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A STUDY OF THE TRADE EFFECTS OF CHINA'S DIRECT

INVESTMENT IN CENTRAL AND EASTERN EUROPEAN

COUNTRIES

Master's Thesis

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Prague, Czech Republic

2020

Contents

ABSTRACT

This paper aims to explore the relationship between China's investment in Central and Eastern European countries (CEECs) and China-CEECs trade. Since the 1950s, the research on the relationship between foreign direct investment (FDI) and foreign trade has become one of the topics of theoretical and empirical analysis. Many scholars have conducted extensive studies on the relationship between FDI and trade from different perspectives and theoretical and empirical perspectives. Under the background of "the Belt and Road", the CEECs, as important trading partners in this strategy, have gradually expanded their trade with China. This paper explores the current situation and characteristics of China's direct investment and trade with the CEECs from the perspective of the relationship between FDI and foreign trade. The development of China's direct investment and trade with the CEECs is explored from the perspectives of total volume, country, and products by qualitative analysis. Meanwhile, the trade gravity model is established to empirically analyze the influence of China's direct investment in the CEECs on China-CEECs trade scale from the three aspects of total trade volume, export, and import. The results show that China's direct investment in the CEECs has a long-term positive effect on the scale of trade between China and the CEECs. The long-term impact of China's direct investment in the CEECs on the scale of trade between China and the CEECs is greater than the short-term impact. In the long run, the reverse import effect of China's direct investment to the CEECs is greater than the export effect, and in the short run, the export effect of China's direct investment to the CEECs is greater than the reverse import effect.

Keywords

FDI, CEECs, China, trade effect, trade scale, trade gravity model

Words

22,600

INTRODUCTION

Since the beginning of the 21st century, trade integration in Central and Eastern European countries (CEECs) has deepened, with foreign trade playing an important role in their economic growth. The European Union is a major trading partner of the CEECs. However, the debt crisis in the eurozone has reduced the purchasing power of the core European countries, which has affected the import demand and investment of the CEECs. Faced with internal and external pressures, the CEECs have adopted an "opening to the east" policy and actively carried out economic restructuring and reform to maintain economic growth. At the same time, the CEECs are China's only route to Europe by land, as well as its trade links with China, having market potential and geographical advantages.

This paper analyzes the relationship between China's direct investment and trade with the CEECs from theoretical and empirical perspectives. Based on the three perspectives of total volume, country and product, and the two dimensions of investment and trade, this paper qualitatively analyzed the development of China's direct investment and trade with the CEECs. The gravity model was constructed to empirically analyze the impact of China's direct investment in Central and Eastern Europe on the scale of trade between China and Central and Eastern Europe from the perspectives of total import and export volume, export volume and import volume, and to compare the impact of different influencing factors on export and import volume. The study found that trade between China and the CEECs is positively affected by China's investment in the CEECs in the long run. In the short run, the export effect of China's direct investment to the CEECs is greater than the reverse import effect, while in the long run, the reverse import effect of China's direct investment to the CEECs is greater than the export effect. By discussing the impact of China's direct investment in the CEECs on China-CEECs trade, we can conclude that China's direct investment in

the CEECs and the expansion and enhancement of China's trade with the CEECs are in a positive trend, which is mainly reflected in the expansion of trade scale. China should be under the guidance of "the Belt and Road" strategy, through the adjustment of the CEECs' direct investment and trade policy to enhance the benefit of China's foreign investment, thus improve China's foreign economic and cultural soft power, build strategic partner relationship between investment and trade, the China-CEECs economic and trade relations to a higher and deeper level.

Most papers on this topic have analyzed the EU with a little focus on the CEECs. This study contributes to the existing research by analyzing those countries more thoroughly. One of the limitations is that these countries do not tend to have long time-series of official data and so the analyses might be biased to some extent.

This paper consists of five chapters: Chapter 1 is a literature review. Based on the research background, this paper synthesizes the domestic and foreign literature on the relationship between FDI and foreign trade, as well as the quotations of the related theories on the relationship between FDI and foreign trade. Through reviewing the traditional theories of international investment and international trade, this chapter summarizes the relationship between FDI and foreign trade into three types: substitution, complementarity, and uncertainty, to establish the corresponding theoretical basis for the subsequent empirical research of this paper. Chapter 2 explores the development of China's direct investment and trade with the CEECs. This chapter mainly analyzes the development process of China's direct investment and trade with the CEECs and explains the development of China's investment and trade with the CEECs based on the two dimensions of investment and trade from the perspectives of total volume, country, and products. Chapter 4 studies the impact of China's direct investment in the CEECs on China's trade with the CEECs. This chapter builds a trade gravity model to empirically analyze the impact of China's direct investment in the CEECs on China-CEECs trade scale from the perspective of total import and export, volume, export, and import and compares the impact of different influencing factors on export and import. The results show that China's direct investment in the CEECs has a

positive effect on China's trade with Central and Eastern Europe in the long run, and China's direct investment in the CEECs has a greater impact on China-CEECs trade scale in the long term than in the short term. The 5 chapter is the conclusion, policy recommendations, and research prospects. This chapter is a summary of the whole paper. Also, it discusses the adjustment of China's direct investment in the CEECs and the coordination of China-CEECs investment and trade relations, to promote the development of China's direct investment in the CEECs and to enhance the mutual trade between China and the CEECs. The shortcoming of this paper is put forward, and the future development of this subject prospects.

CHAPTER 1. LITERATURE REVIEW

1.1 Theoretical framework

1.1.1 The substitution relationship

Mundell (1957) proposed the substitution model about the relationship between foreign direct investment (FDI) and international trade. Through relaxing the assumption of immobile production factors, he concluded that FDI caused by tariffs and international trade substitutes for each other when the two countries have the same production functions. Based on this theory, some researchers believe that if the investment caused by tariffs cannot promote the development of relatively inferior industries in the host country, such investment will have substitution effect on the trade between the home country and the host country. For example, through research on U.S. multinational corporations, Vernon (1996) found that with the shortening of product production cycles, foreign direct investment has made multinational companies more and more internationalized and plays a stronger role in replacing exports through the dynamic influence of imitation, innovation, and diffusion of new products and technologies.

With the continuous development of econometrics, many scholars begin to try to study the relationship between FDI and foreign trade from an empirical perspective. By studying the data of Japan, the United States and other developed countries, Eaton and Tamura (1994) concludes that there is a substitution relationship between them. Hirsch (1976) believes that the cost of supplying the overseas market determines an enterprise's substitution choice among FDI, exports, and patent transfer. In the late 1980s, some scholars took Japan and European countries as samples and found the conclusion that FDI and export trade replace each other (Belderbos and Sleuwaegen,

1998). Saavedra-rivano and Ruiz Estrada (2016) believed that when a country's FDI aims to avoid the tariff or non-tariff barriers of the host country, FDI and trade will present a substitution relationship.

With the deepening of empirical research, some researchers began to study the substitution relationship between FDI and foreign trade from the perspective of enterprise micro level. Head and Ries (2001) draw the conclusion that FDI is negatively correlated with export trade based on relevant data of American and Japanese enterprises. Helpman, Melitz, and Yeaple (2004) used relevant data of 52 industries in 38 countries to find that the sales volume of overseas operation and export of multinational enterprises replace each other. Moreover, some scholars study the relationship from the perspective of production, and found that the FDI of multinational enterprises was positively correlated with the export trade of intermediate products, but negatively correlated with the export trade of final products, and the combined effect of the two was negative (Braunerhjelm and Svensson, 1996). Enterprise heterogeneity theory is used by some scholars to analyze the international behavior of multinational companies. They found that the different efficiency of enterprises makes foreign trade and FDI have a different relationship under different conditions. They concluded, only when the enterprise with high enough production efficiency can it overcome the extra cost of overseas operation, and then the relationship between FDI and foreign trade presents an alternative (Helpman et al., 2004). Mitze (2010) analyzes by using the cited as a model and concludes that there is a positive correlation between FDI and export in the EU and Germany.

1.1.2 The complementary relationship

After the 1970s, there were many empirical studies on the relationship between investment and trade. According to macro data analysis, Kojima (1978) found that the investment made by the home country to the host country in its marginal industry sector and trade promote each other. Bhagwati (1987) discussed the relationship between the two from the perspective of the political economy and concluded that the barriers

between the home country and the host country or measures to avoid trade barriers will further accelerate the production of FDI in the home country. Some scholars reached the same conclusion by studying the situation of Sweden and the United States from 1978 to 1982 and found that when the export level was replaced by export change, the complementary effect between FDI and trade will be more obvious (Jeon, 2000). Eaton and Tamura (1996) found in their empirical study that FDI in Japan and the United States significantly promoted foreign trade between 1985 and 1990.

There are also some studies on the complementary relationship between FDI and trade from the micro-level. Rugman (1990) found that the overseas sales of multinational companies were directly proportional to the increase in home country trade. Based on the example of South Korea, some scholars found that if the host country receiving the investment is an underdeveloped country, especially when the overseas branch is relatively new and the investment industry is the marginal industry of the home country, the complementary effect between the two is more obvious (Sun-Hon Lim and H-Ching Moon, 2001). Lipsey and Ramstetter (2003) conducted a study on the overseas operating performance of Japanese companies and domestic exports and found that the two also showed a mutually reinforcing relationship.

With the development of new trade theory, some scholars began to examine the relationship between FDI and foreign trade from the perspective of investment motivation. Lee (1994) believes that cost-oriented FDI is more complementary to the foreign trade of the home country than the market-oriented FDI. Based on the further study found that between 1985 and 1990, the FDI and export of the United States and Japan showed a complementary relationship. The difference is that the FDI of the United States is a market-oriented and has a stronger promoting effect on the export with a lag period, while the FDI of Japan is cost-oriented and has a stronger promoting effect on future exports.

From the reality of China's FDI, many Chinese scholars conclude that FDI and trade complement each other. Wang (2007) made an empirical analysis of China's FDI and trade data from 1982 to 2003 by using the VAR model and found that FDI and

export showed a complementary relationship. Some scholars used the relevant data of FDI and foreign trade in 16 cities in the Yangtze River delta and found that FDI played a significant role in promoting foreign trade in this area and Shanghai (Mao, Zhang, and Wang, 2006). Zhang (2007) found that China's FDI and export have a significant relationship of mutual promotion. Zhang (2011) used data from 2004 and 2009 for research and concluded that there was a complementary effect between China's direct investment in Africa and their trade. Jiang and Jiang (2014) took 1498 FDI enterprises from 2005 to 2007 as samples and confirmed the promotion effect of China's FDI on exports by using the multiple difference method. They also found that if the host country was a high-income country, the promotion effect was more obvious.

From the differences in the above empirical results, we can see that more empirical studies support the conclusion that FDI and foreign trade are substitutes for each other. Most of their empirical studies are based on developed countries and use microdata from the industry or enterprise level.

In contrast, empirical studies that support the conclusion of complementarity generally use country-level macro data. Therefore, due to the differences in research samples and research methods, conclusions are also different. In exploring the relationship between FDI and foreign trade, we need to make in-depth and detailed investigations from different perspectives and levels, to reach a relatively stable and valuable conclusion.

1.1.3 The uncertain relationship

In addition to the above two studies on complementary and substitution of FDI and trade, some researchers believe that these two relationships are also different in terms of stage, motivation, country, period, and industry of investment, which is not manifested as a substitution or complementarity relationship. In other words, the relationship between the two is uncertain under different premises.

After conducting an empirical study of the relationship between foreign investment attraction and foreign trade in 30 developing countries, Jun and Aingh (1995)

found that there is no clear connection between them. Some scholars have found that as time goes by, foreign investment and trade shift from the initial substitution relationship to the final complementary relationship (Horst, 1972). Some scholars believe that the different types and motivations of foreign direct investment have different effects on trade. For example, Gray (1998) argues that market-oriented FDI replaces trade, and production-oriented foreign direct promotes trade. A. Patrie (1979) argues that market-oriented FDI has an alternative impact on trade, but product-oriented and trade-facilitated FDI and trade are complementary. More scholars study found that the empirical analysis also leads to the use of different data sample for the uncertain relationship between FDI and trade performance, for example, Svenson (2004) found that using different industry data will lead to different conclusions, during the study of data on direct investment and trade in the United States from some OECD countries in 1974-1994. Specifically, the SIC2 digital industrial data were used to conclude that they are complementary, while the SIC3 digital industrial data were used to conclude that they are substitutive.

Some scholars have studied the uncertain relationship between investment and trade from the perspective of attracting foreign investment to China. Some scholars believe that due to different historical periods, there is uncertainty in the relationship between FDI in China and its foreign trade. For example, Wang (2003) reached the same points of view and further pointed out that different investment types and motivations may also affect the relationship between the two. Wang and Xu (2003) conducted an empirical study of Japanese direct investment in China and their trade and found that there is a long-term complementary relationship and short-term substitution relationship.

From the perspective of China's foreign direct investment, some scholars have conducted an empirical analysis of the uncertainty relationship between investment and trade and found that there is an uncertain relationship. Xiang (2005) believed that FDI has promoted host country exports, but has curbed imports from the host country. Zhang and Wen (2010) empirically tested the relationship between FDI and trade by using 9

countries and regions in emerging economies in East Asia as samples. The results showed that in the long run, FDI of east Asian emerging economies showed a creating effect on import and export, but showed a substitution effect in the short term. Zhou and Duan (2012) showed that both FDI and foreign trade may emerge as an alternative or complementary relationships, depending on the investment motivation, investment stage, investment timing, investment industry, and investment country,

1.1.4 China's direct investment in the CEECs and China–CEECs trade

China's direct investment in the Center and Eastern European Countries started relatively late. However, after the "16 + 1" cooperation mechanism and "the Belt and Road initiative" were put forward, many scholars began to attach importance to the study of China's direct investment in CEECs. Relevant researches on this issue mainly focus on the discussion of the investment motivation and influencing factors. Chinese scholars Xu (2001), Feng (2005), and Huang (2005) researched different perspectives, arguing that motivations for China's direct investment in CEECs are diversified, mainly including exploring overseas markets, avoiding trade barriers, and acquiring technical assets. Wang (2014) argues that China should take advantage of the debt crisis of the influence of western Europe, to direct investment in CEECs, satisfying its need for capital. Through case studies, Wade (2014) concluded that China's targeted investment in CEECs has promoted the sound development of China's direct investment in the 16 CEECs.

Some studies have also analyzed the characteristics and existing problems of China's FDI in the EU. Taking Hungary, the Czech Republic, Poland, Slovakia as examples, Svejnar (2007) elaborated on the challenges that China might face in CEECs countries in the future by analyzing China's direct investment data. Marta (2012) took the failure of China overseas investment in Poland as an example and elaborated that while the scale and intensity of China's investment in CEECs are increasing year by year, China should focus on the differences between CEECs and other emerging markets and strengthen local law learning. Jiang, Xing, and Li (2012) empirically

analyzed the trade effect of China's investment in the EU by using the investment and trade gravity model based on the data related to China's direct investment and trade in the EU from 2003 to 2015. The result shows that China's investment in the EU has a significant positive effect on China's import from the EU.

