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Analysis of the Determinants of Indonesia's Balance of Payments ECM Model Approach 2003-2022

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ABSTRACT
This study aims to analyze the determinants of Indonesia's balance of Indonesia's balance of payments partially and simultaneously in 2003-2022. This study consists of four independent variables (interest rates, exchange rates, inflation, and exports) and one dependent variable (Indonesia's balance of payments). The research method used is Error Correction Model (ECM). The results showed that the exchange rate has a negative effect in both the long and short term on Indonesia's balance of payments, but the effect is not significant, interest rates have a negative effect in the long term, but the effect is not significant, while in the short term it has a negative and significant effect. Inflation has a negative effect in the long term on Indonesia's balance of payments, but the effect is not significant, while in the short term it has a positive and insignificant effect, exports have a positive effect on Indonesia's balance of payments in both the long and short term, but the effect is not significant.

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INTRODUCTION

A country's internal and external relations are closely linked. Foreign relations, often known as external relations, have an influence on a country's economy. Indonesia has embraced an open economic system since 1970, in which a country engages in international trade. International trade is the activity of goods and services transactions that occur between countries.

A number of countries have established trade zones to encourage international trade. Trade zones are often formed on the basis of free trade principles. Free trade principles are a set of concepts and principles that support unfettered international trade. These principles seek to eliminate or minimize trade barriers such as tariffs, quotas, and non-tariff barriers, and to allow the free movement of goods and services between countries.

Indonesia is committed to free trade by signing a number of free trade agreements with various countries and regions around the world. With these agreements, Indonesia is free to export and import with other countries without any trade barriers. Indonesia's free trade agreements include agreements with ASEAN countries, Asia, the European Union and the World. Within the ASEAN region, Indonesia is a member of the ASEAN-Free Trade Area (AFTA). For the Asian region, Indonesia is a member of the Asia-Pacific Economic

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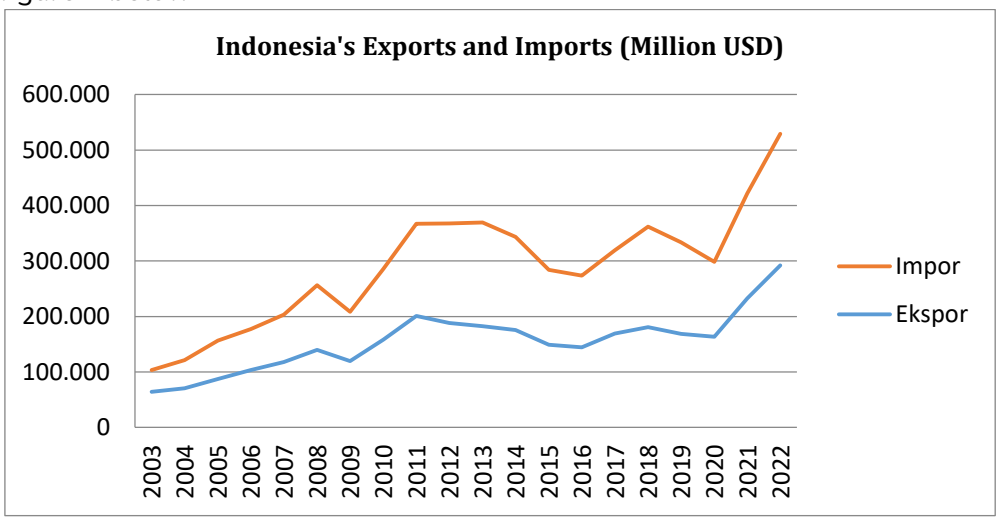
Cooperation (APEC). In addition, the free trade agreement between Indonesia and the European Union is known as the Indonesia-European Union Comprehensive Economic Partnership Agreement (IEU-CEPA). Then, in world free trade, Indonesia is a member of the World Trade Organization (WTO).

In 2022, Singapore became Indonesia's main trading partner in the ASEAN region, with the highest trade value reaching USD 33.8 million, with an export value of USD 14.4 million and an import value of USD 19.4 million (Bank Indonesia, 2022). In addition to ASEAN members, Indonesia also has free trade agreements with Asian countries. China is Indonesia's largest trading partner in the Asian region, with total trade between the two countries reaching US 133.65 million, up 17.7% from 2021. Indonesia's exports to China reached USD 65.92 million, while imports from China reached USD 67.72 million (Bank Indonesia, 2022). Furthermore, in terms of world free trade, China is Indonesia's largest trading partner, followed by the United States. In 2022, Indonesia's exports to the United States reached USD 28.20 million, while imports from the United States reached USD 11.61 million (Bank Indonesia, 2022).

