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The Impact of China's Outward Foreign Direct Investment on the Bilateral Trade with Belt and Road Countries
The Case of Central Eastern European Countries (2007-2022)

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1.0 Introduction.

Central and Eastern Europe (CEE) is primarily a geopolitical concept, including 16 member states, namely Poland, Czech Republic, Slovakia, Hungary, Latvia, Serbia, Estonia, Bulgaria, Croatia, Montenegro, Macedonia, Bosnia and Herzegovina, Albania, Romania, Lithuania, and Slovenia. Although Central and Eastern Europe Countries (CEECs) are geographically far from China, the "Silk Road" connected the two sides over two thousand years ago. The CEECs experienced severe political turmoil and systematic changes in the late 1980s, leading to a decline in economic and trade exchanges with China. From the mid of 1990s, the economic development of CEECs expanded under the wave of economic globalization, making the economic and political transition in CEECs gradually stabilized and trade and economic cooperation between China and CEECs began to warm up.

In 2012, the "16+1" cooperation mechanism was officially launched after the meeting between the leaders of the People's Republic of China (PRC) and 16 CEECs, marking a new era of China-CEE cooperation. With the announcement of Greece's accession in 2019, the "16+1" cooperation mechanism has expanded to the "17+1" cooperation mechanism, demonstrating that the cooperation between China and CEECs has gone further. However, in 2020, Lithuania decided to withdraw from the "17+1" mechanism due to concerns related to transparency and balance in some issues. Consequently, it reverted to "16+1" (Kizeková, 2021). Subsequently, in 2022, Estonia and Latvia announced to cease the participation of "16+1" mechanism, resulting in the current configuration of "14+1"[1] (Chan & Meunier, 2022).

The two parties are working together to build a mutually beneficial and open and inclusive platform for cross-regional collaboration. Despite complex changes in the international cooperation environment, China-CEECs cooperation has been scrutinized over the past ten years, forming a series of cooperation principles accepted by all parties and contributing to promoting the recovery and growth of the world economy.

As of 2020, China has conducted economic and trade relations with 16 CEECs for 70 years, and a high degree of bilateral cooperation has been maintained. The total trade volume between China and all CEECs reached USD 129 billion in 2022, more than 3 times higher than the number in 2007. More specifically, China's exports to the CEECs experienced a 292% increase, rising from $25 billion in 2007 to $98 billion in 2022. Simultaneously, imports from the CEECs grew by 551%, from $4.76 billion to $31 billion (Appendix A, Appendix B). This growth

[1] Statement on the website of the Ministry of Foreign Affairs of Estonia and Latvia (2022.08.11)

underscores the increasing significance of the CEECs as a market for Chinese goods and a source of imports. However, the trade relationship remains imbalanced, with China consistently maintaining a substantial trade surplus, which widened from $20.3 billion in 2007 to $67 billion in 2022.

An examination of key trading partners in 2022 reveals a concentration of trade among a few CEECs. Poland ($38.2 billion), Czechia ($18.2 billion), Hungary ($10.5 billion), Romania ($7.4 billion), and Slovenia ($6.9 billion) accounted for 83% of China's exports to the region. Similarly, Slovakia ($7.7 billion), Czechia ($5.4 billion), Poland ($5.1 billion), Hungary ($5.0 billion), and Romania ($3.1 billion) constituted 85% of China's imports from the CEECs (Appendix A, Appendix B). This concentration suggests that China's economic engagement with the CEECs is primarily focused on these five countries.

Although the economic integration between China and the CEECs is deepening, with China emerging as a vital export destination for the region, the persistent trade imbalances indicate that the relationship remains asymmetrical in China's favor. As trade ties continue to strengthen, addressing these imbalances and fostering more balanced growth in bilateral trade may become increasingly important for both China and the CEECs.

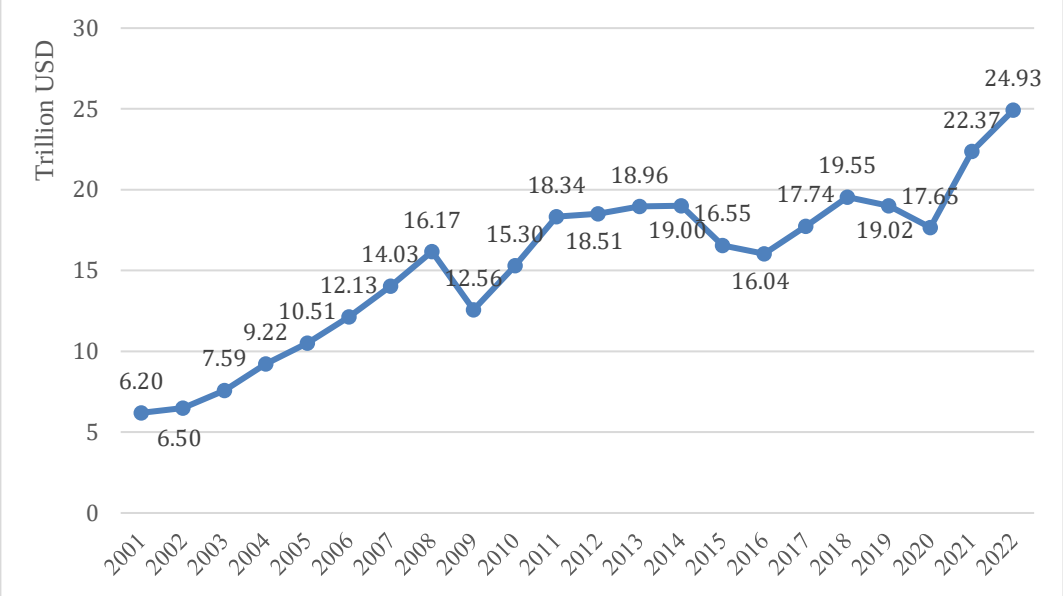
1.1 Relevance to the world economy.

According to World Trade Organization (WTO) statistics data (Figure 1.1), the Global trade increased from $6.20 trillion in 2001 to 24.93 trillion in 2022 China plays an increasingly important role in the world trade landscape as a global trading power, China's total import and export trade surpassed Germany to become the world's largest commodity exporter and the second-largest commodity importer in 2009 (NBC NEWS, 2010). In 2012, China's total import and export trade surpassed the United States for the first time, becoming the largest trading country around the World (Parker, 2013).

By comparing global export trade with China's export performance in the CEECs, we can assess the relative significance of China's increasing economic ties with CEE region and its role as an exporter to the CEECs. The data reveals that China's exports to the CEECs experienced a remarkable 292% growth, increasing from $25 billion in 2007 to $98 billion in 2022. In contrast, world exports grew by 77.6% during the same period, from $14 trillion to $24.9 trillion (Appendix A, Appendix B). This disparity in growth rates suggests that China's export expansion in the CEECs has significantly outpaced the global export growth trend. To further quantify this divergence, we calculated the compound annual growth rate (CAGR) for

both China's exports to the CEECs and world exports from 2007 to 2022. China's exports to the CEECs exhibited a CAGR of 13.3%, substantially higher than the world exports CAGR of 3.9%. This finding underscores the rapid expansion of China's market share in the CEECs and highlights the increasing importance of the region as a destination for Chinese exports. Moreover, the analysis reveals that China's exports to the CEECs demonstrated notable resilience during periods of global economic turbulence. During the global financial crisis (2008-2009), world exports declined by 22.3%, while China's exports to the CEECs experienced a comparatively moderate decrease of 19.5%. Similarly, amidst the COVID-19 pandemic (2019-2020), world exports fell by 7.2%, whereas China's exports to the CEECs remained a stable increase trend, with a positive increase rate of 10%. These observations suggest that China's export performance in the CEECs has been more resilient than the global export trend during times of economic uncertainty.

Figure 1.1: Trends in global export value of trade in goods from 2001 to 2022



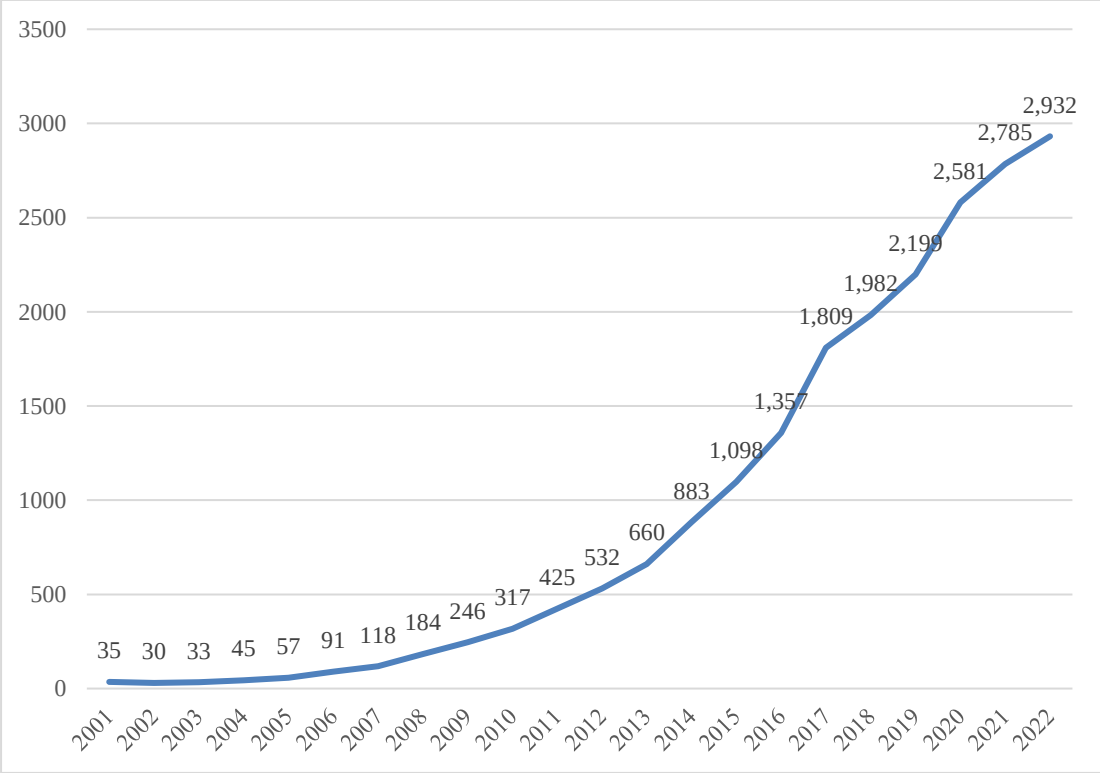
Source: Author's Analysis of WTO Statistics Data

All those evidence supports the assertion that China has successfully expanded its market share in the CEECs and has developed robust economic ties with the region. Again, as China continues to deepen its economic engagement with the CEECs, understanding the dynamics of its export performance in the context of global trade patterns becomes increasingly important for policymakers, businesses, and researchers alike.

Figure 1.2 highlights the exponential growth of China's total OFDI stock worldwide, from $34.65 billion in 2001 to $2,931.65 billion in 2022, representing an 84-fold increase. This

remarkable growth underscores China's increasing economic power and its emergence as a major global investor. The rapid expansion of China's OFDI stock worldwide reflects the country's strategic efforts to expand its economic influence globally through investments abroad. The data also reflects that the quick increase of China's OFDI started from 2007, which helps to select the time range for this study. And the introduction of the BRI made China's OFDI has a remarkable increase rate since 2013. To examine whether the sharp increase caused by the implementation of BRI, this study will set BRI as policy variables, more detailed definition of variables will be provided in Chapter 5.

Figure 1.2: The Stock of China's OFDI from 2001 to 2022, billion USD



Source: Author's analysis of UNCTAD Data

1.2 Significance of the research topic.

As of 2022, China has conducted economic and trade relations with CEECs for more than 70 years, and a high degree of bilateral cooperation has been maintained. Especially in 2012, the leaders of 16 CEECs and China held the first meeting in Warsaw, Poland. Wen Jiabao, the Premier of the State Council, officially released the "Twelve Measures for Promoting Friendly

Cooperation with Central and Eastern European Countries"[2]. He proposed that China and CEECs should strengthen bilateral cooperation in trade, investment, and infrastructure construction in the future and promote exchanges in education and culture.

The achievement of cooperation between China and CEEC is quite significant under the framework of "16+1". The bilateral trade between China and CEECs grows significantly. To underscore the significance of CEECs within China's BRI framework, it is essential to compare the total trade volume between China and CEECs with that of China and all BRI countries. The data provided reveals that the total trade volume between China and CEECs experienced a substantial increase of 333%, growing from $29.8 billion in 2007 to $129 billion in 2022. Comparatively, the total trade volume between China and all BRI countries rose by 266.0%, from $436.1 billion in 2007 to an estimated $1,596.1 billion in 2022. To gauge the relative significance of CEECs, we calculated their share in the total trade volume between China and all BRI countries. In 2007, CEECs accounted for 6.83% ($29.8 billion out of $436.1 billion) of the total trade volume, which increased to 8.08% ($129 billion out of $1,596.1 billion) by 2022. This growth in the share of CEECs within the total BRI trade volume underscores their increasing significance within the BRI framework. Furthermore, the growth rate of total trade volume between China and CEECs (333%) outpaced the growth rate of total trade volume between China and all BRI countries (266%) during the same time period from 2007 to 2022, which further emphasize the increasing importance of CEECs in China's BRI framework.

In conclusion, although CEECs constitute a relatively small share of China's total trade volume with BRI countries, their importance has been steadily increasing. The higher growth rates and expanding share of CEECs in total BRI trade volume emphasize their significance as crucial partners in China's BRI framework, with the initiative playing a pivotal role in promoting stronger trade relations between China and CEECs.

1.3 Actuality of the research topic.

In the past 20 years, China has gone from being a fringe country to a source of direct investment for many developing countries. A critical moment in its transition phase was 2000. The Chinese government proposed a "Going Global" policy, which means that China will adopt investment liberalization strategies to encourage domestic companies to participate in international

[2]These measures include establishing a $10 billion special credit line, which includes a proportion of preferential loans primarily for infrastructure, high-tech, and green economy cooperation projects and establishing the China-Central and Eastern Europe Investment Cooperation Fund, and so on.

investment and make China more global. Between 2004 and 2007, 10 of the 16 CEECs joined the European Union (EU). Thus, the economic and trade relations between China and CEE are characterized by a duality: bilateral relations with China and multilateral relations with China within the framework of the EU. On the one hand, the large-scale accession promotes the free flow of CEE products in the EU. On the other hand, the EU's policy preferences and subsidies for foreign corporations help to accelerate CEE nations' opening, thus encouraging Chinese companies' desire to invest directly in CEECs.

While China's OFDI Stock in CEECs reveals remarkable growth during the period under study, the trade relations between China and CEECs have also undergone complex and profound changes. The industrial structure in CEECs has been continuously upgraded in the transition process to a market economy. Each country has its development plan and target, so significant differences exist in countries' economic development and productivity. These differences are also reflected in their trade data with China.

1.3.1 Simultaneous increase in OFDI volume and trade scale.

Since 2007, the volume of China's OFDI and trade scale with the CEECs have proliferated, and the trends are consistent. *Figure 1.3* exhibits that China's exports, imports, and OFDI stock with CEECs have all shown an overall increasing trend from 2007 to 2022. Despite some fluctuations, the general trajectory has been positive, indicating growing economic ties between China and the CEECs over the 15-year period.

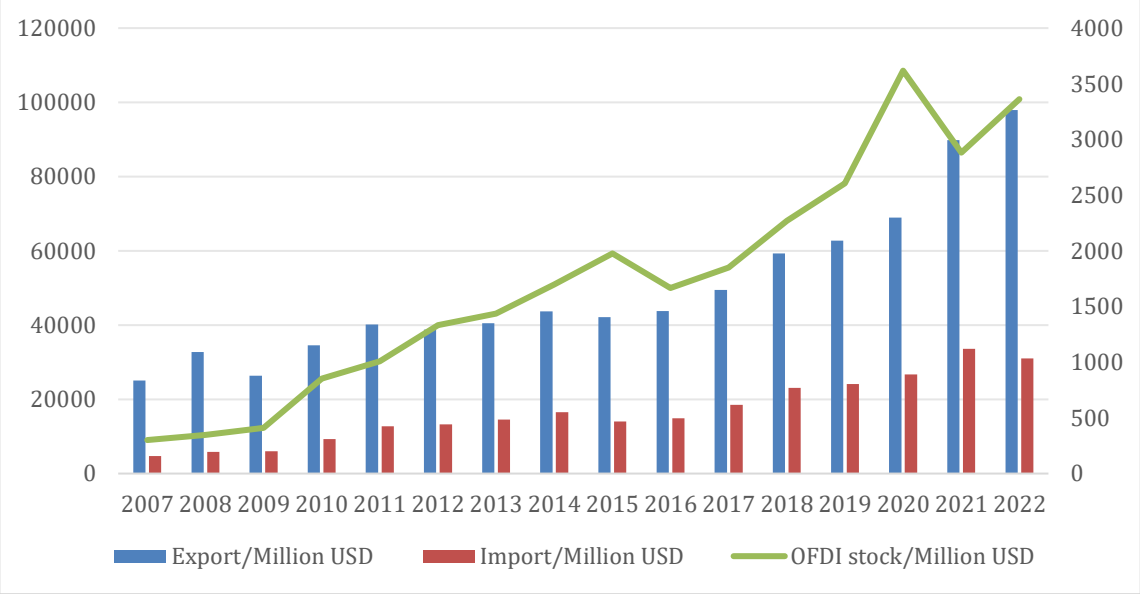
With further observation, we can see that China's OFDI stock in CEECs has experienced significant growth. From 2007 to 2022, China's OFDI stock in CEECs increased from $451 million to $5444 million (Appendix C), representing a more than tenfold increase. The rapid expansion of China's OFDI stock in CEECs underscores the increasing economic significance of the region for China and the deepening economic ties between the two parties.

At the same time, the export scale grew from $25.05 billion to $97.96 billion, nearly a threefold increase, and the import scale grew from $4.76 billion to $31.01 billion, a more than fivefold increase. The total trade volume between China and the 16 CEECs reached USD 123.45 billion in 2021, surpassing the USD 100 billion mark for the first time, with a growth rate of 29.08% compared to the previous year (Appendix A, Appendix B). This significant growth in trade volume demonstrates the strengthening economic ties between China and the CEECs. The graph also captures the impact of global events on China-CEEC economic relations. For example, there was a noticeable dip in exports and imports around 2009, likely due to the global

financial crisis. Similarly, the COVID-19 pandemic appears to have affected trade flows in 2020, with a slight decline in exports and imports compared to the previous year. Overall, China's OFDI volume and trade scale with the CEECs have increased significantly. Although many other factors may cause the growth of these two trends, the consistent change in OFDI volume and trade scale cannot be denied.

More importantly, the data on China's OFDI stock in CEECs shows a notable increase in the years following the launch of the BRI. For instance, China's OFDI stock in Hungary grew from $92.55 million in 2013 to $1392 million in 2022, while its OFDI stock in Poland increased from $641.07 million to $1333.5 million over the same period (Appendix C). This suggests that the BRI has been a catalyst for Chinese investments in CEECs, providing both the incentives and the institutional framework for Chinese firms to invest in the region.

Figure 1.3 The comparison of China's OFDI volume and Trade Scale with CEECs, 2007-2022.



Source: Author's compilation based on UN Comtrade Data and OECD FDI Data.

Moreover, the BRI has also facilitated the development of transport and logistics infrastructure in CEECs, such as railways and ports, which has further encouraged Chinese investments in the region. The improved connectivity has made it easier for Chinese firms to access the European market through CEECs, making the region an attractive destination for Chinese OFDI. However, it is important to note that while the BRI has played a significant role in promoting China's OFDI stock in CEECs, it is not the only factor at play. Other factors, such as the economic fundamentals of CEECs, the policy environment, and the overall growth of

China’s OFDI worldwide, have also contributed to the growth of China’s OFDI stock in the region.

1.3.2 Uneven country distribution of trade volume and China’s OFDI in CEECs.

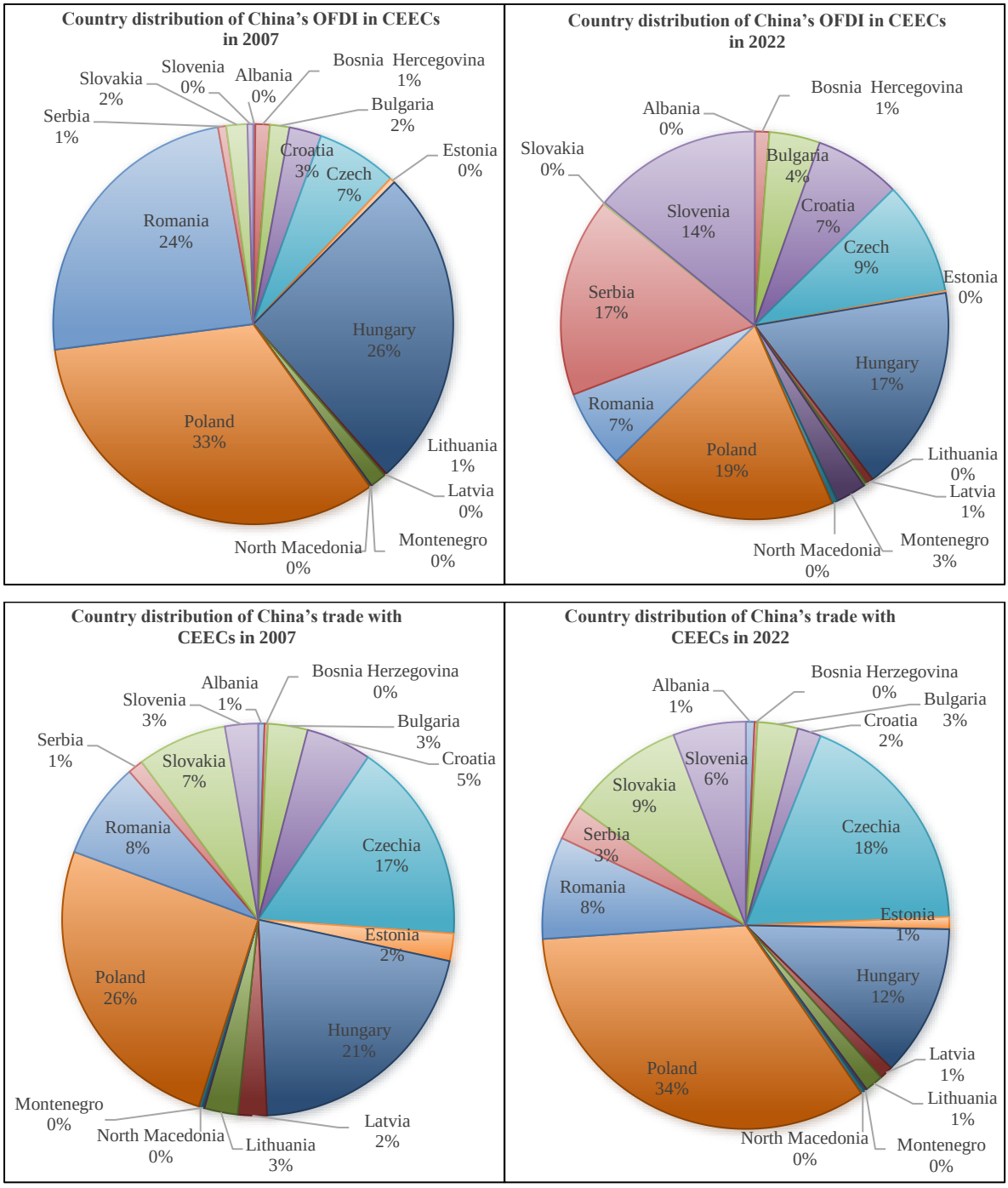
The comparative analysis of China’s OFDI stocks and bilateral trade flows with CEECs in 2007 and 2022 (Figure 1.4) provides valuable insights into the evolving economic relationships between China and the region. The disparities among CEECs in terms of geographical distribution, economic development, cultural affiliation, and degree of integration with the European Union have led to distinct patterns in China's economic and trade cooperation with these countries.

In 2007, China’s OFDI stocks in CEECs were heavily concentrated in Poland (33%), Hungary (26%), and Romania (24%), collectively accounting for 83% of the total. This uneven distribution suggests that China initially focused its investments on a few key countries, possibly due to their relatively larger economies, strategic locations, or favorable investment policies. However, by 2022, the OFDI distribution had become more diversified, with Poland (19%), Serbia (17%), Hungary (17%), and Slovenia (14%) emerging as the top recipients (Appendix C). This shift indicates a more balanced approach to China’s OFDI in CEECs, as the country sought to expand its economic presence in the region. Nevertheless, China’s OFDI stock remained concentrated in the Visegrad countries (Poland, Hungary, Czech Republic, and Slovakia), along with Slovenia and Romania, highlighting the importance of these countries in China’s investment strategy.

