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Investigating the Roles of Gold, Stocks and Bonds: A Safe Haven, Hedge or Diversifier?

Siti Rohaya Mat Rahim[1], Abdelhak Senadjki[2], Wei Mao[3,*] & Shuhong Liang[4]

Abstract

This study examines whether gold is used as a safe haven, hedge or diversifier during the recent financial crisis. We employed three different daily data set, full sample period from 18/07/2001 to 27/07/2007, the pre-crisis period between 18/07/2001 to 27/07/2007 and the post-crisis period between 09/03/2009 to 31/01/2017. This paper employs a structural vector auto-regression (SVAR) model. In fact, this research investigates the dynamic relationship between gold, stocks, bond market and exchange rate. The exchange rate variable consists of USD/MYR, RMB/MYR and EURO/MYR. This analysis suggest that gold return appear to be a weak safe haven for stock, diversifier for bonds and a weak hedge against USD/MYR. Finally, the results confirm that stock return is a weak hedge for government bond.

Keywords: Gold, Stocks, Bonds, Financial crisis, SVAR

1. Introduction

Gold has a variety of uses in Islam with respect to jewelry, to pay *zakat*, *diyyat* (blood money), *sadaqah*, *dowries*, *sarf* (currency exchange) and to serve as an underlying asset for financial transactions. Historically, it has been the choice of individual Muslims desirous of preserving wealth and value. As a result, gold and silver act as valid mediums of exchange for all economic transactions throughout Islamic history. Islamic monetary theory defines currency as *an-nuqud* or coins, composed of gold dinar and silver dirham (Abdullah, 2016).

In the context of Islamic finance, investment in gold remains one of the most liquid asset, as it is less risky and capable of protecting investors' wealth during critical times, such as emergencies, compared to other investment portfolio. The unique characteristics of gold offer many beneficial features, such as functioning as a safe haven, a diversifier, and a hedge for investors. As of early 2018, only 2% of the assets managed by Islamic finance institutions were invested in Sharia-compliant gold products. According to a report by Thomson Reuters' (2017), demand for gold across Muslim markets will increase, especially in the Middle East. Interestingly, Islamic investors' gold holdings are expected to maintain the value of gold investment products and this value is projected to ramped up from USD$ 2 trillion in 2017 to USD$ 6.5 trillion by the year 2020.

At present, banks in Malaysia offered both physical gold and gold investment account. Physical gold refers to gold coins and bullion bars. A gold coin exists in the form of the Kijang Emas denomination: 1 oz (RM 200), ½ oz (RM 100) and ¼ oz (RM 50) issued by the Central Bank of Malaysia. By contrast, United Overseas Bank (UOB)offers five types of gold coins; Canadian Gold Maple Leaf, Australian Kangaroo Gold Nugget, Swiss Kinebar, Swiss Pamp Gold and the Singapore Lion Gold Coin. In practice, gold bars can be bought from some gold distributors such as the Public Fine Gold International and from jewelry shops such as Poh Kong, Wah Chan and Tomei in a variety of weights and sizes. Alternatively, investors have an option to purchase gold open via gold deposit accounts or gold saving accounts. Banks would typically allow investors to purchase gold in cash or even using a debit transaction from a savings account.

[1]Faculty of Business and Finance, UniversitiTunku Abdul Rahman, Malaysia E-mail:.rohaya@utar.edu.my
[2]Faculty of Business and Finance, UniversitiTunku Abdul Rahman, Malaysia. E-mail: abdelhak@utar.edu.my
[3]*Corresponding author. China-ASEAN Research Institute of Guangxi University, Nanning, GuangxiP.R. China
E-mail: sand36@163.com
[4]China-ASEAN Research Institute of Guangxi University, Nanning, Guangxi P.R. China. E-mail: xidashuhong@126.com

Then, bank will issued a passbook, similar to what account holders received for the savings and fixed deposit accounts. Examples of gold investment accounts or gold investment savings accounts include those offered through Public Bank Gold Investment, Maybank Gold Investment, Al Rajhi Gold-*i* accounts, Muamalat Gold-*i* accounts, UOB Premier Gold Account, the UOB Gold Savings Account, CIMB Gold Investment account and the KFH Gold Account-*i*.

This study explores the impacts of the global financial crisis began in 2007. The crisis sent shockwaves through all world's stock markets. Thus, impacted the Bursa Malaysia stock market by making it weaker. For instance, the KLCI index hit its lowest point ever at 829.4 points on 29 October 2008. The index subsequently remained stable for the rest of 2008, finishing with a recorded year-end low of 876.8 points. On the surface, this supports the idea that investors tend to seek financial safety during financial crises.

According to Baur and McDermott (2010), a strong safe haven can be defined as an asset that is negatively correlated with another asset or portfolio during a time of turmoil. By contrast, a weak safe haven often refers to an asset that is uncorrelated with another asset or portfolio during extreme market stress. The correlation for safe havens seems to be zero or negative during this period. Ciner et al. (2013) proposed the definition of a strong hedge as an asset that is negatively correlated with another asset or portfolio on average. They even suggested that a weak hedge occurs if an asset is uncorrelated with another asset on average. Pullen et al. (2014) have documented that diversifier assets like gold should be positive, but not perfectly, correlated with an investor's other assets or portfolio on average.

This paper addresses the following four research objectives. First, to identify whether Kijang Emas exhibits safe haven, hedge or diversifier properties? Second, to investigate the dynamic features of Kijang Emas return and stock return. Third, to examine the short run relationship between Kijang Emas return and stock return in tandem with the monetary shock. Lastly, this paper aims to identify the impact of recent global financial crisis on Kijang Emas return against other assets such as stock return, government bonds and currencies.

The paper proceeds as follows. Section 2 provides a brief literature review. Section 3 explains on the descriptive analysis and diagnostic checking. Section 4 describes the SVAR methodology. Section 5 highlights the main results of this study. Finally, section 6 concludes the paper.

2. Literature review

Research on gold as an investment can be grouped into three strands. The first strand of the literature pays great attention to the economic literature, such as works by Blose (2010) and Zagaglia and Marzo (2013). More specifically, the empirical work in this strand tests the relationship between gold prices and macroeconomic variables. The most prominent macroeconomic variables used in previous studies have been associated with the interest rate, currency exchange rate, gross domestic product, the rate of inflation and etc. The second strand of the literature examines the benefits of gold in a portfolio (e.g. Conover et al. 2009; Hoang, 2011; Hoang et al. 2015). These authors found that gold offers excellent portfolio diversification benefits during periods of market turmoil. Adding gold to a portfolio often lowers its risk, but generally increases the expected return. The final strand of the literature highlights the relationship between gold and other assets. These authors asserted that gold is always perceived as a safe haven, hedge and or as an asset diversifier for stock markets (see Baur & McDermott, 2010; Ciner et al. 2013; Pullen et al. 2014). This means that gold truly acts as an alternative asset for holding investment value.

Generally, studies on the role of Kijang Emas as a safe haven, hedge or diversifier are extremely limited, especially in the context of Malaysia. For instance, the recent work conducted by Ghazali et al. (2015a) concerns whether Kijang Emas can hedge against inflation. They performed analyses for Malaysian market from July 2001 to November 2011. Ghazali et al. (2015a) applied various econometric methods including correlation and ordinary least squares (OLS) regression. The result revealed that Kijang Emas is not a good hedge against inflation in Malaysia. Importantly, they argue that adding expected and unexpected inflations to the analysis made it possible to study the role of Kijang Emas as a hedge instrument against inflation.

By contrast, Ghazali et al. (2015b) then tested the relationship between Kijang Emas return, Gold Account-*i*-return and KLCI return using the time-varying conditional variances GARCH (1,1). They considered monthly data from 9 February 2010 to 25 March 2014 and confirmed that Kijang Emas acts as a strong hedge against Islamic gold account. In their study, Ghazali et al. (2015b) highlighted Kijang Emas tends to protect investor's wealth against the extreme market movements.Ibrahim and Baharom (2011) analyzed alternative investment assets during the 2008 subprime crisis using daily data from August 2001 to March 2010.

