

THE RELATIONSHIP BETWEEN SELECTED MACROECONOMIC FACTORS AND GOLD PRICE IN MALAYSIA

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ABSTRACT

This paper aims to study the relationship between selected macroeconomic factors and gold price in Malaysia. Among macroeconomic factors (independent variables) for this study are crude oil prices, ringgit currency exchange rate, real Malaysian Gross Domestic Product (GDP), and Malaysian inflation rate in quarterly period from year 2005 to year 2014. The objectives of this study are to determine the relationship between each of the independent variables to the Malaysia gold prices (Kijang Emas). This study used Multiple Linear Regressions (MLR) to determine macroeconomic factors affecting the gold price in Malaysia and Correlation coefficient to analyse the relationship among variables and all the data were analysed using SPSS 20 software. Results show a positive significant relationship between crude oil price and gold price. Although, there is a negative significant relationship between Malaysian ringgit currency exchange rate and the gold price. The result between Real Malaysian GDP shows a positive significant relationship with low impact on the gold price. The inflation rate shows a negative significant relationship and no effect on the gold price in Malaysia.

1. Introduction

Gold is a good investment that is neither short-term nor long-term. One of the privileges of gold is that it is considered valuable by the entire human race. It is also a great asset that can be converted into paper money. No other assets can match the liquidity of gold. Gold holders can convert their gold into money anytime they want. It not only can be diluted in Malaysia, but also can be diluted anywhere as it is accepted by other people around the world. Gold is a valuable item that is easy to handle and is a tangible value item. According to Worthington, and Pahlavani (2006), gold has attracted people since thousands of years ago until this day because unlike most other commodities, gold is a metal that is durable, easy to carry, as well as universally accepted and validated.

Gold is also known as a hedging tool. The role of gold as a hedge means that it helps offset the significant losses incurred by the investors. In simple words, the hedge is to reduce the risk of loss on an investment or depreciation of the value of an asset. Economic instability cannot be expected to accurately cause investors to take the initiative to make gold as an asset to the risks incurred from getting too high. Gold is not only regarded as a commodity but also classified as a financial asset. In addition to hedge, gold is a store of wealth, which means safe storage. Nowadays, many investors are interested in keeping gold as their future assets investment. According to Wang (2013), gold is one of the hedging tools. The liquidity of the gold value in the future is more efficient rather than keeping stock or paper money. The price of gold in Malaysia depends on macroeconomic factors. This project paper aims to describe how the price of gold is influenced and affected by crude oil prices, currency exchange rate, Gross Domestic Product, and inflation rate.

Gold price is influenced by macroeconomic factors such as crude oil price, inflation rate, interest rate, currency exchange rate, Gross Domestic Product (GDP), stock price, consumer price index, money supply, and household income rate (Wang, 2013; Bapna, Vishal, Navindra & Harmender, 2012; Daniel, 1997; Hamilton, 1996; Jones & Kaul, 1996; Brailsford & Faff, 1999). Wang (2013) states that previous studies mainly focusing on the relationship between gold and macroeconomic factors, such as inflation rate, interest rate, and currency exchange rate. Meanwhile, Jones & Kaul (1996) and Brailsford & Faff (1999) conduct a research on the topic of the relationship between oil price and financial markets. Bapna et al. (2012) state that the common macroeconomic factors that influence gold prices are: growth rate, exchange rate, interest rate, inflation rate, NSE Index, BSE Sensex, foreign reserves, fiscal deficit, and Gross Domestic Product (GDP). The macroeconomic factors that have an impact on

gold price have been studied by researchers in Malaysia. Nurulhuda, Izzat, Rahayu (2014) analysed the factors of crude oil prices, inflation rate and exchange rate affect the price of gold in Malaysia. Ernie (2013) has analysed the relationship among interest rates, consumer price index, money supply, and market share to gold price.

The macroeconomic factors that influence gold price commonly used by researchers in Pakistan, India, and United States of America were: interest rate, inflation rate, stock price, currency exchange rate, crude oil price, repo rate, Gross Domestic Product (GDP), money supply, growth rate, and forex reserves (Warda, Zakaria & Farrukh, 2014; Sindhu, 2013; Bapna et al., 2012; Martha & Tran, 2007). Warda, Zakaria, Farrukh (2014) analysed the effects of inflation rate, stock price, international gold price, rupees per dollar exchange rate, international oil price and income on domestic gold price in Pakistan. Meanwhile, Sindhu (2013) analysed the impact of USD exchange rate, crude oil price, inflation rate, and repo rate to the gold price in India. Bapna et al. (2012) studied the macroeconomic factors such as Gross Domestic Product (GDP), growth rate, exchange rate, interest rate, inflation rate, BSE Sensex Index and Forex Reserves to the gold prices in India. However, Martha & Tran (2007) analysed the demand level for physical gold and determine the effect and relationship of Gross Domestic Product (GDP) to gold prices in the United States of America.

