

Testing of The Gold's Role as a Safe Haven and Hedge for Sharia Stocks in Indonesia

R. Robiyanto

Abstract. *Gold as a commodity, since ancient time, is always viewed as a safe haven asset. This study tested the function of gold as a safe haven and hedge for sharia stocks in Indonesia. Data used in this study are a monthly closing of Jakarta Islamic Index (JII) on Indonesia Stock Exchange and monthly closing price of gold in the international market during May 2008 until September 2017. Data analysis was done by using OLS and QREG. The result of this study is gold can serve as a hedge for sharia stocks in Indonesia during the research period. The study further found that when extreme shocks occur in the Indonesian stock market, gold can serve as a safe haven asset for sharia stocks in Indonesia. Investor suggested shifting their assets into gold to secure their investment when stock market conditions experience a drastic decline.*

Keywords: *gold, Jakarta Islamic index, quantile regression, safe haven asset, hedging*

Abstrak. *Emas sebagai komoditas, semenjak jaman dahulu kala selalu dipandang sebagai aset teraman. Penelitian ini secara khusus menguji fungsi emas sebagai aset teraman (safe haven) dan pelindung nilai (hedge) bagi saham-saham syariah di Indonesia. Data yang dipergunakan dalam penelitian ini adalah data Jakarta Islamic Index (JII) penutupan bulanan di Bursa Efek Indonesia dan data harga emas penutupan bulanan di pasar internasional selama periode bulan Mei 2008 hingga bulan September 2017. Analisis data dilakukan dengan menggunakan OLS dan QREG. Hasil penelitian ini adalah emas dapat berfungsi sebagai pelindung nilai (hedge) bagi saham-saham syariah di Indonesia selama periode penelitian. Lebih lanjut penelitian ini menemukan bahwa ketika terjadi guncangan yang sangat ekstrim di pasar saham, maka emas dapat berfungsi menjadi aset teraman (safe haven) bagi saham-saham syariah di Indonesia. Investor disarankan untuk mengalihkan aset mereka dalam bentuk emas guna mengamankan investasinya ketika terjadi penurunan yang drastis di pasar modal.*

Kata kunci: *emas, Jakarta Islamic index, regresi kuantil, aset teraman, lindung nilai.*

How to Cite:

Robiyanto, R. (2018). Testing of The Gold's Role as a Safe Haven and Hedge for Sharia Stocks in Indonesia. *Al-Iqtishad: Jurnal Ilmu Ekonomi Syariah (Journal of Islamic Economics)*. Vol. 10 (2): 255 – 266. doi: <http://dx.doi.org/10.15408/aiq.v10i2.6527>

Introduction

Gold since ancient times is often seen as a safe haven and an instrument that is not easily physically damaged (Beckmann and Czudaj, 2012; Ghosh et al., 2004). Gold can also serve as a tool of payment that received by any party (universally) and can be a tool to accumulate wealth (Sujit and Kumar, 2011), even as a hedging instrument (Capie et al., 2005). Research on gold as a safe haven began to emerge after the occurrence of the subprime mortgage crisis in 2008. At the time of the crisis, gold showed its ability as a safe haven asset, when other financial asset prices (such as stocks) falls. During that period, gold also experiences price appreciation (Baur and Lucey, 2010). So after that period, Baur and Lucey (2010) then also introduces the concept of safe haven and hedge that can be tested quantitatively.

Baur and Lucey (2010) define a safe haven as an asset that has no correlation or negatively correlated with other assets or portfolios when the market is in a state of high uncertainty or turmoil. Meanwhile, the hedge is defined by Baur and Lucey (2010) as assets that have no correlation or negatively correlated with other assets or portfolios. This value-holding asset has no special features that can reduce losses when the market is volatile and full of selling pressure. So, an asset may have a positive correlation with other assets when market turbulence and has a negative correlation with other assets when the market is normal (Pangestuti et al., 2017; Robiyanto et al., 2017a). In addition to defining safe haven and hedge, Baur and Lucey (2010) also define the concept of diversified as an asset that has a positive (but not perfectly correlated) correlation with other assets or portfolios. Similar to hedge, diversifiers do not have special features to reduce risks in extreme market conditions because the correlations required are only for all periods on average.

