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EU — China trade cooperation in the context of the BRI: Analysis and perspectives on different examples of the EU countries*

E. Kašťáková, A. Luptáková, B. Družbacká

University of Economics in Bratislava,
1, Dolnozemská cesta, Bratislava, 85235, Slovakia

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This paper aims to examine the EU's foreign trade relations with China following the launch of the Belt and Road Initiative (BRI), assess trade intensity developments and identify the export potential of China's largest trading partners in the EU. We established two hypotheses: 1) in the context of the BRI, the intensity of Chinese trade to the EU was higher than the intensity of EU trade to China during the period considered; 2) the export potential of the EU's most important partners to China in 2019 focused on higher value-added commodities in the context of the BRI. We used the trade intensity index to confirm hypothese 1. In the case of hypothese 2, the export potential indicator was used to identify products that have good prospects for further export. The EU is China's largest trading partner with a growing trend in mutual trade. An examination of trade intensity has shown that trade flows between countries have been lower than expected given the position of economies in the world economy. German exporters recorded the highest activity, but the Netherlands recorded the highest intensity of Chinese exports to the EU. Coetaneous, we can say that Germany, France, Italy, and the Netherlands had the untapped export potential to China, which mainly concerned motor vehicles and parts, machinery, and pharmaceutical components. The BRI can be seen as a slightly positive impact on the development of trade and investment cooperation between the EU and China.

Keywords: BRI, trade cooperation, foreign trade, trade intensity index, export potential.

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Introduction

Over the last 30 years, China has experienced strong economic growth, driven by economic reforms, massive government spending, and monetary policy interventions by the People's Bank of China, which have tightly controlled the yuan's value in regulating export prices. These factors strengthened under the influence of globalization. Since 2009, China has become the world's largest exporter of goods. The expansion of other countries in the developing world has resulted in China exhausting its comparative advantages of cheap labor and transforming itself into the producer of higher value-added goods. At the same time, China's economic growth has reduced poverty, with only 3.3 % of the population living below the poverty line, which caused growth in domestic consumption[1]. The rise in living standards and its consumer market of almost 1.4 billion people has made China an attractive export destination for the European Union. Due to unstable conditions in the global environment, China had to develop a new strategy to maintain its current dynamics of economic growth. The Belt and Road initiative was this strategy, which is a revival of the Silk Road that, during the Han dynasty, established trade between the Far East and Europe.

In 2013, shortly after the G20 summit, Chinese President Xi Jinping embarked on a tour of Central Asia to introduce the New Silk Road. The Chinese government described this initiative as the third stage in the opening of the Chinese economy after the creation of special economic zones in 1980 and the country's accession to the World Trade Organization in 2001. This project that can be characterized as a network of railways, roads, gas pipelines, oil pipelines, ports, terminals, or transhipments that should connect China with Europe as it did more than a thousand years ago, but using the latest technology. The European Union and China are the world's two largest traders. Goods transported between the European Union and China represent a daily average value of more than € 1 billion in mutual trade[2]. However, promising potential for cooperation is repeatedly undermined by major political differences, and EU member states failed to adopt a common response to the Chinese initiative [Di Donato, 2020]. Even in 2021, the EU launched the Global Gateway, which represents the latest in a string of EU policy actions, strategies, and declarations designed to reflect, and produce, a viable alternative to the Belt and Road Initiative (BRI) [Kuo, 2021].

Our research specifies the development of EU — China trade cooperation in the context of the BRI. The results examine the mutual trade intensity from the perspective of the EU and China and suggest the export potential of the EU's most important partners to China in the period under review.

1. Literature review

China and the EU, which are geographically the two counterparts of the Eurasian continent, are among the major economic and political powers in the global economy. How Europe and China evolve, both internationally and in their relationship with each

[1] *The World Factbook 2018.* (2018) Central Intelligence Agency. URL: https://www.cia.gov/library/publications/download/download-2018/index.html (accessed: 01.05.2021).

[2] *Countries and Regions: China.* (2018) European Commission. URL: http://ec.europa.eu/trade/policy/countries-and-regions/countries/china/ (accessed: 28.02.2021).

other, matters greatly for world affairs, because they are the largest entities in the international system, apart from the United States. H. Zhou pointed that economic and trade relations are always one cornerstone of China — EU relations; a stable and healthy development of economic and trade relations lays a foundation for deepening China — EU relations [Zhou, 2017]. However, widening economic and trade frictions in recent years have also exerted an adverse impact on China — EU relations. According to A. García-Herrero and K. Kwok, in recent years many EU business leaders have come to perceive Chinese companies as sources of unfair competition, at the same time as returns on European investments in China are being squeezed by emerging Chinese competitors [García-Herrero, Kwok, 2017, p. 1]. State ownership remains a salient feature of the Chinese economy, which creates concerns for the EU about market access. But Z. Mingaho expects that implementation of the BRI will bring new opportunities for China — EU relations — in particular, it could effectively deepen trade and investment cooperation between these partners [Mingaho, 2016].

Compared to the previous period, China's foreign policy has changed significantly. Especially after 2008, and now is more proactive, assertive, and global [Yu, 2017, p. 4]. At the "Peripheral Diplomacy Work Conference" in 2013, Xi Jinping said that China's neighbors have extremely significant strategic value. He also added that he wanted to improve relations between China and its neighbors, strengthen economic ties, and deepen security cooperation[3]. China's economic growth is driven by the large export-oriented manufacturing industry to which it must import a large extent of intermediates and raw materials [Amighini, 2017].

In this context, the EU responded with a Joint Communication to the European Parliament, the European Council, and the Council entitled "EU — China: A Strategic Vision"[4]. One of the EU's main goals is to expand cooperation with China in all pillars of the United Nations — human rights, development, world peace, and security. The EU calls for the fight against climate change and the goals of the Paris Agreement. In order to maintain stability, sustainable development, and overall good governance of partner countries, the EU wants to rigorously apply existing bilateral agreements and financial instruments in cooperation with China to the same principles stemming from the EU's Europe — Asia Interconnection Strategy. In order to achieve a more balanced economic relationship, the EU calls on China to meet existing common commitments, including reform of the World Trade Organization. It is also a priority for the EU to address the participation of foreign bidders and goods in the EU public procurement market in order to ensure that a high level of labor and environmental standards is taken into account in addition to the price [Liu, 2016].