The data sets were divided into two sub-sample periods. The first sub-sample starts from August 2001 to December 2005, while the second sub-sample starts from December 2005 to March 2010. They found that Kijang Emas only served as a diversifier in the context of Malaysia. Ibrahim and Baharom's (2011) empirical approach was based on time-varying conditional variances, the EGARCH (1,1) process. They used dummy variables to examine whether the market returns changed during the extreme market condition at three different percentiles (2.5%, 5% and 10%).

Baur and Lucey (2010) and Ibrahim (2012) used similar techniques as proposed by Ibrahim and Baharom (2011). Baur and Lucey (2010) studied three large markets, namely the United Kingdom, the United States and Germany, and determined that gold is a safe haven asset for stocks, but not a safe haven for bonds. Their data spanned from 30 November 1995 to 30 November 2005. They even divided the sample into a bull market period (November 1995 to March 2000), a bear market period (March 2000 to March 2003) and another bull market period (March 2003 to November 2005). They investigated the relationship among gold, stocks and bonds using the GARCH (1, 1) process.

These results were in contrast with Ibrahim (2012), who extended the work of Baur and Lucey (2010). Ibrahim (2012) applied the TGARCH and EGARCH frameworks in his empirical analysis. He analyzed gold return (Kijang Emas) (1oz) and stock return on the KLCI index for Malaysia's using daily data from 1 August 2001 to 31 March 2010. He found that gold return and stock market return experienced a downward trend after four consecutive negative market returns. Ibrahim (2012) confirmed that adding gold to a portfolio provides diversification benefits and protection during extreme declines.

O'Connor et al. (2015) claimed that gold miners practice hedging to lock in the price of gold before it is mined. This is useful for the miners, as it allows them to sell forward when gold prices rise. Noticeably, Mensi et al. (2015) advanced a similar argument. They witnessed that U.S. Treasury bills (T-bills) can be realized as a hedge and or a safe haven in the six GCC stock markets. Mensi et al. (2015) applied Shariah-compliant stocks measured by the Dow Jones Islamic World Emerging Market Index (DJIWEM), gold and U.S. Treasury bills in their vine-copula approach.

Pullen et al. (2014) investigated the roles of gold bullion, gold stocks, gold mutual funds and gold exchange traded funds (ETFs) in asset allocation decisions. Their paper concluded that gold bullion exhibits strong hedging properties of the different asset classes. Contrary, they found that gold stocks, gold mutual funds and gold ETFs tend to act as a good diversifier. Similarly, Hillier et al. (2006) confirmed that gold, platinum and silver act as and silver act as an important diversifiers across a broad-based investment portfolio. Reboredo and Castro (2014a) tested the gold's hedging ability against currency movement. They found that there is a positive relationship between gold and USD depreciation against a wide set of currencies after observing observed the dataset from January 2000 to September 2012. They used the peaks-over-threshold (POT) approach to determine the extreme values. Their empirical results suggested that gold is a good hedge against a weak dollar.

Reboredo and Castro (2014b) modeled the wavelet multi-resolution analysis between gold and exchange rates (measured as USD per unit of foreign currency) from January 2000 to March 2013.They measured currencies using the Australian dollar, Canadian dollar, Swiss franc, EURO, Pound Sterling, Japanese Yen and Norwegian krone. They reported that gold has a significant impact on the exchange rates, which means it plays a special role in hedging. Joy (2011) performed multivariate GARCH model to investigate the dynamic conditional correlation between changes in the price of gold and changes in the USD exchange rate over the past 23 years. The sample consisted of weekly data from 10 January 1986 to 29 August 2008. Joy (2011) examined 16 dollar-paired exchange rates; EURO, Yen, Indian rupee, Taiwan dollar, Canadian dollar, South African rand, Swedish krona, Swiss franc, UK pound, Israeli Shekel, Maltese lira, New Zealand dollar, Norwegian krone, Australian dollar, Danish krone and the Singapore dollar and eventually found evidence that gold has become one of the most effective hedges against the US dollar.

3. Data

The data covers the period 18/07/2001-31/01/2017. Data were gathered on a five trading days (Monday to Friday). The preliminary sample of the study comprises 3999 observations. The final sample size contains 3932 observations after removing the missing data due to public holiday. We used the previous day's price closing price data (Nishimura et al. 2015; Tsutsui and Hirayama, 2004; Jeon and Vonfurstenberg, 1990). The choices of full samples began in 18/07/2001 and ended in 31/01/2017. This study split the data into 2 sub-samples (i) pre-crisis period which covers the period from 18/07/2001 to 23/08/2008 and (ii) post-crisis period spanning from 24/08/2008 to 31/01/2017.Table 1 revealed descriptive statistics for all series.

The FBMKLCI return series are more volatile than RGOLD, SGOLD, TGOLD, MGS, USD/MYR, RMB/MYR and EURO/MYR series. We observed FBMKLCI return series associated with higher volatility reflected by its standard deviation (10.60) for the post-crisis period as compare to the pre-crisis period which is only (8.81). Interestingly, skewness for the pre-crisis period, RGOLD, SGOLD, TGOLD, FBMKLCI, MGS, USD/MYR and EURO/MYR series recorded negative skewness compare to the post-crisis period that exhibit positive skewness for all return series. The Jarque-Bera test for normality is invalid. However, the result provides sufficient evidence for a non-normality distribution.

Table 1: Descriptive Statistics

Panel A: Full period (18/07/2001-31/01/2017)								
	RGOLD	SGOLD	TGOLD	FBMKLCI	MGS	USD/MYR	RMB/MYR	EURO/MYR
Mean	3.949026	5.910928	7.873697	-0.729626	3.029373	3.524158	0.494633	4.394607
Max	6.589996	8.579774	10.66472	185.3800	4.496000	4.496000	0.700700	5.199100
Min	3.155340	3.896104	0.081923	-181.7000	1.760000	2.937000	0.442100	3.262600
Skewness	1.581397	1.587817	0.846479	-0.673792	-0.171326	0.256548	1.748033	-0.557160
SD	0.514366	0.530977	0.558156	9.778665	0.557132	0.334513	0.053176	0.424639
Kurtosis	9.829314	9.967603	18.88454	99.50929	2.916606	2.540230	0.053176	2.858658
JB	9282.337	9608.344	41818.38	1526636.	20.38043	77.78416	3031.878	206.7587
Panel B: Pre-crisis period (18/07/2001-23/08/2008)								
	RGOLD	SGOLD	TGOLD	FBMKLCI	MGS	USD/MYR	RMB/MYR	EURO/MYR
Mean	3.663678	5.618665	7.581905	-0.870216	2.948877	3.675032	0.460558	4.434523
Max	4.034582	6.088561	8.191126	50.84000	3.560000	3.800500	0.527900	5.199100
Min	3.155340	3.896104	6.957929	-124.1100	1.760000	3.134500	0.442100	3.262600
Skewness	-0.299610	-0.331140	-0.127931	-1.951542	-0.515061	-1.338582	3.428061	-0.978076
SD	0.302671	0.314341	0.328531	8.806209	0.604695	0.191365	0.010965	0.505512
Kurtosis	1.188506	1.676316	1.469498	27.96221	1.645960	3.391026	18.10445	2.823227
JB	287.6053	173.0695	190.2243	50429.31	228.6713	578.2885	21736.91	304.7645
Panel C: Post-crisis period (24/08/2008-31/01/2017)								
	RGOLD	SGOLD	TGOLD	FBMKLCI	MGS	USD/MYR	RMB/MYR	EURO/MYR
Mean	4.214643	6.183003	8.145369	-0.597604	3.104297	3.383742	0.526349	4.357379
Max	6.589996	8.579774	10.66472	185.3800	4.496000	4.496000	0.700700	5.146400
Min	3.245614	4.266467	0.081923	-181.7000	1.980000	2.937000	0.456000	3.808600
Skewness	1.875442	1.888148	0.467608	0.007913	0.612532	1.337213	1.124480	0.530482
SD	0.528438	0.546682	0.589887	10.60435	0.497460	0.375623	0.057108	0.327853
Kurtosis	10.84563	10.92694	26.40820	126.5562	4.239086	4.021925	3.389075	2.280472
JB	6418.508	6543.595	46580.96	1295713.	257.6903	695.7109	442.1311	139.4807

Table 2 summarize the unit root test. Dealing with time series data requires preliminary analyses in the level form in order to ensure time series data was stationary. Null hypotheses assume the series is non-stationary. Results of the test imply that a null hypothesis is strongly rejected. It means that all series are stationary and suitable for further analysis. All series with integrated of order one, I ~ (1). The only exception, FBMKLCI series integrated at level, I ~ (0). The lag order of ADF test is based on the Schwartz Information Criteria (SIC). Meanwhile, the lag order of the Phillips-Perron is based on Newey-West-Bandwidch. * and ** denotes significance level at 1% and 5%.