Indonesia's exports and imports tended to increase during 2003-2022. This can be seen in figure 1 below.



Source: Bank Indonesia, 2023

Figure 1. Indonesia's Exports and Imports (Million USD)

Indonesia's total export value in 2022 was USD 291,904 million and the import value in 2022 was USD 237,447 million (Bank Indonesia, 2022). This shows that Indonesia exports more than it imports. In line with the value of exports that experienced a surplus, Indonesia's balance of payments in 2022 also experienced a surplus again. This can be seen in figure 2 below.

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Source: Bank Indonesia, 2023

Figure 2. Value of Indonesia's Balance of Payments (Billion USD)

The development of Indonesia's balance of payments from 2003 to 2023 has fluctuated. In 2003 Indonesia's balance of payments experienced a surplus of USD 3.655 billion. Then it decreased in 2004 to USD 309 million and rose again to USD 444 million in 2005. After experiencing a decline in 2004 and 2005, Indonesia's balance of payments again experienced an increase in surplus in 2006 to USD 14.511 billion. Although still experiencing a surplus in 2007, there was a decrease in the value of the surplus from the previous year to USD 12.71 billion. In 2008-2009 the balance of payments experienced a deficit of USD 1.945 billion in 2008 and USD 12.506 billion in 2009. This was due to the financial crisis that affected the value of Indonesia's balance of payments. In 2010 the balance of payments increased with a surplus value of USD 30.285 billion.

Still in a surplus position, there was a decline in the value of Indonesia's balance of payments in 2011 to USD 11.857 billion. However, in 2012 the value of the balance of payments decreased significantly to USD 165 million. Then, in 2013 Indonesia's balance of payments experienced a deficit of USD 7.325 billion. However, it again recorded a surplus of USD 15,249 billion in 2014. Furthermore, in 2015 Indonesia's balance of payments again experienced a deficit of USD 1.098 billion. In 2016 and 2017 Indonesia's balance of payments recorded a surplus of USD 12,089 billion and USD 11,586 billion. Furthermore, in 2018, 2019 and 2020 Indonesia's balance of payments recorded a deficit of USD 7,131 billion, USD 4,676 billion, and USD 2,597 billion respectively. After experiencing a deficit for three consecutive years, in 2021 Indonesia's balance of payments again recorded a surplus of USD 13,461 billion. The surplus was supported by rapidly increasing export performance in response to increased demand from trading partner countries and high global commodity prices, while imports increased in response to domestic economic recovery.The overall development of Indonesia's balance of payments in 2022 recorded a surplus, supported by higher export performance. Indonesia's total balance of payments surplus in 2022 reached USD 3,999 billion (Bank Indonesia, 2022).

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Changes in the volume of exports and imports will affect the country's trade balance. The value of Indonesia's trade balance is recorded in Indonesia's balance of payments so that it has an impact on the condition of Indonesia's balance of payments. Based on the description above, this study aims to analyze the determinants of Indonesia's balance of payments with the ECM model approach during the period 2003-2022.

Literature Review

Balance of Payments

The balance of payments describes the record of international transactions (Sujianto, 2020), defines the external economic position and economic health of a country (Jadhav, 2020). Soelistyo (2022), there are three approaches in the balance of payments, namely the elasticity approach, the absorption approach, and the monetary approach. The elasticity and absorption approaches examine the balance of payments from a goods market equilibrium perspective. Elasticity theory uses a microeconomic approach, while absorption theory uses a macroeconomic approach. The monetary approach, on the other hand, is based on money market equilibrium.

Interest Rate

Boediono (2014) the interest rate is the price that must be paid in the event of an exchange between one Rupiah today and one Rupiah in the future. A high interest rate policy can be detrimental to economic activity. High interest rate policies can affect economic activity because high interest rates can make borrowing more expensive, making businesses less interested in investing in expansion or new projects which can reduce project profitability. High interest rates can also reduce the competitiveness of a country's exports in the global market. When interest rates are high, financing costs will increase, making production and exports more expensive. This can lead to a decline in exports, affecting the value of the trade balance. Reduced export competitiveness and low investment can lead to a deficit in a country's balance of payments.

