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Comparison of Exchange Rate Policies in Southeast Asia Using Banxia Frontier Analysis (2013-2023)

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Abstract: This research evaluates the efficiency of exchange rate policies in Southeast Asian countries from 2013 to 2023 using the Banxia Frontier Analysis method. By analyzing macroeconomic indicators such as inflation rates, GDP growth, and interest rates, the study identifies disparities in policy effectiveness among these countries. The findings reveal that Brunei Darussalam, Singapore, and Malaysia demonstrate high efficiency in exchange rate management, achieving significant stability with minimal input. This success is attributed to their responsive and well-structured monetary policies, which adapt effectively to global economic dynamics, fostering competitiveness and attracting foreign investment. In contrast, countries such as Myanmar and Thailand exhibit low efficiency, characterized by high input usage and suboptimal output. These inefficiencies are linked to inconsistent economic growth, high inflation, and rigid monetary policies. This study highlights the critical role of efficient exchange rate management in promoting economic stability and sustainable growth. Policymakers are encouraged to adopt more adaptable and resource-efficient strategies to improve stability and resilience against external economic pressures.

Keywords: exchange rate policy; banxia frontier analysis; asean; policy efficiency; economic analysis.

1. Introduction

The Manajemen Effective exchange rate management is crucial for ensuring economic stability and promoting a country's growth. Exchange rate policies significantly impact inflation control, overall economic stability, and the ability to engage in international trade. Well-regulated exchange rates can help countries withstand external shocks, manage inflationary pressures, and maintain competitive advantages in the global market.

In the ASEAN region, Rajan (2011) provides a comprehensive analysis of the management of exchange rate regimes in emerging Asia, with particular attention to the ASEAN region. The study underscores the critical importance of aligning exchange rate policies with domestic economic conditions, international trade dynamics, and the structural features of financial systems. Additionally, it elaborates on how ASEAN countries have devised tailored currency management strategies to facilitate export-oriented growth and ensure currency stability amidst global financial volatility.

This study aims to evaluate the effectiveness of exchange rate policies implemented across ASEAN countries using Banxia Frontier Analysis tools. Through this analysis, we seek to uncover insights into how well these policies perform in achieving established economic objectives, ultimately contributing to a deeper understanding of their role in the broader economic landscape of the region.

The efficiency of exchange rate policies is a critical area of study in economics, particularly regarding their role in influencing national economic stability and growth. Various studies have shown that exchange rate fluctuations can impact macroeconomic variables such as inflation, trade balances, and overall economic performance. For instance, Smith (2018) investigated the complex relationship between exchange rate volatility and economic stability, revealing how unexpected currency movements can lead to inflationary pressures, disrupt international trade, and hinder economic growth. This research emphasizes the importance of effective exchange rate management as a means to mitigate potential negative impacts on a country's economy.

In an increasingly interconnected global economy, the significance of robust exchange rate policies is growing, especially for developing countries vulnerable to external shocks. Consequently, researchers are increasingly utilizing frontier analysis techniques to evaluate the effectiveness of these policies in various countries. A study conducted by Jones et al. (2020) employed such methodology to analyze how different countries manage their currency systems. Their findings indicate that frontier analysis not only allows for comparisons between countries but also provides insights into the effectiveness of various policy frameworks under differing economic conditions. This comparative approach enables policymakers to benchmark their strategies against best practices observed in other nations, facilitating the identification of areas for improvement.

Among the various analytical tools available, Banxia Frontier Analysis emerges as a highly valuable method for assessing policy performance. According to Banxia (2015), this empirical framework compares the efficiency of exchange rate policies with an optimal frontier, offering a clear standard for evaluating how well these policies function. By establishing such benchmarks, Banxia Frontier Analysis enables researchers and policymakers to identify specific areas where improvements can be made. This capability is crucial for informed decision-making, as it allows for the identification of strengths and weaknesses in current policy approaches.

The application of Banxia Frontier Analysis has proven beneficial in revealing not only the direct impacts of exchange rate policies on economic stability but also the broader implications for trade, investment, and overall economic growth. Previous literature has shown an increasing recognition of the importance of rigorous evaluation methods, particularly in the context of dynamic and often unpredictable global markets. This analytical approach provides a comprehensive understanding of how exchange rate policies can be optimized to support economic objectives.