Various studies that scrutinize the ability of gold to assume the role of safe haven and hedge by using the concept of safe haven and hedge proposed by Baur and Lucey (2010) then rampant conducted on various capital markets in the world, ranging from developed capital markets and emerging capital markets. Some of these studies were conducted by Ciner et al., (2012); Hood and Malik (2013) whom conducts studies in the US capital market, Ghazali, et al (2015); Ibrahim (2010); Ibrahim and Baharom (2012) whom conducts studies in the Malaysian capital markets, Robiyanto, et al (2017b) whom conducts studies in the Indonesian and Malaysian capital market, also Robiyanto et al. (2017a) whom conducts studies in the ASEAN capital markets.

Unfortunately, various studies on the role of gold as a safe haven and hedge are only had general characteristics in the capital markets studied. This is understandable because the studies are still explorative at first considering the concept of safe haven and hedge that can be measured quantitatively emerging in

the year 2010, and has not specifically conducted studies on certain stocks (such as sector or stocks with certain characteristics such as sharia stocks). Therefore, this study specifically conducted a study on sharia stocks in Indonesia, which represented by the Jakarta Islamic Index. This is necessary because gold is also the instrument most often associated with sharia investment (Hussin, et al, 2013), and meet the rule of sharia (Agha, et al, 2015; Rosyidah, 2014; Ulirrahmi, 2012). Hence, the purpose of this study is to test the gold's role as a safe haven and hedge for sharia stocks in Indonesia.

Literature Review

Gold as a Safe Haven, Hedge, and Diversifier

During the Sub Prime Mortgage crisis in the United States in 2008, financial markets across the globe, in general, experienced very high volatility and tended to produce returns that are not as expected (Robiyanto, 2017a; Suganda and Soetrisno, 2016; Triyono and Robiyanto, 2017). This raises important questions about which investment instruments can hedge and become a safe haven.

In keeping with its nature, gold as a commodity is always viewed as a safe haven asset (Robiyanto, 2015). Gold has been used as a store of value and used as a medium of exchange since thousands of years ago. When compared with other physical investment assets, gold is considered more durable, acceptable to all circles and easily transacted (Kumar, 2014). That is why gold is a precious metal that gained great attention from researchers and practitioners in finance (Arouri et al., 2014).

Gold also viewed as a financial asset (Dee et al., 2013) because gold has been used as a financial or economic standard, foreign exchange reserves and even the main payment instrument in some countries. In addition to the time of uncertainty, when investors are afraid to make trade transactions, gold becomes an alternative for investment. Even Baur and McDermott (2009) argued that gold would be an attractive investment instrument in times of turmoil in financial markets. Agyei-Ampomah et al., (2013) argued that the 2008 crisis has made investors use gold as a safe haven asset in their flight for safety effort.

Baur and Lucey (2010) argue that gold is usually seen as a secure asset because it is an initial form of money and is also used as a hedge against inflation. Another explanation is that gold does not correlate with other types of assets. Even as gold is usually valued in United States Dollar, then gold can also act as a hedge against the exchange rate for investors holding US Dollars. In addition to functioning as a safe haven and hedge, some research also shows that gold can serve as a diversifier for the stock market such as research done by Ibrahim (2012); Ibrahim and Baharom

(2012) because it has an insignificant positive relationship with the stock market. Because of this character, then some research such as research conducted by Do et al., (2009); Ratner and Klein (2008); Robiyanto et al. (2017b) found that involving gold into the stock portfolio could improve the performance of its portfolio.

Jakarta Islamic Index (JII) is one of the stock price indexes listed on the Indonesia Stock Exchange. JII was introduced on July 3, 2000, to facilitate investors in investing stocks of public companies by the principles of sharia (Robiyanto, 2017b). JII will not involve stocks of companies that engage in activities that are prohibited by Islamic law such as traditional banking (Ernayani et al., 2017). JII is formed from 30 stocks of companies whose business activities are in accordance with Islamic law and fulfill several other criteria such as stocks have been listed on the Indonesia Stock Exchange for at least 3 months; meet the criteria of Obligation Asset Ratio not more than 90%; entered the top 60 of market capitalization in the previous year period; entered the ranking of 30 most active stocks in the regular market. JII member stocks will be reviewed every six months.

