# ARDL PANEL MODEL FOR MANAGING EXCHANGE RATE SYSTEMS USING POST-COVID-19 OPEN ECONOMY MODEL

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**Abstract:** Destination from study this that is for test variable Interest Rates, Inflation, Total Money Supply, and GDP how much big in take effect to EXCHANGE variable This study aims to examine how Interest Rates, Inflation, Total Money Supply, Study this conducted against 11 countries with exchange rate strongest in the APEC countries in the world (America, Australia, Malaysia, Singapore, South Korea, Japan, China, Indonesia, Canada, Russia, and Thailand). The study includes 11 nations that have the most robust exchange rates among APEC countries globally, namely the United States, Australia, Malaysia, Singapore, South Korea, Japan, China, Indonesia, Canada, Russia, and Thailand. The ARDL Panel Analysis results show that the Leading Model Control indicators Exchange Rate System Through the Post -Covid-19 Open Economy Model, this _ due to the results data processing, the ROE variable is variable that gives stable influence, ie _ effect on the inside period long nor period short in give influence significant to score exchange, which is assessed from level short run and long run stability in the table result. This finding stems from data processing, revealing that the ROE variable consistently impacts exchange rates, whether in the short term or long term, which is evaluated based on short-run and long-run stability as seen in the results table.

## INTRODUCTION

A healthy economy in a nation can examine how well people are doing instead of just focusing on economic growth. Economic growth refers to the increase in the total output of goods and services produced by a country over a specific time frame, which is measured by various economic indicators such as rising national income per capita, reduced unemployment levels, and decreased poverty rates. Economic growth can also be seen as an improvement in the overall situation of a country's economy through ongoing developments. Based on the table above, it is evident that the rate of inflation

shows fluctuations that vary from 2010 to 2020.
In 2010, there was a significant increase primarily due to financial crisis issues that originated in Japan and spread to other regions worldwide. The most noticeable inflation movement occurred in Japan, where in 2016 there was an increase in inflation to 8.10%, up from 7.54% the previous year.
Mexico saw a rise of 4.44% from the prior year's 1.53%, while China faced a slight decline of -0.03% from 1.03% the year before. However, in 2017, China experienced an increase of 4.23%. Indonesia encountered a drop of 3.35% from 8.36% the previous year, and in 2018, Turkey and Russia experienced increases of 16.48% and 9.99%, respectively. In addition to Indonesia, many countries globally also faced a decline in inflation, with several experiencing deflation. This inflation rate correlates with the economies of various countries, which are still fraught with uncertainty. Additionally, there has been a sharp drop in commodity prices, including refined oil, amid escalating tensions between the United States and China regarding trade. The purpose of this study is to analyze the control of the exchange rate system through the post-Covid-19 open economy model, focusing on major exchange rates in eleven APEC countries (varies).

## RESEARCH METHODS

ARDL Panel Regression Panel Regression Testing with the formula:

KURS it =α+ β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
The following is the panel regression formula based on country:
AMERICAN EXCHANGE = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
AUSTRALIAN EXCHANGE RATE = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e MALAYSIA KURS = α+β1INF it + β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
CHINESE EXCHANGE = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
INDONESIAN EXCHANGE = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e EXCHANGE t = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
KORSEL EXCHANGE = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
SINGAPORE EXCHANGE RATE = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
CANADIAN EXCHANGE = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e
RUSSIAN EXCHANGE At = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e

THAILAND EXCHANGE exchange rate = α+β1INF it +β2JUB it +β3PDB it + β4INV it + β5SBI it+ β6PENG it + e Where: EXCHANGE = Dollar exchange rate (US$) INF = Inflation (%) JUB = Money supply M2,(%) GDP = Gross Domestic Product (%) INV = Investment SBI = Central bank interest (%) PEM = Unemployment € : error term β : regression coefficient α : constant i : number of observations (11 countries) t : the amount of time 10 years

## RESULTS AND DISCUSSION

ARDL Panel models are considered valid if they exhibit a cointegrated lag, with the main assumption being that the coefficient value has a negative slope and is significant at the 5% level. The results presented above indicate that the criteria for the employed ARDL Panel model have been met: the coefficient is negative at -0.04 and significant with a probability value less than 0.05, specifically at 0.2891. Therefore, it can be concluded that the ARDL panel model utilized in this study is accepted.

## CONCLUSION

Based on the analysis of results and discussions conducted using simultaneous methods, we can conclude: The results indicate that $R^2$ = 0.125369, suggesting that the variables SBI, INF, JUB, and PDB explain 12.5% of the EXCHANGE, while the remaining 87.5% of the EXCHANGE is affected by other external variables not included in the model. It is evident that SBI has a positive and significant impact on the EXCHANGE in this study. INF also shows a positive and significant effect on the EXCHANGE in this study. However, JUB has a negative and insignificant effect on the EXCHANGE in this study. The impact of GDP is negative and not significant in this study. From the estimated results mentioned above, it is demonstrated that $R^2$ = 0.088783, which indicates that the variables PENG, INV, and EXCHANGE account for 8.8% of GDP, while the remaining 91.2% of GDP is influenced by other external variables beyond those estimated in the model. PEM has a negative and significant influence on GDP in this study. INV shows a negative but insignificant effect on GDP in this study. It was also stated that EXCHANGE has a positive effect, though it is not significant for GDP in this study.

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