Regarding bilateral trade, the geographical distribution in 2007 closely mirrored that of China’s OFDI, with Poland (26%), Hungary (21%), and the Czech Republic (17%) being the main trade partners. By 2022, the trade distribution remained relatively stable, with Poland (34%) maintaining its position as the leading trade partner, followed by the Czech Republic (18%), Hungary (12%), and Slovakia (9%) (Appendix A, Appendix B). This consistency in trade partnerships underscores the strong economic ties China has established with these countries, leveraging their strategic locations and economic potential. In contrast, Albania, Montenegro, North Macedonia, and Bosnia and Herzegovina had relatively low shares of China’s OFDI and trade in both 2007 and 2022. This disparity highlights the challenges China faces in engaging with countries that may have smaller economies, limited infrastructure, or political instability.

Consequently, China's economic and trade cooperation with these countries has remained comparatively underdeveloped.

Figure 1.4 The comparison of country distribution of China's OFDI stocks and trade flows in CEECs in 2007 and 2022



Source: Author's Analysis of OECD & UN Comtrade Data

The uneven distribution of economic engagement across CEECs underscores the need for China to tailor its strategies to the unique characteristics and challenges of each country to

foster more balanced and sustainable economic cooperation in the region. As China continues to deepen its economic ties with CEECs, it will be crucial to address the disparities and promote more inclusive growth across the entire region.

1.4 Research Design.

As more and more research focus on the relationship between FDI and bilateral trade, it has been discovered that the differences in various attributes between home and host countries, such as differences in market demand, industrial structure differences, distance differences, and institutional differences, all have an impact on the direct investment and export-import relationship between home and host countries. Therefore, there is a limited range of explanatory validity for the coefficient relationship obtained based on any models reflecting direct investment and exports and imports. While the mainstream findings accept the existence of country-specific effects in the relationship between direct investment and bilateral trade, this study argues that the research should focus more on exploring the motives of China's OFDI in different countries in CEE region and examine how different FDI motives affect the bilateral trade performance between China and CEE. Furthermore, the 16 CEECs have vastly different national circumstances. China's direct investment in CEE nations will influence bilateral trade differently. As a result, focusing on the impact of China's direct investment in CEE on bilateral trade between China and CEE is practical. This analysis will provide valuable insights to determine whether existing trade and investment policies require modification or if new policies should be developed.

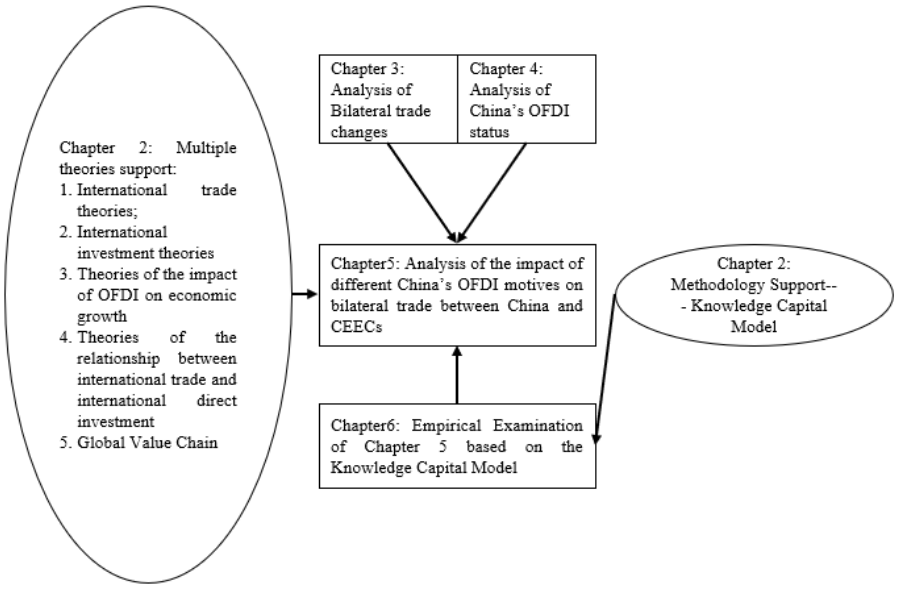
This research aims at analyzing the motivations of China's OFDI in CEECs, and the different OFDI motivations that affects bilateral trade between China and CEECs by using FDI data and bilateral trade data from 2007 to 2022. A further question is whether China's OFDI will have a substitution effect on bilateral trade between China and CEECs or complementary effect? This study employs a quantitative research approach to address the aforementioned questions. It analyzes data on China's OFDI in CEECs and the bilateral trade figures between China and CEECs from 2007 to 2022. Using regression analysis, the research examines how China's OFDI in CEECs influences the bilateral trade outcomes between China and CEECs. China's OFDI data used for the analysis has been collected from multiple sources: from OECD and from the national banks of each country. For those countries that data was missing from both OECD and national bank sources, the paper used data from the yearly Statistical Bulletin of China's Outward Foreign Direct Investment Data Report, which normally published on the

officially website of Ministry of Commerce of The People's Republic of China. Bilateral trade data between China and CEECs was collected from UN Comtrade database.

Considering that CEECs have different economic development levels, this study will also divide 16 CEECs into different groups based on different classification criteria to provide a more detailed and accurate analysis of the 16 CEECs. More detailed hypotheses descriptions are stated in *Chapter 6.2*. The time frame of the selected data will be from 2007 to 2022 because this study considers mainly the FDI after the 2008 Financial Crisis. Before the crisis, China's ODFI in the CEE region is small. However, both the 2008 global financial crisis and European Sovereign Debt Crisis gave opportunities to Chinese investors to invest in this region. While the data for 2007 will present as a reference to demonstrate before crisis status

This study first focuses on sorting out the structure changes of bilateral trade between China and CEECs, and the characteristics of China's OFDI in CEECs. Then, the thesis tries to analyze the impact of different OFDI motives on trade scale and trade structure in CEE region. Followed by an empirical examination with the use of Knowledge Capital Model to examine whether the OFDI motives align with the changes in bilateral trade performance by using China's OFDI stock in 16 CEECs and import & export data with CEECs from 2007 to 2022. Finally, this study will summarize the impact of China's OFDI on bilateral trade under the framework of BRI with the reference case of CEECs and give policy suggestions. Below graph 1.1 shows the research design used in this study.

Graph 1.: Research Design



Resource: Author's construction

This study will start with an introduction to give a whole picture of the research background, objective, and research topic justification. Chapter 2 will provide information on research panorama, context, and focus with a comprehensive literature review.

The analysis part of the thesis can be divided into 4 chapters (Chapter 3, Chapter4, Chapter 5 and Chapter 6). Chapter 3 will provide an analysis of changes in bilateral trade between China and CEECs from 2007 to 2022. Chapter 4 provides the detail situation of China's OFDI in CEECs during the sample period. Combining the analysis content from Chapter 3 and Chapter 4, Chapter 5 will explain the motives of China's OFDI in CEECs and the impact om bilateral trade. Chapter 6 will be the empirical examination to identify the whether the motives and impact of China's OFDI in CEECs align with the actual status.

Chapter 7 will offer a policy recommendation based on the empirical results to further improve the cooperation between China and CEECs. While Chapter 8 gives a conclusion of the whole study and also indicates the limitation and future research directions.

2.0 Literature review

International trade and investment liberalization is a crucial driver of modern economic globalization. It creates an external environment where countries, particularly developing countries, can participate in the international division of labor and develop their own economies. In this case, most of the developing countries' attention has inevitably turned to international trade and investment's evolving characteristics and interrelationships. According to Blomstrom & Kokko (1998), FDI promotes exports by boosting total factor productivity through learning, instilling a competitive culture, knowledge transfer, and capital injection (Blomström & Kokko, 1998). While Poelhekke and Ploeg (2013) suggested that just increasing FDI inflows does not ensure favorable spillover effects. Instead, the beneficial impact of FDI inflows is primarily determined by the circumstances in host nations (Poelhekke & Ploeg, 2013). We can see that diverse study techniques and samples make those theories have confounded the link between OFDI and bilateral trade. It is important to understand and grasp the development of international trade theory and international direct investment theory to deeply explore the characteristics and causes of changes in China's foreign direct investment in the CEE region and the relationship with bilateral trade.

2.1 Theoretical background

2.1.1 International trade theories

Compared with the practice of international trade, the theoretical study of international trade comes relatively late, starting in the 18th century. Later, the theory developed into the classical international trade theory, neoclassical international trade theory, and the intra-industry trade theory.

Classic International Trade Theories. Adam Smith, the pioneer of classical economics, proposed the theory of absolute advantage in his masterpiece "An Inquiry of the Nature and Causes of The National Wealth", published in 1776 (Smith, 1776). Absolute advantage refers to a country's labor productivity in a specific product being higher than other countries. According to the absolute advantage theory, the two countries involved in the exchange should specialize in the division of labor and production based on their absolute advantages and trade their products at a lower cost. However, the applicability and explanation of the theory were soon questioned because of the large gap between the assumption that each country has production sectors with absolute advantages and reality.

In 1817, the classical economist Ricardo published his work "On the Principles of Political Economy and Taxation", which developed the absolute advantage theory into the comparative advantage theory (Ricardo, 1817). The theory argues that the difference in labor productivity between two countries is not equal for any product. It assumes the country at a disadvantage has a comparative advantage in producing goods at a lesser disadvantage than other countries. So, two countries involved in the exchange should follow the comparative advantage to specialize, produce and exchange the products with lower comparative cost. However, the comparative advantage theory also has significant shortcomings. For example, the comparative advantage theory treats labor as the sole input factor and ignores the impact of capital, technology, and other factors on international trade. Furthermore, it assigns the cause of international trade to relative labor productivity differences. However, it did not explain the difference in relative labor productivity.

Neoclassic International Trade Theory. The limitations of comparative advantage theory led to the formation and development of neoclassic international trade theory. Heckscher and Ohlin proposed the factor endowment theory in 1933, which refined and modified the comparative advantage theory, arguing that international trade occurs because countries have different factor endowments rather than the inherent differences in labor productivity as described by

comparative advantage theory (Ohlin, 1934). According to the factor endowment theory, a country's comparative advantage is determined by its factor endowments. Countries with a relatively abundant and cheap labor supply have a cost and price comparative advantage in labor-intensive manufacturing over countries with a limited and expensive labor supply. They should focus on producing and exporting labor-intensive products. Countries with abundant capital should focus on producing and exporting capital-intensive goods. In this case, everyone could benefit from international trade. Nevertheless, the deficiencies of this theory are also obvious. For example, the assumptions of factor endowment theory are static, ignoring the dynamic changes of comparative advantage caused by technology improvement. At the same time, international trade has also seen the emergence of new phenomena, such as the bidirectional flow of products within the same industry, the cross-country transfer of production, and export advantages, and so on. These new international trade phenomena are beyond the explanatory scope of factor endowment theory.

Inter-industry Trade Theory. Classical and neoclassical trade theories explain inter-industry trade's foundations, patterns, and gains. Smith (1776) argues that differences in labor productivity between countries determine the division of labor and trade and that production technology is the basis for the emergence of trade between countries in absolute advantage theory (Smith, 1776). Ricardo (1817) states that a country can specialize in producing and exporting goods with a relatively small absolute disadvantage (goods with comparative advantage) (Ricardo, 1817). Technological differences are the primary reason for price differences between countries for the same goods. Classical trade theories agree that technological differences in production are the basis for the division of labor and trade between countries. It determines the scale and structure of a country's exports.

Neoclassical trade theory further explains the causes of comparative advantage. The theory argues that differences in factor endowments among countries are the basis for the emergence of international trade and determine the size and structure of the trade. The H-O theory is representative of the neoclassical trade theory, which argues that differences in factor endowments make factor prices, production costs, and commodity prices differ, leading to the occurrence of trade. In general, neoclassical trade theory and its extensions consider factor endowments as the basis of export trade. Most importantly, neoclassical trade theory states that the essence of product trade is the cross-country movement of factors of production. The factor characteristics of export trade reveal the structural characteristics of export trade.

Intra-industry Trade Theory. In a general sense, international trade is the inter-industry trade between countries. This inter-industry trade is focused on the trade between two countries with a large gap of economic development level. However, in the second half of the 20th century, with the deepening of international trade cooperation, Grubel found a large amount of trade in similar products within the European Economic Community (EEC). This form of trade is called intra-industry trade, and mainly exists in countries with a similar level of economic development. In the mid-1970s, the publication of "Intra-industry trade: the theory and measurement of international trade in differentiated products" published by Grubel and Lloyd (1975) proposed intra-industry trade theory (Grubel & Lloyd, 1975).

The most important feature of intra-industry trade theory is the use of concepts such as heterogeneity and differentiation of traded goods, similarity and diversity of consumer preferences, specialized division of labor, and internal economies of scale to explain the phenomenon of trading similar products between different countries. In a closed economy, the market size of a single country may be small, and the number of firms and the variety of differentiated products that can be accommodated under the effect of internal economies of scale are limited. Consumers have narrow choices and high prices. In an open economy, however, the expansion of market size induces domestic and foreign firms to expand their production scale to reduce production costs and thus obtain economies of scale while triggering new firms to enter the industry and produce more differentiated products.

2.1.2 International investment theories

The theory of international direct investment originated in the 1960s when economist Hymer first proposed the theory of monopolistic advantage. Since then, many scholars have proposed the Theory of Internalization, Eclectic Theory of International Production, Product Life Cycle Theory, and Theory of Small-Scale Technology.

Theory of Monopolistic Advantage. Hymer (1960) first argues that in an imperfect market, a source of market power, the firm-specific advantage, can offset the challenges faced by multinational enterprises. Hymer observed foreign investment after World War II. He found that the U.S. foreign investment firms were typically oligopolistic industrial enterprises. In other words, a few firms with monopolistic positions have controlled the foreign investment of the whole industry (Hymer, 1960). Later, through the work of Kindleberger (1969), this market power developed into the monopolistic advantage, which constitutes a new idea and theory for studying the international investment. MNC advantages, according to Kindleberger, are only

useful in the event of market imperfections (Kindleberger, 1969). Superior technology, management knowledge, patents, and other advantages typically lead a company to invest in a foreign country to fully exploit them rather than share them with potential foreign market competitors (Nayak & Choudhury, 2014). The monopolistic advantage theory also has certain limitations. First, the theory lacks dynamism, as monopoly advantage is a relative concept, and it will change over time. Second, it cannot explain why a firm with a technological advantage must invest in foreign countries instead of exporting or transferring technology licenses to obtain benefits. Third, it cannot explain the increasing participation of SMEs in developed countries and developing countries in Foreign Direct Investment activities.

Theory of Internalization. The concept of internalization was first introduced by Coase (1937), who pointed out that the transaction costs would increase due to market imperfections. That firm could reduce market transaction costs by bringing various transactions in-house (Coase, 1937).

Buckley & Casson (1976) introduced the theory of Internalization in 1976 by integrating the principle of internalization of market transactions into the field of international direct investment. This theory pointed out the difficulties of intermediate product trading, external market failure and high external transaction costs. To prevent high market transaction costs due to the original asymmetry of market information and ambiguous information about intermediate products, companies cooperate with upstream producers or internalize them to reduce costs and increase profits (Buckley & Casson, 1976). This kind of internalized production is also known as the OFDI process of enterprises. Internalized production is conducive to the reform and innovation of technology and patents within multinational enterprises and can promote the technological upgrading and progress of the industry in which the industry is located and related industries.

The internalization theory of FDI combines outward investment and intra-firm trade, making it able to explain the outward investment behavior of multinational firms in a larger framework. As a result, the theory is more dynamic and closer to the facts. However, the theory also has shortcomings. It ignores the influence of the international economic environment and fails to explain why intra-firm trade must be achieved across borders rather than at home.

Eclectic Theory of International Production. Dunning (1980) proposed the Eclectic Theory of International Production, which is based on the idea that firms with ownership, internalization and location advantages can engage in OFDI (Dunning, 1980).

The ownership-specific advantage is a prerequisite for foreign investment (Dunning, 1980). It refers to an enterprise having relative advantages over enterprises in other countries. In addition to primary advantages such as raw materials, labor, capital, it also includes technology, management and marketing skills, innovation ability, and stuff. In the case of an incomplete external market, firms with the ownership advantage internalize the external market to avoid market imperfections. The internalization advantage is achieved by transferring the assets owned by the company to its foreign subsidiaries through internalization. The advantage that one country or region can provide more favorable conditions for foreign manufacturers to invest in their own country or region than another country or region can be called location-specific advantage.

Dunning's eclectic theory of international production emphasizes the role of the level of economic development and the ability of enterprises to invest abroad. It provides multinational enterprises with ownership advantages, internalization advantages, and location advantages (Dunning, 1980). The theory is a practical guide for multinational enterprises to go abroad. However, the conditions of OFDI emphasized by this theory cannot explain the rapidly developing OFDI behavior of developing countries.

Product Life Cycle Theory. Vernon (1966) proposed the product life cycle theory and apply it to the field of international direct investment. Product life cycle theory suggests that every product has a so-called life cycle: the new product stage, the maturity stage, and the standardization stage (Vernon, 1966).

The investment behavior of a company is different at different product life stages. Companies will invest in the new product stage where production costs are low, combining technological advantages with the resource advantages of the investment location to quickly capture market share and earn profits. As the product life cycle enters the stage of maturity and standardization, the investment will flow to other countries. This forms the evolutionary process of investment diffusion from developed to developing countries.

The product life cycle theory provides a good explanation of OFDI from the United States in the 1950s and 1960s. It explains firms' motivation, conditions, and conversion from export to direct investment. However, product life cycle theory has some limitations in practical application (Vernon, 1966). However, it cannot explain the two-way investment behavior among developing countries and the increased share of investment in industrial sectors that are not export substitutes.

Theory of Small-Scale Technology. Since developing countries tend to lag developed countries in terms of both capital and technology, their OFDI lacks the necessary prerequisites under the traditional theory. In practice, however, the emergence of developing countries has called into question the validity of the traditional theory.

The Theory of Small-Scale Technology advocated by Wells (1983) mentioned that developing countries engage in OFDI because of market-seeking, low-cost and political risk avoidance. According to Wells, the comparative advantage of developing country firms in OFDI lies in their possession of small-scale production technology, and the competitive advantage of such small-scale production technology is usually manifested in three ways (Wells, 1983):

1. large-scale production technology is often unable to meet the needs of different market segments, and labor-intensive small-scale technology can fill this market gap, thus gaining economies of scale.
2. The "national bond" provides a stable market base for developing country enterprises to produce and sell national products overseas.
3. The lower production and operation costs make the prices of products in developing countries lower than those in developed countries, and the multi-level market demand for products provides sales channels for these products, thus opening larger overseas market space for developing country enterprises.

The Theory of Localized Technological Change (TLC) proposed by British economist Lall (1983) states that developing country firms can use small-scale technology as their comparative advantage to make developing country firms more competitive in international markets (Lall, 1983). Relatively low labor costs also make small-scale production in developing countries more competitive. Technology localization theory also points out that the key factors that determine the competitiveness of developing countries are factor prices and quality levels, technology and product innovation, the degree of economic efficiency of small-scale production, and the ability to develop diversified consumer goods.

2.1.3 Theories of the impact of OFDI on economic growth in the home country

The industrial development effect of OFDI, the technology spillover effect of OFDI, and the labor effect of OFDI reveal the relationship between OFDI and home country industrial development, technology level, and labor market. Industrial development, technology level, and labor endowment are the basis for a country's participation in international trade. The

theory of the impact of OFDI on the home country's economic effect reveals the relationship between OFDI and export scale and structure.

Theory of Home Country Industrial Development Effect of OFDI. Akamatsu (1962) studied the characteristics of industrial development in Japan and found that the industrial development went through four stages import → local production → export development → export growth. By extending this phenomenon to international industrial transfer, industries in which developed countries had a comparative advantage will gradually lose their advantages to underdeveloped countries due to changes in comparative efficiency. These industries can gradually develop into comparative advantages in underdeveloped countries and counter-export to the originally developed countries (Akamatsu, 1962). Kojima (1978) proposed the theory of marginal industrial transfer, which emphasizes that international industrial transfer starts from marginal industries that have lost comparative advantage in the home country to other countries with comparative advantage. International industrial transfer shifts domestic industries out of the country, freeing up space for developing new industries. The home country's industrial structure and comparative advantage then change (Kojima, 1978).

The Reverse Technology Spillover Theory of OFDI. This theory suggests that the home country uses OFDI to bypass the TNCs' technology blockade, gain full access to the host country's technology, utilize its R&D resources, and obtain technology spillovers from the host country. Kogut & Chang (1991) and Yamawaki (2004) studied the OFDI behavior of Japanese firms in the US. They found that Japanese firms invested in the US, usually in industries with higher R&D intensity than Japan and tended to acquire advanced technology through OFDI (Kogut & Chang, 1991) (Yamawaki, 2004). Neven & Siotis (1993, 1996) studied OFDI by US and Japanese firms in EU countries and found that it mainly goes to technology-intensive industries with prominent technology-seeking characteristics (Neven & Siotis, 1993) (Neven & Siotis, 1996). The close linkage between OFDI and the home country's technology level implies that OFDI can promote home countries' industrial development and export transformation by improving their technology level.

The Labor Effect Theory of OFDI. Vertical specialization theory, represented by Feenstra and Hanson (1995), argues that OFDI will affect the relative factor demand and relative factor prices in both home and host countries. The traditional division of labor suggests that the international intra-product division of labor occurs when developed countries transfer low-skilled labor to developing countries. The transfer of labor will reduce the demand for low-

skilled labor in the home country and increase the demand for low-skilled labor in the host country (Feenstra & Hanson, 1995). However, Feenstra and Hanson presented a different view on this issue in the later years. They were the first to develop a theoretical analysis modeling that OFDI would simultaneously increase the skill intensity of both countries. Thus, increasing the relative demand for skilled labor in both countries and eventually widening the wage gap between skilled and unskilled labor in the country. Changes in demand for and returns to labor factors will change the long-run supply of skilled and unskilled labor (Feenstra & Hanson, 1997) (Feenstra & Hanson, 2000) (Feenstra & Hanson, 2001).

2.1.4 Theories of the relationship between international trade and international direct investment

Along with the development of Outward Foreign Direct Investment (ODFI) and Transnational Companies' investment behavior, the theories that related to OFDI and investment behavior of Multinational Companies have also developed rapidly since the 1950s. Mundell (1957) first proposed the mutual substitution effect between international trade and international direct investment (Mundell, 1957). Since then, scholars have challenged the theory and have put forward the complementary effect between international trade and international direct investment and the uncertain relationship between international trade and international direct investment.

Substitution Effect. Mundell (1957) first proposed a model to analyze intercountry direct investment and trade from the perspective of commodity trade and mobility of factors of production. The model is built based on the framework of two countries, two products, and two factors of production with following assumptions: (1) The functions of production of the two countries are identical. (2) At any factor price, one product requires more factors than the other at any point on the production function. (3) The factor endowment reaches a point where the possibility of specialization is ruled out (Mundell, 1957). Under the three assumptions described above, if there are trade barriers in the form of tariffs between two countries, the international movement of factors of production due to price differences in two countries will lead to the elimination of trade. In other words, it shows that the products of the exporting country can be manufactured in the other countries through the movement of factors of production, causing exports to be substituted (Mundell, 1957).

Buckley and Casson (1976) proposed the theory of internalization, who claim that market incompleteness and transaction costs encourage enterprises to internalize. The core of direct

investment is the extension of management and control of the business based on ownership rather than the transfer of capital (Buckley & Casson, 1976). Assume the home nation uses OFDI to bypass the host country's trade or non-trade barriers. In that case, the substitution effect between the home country's OFDI and trade from the home country is apparent. Helpman, Melitz & Yeaple (2004) uses industry-level data from 38 countries to examine that OFDI and exports exhibit a mutual substitution relationship (Helpman, Melitz & Yeaple, 2004).

Complementary Effect. Markusen (1983) presents the exact opposite opinion to Mundell, who argues that there is a complementary relationship between international trade and international direct investment. He said that the factor mobility between two countries increases the amount of merchandise trade between the two countries. This proposition is built on six assumptions: (1) The relative factor endowments of the two countries are identical. (2) The production technologies of the two countries are identical. (3) The two countries have the similar demand curve. (4) The function of production has constant returns to scale. (5) The manufacturers are perfectly competitive with each other. (6) The domestic allocation of factors is efficient. The results showed that in several cases, when they release the condition of stated assumptions, factor flows due to differences in factor prices all lead to an increase in trade volume between countries (Markusen 1983).

