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See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/281741080> [The world oil price movements and stock returns in several southeast Asia's capital markets](#) Article in [International Journal of Applied Business and Economic Research](#) · August 2015 CITATIONS READS 3 401 3 authors, including: Hersugondo Hersugondo Universitas Stikubank Semarang 1 PUBLICATION 3 CITATIONS SEE PROFILE Harjum Muharam Universitas Diponegoro 32 PUBLICATIONS 46 CITATIONS SEE PROFILE Some of the authors of this publication are also working on these related projects: Plasma Agriculture: 1. Compact Ozone Generator with DBD for storage system. 2. Plasma corona for hatchery technology View project [What effects do privatisation policies have on corporate governance of state-owned enterprises? View project All content following this page was uploaded by Harjum Muharam on 14 September 2015. The user has requested enhancement of the downloaded file.](#) I J A B E R, Vol. 13, No. 2, (2015): 527-534 [THE WORLD OIL PRICE MOVEMENTS AND STOCK RETURNS IN SEVERAL SOUTHEAST ASIA'S CAPITAL MARKETS](#) Hersugondo1,2, Robiyanto1, Sugeng Wahyudi3 and Harjum Muharam4 Abstract: This study was conducted on the basis that there is an inconsistency in the study results on the effects of world oil price change on stock market return. This study, therefore, examined the effects of world oil price changes on the stock market returns in Southeast Asia including Indonesia [Stock Exchange](#), [Kuala Lumpur Stock Exchange](#), [Singapore Stock Exchange](#), [Philippines Stock Exchange](#) and [Stock Exchange of Thailand](#). Data used in this study was the composite stock price index on the capital markets and WTI crude oil prices during the period of January 2003 to December 2013. The data was analyzed by using the Generalized Autoregressive Conditional Heteroscedasticity or GARCH (1,1). The results of this study indicated that world oil price changes only give significant effects on the Malaysian capital market as represented by the Kuala Lumpur Composite Index (KLCI) and the Thai capital market as represented by the SET index. JEL Classification: G10, G15. Keywords: West Texas Intermediate (WTI), GARCH, Capital Markets in the ASEAN Region. 1. INTRODUCTION Investment can be made either directly or indirectly, with the hope in time the capital owners (investors) receive some benefit from the capital investment (Levišauskait, 2010). Investment at the present time is not only dominated by investment in financial market, but also commodity market. Today, commodity market is highly developed market and the price movement in this market is also able to affect the stock price movement in the capital market. The existence of investments made by investors on various asset classes also creates a link between commodity market with capital market (Morales, 2009). 1 Ph.D. stud. Diponegoro Univ., Fac of Economics and Business Depart. of Financial Management, Indonesia, E-mails: hersugondo@unisbank.ac.id,

gondorum65@gmail.com; robiyanto76@gmail.com 2 3 Lecturer in Faculty of Economics and Business Stikubank University, Semarang, Indonesia. Profesor in Department of Financial Management. Faculty of Economics and Business Diponegoro, University, Semarang, Indonesia. 4 Ph.D. and Assistant Professor in Department of Financial Management. Faculty of Economics and Business Diponegoro University, Semarang, Indonesia, E-mail: hardjum@gmail.com 528 ? Hersugondo, Robiyanto, Sugeng Wahyudi and Harjum Muharam One of the main commodities that affect the stock price movement in capital market in general and portfolio management in particular is oil. Fischel (1989) suggested that the risks due to changes in oil price are essential for portfolio management. It is based on the thought [that oil is one of the main energy source used by industries](#). Even oil is also a strategic commodity for the global economy (Hussin et al., 2013b; Hussin et al., 2013a; Le and Chang, 2011) and the price of energy in the form of oil can affect the world economy (Papież and Śmiech, 2012). However, the results of researches [on the effects of oil on capital market in general and stock in particular](#) are still quite diverse; for example, a research done by Le and Chang (2011) found that changes in oil price do not affect stock market in Japan. This finding was confirmed by a research by Papież and Śmiech (2012) which concluded that there is a significant influence of changes in world oil price [on the S & P 500 index](#). In addition, Basit (2013) also found no [correlation between oil and stock market](#) in Pakistan. Meanwhile, researches by Abdelaziz et al. (2008); Patel (2012); Jubinski and Lipton (2013); Hussin et al. (2013a); Hussin et al. (2013b) found the opposite results. Abdelaziz et al. (2008) found the correlation [between oil and stock markets](#) in Egypt, [Oman, Saudi Arabia and Kuwait](#). Patel's research (2012) which used India capital market as its object of study, is also consistent with such a finding. In a research conducted using the S & P 500 index, Jubinski and Lipton (2013) also found [that changes in world oil prices have a significant effect on the stock market return as represented by the S & P 500 index](#). Researches by Hussin et al. (2013a); and Hussin et al. (2013b) which also reinforced such findings, suggested that [changes in oil price have short- term and long- term impacts on the FTSE Bursa Malaysia Emas Shariah Index \(FBMES\)](#). In regard to [the inconsistency in the research results on the effects of world oil price changes on capital markets stocks](#), a study of [the effects of oil price changes on stock market return](#) is also necessary to conduct. This study was conducted to assess the [effects of world oil price changes on the stock market returns in Southeast Asia such including Indonesia Stock Exchange, Kuala Lumpur Stock Exchange, Singapore Stock Exchange, Philippines Stock Exchange, and Stock Exchange of Thailand](#).