Hypothesis Development

Hedging is an activity undertaken by an investor to reduce or eliminate a source of risk. Ahmad and Halin (2014) even suggested that hedging is an attempt to ensure that potential risks and losses are mitigated when someone commits market liquidity. The principle of hedging is to cover the loss of the initial asset position with the advantage of the position of the hedging instrument. Before hedging, an investor holds only a few initial assets. After hedging, investors hold some initial assets and a certain number of hedging instruments. A portfolio of initial assets and hedging instruments is called a hedging portfolio. Hedging portfolio has a lower risk than the initial asset risk.

A hedger or hedge principal will typically invest in an asset that is believed to have a price below the market value it should and combine it with other assets associated with the asset. Given the nature of the gold instruments that often have in opposite direction movements toward stocks, so gold often viewed as a hedging instrument for stocks. This evidence also documented by Patel (2013) in Bombay Stock Exchange, Aksoy and Topcu (2013) in Istanbul Stock Exchange, Hossenidoust et al., (2013); Robiyanto et al., (2017a) in ASEAN stock markets. Hence, the hypothesis formulated as follows:

H1: Gold could act as a hedging instrument to JII stocks.

Coudert and Raymond-Feingold (2011) argue that safe haven assets are seen when economic and financial turbulence occurs. In those periods, risky asset prices

will collapse simultaneously, as realized losses on the market will create liquidity shortages in other markets, spurring massive sales of risky assets. The ability of commodities to provide a positive return during downturn conditions has been documented by Gorton and Rouwenhorst (2006). Hillier et al., (2006) suggest that the primary benefit of precious metals is seen in its ability to resist market conditions when the market falls.

There are several definitions of safe haven proposed by the researchers. Kaul and Sapp (2006) define a (financial) safe haven as the ideal place to place money when the period is full of uncertainty. Meanwhile, Ciner et al., (2012) defines a safe haven as an asset purchased by investors when uncertainty increases. More specifically Ciner et al., (2012) define an asset as a safe haven asset, or an asset portfolio does not have the same movements as any other asset in the event of pressure. The same is also stated by Joy (2011) who states that safe-haven assets are assets that have no correlation or negative correlation with other assets (stock or even currency) during difficult times.

Gold is seen by investors and capital market actors as one of the safe haven instruments, so gold becomes an option for investors to secure assets in their portfolios when there is instability in financial markets. Various studies are conducted related to gold as a safe haven such as research Baur and McDermott (2012); Ciner et al. (2012); Mulyadi and Anwar (2012); Robiyanto et al. (2017a), concluded that gold is considered suitable with the translation as a safe haven. Hence, hypothesis formulated as follows:

H2: Gold could act as a safe haven to JII stocks.

Method

This study uses data from Jakarta Islamic Index (JII) monthly closing on Indonesia Stock Exchange and gold price data in the international market (GOLD). The study period is May 2008 to September 2017. JII and GOLD data were obtained from Reuters. The price of gold in this international market will be converted into Rupiah first before further analysis.

Return JII calculated by using the formula: $\text{Return JII}_t = (\text{JII}_t - \text{JII}_{t-1}) / \text{JII}_{t-1}$, where JII_t is monthly closing of JII in period of t and JII_{t-1} is monthly closing of JII in period of $t-1$. While return GOLD calculated by using the formula: $\text{Return GOLD}_t = (\text{GOLD}_t - \text{GOLD}_{t-1}) / \text{GOLD}_{t-1}$, where GOLD_t is monthly closing of gold price in period of t dan GOLD_{t-1} is monthly closing of gold price in period of $t-1$.