Schmitz & Helmberger (1970) found that OFDI will promote home country exports when the home country is in a vertical division of trade with the host country (Schmitz & Helmberger, 1970). In addition, Japanese scholar Kojima (1978) also supports the complementary relationship between trade and foreign direct investment. He integrated trade and investment theories based on comparative advantage. Kojima believes that a country should develop the industries with a comparative advantage, export the products of those industries, and import products of industries without comparative advantage. While for the outward foreign investment, he believes that multinational firms should invest in an industry with a comparative advantage in the host country (Kojima, 1978). Obviously, in this case, the international direct investment will promote the development of international trade. Eaton & Tamura (1996) conducted an empirical analysis of trade and investment between Japan and the United States between 1985 and 1990 and found a mutually reinforcing relationship between trade and investment (Eaton & Tamura, 1996). Chiappini (2011) studies the amount of foreign direct investment in the French automotive industry and finds that investment catalyzes trade exports (Chiappini, 2011).

Unstable Relationship. Concerning the interrelationship between direct investment and foreign trade, many scholars have suggested through numerous studies that there are not simply substitutes or complements relationships between ODFI and foreign trade. In reality, the relationship is often unstable and intertwined. Petri (1994), on the other hand, starts from the motives of OFDI investment and concludes that the difference in the relationship between foreign trade is due to the different motives of OFDI. He classifies OFDI into the following three different motives: market-oriented, production-oriented, and trade-promoting, and concludes that only market-oriented OFDI has a substitution relationship with trade, while the latter two can increase trade between host and investing countries and have a complementary relationship (Petri, 1994). Markusen (1983) further analyzes the interrelationship between the movement of factors and commodity trade, stating that whether they behave as substitutes or complements depends on whether the relationship between trade and non-trade factors are"cooperative" or "non-cooperative". If the relationship is cooperative, trade and investment show a complementary effect. If they are non-cooperative, then trade and investment exhibit a substitute effect (Markusen, 1983). Swenson (2004) finds both a complementary and a substitution relationship between direct investment and bilateral trade, with the relationship determined by the granularity of the product classification based on the analysis of most OECD countries' FDI in the US (Swenson, 2004).

To sum up, various aspects such as industrial structure, trading patterns, traditions, and culture between the host and home countries frequently affect the impact of OFDI on bilateral Trade. With the increasing proportion of foreign trade in China's overall income structure, especially after the Belt and Road Initiative proposal, many scholars have explored China's OFDI and its impact on bilateral trade with the implementation of BRI. However, most of the studies focus on the qualitative analysis of the BRI, discussing the location choice of China's FDI and the theoretical connotation of China's OFDI. Although, Lipsey, Ramstetter, & Blomström (2000) examined the U.S. OFDI flows are significantly and positively correlated with exports to the host country, and Blonigen & Piger (2011) used a Bayesian analysis method to examine the influence of various factors on bilateral trade, the in-depth quantitative studies on the mechanism of mutual influence between China's and bilateral trade with countries along the BRI is still insufficient (Lipsey, Ramstetter, & Blomström, 2000) (Blonigen & Piger, 2014).

2.1.5 Global Value Chain

Porter (1985) put forward the concept of value chain for the first time in his book "Competitive Advantage." He formed the "Enterprise Value Chain Theory," which believed that the enterprise's internal design, production, sales, and auxiliary activities constituted a whole production chain, creating corresponding value for the enterprise (Porter, 1985). In the process of studying the value chain, Kogut (1985) clearly pointed out that the comparative advantages of countries and regions determine how the various links of the entire value chain are spatially allocated between different countries and regions (Kogut, 1985). Compared with Porter, Kogut broadened the value chain concept from within the enterprise to the relationship between enterprises. However, the value chain he discussed remains in the relationship between enterprises in the R&D and production activities of manufacturing enterprises and does not involve high value-added activities such as marketing and after-sales service.

Gereffi & Korzeniewicz (1993) first proposed the concept of "Global Commodity Chain (GCC)." The main concern of GCC is the material flow of commodity production, and it lacks further analysis of value-added and value creation in the production process (Gereffi & Korzeniewicz, 1993). Gereffi (1999) further systematically analyzed the global commodity chain and pointed out that the snapshot is the basic unit that constitutes the global commodity chain. Each snapshot contains content links such as raw material input, operation organization, and marketing. He also pointed out that the global commodity chain can be divided into two typical transnational economic networks, namely the "Producer-driven global commodity chain" and the "Buyer-driven global commodity chain" (Gereffi, 1999). In the 21st century, Gereffi, Humphrey, Kaplinsky, & Sturgeon (2001) clearly put forward the concept of "Global Value Chain (GVC)," which provided a method to study the globalization of production activities and marked the formation of the global value chain specialization system (Gereffi, Humphrey, Kaplinsky, & Sturgeon, 2001).

The United Nations Industrial Development Organization (UNIDO, 2002) pointed out that enterprises in GVC perform related activities to bring a product (or service) from design and product development to production, marketing, and sales and consumption, after-sales services, and eventual recycling (UNIDO, 2002). According to different criteria, the activities involved in GVCs can be grouped into different groups: main activities and supporting activities (Porter, 1991) (Priem & Swink, 2012) (Tansuchat, Nimsai, & Piboonrungroj, 2016); According to the degree of participation in the production process, the activities can be grouped into upstream

activities, intermediate activities, and downstream activities (Mudambi, 2008) (Mudambi & Puck, 2016). Baldwin & Venables (2015) proposed a model, which involves two countries, a small open developing country, and a more economically advanced country, to analyze the forward and backward linkages in the value chain in developing countries (Baldwin & Venables, 2015). Wu, Hou, and Xin (2020) examine whether BRI has brought new opportunities to countries along the routes to participate in GVCs by employing a difference-indifferences method with propensity score matching. The results indicate that BRI has a positive effect on promoting the countries along the routes to participate in GVCs, and the effect is lagging and fluctuant (Wu, Hou, & Xin, 2020).

2.1.6 Knowledge-Capital model

With the deepening of economic globalization, multinational companies have gradually become the main protagonists of economic activities globally. The literature of international trade classifies the FDI behaviors of MNCs into three categories: Horizontal FDI (HFDI), Vertical FDI (VFDI), and the Knowledge-Capital (KC) model that combines HFDI and VFDI. The first literature on HFDI began with Markusen (1984), which indicates that firms conducting HFDI typically set up production in countries close to consumers to avoid high trade costs (Markusen, 1984). These MNCs must trade-off between achieving economies of scale and avoiding tariffs. If they locate the headquarter and all productions in the home country, the firms will gain economies of scale but face high marginal costs from exporting; Conversely, if they locate production in the host country, they will save on trade costs but pay high fixed costs (Markusen, 1984).

Therefore, HFDI is also known as the "Proximity-Concentration Hypothesis". This hypothesis was first empirically tested and supported by Brainard (1997) using data on U.S. multinationals and developed by Helpman, Melitz & Yeaple (2004) within the framework of heterogeneous firm trade theory (Brainard, 1997) (Helpman, Melitz & Yeaple, 2004). The main factors affecting HFDI are the host country's market size and trade costs. **When HFDI occurs, substitution between FDI and exports occurs.**

Helpman (1984) pioneered the study of VFDI. Differences in comparative advantage between countries induce some firms to split production into different stages and allocate production to firms in different countries (Helpman, 1984). For example, allocating labor-intensive and technology-intensive production activities to labor-rich and capital-rich countries, respectively, takes advantage of local comparative advantages and effectively reduces production costs.

Yeaple (2003) examines the determinants of OFDI in the United States and confirms the role of comparative advantage, supporting the prediction of VFDI (Yeaple, 2003). The main factors affecting VFDI are the cost of trade and the difference in factor endowments between home and host countries. In addition, Keller & Yeaple (2013) include the cost of knowledge transfer in the analysis of vertical specialization of MNCs and argue that this cost is also one of the determinants of VFDI by MNCs (Keller & Yeaple, 2013). **The emergence of VFDI will induce MNCs to engage in intra-firm trade and intermediate product trade, thus triggering the complementarity of FDI and trade**.

Scholars have encountered data difficulties in the actual study of HFDI and VFDI. Since no data set strictly distinguishes between HFDI and VFDI, the type of FDI can only be determined by testing the significance of the factors that affect them separately. Markusen, Venables, Konan & Zhang (1996) and Markusen (1997, 2002) established and developed the Knowledge-Capital model (KC Model) to analyze the factors affecting FDI by combining the motivation of MNCs to engage in HFDI and VFDI (Markusen, Venables, Konan, & Zhang, 1996) (Markusen, 1997) (Markusen, 2002). The KC Model assumes that there are two homogeneous products (X and Y), two countries (h and f), and two homogeneous factors: unskilled labor (L) and skilled labor (S). Those two factors cannot be freely moved between countries but within countries. Product Y is an unskilled labor-intensive product produced in a perfectly competitive industry with constant scale returns. Product X is a skilled labor-intensive product, produced under increasing returns to scale, in an industry subject to Cournot competition[3], where firms are free to enter and exit. The KC model has three main assumptions: First, knowledge-based services such as R&D can be geographically separated from production activities and supplied to producers at lower costs. Second, knowledge-intensive activities are more skill-intensive than production (Skilled Labor Intensive). Third, knowledge-based services can be used by multiple producers at the same time. The first two assumptions create an incentive for vertical segmentation of production. Firms can locate R&D activities in countries where skilled labor is abundant, and production is located in countries where unskilled labor is abundant. At the same time, they provide an incentive for production activities to be market sized when there are economies of scale at the firm level. The third assumption creates firm-level economies of

[3] Cournot competition: an economic model that usually occurs under monopoly or oligopoly conditions. The general premise of the model is that an oligopoly will have a higher output and lower prices than a monopoly, but lower output and higher prices than perfect competition.

scale, providing incentives for HFDI. It shows that firms can replicate the same product or service in different regions. Within an enterprise, Headquarters services and manufacturers can be geographically separated, and a firm can have manufacturers in one or two countries simultaneously. A company can have manufacturers in one or two countries simultaneously. Based on this, there will be six types of enterprises:

A. Hh(Hf) type: Horizontal MNCs refers to enterprises that have their headquarters located in the home country, with factories located in both home and host countries, and sales happen in the place of production. The classification of Hh and Hf depends on the location of headquarters.
B. Nh (Nf): Domestic enterprises with both headquarters and factories located in the home country, with or without exporting to host countries. The classification of Nh and Nf depends on the location of the enterprise.
C. Vh(Vf) type: Vertical MNCs are enterprises with their headquarters and factories separately located in the home and host countries, usually exported to home or other countries. It can be divided into Vh and Vf types by the location of headquarters.

Markusen, Venables, Konan & Zhang (1996) and Markusen (1997) develop a complete set of formulas to simulate the results using computer numerical methods and provide theoretical predictions that can be tested empirically. Hh-type firms will become the dominant firms in country h if the market size and factor endowments are similar between the two countries and the transportation cost is high. It means that horizontal multinationals will emerge when the market size and relative factor endowments are similar between countries (Markusen, Venables, Konan, & Zhang, 1996) (Markusen, 1997). If the relative factor endowments are similar between countries, while the market size is different, firms will choose N-type to avoid paying high fixed costs in small countries. Suppose the relative factor endowments differ significantly between countries, while the market size is similar. In that case, firms have a strong incentive to concentrate their headquarters services in countries with abundant skilled labor and locate their production processes in countries with scarce skilled labor, so that firms will choose to do VFDI when trade costs are not very high.

Carr, Markusen, & Maskus. (2001) test the predictions of the KC model and show that when bilateral trade costs between home and host countries increase, production of affiliated firms decreases if the host country is a developing country and increases if the host country is another high-income country (Carr, Markusen, & Maskus, 2001). The difference in factor endowments

between developing countries and the U.S. is significant, and the increase in trade costs leads to a decrease in intra-firm trade, and trade and FDI complement each other in VFDI. Bergstrand & Egger (2007) further extend the KC model to the three-factor, three-country case (Bergstrand, 2007).

In this study, the Knowledge-Capital model will be used to analyze the motives of China's OFDI in different countries in CEE region and examine how different FDI motives affect the bilateral trade performance between China and CEE.

2.2 Research context.

2.2.1 Review on the current studies of import and export trade between China and CEECs

Yu (2016) believes that residents of China and Central and Eastern European countries are more familiar with each other's cultures, so China and Central and Eastern European countries have always maintained close cooperative relations (Yu, 2016). However, in recent years, due to China's trade surplus with Central and Eastern Europe, the trade surplus tends to continue to expand. Excessive trade surplus hinders the sustainable growth of bilateral trade to a certain extent.

Gilbert Rozman (2016) researched the trade status and prospects of vital trade commodities along the BRI and used the RCA index and TCI index to measure the revealed comparative advantage and trade complementarity of the mineral raw material commodities of the Central and Eastern European countries along the route. The research results show that the output of mineral products in CEECs has declined to a certain extent since 2010. However, the export of mineral raw materials has always occupied a relatively important position in the export trade of CEECs. Regarding product trade, it is a typical import-dependent region that must import many raw mineral materials yearly for domestic industrial production needs. However, China has a strong comparative advantage in manufacturing raw mineral materials.

David C Kang (2013) analyzed the forest products of CEECs. He pointed out that the forest products of Central and Eastern European countries have comparative advantages and substantial competitive advantages to optimize the trade and financing environment and improve the large-scale production effect of forest enterprises. Suggestions are put forward on the prohibition of deforestation, standardized management of forest mining, and establishment of sustainable forest development. Ploberger C (2015) compared the trade situation between China and Central and Eastern Europe, compared the types of bilateral export products and

their respective domestic demand for imported products, and concluded that the bilateral markets are highly complementary. Therefore, the scale of bilateral trade has the potential to continue to expand.

Chance (2017) collected data on major trade commodities between China and CEECs, used the customs HS code to distinguish product categories, and then made a comparative analysis. The research found that there were two trends in the bilateral trade deficit. During 2012-2014, the scale of bilateral trade showed a shrinking trend along with the expansion of the deficit. During the period from 2015 to 2019, the bilateral trade volume showed a gradual expansion trend with the expansion of China's imports from Central and Eastern European countries and the decrease of the increase in trade surplus. The research indicates that the bilateral trade structure and product categories are highly complementary, so the two sides can optimize the bilateral trade structure to expand bilateral imports and stimulate bilateral economic growth (Chance, 2017). Andrei Vladimirovich (2017) analyzed the complementarity of bilateral trade from the perspective of inter-industry trade between China and Central and Eastern European countries. The study shows that bilateral trade is still dominated by inter-industry trade, showing strong trade complementarity. Rumi Aoyama (2016) studied the trade relations between China and Central and Eastern European countries from multiple perspectives and then pointed out a high complementarity in natural fields, labor-intensive fields, agricultural products, and mineral resources. In fields such as electromechanical transportation equipment, the two parties have both competition and complementarity. However, complementarity is far greater than the competition, so bilateral trade can be stimulated by strengthening bilateral trade cooperation.

Camenschi Dorina (2018) pointed out that the trade cooperation between China and CEECs has deepened in recent years. The trade cooperation between the two sides has shown the characteristics of complementary comparative advantages, mutual benefit, and win-win results. Therefore, strengthening trade cooperation between the two sides can increase the trade scale and the quality of traded goods in the two regions and make the development of bilateral cooperation diversified and comprehensive. With the continuous advancement of trade globalization and regional development integration, the trade between China and Central and Eastern Europe will also have an increasing impact on international trade.

2.2.2 Review on the current studies of OFDI status from China to CEE region.

After the "16+1" cooperation mechanism and the "Belt and Road" initiative were put forward, domestic and foreign scholars began to study China's direct investment in Central and Eastern Europe. Before that, there were very few domestic and foreign studies on China's direct investment in Central and Eastern Europe. Summarizing the existing research literature on China's OFDI in CEE mainly includes the necessity of China's direct investment in CEE, the methods, and industries of China's direct investment in Central and Eastern Europe, and risks faced by China's direct investment in Central and Eastern Europe.

Regarding the research on the necessity of China's direct investment in Central and Eastern Europe, Bandelj (2009) believes that countries worldwide, including China, value investment opportunities in Central and Eastern European countries after transformation. Concerning the research on China's direct investment methods and industries in Central and Eastern Europe, Wade (2014) compared the cases. He believed that China's targeted direct investment in Central and Eastern European countries prompted an excellent state of China's investment in CEE. Regarding the research on China's direct investment methods and industries in Central and Eastern Europe, Wade (2014) compared the cases of China and CEECs. He believed that China's direct investment in Central and Eastern European countries exhibited an excellent status.

Gheorghe (2014) took the method of direct investment in Central and Eastern Europe as the research purpose and analyzed the impact of foreign direct investment on the economy of Central and Eastern Europe and the factors that attract foreign direct investment in Central and Eastern Europe. The analysis proposed in this study helps study foreign direct investment under the transitional market mechanism. Majman (2015) put forward China's economic and trade cooperation proposals under the "Belt and Road Initiative" by analyzing the case of Poland. George (2015) took Romania and Serbia as examples. He suggested that China's direct investment in Central and Eastern European countries should start with infrastructure construction projects and expand the space for investment cooperation between China and Central and Eastern European countries.

Ori Efraim (2011) quantified the investment status in Central and Eastern Europe through intuitive tabular data, expounded the main characteristics of the commercial, and regulatory

environment in Central and Eastern European countries, and provided relevant policy recommendations for Chinese companies wishing to invest here.

2.2.3 Review on the research of relationship between trade and investment.

International trade and investment liberalization is a crucial driver of modern economic globalization. It creates an external environment where countries, particularly developing countries, can participate in the international division of labor and develop their own economies. In this case, most of the developing countries' attention has inevitably turned to international trade and investment's evolving characteristics and interrelationships. According to Blomstrom & Kokko (1998), FDI promotes exports by boosting total factor productivity through learning, instilling a competitive culture, knowledge transfer, and capital injection (Blomström & Kokko, 1998). While Poelhekke and Ploeg (2013) suggested that just increasing FDI inflows does not ensure favorable spillover effects. Instead, the beneficial impact of FDI inflows is primarily determined by the circumstances in host nations. We can see that diverse study techniques and samples make those theories have confounded the link between OFDI and bilateral trade. It is important to understand and grasp the development of international trade theory and international direct investment theory to deeply explore the characteristics and causes of changes in China's foreign direct investment in the CEE region and the relationship with bilateral trade.

In the relationship between direct investment and bilateral trade, many scholars also have great differences. Lipsey & Weiss (1981) used the data of US foreign direct investment flow and host country export data to test and concluded that the US foreign direct investment flow and the export to the host country were significantly positively correlated (Lipsey & Weiss, 1981). Markuson (1983) analyzed the relationship between factor flow and commodity trade and concluded that a country's direct investment and commodity trade not only represent mutual substitution, but also complement each other under certain conditions (Markuson, 1983). Then Bhagwati et al., (1987) and others developed the relationship between trade and investment from a new perspective of political economy. It attempts to explain the massive increase in Japanese direct investment in the United States in the late 1980s. The study shows that the purpose of foreign investment of enterprises is not to bypass tariff barriers, but to resolve the trade protection phenomenon that may exist in the process of bilateral trade (Bhagwati, Brecher, Dinopoulos, & Srinivasan, 1987); however, there are also large differences in the research on

the effect of this motivation, Grubert & Mutti (1991) believes that Lipsey & Weiss (1981)'s test has serious endogeneity problems. After overcoming the endogeneity between variables on the basis of the original data, he showed that there is a negative correlation between U.S. foreign direct investment and exports (Grubert & Mutti, 1991)); Head & Ries (2001) used Japanese corporate data and U.S. industry data to find the similar evidence (Head & Ries, 2001). Eaton and Tamura (1994) used variables such as economic scale in the gravity model to explain the liquidity of direct investment and measured the correlation between direct investment and trade lag through residual series analysis. The conclusion of the study shows that there is a positive correlation between the lag period of trade and direct investment. Japan's direct investment in East Asia has expanded the scale of trade between Japan and East Asia, and bilateral trade links have been further deepened (Eaton & Tamura, 1994). Kazuhiko (1994) studied the impact of Japanese direct investment in East Asia on trade between East Asia and Japan. The result of the study shows that the increase in Japanese direct investment in East Asia has led to significant changes in both the import and export structure and intra-regional trade flows in East Asia (excluding Japan), and the trade volume between Japan and East Asia has tripled.

Yu & Zhao (2008) argue that over the past few decades, economic ties between China and Japan have been strengthened through trade and Japanese direct investment in China. By investigating the impact of Japan's direct investment in China on bilateral trade between China and Japan, they found that Japan's direct investment in China not only promoted the growth of China's exports to Japan, but also led to the increase of China's imports from Japan. This shows that Japan's direct investment in China and bilateral trade relations are complementary.

2.3 Research focus.

2.3.1 Review of the studies on OFDI motivations

The theory of OFDI first explained the movement of capital, and now the FDI activities from transnational corporations (TNC) are increasingly becoming a driving force to accelerate the economic development of host countries and promote the global process of the economy. The theoretical studies on OFDI began in the 1960s. The main issues studied include the motives of OFDI, the behavior and conditions of ODFI, and its determinations.

The product life cycle theory mentioned in the previous chapter states that the product life cycle is divided into three stages: the new, mature, and standardized product stages (Vernon, 1966). The three stages of product life are a three-stage model of production location transfer, that is,

production and export in the home country → transfer to other developed countries to invest in production, the home country to reduce production and exports → transfer to developing countries and regions to invest in production, the home country to stop production → change to import from overseas. Vernon combines international investment with international trade and product life cycle and uses the change of product life cycle to explain the motivation and location choice of OFDI in the post-war period. The theory reveals the motivating conditions and the transition of MNCs to OFDI from the monopoly and location-specific advantage perspective.

Based on a comprehensive analysis of traditional and emerging investment patterns, Dunning (1998) summarizes the motives for OFDI into four types: resource-seeking (investment aimed at acquiring natural resources, human resources, land, or capital from the host country); market-seeking (motivated by the expansion of overseas markets); and efficiency-seeking (aimed at allocating factors globally, achieving economies of scale, and ultimately reducing operating costs); and strategic asset-seeking (the purpose of investment is to learn from the advanced technology, knowledge, management experience and efficient organizational capabilities of developed countries). The purpose of OFDI from developed countries is to reduce operating costs and bring into play competitive advantages, and the motives are market-seeking, efficiency-seeking and resource-seeking (Dunning, 1998). Developing countries aim to learn advanced industrial technology and management experience from foreign countries and create new comparative advantages. Their motivations include strategic asset-seeking, resource-seeking, and market-seeking (Dunning, 1998).

2.3.2 Review on the studies of the impact of OFDI on the trade Scale.

Some research results have shown that the relationship between OFDI and trade scale is mainly between substitution and complementarity effects. The former suggests that OFDI tends to reduce the scale of trade, while the latter, on the contrary, emphasizes that OFDI contributes to the expansion of trade. The earliest related studies concluded that the effect of OFDI on the trade scale is mainly a substitution effect. Mundell (1957) was among the first researchers to investigate the trade effects of OFDI. He used factor endowment theory as the core, emphasizing that international investment and trade have a substitution relationship (Mundell, 1957). Vernon (1966) published the product life cycle theory, which found that foreign direct investment will change to domestic exports and therefore is prone to reduce the trade scale from the perspective of the dynamic evolution of comparative advantage (Vernon, 1966). In

the 21st century, in line with the continuous development of new trade theories, Head & Ries (2003) conclude that the emergence of costs has led to the fact that only efficient firms have sufficient capacity to invest abroad (Head & Ries, 2003). Moreover, foreign investment by efficient firms will reduce the country's export volume. By constructing a simple production model that effectively integrates financial development, national exports, and OFDI. Zhao, Liu, and Wei et al. (2017) find that OFDI provides a substitution effect for exports from developed countries. In studying the impact of Japanese manufacturing OFDI on employment, Gu (2018) finds that the negative impact of the export substitution and reverse import effects of OFDI is more significant than the positive impact of the export promotion effect, which reflects the stronger substitution effect of Japanese OFDI.

The view that the impact of OFDI on the trade scale is a complementary effect is proposed later than the view of the substitution effect. The Japanese researcher Kojima (1977) cast doubt on the perception of substitution effects by comparing the specific characteristics of "the US-style OFDI" and "Japan-style OFDI". He concluded that the transfer of "marginal industries" from the latter home country to another country would promote the export of domestic machinery, equipment, and proprietary technology, which is conducive to the increase of trade between the two countries. Blomström & Kokko (1998) analyses the results around the U.S. and Switzerland in the period 1978-1982 and concludes that the emergence of outward investment boosts the demand for the home country's products (Blomström & Kokko, 1998). This demand will stimulate trade between the two countries. There is a complementary relationship between outward investment and international trade. Swati1 (2016) examined the relationship between China and India, Mirela & Voica (2017) investigated the OFDI and trade relationship between Romania and Kim, and Chang-Bong and Yo et al. (2017) analysed the OFDI and trade relationship between South Korea and Vietnam, observed existence of an evident complementary relationship between OFDI and trade (Mirela & Voica, 2017).