Table 2: Unit Root Test

Panel A: Full period (18/07/2001-31/01/2017)								
	Level				1st difference			
	ADF		PP		ADF		PP	
RGOLD	-0.417607	(0.5330)	-0.434061	(0.5266)	-45.10394	(0.0001)*	-88.19218	(0.0001)*
SGOLD	-0.310800	(0.5739)	-0.252379	(0.5955)	-47.69641	(0.0001)*	-103.8765	(0.0001)*
TGOLD	-0.231486	(0.6030)	-0.288754	(0.5821)	-40.60517	(0.0000)*	-165.7914	(0.0001)*
FBMKLCI	-65.75160	(0.0001)*	-65.72392	(0.0001)*	-		-	
MGS	-0.059634	(0.6629)	-0.007710	(0.6801)	-65.26587	(0.0001)*	-65.29566	(0.0001)*
USD/MYR	0.662940	(0.8592)	0.548629	(0.8346)	-21.80184	(0.0000)*	-57.19685	(0.0001)*
RMB/MYR	1.423075	(0.9619)	1.406146	(0.9606)	-62.29335	(0.0001)*	-62.29812	(0.0001)*
EURO/MYR	0.601119	(0.8462)	0.634794	(0.8534)	-71.32740	(0.0001)*	-71.70594	(0.0001)*

Panel B: Pre-crisis period (18/07/2001-23/08/2008)								
	Level				1st difference			
	ADF		PP		ADF		PP	
RGOLD	-0.969343	(0.2975)	-1.259826	(0.1916)	-32.10877	(0.0000)*	-128.0080	(0.0001)*
SGOLD	-0.955690	(0.3031)	-0.719119	(0.4053)	-22.49475	(0.0000)*	-247.7733	(0.0001)*
TGOLD	-0.571640	(0.4698)	-0.571640	(0.4698)	-23.16192	(0.0000)*	-330.8117	(0.0001)*
FBMKLCI	-21.36239	(0.0000)*	-38.61324	(0.0000)*	-		-	
MGS	-0.158892	(0.6288)	-0.165552	(0.6265)	-34.02133	(0.0000)*	-46.94311	(0.0001)*
USD/MYR	-1.288158	(0.1827)	-1.289274	(0.1824)	-43.40976	(0.0001)*	-43.41119	(0.0001)*
RMB/MYR	1.752973	(0.9812)	-44.86132	(0.0001)*	-44.86132	(0.0001)*	-44.84790	(0.0001)*
EURO/MYR	0.907957	(0.9031)	0.868682	(0.8968)	-47.97903	(0.0001)*	-47.96625	(0.0001)*
Panel C: Post-crisis period (24/08/2008-31/01/2017)								
	Level				1st difference			
	ADF		PP		ADF		PP	
RGOLD	-0.253693	(0.5949)	-0.271574	(0.5884)	-31.98897	(0.0000)*	-60.98537	(0.0001)*
SGOLD	-0.165399	(0.6265)	-0.140571	(0.6352)	-42.19372	(0.0001)*	-64.70249	(0.0001)*
TGOLD	-0.075826	(0.6574)	-0.130115	(0.6388)	-28.49128	(0.0001)*	-109.5290	(0.0001)*
FBMKLCI	-52.99696	(0.0001)*	-53.02435	(0.0001)*	-		-	
MGS	0.012539	(0.6866)	0.058034	(0.7012)	-46.75465	(0.0001)*	-46.76461	(0.0001)*
USD/MYR	1.176086	(0.9389)	0.970832	(0.9126)	-15.92413	(0.0000)*	-40.72524	(0.0000)*
RMB/MYR	0.914729	(0.9042)	0.907616	(0.9031)	-44.64334	(0.0001)*	-44.64279	(0.0001)*
EURO/MYR	0.090563	(0.7114)	0.047266	(0.6978)	-52.41573	(0.0001)*	-52.42662	(0.0001)*

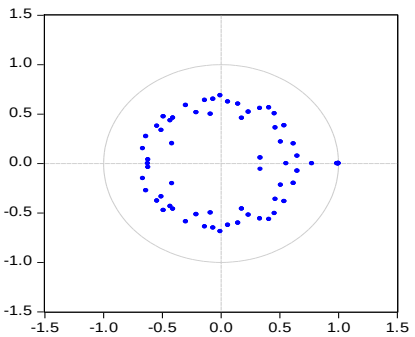
The selection of lag length information criteria is presented in the Table 3.The criteria for lag lengths selection is based on four main criteria: Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hannan-Quinn information criterion HQ. Our optimal lag selection is based on SIC and HQ criteria. The SIC and HQ criteria indicate two as an optimal lag. According to Liew (2004), SIC and HQ requires sample size greater than 120 observations. Meanwhile, the AIC and FPE criteria's is more appropriate when sample size is less than 60 observations. Our data set constitutes of large sample size which is approximately 3932 observations. As a compromise, SIC and HQ optimal lag length information is more appropriate for large sample.

Table 3: Lag Length Information Criteria

Lag	LogL	LR	FPE	AIC	SIC	HQ
0	17210.82	NA	2.15e-14	-8.768003	-8.755210	-8.763464
1	67157.42	99664.09	1.95e-25	-34.19237	-34.07723	-34.15151
2	67368.45	420.2203	1.81e-25	-34.26730	-34.04983*	-34.19014*
3	67436.29	134.8220	1.81e-25*	-34.26926*	-33.94944	-34.15578

The following figure illustrate the VAR stability analysis (Figure 1). The null hypothesis of no root lies outside the unit root is accepted. All roots have modulus less than one and lie inside the unit circles. The result confirms that VAR stability analysis is stationary and dynamically stable. The estimation is a good predictor which is applied to further validate impulse response function. If, VAR lie outside the circles, impulse response function are invalid.

Figure 1: VAR stability



Johansen and Juselius (1990) co-integration test analysis is used to test for the long-run interdependence. This test identify whether unstructured VAR or restricted or VECM is appropriate. The result reported, both unrestricted co-integration rank test (Trace and Eigenvalue statistics) suggest that the null hypothesis of no co-integration should be rejected at 5% significance level. The result demonstrate that RGOLD, SGOLD, TGOLD, FBMKLCI, MGS, USD/MYR, RMB/MYR and EURO/MYR series return are moving together in the long-run period. Thereafter, a vector error correction model (VECM) can be applied to estimate the long-run relationship. The present findings are consistent with the previous literature alike Miao et al. (2017) and Gangopadhyay et al. (2016), but is inconsistent with the Cheng and Jin (2013) argument.