Previous studies in Pakistan, India and United States of America used macroeconomic factors such as interest rate, inflation rate, stock price, currency exchange rate, crude oil price, repo rate, Gross Domestic Product (GDP), money supply, growth rate, and forex reserves to influence gold price. However, the impact of the Gross Domestic Product (GDP) and interest rate to gold price in Malaysia has yet to be studied. Hence, this study aims to include Gross Domestic Product (GDP) and interest rate as the factors to determine the prices of gold in Malaysia. In addition, this paper will also examine the other factors such as exchange rate, crude oil price and inflation rate in relation to gold price.

2. Factors Affecting the Gold Price

According to Nurulhuda et al. (2014), the study about factors affecting gold price has yet to be conducted in Malaysia. The factors that affect gold price must be determined because people's and investors' awareness towards gold investment has grown in the past few years. The aim of the study is to analyse macroeconomic factors (e.g. crude oil prices, inflation rates and exchange rates) that affect the prices of gold in Malaysia. This study uses Multiple Linear Regression (MLR) Model in determining the significant relationship between dependent and independent variables by analysing data from year 2003 until 2012. The result of the study shows that there is a negative significant relationship between inflation rates and exchange rates on gold price. Furthermore, there is a positive significant relationship between crude oil price and gold price.

Warda et al. (2014) stated that there is a need to explore the macroeconomic variables that affect gold prices. The aim of their study is to analyse the effects of inflation, stock price, international gold price, rupees per dollar exchange rate, international oil price and income on domestic gold price. The authors used monthly time series data from 2000 to 2012. Results from such study shows that inflation, international gold price, international oil price and income have a statistically significant positive impact to the gold price in Pakistan. The stock price and exchange rate show a statistically significant negative impact on gold prices in Pakistan.

Ernie (2013) found no evidence from the past research that gold can be used to hedge inflation in Malaysia. The study analysed the impact of USD exchange rate with the gold price in Malaysia, to analyse the impact of price of crude oil on the gold price in Malaysia the impact of inflation on the gold price in Malaysia, as well as the effect of repo rates to gold prices in Malaysia. The author used major data sources from World Gold Council (WGC), Gem & Jewellery Export Promotion Council (GJEPC), MMTC Ltd, and State Trading Corporation (STC Ltd). The data was collected using regression method. Data of gold prices was collected on a daily basis for a period of 5 years from November 2006 to December 2011. Furthermore, the author also analysed the trend of movement of gold price and crude oil price on a monthly basis for 5 years. The result from the study shows that there is an inverse relation between USD exchange rate and the gold price. The crude oil prices have impact on the gold price. The gold price and inflation rates are positively correlated while gold price and repo rates are interdependent.

According to Amalendu (2013), increasing crude oil prices will increase the production costs which will affect cash flow and decrease stock prices. Investors are showing fewer concerns in the stock markets and investing in gold due to increasing trend in gold prices on account of no fear and no future loss. The study aimed to analyse the relationship between crude oil price and exchange rate in India. Moreover, the study also aimed to analyse the relationship between crude oil price and India stock price, to analyse the relationship between gold price and India exchange rate, and to analyse the relationship between gold price and India stock price. The author used secondary data from various sources (BCE database, NSE database and World Gold Council data) and analysed each of the data from January 2, 1991 to October 31, 2012 (21 years). The methods employed include ADF unit root test, Johansen Cointegration analysis and Granger causality test. The result from the study shows that there are positive relationship between crude oil price and stock market and no relationship between stock price and the gold prices. The result also shows that there is a positive relationship between crude oil prices and gold price, and there is also a positive relationship between crude oil prices with the Indian exchange rate but the relationship between gold price and India exchange rate is negative.

A study by Seemuang & Suppanunta (2013), the aim to explore the relationship between the movement of gold value and dynamic macroeconomic variables (Inflation rate, US real GDP, value of Dollar, US money supply level 2 and inflation rate) in United States. The authors used correlation analysis to explore the correlation between each of the variables and used Ordinary Least Square (OLS) regression equation to explore the factors contributing to the movement of gold. The result of the study shows that the percentage of change of the US dollar index (Dollar supply and inflation) is a factor of movement of gold value and has mirror effects to each other. The result of the study also shows that there is a negative relationship between the value of

Dollar and gold price. The inflation rate significantly affects the gold price and the US Real GDP is positively correlated to the gold price.