China's BRI is a global infrastructure development and investment strategy covering over 70 countries, representing approximately 65 % of the world's population[5]. Participation in the initiative is open to all states and international organizations, determined by

[3] CCICED. (2018) *Important Speech of Xi Jinping at Peripheral Diplomacy Work Conference.* URL: http://www.cciced.net/cciceden/NEWSCENTER/Latest (accessed: 28.05.2021).

[4] EUR-Lex.europa.eu. (2019) *Joint Communication to the European Parliament, the European Council and the Council entitled EU — China.* URL: https://eur-lex.europa.eu/legal-content/SK/TXT/PDF/?uri=CELEX:52019JC0005&from=EN (accessed: 26.11.2021).

[5] EBRD. (2020) *Belt and Road Initiative (BRI)*. URL: https://www.ebrd.com/what-we-do/belt-and-road/overview.html (accessed: 01.05.2021).

the success of individual projects and the development of relations. According to Schweisgut, the Eurasian interconnection must bring concrete benefits to the citizens of developed countries but also to the developing world[6]. This is a considerable ambition at the level of strategic partnership between the European Union and China. Based on the global computable general equilibrium model focusing on infrastructure investment, F. Zhai [Zhai, 2018, p. 9] concluded that the BRI could boost world trade by 5 % in 2030.

The economic and geopolitical motives behind BRI have already been widely discussed. For example, Y. Wang [Wang, 2016] states that the BRI resulted from combined pressure stemming from the slowdown in the Chinese economy, the US pivot policy towards Asia, and deteriorating relations in the region following the global financial crisis in 2008. According to P. Cai [Cai, 2017], the initiative can be also considered geo-economic. He argues that the BRI could help China to solve some urgent economic problems. One of the most important is regional development, i. e. the reduction of disparities between individual Chinese regions. These are China's inland western regions such as Xinjiang and Yunan, for which the infrastructure would allow connections to port facilities in neighboring countries [Yu, 2017]. Among China's other priorities is to increase exports of products with higher value-added and ending its status as "world factory" for cheap products, dealing with the surplus production created by incentives during the global crisis, especially for steel and glass.

According to S. Djankov, China's major interest is to increase transportation speed while reducing costs [Djankov, 2016]. In addition, it expresses four other objectives. First, China aims to reduce its dependence on domestic infrastructure investment. This implies that Chinese construction companies, manufacturers, and other companies must foresee other options than the domestic market. The key motivation for the Belt and Road initiative is to find consumption for these companies abroad. China expects its own companies to plan, build, and deliver the projects it finances, and this expectation has been confirmed in an analysis of existing projects. Second, the focus on infrastructure is helping China to find a more prominent international position for the yuan to achieve global reserve currency status. China has the support of Russia and other emerging markets in this effort, as the volatility of their currencies often disquiet politicians. To finance projects in which the Chinese currency is used for loans, China joined the European Bank for Reconstruction and Development in 2015 and established the Asian Bank for Infrastructure Investment. These steps were accomplished, and the International Monetary Fund added the yuan to its basket of global currencies. The third motive of the initiative is to secure energy supplies for China through new pipelines in Central Asia, Russia, and Southeast Asia. China has been facing the so-called "Malacca Dilemma" for years. The term was introduced by President Hu Jintao in 2003, and it points to China's dependence on the Strait of "Melaka". About 80 % of oil brought into China enters through the Strait of "Melaka", and anyone who seizes the strait could cause problems for China. That is why China is vulnerable in terms of energy security, and diversification of imports of these resources is one strong motivation for the BRI. In recent years, there have been intense discussions between China and Russia on creating an Arctic route that would address China's energy problem. As a result of global warming, access to Arctic oil and gas reserves, most of which have been identified in Russia, is being facilitated. The "Arctic Silk Road" is supported by an Arctic policy,

[6] Friend of Europe. (2017) *Eu — China Cooperation in an Age of Uncertainty.* URL: https://www.friendsofeurope.org/wp/wp/content/uploads/2019/06/EUChina_report-compressed.pdf (accessed: 28.02.2021).

respecting the changing environment in the region [Zhang, 2020]. The development of infrastructure in the countries involved in the BRI can increase the economic growth of their economies, thus contributing to the growing demand for goods and services from China. Y. Wang [Wang, 2016] states that this Chinese strategy is defensive rather than offensive in nature. Despite the risks and uncertainties, enforcement will strengthen China's influence and position in regional and international institutions.

In September 2018, Federica Mogherini, High Representative of the European Union for Foreign Affairs and Security Policy, presented a program for European strategic interconnection between Europe and Asia. The EU's new strategy for connecting Europe and Asia in response to China's BRI is a decisive element in pursuing European relations priorities. The EU's policy bolsters a broader strategy of sustainable development, decarbonization, digitization, innovation, and investment. The implementation of these initiatives will change the current model of international trade, which will significantly affect the management of global supply chains and the development of logistics. The EU cohesion policy aims to increase efficiency in the EU single market and expand global links focused on people's benefits and rights[7]. Both partners are interested in developing efficient, economically viable, and environmentally sustainable trade routes and corridors between Europe and Asia. One of the priorities of this plan is to link the well-developed structure of the Trans-European Transport Network with the networks in Asia. A. G. Herrero and J. Xu estimated the trade effects of BRIs with a focus on Europe, considering three modes of transport (i. e. rail, sea, and air). They concluded that the EU's landlocked countries would benefit greatly from expanding trade due to improved transport infrastructure [Herrero, Xu, 2016].

The President of the China Institute for Reform and Development states that the implementation of EU — China cooperation may have other complementary effects[8]. The current pattern of Chinese consumption needs to be considered. In urban areas, services account for 40 % of China's consumption, with a year-on-year increase of 2 %. The predominance of EU in services can be met in the future by Chinese market demand. Cecilia Malmström, European Commissioner for Trade, said that economic relations between the EU and China were a sizable origin of wealth, jobs, and development for both parties.

