


Figure 1. Normality Test Results

If you use an alpha level of 0.05 and the estimated JB (Jarque-Bera) probability value, you can tell if the residuals are normally distributed or not (5 per cent). If the Prob. JB count is greater than 0.05, it is presumed that the residuals are normally distributed; if it is smaller, there is insufficient data to make this assumption. Probable worth. Because JB count 0.7143 > 0.05, the residuals may be assumed to be normally distributed, implying that the traditional conditions concerning normality have been fulfilled.

Table 1. Heteroscedasticity Test Results

F-statistic	2.309081	Prob. F(3,8)	0.1530
Obs*R-squared	5.568806	Prob. Chi-Square(3)	0.1346
Scaled explained SS	4.033999	Prob. Chi-Square(3)	0.2578

These results indicated that the value of Prob F 0.1530 was greater than 0.05, so there was no heteroscedasticity.

Table 2. Autocorrelation Test Results

F-statistic	1.139454	Prob. F(2,6)	0.3807
Obs*R-squared	3.303201	Prob. Chi-Square(2)	0.1917

Probability. F(2,6) equals 0.3807 is also known as the determined F probability value. Probability. The estimated F is larger than the alpha threshold of 0.05 (5 per cent), hence H0 is accepted, indicating that there was no autocorrelation, based on the hypothesis test. Alternatively, if the value of Prob. If the F count is less than 0.05, it is possible to conclude that autocorrelation exists.

Table 3. Linearity Test Results

	Value	df	Probability
t-statistic	1.257283	7	0.2490
F-statistic	1.580761	(1, 7)	0.2490
Likelihood ratio	2.443350	1	0.1180
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	0.003041	1	0.003041
Restricted SSR	0.016505	8	0.002063
Unrestricted SSR	0.013465	7	0.001924
LR test summary:			
	Value		
Restricted LogL	22.50661		
Unrestricted LogL	23.72829		

The F Prob value was 0.2490, more than 0.05 and indicated that the linearity requirements have been met by the regression model.

Table 4. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centred VIF
C	0.207970	1209.616	NA
Exchange rate	0.000502	625.8626	1.247669
Interest rate	0.002243	58.87142	4.795012
Inflation	0.005286	559.7894	4.483440

The multicollinearity test results are displayed in the Centered VIF column table. For all variables, the VIF value cannot exceed 10. There was no multicollinearity in the two independent variables since their VIF values were not larger than 10 or 5 (many books need no more than 10, but there were others that required no more than 5). A good linear regression model is devoid of multicollinearity, according to the traditional assumptions of linear regression using OLS. As a result, the given model has no multicollinearity.

Table 5. t Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.909097	0.456037	6.379082	0.0002
Exchange rate	-0.112228	0.022407	-5.008678	0.0010
Interest rate	-0.006370	0.047363	-0.134497	0.8963
Inflation	-0.009120	0.072703	-0.125447	0.9033

The research's conclusions indicated that only the currency rate, not interest rates or inflation, had an effect on the stock price of Indonesia's industrial sector during the Covid-19 period.

Table 6. f Test Results

R-squared	0.802695	Mean dependent var	1.216000
Adjusted R-squared	0.728706	S.D. dependent var	0.087206
S.E. of regression	0.045422	Akaike info criterion	-3.084435
Sum squared resid	0.016505	Schwarz criterion	-2.922800
Log-likelihood	22.50661	Hannan-Quinn criter.	-3.144279
F-statistic	10.84881	Durbin-Watson stat	2.155986
Prob(F-statistic)	0.003422		

According to the findings, stock prices in the manufacturing sector are influenced by inflation, exchange rates, and interest rates all at the same time. This research methodology accounts for 80% of variations in the manufacturing sector's stock price.

Table 7. Moderation Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.185659	0.335373	6.517107	0.0001
Exchange rate*Inflation	-0.019295	0.006976	-2.765961	0.0219
Interest rate*Inflation	0.025967	0.013055	1.989035	0.0379
R-squared	0.873110	Mean dependent var		1.216000
Adjusted R-squared	0.850468	S.D. dependent var		0.087206
S.E. of regression	0.068640	Akaike info criterion		-2.307557
Sum squared resid	0.042403	Schwarz criterion		-2.186331
Log-likelihood	26.84534	Hannan-Quinn criter.		-2.352440
F-statistic	14.77670	Durbin-Watson stat		1.716643
Prob(F-statistic)	0.000001			

The results showed that inflation was able to moderate the effect of the exchange rate on stock prices in the manufacturing sector in a negative direction, as well as inflation was able to moderate the effect of interest rates on stock prices in the manufacturing sector in a positive direction. This research model has an effect of 87% on changes in the stock price of the manufacturing sector during the COVID-19 pandemic. Based on this, it showed that the limit of this research focused on conditions during the crisis, the results of this research may be different when the economy is in a stable period.

