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A New Monetary Era and the Necessity of Exchange Rate Policy Reformulation for Macroeconomic Performance: the Inclusive Nominal Exchange Rate (INEX). Lessons from Indonesia in ASEAN-10

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Abstract

This paper is actually part of a research that was conducted in twenty five countries from the Association of Southeast Asian Nations (ASEAN-10) and the Economic Community of West African States (ECOWAS-15) about the factual correlation between exchange rate and five macroeconomic variables. However, here, we focus on the case of Indonesia, the largest economy of the regional integrated area ASEAN. The study starts from the fact that nowadays, because of the growing openness of national markets, no longer the interest rate but the exchange rate appears to be the single monetary tool that can be used to simultaneously boost economic growth and protect national economic fundamentals against adverse external shocks, but how? That question constitutes the major concern of this article. Using secondary macroeconomic data, this paper has adopted a mixed-methodology approach based on a correlation test and statistical mapping technique analysis which constitutes the novelty compared to previous studies on monetary issues. The paper reveals that Indonesia, under floating exchange rate regime has successfully controlled inflation rate but at the expense of the GDP growth. The major finding of this study is a proposal for new formulation of the exchange rate valuation named: the “Inclusive Nominal Exchange rate” (INEX) which is based on real economic performances of a country and the structure of its economy. An illustration of the INEX showed that in 2014, the macroeconomic fundamentals of Indonesia were better but, the nominal exchange rate failed to capture that performance.

Keywords: Regional integrated area, exchange rate regimes, macroeconomic performance, and Inclusive Nominal Exchange Rate (INEX).

INTRODUCTION

In the practice of the monetary policy and according to the impossible triangle theory, three major tools are fundamental: the interest rate, exchange rate and openness of a country. However, among these three instruments, only one remains really effective to cope with the ongoing changing global economy: the exchange rate. In fact, a “new monetary era” is emerging due to growing bilateral partnerships, regionalization and globalization through global industrial value-chains that create interconnected markets. Under such context, the exchange rate has become a more effective monetary tool than the interest rate was. Indeed, as

illustration, for more than seven years of “quantitative easing policy” applied by the United States and followed by European countries, the failure of the interest rate as a monetary instrument used for addressing fundamental economic issues is so palpable. Actually, the exchange rate has gained importance because it deals with both the real economy and the financial markets. Hence, through a comparative analysis, this paper is expected to open a new window of discussions about the choice of exchange rate policy and its correlation to two major macroeconomic variables: the GDP and inflation under regional integration framework.

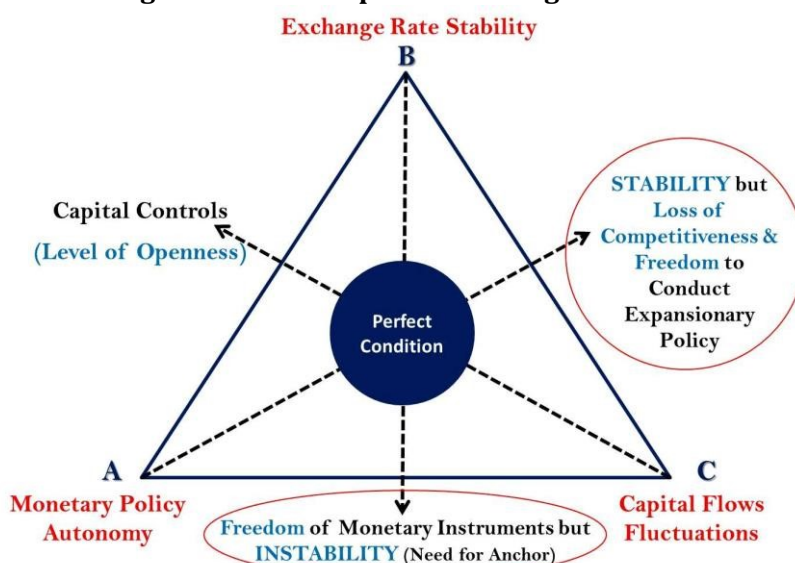
Therefore, by using a correlation test combined with statistical technique mapping, this paper is a comparative study that aims to comprehend systematically, the factual correlation between exchange rate and the above-mentioned macroeconomic performance indicators in Indonesia as the major economy of the Association of Southeast Asian Nations (ASEAN-10). To that end, the next lines are organized as follows: first, we will explain what theories and empirical studies say about the correlation between exchange rate and the chosen macroeconomic variables: gross domestic product (GDP) and inflation rate. Then, we will be exposing the methodology and technique used to analyze the data. And, finally we will conclude by interpreting the results and formulating a new exchange rate policy that takes into account the real economic performance.

LITERATURE REVIEW

The Impossible Trinity

According to the Mundell-Fleming model, the “impossible trinity” or “impossible triangle” is the core rule of monetary policies because it explains and summarizes very well the choices that a country has to make. It states that a country has three ideal objectives which are the freedom to adjust their monetary policies via the manipulation of interest rate and money printing, the stability of their exchange rate against other currencies and finally the free movement of people, goods and capitals. However, according to the impossible trinity, a central bank can only pursue simultaneously two of the following three policies: an independent monetary policy (A), exchange rate stability (B) and free capital flows (C) as explained in the figure 2.1 below.

Figure 2.1: The impossible triangle Model



Source: Previous empirical studies.

- a. The AB side of the “Impossible triangle model” is practically unsustainable in the long run, unless the government adopts inflation targeting indexed on the weighted inflation rates of its trading partners, and imposes capital controls.
- b. The BC side of the triangle implies a complete sacrifice of the monetary policy that can no longer be used for any domestic economic purpose such as output or employment dynamization.
- c. The remaining AC side of the triangle implies a clean float of the exchange rate, which means high fluctuations of the nominal exchange rate, the equivalent to high volatility of relative prices.

Exchange Rate and GDP growth according to the literature

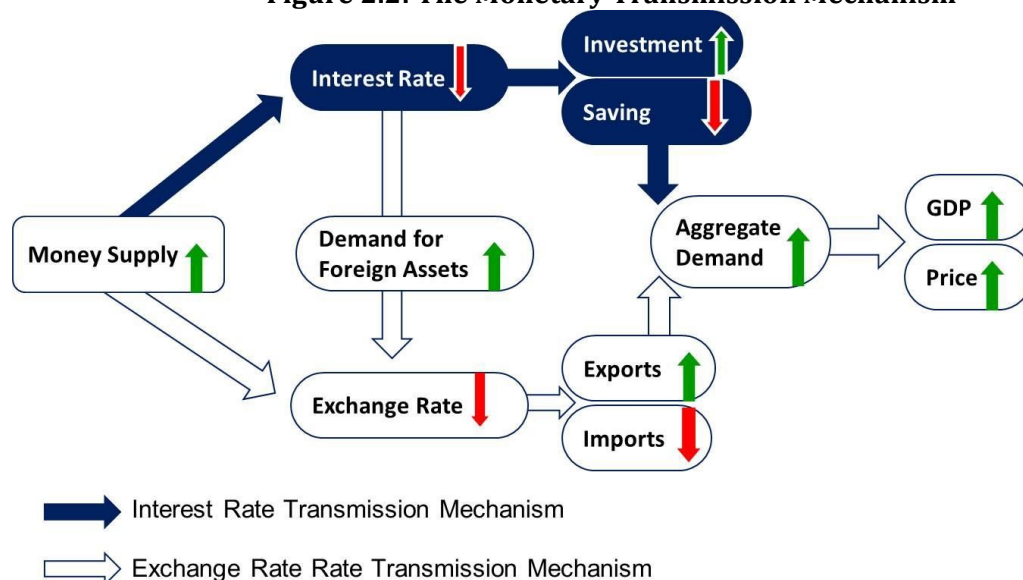
The gross domestic product or gross domestic income is a measure of a country's overall economic output. To a certain extent, exchange rate depreciations increase foreign demand for domestic goods and services, causing increase in net exports and hence aggregate demand. Indeed, traditional views such as the elasticity, absorption and the Keynesian approach assert that devaluations have positive effect on output growth. The elasticity approach states that devaluation will improve trade balance as long as the Marshall Lerner condition is satisfied. According to the absorption approach, through its expenditure switching and expenditure reducing effects, a devaluation will generate an increase in real output. The Keynesian approach, in which output is assumed to be demand determined and the economy operates below its potential full-employment condition, states that devaluation will have a positive impact on output and employment. The monetary approach, however, argues that exchange rate changes influence real economy mainly through the real balance effect in the short-run but leave all variables unchanged in the long run. One fundamental assumption made by monetarists is that there is no long-run tradeoff between inflation and the level of output growth. This assumption is also known as the long-run neutrality of money and it states that expansionary monetary policies may temporarily increase output growth and lower unemployment, but the economy will eventually return to the natural rate of unemployment at a higher rate of inflation.

Actually, exchange rate uncertainty can affect economic growth through multiple channels. However, there are two major ways to consider:

- a. The first is via changes in interest rates known as the interest rate transmission mechanism.
- b. The second happens via changes in the exchange rate known as the exchange rate transmission mechanism.

We will focus on the second way to show how the floating or fixed exchange rate affects the business cycle. The figure 2.2 below shows the mechanism through which the interest rate and exchange rate influence the aggregate demand/GDP. In accordance with the topic discussed in this paper, we focus on the exchange rate mechanism.