In this study, the data were analysed using Quantile Regression (QREG) using Ordinary Least Square. The QREG equation used in this research is as follows:

$$R_{\text{Gold},t} = \alpha + \beta_1 R_{\text{JII}(Q50\%, 40\%, 30\%, 20\%, 10\%)} + \varepsilon_t \quad (1)$$

Where

ε_t = *Residual term*

$R_{\text{Gold},t}$ = *Return GOLD*

$R_{\text{JII}(Q50\%, 40\%, 30\%, 20\%, 10\%)}$ = *Return JII for Q50%, 40%, 30%, 20% and 10%.*

Various studies have used the Quantile Regression (QREG) technique. QREG is very commonly used in studies of potential gold as a hedge and a safe haven. The research has been done by Ghazali et al., (2013); Ghazali et al. (2015); Ibrahim and Baharom (2012); Robiyanto et al. (2017a) also use this QREG technique. In addition to using QREG, this study also uses Ordinary Least Square (OLS) analysis techniques as a companion test to see the potential of gold as a protective instrument of value. OLS analysis is used by using all periods of research data.

The OLS equation used is as follows:

$$R_{\text{Gold},t} = \alpha + \beta_1 R_{\text{JII}} + \varepsilon_t \quad (2)$$

Where

ε_t = *Residual term*

$R_{\text{Gold},t}$ = *Return GOLD*

R_{JII} = *Return JII*

Result and Discussion

The result of analysis by using OLS and QREG technique can be seen in Table 1. Based on the results of the analysis that has been done as shown in Table 1., it can be seen that the return regression coefficient JII negative despite not having a significant effect on return GOLD. Baur and Lucey (2010) states that hedge is defined by assets that do not correlate or are negatively correlated with other assets or portfolios. Based on these statements, these findings indicate that throughout the observation time, gold can be a hedge for sharia stocks that enter into JII because it has no significant relationship but has coefficient with negative sign. Hence, H1 that stated gold could act as a hedging instrument to JII stocks, accepted.

These findings are consistent with the results of the study done by Hillier et al. (2006); Hood and Malik (2013) who found that gold could be a hedge for the US stock market as well as research done by Ghazali, Lean, and Baharia (2016) which find gold could be a hedge for the stock market in Malaysia. This

finding is not surprising because gold is categorized as a different asset class with stock. Furthermore, gold is more categorized as an asset to keep the value. Gold characteristics as durable and universally accepted asset make gold often viewed as a high-quality asset. Hillier et al. (2006) stated that gold's characteristic such as high hedging capability during extreme market condition, i.e. stock market downturn could improve the stock portfolio performance. This finding also supports Robiyanto et al. (2017a) which found that precious metals include gold could act as hedging instrument in ASEAN capital markets.

Table 1. Results of QREG and OLS Analysis

	OLS	Quantile				
		0.5	0.4	0.3	0.2	0.1
GOLD						
C	0.008102 (1.542361)	0.005248 (0.806011)	-0.007052 (-1.088909)	-0.019544* (-3.048408)	-0.035845* (-5.287100)	-0.055077* (-7.610124)
JII	-0.016443 (-0.197648)	0.0084752 (0.850928)	0.046757 (0.509843)	0.043951 (0.520115)	-0.020454 (-0.256561)	-0.040591 (-0.555224)

Source: Data processed.

Information :* significant at a significance level of 1%

Meanwhile, by using QREG on 50%, 40%, and 30% quantile, it was found that the regression coefficient return JII was positive and not significant. This suggests that gold tends to play a role as a diversifier for Indonesia's capital market when conditions are relatively volatile. The potential of gold as an asset diversifier is consistent with several studies that have been done before, such as research done by Ibrahim and Baharom (2012) which uses the diversifier concept presented by Baur and Lucey (2010) and found that gold could produce the diversification benefit for Malaysian stocks because it has no significant positive relationship with gold.

Inconsistent results are found when using QREG on 20% and 10% quantiles. By using an increasingly smaller quantiles that is an indicator for the increasingly extreme turmoil in the stock market, this finding finds that the JII regression coefficients turn out to be negatively and insignificant. This shows that when stock market conditions worsen, and there is an extreme decline, gold shows its supremacy to be a safe haven for sharia stocks in Indonesia. Hence H2 that states gold could act as a safe haven to JII stocks, accepted. This is consistent with the

results of the study done by Robiyanto et al. (2017a) which found gold could be a robust safe haven on the Singapore and Malaysian stock markets. In the event of market turmoil, investors tend to try to secure their assets by switching to higher quality assets (Beber, Brandt, & Kavajecz, 2006). Limited time transactions from stock markets can also be an obstacle for fund managers and investors to take a necessary action in the event of a market crash such as selling or liquidating their main assets. Hence, gold as more liquid and higher quality asset could provide a protection.

