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# THE RECONSTRUCTION OF MONEY SUPPLY AND OIL PRICE TOWARD IDX COMPOSITE AND COMPOSITE TRADE VOLUME IN INDONESIA STOCK EXCHANGE

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# THE RECONSTRUCTION OF MONEY SUPPLY AND OIL PRICE TOWARD IDX COMPOSITE AND COMPOSITE TRADE VOLUME IN INDONESIA STOCK EXCHANGE

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## ABSTRACT

*This research aims to reconstruct and to analyze the direct and indirect effect of money supply, oil price toward IDX Composite and composite trade volume in Indonesia Stock Exchange. This study is explorative or associative research with hypothesis testing. It is conducted in Indonesia Stock Exchange of Statistic Center using its secondary data. The population research is money supply, oil price, and IDX Composite and composite trading volume. The sample used is monthly data taken in serial time during July 2005 to December 2015. This research analysis uses Path Analysis method.*

*The Path Analysis result shows that the money supply and oil price have direct and significant effect toward IDX Composite while the money supply, oil price and IDX Composite have direct and significant effect toward composite trading volume. The next result shows that the IDX Composite significantly mediates the indirect effect of the money supply and oil price toward the composite trade volume.*

**Keywords:** Money Supply, Oil Price, Indonesia Composite Index, and Composite Trade Volume.

## INTRODUCTION

Investment is one of factors that affect the economy of a country. Lately, most businessmen are highly interested to conduct investment. Investment is delaying the present consumption to gain profit in the future. Investment means purchasing and producing unconsumed capital goods but usable for future production.

In Indonesia, investors can invest in the capital market of Indonesia Stock Exchange (IDX) that always provides information about IDX Composite to support its business. Thus, the investors can find out whether the market conditions are passionate or sluggish through the movement of IDX Composite. According to Kendal in Samsul (2006), the information received by investors will affect their investment management.

IDX Composite is an index measures the average of all shares in the IDX. It measures the overall movement of stock prices on the Indonesia Stock Exchange. Up and Down changes of stock prices will certainly affect the movement of IDX Composite. Widyastuti et al. (2017); Vahlevi and Muharam (2014) stated that money supply has significant effect on IDX Composite. It is different from Hariyanto and Chen (2014); Hasanah and Panjawa (2016) who show that the money supply has no significant effect on IDX Composite. Regarding the effect of macroeconomic variables, one of the variables affecting the capital market is the world energy price level (Blanchard, 2006). Research on the influence of oil prices on IDX Composite conducted by Klian and Park (2007); Rati and Park (2007) and Bjomland (2008) showed that oil price has significant effect to IDX Composite. In contrast, Raraga et al (2012) shows that oil prices have no significant effect on IDX Composite.



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Due to the previous research on the effect of money supply and the price of oil on IDX Composite and Stock trading volume, there are still differences views. Hence, this research will reconstruct the influence of . Thus, based on the explanation above, the problem of this study is formulated whether the money supply, crude oil price affect IDX Composite and the composite trading volume.

## LITERATURE REVIEW

### 1. Currency Money

The money supply is the entire amount of currency circulated by the central bank. The circulated currency consists of two types; banknotes and coins. It means that money supply is all kinds of the money supplied in the economy. The money demand rises with the incomes and falls along with rising interest rates (Dornbusch et al. 2008). Increasing the money supply will affect the demand for goods and services. The large amount of money owned by the community will increase the purchasing power of the community for goods and services. Increased consumption of goods and services will increase revenues in the company. Profit generated by the company will also increase and stock prices in the company increased, thus affecting the movement of IDX Composite. The money supply is positively related to Indonesia's economic growth. This means that the greater the money supply, the more increasing the economic growth of Indonesia. The amount of money supply gives positive and significant impact on economic growth and IDX Composite.

### 2. Oil Price

The rise and fall of world oil prices is influenced by the ability of OPEC (Organization of the Petroleum Exporting Countries) to meet the quota (Mankiv, 2003). According to Wang et al, (2010) changes in world oil prices tend to rise which cause the economy and the stock market decreased. Yet, the effect will be different for oil export-import countries because the increase in world oil prices shows the transfer of welfare from oil export-import countries. This shows that the oil price can affect the country's economy because it is one reflection of changes in economic conditions and the stock market. Handiani (2014); Pardede et al., (2016); Mardiyono (2014); Sadorsky (1999); Adebiyi et al, (2009); Movahedizabeh et al. (2014) shows that oil prices have a significant effect on IDX Composite.