The above literature focuses on the relationship between OFDI and trade volume. The theoretical analysis suggests that horizontal OFDI replaces domestic exports and vertical OFDI promotes domestic exports. However, the empirical analysis does not distinguish between horizontal and vertical OFDI, so the differential impact of the two types of OFDI on exports cannot be tested. In the context of the deep development of vertical specialization division of labor, the value added of exports is a more accurate measure of domestic exports. The

relationship between OFDI and exports should be deepened to the relationship between OFDI, and export value added.

2.3.3 Review on the studies of the impact of OFDI on the trade structure.

Research on the scale effect of OFDI is also quite abundant. The research on the impact of OFDI on trade structure has also started to emerge gradually as the research has shifted from the aggregate trade volume to the structural level. At the macro level, in general, OFDI has an optimizing and promoting effect on the product mix of the home country trade. Vernon (1966) states that developed countries such as the United States transfer labor-intensive manufacturing to other countries, transferring low-end industries and freeing up resources for high-end industries through OFDI, promoting capital- and technology-intensive industries in the home country, and achieving structural transformation of industrial structure and export trade (Vernon, 1966). Kojima (1978) proposed the theory of marginal industry transfer and argued that OFDI should first be carried out from the marginal industries in the home country to create new comparative advantages and contribute to industrial upgrading in the home country, thus changing the export structure (Kojima, 1978). Lipsey and Weiss (1984) analyzed data on OFDI and exports in 14 industries in the United States in 1970. They found a significant positive relationship between OFDI and exports of intermediate goods and raw materials from the home country to the host country (Lipsey & Weiss, 1984). Kazuhiko (1994) studied the impact of the rapid increase of OFDI in Japan in the 1980s and found that OFDI had two effects on the export structure of the home country: first, it led to more exports of equipment and raw materials, and second, domestic production was more concentrated on high value-added products, which promoted the optimization and upgrading of Japan's trade structure.

The upgrading of export product structure is an advanced process of replacing low-end factors with high-end factors. The product upgrading effect of OFDI on the home country's export trade is concentrated on decreasing the proportion of resource and labor-intensive low-end products and increasing capital and technology-intensive high-end products. First, First, OFDI helps home countries transfer relatively backward or traditional industries to other countries or regions with dynamic comparative advantages. At the same time, some production factors will be transferred to new industries due to the transfer of traditional industries, which will help the development of new industries and promote the allocation of production factors in home countries; Secondly, OFDI helps enterprises in the home country to learn advanced production technology and management experience from the host country and transfer the technology

experience to the home country through the internal transmission mechanism to improve the technology level of the parent company.

2.3.4 Review on the studies of other associated effect of OFDI on trade.

In the context of the research theme of trade effects of OFDI, some scholars also try to take the other related effects of OFDI and trade as the starting point for their research. For example, the improvement of the technological content of export products, the adjustment of industrial structure in home countries, and technological progress in the home country have put forward many valuable ideas and conclusions accordingly. These ideas are significant for the in-depth study of the mechanism of OFDI affecting the structure of export goods.

2.4 Methodology review

Blonigen & Piger (2014) used the Bayesian method to study the influence factors of various factors on bilateral trade. In general, the main factors affecting bilateral trade include the following aspects: 1. Gravitational factor: it refers to the distance between the parent country and the host country; 2. Economic factors: These indicators mainly reflect the economic development between the home country and the host country, including macroeconomic indicators such as GDP, economic growth rate and price index; 3. Economic environment factors: it includes factors such as bilateral trade openness and investment convenience to the host country; 4. Host country business costs: mainly include the host country's trade costs, the parent country's own trade costs, parent country taxes, host country taxes, bilateral tax and investment agreements, and host country consumer prices (Blonigen & Piger, 2014). Filippaios and Papanastassiou (2008) used the two-stage least squares estimation method to analyze the direct investment of the United States in the EU core countries and EU peripheral countries from 1982 to 2002, and obtained the economic development level, labor force, intermediate products costs of the host country are all important factors affecting U.S. foreign direct investment (Filippaios & Papanastassiou, 2008); For the specific influencing factors, the "financial deepening theory" proposed by Mckinnon (1973)and Shaw (1973) in the short-term real interest rate change ΔR is negatively correlated with economic growth. Because the level of interest rates will directly affect the level of financing costs of enterprises, the increase in real interest rates will increase the burden on enterprises (McKinnon, 1973) (Shaw, 1973). It will eventually inhibit the growth of FDI by enterprises; Kohlhagen (1977) research shows that the host country's currency $\Delta EX>1$ (depreciation) relative to the investment parent country is conducive to the inflow of FDI, while $\Delta EX<1$ (appreciation) is the opposite. In the case of

incomplete information in the capital market, a country's currency devaluation will reduce its relative production cost, which can effectively promote the inflow of FDI (Kohlhagen, 1977). Goldberg and Klein (1998) used the gravity equation to estimate the impact of Japanese direct investment in East Asia on trade flows between Japan and East Asia. The results show that: Japan's direct investment in East Asia expands the import and export trade between Japan and East Asia (Goldberg & Klein, 1998). Nakamura and Oyama (1998) also used the gravitational equation but reanalyzed Goldberg and Klein's work in a different way. They classified nine East Asian economies according to their different levels of economic development and examined Japan's direct investment in different categories of economies and trade relations between these economies and Japan (Nakamura & Oyama, 1998). It shows that Japan's direct investment in East Asia increases the trade between East Asia and Japan, however, this has no relations with the stage of economic development of each country.

Latorre and Hosoe (2016) use recursive dynamic computable general equilibrium models for Japan, China, and the rest of the world to analyze the impact on China of the sharp decline in Japanese MNEs' OFDI after the 2009 global financial crisis. The decline in foreign direct investment by Japanese companies will reduce exports and production of Japanese multinationals' subsidiaries in China and depreciate the Chinese currency (CNY). A depreciation of the CNY would be good for China's manufacturing sector, while the services sector would shrink even more than manufacturing growth. Overall, the decline in foreign direct investment by Japanese companies has had a certain inhibitory effect on China's economic growth (Latorre & Hosoe, 2016).

Inhwan (2008) analyzed the impact of Japan's foreign direct investment on manufacturing trade during 1989-2004. Regression analysis is carried out on the net exports of selected 6 Asian countries in the primary sector, and the results show that some OFDI increases the volume of manufacturing trade, and some OFDI tends to reduce the bilateral trade volume (Inhwan, 2008). Therefore, OFDI and trade in manufacturing can be both substitutional and complementary. Specifically, Japanese OFDI reduced Japan's bilateral trade with the Philippines, Indonesia, and Thailand. It increased bilateral trade between Japan and India and Malaysia.

The Knowledge-Capital model was gradually refined after the empirical tests in 2001. Markusen et al. emphasize that one of the fundamental differences in MNC theory is the difference between the two types of MNCs. Furthermore, this proposition has been proved by

Carr, Markusen & Maskus, 2001. Carr, Markusen & Maskus, 2001found that the main objective of horizontal MNCs is to capture the host country's market to expand their sales channels, while the main objective of vertical MNCs is to take advantage of the factor endowments of the host country for export to improve competitiveness (Carr, Markusen, & Maskus, 2001).

Brainard (1993) proposes a measure of vertical OFDI by using the quantity of products exported by foreign affiliates to the home country as the quantity of vertical OFDI ((Brainard, 1993). Feenstra (2004) states that the dependent variable of horizontal OFDI should be the sales in the host market, and the dependent variable of vertical OFDI should be the export volume of the MNC's subsidiaries (Feenstra, 2004). However, these methods are based on the micro-level. Chinese data in this area are still challenging to obtain, so it is not feasible to use these methods for quantitative analysis of vertical and horizontal OFDI in China. Due to the lack of sufficient MNC-level data, this study decided to use the national-level OFDI stock as the sales of MNCs in the host country. At the same time, since vertical and horizontal OFDI coexist, it is not easy to classify them precisely. Hence, we combine vertical and horizontal motives in the knowledge-capital model to empirically analyze the dynamics of Chinese OFDI from a country perspective.

Carr, Markusen & Maskus (2001) use a panel model of the overseas production activities of U.S. multinationals from 1986to 1994 to do the test and is one of the earliest research projects to examine the knowledge capital model (Carr, Markusen, & Maskus, 2001). It became the benchmark paradigm for subsequent tests and applications of the knowledge capital model. Review the research on knowledge capital models by different scholars. Most of them are based on data from developed countries, for example, the United States, and the research results support the horizontal MNC investment model. This study will analyze the OFDI from China, a developing country.

2.5 Summary of literature review

The literature above investigates trade scale and structure from the theoretical basis and influencing factors. Theoretical background brings a factual basis to the study, and empirical studies provide a reference for the study regarding influencing factors and research methods. However, the current study has many drawbacks. In the process of studying bilateral trade, many scholars only focus on one aspect, such as describing the complementarity or competitiveness of bilateral trade, either using overall textual arguments or simple indicator

arguments, lacking comprehensive empirical analysis and data support. In addition, from the perspective of research content, the materials on the impact of OFDI on the trade scale are relatively sufficient. The resources on the impact of OFDI on trade structure are relatively scarce. From the perspective of research objects, most of the literature is based on developed countries, mainly focusing on the impact of OFDI on the trade scale in the United States and Japan. The literature on the impact of OFDI on the trade scale in countries along the BRI is scarce.

Therefore, in the context of economic globalization and further cooperation between China and countries along the BRI, this study takes 16 CEECs along the BRI as the research object and studies the relationship between China's OFDI and bilateral trade by constructing a knowledge capital model. The study hopes to make suggestions on China's future investment and trade in CEECs, as well as the optimization of domestic industrial structure and the direction of industrial transfer, and to promote China to find a better economic development point.

3.0 The analysis of bilateral trade between China and CEECs

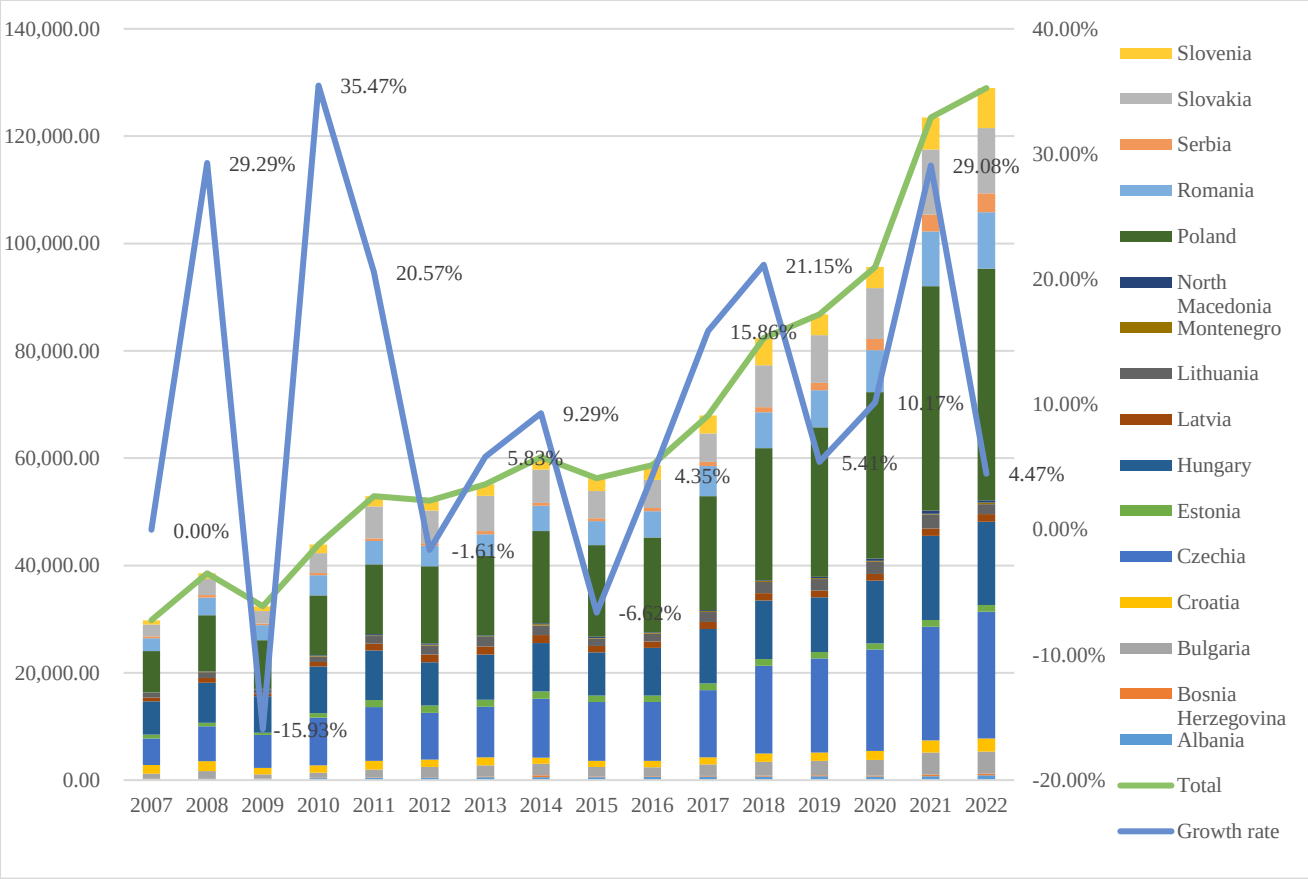
As the cooperation between China and CEECs deepens, bilateral trade has become increasingly frequent, with its scale is steadily expanding. Since the introduction of the BRI in 2013, the import and export trade between China and CEECs has exhibited continuous growth (Tang, 2020). According to the UN COMTRADE database, the total trade volume between China and 16 CEECs reached USD 123.45 billion in 2021, historically surpassing the USD 100 billion bottleneck, with a growth rate of 29.08% compared to the same period of the previous year. Analyzing the bilateral trade status helps to judge the future direction of China-CEECs trade cooperation from a macro perspective. This chapter analyzes trade from the perspective of trade sale and trade structure, hoping to comprehensively present the characteristics of bilateral trade between China and CEECs.

3.1 Analysis of the total trade scale between China and CEECs

The scope of bilateral trade between China and the CEECs has expanded dramatically in recent years, and the two parties have become more intimate trading partners. As can be seen in *Figure 3.1*, there has been a general upward trend in the total trade volume between China and the CEECs since 2007. As China joins the WTO and part of the countries in the CEE region join the European Union, bilateral trade between China and CEECs has become rapidly closer. Among them, Hungary, Poland, and the Czech Republic have a more favorable political and

economic environment than other countries. China thus enjoys the closest bilateral trade relations with the three nations mentioned above. Bilateral trade between China and the CEECs fell in 2009 as a result of the effects of the world financial crisis. However, bilateral trade between CEECs swiftly recovered as the world economy began to revive. The growth rate of total trade in 2010 became the highest in the next ten years, reaching 35.47%. Subsequently, the European sovereign debt crisis dealt a severe blow to the CEECs, causing the growth rate of trade volume between China and the CEECs to slow down. Bilateral trade between China and Central and Eastern Europe has resumed rapid growth since 2017. By 2019, the bilateral trade volume between China and CEE reached 86.81 billion USD. The COVID-19 pandemic had a devastating effect on the world economy in 2020. The world economy is trending downhill, the global supply chain has been stagnant for a considerable amount of time, and the expansion of bilateral trade between China and the CEECs has slowed down once more.

Figure 3.1 Total bilateral trade volume between China and 16 CEECs from 2007 to 2022, Million USD

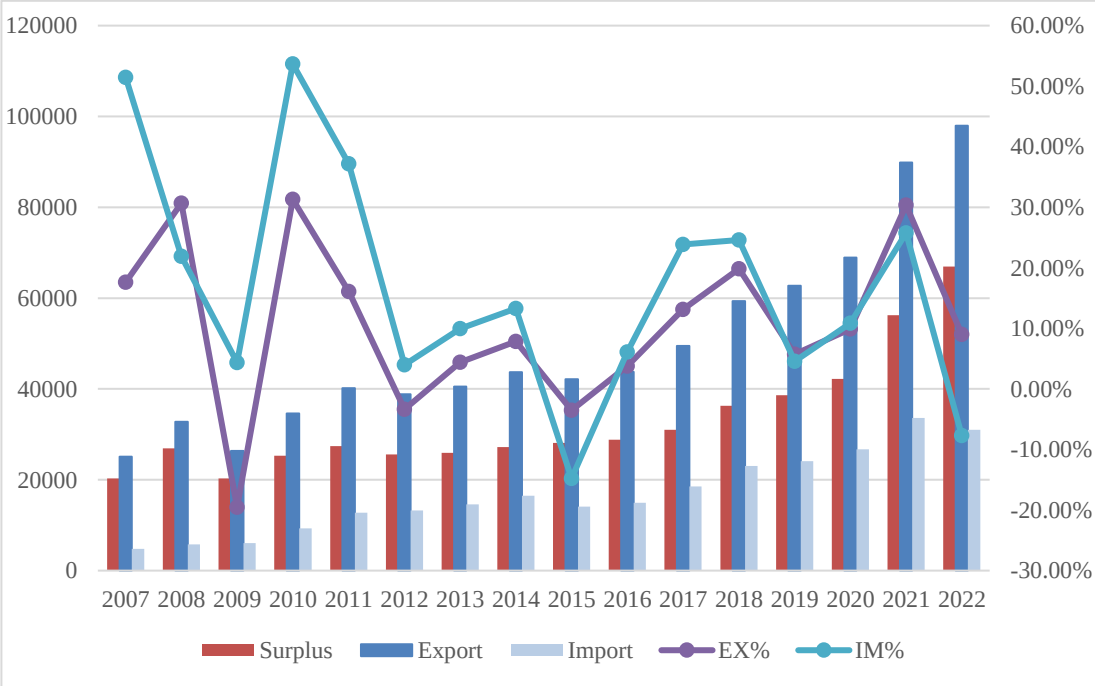


Source: Author's analysis of UN Comtrade data

The global economy is starting to open up again with the start of the post-epidemic era, and bilateral trade between China and the CEECs has surpassed the benchmark of 100 billion US dollars, reaching 123.45 billion US dollars in 2021.

Analyzing China's import and export volume with CEECs, a long-term trade surplus can be observed in *Figure 3.2*, the scale of exports is always greater than the scale of imports. CEECs's exports to China have shown year-on-year growth, with an average annual growth rate of 7% from 2008 to 2017. However, this growth rate is relatively slow compared to CEECs's imports from China. In terms of the trade balance, the growth rate of China's exports to CEECs surpasses that of CEECs's exports to China. The trade balance increased from -15.5 billion USD in 2007 to -37.7 billion USD a decade later, indicating an approximately 2.5 times increase. Over the course of ten years, the trade balance amounted to about 30 trillion CNY. As the rate of exports notably surpasses that of imports, the trade ties between China and the CEECs remain ripe for further expansion, CEECs may contemplate augmenting their imports from China to cater to domestic needs or enhance their supply chains. Simultaneously, China can explore additional export avenues in the markets of CEECs, thereby increasing its market share.

Figure 3.2 Import and export volume and trade balance between China and CEECs, Million USD (2007-2022)



Source: Author's analysis of UN Comtrade data

The cultivation of such a trade relationship has the potential to foster mutual economic growth and benefits for both parties. The analysis shows that China's exports to CEECs have experienced significantly faster growth than imports, indicating substantial potential for further trade development between the two regions.

3.1.1 Analysis of export scale

The coronavirus outbreak in 2020 affected foreign trade in countries around the world. The growth rate of China's total exports to Central and Eastern Europe has declined. *Table 3.1* shows the data on China's exports and year-on-year growth rate with 16 CEECs. From an overall perspective, China's total exports to 16 CEECs in 2022 amounted to about USD 97.96 billion, with a year-on-year growth rate of 9%. Notably, China continues to maintain a surplus position in trade cooperation with CEECs.

Table 3.1 China's Export Scale to 16 CEECs, Million USD

Country	Million USD in 2022		Δ2022/2021	
	Total Trade volume	Export Volume	Total Trade Growth	Export Growth
Albania	890.38	704.08	18.9%	20.5%
Bosnia Herzegovina	307.99	185.28	12.4%	35.9%
Bulgaria	4,123.67	2,852.00	0.6%	24.0%
Croatia	2,424.21	2,265.54	5.7%	15.9%
Czechia	23,646.82	18,227.39	11.9%	20.8%
Estonia	1,247.94	946.57	-3.1%	-6.0%
Hungary	15,521.96	10,472.66	-1.0%	3.5%
Latvia	1,400.71	1,025.34	1.4%	-10.2%
Lithuania	1,880.67	1,789.75	-28.2%	-18.2%
Montenegro	266.22	219.02	148.6%	128.7%
North Macedonia	413.90	234.93	-29.6%	5.7%
Poland	43,222.76	38,163.11	3.3%	5.2%
Romania	10,471.84	7,397.19	3.1%	11.2%
Serbia	3,551.86	2,176.82	10.05%	-2.4%
Slovakia	12,145.47	4,435.77	0.5%	-2.3%
Slovenia	7,450.73	6,861.23	25.7%	29.5%
16+1 Countries	128,967.14	97,956.68	4.5%	9.0%

Source: Author's analysis of UN Comtrade data

From a country perspective, China's exports are concentrated in five countries, namely Poland, the Czech Republic, Hungary, Romania, and Slovenia. The total export volume from China to the above five countries accounts for 82.81% of China's total exports to the 16 CEECs. The volume of exports from China coincides with the economic volume of cooperating countries.

A country with a larger economic volume can absorb China's exports more easily. The three countries with the negative growth rates in export trade are Estonia, Latvia, and Lithuania. The negative growth of Chinese exports to those three countries was expected, as Lithuania, Estonia and Latvia announce to cease the participation of "16+1" mechanism successively.

3.1.2 Analysis of import scale

From the analysis of the import trade volume, China's import trade volume from 16 countries in 2022 was about 31.01 billion U.S. dollars, with a negative increase rate of -7.7% compared with last year. Slovakia, the Czech Republic, Poland, Hungary, and Romania stably occupy the top five importing countries, accounting for 84.85% of the total import volume. China's import trade volume from Baltic States is relatively small, with the sum of the three countries accounting for only 2.5% of China's total import volume from 16 CEECs. China has a trade surplus with 16 CEECs, so there is still room for China's imports from 16 CEECs to rise, and the Chinese market is gradually becoming one of the most important export markets for 16 CEECs. Surprisingly, the growth rate of imports from Montenegro reached 316.6%. The fastest growth rate may be explained by very small trade volume between China and Montenegro.

Table 3.2 China's Import Scale from 16 CEECs, Million USD

Country	Million USD in 2022		Δ2022/2021	
	Total Trade volume	Import Volume	Total Trade Growth	Export Growth
Albania	890.38	186.30	18.9%	13.3%
Bosnia Herzegovina	307.99	122.71	12.4%	-10.8%
Bulgaria	4,123.67	1,271.67	0.6%	-29.3%
Croatia	2,424.21	158.67	5.7%	-53.3%
Czechia	23,646.82	5,419.43	11.9%	-10.5%
Estonia	1,247.94	301.37	-3.1%	7.1%
Hungary	15,521.96	5,049.30	-1.0%	-9.4%
Latvia	1,400.71	375.37	1.4%	57.0%
Lithuania	1,880.67	90.92	-28.2%	-79.0%
Montenegro	266.22	47.21	148.6%	316.6%
North Macedonia	413.90	178.97	-29.6%	-51.1%
Poland	43,222.76	5,059.65	3.3%	-8.7%
Romania	10,471.84	3,074.65	3.1%	-12.3%
Serbia	3,551.86	1,375.03	10.5%	39.8%
Slovakia	12,145,47	7,709.70	0.5%	2.2%
Slovenia	7,450.73	589.50	25.7%	-6.7%
16 Countries	128,967.14	31,010.45	4.5%	-7.7%

Source: Author's analysis of UN Comtrade data

From a country perspective analysis, China's import trade varies significantly with different CEECs. Visegrád Countries, Slovakia, Czech Republic, Poland, Hungary, which have good resource endowments and larger economies, account for a considerable share of China's imports, nearly 75%. In contrast, countries with smaller economies or no obvious resource endowment advantages are disadvantaged in their exports to China, such as Bosnia and Herzegovina, and Montenegro

3.2 Analysis of the trade structure between China and CEECs

We use commodity SITC code in this chapter to analyze the bilateral trade structure between China and CEECs. The mainstream commodity structural classification refers to the Standard International Trade Classification (SITC), SITC 0-4 are primary products, and SITC 5-9 are manufactured products. A better trade structure is indicated if a sizable portion of bilateral trade is manufactured commodities. However, this classification scheme is a little crude. This chapter examines the bilateral trade structure from the perspectives of production factors and product technical level, respectively. This approach is more thorough. It is more apt to capture the features of bilateral trade between China and CEECs.