Furthermore, Wang (2013) stated that crude oil has the possibility to affect any macroeconomic factor. The study aims to analyse the relationship between crude oil price and gold futures contract in order to help gold investors and financial institutions. The author used Statistical test (GARCH and TGARCH model) and each of the data was collected using trend analysis from January 2000 to December 2012 on an annual basis. The result of the study shows that the volatility of crude oil price return has an effect on the volatility of gold price return.

Shukor (2013) stated that there are many types of gold coin and one of the new gold coin introduced in Malaysia is Kijang Emas. The aim of the studies were to recommend on how to keep gold as an investment and to examine the type of gold that can be claimed as investment tools. This study used secondary data such as Internet, books, magazine, and article. The result come out as gold bar is a one of the type of gold as investment because the price of gold bar is nearly similar with the international gold price. Gold coin is a convenient investment tools because it's easy to carry and can be diluted and sell in any places. Gold saving account also can be determined as an investment tools.

Bapna et al. (2012) stated that the demand of gold is related and sensitive to macroeconomic conditions in the world. Gold price is difficult to anticipate, predict, and explain. The aim of the study is to analyse the impact of macroeconomic variables (Gross Domestic Product, Growth Rate, Exchange Rate, Interest Rate, Inflation, BSE Sensex Index and Forex Reserves) on gold prices. Authors used unit root test, regression method and granger causality test to analyse the data. Macroeconomic variables were also analysed using trend analysis. All the data were collected for a 10-year period, starting from the year 2002 until year 2011 on a quarterly basis; March, June, September and December. The result shows that an exchange rate, fiscal deficit, and forex reserve inflation rate independently affect gold price on a large scale but the growth rate, Gross Domestic Product, BSE Sensex and NSE Index have a very low impact on gold price independently. The finding also proves that gold does not cause and affect exchange rate, BSE Sensex, NSE Index, forex reserves and fiscal deficit but gold does affect interest rate and inflation and vice versa.

Simakova (2011) stated that gold plays an important role in shaping the economy. Gold, oil and also other commodities are predominantly quoted in U.S. Dollars. The aim of this study is to analyse the relationship between gold and oil price. The author used traditional time series model to analyse the data while using Johansen cointegration test and Vector Error correction model to investigate asymmetric cointegration relation. Moreover, the author also analysed the trend of movement of gold price and oil price on a monthly basis for a 40-year period starting from year 1970 to year 2010. Then, the author calculated the ratio for both variables to determine their relationships. The result shows that the correlation between oil price and gold price are strongly positive and there are causal links between gold and oil price levels, which were identified using Granger causality test.

Previous study by Hina & Naveed (2011) showed investors are less interest in the stock markets and investing in precious metals like gold due to increasing trend in gold prices in Pakistan. The aim of the study is to evaluate the impact of gold prices on KSE, which is major stock exchange of Pakistan. The data were analysed using Unit Root Test of Augmented Dickey Fuller Model (ADF), Unit Root Test of Phillip Perron, Johansen's Co Integration Test and Granger Causality Test (GCT). The data were analysed for a 5-year period on a monthly basis starting from the year 2006 to year 2010. The result shows a negative relationship between monthly average gold prices and KSE 100 index.

Le & Chang (2011) stated that researches on oil price-gold price relationship are sparse. The aim of their study is to investigate the relationship between the prices of two strategic commodities: gold and oil. The data was analysed using regression equations for Granger causality analysis on the hypothesis in order to examine causality running from oil price and gold price. The data are monthly basis data for a 25-year period from January 1986 to April 2011. Result shows a positive relationship exists between the prices of oil and gold. The oil price can be used to predict future gold price.

According to Hooi, Russell (2010), the relationship between energy consumption and economic growth has been much studied using the concept of Granger causality in Malaysia but a few studies of the energy-GDP nexus for Malaysia use a multivariate framework. This study is to examine the causal relationship between economic growth, electricity generation, exports and prices in a multivariate model. This study employs an annual data for Malaysia from year 1970 to 2008. The result shows there is unidirectional Granger causality running from economic growth to electricity generation and there is no causal relationship between prices and economic growth. Authors provide a suggestion to carry out and continue this study because this study does not differentiate between renewable and non-renewable energy consumption.

