



DO MACROECONOMIC VARIABLES MATTER? TIME-SERIES ANALYSIS OF STOCK RETURN SENSITIVITY TO GDP, INFLATION, AND UNEMPLOYMENT IN BURSA MALAYSIA

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Abstract

This study attempted to investigate the relationship between the FTSE Bursa Malaysia EMAS index (FBME) return and the GDP, inflation, and unemployment rates in Bursa Malaysia from 2015 to 2024. The results of Newey-West (1987) standard errors regression showed a significant positive relationship between FBME return and GDP and unemployment. Simultaneously, the conclusions indicated a negative, insignificant relationship between the FBME return and inflation. The significant correlation between FBME return and unemployment indicates a rather multifaceted picture in Malaysia, which could be caused by the investors' optimism of a recovery or some external factors. Therefore, policymakers must be careful in modifying macroeconomic variables such as GDP, inflation, or the level of unemployment because they might lower the stock market and hinder capital accumulation.

Keywords: Bursa Malaysia, Inflation, GDP, Unemployment rates. Macroeconomic Variables, Stock returns

INTRODUCTION

Stock markets operate in a particular macroeconomic setting that allows or dissuades their functioning. Except for other emerging markets, Bursa Malaysia has drawn tremendous attention due to its stable growth, sound regulatory system, and active involvement in regional economic activity. The FTSE Bursa Malaysia EMAS index (FBME) is one of the most diversified equity indices in Malaysia, with large, mid, and small-cap players listed on Bursa Malaysia

(FTSE Russell, 2025). Relative comparison with some of the key macroeconomic drivers like inflation, gross domestic product (GDP), and unemployment provides information on the effectiveness, responsiveness, and sustainability of Bursa Malaysia.

The stock market is expected to incorporate all relevant information, including the macroeconomic fundamentals (Fama, 1970). Under the Efficient Market Hypothesis, investors have certain expectations based on what can be seen in terms of the macroeconomic variables, for instance, the corporate earnings, as well as the economic activity level. Of these, GDP, as an indicator of economic production, is a direct indicator of the health of the economy. Parkin (2022) indicated that GDP was the monetary value of a nation's final goods and services produced within a span of time (annual, half-yearly, or quarterly). Improved GDP translates into improved economic activity, and improved company profitability is another favourite equity value driver. Malaysian GDP growth has tended to follow the trend of the FTSE Bursa Malaysia index and there is a fair correlation between macroeconomic performance and equity market movement (Kalam, 2020).

In addition, inflation is the most relevant factor for real return on investment. Inflation is a general rise in the cost of money-valued goods and services that reduces the purchasing power of a country. As Meyer and Hassan (2024) would say, high inflation inhibits the efficient allocation of resources by concealing the signalling function of relative price changes; it decelerates development by raising the cost of financial intermediation; and it erodes potential savers' and investors' confidence through making future prices uncertain. Conversely, moderate inflation can spur the economy and increase the disposable incomes of consumers, possibly resulting in a rise in the demand for green goods (Bistline et al., 2023). Irrespective of the traditional notion that low inflation is required in an attempt to tap the potential of the economy to grow, there is also the reality that low inflation can adversely affect the economy (Vinayagathan, 2013).

Unemployment, however, is an economy's lagging indicator of health. Rising unemployment rates would portend economic downturns (Kreishan, 2011), which would decrease consumer spending and corporate profitability, thus negatively affecting the performance of the stock market. The relationship, however, is not permanently linear because investor sentiment and expectations are able to offset existing labor slack in the market (Gonzalo & Taamouti, 2017).

Each macroeconomic variable has its independent effect on the stock market, beyond which, the interaction of these variables determines how the investor behaves and how the market performs. Malaysia's economy leans heavily on global trade and outside funding, so it isn't too surprising that sudden shifts in the world economy tend to shake up its capital markets.