In the case of Indonesia, the unique economic challenges it faces ranging from external economic shocks to domestic inflationary pressures make the insights gained from frontier analysis particularly relevant. The country's exchange rate policy must navigate a complex landscape influenced by global economic trends, domestic market conditions, and the need for financial stability. By specifically applying Banxia Frontier Analysis to Indonesia's exchange rate policy, this research aims to contribute to existing knowledge while offering practical recommendations to enhance policy effectiveness.

Ultimately, understanding the nuances of exchange rate management in Indonesia not only enriches academic discourse but also provides invaluable guidance for policymakers. In striving to achieve economic stability and growth within an evolving global environment, the findings of this research will serve as a resource for developing and refining exchange rate policies that can withstand domestic and international market pressures. Through this comprehensive analysis, the study aspires to highlight best practices in exchange rate management that can be adapted to Indonesia's unique economic context, fostering long-term stability and prosperity.

Literature Review

Exchange rate policy is an important instrument used by governments and Rajan (2011) provides a thorough analysis of exchange rate management in emerging Asia, emphasizing its critical role as a policy tool for stabilizing currency values and supporting economic objectives. The study highlights how governments and central banks in ASEAN countries strategically implement exchange rate policies to navigate domestic economic challenges and respond to global financial pressures.This policy plays a vital role in achieving various macroeconomic objectives, such as inflation control, economic growth, and maintaining trade balance. The implementation of exchange rate policies is influenced by the economic needs of each country, and various strategies can be applied to align exchange rates with national economic goals. Generally, exchange rate policies are classified into three main categories: fixed exchange rates, floating exchange rates, and managed (or pegged) exchange rates.

Fixed Exchange Rate: In this system, a country's currency is pegged to a stronger currency, such as the US dollar or the euro. This approach provides stability but requires substantial foreign exchange reserves to maintain the predetermined exchange rate, especially during market fluctuations. Countries that adopt this policy typically aim to create stability in trade and investment.

Floating Exchange Rate: In a floating exchange rate system, the value of a currency is determined by market mechanisms based on supply and demand. This system provides flexibility and allows the exchange rate to adjust to economic conditions, such as inflation rates and interest rates. However, this system can lead to greater exchange rate volatility, which may impact international trade and investment.

Managed Exchange Rate: Countries implementing this system allow their currency's exchange rate to fluctuate within a narrow range, but the government or central bank intervenes in the foreign exchange market to maintain the exchange rate within a specified band. This approach combines elements of the previous two systems, aiming to balance the benefits of stability with the need for flexibility in response to economic changes.

In Southeast Asia, countries adopt varying exchange rate policies depending on their economic structure, inflation levels, and international trade dynamics. For example, Indonesia and Malaysia employ different approaches to address exchange rate fluctuations, which can affect their economic stability and international competitiveness. Indonesia, with its larger economy, tends to use a managed floating system that offers flexibility while maintaining a reasonable level of stability. Meanwhile, Malaysia adopts a more hybrid approach, combining elements of both floating and managed systems, depending on the economic situation and the country's trade relationships (Mussa, 2000; Calvo & Reinhart, 2002).

These policies not only influence inflation control and export competitiveness but also a country's ability to manage external shocks and maintain economic stability. Countries with tighter exchange rate systems, such as those using fixed or pegged policies, tend to have lower inflation rates but may struggle to cope with external shocks due to a lack of flexibility in adjusting their exchange rates. Conversely, countries with floating exchange rate systems, while more vulnerable to volatility, have greater freedom to adjust their exchange rates in accordance with changing global economic conditions.

In the ASEAN region, where the economies of member countries vary significantly in terms of industrialization, resource availability, and exposure to global market forces, the choice of exchange rate policy becomes crucial for maintaining competitiveness in international markets. Differences in these policy frameworks reflect each country's economic priorities as well as their capacity to manage external influences such as inflation, foreign investment flows, and trade balances.

2. Result

From the analysis conducted, using Banxia Frontier Analysis, it is evident that Brunei Darussalam and Malaysia exhibit the highest efficiency levels, with respective efficiencies of 73.36% and 24.15%. In contrast, countries such as Indonesia, Singapore, and Thailand show significantly lower efficiency levels, with Indonesia at 10.02% and Thailand at a mere 0.03%. This indicates that countries with exchange rate policies that are more responsive to global economic dynamics, like Brunei Darussalam and Malaysia, tend to manage their exchange rates more efficiently compared to those with less adaptive policies.