3.2.1 Analysis of the trade structure based on the density of factors.

Based on the one-digit Standard International Trade Classification (SITC Rev.4), this Chapter uses the products classification method from Yilmaz (2002), dividing the trade products between China and 16 CEECs into four categories, as shown in the Table 3.3.

Table 3.3 The Product Structure Division from Factor Density Dimension

Categories	Corresponding SITC Code
Resource Intensive Product (RP)	SITC0, SITC2, SITC3, SITC4
Labor Intensive Product (LP)	SITC6, SITC8
Capital Intensive Product (CP)	SITC1, SITC5
Technology Intensive Product (TP)	SITC7

Source: Author's Construction

According to the data in Table 3.4, the scale of China's various export products to Central and Eastern European countries generally shows an upward trend. Technology-intensive products always have the highest trade volume, accounting for more than 50% of the China's total export to CEECs since 2007. While the Resource-intensive products always ranked last, having only less than 5% proportion. From the perspective of growth rate, capital-intensive products ranked first with an average annual growth rate of 36.44% in the past 15 years, followed by technology-intensive and labor-intensive products. The last one is resource-intensive products, its average annual growth rate is only 7.30%. From the perspective of export proportion to

CEECs, the proportion of labor-intensive products in China's exports has shown a downward trend. At the same time, resource-intensive products also experienced a decline in the proportion of exports. While the export proportion of technology-intensive products and capital-intensive products shows an upward trend.

Table 3.4 Analysis of trade scale and growth rate of China's Exports Commodities to CEECs from factor density dimension, 2007-2022

Year	RP		LP		CP		TP	
	Volume (Million USD)	Growth Rate (%)	Volume (Million USD)	Growth Rate (%)	Volume (Million USD)	Growth Rate (%)	Volume (Million USD)	Growth Rate (%)
2007	679.19		12389.91		1275.22		14393.40	
2008	888.27	30.78%	15271.75	23.26%	1509.91	18.40%	19557.65	35.88%
2009	675.61	-23.94%	10881.33	-28.75%	1176.97	-22.05%	17425.92	-10.90%
2010	839.00	24.18%	13889.46	27.64%	1575.02	33.82%	22680.53	30.15%
2011	1095.09	30.52%	16821.47	21.11%	2150.52	36.54%	24584.19	8.39%
2012	949.32	-13.31%	17389.77	3.38%	2161.55	0.51%	22383.40	-8.95%
2013	952.22	0.30%	17980.21	3.40%	2277.24	5.35%	23029.62	2.89%
2014	986.52	3.60%	19269.89	7.17%	2462.06	8.12%	25662.31	11.43%
2015	863.67	-12.45%	18685.49	-3.03%	2331.83	-5.29%	24376.96	-5.01%
2016	831.88	-3.68%	20002.89	7.05%	2322.55	-0.40%	25184.47	3.31%
2017	923.84	11.06%	23202.00	15.99%	2765.64	19.08%	27730.97	10.11%
2018	1114.42	20.63%	27041.02	16.55%	3433.41	24.15%	34472.69	24.31%
2019	1038.08	-6.85%	28697.65	6.13%	3645.76	6.18%	37243.45	8.04%
2020	970.98	-6.46%	28898.88	0.70%	4169.86	14.38%	41823.21	12.30%
2021	1051.68	8.31%	37993.14	31.47%	6362.61	52.59%	55901.33	33.66%
2022	1423.05	35.31%	39226.90	3.25%	8246.39	29.61%	61653.78	10.29%

Source: Author's Analysis of UN Comtrade Database

Table 3.5 shows that the scale of various China's import commodities from CEECs has also shown an upward trend. From the perspective of growth rate, the changes in import commodity structure are completely different from the export commodities. Resource-intensive products ranked first with an average annual growth rate of 39.67%, followed by technology-intensive and labor-intensive products. The capital-intensive products ranked last, with an average growth rate of 26.77%. From the perspective of import proportion from CEECs, the proportion of labor-intensive products also shows a downward trend. And the import proportion of technology-intensive products still remains an upward trend. The import proportion of resource-intensive and capital-intensive products is relatively low, fluctuating around the 10% level.

Table 3.5 Analysis of trade scale and growth rate of China's Imports Commodities from CEECs from factor density dimension, 2007-2022

Year	RP		LP		CP		TP	
	Volume (Million USD)	Growth Rate (%)	Volume (Million USD)	Growth Rate (%)	Volume (Million USD)	Growth Rate (%)	Volume (Million USD)	Growth Rate (%)
2007	584.00		995.23		417.23		2955.66	
2008	551.82	-5.51%	1461.00	46.80%	431.36	3.39%	3562.88	20.54%
2009	579.55	5.02%	1563.21	7.00%	477.78	10.76%	3667.91	2.95%
2010	1289.62	122.52%	2002.04	28.07%	648.68	35.77%	5783.41	57.68%
2011	1434.04	11.20%	2907.60	45.23%	625.94	-3.51%	8191.28	41.63%
2012	1573.09	9.70%	3221.15	10.78%	701.25	12.03%	8283.60	1.13%
2013	2169.17	37.89%	3555.59	10.38%	835.85	19.19%	8683.39	4.83%
2014	2098.98	-3.24%	4219.73	18.68%	957.16	14.51%	9837.27	13.29%
2015	1518.35	-27.66%	3859.31	-8.54%	970.82	1.43%	8207.76	-16.56%
2016	1434.13	-5.55%	3644.60	-5.56%	876.60	-9.70%	9424.38	14.82%
2017	1913.78	33.45%	4839.41	32.78%	1053.85	20.22%	11266.10	19.54%
2018	2138.14	11.72%	5347.81	10.51%	1281.17	21.57%	15050.03	33.59%
2019	2616.44	22.37%	5895.92	10.25%	1456.49	13.69%	15224.98	1.16%
2020	2626.73	0.39%	6363.05	7.92%	1689.63	16.01%	17276.16	13.47%
2021	3664.45	39.51%	7834.19	23.12%	2035.32	20.46%	21499.60	24.45%
2022	4058.70	10.76%	6009.23	-23.29%	2092.38	2.80%	20203.33	-6.03%

Source: Author's Analysis of UN Comtrade Database

3.2.2 Analysis of trade structure based on the commodity's technical complexity.

Lall (2000) divided trade commodities into primary products, resource-intensive manufactured products, low-tech manufactured products, medium-tech manufactured products and high-tech products based on the three-digit SITC codes (Lall, 2000). In this Chapter, we combine the first three categories as low-tech manufacturing products, remain the medium-tech manufactured products and high-tech products classification as the same shown in Table 3.6.

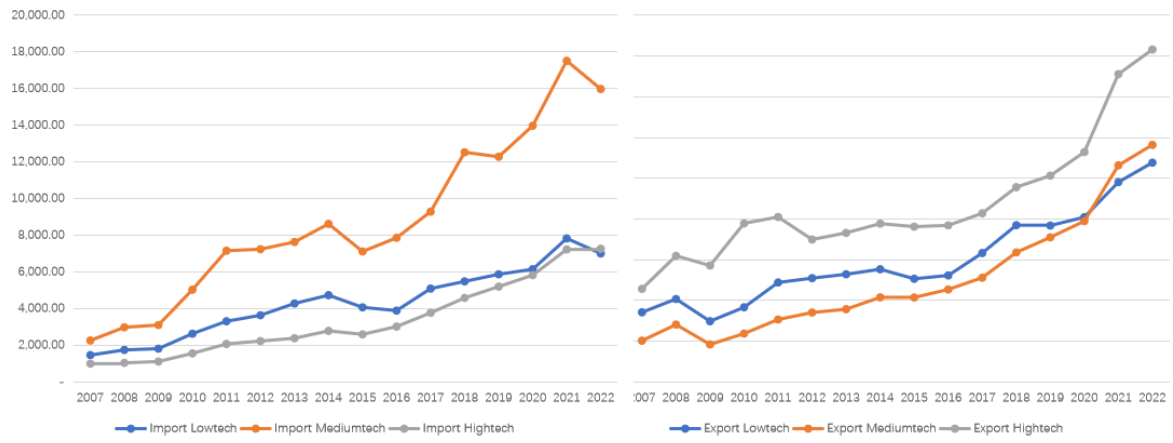
Figure 3.7 shows the analysis results of the structural changes of trading products between China and CEECs. China's import of medium-tech products shows the highest import values throughout most of the period, with a sharp increase from 2019 to 2021, followed by a slight decline in 2022. Low-tech and high-tech imports follow similar trajectories, with high-tech imports surpassing low-tech imports around 2019. Regarding the export from China to CEECs, High-tech products show the most significant growth, particularly from 2020 onwards, surpassing both medium-tech and low-tech exports. A notable inflection point occurs around 2019-2020 for both imports and exports across all tech levels. These findings suggest an evolving trade landscape with an increasing emphasis on higher technology products, both in terms of imports and exports. The data indicates a potential shift in the economic structure towards more advanced technological capabilities, particularly evident in the export trends.

Table 3.6 Three-digit SITC code classification

low-tech products	medium-tech products	high-tech products
001, 011, 012, 016, 017, 022, 023, 024, 025, 034, 035, 036, 037, 041, 042, 043, 044, 045, 046, 047, 048, 054, 056, 057, 058, 059, 061, 062, 071, 072, 073, 074, 075, 081, 091, 098, 111, 112, 121, 122, 211, 212, 222, 223, 231, 232, 244, 245, 246, 247, 248, 251, 261, 263, 264, 265, 268, 269, 272, 273, 274, 277, 278, 281, 282, 283, 284, 285, 286, 287, 288, 289, 291, 292, 321, 322, 325, 333, 334, 335, 342, 343, 344, 345, 411, 421, 422, 431, 511, 514, 515, 522, 523, 524, 531, 532, 551, 592, 611, 612, 613, 621, 625, 629, 633, 634, 635, 641, 642, 651, 652, 654, 655, 656, 657, 658, 659, 661, 662, 663, 664, 665, 666, 667, 673, 674, 675, 676, 677, 678, 681, 682, 683, 684, 685, 686, 687, 689, 691, 692, 693, 694, 695, 696, 697, 699, 821, 831, 841, 842, 843, 844, 845, 846, 848, 851, 893, 894, 895, 897, 898, 899	266, 267, 512, 513, 533, 553, 554, 562, 571, 572, 573, 574, 575, 579, 581, 582, 583, 591, 593, 597, 598, 653, 671, 672, 679, 711, 713, 714, 721, 722, 723, 724, 725, 726, 727, 728, 731, 733, 735, 737, 741, 742, 743, 744, 745, 746, 747, 748, 749, 762, 763, 772, 773, 775, 781, 782, 783, 784, 785, 786, 791, 793, 811, 812, 813, 872, 873, 882, 884, 885, 891	525, 541, 542, 712, 716, 718, 751, 752, 759, 761, 764, 771, 774, 776, 778, 792, 871, 874, 881

Source: Author's construction

Figure 3.7 The changes of China's Import and Export Commodity Structure, (2007-2022)



Source: Author's analysis of UN Comtrade data

3.3 Challenges of bilateral Trade between China and CEECs

Although trade cooperation between China and Central and Eastern European countries has achieved impressive results and has a prosperous development space, comprehensive cooperation between the two parties is still in its infancy. Lack of sufficient practical experience exists, and other factors still restrict the deepening of trade cooperation between the two parties. First, the share of China's imports from CEECs is generally low. In contrast to China's exports to the rest of the world, the country's share of exports to the CEECs is still relatively small, despite continuous growth. This is because China still lacks sufficient understanding of CEECs, making it difficult to grasp reasonable market entry points, thus compressing the room for improving trade between the two parties. On the other hand, the tendency of diplomatic relations also affects the willingness of CEECs to cooperate with China to a certain extent. Most of the CEECs are member states of the European Union, they are more inclined to choose EU countries when carrying out foreign cooperation and give priority to trade within the EU. If the economic growth of Western European countries recovers, the policy orientation of some CEECs towards China is likely to change, which will also bring great uncertainty to China's policy coordination and become a major obstacle for China to further deepen trade cooperation with CEECs.

In addition, CEECs are geographically important. They're the hubs that connect the Eurasian continent. In recent years, as the "16+1" cooperation continues to mature and the BRI construction continues to deepen in CEECs, the exchanges between China and CEECs have increased in various fields, which has aroused concerns from major powers around the world. To limit collaboration between China and the CEECs, certain measures have been implemented. For instance, the United States has continuously strengthened its political and military relations with CEECs, which has hampered the connectivity between China and CEECs, thus inhibiting economic and trade exchanges between the two sides. The EU has also publicly opposed the "long-term" and "institutionalized" relations between China and CEECs and has tightened the constraints on the public debt and fiscal deficit ratios of CEECs, forcing CEECs to give up some project cooperation that relies on debt financing, which has indirectly slowed down the pace of "16+1" cooperation. Interference is everywhere. It further increases the risks for Chinese enterprises to explore the CEE markets, thus bringing difficulties to the win-win development of trade cooperation between the two parties.

Furthermore, the global economy does not have a strong basis for a prolonged recovery, and trade protectionism is becoming more intense. Global trade growth is decreasing as a result of the emergence of new trade protection measures, including localization requirements, government subsidies, and government procurement priorities, in addition to traditional trade protection measures such as tariff barriers, bans, and quotas. At the same time, China maintains a high surplus in trade cooperation with CEECs. As shown in *Figure 3.2*, the surplus expanding from 20.29 billion USD in 2007 to 66.95 billion USD in 2022, with an average annual increase rate of 15.33%. The expansion of total trade volume between the two parties did not reduce the share of trade surplus so much. It can be presumed that the surplus position cannot be reversed in a short period of time, China will still maintain a surplus position with CEECs in the near future. Maintaining a high surplus for a long time may limit the potential of trade cooperation between China and CEECs to a certain degree. Simultaneously, CEECs typically embrace EU standards, which have stringent restrictions. Chinese enterprises have to invest more energy and money in adapting to those requirements. It will seriously affect the efficiency of trade and the enthusiasm of Chinese companies, thus causing certain obstacles to the long-term and sustainable growth of trade cooperation between China and the CEECs.

Besides that, the imbalance in trade cooperation also creates resistance. Trade cooperation differs significantly between countries. Poland has long been China's top trade partner in CEECs, with total trade volume amounting to about 43.22 billion USD in 2022, accounting for 33.51% of China's total trade with 16 CEECs. The imbalance of trade cooperation between countries is obvious. The different development levels of each country in CEE caused this imbalance in trade cooperation. The continuous improvement of the future "16+1" cooperation mechanism should pay attention to the balanced development of inter-regional cooperation. Moreover, the trade structure is single, with the import and export of high-tech products accounting for 57.33% of the total trade volume in 2022. China has actively invested in the infrastructure construction of CEECs and exported many high-end manufacturing products to promote trade cooperation with CEECs. The imbalance in trade commodity structure also hampered cooperation between China and CEECs. The cooperation field needs to be expanded. Finally, facility connectivity is the driving force for promoting international trade cooperation. It is impossible to achieve the rapid development of trade exchanges without adequate guarantees of facility connectivity. Although the level of connectivity between China and CEECs has continued to improve with the implementation of BRI, the lagging infrastructure

level of CEECs is still a key factor that hinders cooperation between China and CEECs. As the scale of trade between China and CEECs expands, the existing stock of facilities in CEECs can no longer meet the growing demand, and the rising resistance to the flow of factors within CEECs has become a constraint for cooperation. It is an important bottleneck that not only inhibits the enthusiasm of both parties for interaction but also harms the deepening of economic and trade cooperation between the two parties.

3.4 Summary of Chapter 3

This chapter analyzed the current situation of bilateral trade development between China and CEECs in the context of the "16+1" cooperation mechanism and found that trade cooperation between the two parties shows a positive development trend, with expanding trade volumes and a strong willingness to cooperate. However, there are still some challenges and imbalances in their trade relationship.

First, China has consistently maintained a trade surplus with CEECs, which has increased significantly over the years. This long-term surplus may limit the potential for further trade cooperation. Additionally, there are notable differences in trade cooperation among the various CEECs, with some countries, such as Poland, accounting for a much larger share of the total trade volume. This imbalance in trade cooperation creates resistance and highlights the need for more balanced development within the "16+1" cooperation mechanism. Moreover, the trade structure between China and CEECs is also relatively homogeneous, with a high concentration of high-tech product exports from China. This single trade structure emphasizes the need for diversification and expansion of cooperation fields to foster more sustainable and mutually beneficial trade relations.

Despite these challenges, the "16+1" cooperation mechanism has contributed to the growth of bilateral trade between China and CEECs, even amidst global economic crises and the COVID-19 pandemic. As this mechanism matures and evolves, it is expected to continue driving trade cooperation between the two parties.

To further enhance trade relations, China and CEECs should address the trade imbalances, promote more balanced development among the CEECs, diversify their trade structure, and expand cooperation into new fields. By tackling these challenges and leveraging the potential of the "16+1" cooperation mechanism, China and CEECs can build a more robust, sustainable, and mutually beneficial trade partnership in the future.

4.0 The analysis of China's OFDI in CEECs

China's OFDI in CEECs has exhibited a consistent upward trajectory in recent years. Chinese companies have shown growing interest in various sectors within this region, with a particular focus on infrastructure, manufacturing, finance, and high-tech industries. Notably, China's OFDI frequently entails the transfer of technology and management expertise, thereby bolstering the production capacity and competitiveness of CEECs.

4.1 Overview of China's OFDI in CEECs

Investment cooperation between China and CEECs developed relatively late. The OFDI from China to CEECs only began to develop in the 21st century. However, China's OFDI in CEECs is progressing rapidly, and its scale continues to expand. China's OFDI in 16 CEECs encompasses various sectors, including infrastructure construction, energy, manufacturing, finance, and agriculture. Notably, infrastructure construction plays a crucial role and includes projects such as ports, railways, roads, and bridges. Energy cooperation is also a significant focus, with Chinese companies investing in various energy projects, including power stations, wind power, and solar energy (Sohail, Zatullah, & Li, 2021). Furthermore, collaboration in the manufacturing industry is steadily growing, with involvement in areas such as automobile manufacturing, machinery manufacturing, and electronic products. OFDIs in CEECs tend to concentrate on specific countries and projects, with Hungary, Serbia, Romania, and other countries attracting considerable attention as investment targets. Hungary plays a pivotal role as a strategic partner for China in the region, with notable cooperation projects like the Hungary-Serbia Railway serving as prominent examples (Shuyan & Fabuš, 2019) (Saud, Chen, Haseeb, Khan, & Imran, 2019). Chinese investments in Serbia primarily focus on infrastructure development, particularly the Belgrade railway project. Additionally, Romania is a major collaborator in the energy sector, involving projects related to nuclear energy, oil, and gas, among others.

The Western Balkan countries account for approximately 79% of China's infrastructure development initiatives in CEECs. Predominantly funded by Chinese loans, these projects cover a significant portion, ranging from 75% to 85% of the total project costs, surpassing the Gross Domestic Product (GDP) of the recipient economies. Specifically, Chinese loans represent approximately 18% of Montenegro's GDP, 12% of Serbia's GDP, 10% of Bosnia and Herzegovina's GDP, and 7% of North Macedonia's GDP. China adopts a diverse range of investment and cooperation approaches in CEECs. In addition to the sole investments, these

countries also promote joint ventures and collaborative projects (Jaklič, Obloj, Svetličič, & Kronegger, 2020) (Wu & Chen, 2021).

The China-Europe Railway Express, as a vital transportation route in the Eurasian continent, has experienced significant growth over the past decade. It has established connections between 108 cities in China and 208 cities in 25 European countries. In 2022, the number of operated trains reached 16,000, showing a 9% year-on-year increase. Furthermore, the successful opening of the southbound passage has introduced a new transportation solution to Europe. Countries such as Poland, Hungary, and Slovakia have emerged as crucial hubs and destinations for the China-Europe Railway Express. Concurrently, the construction of the China-Europe land-sea express line is actively progressing, fostering closer cooperation in port logistics between China and countries like Poland, Slovenia, and Croatia. These endeavors facilitate multi-dimensional and diversified connectivity, offering opportunities for joint ventures and cooperative development projects that can enhance collaboration between the two parties. China's investments in CEECs create opportunities for mutually beneficial cooperation, stimulating economic growth, generating employment, and providing access to capital, technology, and market opportunities for CEECs.

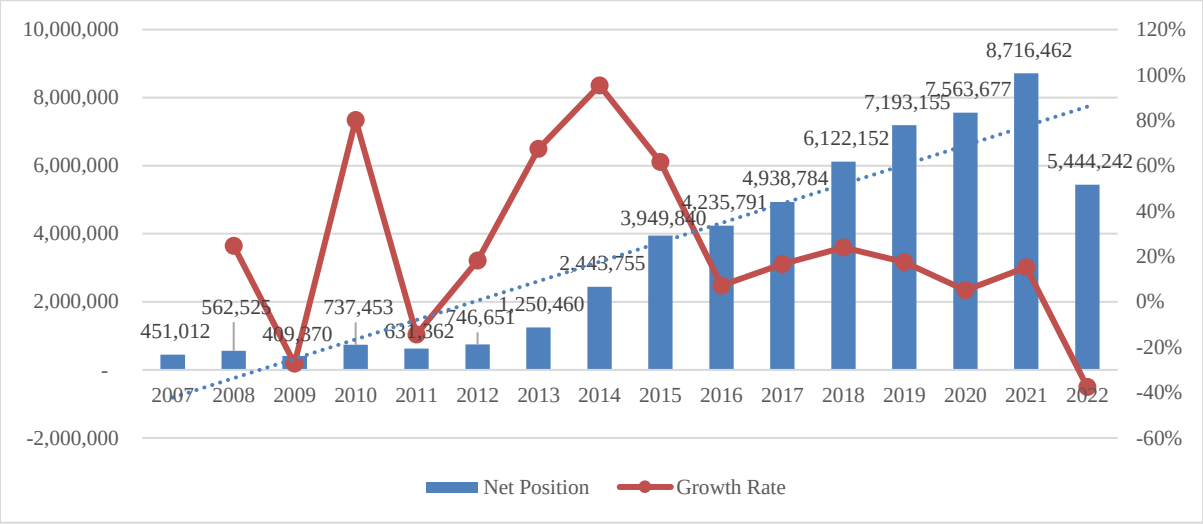
4.1.1 Analysis of China's OFDI flows & stock in CEECs.

The scale of OFDI in CEECs has consistently grown in recent years with the establishment of the "16+1" cooperation mechanism playing a significant role in fostering this growth. Specific investment data reveals that China's total OFDI in CEECs has surpassed billions of dollars. The introduction of the BRI has presented both opportunities and challenges to bilateral development and has been a key driver of OFDI in the region. An analysis of relevant materials indicates that China's OFDI flows in CEECs was a mere $451 million in 2007. However, by 2022, this figure had skyrocketed to 5444 million USD (Appendix C), reflecting an astonishing growth rate of 100 times. Such remarkable achievements have been made possible through the concerted efforts of countries involved in deepening their cooperation.

As illustrated in *Figure 4.1,* investment stock data demonstrates that since 2008, China's investment stock in the 16 CEECs has consistently increased yearly. This growth can be attributed to several factors. Firstly, the investment environment in CEECs has improved, fostering an attractive landscape for foreign investors, including China. Secondly, China's overall economic strength has strengthened over time, contributing to increased investment capacity. Additionally, the political stability of CEECs and the rise in residents' income levels

have played a significant role in attracting foreign investment. As emerging markets, these countries actively seek foreign investments to diversify their economic structures beyond the dominance of the European Union and explore new avenues for development. This favorable environment presents promising prospects and ample room for the continued growth of OFDI in CEECs (Jovičić, Stevanović, & Beraha, 2020) (Zeng & Li, 2019).

