Analysis of Economic Opening on Rupiah Exchange Rate on United States Dollars (2008-2018)

Sri Wahyuni
Department of Economics, Postgraduate, Medan State University
Medan, Indonesai
Email: sriw99$&@gmail.com

***Abstract*— The phenomenon that often occurred in connection with the exchange rate fluctuations in currency values is uncertain. Changes in behavior rupiah exchange rate against the U.S. dollar that occurred in Indonesia are affected by economic fundamentals and openness factors. The aim of this research is to analyze the influence of inflation, interest rate, openness, and exchange rate volatility Rp/USD to the exchange rate of rupiah exchange rate against the U.S. dollar. This research used Error Corection method ECM) and Generalized Autoregressive Conditional Heteroscedasticity (GARCH) method. This research used three months data started at the first three months in 2008 until the fourth three months in 2018.According to the result of partial test results (z test) indicates that inflation, interest rate, openness and exchange rate volatility Rp/USD positive and significant effect on rupiah exchange rate against the U.S dollar partially. While the simultaneous test (F test) indicates that inflation, interest rate, openness and exchange rate volatility Rp/USD has significant effect on rupiah exchange rate against the U.S dollar simultaneously.**

Keywords: Inflation, interest rate, openness, exchange rate volatility Rp/USD, rupiah exchange rate against the U.S dollar

I. INTRODUCTION

The development of the world economy today is marked by the increasingly integrated economy of one country with another. Supported by the rapid development of information and communication technology on world financial markets, causing capital movements to move faster in very large amounts following the economic and policy developments of a country. Indonesia has experienced several changes in the exchange rate system along with the changing period of the Republic of Indonesia's state leadership. Changes in the exchange rate system in Indonesia are due to the government setting a policy of applying the exchange rate system that is adjusted to the conditions of Indonesia's macroeconomic conditions.

In August 1970 - November 1978 Indonesia established a fixed exchange rate system. Determination of this exchange rate system by directly linking the rupiah exchange rate with the US dollar. The enactment of this system is based on the strength of the balance of payment position during this period. The balance of payments is strong because the oil and gas sector has a large role in export foreign exchange earnings which is supported by an increase in crude oil prices (the golden age of oil).

In November 1978 - August 1997, a fixed exchange rate system was changed to a managed floating exchange rate system so that foreign exchange reserves obtained from exports could be traded freely and showed the flexibility of the rupiah exchange rate against US dollars within certain limits. In August 1997, the government decided to change the managed floating exchange rate system to a free floating exchange rate system.

Changes in the behavior of the rupiah exchange rate against the US dollar are heavily influenced by many factors both fundamental and non-fundamental factors. Fundamental factors or economic factors that can affect are inflation rates, interest rates, money supply, capital inflows and outflows, the position of Indonesia's international balance of payments and monetary policies implemented by the government. While non-fundamental factors include psychological factors, socio-political factors and state security. In addition to fundamental and non-fundamental factors, economic openness can also affect the movement of the rupiah against the US dollar.

In connection with the exchange rate, a high inflation rate in a country will cause the prices of domestically produced goods to become more expensive, so they will be less competitive in the international market. When the level of domestic inflation increases (relative to foreign inflation), the demand for imports rises so that the need for foreign currencies (US dollars) increases so that the exchange rate of the rupiah against the US dollar weakens or depreciates. When the domestic inflation rate decreases (relative to foreign inflation) causes demand for imports to fall so that the need for foreign currencies (US dollars) decreases so that the exchange rate of the rupiah against the US dollar strengthens or appreciates.

When inflation rises the exchange rate of IDR / USD tends to strengthen or appreciated can be seen in the second quarter of 2017 inflation of 3.95 with an exchange rate of Rp 9,148.36 per USD and the third quarter of 2010 when inflation was 4.70 percent with an exchange rate of IDR 8,975.84 per USD. When inflation declines, the exchange rate of IDR / USD tends to weaken or depreciates as seen in the first quarter of 2018 when inflation is 1.03 percent with an exchange rate of IDR 9,173.73 per USD.