2. RELEVANT LITERATURE Malkiel (2011) argued that there are two world oil prices which are used internationally, namely [West Texas Intermediate and Brent North Sea/Europe](#). Brent West Texas Intermediate is the benchmark oil price in the United States, while Brent North Sea is the benchmark oil price in Europe. In practice, West Texas Intermediate often becomes the main reference in international oil prices. Due to the oil price shock in the 1970s, many researches are intended to assess the [effects of oil price changes on real economic variables](#). Most studies have found [The World Oil Price Movements and Stock Returns in Several Southeast Asia's...](#) ? 529 [that oil price shock affect the economic activities of developed and developing countries](#) (Fischel, 1989). Such studies are done again after the drastic oil price increase in the years before the global financial crisis in 2008 which was caused by the high demand for oil from Asia and geopolitical risks in the Middle East (Masih et al., 2010). The oil price increase has relatively varied effects on the economy in general and capital markets in particular. On the [oil-exporting economies, the increase in oil prices has a positive impact, but on the oil-importing and consuming economies, the impact of oil price increase is negative](#). Meanwhile, the empirical studies carried out to assess the effects of changes in world oil prices in the capital markets have been conducted by many researchers. A research by Le and Chang (2011) concluded that changes in oil prices do not affect stock market in Japan. A research by Papież and Śmiech (2012) also found a similar result. In their research, Papież and Śmiech (2012) suggested that there is no impact of changes in world oil prices on the S&P 500 index. Basit (2013), who examined the effects of changes in world oil prices on the stock market in Pakistan, also found a similar result. On the contrary, a lot of studies have found that there is [a significant correlation between changes in world oil prices and stock markets](#). Researches done by Abdelaziz et al., 2008; Patel, 2012; Jubinski and Lipton, 2013; Hussin et al., 2013a; Hussin et al., 2013b found confirmed such a correlation. Abdelaziz et al. (2008) found that there is a relationship between oil and stock markets in Egypt, Oman, Saudi Arabia and Kuwait. Patel (2012), who used India capital market as his object of study, also found results that are consistent with such findings. In a study conducted using the S&P 500 index, Jubinski and Lipton (2013) also found [that changes in world oil prices have a significant effect on the stock market return as represented by the S&P 500 index](#). The results of research by Hussin et al. (2013a); and Hussin et al. (2013b) reinforced this finding by concluding that changes in oil prices have short-term and long-term impacts on the FTSE Bursa Malaysia Emas Shariah Index (FBMES).

3. [DATA The data used in this study](#) was the monthly WTI [crude oil](#) closing prices and stock index closing prices on the stock markets during the period of January 2003 to December 2013. The data of monthly WTI crude oil closing prices was obtained from the US Energy Information Administration, while the data of composite stock price index needed in this study was collected from the monthly closing data of the Indonesia [Stock Exchange \(JCI\)](#), [the Kuala Lumpur Stock Exchange \(KLCI\)](#), [the Singapore Stock Exchange \(STI\)](#) (Strait Times Index), the Philippines Stock Exchange PSEI and The Stock Exchange of Thailand (SET) [from January 2003 to December 2013](#). The [data was](#) obtained entirely from the Capital Market Statistics published by the Financial Services Authority (FSA). 530 ? Hersugondo, Robiyanto, Sugeng Wahyudi and Harjum Muharam

4. OPERATIONAL DEFINITION OF VARIABLES There are two variables used in this study, namely WTI crude oil return and stock market return. The WTI crude oil return was measured using ratio measurement scale with the following formula: $R_{WTI,t} = \frac{WTI_t - WTI_{t-1}}{WTI_{t-1}}$ where: WTI_t = the closing price of WTI oil spot in month t WTI_{t-1} = the closing price of WTI oil spot in month t - 1 The same thing also applies to the variable of return stock market which was measured using a ratio measurement scale with the following formula: $R_{m,t} = \frac{Compositet - Compositet-1}{Compositet-1}$ (2) where: $Compositet$ = the Closing Stock Price Index at the Stock Exchange studied in month t $Compositet-1$ = the Closing Stock Price Index at the Stock Exchange studied in month t-1