### 3. IDX Composite

The IDX Composite is an indicator showing the movement of stock prices. Index serves as a market trend which describes the condition at a certain time. IDX Composite data used is the stock price index closing the month.

Killian and Park (2007); Bjornland (2008); Mardiyono (2014) find the world oil prices give a significant influence on the movement of stock exchange index. On the contrary, Otorima and Kesuma (2016) implied that money supply affects significantly on the Indonesia composite index.

### 4. Composite Trade Volume

Composite Trade Volume is a trading volume activity resulted from composite sharing of a company to an outstanding company or listing at a specified time. Composite trading volume can be seen using the below formula:

$$\text{TVA: } \frac{Compay\ stock\ i\ \ traded\ in\ time\ t}{Company\ stock\ i\ \ listing\ in\ time\ t}$$

This formula is used to see whether an investor individually assesses stock prices has a positive or negative association to make stock trading decisions. Composite trading volume is



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an accepted part of technical analysis in an exchange assessed as a sign of a bullish market. Increased composite trade volume offset by rising prices is an increasingly strong symptom of a bullish condition (Husnan and Pudjiastuti, 2012).

## HYPOTHESES

H1: Money supply has a significant effect on the IDX Composite in the Exchange Indonesia Securities

H2: Oil price has a significant effect on the IDX composite in Indonesia Stock Exchange

H3: Money supply has a significant effect on composite trading volume in the Indonesia Exchange Securities

H4: Oil price has a significant effect on composite trading volume in Indonesia Stock Exchange

H5: The IDX composite significantly affects the composite trading volume of shares in Indonesia Stock Exchange

H6: The IDX composite mediates significantly the effect of money supply on the composite trading volume of shares in the Indonesia Stock Exchange

## METHODOLOGY

This study applied descriptive research focusing on discussing the effect of money supply and oil price toward IDX composite and composite trading volume in Indonesia Stock Exchange. The participant of this study is all *go public* companies in Indonesia Stock Exchange. The data was from monthly data taken by serial time during July 2005 until December 2015 about IDX Composite and composite trading volume. Meanwhile, the money supply and the price of oil taken from the Indonesian Economic and Financial Statistics (SEKI). The entire participant is taken as a sample, saturated samples or census sample (complete enumeration). This study uses documentation as the data technique; recording and copying the written data related to the research problem either from the source documents, books, internet or others about the volume of composite trading, IDX Composite, money supply of oil prices, July 2005 to December 2015.

Variable Classification:

1. Money Supply (UB) as the first exogenous variable (X1)
2. Oil Price (HM) as second exogenous variable (X2)
3. IDX Composite (ICI) is first endogen variable or variable mediation (Y1)
4. Stock Trading Volume (VP) is the second endogen variable (Y2)

### Definition Of Operational Variables

1. Money Supply (UB)

   Broad Money (M2) is the sum of M1 (cash currency) plus deposits in the form of a current account or demand deposit, which involve incorporates time deposits and savings as well as domestic foreign currency accounts as part of the provision of money or quasi money. The measurements used are in units of trillions of rupiah.

2. Oil Price (HM)

   World oil price is the price of West Texas Intermediate (WTI) crude oil commodity. It is the spot price of oil that becomes one of the benchmark crude oil prices. The oil price data used is the closing price.



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3. Composite Stock Price Index (CSPI)

   Dependent variable (Y1) in this research is IDX Composite. The data used is the daily IDX Composite converted into return. The data obtained from yahoo finance site. The IDX Composite used is the end data of 2005-2015 periods.

4. Composite Trading Volume (VP)

   Dependent variable (Y2) in this research is composite trading volume tested using composite trading volume of every month end on 31 July 2005 until 31 December 2015.

