

Why A One-Way Relationship Between Capital Market and Foreign Exchange Market in Indonesia?

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ABSTRACT

This study aims to examine the causal relationship between the stock market and the foreign exchange market in Indonesia. This study uses the value of the IDX Composite (IHSG) as an indicator of the stock market and the middle value of the exchange rate of IDR to USD as an indicator of the money market. This study uses the period 2008-2018 with a daily and monthly time period. Data collection uses secondary data by documentation techniques. Tests of data performed are stationary test, optimum Lag test, cointegration test, and causality test. The results of this study indicate the existence of one-way causality from the value of the IDX Composite (IHSG) to the exchange rate of the rupiah to the US dollar. IDX Composite (IHSG) will affect the movement of the exchange rate of the rupiah to US dollar. This is because the value of the IDX Composite (IHSG) is still used as one of Indonesia's economy indicator.

Keywords: *stock market, foreign exchange market, causality test*

1. INTRODUCTION

The depreciation problem of local currency exchange rates against foreign currencies causes shocks to prices in the market. The real market that trades goods for daily needs as well as the financial market that trades securities for business capital will be affected by the depreciating of the currency.

The financial market is the meeting point between the supply and demand for financial assets (Sunariyah, 2011). The financial market sells securities on the money market and long-term securities on the capital market. Apart from these two markets, there is a currency market that trades the currency of a country against the currencies of another country (currency pairs) which involves the major financial markets in the world for 24 hours non-stop (Serfianto, et al, 2013). Companies or individuals will buy or sell securities on the financial market in accordance with the objective of entering the financial market. Companies and individuals can be parties with excess capital who will buy securities from the financial market. The second party can also be the shortage party who will offer securities to raise funds.

October 2018 has been a month for Indonesia's financial markets for the past decade. At the end of

September 2018, the rupiah exchange rate against the United States Dollar reached IDR 14,900 and continued to weaken in October 2018 to reach IDR 15,200 per US dollar. At the same time, the performance of the IDX Composite in 2018 also experienced the worst condition for 3 years. The depreciation of the currency exchange rate that occurred in September 2018 caused the IDX Composite Index to decline (Kontan, 2018).

Several studies on the relationship between the capital market and the money market have shown mixed results. Sunariyah (2011) argues that the decline in the rupiah exchange rate against foreign currencies has a negative effect on the economy and the capital market. The weakening movement in the exchange rate against the US dollar was in line with the decline in the IDX Composite Index. A weaker exchange rate will make foreign investors choose to withdraw their investment and switch to another place with a more stable currency exchange rate.

A weakening of the currency exchange rate will cause the central bank to raise interest rates to restore the value of the currency. An increase in interest rates will make investors prefer to put their funds in banks rather than investing in the capital market where the risk of loss is

greater. This situation will in turn cause the capital market to experience a decline in transactions and automatically the IDX Composite value will decline as well. The weakening of the currency exchange rate will also affect the costs borne by the company, which in turn will reduce the company's financial performance.

Conversely, currency exchange rate movements are influenced by interest rates, inflation, and political or economic conditions. Therefore, the economic condition of a country can also be seen from the condition of the country's capital market. Fahmi (2012) states that the capital market is an important element and a measure of a country's economic progress. Serfianto (2013) states that the IDX Composite Index (IHSG) can also reflect the economic conditions of a country. The movement of the IDX Composite can affect the exchange rate of the domestic currency. The increase in the value of the IDX Composite will make investors willing to place their funds in the capital market. The willingness of investors to place their funds on the capital market is due to the improving economic conditions of a country. This condition will create an inflow of funds and increase the demand for domestic currency. Increased demand for domestic currency will result in a stronger exchange rate of the domestic currency against foreign currencies.

Previous research evidence also confirms that there is a relationship between the capital market and the foreign exchange market. Nurrohm (2013) found different results, where there is a one-way relationship between the exchange rate and the IDX Composite for the period 1999-2012. Pranyoto (2017) found a long-term and short-term relationship between exchange rates and stock returns of companies listed on the Indonesia Stock Exchange. Furthermore, Pasaribu (2013) concluded that foreign exchange returns have an effect on capital market returns. Giani and Dalimunthe (2014) concluded that there is no relationship between the Indonesian stock price index and the Rupiah-US Dollar exchange rate in the long term. Meanwhile, in the short term, there is a relationship between the return on the IDX Composite and the Rupiah-US Dollar exchange rate.

