FLUCTUATION OF MALAYSIAN GOLD PRICE

Nurul Saidatul Qariah Abd Aziz[1], Norfarieha Abd Latif[1], Nurul Asmaa Omar[1] & Fadli Fizari Abu Hassan Asari[1]*

[1]Faculty of Business Management,
Universiti Teknologi MARA (Terengganu)
23000 Dungun, Terengganu, Malaysia.

Corresponding Author's Email: fizari754@yahoo.com

Abstract

Gold investment has currently become the most profitable investment in the market including Malaysia. Introduction of gold saving accounts by major banking institutions in Malaysia is one of the evidences. Therefore, this research is conducted to analyse the possible determinants of gold price fluctuation in Malaysia. Selected variables including stock exchange movement, exchange rate, inflation rate and oil price have been analysed. In addition, the most elastic variable that influenced the movement has also has been examined. Using time series analysis, all macroeconomic variables are significant at 1% significance level. Three variables have positive relationships while exchange rate has an inverse relationship. At the same time, exchange rate is the most elastic variable in determining the gold price fluctuation. For future studies, a wider scope is recommended where more determinant factors can be taken into account. This is important, since the public have changed their preferences by investing in gold due to its stability and success in safeguarding the wealth compared to other investment portfolios such as bond and share.

Keywords: Gold Price, Inflation Rate, Interest Rate, Stock Exchange, Oil Price, Foreign Exchange

1.0 INTRODUCTION

Gold investment has currently become the most profitable investment in the market (Svanian, 2011). The same phenomenon is also happening in Malaysia. Introduction of gold saving accounts by major banking institutions, selling of gold bullion and introduction of gold dinar in Malaysia have catalysed this type of investment. Special characteristics owned by gold such as relatively movable, generally accepted and easily valid worldwide make this commodity as an alternative investment (Worthington & Pahlavani, 2006). Gold is also a superb hedge against inflation over the time and acts as an excellent wealth safe guarder especially during economic or political catastrophe (Blake, 1984).

Earlier studies have tried to relate the fluctuation to several factors including macro economics variables and other commodities prices. Therefore, this research is conducted to analyse the possible determinants of gold price in Malaysia. Selected variables including stock exchange movement, exchange rate, inflation rate, and oil price have been analysed. The most elastic variable that influenced the movement has also has been examined in this research.

2.0 LITERATURE REVIEW

2.1 Gold Price

The price of gold in short-run can be determined by supply and demand, which fluctuates from time to time (Levin & Wright, 2006). One of the reasons; the gold investment can be done in little values, which cannot be done in other investments such as bond and share. Plus, gold is a precious metal with functions of purchasing power and has a stable price in the long run (Wang & Lee, 2011). Gold is also considered as a hedge against the US dollar devaluation. Decrease in dollar value however, does not affect the increase in gold price value (Allese, 2008). Pecchenino (1992) highlights that since gold is a commodity, it will respond immediately to information changes like inflationary expectation by the public.

2.2 Stock Exchange

Both stock exchange and gold price move in opposite directions. When there is collapse in prices of stocks, the gold price is likely to rise (Blose, 1996). Baur and Lucey (2006) however conclude that the relationship between stock market movement and gold price can be positively, negatively or even uncorrelated depending on time period. Chua *et. al.* (1990) for instance estimate a negative relationship between stock market fluctuation and gold price. In an extreme case, Mc Cown and Zimmerman (2006) reveal that there is no relationship between stock exchange and gold price.

2.3 Exchange Rate

According to Joy (2011), when the US dollar depreciates, the gold price tends to increase. Therefore there is an inverse relationship between exchange rate and gold price. In details given by Sjaastad and Scacciavillani (1996), when the US dollar depreciates against Swiss Franc, US gold price tends to increase and Swiss gold price will decrease. Gold is also an instrument to hedge against depreciation in US dollar as emphasized by Capie *et al.* (2005). Moreover, gold which is also known as a safe-haven asset is an excellent hedge tool as explained by Ranaldo and Soderlind (2010).

2.4 Inflation Rate

Ghosh *et al.* (2002) explain that gold price moves positively with inflation. When inflation happens, investors will buy more gold to protect their portfolios. Another opinion by Levin and Wright (2006) conclude that when inflation rises with the same rate of cost of production, gold price would also probably increase at the same rate. From macroeconomics perspective, gold acts effectively as the long run hedge against inflation especially in developed countries such as US, Britain, France, Germany and Japan, as mentioned in an earlier study by Harmston (1998).

2.5 Oil Price

Le and Chang (2011) summarised that gold price will increase when there is a rise in oil prices. Narayan *et al.* (2009), describe that inflation happen due to the increasing in oil price. This will lead to gold investing as a protection against inflation. As a result, a positive relationship existed. Another study by Zhang and Wei (2010)

explain that both gold and oil price move in the same direction or positively correlated. The same relationship is also shared in earlier studies by Hunt (2006), Cashin *et al.* (1999) and Furlong and Ingenito (1996).