**Research Model**

The research model is used to consider the independent variables affecting the dependent variable of the influence of money supply and the price of oil, on the composite stock price index and trading volume of shares in the Indonesia Stock Exchange. The data will be analyzed using below formula.

$$ICI = \beta 1\ UB + \beta 2\ HM + \varepsilon$$

$$VP = \beta 3\ UB + \beta 4\ HM + \beta 5\ IHSG + \varepsilon$$

Note:

ICI: Composite Stock Price Index

VP: Composite Trading Volume

B1-β5: Coefficient Regression of IDX Composite

UB: Money Supply

HM: Oil Price

**Model Feasibility Test (Goodness of Fit)**

To assess the accuracy of the sample regression function in estimating the actual value is measured from the Goodness of Fit (Ghozali, 2013: 97). Statistically, the Goodness of Fit can be measured from the coefficient IDX Composite of determination and F statistic value.

**1. Coefficient IDX Composite of Determination ($R^2$)**

The coefficient IDX Composite of determination measures the ability of the model to explain the dependent variable. The coefficient IDX Composite value of determination is between zero to one (Ghozali, 2013: 98). The researchers are recommended to use adjusted values because it rises or falls when one independent variable is added to the model.

**2. Partial Test (t test)**

Basically, the statistical test t shows the influence of one independent variable individually to explain the variation of the dependent variable (Ghozali, 2013: 88). In accepting or rejecting the proposed hypothesis by looking at the output of SPSS version 23, we can only see the value of the significant t test of each variable. If the value is significant <0.05 then we can conclude the hypothesis is accepted (Ghozali, 2013: 89).

**RESEARCH RESULT**

**Test of Linearity Assumption**

The result of the linearity assumption test refers to the concept of parsimony i.e. when all models used as test basis are significant or non-significant means that the model is linear or



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linear function is significant, in other words. The result of linearity test for each influence between variables is presented in Table 1.

**Table 1. The Result of Linearity Testing**

| Independent Variable | Dependent Variable | Testing result ($\alpha = 0,05$) | Note |
|---|---|---|---|
| Money Supply | IDX COMPOSITE | Model Linier – significant | Linier |
| Oil Price | IDX COMPOSITE | Model Linier – significant | Linier |
| Money Supply | VP | Model Linier – significant | Linier |
| Oil Price | VP | Model Linier – significant | Linier |
| IDX COMPOSITE | VP | Model Linier – significant | Linier |

Source: Print out of data tabulation result

The table 1 above shows that all effects among variables in the structural model are linear. Thus, the linearity in path analysis is completed.

**Model Feasibility Test, IHSG = β1 UB + β2 HM + ε**

**Coefficient Determination of IDX Composite ($R^2$)**

Test results in table 2, $R$ = 0.860 (86%), these result indicates a strong influence between dependent with independent variables because the result is more than 50%. While the value of Adjusted $R$ Square ($R^2$) shows 0.736 (73.6%), it means that 73.6% IDX Composite can be explained by the variation of the money supply and oil prices while the remaining 26.4% is explained by other variables not included in the model.

**Table 2. Model Summary**

| Model | R | $R$ Square | Adjusted $R$ Square | Std Error of the Estimate |
|---|---|---|---|---|
| 1 | .0860 | .740 | .736 | 692.5595 |

**T Test**

The result of t test in Table 3 shows the impact of each independent variable toward the dependent variable. The result of t test interpretation is as follow:

- Money Supply has a t value of 16.783 with a value of sig 0.000 <from = 5% which means the money supply has a significant influence on changes in IDX Composite.
- Oil Price has t value equal to 7,314 with value of sig 0.000 <from = 5% which means the oil price does not have significant impact to IDX Composite change.

**Table 3. Coefficient IDX Composite**

| Model | | Un-standardized B | Coefficient IDX Composite Std Error | IDX Composite Beta Coefficient Standardized | t | Sig |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 623.027 | 219.743 | | 2.835 | .005 |
| | UB | .001 | .000 | .773 | 16.783 | .000 |
| | HM | 17.951 | 2.454 | .337 | 7.314 | .000 |



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**Feasibility Test Model VP = β3 UB + β4 HM + β5 IHSG + ε**

**Coefficient Determination of IDX Composite ($R^2$)**

Test results in table 4, ***R*** of 0.800 (80%), this result indicates a strong influence between dependent with independent variables because it results more than 50%. While the value of Adjusted R Square (R2) shows 0.631 (63.1%), this means that 63.1% VP can be explained by variations of money supply, oil price and composite stock price index while the rest of 36.9% is explained by other variables not included in the model .