According to Hawati, Ruzita, Hasimi, Izani (2010), the aims of the study is to provide evidence on the validity of the Fisher hypothesis, linking inflation and stock returns. Authors used Malaysian data over a period of 27-year from 1980 to 2006. The finding shows there is negative relationship between stock returns and inflation in industrialized economies is well documented. Inflation is not significant with the stock returns.

Referred to the Mansor (2010) stated that, several studies have attempted empirical investigation of gold hedging property. The previous study looks at gold investment from an international perspective, but the author view the issue from a domestic perspective. This study aims to examine the relation between gold return and stock market return and whether changes in times of consecutive caused negative market returns for an emerging market in Malaysia. This study employs 2261 daily observations spanning from August 1, 2001 to 31 March, 2010. The data was collected from Bank Negara Malaysia and Data Stream International. This study used empirical model using an auto-regressive distributed lag model. The result shows there is a significant positive but low correlation between gold and once-lagged stock returns.

According to Ismail et al. (2009), the demand for gold commodity as an investment is rising. The aim of the study is to predict the future gold price movement. The method used to predict gold price movement is the Multiple Linear Regression (MLR) model. The authors also used correlation to analyse the relationship of the variables. The result shows that the Commodity Research Bureau future index (CRB); USD/Euro Foreign Exchange Rate (EUROUSD); Inflation rate (INF); Money Supply (M1); New York Stock Exchange (NYSE); Standard and Poor 500 (SPX); Treasury Bill (T-BILL) and US Dollar index (USDIX) are considered to have influence on the prices of gold.

Based on the previous study by Zhang & Wei (2009), most of the evidence has suggested that there is a close interaction between financial features of the international crude oil and gold markets. The aims of the study is to analyse the cointegration relationship and causality, and to investigate the respective contribution, from the perspective of price discovery to the common price trend so as to interpret the dynamics of the whole large commodity market and forecast the fluctuation of crude oil and gold prices. The study used trend analysis of daily data for an 8-year period starting from January of 2000 to March of 2008. Authors take 2061 price samples and trends to be analysed. Cointegration test and linear and non-linear granger causality test are used to test the existing of lead-and-lag price mechanism. The result shows that there are consistent trends between the crude oil price and the gold price with significant positive correlation coefficient. There is a long-term equilibrium between the two markets, and the crude oil price change linearly Granger causes the volatility of gold price, but not vice versa. The two market prices do not face a significant nonlinear Granger causality.

Kaspar (2008) asserted that gold has always been a symbol of stability and wealth. People tend to think about buying gold more as a saving than a vehicle for an investment. The objectives of this study are to analyse the supply and demand on the gold market and the factors and trends, which cause fluctuations in supply and demand regarding gold prices. This study also aims to provide an overview about the geopolitical factors, which have an influence on the price of gold and provides a summary on how gold can be used as a diversifying instrument in an investment strategy. This study analysis is in yearly basis from year 1968 to 2007. The data of the gold prices are referred to the World Gold Council and analysed using Dow-Gold Ratio. The result shows a positive correlation between oil and gold prices and USD.

Martha & Tran (2007) stated that the previous studies did not pay much attention to what is known as the 'physical demand' for gold (physical gold such as jewellery, bars, coin, and medallion). Portfolio demand for gold has been well studied; determinants of physical demand are less understood. The aims of this study are to analyse the demand level for physical gold and to determine the effect and relationship of GDP and the gold demand. The data of the gold prices are collected and analysed annually from 21 countries starting from year 1992 to year 2003. To analyse gold demand, authors used econometric specification method. The result shows a positive shock to gold demand. There is an appreciable relationship between GDP per capita and physical demand for gold. The size of the private credit market relative to GDP is estimated to have a negative effect on gold demand.

According to Worthington & Pahlavani (2006), both the price of gold and the consumer price index have been subject to structural change over time. The aim of the study is to test for the presence of a stable long-run relationship between the monthly price of gold and inflation in the United States starting from year 1945 to year 2006 and from year 1973 to year 2006. The authors applied unit root testing and co-integration to see the relationship between gold and inflation. The result shows that direct and indirect gold investments can serve as an effective inflationary hedge and gold is a useful inflation hedge in the post-war and post-1970s period. The result also shows that a strong co-integrating relationship exists between gold price and inflation rate.