Conclusion

This study proves that gold can serve as a hedge for the Indonesian (sharia) stock market in the long term. This shows that gold can be an instrument of preserving (sharia) asset value in Indonesia in the long run. The study also found that when extreme shocks occur in the stock market in Indonesia, gold can serve as a safe haven in the Indonesian (sharia) stock market. Based on these findings, it is suggested that sharia stock investors in Indonesia Stock Exchange can use gold as a hedge instrument in the long run. Further, when stock market conditions experience a drastic decline, investors can shift their assets into gold to secure their investment.

For researchers interested in conducting studies in the same field may conduct special reviews on the other stocks such as stocks that included into SRI-KEHATI calculations as well as other specific indices such as BI-27, KOMPAS-100 and so on. The use of sophisticated methods is also strongly recommended.

References

- Agha, S. E., Saafi, A. R., & Qayoom, O. A. (2015). Gold Investment from Islamic Perspective: The Case of Malaysia. *International Journal of Economics and Finance*. Vol. 7(5): 179-185. doi: <https://doi.org/10.5539/ijef.v7n5p179>.
- Agyei-Ampomah, S., Gounopoulos, D., & Mzaouz, K. (2013). Does Gold Offer a Better Protection Against Sovereign Debt Crisis Than Other Metals. *Paper presented at the EFMA*.
- Ahmad, A. A., & Halin, M. A. A. (2014). The Concept of Hedging in Islamic Financial Transactions. *Asian Social Science*. Vol. 10(8): 42-49. doi: <https://doi.org/10.5539/ass.v10n8p42>.
- Aksoy, M., & Topcu, N. (2013). Relationship Between Gold, Stock and Inflation. *Ataturk University Journal of Economics & Administrative Sciences*. Vol. 27(1): 59-78.

- Arouri, M. E. H., Lahiani, A., & Nguyen, D. K. (2014). World Gold Procees and Stock Return in China: Insights for Hedging and Diversification Strategies. *Working Paper*.
- Baur, D. G., & Lucey, B. M. (2010). Is Gold a Hedge or a Safe Haven? An Analysis of Stocks, Bonds and Gold. *The Financial Review*. Vol. 45: 217-229. doi: <https://doi.org/10.1111/j.1540-6288.2010.00244.x>
- Baur, D. G., & McDermott, T. K. (2009). Is Gold a Safe Haven?: International Evidence. *Institute for International Integration Studies (IIIS) Discussion Paper* (310).
- Baur, D. G., & McDermott, T. K. J. (2012). Safe Haven Assets and Investor Behaviour Under Uncertainty. *Working Paper*. UTS, School of Business. Sydney.
- Beber, A., Brandt, M. W., & Kavajecz, K. A. (2006). Flight-To-Quality or Flight-To-Liquidity? Evidence From The Euro-Area Bond Market. *NBER Working Paper No. 12376*. retrieved from: <http://www.nber.org/papers/w12376>.
- Beckmann, J., & Czudaj, R. (2012). Gold as an Inflation Hedge in a Time-Varying Coefficient Framework. *RUHR Economic Papers* (362).
- Capie, F., Mills, T. C., & Wood, G. (2005). Gold As a Hedge Against The Dollar. *Journal of International Financial Markets Institution & Money*. Vol. 15: 343-352. doi://doi.org/ 10.1016/j.intfin.2004.07.002
- Ciner, C., Gurdgiev, C., & Lucey, B. M. (2012). Hedges and Safe Havens – An Examination of Stocks, Bonds, Oil, Gold and the Dollar. *Working Paper*.
- Coudert, V., & Raymond-Feingold, H. (2011). Gold and Financial Assets: Are There Any Safe Havens in Bear Markets? *Economics Bulletin*. Vol. 31(2): 1613-1622.
- Dee, J., Li, L., & Zheng, Z. (2013). Is Gold a Hedge Or a Safe Haven? Evidence From Inflation and Stock Market. *International Journal of Development and Sustainability*. Vol. 2(1): 1-16.
- Do, G. Q., Mcaleer, M., & Sriboonchitta, S. (2009). Effects of International Gold Market on Stock Exchange Volatility: Evidence from ASEAN Emerging Stock Markets. *Economics Bulletin*. Vol. 29(2): 599-610.
- Ernayani, R., Robiyanto., & Sudjinan. (2017). Factors Influencing Profit Distribution Management of Sharia Commercial Banks in Indonesia. *Journal of Economics, Business & Accountancy Ventura*. Vol. 20(2): 187-192. doi: <https://doi.org/10.14414/jebav.v20i2.1055>