**Table 4. Model Summary**

| Model | R | R Square | Adjusted R Square | Std Error of the Estimate |
|---|---|---|---|---|
| 1 | .0800 | .640 | .631 | 1064688583000.00000 |

**T Test**

The result of t test in Table 5 shows the impact of each independent variable on the dependent variable. The result of t test interpretation is as follows:

- Money Supply has a t value of -4.431 with a value of sig 0.000 <from = 5% which means money supply has a significant influence on changes in VP.
- Oil Price has t value equal to .044 with value of sig 0.005 <from = 5% which means oil price do not have significant influence to change of VP.
- IDX Composite has a t value of 10309 with a value of sig 0.000 <from = 5% means that IDX Composite has significant influence on changes in VP.

**Table 5. Coefficient IDX Composite**

| Model | | Un-standardized B | Coefficient IDX Composite Std Error | IDX Beta Composite Coefficient Standardized | t | Sig |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 71674119080 | 34879362690 | | 2.055 | .042 |
| | UB | -466111.728 | 105204.051 | -.437 | -4.431 | .000 |
| | HM | 198294197.700 | 4521414144.00 | .003 | .044 | .005 |
| | IHSG | 1429478403.00 | 138660627.400 | 1.099 | 10.309 | .000 |

**Structural Model Summary**

The result summary of coefficient path IDX Composite testing is displayed in below table 6.

**Table 6. Direct Path Effect Co efficiency**

| Independent Variable | Dependent Variable | Coefficient Standard of IDX Composite | Sig | Decision |
|---|---|---|---|---|
| Money Supply | IDX COMPOSITE | 0.773 | 0.000 | Significant |
| Money Supply | VP | -0.437 | 0.000 | Significant |
| Oil Price | IDX COMPOSITE | 0.337 | 0.003 | Significant |
| Oil Price | VP | 0.003 | 0.000* | Significant |
| IDX COMPOSITE | VP | 1.099 | 0.000* | Significant |

Source: Print out of data tabulation result



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## RESEARCH RESULT ANALYSIS

1. To test H1-H2 conducted path analysis to determine whether there is influence of money supply variable (UB) and oil price (HM) to IDX composite. The results are shown in Table 7

**Table 7. Hypothesis Testing (H1-H2)**

| No | Model | Hypotheses | Testing Result | Regression co efficiency ($\beta$) & Sig value |
|---|---|---|---|---|
| 1 | UB→IDX Composite | H1: The money supply significantly affect the IDX Composite | The money supply significantly affect the IDX Composite | B = 0,773<br>Sig = 0,000 |
| 2 | HM→IDX Composite | H2: The oil price significantly affect IDX Composite | The oil price significantly affect IDX Composite | B = 0,337<br>Sig = 0,000 |

Based on table 5, regression model is formulated and analyzed as below:

IDX Composite = 0.773 UB + 0.337 HM

**The Influence of Money Supply toward the IDX Composite**

The coefficient money value of IDX Composite (UB) 0.001 with significant 0,000 <0.05, UB positive coefficient IDX Composite is positive value which means the higher UB, the higher IDX Composite. While the value of sig 0,000 <0,050, it means that UB has a significant effect on IDX Composite. This explains that the increase of the money supply affect the IDX Composite. Thus, the hypothesis that money supply has a significant effect on ICI Composite is proven.

**Influence of Oil Price toward IDX Composite**

The coefficient value of oil price IDX Composite (HM) is 17.951 with significant 0.000 <0.05, statistically HM coefficient IDX Composite positive value means the greater the UB the higher IDX Composite. The value of sig is 0.000 <0,050 which means that HM give significant effect on IDX Composite. It explains that the increase of oil price has a significant effect on IDX Composite. Thus, the hypothesis that oil price has a significant effect on IDX Composite is proven.

2. To test H3-H5, path analysis is conducted to determine whether there is influence of money supply variable (UB), oil price (HM) and IDX composite on trading volume (VP) The results are shown in Table 8.

