

The Impact of Macroeconomic Variables on the Banks' Stock and Portfolio Returns: Indonesian Evidence

Mohamad Azwan Md Isa¹, Nur Jamalina Leha² & Suhana Mohamed³

¹Universiti Teknologi MARA, Cawangan Johor, Kampus Segamat, ²System Protocol Information Sdn Bhd, 8trium, Level 8, Menara 2, M2-8-01 & M2-8-02, Bandar Sri Damansara, Kuala Lumpur, ³Universiti Teknologi MARA, Cawangan Johor, Kampus Pasir Gudang

Email: moham821@uitm.edu.my, jamalinalokman96@gmail.com, suhan291@uitm.edu.my

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Abstract

Indonesia is one of the countries that are still arranging on country development, where investment activity is one of the attempts to increase the country's economic development. Mobilizing bank stock returns is an important prerequisite for economic and national development, and economics can be sustained if resources are mobilized efficiently and transformed effectively through investment activity. Therefore, this study aimed to determine whether the bank stock returns and macroeconomic variables such as composite index, exchange rate, short term interest rate, and long term interest rate are important factors for the country's development. This research also aims to determine the significant relationship between the Jakarta Composite Index (JCI), Forex rate of IDR to USD (FRX), Long term interest rate (LIR) and Short term interest rate (SIR) with the Indonesia Bank Stock Returns. Each bank's stock return is calculated using the company's closing price, while portfolio returns are calculated using the Indonesia Stock Exchange's Sector Financials Index (IDX). We used weekly time-series data from 2010 to 2019 and concentrated on the ten (10) largest Indonesian banks by total assets in the first quarter of 2020 (Q12020). The first findings using correlation analysis reveal that JCI and FRX are the most significant and adversely correlated with Indonesian bank equity returns, whereas SIR and LIR exhibit mixed correlations. All four factors correlate positively with portfolio returns, whereas the JCI and FRX have exceptionally strong significant correlations. The LIR has the poorest correlation and is therefore insignificant. The multiple regressions indicate that JCI is the primary factor influencing the equity returns of Indonesian banks. FRX, LIR, and SIR, on the other hand, are not important for the mixed effects. Each of the four factors affects portfolio returns, with

the first three having a positive effect and the SIR having a negative effect. These findings will be a good indicator for policy and decision-makers to make their decision and serve as headline indications for market investors and fund managers, particularly those who invest in bank stocks. Future researchers need to consider more variables such as inflation, rate of return, and others. The inclusion of these variables would provide the researcher with a broader base of understanding. In order to improve the finding of this research, it is highly recommended for other researchers to get accurate data of the countries.

Keywords: Banks' Stock Return, Interest Rates, Portfolio Return, Macroeconomic Variables, Indonesia

Introduction

When it comes to investing, many investors struggle to construct a portfolio that will be used to determine the worth of a specific financial asset in which they intend to invest for a specified length of time. This portfolio is used to assess if an investment is worthwhile or likely to result in losses. It is critical to accurately analyze the intrinsic worth of investments through market comparisons in order to make the optimum allocation of funds between different investment possibilities. The majority of stakeholders are concerned with financial success, which is a critical part of investing. The bank's principal function is to act as a middleman for the community, alerting investors when an investment decision is imminent. Financial performance must be excellent in order to attract investors and boost the stock price. Additionally, the bank's performance depends on capital management, which encompasses capital quality, capital adequacy, capital efficiency, profitability, shareholders, risk management, and dynamics. Bank stock returns are crucial for maintaining and boosting economic growth.

Additionally, the researchers note that, in addition to the aggregate number of financial intermediaries critical for economic growth, the banking sector's institutional framework has a considerable impact on economic growth (Surwanti & Agustianata, 2019; Cole, Moshirian & Wu, 2008). Since corporate-bank connections are primarily private, bank stock returns provide insight into future economic growth. As a reflection of the economy, the stock market is determined by macroeconomic variables, which significantly impact stock returns (Abbas, Tahir & Raza, 2014). Macroeconomic variables are the primary driver of stock market volatility and should be viewed as a leading indicator of stock returns.

