UNIVERSITI TEKNOLOGI MARA

THE RELATIONSHIP OF GOLD WITH STOCK MARKET & MACROECONOMIC VARIABLE: THE CASE OF MALAYSIA STOCK EXCHANGE

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Bachelor of Business Administration (Hons)
(Investment Management)

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Final Year Project submitted in fulfilment of
the requirements for degree of
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AUTHOR'S DECLARATION

I declare that the work in this The Relationship of Gold with Stock Market & Macroeconomic Variable: The Case of Malaysia Stock Exchange was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Gold prices are crucial for hedging inflation and as a safe haven asset. Gold prices fluctuate owing to supply and demand. Looking at previous gold prices may offer you with knowledge that will assist you in making better purchase and selling decisions. Several factors have impacted the price of gold during the last several decades. Central bank purchases, inflation, geopolitics, monetary policy, equity markets, and other variables may have contributed to large price swings in gold's history. The Pearson Correlation Test was performed to investigate the relationship between the variables in this study. Following that, a Multiple Linear Regression Test was performed to determine the significance and impact of the stock market and selected macroeconomic factors on the gold price from 2016 to 2020. Overall, most of the results in the paper consist of previous studies where there is significant impact on gold price by stock market and inflation rate.

Keyword: Gold Price; Stock Market; Macroeconomic Variables; Inflation Rate; Unemployment Rate.

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LIST OF ABBREVIATIONS

GP_t	Gold Price
$\widehat{GP_t}$	Estimated Gold Price
$\beta_1, \beta_2, \beta_3$	Coefficient of each Independent Variables
SM	Stock Market
$\widehat{SM}$	Estimated Stock Market
IR	Inflation Rate
$\widehat{IR}$	Estimated Inflation Rate
UR	Unemployment Rate
$\widehat{UR}$	Estimated Unemployment Rate
ε	Error Term
t	Year 2016 until 2020
GP_t	Gold Price

CHAPTER 1:
INTRODUCTION

1.1 Introduction

Investment is defined as putting money aside for future use. Stocks, bonds, mutual funds, real estate, foreign currency, and gold are just a few of the investment options available to those with spare cash. Gold has always been a well-respected investment that provides a decent financial return. Gold investment has several advantages that might help an investor achieve his or her financial goals. (Martin Surya Mulyadi & Yunita Anwar, 2012)

Gold is very important product and one of the world's most valuable commodities since its value remain stable or rises independent of economic, financial, or political difficulties. Moreover, gold has its own intrinsic worth that is unaffected by any crises. Other than that, gold is a fantastic asset with higher liquidity and is a solid investment that is neither short-term nor long-term. However, due to its importance and benefit as a store of value, gold demand has increased year after year, particularly in the jewellery and commercial sectors (Toraman, Basarir & Bayramoglu, 2011) & (Sukri Mohd Zain and Zainal Abidin, 2015). Before making any decision to invest in gold, it is critical for individuals who plan to acquire gold to grasp the nature of gold investing. As a result, investor will be able to benefit and profit from gold as an alternative asset.

Gold may be the most popular precious metal for investment among all precious metals. It has withstood the test of time and performed admirably during economic downturns such as stock market crashed, currency failures, rising inflation, and war. Gold is thought to be a useful hedge against inflation as well as a drop in the value of other assets like stock, bonds, and foreign currencies. Other than that, the advantage of gold as an inflation hedge means when the price of products rises, the price of gold rises as well, allowing gold to be liquidated to fund general spending activities. In other words, gold plays a vital function in diversifying investment portfolios. Therefore, this study aims to investigate The Relationship of Gold with

Stock Market and Macroeconomic Variable: The Case of Malaysia Stock Exchange.

1.2 Background of the study

Nowadays, most people have struggled to venture into the world of investing since the world was hit with Covid-19. Based on the research, gold can be used as an inflation hedge or as an alternative investment. Gold's status as a hedge means that it can help compensate for big losses. In simple terms, the hedging is used to mitigate the risk of a loss in an investment or asset depreciation (Hemavathy and Gurusamy, 2014) & (Sukri et al., 2015).

The stock market is crucial to a country's economic development. It makes it easier to move money from surplus to deficit units all around the economy. From the standpoint of both business and investors, the stock market's increase is noteworthy. The stock market performance of a country can be used to measure its economic position. The stock market is on the verge of collapse as a result of the government's careful monitoring of stock market movements during an economic crisis. Changes in the economy's fundamentals have the greatest impact on stock market indices (Samveg A. Patel, 2013). Previous research in Malaysia have investigated the impact of gold prices on the stock market. The study analysed daily data for 12 years from January 2006 to May 2017, an discovered a negative relationship between the Gold Price Index and the Malaysian Stock Exchange (Fria Abdul Kareem, N. M. H., Zaito Awla Abubakr, Ranjdar Mustafa Ali, Rafiq Tofiq Khoshnaw, Diyar Abdul Majeed Jamil., 2020).

Crude oil price, currency exchange rate, Gross Domestic Product (GDP), and Inflation Rate are the most common macroeconomic variables. The stock market selected macroeconomic variables, and the gold price will all be discussed in this study. As a result, most traders who took use of the stock market and macroeconomic variables were able to assist in analysing price movements, making decisions, and taking advantage of opportunities in their investments.

1.3 Problem statement

When the country is hit by inflation will gold be a good bet on inflation. The one thing you do not want is to be sitting idle, in cash, thinking you're doing well, while inflation is eroding the value of your dollar. Previous study has identified about gold price with stock market and gold price with macroeconomic variable such as inflation rate, crude oil price, interest rate and exchange rate. However, according to the study by Maryam Al-Ameer, Walaa Hammad, Areej Ismail and Allam Hamdan (2018) it suggested that for the further studies another direction may be to study in different times periods such as a historical data prices and alternative suggestion in another part of the world, besides the Euro Zone where no such studies were conducted to help creating a larger picture of the relationship. Other than that, it also suggests that the study could include study the macroeconomic variables or the microeconomic variable and their connection that may affect the relationship between gold price and stock market together.