3.0 RESEARCH METHODOLOGY

3.1 Theoretical Model

A time series analysis data for a period of 25 years (1986-2010) which consists of four independent variables and one dependent variable has been used. The log-log model is shown as follows:

$$ln(GOLD_t) = \alpha + \beta_1 ln(STOCK_t) + \beta_2 ln(ER_t) + \beta_3 ln(INF_t) + \beta_4 ln(OIL_t) + u_t$$

(Equation 1.0)

Where:

GOLD	=	gold price
STOCK	=	stock exchange index
ER	=	exchange rate
INF	=	inflation rate
OIL	=	oil price
ln	=	log natural
α	=	constant term
$u_{,t}$	=	disturbance term

3.2 Data Collection

Data collected from World Bank, Asian Development Bank, International Financial Statistics, International Monetary Fund and UNData were used in this study. All data then were converted into natural logarithm form. This is essential since coefficient estimated can be interpreted as an elasticity in explaining the relationship.

3.3 Data analysis

3.3.1 Stationarity Test

It is used to determine stationarity level for each variable. This level is important in determining the best method using either VAR, VECM or ARDL for further analysis.

3.3.2 Johansen Test

It is carried out to identify number of co-integrating exists in the long run. There is no co-integrating relationship if the rank is zero, one co-integrating relationship if rank is one, etc.

3.3.3 Vector Error Correction Model

It has been used since all variables are station at I(1). It can also be used in explaining magnitude of independent variables toward gold price fluctuation.

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 1.0 presents mean, variance, coefficient of variation (CV), maximum and minimum values for each variable. The wider the dispersion in the variable, the less efficient it will be based on the CV value. The table shows that CV for gold price, stock price, foreign exchange, inflation and oil price are 0.7133, 0.8996, 0.5683, 0.5798 and 0.9392 respectively. Exchange rate has the smallest value while oil price recorded the highest CV value.

Table 1.0: Descriptive statistics

Stats	GOLD	STOCK	FOREX	INF	OIL
Max	1641	229.7	102298	5.4	300.38
Min	294	7.4	19180	.29	15.04
Mean	443.44	65.26957	48784.24	2.5796	89.866
CV	.7132914	.8996377	.5683174	.5798329	.9391574
Variance	100046.9	3447.917	7.69e+08	2.237229	7123.077

4.2 Stationarity Test

Augmented Dickey-Fuller (ADF) test, which is the common stationarity analysis has been used in this study. Based on the result shown in Table 2.0, all variables are station at first difference, where all the p-values are less than 0.05 or 5% significance level.

Table 2.0: ADF unit root test (1st dif)

Variables	1st Difference	
	T-Stat	P-value
GOLD	-3.109	0.0259
STOCK	-4.841	0.0000
FOREX	-3.967	0.0016
INF	-7.902	0.0000
OIL	-7.668	0.0000

All the stationary conditions are shown in Figure 1.0 until Figure 5.0.

Figure 1.0: Stationarity of gold price (1st difference)

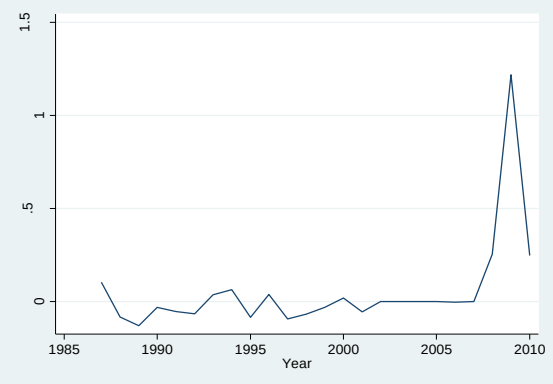


Figure 2.0: Stationarity of share price (1st difference)

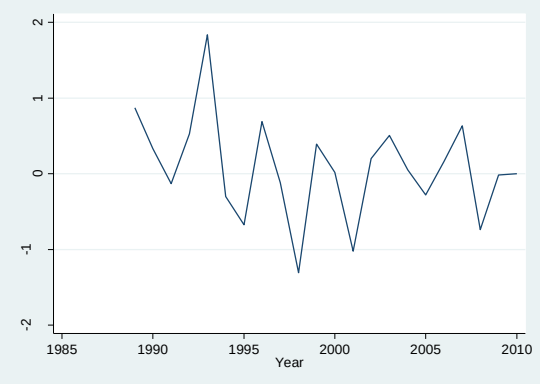


Figure 3.0: Stationarity of exchange rate (1st difference)

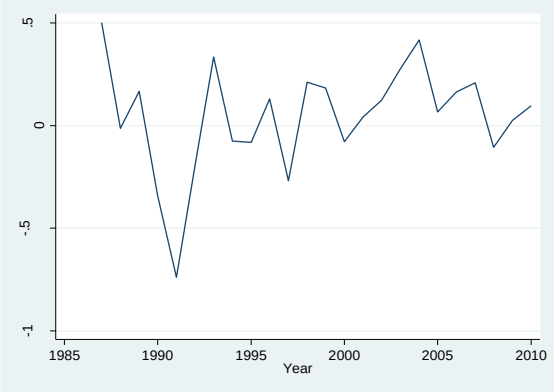


Figure 4.0: Stationarity of inflation rate (1st difference)