- Ghazali, M. F., Lean, H. H., & Bahari, Z. (2013). Is Gold a Hedge or a Safe Haven? An Empirical Evidence of Gold and Stocks in Malaysia. *International Journal of Business and Society*. Vol. 14(3): 428-443.
- Ghazali, M. F., Lean, H. H., & Bahari, Z. (2015). Sharia Compliant Gold Investment in Malaysia: Hedge or Safe Haven? *Pacific-Basin Finance Journal*. Vol. 34: 192-204. doi: <https://doi.org/10.1016/j.pacfin.2014.12.005>
- Ghazali, M. F., Lean, H. H., & Baharia, Z. (2016). Gold Investments in Malaysia. *Paper presented at the The 2016 International Congress on Banking, Economics, Finance, and Business*. Sapporo, Japan.
- Ghosh, D., Levin, E. J., MacMillan, P., & Wright, R. E. (2004). Gold as an Inflation Hedge? *Studies in Economics and Finance*. Vol. 22(1): 1-25.
- Gorton, G., & Rouwenhorst, K. G. (2006). Facts and Fantasies About Commodity Futures. *Financial Analysts Journal*. Vol. 62: 47-68.
- Hillier, D., Draper, P., & Faff, R. (2006). Do Precious Metals Shine? An Investment Perspective. *Financial Analysts Journal*. Vol. 62(3/4): 98-106. doi: <https://doi.org/10.2469/faj.v62.n2.4085>
- Hood, M., & Malik, F. (2013). Is Gold the Best Hedge and a Safe Haven Under Changing Stock Market Volatility. *Review of Financial Economic*. Vol. 22(2): 47-52. doi: <https://doi.org/10.1016/j.rfe.2013.03.001>
- Hossenidoust, E., Janor, H., Yusefi, M., Majid, H. A., & Ja'afar, R. (2013). Volatility Spillovers across Commodity and Stock Markets among ASEAN Countries. *Paper presented at the Persidangan Kebangsaan Ekonomi Malaysia VIII(PERKEM VIII)* Johor Bahru.
- Hussin, M. Y. M., Muhammad, F., Razak, A. A., Tha, G. P., & Marwan, N. (2013). The Link between Gold Price, Oil Price and Islamic Stock Market: Experience from Malaysia. *Journal of Studies in Social Sciences*. Vol. 4(2): 161-182.
- Ibrahim, M. H. (2010). Financial Market Risk and Gold Investment in an Emerging Market: The Case of Malaysia. *Paper presented at the PERKEM V*.
- Ibrahim, M. H. (2012). Financial Risk Market and Gold Investment in an Emerging Market: The Case of Malaysia. *International Journal of Islamic and Middle Eastern Finance and Management*. Vol. 5(1): 25-34. doi: <https://doi.org/10.1108/17538391211216802>
- Ibrahim, M. H., & Baharom, A. H. (2012). The Role of Gold in Financial Market: A Malaysian Perspective. *Economic Computation & Economic Cybernetics Studies & Research*. Vol. 45 (4): 227-238.