Research into the Malaysian stock scene—especially concerning the FBME —has often thrown up mixed signals. Some studies (like Ibrahim & Aziz, 2003), generally picked up strong links between overarching economic signs and stock returns, whereas others, such as Sakti and Harun (2013), pointed out that abrupt regime flips, structural hiccups, and investor mood shifts also play their parts. With global markets getting ever more tangled and Malaysia facing both local tweaks and foreign shocks, one might say there's a pressing need to look anew at how basic economic factors—namely inflation, GDP trends, and unemployment figures—shape the performance of Bursa Malaysia as seen through the FBME. Therefore, The primary purpose of this research is to investigate how selected macroeconomic variables impact the FBME return in Bursa Malaysia between January 2015 and December 2024.

LITTERATEUR REVIEW

Stock performance and returns are impacted by various internal factors such as dividends, organisational, financials, technology, and management and external factors such as a country's rate of inflation, GDP, and unemployment. Most research has made efforts to quantify the effects of external economic determinants on stock performance, more so for the emerging economies of countries such as Malaysia. For instance, Kalam (2020) investigated the relationship between some macroeconomic variables and stock returns in Bursa Malaysia. The variables are the exchange rate, the interest rate, the inflation, the foreign direct investment and the GDP over the 2000 to 2019 period. By employing different regression analyses, the results indicated that all the previous variables have significant relationships with the return of stocks listed in Bursa Malaysia. These results are also supported by Chen et al. (2005) and Abedallat and Shabib (2012). Another study conducted in Malaysia by Wong et al. (2025) examined the influence of economic growth, financial deepening, inflation, exchange rate, and oil prices on stock risk premium in Bursa Malaysia from 2009 to 2023. The authors ran different tests, such as the Bayer and Hanck combined cointegration tests. In the long run, the results affirmed that economic growth as well as financial depth have a considerable negative influence on stock risk premium, whereas the exchange rate, inflation, and oil prices have a major positive impact.

Keswani, Puri and Jha (2024) intend to investigate the relationship between various macroeconomic variables and the stock market in India. The cointegration test findings confirm a long-term relationship between stock returns and key economic metrics such as GDP, disposable income, and foreign institutional investor involvement in the market. In addition, it points out the long-run negative stock return correlation with variables like interest rates, government policy, exchange rates, and inflation.

Comparing stock returns to the unemployment rate, Gonzalo and Taamouti (2017) discussed the short-run effect of expected unemployment rates on the US stock price. The finding indicates that the expected unemployment rate significantly affects the stock price. That is, rising expected unemployment rates tend to have the overall tendency of improving stock prices. Beyond that, Atanasov (2021) reported that with U.S. and non-U.S. samples, unemployment differences also tend to be a good predictor of excess stock returns. Huynh (2023) unveiled the significant effect of unemployment policies, i.e., the projected unemployment rate and prevailing unemployment deficit, on cross-sectional Australian stock returns. Wei, Wei and Majed (2023) studied the macroeconomic variables influencing Malaysian stock market performance. These variables are the unemployment rate, inflation rate, foreign direct investment, exchange rate, and crude oil price. The Malaysian share market performance serves as the dependent variable. Secondary data was taken quarterly from numerous websites between 2011 and 2020. The findings suggest that the exchange rate, coupled with crude oil price, has a major impact on Malaysian stock market performance. However, this study also revealed that the inflation rate, foreign direct investment, and unemployment rate had the least influence on Malaysian stock market performance.

Moreover, the purpose of Mohnot et al. (2024) research is to investigate the relationships between macroeconomic variables and Malaysian stock market indices. They using monthly data from all economic indicators and the stock market index (KLCI Index). The results of the vector autoregressive-based impulse response study indicate that the KLCI reacts adversely to the money supply, inflation, and producer price index. However, the authors' findings imply that the stock index responds positively to the exchange rate. This supports the results of Yusof and Majid (2007) who asserted that the macroeconomic variables have an essential influence on the stock return in Bursa Malaysia. Although Maysami, Lee and Hamzah's (2005) study was conducted in a country neighbouring Malaysia, the economic and institutional proximity and structural similarity of the Malaysian and Singaporean markets allow the results to be generalized to Bursa Malaysia. The authors revealed that inflation, interest rates, and industrial production all had a substantial impact on sectoral stock returns. These results call for an investigation into whether such trends exist in Malaysia's changing market setting, especially for a broad index such as the FBME.

