Analysis of the Impact of RMB Exchange Rate Fluctuations on Guangdong’s Outward Foreign Direct Investment

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Abstract. For a long time, China’s balance of payment has been in a “double surplus” situation which may easily cause imbalance in the country’s economy, so we must keep expanding outward foreign direct investment to ease domestic inflation. Guangdong has accelerated its outward foreign direct investment significantly nowadays. Through descriptive statistics and measurement research, it is found that Guangdong’s outward foreign direct investment has been growing year after year, and the modes are diversified, however, the overall scale is still small. The investment regions are not balanced, and the investment mainly focuses on low-end industries. The relations between outward foreign direct investment and the RMB exchange rate show positive correlation. Based on the findings, it is suggested that we should seize RMB appreciation opportunity to expand the scale of our investment, and optimize the investment structures and investment regions.

1. Introduction

For a long time, China’s balance of payment has been in a “double surplus” situation which may easily cause imbalance in the country’s economy, so we must keep expanding outward foreign direct investment to ease domestic inflation. It’s especially true for Guangdong where the international trade is in the greatest “double surplus” situation. When the exchange rate fluctuates, the enterprises in the regions of hard currency will gain some favourable conditions and are prone to invest in countries of soft currency [1]. According to some empirical researches, the appreciation of RMB will boost China’s outward foreign direct investment [2]. Therefore, this paper studies the correlation between them, and then offers suggestions to design the investing structure, improve investment efficiency in light of the current status of foreign investment.

Many scholars at home and abroad have conducted deep research in the impact of a country’s exchange rate fluctuations on its foreign investment. Yu Xulan and Liu Bo (2016) conducted research, they analysed the impact through the GARCH model and dynamic panel model. They held that the fluctuations of the RMB exchange rate would in the long run have an impact on the investment, and the appreciation of the currency exchange rate would boost it, the two aspects have some connection [3]. Therefore, in response to the fluctuation of the RMB exchange rate, they suggested that we must vigorously develop the financial derivatives market, create a relaxed policy environment, strengthen financial supervision, and improve the cross-border capital monitoring and early warning system [4]. Those methods will prevent capital flight especially during the depreciation of RMB. Furthermore, because our country is encouraging domestic enterprises strengthen their global competitiveness, the enterprises in Guangdong strive to seeking financial support from foreign banks and international
financial institutions by issuing company stocks and bonds in the international market, they want to ensure the combination of foreign capital and invest to other countries directly \[5\], the scholar find the equilibrium of our currency exchange rate will influence industrial structure \[6\].

2. Status of Guangdong’s Outward Foreign Direct Investment

2.1 The rising scale of Guangdong’s outward foreign direct investment

Chinese economy develops rapidly, Guangdong’s actual outward foreign direct investment increased from US $9.6 billion in 2014 to US $20.684 billion in 2016, with a significant increase in the scale which is benefited from the policies introduction and financial regulations. In 2017, Guangdong outward foreign direct investment declined by 57.7% to US $8.75 billion, which was the first negative growth since 2002. The reasons are China strengthened control over capital outflows and the review of acquisitions by overseas companies was also tightened accordingly. By 2018, however, the scale of outward foreign direct investment had once again risen to US $13.8 billion, the investment has increased significantly especially after 2010, Guangdong still invests in some areas and countries, the trend is upward in long term, it is the way to take advantage of the capital, speed up the industrial upgrading and transforming, meet the needs of Guangdong economic development.

2.2 The overall scale of Guangdong’s “going global” outward foreign direct investment

Guangdong’s GDP has grown from US $227.9 billion in 2004 to US $1470 billion in 2018. However, the investment proportion is still very small (less than 1% of GDP). Since the establishment of the Pilot Free Trade Zone, Guangdong has signed cooperation agreements under the “Belt and Road” initiative with countries along the route to increase the amounts of foreign investment, the strategic planning help the development of provincial economy. Guangdong has a long way to go to promote enterprises to “go global” and increase outward foreign direct investment.