Aside from that, current research has advocated taking into account other macroeconomic variables that could affect the gold price, such as Gross Domestic Product (GDP), money supply, industrial output index, and the prices of other world commodities, such as forex reserves. It was suggested that such independent variables should be examined in connection to the dependent variable (gold price) throughout short and long time periods. This would allow gold investors to forecast future gold prices and profits. More research could be done if the average gold price was measured in grammes rather than ounces (Sukri et al., 2015) & (Isa, M. A. M., Latif, R. A., Nasrul, F., Zaharum, Z., & Noh, M. K. A., 2020)

1.4 Research question(s)

This research will be carried out by identifying the significant impact on gold price that will determine by the stock market and macroeconomic variable. Hence, this study deals with these following questions: (1) Is there any significant relationship between gold price and stock market? (2) Is there any significant relationship between gold price and inflation rate? (3) Is there any significant relationship between gold price and unemployment rate?

1.5 Research objective(s)

The main objective of the study is to investigate the relationship of gold with stock market and macroeconomic variable. The following are some of the research objectives suggested by this study: (1) To study the relationship between gold price and stock market. (2) To study the relationship between gold price and inflation rate and (3) To study the relationship between the gold price and unemployment rate.

1.6 Significance of the study

This study's significant is based on the relationship between the stock market index, inflation rate, unemployment rate and gold price. The price of gold is derived from Bank Negara Malaysia (BNM), which issues the Kijang Emas, Malaysia's gold bullion coin. The Malaysian Kijang Emas was chosen as the study's sample since it is the country's official gold bullion currency. The FBM KLCI Index was used in this study for the stock market because it spans all stock sizes and provides investors with a better tool for benchmarking their investments. Inflation Rate and Unemployment Rate are the two variables that make up the Macroeconomic Variables.

1.7 Scope of the study

The purpose of this study is to investigate the relationship between the gold price and stock market and macroeconomic variables. The monthly price of Kijang Emas in Bank Negara Malaysia (BNM) is included in the sample. The data for this study will be collected during a five (5) years period, from 2016 to 2020.

1.8 Limitation of the study

In this study, there are several limitations of the study such as the limitation of data. The study on the unemployment rate is lacking in terms of data and results on the unemployment rate in Malaysia and in other countries. To find the study about the unemployment rate and investment product is quite challenging to obtain. Other than that, the limitation of the data for the dependent variable which is the gold price of Kijang Emas in Bank Negara Website (BNM) only has daily price for 20 years between 2001 to 2021. The prize also only has ounce unit rather than grams. On the

other hand, there are also difficulty to find monthly data for inflation rate and unemployment rate. Some websites, the researcher need to pay to get the data. By using Eikon Website the researcher only can convert data to Microsoft Excel automatically only up to September 2017. To solve the problem, the researcher needs to convert data to Microsoft Excel manually.

1.9 Definition of key terms

Gold	Gold is a renowned precious metal that was popular in ancient times and played an important role in human society (Toraman et al., 2011). The usage of gold began with the manufacture of valuable jewellery, which continues to be significant portion of the present gold forms exchanged in the economy.
Kijang Emas	Malaysia's Royal Mint produces the Malaysian Kijang Emas, the country's official gold bullion coin. Because this investigation was carried out in Malaysia, the gold was tested using Malaysian gold coins known as "Kijang Emas." It was first produced in July 2001, becoming Malaysia the world's 12th gold bullion country to create its own currency.
Stock Market Index	A stock market index is a financial index that monitors the stock market or a subset of the stock market and allows investors to compare current stock price levels with prior prices to evaluate market performance. The FBM KLCI Index is a Malaysian stock market index that includes the top 30 publicly traded businesses on Bursa Malaysia Berhad. The FBM KLCI index encompasses all market stock sizes and monitors the performance of important capital and industrial categories in Malaysian and regional markets.
Inflation Rate	Inflation is defined as the gradual loss of a currency's buying power over time. Quantitative estimations of the pace at which buying power declines over time can be represented in a rise in the average price level of a specified set of products and services in the economy. An increase in the overall level of price, generally stated as a percentage, indicates that the effective

	currency unit now buys less than it did previously.
Unemployment Rate	The unemployment rate shows the proportion of the labour force that is jobless yet actively looking for work. It is a lagging indicator, which means it rises and falls in response to economic developments rather than forecasting them. When the economy is sluggish and there are job shortages, unemployment rates are likely to rise. It is expected to decline when the economy is growing at a healthy rate and employment are available.

1.10 Summary

Gold has long been associated with stability and riches. People prefer to think of gold as a savings vehicle rather than an investment instrument. For a variety of reasons, gold is a good investment. As previously stated in this study, it can be utilised as an inflation hedge and will always be valuable owing to scarcity. For seasoned investors, it is an excellent portfolio diversifier as an alternative investment. Gold, along with other investments in equity, fixed income, and unit trusts, can help diversify an investor's portfolio.

Gold's value may rise in the future if currencies change in value and gold becomes scarcer. If an investor wants to invest in gold for the long term, they can do so in both physical gold and physical gold funds, as their values are closely linked to gold's price. With the support of previous findings, a study of the real impact of various macroeconomic variables and the stock market was required to understand how gold price reacts to changing variables and to determine whether there is a correlation between stock price and macroeconomic variables and gold price.