One indicator for determining the potential of mutual foreign trade is the trade intensity index. The intensity of trade depends on many factors, such as the size of economies, their level of development, the structure of GDP, their geographical location and the distance associated with transport costs or other cultural and institutional spheres. It also depends on the signed mutual trade agreements or trade barriers between the studied countries. The development tendencies of trade intensity create space for the valuation of bilateral relations from both sides on the supply and demand. This indicator was initially designed by A. J. Brown [Brown, 1949] and later by K. Kojima [Kojima, 1964]. I. Yamazawa was the first to evaluate the factors influencing trade intensity in the use of the trade intensity model [Yamazawa, 1971].

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[7] European Commission. (2018) *Commission position paper on the Trade Sustainability Impact Assessment of the Negotiations of a Partnership and Cooperation Agreement between the EU and China.* URL: https://trade.ec.europa.eu/doclib/docs/2009/february/tradoc_142373.pdf (accessed: 04.03.2021).

[8] Friend of Europe. (2017) *Eu — China Cooperation in an Age of Uncertainty.* URL: https://www.friendsofeurope.org/wp/wp/content/uploads/2019/06/EUChina_report-compressed.pdf (accessed: 28.02.2021).

Recent literature on trade potential has used the ratio of real trade volume to the predicted trade volume between two countries to evaluate countries' bilateral trade performance [Cinar, Johnson, Geusz, 2016; Jakab, Kovacs, Oszlay, 2001]. Export potential is established on the concept that bilateral trade flows are positively associated with the degree of product supply and demand and negatively associated with trade restrictions such as customs duties or geographic distance and naturally relates to gravity models[9]. L. Yu et al. examined the effect of the Belt and Road Initiative on China's export potential to the countries along the Belt and Road routes [Yu et al., 2020]. The results show that China's export potential to the Belt and Road countries rose significantly after the initiative began, especially for exports of products in capital-intensive industries. J. Bronček identified the export potential of the Slovak Republic in trade with China [Bronček, 2019]. Based on his findings, the biggest obstacle to the fulfilment of the export gap was the degree of sophistication of Slovak exports and complicated transit links with China. A. Chaudhary assessed the export potential and competitiveness of Indian textiles in relation to textile exports around the world [Chaudhary, 2016]. The findings show that India's export potential for textiles has continuously improved in the post Multi Fibre Arrangement period and the industry has strong comparative advantage in terms of total world's textiles exports. S. Morkovina et al. studied the comparative analysis of the development of small and medium-sized enterprises in the EU and Russian Federation Based on their results, diversification of exports and an increase in the number of exporters can be achieved through the export potential of the small and medium-sized enterprises segment [Morkovina et al., 2018]. E. Pelinescu and M. Radulescu [Pelinescu, Radulescu, 2009] examined the role of foreign direct investment in re-specializing the transition economies and in increasing the export potential in the case of new EU member states and South — East Europe.

2. Methodology

This paper examines foreign trade relations between the European Union and China after the launch of the Belt and Road Initiative, assesses the development of trade intensity, and determines the export potential of China's largest trading partners from the EU.

To achieve the aim, we set the following hypotheses:

H_1: *In the context of the BRI, China's trade intensity to the EU was higher than the EU's trade intensity to China during the examined period.*

H_2: *The export potential of the EU's most important partners to China in 2019 was focused on commodities with higher value added in the context of the BRI.*

We limited research into mutual development of foreign trade between the EU and China in the context of the BRI to the period 2012–2019. The commodity structure was classified according to the Harmonized System (HS) at the HS2 level. In the case of Chinese BRI investments in EU countries, we used data for 2013–2019, because of the accumulation of investment flows and statistical reporting.

We determined changes in their trade exchange of territorial structure by the export and import of countries. Values from 2012 were set as a baseline value for each country. We calculated percentage changes for 2019 from the baseline value. The R language and

[9] ILO. (2018) *Spotting Export Potential and Implications for Employment in Developing Countries*. Switzerland, Geneva: International Labour Office. URL: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_652227.pdf (accessed: 28.02.2021).

RStudio software were used to create a cartogram reflecting the change in EU28 export and import. We analysed the commodity structure of mutual trade at the level of HS2 and HS8. We assessed the development of the inflow of investments into the EU under the BRI.

For territorial limitation in mutual trade intensity, the position of the EU's five largest trading partners with China in 2019 was examined. In the case of export potential, these were the five most important exporters from the EU to China.

We used the trade intensity index (TII) to test hypothesis H_1. TII is one method used to assess whether trade volumes between two countries are larger or smaller than would be expected based on their position in the world economy. It is defined as the share of one country's exports to a partner country, divided by the share of world exports to the partner country[10]. The formula is defined as follows:

$$TII_{ij} = \frac{\frac{x_{ij}}{X_{it}}}{\frac{x_{wj}}{X_{wt}}}, \quad (1)$$

where the individual variables have the following interpretation:

— x_{ij} — value of exports from country i to country j;
— X_{it} — the value of the country's i total exports to the world;
— x_{wj} — the value of total world exports to country j;
— X_{wt} — value of total world exports.

The index ranges from zero to infinity. If the value of the index is 1, it means that the country i exports to country j the exact ratio of exports that country j belongs to, in terms of its share of world imports. If the value of the index is higher than 1, trade flows between the studied countries are at a higher level than would be expected, given the importance of the economy in the global market. It means that country i exports more to country j than the rest of the world, which indicates an intensive business relationship. If the value is less than 1, the trading intensity is at a lower level than would be expected.

In the case of proving H_2, we used the Export Potential Indicator (EPI), which identifies products that the country already exports and that have good prospects of additional export in target market. The methodology to estimate export potential is inspired by a gravity model specified at the product level. This indicator is calculated according to methodology of Y. Decreux and J. Spies [Decreux, Spies, 2016]. The starting point is the assumption that in a world without frictions, trade flows could be described by a combination of exporter × product, importer × product and exporter × importer factors,

$$v = \alpha_{ik}\beta_{ij}\gamma_{jk} \quad (2)$$

where $vijk$ corresponds to exports from exporter i of product k to market j. The parameter aik describes exporter i's performance in exporting product k, γ market reflects j's demand for product k and β_{ij} the easiness to export any good from i to j. potential export value of product k supplied by country i to market j, in USD dollars, is calculated as supply × demand (corrected for market access) × bilateral ease of trade. Supply and demand

[10] World Bank. (2013) *Online Trade Outcomes Indicators*. URL: https://wits.worldbank.org/wits/wits/witshelp/Content/Utilities/e1.trade_indicators.htm (accessed: 28.05.2021).

are projected into the future based on GDP and population forecasts, demand elasticities, and forward-looking tariffs. The estimated value serves as a benchmark for comparison with actual exports and should not be interpreted as a ceiling value. The actual trade value may be below or above the potential value.