In general, whereas there is concurrence that macroeconomic variables cause stock market action, no concurrence has been reached about the nature and relevance of such relations for Malaysia. It suggests calling upon more empirics in the guise of the most recent available statistics and complete econometric models, trying to do a better job of describing how inflation, GDP, and unemployment rates affect the FBME simultaneous price return. Thus, the

primary goal of this study is to examine the relationship between GDP, inflation, and unemployment rates and the FBME return in Bursa Malaysia from January 2015 to December 2024. The key questions of this research are:

1. How does GDP influence FBME returns?
2. How does inflation influence FBME returns?
3. How do unemployment rates affect the FBME return?

METHODOLOGY

The data of this research is derived from a variety of sources, including the International Monetary Fund database, the Malaysian Department of Statistics, and Yahoo Finance. As mentioned earlier, The study period spanned from January 2015 to December 2024 for several reasons: (1) the researcher was able to obtain data for 10 years, and if the period were longer, it might have been challenging to obtain it; (2) the more recent the study period, the better the results reflect the current situation, rather than being influenced by historical data, which may be far from the current reality; (3) this period reduces the existence of some data-related issues, such as the use of multiple sources, data gaps, or the unreliability of old data; and (4) Bursa Malaysia was less volatile during this period than the period that followed the global financial crisis (2007-2008). Therefore, the period of this study is expected to help better assess the relationship between economic factors and stock returns.

The author chose monthly data to quarterly, semi-annual, or yearly data to create more frequency and richer analysis. The data collected every month reflects short-term market responses to macroeconomic indicators that would otherwise be missed in lower-frequency data. Monthly data also enhances the statistical power of the analysis by providing more observations. The macroeconomic variables employed in this research are (1) GDP, (2) inflation, and (3) unemployment rates, which are the percentages of the total labor force. The author selected these variables since they are central macroeconomic variables whose movements dictate investors' behavior and stock returns. They represent some of the most vital constituents of a nation's general welfare economically. They also provide a complete macroeconomic picture with which to grasp the determinants of stock returns. However, these variables were initially available at a quarterly or annual frequency. Since they had to match with monthly stock return data and allow for rich and dynamic analysis, the variables were interpolated from quarterly or yearly frequency to the monthly using linear interpolation. The linear interpolation is characterised by being simple and effective. This allows matching of time for macro information and financial market movement.

Additionally, the main reason for choosing the FBME as a dependent variable is that it adequately represents all stocks listed on Bursa Malaysia, where, according to FTSE Russell (2025), this index includes stocks of small, medium, and large-cap companies. Therefore, any variables affecting this index are also expected to affect the stocks listed on Bursa Malaysia. By using the STATA 12 statistical analysis program, this research regresses the FBME return on the values of GDP, inflation, and unemployment rates as shown in formula 1:

$$R_{FBMI} = a_{FBMI} + \beta_{GDP} \cdot GDP + \beta_{Inf} \cdot Inf. + \beta_{unemploy.} \cdot Unemploy. + \varepsilon_x$$

Where,

a_{FBMI} : is the Regression intercept; $\beta_{GDP, Inflat., unemploy.}$: represent the sensitivity of the return of FBME to the movement of the GDP, inflation, and unemployment, respectively, and ε_{FBMI} : is the error term.

Furthermore, in order to ensure that the time series variation decreases, all variables are logged prior to the regression. Logging variables in the regression is a common method for shifting a highly skewed variable into a more normal distribution (Benoit, 2011). Furthermore, to ensure that the outcomes of this research are free from bias, the following tests are performed before conducting the regressions:

1. The Augmented Dickey-Fuller (1981) test is used to determine if a time series has a unit root. The STATA 12 statistical program provides 3 types of ADF tests: (1) with intercept and trend, (2) with intercept only, and (3) with no intercept and no trend. However, according to Brooks (2019), macroeconomic time series and stock returns are likely to have non-zero means and typically trend over time; hence, "No Intercept and No Trend" is the wrong assumption for such data since they do not simply wander around zero without a deterministic part, which is not the case in real life. This consequently implies that including it can lead to incorrect conclusions. Also, Nelson and Plosser (1982) asserted that most macroeconomic variables are better modelled with a trend or intercept. Thus, "No Intercept and No Trend" is excluded from this research.
2. The Breusch-Pagan (1979) test: Heteroskedasticity can produce a statistically significant relationship between variables when there is none. The Breusch-Pagan (1979) test was used in this study to determine whether or not the residuals were heteroskedastic.
3. Durbin's alternative test (Durbin, 1970) is used to assess the autocorrelation bias in this study.
4. Pearson Correlation test is also conducted to investigate whether the multicollinearity issue exists or not.

The Newey-West (1987) standard errors regression has the ability to correct coefficient standard errors if the residuals exhibit only autocorrelation bias or both heteroscedasticity and autocorrelation biases (Newey & West, 1987; Wooldridge, 2013). It is worth mentioning that the Newey-West (1987) standard errors regression modifies the standard errors without affecting the predicted coefficients, resulting in more accurate hypothesis tests, such as t-tests (Newey & West, 1987).

Greene (2002) argued that several studies employed the equation $L \approx T^{1/4}$ to calculate the lags for the Newey-West (1987) standard errors regression, where T is the number of observations throughout the study period. Hence, the lag of this research is equal to $120^{1/4} = 3.30$. Since Newey-West standard errors demand the lag to be an integer of at least as large a value as calculated in order to be reliable, rounding up to 4 is conventional in order not to avoid underestimating autocorrelation effects. Furthermore, it is worth noting that the R-squared and adjusted R-squared for the Newey-West (1987) standard errors are obtained from the OLS regression. Also, the significance level of all the above tests is at the 0.05 level.

RESULTS

Table 1 below presents the results of the time series, heteroskedasticity, and autocorrelation biases. These tests are conducted by using the ADF, the Breusch-Pagan (1979), and Durbin's alternative tests.

Table 1: Results of Time Series, Heteroskedasticity, and Autocorrelation Tests

Variables and Benchmark	ADF Tests			
	Intercept only		Intercept and Trend	
	Critical Value 5%	ADF Test stat.	Critical Value 5%	ADF Test stat.
FBME	-0.757	-2.889	-1.897	-3.447
GDP	-0.734	-2.889	-2.759	-3.447
Inflation	-2.041	-2.889	-2.002	-3.447
Unemployment	-1.722	-2.889	-1.871	-3.447
FBME	Breusch-Pagan (1979) Test		Durbin's Alternative Test	
	Chi ²	P-values	Chi ²	P-values
	42.64	0.000***	43.51	0.000***

*** Significant at 0.05 level

The table shows the ADF test results at a 0.05 level of significance, where all of the absolute ADF values for the macroeconomic variables and FBME are higher than their

respective critical values. Consequently, the alternative hypothesis, asserting the absence of unit root biases in the data, triumphs over the null hypothesis. Therefore, it can be concluded that the time series in this research exhibits stationarity. Durbin's Alternative and Breusch-Pagan (1979) tests have p-values below 0.05. So, the results of both tests support the alternative hypothesis, and their residuals show both heteroskedastic and serial correlation biases simultaneously. Heteroskedasticity and serial correlation biases indicate that there are time-varying volatilities and time-dependent forms that impact the relationship between macroeconomic determinants such as inflation, GDP, and unemployment and stock returns. However, these are prevalent in time series data and, if not adjusted, cause spurious statistical results and erroneous conclusions. Therefore, this research conducts the Newey-West (1987) standard errors regression to correct these biases.

Furthermore, Table 2 shows the results of the correlation between macroeconomic variables, namely, the GDP, inflation, and unemployment rates. The main reason for this investigation is to examine the multicollinearity bias.