Figure 2.2: The Monetary Transmission Mechanism



Source: The researcher’s own Design based on “*Monetary Transmission Mechanism/ Bank Indonesia. 2002*”

The Figure 2.2 shows that an expansionary monetary policy under floating exchange rate regime will lead to a decrease in the cost of borrowing money (interest rate decrease) which will have an impact on people’s behavior who will prefer spending on foreign assets (more profitable rather than domestic asset). This increase of the demand for foreign asset will lead to an increase of the value of foreign currency and this automatically causes the domestic currency to depreciate. The low value of domestic currency will stimulate exports since the domestic goods are more competitive and imported being more expensive. Thus, this transmission mechanism will improve the aggregate demand; create a positive net export and lead to the economic growth (increase of the GDP) and also inflation (price increase because of the supply of money that increases as well). The next session discusses how exchange rate is theoretically linked to inflation.

Exchange Rate and Inflation according to the literature

The choice of exchange rate regime matters because it affects the price of imports and exports. Under fixed exchange rate regime, the direct impact on inflation performance is related to the role of exchange rate as an anchor in addressing the lack of credibility in countries with high inflation rate. Pegging the exchange rate (generally against the US dollar) could influence inflation expectations, by creating more credibility, which would lead to lower inflation rates as shown in the figure 2.3 below.

Figure 2.3: Example of the indirect effect of Fixed Exchange Rate on Inflation



Source: The researcher’s own Design

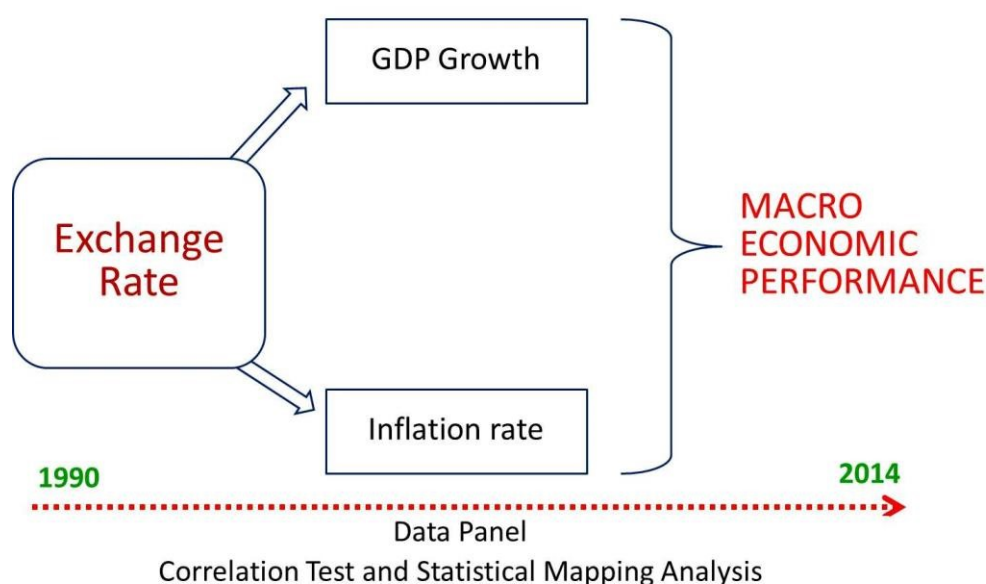
Besides, under a floating regime, exchange rate movements can influence domestic prices (so called exchange rate pass-through) and cause inflation to rise or fall via their effect on both the aggregate supply and demand sides. On the supply side, the depreciation of domestic currency leads to higher prices of imported final products or inputs for production. From the demand side, the depreciation of domestic currency leads to cheaper domestic products compared to foreign imported products. Hence, the rising consumption of domestic products causes inflation to increase as well (demand-pull inflation).

METHODOLOGY AND LOGICAL FRAMEWORK

The logical framework of this paper is to focus on analyzing the factual correlation between exchange rate policy and the chosen macroeconomic indicators namely real GDP and inflation rate based on the cases of Indonesia under a regional integration context, during the time frame 1990-2014, as showed in figure 3.1.

Figure 3.1: The Logical Framework

Focus on **Indonesia** from the Regional Integrated Areas: **ASEAN-10**



Source: The researcher's own Design

SOURCES AND TYPE OF DATA

The realization of this work has required the availability of a great number of documentary and secondary macroeconomic data. The sources of the data are various: the International Monetary Fund database, World Bank National Account Data, World Development Investment Report, World trade organization websites, World Development Indicators and World Data Atlas from knoema.com.

To measure the macroeconomic performance, we have chosen two variables: the gross domestic product (GDP) growth and inflation rate.

Data Analysis Techniques

There are two major techniques used for the analysis of the data collected. These techniques are: the "Correlation Test" and the "Statistical Mapping".

The Pearson's Correlation Test

The objective of this paper is neither about projection or forecasting the macroeconomic variables, nor about measuring the auto-correlation relationship between the variables but, it aims to analyze how the exchange rate as a policy can be used to reach macroeconomic objectives based on the cases of Indonesia in ASEAN-10 countries. Therefore, we do not need to use any dynamic stochastic auto regression model as it was already done by previous researchers especially about exchange rate volatility. In this study, because a linear model fits well the consistency in long term macroeconomic policy analysis, we will use the "Pearson correlation test" which is a straightforward way to measure correlation between the variables grouped in couples (x_i, y_i) . In the study, the couples are:

1. Exchange rate (x_i) and GDP growth (y_i) ,
2. Exchange rate (x_i) and Inflation rate (y_i) ,

The formula of the Pearson correlation coefficient (r) is computed as follows:

$$r = \frac{1}{n-1} \sum \frac{(x_i - \bar{X})(y_i - \bar{Y})}{s_x s_y}$$

Hence, the correlation test will certainly help to classify the ASEAN-10 economies according to their strength and direction but it is still very restrictive for holistic analyses.

Therefore, we will need another data analysis technique: the "Statistical Mapping" which can be used to explain the macroeconomic performance under various exchange rate regimes in ASEAN-10 countries with a focus on the Indonesian case.

The Statistical Mapping Technique

The technique aims to analyze the position (Quadrant I, II, III or IV) of each ASEAN10 economies in comparison with each other. The maps will be analyzed for ASEAN-10 countries with a focus on Indonesia. Now, let "A" be the number of ASEAN-10 countries and

X_{gdp} , X_{inf} be respectively the average rate of GDP growth and inflation rate for the periods "Before 1999" and "After 1999" calculated as follow:

$$\bar{X}_{gdp} = \frac{1}{A} \sum_{a=1}^A X_a$$

$$\bar{X}_{inf} = \frac{1}{A} \sum_{a=1}^A X_a$$

With respect to the objectives mentioned of this paper, we will do the analysis according to the following order:

1. Correlation map of exchange rate and GDP growth under various exchange rate regimes in ASEAN-10 countries for the periods "1990-1999" and "1999-2014".
2. Correlation map of exchange rate and Inflation under various exchange rate regimes in ASEAN-10 countries for the periods "1990-1999" and "1999-2014".

It is important to explain that we have chosen the "year 1999" as the structural break of exchange rate regime"s changes in order to include within the analysis the changes of exchange rate policies over the timeframe 1990-2014. The main reason of this choice is justified by the Asian financial crisis of 1997/98, leading to important devaluation or depreciation of currencies of most Southeast Asian. The final result of the mapping technique will be

assembled into two (2) maps that will constitute a basis for more detailed and holistic analysis, interpretations and suggestions of possible new exchange rate policies.

EMPIRICAL RESULTS AND INTERPRETATIONS

In this session, we present the results of the data analysis using the “Pearson correlation test and the subsequent interpretations. The variables are grouped in couples of variables (Xi,Yi) as follows: a) Exchange rate (xi) and GDP growth (yi) and b) Exchange rate (xi) and Inflation rate (yi),

Correlation Test of Exchange rate (xi) and GDP growth (yi) in ASEAN-10 Countries (1990-2014)

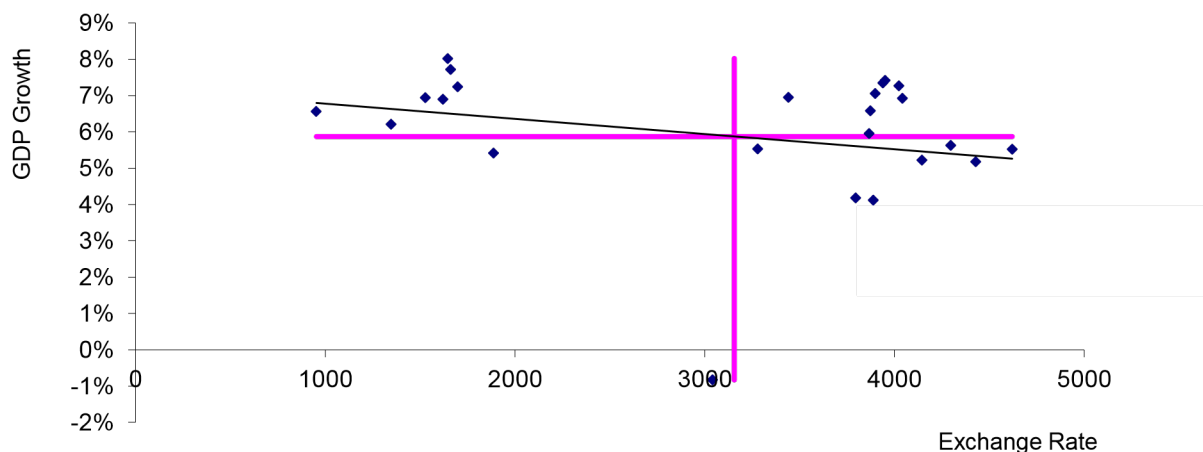
Table 4 .1.1: Results of the correlation test between exchange rate and GDP growth in ASEAN-10, 1990-2014