Interest rates are one of the factors that affect exchange rates. Changes in the interest rate of a currency will have an

impact on changes in demand for the currency, both from domestic and foreign investors. When the interest rate of the domestic currency decreases, capital will leave the country which will cause the domestic currency to weaken or depreciate. When the interest rate of the domestic currency increases, capital will enter the country which will cause the domestic currency to strengthen or appreciate

Interest rates are calculated based on the theory of interest purchasing power parity. From the table above we can see depreciation or weakening of the exchange rate of IDR / USD when interest rates increase. This can be seen in the third quarter of 2013. Conversely, an appreciation or a stronger exchange rate of Rp / USD occurs when interest rates decline. This can be seen in the 2013 quarter I. Index of the degree of economic openness (openness) can affect the exchange rate. The more open a country is, the more vulnerable the exchange rate is due to trade liberalization. The greater the flow of capital or foreign exchange into a country, the country's exchange rate is appreciated The exchange rate volatility of IDR / USD can affect the exchange rate. Previous exchange rates will be used to form expectations about exchange rate changes. Volatility not only measures change but rather shows the risk factors of a currency [1].

The more sensitive the movement (volatile) of the currency shows the risk of the currency is getting bigger. Volatility is calculated using the standard deviation of the nominal exchange rate. Increased volatility has several significant impacts. One of the impacts has to do with the rupiah. This increase resulted in a very weak rupiah exchange rate. Increased volatility itself is a result of the continuous withdrawal of global funds, especially in developing countries. In addition, the improving economy of the United States and the prospect of rising interest rates in the country are a trigger for the weakening of the exchange rate.

II. METHOD AND RESULT METHOD

The exchange rate is the price level agreed by residents of the two countries to trade with each other [17]. The price of one currency in another (Mishkin, 2011: 107). According to Nopirin (2013: 163) the exchange rate is the exchange between two different currencies, so the ratio or value between the two currencies will get a comparison. According to Salvatore (1997: 10) the exchange rate is the price of a currency against other currencies.

The exchange rate is divided into real exchange rate (real exchange rate) and nominal exchange rate (nominal exchange rate). The nominal exchange rate (nominal exchange rate) is the relative price of the currencies of two countries [17]. For example, if the exchange rate between the rupiah and the US dollar is 13,000 per dollar, it can exchange 1 dollar for 13,000 rupiah on the money market. Real exchange rate (eal exchange rate) is the relative price of goods between two countries [17. If written in the form of mathematical equations as follows (Mankiw, 2006: 130):

$$\epsilon = e \times (P/P^*)$$

Inflation is the process of increasing general prices of goods continuously (Nopirin, 2013: 25). According to Mishkin (2011: 339) inflation is a condition of a continuous increase in the price level. Inflation is an increase in prices of goods that are general and continuous (Rahardja and Manurung, 2008: 359). Inflation is the process of increasing general prices continuously (Putong, 2013: 417). The result of an increase in inflation in general is a decline in people's purchasing power because in real terms the level of income also decreases. So, for example inflation that occurred in the year concerned rose by 5 percent while income tended to remain constant, it means that in real terms income decreased by 5 percent which would relatively reduce purchasing power by 5 percent as well (Iskandar Putong, 2013: 417)

The purchasing power parity theory forms the basis of an exchange rate theory, and explains the basic foundation behind the movement of the exchange rate. The purchasing power parity theory, in essence, explains that exchange rate movements between the currencies of two countries are sourced from the price level of each country. In PPP theory, the law of one price is known. One price proposition states that in competitive markets that are free of transportation costs and official barriers to trade (eg tariffs), identical goods (of the same kind) must be sold in various countries at the same price (if the price is expressed in currency units same money).

Interest rates according to Mishkin (2011: 4) are loan costs or prices paid for these loan funds. The interest rate is the price of the loan (Sunariyah, 2006: 80). Fabozzi et al (1999: 204) [7] interest rates are prices paid by borrowers to lenders for the use of resources over a certain time interval. Samuelson and Nordhaus (2004: 190) interest rate is the amount of interest paid per unit of time which is referred to as a percentage of the amount borrowed.