The rate of return on bank stocks differs by country due to socioeconomic and psychological variables. A previous study has established that more volatility suggests a reduced probability of a falling market, whereas decreased volatility indicates a greater probability of a rising market. If a central bank fixes the short-term interest rate on bank loans overnight, it can significantly alter the market's trajectory. The three primary macroeconomic indicators are the short-term interest rate, long-term exchange rate, and composite index.

The stock market is infamous for its unpredictability and volatility. Previously, the literature has gone into great detail regarding the different factors or variables that might affect stock prices and returns. However, substantial research had concentrated on non-financial company stocks. As a result, this study concentrates on financial enterprises, specifically the Indonesian banking industry, which has the region's largest economy.

Research Background

This study aims to evaluate the stock returns of ten (10) banks listed on the Indonesian Stock Exchange (IDX) and their relationship to macroeconomic variables. Bank Indonesia (BI), Indonesia's central bank, controls and supervises the country's banks. The BI's banking regulations have been amended numerous times to enhance the bank's performance and attract domestic and global investment. Surwanti and Agustianata (2019) state that various revisions to BI laws in 2011 were intended to improve banks' risk profiles, corporate governance, income, and capital. Regulations have aided investors in making the best investing selections and maximizing earnings.

The return on investment is stated as a percentage change or as a change in price. A positive return indicates that a profit has been earned, while a negative return indicates incurred loss. Stock returns are classified into two categories: realized and expected returns. The realized rate of return is a rate of return that has already occurred and is determined using historical data. Meanwhile, the predicted rate of return is the expected rate of return for investors in the future.

Indonesia is a developing country still pursuing economic development through many measures, one of which is an investment. Economic and national progress requires the mobilization of bank stock returns, and the economy can be sustained only through efficient and effective resource mobilization via investment. This study aims to evaluate a relationship between bank stock returns and Indonesian macroeconomic factors such as the composite index, exchange rate, short-term and long-term interest rates.

The stock returns of banks are critical to economic growth and existing and potential investors. Financial performance is the most important indicator in the financial and economic sectors. Earlier research has demonstrated that bank stock returns can be volatile and unpredictable at times. In other words, bank stock return volatility and the status of the economy are related. Indonesia's banking sector is comprised of private banks, state-owned banks, and regional banks. Banks control more than 80% of the financial system in Indonesia. Although the Indonesian banking system structure has not altered much, the financial crisis that afflicted the country from 2008 to 2015 and the repercussions of political upheavals have affected the Indonesian banking structure.

Today, many equity investors regard banks as an investment choice, and bank stocks have quickly become one of the most popular investments due to their excellent returns (Suprayitno & Sinansari, 2020). Bank stock values, however, are extremely volatile and susceptible to changes in macroeconomic conditions. Macroeconomic variables, in particular, help reduce the effects of unanticipated bank equity return changes. Additionally, bank stock returns are a reliable indicator of the overall performance of the banking industry. As a result, bank equities should perform especially well in emerging markets. Thus, this study explores the relationship between the returns on Indonesian bank stocks and macroeconomic variables such as the exchange rate (ER), the composite index (CI), the short-term interest rate (STIR), and the long-term interest rate (LTIR).

This research report also discusses the equity returns of Indonesian banks. This study depends on secondary data to determine bank stock returns; the literature search was conducted utilizing internet resources such as journals and articles, all of which are critical for establishing dependent and independent variables in order to conduct this research. Following that, the examination focuses on Indonesia's composite index, exchange rate, short- and long-term interest rates. The study measures bank stock prices and financial sector indices. The data was gathered over ten years, from 2010 to 2019. We used Treasury bill yields as a proxy for short-term interest rates and government bond yields for long-term interest rates.

The rest of this article is structured as follows: In the next section, the literature review is presented, followed by the data and methodology section, then the results and the analysis of the results are presented for discussion, then the article concludes with some recommendations.