CHAPTER 2:
LITERATURE REVIEW

2.1 Introduction

Many studies have been carried out in order to determine the factors that influence gold's price. Most of the research focused on the role of gold in financial investment, specifically whether gold provides diversification, hedging, or safe haven benefits.

According to Mansor H. Ibrahim and A. H. Baharom (2011), the study investigates if gold may be utilised in Malaysia as a diversifier, hedge, or secure asset. This article investigates the problem through the eyes of Malaysian investors, measuring the link between gold and stock returns using daily domestic gold and stock market data from August 2001 to March 2010. In conclusion, the study discovers two major discoveries. The first is that during moments of severe market circumstances, the association between gold and stock market returns is greater. This implies that the benefits of gold diversification reduced during periods of severe market downturn. The second consequence is that gold acts as a hedge against stock market risks and as a safe haven during a severe stock market downturn.

In Europe, 15 European central banks decided in 2004 to limit their gold sales for the following five years, which might have a substantial impact on gold market behaviour. As a result, supply and demand at the period were less reliant on the central bank's gold-selling strategy and were characterised by a scarcity of supply, resulting in a large increase in the price of gold. Between 2000 and 2006, the yearly Euro performance climbed by over 8%, and as a result, gold became an appealing asset in Europe. Although the correlation with other assets has always been modest, overall returns of less than 1.5 percent between 1988 and 2006 had a favourable influence on the portfolio. As a result, investment in gold is contingent on how the central bank manages its gold holdings in the future. If they maintain their present policies, the favourable influence on gold prices from increased demand, particularly from India and China, may lead to additional upward swings (Demidova-Menzel, N., & Heidorn, T., 2007)

2.2 Literature Review on Topic

According to Shukor (2013), there are different sorts of gold coins, and Kijang Emas is one of Malaysia's newest gold coins. The study's purpose is to provide recommendations on how to retain gold as an investment and to look at the many forms of gold that may be utilised as an investment instrument. Secondary data, such as Internet books, periodicals, and articles, were employed in this study. Because the price of gold bars is equivalent to the worldwide price of gold, gold bars are one sort of gold that may be utilised as an investment. Goal coins are easy to transport and can be liquidated and sold anywhere, making them an ideal investment instrument.

Apart from that, Pung Yean Ping, Nor Hamizah Miswan, and Maizah Hura Ahmad (2013) conducted a study to forecast Kijang Emas prices. Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) and Generalized Autoregressive Conditional Heteroscedasticity (GARCH) are two approaches studied. The study concludes that GARCH is a better appropriate model, using Akaike's Information Criterion (AIC) as the goodness of fit metric and Mean Absolute Percentage Error (MAPE) as the forecasting performance measure. The E-views programme is used to do the analysis. Kijang Emas, on the other hand, is extremely volatile, with huge price swings. Volatility is defined as a state in which the conditional variance varies between extremely high and extremely low levels. According to the statistics, volatility shocks are quite enduring, according to research. The lagged square of return coefficient is positive and statistically significant, showing a substantial GARCH influence on the gold market. Furthermore, the lagged conditional variance coefficient was extremely positive and smaller than one, showing that past news had a significant impact on volatility.

2.3 Stock Market Variables

The stock market is significant because it allows businesses to raise funds by selling stock and corporate bonds. It allows ordinary investors to participate in a company's financial success, profit from capital gains, and receive money through dividend, however losses are also conceivable. There have been studies on the relationship of gold price and Stock Market by Maryam Al-Ameer, Walaa Hammad, and Allam Hamdan (2018) It was discovered that the link between gold price and stock market had a very significant position correlation, meaning that the Frankfurt Stock Exchange and gold movements were similar to the scenario prior to the financial crisis, from August 2004 to December 2007. During the financial crisis (January 2008 to December 2011), the positive correlation became weak and low, and it was inconsequential until the post-financial crisis period (January 2012 to September 2016). There were significant and positive links prior to the financial crisis; presently, there are strong and high negative correlations. As a result of this research, we may conclude that, while financial crises influence the correlation between the two variables, they preserve mutual integration or long-term links even when stock markets and financial crises are present.

2.4 Macroeconomic Variables

In Malaysia, Sukri et al. (2015) found no correlation between inflation and gold prices. The gold price is unaffected by inflation rates. Meanwhile, Mohamad Azwan Md Isa, Ruziah A Latif, Ferri Nasrul, Zaibedah Zaharum, and Mohd Khairul Ariff Noh (2020) discovered that any increase in inflation rate will result in an increase in gold price, and vice versa. This is true because gold serves as a store of value, a hedge tool, or insurance in the case of a general price increase. According to the report, the price of gold rose by 4.7% for every 1% increase in the unemployment rate from 2008 to 2016. After that, there is no long run cointegrated relationship between price of gold and unemployment rate during the 1978 to 2016 period. (Thaver, R. L., & Lopez, J., 2016).