5. ANALYSIS TECHNIQUE The data analysis was done by using the Generalized Autoregressive Conditional Heteroscedasticity/GARCH (1,1). The GARCH model, which is the development of ARCH model, was developed by Bollerslev in 1986. This model was built in order to avoid the excessively high order in ARCH model, based on the principle of parsimony or choosing a simpler model to guarantee positive variances. The equation used is as follows: $R_{m,t} = \alpha + \beta_1 RWTI_t + \beta_2 \epsilon_t$ with $\epsilon_t^2 = \omega + \alpha_1 \epsilon_{t-1}^2 + \alpha_2 \epsilon_{t-2}^2 + \dots + \alpha_p \epsilon_{t-p}^2 + \beta_1 \epsilon_{t-1}^2 + \beta_2 \epsilon_{t-2}^2 + \dots + \beta_q \epsilon_{t-q}^2$ (3) (4) (5) (6) [The World Oil Price Movements and Stock Returns in Several Southeast Asia's...](#) ? 531 and ϵ_t independent and identical distributed $N(0,1)$ and does not depend on the past state of ϵ_{t-p} . $R_{m,t}$ = the Return of capital markets studied in the period t $RWTI_t$ = the Return of WTI crude oil in the period t Prior to the GARCH analysis, the stationarity test was first done by [using the Augmented Dickey-Fuller Test /ADF](#) (Greene, 2003; Enders, 2009).

6. RESULTS AND DISCUSSION

6.1. Stationarity Test Results Data stationarity [test is](#) conducted by using [Augmented Dickey-Fuller \(ADF\) Test](#) Statistics. For GARCH analysis, the stationarity of data is important. If the ADF Test Statistics show that the data used do not follow the stationarity principle, hence it needs a treatment which is called as first differencing, followed by second differencing if the data still do not follow the stationarity principle. The stationarity test results [can be seen in Table 1. Table 1](#) Stationarity Test Result of Data Specification Level WTI -8,869594* IHSG -9,229721* STI -8,949736* SET -9,514737* PSEI -11,17431* KLCI -12,26893* Source: Indonesia Financial Service Authority (Indonesia FSA) and the US Energy Information Administration, processed data. Note: *Significant at the level of significance of 1% Based on Table 1, it can be seen that all the data used in this study have a significant ADF level with the significance level of 1%. So, it can be concluded that all the data used in this study are stationary and there was not found any indication for unit root. Therefore, it is not necessary to conduct further treatment specific for this data, meaning this data can be directly analyzed by using GARCH. (Posedel, 2005) claimed that for the data which can be analyzed directly without any further treatment, GARCH (1,1) is a proper analysis tool to use. Therefore, this study used the GARCH (1,1). 532 ? Hersugondo, Robiyanto, Sugeng Wahyudi and Harjum Muharam

6.2. Results Analysis of the GARCH (1,1) The results analysis of the GARCH (1,1) show that some capital market follow the GARCH process which is shown through the significant of variance equation. Hence the models proposed in this study were appropriated, also supported by the ADF Test Statistics. This section discussed the results of GARCH (1,1) analysis which can be seen [in Table 2. Table 2 Results Analysis of the GARCH \(1,1\) Constant WTI Resid\(-1\)*2 GARCH\(-1\) JCI 0,023012*** KLCI 0,014679*** PSEI 0,015074*** SET 0,010098 STI 0,008013* -0,088432 0,085800** 0,053423 0,123800* 0,072037 0,455880** 0,296887** -0,057350 0,253303** 0,251098*** -0,044506 -0,170552 0,467846 0,587452*** 0,644687***](#) Source: Indonesia Financial Service Authority (FSA) and the US Energy Information Administration, processed data. Specification: * Significant at 10% significance level ** Significant at the 5% significance level *** Significant at 1% significance level Based on Table 2, [changes in world oil prices \(WTI\) have no significant effect on the IHSG return](#). The coefficient of WTI effect is negative, indicating that the greater the rate of WTI oil price change, the lower the JCI return. This is quite reasonable because Indonesia is an oil importer so that its balance of trade depends on world oil price. The increase in world oil prices would increase the fuel subsidy borne by Indonesia which, in turn, will affect the stability of its macro-economic and industrial sectors in general. The changes in world [oil prices \(WTI\) have no significant effect on the PSEI and STI returns](#). In contrast to the negative coefficient of WTI effect on JCI return, the coefficient of WTI effect on PSEI and STI returns is positive, indicating the potential for a positive correlation between WTI and PSEI and STI returns. Meanwhile, changes in world oil prices (WTI) have a significant positive effect on KLCI and SET returns. This shows that the higher the level of the world oil price change, the more the increase in KLCI and SET returns.