Changes in the BI rate can affect the exchange rate. This mechanism is often referred to as the exchange rate channel. For example, a high increase in the BI rate while interest rates abroad will continue to encourage an increase in the difference between interest rates in Indonesia and interest rates abroad. With the widening of interest rates, it encourages foreign investors to invest capital in financial instruments in Indonesia such as the BI rate because it will get a higher rate of return. This foreign capital inflows will in turn encourage appreciation of the rupiah. The increasingly global tendency of the world will cause a country's economy to be increasingly integrated with the world economy, in accordance with the degree of openness of the country concerned. The same thing happened in Indonesia. As a result of an increasingly open economy, the Indonesian economy is increasingly influenced by world economic conditions. The degree of openness will have an impact on changes in exchange rates that should be maintained stability (Nawatmi et al, 2012). The increasing degree of openness will affect a country's exchange rate [6].

The index of the degree of economic openness (openness) is defined as the percentage of foreign trade to GDP (Sergi et

al, 2007: 51). Leung (2010: 207) [16] index of the degree of economic openness (openness), namely total exports and imports of goods and services as a percentage of GDP. Jaramillo et al. (2006: 24) [15] index of the degree of economic openness (openness) is defined as exports plus imports of GDP. The index of the degree of economic openness (openness) is defined as the amount of imports and exports of goods and services (from the balance of payments statistics) divided by GDP (IMF, 2003).

The index of the degree of economic openness (openness) is a trade mechanism that dominates countries in carrying out their international trade activities or in this case exports and imports. Through economic openness (opennes), the state is given the maximum opportunity in all sectors of its economy to specialize in the things that are most mastered, with the aim of making citizens around the world more prosperous.

Exchange rate volatility is an exchange rate disorder that can disrupt economic activity [11]. Munyama and Todani (2005) explain the definition of exchange rate volatility is the level of exchange rate tendency to change. Volatility Exchange rate volatility is an exchange rate disorder that can disrupt economic activity (Hakim, 2008). Munyama and Todani (2005) explain the definition of exchange rate volatility is the level of exchange rate tendency to change. Exchange rate volatility is the price volatility of a currency due to the supply and demand of a country's currency (Mellyastannia and Syafri, 2014).

Exchange rate volatility is one measure of exchange rate risk. The greater the volatility of the exchange rate means the more unstable (appreciation or depreciation of the currency) and the more risky. High volatility indicates a phase in which fluctuations are relatively high and are followed by low and high return fluctuations or have unstable averages and variants. When the exchange rate experiences extreme volatility, the economy will experience instability both in terms of macro and micro (Imam Mukhlis, 2012).

A. Relationship between Inflation and Rupiah Exchange Rates

According to Sukirno (2008: 402) inflation has a profound effect on foreign exchange rates. Inflation in effect generally tends to reduce the value of a foreign currency, a trend like this is caused by the effects of inflation, namely: (1) inflation causes domestic prices to be more expensive than foreign prices, therefore inflation tends adding to the import this situation causes demand for foreign exchange to increase. (2) Inflation causes the prices of exported goods to be more expensive, therefore inflation tends to reduce exports, this causes a supply of currency.

When a country's price increase (relative to a foreign price level) causes a depreciation or weakening of the rupiah against a foreign currency and when a decline in a country's price level (relative to a foreign price level) causes an appreciation or a strengthening of the rupiah's exchange rate against a foreign currency (Mishkin, 2011: 115). Based on previous research, namely Rizki Ansori (2010) [2], Songhue Ruan (2013), and Agung Praditya (2012) have proven that inflation has a significant positive effect on the exchange rate.

B. Relationship of Interest Rates to Rupiah Exchange Rates

The influence of fundamental factors plays a role in moving the market, one of which is
interest rates determined by a country's central bank. Under normal circumstances Investors certainly expect high returns from investment instruments he chose including currency. The interest rates in this case are very affect the exchange rate of one currency against other currencies. The interest rate determines the value added of a country's currency. The higher the interest rate of a currency, the higher the demand for that country's currency. An increase in interest rates in a country can encourage the transfer of funds or financial instruments from currencies with low interest rates to currencies with higher interest rates.