Table 4: Co-integration Test Result (Trace and Eigenvalue Statistic)

Rank	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob.**	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob.**
None	0.101662	1190.202	159.5297	0.0001	0.101662	420.5819	52.36261	0.0001
At most	0.099650	769.6200	125.6154	0.0001	0.099650	411.8044	46.23142	0.0001
At most	0.070239	357.8156	95.75366	0.0000	0.070239	285.7045	40.07757	0.0001
At most	0.008406	72.11110	69.81889	0.0324	0.008406	33.11554	33.87687	0.0614

4. Structural Vector Auto Regressions (SVAR)

This study applies the SVAR approach for measuring dynamics behavior of Kijang Emas which were drawn from Ibrahim and Sufian (2014) and Wang and Lui (2016). Where, Y_t represents K the vector of relevant variables, identification for$\mathrm{A_0}$ and B and (k x k matrix). Provided that in SVAR model, A_0 is non-singular, typically used for solving Y_t. A structural VAR (SVAR) model is written as:

$$\mathrm{A_0 Y_t = A_1(L) Y_t + B\mu_t} \quad (1)$$

And the following equation represents the polynomials in the lag operator with $\mathrm{A_{i1}}$ being *K* x *K* matrix.

$$\mathrm{A_1(L) = \sum_{i=1}^{q} A_{i1}\, L^i} \quad (2)$$

Imposing this constraint yields:

$$\mathrm{Y_t = A_0^{-1} A_1(L) Y_t + A_0^{-1} B\mu_t} \quad (3)$$

The reduce form of the VAR model can be representing as:

$$\mathrm{Y_t = C(L) Y_t + \varepsilon_t} \quad (4)$$

Suppose now the model can be re-written as:

$$\mathrm{C\,(L) = A_0^{-1} A_1(L) Y_t} \quad (5)$$

The relationship between the structural and reduced form errors:

$$\mathrm{\varepsilon_t = A_0^{-1} B\mu_t} \quad (6)$$

Following the AB model proposed by Amisano and Giannini (1997) model, $A\varepsilon_t=B\mu_t$. We denote the structural form of errors as ε_t and the reduced form disturbance, it implies as μ_t. μ_t which is a zero-mean white noise error term specified as;

$$\mathrm{A_0 \varepsilon_t = B\mu_t} \quad (7)$$

The identification of A in Equation (7) is achieved by imposing the following exclusion restrictions in Eq. (8). For simplicity, in order to investigate any elements of the matrix that needs to be estimated, a missing value "b" is assigned. All non-missing values in the pattern matrix will remain constant at the specified values. A zero value is assigned when we assume that the variables are not affected by the monetary shock contemporaneously.

This SVAR model is over-identifies with 22 restrictions for exact identification. The calculation restrictions identification follow $(2n^2 - n)\ (n + 1)/2$. In our case, we included n=4.Our Cholesky decomposition ordering variables is slightly different from Hussin et al. (2013). Hussin et al. (2013) placed Kijang Emas variable in the last ordering while our Cholesky decomposition ordering placed RGOLD, FBMKLCI, MGS and USD/MYR.

Thereby, Matrix A and B according to Cholesky decomposition ordering, represented in the lower-triangular matrix(4x4), given as follows:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ \alpha_{21} & 1 & 0 & 0 \\ \alpha_{31} & \alpha_{32} & 1 & 0 \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & 1 \end{pmatrix} \begin{pmatrix} \varepsilon_t^{\text{RGOLD}} \\ \varepsilon_t^{\text{FBMKLCI}} \\ \varepsilon_t^{\text{MGS}} \\ \varepsilon_t^{\text{USD /MYR}} \end{pmatrix} = \begin{pmatrix} b_{11} & 0 & 0 & 0 \\ 0 & b_{22} & 0 & 0 \\ 0 & 0 & b_{33} & 0 \\ 0 & 0 & 0 & b_{44} \end{pmatrix} \begin{pmatrix} \mu_t^{\text{RGOLD}} \\ \mu_t^{\text{FBMKLCI}} \\ \mu_t^{\text{MGS}} \\ \mu_t^{\text{USD /MYR}} \end{pmatrix} \quad (8)$$

Note that for any coefficient results in Equation (8) that show negative sign should be read as positive and vice versa. This is because the restriction imposed on Matrix A was imposed on the left-hand side of the Equation (8).Once it is shifted on the right-hand side of the equation, the negative (positive) sign will change to positive (negative).The first row of the Equation (8) were drawn from Hussin et al. (2013),Ghazali et al. (2015a), Ghazali et al. (2015b). We assume that α_{21} measures the contemporaneous impact of RGOLD return on FBMKLCI return. It is assumed that RGOLD return has a zero impact (weak safe-haven) on FBMKLCI return at all times. The assumption is in line with findings by Baur and McDermott (2016). Baur and McDermott (2016) interpreted a safe haven as an asset that is safe at all times, regardless of whether normal conditions prevail or it is a time of turmoil. Nonetheless, some authors have suggested thatsafe haven benefits were only observed during crises. This is usually caused by the flight-to-safety hypothesis. According to the flight-to-safety hypothesis, investors tends to rebalance their portfolios, primarily into gold during times of financial distress. Thus, if $\alpha_{21}= 0$, RGOLD return is a weak safe haven for FBMKLCI return.

The Modern Portfolio Theory (MPT) explains how investors maximize return while minimizing risk (Markowitz, 1952). In essence, diversifier is a way to reduce the risk in a portfolio. The diversifier roles are expected through restriction α_{31}. This indicates that RGOLD return has a positive impact on Malaysian government securities (MGS) return. Occasionally, if $\alpha_{31}> 0$, RGOLD return is a diversifier for MGS return. Serious discussion of gold as a portfolio diversifier appears in the works of Hoang et al. (2015) and Mensi et al. (2015). For instance, Mensi et al. (2015) observed the diversification effect occurred in the case of Kuwait markets. More precisely, Mensi et al. (2015) concluded that gold serves as a great diversifiers for T-bills.

Stocks and bonds usually move in a parallel direction. Unlike gold, the stock market is quite volatile because it responsive to monetary policy shocks through interest rate and exchange rate channels. The proxy hypothesis by Fama (1990) posited that there is a negative relationship between stock returns and inflation through money demand. In other words, stock markets fall due to a fall in real activity caused by the inflation. Therefore, investors usually add government bonds to re-balance their investment portfolios. Since the stock market is more volatile, the return on stocks is usually higher than the government bonds' returns. Motivated by earlier empirical research, such as those by Al-Khazali et al. (2014), Basher et al. (2012) and Ahmed et al. (2011), we test whether FBMKLCI return demonstrates a positive impact on MGS return via restriction α_{32}. The hypothesis testing formulated that if $\alpha_{32}> 0$, FBMKLCI return is a diversifier for MGS return.

The Asian financial crisis began in July 1997. This crisis affected Thailand, Phillipines, Malaysia, South Korea, Singapore and Hong Kong through trade and financial channels. During this time, Asian countries' currencies were devaluated against the USD by 30% to 40%. The speculative attacks on MYR to some extent almost devastated the Malaysian economy when the MYR depreciatedagainst the USD by more than 40%. In addition, the Malaysia's central bank took the initiative to peg against USD at RM 3.80 from September 1998 to mid-2005. Besides that, Malaysia's central bank banned off-shore trading of the MYR in an effort to stabilize the economy (Abidin and Rasiah, 2009). Hence, to understand the effects of gold and the exchange rate, we have included the contemporaneous effect of RGOLD return and currency exchange rates (USD/MYR). This impact is captured through restriction α_{41}. O'Connor et al. (2015), Reboredo and Castro (2014a), Reboredo and Castro (2014b) and Joy (2011) depicted the hedging power of gold against the USD (when the dollar losses value).Therefore, we hypothesize that if $\alpha_{41}< 0$, RGOLD return is a hedge against currency when the USD depreciates.