7. CONCLUSIONS [Changes in world oil prices only have a significant impact on the returns of Malaysia capital market \(KLCI\) and Thailand capital market \(SET\) with a positive effect](#). [The World Oil Price Movements and Stock Returns in Several Southeast Asia's...](#) ? 533 [There is no significant effect of changes in world oil prices on the stock market return in the Indonesia Stock Exchange](#), but the coefficient regression indicates a potential negative

effect. Furthermore, [there is no significant effect of](#) changes in world oil prices [on](#) the [stock](#) market return in Singapore and the Philippines despite the positive regression coefficient. Recommendations, since there is a time difference due to the geographical location of WTI trading center at the New York Mercantile Exchange (NYMEX), the changes in NYMEX trading closing sessions can be a reference point for stock investors in Southeast Asia. Investors in Indonesia Stock Exchange need to pay attention to the changes in world oil prices in their stock investment because the [changes in world oil prices have](#) potential [negative](#) effects [on](#) the [stock](#) returns [in](#) Indonesia Stock Exchange. If the WTI closing price on the NYMEX shows an increase, it is better for the investors in Indonesian Stock Exchange to avoid stock transaction as it potentially results in a stock price decline. In contrast, investors in Malaysia and Thailand capital markets can make transactions since the WTI closing price tend to increase stock returns in Malaysia and Thailand capital markets. Future Research Agenda, researchers who are interested in studying the same field can develop a more robust analysis methods so that the results found in this study receive support from similar studies which use different analytical methods. They can also assess the effects of other commodities on capital markets in the ASEAN region. Acknowledgement Acknowledgement to the doctoral student's financial management Diponegoro University class of 2013 for their input and suggestions for improvement as well as a discussion of this paper, thanks to the laboratory assistant which enables the collection and processing of the data, so that the research could be completed. References Abdelaziz, M., G. Chortareas, and A. Cipollini. (2008), Stock prices, exchange rates, and oil: evidence from middle east oil-exporting countries. Working Paper. Basit, A. (2013), Impact of kse-100 index on oil prices and gold prices in Pakistan. IOSR J. of Bus. and Man. 9 (5): 66-69. Bollerslev, T. (1986), Generalized autoregressive conditional heteroscedasticity. J. of Econometrics 31: 307-327. Enders, W. (2009), Applied Econometric Time Series: John Wiley & Sons, Inc. Fischel, D. R. (1989), Efficient capital markets the crash and the fraud on the market theory. Cornell Law Rev. 74: 907-922. Greene, W. H. (2003), Econometric Analysis 5th Edition. New Jersey: Prentice Hall. 534 ? Hersugondo, Robiyanto, Sugeng Wahyudi and Harjum Muharam Hussin, M. Y. M., F. Muhammad, S. A. Awang, N. F. Marwan, and A. A. Razak. (2013a), The dynamic interaction between islamic stock market and strategic commodities. J. of Islamic Econ., Banking and Fin. 9 (3): 53-68. Hussin, M. Y. M., F. Muhammad, A. A. Razak, G. P. Tha, and N. Marwan. (2013b), The link between gold price, oil price and islamic stock market: experience from Malaysia. J. of Stud. in Soc. Sci. 4 (2): 161-182. Jubinski, D., and A. F. Lipton. (2013), VIX, Gold, and oil: how do commodities react to financial market volatility. J. of Acc. and Fin. 13 (1): 70-88. Le, T. H., and Y. Chang. (2011), Dynamics between strategic commodities and financial variables. Econ. Growth Centre. Working Paper. Levišauskait, K. (2010), Investment Analysis and Portfolio Management, Vytautas Magnus University Kaunas, Lithuania. Malkiel, B. G. (2011), The efficient market hypothesis and the financial crisis. Working Paper. Masih, R., S. Peters, and L. D. Mello. (2010), Oil price volatility and stock price fluctuations in an emerging market: evidence from south Korea. Working Paper. Morales, L. (2009), Interlinkages between equity, currency, precious metals and oil markets: an emphasis on emerging markets. Dissertation, University of Limerick. Papież, M., and S. Śmiech. (2012), Causality in mean and variance between returns of crude oil and metal prices, agricultural prices and financial market prices. paper read at 30th international conference mathematical methods in economics, at Karviná: Silesian University, School of Business Administration. Patel, S. (2012), The effect of macroeconomic determinants on the performance of the indian stock market. NMIMS Management Rev. 22: 117-127. Posedel, P. (2005), Properties and estimation of garch(1,1) model. Metodoloski zvezk 2 (2): 243- 257. View publication stats