Exchange Rate

The exchange rate of a currency is defined as the relative price of one currency against another (Salamah & Wahyuni, 2021). Krugman *et al,* (2014), there are three main approaches that primarily affect exchange rates, namely parity conditions, asset markets, and balance of payments. The concept of relative purchasing power parity is defined as the percentage change in the exchange rate of two countries during the same period as the difference in inflation rates between the two countries. This concept shows that the exchange rate must make adjustments to reflect changes in the relative price level due to inflation. In addition, the concept of interest rate parity states that the future exchange rate is determined by the interest rate differential between the two countries, with or without incorporating a risk premium. This implies that interest rate differentials will affect future exchange rates between currencies.Investors and foreign exchange market participants seek to maximize income by selecting an ideal portfolio of various assets, both local and international. The demand and supply of these financial assets can affect exchange rates. The economic condition of a country, reflected in its balance of payments, is an important determinant of exchange rates. The balance of payments includes the current account,

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capital account, and financial account. A deficit in the current account can lead to currency depreciation. This is because more foreign currency is needed to pay for imports than is earned through exports. This then results in a decline in the price of domestic goods in the international market. This decline in prices leads to an increase in export competitiveness, which in turn triggers an increase in exports and brings the balance of payments back into balance, even reaching a surplus.

Inflation

Inflation can cause a rise in prices in a country. When prices in a country rise, a large amount of domestic money is transferred to foreign trade, both exports and imports; therefore, increased spending in a country has a direct impact on the balance of payments (Sultani & Faisal, 2022).

Rising domestic prices tend to make domestic goods and services more expensive than those of their trading partners. This has an impact on reducing exports and increasing imports so that it can reduce the value of Indonesia's trade balance. Meanwhile, if the foreign inflation rate is higher than the domestic inflation rate, the price of foreign goods is not in demand and the price of domestic goods is more enjoyable. This has an impact on increasing exports so as to increase the value of the trade balance which then has an impact on Indonesia's balance of payments surplus.

Export

According to Indonesian Trade Statistics, exports are trade that involves the release of goods from the Indonesian Customs area while still meeting applicable requirements. The customs area in question is the territory of the Republic of Indonesia, which includes the land, sea and airspace above it, as well as parts of the Exclusive Economic Zone and Continental Shelf to which Law Number 10 of 1995 concerning Customs applies.Exports must meet applicable requirements. These requirements may include documentation, compliance with trade regulations, compliance with international trade agreements, and payment of applicable taxes or tariffs.

Conceptual framework

This study using two variables, namely the dependent variable and the independent variable using the ECM approach model to see the long-term and short-term effects. The dependent variable in this study is Indonesia's balance of payments and the independent variables are interest rates, exchange rates, inflation, exports and imports. So it is suspected that interest rates, exchange rates, inflation, exports and imports both simultaneously and partially in the short term and long term are factors that affect Indonesia's balance of payments.

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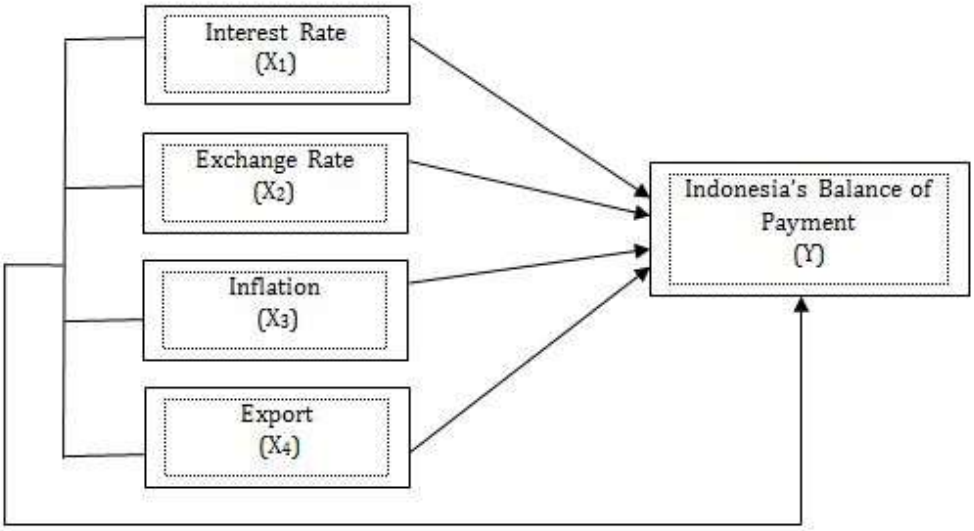