1.1.5 Summary of the theoretical framework

Through the above literature review, we found that the existing literature still has the following shortcomings, which also provide an opportunity for further research.

First, for the research on the relationship between FDI and foreign trade, the existing literature mainly takes developed countries as samples, while the research on developing countries is relatively scarce. Most researches on China's FDI are based on this relationship in the global field or developed countries, but few on the relationship in the CEECs. From the research conclusion, because the research methods and the FDI in host countries in economic status are different, there are different relationships. However, most of the conclusions that support the substitution relationship are based on developed countries, and most of them are based on the traditional FDI theory that explains the behavior of western multinational corporations as the framework of analysis. Therefore, The applicability of these theories to China needs further research.

Second, the existing empirical research results mainly verify the impact of FDI on the export of the home country. Conclusions are supporting both the substitution effect and the complementary effect, while the complementary effect is the majority. There are also relatively few relevant studies on the effect of FDI on imports. At the same time, the existing studies are mainly based on the total perspective, and the conclusions are mainly based on the complementary relationship, lacking analysis from the national and regional levels. In fact, due to differences in economic development levels and relative prices of factor endowments in different countries. Investment in different types of host countries will lead to different trade effects. Also, the research focus of the existing literature mainly focuses on the trade scale, while the empirical

research on the impact of the FDI on the trade structure of the home country is relatively scarce.

Third, although there are many research results on China's FDI, there are few studies on China's FDI to the CEECs countries. China and CEECs have their respective strengths and weaknesses in terms of capital scale and technology level. Due to the different influencing factors shown by different research objects, the research on the relationship between China's direct investment and trade in the CEECs is still inclusive. As the "16+1" cooperation mechanism and "the Belt and Road" have been put forward and developed. It is necessary to study the trade effect of China's direct investment in the CEECs.

Fourth, few scholars have studied the relationship between FDI and foreign trade from China to the CEECs. The relevant research in this paper not only enriches the traditional FDI theory but also has practical significance for China's reasonable expansion of investment in CEECs and the sustainable development of China-CEECs economic and trade relations.

1.2. The theory of the substitution relationship

1.2.1 Mundell's theory of complete substitution

The earliest research on the substitution relationship between FDI and foreign trade in international trade is the H-O-S theory, developed by Samuelson (1949). This theory hypothesizes that there are only differences in the factor endowments of production among counties that the capital factors are completely immobile, and the occurrence of inter-country trade makes the prices of products and even homogeneous factors of production tend to be consistent in the world market. This theory implies that the higher the degree of trade freedom between countries, the lower the degree of the flow of international capital and production factors. However, this theory has not given a formal explanation for the firm relationship between FDI and trade. In this theory, the substitution effect of investment on trade is based on the free trade hypothesis of

equalization of factors of all countries, which is inconsistent with the actual trade situation.

The scholar who formally explained the substitution relationship between FDI and trade was Robert A. Mundell (1957). Based on the traditional H-O-S model, He studied the relationship between international capital flow and commodity trade under the two extreme situations of how the prohibition of trade stimulated investment and how the prohibition of investment stimulates trade by establishing the 2*2*2 model. The hypothesis of this theory is:

There are only two countries in the world market: country A and country B. There are only two factors of production: labor (L) and capital (K), and only two commodities (X and Y) are produced.

Country A with abundant capital and only produces capital intensive product C with its comparative advantage, while country B has a relatively abundant endowment in labor factors and only produces labor-intensive product Y with its comparative advantage. -Country A and country B have the same number of production function and both have the invariable property of return to scale. Tariff and non-tariff barriers exist in the process of trade between the two countries. Mundell model is in trade between the two countries under the premise of trade barriers, exporter for avoiding trade barriers will originally be invested by its exports to the importer, which is "tariff cause type" investment. It is believed that if the capital flows of the exporting country to the importing country can always follow a specific trajectory, this kind of investment can realize a complete substitution of trade based on the relatively best production efficiency of the lowest factor conversion cost.

This model well explains the phenomenon of international capital flows before the second world war, but with the continuous emergence of barriers to international capital flow after the war, the dual barriers of investment and trade make the substitution effect of investment on trade also decrease. The premise of whether a country chooses to make FDI or not depends on the cost and benefit of foreign investment and trade. However, this model only studied "tariff cause type" FDI. The

premise of substitution effect is foreign direct investment has a comparative cost advantage, and the underlying assumption is imposing tariffs by importing countries will not lead to a reduction in the number of domestic demand for goods, in other words, tariffs on goods belong to inelastic goods, which does not conform to the reality. Most of the import and export commodities are elastic. When the tariff imposed by the importing country leads to the increase of the domestic selling price, to maintain and occupy the original market, the exporter won't increase the commodity selling price but will maintain the original export price, increasing its own operating cost and leading to the decline of the final number of producers. From the perspective of the welfare of the two countries, the investment from the exporting country to the importing country does not increase the total output of the goods between the two countries. The importing country replaces the original import from the exporting country by absorbing the investment and increasing domestic production. On the one hand, from the exporter (investor) point of view, the original export replaced by foreign investment, which will lead to the reduction of the production and export of the original comparative advantage products and the increase of the domestic unemployment rate. To maintain full domestic employment, the exporting country would have to increase its production of products with comparative disadvantage, which in turn would lead to a decline in its imports of such goods. On the other hand, from the perspective of the importing country (the investment recipient country), the products produced by receiving foreign investment are the industries with a comparative disadvantage of the country, which will also lead to the reduction of the country's import from the exporting country.

Through this model, we should clearly understand that export tariff is only the reason for the investment country to choose FDI, but it is not the direct reason. From the perspective of investment recipient countries, there are still some variables in whether to accept foreign capital from investment countries. If the recipient country receives the investment and then expands production of the product which needs to import, it has to choose between receiving the investment and maintaining the original import trade.

Whether the substitution of investment for trade can be realized also depends on the different types of recipient countries and the needs of corresponding development strategies. Specifically, if the recipient country of investment is a developing country, it may receive investment from the investing country from the perspective of lack of capital and technology; if the recipient country of investment is a developed country, it may continue to choose to maintain the original import trade to prevent pollution transfer from developing countries.

1.2.2 Corporate FDI theory supporting the substitution effect

The traditional international trade theory mainly studies the phenomenon of international capital flow caused by price difference based on relative factor endowment theory. After the 1980s, with the continuous development of the world economy and an increasing number of multinational companies, the price difference of factor endowments between countries gradually narrowed. The emergence of trade between similar products between countries with similar factor endowments makes more scholars questioned the traditional theory of international trade. Grubel (1968) is one of the first scholars who noticed that the influence factors of FDI are not just price differences. He believed that in addition to relative price factors between countries, there are more complex factors leading to FDI, such as monopoly industry cost differences and the difference in economic growth between countries. More specifically, some scholars introduced the transnational corporation factor into the motivation of FDI (Campbell, Eden & Miller, 2012).

They believed that in the state of perfect competition in the world market if there is no external economy, information cost, and trade barriers, trade is the most effective form for a country to participate in the international market. In this case, FDI will not happen. On the contrary, it is the market incompleteness caused by the above factors that promote the occurrence of FDI. Martin (2013) from the perspective of the company strategy to explain the motives of the FDI of the enterprise. He believed that the global development strategy of multinational corporations is the motivation for enterprises to

implement FDI. The implementation of FDI is the strategy of enterprises to make use of their abilities which are not possessed by overseas competitors. The contribution from these scholars is to study the relationship between FDI and trade, which is more complex than the traditional national trade theory. In addition to the factor of different prices between countries, the multinational corporation factor is introduced into the general equilibrium trade model to explain this relationship. However, it does not indicate the substitution relationship between FDI and trade under the framework of transnational corporation analysis.

1.2.3 Internalization theory

The traditional FDI theory shows that export and FDI are the two main ways for enterprises to achieve foreign output and they can replace each other. Based on this theory, British scholars Buckley and Casson (1990) introduced the famous internalization theory in their book "The Future of the Multinational Enterprise". Based on the transaction cost theory in microeconomics, this theory assumes that the environment in which the enterprises are located in an incomplete intermediate market, which will lead to an increase in the transaction cost of the enterprise. To reduce additional transaction costs and maximize profits, enterprises will choose internalization to replace their transactions in the external market. When this process of internalization crosses national boundaries, multinationals are established.

The main idea of this theory is that when an enterprise chooses an external trading method, it will compare its transaction costs in the external market with the benefits of internalization. Only when the internalization of enterprise can get more benefits by the method of FDI than the additional transaction costs in the external market and the implementation of the internalization cost (such as the administrative costs required by the multinational enterprise management and coordination of the activities within the organization and management cost), the enterprise will choose FDI instead of exports, to realize economic benefits that cannot be obtained in incomplete product market transaction. Therefore, we can recognize that the essence of the theory of purpose is not

to explain the international flow of capital, but from the perspective of companies, explained the enterprise how to implement enterprise management operation in coordination with the business activities and how to effectively allocate resources in the global market.

This theory explains the phenomenon of international capital flow after world war II and demonstrates the conditions for enterprises to choose FDI. Compared with Mundell's substitution theory, the internalization theory is more general, which applies not only to explain the FDI strategy of developed countries but also to developing countries. In general, the emergence of internalization theory marks the new development of international direct investment theory. However, although this theory can explain the prerequisite for the implementation of FDI by transnational corporations, it does not fully explain the phenomenon of foreign capital flow and the corresponding investment flow and locations selection of multinational enterprises in the short term. Also, the theory does not explain the market -seeking and resource seeking types of FDI well.

1.2.4 Eclectic theory of international production

Dunning (1980) put forward the famous eclectic theory of international production in his article, which combines ownership advantage, internationalization advantage, and location-specific advantages into a framework to study the behavior of enterprise in conducting business abroad. He believed that whether foreign trade enterprises carry out FDI activities depends on the relative costs and benefits of FDI, license, and exporters.

Ownership advantages which are also called monopoly advantage refer to the independent ownership that can help enterprises obtain future benefits compared with other enterprises. It not only includes tangible and intangible assets such as enterprises' intellectual property rights, scientific and technological development capabilities, and market expertise but also includes the management and operation capabilities obtained by enterprises based on their economies of scale and scope. These assets can be

acquired either from within the enterprise or through participation in the external market, and are part of the internalized assets of the enterprise, which can give the enterprise a unique competitive advantage over other enterprises. Internalization advantage refers to the ability of enterprises to minimize the potential risks and uncertainties of the external market for the internalization of specific property rights through their production and operation management in the method of FDI. Location advantage refers to the specific advantages of the investment host country, which can make the ownership advantage of multinational enterprises play effectively in the location, when the enterprise adopts the way of foreign direct investment to conduct transnational operations, such as the natural resource, the market size, the low cost of labor and raw materials, the preferential tax policies, the specialization and concentration degree of the scale of production and operation. These specific locational elements cannot be transferred and have the universality in use regardless of the size and nationality of the multinational enterprises. By using the strategy of FDI, transnational enterprises can obtain more abundant profits compared with other overseas markets by taking advantage of these location-related assets of the host country, which determines the location-specific characteristics of enterprises' foreign business activities.

Dunning's eclectic theory of international production assumes that profit maximization is the goal of FDI. He believed that for multinational enterprises, the different combination of the above three advantages determines the mode and type of enterprises' external operation. If multinational enterprises only have the advantages of ownership and internalization but no specific location, they can only choose to participate in the international division of labor by direct export. With the ownership advantages and location advantages in the enterprise under the condition of without the internalization advantage, enterprises can only be transferred to the foreign enterprise due to the difficulty to use owner advantage in the form of internalization, through the way of trade permission to achieve foreign trade. Only when the ownership advantage, internalization advantage, and location-specific advantage related to the target market

are available at the same time, enterprises will choose the strategy of FDI for production and operation. Therefore, the eclectic theory of international production is also known as OIL theory. It can be seen that among the above three advantages, the location-specific advantage related to the host country occupies the most prominent and important position in the theory. From this point of view, with the continuous expansion of the business scale of multinational enterprises and the accumulation of advantages in various aspects, under the premise of the combination of location-specific advantage and ownership advantage, FDI will gradually replace the country's export trade.

Compared with the traditional theory of international direct investment, the innovation of the dunning's theory of eclectic theory of international production is that it explains the multinational enterprises in export trade, trade license and FDI among the three kinds of management pattern transformation, and also explained the cause of different types of FDI, such as market seeking, efficiency-seeking, and resources seeking. At the same time, we should also notice some shortcomings of the theory. Firstly, although the theory explains the specific motivations of transnational enterprises' external business activities in a relatively complete way, it fails to fully explain the specific relationships among the advantages of ownership, internalization, and location of specific host countries. Secondly, the theory is analyzed more from a micro perspective of enterprise operation strategy and lacks sufficient consideration of the macroeconomic factors of home and host countries and other factors leading to market imperfection. Finally, the theory believed that the premise of participating in the international division in the FDI method is to have a combination of ownership advantage, internalization advantage, and location-specific advantage. However, many companies in developing countries that participate in the world economy do not conform to this hypothesis, but they can also achieve success in overseas operations according to their late-comer advantages. Moreover, China which is a major developing country directly invests in the EU, which is the largest developed economy, showing that the deficiencies of this theory in explaining the participation of developing countries and late-developing countries in the international division of labor. In

conclusion, the eclectic theory of international production proposed by Dunning provides a good reference for scholars from a multi-disciplinary perspective on the influence of enterprise ownership advantages and location-specific advantages of specific host countries on enterprises' external operations.

1.3 The theory of the complementary relationship

With the deepening of economic globalization and the rise of multinational corporations, the transnational flow of production factors is accelerating, and the relative natural endowments and production factor combinations among countries are also changing correspondingly. At the same time, if the overly strict assumptions in the traditional Mundell model are relaxed, the relationship between investment and trade will not necessarily be a substitute relationship but a complementary one.

1.3.1 Theory of comparative advantage

When Ricardo's theory of comparative advantage is used to explain the international flow of capital, it is mainly based on the differences between different countries in factors of production such as capital and labor. This theory believed that different countries have different endowments in a different production of different elements, which leads to different marginal benefits of the same production elements in different countries. This is especially applicable to the situation if developed countries have abundant endowments in terms of capital and natural resources while developing countries have abundant endowments in terms of labor factors. In the case of capital could flow freely across national borders, the marginal rate of return is the same in different countries, but due to the wages in developed countries compared with developing countries, when capital flows between the two countries, the flow direction is from developed countries with capital-intensive products to developing countries. From this perspective, when the trade between the two countries increases with the flow of capital from developed countries to developing countries, the relationship between

FDI and trade will be complementary. The greatest contribution of Ricardo's comparative advantage theory is that it explains the cause of FDI from developed countries to developing countries.

1.3.2 New trade theory

With the continuous changes in the world economic environment, the foreign business strategy of transnational corporations has changed from simple international integration to more complex integration. With the rapid development of transnational corporations, a new trade theory represented by Helpman (2004) and other scholars has emerged. Based on the traditional foreign trade theory, the new trade theory further introduced non-market factors such as economies of scale and product differentiation into the traditional general equilibrium model to explain the relationship between FDI and foreign trade. At the same time, they tried to explain the "Lucas obituary", which mainly advocated export promotion.

