

A Research on the Impact of the Belt and Road on the Euro Exchange Rate

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Abstract: With the advancement of the Belt and Road Initiative, the currency exchange rate fluctuations of various countries along the route are significantly influenced by it. The Belt and Road Initiative is based on the import and export trade of the countries along the route and has emerged as one of the crucial factors affecting currency exchange rate fluctuations. The current research focuses on the impact of the Belt and Road Initiative on the euro exchange rate. Regarding import and export trade, the economic development level of countries worldwide, the inflation rate, and the demand for money, it aims to review, investigate, and study previous research outcomes such as "Fisher's Theorem", "Cambridge Equation", and Keynes's liquidity preference theory. By citing the white paper "Jointly Building the Belt and Road: A Major Practice of Building a Community with a Shared Future for Mankind" issued by The State Council, this paper employs literature analysis and regression analysis methods to demonstrate the influence of the Belt and Road Initiative on the fluctuation of the euro exchange rate from multiple perspectives, in all respects, and at a profound level. Through the Belt and Road database and the World Bank to search for relevant data and by citing relevant literature from CNKI and WOS, we already have come to a conclusion that the Belt and Road has a significant influence on the rate of euro, good prediction results have been achieved.

Keywords: Belt and Road, Euro exchange rate, Inflation, Balance of trade, Currency demand.

1. Introduction

Over the past decade, the Belt and Road Initiative has taken root in Europe, and remarkable achievements have been made in five areas: policy communication, infrastructure connectivity, unimpeded trade, financial integration and people-to-people ties. China and the EU have deepened cooperation in investment, trade and infrastructure development. Landmark projects such as the Budapest-Serbia Railway and the Piraeus Port have been successfully launched in Europe. However, the EU and some European countries have always been wary of the Belt and Road initiative and are increasingly inclined to limit and hedge the impact of the Belt and Road initiative through barriers and global investment strategies. In theory, exchange rate risk will be transmitted to economies with close economic and trade contacts through direct or indirect channels such as trade, finance and investor sentiment. The closer the economic connection, the greater the possibility of euro exchange rate risks spillover. Therefore, exploring the impact of the Belt and Road on the euro exchange rate has important reference value for resisting exchange rate risks, deepening China-Eu cooperation and promoting the construction of the Belt and Road.

In existing studies, most academic circles focus on exchange rate fluctuations of US dollar, Japanese yen, Korean won, etc. Wang Junting analyzed the long-term equilibrium relationship between US dollar exchange rate and gold price through the co-integration test. The research results indicate that there is a negative correlation between the gold exchange rate and the US dollar price in the long-term equilibrium relationship, meanwhile, the reasons for the low proportion of the yen in trade were studied and discussed [1, 2]. Arguing that Japan is highly dependent on foreign trade, especially the United States, and the South Korean government actively intervenes in the depreciation of the won [3]. Only a few studies take euro as the research object. This study focuses on

euro from a research perspective, combs relevant literature of the Belt and Road Initiative through literature analysis, summarizes the influencing factors of exchange rate fluctuations, makes theoretical analysis of the relationship between the Belt and Road Initiative and euro exchange rate fluctuations, and builds a fixed effect model based on the specific data of countries along the Belt and Road. The research method of the impact of the Belt and Road Initiative on the euro exchange rate is empirically analyzed, and the impact of the construction of the Belt and Road on the euro exchange rate is discussed, which expands the theoretical framework of the study of exchange rate fluctuations. In addition, from the perspective of monetary policy, we also provide certain references for the all-round and multi-angle improvement of the "Belt and Road" initiative. Studied the famous Fisher effect, which links interest rate fluctuations to the rate of inflation. The market supply and demand relationship are studied. In addition, factors such as political stability, economic policies, trade conditions, investor sentiment and expectations, and the global economic environment can potentially affect exchange rate fluctuations.