Figure 3. Conceptual Framework

Research Hypothesis

Based on the problem formulation and conceptual framework above, the research hypothesis put forward by the researcher is as follows:

1. Interest rates has a negative and significant effect on Indonesia's balance of payments in the long term and short term.
2. Exchange rate has a negative and significant effect on Indonesia's balance of payments in the long term and short term.
3. Inflation has a negative and significant effect on Indonesia's balance of payments in the long term and short term.
4. Export has a negative and significant effect on Indonesia's balance of payments in the long term and short term.
5. Interest rates, exchange rates, inflation and exports simultaneously have a negative and significant effect on Indonesia's balance of payments in the long term and short term.

METHOD

Types of research

This research is a quantitative study that uses time series data to analyze the determinants of Indonesia's balance of payments using the Error Correction Model (ECM) approach using secondary data from 2003-2022.

Location and Time of Research

This study was conducted to analyze the determinants of Indonesia's balance of payments using the ECM model approach from 2003 to 2022. The research location is in Indonesia. The research was conducted from September 2023 to December 2023.

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Types of Research Data

The data used in this study are secondary data in the form of time series taken from Indonesia's balance of payments, interest rates, the exchange rate of the Rupiah against the United States Dollar, inflation, exports and imports in 2003-2022. Secondary data obtained from the Bank Indonesia website.

Data Analysis Techniques

Data analysis was carried out by the *Error Correction Model* (ECM) use *E-Views 10*. Error Correction Model (ECM) is a technique for analyzing time series data where the variables are interdependent. This test is designed to assess the long-run and short-run equilibrium correlations that arise as a result of the cointegration of the research variables. The Error Correction Model (ECM) is estimated in stages, namely stationarity test (root test), cointegration test, long-term estimation, and short-term estimation

Hypothesis test

Hypothesis testing uses the T test to see the partial effect of each independent variable on the dependent variable and the F test to see the simultaneous effect of all independent variables on the dependent variable. The test is carried out by looking at the P-value if the P value <0.05 then H_0 is rejected and vice versa, if the P value > 0.05 then H_0 is accepted.

RESULT AND DISCUSSION

Root Test Result

The root test used in this study is the *Augmented Dicky Fuller* (ADF) method.

Table 1. Root Test Level Result

No	Variabel	ADF T-Statistic Value	Critical Value 5%
1	LnIR	-0.535897	-3.029970
2	LnER	-0.779380	-3.029970
3	LnIF	-0.535897	-3.029970
4	LnX	-1.401652	-3.029970
5	NPI	-3.730475	-3.029970

Source: Eviews 10 (Data Processing Results, 2023)

Table 1 shows the results of the root test using the *Augmented Dickey Fuller* (ADF) test at the level level. It can be seen that the interest rate, exchange rate, inflation and export variables are not stationary at the level level. However, Indonesia's balance of payments variable is stationary at the level. f the ADF test indicates that the data is not stationary, then the next thing to do is to do a differential withdrawal until it becomes stationary at the same level.

Table 2. First Differential Root Test Result

No	Variabel	ADF T-Statistic Value	Critical Value 5%
1	LnIR	-5.891930	-3.040391
2	LnER	-4.337889	-3.040391
3	LnIF	-5.891930	-3.040391
4	LnX	-3.248821	-3.040391
5	NPI	-5.458172	-3.040391

Source: Eviews 10 (Data Processing Results, 2023)

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https://ejournal.seaninstitute.or.id/index.php/Ekonomi

Table 2 shows the root test results at the first differential level. It can be seen that the variables of interest rates, exchange rates, inflation, exports and Indonesia's balance of payments are stationary at the first differential level.

Cointegration Test Result

This study uses the *Johansen Cointegration Test*.

Table 3. Cointegration Test Result

Hypothesized No. of CE(s)	Eigenvalue	Trace Statictic	Critical Value 0,05	Prob
None *	0.986335	144.9538	69.81889	0.0000
At most 1 *	0.912007	67.68103	47.85613	0.0003
At most 2	0.643553	23.93208	29.79707	0.2033
At most 3	0.230201	5.363828	15.49471	0.7690
At most 4	0.035711	0.654562	3.841466	0.4185

Source: Eviews 10 (Data Processing Results, 2023)

Table 3 shows the results of cointegration testing using the Johansen Cointegration Test. It can be seen that the trace statistic value is greater than the critical value, so the independent variable and the dependent variable have a long-term relationship.