Review of Literature

For decades, scholars have focused their attention on the topic of stock return sensitivity. However, past research concentrated on non-financial firms, with very few focusing on financial firms, particularly banking firms. Additionally, prior research has concentrated on developed and neglected emerging markets, except for the 1997/1998 Asian financial crisis. The majority of studies examined the relationship between macroeconomic variables and bank equity returns. Macroeconomic factors include, but are not limited to, general economic conditions, reserves, and government restrictions, all of which have a different effect on stock prices in the stock market, with effects differing by the firm, industry, and historical period (Rahman, Sidek & Tafri, 2009).

Menacer and Nurein (2017) found that macroeconomic variables had a beneficial effect on the equity returns of 66 Islamic banks in the Gulf Cooperation Council (GCC) nations between 2005 and 2014. This is backed by Hasan (2017), who asserted that all macroeconomic variables examined adequately explained the Bangladeshi stock market's stock values. Additionally, the study discovered that the Dhaka Stock Exchange's (DSE) stock return volatility is highly influenced by the volatility of the Indian market's exchange rate, broad money supply, and stock returns.

The composite index (CI) is a macroeconomic indicator frequently used to gauge a country's bank stock returns. CI is made up of groups of diverse stocks, assets, or indexes that represent the performance of the overall market or sector. The CI serves as a price indication for all listed common stocks. Sujianto (2018) asserts that the CI value fluctuates regularly due to economic conditions. The positive performance of CI reflects the positive performance of stock returns and the favourable economic outlook, which instils investor confidence in the stock market.

Mursalin, Oktaviani, and Aisyah (2018) proposed that investors consider the US dollar (USD) exchange rate and the interest rate on the Bank Indonesia certificate when investing in the Indonesian stock market. The Jakarta Composite Index was discovered to be influenced by both currency rates and interest rates concurrently (JCI). The USD exchange rate and interest rates, on the other hand, had little effect on the JCI. They said that JCI's actions could give

investors insight into whether market circumstances are tightening or easing. This also affects capital investment, either directly or indirectly, through the capital market.

Nisha (2015) analyzed the equity returns of Indian banks using monthly data series spanning the years 2000 to 2015 and discovered a negative association between the exchange rate and equity returns using Vector Auto Regression (VAR). The study concluded that investors in India must grasp the relationship between macroeconomic factors and stock returns to develop more effective diversification strategies and risk-reward trade-offs. Meanwhile, according to Verma (2016), currency changes affect banks' revenues and losses based on their net foreign positions. The study demonstrated that the exchange rate affected the returns on bank stocks and indicated the bank's risk using the EGARCH approach. Additionally, the study indicated that the impact on various banks, including money centres and large and medium-sized banks, should be distinct.

Kandir (2008) found that the exchange rate has a considerable effect on the Turkish stock market. The study, which covered July 1997 to June 2005, used adjusted stock returns for dividend distributions and focused on stock portfolios rather than individual stocks. Menacer and Nurein (2017) corroborated the discovery of a strong exchange rate effect on bank stock returns by using the GLS estimator on panel data from banks in the GCC countries. Currency changes affect profitability and investment, which is reflected in financial performance. As a result, business activity affects stock returns.

The term interest rate refers to the fee that a borrower must pay or banks charge depositors. It is used to control investment and inflation, which both affect the economy's performance. Low long-term interest rates encourage investment, while high rates discourage it. Elyasiani and Mansur (2004) emphasized the sensitivity of bank stock returns to interest rate movements, which serves as a proxy for banks' risk exposure. In other words, it serves as a barometer for bank managers, banking regulators, and financial sector investors. Long-term rates, the study discovered, have a higher impact on bank stock returns.

Additionally, the findings revealed that long-term rate volatility could exacerbate the volatility of banks' equity returns. According to Verma (2016), the effect of long-term interest rates on bank stock returns suggests that banks were more vulnerable, whereby 1988 and 2000, the analysis discovered a positive association between long-term interest rates and bank stock returns. This suggested that every change in the long-term interest rate would be accompanied by a corresponding change in banks' stock returns.