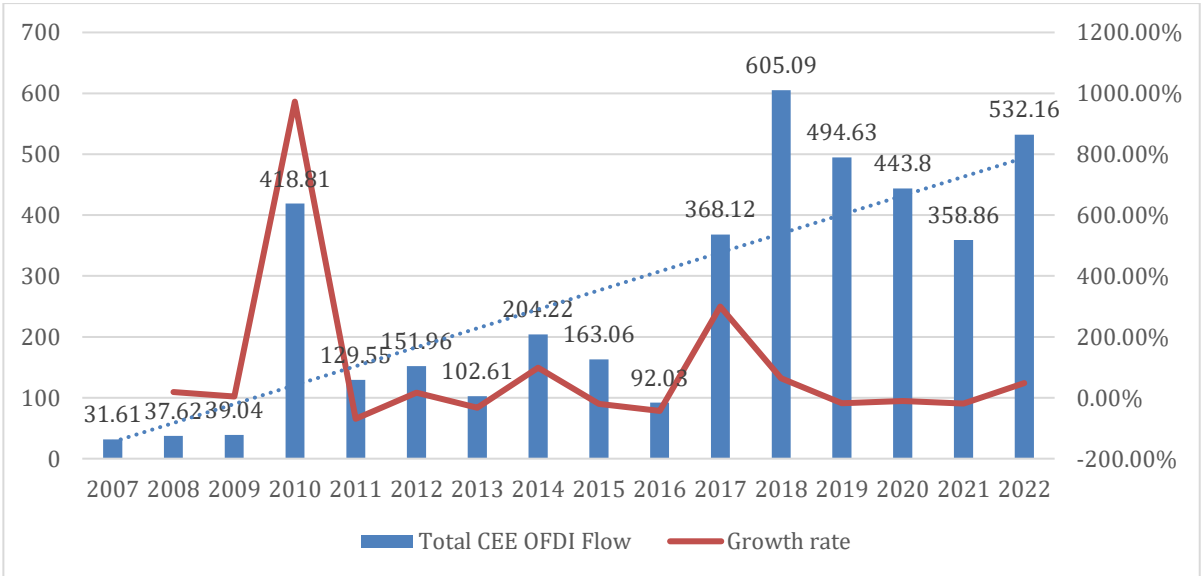
Figure 4.1 China's OFDI stock in CEECs from 2007-2022 (Thousand USD)



Source: Author's analysis of OCED FDI position from receivers, CEECs national bank FDI inflow data, and China's OFDI data from MOFCOM.

Analysis of the data presented in Figure 4.2 reveals that OFDI in CEECs is notably influenced by global economic fluctuations and external factors (Völgyi & Lukács, 2021) (Sutherland, Anderson, Bailey, & Alon, 2020) (Peng, Tan, Managi, & Taghizadeh-Hesary, 2022).

Figure 4.2 China's OFDI flows in CEECs from 2007-2022 (Thousand USD)



Source: Author's analysis of OCED FDI position from receivers, CEECs national bank FDI inflow data, and China's OFDI data from MOFCOM.

The direction of China's OFDI in CEECs is shaped by China's global investment strategy while also being influenced by region-specific factors. These factors encompass geography, government policies, industry demands and dynamic processes, necessitating comprehensive global and regional analysis. The European debt crisis and the refugee wave further impacted OFDI flows to CEECs, causing ongoing fluctuations. However, despite these unfavorable factors, OFDI in the region has maintained a relatively stable growth trajectory.

4.2 The distribution of China's OFDI in CEECs

4.2.1 The distribution of China's OFDI by industries

In recent years, as the economic support from the major Western European economies to the CEECs has gradually weakened, the CEECs have gradually turned their attention to attracting capital from China. Coupled with the continued advancement of BRI and the continuous deepening of the "16+1" cooperation mechanism, investment cooperation between the two parties has gradually become closer.

Table 4.1: *Distribution of Chinese Enterprises' OFDI in CEECs by Industry as of 2020*

Industry	Number of Enterprises	Proportion (%)	Industry	Number of Enterprises	Proportion (%)
Real Estate	85	18.36	Electricity, Heat, Gas, etc.	83	17.93
Manufacturing	77	16.63	Construction Industry	48	10.37
Transportation Industry	45	9.72	Education, Culture, Health	42	9.07
Water Conservancy, Environment	26	5.62	Business Services	15	3.24
Information, Software	12	2.59	Agriculture, Forestry, Fishery, Animal Husbandry	11	2.38
Catering and Accommodation Industry	8	1.73	Research Industry	5	1.08
Resident Services	4	0.86	Mining Industry	2	0.43

Source: Author's collection of data from the 2020 Statistical Bulletin of China's OFDI (National Bureau of Statistic of China, 2021).

As cooperation between the two parties deepens, they have a more in-depth and comprehensive understanding of each other's resource endowments and industrial structures. Therefore, China's OFDI in CEECs has shifted to more diversified industries. Currently, Chinese enterprises' OFDI in CEECs has exceeded 2 billion USD, spanning various sectors, including machinery manufacturing, the chemical industry, finance, environmental protection, logistics, and new energy. Table 1 provides an overview of the extensive distribution of Chinese enterprises' OFDI in CEECs across different industries as of 2020. China's OFDI in CEECs mainly flows to real estate, manufacturing and electricity, heat, gas, etc. industries. It is worth noting that the dominant industry in CEECs is manufacturing, with mature production lines and high industry standards. China is highly complementary to Poland and Hungary in manufacturing production.

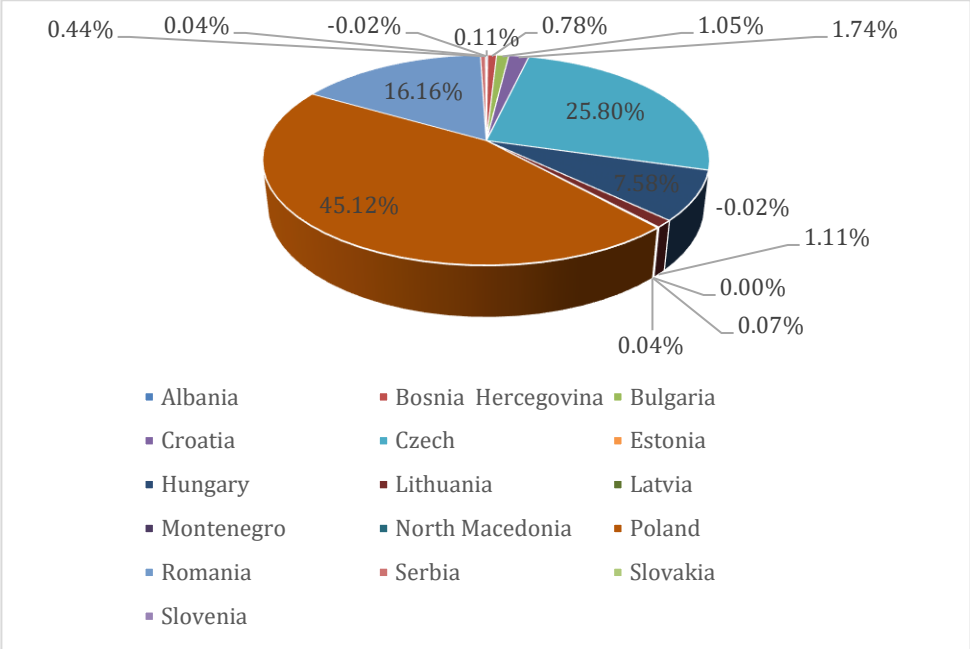
Furthermore, the infrastructure in the CEECs is outdated, which has increased the demand for infrastructure construction. China has greater advantages in the field of infrastructure construction. And it is easier to obtain financial support compared with Western European countries. Projections indicate that by 2025, the demand for capital in transportation infrastructure construction in CEECs will reach approximately 600 billion euros. This positions CEECs as one of the most attractive markets for investors from China and other countries. Simultaneously, it will also significantly facilitate industrial restructuring and upgrading in China to solve the overcapacity problem. It is foreseeable that in the upcoming years, Chinese investment in CEECs will further escalate, with a particular focus on the infrastructure sector.

4.2.2 The distribution of China's OFDI by countries

The proportion of China's OFDI stock in CEECs is shown in Figures 4.3 and 4.4. It is easy to see that the country distribution of China's OFDI in CEECs has become more balanced in 2020 compared with 2007.

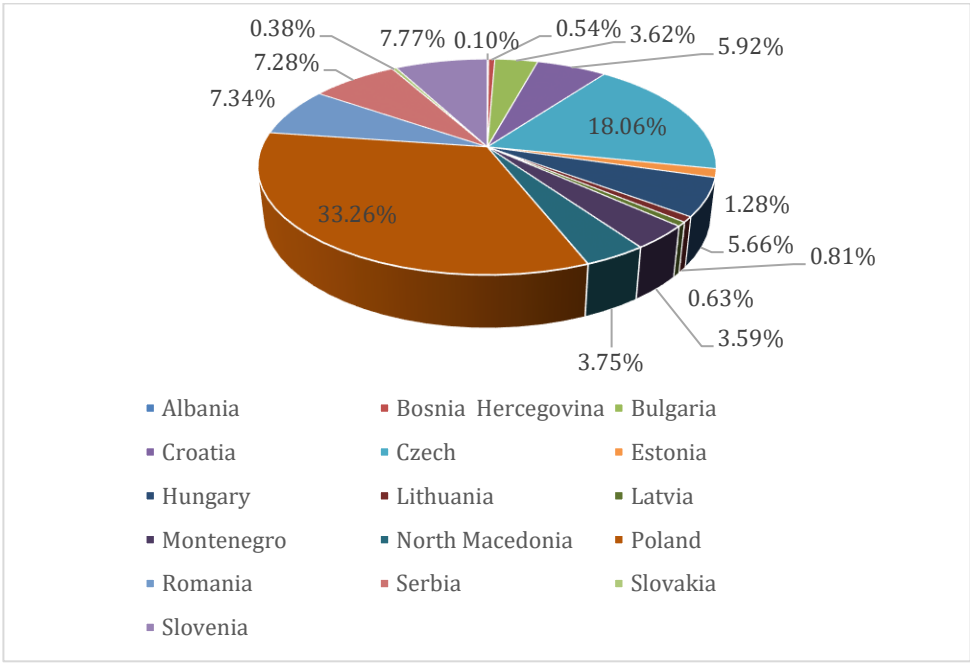
However, the graphs also show that the country distribution is still centered on a small number of countries. The bulk of the OFDI stock is made up of a limited number of countries, and other nations still have fewer investment stocks. In 2007, four countries keep 94.66% FDI stock from China to CEECs, those are Poland, Romania, the Czech Republic, Hungary. The distribution of China's OFDI stock in CEECs shows a dispersion trend in 2020, which means the investment location structure has been significantly optimized.

Figure 4.3 Proportion of China's OFDI stock in CEECs, 2007



Source: Author's Analysis of OCED FDI position from receivers, CEECs national bank FDI inflow data, and China's OFDI data from MOFCOM.

Figure 4.4 Proportion of China's OFDI stock in CEECs, 2020



Source: Author's Analysis of OCED FDI position from receivers, CEECs national bank FDI inflow data, and China's OFDI data from MOFCOM.

According to the development level of CEECs, combined with the classification of economies from the "2020 Statistical Bulletin of China's Outward Foreign Direct Investment", the 16

countries in the CEE region can be divided into three categories: developed, developing, and transitional economies. The specific classification is shown in Table 4.2.

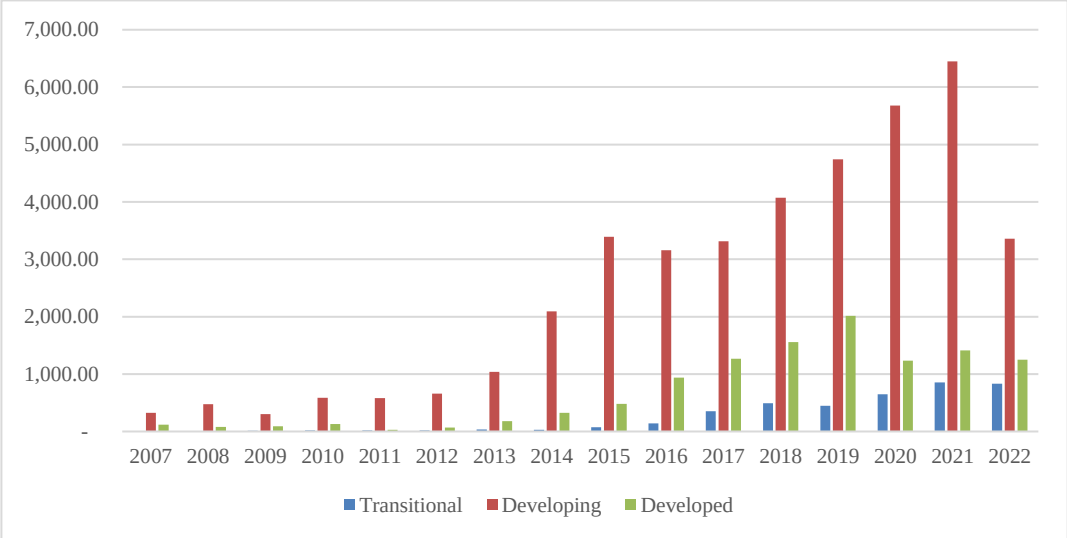
Table 4.2: Classification of 16 CEE economies

Type of Economies	Countries
Developed Economies	Slovenia, Czech Republic, Slovakia, Estonia, Latvia, Lithuania
Developing Economies	Poland, Hungary, Romania, Croatia, Bulgaria
Transitional Economies	Montenegro, Serbia, Bosnia and Herzegovina, Macedonia, Albania

Source: Author's construction

Based on the analysis of China's OFDI flow data in CEECs, China's OFDI flowed mainly into developing economies in CEE region, followed by developed economies in CEE region. The transitional economies attract the least OFDI from China. However, it also shows that the gap in OFDI stocks between the three types of economies is gradually narrowing. Overall, China is increasing its OFDI stock in Central and Eastern Europe. At the same time, there were no investment flows to transitional economies before 2009. Nevertheless, since 2009, these flows have progressively risen and increased rapidly since 2017. This also shows that the coverage of China's OFDI in CEECs has become more balanced.

Figure 4.5 China's OFDI stock in CEECs from 2007 to 2022, by classification of economies



China's OFDI flows and stocks in CEECs have increased significantly, and investment flows to various countries and various economies have gradually become dispersed and balanced, the imbalance still exists. On the one hand, China's OFDI mainly flows to developing economies in the CEE region, while the proportion of OFDI in transitional economies in the CEE region

is at a smaller level. At the same time, there is also a large imbalance in investment flows to different countries within the same economic level. For example, among developed economies, China's OFDI in the Czech Republic and Slovenia was larger in 2019, accounting for 16.88% of the total stock. Among developing economies, China's OFDI mainly flows to Hungary, Poland, and Romania, accounting for 49.92% of China's OFDI stock in CEECs. China is still working hard to adjust the structure of OFDI in CEECs. It is foreseeable that China's OFDI in CEECs will not only continue to expand in scale, but its investment structure will also become more balanced.

4.3 Challenges of China's OFDI in CEECs

Notwithstanding the advancements and comparatively stable growth of China's OFDI in CEECs, Chinese enterprises encounter substantial challenges in their endeavors to explore and develop markets within this region. These challenges can be ascribed to a multitude of factors, encompassing divergences in policy mechanisms, stages of development, and the intricate interplay of economic and political elements both within and outside the region.

One of the most significant challenges is that CEECs exhibit heterogeneous national conditions, possessing diverse policy mechanisms and regulatory frameworks, which can pose difficulties for Chinese enterprises seeking to invest in the region (Xie & Yin, 2023). Adapting to the varying legal and regulatory requirements across different countries can be time-consuming and resource-intensive, potentially impacting the efficiency and success of Chinese OFDI projects.

Moreover, China's investments in CEECs are subject to the sway of prominent geopolitical players, including the EU, the US, and Russia (McCaleb & Szunomar, 2017). For instance, while China and Russia have forged a comprehensive strategic cooperative partnership, certain CEECs, such as Poland and the Baltic nations, maintain inimical stances towards Russia, engendering ongoing political, economic, and social disputes. These convoluted geopolitical dynamics can cause uncertainties and challenges for China's OFDI in the region.

Furthermore, the cultural and linguistic differences between China and CEECs can create communication and understanding gaps, impeding the seamless operation of China's OFDI projects (McCaleb & Szunomar, 2017). At the same time, Chinese enterprises investing in CEECs face competition from other foreign investors, including those from the European Union and the United States. This competition can intensify the challenges of securing favorable investment opportunities and market shares in the region.

Some CEECs may even experience economic and political instability, which can pose risks to China's OFDI in the region. Changes in government policies, economic downturns, or social unrest can disrupt the normal operations of investment projects and even lead to the failure of bilateral investments.

To address these challenges, Chinese companies investing in CEECs need to adopt strategic approaches that consider the diverse economic, political, and cultural landscapes of the region to develop a proper investment strategy.

4.4 Summary of Chapter 4

For Chinese companies, the advantages in resources, location, and policies create huge investment space in CEE. However, the economic and political factors inside and outside the region also make outbound investments face certain uncertainties.

As a gateway for China to enter the EU market, the CEE region has the geographical advantage of being connected to the East and the West. CEECs have established a relatively sound market economy and legal system from the business environment perspective due to their early economic transformation. Some CEECs have improved their technology innovation capability after joining the EU.

In the context of deglobalization, China and the CEECs have a high degree of economic and trade cooperation, and there is more room for bilateral trade and foreign investment cooperation. With the prevalence of trade and investment protectionism in developed countries and low global economic growth, China and CEECs are actively seeking international production cooperation outside. On the one hand, the risk of decoupling global supply chains has been highlighted, and China needs to strengthen further the cooperation of regional production networks along the BRI. On the other hand, deglobalization has affected the EU integration process, and CEECs have started to seek cooperation with Asian countries.

In recent years, under the framework of the BRI and the "16+1" cooperation mechanism, the economic and trade cooperation between China and CEECs developed quickly. For example, China has established comprehensive strategic partnerships with Poland and Serbia and further refined exchanges and cooperation in various fields. As of 2018, Chinese enterprises have built a total of seven overseas economic and trade cooperation zones in CEECs, including two logistics cooperation parks and one industrial park in Hungary, one logistics cooperation park and one integrated industrial park in Serbia, and one industrial park, one logistics cooperation

parks in Romania and Poland, respectively. In 2019, Ningbo held the first China-CEE Expo, forming a strategic pattern of China-CEE development.

However, the share of the CEE region in China's total foreign direct investment is still low. Although China's direct investment in CEECs has shown an upward trend since the implementation of the BRI, rising from $1250 million in 2013 to $5444 million in 2022, the proportion of China's OFDI in CEECs remains low, with a maximum of 0.186%.

In the "Medium-Term Plan for China-CEE Cooperation" signed in November 2015, China and CEECs identified cooperation in economic, health and connectivity, cultural, education, youth, sports and tourism, science and technology, research, innovation, and environmental protection cooperation, as well as specific industries such as production capacity and equipment manufacturing, finance, agriculture, forestry, and quality inspection cooperation. In view of the current international political and economic situation, China can focus on strengthening investment cooperation with CEE in the following areas in the coming years.

First, traditional infrastructure construction remains important for China's investment in CEE in the coming years. The relatively backward infrastructure is an important factor limiting the competitiveness of the CEE region. By 2025, the total capital needed for transport infrastructure construction in CEE will be about 615 billion euros. Traditional infrastructure is the carrier of the "connectivity cooperation platform". Traditional infrastructure is also one of the prerequisites for the mutual promotion of the domestic and foreign markets. China should work with CEECs, innovate investment and financing models, and use its' advantages in infrastructure construction to promote regional cooperation.

Secondly, the digital economy and artificial intelligence is another important investment area in the future. Currently, the digitalization level of CEECs is relatively low. Only Slovenia, the Czech Republic, and Estonia reach the EU average level. In response to this situation, some countries have started focusing on developing high-tech fields such as artificial intelligence and biotechnology. For example, Estonia released the "2019-2021 National AI Strategy", which focuses on applying AI in various social sectors and constructing and improving the relevant legal system. The Czech Republic, Croatia, Lithuania, and Hungary focus on developing digital construction and increasing investment in research and development to create a truly smart economy and society. China is becoming increasingly mature and even at the forefront of the world in developing 5G technology, artificial intelligence, the Internet, and mobile payment. Relevant Chinese enterprises can strengthen their investment in the fields

mentioned above in CEECs, especially in the fields of 5G, industrial Internet, and smart cities, to help the countries along the route to narrow the gap with developed countries. In addition, Chinese OFDI companies should also focus on energy and mineral resources, which are in short supply in China, as well as traditional industrial sectors where CEECs have insufficient capacity.

Although China and CEE have a high degree of economic and trade cooperation, they also face investment risks. From the economic aspect, CEECs have different national conditions and small markets, and there is a lack of coordinated economic development strategies at the regional level. From the political perspective, China's investment in CEE may also be influenced by the EU, the US, and Russia. For example, China and Russia have established a new era of comprehensive strategic cooperative partnership, while Poland and three Baltic countries are fully hostile to Russia and are in constant dispute with Russia on political, economic, and social affairs.

In conclusion, CEECs is an investment location with tremendous potential for Chinese companies. However, the international political and economic situation will inevitably affect investment in CEECs.

5.0 Impact of different OFDI motivations on bilateral trade between China and CEECs

This chapter analyzes the trade effect of OFDI from China to CEECs at two levels: the trade scale effect and the trade structure effect. However, the mechanism of OFDI's impact on trade scale and structure is relatively complicated, so this chapter will also analyze the impact mechanism from the different motivations of OFDI, laying the foundation for the following empirical analysis.

5.1 Trade scale effect of different OFDI motivations.

The OLI model, also known as the Eclectic Paradigm, was developed by Dunning to explain the internationalization of companies through FDI (Dunning, 1980). In 1993, Dunning further developed four different FDI motivations, namely market-seeking FDI, resource-seeking FDI, efficiency-seeking FDI and strategic asset-seeking FDI, as an extension of OLI model (Dunning, 1993).

In the case of resource-seeking OFDI, natural resources such as oil and minerals in the host country are the primary considerations when making OFDI. When companies make OFDI for natural resources, they often invest in the primary industry. When they exploit them, the host country may lack the relevant mining equipment, so they will bring some machinery and

equipment for exploitation from the home country, which will drive the export of such commodities from the home country. In addition, these extracted resources will also be transported back to the home country, which promotes the export of primary resources from the host country. As these resources are imported back to the home country, they are utilized in domestic production and processed into manufactured goods, which become cheaper due to OFDI. This process reduces the cost of production of the home country's manufactured goods, thereby increasing the competitiveness of the home country's manufactured goods. Thus, this type of investment affects the imports of primary goods and exports of intermediate and manufactured goods in the home country.

Market-seeking OFDI aims to expand market share further based on current market size. Hence, market size and the investment environment are the major considerations of the host country. Market-seeking OFDI can be further divided into two types. One seeks new markets and expands the market size. Another avoids trade barriers and gains access to further markets. The former involves setting up factories in the host country and developing marketing channels. It leads to establishing a new sales network, often increasing export activities from the home country regarding related equipment, raw materials, or intermediate commodities. This can lead to a positive export complementary effect, boosting the home country's economy. The latter generally involves building factories or transferring the production sector to the host country to avoid trade barriers. With the establishment of production plants, companies could thus go directly to sell in the host country or export to a third country, which would cause the home country to lose the original export volume, resulting in an export substitution effect. However, it may also increase exports from the home country in areas such as machinery and equipment, raw materials, and product design.

Efficiency-seeking OFDI, with its aim to reduce production costs, obtain cheaper factor endowments, and achieve higher profits, holds the potential to transform the trade landscape. This type of investment often arises when the home country faces challenges with its factor advantage and high production costs, leading to a lack of competitive edge. In such scenarios, investment tends to flow towards countries with significant factor endowments. Moreover, by leveraging the production advantages of each country or region, different production stages can be established, leading to a reduction in production costs and an enhancement in production efficiency. Efficiency-seeking OFDI brings an export complementary effect to the home country. When enterprises directly invest in the host country to establish factories and

production bases, they need to replicate some production processes from the home country during the initial production period, requiring support from the home country. Therefore, they will import intermediate products, machinery, production equipment, and other goods from the home country. During production, they also need to import some raw materials and production supplies from the home country, thus driving the home country's exports and increasing its export scale. On the other hand, as enterprises continue to develop in the host country, their production scale and proficiency increase through learning and imitation. The products produced can not only meet the local market's needs but also be exported back to the home country. At this point, the produced goods will flow back to the home country, thereby increasing the home country's import trade scale.