Modeling Result Error Correction Model

Table 4. Long-Term Model Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	223680.3	277684.2	0.805521	0.4331
LnIR	-6012.353	32641.00	-0.184196	0.8563
LnER	-34201.11	17511.42	-1.953075	0.0697
LnIF	-1264.991	5798.258	-0.218167	0.8302
LnX	9956.336	10533.08	0.945245	0.3595
R-squared	0.255252	Mean dependent var		5902.990
Adjusted R-squared	0.056652	S.D. dependent var		9600.947
S.E. of regression	9325.024	Akaike info criterion		21.33111
Sum squared resid	1.30E+09	Schwarz criterion		21.58004
Log likelihood	-208.3111	Hannan-Quinn criter.		21.37970
F-statistic	1.285260	Durbin-Watson stat		1.822469
Prob(F-statistic)	0.319608			

Source: Eviews 10 (Data Processing Results, 2023)

Based on table 4, the long-term ECM equation is formulated as follows:

NPI = 223,680.3 - 6,012.353 LnIR - 34,201.11 LnER - 1,264.991 LnIF + 9,956.336 LnX

Based on the ECM regression equation in the long run, it can be interpreted as follows:

1. The constant value is positive at 223,680.3, this indicates that if the interest rate, exchange rate, inflation and export variables are considered constant (0) then the value of Indonesia's balance of payments in 2003-2022 is USD 223,680.3.
2. The regression coefficient value of the interest rate variable (β_1) is negative at -6,012,353. This indicates that if there is an increase in interest rates by 1%, it will

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reduce the value of Indonesia's balance of payments in 2003-2022 by USD 6,012,353.

3. The regression coefficient value of the exchange rate variable (β_2) is negative at -34,201.11. This indicates that if there is an increase in the exchange rate by 1%, it will reduce the value of Indonesia's balance of payments in 2003-2022 by USD 34,201.11.
4. The regression coefficient of the inflation variable (β_3) has a negative value of -1,264.991. This indicates that if there is a 1% increase in inflation, it will reduce the value of Indonesia's balance of payments in 2003-2022 by USD 1,264.991.
5. The regression coefficient value of the export variable (β_4) is positive at 9,956.336. This indicates that if there is an increase in exports by 1%, it will increase the value of Indonesia's balance of payments in 2003-2022 by USD 9,956,336.

Table 5. Short-term Model Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1558.299	2789.348	0.558661	0.5859
D(LnIR)	-11504.23	27574.16	-0.417211	0.6833
D(LnER)	-102979.9	28415.38	-3.624091	0.0031
D(LnIF)	3163.298	4294.947	0.736516	0.4745
D(LnX)	17831.06	16509.44	1.080052	0.2997
ECT(-1)	-0.911485	0.241856	-3.768716	0.0023
R-squared	0.767605	Mean dependent var		18.12947
Adjusted R-squared	0.678223	S.D. dependent var		13215.17
S.E. of regression	7496.360	Akaike info criterion		20.93431
Sum squared resid	7.31E+08	Schwarz criterion		21.23256
Log likelihood	-192.8760	Hannan-Quinn criter.		20.98479
F-statistic	8.587859	Durbin-Watson stat		1.151711
Prob(F-statistic)	0.000879			

Source: Eviews 10 (Data Processing Results, 2023)

Based on table 5, the short-term ECM equation is formulated as follows:

DNPIt = 1,558.299 - 11,504.23 DLnIR -102,979.9 DLnER + 3,163.298 DLnIF + 17,831.06 DLnX -0.911485 ECT

Based on the ECM regression equation in the short term, it can be interpreted as follows:

1. The constant is positive at 1,558,299, this indicates that if the interest rate, exchange rate, inflation and export variables are considered constant (0) then the value of Indonesia's balance of payments in 2003-2022 is USD 1,558,299.
2. The regression coefficient value of the interest rate variable (β_1) is negative at -11,504.23. This indicates that if there is an increase in interest rates by 1%, it will reduce the value of Indonesia's balance of payments in 2003-2022 by USD 11,504.23.
3. The regression coefficient value of the exchange rate variable (β_2) is negative at -102,979.9. This indicates that if there is an increase in the exchange rate by 1 unit, it

Jurnal Ekonomi
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https://ejournal.seaninstitute.or.id/index.php/Ekonomi

will reduce the value of Indonesia's balance of payments in 2003-2022 by USD 102,979.9.