On the other hand, the term short-term interest rate refers to the interest rate imposed on a short-term loan. The term short-term interest rate refers to the money market rate. Short-term interest rate changes have a greater impact on short-term bonds than on long-term bonds. Rate hikes to stem capital outflows can depress stock returns, hence deteriorating real economic activity in any nation or country. In theory, if interest rates increase, the stock market will suffer. This is because interest rate variations can have a variety of effects on financial and investment operations.

Interest rates were discovered to affect commercial bank stock returns as financial markets got more volatile and profit margins contracted (Elyasiani & Mansur, 2004). This study shows that interest rates have a significant effect on bank stock returns. Verma (2016) asserted that

banks were susceptible to fluctuations in short-term interest rates. According to the study, the sensitivity of bank stocks to interest rate movements is a proxy for the banks' interest rate risk.

As a result of a dearth of research on financial firms, particularly the banking sector, and a scarcity of research on emerging markets, it is worthwhile to examine the impact of macroeconomic variables on bank equity returns, emphasizing Indonesian banks Southeast Asia's largest economy.

This study hypothesizes the following based on the studied literature:

H1: CI has significant relation and impact on Indonesian banks' stock and portfolio returns

H2: EXC has significant relation and impact on Indonesian banks' stock and portfolio returns

H3: LIR has significant relation and impact on Indonesian banks' stock and portfolio returns

H4: SIR has significant relation and on Indonesian impact banks' stock and portfolio returns

Data and Methodology

Data

Weekly time-series data from January 2010 to December 2019 are used in this study. The dependent variables (DV) are the equity returns of Indonesia's top ten largest banks in the first quarter of 2020 (Q12020) based on total assets. Additionally, portfolio return was examined as a dependent variable, serving as a proxy for Indonesia's banking and financial sector returns. The DV utilized in this study is listed in Table 1.

Table 1

Details of Dependent Variable (DV)

Rank	Name of Bank (DV)	Acronym (as Traded at IDX)	Year Founded	Total Assets as of Q12020 (IDR trillion)
1	Bank Rakyat Indonesia	BBRI	1895	1287.09
2	Bank Mandiri	BMRI	1998	1130.70
3	Bank Central Asia	BBCA	1957	953.70
4	Bank Negara Indonesia	BBNI	1946	803.20
5	Bank Tabungan Negara	BBTN	1897	308.10
6	Bank CIMB Niaga	BNGA	1955	271.80
7	Bank OCBC NISP	NISP	1941	191.50
8	Bank Panin	PNBN	1971	190.20
9	Bank BTPN	BTPN	1958	189.92
10	BankMaybank Indonesia	BNII	1959	181.50
11	IDX Sector Financials	IDXFINANCE	2018 (base)	Constituents of 104 banks

Note:

The total assets for No. 1 to 9 are obtained from the Statista website i.e. www.statista.com

The total assets for No. 10 are obtained from the Wall Street Journal (WSJ) website i.e. www.wsj.com

The data for No. 11 is obtained from the Indonesia Stock Exchange (IDX) website i.e. www.idx.co.id

The Jakarta Composite Index, the Indonesian rupiah (IDR) to US dollar (USD) exchange rate, the long-term interest rate, and the short-term interest rate are the four macroeconomic or independent variables (IV) chosen. Table 2 outlines the independent variables that were employed in this investigation.