Table 1. Efficiency of ASEAN Countries' Exchange Rates Using Banxia Frontier Software.

Negara	Input	Output	Efisiensi (True/False)	Warna
Indonesia	12.384	99,17%	False	Amber
Malaysia	4.101	99,17%	True	Green
Singapore	1.355	99,39%	False	Amber
Thailand	33.242	1%	False	Amber
Philipines	50.051	99,37%	False	Amber
Brunei Darussalam	1.356	99,47%	True	Green
Vietnam	19.168	99,77%	True	Green
Laos	11.008	99,79%	True	Green
Kamboja	4.131	99,78%	True	Green
Timor Leste	4.000	99,78%	False	Amber
Myanmar	97.500	99,31%	True	Green

Negara	Input	Output (%)	Efficiency (%)
Brunei Darussalam	1.356	99.47	73.36
Singapore	1.355	99.39	73.35
Timor Leste	4.000	99.78	24.95
Malaysia	4.101	99.17	24.18
Kamboja	4.131	99.78	24.15
Laos	11.008	99.79	9.07
Indonesia	12.384	99.17	8.01
Vietnam	19.168	99.77	5.21
Philippines	50.051	99.37	1.99
Myanmar	97.500	99.31	1.02
Thailand	33.242	1.00	0.03

[1] Efficiency Data Processing Using Banxia Frontier Analysis

The Data on inflation shows significant variation among countries. Malaysia and Singapore have successfully kept inflation under control, while Laos and Myanmar have experienced drastic inflation spikes in certain years. Inflation stability influences exchange rate policies, as countries with low inflation tend to have more stable exchange rate policies. Indonesia and the Philippines have maintained positive GDP growth during this period, despite being impacted by global effects. Conversely, Timor-Leste has experienced inconsistent growth, reflecting challenges in economic management and exchange rate policy. Additionally, lower interest rates in some countries, such as Brunei Darussalam and Malaysia, indicate more accommodative monetary policies that can support economic growth. However, countries with high interest rates, such as Myanmar, may face challenges in attracting investment.

Table 2. Macroeconomic Indicators

Inflation Rate	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Indonesia	6,4	6,4	3,5	4,0	3,2	2,8	3,0	1,6	4,1	3,7
Malaysia	3,1	2,1	2,1	3,7	1,0	0,7	1,0	2,5	3,3	2,5
Singapore	1,0	-0,5	-0,5	1,0	0,4	0,6	0,7	2,3	6,1	4,8
Thailand	1,9	-0,9	0,2	0,7	1,1	0,7	-0,9	1,2	6,1	1,2
Philippines	4,1	1,4	1,8	3,2	5,2	2,5	2,2	3,9	5,8	6,0
Viet Nam	4,1	0,6	2,7	4,5	3,5	2,8	3,3	1,8	3,2	3,3
Brunei Darussalam	-0,2	-0,4	-0,7	-0,3	1,0	-0,4	-0,2	1,7	3,7	0,4
Cambodia	3,9	1,2	3,0	3,0	2,5	1,9	2,1	2,9	5,3	2,1
Laos	4,2	1,3	1,6	1,5	2,0	3,3	4,0	3,8	23,0	31,2
Myanmar	5,9	11,4	6,8	7,0	5,9	8,6	7,5	3,7	27,2	27,0

The The efficacy of exchange rate policies significantly impacts a nation's economic stability, foreign direct investment, and export competitiveness. Countries with robust exchange rate regimes, such as Malaysia and Vietnam, have exhibited more consistent and positive long-term economic growth. Conversely, nations with less effective exchange rate policies often grapple with challenges in achieving sustainable economic growth and stability.