4. The regression coefficient value of the inflation variable (β_3) is positive at 3,163,298. This indicates that if there is an increase in inflation by 1%, it will increase the value of Indonesia's balance of payments in 2003-2022 by USD 3,163,298.
5. The regression coefficient value of the export variable (β_4) is positive at 17,831.06. This indicates that if there is an increase in exports by 1%, it will increase the value of Indonesia's balance of payments in 2003-2022 by USD 17,831.06.

Long-Term Estimation Hypothesis Testing Results

1. Parameter Significance Test (T Test)

Table 6. Long-Term T Test Result

Variable	t-Statistic	Prob.
C	0,805521	0,4331
LnIR	-0,184196	0,8563
LnER	-1,953075	0,0697
LnIF	-0,218167	0,8302
LnX	0,945245	0,3595

Source: Eviews 10 (Data Processing Results, 2023)

Based on table 6 of the T test results, the following tests will be carried out:

1) Interest rate variable T test
The data processing results obtained T_{count} -0,184196 with a probability of 0,8563. Probability <0.05 so that H_0 is accepted, which means that the interest rate variable has no significant effect on the Indonesian balance of payments variable in the long term.
2) T test of exchange rate variable
In the data processing results obtained T_{count} -1,953075 with a probability of 0,0697. Probability <0.05 so that H_0 is accepted, which means that the exchange rate variable has no significant effect on Indonesia's balance of payments variable in the long term.
3) T test of inflation variable
In the data processing results obtained T_{count} -0,218167 with a probability of 0,8302. Probability <0.05 so that H_0 is accepted, which means that the inflation variable has no significant effect on Indonesia's balance of payments variable in the long term.
4) T test of export variables
In the data processing results obtained T_{count} 0,945245 with a probability of 0,3595. Probability <0.05 so that H_0 is accepted, which means that the export variable has no significant effect on the Indonesian balance of payments variable in the long term.

2. Simultaneous Significance Test (F Test)

Table 7. Long-term F Test Results

F-statistic	Prob (F-statistic)
1,285260	0,319608

Source: Eviews 10 (Data Processing Results, 2023)

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Table 7 shows that the F-statistic is 1.285260 with a probability value of 0.319608. Based on the results of the probability < 0.05, which means that the variables of interest rates, exchange rates, inflation and exports do not simultaneously have a significant effect on Indonesia's balance of payments in the long term.

Short-Term Estimation Hypothesis Testing Results

1. Parameter Significance Test (T Test)

Table 8. Short-Term T Test Results

Variable	t-Statistic	Prob.
C	0,558661	0,5859
D(LnIR)	-0,417211	0,6833
D(LnER)	-3,624091	0,0031
D(LnIF)	0,736516	0,4745
D(LnX)	1,080052	0,2997

Source: Eviews 10 (Data Processing Results, 2023)

Based on table 8 of the T test results, the following tests will be carried out:

1) Interest rate variable T test
   In the data processing results obtained T_{count} -0,417211 with a probability of 0,6833. Probability <0.05 so that H_0 is accepted, which means that the interest rate variable has no significant effect on the Indonesian balance of payments variable in the short term.
2) T test of exchange rate variable
   In the data processing results obtained T_{count} -3,624091 with a probability of 0,0031. Probability <0.05 so that H_1 is accepted, which means that the exchange rate variable has a significant effect on the Indonesian balance of payments variable in the short term.
3) T test of inflation variable
   In the data processing results obtained T_{count} 0,736516 with a probability of 0,4745. Probability <0.05 so that H_0 is accepted, which means that the inflation variable has no significant effect on the Indonesian balance of payments variable in the short term.
4) T test of export variables
   In the data processing results obtained T_{count} 1,080052 with a probability of 0,2997. Probability <0.05 so that H_0 is accepted, which means that the export variable has no significant effect on the Indonesian balance of payments variable in the short term.

2. Simultaneous Significance Test (F Test)

Table 9. Long-term F Test Results

F-statistic	Prob (F-statistic)
8,587859	0,000879

Source: Eviews 10 (Data Processing Results, 2023)

Table 9 shows that the F-statistic is 8.587859 with a probability value of 0.000879. Based on the results of the probability > 0.05, which means that interest rates, exchange rates, inflation and exports simultaneously have a significant effect on Indonesia's balance of payments in the short term.