Point of Averages		Standard Deviation Line		Statistical test Result
Average Exchange Rate	3156	SDexc rate	1159	
Average GDP Growth	5.87%	SDgdp	1.92%	
r -0.25		P-Value (p)	0.222	There is a non-significant negative correlation between Exchange rate and GDP in ASEAN. $r = -0.25$ and $p > 0.05$

Source: The researcher’s own calculation

The result of the correlation test between exchange rate and GDP growth presented in Table 4.1.1 and Figure 4.1.1 shows a weak negative linear correlation equals to -0.25. It indicates that as the exchange rate increases (depreciation against the US dollar), the regional GDP growth decreases but not significantly since $p > 0.05$ and the correlation coefficient is close to 0. In Figure 4.1.1 the trend line of GDP growth shows a downward slope and the points are scattered in a wider band confirming a linear relationship is present, but not strong.

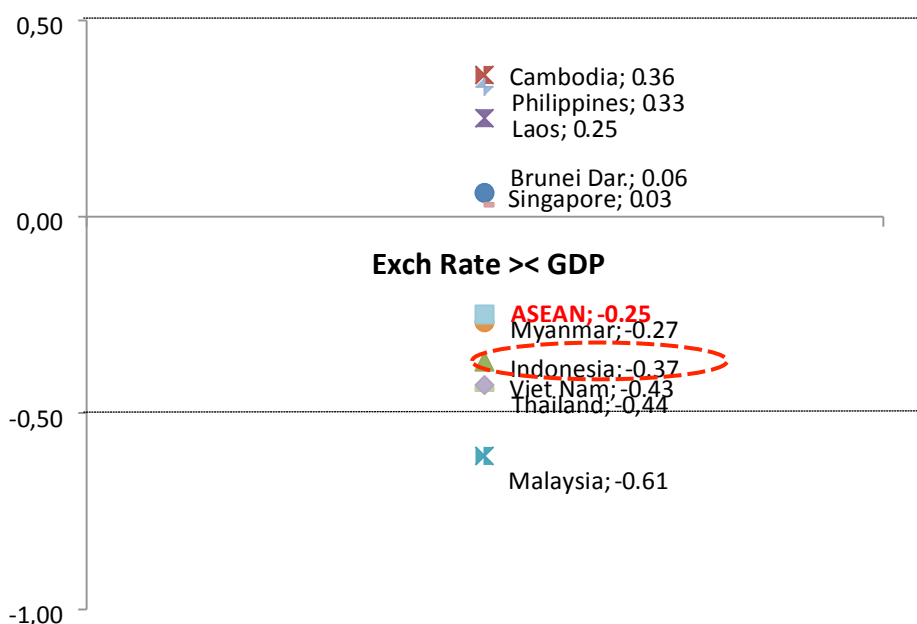
Figure 4.1.1: Scatter Diagram and trend line of GDP growth and exchange rate in ASEAN



Source: The researcher’s own calculation

The interpretation of the r values obtained from the ASEAN-10 economies will be done with a focus on Indonesia as shown in figure 4.1.2.

Figure 4.1.2: Comparison of the correlation level between exchange rate and GDP in ASEAN



Source The researcher’s own calculation

It appears that Indonesia, Myanmar, Thailand and Vietnam are located within the interval between 0 and -0.49, which means that there is a weak negative linear relationship between exchange rate (X) and the GDP growth (Y). In those countries, as exchange rate increases (depreciation against the US dollar) the GDP tends to decrease but slowly.

Particularly, the correlation between exchange rate and inflation equals to -0.37 which proves that the depreciation of the Indonesian Rupiah is failing to boost the GDP growth as it should be according to the Keynesian approach. Here, the long run neutrality of money defended by Monetarists, is respected.

Correlation Test of Exchange rate (xi) and Inflation rate (yi) in ASEAN-10 Countries (1990-2014)

Table 4.2.1: Results of the correlation test between exchange rate and inflation in ASEAN-10, 1990-2014

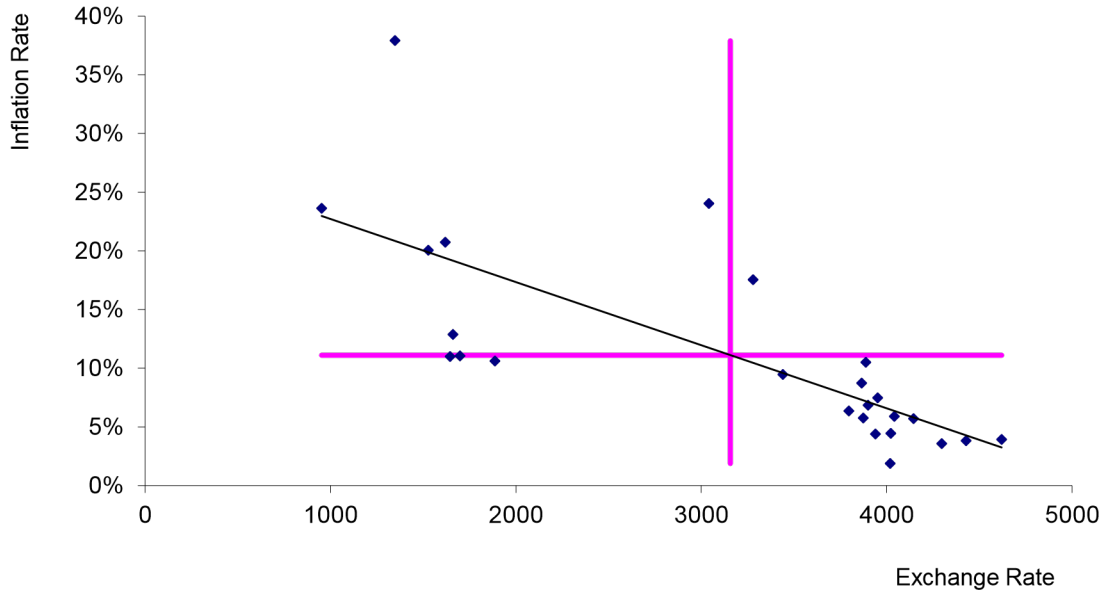
Point of Averages		Standard Deviation Line		Statistical test Result
Average Exchange Rate	3156	SDexc rate	1159	
Average Inflation	11.11%	SDinf	8.35%	
r -0.75		P-Value (p)	0.000	There is a significant negative correlation between Exchange rate and Inflation in ASEAN. $r = -0.75$ and $p < 0.05$

Source The researcher’s own calculation

The result of the correlation test between exchange rate and inflation presented in Table 4.2.1 and Figure 4.2.1 shows a strong negative linear correlation equals to -0.75. It indicates that as the exchange rate increases (depreciation against the US dollar), the regional inflation rate

decreases (it is controlled) significantly since $p < 0,05$ and the correlation coefficient is close to -1.

Figure 4.2.1: Scatter Diagram and trend line of inflation and exchange rate in ASEAN-10



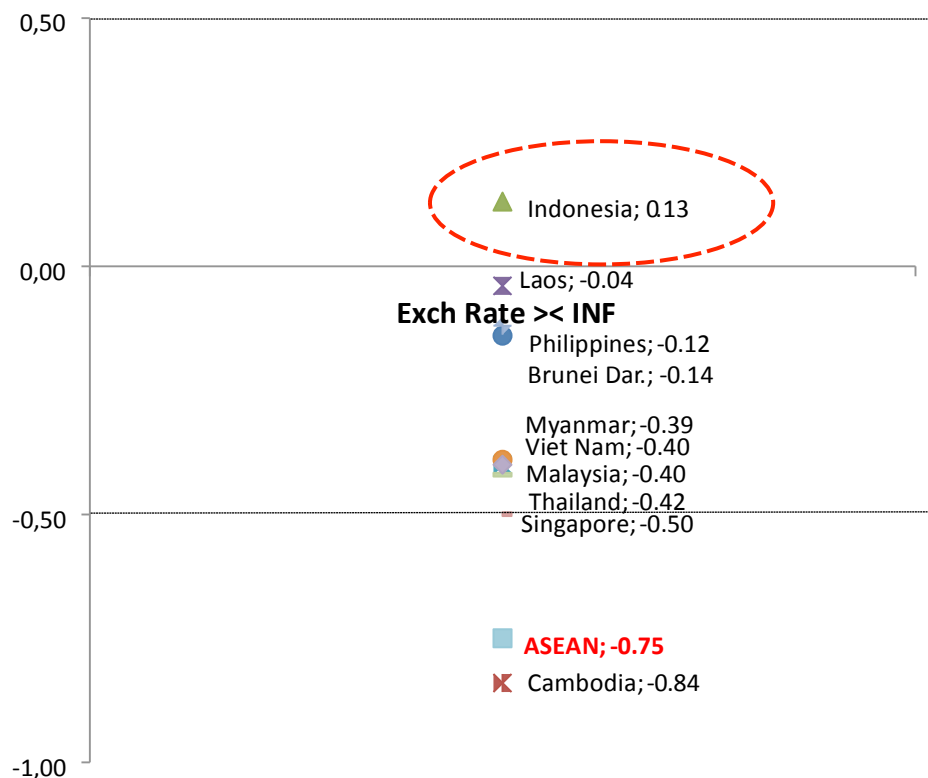
Source: The researcher's own calculation

In Figure 4.2.1 the trend line of inflation shows a downward slope and confirms that a linear relationship is present even though the points are scattered in a relatively wider band with a concentration of the exchange rate value around 4000 local currency unit/US dollar.