Shimon, Raphael (2005), the academic literature clearly suggests that oil price increases and volatility dampen macroeconomic growth by raising inflation and unemployment and by depressing the value of financial and other assets. The aim of the study is to analyse how the Oil-GDP Relationship Affects Electricity Generating Cost Estimates and Energy Security/Diversity Concepts but this issues seems to have received little attention from energy policy makers. This study analyse the data by using Capital Asset Pricing Model (CAPM) in order to estimate the discount rates for fossil fuel and other generating cost components on the basis of estimated fossil fuel betas and analyse yearly data from year 1973 to 2003. The result shows a downward pressure on oil prices helps to avoid GDP losses by mitigating the consequences of the Oil-GDP effect.

Ciner (2000) found that gold and silver were closely related as precious metals and were considered as substitutes to reduce similar types of risks in portfolios. The study is to examine the long-term trend between the prices of gold and silver futures contracts traded on the Tokyo Commodity Exchange. The author used daily closing prices of gold and silver futures contracts traded on the Tokyo Commodity Exchange (TOCOM). The data covered the period time from the first trading day in year 1992 until the last trading day in year 1998, for a total of 1720 observations. Authors also used co-integration analysis to test for long-run interdependence and used canonical correlation methods to estimate the number of distinct co-integration vectors within the framework of an error-correction model. The result shows no relationship for long-term period between the prices of gold and silver. Both of the variables cannot be used as substitutes to hedge against similar types of risks.

3. Data and Methodology

Data were collected and analysed starting from year 2005 to year 2014 for 10 years on a quarterly basis due to the limitation of Real Gross Domestic Product (GDP) data in Malaysia. All the data are analysed using SPSS 2.0 Software. Similarly, Bapna et al. (2012) state that, data is analysed and collected from the period of year 2002 to year 2011 for 10 years period in quarterly basis (March, June, September and December). The macroeconomic factors affecting the gold price in Malaysia such as crude oil price, currency exchange rate, Real Malaysian GDP, and Malaysian inflation rate.

Malaysia crude oil price is based on the international price but adjusted by the Malaysian government in line with global crude oil price including public and political pressures in Malaysia. There are three main benchmarks of crude oil price normally; West International (WTI), Brent of Europe, and Dubai of Middle East. According to Syahira (2009), crude oil prices is classified under world oil prices which is the average real oil price obtained from three main benchmark oil prices used in world trade, namely West International or WTI, Brent of Europe and Dubai of Middle East ;Malaysia used Brent of Europe. In this study, the crude oil price data will follow the Brent of Europe. According to an article from Jorge Montepeque (2013),Brent is the pricing benchmark for Asia-pacific crude oil price. The data of crude oil price is obtained from Bloomberg.

Currency data for Malaysian Ringgit and US Dollar were collected from Bank Negara Malaysia. Bank Negara Malaysia provides a valid data for Malaysian Ringgit currency because Bank Negara Malaysia is a Central Bank of Malaysia and has authority to hold and manage the Malaysian Ringgit currency. Malaysian Ringgit currency data are collected base on USD \$1. Similarly, Nurulhuda et al. (2014) used Malaysian Ringgit currency collected from the Bank Negara Malaysia.

Data of Malaysian Real Gross Domestic Product (GDP) were collected from Malaysian Economic Planning Unit (EPU), and Department of Statistics of Malaysia (DSOM). Both of these departments are authorized and managed under the Prime Minister Department Malaysia. According to Hussain, Salwati (2011), all the data are obtained from the Department of Statistics of Malaysia (DSOM).This study used the Real GDP compare to Nominal GDP because Real GDP is adjusted for inflation, while Nominal GDP is not. Seemuang, Suppanunta (2013) explore the relationship on the movement of gold value and dynamic macroeconomic variables (Inflation rate, US real GDP, value of Dollar, US money supply level 2and inflation rate) in United States.

The inflation rate data for this study was taken from the Department of Statistics Malaysia which is a government organization that has authority and responsibility for the valid inflation rate data in Malaysia. Most of the previous study data were obtained from the Consumer Price Index (CPI) due to data limitations. Similarly, Hawati et al. (2010) used Consumer Price Index (CPI) to compute inflation rate and the original data was obtained from the Malaysian Department of Statistics. Most of previous researchers used gold bar or gold ore as a variable in their study. Since, the area of this study is in Malaysia, the gold were analysed using Malaysian gold coin and known as “Kijang Emas”. The data of Kijang Emas are extracted from Bank Negara Malaysia (BNM), the Central bank of Malaysia. According to Ernie (2013), the data for Kijang Emas are taken from the Bank Negara Malaysia.