Table 3. ASEAN Growth Rate of GDP

Growth Rate of GDP	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Indonesia	5,0	4,9	5,0	5,1	5,2	5,0	2,5	3,7	5,3	5,0
Malaysia	6,0	5,0	4,2	5,4	4,7	4,3	0,5	3,3	8,7	3,6
Singapore	3,6	1,9	2,0	2,7	3,4	0,7	0,2	9,7	3,8	1,1
Thailand	0,9	2,9	3,2	3,5	4,2	2,4	-4,8	1,6	2,5	1,9
Philippines	6,1	6,1	6,9	6,5	6,2	5,9	2,0	5,7	7,6	5,5
Viet Nam	6,0	6,7	6,2	6,3	7,1	7,0	4,8	2,6	8,0	5,1
Brunei Darussalam	-2,5	-0,4	-2,5	0,0	0,1	3,9	2,0	-1,6	-1,6	1,4
Cambodia	7,1	7,0	7,0	7,1	7,5	7,1	2,3	3,1	5,1	5,0
Laos	7,5	6,7	6,8	6,9	6,2	5,0	3,5	2,3	2,5	3,7
Myanmar	8,0	7,0	5,9	7,7	6,4	6,8	4,2	-5,9	2,0	0,8

The impact of exchange rate policies on Southeast Asian economies is multifaceted, with a significant link to interest rates. Countries like Malaysia and Singapore, which have efficient and responsive exchange rate policies, maintain low and stable inflation rates, and this also allows for lower and stable interest rates. These stable interest rates promote investment, reduce uncertainty, and support sustained economic growth. These nations exhibit high levels of policy efficiency in managing their currencies, which also impacts their inflation rates and economic stability.

In contrast, nations such as Laos and Myanmar, which face challenges with ineffective exchange rate policies, tend to experience higher inflation and are forced to implement higher interest rates to counter inflation. However, these higher interest rates often discourage investment and slow down economic growth, undermining the efficiency of their overall economic policies. Moreover, exchange rate policies are crucial for trade balance stability. Countries with effective exchange rate policies, such as Vietnam and Malaysia, tend to have more balanced trade accounts, which supports their economic growth. Efficient exchange rate management helps enhance export competitiveness and reduce import costs, positively influencing economic stability and trade balance.

To evaluate the efficiency of exchange rate policies across ASEAN countries, this study employs Banxia Frontier Analysis (BFA), which highlights that countries like Malaysia, Brunei Darussalam, Vietnam, Laos, Cambodia, and Myanmar exhibit higher policy efficiency compared to Indonesia, Singapore, the Philippines, and Thailand. This suggests that these nations, with more responsive exchange rate and interest rate policies, manage their economies more effectively, resulting in greater stability and sustainable growth.

Table 4. Interest Rate Trends in ASEAN Countries.

Interest Rate	2021	2022	2023	2024	2024
Indonesia	3.50	4.25	5.25	5.50	5,0
Malaysia	1.75	2.00	3.00	3.25	4,5
Singapore	0.25	1.50	4.00	4.50	2,6
Thailand	0.50	1.00	2.25	2.75	2,3
Philippines	2.00	3.25	6.00	6.50	6,0
Viet Nam	4.00	5.00	5.00	5.50	6,0
Brunei Darussalam	0.5	0.6	0.7	0.5	3,7
Cambodia	7.00	5.00	5.00	5.00	5,8
Laos	6.00	7.00	6.50	7.00	4,0

3. Discussion

The findings of this research on exchange rate policies in Southeast Asia reveal significant disparities in efficiency among the countries studied. The results indicate that Brunei Darussalam, Singapore, and Malaysia demonstrate high levels of efficiency in managing their exchange rates, attributed to their responsive monetary policies and strong institutional frameworks. This aligns with previous studies, such as those by Rajan (2011), which suggest that robust exchange rate management can enhance economic stability and attract foreign investment. In contrast, countries like Myanmar and Thailand exhibit low efficiency, struggling with high inflation and rigid policies. This inefficiency resonates with the work of Ha et al. (2020), who explore the inflation-exchange rate pass-through, highlighting how inadequate policy responses can exacerbate economic challenges.

The sustained stockpiling of reserves in many Southeast Asian nations since the global financial crisis reflects a strategic response to global imbalances, as discussed in Rajan's analysis. This phenomenon underscores the importance of reserve accumulation in providing a buffer against external shocks, reinforcing the necessity for adaptable exchange rate regimes. Furthermore, the analysis demonstrates a clear relationship between exchange rate management and macroeconomic indicators such as GDP growth and inflation rates. Countries with effective exchange rate policies, such as Malaysia and Vietnam, have maintained stable growth trajectories, corroborating findings from previous literature (Nguyen & Do, 2020). Conversely, nations with less effective policies often face challenges in achieving sustainable economic growth. Future research should explore the long-term impacts of these exchange rate policies on economic resilience, especially in the context of global economic volatility. Investigating the interplay between exchange rate management and other macroeconomic variables, such as foreign direct investment and trade balances, could yield valuable insights for policymakers in the region.