We can also find that most of the existing studies are based on the macro external environment when exploring the influencing factors of exchange rate fluctuations, and there are few studies on euro exchange rate fluctuations. Financing is a key part of the Belt and Road Initiative. Financial integration has always adhered to the principle of "equal participation, benefit sharing and risk sharing", and based on the operation of "enterprises as the main body, market-oriented operation and mutual benefit and win-win", promoting the establishment of a long-term, stable, sustainable and risk-controllable financing system among countries jointly building the Belt and Road to help their economic and social development. Most of the existing studies focus on the impact of the Belt and Road Initiative on foreign trade, import and export, cultural exchanges, and

international consensus. The Belt and Road Initiative has become the most iconic concept and brand of China recognized globally, greatly enhancing China's competitiveness and influence in the international trade market, deepening and expanding China's cognition of the world, and enhancing the belief in a community of common destiny". However, few studies have linked the BRI to the impact of exchange rates. Based on sorting out relevant theories, by taking stock of relevant data from

China and Europe and conducting empirical analysis, we can expand the research on the policy effect of the implementation of the Belt and Road Initiative, supplement the impact of exchange rate fluctuations, actively carry out various forms of financial cooperation for China and Europe, innovate investment and financing models, enrich investment and financing subjects, and improve investment and financing mechanisms. We will work hard to build a long-term, stable, sustainable and risk-controllable investment and financing system to provide important support for the Belt and Road Initiative.

2. Influencing Factors of Import and Export Trade in The Belt and Road and Their Impact on The Euro Exchange Rate

The Belt and Road covers more than 60 countries in Europe and Asia, of which nearly 20 countries in the European Union have adopted the euro as the common currency. The EU's import and export trade in the Belt and Road will produce trade surplus or trade deficit, which will increase or decrease the total demand, and then promote or restrain the economic growth of the EU, which in turn affects the fluctuation of the euro exchange rate.

2.1. Inflation Rate

When the inflation rate of the EU rises, it means that the price of the goods exported from the EU will rise. In the huge trade market of the Belt and Road, if the price of the same thing exported from the EU is higher than that of other countries, the buyers will be more inclined to choose the cheaper one, which will lead to the decline of the price and market competitiveness of the EU, and then the export income will also decrease. The decrease of EU's export income means the decrease of trade balance, which is an important part of total demand. The decrease of trade balance leads to a decrease in total demand, which will restrain the economic growth of EU. The economic growth of a country is usually accompanied by the increase of the demand for goods and services, and EU needs more goods and services for development and innovation. This will attract a large number of foreign investors to invest, and these foreign capital flows into the EU market will increase the demand for the euro currency, thus making the euro appreciate. In the existing studies on exchange rate fluctuations, the famous economist Fisher linked interest rate fluctuations with the inflation rate, and pointed out that when the inflation rate rose, the interest rate also rose. Meanwhile, Fisher's effect believes that the rise in nominal interest rate is exactly equal to the inflation rate. Fisher effect can be expressed as:

$$r = R+a. \quad (1)$$

$$1+r=(1+R) * (1+a). \quad (2)$$

$$r=R+a+Ra. \quad (3)$$

If the inflation rate is at the general level, Ra is negligible, that is:

$$r=R+a. \quad (4)$$

Where R represents the real interest rate, a represents the inflation rate, and r represents the nominal interest rate.

In order to prove the existence of Fisher effect, Wallace and Warner provided scientific, specific and graphic proof of Fisher effect based on the quarterly data of the United States and Johan-sen test [4].

what is more, the euro exchange rate will further affect the inflation rate. For example, the fixed exchange rate system adopted by the EU can reduce inflation on the one hand; on the other hand, it will lead to the default of the country, the loss of the credibility of the government and the chaos of the masses. On the contrary, the public will have a higher inflation expectation [5].

2.2. Exchange Rate

The exchange rate has a dynamic relationship with the trade balance, so the fluctuation of the euro exchange rate will affect the trade balance, and then the trade balance will drive the economic growth of the EU, and then affect the euro exchange rate.

When the euro appreciates, from the perspective of EU imported goods, the tea that could be bought in China for 10 euros can now be bought for 8 euros. Therefore, the money needed to import goods is reduced, and the price competitiveness of imports is increased, so the EU will spend more money on importing products and services from other countries. From the perspective of export, due to the appreciation of the euro, the products in the EU market that could be bought at 10 yen can now be bought at 15 yen. As a result, the price of EU export commodities will increase, which will inhibit the price competitiveness of EU in export, and the export earnings received will decrease accordingly. Lower exports and higher imports worsen the net trade balance and restrain economic growth in the EU. For the EU, the decrease in exports and the increase in imports may reduce its demand for domestic currency. Buyers from foreign countries are unlikely to need to buy Euros to pay for the goods, and they can directly use foreign currencies to pay for the goods, which may lead to the depreciation of the euro.