3.1 Descriptive Statistics

This study was analysing the normality of the data variable by referring to the descriptive statistics analysed by SPSS 20. The data were analysed under descriptive statistics such as mean, median, standard deviation, skewness, and kurtosis. The aims of analysing mean, median, standard deviation, skewness and kurtosis is to measure the normality of the data. When the mean is nearly similar with the median of each variable, and the skewness and kurtosis figure between 0.5 and 1.0, the data is considered as a normal or valid data base on rule of thumb. The Standard Deviation is a measure of how spread out numbers of data variables and error of the data. According to Nurulhuda et al. (2014) the mean and median of the oil is 4.32 and 4.31 respectively shows a valid data and it is near to each other according to the rule of thumb. Hence, probability indicates that it is a normal data.

3.2 Correlation Coefficient

Correlation coefficient is to measure the effect that comes from the independent variables (crude oil price, currency exchange rate, Real Gross Domestic Product (GDP), and inflation rate) to the dependent variable (gold price). In Sekaran & Bougie (2010), they referred to the correlation matrix and consider correlations of 0.70 and above as high. Seemuang, Suppanunta (2013) used correlation analysis to explore the relationship on the movement of gold value and dynamic macroeconomic variables (Inflation rate, US real GDP, value of Dollar, US money supply level 2 and inflation rate) in United States. Similarly, this study also used correlation coefficient.

3.3 Multiple Linear Regression

According to Sekaran & Bougie (2010), Multiple Linear Regression (MLR) function is to assess the degree and the character of the relationship between the independent variables and the dependent variable. Nurulhuda et al. (2014) used MLR in determining the significant relationship between independent variables (crude oil prices, inflation rates, exchange rates) and dependent variable (gold price) by analysing the 10 years data from year 2003 till 2012. Similarly, this study used MLR to measure selected macroeconomic factors (independent variables:gold price, crude oil price, Malaysian ringgit currency exchange rate, Real Malaysian GDP, Malaysian inflation rate) affecting the gold price in Malaysia.

4.0 Findings

The descriptive statistic is a set of brief descriptive coefficients that summarizes the data of selected macroeconomic factors affecting the gold price in Malaysia. The analysis used to describe the basic features of the data in the study are mean, median, skewness, and kurtosis of each variable. Table 1.0 below shows the descriptive statistics for the output comprised of five variables data (crude oil price, currency exchange rate, real GDP, inflation rate, and gold price) for 10 years' period on a quarterly basis starting from year 2005 until 2014.

Table 1.0: Descriptive Analysis of the Relationship Between Selected Macroeconomic Factors and Gold Price in Malaysia

	Crude Oil	Currency	GDP	Inflation	Gold
Mean	2.42	0.52	5.16	0.41	3.54
Median	2.42	0.51	5.13	0.43	3.58
Std. Deviation	0.090	0.030	0.093	0.20	0.15
Skewness	-0.35	0.32	0.54	0.30	-0.54
Kurtosis	0.87	-1.009	-1.108	0.14	-0.84

In Table 1.0, crude oil price indicates the mean and median values are both 2.42 followed the rule of thumb. The data shows negatively skewed value of -0.35, while the kurtosis value indicates 0.87 more than 0.5 and 1.0 rules of thumb. The standard deviation is referring to the differences of data on mean average of 0.090. Hence, the data is normally distributed.

Table 1.0 also presents the second variable; currency exchange rate in affecting gold price in Malaysia obtained mean and median values of 0.52 and 0.51 respectively. This shows that, the data is normally distributed. The skewness value is positively skewed at 0.32 while the kurtosis value is -1.009. The standard deviation measured the differences of data on mean average of 0.030.

The third variable, Malaysian Real GDP in affecting the gold price in Malaysia indicate the mean and median values of 5.16 and 5.13 respectively. Values of the skewness indicate of 0.54 and -1.108 for the kurtosis value while the mean and median for the inflation rates are 0.41 and 0.43 respectively. The skewness value shows a positively skewed value of 0.30 where the graph curve slopes to the right side, and kurtosis value indicates 0.14; thus, indicating a normally distributed data. The fifth variable, the gold price is the dependent variable as shown in Table 1.0. The price of gold is rising more than the price of crude oil, exchange rate, and inflation rate but less than real GDP. The mean and median values for the price of gold are 3.54 and 3.58 respectively. The growth rate in gold price is more volatile and skewed to the left skewed (-0.54).