2.5 Conceptual framework

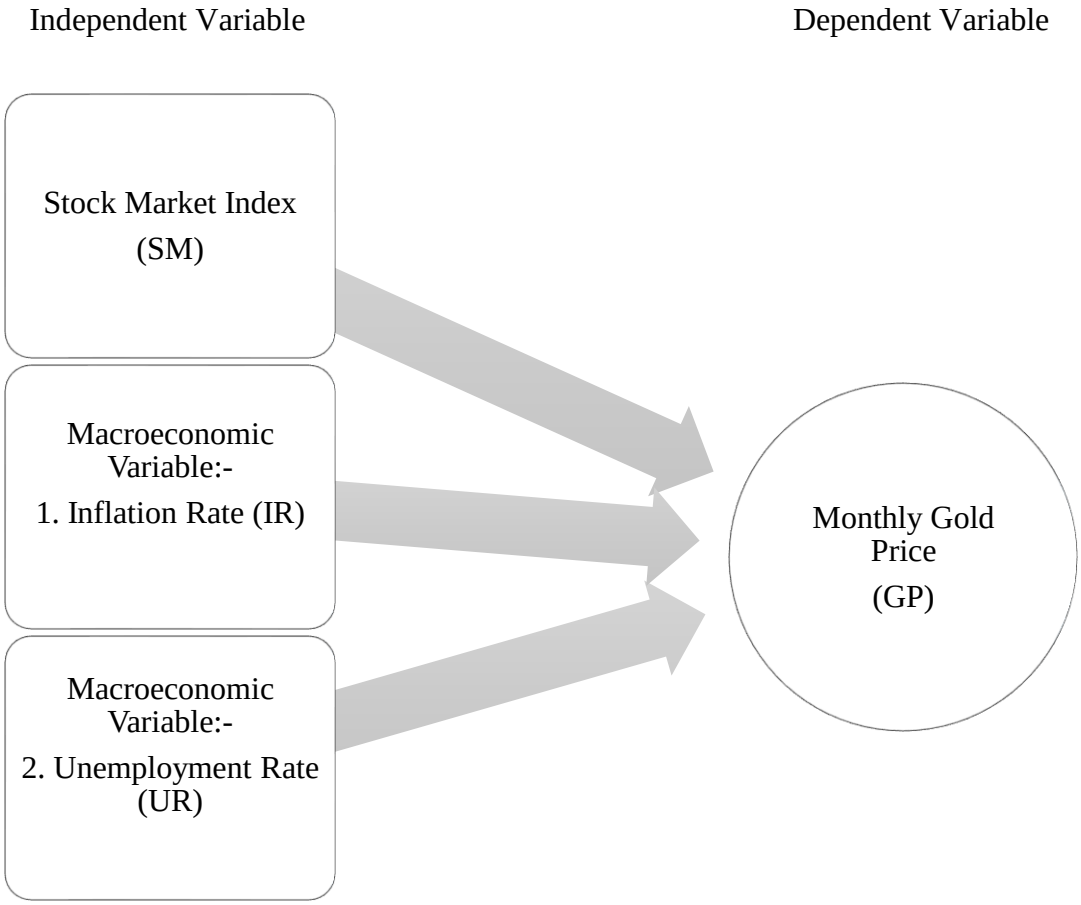

Figure 1: Conceptual Framework

2.6 Summary

To summarise, the majority of prior research found that the stock market might have an impact on the gold price, and other macroeconomic variables could also have an impact on the gold price. The impact could be generated by the inflation rate, the price of crude oil, the interest rate, and the exchange rate. This research will concentrate on the many macroeconomic variables and Malaysian Stock Exchange that influence Malaysia's gold price. To determine whether the stock market and macroeconomic variables have an impact on the Malaysian gold price, select the data and execute the data analysis. All of these data will be detailed in greater detail in Chapter 3, which is about the research technique.

CHAPTER 3:
RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, it will describe the study design in this paper to answer the research questions. All the data and sources will be explained in this chapter together with the explanation of the variables. Overall, this chapter will answer several questions such as how the study will be conducted? How many data observation in this paper? and where to gather all the information about gold price, stock market and the selected macroeconomic variables.

3.2 Sample and Data

3.2.1 Population and Sample

The population applied in this study is focusing on gold price. As it mentions before, since this study focus on Malaysia this study suggests taking Malaysia gold price which known as “Kijang Emas” as a sample to represent the gold price.

3.2.1 Data Collection

The data for this study was collected between 2016 and 2020 (5 years). This time period was chosen because it encompasses recent years, during which various financial problems have occurred, such as the slowing of GDP growth and the impact of the Corona Virus 2019 (COVID-19) on Malaysia's economy, finance, and investment sectors. The information will be gathered from the Bank Negara Malaysia (BNM), the Market Watch website and Eikon websites. This study also used monthly data basis to collect all the dependent and independent variable data. The total observation for this study will be 60 observations of monthly changing price.

3.2.3 Variables

To evaluate the relationship between the independent variables and the dependent variable, the researcher may modify the independent variables. The dependent variable in this study is the Gold Price of Kijang Emas, which is a proxy for the monthly price variations of the index which is the difference between the opening and closing prices of gold on the first and final days of the month. Because this research was conducted in Malaysia, the gold was examined using Malaysian gold coins known as "Kijang Emas". The statistics for Kijang Emas comes from Bank Negara Malaysia (BNM), Malaysia's central bank.

Stock market index and macroeconomic variables which is inflation rate and unemployment rate are treated as independent variables. The rationale for choosing these variables is because gold and stock market are both investment items. The curve of investment product in Malaysia will be affected by inflation and unemployment rate. To summarise, the variables chosen were chosen to determine the impact of stock market and macroeconomic variables on gold price.

Variables	**Proxy**	**Units**	**Symbol**
Dependent Variable			
Gold Price – Kijang Emas	Monthly Gold Price	Number (RM)	GP
Independent Variable			
Stock Market Index	Monthly Closing Price	Number (RM)	SM
Inflation Rate	Monthly Inflation Rate	Percentage (%)	IR
Unemployment Rate	Monthly Unemployment Rate	Percentage (%)	UR

Table 1 : List of variables

3.3 Econometric Method

The primary objective of this study is to investigate the connection between stock market index, inflation rate and unemployment rate to Malaysian gold price. To investigate the impact of those variables on gold price the period of investigation was decided to be 5 years between 2016 until 2020. A research hypothesis is a statement of assumption or expectation that will be brought into question by research. The hypothesis statement demonstrates the relationship between the independent variable (stock market index, inflation rate and unemployment rate) and the dependent variable (gold price). The gold price is used to investigate its influence on its independent variables. Due to that, this research will conduct The Pearson Correlation Test to examine the correlation between the variables. After that, Multiple Linear Regression Test will be conducted to find the significant and effect of stock market index, inflation rate and unemployment rate to the gold price.