**Table 8. Hypothesis Testing H3-H5**

| No | Model | Hypotheses | Testing result | Coefficient Regression ($\beta$) & Sig value |
|---|---|---|---|---|
| 1 | UB→VP | H3: the money supply significantly affect VP | the money supply significantly affect IDX COMPOSITE | B = -,437<br>Sig = 0,000 |
| 2 | HM→VP | H4: the oil price significantly affect VP | the oil price significantly affect IDX COMPOSITE | B = 0,003<br>Sig = 0,005 |
| 3 | IDX COMPOSITE → VP | H5: the composite index significantly affect VP | the composite index significantly affect IDX COMPOSITE | B = 10.309<br>Sig = 0,000 |

Based on the table 8, the regression model is formulated and analyzed as below:

VP= -, 437 UB + 0,003 HM + 10.309 IDX Composite

**The Effect of Money Supplied toward Composite Trading Volume**

The coefficient value of money supply is (UB) -0.437 with significant 0,000 <0.05. Statistically, UB value is negative which means that the greater the UB the lower the VP. Meanwhile, the value of sig is 0,000 <0,050 which means UB has a significant effect on VP. This explains that the increase of the money supply affects the VP. Thus, the hypothesis that money supply has a significant effect on the VP is proven.

**The Influence of Oil Price toward IDX Composite**

The coefficient value of oil price (HM) is 0.003 with 0.000 <0.05 significance. HM is statistically positive value which means the greater the HM the higher the VP. Meanwhile, the value of sig is 0.000 <0.050 which means HM significantly affects VP. This explains that the increase of oil price significantly affects the VP. Thus, the hypothesis that the price of oil significantly affects the VP is proven.

**The Influence of IDX Composite on Composite Trading Volume**

The value of IDX composite is 1.099 with 0,000 <0.05 significance. Statistically, IDX Composite is positive value meaning that the greater IDX Composite the higher VP. On other sides, the value of sig is 0.000 <0.050. It means IDX Composite significantly affect VP. This explains that the rise of IDX composite significantly affects the VP. Thus, the hypothesis that the IDX composite has a significant effect on the VP is proven. The calculation results can be presented in the picture below, as follows:

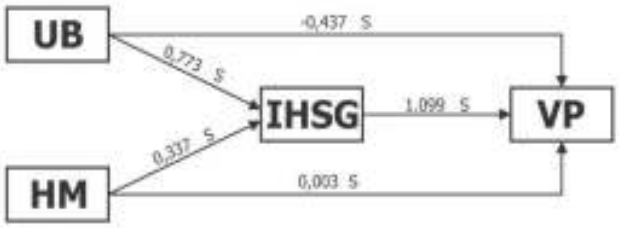


Figure 1: The result of path analysis counting

3. To test H6-H7 conducted path analysis to find out IHSG mediate influence of money supply variable (UB) and oil price (HM) to trading volume (VP) Result shown in Table 9

**Table 9. The Pathway Influences**

| *Independent Variable* | *Intervening Variable* | *Dependent Variable* | Coefficient Standardize | Decision |
|---|---|---|---|---|
| Money supply | IDX Composite | VP | 0.849527 * | Significant |
| Oil price | IDX Composite | VP | 0.370363** | Significant |

Note: *) 0.773 x 1.099 = 0.849527, **) 0.337 x 1.099 = 0.370363

**The IDX Composite mediates the effect of Money Supply on Composite Trading Volume**

The money supply has a significant effect on trading volume with -0.437 of co efficiency. It also has a significant effect on the IDX composite of 0.773 value. On other sides, the effect of



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IDX Composite on stock trading volume is significantly influenced by 1,099. Therefore, the IDX Composite mediates significantly the effect of money supply on the trade volume of 0.849527. Thus, the hypothesis that the IDX composite mediates the effect of money supply on composite trading volume is acceptable.

## CONCLUSION

Based on Path Analysis Test above, this study can be summarized as the following points.

1. Money supply and oil price have a significant effect on the change of IDX Composite in Indonesia Stock Exchange.
2. Money supply, oil price and composite stock price index significantly affect the Volume of Stock Trading at Indonesia Stock Exchange.

Money supply and oil price affect the volume of stock trading through the IDX Composite in Indonesia Stock Exchange.



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