Nelson et al. (2005) reported that those firms engaged in foreign exchange hedgingoften outperforms stock returnsby 4.3% per year on average. In addition, Hwang (2013) found that stock market response as a hedge against USD for ten emerging economies (Brazil, Russia, India, China, South Korea, Thailand, Philippines, Taiwan and Malaysia). Surprisingly, Ibrahim (2012) found a low correlation between stock market and gold return (Kijang Emas).

As a result, we examined the ability of FBMKLCI return to hedge against the USD, which is set through restriction α_{42}. We assumed that if $\alpha_{42} < 0$, FBMKLCI return is a hedge against currency when the USD depreciates.Finally, the MGS return is typically perceived as an effective hedge for the USD.

This impact iscaptured through restriction α_{43}. Investors, particularly, value high-grade government bonds like MGS because their returns tend to be more stable than stocks during a recession. Currency hedging often involves the use of contracts that effectively "lock in" an exchange rate. This is usually to eliminate the volatility of currency movements from a portfolio. Through currency hedging, investors opt for government bondswhen currencies weaken against the USD (vice versa). Thus, if $\alpha_{43} < 0$, MGS return act as a hedging against currency when the USD depreciates. This hypothesis is consistent with the argument documented by Milobedzki (2017).

4.1 Sensitivity Analysis

Further, we have performed several specification checks to access the robustness of the results reported above. As an alternative, we have constructed a simple four variables model to proxy against another two currencies, namely, RMB/MYR and EURO/MYR. Once again, we assume that, with n=4, the Matrix A captures the contemporaneous relationship among these variables.

Thus, Matrix A and Matrix B (4 x 4) having the following form:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ \alpha_{21} & 1 & 0 & 0 \\ \alpha_{31} & \alpha_{32} & 1 & 0 \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & 1 \end{pmatrix} \begin{pmatrix} \varepsilon_t^{\text{RGOLD}} \\ \varepsilon_t^{\text{FBMKLCI}} \\ \varepsilon_t^{\text{MGS}} \\ \varepsilon_t^{\text{RMB /MYR}} \end{pmatrix} = \begin{pmatrix} b_{11} & 0 & 0 & 0 \\ 0 & b_{22} & 0 & 0 \\ 0 & 0 & b_{33} & 0 \\ 0 & 0 & 0 & b_{44} \end{pmatrix} \begin{pmatrix} \mu_t^{\text{RGOLD}} \\ \mu_t^{\text{FBMKLCI}} \\ \mu_t^{\text{MGS}} \\ \mu_t^{\text{RMB /MYR}} \end{pmatrix} \quad (9)$$

And:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ \alpha_{21} & 1 & 0 & 0 \\ \alpha_{31} & \alpha_{32} & 1 & 0 \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & 1 \end{pmatrix} \begin{pmatrix} \varepsilon_t^{\text{RGOLD}} \\ \varepsilon_t^{\text{FBMKLCI}} \\ \varepsilon_t^{\text{MGS}} \\ \varepsilon_t^{\text{EURO /MYR}} \end{pmatrix} = \begin{pmatrix} b_{11} & 0 & 0 & 0 \\ 0 & b_{22} & 0 & 0 \\ 0 & 0 & b_{33} & 0 \\ 0 & 0 & 0 & b_{44} \end{pmatrix} \begin{pmatrix} \mu_t^{\text{RGOLD}} \\ \mu_t^{\text{FBMKLCI}} \\ \mu_t^{\text{MGS}} \\ \mu_t^{\text{EURO /MYR}} \end{pmatrix} \quad (10)$$

We extend the analysis to examine the dynamics response of Kijang Emas to macroeconomics variables such as exchange rate shocks (currencies). Another two alternatives matrix consists of SGOLD (1/2 oz) and TGOLD (1/4 oz). The lower triangular matrix express as:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ \alpha_{21} & 1 & 0 & 0 \\ \alpha_{31} & \alpha_{32} & 1 & 0 \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & 1 \end{pmatrix} \begin{pmatrix} \varepsilon_t^{\text{SGOLD}} \\ \varepsilon_t^{\text{FBMKLCI}} \\ \varepsilon_t^{\text{MGS}} \\ \varepsilon_t^{\text{USD /MYR}} \end{pmatrix} = \begin{pmatrix} b_{11} & 0 & 0 & 0 \\ 0 & b_{22} & 0 & 0 \\ 0 & 0 & b_{33} & 0 \\ 0 & 0 & 0 & b_{44} \end{pmatrix} \begin{pmatrix} \mu_t^{\text{SGOLD}} \\ \mu_t^{\text{FBMKLCI}} \\ \mu_t^{\text{MGS}} \\ \mu_t^{\text{USD /MYR}} \end{pmatrix} \quad (11)$$

And:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ \alpha_{21} & 1 & 0 & 0 \\ \alpha_{31} & \alpha_{32} & 1 & 0 \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & 1 \end{pmatrix} \begin{pmatrix} \varepsilon_t^{\text{TGOLD}} \\ \varepsilon_t^{\text{FBMKLCI}} \\ \varepsilon_t^{\text{MGS}} \\ \varepsilon_t^{\text{USD /MYR}} \end{pmatrix} = \begin{pmatrix} b_{11} & 0 & 0 & 0 \\ 0 & b_{22} & 0 & 0 \\ 0 & 0 & b_{33} & 0 \\ 0 & 0 & 0 & b_{44} \end{pmatrix} \begin{pmatrix} \mu_t^{\text{TGOLD}} \\ \mu_t^{\text{FBMKLCI}} \\ \mu_t^{\text{MGS}} \\ \mu_t^{\text{USD /MYR}} \end{pmatrix} \quad (12)$$

5. Findings and Discussion

The contemporaneous coefficient with standard error is presented in Table 5. We estimate and report our main findings in Model I. In addition, we analyzed another two alternative SVAR models (Model II and Model III) to test the robustness of Model I. The results found out that Model I is the best model. Thereafter, we briefly discussed the contemporaneous coefficient of Model I. The result revealed that the RGOLD return displays evidence of safe haven properties via α_{21} = 0.000. It shows that RGOLD return does not correlated with FBMKLCI return. The negative sign is much stronger during the time prior to the crisis period α_{21}= -15.4890 when compared with the post crisis period, α_{21} = -0.3899. The result further indicates that during the global financial crisis period the 'flight-to-safety' phenomenon dominated investors' actions. The negative sign explained investors' behavior when they liquidated their stock positions to purchase safer investment during market stress conditions.

By contrast, during normal times, RGOLD return tends to be zero α_{21} = 0.0000 (weak safe-haven).On the basis, this result supported our earlier assumption, which means that the negative shocks in the stock market (FBMKLCI return) do not have any significant effect on RGOLD return. This result confirmed that Malaysian investor prefer to invest in safe haven assets such as gold (Kijang Emas) compared to stocks. Their main reason for doing this is to avoid suffering losses in the stock market. This finding is similar to those of other researchers (Baur and McDermott, 2016 and Mansor, 2011).

The positive impact of RGOLD return on government bonds is observed through restriction α_{31}. According to The Star (2016) the 10 years MGS becomes less attractive due to an increase in the government debt. As of June 2017, the federal government debt stood at RM 685.1 billion or 50.9% of gross domestic product. As a result, foreign investors are selling their holdings of Malaysian Government Securities (MGS) and Government Investment Issue (GII). One of the reasons, investors are tend to diversify their portfolios towards gold, which has resulted a sharp upswing in its prices.Therefore, we found that the RGOLD return act as a diversifier for MGS return.The result is the benefits of portfolio diversification and supports the Modern Portfolio Theory.