3.3.1 Descriptive Analysis

The descriptive analysis provides a broad summary as well as specifics on the statistical data used in this study. These descriptive statistics present an overview of various measurements from the sample data collection. Descriptive analysis can be used in this research to gain a better knowledge of whether the stock market, inflation rate, and unemployment rate have a major impact on the gold price. Some investors will have thoughts to invest in gold or stock market. The inflation rate and unemployment rate will be one of the factors when it comes to investment decision, for example if people do not have any income how does he or her want to invest? And when the inflation rate increasing, it will be resulting in a fall in the purchasing value of money.

3.3.2 Correlation Analysis

The correlation test is a technique used to determine whether there is existence of relationship between dependent and independent variables. This section will investigate how the examined variable relate to one another and provide visual connections. The strength of the relationship between these two variables is measured using this approach. A study was conducted on whether there was a similar

relationship between the stock market, inflation rate, unemployment rate and gold price. The movement of the gold price has changed, regardless of whether it is rising or falling.

Sample correlation coefficients were calculated, particularly The Pearson Correlation Test in the correlation analysis. The sample correlation coefficient, indicated r, ranges from -1 to +1 and measures the direction and intensity of the linear relationship between two variables. The correlation between two variables can be positive or negative. The sign of the correlation coefficient indicates the direction of the association. The magnitude of the correlation coefficient indicates the strength of the association. For example, a correlation of r = 0.9 suggests a strong, positive association between two variables, whereas a correlation of r = -0.2 suggest a weak, negative association. A correlation close to 0 suggests no linear association between two continuous variables.

3.3.3 Regression Analysis

Regression analysis is a set of statistical techniques used to estimate relationships between one or more independent variables and one or more dependent variables. It can be used to assess the strength of a variable's association and forecast its future relationship. All data regarding the regression modal was put into Excel and transferred into EViews 12. The regression modal, containing data regarding the dependent variable and explanatory variables, were then tested, and used to investigate the impact of stock market, inflation rate and unemployment rate to gold price. The test used gold price as the dependent variable.

The tests were tested in EViews 12 to test the significance of variables and examine the impact on the dependent variable. The modal presented is the Linear Regression Modal tested in EViews 12, containing the dependent and independent variable and the coefficient.

$$GP_t = \beta_0 + \beta_1 SM_t + \beta_2 IR_t + \beta_3 UR_t + \varepsilon_t$$
$$\widehat{GP_t} = \widehat{\beta_0} + \widehat{\beta_1 SM_t} + \widehat{\beta_2 IR_t} + \widehat{\beta_3 UR_t} + \varepsilon_t$$

Figure 2: Proposed Model

The F-Test is the test that use to experiment with a single null hypothesis on a group of regression slope coefficient. In order, to find the modal that best fits the population from which the data were drawn. F-Test also can evaluate multiple modal terms simultaneously, which allows them to compare the fits of different linear modals. Thus, to show that the overall fit of the estimated decision rule to use in the F-Test is to reject the null hypothesis if the calculated F-value (*Fk*) is greater than appropriate critical F-value (*Fc*). Therefore, the hypothesis will be:

i. Stock Market Index

H_O: There is no significant impact between stock market and gold price.

H_A: There is significant impact between stock market and gold price.

ii. Inflation Rate

H_O: There is no significant impact between inflation rate and gold price.

H_A: There is significant impact between inflation rate and gold price.

iii. Unemployment Rate

H_O: There is no significant impact between unemployment rate and gold price.

H_A: There is significant impact between unemployment rate and gold price.

3.4 Summary

In conclusion, this chapter is about identifying all the data and selected techniques that would be used in this study. The population and sample have been chosen by looking at the Bank Negara (BNM) Website and all the data will be collected also at BNM Website. The variable that will be used in this research is monthly changes price of gold price as dependent variable and stock market and macroeconomic variable as the independent variable. In this study, to determine the significant relationships between independent variables and dependent variable they are using Pearson Correlation Test and Multiple Linear Regression Test. The sample correlation coefficient runs from -1 to +1 and quantifies the direction and strength of a linear relationship between variables. All the tests were conducted to find out whether the stock market and macroeconomic variable can give impact to the gold price and to find out which independent variable can give positive/negative impact to the gold price.

CHAPTER 4:
FINDINGS

4.1 Descriptive Analysis

	Gold Price (GP)	Stock Market (SM)	Inflation Rate (IR)	Unemployment Rate (UR)
Mean	6093.0830	1664.1440	0.0960	3.5967
Median	5700.5000	1671.8350	0.0350	3.4000
Maximum	8911.0000	1870.3700	1.3360	5.3000
Minimum	4859.0000	1350.8900	-1.6920	3.2000
Standard deviation	982.9288	111.8812	0.4840	0.5437

Notes: The dependent variable is the gold price (GP). The independent variable is stock market (SM), Inflation Rate (IR) and Unemployment Rate (UR)

Table 2: Descriptive Analysis

The size of the sample for this study involved 60 of observations which representing 60 months in the range of 2016 to 2020. In order to collect the data, for the stock market index this study using The Market Watch to collect the data. For the Inflation Rate and Unemployment Rate, this study is using The Eikon Website to collect the data. After all the data are collected, this study proceeds to run the regression analysis based on the table of data collection that this study has created.