Decrease in domestic interest rates causes depreciation or weakening of the domestic currency exchange rate and an increase in domestic interest rates causes appreciation or strengthening of the domestic currency exchange rate (Msihkin, 2011: 124). Research conducted by Songhue Ruan (2013) which shows that interest rates have a significant negative effect on exchange rates. The Relationship between the Openness Index to the Rupiah Exchange Rate Against the US Dollar. The more open the economy of a country will cause depreciation or the weakening of the exchange rate. This is due to the increasingly free goods to enter and exit in a country. Research conducted by Udousung, I.J, John, D.E & Umoh (2006) shows that there is a significant positive relationship between the index of the degree of economic openness (openness) with the exchange rate.

C. Relationship of Rupiah / USD Exchange Rate Volatility to Rupiah Exchange Rates

The volatility of the rupiah against the US dollar is the result of demand pressures exceeding the ability of supply. As a result, the exchange rate continues to move up. In such conditions, people who have large amounts of rupiah funds are moved to secure it by converting from rupiah to US dollars. This means that people have a tendency to buy US dollars. In other conditions, people who have obligations in the form of foreign exchange will also seek security by closing the forward contract in order to obtain certainty about how much should be paid in rupiah when their obligations are due.

A decrease in exchange rate volatility causes appreciation or a strengthening of the exchange rate and an increase in exchange rate volatility causes a depreciation or weakening of the exchange rate Research conducted by Theressia Mellyastannia and Syafri (2014) shows that there is a significant positive relationship between exchange rate volatility and exchange rates

III. RESULT AND DISCUSSION

Based on the results of the first hypothesis testing of the results of the calculation hypotheses obtained F count = 4.22. For a value of the F distribution table = 3.94 then these results indicate that F F > count table giving the decision that Ho is rejected and the Ha are received. Thus, the research hypothesis proposed harpsichord playing Skills i.e., grade learning model SAVI is higher than the skill of playing the piano grade learning model of EI. This is similar to the results of research on Mike (2004) stating that there is an increase in student learning outcomes by using the learning model of SAVI. According to research learning model Mike SAVI provides opportunities as well as opportunities to students to further thought and think students about what is being learned. This model also encourage students to do the skill proficiency in skills such as using abilities that are in themselves in learning and everyday life. Here is where students demanded must be active doing the skills in private.

SAVI can also develop a model of the body, hearing, eyesight, and thinking or intellectual. The application of model learning not only in SAVI focus on how to develop the competence of learners in performing observation or experimentation, but how to develop the knowledge and skills of thinking so it can support creative activities in innovating or work. Through a series of learning using a model student learning results SAVI includes cognitive realm, the realm of affective, and psychomotor domain can be trained affective, and psychomotor domain can be trained. While the Model of EI is a model of learning directly so that students can understand and really know the overall knowledge and active in an instruction. Focus model EI lies in how students learn by observing, remembering and selectively imitate what modeled his teacher.

Whereas the results of learning in school is not just about the use of language/proficiency students in mastering the language, but also the understanding of the students about the structure of the grammar. From the explanation above, seen that student learning outcomes related to the cognitive aspect is highly developed in the model of SAVI. Thus, it is clear that by using Model SAVI will give more influence to the hasi learn piano compared to learning using learning model of EI.

From the results of the calculation of the second hypothesis obtained F count = 7.64. For a value of the F distribution table = 3.94 then these results indicate that F value > count table giving the decision that Ho is rejected and the Ha are received. Thus, the research hypothesis proposed i.e. There is a difference of skills playing the piano students with male Gender with skill the student playing piano with the female Gender. The results showed that the average value of a piano playing Skills of students who have Gender male higher than than students who have Gender female. This indicates that the student has a male Gender is more able to understand the lessons of Piano in comparison to students who have a female Gender. The results of the radar researcher during the learning process, it appears that students who are classified as having a male Gender tends to be more outgoing, mingling with the new environment, is active in private or group, more motivated and enthusiastic following learning, more confidence in either ask, answer questions, suggested. Students who have a male Gender also don't feel afraid of wrong or different opinions with other students as well as more have mutual appreciate. Based on the above description, it is clear that students who had a male Gender gained the Skills to play the piano is higher compared with students who have a female Gender. It can be concluded if there is a difference of piano playing Skills of students who have Gender male with female Gender.