This result is echoed in empirical findings by Baur and Lucey (2010). Unlike hedging, diversification has no effect on reducing portfolio risk in extreme market condition, except for the case of gold. Identically, the positive impact of FBMKLCI return on MGS return is expected through α_{32} . Our baseline result reported that,α_{32} =0.0000 (weak hedge) whilst in pre-crisis,α_{32} = 0.0001(diversifier). In the post-crisis period, the coefficient is α_{32} =0.0000 (weak hedge).This result revealed that FBMKLCI return is a weak hedge against MGS return, especially, in the post crisis period. The relationship between FBMKLCI return and MGS return has been found to be negative. Investment analyts evidence that if investor had held a porfolio mix of 35% stock, 25% foreign stock, 10% cash and 30% high quality corporate and government bonds, they would only have lost 28% between the global financial crisis from 1st September 2008 until 9th March 2009. Other observers, such as Malvey (2016) argued that knowing about the past performance of stocks (surprise in information) enables investors to beat the stock market. Given the fact that the market reaction to the global financial crisis started when Lehman Brother collapsed on 15th September 2008.

According to the Purchasing Power Parity (PPP) theory, gold is considered as an ideal hedging instrument to offset the changes in domestic country currency. The contemporaneous impact of RGOLD return and USD/MYR is examined through the restriction, α_{41}. An inverse relationship is expected for RGOLD return and USD/MYR. This apparent dichotomy is seen when the value of the USD depreciates (appreciates), prompting the nominal value of RGOLD to rises (falls). The most important reason for this is because RGOLD is quoted in USD. The baseline and pre-crisis period result suggested that RGOLD return only act as a diversifier against USD/MYR, through restrictions α_{41} =0.0004 and α_{41} =0.0031, respectively. The relationship between RGOLD return and USD/MYR is found to be positive for the post-crisis period, which is represented by the coefficient α_{41} =0.0001. This means that many investors use gold as a hedge against currency risk. This result shows that,as a short-term hedging strategy, investing during times of currency appreciation is less favorable for the investors.

The contemporaneous impact of FBMKLCI return and USD/MYR is visualized using α_{42}.The coefficient value of α_{42} =0.0000 is almost identical for for the three sub-periods, and what has been observed is a weak hedge property. Our result is inconsistent with the earlier hypothesis that stated FBMKLCI return is a strong hedge against USD/MYR. This result was driven bythe weakening Malaysia Ringgit (MYR).Elsewhere, within Asian region, other currencies are also expected to weaken over the next 12 months (Scotiabank, 2017). These currencies include the Thai Baht, Indonesia Rupiah, Indian Rupee and RMB (Yuan). The Malaysia Ringgit traded at around 1 USD = MYR 4.50 by year-end 2017, compared to 1 USD = MYR 4.35 by year-end 2016.This study has found the perfect timing for hedging, which is during the bear market. This is premised on the fact that, when the USD starts losing its value compare to another country's currency, investors should consider the "switching strategy". Our results show that FBMKLCI return exhibit hedging ability against EURO/MYR (see Pullen et al. 2014 and Hillier et al. 2006).

The restriction α_{43} is used to measure the contemporaneous impact of MGS return and USD/MYR. Our baseline result show α_{43} = 0.0008. This means thatMGS return is a diversifier against USD/MYR. We also found that MGS return act as diversifier against EURO/MYR during the post-crisis period through restriction α_{32} = 0.0007 and in the pre-crisis period α_{32} = 0.0009. The results confirm that the high volatility of the exchange rate has a significant effect on investors' decision portfolios. This is likely due to the expansionary monetary policy implemented by the central bank. The implementation of an expansionary money supply, will create depreciating pressure on the local currency (vice versa).

Table 5: SVAR result (Matrix A)

	Model I								
	Y'_t = [RGOLD, FBMKLCI, MGS, USD/MYR]			**Y'_t= [RGOLD, FBMKLCI, MGS, RMB/MYR]**			**Y'_t= [RGOLD, FBMKLCI, MGS, EURO/MYR]**		
	Baseline	**Pre-crisis**	**Post-crisis**	**Baseline**	**Pre-crisis**	**Post-crisis**	**Baseline**	**Pre-crisis**	**Post-crisis**
α_{21}	0.0000	15.4890	0.3899	1.0913	15.7129	0.4348	1.0181	15.2018	0.3777
	(1.2694)	(5.1228)*	(1.8146)	(1.6194)	(5.0863)**	(1.8128)	(1.618)	(5.1124)**	(1.8106)
α_{31}	-0.0062	-0.0235	-0.0090	-0.0107	-0.0159	-0.0096	-0.0110	-0.0163	-0.0092
	(0.0076)	(0.0182)	(0.0132)	(0.0097)	(0.0183)	(0.0132)	(0.0097)	(0.0183)	(0.0132)
α_{32}	0.0000	-0.0001	0.0000	0.0000	-0.0001	0.0000	0.0000	0.0000	-0.0045
	(0.0001)	(0.0001)*	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0058)
α_{41}	-0.0004	-0.0031	0.0001	-0.0009	-0.0007	-0.0011	-0.0067	-0.0129	0.0000
	(0.0021)	(0.0039)	(0.0037)	(0.0003)	(0.0005)	(0.0005)**	(0.0050)	(0.0158)	(0.0002)
α_{42}	0.0000	0.0000	0.0007	-1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0001)*	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(1.2836)	(0.0001)
α_{43}	-0.0008	-0.0009	-0.0007	0.0004	0.0000	0.0004	-0.0366	-0.0105	-0.0400
	(0.0043)	(0.0049)	(0.0062)	(0.0006)	(0.0007)	(0.0008)	(-4.4224)*	(0.0198)	(0.0098)*
	Model II								
	Y'_t = [SGOLD, FBMKLCI, MGS, USD/MYR]			**Y'_t= [SGOLD, FBMKLCI, MGS, RMB/MYR]**			**Y'_t= [SGOLD, FBMKLCI, MGS, EURO/MYR]**		
	Baseline	**Pre-crisis**	**Post-crisis**	**Baseline**	**Pre-crisis**	**Post-Crisis**	**Baseline**	**Pre-crisis**	**Post-crisis**
α_{21}	-0.1524	1.2444	-0.3215	-0.1339	1.3355	-0.2660	-0.1511	1.1606	-0.2682
	(1.2963)	(2.5295)	(1.6019)	(1.2969)	(2.5106)	(1.6016)	(1.2959)	(2.5261)	(1.5990)
α_{31}	-0.0051	-0.0079	-0.0040	-0.0048	-0.0029	-0.0049	-0.0046	-0.0032	-0.0037
	(0.0078)	(0.0089)	(0.0117)	(0.0078)	(0.0090)	(0.0116)	(0.0078)	(0.0090)	(0.0116)
α_{32}	0.0000	-0.0001	0.0001	0.0000	0.0002	0.0001	-0.0034	-0.0001	-0.0041
	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0003)	(0.0002)	(0.0040)	(0.0001)	(0.0051)
α_{41}	-0.0004	-0.0014	-0.0001	-0.0004	-0.0001	-0.0005	0.0000	0.0032	0.0002
	(0.0021)	(0.0019)	(0.0033)	(0.0003)	(0.0001)	(0.0004)	(0.0001)	(0.0077)	(0.0002)
α_{42}	-0.0007	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
	(0.0043)	(0.0000)*	(0.0000)	(0.0000)	(0.0000)	(0.0008)	(0.0000)	(0.0001)	(0.0001)
α_{43}	-0.0007	-0.0008	-0.0008	0.0004	0.0000	0.1449	-0.0366	-0.0125	-0.0399
	(0.0043)	(0.0050)	(0.0062)	(0.0007)	(0.0007)	(0.0023)	(0.0082)	(0.0198)	(0.0098)*
	Model III								
	Y'_t = [TGOLD, FBMKLCI, MGS, USD/MYR]			**Y'_t= [TGOLD, FBMKLCI, MGS, RMB/MYR]**			**Y'_t= [TGOLD, FBMKLCI, MGS, EURO/MYR]**		
	Baseline	**Pre-crisis**	**Post-crisis**	**Baseline**	**Pre-crisis**	**Post-crisis**	**Baseline**	**Pre-crisis**	**Post-crisis**
α_{21}	0.3500	1.7669	0.1113	0.3473	1.5911	0.0835	0.4087	1.5479	0.1146
	(0.7886)	(1.7436)	(0.9247)	(0.7889)	(1.7275)	(0.9244)	(0.7882)	(1.7384)	(0.9228)
α_{31}	-0.0032	-0.0044	-0.0030	-0.0026	-0.0008	-0.0029	-0.0027	-0.0007	-0.0025
	(0.0047)	(0.0062)	(0.0067)	(0.0047)	(0.0062)	(0.0067)	(0.0047)	(0.0062)	(0.0067)
α_{32}	0.0000	-0.0001	0.0001	0.0000	0.0000	0.0001	0.0000	-0.0001	0.0001
	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)
α_{41}	0.0003	-0.0030	0.0008	-0.0002	-0.0001	-0.0002	0.0012	0.0067	0.0005
	(0.0013)	(0.0013)*	(0.0019)	(0.0002)	(0.0000)	(0.0002)	(0.0025)	(0.0053)	(0.0030)
α_{42}	0.0000 (0.0000)	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
		(0.0000)*	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0001)
α_{43}	-0.0007	-0.0014	-0.0006	0.0004	0.0000	0.0004	-0.0367	-0.0110	-0.0400
	(0.0043)	(0.0049)	(0.0063)	(0.0006)	(0.0007)	(0.0008)	(0.0083)	(0.0197)	(0.0097)