Table 2

Details of Independent Variable (IV)

IV (Acronym)	Explanation	Data or Proxy	Source(s)
Jakarta Composite Index (JCI)	Measures economic trends, forecasts market activity, acts as a tracking tool for changes in security prices relative to the overall stock market and is linked to the country's economic performance.	Weekly closing indices	Yahoo Finance
Forex rate of IDR to USD (FRX)	Useful indicators for measuring changes in the value of money influences stock exchange and investment decisions, especially by foreign investors.	Weekly closing rates	
Long term interest rate (LIR)	Includes the sum of expected inflation, expected real short term interest rate and a term premium that causes a significant impact on stock returns.	10-year bond rates issued by the Indonesian Government	
Short term interest rate (SIR)	Plays a huge role on both sides of a deal between long-term and short-term rates. Banks are in a competitive business environment and must hit the returns for investors.	Treasury bills rates issued by Bank Indonesia (Indonesia's central bank)	

Methodology

This study used two main tests to prove the hypotheses. The first is Pearson's correlation test. A correlation coefficient indicates the size or strength of the linear relationship and the direction of the relationship between two quantitative variables. A high correlation, either positive or negative, means that the two or more variables have a strong correlation, while a weak correlation means that the variables are barely correlated. Correlation coefficient (ρ) ranges between -1.0 and +1.0. If $\rho = +1.0$, there is a perfect positive correlation between the variables. If $\rho = -1.0$, there is a perfect negative correlation between the variables. There is no correlation if $\rho = 0$.

The ordinary least square (OLS) was used next. The logic of OLS regression can easily be extended to the multivariate model, in which there are two or more independent variables. In this study, multiple regressions were used to estimate the significant or insignificant association and strength of the effects between the independent and dependent variables. Multiple regressions are an extension of linear regression models that allow predictions with multiple independent variables. The multiple regression equation can be formulated as follows:

$$R_{i,t} = \alpha + b_{i,t}JCI + b_{i,t}FRX + b_{i,t}LIR + b_{i,t}SIR + \varepsilon \quad (\text{Equation 1})$$

Where,

$R_{i,t}$ represents the stock return of individual bank and the portfolio return at time t ;

α is the constant value of the equation;

b is the coefficient value that could be positive or negative measures the direction and magnitude of the impact of respective IV on the DV; $JCI, FRX, LIR,$ while SIR are the IVs as explained above that act as explanatory variables;

and the error term or residual value. Both the correlation and regression tests results will be explained in detail in the next section.

Besides the above two main tests, tests on assumptions were also conducted. The variance inflation factor (VIF) was run to identify the severity of multicollinearity by looking at the extent to which other explanatory variables in the equation can explain a given explanatory variable. The rule of thumb is if the value of VIF is greater than 10 (>10), then the multicollinearity is severe or serious. For simplicity, the VIF results are explained in this section. The results turned out that the VIF values range between 3.8231 and 8.4899. Hence, it can be concluded that there is no severe multicollinearity issue between the explanatory variables. In addition, the Ramsey RESET test was also performed to check the existence of any significant non-linear relationship in the linear regression model or any model misspecification. Based on the p -value results at the significance level of 5%, it was noted that there is no non-linear relationship or misspecification in the model or equation.

Results and Discussion

Correlation Analysis

Table 3 summarizes the results of Pearson's correlation test.

Table 3

Correlation Results

DV _s / IV _s	Coefficient				p-value			
	JCI	FRX	LIR	SIR	JCI	FRX	LIR	SIR
BBRI	- 0.1883	- 0.1632	0.0022	- 0.0704	0.0016*	0.0063*	0.9700	0.2409
BMRI	- 0.2520	- 0.1995	- 0.0523	- 0.0639	0.0000*	0.0012*	0.4007	0.3046
BBCA	- 0.2659	- 0.2475	- 0.0057	- 0.0067	0.0000*	0.0000*	0.9229	0.9088
BBNI	- 0.1310	- 0.0780	0.0585	0.0006	0.0392*	0.2207	0.3586	0.9919
BBTN	- 0.1076	- 0.0192	0.1279	0.0388	0.0837**	0.7578	0.0396*	0.5334
BNGA	0.2310	0.2338	0.1484	0.2129	0.0031*	0.0027*	0.0594**	0.0065*
NISP	- 0.2682	- 0.2516	0.0083	0.0268	0.0001*	0.0003*	0.9072	0.7069
PNBN	- 0.1055	- 0.0897	- 0.0910	- 0.1379	0.1007**	0.1742	0.1679	0.0361*
BTPN	- 0.2589	- 0.2496	- 0.1238	- 0.1484	0.0001*	0.0001*	0.0580**	0.0229*