DISCUSSION

The results of an exhaustive analysis based on past research on the influence of macroeconomics on stock prices have shown contradiction. According to Aggarwal (1981), the trade-weighted dollar and US stock prices are positively connected. Soenen & Hennigar (1988), on the other hand, discovered a high negative association between the US stock index and the value-weighted dollar of fifteen other currencies. Donnelly & Sheehy (1996) showed that exchange rates and market values of key British exporters have a considerable contemporaneous link. Research, however, had reflected on the relationship or causation between exchange rates and stock prices. According to Bahmani-Oskooee & Sohrabian (1992), there was a two-way causality between stock prices and the effective dollar exchange rate as assessed by the S&P 500 index. In rich economies, Ajayi et al., (1998) establish unidirectional causation from stock to currency markets, but no consistent causal link in developing markets.

Ramasamy & Yeung (2002) researchers in six Asian nations examined the link between foreign currency and stock markets, as well as the implications for capital regulation, between 1995 and 2001. As they investigated further, they found that the relationship between stock prices and exchange rates did not follow a consistent bivariate causation pattern. It was investigated by these experts how the NTD/JPY exchange rate influenced stock prices in both Japan and Taiwan. Yau & Nieh (2009), discovered a long-run equilibrium and asymmetric causal link.

The results of this research indicated that both during the crisis and non-crisis periods, there was a macroeconomic effect on stock prices. This indicated that theoretically, APT is very consistent with research conducted in developed countries. Especially the influence on the exchange rate, because it became an important factor for investors in making investments.

Changes in interest rates had a considerable impact on the stock price index, according to Yunita & Robiyanto (2018). Meanwhile, according to Moradoglu et al., (2000), research on stock price behaviour had been widely conducted, particularly in connection to macroeconomic factors. For example, Geske & Roll (1983) found that stock prices are impacted by macroeconomic fluctuations in their research. The inflation rate, interest rate, currency rate, industrial output index, and oil price are some of the macroeconomic factors utilized.

Ajayi & Mougoue (1996) also used stock prices and exchange rates as macroeconomic factors. They examined the dynamic relationship between stock prices and exchange rates in the "Big Eight" stock markets using a bivariate error correction model. Their research showed a significant connection between exchange rates and stock prices (capital market and money market). Further evidence that the rupiah exchange rate (exchange rate) significantly affects the JCI comes from Sitinjak & Kurniasari (2003).

Gupta et al., (2001) found no causal association between interest rates, currency rates, and stock prices after conducting research in Indonesia from 1993 to 1997. In contrast, Sitinjak & Kurniasari (2003) discovered that the exchange rate and the SBI interest rate had an impact on the JCI. However, Saadah & Panjaitan (2006) showed that stock prices and currency rates had no substantial dynamic connection.

Economic analysis is linked to macroeconomic analysis, which had an overall influence on a country's economy by impacting all sectors. This analysis is a non-systematic risk factor. However, the stock market and business value are affected by the dynamics of the interaction of macroeconomic variables and stock prices when investors are doubtful of the company's future performance (Kitati., 2015). The macroeconomic environment is the one that has an impact on the company's day-to-day activities. In this case, an investor must be able to comprehend and forecast future economic situations. Furthermore, investors should evaluate several macroeconomic variables while making judgments. The exchange rate, interest rate, money supply (supply money), and inflation (inflation) are the most dependable macroeconomic elements that can explain stock price variations (Graham & Harvey, 2001; Yau & Nieh, 2006).

Macroeconomic indicators like the industrial output index, according to Fama (1981), are positively associated with stock market performance. Stock returns would rise in tandem with the industrial production index. According to Mukherjee & Naka (1995), the influence of macroeconomic factors on stock market values is mostly concentrated in industrialized Western nations such as the United States and the European Union. According to research undertaken by (Cheung & Ng, 1998; Nasseh & Strauss, 2000; Mukherjee & Naka, 1995; & Chaudhuri & Smiles, 1995), industrial production and interest rates in Germany had a positive link with returns on other European markets such as the UK, France, and Italy.

The results of this research indicated that there was an affirmation of the effect of macroeconomics on stock prices in developed countries, this was due to stock volatility in developed countries not being as strong as in developing countries. These conditions had an impact on the level of influence between developed and developing countries showing different effects. Research conducted before the world crisis also showed different things, because macroeconomic influences during normal times tended to be stable, whereas during the crisis many factors were influential, especially the issue of panic buying by investors.

Dubravka Benakovi & Petra Posedel (2010) analyzed the returns on fourteen stocks on the Croatian capital market, and factors such as inflation, industrial production, interest rates, market indices, and oil prices were employed. The results showed that the index has the highest statistical significance across all equities and is positively correlated with stock performance. In addition, although inflation is not strongly correlated, so are interest rates, industrial production, and oil prices.

Al-Zubi & Salameh (2009) investigated the influence of macroeconomic factors on stock returns in Jordan's industrial sector (industrial production, expected inflation, unanticipated inflation, term structure). While evaluating its no-dividend yield, the research indicated that both expected and unplanned inflation affected stock returns. However, the only variable that influenced the rate of return when factoring in dividends is unexpected inflation. Furthermore, the results from this research revealed that the factors have a long-term link but not a short-term one. Furthermore, Engsted & Tanggaard (2002) found a somewhat positive association between predicted stock returns and inflation estimated in the United States, as well as a largely positive relationship in Denmark.