2. THEORETICAL REVIEW

The capital market is a place where demand and supply meet for long-term financial instruments (more than one year) (Samsul, 2015). According to Fahmi (2012), the capital market is a place where various parties, especially companies, sell stocks and bonds as additional funds to strengthen the company's capital. According to Law No. 8 of 1995 on Capital Market, the definition of the capital market is the activity concerned in public offerings and securities trading, public companies related to the securities they issue, as well as institutions and professions related to securities. In essence, the capital market is a place for trading long-term financial instruments (more than one year). The capital market has an important role for the economy of

a country because the capital market carries out two functions, namely as a means for business funding or as a means for companies to obtain funds from investors and channel funds for business development, as well as a means of investing in financial instruments. such as stocks, bonds, mutual funds, and others. Thus, the public can place the funds they own according to the characteristics of the benefits and risks of each instrument (idx.com).

The foreign exchange market is a mechanism by which one currency is exchanged for another (Joesoef, 2008). According to Serfianto (2013), the foreign exchange market is a market that trades the currency of a country against the currencies of another country, which involves the major money markets in the world for 24 hours non-stop. Meanwhile, according to Eiteman, et al (2010), the foreign exchange market provides a physical and institutional structure in which money from one country is exchanged for another country's currency, the exchange rate between currencies is determined, and foreign exchange transactions are physically completed. In essence, the foreign exchange market is a market that trades the currency of one country against the currency of another country. Fluctuations in currency exchange rates are usually caused by changes in GDP, inflation, interest rates, budget design, and trade deficits or surpluses, mergers and acquisitions and other macroeconomic conditions (Serfianto, 2013).

Sunariyah (2011) states that the decline in the rupiah exchange rate will have a negative impact on the economy and capital markets. The weakening of the rupiah exchange rate against the US dollar will cause a high inflation rate and cause the money supply in society to increase. The central bank will raise interest rates to stabilize the rupiah exchange rate. The increase in interest rates carried out by the central bank will cause investors to prefer to save their funds in a bank that has a lower risk than to invest their funds in the capital market. This situation will cause an outflow of funds from the capital market and will reduce the IDX Composite value.

Another explanation is that it concerns the costs to be borne by the company. The decline in the exchange rate will cause companies to bear higher costs than before. The company in question is a company whose raw materials come from abroad (import) and sell it domestically. Additional costs borne by the company will cause company profits to decrease. A decrease in profit will make investors sell their shares and transfer them to shares of other companies that are more profitable or transfer their funds into savings in banks. This will decrease the JCI value. Palatte's (2012) research concluded that there is a significant effect of exchange rate changes on the IDX Composite. Research by Otorima (2016) and Pamungkas (2018) also concluded that the rupiah exchange rate had a significant negative effect on the IDX Composite.

IDX Composite will have a negative effect on the exchange rate. This means that an increase in the IDX Composite will reduce the currency exchange rate (currency depreciation) and vice versa. The factors that influence the exchange rate are interest rates, inflation, and political and economic conditions in each country. The IDX Composite can influence the exchange rate because the IDX Composite can be used as a variable for a country's economic conditions. Serfianto (2013) which states that the IDX Composite can be used as an indicator of a country's economic condition. This means that the decline in the IDX Composite value indicates that the country's economic condition is experiencing a decline. On the other hand, the increase in the IDX Composite value indicates that the country's economic conditions are improving. Another explanation is that by increasing share prices, investors will be willing to invest in a country's capital market. Capital inflows will cause the exchange rate to decrease (currency appreciates).