BNII	0.0546	0.1361	0.2553	0.2707	0.5369	0.1224	0.0034*	0.0018*
IDXFINANCE	0.9637	0.8574	0.0357	0.1281	0.0000*	0.0000*	0.4177	0.0035*
Magnitude/No. of significant cases	-ve (8/11)	-ve (8/11)	+ve (7/11)	+ve (6/11)	10/11	7/11	4/11	5/11

Note:

* Significant at 5% significance level

** Significant at 10% significance level

Based on the results, it was found that out of the ten banks, eight banks have weak negative correlations with the JCI and FRX, while interestingly, the other two banks, namely BNGA and BNII, both of which are based in Malaysia, have positive correlations with the JCI and FRX. The LIR and SIR indicate weak and mixed correlation relationships with the stock returns of the ten banks. Meanwhile, the return on the bank portfolio, which IDXFINANCE uses as a proxy, shows strong positive correlations with the JCI or FRX. Despite the positive coefficients of the portfolio return with the LIR or SIR, the correlations are weak.

These results should be further explored as they appear ambiguous as the equity returns of the eight Indonesian banks correlate negatively with the national equity index (JCI). In comparison, the equity and portfolio returns of the other two Malaysian banks correlate positively. Another thing to investigate further is the correlation of the LIR and SIR, which are inconsistent with the stock returns of almost all Indonesian banks, but positively correlated with the two Malaysia-based banks and the portfolio return, which is the total return for banking and banking Financial sector in Indonesia.

In addition, the p-value results indicated that the JCI had the most significant correlations with banks' respective equity and portfolio returns, followed by FRX and SIR, and the LIR has the fewest number of significant cases in bank equity returns. The results suggest that all of the ups and downs of the JCI, which serves as a benchmark for the entire Indonesian stock market, or the entire Indonesian economy and currency fluctuations in the country, have become major indicators of the performance of Indonesian banking stocks and sectors. In addition, the short-term interest rate development could also be one of the explanatory factors for understanding the performance of Indonesian bank stocks.

Regression Analysis

The results of the multiple regression test are shown in Table 4.

Table 4

Regression Results

DVs/ IVs	Coefficient				p-value			
	JCI	FRX	LIR	SIR	JCI	FRX	LIR	SIR
BBRI	- 0.8828	0.0471	1.0554	- 1.2148	0.2563	0.9632	0.2683	0.1295
BMRI	- 2.2005	1.3794	- 1.3254	0.3020	0.0017*	0.1224	0.1256	0.6718
BBCA	- 0.0007	0.0003	- 0.2452	- 0.1008	0.0142*	0.0223*	0.3524	0.6933
BBNI	- 0.9930	0.7709	0.6886	- 0.7893	0.1518	0.3867	0.4861	0.3420
BBTN	- 0.8900	0.9256	1.4864	- 1.3426	0.1562	0.2576	0.0590**	0.0479*
BNGA	1.1765	- 0.3816	0.2483	0.7743	0.1001**	0.6835	0.8021	0.3338
NISP	- 0.4494	- 1.2773	- 0.4249	1.1639	0.6134	0.2764	0.6932	0.2124
PNBN	- 1.3435	1.4812	- 0.1524	- 1.1592	0.0553**	0.1160	0.8710	0.1393
BTPN	- 1.7437	0.7964	- 1.2914	0.0366	0.0141*	0.4018	0.1625	0.9629
BNII	0.9421	- 1.2933	1.0228	1.0018	0.2632	0.2422	0.4136	0.3734
IDXFINANCE	1.2416	0.5480	0.2184	- 0.3850	0.0000*	0.0000*	0.0000*	0.0000*
Magnitude/No. of significant cases	-ve (8/11)	+ve (8/11)	+ve (6/11)	-ve (6/11)	6/11	2/11	2/11	2/11