Strategic asset-seeking OFDI generally seeks to identify key production factors and advanced strategic assets in the host country. Therefore, this type of investment is equivalent to a reverse direct investment. It usually takes the form of mergers and acquisitions (M&A) of high-tech enterprises or the establishment of joint R&D centers to break through technological barriers in the host country, obtain advanced management and technical experience, and cultivate the core competitiveness of branded products to expand the home country's exports and increase its export trade scale. For the home country, cross-border M&A and establishing R&D centers present unique learning opportunities. These forms of investment can help mitigate the disadvantages brought about by relatively backward technology. They also enable the home country to glean insights from the host country's advanced technologies and products, fostering a culture of innovation and expanding the home country's horizons in technological innovation and management thinking. This, in turn, facilitates cross-border communication, exchange, and learning among high-end technical talents, enhancing the home country's production technology and management concepts, and driving the rapid development of the home country's technology and economy.

In summary, different motivations for OFDI have different and complex impacts on the trade scale of the home country.

5.2 Trade structure effect of different OFDI motivations.

With resource-seeking OFDI, the home country enterprises will further process the related natural resources and other primary raw materials and export those processed finished products, increasing the proportion of manufactured goods in the home country's export structure. Additionally, since the home country provides technological support to the resource-

acquiring industries, the export of high-tech and value-added products such as mining and detection instruments will also be increased. Furthermore, through FDI, the home country obtains relatively cheap natural resources from the host country, enabling the home country to gain more profits. These profits promote technological innovation in the home country's enterprises, driving the development of new technologies and products and industrial upgrading and transformation. As a result, there is a further increase in the share of medium and high-tech value-added products in the home country's export trade, optimizing the home country's trade structure.

Market-seeking OFDI initially promotes the home country's exports of production equipment and intermediate products in related industries. This type of OFDI tends to focus on labor-intensive industries such as clothing production, general electrical appliances, and textiles. In the later stages, as the market expands and profits accumulate, the home country's economic development accelerates, promoting increased consumption of medium and high-value-added products and technological research and development (R&D) in the home country, thereby increasing demand. Consequently, the proportion of medium- and high-tech value-added products in the import and export trade will rise. From an industrial chain perspective, the industrial transfer will provide space for developing the home country's advantageous industries, making the development space for domestic advantageous industries and emerging industries more extensive. At the same time, investment in advantageous and emerging industries will also increase, driving the proportion of medium and high-tech value-added products in the home country's trade structure, ultimately leading to the overall optimization of the trade structure.

Efficiency-seeking OFDI aims to obtain cheap resource endowments and efficient management experience to improve efficiency and achieve higher profits. Therefore, the home country will transfer some marginal industries to the host country, allowing the home country's excess and disadvantaged industries to shift to the host country. It enables the home country's emerging industries to gain more support and opportunities, increasing the proportion of advantageous products in import and export trade and improving the trade structure. Meanwhile, enterprises' overseas investment and production will increase product competitiveness, attracting more capital inflows to the host country. Investing these funds in technological development and industrial innovation will further promote the export of emerging and high-value-added products, optimizing the export trade structure.

Strategic assets-seeking OFDI seeks key production factors and advanced strategic assets. Technological barriers will be broken with M&As, allowing the home country to access more advanced technologies and gain more opportunities to learn and imitate advanced technologies. It will enhance the home country's export competitiveness and brand status, further stimulating its motivation for R&D and industrial upgrading and improving its domestic industrial structure. In addition, the flow of technological factors and talents between the home country and the host country gradually becomes closer through strategic asset-seeking OFDI, helping the home country solve difficulties in related entrepreneurial R&D processes, enhancing the home country's R&D capabilities, and improving industrial structure.

5.3 Trade effect of different China's OFDI motivations in CEECs.

5.3.1 Trade scale effect of China's OFDI in CEECs.

In terms of resource-seeking OFDI, China's OFDI in CEECs mainly flows into energy, coal, and other fields. China has abundant natural resources compared with CEECs. However, China has a larger population, so the per capita resource possession is relatively lower. Romania, Poland, Serbia, and Bosnia and Herzegovina have large coal reserves. Albania has the second-largest copper reserves in Europe. Therefore, resource-seeking OFDI is also one of the motivations for Chinese enterprises to invest directly in CEECs. And China has advanced exploration instrument and equipment technologies, so China's exports of related machinery and equipment to CEECs will be increased, and the export of related parts and components will also be promoted to improve exploration efficiency. All in all, the resource-seeking OFDI has promoted China's import of resource-based manufactured products from CEECs. However, in the current stage, both parties are more focused on natural resource exploration, so related exploration machines, mining equipment, and intermediate products are exported more from China to CEECs. It results in an increase in the export of mid- to high-tech products from China to CEECs.

Because of the "16+1" cooperation mechanism and the comparatively high degree of economic development and stable investment environment in some of the CEECs, an increasing number of businesses began to investigate the market in the region. As a result, market-seeking OFDI has progressively grown as well (McCaleb & Szunomar, 2017). Poland, as the country with the largest economy in Central and Eastern Europe, reached 811.2 billon GDP in 2023. In addition, a total population of nearly 37 million makes Poland the only country in CEE with a population of more than 30 million, and the market population that can be radiated from east

to west is as high as 200 million. The significant economic size, strong economic development trend and huge population base not only have Poland's market capacity superior to other CEECs, but also give it huge market demand development potential, making Poland an ideal destination for attracting China's market-seeking foreign direct investment. In addition, Romania, as a representative of emerging countries in Central and Eastern Europe, has experienced rapid economic development in recent years. In 2023, Romania's domestic economic gross value reached US$351 billion, a year-on-year increase of 4.6%, ranking first in Central and Eastern Europe, showing a good Economic development prospect. And its population of nearly 20 million gives it a good market foundation. To meet the market demand requirements, more and more Chinese companies invest in building the local factories, which promote HFDI.

Most of the countries in CEECs are developed countries. They have more abundant experience in market operations and corporate management, and they also have leading advantages in some technological research and development. At the same time, while pursuing to improve the efficiency of operations, companies are also further reshaping their' industrial chains, taking advantage of complementary industries in CEECs to initiate vertically integrated investments. Ultimately, China's industrial structure can be optimized, thereby further optimizing the trade structure. Efficiency-seeking OFDI promotes the improvement of the management level of China's related industries. It also pays more attention to innovation and R&D, promotes China's industrial upgrading and bilateral exchange of mid- and high-tech products.

Finally, strategic asset-seeking OFDI changes the trade structure by improving the technological level of enterprises. To seek advanced technologies, Chinese enterprises normally conduct strategic asset-seeking investment through the establishment of subsidiaries, or M&A, which promotes the import of technology-intensive products. In addition, learning advanced technologies can also improve core competitiveness in international markets, thereby increasing the export of related products.

5.3.2 Trade structure effect of China's OFDI in CEECs.

The resource-seeking OFDI from China is more focused on natural resource exploration in CEECs, such as coal and copper, which leads to increased exports of related exploration and mining production equipment and intermediate products, consequently increasing the share of medium and high-tech value-added products (Éltető & Szunomár, 2015).

Market-seeking OFDI has been a catalyst for China’s industrial transformation. The influx of large-scale infrastructure investment and the transfer of industries with surplus production capacity has not only increased China’s exports of machinery, equipment, and electromechanical products but also paved the way for the development of emerging industries and those with higher technological content. This positive trend is set to continue, further enhancing China's industrial transformation, and upgrading.

Efficiency-seeking investment has also further optimized China’s industrial structure by learning advanced management techniques from CEECs, thus improving China’s management level and production efficiency. While pursuing efficiency improvements, enterprises are further dispersing production processes, shaping industrial chains, and utilizing bilateral complementary industrial advantages to initiate vertical integration investments. Ultimately, this can also optimize China’s industrial structure, further optimizing the trade structure.

Strategic asset-seeking OFDI aims to change the trade structure by improving enterprises' production technology. Currently, China emphasizes R&D capabilities and technology innovation, and CEECs also place great emphasis on R&D. Moreover, developed countries such as Western Europe and the United States are also conducting relevant investments in the CEECs. Hence, the strategic asset-seeking OFDI will prompt Chinese enterprises to continuously improve their competitiveness through learning and developing products with higher technological added value.

5.4 Summary of Chapter 5

6.0 Examination of the impact of China’s OFDI on bilateral trade with CEECs based on Knowledge-Capital model.

6.1 The mechanism of how China’s OFDI affects the bilateral trade with countries along the BRI.

International trade, as a driver of national economic growth, is closely related to international direct investment and is mutually influential. Driven by different motivations, TNCs choose target countries for direct investment, and different investment motives will have different impacts on the country’s import and export trade. The World Investment Report divides OFDI into four types according to different investment motives: market-seeking, technology-seeking, efficiency-seeking, and natural resource-seeking. Currently, under the effect of the four types of investment, the impact of China’s OFDI in countries along the BRI on bilateral trade is mainly in the form of trade substitution and complementary effects.

Export Complementary effect. Market-seeking FDI is the leading investment motive to generate an export complementary effect. This type of OFDI mainly flows to countries or regions with higher market potential, mainly exporting parts and components, transportation equipment, electromechanical products, etc. In addition, technology-seeking OFDI can also promote China's foreign export trade to a certain extent. However, the trade complementary effect will lag because it takes some time to learn new technologies.

Import Complementary effect. Natural resource-seeking, efficiency-seeking, and technology-seeking investments are the main investment motives that generate trade complementary effects. Some Chinese companies have initiated resource-seeking OFDI to acquire resources such as oil, natural gas, and rare metals. The resource-seeking OFDI mainly flows to Russia, Central Asia, and the Middle East. Efficiency-oriented investments are mainly directed to Southeast Asian countries such as Cambodia, where cheap labor is plentiful, to shift China's labor-intensive industries. Technology-seeking investments are mainly directed to developed countries in Singapore and Europe to import high-tech equipment from the host countries. Chinese direct investment in these countries also facilitates the exchange and learning of advanced technologies between the two sides, stimulating imports.

Export Substitution effect. Efficiency-seeking OFDI mainly triggers the export substitution effect. In the manufacturing sector, China has certain competitiveness compared with other regions in Southeast Asia. Investment in less competitive countries can help China's manufacturing industry upgrade and help alleviate the environmental pollution problem of China's manufacturing industry. For example, Pakistan has a tremendous demand for textile imports from China, and Pakistan has sufficient reserves of cotton, hemp, and other raw materials. These factors have prompted Chinese enterprises to invest in local factories in Pakistan and use local raw materials to produce textiles, replacing part of China's textile exports to Pakistan. At the same time, technology-seeking OFDI will lead to technology spillover effects, allowing host countries to learn from China's advanced technology and imitate production to replace Chinese imports, thus reducing Chinese exports.

Import Substitution effect. Natural resource-seeking and market-seeking OFDI may create import substitution effects. When Chinese enterprises invest directly or establish factories in host countries, raw materials and intermediate products purchased from the host countries can be used directly in producing products, reducing the import from investing countries.

6.2 Hypothesis development

Based on the literature review of the existing research on the related topic, this study will first conduct an overall regression analysis of the relationship between China's OFDI and bilateral trade performance between China and CEECs.

Hypothesis 1: BRI promote HFDI in CEECs and restrain VFDI in CEECs, showing a substitution effect on bilateral trade.

The characteristics of the export and import items in bilateral trade with China differ due to the apparent disparities in the degree of development of CEECs. To make the study more convincing, this study divides the studied countries into high-income countries and low- and middle-income countries based on World Bank income level classification and examines whether the impact of China's OFDI on bilateral trade changes differently in different groups. According to the World Bank classification, there are four income groups listed below:

Low-income economies. Low-income economies are defined as those with a GNI per capita of $1135 or less in 2022.

Lower-middle-income economies. Lower-middle-income economies are those with a GNI per capita between $1036 and $4465.

Upper-middle-income economies. Upper-middle-income economies are those with a GNI per capita between $4466 and $13845.

High-income economies. High-income economies are those with a GNI per capita of $13846 or more.

Table 5.1 Classification of Income level of 17 CEECs

	Countries
Upper-middle-income economies	Albania, Bosnia and Hercegovina, Bulgaria, Montenegro, North Macedonia, Romania, Serbia
High-income economies	Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia

Source: Author's Analysis of GNI per capital of 16 CEECs

Hypothesis 2a: BRI will promote HFDI in High-income Group, showing a substitution effect on bilateral trade. While for Upper-middle-income group, BRI will promote VFDI in the region, exhibiting trade complementary effect.

In order to examine the effect for different groupings, this study also tries to divide 17 CEECs into EU member and non-EU member groups. Hypothesis 2b has been established based on the group classification in Table 4.2.

Hypothesis 2b: BRI promotes HFDI in those CEECs which are already an EU member states, showing a substitution effect on bilateral trade. While for other CEECs are still not an EU member states, BRI promote VFDI in the region, exhibiting trade complementary effect.

Table 4.2 Classification of EU/Non-EU members of 16 CEECs

	Countries
EU members	Poland, Czech Republic, Hungary, Estonia, Latvia, Lithuania, Slovakia, Slovenia, Romania, Bulgaria, Croatia
Non-EU members	Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia

Source: Author's Construction.

6.3 Model establishment.

The Knowledge-Capital model was gradually refined after the empirical tests in 2001. Markusen et al. emphasize that one of the fundamental differences in MNC theory is the difference between the two types of MNCs. Furthermore, this proposition has been proved by Carr, Markusen & Maskus, 2001. Carr, Markusen & Maskus, 2001 found that the main objective of horizontal MNCs is to capture the host country's market to expand their sales channels, while the main objective of vertical MNCs is to take advantage of the factor endowments of the host country for export to improve competitiveness (Carr, Markusen, & Maskus, 2001).

Brainard (1993) proposes a measure of vertical OFDI by using the quantity of products exported by foreign affiliates to the home country as the quantity of vertical OFDI (Brainard, 1993). Feenstra (2004) states that the dependent variable of horizontal OFDI should be the sales in the host market, and the dependent variable of vertical OFDI should be the export volume of the MNC's subsidiaries (Feenstra, 2004). However, these methods are based on the micro-level. Chinese data in this area are still challenging to obtain, so it is not feasible to use these methods for quantitative analysis of vertical and horizontal OFDI in China. Due to the lack of sufficient MNC-level data, this study decided to use the national-level OFDI stock as the sales of MNCs in the host country. At the same time, since vertical and horizontal OFDI coexist, it is not easy to classify them precisely. Hence, we combine vertical and horizontal motives in the knowledge-capital model to empirically analyze the dynamics of Chinese OFDI from a country perspective.

Carr, Markusen & Maskus (2001) use a panel model of the overseas production activities of U.S. multinationals from 1986to 1994 to do the test and is one of the earliest research projects to examine the knowledge capital model (Carr, Markusen, & Maskus, 2001). It became the benchmark paradigm for subsequent tests and applications of the knowledge capital model. Review the research on knowledge capital models by different scholars. Most of them are based on data from developed countries, for example, the United States, and the research results support the horizontal MNC investment model. This study will analyze the OFDI from China, a developing country. The model used in this study is the knowledge capital model used by Carr, Markusen & Maskus (2001), which emphasizes the decisive role of trade costs, national economic size, and labor endowment on MNCs' foreign direct investment, is expressed as:

$$\begin{aligned} Real\ Sales_{ij} = {} & B_0 + B_1 * (GDP\ SUM) + B_2 * (GDP\ Difference\ Squared) + B_3 \\ & * (Skill\ Difference) + B_4 * [(GDP\ Difference) * (Skill\ Difference)] \\ & + B_5 * (Investment\ Cost\ Host) + B_6 * (Trade\ Cost\ Host) + B_7 \\ & * [(Trade\ Cost\ Host) * (Skill\ Difference\ Square)] + B_8 \\ & * (Trade\ Cost\ Parent) + B_9 * (Distance) \end{aligned}$$

$$GDP\ SUM = GDP_i + GDP_j$$

$$GDP\ Difference = GDP_i - GDP_j$$

$$GDP\ Difference\ Squared = \left(GDP_i - GDP_j\right)^2$$

$$Skill\ Difference = Skill_i - Skill_j$$

Where $Real\ Sales_{ij}$ denotes the sales of subsidiaries/branches of the parent company in country i in host country j. Parent company is located in country I, while the subsidiaries are located in country j. However, due to the lack of sufficient MNC-level data, this study decided to use the national-level OFDI stock as the sales of MNCs in the host country. Revised Model listed below:

$$\begin{aligned} FDI_{ij} = {} & B_0 + B_1 * (GDP\ SUM) + B_2 * (GDP\ Difference\ Squared) + B_3 \\ & * (Skill\ Difference) + B_4 * [(GDP\ Difference) * (Skill\ Difference)] \\ & + B_5 * (Trade\ Cost\ Host) + B_6 * (Trade\ Cost\ Parent) + B_7 * (Distance) \\ & + u \end{aligned}$$

To incorporate the analysis of the impact of BRI on FDI, we refer to the model developed by Egger & Pfaffermayr (2004), which is also based on Carr, Markusen & Maskus (2001) and Bergstand (1989), obtaining the following model:

$$LnFDI_{jt} = \beta_0 + \beta_1 BRI_{jt} + \beta_2 LnSumGDP_{jt} + \beta_3 LnGDP/Capital_{jt} + \beta_4 DifSkill_{jt} + \beta_5 (DifSkill * LnGDP/Capital)_{jt} + \beta_6 PCI_{jt} + \beta_8 Tariff\ rate_{jt} + \beta_9 CurrencyEx_{jt} + \beta_2 LnDist_{jt} + \beta_{10} Open_{jt} + \tau_t + \mu_j + \varepsilon_{jt}$$

This approach allows us to examine both the horizontal and vertical motivations of Chinese OFDI while accounting for the unique impact of the BRI. By employing panel data techniques, we can control for unobserved heterogeneity across countries and time, providing a more robust analysis of the determinants of Chinese OFDI in the context of the KC model.

To examine Hypothesis 1: BRI promote HFDI in CEECs and restrain VFDI in CEECs, showing a substitution effect on bilateral trade. We expect β_1 and β_2 to be positive, and strong correlation with $LnFDI_{jt}$. According to Knowledge Capital Model, the size of the host market directly affects the conduct of HFDI, but not VFDI, in this study, the variable $LnSumGDP_{jt}$ represents the market size, so logically it could be positive. The role of BRI is to remove the uncertainty about the foreign market when conducting FDI, and its sign is expected to be positive. Similarly, the difference in relative factor endowments positively affects VFDI but not HFDI, in this case, to support hypothesis 1, β_4 will be negative. Moreover, according to Frankel (1997), the choice of geographic distance indicator has no significant effect on the estimated value of the coefficient of this variable. Based on this, β_8 is expected to be 0. Finally, high trade openness leads to a favorable investment climate, and the sign β_{10} is expected to be positive.

To examine 2a: BRI will promote HFDI in High-income Group, showing a substitution effect on bilateral trade. While for Upper-middle-income group, BRI will promote VFDI in the region, exhibiting trade complementary effect.

To examine 2b: BRI promotes HFDI in EU Group, showing a substitution effect on bilateral trade. While for non-EU group, BRI promote VFDI in the region, exhibiting trade complementary effect.

6.4 Data selection

6.4.1 Dependent variables

The dependent variable in this study is $Ln\ FDI_{jt}$, refers to the logarithm of China's OFDI stock in economy j in year t. For the FDI stock data, this study uses a combined data source, with the major data source from OECD data if the host country data is available from OECD. If the host country data is not available from OECD, then the FDI data from national bank will be used

for the analysis. If both OECD and national bank data are not available, this study will use MOFCOM data as an option to conduct the analysis.

6.4.2 Independent variables

BRI_{jt} is the dummy variable, and BRI happens when it equals 1; When it equals 0, it refers to no BRI policy.

$LnSumGDP_{jt}$, is a proxy for market size. logarithm of the sum of the real GDP of China and economy j in year t

$Ln\ GDP/Capita_{jt}$, is the logarithm of the nominal GDP of CEE countries which is used to present the differences of market in the host countries.

$DifSkill_{jt}$ refers to the difference in relative factor endowments of skilled labor between the two countries. When the difference in the abundance of skilled labor between the two countries is small, the host country will attract horizontal FDI. When the difference in the abundance of skilled labor between the two countries is large, the host country will attract vertical FDI. This study uses absolute value of nominal GDP per capita difference as the difference in relative factor endowments of skilled labor between the two countries.

PCI_{jt}, the Productive Capacities Index (PCI) builds on UNCTAD's conceptual and analytical foundations and measures the level of productive capacities in three pillars: "productive resources, entrepreneurial capabilities and production linkages, which together determine a country's ability to produce goods and services and to foster growth and development. --- Investment Cost.

$Tariffrate_{jt}$: the weighted average tariff rate of Central and Eastern European countries is an important factor to measure the trade cost of host countries. The data is from World Bank.

$CurrencyEx_{jt}$ here in the formula basically demonstrate the trade cost of Parent country, showing the cost of parent country to buy host country's currency.

$LnDist_{jt}$, is the natural logarithm of the distance from the economic center of the economy to the capital city of China, Beijing.

$Open_{jt}$, denotes the trade openness of economy j in year t, which is equal to the sum of the ratio of imports and exports of economy j in the year t to nominal GDP of economy j in the year t.

τ_t, is the time effect.

μ_j, is the individual effect.

ε_{jt}, is the time-varying perturbation term, which together constitute the perturbation of the model.

6.4.3 Data justification

Readily verifiable data from publicly accessible sources, for example, World Bank country economic data, OECD investment data, National Statistics of sampling countries, International Monetary Fund, UN Commodity Trade Statistics Database (COMTRADE) bilateral trade data, United Nations Conference on Trade and Development (UNCTAD) Trade Analysis Information System (TRAINS) tariff data, and World Bank population data and other data, is used to develop the gravity models. All in all, the data source is mainly from the open database. It is not confidential. It can be used for both commercial and non-commercial purposes, with no ethical problems for this research. Regarding the validity or reliability of the data, since the data is secondary data, the internal validity may be weaker. However, the external validity is very strong because official open data sources can be generalized. External reliability can also be higher. It is supposed to have the same results by using the same data. The replicability is higher than primary data. Finally, using secondary data also saves much time for the research.

6.5 Result of Empirical test

Descriptive analysis is conducted on the collected data, and the specific results are presented in Figure 6.1, which includes the mean, standard deviation, maximum, and minimum values for each variable. Overall, the dataset offers a good mix of variables with sufficient variation and a reasonable sample size.

Table 6.1 Variable descriptive analysis

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
LnFDIstock	235	17.28	2.281	12.14	22.18
BRI	256	0.426	0.495	0	1
LnGDPsum	256	29.90	0.469	28.90	30.56
LnGDP/capita	256	9.343	0.551	8.187	10.29
DifSkill	257	0.671	0.448	0.00596	2.179
DifSkill*LnGDPcapita	256	6.398	4.469	0.0503	21.96
PCI	254	52.58	5.171	40.20	61.20
Tariffrate	236	2.238	1.526	0.850	17.89
CurrencyEx	254	5.110	10.12	0.0959	55.30
LnDis	256	8.892	0.0611	8.761	8.954
Open	256	0.0365	0.0209	0.00279	0.124

Source: STATA Output.

Table 6.2 Pearson correlation coefficients of each variable

	LnFDIstock	BRI	LnGDPsum	LnGDPcap	DifSkill	DifSkill LnGDPca	PCI
LnFDIstock	1						
BRI	0.523	1					
LnGDPsum	0.499	0.733	1				
LnGDPcapita	0.408	0.143	0.213	1			
DifSkill	-0.0679	-0.344	-0.495	0.544	1		
DifSkillLnGDPCap	-0.0467	-0.329	-0.468	0.588	0.998	1	
PCI	0.451	-0.0215	0.000800	0.765	0.429	0.463	1
Tariffrate	-0.372	-0.128	-0.244	-0.358	-0.181	-0.193	-0.309
CurrencyEx	0.207	0.114	0.0813	-0.166	-0.120	-0.131	0.0222
LnDis	-0.162	0.0596	-0.00460	-0.391	-0.193	-0.200	-0.464
Open	0.374	0.359	0.460	0.580	0.0995	0.129	0.372
	Tariff~e	CurrenEx	LnDis	Open			
Tariffrate	1						
CurrencyEx	-0.0733	1					
LnDis	0.209	0.210	1				
Open	-0.342	0.283	-0.0407	1			

Source: STATA Output.

The Pearson correlation test provides insights into pairwise correlations between variables. Table 6.2 basically presents The LnFDIstock demonstrates moderate positive correlations with BRI and LnGDPsum, suggesting that countries participating in the BRI and those with larger economies tend to have higher FDI stocks. There's also a notable positive correlation with PCI, indicating that countries with higher production capacity tend to attract more FDI.