The correlation coefficient is a statistical measure of the degree to which changes to the value of one variable predicts change to the value of another. In positively correlated variables, the value increases or decreases in tandem. In negatively correlated variables, the value of one increases as the value of the other decreases.

Table 2.0: Correlations on the Relationship between Selected Macroeconomic Factors and Gold Price in Malaysia

Model	Oil	Currency	Real GDP	Inflation	Gold
Oil	1	-0.567**	0.440**	0.145	0.420**
		0.000	0.005	0.384	0.007
	40	40	40	38	40
Currency	-0.567**	1	-0.638**	0.340*	-0.865**
	0.000		0.000	0.037	0.000
	40	40	40	38	40
Real GDP	0.440**	-0.638**	1	-0.233	0.783**
	0.005	0.000		0.159	0.000
	40	40	40	38	40
Inflation	0.145	0.340*	-0.233	1	-0.283
	0.384	0.037	0.159		0.086
	38	38	38	38	38
Gold	0.420**	-0.865**	0.783**	-0.283	1
	0.007	0.000	0.000	0.086	
	40	40	40	38	40

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 2.0 shows there is a significant relationship between crude oil prices and gold prices with t-stat value of 0.007 which is less than 0.05 level of significant. The coefficient shows a positive relationship which is 0.420. This explained that there is a significant positive relationship between crude oil price and gold price; when the crude oil prices increase, the gold price also will increase.

Table 2.0 shows that there is a significant relationship between ringgit currency exchange rate and gold price with t-stat value is 0.00 less than 0.05 of significant level. The coefficient shows a negative relationship which is -0.865. Finding shows there is a negative significant relationship between ringgit currency exchange rate and gold prices. The gold price has affected differently to the changes of ringgit currency exchange rate. When the ringgit currency exchange rate is appreciating, the gold price will decrease.

As shown in Table 2.0, there is a significant relationship between Real Malaysian GDP and gold prices with t-stat value are 0.00 less than 0.05 of significant level. The coefficient shows a positive relationship which is 0.783. This explained that there is a significant positive relationship between Real Malaysian GDP and gold prices whereby, when the real GDP increases, the gold price also increases.

Table 2.0 shows no significant relationship exist between Malaysian inflation rate and gold price with t-stat value of 0.086 more than 0.05 level of significant. While the coefficient shows a negative relationship which is -0.283. Thus, the finding explained that, there is a negative and no significant relationship exist between inflation rate and gold prices in Malaysia.

4.3 Macroeconomic Factors Affecting the Gold Price in Malaysia

Multiple Linear Regressions (MLR) attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data (Hair 1998). Every value of the independent variable, x is associated with a value of the dependent variable, y. The MLR measurement is based on the significant value comparing the regression level indicated in this study is 0.05. When the significant value of each variable is less than 0.05 of regression level, the variable is indicating significant relationship but when the value of significant is more than 0.05 of regression level, the variable indicates no significant relationship exist.

Table 3.0: Estimates of Coefficient for the Relationship Between Selected Macroeconomic Factors and Gold Price in Malaysia

Model	R-Square: 0.881		F-Statistics: 61.260	
	Coefficient	β	t	Sig.
(Constant)		2.723	3.105	0.004
Crude Oil Price	0.199	0.338	2.452	0.020
Currency Exchange Rate	-0.754	-3.794	-8.040	0.000
Real GDP	0.424	0.697	5.418	0.000
Inflation Rate	0.101	0.077	1.424	0.164

a. Dependent Variable: Gold Price (Kijang Emas)

From Table 3.0, the R-Squared was 0.881 or 88.1%. This result indicates that 88.1% of the total variance in gold prices was significantly explained by the three independent variables which are crude oil prices, Malaysian currency exchange rate, Real Malaysia Gross Domestic Product (GDP). The remaining 11.9% of the total variance in y remains unexplained. The study also show that, there are strong correlations between the variance since R-Squared is above 88%. The value of F distribution is 61.260. There is no significant relationship that exist between inflation rate and gold price. This study of selected macroeconomic factors (crude oil prices, Malaysian currency exchange rate, Real Malaysian GDP) are significantly related with the gold prices in Malaysia. Meaning that, any changes in these three factors can reflect the changes of gold prices in Malaysia. However, currency exchange rate has an inverse relationship to the gold price while the crude oil price, GDP and inflation rate have a positive relationship to the gold price.