The supply side in the export potential indicator is based on the projected market share. As a result, the share of country *i*'s exports of product *k* in total exports of product *k*, multiplied by the exporter's expected GDP growth rate (relative to expected GDP growth of other exporters of the same product) capture the relative increase in overall supply performance. This indicator is corrected for global tariff advantages of country *i* in product *k*: it is meant to capture projected market share, and thus supply performance, in the absence of tariffs (the impact of tariffs on exports to a particular market will be considered in the demand component). A filter to remove re-exported products is applied in certain manufacturing sectors.

The demand component is based on projected imports, thus market *j*'s imports of product *k*, augmented by expected growth of GDP per capita (subject to estimated revenue elasticities of import demand per capita at sector and development level). The indicator also considers the future tariff advantage in the target market and the bilateral distance as compared to the average distance over which the target market usually imports the product.

Ease of trade is based on the ratio of actual trade between exporter *i* and market *j* for products with potential relative to their hypothetical trade if exporter *i* had the same share in market *j* as it has in world markets. The numerator captures the actual trade between the exporter *i* and market *j* and the denominator capture trade complementarities between the exporter *i* and market *j*. If Ease > 1, country *i* finds it easier to trade with market *j* than with world markets on average, augmenting the potential to trade any product with market *j*. This can reflect in a high numerator, resulting for instance from the two countries being in proximity, sharing the same language or culture or having established commercial links in the past. It can also reflect in a low denominator due to a limited complementarity of the countries' export and import baskets. By contrast, if Ease < 1, country *i* finds it relatively more difficult to trade with market *j*, lowering its potential to trade with that market across all products.

The value of *actual exports* is calculated as an arithmetic average of direct and mirror data of reliable reporters over the past five years. *Realized potential* captures the extent to which the export potential has already been utilized for this product, market, or supplier. At the most disaggregated level, by country, product and market, the realized potential corresponds to the potential to actual exports gap (in % terms) whenever potential > actual exports and to 100 % whenever potential < actual exports. At the aggregate level (e. g. export potential in a regional market or by sector), the realized potential may be below 100 % even though aggregated actual exports exceed potential exports. This occurs when individual exporter-product-market combinations still hold underutilized potential that should not be masked by the fact that others have exceeded their potential. Actual exports may be higher or lower than the expected potential value. When actual exports exceed potential exports, this can be driven by an exporter's exceptional export performance in some markets while neglecting others. Conversely, the untapped potential value signals room for export growth if frictions, for example in the form of regulations or buyer-seller mismatches, can be overcome.

The data sources were primarily ITC Trade Map, ITC Market Access, China Global Investment Tracker, IMF, and ILOSTAT database. The interval for analyses of foreign trade between the EU and China was set from 2001 to 2019. Data reports are available for every country pair: country A's declaration of exports to and imports from country B and country B's declaration of exports to and imports from country A. Ideally, what A exports to B (as declared by country A) should match what B imports from A (as declared by country B) with only a small difference stemming from the fact that import values include insurance and freight costs while export values are reported "free on board". However, differences between direct reports and the so-called mirror reports are often substantial and it is not straightforward to identify the best source of data.

3. Results

Relations between the European Union and China are of global importance and their trade and economic ties are likely to increase in the coming years. The European Union manages its trade relations with third countries by trade agreements, aiming to create better trade opportunities[11]. The contractual basis for EU — China cooperation is the Trade and Cooperation Agreement of 1985. It is a comprehensive agreement that covers a wide range of issues related to economic cooperation and political dialogue to provide a basis for cooperation in legislative, economic, financial, technological, cultural, and other fields.

Negotiations on a revised Trade and Cooperation Agreement began after the EU — China summit in Helsinki in 2006. A vital part of the new agreement is to include trade and investment, intellectual property rights, technical barriers to trade, competition rules, and public procurement. Concerning sustainable development, the EU advocates, inter alia, the inclusion of commitments and cooperation on major issues, with appropriate references to core labor standards and multilateral environmental agreements, in conjunction with commonly agreed monitoring mechanisms[12]. The differing positions on these issues explain the lack of progress in the negotiations on the new Trade and Cooperation Agreement. In terms of the contractual framework for cooperation, EU — China cooperation could be characterized as incomplete, even though the potential of both economies is unquestionable. However, the 35-year history of building Sino-European relations needs to be updated. The changing situation in the world economy, also in the context of the corona crisis, could be an incentive to open negotiations on a new agreement.

In developing its international trade strategy, the EU has placed a strong emphasis since 2006 on concluding free trade agreements with dynamic East Asian economies. The first proposal for a free trade agreement was submitted in 2014 by Xi Jinping. However, the European Union insists that an investment agreement is needed first. According to Malmström, there are still many obstacles that need to be solved. These steps need to be taken in the right order, and then a free trade debate can begin. China and the EU have been negotiating a Comprehensive Agreement on Investment (CAI) since 2014. Through the CAI, the EU seeks to create new investment opportunities for European companies by opening up the Chinese market by removing discriminatory laws and practices. By

[11] European Commission. (2020) *Trade Agreements. Retrieved.* URL: https://www.consilium.europa.eu/sk/policies/trade-policy/trade-agreements/ (accessed: 04.03.2021).

[12] European Commission. (2018) *Countries and Regions: China.* URL: http://ec.europa.eu/trade/policy/countries-and-regions/countries/china/ (accessed: 28.02.2021).