2.3 Traditional industries investment

Guangdong’s outward foreign direct investment mainly focuses on the leasing and commercial services (30%), manufacturing (13%), profit reinvestment and sharing (18%), computer services and information transmission (13%), wholesale with retail (13%), related services (3%), real state (3%) and others (6%). Therefore, it can be seen that Guangdong’s outward foreign direct investment is more fixed in traditional industries like commerce and less in high technological industries, finance and scientific research that are relatively high value-added. The provincial direct investment structure to other countries is in line with the theory of comparative advantage, but from a long-term perspective, the government should also need to consider the complementarity of industries to develop the different industries, especially to construct the competitive local enterprises. The development of manufacturing and commerce in Guangdong is relatively mature. However, the core technologies of various industries are at a disadvantage compared to those of European and American countries. Therefore, it will play a complementary role in Guangdong’s economic development to enhance the investment in the high-tech sectors when it invests directly in overseas market.

2.4 Regional unbalanced investing distribution

According to the data from Guangdong Statistical Yearbook 2018, Guangdong local enterprises invest mainly in Asia, with US $10.6 billion in 2015, US $20.68 billion in 2016, and US $8.75 billion in 2017. Among them, the investment in Asia has been increased above 65% for three consecutive years, mainly because a lot of money was invested to European and American countries and regions as bridge funds by way of Hong Kong financial market. Taking 2017 as an example, Guangdong’s outward foreign direct investment in Hong Kong reached US $53,426.5 billion, accounting for 61% of that in Asia. In 2017, the counterparts in Europe and North America accounted for approximately 2.3% and 6.5% respectively. The proportions are much lower, mainly because there are more restrictions on investment. Thus, many funds pass through Hong Kong, the British Virgin Islands and Cayman Islands which act as intermediaries and eventually were invested in Europe and America, if we don’t supervise the flow of the bridge
funds, it will damage economic development of Guangdong and deprive the wealth of the local market. If these factors are taken into account, Guangdong’s outward foreign direct investment in Europe and America account for approximately 78.6% of the total investment. Guangdong’s outward foreign direct investment areas are relatively concentrated or even too dense in Hong Kong, Macao, Taiwan, and European and American countries, the trend is not conducive to the development of the investment.

3. Analysis of the Impact of the Correlation between the RMB Exchange Rate and Guangdong’s Outward Foreign Direct Investment

3.1 Related relationships

![Fig.1 Comparison between Annual Average RMB Exchange Rate against the US Dollar and Guangdong’s Outward foreign direct investment Scale](image-url)

Data from *Guangdong Statistical Yearbook 2018*

The fluctuation of the exchange rate represents the depreciation or appreciation of the RMB. Figure 1 portrays the severity of fluctuation from 2004 to 2017, we may notice that the exchange rate has fluctuated greatly during those years. The RMB appreciated by 33.6% from 8.27 (the average annual exchange rate of RMB to USD) in 2004 to its counterpart 6.19 in 2014. However, the RMB depreciated by 7% from 6.22 in 2015 to 6.19 in 2017, which shows that the RMB exchange rate is more volatile. The actual effective exchange rate can comprehensively reflect the relative value and purchasing power of a country’s currency. Besides it can not only measure the change in the currency exchange rate, but also prevent a single exchange rate from reflecting the currency value of a country.

By comparing the data of the RMB exchange rate in the past 15 years with Guangdong’s outward foreign direct investment of those years, it is found that the continuous appreciation of the currency witnesses the increasing outflow of foreign funds in Guangdong year by year. In 2004, the RMB exchange rate against the US dollar was 1:8.27, and the amount of investment of this year was only US $ 13 million. In 2018, however, the exchange rate rose to 1:6.61, and the total amount of investment rose sharply to US $ 13.8 billion. The figure shows positive correlation between them.