In order to compare the ASEAN-10 countries among them, let's then range their correlation coefficients according to the strength and direction (figure 4.2.2). Hence, the interpretation of the r values obtained from the ASEAN-10 countries will only be concerned with the position of Indonesia.

As shown in the next figure 4.2.2, Indonesia is the only country located within the interval between +0.49 and 0, which means that there is a weak positive linear correlation between exchange rate (X) and the inflation rate (Y). In that country, as exchange rate increase (depreciation against the US dollar), the inflation rate tends to rise but slowly, certainly due to the inflation targeting policy applied by the Indonesian monetary authorities.

Figure 4.2.2: Comparison of the correlation level between exchange rate and inflation in ASEAN-10

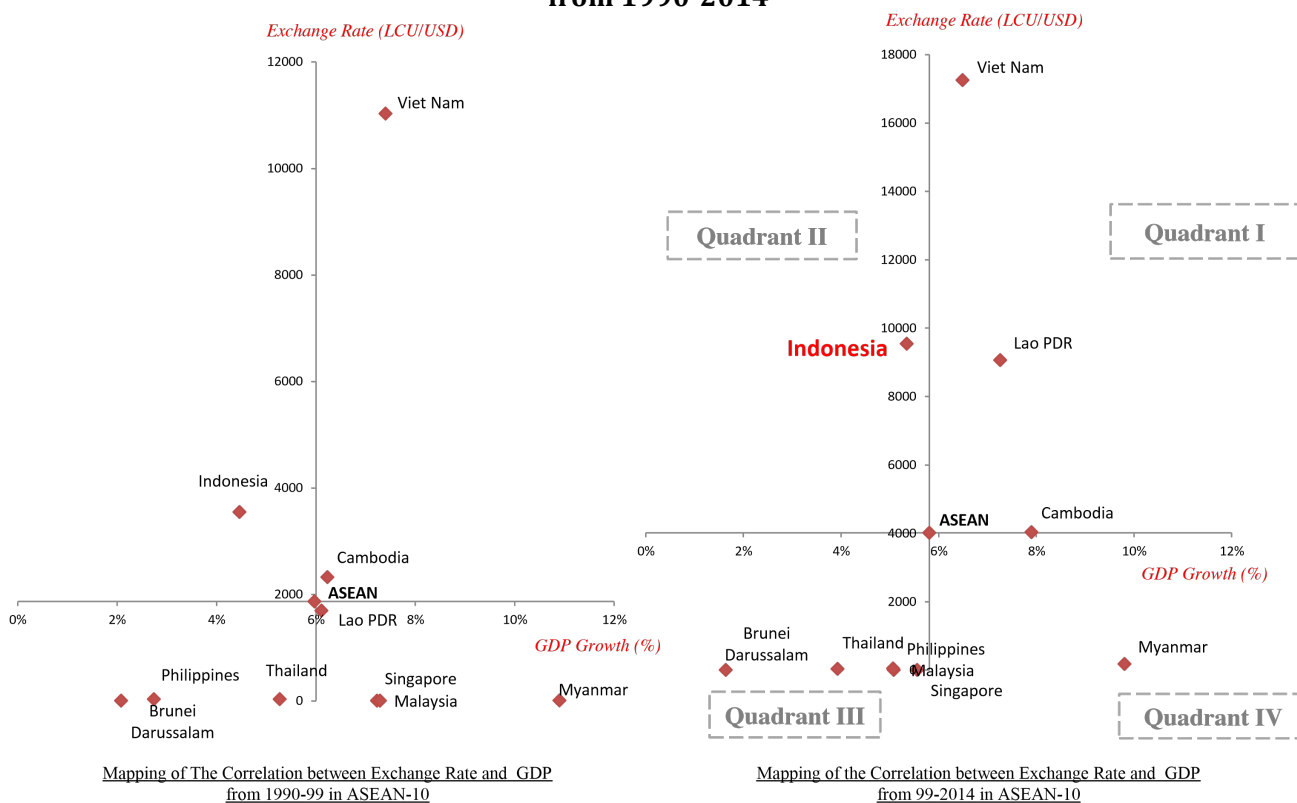


Source The researcher's own calculation

Although the inflation performance in ASEAN heterogeneous, these results proved that exchange rate regime applied in Indonesia from 1990-2014 could make the exchange rate and inflation move in the same direction ($r = 0.13$), meaning that inflation increases only slightly which is a quite successful control of inflation under a depreciation of domestic currency but at the expense of the GDP growth ($r = -0.37$). Low GDP growth appears to be the cost of successful inflation control under floating exchange rate regime in Indonesia. Inflation targeting strategy has showed it sustainability but requires being associated with qualitative monetary measures or exchange rate reformulation in order to avoid slowing the GDP growth.

To better comprehend the level of macroeconomic performance under various exchange rate regimes, we use a mapping technique to analyze ASEAN countries with a focus on the Indonesian case as showed in the following Figure 4.3:

Figure 4.3: Mapping of the correlation between Exchange Rate and GDP growth in ASEAN-10 from 1990-2014



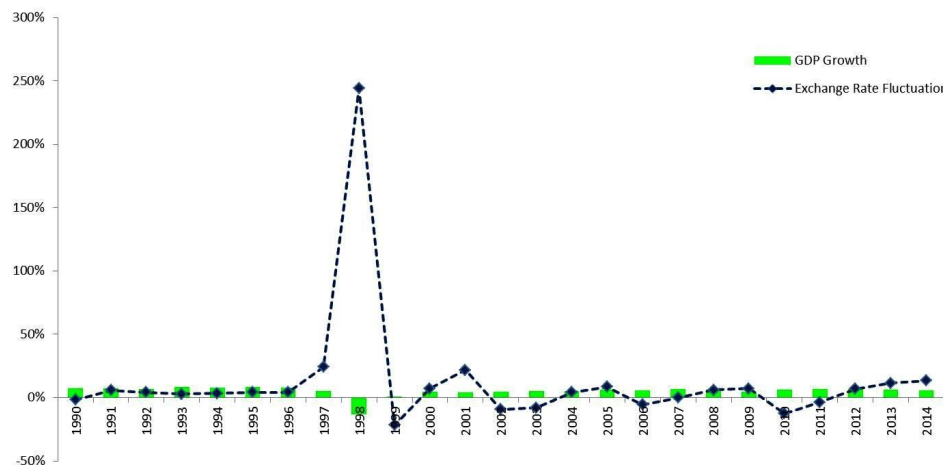
Factual correlation between Exchange rate and GDP in Indonesia

When we focus our analysis on the “Quadrant II” of figure 4.3, we first notice that Indonesia is the only one country presents in that quadrant. Indeed, the “Quadrant II” contains economies with a lower GDP growth, below the regional average rate and with a depreciation of the nominal exchange rate over the two periods. From 1990 to 1999 the Indonesian GDP grew by 4.46% with the exchange rate at 3544 compared to the second period 1999-2014 where the couple “GDP growth , Exchange rate” was respectively “5.35% ; 9545”. During that period (1999-2014) the whole ASEAN-10 countries recorded in average 5.81% and 4015 as the index of local currencies exchanged for 1 US dollar.

However, the Indonesian GDP had risen by 19% while the exchange rate depreciated by 169% from the first period (1990-1999) to the second period (1999-2014). This low performance of the Gross Domestic Product compared to average rate in ASEAN-10 can be explained by various factors, but let’s focus on the economic integration policies and exchange rate arrangements that occurred during that time.

In fact, Indonesia, the ASEAN-10’s largest economy had always suffered financial market volatility with peak in 1997-99 as showed in the following Figure 4.3.1.