Note:

* Significant at 5% significance level

** Significant at 10% significance level

The regression results show that the JCI has had a negative impact on equity returns for most (8 out of 11) Indonesian banks. Meanwhile, the other two banks (BNGA and BNII) that are based in Malaysia and whose portfolio returns will be positively impacted by the JCI. This result supports Sujianto (2018) study and agrees with the correlation result discussed in the previous section. Despite the result, the JCI is found to be significant only on equity and portfolio returns from five banks. In addition, a remarkable result of the FRX was found that does not agree with the correlation result. The FRX has positively impacted Indonesian banks' equity and portfolio returns, and this result is in line with Kandir (2008); Menacer and Nurein (2017). Meanwhile, the other two banks, namely the stock returns of BNGA and BNII, are negatively affected by the FRX, and the result is in line with the studies by Kasman et al. (2011); Nisha (2015). Despite the results, the FRX is found to be significant for just one bank stock (BBCA) alongside portfolio returns.

As for the LIR and SIR, both variables have been found to have positive effects on the stock returns of the two Malaysian banks, Bank CIMB Niaga (BNGA) and Bank Maybank Indonesia (BNII), and this is in line with the study by Elyasiani and Mansur (2004). Meanwhile, both the

LIR and SIR are showing mixed effects on other Indonesian banks' equity and portfolio returns. Nonetheless, it turns out that LIR and SIR are insignificant variables except for BBTN's stock and portfolio returns, and this is in line with the study by Kasman et al (2011). Again, the overall regression test results are similar to the correlation test results, which show mixed effects when tested on individual bank equity returns, with the exception of portfolio returns, which were significantly and positively impacted by all macroeconomic variables.

From the regression results, it could be predicted that the individual banks' stock prices will react reversely in the event of an upward trend in the JCI. Hence, bank equity returns will also go in the opposite direction. Should the local currency devalue from IDR to USD in the FRX, this will lead to the banks' share prices rising and thus also the share returns. Otherwise, when the IDR appreciates against the USD, bank equity returns will decline. However, the LIR and SIR impact on Indonesian banks' equity returns cannot be accurately predicted because the results are mixed or ambiguous.

Conclusion

The study of the impact of macroeconomic variables on bank equity returns, particularly in Asia and developing markets, caught the attention and interest of researchers after the 1997/1998 Asian financial crisis. The Government, which was severely impacted by the crisis, was forced to reformulate its monetary policy regime and reorganize the financial sector, especially the banking system, during the crisis. As such, the primary objective of this study is to investigate the link between the impact of macroeconomic variables on bank equity returns. Using weekly time-series data from January 2010 to December 2019, a conclusion was formed about the impact of JCI, FRX, LIR, and SIR on each bank's equity and portfolio returns in Indonesia.

This paper shows that the JCI is the most significant macroeconomic variable with a negative impact on the equity returns of individual Indonesian banks, except the two Malaysian banks and portfolio returns. Meanwhile, the other three macroeconomic variables, namely FRX, LIR and SIR, with their mixed negative or positive effects on banks' equity and portfolio returns, are not as significant. Despite the results, it could be concluded that overall stock market performance, as reflected in the changes in the composite index, will change the stocks of the banking sector accordingly. This is because market investors respond based on overall stock market performance rather than individual sector performance.

The foreign exchange market also plays a crucial role in the performance of banks' stock returns. This is especially true when the banks have a significant net position in foreign markets. Any translation gain or loss from a foreign market position will certainly affect the bank's profits and thus affect the bank's financial performance, which will ultimately have an impact on the bank's stock prices and returns. The debt capital market (bonds and fixed-income securities) and the money market (short-term securities) also have an important relationship with the performance of bank stocks. Hence, these factors need to be considered when evaluating the bank's stock returns.