The mean value for the gold price is RM6,093.08 that shows the average price in effect of the stock market and macroeconomic variable. In aspect of standard deviation, it shows the dispersion of the gold price from its mean is RM982.93. This indicates that the gold price has a small standard deviation because the data points are near the mean and there is a lower deviation within the data set therefore, the less spread out the data, the lower the standard deviation. Next, the median of the gold price is RM5,700.50 which indicates that half of the observation are about the value of RM5,700.50 and half the observations are below the value of RM5,700.50. The maximum amount of gold price is RM8,911.00 which is the highest price between 2016 until 2020. In addition, the minimum amount of gold price is RM4,859.00.

After that, the mean value for the stock market index is RM1,664.14 that shows the average price of stock market index. In the aspect of standard deviation, it shows the dispersion of the stock market from its mean is RM111.88. This also indicates that the stock market has a small standard deviation because the data points are near the mean and there is a lower deviation within the data set which bring the data is clustered. Next, the median of stock market is RM1,671.84 which indicates that half of the observation are more above the value of RM1,671.84 and half of the observation are below the median value. The maximum amount of the stock market index is RM1,870.37 which is the highest amount for the year 2016 until 2020 and the minimum amount for the year is RM1,350.89.

For the inflation rate, the mean value is 0.0960 that shows the average percentage of the inflation rate. In aspect of the standard deviation, it shows the dispersion of the percentage from its mean is 0.4840%. This indicates that the price change has a large standard deviation because the data points are far from the mean and there is a higher deviation within the data set. Therefore, the more spread out the data, the higher the standard deviation. Next, the median of inflation rate is 0.035% which indicates that half of the observation are above the value of 0.035% and half of the observation are below the value of 0.035%. The maximum amount of inflation rate is 1.3360% representing the highest percentage for inflation rate and the minimum amount for inflation rate is -1.6920%.

Lastly for unemployment rate, the mean value is 3.5967 that shows the average percentage for unemployment rate. In aspect of standard deviation, it shows the dispersion of the unemployment rate from its mean is 0.5437%. This indicates that the unemployment rate has a small standard deviation because the data points are near the mean and there is a lower deviation within the data set therefore, the less spread out the data, the lower the standard deviation. Next, the median of unemployment rate is 3.4% which indicates that half of the observations are above the value of 3.4% and half of the observations are below the value of 3.4%. The maximum amount of unemployment rate is 5.3% which representing the highest percentage of unemployment rate and the minimum amount is 3.2% for those 5 years.

4.2 Correlation Analysis

No. of observation: 60 Correlation T-Statistic Probability	Gold Price (GP)	Stock Market (SM)	Inflation Rate (IR)	Unemployment Rate (UR)
Gold Price	1			
	*****			
	*****			
Stock Market	-0.6927	1		
	-7.3140	*****		
	0.0000	*****		
Inflation Rate	-0.1459	0.2637	1	
	-1.1231	2.0817	*****	
	0.2660	0.0418	*****	
Unemployment Rate	0.8342	-0.5893	-0.1182	1
	11.5227	-5.5552	-0.9066	*****
	0.0000	0.0000	0.3684	*****

Notes: The dependent variable is the gold price (GP). The independent variable is stock market (SM), Inflation Rate (IR) and Unemployment Rate (UR)

Table 3: Correlation Analysis

A correlation result near -1 implies a significant negative correlation between the variables, whereas a correlation value near +1 implies a strong positive relationship. There is no correlation between the variables as its correlation value is 0. The level of significance has been fixed at 5% or 0.05.

In the correlation between the gold price and stock market, it shows a negative correlation between the variables as the result is -0.6927. The stock market does have a statistically significant impact on the gold price as the result of probability values if 0.0000 less than 0.05 level of significant. Therefore, there is strong evidence for the null hypothesis is to be rejected. The study by Martin Surya Mulyadi and Yunita Anwar (2012) also found out that when the stock investment result in negative return, then the probability of gold price will increase or becomes higher. The study also

showed that the gold investment is quite safe for the investors and could be categorised as safe haven. Other than that, the study by Samveg A. Patel also found out that the correlation coefficient between stock market and gold price also have negative correlation between the variables.

In the correlation between the gold price and inflation rate, it shows a result of negative sign with a weak negative correlation between the variables as the correlation result is -0.1459. The inflation rate does not have a statistically significant impact on the gold price as the result is -1.1231. There is strong evidence for the null hypothesis to be accepted since the probability value is 0.2660 greater than the 0.05 level of significance. Table 3 shows that no significant relationship exists between Malaysian inflation rate and gold price. The study by Muhammad Khairul Anuar bin Sukri, N. H. b. M. Z., Noor Saadah bin Zainal Abidin. (2015) also found out that there is no significant relationship exist between inflation rate and Malaysia gold price. The coefficient also shows a negative relationship between the two variables. Thus, the finding explained that there is a negative and no significant relationship between inflation rate and gold price in Malaysia. Which means, the inflation rate of Malaysia does not support the Malaysian Gold price. As this study mention, gold acts as the store of value or hedge instrument or insurance against inflation.

In the correlation between the gold price and unemployment rate, it shows a result of positive sign with a strong positive relationship as the correlation result is 0.8342. The unemployment rate does have a statistically significant impact on the gold price as the result of probability value is 0.0000 less than 0.05 level of significant. Therefore, there is strong evidence for the null hypothesis is to be rejected. The study by Ranjini L. Thaver and Jimmie Lopez (2016) result reveal that cointegration exist between the price of gold and its determinants. After that, in the long run, the estimates of the partial elasticity of unemployment are also positive. A strong positive and elastic relationship between unemployment and the price of gold. The price of gold and unemployment rate with increases by 4.7% for every 1% change in the unemployment rate in the United State of America. This may be cause by the massive sell offs of panicked stock market investors who desperately needed cash.