The core of the new trade theory is still based on the assumptions of traditional FDI 2×2×2 model, and its main purpose is to explain the basic causes of the emergence of transnational corporations. Different from the traditional theory, there are both homogeneous and differentiated products in the world market. The market in which homogeneous products are produced is perfectly competitive, and it is assumed that each manufacturer has the same level of technology. The market in which heterogeneous products are produced is imperfectly competitive, and it is assumed that each manufacturer has different production technology and only produces a specific differentiated product. On the condition that there are relative differences in factor endowments between countries, the ratio of capital and labor factors required by the production process of different products is also different. From the perspective of profit maximization, multinational companies will distribute the production lines of different products among different countries to make full use of the advantages of factor endowment of different countries. Since the whole production chain of multinational companies includes the "headquarters production" of the country and the "sub-chain"

distributed in other countries, multinational companies can completely put the whole production chain of products under the "headquarters production" chain for integrated production under the condition of litter difference in factor endowment between countries. The result of the trade is that one country produces some different products in its own country and imports some homogeneous products from another country. The result of the trade is that one country exports some of the different products produced in its own country and imports some of the same products from another country. However, when there is a large difference in factor endowments between the two countries, it takes a long time to achieve the equalization of factors by relying on free trade. As a result, multinational companies will consider distributing the entire production process of products in different countries for production, thus generating vertical integration investment. Finally, as a result of this type of investment trade, a country with advanced production function no longer produce homogeneous products at a comparative disadvantage. Instead, all the products were produced and imported from the other country with a backward production function, and only the heterogeneous products with comparative advantages were produced and exported to the other country, which expanded the trade between the two countries. From this theory, the vertical integration strategy of transnational corporations leads to the increase of trade between the two countries.

From this new trade theory, we can realize that the possibility of vertical integration investment depends on the difference of factor endowment between the two countries. The outstanding contribution of this theory is that it integrates the theory of FDI and foreign trade, without the limitation of the assumptions of traditional FDI theory, and uses product heterogeneity and corporate strategic behavior to explain the relationship between foreign direct investment and foreign trade and the emergence of multinational companies. Also, the innovation of this theory that it breaks the shackles of the traditional theory to explain FDI by using the relative cost of products, and further emphasized the heterogeneous meaning of products and the role of scale compensation in the production process.

1.3.3 Industrial network theory

Industrial network theory describes the relationship between FDI and foreign trade from the perspective of industrial organization structure. It analyzes the problem from the perspective of "network connection", and explains that all the economic and non-economic relations are based on "network connection", including between economic and non-economic factors and between producers and consumers. Under the premise that all enterprises participating in the economy are in the "connected network", enterprise multinational business activities can be regarded as the expansion of all the "network connections" between enterprises and the external economy. Through the integration of their resources and similar external resources, they form a supplement to their business strategy and management ability, and this supplementary ability is proportional to the close degree of the "connection" between enterprises and the external economy. Johanson and Mattsson (1987) applied this theory to analyze the relationship between FDI and foreign trade for the first time. It is believed that under the hypothesis of industrial network theory, the "connection" between a country and other countries will promote the development of FDI and foreign trade, and make them show the complementary relationship.

This theory explains the reasons for promoting a country's FDI and foreign trade from the perspective of the industrial organization of transnational corporations but does not explain the specific reasons for the existing "connection" between countries and the establishment of the complementary relationship between FDI and foreign trade.

1.4 The theory of the uncertain relationship

1.4.1 Product life cycle theory

American scholar Vernon put forward the famous product life cycle in his article "International investment and international trade in the product cycle" (Vernon, 1966).

As an example, this theory studies the location choice and investment motivation of FDI by multinational corporations in developed countries after world war II. This theory takes the production composition of products as the starting point, and explains the different behaviors of multinational corporations in different production links under the theoretical framework of comparative advantage. Vernon humanized trade products and endowed them with a "life cycle". He believed that with the change of the comparative advantages of different products in different countries, the external business behavior of multinational companies would change. Specifically, he divided the entire "life" process of a product into four stages, introduction, growth, maturity, and decline.

The product life cycle theory combines the international direct investment and international trade activities, indirectly explains the location selection of the FDI of transnational corporations, and concludes that the investment and trade will show different relations according to the different stages of the product.

This theory not only considers the location advantage of the host country but also considers the condition of the investing country itself, which makes up the deficiency of the traditional international investment theory. At the same time, it solves the disadvantages of the static comparative advantage of the traditional international trade theory and introduces the dynamic comparative advantages theory to explain the FDI and international trade activities of multinational enterprises. In other words, the product life cycle theory is an innovation in the field of international direct investment theory and international trade theory. The defect of the theory is that due to the narrowing of the technological gap between countries caused by the globalization of economy economic and scientific and technological information, and the development of intra-network trade of transnational corporations, the product life cycle theory is more and more difficult to explain the location selection of FDI activities of transnational corporations. Compared with the theory of monopoly advantage and the eclectic theory of international production, this theory still cannot explain the direct investment behavior of some developing countries to developed countries, especially

the direct investment of Japan and Western Europe and other sub-developed countries to the United States in the late 1950s.

1.4.2 Factor scale model

Ueda (1983) relaxed the strict assumption the proportion of relevant elements in Mundell's model was different while other elements were identical, and explained the relationship between FDI and foreign trade from the perspective of production elements. They believe that there is both commodity trade and factor trade in the world market. Under the conditions of full employment and constant remuneration to the scale of the two countries involved in the trade, the relationship between FDI and foreign trade depends on the cooperative relationship between commodity and non-trade factors. Further, they divided the capital factors into trade factors and the production factors such as labor and land into non-trade factors. It is considered that the cooperative relationship between trade factors and non-trade factors will lead to the complementary relationship between FDI and foreign trade, which means the flow of trade factors, such as capital, will increase the flow of goods trade between countries. On the contrary, if there is a non-cooperative relationship between FDI and foreign trade, it will show a substation relationship. To further supplement this theory, Markuson (2002) proposed a famous knowledge capital model based on the traditional 2×2×2 model. The model of production factors is defined as general labor and proprietary technology labor, combined with two cases of vertical and horizontal investment, from the perspective pf different investment motives, explains the relationship between FDI and foreign trade. It believed that when multinational enterprises belong to the vertical international division of labor, the FDI is caused by the multinational corporate global internal trade, belong to trade creative; if FDI belongs to the horizontal international division of labor, it belongs to trade substitution.

There are three main points of view about the relationship between FDI and foreign trade: substitution, complementarity, or uncertainty. The research level of these theories from the original national macro-level extends to the multinational enterprise

micro level. Each theory has an outstanding theoretical contribution in its production stage but also indicates the development and continuous improvement of FDI and foreign trade theories to some extent. In general, the above theories on the relationship between FDI and foreign trade mainly focus on developed countries and mainly study the "downstream" investment from developed countries to developing countries. These theories emphasized that in an uncertain international environment, reducing the operating costs are the main motivations of the enterprise of FDI.

The above relationship theories mainly discuss the correlation between FDI and foreign trade from a certain aspect and consider the substitution and complementarity separately. Although the theory of the uncertain relationship was developed later, it only reached the uncertain conclusion that the relationship between the two countries was alternative or complementary under different assumptions. With the development of the world economy and the continuous expansion of multinational corporations in the world, the flow of production factors in the world has become freer, creating more possibilities for multinational corporations to allocate resources effectively in the world. FDI and foreign trade, as the two main channels for a country or an enterprise to participate in the world economy, should be mutually integrated rather than opposed in the perspective of globalization. Therefore, this paper takes China's direct investment in the CEECs as a starting point to study this relationship, which is of great theoretical value and research significance for enriching the existing theories of internal direct investment.

CHAPTER 2. THE DEVELOPMENT OF CHINA'S DIRECT INVESTMENT AND TRADE WITH CEECS
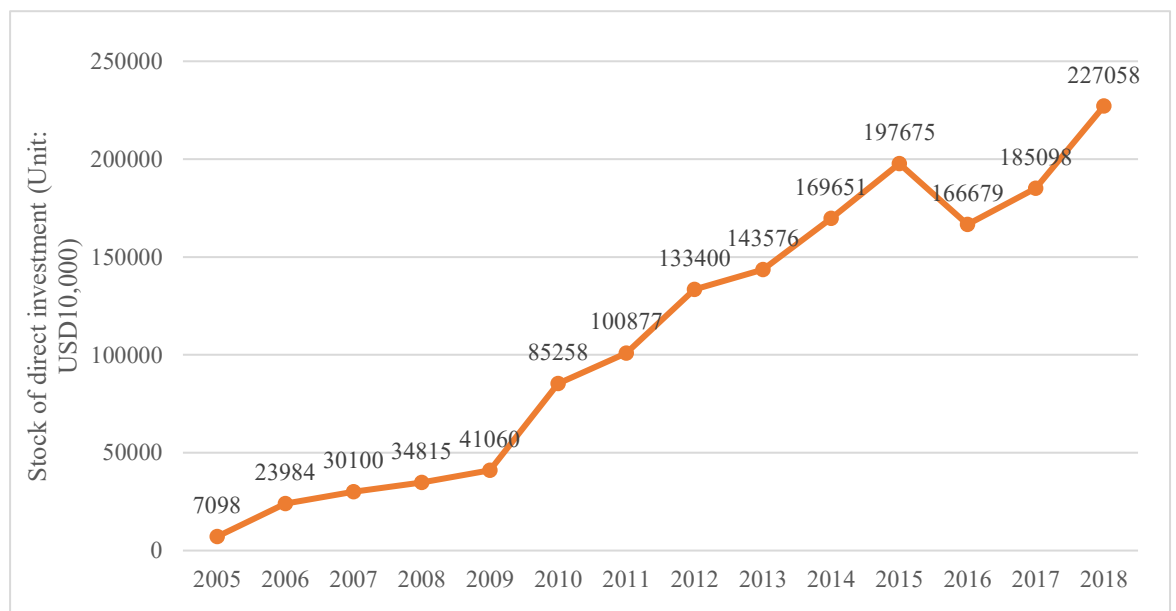
2.1 Analysis of China's FDI in the CEECs

The development of China's FDI in 16 CEEC's can be divided into four stages. The first stage was from 1990 to 1994, when CEECs went through great political changes. The second stage was from 1995 to 2003, under the guidance of the "Budapest principles", China's economic cooperation with CEECs gradually increased, and China strengthened its investment cooperation with Romania, Hungary, and Poland, while the investment is not high. The third stage is from 2004 to 2011. The Bucharest principles explicitly suggest for expanding economic and trade cooperation and striving to raise the level of investment in economic cooperation. At this stage, China has gradually increased its investment in the CEECs, especially for the other 13 countries except for Montenegro, Macedonia, and Latvia. The fourth stage is from 2012 to now. With the "16+1" cooperation mechanism and "the Belt and Road " focusing on infrastructure construction and production capacity cooperation, China attaches great importance to investment cooperation with CEECs, and China's direct investment in CEECs has entered a stage of historical opportunities.

The first two stages of China's investment in 16 CEECs were mainly limited by the domestic political changes in CEECs and China's low capacity for FDI. In the third and fourth stages, China's direct investment in the 16 CEECs continues to expand as China's awareness of the importance of these countries grows. Figure 1 shows the overall scale of China's direct investment in 16 CEECs from 2005 to 2018. It can be seen that except for 2016, there is an obvious upward trend. In 2012, an important juncture for China to put forward the "16+1" cooperation policy. In the following 6 years, China's direct investment in CEECs maintained an annual growth rate of about 11%, increasing from USD1.009 billion at the end of 2011 to USD2.271 billion in 2018, which is 2.25 times the amount of direct investment at the end of 2011 and 32 times the

amount of direct investment in 2005. However, China's direct investment in CEECs accounted for only 0.10% of China's outbound direct investment and accounts for 1.20% of China's direct investment in countries along "the Belt and Road". The 16 CEECs accounts for 2.25% of the world's GDP excluding the amount of China, and 11.33% of GDP of countries along "the Belt and Road" route. China's direct investment in these 16 countries is insufficient relative to their GDP. Table 1 shows China's investment stock and growth rate in CEECs and the EU from 2006 to 2018. In 2006, China's s direct investment in CEECs was only USD 240 million, accounting for only 18.82% of China's total direct investment in the EU. Since then, China's direct investment in CEECs has gradually increased. In 2010, China's stock of direct investment in CEECs reached USD 853million, an increase of about 107.64% over the previous year. in 2013, dragged down by the European debt crisis, the proportion of China's direct investment in CEECs showed a slight decline, with a year-on-year decrease of 76.34%. By 2018, China's direct investment stock in CEECs has reached USB 2.271 billion, accounting for 2.50% of China's total direct investment stock in the EU.

Figure 1: Total stock of China's direct investment in CEECs from 2005 to 2018

Table 1. A comparison of China's stock of direct investment in CEECs and the EU from 2006 to 2018

Year	Increase (CEECs)	Growth (CEECs)	Increase (EU)	Growth (EU)
2006	16886	237.90%	50650	65.95%
2007	6116	25.50%	166759	130.84%
2008	4715	15.66%	23175	7.88%
2009	6245	17.94%	310398	97.80%
2010	44198	107.64%	622719	99.19%
2011	15619	18.32%	778577	62.26%
2012	32523	32.24%	1124745	55.43%
2013	10176	7.63%	855837	27.14%
2014	26075	18.16%	1411379	35.20%
2015	28024	16.52%	1024973	18.91%
2016	-30996	-15.68%	537656	8.34%
2017	18419	11.05%	1617811	23.17%
2018	41960	22.67%	472400	5.49%

Source: Statistical bulletin on China's outbound direct investment. Note that the increase (CEECs) means the absolute increase in the stock of direct investment in CEECs (USD 10,000). The growth (CEECs) means the growth in the stock of direct investment in CEECs. The increase (EU) means the absolute increase in the stock of direct investment in the EU (USD 10,000). The growth (EU) means growth in the stock of direct investment in the EU.

In the past 6 years since the "16+1" cooperation mechanism was proposed, China's stock of direct investment in CEECs has grown by only 13.81%, which is far behind China's OFDI growth rate in the EU (24.81%) annually. However, it is worth noting that in 2017, China's outbound direct investment flows to the CEECs increased by 300% on a year-on-year basis, while China's outbound direct investment flows

decreased by 19.3%. This is likely to be a direct manifestation and an important beginning of China's efforts to increase its direct investment in the CEECs.

2.1.1 The country distribution

According to the different levels of economic development of the CEECs, The Statistical Bulletin of China's outbound direct investment (2017) divides the CEECs into developed, developing, and transition economies. Six developed economies are Slovenia, Czech Republic, Estonia, Slovakia, Latvia, and Lithuania. Poland, Hungary, Croatia, Romania, and Bulgaria are five developing economies; Montenegro, Serbia, Macedonia, Bosnia and Herzegovina and Abaya are five countries in transition. Based on the availability and continuity of data, this paper makes a statistical analysis of China's direct investment flows to different Central and Eastern European economies (excluding Serbia and Macedonia) from 2005 to 2018.