5.1 Impulse Response Function (IRFs)

An impulse response function is derived to examine the dynamics responses of the variables RGOLD, FBMKLCI, MGS, and USD/MYR to various shocks within the SVAR system. Impulse response function describes the effect of a one-time of the shocks to a system of equations over time. From equation (13) and (14), we obtain the impulse response functions (IRFs), respectively;

$$X_t = C(L)\varepsilon_t \qquad (13)$$

$$C(L) = C(L)A_0^{-1} \qquad (14)$$

Notes that $C(L) = C(L)A_0^{-1}$ generates the impulse response function of X_t to a unit shocks and to ε_t.

Figure 2: Baseline Model

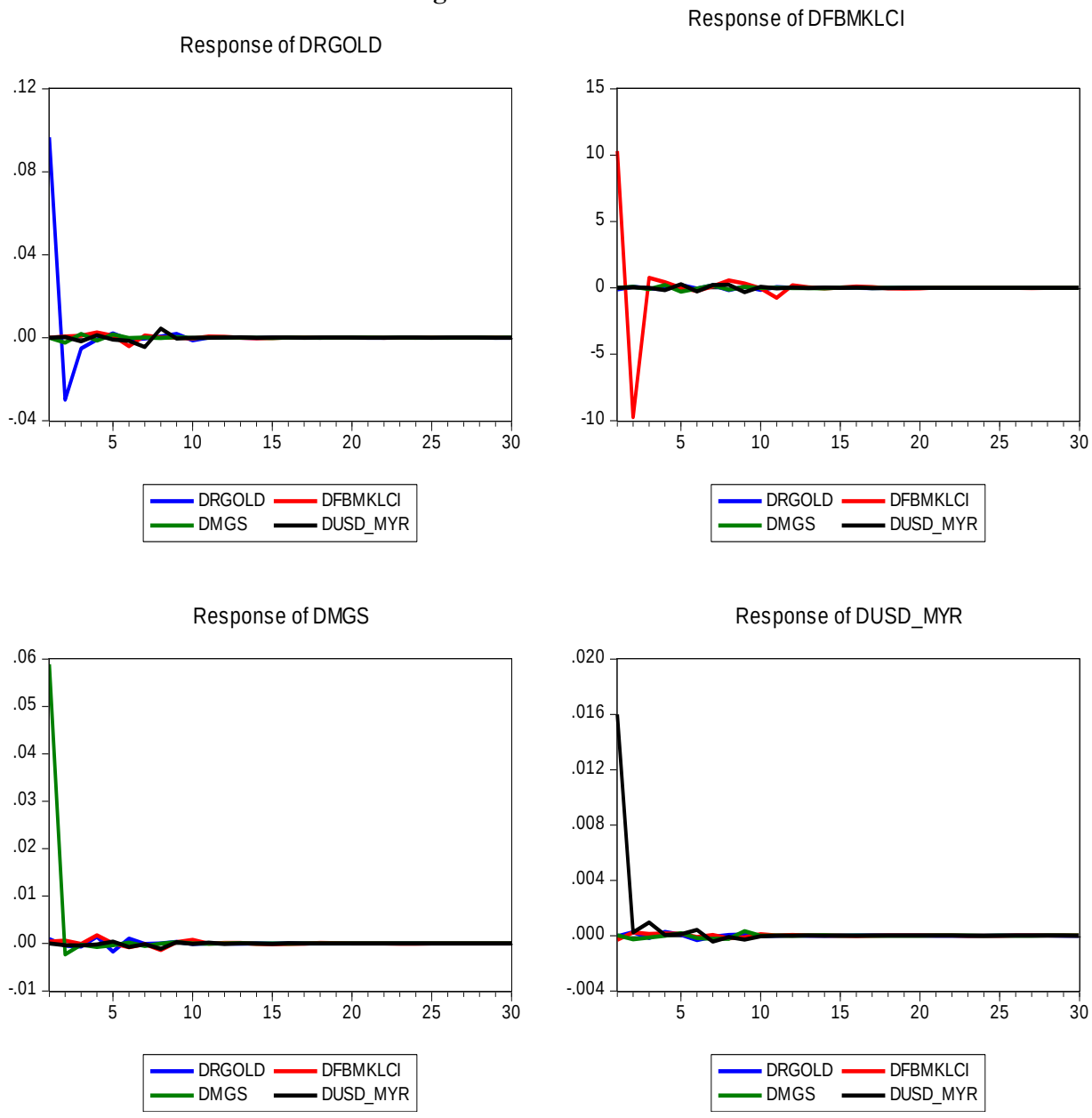
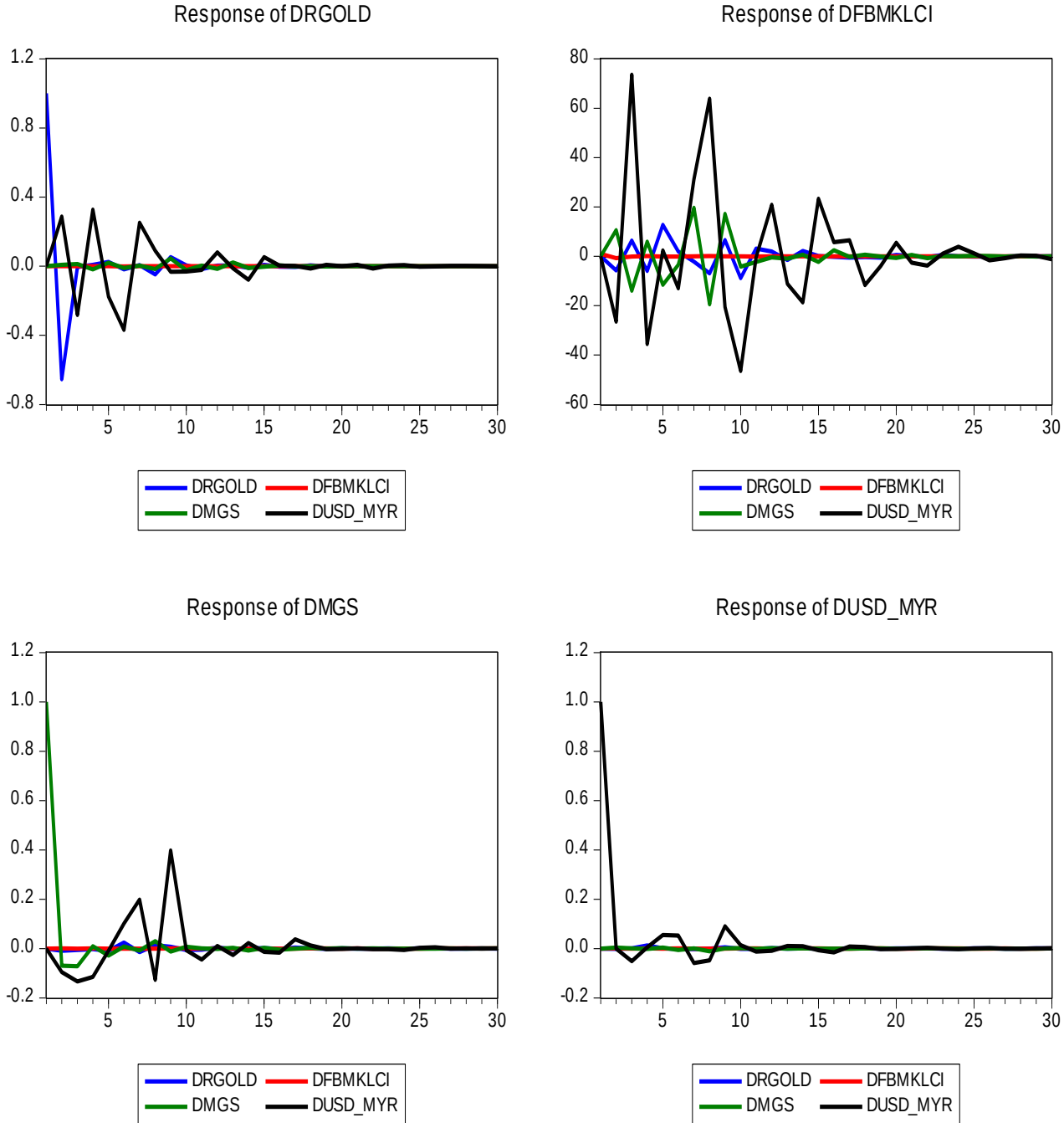