In conclusion, this study highlights the critical role of effective exchange rate management in fostering economic stability and growth in Southeast Asia. The findings advocate for a reevaluation of existing policies, encouraging countries to adopt more flexible and resource-efficient strategies to enhance their resilience against external economic pressures.

4. Materials and Methods

This study adopts a quantitative approach utilizing descriptive and comparative analysis. The data collected will be analyzed to assess the effectiveness of exchange rate policies in Southeast Asian countries. The population of this research includes ten ASEAN member countries: Indonesia, Malaysia, Singapore, Thailand, the Philippines, Vietnam, Brunei Darussalam, Laos, Cambodia, Myanmar, and Timor-Leste. The sample analyzed consists of data from 2013 to 2023 for each country. The data collected will include official government reports, publications from the World Bank and the International Monetary Fund (IMF), and other relevant macroeconomic data (Nguyen & Do, 2020; Ha, Stocker, & Yilmazkuday, 2020). Data collection will also involve interviews with economists or policymakers to gain deeper insights into exchange rate management, supported by literature from previous studies on exchange rate pass-through and foreign trade (Chaudhary, Hashmi, & Khan, 2016; Sugiharti, Esquivias, & Setyorani, 2020). The Banxia Frontier Analysis method will be used for data analysis, focusing on efficiency comparisons among the ASEAN member countries (Rasiah, Cheong, & Doner, 2014).

Data collection techniques include a literature review to gather and analyze previous research relevant to exchange rate policies and the application of Banxia Frontier Analysis. Secondary data analysis will be conducted by calculating macroeconomic indicators such as inflation, GDP growth, and interest rates. This study will also involve interviews with economists or practitioners in the field of monetary policy to gain deeper insights into the challenges and best practices in exchange rate policy. Data analysis will be performed using the Banxia Frontier Analysis method to evaluate the efficiency of exchange rate policies in the countries studied. Descriptive analysis will calculate the mean, median, and standard deviation of each relevant macroeconomic indicator, while comparative analysis will compare the efficiency of exchange rate policies among countries.

The evaluation criteria in this study focus on policy efficiency, measuring how well exchange rate policies can meet economic objectives such as inflation stability and economic growth. Additionally, the economic impact will be assessed based on the influence of exchange rate policies on other macroeconomic indicators, including the trade balance and foreign investment. The research plan is divided into several stages, beginning with data and literature collection, followed by data analysis using Banxia Frontier Analysis, and concluding with the drafting of reports and policy recommendations. All collected data, materials, and analysis code will be made available to readers upon request.

5. Conclusions

This This study provides a comprehensive evaluation of the efficiency of exchange rate policies in Southeast Asia from 2013 to 2023 using Banxia Frontier Analysis. The findings reveal significant disparities in policy effectiveness across the region. Countries such as Brunei Darussalam, Malaysia, and Singapore exhibit high levels of efficiency in their exchange rate management, largely due to their responsive monetary policies and strong institutional frameworks. These nations have successfully maintained economic stability, attracted foreign investment, and fostered sustainable economic growth, reinforcing the critical role of effective exchange rate management in enhancing national resilience.

In contrast, countries like Myanmar and Thailand demonstrate lower efficiency in managing their exchange rates, primarily due to high inflation rates and rigid policy responses that hinder economic performance. This disparity emphasizes the need for these countries to adopt more flexible, resource-efficient strategies to improve their exchange rate management and better align with global economic dynamics. The study highlights the interconnectedness between exchange rate policies and other macroeconomic indicators, such as GDP growth and inflation rates. Policymakers are urged to reevaluate their existing frameworks and consider adopting best practices from more successful counterparts to build stronger resilience against external economic pressures. Furthermore, future research should focus on the long-term implications of exchange rate policies on economic stability, particularly in the face of global volatility. By exploring the dynamic relationship between exchange rate management and variables like foreign direct investment and trade balances, stakeholders can gain valuable insights into strategies that support sustainable economic development in the region.

In conclusion, this study advocates for a reevaluation of exchange rate policies in Southeast Asia, encouraging a shift towards more adaptive and flexible frameworks that can better navigate the complexities of the global economic landscape. This approach will enable countries in the region to achieve greater economic stability and long-term growth while responding effectively to external shocks.

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