3.2 The transmission mechanism

The exchange rate of RMB affects investment aspects in terms of export prices, investment costs, foreign funding costs and relative wealth, as well as capitalization rates. The main transmission mechanisms are:
3.2.1 The costs

We can calculate the cost, the price of a commodity can be expressed as $P = eP^*$, the wealth (asset price) of a country as $W_d = dW^*$, the prices of foreign and domestic commodity as $P^*$ and $P$, the domestic wealth (asset) measured in local currency as $W_d$, the national wealth (asset) measured in currency as $W^*$, and the nominal exchange rate of the two countries (using the direct price method) as “e”. The appreciation will influence the wealth of the countries and the purchasing power of the enterprises. If the currency of the investing country appreciates, the wealth of the host country’s market expressed in its currency will decline, and the purchasing power of the investor’s market in the host country will increase, which will attract more foreign direct investment from the companies of the investing country.

3.2.2 Relative wealth changing between countries

if an investing country (country A) increases its capital outflows into another country (country B), the relative wealth of the multinational companies in country B will increase, which will play a role in promoting investment in the investing country. On the contrary, when country A decreases its capital outflows into country B, the foreign capital will flow in large amounts.

3.2.3 Changes in capitalization rate

Assuming other conditions remain the same, producers with higher capitalization rates will increase outward foreign direct investment in countries with depreciating currency. Furthermore, if the currency of the investing countries is in trouble, the situation is called “currency premium”. Therefore, when a well-funded multinational company invests with soft currency, it will benefit from currency appreciation, which will eventually lead to a stronger capability in foreign direct investment.

3.3 Empirical analysis

3.3.1 Selection of variables and data

After consulting the relevant scholars’ model construction, this paper integrated the actual data and figures of Guangdong from Guangdong Statistical Yearbook. The RMB exchange rate and Guangdong’s GDP were taken as explanatory variable, while Guangdong’s outward foreign direct investment as explained variables. In case of heteroscedasticity, logarithms are taken for all variables. They are represented by $lnR, lnOFDI$, and $lnGDP$, respectively.

3.3.2 Model construction

Based on the positive correlation between the RMB exchange rate and Guangdong’s outward foreign direct investment, combined with the research results of other scholars, the following empirical model is constructed:

$$lnOFDI = \beta_0 + \beta_1 LnER + \beta_2 LnGDP$$

In the above formula, $OFDI$ represents China’s outward foreign direct investment flows, $ER$ the real exchange rate of RMB, and GDP the GDP of Guangdong Province.

3.3.3 Model results and analysis

In order to determine the trend, a stationary test of the variables is done. Otherwise, it will cause the problem of “false regression”. The following table shows the results:

| Items      | ADF Value | 5%level | P Value  | Conclusion   |
|------------|-----------|---------|----------|--------------|
| lnER       | -2.242683 | -3.09896| 0.044581 | Unstable     |
| DlnER      | -3.379761 | -3.17532| 0.012568 | Stable       |
| lnOFDI     | -0.580996 | -3.11991| 0.074692 | Unstable     |
| DlnOFDI    | -6.719358 | -3.11991| 0.000033 | Stable       |
| lnGDP      | 1.205806  | -3.11991| 0.468643 | Unstable     |
| DlnGDP     | -3.570599 | -3.11991| 0.004390 | Stable       |

Table 1 Stationary Test Results
Table 1 shows that at the level of 5%, the ADF values of \( \ln ER \), \( \ln GDP \), and \( \ln OFDI \) are all greater than the critical value, so the original hypothesis are accepted. In other words, the three variables (the RMB exchange rate, Guangdong’s outward foreign direct investment, and Guangdong’s GDP) are non-stationary time series, and the different ADF values of \( D\ln ER \), \( D\ln GDP \), and \( D\ln OFDI \) in the table are all less than the critical value of 5%, so the original hypothesis is rejected. To sum up, the three variables are first-order stable time series.