Figure 4.3.1: Evolution of Exchange rate and GDP growth in Indonesia 1990-2014

Indonesia

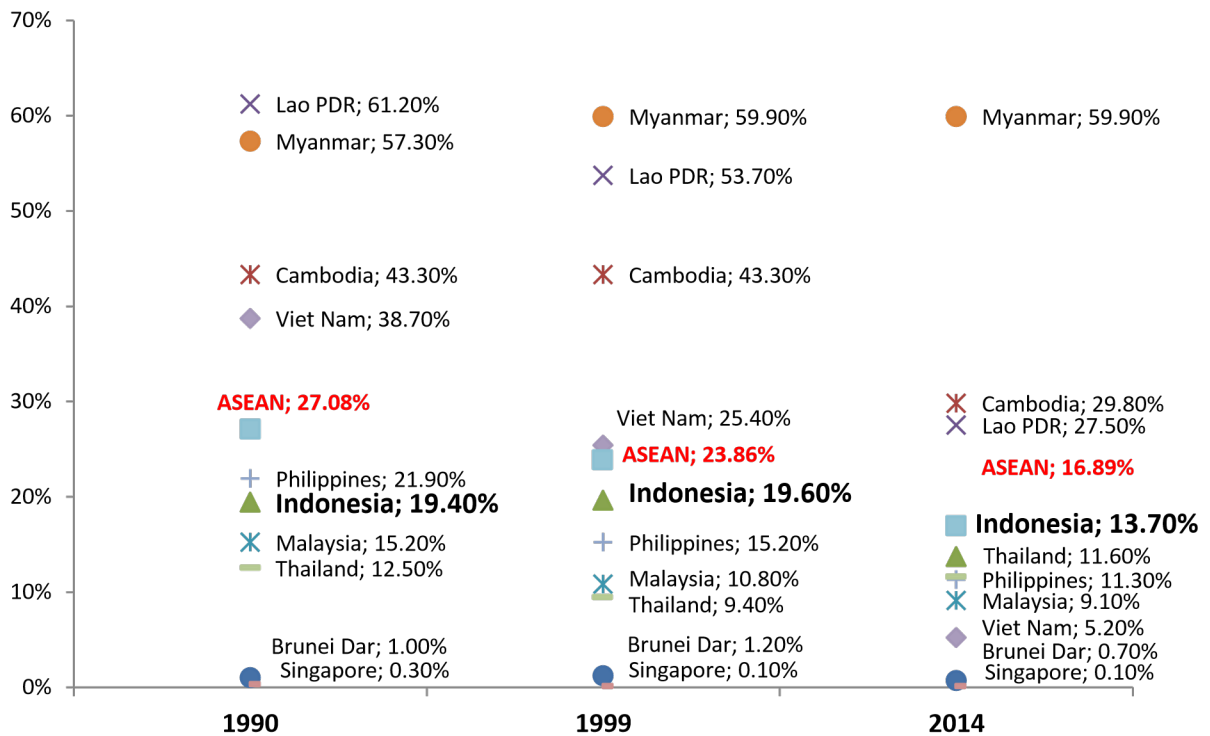
Source: World Development Indicators (WDI-2014) & World Data Atlas/knoema.com

During the period 1990-1999, under a “de facto crawling peg to the USD” which was actually a floating exchange rate regime, the currency fell by half against the US dollar. As showed in the Figure 4.3.1, the period after 1999 brought more stability of the exchange rate, even though the depreciation was still continuing. This was due to the fact that the government reacted swiftly through a number of new measures which had impact on the financial environment among others the creation of “monetary hedging institutions” such as the “Lembaga Penjamin Simpanan-LPS” and “Otoritas Jasa Keuangan-OJK” which aimed respectively at insuring customers’ savings (up to 2 billion Rupiah) in case of bankruptcy of banks and monitoring at the microeconomic level, the decisions conducted by the Central Bank of Indonesia at the macro-level. Even though, analysts were very critical about the possible overlapping of monetary policy which used to be the full-responsibility and accountability of the central bank named “Bank Indonesia-BI”, the new institution OJK helped by controlling and shrinking the financial risks albeit at the expense of the economic growth.

Besides the introduction of “hedging institutions”, the exchange rate regime changed from “de facto crawling peg” to a “floating regime with inflation targeting” and more interventions in the currencies market in order to obtain a more “regular and acceptable fluctuation” of the exchange rate. As a result, Indonesia records solid real GDP growth even though it was lower than the regional standard. The real GDP rose from 4.20% in 1999 to 5.20% in 2014.

Regarding the GDP performance, the analysis of exchange rate generally starts with the exogenous or external factors, but we shall first consider the national endogenous conditions of ASEAN by looking at the structure of the economies in this integrated area. Indeed, ASEAN-10 members are a heterogeneous group of countries and they differ significantly in terms of their sizes. Indonesia is by far the largest member both in terms of its population and economic weight. Concerning the economic structure of these countries, the figures 4.3.2, 4.3.3 and 4.3.4 show the contribution of respectively the agricultural, industrial and service sectors in year 1990, 1999 and 2014 as reported by the World Bank database. The structural analysis is important in order to picture the homogeneity or heterogeneity among countries but also, it will help to understand the long term orientation of each ASEAN country based on the value added to GDP from the three sectors: agriculture, industry and service.

Figure 4.3.2: ASEAN’ Agriculture Sector, 1990,1999 and 2014 Value Added (% of GDP)



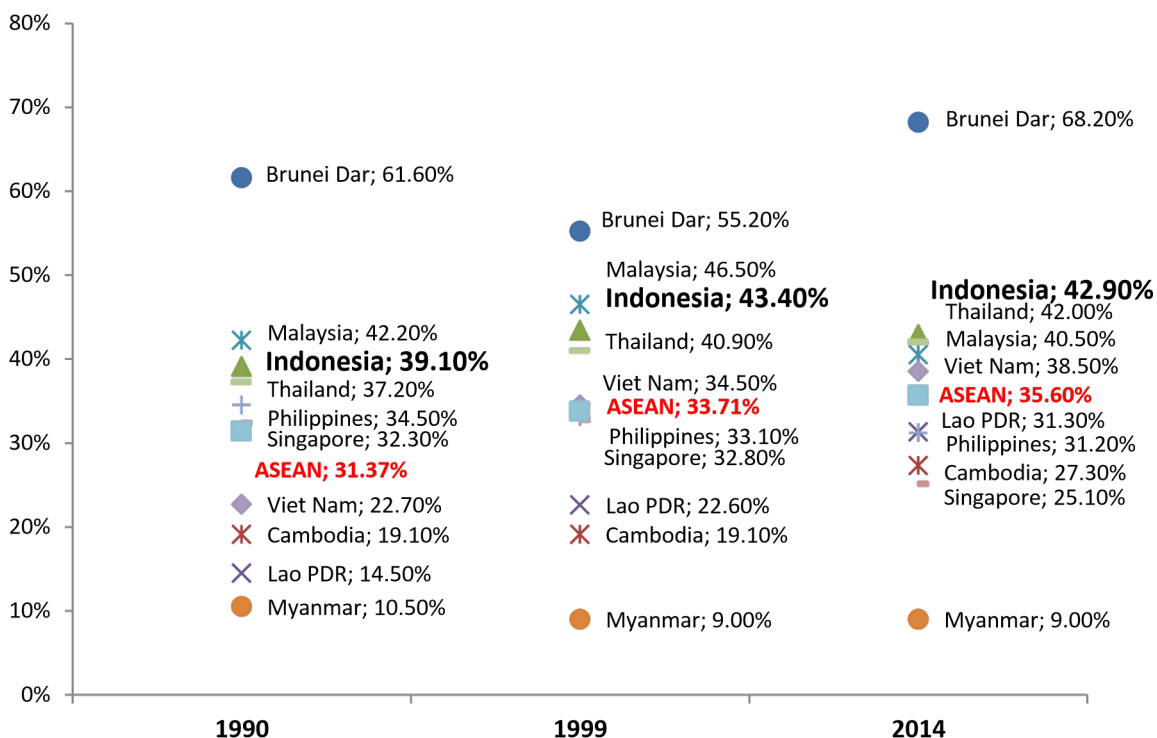
Source: World Bank National Account Data, 2015

Figure 4.3.2 shows that the share of agriculture in total value added within the ASEAN decreased considerably from 27.08% to 23.86% between 1990 and 1999; then this rate fell again between 1999 and 2014 to 16.86%. All over the time frame 1990-2014, in

Indonesia, agriculture accounts for less than 20% of total value added to GDP. And in 2014, only 13.70% of the GDP was due to agriculture activities, which mean that Indonesia is no longer an “agricultural based-economy”.