October 2020, 33 rounds of negotiations had taken place, with the Chinese request for speeding up negotiations to push forward global economic recovery after the pandemic. The ambition was to conclude the CAI between China and the EU by the end of 2020. On the 30th of December 2020, the parties announced the completion of negotiations on the CAI. The discussions were via a video conference between the Chinese President Xi Jinping, German Chancellor A. Merkel, French President E. Macron, President of the European Council Ch. Michel, and European Commission President U. von der Leyen. The next step was to finalize the content of the CAI for translation and further submission to the EU Council and the European Parliament for approval. As early as the beginning of 2021, F. Godement pointed out that the CAI must first pass a test of democratic ratification by the EU parliament (after formal approval by the European Council) [Godement, 2021]. It was necessary for some provisions and the chapter on investment to be ratified later by all national parliaments, which can be a significant obstacle to completion. In May 2021, the European Parliament suspended the ratification of the CAI for that reason. This means continuing more than 35 years of waiting for a new modern trade agreement.

3.1. Development of mutual foreign trade and investment in the context of BRI

In the period under review the European Union is China's largest trading partner, while China is the EU's second-largest trading partner. In recent years we observe increasing turnover. Since 2013, we can monitor steadily growing exports from China to the EU.

As we can see in Fig. 1, the European Union has a negative trade balance with China. China's largest trading partners in the EU in 2019 were Germany, France, the Netherlands, the UK, and Italy. In connection with the definitive withdrawal of the UK from the EU on February 1, 2020, a slight reduction in mutual trade can be expected from an aggregated point of view as the EU.

Many EU government leaders are rather conservative on the issue of further opening up for China. This is also due to the experience associated with the difficult entry of European companies into the Chinese market compared to the simple penetration of Chinese companies investing in Europe.

Fig. 2 demonstrates the total values of Chinese investments within the BRI for the period 2013–2019 in EU countries. The highest volume of investments is in Italy, which has long maintained relations with China. Both countries have significant industrial production and complementarity between individual sectors in which they specialize [Prodi, 2014]. In March 2019, Italy became the first country among the G7 (representing the seven most advanced economies) by which the Memorandum of Understanding on cooperation within the BRI was signed. According to the official text of the Memorandum of Understanding, this means both countries will translate complementary strengths into benefits of practical cooperation, sustainable growth to promote synergies between the BRI, and priorities set out in the Investment Plan for Europe and Trans-European Transport Network[13]. Italy aims to support exports of "Made in Italy" products, reduce the trade deficit

[13] Governo Italiano. (2021) *Memorandum of Understanding between the Government of the Italian Republic and the Government of the People's Republic of China on Cooperation within the Framework of the Silk Road Economic Belt and the 21st Century Maritime Silk Road Initiative*. URL: https://www.institutmontaigne.org/publications (accessed: 30.06.2021).

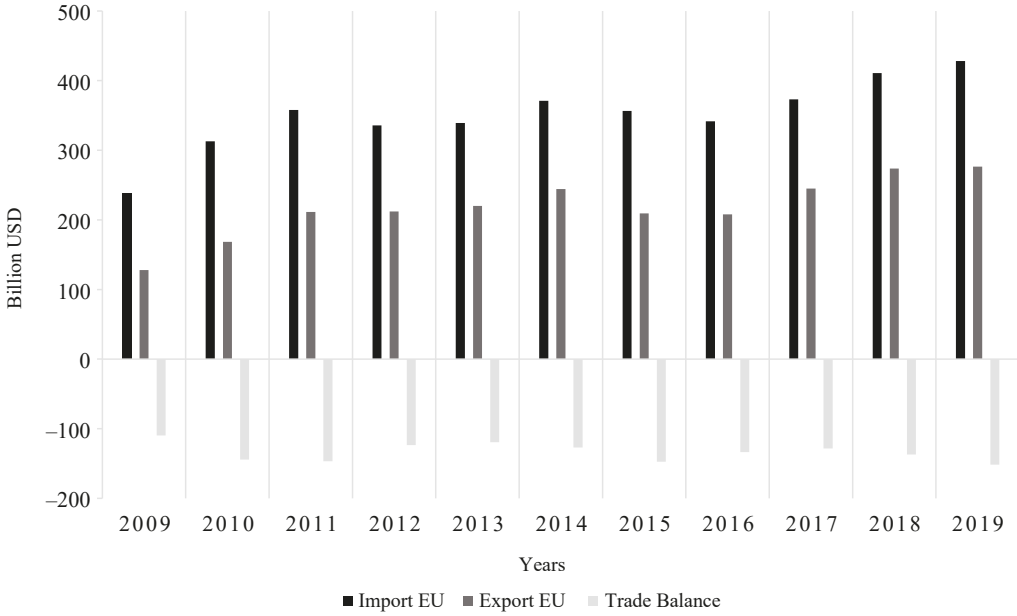

Fig. 1. Development of foreign trade between the EU and China in the years 2012–2019, in billion USD