After the 1980s, research on the link between macroeconomic factors and stock prices in Emerging Stock Markets (ESMs) began. Over the last decade, interest in investing in developing economies has exploded. According to Graham & Harvey's (1995) research, ESM returns and risks are higher than in developed markets. Research have been carried out to investigate the factors that influence stock price changes (Fama & French, 1988; Bulmash & Trivoli, 1991; Abdullah & Hayworth, 1993). According to all available research, there is a strong correlation between macroeconomic conditions and stock prices in developing market countries.

With the estimated test in the Singapore stock market, Maysami & Koh (2000) discovered that interest rates had a positive association with stock returns in the short term but a negative link with stock returns in the long run. They also discovered that exchange rates are a macroeconomic element that influenced stock market performance favourably. They discovered that Singapore's large imports, exports, and domestic currency would boost local producers' domestic market competitiveness. According to prior research, the Nigerian stock market is influenced by inflation, broad money supply, real production growth, and currency rates (Abayomi, Akinhanmi & Adelufosi, 2015).

Interest rates, bond yields, currency exchange rates, market cap, price-to-income ratios, and CPI all have an impact on the market index in both the short and long term. Clarke & Islam (2005) on the Thailand Stock Exchange. Tunal (2011) examined the relationship between macroeconomic conditions and stock returns in the Turkish stock market by way of arbitrage pricing theory. The analysis found a consistent relationship between the most important macroeconomic indicators of the Turkish economy and stock returns across time

and market capitalizations.

In 1985-1997, Bilson et al., (2001) the ability of local macroeconomic parameters to explain the rate of return on stocks in 20 developing nation exchanges was examined. These factors included the money supply, the price of goods, and real economic activity. The exchange rate component is certainly the most significant, according to the findings. Compared to other macroeconomic factors, the money supply had a stronger influence on the economy. Using the Pakistan Stock Exchange Price Index 100, we looked at the long-term link between several macroeconomic parameters such as money, stock prices, the money supply, CPI, IPI, and foreign exchange rates between 1974 and 2004. A correlation between stock prices and macroeconomic indicators appeared to have been found. The unit root method was typically used to stabilize non-stationary time series data. This research's findings also demonstrated the enormous effect that industrial production had on macroeconomic indicators. With the use of the Granger causality test, which analyzed the connection between the two outcome variables, it is proven that interest rates and stock price increases are not causally related to one another.

Kandir (2008) used a wide number of macro factors to forecast asset returns in his analysis. Industrial production, agricultural production, money supply, interest rates, foreign exchange reserves, and inflation are all factors that impact the rate of return on assets, according to the research. Based on empirical investigations, Gallagher & Taylor (2002) claimed that expected and unexpected inflation harms stock returns. Yu Hsing (2011) in his analysis, looked at the relationship between important macroeconomic issues and the Hungarian stock market index. The results show that the real GDP, government debt-to-GDP ratio, nominal effective exchange rate, and the German stock market index are all positively correlated with the Hungarian stock market index. Furthermore, evidence points to an inverse relationship between the Hungarian market index and real interest rates, inflation rates, and anticipated government bond yields in the Eurozone.

Flannery & Protopapadakis (2001) investigated the influence of seventeen macroeconomic risk indicators on the level and conditional volatility of daily stock returns by assessing the impact of these economic variables' announcements. Six of them were chosen to account for nominal and actual pricing. CPI, PPI, and money aggregates are included in the nominal category, whereas employment reports, housing starts, and trade balances are included in the real category. For South Africa, Chinzara (2011) examines the connection between stock market volatility and macroeconomic uncertainty. The results showed that stock market volatility is significantly impacted by macroeconomic uncertainty. While inflation and the volatility of the oil price have little bearing on stock market volatility, foreign exchange rate and short-term interest rate variations do.

Based on the results of previous research showed many inconsistent results with the APT, this condition indicated that the macroeconomic influence on stock prices is sectoral, periodic, and state conditions. This confirmed that not all stock price conditions can be understood through APT's way of thinking. Because of the differences in the research period and the varied research objects, the pattern of macroeconomic effect on stock prices exhibited discrepancies based on this analysis. On this premise, it is clear that macroeconomics had a casuistic influence on stock prices that cannot be applied generally. Novelty in this research showed that there are differences in the pattern of influence between the economic crisis period and the normal period, research in developed and developing countries. This condition emphasized that the APT theory was dominantly influenced by the internal conditions of a country which caused investors to buy or sell shares.

CONCLUSION

The findings demonstrated that the sole factor influencing stock prices in the industrial sector, opposed to inflation and interest rates, was the exchange rate. The moderating effect of inflation can lessen the effects of interest rates and currency fluctuations on stock prices in the manufacturing sector. When the findings of this research were compared to those of prior investigations, contradictions were discovered. Comparison with previous research demonstrates the erratic nature of the macroeconomic effect on stock prices, particularly in developing market countries with significant volatility. This situation is different from what happened in developed countries, which showed that macroeconomic considerations constantly affected stock values. This demonstrates how the macroeconomic impact of the stock price is influenced by the distance between the research period and the research object.

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