### Table 2 Cointegration Test Results

| Original Hypothesis         | Characteristic Root | Test Value | 5% Critical Value | \( P \) Value |
|-----------------------------|---------------------|------------|-------------------|---------------|
| No Cointegration            | 0.948437            | 50.71281   | 29.79707          | 0.0001        |
| One Cointegration at most   | 0.605757            | 12.16833   | 15.49471          | 0.1490        |
| Two Cointegrations at most  | 0.005224            | 0.068084   | 3.841466          | 0.7941        |

From the cointegration test results, the \( P \) value is less than 0.05 at 5% level, and there is no original hypothesis of cointegration relationship, so the original hypothesis that cointegration relationship does not exist is rejected. When the \( P \) value is 0.1490, greater than 0.05, the original hypothesis that there is at most one cointegration is accepted, which indicated that there is at least one cointegration equation. It can be concluded that the exchange rate has a long-term stable and balanced relationship between Guangdong’s outward foreign direct investment and Guangdong’s GDP.

The cointegration equation is obtained: \( \ln OFDI = 3.138552 \ln ER - 0.027552 \ln GDP \). As can be seen from the above formula, there is a long-term stable and balanced relationship between OFDI, ER, and GDP. The equation shows the positive correlation of them. On average, for every 1% increase in the RMB exchange rate, it will increase by 3.138552%.

### 4. Conclusion

At present, Guangdong is mainly concerned cost-oriented when it invest in other countries, so the fluctuations of exchange rate will affect the policy of Guangdong’s foreign investment. In the face of fluctuations of the RMB exchange rate, Guangdong must maintain its own merits while avoiding its demerits to fundamentally facilitate the existing structural characteristics of the economy.

The enterprises in Guangdong should seize the development opportunity and increase the amount of investment in overseas market. According to the principle of latecomer advantage, the increase in investment in the backward areas can bring the catch-up effect to the country’s economic growth, and natural investing companies will become direct beneficiaries of economic growth\(^7\). The government needs to give full play to its functions, roles and advantages in an effort to help enterprises in Guangdong to run in global market smoothly. On the other hand, the enterprises themselves need to enhance their own competitive edges, learn from the developed countries, set up joint ventures, work with global enterprises and engage in other investment activities\(^8\).

Guangdong’s investment mainly focuses on traditional industries. If RMB appreciates, Guangdong’s enterprises will get more raw materials, build more plants and purchase more equipment with the same amount of RMB, and will gain a more favourable position in mergers and acquisitions with foreign companies. Then, if enterprises increase investment in high-tech industries overseas, they can achieve industrial complementarity and promote industrial transformation and upgrading. Besides, it’s suggested that traditional industries be transferred to developing countries, which can reduce the cost of production, developing countries can learn from developed countries, improve their ability in independent research, development, and innovation, and finally shorten the production cycle. We can promote the RMB’s overseas purchasing power and reduce the cost of foreign investment. During the period of appreciation of RMB, capital outflows should be properly guided, and enterprises could invest more with RMB. Most foreign-funded large service companies have relatively mature risk control systems, strong funding support, and relatively complete operating mechanisms. However, the small and medium companies are very weak and vulnerable in those aspects mentioned above, favourable policy and financial support should be offered to small and medium companies to resist the
risks\textsuperscript{[9]}. At the same time, it is also necessary to foster multinational enterprises specializing in diversified operation and development.

Guangdong invests more in European and American countries but less in Asia, Africa and Latin America. The developing countries and regions in Asia, Africa, and Latin America generally have backward infrastructures, incomplete industrial manufacturing systems, and low industrial production efficiency. The enterprises in Guangdong should seize the development opportunity to invest in Asia, Africa and Latin America. According to the principle of latecomer advantage, the increase in investment in the backward areas can bring the catch-up effect to the country’s economic growth, and natural investing companies will become direct beneficiaries of economic growth.

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