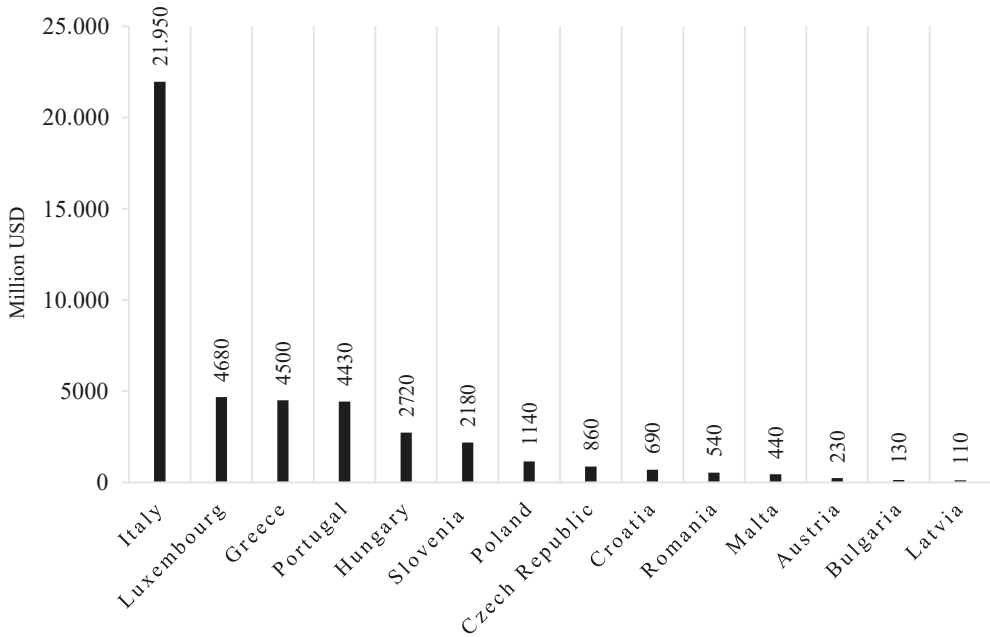

Fig. 2. Chinese BRI investments in EU countries for 2013–2019, in million USD

with China and attract Chinese foreign direct investment. This could help overcome the economic recession, which continues to be exacerbated by the global pandemic. Chinese investments are concentrated in the energy, transport, and logistics sectors of finance, infrastructure, real estate, healthcare, and others.

Many countries, such as Greece, Poland, Hungary, Slovenia, and others, are in the CEE 16 + 1 cooperation. They are positive about the BRI, even though there are advantages and disadvantages to cooperation with China in their cases as well. In deepening cooperation with China, the CEE countries are motivated primarily by economic factors. Many European countries facing economic challenges turn to China as a source of investment as a last resort rather than as a first option. An example is Greece. While other European creditors in Greece introduced austerity measures in 2010, China has invested in the port of Piraeus since 2009. Piraeus has become the busiest port in the Mediterranean and is one of the key hubs of the BRI.

Another example of how EU — China cooperation in the BRI can work is Latvia. Like most EU countries, Latvia had a negative trade balance in the ratio of 1 to 10. By 2017, this ratio had changed positively to 1 to 4.

The largest EU economies, such as Germany and France, are sceptical about the initiative. Together with EU institutions, they share similar concerns about key elements of China's trade and industrial policy: IPR infringements, forced technology transfer, lack of investment transparency, and lack of market reciprocity, as these are economic threats to the EU. They also express concern about the influx of Chinese investment and its alleged consequences in terms of political influence, control of key transport hubs, and access to sensitive technologies. Similarly, these countries have publicly criticized Italy as the first G7 country that officially joined the BRI. According to the Italian Minister of Economic Development, L. Di Maio, such cooperation aims to correct trade imbalances between the two countries [Andani, 2019].

Fig. 3 shows the changes in the imports of EU countries to China in 2019. The red colour of the bubble diagram shows the highest increase, the gradual lightening to yellow indicates the decrease in imports. The highest increases in imports were in Slovenia (250 %), Greece (247 %), Czech Republic (235 %), Poland (222 %), Portugal (199 %), Austria (170 %) and Bulgaria (168 %). As we can see, these are the countries to which Chinese investment flowed. Italy's imports, as the largest recipient of investment, accounted for up to 150 % of the value of imports in 2012 and in 2019. Paradoxically, despite significant investment in Luxembourg, its imports fell by almost 10% compared to 2012. The highest import decrease occurred in Finland (47 %), Malta (59 %) and Cyprus (60 %) compared to the pre-BRI period.

Similarly, we analyzed the exports of EU countries to China. Fig. 4 shows the percentage changes in exports for the same period. The highest growth in exports in 2019 compared to 2012 was in Lithuania (561 %), Ireland (407 %), Latvia (327 %), Romania (272 %), Slovenia (232 %), Estonia (253 %), Croatia (224 %) and the Czech Republic (221 %). In the case of Lithuania, this was due to a rapid increase in copper exports. However, it should be noted that Lithuania left the 17 + 1 (now 16 + 1) cooperation platform with China in May 2021 to maintain EU unity, as according to Lithuanian officials it is high time for the EU to move from a dividing 16 + 1 format to a more uniting and therefore more efficient 27 + 1 [Lau, 2021]. This step may negatively affect future exports to China. Latvia has increased timber exports. Exports from Ireland, Slovenia, Estonia, Croatia, the Czech Republic, and Romania corresponded to the commodity structure of the EU's most exported commodities. Only three countries display a decrease in exports to China compared to the previous period, in the case of Cyprus, Malta, and Belgium.