Theoretically and empirically, there is a relationship between the IDX Composite Index and the rupiah exchange rate against the United States dollar. Therefore, the authors hypothesize in this study that the two variables will have a causal (reciprocal) relationship. Research by Nurrohim (2013) and Saputra (2015) concluded that there is a causal relationship between the US dollar exchange rate and the IDX Composite Index. Based on this description, the hypothesis used in this study can be formulated as follows: H1: It is hypothesized that there is a reciprocal relationship between the IDX Composite and the rupiah exchange rate against the US dollar.

The theoretical framework can be seen in Figure 1.

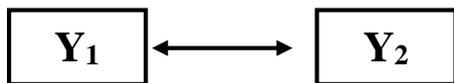


Figure 1 Theoretical Framework

Note:

Y_1 = IDX Composite

Y_2 = Exchange value IDR to USD

↔ = Causality Relationship

3. METHOD

This research is an explanatory research, which will explain the phenomenon of the relationship between variables from the data that has been collected. The variables used in this study are the capital market and foreign exchange market. The capital market is measured by the IDX Composite (IHSG), while the foreign exchange market is measured by the IDR exchange rate against the US dollar. The type of data used in this research is secondary data, namely the type of data obtained from documents or publications from internal or

external parties of the company. This data is quantitative in nature and is in the form of monthly and daily time-series data for the period 2008-2018, resulting in 120 months and 2644 days of observational data. The collection of research data is taken from reliable sources. IDX Composite (IHSG) data is obtained from the yahoo finance page (finance.yahoo.com). Meanwhile, data on the IDR exchange rate against the US dollar was obtained from the official website of Bank Indonesia (www.bi.go.id). The data were processed using Eviews 9 software. This study used Granger causality test analysis to determine the reciprocal relationship between the variables of the capital market and the foreign exchange market.

4. RESULT AND DISCUSSION

Descriptive Statistic

Table 1 shows that the highest value from the daily IHSG data is IDR 6,689 and the lowest is IDR 1,111. The highest value from the monthly IHSG data is IDR 6,585 and the lowest value is IDR 1,255. Both data have an average daily IHSG of IDR 4,198 and a monthly IHSG of IDR 4,201. The trend from the IHSG data tends to move up. This indicates that stock value tends to increase

Table 1. Descriptive Statistic IDX Composite and Exchange Rate of IDR to USD

	Mean	Median	Max	Min	Std. Dev.
IHSG (Daily)	4198.1	4410.5	6689.0	1111.0	1340.3
IHSG (Monthly)	4201.3	4381.5	6585.0	1255.2	1346.5
Exchange rate (Daily)	11261.4	11314.5	15235.0	8460.0	2000.4
Exchange rate (Monthly)	11273.3	11356.6	15178.8	8532.0	1999.2

Based on Table 1, the highest value of daily exchange rate data is Rp 15,253/USD and the lowest value is Rp 8,460/USD. Meanwhile, the highest value of the monthly exchange rate data is Rp 15,178/USD and the lowest value is Rp 8,532/USD. The average monthly exchange rate was Rp 11,261/USD and the average daily rate was Rp 11,273/USD. The data trend of the rupiah exchange rate against the USD tends to move appreciate. This indicates that the rupiah exchange rate is getting depreciate

Stationary Test

The stationary test is a mechanism to test whether the data to be analyzed is stationary or not. The requirement of the causality test is that the analyzed data must be stationary at the same level. The stationary test in this study used the Augmented Dicky Fuller (ADF) test. The following table 2 shows the results of the stationary test from the IHSG data and the IDR exchange rate to USD.

Table 2 Stationary Test Results at Several Level

		t-Statistic	Prob.
IHSG (daily)		-0.523116	0.8443
HSG (monthly)		-0.693250	0.8438
Exchange Rate (daily)		-0.462350	0.8959
Exchange Rate (monthly)		-0.749662	0.8292

(Source: Eviews Results)

The results of the stationary test at the several level show that all the data being tested are not stationary. This can be indicated by a probability value greater than 5% (0.05). Data that is not stationary causes the data to be tested again for stationary at the first difference level.