To sum up, the stock market and inflation rate has negative correlation with gold price. However, the inflation rate does not have any significant relationship to

gold price. This is because, gold is often seen as a hedge against inflation. For the unemployment rate it has strong positive relationship and has greater correlation value with gold price.

4.3 Regression Analysis

Dependent Variable: GP Method: Least Squares Sample: 1 60 Included observation: 60				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	6412.4910	1592.3770	4.0270	0.0002
SM	-2.7411	0.7366	-3.7210	0.0005
IR	27.3088	138.5542	0.1971	0.8445
UR	1178.7260	147.2581	8.0045	0.0000
R-squared	0.7581		**F-statistic**	58.4871
Adjusted R-squared	0.7451		**Prob (F-statistic)**	0.0000

Notes: The dependent variable is Gold Price (GP). The independent variable is stock market (SM), Inflation Rate (IR) and Unemployment Rate (UR).

** Full regression table (Appendix)

Table 4: Regression Analysis

$$\widehat{GP_t} = 6412.4910 - 2.7411\widehat{SM_t} + 27.3088\widehat{IR_t} + 1178.7260\widehat{UR_t} + \varepsilon_t$$

Figure 3: Estimation Result

Figure 3 shows the coefficient result from the regression analysis performed. The direction of the association between an independent variable and a dependent variable was represented by the sign of each coefficient. A positive sign suggests that when the independent variable increases, so does the dependent variable. A negative sign suggests that when the independent variable increases, so the dependent variable will decrease.

From the model estimated, it can be interpreted as following:

Intercept, C	If all the independent variables i.e., stock market, inflation rate and unemployment rate price were all zero (0), the average price gold price will be decreased by RM101.88
$\widehat{SM_t}$	If the stock market index of SM increased by RM1, the gold price will decrease by RM2.74.
$\widehat{IR_t}$	If the inflation rate of IR increase by 1%, the gold price will increase by RM27.31.
$\widehat{UR_t}$	If the unemployment rate of UR increase by one percent (1%), the gold price will increase by RM1,178.26.

Table 5: Coefficient Result from Regression Analysis

4.3.1 T-Test

$$H_0: SM \leq 0$$
$$H_A: SM > 0$$

Figure 4: Stock Market T-Test estimated model

$$H_0: IR \leq 0$$
$$H_A: IR > 0$$

Figure 5: Inflation Rate T-Test estimated model

$$H_0: UR \leq 0$$
$$H_A: UR > 0$$

Figure 6: Unemployment Rate T-Test estimated model

The table 4 shows that the result of the regression analysis after running the data in EViews 12. From the table above, the (Prob. Value) P-Value must be less than 5% or 0.05 to determine the significant level for the null hypothesis, H_0 to be rejected. Since the P-Value of SM is less than 0.05 which is 0.0005, this study will reject the null hypothesis, H_0. The result shows that SM is significant to the Gold Price. From the previous study by Korhan K. Gokmenoglu and Negar Fazlollahi (2015) the result said that stock market price index and gold price has the highest impact between each other in long – run and short – run, which has important implication for investors. Investors can react against changes in the gold price, by considering that gold is a very good

substitution of stock because it is more available and they can hedge themselves against inflation, when changes in the gold price happen it has the highest impact in the stock market.

After that, the P-Value for inflation rate is 0.8445 which is bigger than the significant level of 0.05. This also indicated that this study is failed to reject the null hypothesis, H_0. The result shows that inflation rate is not significant to the gold price. The result from the previous study provides strong evidence for this study. Nurulhuda et al. (2014) and Muhammad Khairul Anuar bin Sukri et al. (2015) both studies found that, there is no effect of inflation rate on the gold price in Malaysia.

Lastly, the P-Value for unemployment rate is 0.0000 which is smaller than the significant level of 0.05. This also indicated that this study is successfully reject the null hypothesis, H_0. The result shows that unemployment rate is significant to the gold price. Based on the previous study by Ranjini L. Thaver et al (2016) it shows that in the long run, the estimates of the partial elasticity of unemployment are positive which means it reflects a strong relationship between unemployment and the price gold.

4.3.2 F-Test

$$H_0: SM = IR = UR = 0$$
$$H_A: SM = IR = UR \neq 0$$

Figure 7: F-Test estimated modal

Based on the table 4, the F-Statistic value is 58.4871 and the P-Value of the F-Statistic is 0.0000. For the null hypothesis to be rejected, the P-Value of F-Statistic must be less than the level of significant which is 0.05. Therefore, this study shown that the null hypothesis can be rejected because the value is smaller than the significant level of 0.05 and the all three (3) independent variables can give impact to the gold price.

4.3.3 R-Square and Adjusted R-Squared

R-square that were calculated is 0.7581. This indicated that the 75.81% of the gold price is explained by the stock market, inflation rate and unemployment rate. The other 24.19% is explained by other factors.

The adjusted R-squared that were accumulate is 0.7451. This indicate that

74.51% of the variation in dependent variable can be explained by the independent variables which is involving stock market, inflation rate and unemployment rate. The remaining 25.49% is due to omission of other important independent variables.

4.4 Summary

The study examines the impact of stock market, inflation rate and unemployment on the gold price in Malaysia specifically the Kijang Emas from 2016 to 2020. As the result, the inflation rate appears to be unaffected to the gold price. Furthermore, it also showed that inflation rate based on previous study does not affect the gold price. Following that, the stock market and gold price has negative correlation with each other. This means that, if the gold price increase, the stock market will decrease. Other than that, the unemployment rate has positive correlation with the gold price. Overall, the study's findings that the inflation rate failed to reject the null hypothesis, forcing it to accept the false null hypothesis. Therefore, other factors are needed to be considered in helping the gold price.