It can be seen from figure 2 that the annual flow of Chinese direct investment in CEECs mainly flows to developing economies, followed by the flow to the developed economies. The flow of direct investment into transition economies accounts for the smallest proportion. This is basically in line with the proportion of China's outbound direct investment in the three economies.
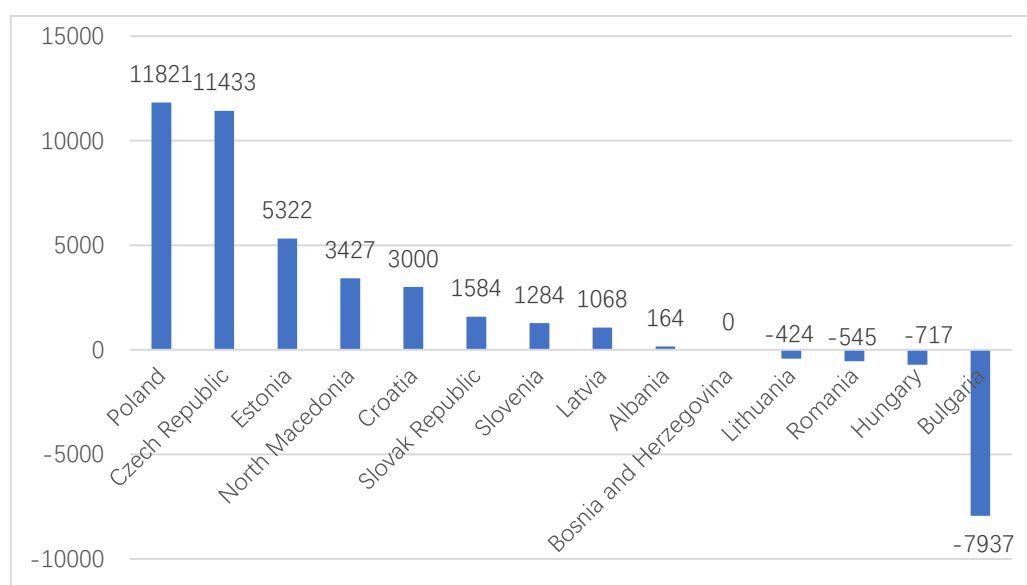
Figure 2. China's direct investment flows to different Central and Eastern European economies
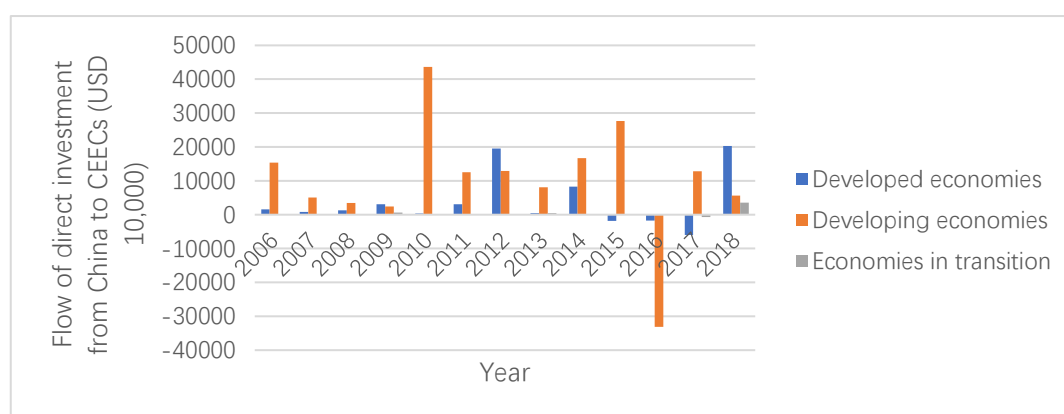
Source: Statistical Bulletins of China's Outward Foreign Direct Investment over the years

The imbalanced stock of China's direct investment in the CEECs is caused by the annual flow of direct investment from China. Because of the unavailability of the data, figure 3 shows the flow of direct investment from China to 14 countries in Central and Eastern Europe. In 2018, China maintained extremely low levels of direct investment in Albania (USD 1.64 million), and there was not any investment in Bosnia and Herzegovina. Direct investment in Lithuania, Romania, Hungary, and Bulgaria accounted for USD 96.23 million. Notably, China significantly increased direct investment in North Macedonia and Croatia in 2018 by USD 34.27 million and USD 30 million respectively. Although there are some differences in the investment environment and industrial structure of the CEECs, they have different attractions for Chinese investors. However, it cannot be denied that China's direct investment in the CEECs has been imbalanced for a long time, and the country structure of direct investment in the CEECs needs to be optimized. It is a good start for China to increase its direct investment in North Macedonia and Croatia in 2018.

Figure 3. The flow of direct investment from China to the 14 CEECs

Source: Statistical Bulletins of China's Outward Foreign Direct Investment over the years

2.1.2 The industrial structure

After the European debt crisis, there was a sharp contrast between the phenomenon that major western European countries reduced their investment in CEECs and the fact that China used its abundant foreign exchange capital to seek global investment opportunities. The CEECs have actively participated in and held various investment forums and investment promotion activities to strengthen investment cooperation with China and attract Chinese direct investment to boost their economic development. The incentive policies for the CEECs to attract foreign direct investment mainly exist in the areas of transportation, clean energy and communication, and information technology, in which China has a strong competitive advantage and a good investment foundation. At the same time, it is an important consensus reached between China and the CEECs to promote infrastructure development and strengthen connectivity partnership and production capacity cooperation between China and the CEECs in the context of "the Belt and Road". Given the unavailability of data on China's direct investment in the CEECs' industry, it is impossible to directly understand the sector distribution of China's direct investment in the CEECs. However, the distribution of China's direct investment in the CEECs can be partially reflected by the statistics on the industry distribution of foreign investment enterprises in the CEECs registered with the Chinese ministry of commerce, as shown in table 3.2.

Table 2. Industrial distribution of China's direct investment in the CEECs

Industry	Number of enterprises	Percentage (%)
Wholesale and retail	120	30.77
Manufacturing	70	17.95
Construction	50	12.82
Finance	12	3.08
Real estate	8	2.05

Mining	4	1.03
Accommodation and catering industry	3	0.77
Education	1	0.26
Leasing and business services	41	10.51
Water conservancy, environment, and public facilities management industry	2	0.51
Agriculture, forestry, animal husbandry and fishery	4	1.03
Communications, transportation, warehousing, and postal services	21	5.38
electric power, heat, gas and water production and supply industries	3	0.77
Scientific research and technology services	15	3.85
Information transmission, software, and information technology services	30	7.69
Residential services, repairs, and other services	1	0.26
Culture, sport, and entertainment	5	1.28

Source: Public Listing of Overseas Investment Enterprises' Record Results.

As can be seen from table 2, according to China's national economic sector classification, there are 20 categories, and China's direct investment in the CEECs covers 17 categories, except international organizations, public administration, social security, social organizations and health, and social work. The top six sectors of China's direct investment in the CEECs are wholesale and retail, manufacturing, construction, leasing and services, information transmission, software, and information technology services and transportation, warehousing, and postal services. Among them, the wholesale and retail investment was the largest with 30.77%, followed by the manufacturing and construction industries with 17.95% and 12.82% respectively. Residential services, repairs, and other services and education were the least active, accounting for only 0.26%. wholesale and retail, manufacturing, and construction, the largest proportion shows that Chinese enterprises attach great importance to the development of the CEECs market scale and pay attention to production cooperation with them. At the same time, the construction industry is mainly focused on

infrastructure, which is in line with the desire of the CEECs to use FDI to promote its infrastructure development. Investment in clean energy, mainly in the construction of communication technology, R&D, and technology, accounts for a considerable proportion, which has greatly enhanced the industrial competitiveness and structural optimization of the CEECs. Agriculture, forestry, livestock, and fishery account for only 1.03% of the total. There is not a breakthrough point for investment cooperation between China and the CEECs, meaning that there is a high potential for investment cooperation.

By analyzing the industry distribution of China's direct investment in the CEECs, we find that on the whole, China's direct investment in the CEECs is mainly driven by the search for markets and strategic assets. At present, China's domestic demand for steel, cement, and other industries is shrinking, and the problem of overcapacity is obvious. China is currently in the process of Supply-side reform, and it is necessary to seek external markets to absorb the excess capacity in China. Strong demand for infrastructure in the CEECs is marched by excess capacity in China, so many large state-owned enterprises in China's construction sector are stepping up direct investment in the CEECs to develop and expand their markets. Also, there are 110 million people in the CEECs, whose GDP reaches USD 1.539 billion, high per capita income, strong consumer demand, and huge market potential. Therefore, many industries such as clothing and beverage also attach importance to direct investment in the CEECs, which is driven by market search.

As a gateway to Europe, Central, and Eastern Europe is an important way for China to enter the European market. Through the direct investment in the CEECs, China can be more conducive to obtain a European country's advanced technology and excellent management models of European countries. In 2011, Yantai Wanhua co., ltd. acquired 96% of the shares of Hungary BorsodChem co., ltd., which is by far the largest M&A project of China in the CEECs. In 2016, Ningbo free trade zone Dongren Investment co.,ltd. paid USD 120 million for a 33% stake in Bioton, which is the

world's third-largest insulin producer. Such investments are driven by strategic asset-seeking motivations.

2.2 Analysis of China-CEECs trade

Since the cooperation between China and the CEECs, the bilateral import and export trade between China and the CEECs has shown a trend of steady growth. Especially since the "Bucharest principles" were put forward in 2004, the trade volume between China and the CEECs has shown a trend of rapid growth, and China's trade surplus with the CEECs has also increased significantly. The volume of bilateral imports and exports between China and CEECs rose from around USD1.30 billion in 2005 to USD 8.10 billion in 2018, expanding by 6.3 times, achieving an average annual growth rate of 17.35% and accounting for 1.75% of China's total foreign trade, up from 0.91%. China's exports to the CEECs increased from USD 1.08 billion to USD 5.83 billion, accounting for 2.34% of China's total foreign trade from 1.42%, with an average annual growth rate of 16.35%. The import of China from the CEECs rose from USD 0.22 billion to USD 2.28 billion, with an average annual growth rate of 21.49%.

As shown in table 2 since China put forward the policy of cooperation with CEECs, the curve slope of China's import and export with the CEECs has gradually increased, and the import and export trade with the CEECs has also shown a trend of rapid growth. In 2006, China's imports and exports to the CEECs reached the highest year-on-year growth rates of 44.95% and 94.54% respectively. In 2009, due to the impact of the financial crisis, China's export to the CEECs declined significantly, achieving a negative growth rate of 19.51%. However, it rebounded strongly in 2010, achieving a growth rate of 32.02%. in general, the growth rate of China's export to the CEECs has been positive in other years except for a slight decline due to the impact of the financial crisis in 2009 and the European debt crisis in 2012.

It can also be seen from table 2 that China's trade surplus with the CEECs maintained a growing trend from 2005 to 2018. In 2005, it was only USD 863 million, while in 2018, it reached USD 3.551 billion an increase of about 4.11 times and an

average annual growth rate of 14.57%. Among them, the highest annual growth rate of 106.99% was achieved in 2005. In 2009 and 2012, influenced by the international financial crisis and the European debt crisis, China's trade surplus with the CEECs decreased by 24.7% and 7.05% respectively. It then rebounded in 2010 and 2013, respectively, to achieve 25.54% and 2.03% annual growth respectively.

Table 3. The volume of import and export transactions between China and the CEECs from 2005 to 2018 and its position in China's foreign trade cooperation (USD 10,000)

Year	Total	Percentage (%)	Growth rate (%)	Import	Percentage (%)	Growth rate (%)	Export	Percentage (%)	Growth rate (%)	Net trade
2005	1295391	0.91	0	216096	0.33	0	1079295	1.42	0	863199
2006	2413166	1.37	86.29	313233.7	0.4	44.95	2099932	2.17	94.57	1786698
2007	2930806	1.35	21.45	474059.1	0.5	51.34	2456747	2.01	16.99	1982688
2008	3794157	1.48	29.46	578312.7	0.51	21.99	3215845	2.25	30.9	2637532
2009	3190782	1.45	-15.9	602299.4	0.6	4.15	2588482	2.15	-19.51	1986183
2010	4341370	1.46	36.06	923953.8	0.66	53.4	3417416	2.17	32.02	2493463
2011	5233466	1.44	20.55	1265776	0.73	37	3967690	2.09	16.1	2701914
2012	5137628	1.33	-1.83	1313151	0.72	3.74	3824477	1.87	-3.61	2511327
2013	5437988	1.31	5.85	1437855	0.74	9.5	4000133	1.81	4.59	2562278
2014	5946497	1.38	9.35	1634210	0.83	13.66	4312287	1.84	7.8	2678077
2015	5552157	1.4	-6.63	1391245	0.83	-14.87	4160912	1.83	-3.51	2769667
2016	5795572	1.57	4.38	1473414	0.93	5.91	4322158	2.06	3.88	2848744
2017	6702042	1.63	3.77	1821623	0.99	6.48	4880418	2.16	4.65	3058795
2018	8104800	1.75	7.45	2277148	1.07	7.92	5827653	2.34	8.68	3550505

Source: BVD macroeconomic database, China Statistical Yearbook. Note that total means the total volume of import and export between China and the CEECs. The total percentage means the proportion of imports and exports in China's total foreign trade. Import means China's import from the CEECs. The import percentage means the proportion of China's imports from the CEECs in China's total imports. Export means China's export to the CEECs. The export percentage means the proportion of China's exports to the CEECs in China's total exports. Net trade refers to the difference between the value of exports and imports.

In table 3, the CEECs include Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Poland, Romania, Slovak Republic, and Slovenia. The proportion of exports refers to the

proportion of China's exports to the CEECs in China's total exports, while the proportion of imports refers to the proportion of China's imports from the CEECs in China's total imports.

2.2.1 The country distribution

The CEECs are a complex economy composed of 16 independent complex economies. China's trade with the CEECs also shows obvious differences among member states. Poland, Hungary, and the Czech Republic have always been China's top three trading partners among the CEECs, accounting for nearly 60 percent of the total trade between China and the CEECs. As can be seen from figure 4, China mainly conducts import and export trade with the developing economies of the CEECs from 2005 to 2018, followed by the developed economies, and the share of imports and exports with the economies in transition is the smallest. This is consistent with the proportion of China's outward direct investment in the CEECs in the three economies.