On the other hand, the share of industry in total value added has been increased in recent decades. Indeed, the share of agriculture in ASEAN area is estimated near 30% whereas in 2014, Indonesia presents (42.90%) one of the highest industry’s contribution to the GDP after Brunei Darussalam (68.20%) as shown in figure 4.3.3 below

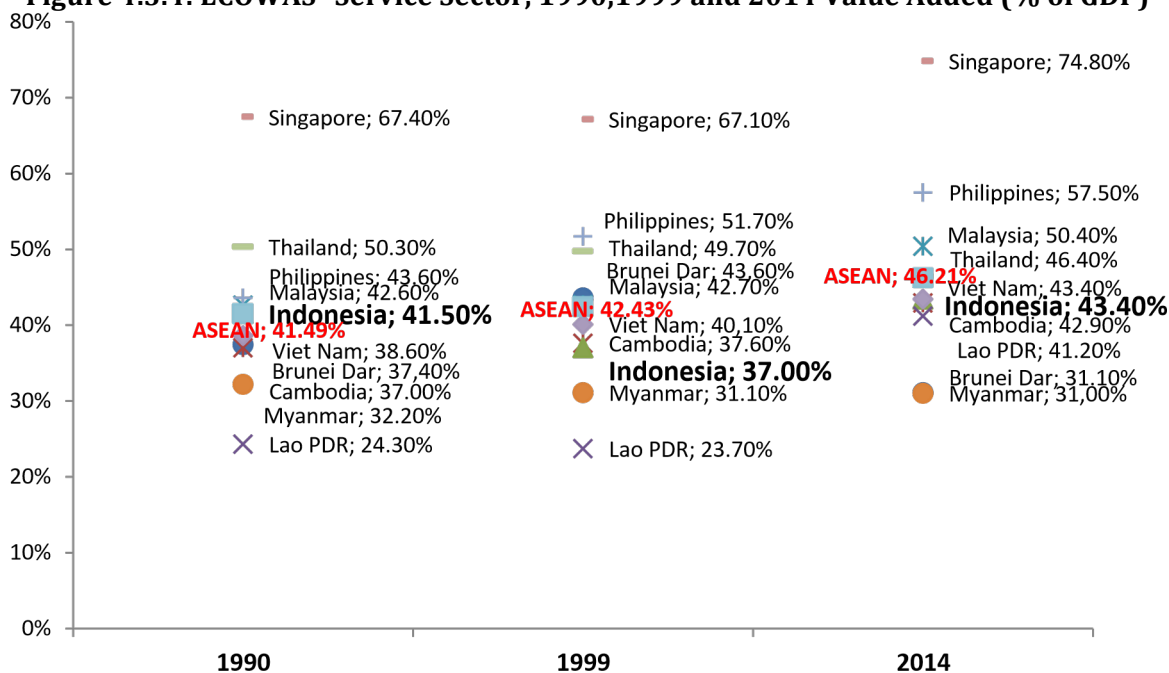
Figure 4.3.3: ASEAN' Industry Sector, 1990,1999 and 2014 Value Added (% of GDP)



Source: World Bank National Account Data, 2015

Conversely, the share of the Indonesian service activities (figure 4.3.4) including financial intermediation, renting, real estate, transports and business activities decreased significantly from 41.50% in 1990 to 37.00% in 1999 before it grew up to 43.40% in 2014 but still below the ASEAN average rate which was 46.21%. This picture shows the unstable orientation and growth occurring in the service sector in Indonesia compared to its Southeast Asian peers.

Figure 4.3.4: ECOWAS" Service Sector, 1990,1999 and 2014 Value Added (% of GDP)



Source: World Bank National Account Data, 2015

In sum, the real economy represented by the agriculture and industry sectors is performing well from the economic orientation perspective while the service sector needs clear vision and appropriate policies as we attempt to do in this paper. Therefore, the formulation of the exchange rate should integrate the growing importance of the real economy in Indonesia.

Moreover, all these statistics show that there are many differences among ASEAN economies but more similarities appear when we look at the economic structure orientation in the long run. This is confirmed by the concentration of countries gathered within the range 30% to 50% contribution of the services and industry sectors. The agriculture sector however, tends to be more specialized in few countries such as Laos, Myanmar, Cambodia and Vietnam. This analysis of the economic structure is important because the similarities in term of economic structure and endowment factors within an integrated area do not always contribute to foster exchanges among nations.

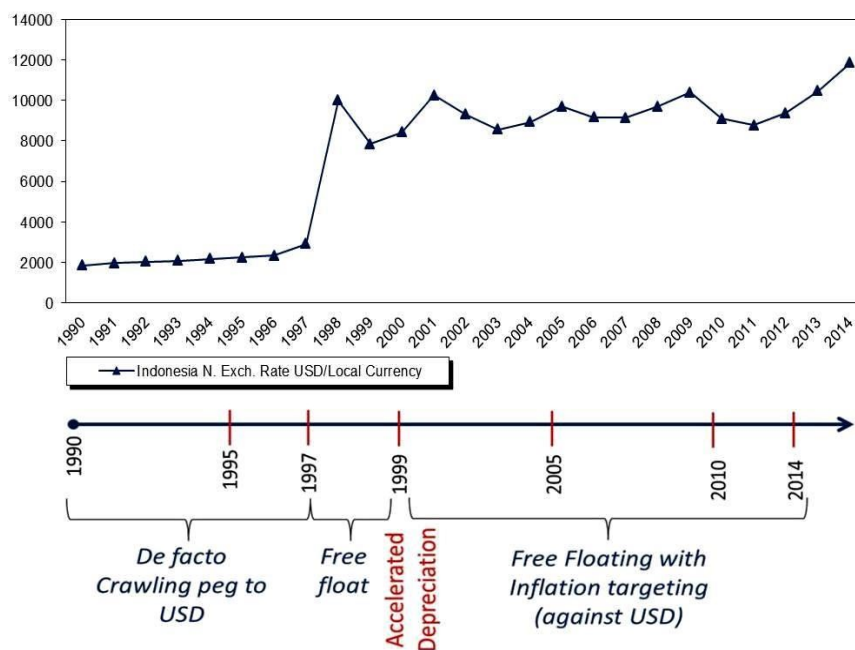
So this performance of Indonesia's GDP as the largest economy in ASEAN and member of the G-20, can be considered as an under-performance compared the other ASEAN countries such as Singapore and Malaysia.

Finally, after the GDP, the factual correlation between inflation and exchange rate will be analyzed with a focus on what we can learn from the Indonesian case.

Factual correlation between Exchange rate and Inflation in Indonesia

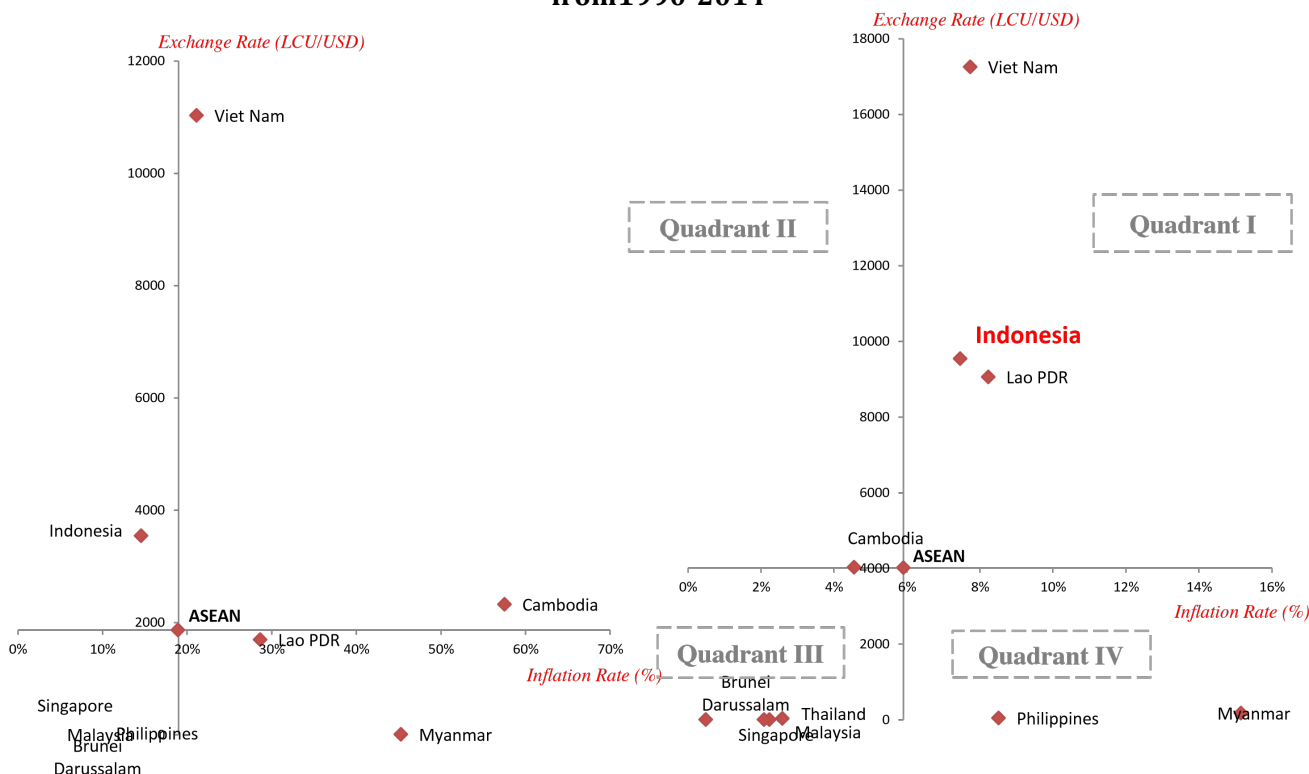
As shown in Figure 4.4, concerning the correlation map between exchange rate and inflation in ASEAN, Indonesia is located in "Quadrant I". This country is the largest market in ASEAN-10 and one of the first in the region to adopt simultaneously floating exchange rate system and inflation targeting (figure 4.4.1) after 98 Asian financial crises.