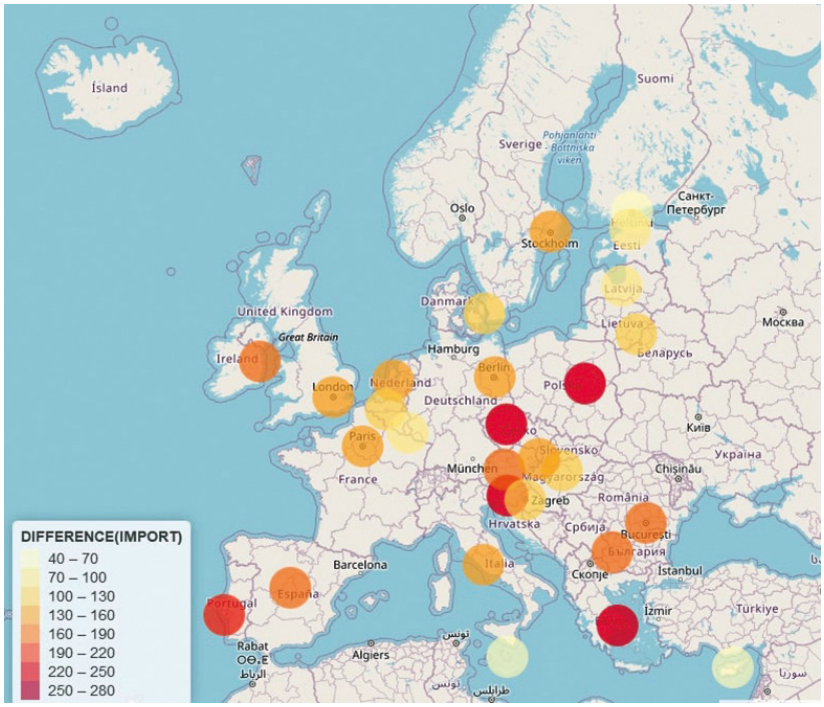

Fig. 3. Change in EU imports from China in 2019 compared to 2012, in %

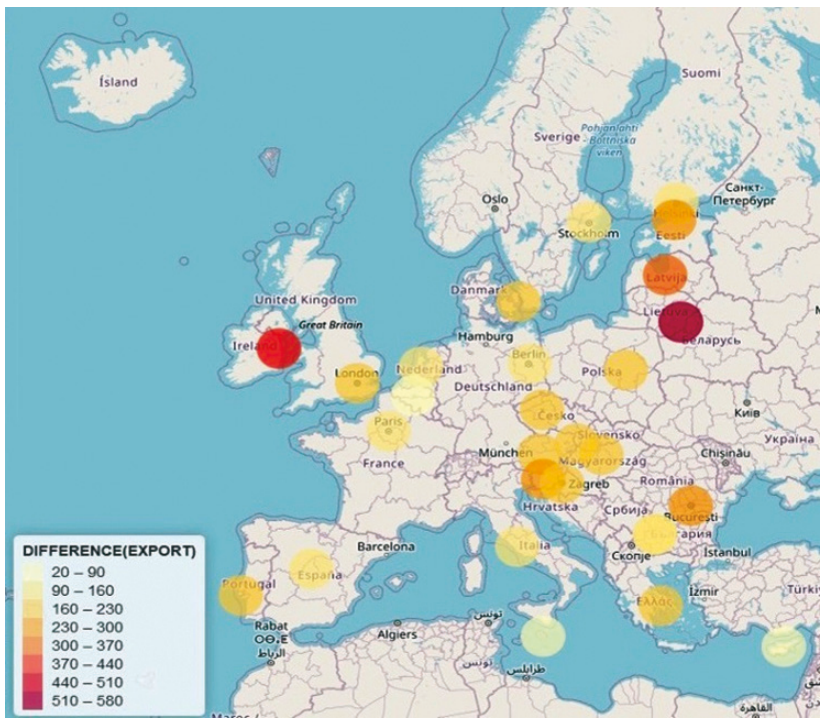

Fig. 4. Change in EU exports to China in 2019 compared to 2012, in %

3.2. Analysis of the commodity structure of mutual foreign trade

In terms of the commodity structure of EU exports to China at the HS2 level, the most exported commodities in 2019 are shown in Fig. 5. These five most exported commodity groups accounted for almost 60 % of the total exports of the EU countries. The dominant positions are held by products of the engineering and automotive industries.

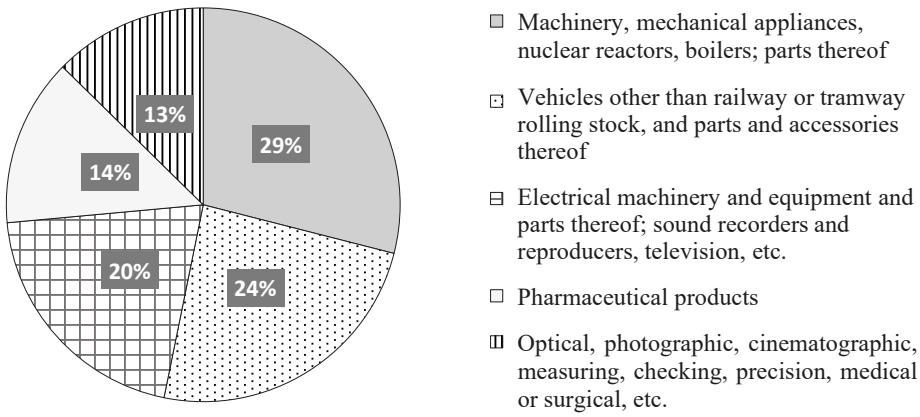

Fig. 5. The EU's most exported commodities to China in 2019 at HS2 level

The most exported product groups at the HS8 level are automobiles and other motor vehicles principally designed for the transport of persons, with a share of 7.42 %, followed by medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes (3.96 %), airplanes and other powered aircraft of an unladen weight > 15.000 kg (3.38 %), electronic integrated circuits as processors and controllers (2.48 %) and petroleum oils and oils obtained from bituminous minerals, crude (2.29 %). Automobiles account for the largest share. The European Union is the greatest exporter of passenger cars to China, accounting for 53.3 % of China's total motor vehicle imports[14]. The shares of investment in research and development of the automotive industry justify the importance of the automotive industry for the EU. In 2017, EU investment in R&D in the automotive industry increased again by 6.7 %[15]. In terms of the structure of investments in individual sectors for research and development in the EU, the automotive industry receives up to 28 %, in 2017 in the amount of 57.4 billion EUR. At the same time, the auto industry provides direct and indirect jobs for almost 14 million Europeans, representing around 6.1 % of employment. However, China's share of global vehicle sales is increasing significantly: in 2000 the share was 3 %, and in 2020 it is expected to be 29 %. In 2017, China ranked fourth in the global rankings in terms of share of investments in the automotive industry, with a growth of 5.9 %. Although we can expect China to strengthen its position in the automotive industry in the future, the European Union has a competitive advantage in terms of a long tradition of operating in this sector.

[14] European Automobile Manufacture Association. (2019) *Fact sheet: EU — China automobile trade*. URL: https://www.acea.be/news/article/fact-sheet-eu-china-automobile-trade (accessed: 04.04.2021).

[15] ACEA. (2019) *The Automobile Industry Pocket Guide 2019 / 2020*. URL: https://www.acea.auto/uploads/publications/ACEA_Pocket_Guide_2019-2020.pdf (accessed: 04.05.2021).

The second sector in which the EU invests the most is the pharmaceutical and biotechnology industry, with a volume of 19 %. The EU's investment in R&D in aerospace & defence accounted for 4 % and in electronic & electrical equipment for 5 % of the total investment structure. As we can see, there is a direct relationship between the volume of investments made in individual areas and the structure of the most exported commodities.

Remarkable economic growth over the past three decades has turned China into a manufacturing power, which can also be seen in the structure of its exports. China's pursuit of technological leadership by supporting domestic innovation represents a new stage in development.