Figure 4. China's import and export trade in different Central and Eastern European economies
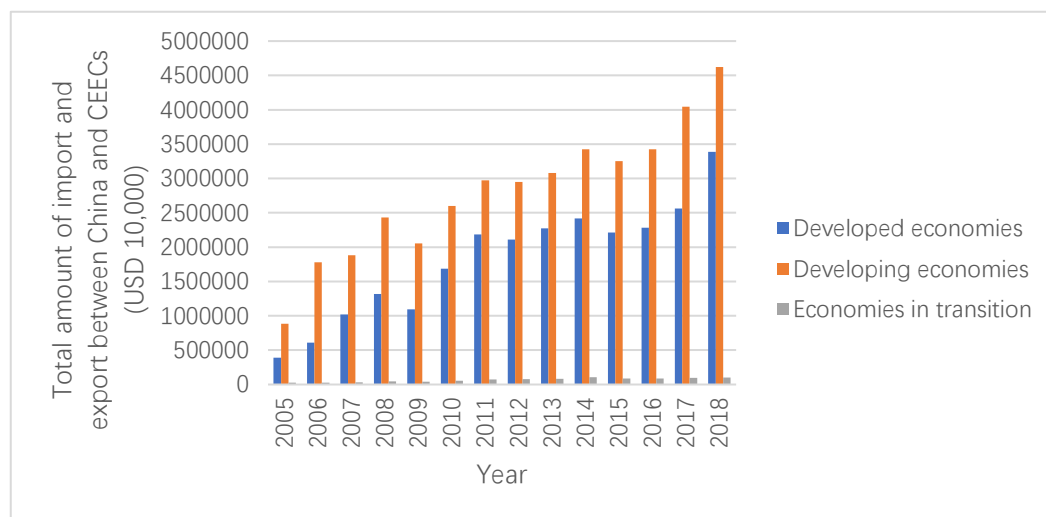

Source: China Statistical Yearbook

2.2.2 The product structure

From the perspective of commodity structure, the main products exported by China to the CEECs are machinery and transport equipment (SITC7), miscellaneous manufactured articles (SITC8), and manufactured goods classified chiefly by material (SITC6), accounting for over 90% of China's total exports to the CEECs. China mainly imports machinery and transport equipment (SITC7), followed by manufactured goods classified chiefly by material (SITC6). From 2007 to 2018, China's export structure to the CEECs remained almost unchanged, while the import trade structure between China and the CEECs continued to improve. For example, the import volume of mechanical and electrical products exceeds 40%; China's share of consumer goods is also growing; High-quality agricultural products from the CEECs such as dairy products and high-quality beef and mutton, have also gained greater popularity in China, and China's imports of them have increased substantially.

In terms of the structure of China's exports to the CEECS, manufactured goods account for the vast majority of exports. As shown in figure 1, in 2018 the proportion of China's exports for manufactured goods to the CEECs accounted for 94.87% of its total exports to CEECs. Among them, China's largest export to the CEECs was machinery and transport equipment (SITC7), accounting for 54.69%, and the export value reached USD 31.7billion. China's second-largest export to the CEECs was miscellaneous manufactured articles (SITC8), accounting for 26.12%.

In contrast to the export of manufactured goods, the percentage of China's export of primary products to the CEECs is extremely small at 5.13%. From a dynamic perspective, the structure of China's exports to the CEECs remained stable from 2007 to 2018 without major changes.

Figure 5. The structure of goods exported from China to the CEECs
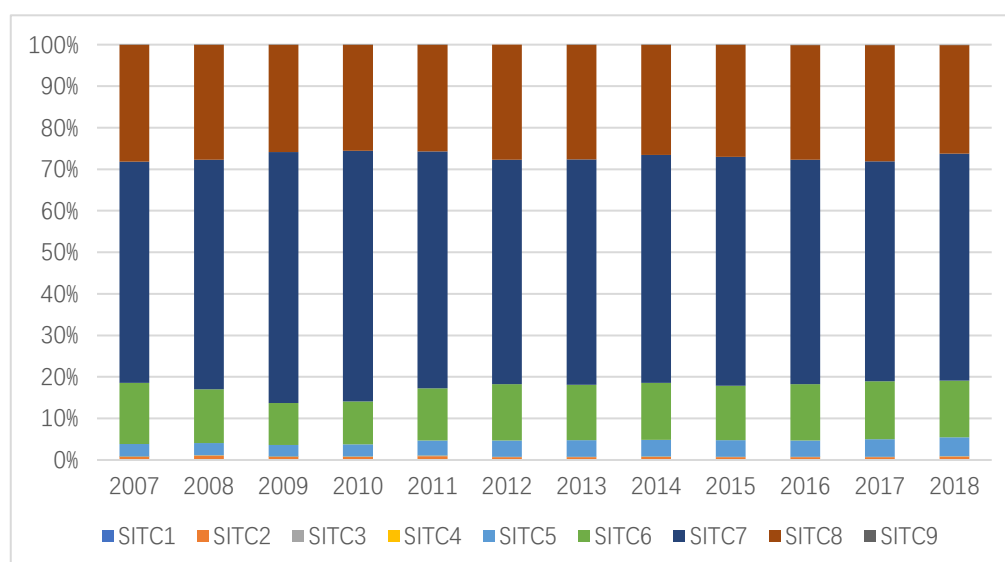
Source: UN COMTRADE

China's import structure to the CEECs is similar to the export structure. Manufactured goods are still the main products that China imports from the CEECs, accounting for 68.78% of China's total import value to the CEECs. Machinery and transport equipment (SITC7) remain China's largest import from the CEECs. As shown in figure 2, in 2018, imports of such products accounted for 66.33% of China's total imports from Central and Eastern Europe. All kinds of product structures were stable before 2014. Between 2014 and 2018, the proportion of crude materials, inedible, except fuels (SITC2) decreased from 8.7% in 2014 to 7.16% in 2015, and then showed a small trend of increase. The proportion of machinery and transport equipment (SITC7) decreased slightly in 2015, then gradually increased, and gradually slowed down in 2018. It can be seen that in recent years, China has improved the import structure of the CEECs. The CEECs have a long history of agriculture. Their main advantage is abundant natural resources, especially in such resource-intensive industries as

agriculture, forestry, and dairy products. In this industry, however, the proportion of China's imports from the CEECs is relatively low. For example, in 2018, the proportion of animal and vegetable oils, fats, and waxes (SITC4) from the CEECs is only 0.005%. This shows that China has not fully explored the competitive industries of the CEECs, and trade cooperation needs to be further deepened.

Figure 6. The structure of goods imported from CEECs to China
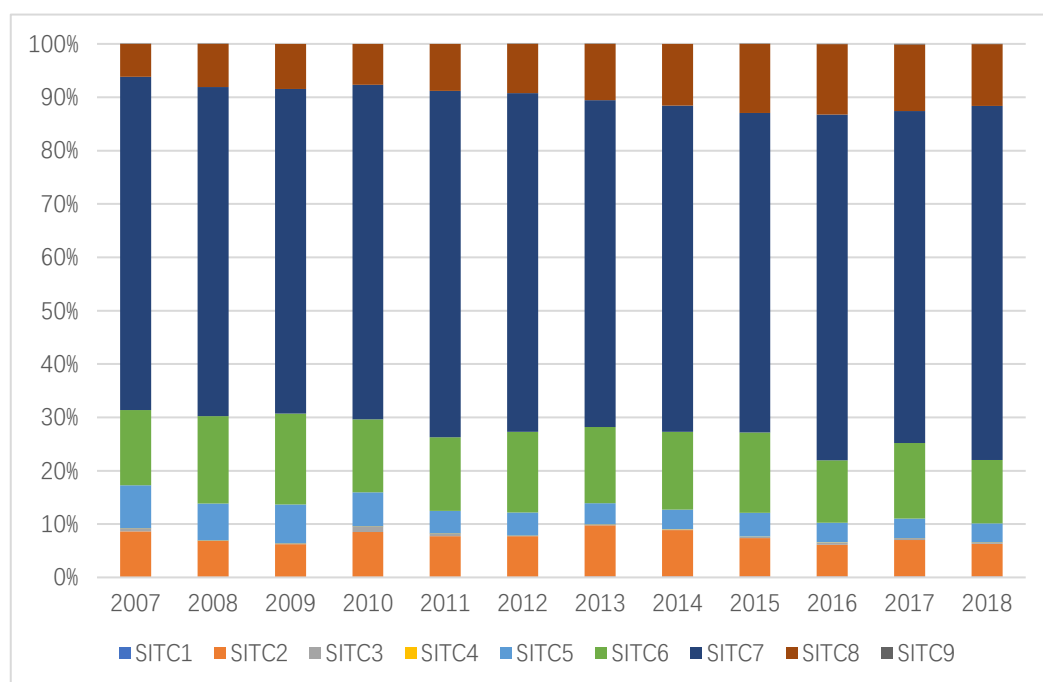
Source: UN COMTRADE

2.3 Synchronicity of scale development

International direct investment and international trade are two important wats for a country to integrate into the world economy. In the past 30 years of economic cooperation and development between China and the CEECs, cooperation in investment and trade has made great progress. With the deepening of economic globalization, the cooperation between China and the CEECs in the economic and trade

fields is also deepening, and the cross-cutting and interactive influence of China's direct investment and trade in the CEECs is becoming increasingly obvious.

In 2005, China's stock of direct investment in the CEECs was only USD 71 million. Since 2010, there has been a rapid growth trend. In 2011, China's stock of direct investment in the CEECs reached USD 1.009 billion, and rose to USD 2.271 billion in 2018, an increase of nearly 31.99 times over 2005. Correspondingly, China's bilateral import and export trade with the CEECs also showed a rapid growth trend during this period. The volume of bilateral trade between China and the CEECs has grown rapidly from USD 12.954 billion in 2005 to USD 81.048 billion in 2018, a sixfold increase in 15 years. It can also be seen from figure 7 that, except for individual years, the stock of China's direct investment in the CEECs is generally in line with the changing trend of China's total import and export volume. The growth of China's trade volume with the CEECs may be caused a variety of factors, but the potential effect of China's direct investment in the CEECs on China's bilateral import and export trade is undeniable.

Figure 7. China's stock of direct investment in the CEECs and total bilateral trade between China and the CEECs from 2005 to 2018 (USD 10,000)
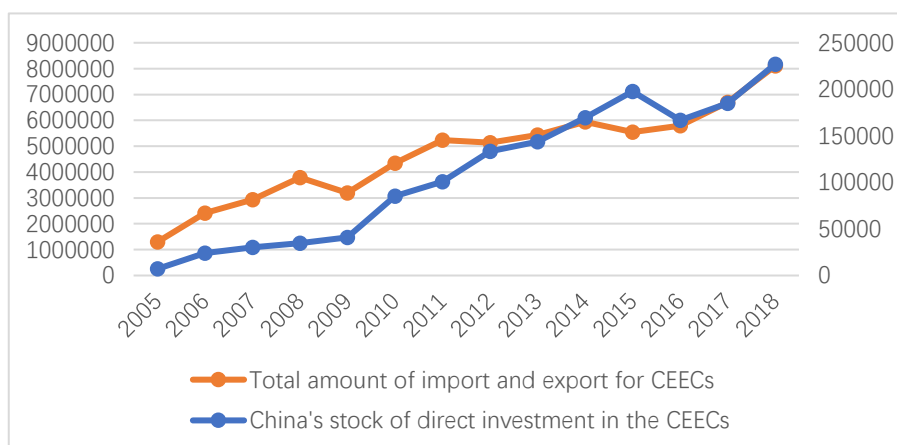
During 2006 and 2018, the trend of China's direct investment flow to the CEECs, China's exports to the CEECs and China's imports from the CEECs are roughly the

same, indicating that China's direct investment in the CEECs has generally promoted China's import and export with the CEECs. From the perspective of export, it can be seen from the overview of China's direct investment and trade with the CEECs and the industrial characteristics of China's direct investment and trade with the CEECs in the first two sections of this chapter that the industries with a high proportion of China's direct investment in the CEECs are just the categories of commodities with a large proportion of China's exports to the CEECs. Especially, China's direct investment in the CEECs is mainly concentrated in wholesale and retail, manufacturing, construction, leasing, and business services. China's investment in the CEECs manufacturing industry mainly focuses on transportation equipment manufacturing, machinery manufacturing, chemical raw materials, and product manufacturing. Similarly, China's comparative advantage in exports to the CEECs remains in manufactured goods, including machinery and transport equipment. By investing in the CEECs in manufacturing and other industries, China can improve its domestic production technology by acquiring the market and strategic assets and management experience of CEECs, and also expand its export to the CEECs by taking advantage of its cheap labor cost.

Through the description of the industrial characteristics of China's direct investment in the CEECs, we find that in recent years, the proportion of China's investment in the CEECs' scientific research and technical services has shown an increasing trend. By investing in the CEECs' scientific research and technology fields, China has gained the CEECs' technology and management experience, improved the production capacity of domestic enterprises through demonstration effect and other ways, and increased the added value of Chinese products exported from the CEECs. It can also be seen from figure 8 that the trend of China's direct investment in the CEECs' is the same as that of China's import from the CEECs, indicating that China's direct investment in the CEECs also promotes China's import from the CEECs. According to the above analysis on the characteristic of products traded between China and the CEECs, the product category with the largest proportion of China's imports from the

CEECs is still machinery and transport equipment, which is consistent with the characteristics of investment flow. China's direct investment in the CEECs manufacturing industry not only drives the export of domestic low-value-added goods but also imports high-end machinery and equipment needed for the production of various products from the CEECs, thus triggering the import from the CEECs.

Figure 8. China's flow of direct investment in the CEECs, import volume and export volume with the CEECs from 2005 to 2018 (USD 10,000)

It can be seen from figure 9 that China's direct investment in the CEECs has a greater promoting effect on China's export to the CEECs than on China's import from the CEECs, which also leads to the further expansion of China's trade surplus with the CEECs. China's trade surplus with the CEECs has reached USD 35.505 billion in 2018, 1.99 times larger than that of 2006. As can be seen from the chart comparing the trend of China's direct investment in the CEECs with the trade balance between China and the CEECs, the flow of China's direct investment in the CEECs is the same as the trend of China's trade surplus with the CEECs. From the trend of the two changes, the

adjustment of China's direct investment in the CEECs to China's trade balance with the CEECs was faster after the crisis than in the pre-crisis period.