Figure 4.4.1: Evolution of Exchange rate regimes in Indonesia 1990-2014



Sources: World Development Indicators (WDI-2014) & World Data Atlas / knoema.com

Figure 4.4: Mapping of the correlation between Exchange rate and Inflation in ASEAN-10 from 1990-2014



The analysis of the correlation map on Figure 4.4 shows that Indonesia has been quite successful in dealing with its inflation rate after the Asian crisis in year 1998-99 (figure 4.4). Indeed, the inflation targeting regime has lowered inflationary pressure and allowed the Indonesian central bank (Bank Indonesia-BI) to adopt a cautious monetary easing bias. From 1990 to 1999, the average inflation rate was 14.57% while the second period under inflation targeting rule brought the rate to 7.46% (Table 4.4.1).

Table 4.4.1: Inflation rate comparison before and after 1999 in ASEAN-6

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam	ASEAN-10
From 1990 - 99	14.57%	3.70%	9.48%	1.94%	4.96%	21.12%	18.93%
From 99 - 2014	7.46%	2.23%	8.51%	2.09%	2.59%	7.73%	5.90%
1990-2014	11.02%	2.97%	9.00%	2.01%	3.77%	14.43%	12.42%

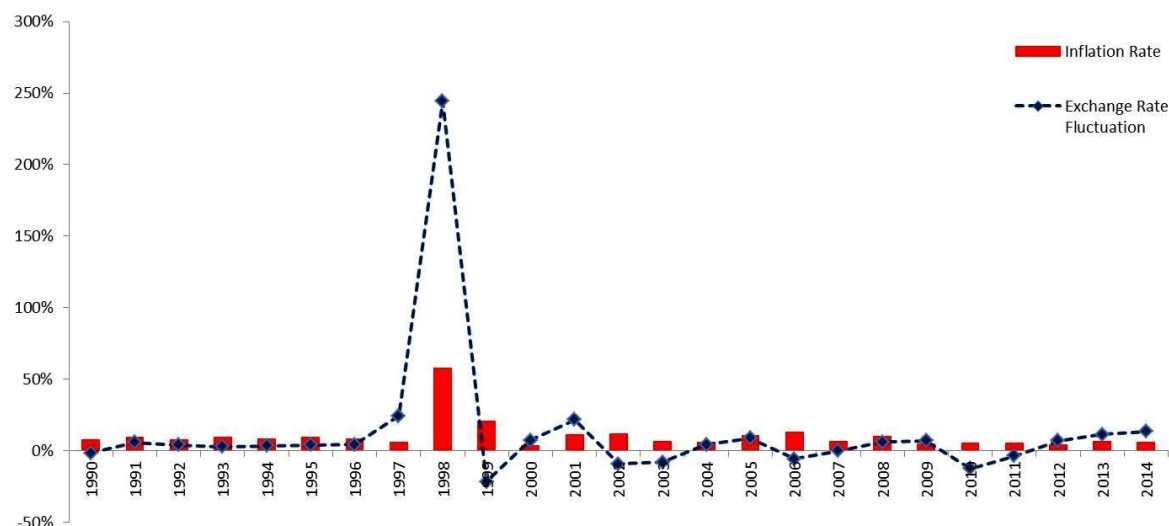
Sources: World Development Indicators (WDI-2014) & World Data Atlas / knoema.com

Actually, the effectiveness of the inflation targeting policy under floating exchange rate was also due to the Central Bank’s benchmark interest rate (BI-rate) which has been maintained around 7.50% for years. The central bank of Indonesia has been quite consistent on that aspect so that further rate cuts or rise is not expected in the immediate future in order to firmly anchor inflation expectations, reduce the fluctuation of the domestic currency in an environment of rapidly changing investors’ sentiment. Inflation rate is expected to continue to stay stable, in line with the official target of 4% ±1 point. On one hand, Indonesia can be considered as the most successful ASEAN “free floater and inflation-targeter” but on the other

hand, the low performance of Indonesia come from its attempt to stabilize the nominal exchange rate by using interest rate, however due to its commitment to target inflation, making its actions to stabilize the exchange rate to be less effective. Indeed, targeting future inflation under floating exchange rate regime can turn out to be inefficient for the stabilization of the economy in presence of a strong linkage between inflation and exchange rate

Figure 4.4.2: Evolution of Exchange rate and Inflation in Indonesia 1990-2014

Indonesia



Sources World Development Indicators (WDI-2014) & World Data Atlas/knoema.com

Therefore, to maintain the inflation rate at that level, “hard and unpopular” decisions had to be made; decisions such as the fall in global oil prices which provided the ideal environment for Indonesian President Joko Widodo to reform popular but wasteful fuel subsidies. More recently, these reforms are being well-used to increase government spending on priority areas, in particular infrastructure development, food security and social protection. Hence, the control of inflation rate after 1999 (figure 4.4.2) under floating exchange rate regime is a major lesson for other countries.

CONCLUSION AND SUGGESTIONS

This risky but challenging mixed-methodology approach used in this paper reveals that Indonesia, under floating exchange rate regime has successfully controlled inflation rate but at the expense of the GDP growth. As a solution, we suggest a new exchange rate formulation named the Inclusive Nominal Exchange rate (INEX). This new exchange rate regime is suggested not for all ASEAN countries but, it is built for singular countries depending on their economic structure, market size and economic orientation.

An “Inclusive Nominal Exchange rate” (INEX) for Indonesia

Compared to Singapore and other ASEAN countries, Indonesia is a larger economy (the largest market, with 40% of the ASEAN-10 population). In fact, it is very appropriate for Singapore to build its economy upon exports and foreign investments since its local market is too small. However, Indonesia should not adopt the same strategy. Indonesia will gain by being “strong from the inside” and not pegging “de facto” its currency against the US dollar. After

strengthening its domestic market, Indonesia can maintain its floating exchange rate regime and still the Indonesian Rupiah will be more stable under an inclusive regional/national economy. To that end, we have suggested a new exchange rate formulation for countries like Indonesia: the Inclusive Nominal Exchange rate, INEX.

The “Inclusive Nominal Exchange rate” (INEX) is an alternative exchange rate regime that is theoretically based on the fact that under floating exchange rate, the freedom to conduct expansionary monetary policies leads to increasing inflations with a negative effect on exchange rate (depreciation), whereas, simultaneously, the growing GDP would contribute in strengthening the exchange rate (appreciation). The advantage of this new formulation of the exchange rate lies in three major economic fundamentals that are taken into account here. The first one is: the demand and supply of currencies resulting from the market represented by the usual nominal exchange rate. The second economic fundamental is the inflation rate (CPI). By including the inflation rate into the calculation, it aims to tell the governments and policymakers that “if you print extensively money or reduce unilaterally the interest rates, don’t be surprised to see your currency losing its value proportionally”. And, the third fundamental variable that has to be integrated in the calculation of the INEX is the real GDP growth. This variable is very important because it is an invitation to hard work in real economy so that the currency can appreciate. Indeed, the Inclusive Nominal Exchange rate’s formulation as proposed by this paper makes it simpler for the policymakers to explain to the ordinary people or laymen why the national currency is losing its value against others, and how it can get stronger. In addition, this new formulation calls for more responsibility and accountability from the decisions“ makers.

The INEX“ formulation is:

$$INEX_t = NExR_{t-1} + [\%Inflation_{t-1} - \%GDP_{t-1}] \times NExR_{t-1}$$

With

INEX_t: Inclusive Nominal Exchange Rate at time *t*

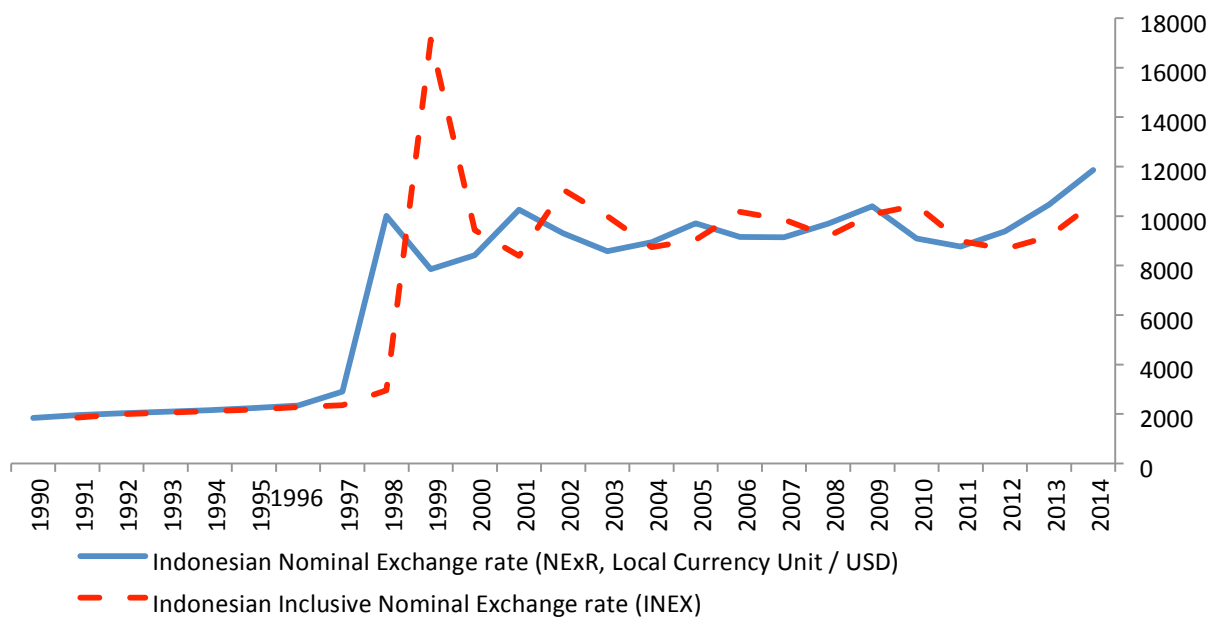
NexR _{t-1}: Previous Year’s Nominal Exchange Rate

% Inflation _{t-1}: Yearly Variation of Consumer Price Index in Percentage

% GDP _{t-1}: Yearly Variation of Real GDP

Let’s give an illustration by comparing the nominal exchange rate and the Inclusive Nominal Exchange rate for period 1990-2014 in Indonesia.