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Effect of Interest Rates on the Balance of Payments

Interest rates have a negative effect in both the long run and short run, although the effect is not significant. The long-term estimate shows that every 1% increase in interest rates causes Indonesia's balance of payments to decrease by USD 6,012.353. Then, the short-term estimate shows that every 1% increase in interest rates causes Indonesia's balance of payments to decrease by USD 11,504.23. This is in line with research conducted by Ghilous & Ziat (2023) which states that interest rates in both the long and short term have a negative effect on the balance of payments High interest rate policies can harm economic activity. High interest rates can make borrowing money expensive, which can make investors uninterested in investing in the country and reduce export competitiveness in the global market. Reduced investment interest and export competitiveness can lead to a decrease in the movement of goods and services between countries, which in turn can lead to a country's balance of payments deficit.

Effect of Exchange Rate on Balance of Payment

The exchange rate has different effects in the long run and short run. In the long run, the exchange rate has a negative effect on Indonesia's balance of payments but not significant. The long-term estimation shows that every 1% increase in the exchange rate causes the balance of payments to decrease by USD 34,201.11. Meanwhile, in the short term, the exchange rate negatively affects the balance of payments and has a significant effect. The short-term estimate shows that every 1% increase in the exchange rate causes the balance of payments to decrease by USD 6,012.353. This is in accordance with Afrizal's (2020) research which states that the exchange rate in the short term has a negative and significant effect on the balance of payments. In addition, research conducted by Khan et al. (2018) states that the exchange rate variable both in the long and short term has a negative effect on the balance of payments. Another study also conducted by Adelegen et al. (2022) states that in the long run the exchange rate has a negative effect on the balance of payments. The purchasing power parity theory, which states the relationship between a country's price level and the exchange rate.According to the purchasing power parity theory, a decrease in the purchasing power of the domestic currency will lead to a proportional depreciation, and vice versa.This explanation emphasizes that an increase in the value of the Rupiah (appreciation) can result in higher prices for Indonesian products and services abroad, potentially hampering export transactions and reducing the country's balance of payments.

Effect of Inflation on the Balance of Payments

Inflation has different effects in the long run and short run. In the long run, inflation has a negative effect on Indonesia's balance of payments but the effect is not significant. Long-term estimates show that every 1% increase in inflation causes the balance of payments to decrease by USD 1,264.991. Meanwhile, in the short term, inflation has a positive effect on Indonesia's balance of payments but the effect is not significant. Short-term estimates show that every 1 unit increase in inflation causes the balance of payments to increase by USD 3,163,298. This is in accordance with the research of Mahrani et al. (2020) which states that inflation has a positive and insignificant effect. In addition, in

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accordance with other research conducted by Oktafiani (2019) which states that inflation has no significant effect on Indonesia's balance of payments. Inflation can have a positive effect because inflation growth is small in Indonesia, so it can act as a lubricant in the economy and contribute to an increase in national income. Increased national income, in turn, is associated with an improved balance of payments. However, the increase in national income due to inflation may not be large enough to significantly improve the balance of payment

Effect of Export on Balance of Payment

Exports have a positive and insignificant effect in the long run. Long-term estimates show that every 1% increase in exports causes the balance of payments to increase by USD 9,956,336. Likewise, in the short term, exports have a positive and insignificant effect. The short-term estimate shows that every 1% increase in exports causes the balance of payments to increase by USD 17,831.06. This is in accordance with the research of Mahrani et al. (2020) which states that increased export and import activities can encourage a balance of payments surplus in Indonesia.

The Effect of Interest Rates, Exchange Rates, Inflation and Exports on the Balance of Payments

Based on the results of data analysis in the long term, it is obtained that the F-statistic is 1.285260 with a probability value of 0.319608. The probability result is <0.05, which means that the variables of interest rates, exchange rates, inflation and exports have no significant effect together (simultaneously) on Indonesia's balance of payments in the long term. However, the results of data processing in the short term obtained F-statistic of 8.587859 with a probability value of 0.000879. The probability result is smaller than 0.05, which means that interest rates, exchange rates, inflation and exports simultaneously have a significant effect on Indonesia's balance of payments in the short term.