Figure 9. China's flow and stock of direct investment in the CEECs and trade balance from 2005 to 2018 (USD10,000)
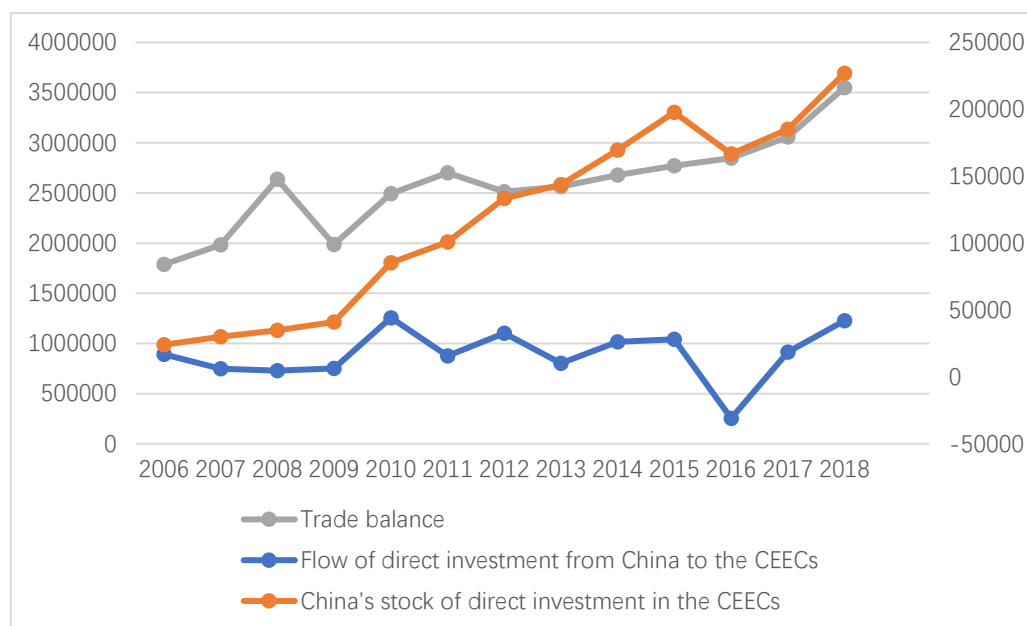
Source: Statistical Bulletins of China's Outward Foreign Direct Investment over the years

2.4 The main conclusion

This chapter firstly introduces the development process of direct investment and trade between China and the CEECs and systematically analyzes the current situation and characteristics of China's direct investment and trade with the CEECs from the perspectives of total volume, industry, and country. Then, based on the characteristics of China's direct investment in the CEECs and the trade between China and the CEECs, this paper elaborates the influence path of China's direct investment in the CEECs on the trade between China and the CEECs from the perspective of the total trade volume and the trade balance between China and the CEECs. According to the preliminary analysis of this paper, China's direct investment in the CEECs has a promoting effect on China's total import and export volume to the CEECs and a widening effect on the trade balance between China and the CEECs. To determine the influence degree and

size of these aspects, it is necessary to establish a specific econometric model to measure them. In the next chapter, the impact of China's direct investment in the CEECs on China- CEECs trade scale will be systematically analyzed through empirical analysis.

CHAPTER 3. EMPIRICAL APPLICATION

The last chapter qualitatively analyzes the impact of China's direct investment in the CEECs on the trade scale between China and the CEECs and preliminarily determines that China's direct investment in the CEECs promotes the import and export scale between China and the CEECs, which affects the trade balance and trade structure between the two countries. This chapter will conduct a quantitative analysis to verify the impact of China's direct investment in the CEECs on the scale of trade between China and CEECs. Analysis for the CEECs' direct investment in China mainly from three aspects including the effect of import and export volume, export effect, and imported effect. By comparing the effects of export and import, we will also analyze the influence degree and path of China's direct investment in the CEECs on the trade balance between China and the CEECs, and analyze the immediate and long-term effects of this "surplus induced effect" with the error correction model.

Many scholars have done a lot of research on the relationship between FDI and trade growth from both theoretical and empirical perspectives. Through the research on the relevant data of Japan, Fahinde (2015) believed that the flow of Japan's FDI has a short-term effect on the country's foreign trade, while the stock of FDI has a long-term effect on the country's foreign trade. Tridico (2018) used the Granger causality test to find that Austria's FDI and export have two-way causality, and they are mutually reinforcing. Anon (2010) analyzed the investment and trade data of the United States and found that the outward foreign direct investment of the USA had a creative effect on both exports and imports, while its impact on exports was greater than that on imports. Martins (2015) took 13 OECD countries as samples and found that FDI and imports substitute for each other, while there is a complementary relationship between FDI and export. Khan (2019) divided 207 countries and regions into two types of industrialized and developing countries, and empirically analyzed the relationship between FDI and trade. The results showed that there is a two-way causal relationship

between investment and trade. The correlation coefficient of the two is significantly positive in the samples of developing countries, but not in the samples of industrialized countries, and the effect of investment on trade is greater than that of trade on investment.

So far, there is no consistent conclusion about the effect of FDI on the country's trade scale. This chapter will establish an empirical model to examine the impact of China's direct investment in the CEECs on the scale of China-CEECs trade from three aspects, including total import and export volume, export volume and import volume to accurately investigate the quantitative relationship between China's direct investment in the CEECs and China-CEECs trade.

3.1 FDI affects the form of trade scale

As for the trade effect of FDI, there are two opposing viewpoints, which are trade creation and trade substitution. The influence mechanism of FDI on trade volume has a dual and multiple uncertainties, which will vary with the different investment industry, investment motivation, and investment target. Some scholars believe that the degree of export substitution and export creation effect of a country's FDI determines the final impact on the trade of the home country (Tao et al., 2019). Murphy (2018) summarized the trade quantity effect of FDI into four effect types, including export induced, reverse import, import transfer, and export substitution. Based on the above views, this paper summarizes the impact of China's direct investment in the CEECs on trade volume into the following four types: export promotion effect, import diversion effect, export substitution effect and reverse import effect.

Export promotion effect also called export cause-effect, refers to the enterprise in the host country for foreign direct investment and transnational business, especially for a green land investment, often need to rely on its home country to provide raw materials, spare parts and machinery and equipment, leading to the phenomenon that the export of capital goods from the home country to the host country increases. The occurrence of this phenomenon is not limited to the early stages of the enterprise of

FDI, with the expansion of the enterprises overseas production and scale of operation, the raw materials purchased by home country, large-scale production equipment, and labor capital demand, the demand for home country intermediate products will be formed, and thus increase the export of products from home country to the host country. The reason may be that the host country that receives investment cannot produce the required raw materials, or it may just be the consumption preference of enterprises to domestic manufacturers. One the other hand, it also shows that OFDI is not only the cross-border flow of capital but also the cross-border flow of production means.

Import diversion effect refers to the decrease of import from the host country after the home country engages in FDI, which can also be called the import substitution effect. The home country carries out business activities in the host country through direct investment, and the production of raw materials and intermediate products originally imported from the host country is correspondingly transferred to the host country for production, resulting in a decrease in the number of imports from the host country. This effect is a trade substitution effect, which has certain specificity to occur, and it is more obvious in the manufacturing industry.

The export substitution effect refers to the decrease of the export to the host country after the direct investment from the home country to the host country. In the case that a production enterprise in the home country transfers the production of its products to the host country using OFDI, with the constant improvement of production and management experience, the constantly expanding of the production scale of the company's subsidiaries, combined with the local business will pass the technology spillover effect of their production level and gradually imitation production by investment home imports of capital goods, to replace the original investment by the home country of the host country products exports. This effect is the trade substitution effect and is common in manufacturing with only linear characteristics.

Reverse import effect refers to that the production enterprises in the home country transfer their products to the host country for production to take advantage of the cheap labor or natural resources from abroad. At this time, the home country no

longer carries out the production activities of relevant products, but sells the imports through the host country, thus increasing the number of imports from the home country to the host country. The effect is the trade creation effect and is not influenced by the motive of OFDI.

3.2 Empirical analysis

3.2.1 Trade gravity model

The model of gravity comes from Newton's law of universal gravitation in 1687. Since Tinvergen (1962) introduced the law of gravity in physics into international trade study in the 1960s, the trade gravity model has become a tool to study the changes of bilateral trade, and it has been continuously expanded and deepened in the research of economics. The basic form of this model is

$$X_{ij,t} = AY_i^{a1}Y_j^{a2}D_{ij}^{\ b} \tag{1}$$

In equation (1), i and j represent the two trading countries respectively. X_{ij} represents the import or export volume between country i and country j, while Y_i represents the gross national product of country i, and Y_j represents the gross national product of country j, respectively representing the export capacity of the country i and import capacity of country j. D_{ij} represents the spatial distance between country i and j, and $a1$, $a2$ and b are constant, respectively representing the influence of independent variables on country i and country j. According to the meaning of the gravity model, we can understand the formula (1) as Y_i and Y_j have a positive effect on the export of country i to country j respectively, while D_{ij} harms the export size of country i to country j. Thus, equation (1) can be used to measure the trade flows between country i and country j.

As the form of trade gravity model is relatively flexible, researchers can add variables according to their research needs. With the development of trade theory, many scholars continue to expand and apply the trade gravity model to various fields. So far, the trade gravity model has become a relatively mature tool to study the relationship between investment and trade, which also lays a foundation for the empirical study of this paper.

3.2.2 Model building

After the research of a large number of scholars, the gravity model has been greatly developed based on the original model, mainly manifested in two aspects, which are expanding explanatory variables and empirical tests (Ker, 2013). Since the purpose of this chapter is to explore the trade scale effect of China's direct investment in the CEECs, the dependent variables should be China's total import and export trade with the CEECs. China's export to the CEECs and China's import from the CEECs. In terms of independent variables, since this paper studies, the trade effect of direct investment to the CEECs, one of the most important independent variables included is China's direct investment to the CEECs. From the specific empirical research, the FDI of a country can be represented by the FDI of the whole country, or by the total overseas sales, net sales, or foreign employment level of multinational companies. However, the latter is relatively difficult to obtain, so in this paper, the former will be adopted. At the same time, in terms of data selection, China's annual direct investment and cumulative direct investment in the CEECs are selected to represent the short-term and long-term impact of China's direct investment in the CEECs on China-CEECs trade.

In addition to China's direct investment in the CEECs, many other factors affect the volume of bilateral trade between China and the CEECs. In this study, two factors are mainly considered, namely, market size and trade friction. The influencing factors of market size are mainly represented by the per capita GDP and GDP growth rate of the CEECs, while the influencing factors of trade friction are mainly represented by the

trade freedom and investment freedom. Based on the above research and analysis, the trade attraction model of this chapter is established as follows

$$T_{ij,t} = A(GDPR)_{ij,t}{}^{a1}(FDIF)_{ij,t}{}^{a2}(FDIS)_{ij,t}{}^{a3}(TF)_{j,t}{}^{a4}D_{ij}{}^{a5} \qquad (2)$$

We take the logarithm of both sides of the above equation and get the following equation:

$$ln\,T_{ij,t} = a0 + a1(GDPR)_{ij,t} + a2\,ln(FDIF)_{ij,t} + a3\,ln(FDIS)_{ij,t} + \\ a4(TF)_{j,t} + a5\,ln\,D_{ij} + e_{ij} \qquad (3)$$

Where i and j is the cross-section dimension and $t = 1, 2, ..., T$ is the time dimension of the panel data. $T_{ij,t}$ denotes the volume of trade between China and the CEECs, $GDPR_{ij,t}$ is the GDP growth rate of the CEECs in the year t, representing the size of the market, $FDIF_{ij,t}$ denotes the flow of direct investment from China to the CEECs in the period t, $FDIS_{ij,t}$ is China's stock of direct investment in the CEECs in period t, $TF_{j,t}$ is the freedom of trade in the CEECs, $D_{ij,}$ is a dummy variable in the trade relationship between China and CEECs.

In the traditional model of trade gravity, the dummy variable $D_{ij,}$ is used to represent the spatial distance between the two countries. However, the research object of this paper is only CEECs, and there is almost no geographical difference between samples. Therefore, the distance factor can be regarded as a certain, and the dummy variable $D_{ij,}$ can be regarded as a relatively fixed factor for CEECs. Therefore, we combine it with an obtain it with a[1] to obtain the trade model of this chapter as follows

$$ln\,T_{ij,t} = a_{ij} + a1(GDPR)_{ij,t} +$$
$$a2\,ln(FDIF)_{ij,t} + a3\,ln(FDIS)_{ij,t} + a4(TF)_{j,t} + e_{ij} \tag{4}$$

$$a_{ij} = a_0 + a5\,ln\,D_{ij} \tag{5}$$

With the development of international trade theories and empirical studies, the forms of trade gravity model become more flexible and diversified, and dummy variables are widely used to measure the influence of country-specific factors independent of time on bilateral trade flows (Jagdambe, 2018). In fact, in addition to the traditional distance, the trade links between the two countries also include tangible factors such as market size, relative factor endowment difference, demand structure, and non-economic factors such as political form, language, religion, culture, culture, and psychology (Taylor, 2010). Therefore, we can consider the dummy variable in the model as a measure of the degree of close trade connection between the home country and the host country on the investment and trade flows. According to industrial network theory, the tangible and intangible connections between two countries will affect investment and trade flows at the same time, and promote the complementary effect between them. Some scholars believe that the closer the trade between countries is, the stronger the complementary effect of FDI and trade is, and vice versa (Ma, Tong & Fitza, 2013).

According to the research purpose of this chapter, we use $TT_{ij,t}$ to represent the total amount of China's import and export trade with the CEECs in year t, $EX_{ij,t}$ to denote China's exports to CEECs in year t, $IM_{ij,t}$ to represent China's import from CEECs in year t, replacing the $T_{ij,t}$ in equation (4) respectively as below

$$ln\,TT_{ij,t} = a_{ij} + a1(GDPR)_{ij,t} +$$
$$a2\,ln(FDIF)_{ij,t} + a3\,ln(FDIS)_{ij,t} + a4(TF)_{j,t} + e_{ij} \tag{6}$$

$$ln\,EX_{ij,t} = a_{ij} + a1(GDPR)_{ij,t} +$$
$$a2\,ln(FDIF)_{ij,t} + a3\,ln(FDIS)_{ij,t} + a4(TF)_{j,t} + e_{ij} \qquad (7)$$

$$ln\,IM_{ij,t} = a_{ij} + a1(GDPR)_{ij,t} +$$
$$a2\,ln(FDIF)_{ij,t} + a3\,ln(FDIS)_{ij,t} + a4(TF)_{j,t} + e_{ij} \qquad (8)$$

where the equation (6) represents the total import and export trade between China and CEECs, which is used to estimate the impact of China's direct investment in the CEECs on the total import and export trade between China and CEECs. Equation (7) represents China's export trade to the CEECs, which is used to measure the impact of China's direct investment in the CEECs on the scale of China's export trade to the CEECs. Equation (8) is China's import trade equation from the CEECs, which is used to estimate the impact of China's direct investment in the CEECs on China's import from the CEECs. The meanings, sources, and expected symbols of specific explanatory variables are shown in table 4.

Table 4. Variable meanings, expected signs, and sources

Variable types	Variable meaning	Expected signs	Description	Sources
Dependent variables				
$TT_{ij,t}$	The total volume of China's import and export trade with the CEECs in year t	NA		China Statistical Yearbook
$EX_{ij,t}$	The volume of China's export to the CEECs in year t	NA		China Statistical Yearbook
$IM_{ij,t}$	The volume of China's import from the CEECs in year t	NA		China Statistical Yearbook
Independent variables				

$GDPR_{ij,t}$	The GDP growth rate of the CEECs in year t	+	The economic development level of the CEECs represents the market size of the CEECs. The larger the market size, the greater the trade flow will be.	World Bank Indicators
$FDIF_{ij,t}$	China's direct investment flow to the CEECs in year t	+	The greater the flow of China's direct investment into the CEECs, the higher the trade flow between the two sides will be.	Statistical Bulletins of China's Outward Foreign Direct Investment
$FDIS_{ij,t}$	China's direct investment stock to the CEECs in year t	+	The larger the stock of China's direct investment in the CEECs, the higher the trade flow between the two sides will be.	Statistical Bulletins of China's Outward Foreign Direct Investment
$TF_{j,t}$	Trade freedom of the CEECs in year t	+	The greater the trade freedom of the CEECs, the greater the trade flow from China to the CEECs.	World Bank Indicators
Unobserved variable				
a_{ij}	Non-economic factors affecting China-CEECs trade that do not change over time	+	The closer the trade links, the stronger the creative effect on China-CEECs trade.	