However, the Pearson test could not capture the more intricate relationships among variables. To address these constraints and provide a more comprehensive analytical framework, this research employs panel data regression techniques. This sophisticated approach enables a nuanced examination of the individual and collective impacts of various factors on the dependent variable. By leveraging the temporal and cross-sectional dimensions of the dataset, panel data regression not only enhances the depth of analysis but also mitigates concerns regarding multicollinearity. This methodological choice ensures a robust and multifaceted exploration of the relationships under investigation, offering insights that extend beyond simple correlations to reveal the dynamic and interdependent nature of the economic phenomena being studied.

This study conducts a F-test and Hausman test to determine whether a random-effects model or a fixed-effects model should be employed. The calculated F-value of 16.21, with a corresponding p-value of 0.0000, rejects the null hypothesis, indicating that a fixed effects model is appropriate. This result is highly statistically significant at conventional levels ($p < 0.01$).

In conclusion, the results provide strong support H1, the motives of China's OFDI in CEECs exhibits a Horizontal OFDI, in another word, market-seeking OFDI. The evidence is shown by the significant positive coefficients on BRI and LnGDPsum. The strong positive and significant coefficient (1.143, $p < 0.01$) for the BRI variable is a key finding of this study, suggesting that the BRI has been highly effective in stimulating Chinese OFDI. In the context of the Knowledge Capital model, this can be interpreted by the BRI may be reducing informational barriers and policy uncertainties in host countries, making both horizontal and vertical FDI more attractive.

The positive and significant coefficient (1.619, $p < 0.01$) for LnGDPsum strongly supports the horizontal FDI motivation in the Knowledge Capital model. The magnitude of this coefficient, being one of the largest in the model, underscores the importance of market size in Chinese OFDI decisions. While the evidence for vertical FDI motives is less clear. The negative coefficient for tariff rates aligns with the KC model's prediction that lower trade costs encourage vertical FDI, but the lack of significance suggests this isn't a primary driver of Chinese OFDI. The insignificance of distance between China and Host country also aligns with the prediction.

Table 6.3 Regression Analysis results of Panel Data

	(1) fe	(2) re
BRI	1.143***	1.162***
	(0.241)	(0.243)
LnGDPsum	1.619***	1.418***
	(0.482)	(0.434)
LnGDPcapita	-0.921	-0.0897
	(1.111)	(0.885)
DifSkill	-4.023	1.347
	(6.455)	(6.203)
DifSkiLnGDPcap	0.494	-0.105
	(0.703)	(0.673)
PCI	0.0851	0.121***
	(0.0518)	(0.0469)
Tariffrate	-0.0723	-0.0923
	(0.0612)	(0.0613)
CurrencyEx	0.0906**	0.0580**
	(0.0420)	(0.0265)
LnDis	0	-1.521
	(.)	(5.551)
Open	8.925	3.857
	(9.545)	(9.006)
_cons	-28.57**	-18.15
	(11.41)	(51.87)
N	216	216
Rp^2	0.570	

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: STATA Output

6.6 Summary of Chapter 6

This study investigates the determinants of China's OFDI in CEECs, with a particular focus on the impact of the BRI. The research employs an adapted Knowledge-Capital model, building upon the seminal work of Carr, Markusen & Maskus (2001), to examine both horizontal and vertical FDI motivations. The study utilizes a panel data regression approach, incorporating data from CEECs over the years from 2007 to 2022. Both fixed-effects (FE) and random-effects (RE) models are estimated. The selection between these models is guided by F-tests and Hausman tests, with results favoring the fixed-effects specification ($F = 16.21$, $p < 0.01$).

The empirical analysis yields three primary findings regarding Chinese OFDI in CEECs. Firstly, the BRI demonstrates a statistically significant positive impact on Chinese OFDI ($\beta = 1.143$, $p < 0.01$ in the fixed-effects model), indicating its effectiveness in stimulating Chinese investment in the region. Secondly, market size, as proxied by the sum of GDPs, exhibits a strong positive relationship with OFDI ($\beta = 1.619$, $p < 0.01$ in the fixed-effects model), suggesting that Chinese firms are predominantly attracted to larger markets within the CEECs. Lastly, variables associated with vertical FDI motivations, such as skill differences and tariff rates, show less clear or statistically insignificant effects, implying that factor-cost considerations and efficiency-seeking motives may play a less prominent role in Chinese OFDI to CEECs. These results collectively support the hypothesis that Chinese OFDI in CEECs is primarily driven by horizontal (market-seeking) motivations, with the BRI serving as a significant facilitator of this investment trend.

The findings contribute to the broader literature on FDI determinants and offer specific insights into the nature of Chinese investment in CEECs. The prominent role of the BRI in facilitating OFDI underscores the importance of policy initiatives in shaping international investment flows. Furthermore, the strong market-seeking motivation observed in this study may have implications for host country policies aimed at attracting or regulating foreign investment.

While this study provides valuable insights, limitations include potential endogeneity issues and the challenge of precisely differentiating between horizontal and vertical FDI motivations using country-level data. Future research could address these limitations through the use of

firm-level data or more advanced econometric techniques to further disentangle the complex motivations behind Chinese OFDI in the region.

7.0 Policy Recommendation

The volume of trade between CEECs and China continues to grow, encompassing multiple industries, including manufacturing, agriculture, energy, and the services sector. Bilateral trade between CEECs spans various sectors, with a strong presence in manufacturing, including automobile manufacturing, machinery and equipment, and electronic products. CEECs have implemented proactive measures to attract Chinese investments and boost bilateral trade. These measures include offering tax incentives, streamlining market access, and ensuring investment protection. Moreover, CEECs and China can further enhance their trade relations by negotiating and entering into free trade agreements or bilateral trade agreements. These agreements would serve to reduce tariffs and non-tariff barriers, facilitate market access, and promote trade liberalization.

Firstly, enhancing bilateral trade cooperation is of paramount importance. Optimizing information exchange and communication channels is a prerequisite for deepening trade cooperation. Since the launch of the "16+1" cooperation mechanism, China and CEECs have established multiple platforms in the economic and trade fields. Communication and exchanges between the two parties have also been increasing based on the development of the platforms, which have played a role in enhancing market understanding and accelerating market integration for both parties. However, the differences in the development level of each country and the diverse demands make it impossible for the current platform to fully realize information sharing and policy coordination between China and CEECs, which to a certain extent limits the consistent development of trade between the two parties. To further coordinate the trade structure and expand the scale of cooperation, China should focus on promoting the construction of information exchange platforms and continuously innovate institutionalized communication channels based on consolidating the existing platforms, providing scientific guidance for both parties to seek new trade opportunities. In addition, the "16+1" cooperation has aroused concerns and suspicions from many external forces. It hindered the smooth trade cooperation between China and CEECs. At the same time, it caused anti-Chinese behavior in some CEECs by misleading the public opinion of major countries. Such noise has harmed the steady advancement of "16 + 1" cooperation. China should, on the one hand, focus on contradictory issues and strengthen exchanges and communication with major powers through

various forms such as high-level exchanges of visits, media disclosures, expert interpretations, and people-to-people exchanges, and try its best to seek ways to optimize the interest pattern. On the other hand, China should also focus on strengthening its reputation in CEECs and comprehensively demonstrate China's attitude and determination to seek mutual benefit and common prosperity with CEECs. Hence, China could create a good public environment for bilateral trade cooperation and inject momentum into China's deep exploration of a closer cooperation relationship with CEECs through realizing mutual trust. Furthermore, to mitigate the trend of deglobalization and protectionism, China should take the lead in demonstrating to the world its strong willingness to open up, promoting the win-win cooperation concept with a confident and inclusive attitude. It can effectively eliminate the concerns of the CEECs regarding the long-term trade imbalances and bolster the "16+1" cooperation. Finally, in the face of trade cooperation constraints caused by differences in market access standards, on the one hand, China should review and promote the development of domestic technology with EU standards and the breakthrough of technical barriers in the Central and Eastern European markets. On the other hand, China should also speed up the improvement of the commodity certification system, take full use of the China-CEECs Expo, the CEECs Specialty Commodities Pavilion, and other platforms to explore the specific demand, promote access in a targeted manner, and provide strong support to break through customs clearance bottlenecks and improve the trade imbalance between the two sides.

Secondly, it is essential to promote trade facilitation measures. Zuokui emphasized the importance of governments committing to reducing barriers to import and export trade in his research. This commitment entails lowering tariffs, addressing non-tariff barriers, streamlining trade procedures, and fostering a transparent and predictable trade environment. Such measures can effectively attract domestics and international business to participate in bilateral trade (Zuokui, 2021). CEECs, along with China, should collaborate to streamline trade procedures and minimize trade obstacles. Promoting e-commerce and digital trade can enhance trade efficiency and convenience. Establishing more efficient customs clearance, inspection, and quarantine mechanisms, along with providing faster and more convenient trade services, can contribute to creating a favorable trade environment for businesses.

Furthermore, it is crucial to enhance trade promotion mechanisms in order to stimulate bilateral trade. CEECs should establish and strengthen trade promotion mechanisms, facilitating trade-related activities such as trade promotion events, exhibitions, and business matchmaking

meetings. These initiatives would foster trade connections and facilitate business cooperation between enterprises from CEECs and China. It is also essential to enhance exchanges between trade delegations from both sides, promoting communication and collaboration between business partners.

Encouraging two-way investment is another crucial aspect. CEECs can incentivize domestic enterprises to invest in China and foster increased two-way investment by collaborating with Chinese enterprises to jointly explore markets and strengthen production capacity cooperation. Strengthening investment promotion mechanisms, providing information and support on the investment environment, and encouraging cross-border investments would yield mutual benefits and win-win outcomes. CEECs, along with China, can establish an effective information-sharing mechanism to provide insights into market demand, trade policies, regulations, and standards. This would assist enterprises from CEECs in gaining a better understanding of the Chinese market and identifying opportunities for business growth.

Establishing a trade information exchange platform is crucial to promote information sharing and foster business cooperation, further enhancing bilateral trade cooperation. Given the diverse political and economic landscapes across CEECs, it is crucial to capitalize on their respective national characteristic industries and prioritize strategic investments in countries with lower investment efficiency. Additionally, by developing areas such as the deep processing of agricultural products, the return-on-investment projects can be increased, thereby improving the efficiency of direct investment in these countries.

Simultaneously, CEECs hold a significant position within the EU. Therefore, China can enhance its relations with the EU by fostering cooperation with these countries within the EU framework. China can actively collaborate with EU member states to promote connectivity and trade cooperation. China’s investments and trade activities with CEECs should align with EU standards and regulations. This approach will help cultivate trust and cooperation between China and the EU while mitigating potential trade barriers. CEECs, as part of the EU, have already adopted various sustainable development goals. China and work with these nations to collectively pursue sustainable development objectives, including environmental conservation and collaboration on green technology.

Last but not least, the significance of exchange rates in Chinese OFDI decisions, as evidenced by our empirical analysis, underscores the critical need for robust currency risk management strategies. This aspect of international investment often presents a complex challenge for

Chinese MNEs, particularly given the managed float regime of the Renminbi (RMB) and the diverse currency environments of host countries. Promoting the internationalization of the RMB is one way to hedge against currency risks within the framework of the BRI. This can be achieved by developing offshore RMB centers in key OFDI destinations to facilitate RMB-denominated investments and reduce overall currency risk exposure. Additionally, exploring the potential for RMB-denominated bonds (Panda bonds) issued by host country entities could provide natural hedging opportunities for Chinese investors. By implementing these approaches, Chinese policymakers can significantly enhance the resilience and effectiveness of OFDI strategies. This multifaceted policy framework not only addresses the immediate challenges identified in our empirical analysis but also positions Chinese firms for long-term success in the increasingly complex global investment landscape. As currency dynamics continue to play a crucial role in OFDI decisions, these strategies will be instrumental in ensuring that Chinese overseas investments can navigate financial market volatility while maximizing their economic impact both domestically and in host countries.

These policy recommendations are grounded in empirical evidence and aim to create a mutually beneficial environment for Chinese OFDI. They emphasize the importance of reducing uncertainty, enhancing market access, managing financial risks, and fostering diverse investment strategies. However, it is crucial to note that the implementation of these policies should be carefully tailored to specific country contexts and should remain flexible to adapt to the evolving nature of Chinese OFDI in the global economy.

8.0 Conclusions

Since the establishment of the China-CEECs cooperation mechanism, all parties have achieved fruitful cooperation guided by the principles of mutual benefits and win-win outcomes. This collaboration has played a significant and positive role in advancing the high-quality development of the BRI and fostering the construction of a community with a shared future for humankind. This study employs the empirical analysis method, utilizing data from 2008 to 2022 concerning China’s relationship with CEECs. Building upon the adjustment of the classic trade gravity model, this study introduces gross domestic product and infrastructure as control variables to investigate the impact of direct investment on trade outcomes.

The study highlights the positive impact of OFDI in CEECs on bilateral trade. Chinese enterprises have successfully entered the CEECs markets through OFDI, leading to trade growth and an increase in bilateral trade volume. This finding underscores the pivotal role of

direct investment in strengthening economic ties and fostering cooperation between CEECs and China. Hence, reinforcing OFDI in CEECs will inject new vitality into the development of bilateral trade, ultimately promoting economic growth for both China and the CEECs. Through deepened investment cooperation, the two sides can achieve broader and more diversified trade collaboration, thus creating economic growth and employment prospects for both regions.

While this research provides valuable insights into the determinants of Chinese Outward Foreign Direct Investment (OFDI) using the Knowledge Capital model, it is important to acknowledge several limitations that may affect the interpretation and generalizability of the findings. One of the primary constraints of this study is its reliance on aggregate national-level data. The use of OFDI stock as a proxy for MNC sales, while necessary due to data availability, may not fully capture the nuanced dynamics of firm-level investment decisions. This aggregation could potentially mask important variations in investment motivations and strategies across different types of firms (e.g., state-owned enterprises vs. private companies) and sectors. In addition, the quantitative nature of this study, while providing statistical rigor, may not capture qualitative factors that influence OFDI decisions, such as cultural affinity, historical ties, or strategic geopolitical considerations. Complementing this analysis with qualitative case studies could provide a more comprehensive understanding of Chinese OFDI motivations. Simultaneously, this study may not fully capture the effects of rapid policy changes, both in China and host countries, which can significantly influence OFDI patterns. A more dynamic policy analysis framework could enhance the model's predictive power. Addressing these constraints in subsequent studies will contribute to a more comprehensive understanding of the complex dynamics driving Chinese OFDI in the global economy.

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Appendix

Appendix A

China's total import from 16 CEECs from 2007 to 2022, million USD.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	66.341169	88.259172	64.319826	147.572616	155.367791	142.720886	234.840915	189.322397	127.861359	128.596467	196.222142	107.861715	103.782645	79.688717	164.446682	186.30087
Bosnia Her	27.287113	6.613839	13.562187	17.597023	29.894728	23.300875	20.880328	37.242373	53.72908	43.546206	57.254159	77.400748	77.040489	72.682205	137.639276	122.706171
Bulgaria	158.003697	216.781956	140.99702	322.999381	459.981528	840.157165	956.742907	984.859638	748.3066	590.108479	969.183021	1149.082938	1163.23122	1369.46362	1798.532915	1271.674251
Croatia	67.625198	67.83574	74.856035	50.890177	79.531	74.514004	104.265835	100.662533	111.789045	161.440422	183.083779	212.017381	145.386789	138.869239	339.898993	158.667026
Czechia	830.799433	1002.704234	1131.849047	1727.987185	2318.995632	2406.876645	2614.923008	2986.688756	2780.453405	2951.543251	3695.705524	4406.185938	4628.040908	5132.632094	6052.656666	5419.432024
Estonia	89.862033	88.69438	79.331724	181.908389	205.417486	135.749789	199.575171	225.498366	234.963583	211.791329	260.339003	245.474319	299.41197	281.389415	281.464588	301.36961
Hungary	1210.080428	1382.204047	1466.425962	2197.691683	2452.217389	2323.098017	2715.148301	3259.89963	2875.551415	3464.230161	4077.223959	4338.742384	3747.424136	4281.681825	5570.198519	5049.297343
Latvia	21.495831	18.01042	26.001369	39.061626	63.436323	68.827118	99.157559	146.909554	144.585911	132.204537	177.240332	212.840277	195.650989	200.465219	239.091505	375.371961
Lithuania	19.690693	29.129678	38.113255	42.148264	87.606619	89.497283	124.785537	157.48678	138.784693	164.01131	255.151046	331.790735	436.794029	487.539375	433.469727	90.9213
Monteneg	1.348652	2.125379	0.74464	3.063845	12.055617	21.458127	16.142805	53.560445	24.274424	32.582358	66.401113	42.190188	43.304791	57.367614	11.331887	47.205612
North Mac	9.825629	13.275161	24.093158	91.756384	154.308487	139.606216	107.972555	90.58459	132.697664	46.705307	86.688785	48.374215	148.704731	227.25472	365.941981	178.971115
Poland	1112.248441	1394.431815	1504.764187	1696.613007	2047.975509	1997.765599	2231.797119	2934.739056	2741.951454	2537.72207	3353.507795	3646.181428	3943.810848	4319.860071	5541.438593	5059.6453
Romania	281.471716	359.895832	433.095291	755.266641	947.047802	979.775941	1207.501781	1520.667345	1294.952121	1455.221038	1824.318039	2170.014461	2323.744211	2638.132415	3507.358383	3074.65031
Serbia	13.116101	12.28101	28.643216	55.116378	77.891459	101.566427	180.126901	112.740979	133.736754	162.696164	211.584906	224.518531	362.744706	497.675323	983.53	1375.033947
Slovakia	735.326035	983.732625	897.393008	1790.561881	3457.346257	3655.226501	3458.155736	3376.076644	2237.316045	2410.166238	2584.962634	5244.318952	5967.430429	6431.442503	7547.220489	7709.702122
Slovenia	110.554732	131.557653	126.469046	176.569526	202.040417	256.030373	302.799041	331.464602	289.506573	436.85838	495.352405	590.974974	516.462422	508.596222	631.735987	589.50189

Source: Author's analysis of UN Comtrade Data

Appendix B

China's total export to 16 CEECs from 2007 to 2022, million USD.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	89.979474	196.105777	207.861575	199.277724	281.482764	343.904583	324.596499	378.26975	430.190806	506.540419	454.033529	541.832246	598.524137	571.245838	584.371644	704.08014
Bosnia Her	54.450538	72.829871	35.658382	37.589221	41.434916	46.711528	91.328214	283.984316	59.978105	64.02682	78.816751	109.825748	113.614402	120.101901	136.371634	185.283997
Bulgaria	818.656787	1124.844722	596.052099	660.906308	1005.615637	1054.597122	1116.98416	1178.062014	1043.259427	1055.552573	1169.047355	1442.480646	1546.266108	1547.318831	2299.931151	2851.996322
Croatia	1540.859912	1741.988454	1118.521596	1343.731335	1540.929756	1299.885707	1389.942736	1027.325028	985.561959	1016.752933	1159.640718	1329.77338	1386.437588	1566.684308	1954.131166	2265.544204
Czechia	4134.950108	5497.482854	5023.771859	7121.515998	7669.40713	6323.55117	6837.794906	7992.899362	8226.132073	8058.523909	8792.969695	11912.52937	12911.00788	13738.47663	15088.00286	18227.38726
Estonia	584.82934	588.13016	362.295983	676.737922	1130.854729	1233.665715	1109.820135	1146.097776	953.287539	963.644014	1006.352315	1032.202716	915.839901	864.083303	1007.043316	946.5697
Hungary	5016.631724	6096.852444	5343.600691	6518.313682	6806.02156	5737.959719	5692.280446	5764.165984	5197.452275	5422.687552	6049.345107	6540.410303	6439.099565	7404.818155	10116.13684	10472.66116
Latvia	686.137396	848.979999	452.298736	794.160307	1192.946688	1312.708947	1374.267489	1316.699354	1022.50575	1062.374292	1148.242366	1169.822423	1078.372001	1052.223052	1142.166721	1025.342136
Lithuania	802.944504	1059.978297	655.714444	982.340835	1335.10112	1630.884984	1686.177991	1658.290764	1210.902623	1290.938626	1600.274355	1763.52889	1681.946991	1807.877285	2187.200658	1789.749503
Monteneg	53.631574	86.595277	76.822598	71.082965	89.981869	145.761043	86.383454	157.066329	134.147473	108.327938	132.455707	178.355702	113.761911	113.155079	95.756814	219.018909
North Mac	75.585807	70.721048	56.009508	52.783088	91.810658	88.749833	63.476178	76.663641	86.532159	90.046619	78.041448	107.788398	131.928003	156.833424	222.184952	234.926542
Poland	6554.790659	9040.36759	7561.76752	9438.306983	10939.5488	12386.65718	12574.87471	14256.79857	14344.8717	15094.06705	17873.04996	20944.25581	23906.08665	26735.783	36291.07291	38163.11289
Romania	2099.518913	2889.919681	2377.287745	3004.462173	3453.77507	2797.186371	2822.536841	3223.177591	3162.240075	3447.669471	3777.960251	4512.11118	4562.821795	5126.43317	6651.772438	7397.190859
Serbia	363.992488	492.520004	308.320998	345.016345	396.353094	412.875586	431.911532	424.563062	415.096978	431.66317	545.639029	728.9975	1025.170854	1624.511735	2230.883804	2176.822184
Slovakia	1470.687564	1966.040236	1399.01451	1958.477027	2512.599983	2423.049977	3084.436614	2828.495793	2794.46768	2861.362255	2729.478548	2558.824517	2893.893417	3033.060759	4539.08897	4435.772395
Slovenia	701.449937	964.205569	770.10131	1385.668573	1675.371443	1566.640643	1832.812279	1991.941939	2091.734751	2269.426806	2886.929825	4435.174362	3404.4421	3452.43861	5297.622592	6861.226291

Source: Author's analysis of UN Comtrade Data

Appendix C

China's OFDI stock in 16 CEECs from 2007 to 2020, Thousand USD

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	510	510	4,350	4,430	4,430	4,430	7,030	-2,999	4,355	6,736	9,067	4,271	2,865	4,209	2,628	4,138
Bosnia Hercegovina	3,510	3,510	5,920	5,980	6,010	6,070	6,130	6,130	7,750	8,600	4,340	4,340	16,700	22,860	21,220	40,460
Bulgaria	4,740	4,740	2,310	18,600	72,560	126,740	149,850	118,496	138,374	112,789	129,285	127,668	148,064	154,369	149,616	170,229
Croatia	7,840	7,840	8,100	8,130	8,180	8,630	8,310	11,870	11,820	11,990	39,080	69,080	98,400	252,640	245,530	242,480
Czech	116,359	75,786	53,839	59,369	-17,169	-5,218	135,719	204,014	370,698	794,261	1,100,922	1,011,964	1,500,747	770,248	930,929	969,381
Estonia	-110	284	12,739	40,795	-15,026	22,417	3,820	5,388	5,767	13,282	14,243	19,133	34,227	52,965	53,195	55,646
Hungary	34,174	41,633	10,665	133,492	-36,593	72,589	92,549	1,268,316	1,951,670	1,933,833	1,989,299	2,635,508	2,847,323	3,541,806	4,279,133	1,392,220
Lithuania	5,005	2,561	3,155	3,447	2,785	3,100	3,075	1,821	17,844	21,682	40,513	47,344	30,094	34,728	50,840	52,203
Latvia	-	-	-	1,336	-	-	4,137	72,846	69,679	69,569	74,358	43,508	30,330	26,997	122,990	88,213
Montenegro	320	320	320	320	320	320	320	320	320	4,430	39,450	62,860	85,090	153,080	206,010	84,380
North Macedonia	200	200	200	1,340	1,700	1,781	1,420	-3,820	11,170	38,730	132,020	151,880	177,040	160,100	141,930	146,070
Poland	203,500	336,100	188,700	303,700	413,700	288,100	641,069	501,948	927,807	707,202	847,833	939,367	1,222,529	1,418,236	1,555,648	1,333,547
Romania	72,880	85,660	93,340	124,950	125,830	161,090	145,130	191,370	364,800	391,500	310,070	304,620	428,270	313,160	220,110	220,220
Serbia	2,000	2,000	2,680	4,840	5,050	6,470	18,540	29,710	49,790	82,680	170,020	271,410	164,730	310,570	482,290	557,460
Slovakia	193	1,193	21,611	26,724	59,585	51,451	34,740	38,040	15,024	26,745	36,072	25,102	41,171	16,247	59,964	88,714
Slovenia	-109	188	1,441	-	-	-1,319	-1,379	305	3,272	11,763	2,213	408,098	365,575	321,462	194,429	1,810

Source: Author's collection of 2007-2020 China's OFDI Stock in 17 CEECs from OCED, national banks, and MOFCOM