Table 3 Result of Stationery Test at *First Difference* level

Information	t-Statistic	Prob.
IHSG (daily)	-32.21819	0.0000
HSG (monthly)	-7.538109	0.0000
Exchange Rate (daily)	-39.28995	0.0000
Exchange Rate (monthly)	-8.818367	0.0000

(Source: Eviews Results)

The results of the stationary data test at the first difference level indicate that all data are stationary. This is indicated by a probability value that is smaller than 5% (0.05). The data used is stationary at the same level.

Optimum Lag Test

The optimal lag test is used to determine the optimal lag variable. The choice of lag length is very important because it can affect the acceptance or rejection of the null hypothesis, and can lead to estimation bias and result in inaccurate predictions. The determination of the optimal lag length in this study uses several criteria such as the Schawartz Information Criteria (SIC), Akaike Information Criterion (AIC), Hannan-Quin Criteria (HQ), Final Prediction Error (FPE), and the Likelihood Ratio (LR).

Table 4. The Result of Optimum Lag Test at Monthly Data

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-45453.28	NA	3.92e+12	34.67222	34.67670	34.67384
1	-28539.11	33789.62	9798967.	21.77354	21.78698	21.77841
2	-28518.81	40.53741	9677834.	21.76110	21.78350	21.76921
3	-28500.32	36.87986	9571462.	21.75005	21.78140	21.76141
4	-28481.66	37.17930*	9465074.*	21.73887*	21.77918*	21.75347*

Table 4 shows the optimum lag test results for daily data and Table 5 shows the optimum lag test results for monthly data.

Table 5. The Result of Optimum Lag Test at Monthly Data

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2218.364	NA	4.00e+12	34.69318	34.73775	34.71129
1	-1697.501	1017.310	1.24e+09	26.61720	26.75089	26.67152
2	-1682.194	29.41792	1.04e+09	26.44053	26.66335*	26.53107*
3	-1679.599	4.905736	1.07e+09	26.46249	26.77443	26.58923
4	-1673.788	10.80602*	1.04e+09*	26.43418*	26.83525	26.59714

The results of the optimum lag test show that the lag that is most included in the criteria proposed is lag 4, both on daily data and monthly data. These results will be used as a benchmark in causality testing at a later stage.

Based on Table 6 and Table 7, it can be seen that there is no long-term balance in daily data or monthly data. This is indicated by a probability value that greater than 5% (0.05).

Cointegration Test

The cointegration test is a test to see the long-term balance. The cointegration test in this study uses the Johansen Cointegration Test. We can see the results of daily and monthly data cointegration tests in Table 6 and Table 7

Table 6. The Result of Cointegration Test for Daily

Hypothesized	Trace		0.05	
No. of CE(s)	Eigenvalue	Statistic	C.R	Prob.**
None	0.001592	4.266124	15.49471	0.8809
At most 1	3.62E-05	0.094855	3.841466	0.7581

Source: Eview data

Table 7. The Result of Cointegration Test for monthly

Hypothesized	Trace		0.05 Critical	
No. of CE(s)	Eigenvalue	Statistic	Value	Prob.**
None	0.059523	8.007575	15.49471	0.4646
At most 1	0.000229	0.029751	3.841466	0.8630

Source: Eview data

Causality Test

The Granger causality test is a data test to determine the reciprocal relationship between two variables. This study uses the Granger Causality Test in testing the data

causality test. The results of daily and monthly data causality tests can be seen in Table 8 and Table 9.

Table 8 shows that there is a one-way causality relationship from the IDX Composite (IHSG) to the middle rate on daily data. This can be seen from the probability value (4.E-10) which is smaller than 5% (0.05). Table 8 also shows that there is no relationship between the middle exchange rate and the IDX Composite (IHSG) value and the probability value (0.1369).

Table 8. The Result of Causality Test for Daily Data

Null Hypthosis	Obs	F- Stat	Prob
Exchange Rate_Daily does not Granger Cause IHSG_Daily	2622	1.74705	0.1369
IHSG_Daily does not Granger Cause Exchange Rate_Daily		12.6191	4.E-10

Source: Eview data

The same results also occurred in monthly data. Based on Table 9, there is a one-way causality from the IDX Composite (IHSG) to the middle rate. This can be seen from the probability value (0.0002). Meanwhile, the monthly data on the causality test of the middle exchange rate to the IDX Composite (IHSG) had no relationship because of the probability value (0.4429).