Table 2: Results of Macroeconomic Variables Correlation Test

Macroeconomic Variables.	GDP	Inflation	Unemployment
GDP	1.000	----	----
Inflation	0.023***	1.000	----
Unemployment	0.378***	-0.427***	1.000

*** Significant at 0.05 level.

The results in the table stated that the GDP has a weak positive correlation with both inflation (0.023) and unemployment (0.378). Inflation, on the other hand, has a relatively small negative relationship with unemployment (-0.427), therefore, any increase in inflation will cause a decrease in unemployment, which is consistent with the hypothesis of the Phillips Curve. This hypothesis, according to Phillips (1958), argues that unemployment decreases with every increase in wages. Besides, since the highest coefficient between the variables is 0.378, the correlation coefficients are modest across different macroeconomic variables. Thus, it is possible to deduce that the variables have a low multicollinearity bias, and the regression findings are expected to be interpretable.

The results of the Newey-West (1987) standard errors regression with 4 lags are displayed in Table (3). As mentioned earlier, the R-squared and adjusted R-squared are obtained directly from the OLS regression.

Table 3: Results of the Relationship Between Macroeconomics Variables and FBME Return

Regression Summary	FBME
Prob > F	0.000***
R²	0.622
Adj -R²	0.613
Intercept	-16.236
t-Stat	-2.56
P. Value	0.012***
b_GDP	0.919
t-Stat	3.810
P. Value	0.000***
b_ Inflation	-0.063
t-Stat	-1.380
P. Value	0.169
b_ Unemployment	0.749
t-Stat	3.330
P. Value	0.001***

*** Significant at 0.05 level

The results of the table clarify that the R-squared of the regression is 0.622 with a p-value equal to 0.000. Therefore, 62.2% of the variation in FBME returns can be explained significantly at a 0.05 level by the variation of the macroeconomic variables, namely, GDP, inflation, and unemployment. This is considered a good fit, indicating that macroeconomic variables have a significant impact on the return of stocks in Bursa Malaysia. Also, since the value of the adjusted R-squared is close to the value of the R-squared, the regression is fit, which means it does not include unnecessary variables. Moreover, the intercept (-16.236) is the estimated constant of the FBME return when all independent variables equal zero. However, the negative sign doesn't necessarily carry an intuitive economic explanation in this instance because it is not likely that all selected variables will be equal to zero at some point in time. Furthermore, since the P-value is equal to 0.012, this indicates that the intercept is different from zero at the 0.05 level of significance.

With regard to the macroeconomic variables, at a beta coefficient of 0.919, the positive significance of the relationship between the GDP and the return of the FBME is at a 0.05 level (P-value=0.000). Therefore, ceteris paribus, any rise in any 1% in GDP is followed by a rise of

0.919% in the return of the FBME. Based on economic theory, there will be higher corporate profits and investor expectations from higher economic growth that will translate into higher stock prices. Cheung and Ng (1998) also concur with the above result. Hossain and Hossain (2015) rejected cointegration between GDP and stock prices. Fichtner and Joebgies (2024) found that the correlation between relative stock prices and GDP remains volatile, with more robust evidence of correlation in later years of our sample. In accordance with Alexius and Spang (2018), nations with large gaps in GDP growth are more correlated with relative stock prices. As the authors O'Neill, Stupnytska, and Wrisdale (2011) state, the failure of researchers to find a statistically significant relationship between GDP growth and long-term equity returns could be due to conceptual flaws in their research.

On the other hand, the beta coefficient between inflation and the return of the FBME is negative (-0.063). Therefore, in contrast to what Kalam (2020) found, the relationship between them is inverse, where a decrease in the FBME returns accompanies any increase in inflation. This result agreed with the results of Keswani, Puri and Jha (2024). The reason might be because higher inflation would strip firms of profitability, or it is being identified with restrictive money policy. However, the ensuing dismal impact on stocks is not statistically significant in this research since the p-value (0.169) is less than 0.05. Hence, unlike Wong et al. (2025), the results of this research cannot validate that inflation will have a significant relationship with the returns of FBME. These findings are in line with the findings of Wade and May (2013) who argued that following the global financial crisis, inflation is not considered a major issue for central banks; therefore, shifting inflation expectations are less likely to result in a large shift in monetary policy. With inflation no longer having a substantial impact on stock performance, GDP growth has emerged as the primary driver of stock market gains.