Figure 5.2.1 Comparison between the Nominal Exchange rate and the INEX in Indonesia 1990-2014



Sources World Bank database 2015

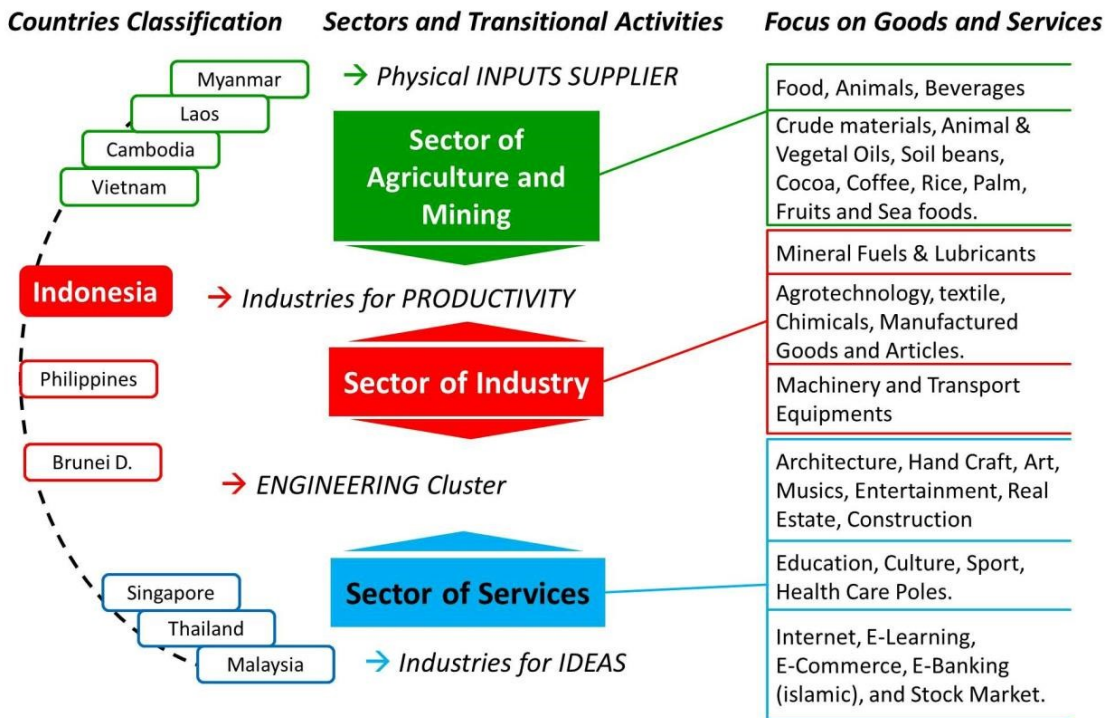
The Inclusive Nominal Exchange Rate (INEX), when it is compared to the nominal exchange rate, shows that the Indonesian national currency “Rupiah” is supposed to appreciate against the US dollar since 2011. This means that the macroeconomic fundamentals of Indonesia have got stronger since 2011, but the nominal exchange rate failed to capture that performance. This formulation tells exactly the real performance of the national Authorities in dealing with the domestic productivity and inflation pressure. It aims to create a more inclusive economy.

Solution for inclusive regional economy

This paper favors not only increasing integration of economies but more inclusive regional growth and development. This entails that any country being part of a community should not just be a member (integration) but also be a major contributor (inclusion) to the economic system based on exchanges. For that purpose, the labor market of the ASEAN-10 countries will have to be more diversified and structured to foster exchange of competencies. To maximize the national potential, there is the need to strengthen the regional integration by various convergent measures. As solution we have built a “Sectorial Integrated Clusters for regional employment” for ASEAN according to the structure of the economies members. The objective is to increase exchanges within the region based on sectorial specialization strategy.

(Figure 5.2.1)

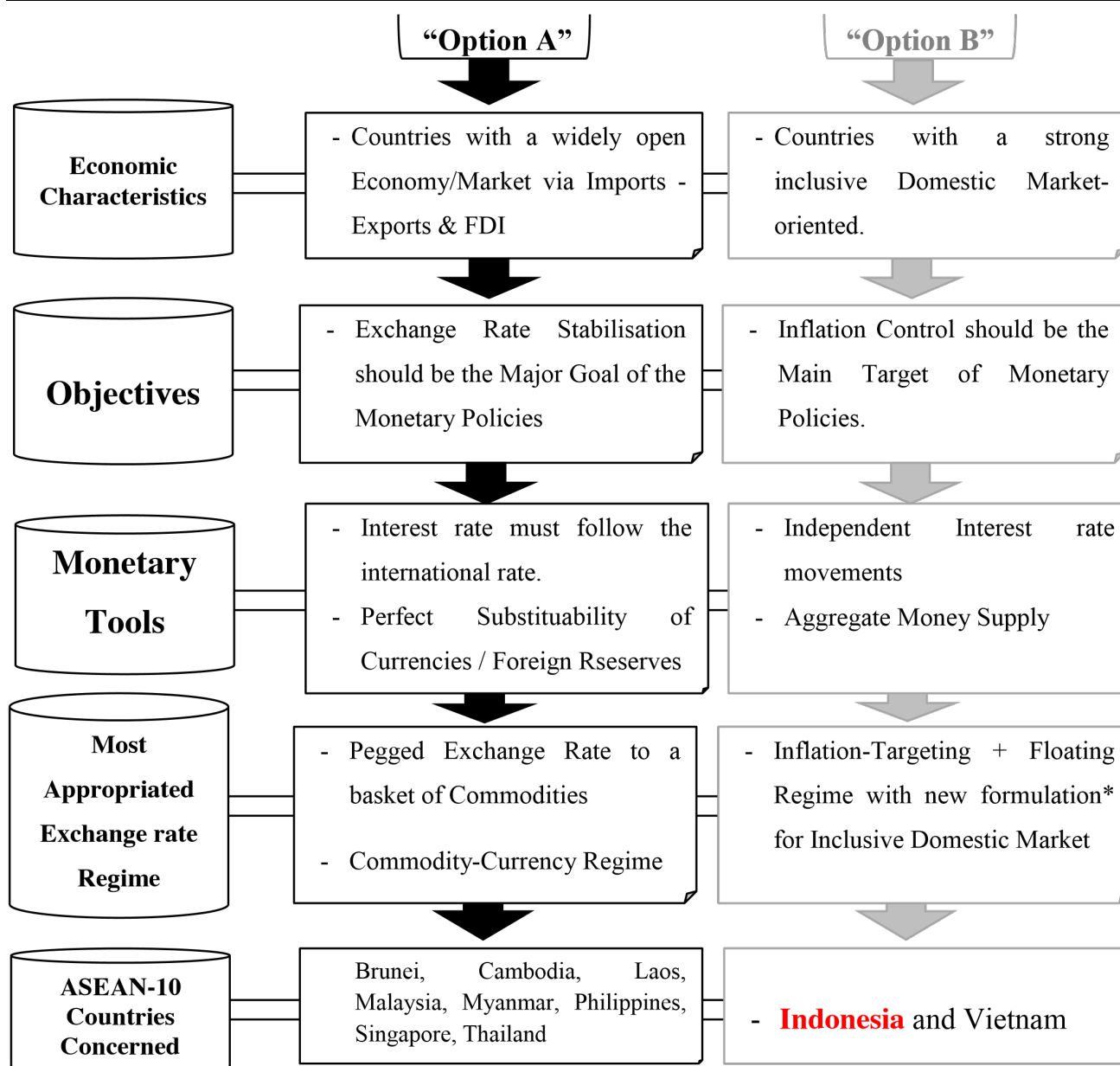
Figure 5.2.1: Sectorial Integrated Clusters for Regional Employment in ASEAN



Source Researcher's own Design

One of the major objectives of the “sectorial integrated cluster for regional employment” is to motivate knowledge sharing and develop intraregional synergies among ASEAN-10 countries for sustainable jobs promotion and exchange rate stability within the ASEAN area.

Finally, there are two options of exchange rate policies for boosting macroeconomic performance:



*For an exchange rate stability that takes into account the economic growth performance and inflationary pressure, here is a New Exchange rate Formulation:

The Inclusive Nominal Exchange rate (INEX):

$$INEX_t = NExR_{t-1} + [\% Inflation_{t-1} - \% GDP_{t-1}]NExR_{t-1}$$

Source: The Researcher’s own design

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