Table 9. The Result of Causality Test for Monthly Data

Null Hypthosis	Obs	F- Stat	Prob
Exchange Rate_Monthly does not Granger Cause IHSG_Daily	128	0.94078	0.4429
IHSG_Monthly does not Granger Cause Exchange Rate_Monthly		5.97972	0.0002

Source: Eview data

The results of the causality test show that there is a one-way relationship from the IDX Composite (IHSG) to the rupiah exchange rate against the US dollar, both daily and monthly data. This means that the fluctuation of the IDX Composite (IHSG) value will affect the movement of the rupiah exchange rate against the US dollar. The increase in the IDX Composite (IHSG) value will make investors invest in stocks in Indonesia. This condition will result in an appreciation of the rupiah against foreign currencies due to an increase in demand for rupiah from these transactions. On the other hand, a decrease in the IDX Composite (IHSG) value will make investors lose money and in turn will divert their funds abroad. This action will depreciate the value of the rupiah currency

due to the increase in the circulation of the rupiah from the sale of company shares. Meanwhile, the rupiah exchange rate against the US dollar did not affect the movement of the IDX Composite (IHSG), both daily and monthly data.

The influence of the IHSG value on the rupiah exchange rate confirms the statement that the IDX Composite (IHSG) value can be used as an indicator of a country's economic condition (Serfianto, 2013). Furthermore, investors will tend to choose to invest their funds in countries with good economic conditions because the risk of losing is less than investing their funds in countries with poor economic conditions. Investors will tend to avoid risk as much as possible and get the maximum return (Markowitz, 1952). This means that investors will choose stock portfolios with high returns and the smallest risk. So that an increase in the IDX Composite (IHSG) value will attract investors to put their funds and make the currency depreciate, and vice versa. The condition of the capital market, which has a large dependence on foreign investors, makes clear the relationship that the IDX Composite (IHSG) value affects the middle exchange rate of the IDR against the US dollar.

5. CONCLUSIONS AND SUGGESTIONS

Conclusion

The conclusions of this research include:

1. The value of the IDX Composite in 2008-2018 tends to appreciate. Meanwhile, the exchange rate IDR to USD in 2008-2018 tended to depreciate.
2. There is a one-way causality relationship between the IDX Composite and the exchange rate of IDR to USD. The IDX Composite (IHSG) affects the exchange rate IDR to USD, but the exchange rate IDR to USD does not affect the IDX Composite (IHSG).

Suggestions

Based on the results of the research above, we suggest several things including:

1. The next researcher should be able to extend the observation time and add variables that are tied to the capital market and money market in order to broadly and accurately describe the relationship between the IDX Composite and the exchange rate of IDR to USD.
2. Investors should study the information more deeply related to the IDX Composite value and the exchange rate IDR to USD as material for consideration in investment decisions in the capital market or money market. This assessment is related to the inconsistency in the relationship between the exchange rate of IDR to USD and the value of the

IDX Composite. Investors must examine the causes and impacts arising from the fluctuation of the exchange rate of IDR to USD and the value of the IDX Composite so as to anticipate the occurrence of investment losses in the capital market and money market.

3. The government as the regulator should examine more deeply the causes of the depreciation of the IDR to USD before making policies relating to the rupiah exchange rate against the US dollar and the IDX Composite value in order to create financial sector instability.