Finally, the positive (0.749) and significant (P-value=0.001) value of the coefficient between unemployment and the return of the FBME asserted a positive relationship between them. Thus, in line with Atanasov (2021), the evidence of this research revealed a positive relationship between unemployment and stock returns in Malaysia, which seems counterintuitive at first glance to orthodox economic theory. While Boyd, Hu and Jagannathan (2005) concluded that, on average, an announcement of increased unemployment is good news for equities during economic booms but terrible news during economic recessions. In general, increasing unemployment has been linked to poor economic performance, reduced consumer expenditure, and all of these would have a depressing effect on stock prices. The reasons might be as follows:

1. Stock markets are forward-looking, while unemployment is considered a lagging indicator (Bock, 2018; Pinchuk, 2023). Hence, investors respond to perceptions of future change in

the economy, rather than to what is currently occurring. Hence, increasing unemployment can be trailed by the potential for economic recovery with increased investment activity and higher equity prices since current labour market weakness is not yet reflected. Therefore, a phase of increasing unemployment may coincide with the promise of economic recovery, with more investment activity and growing equity prices, since current labour market vulnerability is not yet discounted. More unemployment can result from corporate restructurings when companies minimise the number of staff to keep operating costs down (Commander and Tolstopiatenko, 1997; Jackman, 1998). As undesirable as this has for society, the stock market may see this type of retrenchment as an effort at increasing efficiency and profit margins. Under such a situation, the market tends to respond positively and causes stock prices to rise despite having high levels of unemployment.

2. Many stocks listed in Bursa Malaysia are hostage to outside influences, such as international investor sentiment, commodity prices, and regional economic developments (Omay and Iren, 2019). Foreign capital flows induced by global liquidity or regional euphoria can, in some instances, underpin market performance regardless of domestic labor market developments.
3. FBME is not required to mirror the domestic economic structure. Many of the listed stocks are export-oriented, capital-intensive, or multinational. Their performances will be less sensitive to domestic unemployment rates and more sensitive to foreign demand, exchange rates, or foreign supply chains.

In summary, the positive association found here does not necessarily mean that unemployment is good news for the stock market. Instead, it reflects the intelligence of the market and investor sentiment, particularly in an open, emerging economy such as Malaysia. The messages are to consider macroeconomic indicators in the wide range of economic and financial determinants and not to oversimplify the way they influence financial markets.

CONCLUSION

This research aimed to examine the relationship between the return of the FBME on the one hand and selected macroeconomic factors, GDP, inflation and unemployment rates, on the other hand, in Bursa Malaysia over the examination period from January 2015 to December 2024. The research regresses the return of the FBME on the values of GDP, inflation and unemployment rates. By employing the Newey-West (1987) standard errors regression, the results affirmed that with a beta value of 0.919, this relationship between GDP and FBME return is significantly positive at the 0.05 level. The correlation coefficient between inflation and the FBME return is -0.063. As a result, the relationship is inverse, with decreases in inflation

accompanying increases in FBME returns. However, the relationship is mildly (statistically insignificant).

The relationship between FBME return and unemployment was positive (0.749) and significant, showing a positive relationship. The evidence in this research, therefore, illustrated a positive relationship between stock returns and unemployment in Malaysia, in contrast to the classical theory of economics. Even in the past, a rise in unemployment would generally be expected to negatively affect the performance of the stock market, but here, a positive association between the variables suggests a complicated association in the Malaysian context. This can be explained by expectations on the part of investors that, ultimately, there would be a recovery, a firm response to cut costs, or extraneous circumstances. The findings suggest that it is important to consider the structure of the market and investor sentiment when modelling macroeconomic variables.

By the end of this research, policymakers must exercise caution when attempting to impact the economy by adjusting macroeconomic factors such as the GDP, inflation, interest rates or exchange rates. While attempting to cure macroeconomic ailments such as inflation or unemployment, they may accidentally lower the stock market and constrain capital formation, resulting in a further slowing of the economy.

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