CHAPTER 5:
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Gold always had value even in decorative jewellery, gold ore and as an investment. Throughout the history of mankind, gold has been money, gold was money and gold are money. This also the reason why gold always had value even in other forms of gold. On this study it examines how the stock price and macroeconomic variable can give any impact to the gold price in Malaysia. By using Malaysia gold price "Kijang Emas" as the dependent variable and the stock market index, inflation rate and unemployment rate as the independent variables.

From the findings on the relationship between stock market and macroeconomic variable affecting the gold price in Malaysia, the conclusion is the stock market and inflation rate has negative correlation with the gold price. However, the inflation rate does not have a statistically significant impact on the gold price. For the stock market, it does have a statistically significant impact which the stock market index may reflect the increasing or decreasing on the gold price. When the stock market result is in negative, the gold price will be increasing or becomes higher. this also has been supported from the previous study by another research Martin Surya Mulyadi, Y. A. (2012) and Patel, S. A. (2013) also contribute the same result as this study which the stock market and gold price have negative correlation between variables but significant impact to the variables. For the unemployment rate, the correlation between gold price and unemployment rate has a strong positive relationship and also does have a statistically significant impact to the variable. From the previous study by Ranjini L. Thaver et al (2016) it shows that in the long run, the estimates of the partial elasticity of unemployment are positive which means it reflects a strong relationship between unemployment and the price gold.

As for the regression analysis, the stock market and unemployment rate have a significant result to the gold price. Which is this study will reject the null hypothesis, H_0. Since both variable probability value is less than the significant level. The

previous study by another researcher Gokmenoglu, K. K., & Fazlollahi, N. (2015) and Ranjini L. Thaver et al (2016) also found out that the stock market and unemployment rate can give impact to the gold price. As for the inflation rate, this study failed to reject the null hypothesis, H_0. The result shows that inflation rate is not significant to the gold price. Which is the inflation rate having no impact to the gold price. The same result from the previous study provides strong evidence for this study. Nurulhuda et al. (2014) and Muhammad Khairul Anuar bin Sukri et al. (2015) both studies found that, there is no effect of inflation rate on the gold price in Malaysia.

5.2 Recommendation

The research conducted for this thesis has identified several issues and recommendations that may benefit the investor or future research.

As an investor, they can invest in the stock market while also holding gold as a backup plan. This is due to the fact that the gold price and the stock market have a negative relationship, so when the gold price rises, the stock market falls. According to the findings of this study, the investor should consider investing in both instruments as a backup plan.

Other than that, a future study could investigate the unemployment rate by using real Gross Domestic Product (GDP) as a determinant of the price of gold. Because the price has been connected to consumer confidence, future studies may benefit from include the Consumer Confidence Index, which quantifies consumer optimism in the economy, in the study.

A future study might also employ daily data to get more trustworthy and efficient results. For short and medium-term tactical forecasting, daily data is optimal. At this level, various patterns can be recognised for each day of the week. It is also more responsive to level shifts and changes in trends because the data is simulated on a daily basis rather than waiting a week or month to see the new data.

More research could be done by utilising the average gold price in grammes rather than ounces. This study evaluated gold coins (Kijang Emas), but the researcher could utilise additional materials such as gold jewellery, gold bars, or gold ore in the future. Every element of gold has a variable value dependent on supply and demand as well as country law.

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APPENDIX

	GP	IR	SM	UR
Mean	6093.083	0.095950	1664.144	3.596667
Median	5700.500	0.035000	1671.835	3.400000
Maximum	8911.000	1.336000	1870.370	5.300000
Minimum	4859.000	-1.692000	1350.890	3.200000
Std. Dev.	982.9288	0.483955	111.8812	0.543674
Skewness	1.415582	-0.555052	-0.429197	1.860076
Kurtosis	3.963624	6.258949	3.177943	4.963664
Jarque-Bera	22.36017	29.63270	1.921260	44.23878
Probability	0.000014	0.000000	0.382652	0.000000
Sum	365585.0	5.757000	99848.62	215.8000
Sum Sq. Dev.	57002797	13.81855	738526.6	17.43933
Observations	60	60	60	60

Appendix 1: Descriptive Analysis

Covariance Analysis: Ordinary
Date: 01/08/22 Time: 21:53
Sample: 1 60
Included observations: 60

Correlation t-Statistic Probability	GP	SM	IR	UR
GP	1.000000			

SM	-0.692671	1.000000		
	-7.313969	-----		
	0.0000	-----		
IR	-0.145888	0.263673	1.000000	
	-1.123062	2.081745	-----	
	0.2660	0.0418	-----	
UR	0.834249	-0.589315	-0.118207	1.000000
	11.52267	-5.555233	-0.906592	-----
	0.0000	0.0000	0.3684	-----

Appendix 2: Correlation Analysis

Dependent Variable: GP
Method: Least Squares
Date: 01/08/22 Time: 21:40
Sample: 1 60
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6412.491	1592.377	4.026994	0.0002
SM	-2.741056	0.736636	-3.721046	0.0005
IR	27.30879	138.5542	0.197098	0.8445
UR	1178.726	147.2581	8.004486	0.0000

R-squared	0.758059	Mean dependent var	6093.083
Adjusted R-squared	0.745098	S.D. dependent var	982.9288
S.E. of regression	496.2594	Akaike info criterion	15.31642
Sum squared resid	13791311	Schwarz criterion	15.45604
Log likelihood	-455.4925	Hannan-Quinn criter.	15.37103
F-statistic	58.48714	Durbin-Watson stat	0.458488
Prob(F-statistic)	0.000000		

Appendix 3: Regression Analysis