From the results of the calculation of the third hypothesis obtained F count = 14.79. For a value of the F distribution table = 3.94 then these results indicate that F value > count table giving the decision that Ho is rejected and the Ha are received. Thus, the research hypothesis proposed i.e. There is interaction between the model and the Gender learning against the skills to play the piano. When seen from the average Skills playing the piano on a student group that has a male Gender and taught learning model with SAVI is higher compared to the average of the results of a study group with other students. This is because learners can follow a learning, where learners are able to solve the problem posed, the existence of a model of learning that can foster a spirit of students in learning. Meanwhile, in the teaching and learning activities, either in learning or learning model SAVI EI can take interactive learning atmosphere because of the fun.

Learning using learning model SAVI teachers ceased to be the center of the study but based on students itself. Learning Models meant, intended to provide an understanding of SAVI for the apprentice in the identification, understanding the various material using model language and content, that information can originate from anywhere, anytime, not depending on help one direction of the teacher. The crux of this model are expecting students to do the process of observation, ask, menalar, tried it, communicate (make mesh) towards everything related with the learning process itself. Through this model students are expected to think scientifically and can learn and work in groups to solve problems that are given so that teachers are able to achieve optimal learning achievements. One thing to note, too, of the factors affecting the results of the study is Gender. Gender of students who are less known by teachers as a whole will be hard to steer students to be active in learning activities. It is this circumstance which caused the value of student learning outcomes is still much below the average.

.

REFERENCES

[1] Adiningsih, Sri. dkk. 2008. Satu Dekade Pasca Krisis Indonesia: Badai Pasti Berlalu ?. Yogyakarta: Kanisius.

[2] Ansori, Rizki. 2010. Analisis Pengaruh Tingkat Inflasi, SBI, Jumlah Uang Beredar, dan Tingkat Pendapatan Terhadap Nilai Tukar Rupiah Terhadap Dollar Amerika. Skripsi Universitas Islam Negeri Syarif Hidayatullah.