CONCLUSION

Based on the results of the research and discussion that has been carried out, it can be concluded as follows: Interest rates have a negative effect in both the long and short term, although the effect is not significant. The exchange rate has a different influence in the long term and short term. In the long term, the exchange rate has a negative effect on Indonesia's balance of payments but is not significant. Meanwhile, in the short term, the exchange rate negatively affects the balance of payments and has a significant effect. Inflation has a different effect in the long run and short run. In the long run, inflation has a negative effect on Indonesia's balance of payments but the effect is not significant. While in the short term, inflation has a positive effect on Indonesia's balance of payments but the effect is not significant. Exports have a positive effect on Indonesia's balance of payments in both the long and short term, although the effect is not significant. Interest rates, exchange rates, inflation and exports have no significant effect together (simultaneously) on Indonesia's balance of payments in the long term, but in the short term interest rates, exchange rates, inflation and exports have a significant effect together (simultaneously) on Indonesia's balance of payments.

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REFERENCES

[1] A. Adelegan, A. Edward, A. Abraham, and A. Anthony. (2022). The Determinants of Balance of Payments in Nigeria. *Saudi Journal of Economics and Finance*, *6*(7), 222–229. https://doi.org/10.36348/sjef.2022.v06i07.001.

[2] Afrizal. (2020). Analisis Neraca Pembayaran Indonesia Pendekatan Model ECM. *Prosiding Seminar Akademik Tahunan Ilmu Ekonomi Dan Studi Pembangunan*, 978–602.

[3] Bank Indonesia. (2022). *Laporan Neraca Pembayaran Indonesia Realisasi Triwulan IV 2022*.

[4] Bank Indonesia. (2022). *Statistik Ekonomi dan Keuangan Indonesia*.

[5] Boediono. (2014). *Ekonomi Moneter* (3rd ed.). BPFE Universitas Gajah Mada.

[6] Ghilous, A., & Ziat, A. (2023). Balance of Payments as a Monetary Phenomenon: An ARDL Bounds Test Method for Algeria. *Folia Oeconomica Stetinensia*, *23*(1), 64–86. https://doi.org/10.2478/foli-2023-0004.

[7] Jadhav, B. R. (2020). *Description of India's Balance of Payment Position*.

[8] Khan, U. U., Noor, A. A., & Ali, M. (2018). An Empirical Analysis of Determinants of Balance of Payments in Pakistan. *International Journal of Management, Accounting and Economics*, *5*(7), 535–552. www.ijmae.com.

[9] Krugman, P. R., Obstfeld, M., & Melitz, M. J. (2014). *International Economics Theory and Policy* (10th ed.). Pearson Education.

[10] Oktafiani, I. (2019). *Analisis Faktor-Faktor yang Mempengaruhi Neraca Pembayaran (Balance Of Payment) Indonesia (Studi Empiris Tahun 1992-2017)*.http://eprints.ums.ac.id/id/eprint/76250%0Ahttp://eprints.ums.ac.id/76250/14/NASKAH ISTANTI r.pdf.

[11] Rangkuty, D. M., Novalina, A., & Fauzi, A. M. (2020). Efek Simultanitas Variabel Moneter Terhadap Neraca Pembayaran Di Lima Negara. *Jurnal SEKURITAS (Saham, Ekonomi, Keuangan Dan Investasi)*, *3*(3), 208. https://doi.org/10.32493/skt.v3i3.5007

[12] alamah, R. A., & Wahyuni, K. T. (2021). Analisis Simultan Neraca Pembayaran Indonesia Tahun 2009-2020. *Seminar Nasional Official Statistics*, *2021*(1), 507–516. https://doi.org/10.34123/semnasoffstat.v2021i1.953.

[13] Soelistyo, A. (2022). Macro-Econometric Model: Keynesian-Monetarist Synthesis of the International Balance of Payments (The Indonesian Case). *Journal of Economics, Business, & Accountancy Ventura*, *25*(1), 61. https://doi.org/10.14414/jebav.v25i1.2606.

[14] Sujianto, A. E. (2020). Macroeconomic factors and balance of payment: Evidence from Indonesia. *Industrial Engineering and Management Systems*, *19*(1), 266–272. https://doi.org/10.7232/iems.2020.19.1.266.

[15] Sultani, A. H., & Faisal, U. (2022). Determinants of Balance of Payment: A Comparative Review of Developing and Least Developed Countries. *IJRAR-International Journal of Research and Analytical Reviews (IJRAR)*, *9*(2), 18–36.