Figure 2 show the RGOLD return responds to one-standard deviation structural innovation to FBMKLCI, MGS and USD/MYR. This study use the generalized impulse response function (IRFs) (Figure 2). The advantages of using IRFs is because it represent behavior of the all series, in response to shocks within the SVAR system over 30 days. The confidence band are constructed by using a Monte-Carlo simulation, taking the estimation of SVAR coefficient running from 2,000 to 8,000 draws. It is noteworthy that all shocks seem to be short-lived and eventually die out within the 1st days in the system.

Figure 3: Pre-crisis



RGOLD return show a weak safe haven through the entire horizon (Figure 3) starting from negative on the 1st day before it turn out to be positive on the 2ndays. Afterwards, the RGOLD returns remain close at zero on the 4th days before its die in the system. As expected, USD/MYR are spiky over all horizons. This indicates that there is a larger impact of a one-unit shock in FBMKLCI on USD/MYR. In fact, USD/MYR shows the same responses on MGS.

Figure 4: Post-crisis

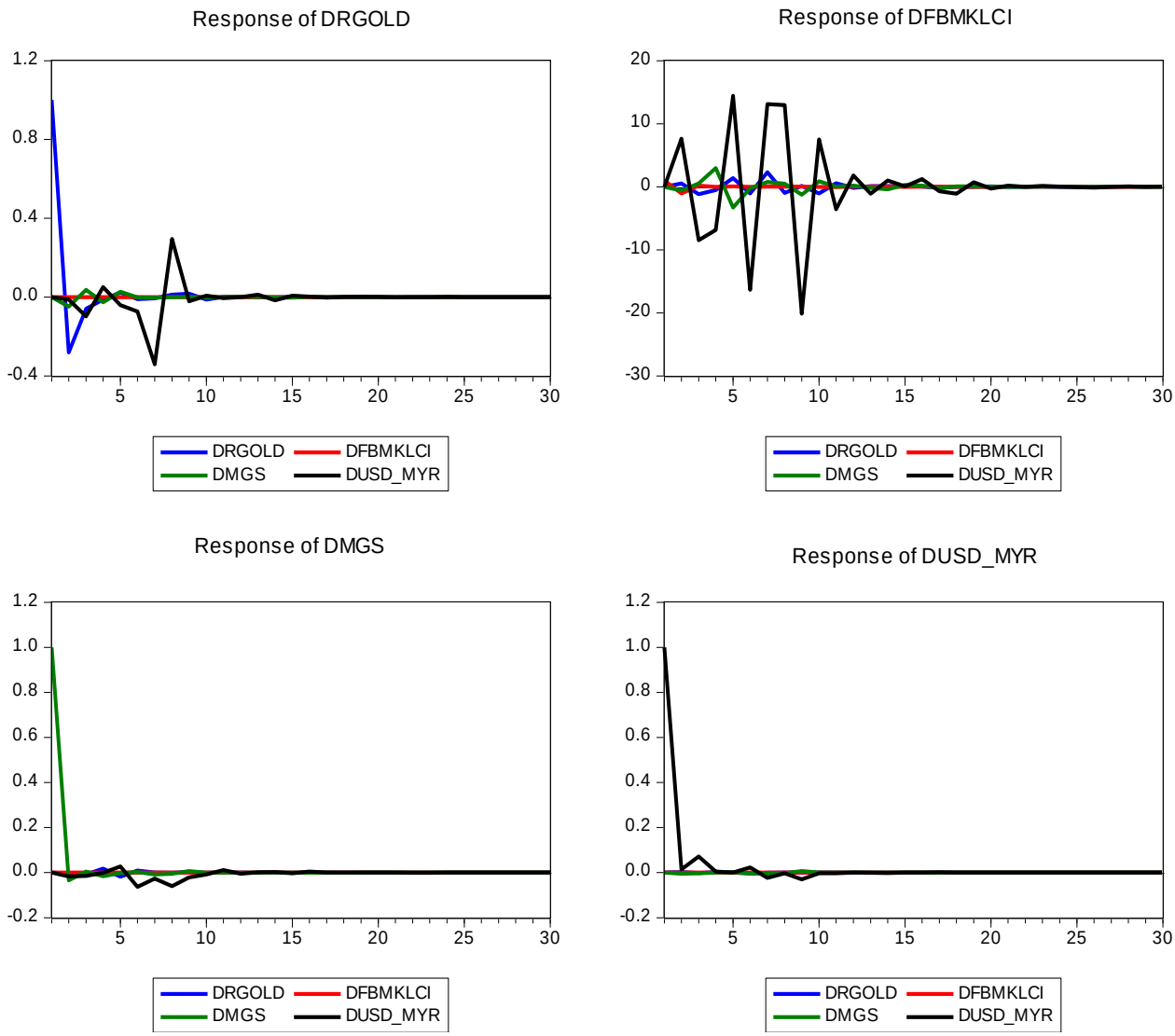


Figure 4 show the response of RGOLD on USD/MYR. The spiky trend over the horizons is unexpected. The negative trend of USD/MYR indicates the perfect timing for hedging. The result from IRF supports the presence of significant dynamic relationship between RGOLD and USD/MYR to various shocks within the SVAR system.

6. Conclusion

This paper focuses on the short run SVAR model. The findings of this paper imply four major findings. First, RGOLD return is a weak safe haven for FBMKLCI return. Second, RGOLD return act as a diversifier for MGS return. In this case gold can be viewed as a diversifier because it has a low correlation with another asset classes. Third, FBMKLCI return is used as a weak hedge against MGS return during post-crisis period. Fourth, the stock market is a weak hedge for the exchange rate. Based on the findings, this study is useful for investor to construction of a well-diversified portfolio of investments. We suggest the future researcher to perform a long-run identification for the SVAR model. Furthermore, adding economic variables such as the inflation rate and interest rate is needed to enrich the results. We also recommended further research on emerging markets such as China and India.

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Notes

i. We follow closely SVAR model based on Wang and Lui (2016) and Ibrahim and Sufian (2014) empirical works.
ii. This research employed only short run restrictions contemporaneous and no long-run restrictions in the SVAR model.

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