The estimation of the model coefficient are as follows:

$$y = \beta_0 + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \epsilon_i$$

$$y = 2.723 \text{ (constant)} + 0.338 \text{ (crude oil price)} - 3.794 \text{ (currency exchange rate)} + 0.697 \text{ (real GDP)} + \epsilon_i$$

$$y = 0.036 \text{ (gold price)}$$

Based on the estimation of the model coefficient above, the predictors significantly predict gold price, $F(61.260) = 2.723$, $p = 0.004$ ($p < 0.05$). But the independent variables only can predict 88.1% (adjusted $R^2 = 0.881$) toward the gold price. Crude oil price ($\beta = 0.338$, $p = 0.020$), currency exchange rate ($\beta = -3.794$, $p = 0.000$), real GDP ($\beta = 0.697$, $p = 0.000$) are significantly predicting gold price. But, the inflation rate are not significant ($\beta = 0.077$, $p = 0.164$) to the gold price.

5.1 Conclusion

From the findings on the relationship between selected macroeconomic factors affecting gold price in Malaysia, the conclusion include the following:

Firstly, the crude oil price and gold price has a positive significant relationship in Malaysia. Crude oil price does impact on the gold price. The price of crude oil increase may reflect the increasing of gold price (Kijang Emas) in Malaysia. The previous study by other researcher (Warda, 2014; Nurulhuda, 2014; Sindhu, 2013; Amalendu, 2013; Wang, 2013; Simakova, 2011; Le, Chang, 2011; Lin, Yang, Chen, 2010; Zhang, Wei, 2009; Kaspar, 2008) also contribute the same result as this study which indicate the positive relationship between oil price and gold price.

Secondly, as per the regression analysis, currency exchange rate have a negative significant relationship to the gold price. The rise of ringgit currency exchange rate may cause decrease to the gold price (Kijang Emas) in Malaysia. The previous study by

other researcher from other countries (Nurulhuda, 2014; Warda et al., 2014; Sindhu, 2013; Amalendu, 2013; Seemuang, Suppanunta, 2013) also found the same result as this study.

Thirdly, the Real Malaysia Gross Domestic Product (GDP) shows a positive significant relationship to the gold price in Malaysia. The result indicate the same as previous studies (Seemuang, Suppanunta, 2013; Bapna et al., 2012; Martha, Tran, 2007; Hussain, Salwati, 2011). When the GDP growth increase in Malaysia, the gold price also will be increase.

Fourthly, there is no impact between inflation rate and the gold price in Malaysia. Inflation rate does not affect the gold price. The same results from the previous study provide a strong evidence for this study. Nurulhuda et al. (2014) found that, there is no effect of inflation rate on the gold price in Malaysia. Unfortunately, the previous studies by others researcher from other countries (Warda et al., 2014; Sindhu, 2013; Seemuang, Suppanunta, 2012; Bapna et al., 2012; Hussain, Salwati, 2011; Ismail et al., 2009) contributed a different result where the inflation rate has affected the gold price. The result of this study were supported by Cullen Roche (2012), the founder of Orcam Financial Group in U.S. state that, there is no impact of inflation rate on the gold price because the price of gold is depending on the demand but not on the economic condition. Cullen statement is based on the gold price trend during global recession from 2007 to 2009, the price of gold in U.S. continues to soar while the United States of America suffered through a period of low inflation and economic malaise.

5.2 Suggestions for Future Research

This study only focused on four independent variables which are crude oil price, ringgit currency exchange rate, Real Malaysian Gross Domestic Product (GDP), and Malaysian inflation rate. These variables are measured in terms of their relationships to the gold price. Investors can take benefit of the results and conclusions from this study to their investment strategies by considering external and internal environments of the country. Government should take an advantage of the study by fixing and fighting against the black economy and controlling inflation of economy. As such, gold price mechanism should be monitored by the government.

Future researchers could incorporate other independent variables related to the macroeconomics factors that affect the gold price such as stock index, Forex Reserves, growth rate, and interest rate. It is suggested that such independent variables must analysed the relationship with the dependent variable (gold price) either for the short-term or long-term periods. It is recommended that gold investors could refer to the selected macro factors (crude oil price, currency exchange, real GDP, and inflation rate) conducted in this study. This would enable gold investors to forecast the gold price and earnings in the future. More studies could also be conducted using the average gold prices in grams rather than in ounce. This study used gold coin (Kijang Emas) to be tested but for the future study, the researcher can use other elements of gold such as gold jewellery, gold bar, or gold ore. Every element of gold has its different values depending on the supply and demand as well as the regulation of the country.

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