Note: In "Expected signs" in this table, NA is not applicable, and "+" is that the coefficient of this independent variable is positive in the above formula. In "Source", China Statistical Yearbook is a comprehensive statistical data reflecting China's economic and social development, including historical data on China's trade with various countries. The data in this paper are compiled according to China Statistical Yearbook over the years. Statistical Bulletins of China's Outward Foreign Direct Investment is issued by the Chinese Ministry of Commerce, including the stock and flow of China's FDI over the years.

3.2.3 Data description and calculation method

The purpose of this chapter is to study the impact of China's direct investment in the CEECs on the volume of trade between China and Central and Eastern Europe. Since China has only established a relatively perfect FDI statistical system since 2005, the time range of samples selected in this paper is 2005-2018. This is a large limitation of our study because having only 13 observations might not be enough to evoke the Law of Large Numbers and the Central Limit Theory (Wooldrige, 2016). Hence, the estimation results might be biased to some extent.

During this period, China's direct investment in Montenegro and Serbia, between 2005 and 2007 is almost zero. To enhance the accuracy and robustness of the results of the analysis, the two countries were excluded from the final study sample of the CEECs. The final selection of the countries of the CEECs study samples includes 14 CEECs, including Slovenia, Czech Republic, Estonia, Slovakia, Latvia, Lithuania, Poland, Hungary, Croatia, Romania, Bulgaria, Macedonia, Bosnia, and Herzegovina and Abaya. The total trade between China and the above-mentioned 14 countries accounts for more than 80% of the total trade between the CEECs, which can represent the trade situation between China and the CEECs. The dependent variables are represented by China's total import and export to the CEECs, China's export to the CEECs, and China's import from the CEECs. The data are from China's statistical yearbook over the years. The flow and stock data of China's direct investment to the CEECs are from the statistical bulletin of China's outbound direct investment over the years. Data about the CEECs' GDP growth rate and trade freedom come from the world bank's development indicators database.

This study used the panel data analysis because panel data has the advantage that can increase the sample size, greatly control invisible components caused by individual heterogeneity, thereby greatly reducing variables multicollinearity problems in the process of regression analysis, improving the reliability and robustness of the regression results. There are three main forms of panel model analysis, namely Pooled-OLS, fixed

effect model (FE), and random effect model (RE). The Hausman test, LM test, and F test set by the panel data model are used to determine the estimated form of panel model.

First, we use the Hausman test to identify whether a fixed effect model can be established among variables in the panel model. Through model calculation, for models (6), (7), and (8), the P values of the Hausman test are 0.0010, 0.0053, and 0.0014, respectively, which are all less than 0.05. Therefore, it is refused to establish an individual random effect model. Because the variables selected in this paper have non-economic factors that do not change with the trend of the time, the pooled regression model and the fixed effect model will be selected for reference in the empirical analysis. After the F test, the model form is determined as a mixed estimation model.

3.2.4 Unite root test

Panel data may be caused by data if non-stationary pseudo regression phenomenon, therefore we need to test the stability of panel data before the co-integration analysis of the variable sequence in the panel data model to verify the existence of its long-term relationship. Only multiple variables of the same integral order can have a cointegration relationship. The most direct way to test the stability of panel data is to perform a unit root test. If the unit root test results prove that the integration order of variables is the same, the cointegration test can be conducted. If it is not an integer of the same order, the sequence of panel data will be further modified by difference. Unite root test of panel data methods mainly include the Fisher-PP test, Breitung test, LLC test, ADF test, and IPS test. In this paper, the widely used ADF test method is adopted to test various variables in the model. The model takes the form of a panel to unite the root estimation model with both intercept and time trend terms, and the value of the lag order P is determined according to the simple and effective indicators of the model and general experience. As can be seen from the unite root results, the P-value of the five statistics, including the total trade value between China and CEECs, China's export volume to the CEECs, China's import trade volume from the CEECs, China's direct investment stock, and flow to the CEECs, are all less than

0.01, indicating that all sequences in the model are stable at the 1% significant level. Therefore, the above data all conform to the stable condition, and the relationship between them can be cointegrated.

Table 5. Panel data unit root test results

Variables	ADF (augmented Dickey-Fuller tests) Statistic	P-value
$ln(TT)$	95.5611	0
$ln(EX)$	155.2686	0.0001
$ln(IM)$	57.2791	0.0009
$ln(FDIF)$	128.6256	0
$ln(FDIS)$	77.6325	0

Source: Calculated by the author

3.2.5 Cointegration test

The analysis method of the cointegration test was proposed by Engle-Granger in the 1980s. The theory is that if two or more time-series variables of the same order can form a relatively stable error sequence in the case of some linear combination, it indicates that there is a long-term equilibrium relationship between them, which avoids the possible pseudo-regression problem in the traditional metrological regression method. When testing the cointegration relationship of panel data, the Kao (Engle-Granger based) cointegration test is currently widely used. The null hypothesis of the Kao test is that all panels are no cointegration. It can be seen from the test results that, at the significant level of 1%, there is a cointegration relationship between the test variables, and the specific quantitative relationship pf the interaction between variables can be measured by regression of the equation.

Table 6. Kao (Engle-Granger based) cointegration test

Ho: No cointegration
Ha: All panels are cointegrated

Test variables	Dickey-Fuller t Statistic	P-value
$ln(FDIF)$ and $ln(TT)$	-4.0532	0
$ln(FDIF)$ and $ln(EX)$	-4.6998	0
$ln(FDIF)$ and $ln(IM)$	-3.0436	0.0012
$ln(FDIS)$ and $ln(TT)$	-5.2364	0
$ln(FDIS)$ and $ln(EX)$	-5.0561	0
$ln(FDIS)$ and $ln(IM)$	-4.7773	0

Source: Calculated by the author

3.2.6 Granger causality test

The existence of a cointegration relationship between variables cannot exactly explain the causal relationship between variables. Most empirical studies about the relationship between FDI and foreign trade are from the perspective of the macro relationship with FDI's influence on the export trade, while few scholars study of causal influence relations between the two. To fill the research gap in this field, this paper makes the use of the opportunity of studying the impact of China's direct investment in the CEECs on the trade between China and CEECs and studies the causal relationship between China's direct investment in the CEECs and the China-CEECs trade.

The basic theory of Granger causality test is that the two-time series variables R and T contain all the prediction information about themselves, and the specific causality test results of them can be divided into the following four situations: (1) if T is the cause of R change, there is one-way causality from T to R; (2) If R is the cause of the change in T, there is a one-way causal relationship from R to T; (3) If there is a causal relationship between R and T, it indicates that there is both a one-way causal relationship from R to T and a one-way causal relationship from T to R; (4) If R and T are independent of each other, it is believed that there is no causal relationship between them. In the specific analysis process, the optimal lag order is determined to be 2 according to AIC criterion and the specific analysis results are shown in the table,

Table 7. Granger causality test results

Contained variables	Direction of effect	Lag	F statistic	P-value	Result

$ln(FDIF)$ and $ln(TT)$	ln(FDIF) → ln(TT)	2	4.6375	0.0000	Granger-cause
	ln(TT) → ln(FDIF)	2	0.7795	0.4357	Not Granger-cause
$ln(FDIF)$ and $ln(EX)$	ln(FDIF) → ln(EX)	2	3.7618	0.0002	Granger-cause
	ln(EX) → ln(FDIF)	2	2.2954	0.0217	Granger-cause
$ln(FDIF)$ and $ln(IM)$	ln(FDIF) → ln(IM)	2	1.5999	0.1096	Not Granger-cause
	ln(IM) → ln(FDIF)	2	2.7027	0.0069	Granger-cause
$ln(FDIS)$ and $ln(TT)$	ln(FDIS) → ln(TT)	2	8.5884	0.0000	Granger-cause
	ln(TT) → ln(FDIS)	2	3.8779	0.0001	Granger-cause
$ln(FDIS)$ and $ln(EX)$	ln(FDIS) → ln(EX)	2	9.9919	0.0000	Granger-cause
	ln(EX) → ln(FDIS)	2	5.5637	0.0000	Granger-cause
$ln(FDIS)$ and $ln(IM)$	ln(FDIS) → ln(IM)	2	2.5220	0.0117	Granger-cause
	ln(IM) → ln(FDIS)	2	10.2517	0.0000	Granger-cause

Source: Calculated by the author

It can be seen from the results of the Granger causality test among the above six groups of variables that there is a one-way causal relationship between the flow of China's direct investment into the CEECs and the total import and export trade between China and the CEECs. Specifically, the flow of China's direct investment into the CEECs in the granger cause of the total import and export trade between China and the CEECs. There is a two-way Granger causality between the flow to the CEECs' direct investment from China and China's export trade volume to the CEECs. Specifically, the flow of direct investment from China to the CEECs is the Granger cause for the change of China's export volume to the CEECs, and the export volume from China to the CEECs is also the granger cause for China's direct investment flow to the CEECs. There is a one-way causal relationship between China's import volume from the CEECs and China's direct investment flow to the CEECs. Specifically, the flow of China's direct investment into the CEECs is not the Granger reason for China's import from the CEECs, while China's import volume from the CEECs in the granger reason for the change of China's direct investment flow into the CEECs. The total volume of China's bilateral import and export trade with the CEECs, China's import trade from the CEECs, China's export trade with CEECs, and China's stock of direct investment with the CEECs show a two-way causality, and the two are Granger causality to each other.

From the granger causality test results among the above six groups of variables, we can draw a further conclusion that the increase of the total volume of bilateral trade between China and the CEECs can promote the increase of the stock of China's direct investment in the CEECs. The increase of China's import volume from the CEECs can further expand China's export trade with the CEECs by driving the increase of China's direct investment flow and stock to the CEECs. The increase of China's export trade to the CEECs can further increase China's imports from the CEECs by driving the increase of China's stock of direct investment to the CEECs. For a clearer understanding of the above results, we draw the above conclusions into figure 10.

Figure10. Diagram of causality between variables
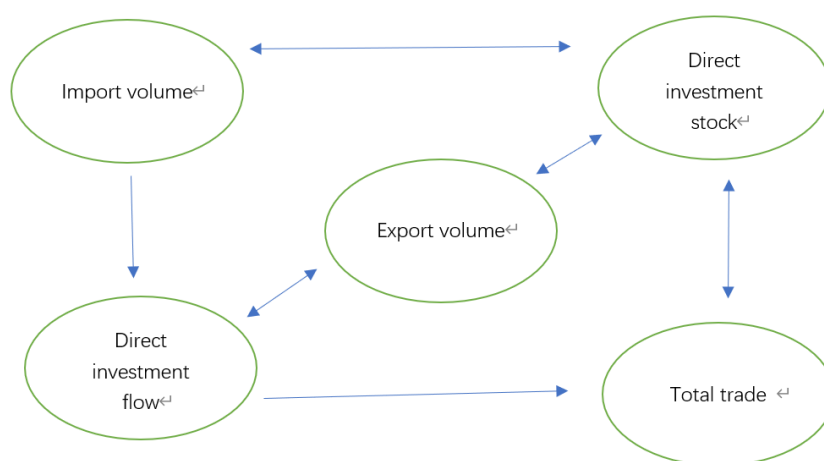
Source: Analyzed by the author

As can be seen from the figure 10, the expanding bilateral import and export trade between China and CEECs has promoted the growth of the flow and the stock of China's direct investment to the CEECs, which to some extent also reflects the concept that "trade is the forerunner of investment". At the same time, China's imports from the CEECs promote the flow of China's direct investment into the CEECs to promote China's exports to the CEECs, thereby promoting the stock of China's direct investment into the CEECs and the causal impact of China's imports from the CEECs, which constitutes a complete virtuous circle. The large scale of the trade between China and

the CEECs and their close trade links have created the condition for the increase of the flow and stock of direct investment. Through the expansion of China's direct investment in the CEECs, it drives the export of relevant domestic products to the host country, and the increased trade income provides financial support for the further expansion of investment in the CEECs, thus increasing China's investment stock in the CEECs over time. In the long run, with the increase of overseas operation time and the standardization of production, some products begin to be sold back to China, which constitutes the increase of China's import trade from the CEECs. To maintain the trade balance, China will continue to choose the way of direct investment in the CEECs to expand exports and gain market access. Thus, a new cycle of investment and trade between China and CEECs has begun. Therefore, we recognize that China's direct investment in the CEECs and the China- CEECs trade are closely linked as a whole rather than as two separate parts. China's direct investment in the CEECs leads to an export effect in the short term and an import effect in the long term. To correctly develop China- CEECs economic and trade relations, China needs to integrate investment and trade at all times and correctly formulate its economic and trade policies towards the CEECs in combination with its short-term and long-term development strategies.

3.3 Empirical result analysis

3.3.1 Total import and export effect

The specific effects of China's direct investment in the CEECs on the total import and export volume of China and CEECs are shown in the table. From the regression results, we can see that the coefficient symbols of each explanatory variable are the same as expected.

The market size of the CEECs ($GDPR_{ij,t}$) hurts China's import and export trade with the CEECs, and it is significant at the 1% level, indicating that the market size

indicated by the CEECs' economic growth rate does not play a positive role in promoting the growth of China-CEECs bilateral trade, which is different from our expectation. The reason may be that after the financial crisis and the European debt crisis, the economic growth rate of CEECs as a whole has declined significantly, and some CEECs' economic growth has even turned negative, which presents a sharp contrast with the sustained and high economic growth rate of China. In such a special period, the market size in terms of economic growth rate did not have a strong positive effect on the total bilateral trade between China and CEECs.