REFERENCES

- [1] Eiteman, D. K., dkk. 2010. *Manajemen Keuangan Multinasional* (Jilid 1). Edisi Kesebelas. Terjemahan Gina Gania, MBA. Jakarta: Erlangga.
- [2] Fahmi, I. 2012. *Pengantar Pasar Modal Panduan bagi para Akademisi dan Praktisi Bisnis dalam Memahami Pasar Modal Indonesia*. Banda Aceh: ALFABETA
- [3] Giani, Tammi H. & Dalimunthe, Zuliani. 2014. Hubungan antara Indeks Harga Saham dan Nilai Tukar Rupiah-Dollar Amerika Serikat Periode 2001-2013: Dengan Kerangka Kointegrasi dan Hubungan Kausalitas. Dari www.lib.ui.ac.id.
- [4] Joesoef, J. R. 2008. *Pasar Uang dan Pasar Valuta Asing*. Jakarta: Salemba Empat.
- [5] Markowitz, H. 1952. Portofolio Selection. *The Journal of Finance* Vol. 7, No. 1. (Mar., 1952), pp. 77-91. www.math.ust.hk.
- [6] Nurrohim, M. 2013. Analisis Kausalitas Volatilitas Nilai Tukar Mata Uang dengan Kinerja Sektor Keuangan dan Sektor Rill. *Economics Development Analysis Journal* 2 (4) (2013). Dari journal.unnes.ac.id/sju/index.php/edaj.
- [7] Otorima, M. & Kesuma, A. Pengaruh Nilai Tukar, Suku Bunga, Inflasi, Jumlah Uang Beredar dan PDB Terhadap Indeks Harga Saham Gabungan (IHSG) Periode 2005-2015. *Jurnal Terapan Manajemen dan Bisnis* (2/2) 2016. Dari media.neliti.com.
- [8] Palatte, M. H. & Akbar. 2014. Pengaruh Nilai Tukar Mata Uang dan Tingkat Suku Bunga Terhadap Perkembangan Indeks Harga Saham Gabungan di Bursa Efek Indonesia Periode 2009-2013. *Jurnal Manajemen* Vol.01 No.02. journal.stiem.ac.id.
- [9] Pamungkas, B. C. & Darmawan A. 2018. Pengaruh Nilai Tukar USD dan Bursa Asean Terhadap Indeks Harga Saham Gabungan (IHSG) (Studi pada Bursa Efek Indonesia Periode 2014 – 2016) *Jurnal Administrasi Bisnis (JAB)* Vol. 60 No. 1. administrasibisnis.studentjournal.ub.ac.id.
- [10] Pasaribu, Rowland B. F. 2013. Hubungan Valuta Asung dan Pasar Saham: Pendekatan Kausalitas dan Kointegrasi. *Corporate Finance Working Papers No. 001*. www.researchgate.net.
- [11] Pranyoto, E. 2017. Analisis Kointegrasi dan Kausalitas *Engel Granger* Tingkat Suku Bunga Simpanan, Perubahan Nilai Tukar Rp/Usd dan Return Pasar Saham di Bursa Efek Indonesia. *Jurnal Bisnis Darmajaya, Vol.03. No.02*.
- [12] Purbowisanti, R. 2016. Hubungan Kausalitas Antara Nilai Tukar Dengan Indeks Harga Saham Syariah: Studi Pada Indonesia Dan Malaysia (Periode Januari 2006 – Mei 2016). Dari <http://digilib.uin-suka.ac.id>.
- [13] Samsul, M. 2015. *Pasar Modal & Manajemen Portofolio*. Edisi Kedua. Surabaya: Erlangga.
- [14] Saputra, R. A. & Harjito, D. A. 2015. Hubungan Kausalitas Antara Nilai Tukar dengan Harga Saham dan Inflasi di Indonesia. *Jurnal Manajemen Bisnis Indonesia* Vol. 3, Nomor 1. Dari fmi.or.id.
- [15] Serfianto, dkk. 2013. *Buku Pintar Pasar Uang & Pasar Valas*. Jakarta: PT. Gramedia Pustaka Utama.
- [16] Sunariyah. 2011. *Pengantar Pengetahuan Pasar Modal*. Edisi Keenam. Yogyakarta: Unit Penerbit & Percetakan Sekolah Tinggi Ilmu Manajemen YKPN.
- [17] *Undang-Undang Republik Indonesia nomor 8 Tahun 1999 tentang Pasar Modal*. (Online). (www.ojk.go.id).
- [18] Arief, T. “Menjadi Terbaik Kedua di Asia, Ini Pencapaian Kinerja IHSG Sepanjang 2018”. bisnis.com. Accessed on February 2019.