[3] Boediono dan Koster, wayan. 2001. Teori dan Aplikasi Statistika dan Probabilitas. Bandung : PT. Remaja Rosdakarya.
[4] Chou,W.L, 2000. Exchange Rate Variability and China's Exports. Journal of Comparative Economics.
[5] Chowdhury, Mohammad Shafiur Rahman., Hossain, Md. Tanjil. 2014. Determinants of Exchange Rate in Bangladesh: A Case Study. Journal of Economics and Sustainable Development.
[6] Depari, Meihendra Timotius. 2009. Analisis Keterbukaan Ekonomi Terhadap Nilai Tukar Rupiah di Indonesia. Tesis Universitas Sumatera Utara.
[7] Fabozzi, Frank J., Modigliani, Franco., Ferri, Michael G. 1999. Pasar dan Lembaga Keuangan. Edisi Pertama. Jakarta: Salemba Empat.
[8] Gujarati, Damodar N. dan Porter, Dawn C. 2011. Dasar-Dasar Ekonometrika. Buku 1.Edisi 5. Jakarta: Salemba Empat.
[9] Gujarati, Damodar N. dan Porter, Dawn C. 2012. Dasar-Dasar Ekonometrika. Buku 2.Edisi 5. Jakarta: Salemba Empat.
[10] Hady, Hamdy.2012. Manajemen Keuangan Internasional. Jakarta: Mitra Wacana Media.
[11] Hakim, Arif Rahman. 2008. Pengaruh Volatilitas Nilai Tukar Terhadap Ekspor (Suatu Pendekatan Kointergrasi dan Mekanisme Koreksi Kesalahan). ASET Volume 10 No.2.
[12] Huda, Nurul., Barata, Amrin. 2015. Detecting The Expected Rate of Return Volatility of Financing Instruments of Indonesian Islamic Banking through
[13] GARCH Modeling (Generalized Autoregressive Conditional Heteroscedasticity). Tazkia Islamic Finance and Business Review Volume 9.1. IMF. 2003. World Economic and Financial Survey: World Economic Outlook Public Dept In Emarging Market. N.W., Washinton D.C: IMF Graphics Section.
[14] I.J, Udousung., D.E, Jhon dan Umoh. 2012. Real Exchange Rate Determinant In Nigeria (1971 – 2000). Global Journal Of Management and Business Research Volume 12 Issue 20 Version 1.0 .
[15] Jaramillo, Carlos Felipe. dkk. 2006. Challenges of CAFTA : Maximizing the Benefits for Central America. N.W., Washington D.C : The WorldBank.
[16] Leung, Suiwah., Bingham, Ben., Davies, Matt. Globalization and Development in the Mekong Economies 2010. United Kingdom : Edward Elgar Publishing Limited.
[17] Mankiw, N. Gregory. 2006. Pengantar Ekonomi Makro. Edisi Ketiga. Jakarta: Salemba Empat.
[18] Mellyastannia, Theressia dan Syafri. 2014. Pengaruh Volatilitas Nilai Tukar Rupiah Terhadap Nilai Tukar Rupiah : Aplikasi Model ARCH/GARCH. Jurnal Ekonomi Trisakti Volume 1 No 1.
[19] Mishkin, Frederic S. 2011. Ekonomi Uang, Perbankan, dan Pasar Keuangan. Buku 1. Edisi 8. Jakarta: Salemba Empat.
[20] Mishkin, Frederic S. 2011. Ekonomi Uang, Perbankan, dan Pasar Keuangan. Buku 2. Edisi 8. Jakarta: Salemba Empat.
[21] Mukhlis, Imam. 2012. Analisis Volatilitas Nilai Tukar Mata Uang Rupiah Terhadap Dolar. Journal Of Indonesian Applied Economics Vol. 5 No.2.
[22] Munyama, T.V dan Todani, K. 2005. Exchange Rate Volatility and Export In South Africa. Research Department–South African Reserve Bank.
[23] Nawatmi, Sri., Nusantara, Agung., Santosa, Agus Budi. 2012. Volatilitas Nilai Tukar dan Perdagangan Internasional. Laporan Penelitian Universitas Stikubank Semarang.
[24] Nopirin. 2013. Ekonomi Moneter. Buku 2. Edisi ke-1. Yogyakarta: BPFE Yogyakarta.
[25] Praditya, Agung. 2012. Analisis Pengaruh Capital Inflow Terhadap Nilai Tukar Rupiah. Skripsi Institut Pertanian Bogor.
[26] Putong, Iskandar. 2013. Economics, Pengantar Mikro dan Makro. Jakarta: Mitra Wacana Media.
[27] Rahardja, Prathama dan Manurung, Mandala. 2008. Pengantar Ilmu Ekonomi (Mikroekonomi & Makroekonomi). Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.
[28] Rahutami, A.Ika dan Kusumastuti, Sri Yani.2007. Dampak Volatilitas Nilai Tukar Terhadap Arus Perdagangan Indonesia (Pendekatan ARDL ECM).
[29] Ruan, Songhe. 2013. Determinant Of Chinese Renminbi Exchange Rate. Tesis Martin De Tours School Of Management and Economics.
[30] Samuelson, Paul.A., Nordhaus, William D. 2004. Ilmu Makroekonomi. Edisi Tujuh Belas. Jakarta: P.T. Media Global Edukasi.
[31] Salvatore, Dominic. 1997. Ekonomi Internasional. Jakarta: Erlangga.
[32] Sergi, Bruno.S., Bagatelas William T., Kubicova. Jana. 2007. Industries and Markets in Central and Eastern Europe. England: Ashgate Publishing Limited.
[33] Soesastro, Hadi., Budiman, Aida., Triaswati, Ninasapti., Alisjahbana, Armida., Adiningsih, Sri . 2005. Pemikiran dan Permasalahan EkonomiIndonesia Dalam Setengah Abad Terakhir. Yogyakarta: Kanisius.
[34] Sugiyono. 2008. Metode Penelitian Bisnis. Bandung: Alfabeta.
[35] Sukirno, Sadono. 2013. Makroekonomi Teori Pengantar. Edisi Ketiga. Jakarta: PT. Rajagrafindo Persada.
[36] Sunariyah. 2006. Pengantar Pengetahuan Pasar Modal. Edisi ke 5. Yogyakarta: UPPAMP YKPN.
[37] Widarjono, Agus. 2013. Ekonometrika Pengantar dan Aplikasinya Disertai Panduan Eviews. Yogyakarta: UPP STIM YKPN.