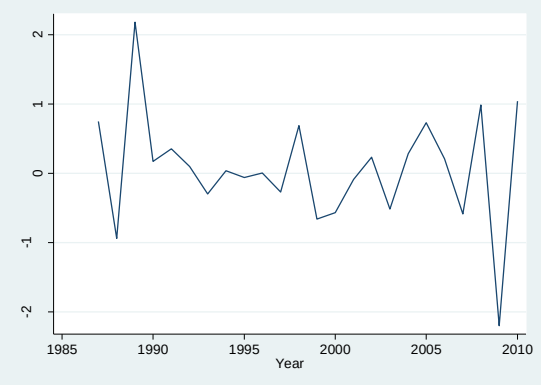
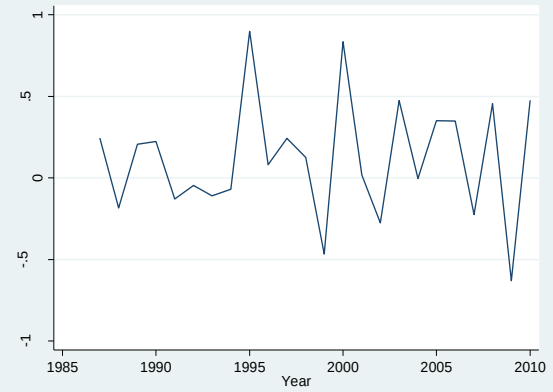


Figure 5.0: Stationarity of oil price (1st difference)



4.3 Long Run and Lag Determination

Based on Johansen test, AIC, HQIC and SBIC indicators show the existence of co-integrating relationship. In addition, lag 4 is the beginning for the long run relationship.

4.4 Discussion on Long Run Relationship

In general, the four selected independent variables which includes of stock exchange movement, exchange rate, inflation rate and oil price are significant at 1% significance level. The most influential macroeconomic factor is the stock exchange rate. The estimated equation is as follows:

$$\widehat{ln\text{GOLD}} = 11.4989 + 0.0781ln\text{STOCK} + 0.1838ln\text{ER} - 0.0650ln\text{INF} + 0.0633ln\text{OIL}$$

(Equation 2.0)

4.2.1 Stock Exchange - Gold Price

A 1% rise in stock exchange index will increase 0.0781% in gold price. This shows a positive relationship between these two variables. This result is in line with a finding by Baur and Lucey (2006), where any type of relationship may exist and vary with each other. In addition, this is logic, since increase in share price will move the investors to other portfolios which are stable in price especially commodities such as gold and silver. Increase in demand for gold will finally raise the gold price in the market.

4.2.2 Exchange Rate - Gold Price

A 1% increase in exchange rate will increase 0.1838% in gold price. Even though this positive relationship contradicts with studies made by Joy (2011) and Ranaldo and Soderlind (2010), a better explanation can be given. For instance, if the Malaysian Ringgit appreciates, the Malaysian gold price should go down based on those studies. The decrease in price however will make the Malaysian gold to become cheaper. This will attract demand from international investors. This in the long run will raise back the gold price and become stable from time to time.

4.2.3 Inflation Rate - Gold Price

A 1% increase in inflation rate will decrease 0.0650% in gold price. This negative relationship opposes several studies including Levin and Wright (2006) and Ghosh *et al.* (2002). Inflation rate can be defined as an increase in general price. This inflation will affect everything including commodities, investment portfolios and event necessities. In the case of Malaysia; a developing country where middle class is the biggest layer in the strata, most of the citizen still work hard in equipping their necessities. Therefore, increase in general price will increase demand on necessities and automatically reduce their investment portfolios including gold.

4.2.4 Oil Price - Gold Price

A 1% rise in oil price will increase 0.0633% in gold. This direct relationship is in line with majority studies including Le and Chang (2011), Zhang and Wei (2010), Narayan *et al.* (2009), Hunt (2006) Cashin *et al.* (1999) and Furlong *et al.* (1996). This is expected since both oil and gold are highly

demanded commodities. Therefore, both gold and oil price move in the same direction or positively correlated.

5.0 CONCLUSION AND RECOMMENDATIONS

All macroeconomic variables analysed; stock exchange, exchange rate, inflation rate and oil price are significant at 1% significance level. Three variables have positive relationships while only exchange rate has an inverse relationship. At the same time, exchange rate is the most elastic variable in determining Malaysian gold price fluctuation. For future studies, a wider scope is recommended where more determinant factors can be taken into account. This is important, since publics have changed their preference by investing in gold due to its stability and success in safeguarding the wealth compared to other investment portfolios such as bond and share.

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