- Joy, M. (2011). Gold and The US Dollar: Hedge or Haven? *Finance Research Letters*. Vol. 8: 120-131. doi: <https://doi.org/10.1016/j.frl.2011.01.001>
- Kaul, A., & Sapp, S. (2006). Y2K Fears and Safe Haven Trading of the U.S. Dollar. *Journal of International Money and Finance*. Vol. 25(5): 760-779. doi: <https://doi.org/10.1016/j.jimonfin.2006.04.003>
- Kumar, D. (2014). Return and Volatility Transmission Between Gold and Stock Sectors: Application of Portfolio Management and Hedging Effectiveness. *IIMB Management Review*. Vol. 26(1): 5-16. doi: <https://doi.org/10.1016/j.iimb.2013.12.002>
- Mulyadi, M. S., & Anwar, Y. (2012). Gold Versus Stock Investment: An Econometric Analysis. *International Journal of Development and Sustainability*. Vol. 1(1): 1-7.
- Pangestuti, I. R. D., Wahyudi, S., & Robiyanto. (2017). Performance Evaluation of Equity Mutual Funds in Indonesia Period of 2012-2014. *Jurnal Keuangan dan Perbankan*. Vol. 21(4): 527-542.
- Patel, S. A. (2013). Causal Relationship Between Stock Market Indices and Gold Price: Evidence from India. *IUP Journal of Applied Finance*. Vol. 19(1): 99-109.
- Ratner, M., & Klein, S. (2008). The portfolio implications of gold investment. *Journal of Investing*. Vol. 17(1): 77-87. doi: <https://doi.org/10.3905/joi.2008.701958>
- Robiyanto. (2015). Month of the Year Effect Pada Beberapa Pasar Modal di Asia Tenggara dan Pasar Komoditas. *Jurnal Ekonomi dan Bisnis*. Vol. XVIII(2): 53-64. doi: <http://dx.doi.org/10.24914/jeb.v18i2.260>
- Robiyanto. (2017a). The Analysis of Capital Market Integration in ASEAN Region by Using the OGARCH Approach. *Jurnal Keuangan dan Perbankan*. Vol. 21(2): 169-175.
- Robiyanto. (2017b). Performance Evaluation and Risk Aversion Rate for Several Stock Indices in Indonesia Stock Exchange. *Jurnal Manajemen dan Kewirausahaan*. Vol. 19(1): 60-64. doi: <https://doi.org/10.9744/jmk.19.1.60-64>
- Robiyanto., Wahyudi, S., & Pangestuti, I. R. D. (2017a). Testing Commodities as Safe Haven and Hedging Instrument on ASEAN's Five Stock Markets *Jurnal Ekonomi Kuantitatif Terapan*. Vol. 10(2): 231-238 . doi: <https://doi.org/10.24843/JEKT.2017.v10.i02.p11>
- Robiyanto., Wahyudi, S., & Pangestuti, I. R. D. (2017b). The Volatility-Variability Hypotheses Testing and Hedging Effectiveness of Precious Metals for the Indonesian and Malaysian Capital Markets. *Gadjah Mada International Journal of Business*. Vol. 19(2): 167-192. doi: <https://doi.org/10.22146/gamaijb.26260>

- Rosyidah, U. (2014). Minat Masyarakat Berinvestasi Emas Pada Pegadaian Shari'ah di Lombok (The Interest of People Investing at Pawnshop Shariah in Lombok). *Jurnal Penelitian Keislaman*. Vol. 10(1): 63-80.
- Suganda, T. R., & Soetrismo, Y. (2016). Uji Integrasi dan *Contagion Effect* Pasar Modal Pada Lima Negara ASEAN: Riset Empiris Pasca Terjadinya Krisis *Subprime Mortgage* dan Krisis Yunani (Integration Test and Capital Market Contagion Effect on Five ASEAN Countries: Empirical Research Post Subprime Mortgage Crisis and Greek Crisis). *Jurnal Keuangan dan Perbankan*. Vol. 20(2): 252-262.
- Sujit, K. S., & Kumar, B. R. (2011). Study on Dynamic Relationship Among Gold Price, Oil Price, Exchange Rate and Stock Market Returns. *International Journal of Applied Business and Economic Research*. Vol. 9(2): 145-165.
- Triyono, D., & Robiyanto. (2017). The Effect of Foreign Stock Indexes and Indonesia's Macroeconomics Variables Toward Jakarta Composite Stock Price Index (JCI) *Advanced Science Letters*. Vol. 23(8): 7211-7214. doi: <https://doi.org/10.1166/asl.2017.9332>
- Ulirrahmi, F. (2012). *Investasi Emas Dalam Perspektif Hukum Islam (Gold Investment in Islamic Law Perspective)*. (Unpublished Bachelor Thesis). Surakarta: Universitas Muhammadiyah Surakarta.