The study's conclusions are critical for a variety of stakeholders, including bank stock investors, bank management, and legislators. The findings will benefit investors who own bank stocks, and investors should use the variables as a reference for determining stock

valuation and portfolio composition. On the bank management side, the results will help track the performance of bank stocks by closely monitoring the movement of macroeconomic variables. This will also guide bank management in preparing the risk management strategy should there be any sudden or unpredictable changes in macroeconomic variables in the future that could significantly impact the bank's share price and returns. Policymakers involved in the formulation of monetary policy and the development of the financial system must consider the banking sector's sensitivity to any action taken. The banking industry is undeniably critical to a country's economic success. Therefore, a solid and effective monetary policy with a stable financial system will ensure the sustainability of the banking system.

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Corresponding Author

Suhana Mohamed

Department of Finance, Faculty of Business and Management, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus, Jalan Purnama, Bandar Seri Alam, 81750 Masai, Johor, Malaysia.

Email: suhan291@uitm.edu.my

References

- Abbas, S., Tahir, S. H., & Raza, S. (2014). Impact of Macroeconomic Variables on Stock Returns: Evidence from KSE-100 Index of Pakistan. *Research Journal of Economics and Business Studies*, 3(7), 70-77.
- Cole, R. A., Moshirian, F., & Wu, Q. (2008). Bank Stock Returns and Economic Growth. *Journal of Banking & Finance*, 32(6), 995-1007.
- Elyasiani, E., & Mansur, I. (2004). Bank Stock Return Sensitivities to the Long-term and Short-term Interest Rates: A Multivariate GARCH Approach. *Managerial Finance*, 30 (9), 32-55.
- Hasan, M. A. (2017). Efficiency and Volatility of the Stock Market in Bangladesh: A Macroeconometric Analysis. *Turkish Economic Review*, 4(2), 239-249.
- Kandir, S. Y. (2008). Macroeconomic Variables, Firm Characteristics and Stock Returns: Evidence from Turkey. *International Research Journal of Finance and Economics*, 16, 35-45.
- Kasman, S., Vardar, G., & Tunc, G. (2011). The Impact of Interest rate and Exchange Rate Volatility on Banks' Stock Returns and Volatility: Evidence from Turkey. *Economic Modelling*, 28(3), 1328-1334.
- Menacer, A., & Nurein, S. A. (2017). Macroeconomic Variables and Islamic Bank Stock Returns: Panel Data Evidence from GCC Countries. *Journal of Islamic Finance (Special Issue)*, 1-13.
- Mursalina, A., Oktaviani, D., Aisyah, & Niswan, E. (2017). The Influence of Dollar Exchange Rate, the Dow Jones Index and the Interest Rate of Certificate of Bank Indonesia (SBI) on the Composite Stock Price Index (during the Period of January 2015 to December 2015). *International Journal on Recent Trends in Business and Tourism*, 1(2), 69-79.
- Nisha, N. (2015). Impact of Macroeconomic Variables on Stock Returns: Evidence from Bombay Stock Exchange (BSE). *Journal of Investment and Management*, 4(5): 162-170.
- Rahman, A. A., Sidek, N. Z. M., & Tafri, F. H. (2009). Macroeconomic Determinants of Malaysian Stock Market. *African Journal of Business Management*, 3(3), 95-106.

- Sujianto, A. E. (2018). Jakarta Composite Index, Sharia Stock Index and Rupiah Exchange Rate Before and After the Indonesian Presidential Election 2014. *American Journal of Economics*, 8(6), 254-262.
- Suprayitno, G., & Sinansari, P. (2020). Analysis of Indonesia Banking Performance. *Advances in Economics, Business and Management Research*, 135, 233-236.
- Surwanti, A., & Agustianata, W. (2019). How Does Financial Performance Boost Indonesian Bank Stock Returns?. *The International Journal of Business Management and Technology*, 3(6), 176-182.
- Verma, P. (2016). The Impact of Exchange Rates and Interest Rates on Bank Stock Returns: Evidence From U.S. Banks. *Studies in Business and Economics*, 11(1), 124-139.