The stock of direct investment from China to the CEECs is significantly positive for the total import and export trade between China and the CEECs at the 1% level, indicating that the stock of direct investment from China to the CEECs has significantly promoted the total import and export trade between the two. In other words, the stock of direct investment from China to the CEECs has a trade creation effect. In the Pooled OLS model, the flow of direct investment from China to CEECs was negatively correlated with the import and export trade of CEECs, while in the FE model, it was negatively correlated. However, the results in both models are not significant and the fluence direction is not representative. In terms of the specific quantitative relationship between China and the CEECs, if other variables remain unchanged, each 1% increase in the flow of China's direct investment into the CEECs will result in a 1.02% increase in the total bilateral trade between the two. For every 1% increase in China's stock of direct investment in the CEECs, the total bilateral trade between China and the CEECs will increase by 17.2%. As for the coefficient, the impact of stock on the total bilateral trade between China and CEECs is greater than that of flow, indicating that the impact of China's direct investment in the CEECs on the total impact and export trade between China and the CEECs is greater in the long run than in the short run. The symbol of trade freedom of the CEECs is positive and significant at the 1% level, indicating that the trade freedom of CEECs plays a positive role in promoting the expansion of bilateral trade between China and Central and Eastern Europe.

$$\ln TT_{ij,t} = 8.112 - 0.0215(GDPR)_{ij,t} -$$

$$0.0102\ln(FDIF)_{ij,t} + 0.172\ln(FDIS)_{ij,t} + 2.225(TF)_{j,t} + e_{ij} \qquad (9)$$

Table 8. The estimated effect of China's direct investment in the CEECs on the total import and export volume between China and the CEECs

VARIABLES	FE $ln(TT)_{ij,t}$	Pooled OLS $ln(TT)_{ij,t}$
$GDPR_{ij,t}$	-0.0215***	0.0048
	-0.00691	-0.0163
$ln(FDIF)_{ij,t}$	0.172***	0.480***
	-0.0283	-0.0394
$ln(FDIS)_{ij,t}$	-0.0102	0.01
	-0.0096	-0.0242
$(TF)_{j,t}$	2.225***	1.125***
	-0.276	-0.2
Constant	8.112***	7.075***
	-0.241	-0.307
Observations	196	196
R-squared	0.639	0.651
Number of n_country	14	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Calculated by the author

3.3.2 Export effect

The analysis results of the effect of China's direct investment in the CEECs on China's export to the CEEs are shown in the table. The regression results show that the coefficient symbols of the explanatory variables are the same as expected.

The market size $(GDPR_{ij,t})$ of the CEECs is significantly negative with China's import from the CEECs at the 1% level, indicating that the market size of the CEECs expressed by economic growth rate has a significant inhibitory effect on China's export to the CEECs. The relationship between China's direct investment flow to the CEECs

and China's export to the CEECs is negative but not significant. The relationship between China's stock of direct investment in the CEECs and China's export to the CEECs is significantly positive at the 1% level, indicating that China's stock of direct investment in the CEECs significantly promotes China's export to the CEECs. In the model, it belongs to export induced effect or export trade creation effect. From the perspective or specific quantitative relationship, when other variables remain unchanged, for every 1% increase in China's direct investment stock in the CEECs, China's export to the CEECs will increase by 15.2%. From the perspective of coefficient value, the impact of China's direct investment stock to the CEECs on the export, indicating that the impact of China's direct investment to the CEECs on China's export to the CEECs is greater in the long run than in the short run. The CEECs' trade freedom is also significantly positive at 1% level.

From the estimation results of the model, we can obtain the gravity equation of China's export to the CEECs as follows

$$\ln EX_{ij,t} = 8.423 - 0.0204(GDPR)_{ij,t} - 0.00908\,\ln(FDIF)_{ij,t} + 0.152\,\ln(FDIS)_{ij,t} + 1.818(TF)_{j,t} + e_{ij} \tag{10}$$

Table 9. The estimated effect of China's direct investment in the CEECs on the export volume between China and the CEECs

VARIABLES	FE $ln(EX)_{ij,t}$	Pooled OLS $ln(EX)_{ij,t}$
$GDPR_{ij,t}$	-0.0204***	0.00109
	-0.00752	-0.019
$ln(FDIF)_{ij,t}$	0.152***	0.473***
	-0.0308	-0.0458
$ln(FDIS)_{ij,t}$	-0.00908	0.0108
	-0.0104	-0.0282
$(TF)_{j,t}$	1.818***	0.993***
	-0.3	-0.232
Constant	8.423***	6.986***
	-0.262	-0.358

Observations	196	196
R-squared	0.519	0.566
Number of n_country	14	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Calculated by the author

3.3.3 Import effect

According to the calculation, the effect of China's direct investment in the CEECs on China's import from the CEECs is analyzed as shown in the table. It can be concluded that the coefficient symbols of each explanatory variable are the same as those of our prediction.

The CEECs market size ($GDP_{ij,t}$) and China's import from the CEECs were significantly negative at a 1% level, showing that the CEECs' market size (economic growth rate) had a significant negative effect on China's import to the CEECs. The impact of China's stock of direct investment in the CEECs on China's CEECs imports is significantly positive at the 1% level, indicating that China's stock of direct investment in the CEECs has significantly promoted China's imports from the CEECs, which is equivalent to the effect of trade creation or reverse import. The relationship between China's direct investment flow to the CEECs and China's import from the CEECs is not significant in both the Pooled OLS model and FE model. From the perspective of the specific quantitative relationships, under the condition that other variables remain unchanged, each 1% increase in China's stock of direct investment into the CEECs will increase China's import trade from the CEECs by 20.9%. From the perspective of the degree of impact on China's import trade from the CEECs, the impact of the stock is greater than the flow, indicating that the impact of China's direct investment in the CEECs on China's import from the CEECs is greater in the long run than in the short run. At the 1% level, the CEEC's trade freedom degree is significantly positive, indicating that the CEECs' trade freedom degree plays a significant role in

promoting China's import from the CEECs. Based on the estimated results of the model, we can obtain the following equation of gravity for China's imports from the CEECs,

$$\ln IM_{ij,t} = 4.275 - 0.0434(GDPR)_{ij,t} -$$
$$0.00584 \ln(FDIF)_{ij,t} + 0.209 \ln(FDIS)_{ij,t} + 3.855(TF)_{j,t} + e_{ij} \quad (11)$$

Table 10. The estimated effect of China's direct investment in the CEECs on the import volume between China and the CEECs

VARIABLES	FE $ln(IM)_{ij,t}$	Pooled OLS $ln(IM)_{ij,t}$
	-0.0434***	0.00544
$GDPR_{ij,t}$	-0.0106	-0.016
	0.209***	0.556***
$ln(FDIF)_{ij,t}$	-0.0435	-0.0386
	-0.00584	0.0148
$ln(FDIS)_{ij,t}$	-0.0147	-0.0238
	3.855***	1.553***
$(TF)_{j,t}$	-0.423	-0.196
Constant	4.275***	4.304***
	-0.37	-0.301
Observations	196	196
R-squared	0.638	0.736
Number of n_country	14	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Calculated by the author

3.4 The main conclusion

The section analyzes from three perspectives, including the total effect of import and export, the export effect, and the import effect. By establishing the trade gravity model, we empirically analyzed the long-term and short-term impact of China's direct

investment in the CEECs on the trade volume between China and the CEECs. In the short term, the export effect of China's direct investment in the CEECs is larger than the reverse import effect (0.00908>0.00584), while in the long run, the reverse import effect of China's direct investment in the CEECs is larger than the export effect (0.209>0.152). Moreover, the impact of China's direct investment in the CEECs on China's import from the CEECs in the long run even exceeds the impact on the total trade volume of the CEECs (0.209>0.172).

To explore the impact of a country's FDI on its trade with its home country, the first step is to analyze the change of trade scale between the home country and the host country. Based on verifying the long-term relationship between the above variables, this chapter verifies and studies the causal relationship between the flow and stock of China's direct investment to the CEECs and the total import and export trade between China and the CEECs, China's exports to the CEECs and China's import from the CEECS. Then based on the analysis of the total trade effect, export effect, and import effect, we empirically analyze the effect of China's direct investment in the CEECs on the trade scale between China and the CEECs through the establishment of the trade gravity model. The results of empirical analysis show that China's direct investment in the CEECs has a long-term positive effect on the scale of China-CEECs trade, and the effect of China's direct investment in the CEECs on the China-CEECs trade scale is greater in the long term than in the short term. In the short run, the export effect of China's direct investment to the CEECs is larger than the reverse import effect, and in the long run, the reverse import effect of China's direct investment to the CEECs is larger than the export effect. Therefore, we can see that the adjustment difference between China's direct investment in the CEECs and its export and import effects in the short and long term will eventually promote the continuous expansion of China's trade deficit with the CEECs in the long term.

It is important to point out that we have been working with less than an optimal number of observations. This could have caused our result not to be accurate to some

extent since the assumptions underlying the Law of Large Numbers (LLN) and the Central Limit Theorem (CLT) might not be satisfied.

CHAPTER 4. CONCLUSION

Based on the important status of China and the CEECs in the world economy, this paper analyzes the internal relationship between China's investment in the CEECs and the rapid development of China-CEECs trade. From the perspective of total volume, country and product structure, two dimensions of investment and trade, qualitatively analyzed the development of China's direct investment and trade with CEECs. From the perspective of trade scale, this paper quantitatively analyzes the impact of China's direct investment in the CEECs on China-CEECs trade at the two levels of import and export and tried to find out the possible problems in China's investment and trade with the CEECs, to provide policy advice for the sustainable development of China's economy and the maintenance of sound China-CEECs trade relations.

4.1 Policy recommendations

4.1.1 Macro policy to promote the harmonious development of investment and trade

We will encourage Chinese enterprises to invest in the CEECs and build a strategic partnership based on the mutual promotion of investment and trade. China needs to continue to consolidate and expand its economic and trade ties with the CEECs, promote investment facilitation through economic and trade exchanges, and build a strategic cooperative partnership featuring two-way promotion of investment and trade. Trade between China and the CEECs is steadily expanding, but at the same time, we should also notice that the overall scale of China's investment in the CEECs is still small and the proportion of China's total OFDI is not high. China should combine the strategic objectives of "the Belt and Road" to adjust the strategy of direct investment in the CEECs, and gradually raise the level of China's direct investment in the CEECs,

and establish goals of becoming a largest strategic partner for investment and trade cooperation with the CEECs.

Also, the Chinese government should further strengthen policy guidance and investment preferences, actively encourage Chinese enterprises to invest in the CEECs. Under the favorable promotion of sound economic and trade relations and government policies, China's investment in the CEECs still has great potential. China should make full use of the CEECs' relaxed investment policies and standardized legal environment in the post-crisis period, encourage Chinese enterprises to invest in the CEECs, and build a strategic partnership of mutual promotion of investment and trade between the two sides.

4.1.2 Develop China-CEECs economic and trade relations following the characteristics of different countries

China's direct investment and trade with the CEECs vary according to the level of development of different countries. China should formulate differentiated strategies based on the investment potential of CEECs. For countries with high direct investment potential, China should make use of their advantages to increase direct investment according to their domestic conditions. For example, Poland has a large scale of the market, China should strengthen its direct investment in infrastructure and wholesale and retail industries. Slovenia, Estonia, Lithuania, and other countries have highly qualified labor forces and should strengthen their direct investment in technology-intensive industries. Countries such as Hungary, the Czech Republic, and Latvia have high technological innovation and R&D capabilities, and China needs to strengthen its strategic asset-seeking direct investment in these countries. For countries with small potential for direct investment and relatively backward development, China should speed up the transfer of industries in combination with the background of upgrading domestic industrial structure and deeply explore the advantages of a certain domestic industry. For example, Albania has the second-largest reserves of chromium ore in

Europe, about 36.9 million tons. China can continue to increase its direct investment in the mineral industry in combination with its demand for production resources.

Considering that the CEECs are geographically far away from China compared with other countries along "the Belt and Road " route, it is not convenient for Chinese enterprises to obtain information on investment projects in the CEECs and their access to information is limited. There is no direct investment information service platform between China and the CEECs. The government can build a "16+1" investment cooperation information platform which can show the returns of Chinese enterprises' existing investment projects in the CEECs and enhance their willingness to invest directly in the CEECs. At the same time, China can make real-time summaries of various projects in the CEECs to attract direct investment, so that Chinese enterprises can understand and obtain direct investment opportunities in the CEECs. Larger economies such as Poland, the Czech Republic, and Hungary are traditional trading partners of China, and the CEECs, and trade cooperation with the other countries in the CEECs are relatively small. Therefore, if China wants to improve the trade relations with the CEECs, it needs to explore the new targeted market in Central and Eastern Europe on the premise of maintaining the original market share.

4.2 Conclusion

Since the cooperation between China and the CEECs, bilateral trade relations have gradually increased. The development of bilateral trade has gone through four stages, which can be divided into an initial development stage, fluctuating stage, high-speed development stage, and comprehensive development stage. China's direct investment in the CEECs stated late and the overall scale is not large, which accounts for a small proportion of China's total OFDI, but the overall trend of the flow and stock of FDI is upward. China's direct investment in CEECs mainly flows to wholesale and retail, manufacturing, construction, leasing, and service industries. China's direct investment in the CEECs is mainly concentrated in developing economies, including Poland, Hungary, Croatia, Romania, and Bulgaria. Since 2005, the bilateral trade

volume between China and CEECs has shown a trend of rapid growth, and China has always maintained a trade surplus with the CEECs. Despite the rapid development of trade between China and the CEECs, the complementary of bilateral trade is weakening. Moreover, trade within the EU occupies a large part of the space for trade between China and the CEECs, so China still needs to focus on trade and cooperation with CEECs. In bilateral trade, China has a comparative advantage in the production of textile materials and products, machinery, and transportation equipment. The trade between China and the CEECs is characterized by distinct national differences, which are also mainly concentrated in developing economies.

Through the cointegration test and Granger causality test of the relationship between the flow and stock of China's direct investment to the CEECs and China-CEECs trade, and the conclusion is drawn that there is a long-term and stable cointegration relationship between China's direct investment to the CEECs and China-CEECs trade. Moreover, this paper further verifies the Granger causal relationship between the flow and stock of China's direct investment in the CEECs and the total import and export trade between China and the CEECs, China's exports to the CEECs and China's imports from the CEECs. Then starting from the total trade effect of import and export, export effect, and import effect, this paper empirically analyzes the influence of China's direct investment in the CEECs on the trade volume of China and Europe in the long and short term by establishing the trade gravity model. The results show that China's direct investment in the CEECs has a positive effect on the China-CEECs trade scale in the long term, and the impact of China's direct investment in the CEECs on the China-CEECs trade scale is greater in the long term than in the short term. In the short run, the export-induced effect of China's direct investment in the CEECs is greater than the reverse import effect, while in the long run, the reverse import effect is greater than the export-induced effect. It can be seen that the adjustment difference between China's direct investment in the CEEECs and its export and import effects in the short and long term will eventually lead to the expansion of China's trade surplus with the CEECs and the trade deficit in the long term.

By analyzing the impact of China's direct investment in the CEECs and China-CEECs trade, we can find that China's direct investment in the CEECs and the expansion and enhancement of China's trade with the CEECs show a positive trend, which mainly reflects the scale of trade. China should be under the guidance of "the Belt and Road" strategy, through the adjustment of the direct investment and trade policy towards the CEECs, to enhance the benefits of China's outbound investment and China's soft power in the external economic and cultural fields. We should also establish a strategic partnership of cooperation in which investment and trade are mutually reinforcing and develop China-CEECs economic and trade relations at a higher and deeper level. One of the limitations of this study is that we do not have enough observations, both cross-sectional and time-series. This could cause the results to be biased to some extent. Unfortunately, there is nothing that can be done to mitigate this issue. Nevertheless, in a few years, once more data are available, this study can be replicated, and, hopefully, more accurate results can be obtained.

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