2.3. Economic Growth

The change of Inflation and exchange rate both have an influence on the economic growth. specifically, as EU domestic economic growth result in demand of goods and services increase, they will more likely to buy capitals from others so the import expenditure increase, worsen the net trade balance; However, if the economies of other BRI trading countries grow, the demand of goods and services in other foreign countries will increase, the demand of goods and services in other foreign countries will increase they need more euros. so that the demand of currency increase, they need more euros. So that the demand of currency increase, because of the demand of currency increases, euro appreciate.

2.4. The productivity

When the production efficiency is improved, saving the unit cost of production will lower the export price. Therefore, the price competitiveness will be enhanced, the export will increase, and the net trade balance will be improved resulting

in euro appreciation

2.5. The Protectionism

Protectionism is an economic policy that seeks to protect domestic industries from foreign competition by restricting imports and providing preferences for domestic goods. Its core idea is to restrict the import of foreign goods by various means in order to protect domestic industries from competitive pressure, thus safeguarding domestic employment and market stability. Take the tariff for example, if the EU adopts a tariff, other countries will have to charge a higher price for their imports into the EU. Therefore, the EU will be much less likely to import other countries' goods, which will inhibit imports and result in more exports and less imports. Improve the net trade balance, euro Maybe appreciated.

3. Influencing Factors of Currency Demand and Their Impact on The Euro Exchange Rate

The market supply and demand relationship are one of the important factors affecting exchange rate fluctuations. When the demand for money exceeds the supply, the supply is insufficient, and the currency value will rise, that is, the exchange rate will rise. Other relevant literature believes that currency internationalization can bring lower transaction costs and exchange rate risks, and improve the ability to issue international debt. However, due to potential volatility, substantial changes in portfolio liquidity will increase, which will complicate currency management and weaken the effectiveness of central bank monetary policies [6,7].

3.1. Monetary Policy

Monetary policy can be divided into money supply, interest rate and exchange rate, among which interest rate and exchange rate can increase or decrease. When the European Central Bank cuts interest rates, investors who deposit funds in the European Union will receive attractive returns from the EU, and then they are unlikely to use the euro. As a result, the demand for currency will decrease, and the euro exchange rate will depreciate.

3.2. Keynes and Cambridge Equations

In the study of the demand for money, Keynes's theory of liquidity preference expresses "the desire to keep a portion of wealth in the form of money." The currency demand of a country depends on its national income level. In the Belt and Road cross-border trade, the currency demand is also closely related to the scale of cross-border currency receipt and payment, which can be expressed as:

$$D(IR', I, S, IR) = D(IR', I) + D(IR, S) \quad (5)$$

$$D(IR, S) = kS + k'IR \quad (6)$$

Among them, IR' represents the domestic interest rates of other countries, I represent the national income level of other countries, S represents the scale of domestic euro settlement, IR represents the domestic euro exchange rate, k represents the response coefficient of euro settlement to currency demand, and k' represents the response coefficient of real interest rate changes to currency demand.

Later, the Cambridge School, represented by Marshall and

Pigou, proposed one of the traditional equations for the quantity of money. The Cambridge equation indicates that there is always a relatively stable proportional relationship between nominal money demand and nominal income, which can be expressed as:

$$M = kPy \quad (7)$$

Where Py is nominal income and k is the ratio of cash to nominal income.

4. Conclusion

Inflation, exchange rate appreciation or depreciation, world economic growth, productivity and protectionism in the context of the Belt and Road Initiative have a significant influence on the balance of trade, which in turn contributes to changes in aggregate demand, leading to improved or worse economic growth. Improvements or deteriorations in economic growth can lead to changes in currency demand, resulting in an increase or decrease in exchange rates. In addition, interest rates can also change exchange rates in monetary policy. In this study, how to theoretically enrich the impact of exchange rate fluctuations, how to more effectively identify the impact of the Belt and Road on the fluctuation of the euro exchange rate, how to further improve the Belt and Road mechanism, how to propose an effective path to maintain the stability of the euro exchange rate, and how to obtain more effective, comprehensive and real data all need to be improved. In the future, we can focus on the construction of research hypotheses and theoretical models.

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