Fig. 6 shows China's most exported commodities to the EU in 2019 at the HS2 level. In terms of classification at the HS8 level, the most exported commodities were telephone sets, incl. telephones for cellular networks or other wireless networks (8.51 %), automatic data-processing machines and units thereof (8.04 %), lamps and lighting fittings, incl. searchlights and spotlights, and parts thereof (2.17 %), tricycles, scooters, pedal cars, and similar wheeled toys (1.82 %) and trunks, suitcases, vanity cases, executive-cases, briefcases, school satchels, spectacle cases (1.65 %).

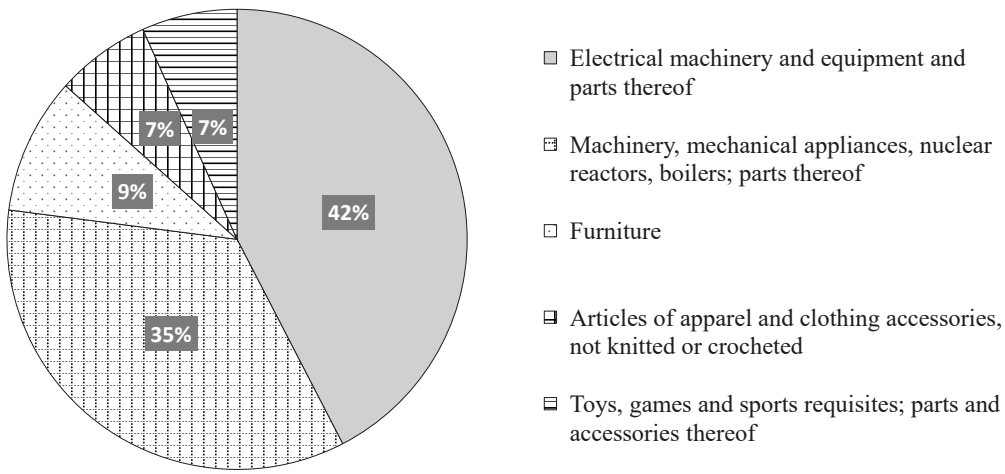

Fig. 6. The Chinese most exported commodities to the EU in 2019 at HS2 level

The most exported Chinese goods are telephones. It is the communications industry that is a milestone in the pursuit of domestic innovation. Not only have two Chinese companies, Huawei and ZTE, become leading international manufacturers of communications equipment, but China has also established its flagship of international industry standards [Chen, Wen, 2016].

The high potential of digital connectivity between countries should be part of BRI infrastructure. Scientific and technological progress and technological change are the driving force behind the economic progress of the entire world economy. They catalyze the dynamic growth of international trade, supported by the effects of globalization. The main milestones that have fundamentally changed the laws of the world are the industrial revolutions. They resulted from significant inventions that changed people's working conditions and lifestyles. At present, we are at the beginning of the fourth industrial

revolution. The speed of current discoveries is developing at an exponential rather than a linear pace. The fourth industrial revolution is based on new technologies such as robotics, the Internet of Things, artificial intelligence, nanotechnology, biotechnology, 3D printing, quantum computers, and more [Schwab, 2016]. It responds to the current challenges posed by market volatility, shortens product life cycles, and strengthens the impact of global supply chains.

Digitization can be a tool for spreading transparency, through open platforms, which is one of the limiting problems in the development of EU — China relations. At the same time, digitization and e-commerce have become one of China's industrial strengths. Ying points out that recent industrial revolutions have caused a boom in several countries. China was an exception, but it is a leader in digitization now[16].

3.3. Trade intensity of mutual foreign trade

In addition to examining the development of mutual foreign trade and Chinese BRI investments in EU countries, a decisive factor is the assessment of the development of trade intensity between EU countries and China based on their position in the world economy. It is determining how trade cooperation will develop and whether EU — China trade cooperation has potential in the future.

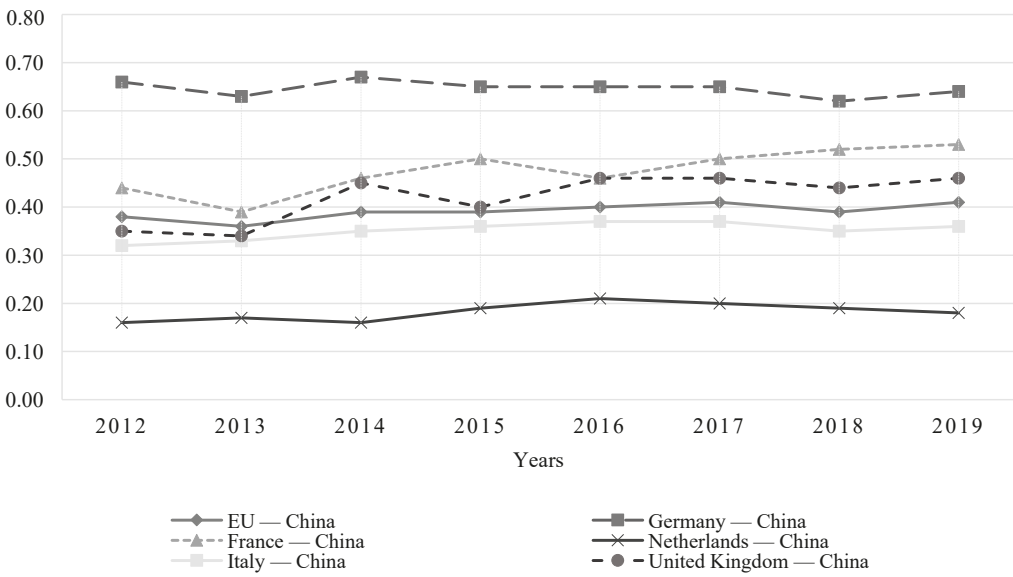

Fig. 7. Development of the trade intensity index China — EU and China's five largest trading partners from the EU countries between 2012 and 2019

The intensity of EU exports to China is illustrates in Fig. 7. Neither the EU, an integration crowd, nor any of the examined member states achieve a TII higher than 1 in the observed period, which means the intensity of European exports is lower than would be

[16] Friend of Europe. (2017) *Eu — China Cooperation in an Age of Uncertainty.* URL: https://www.friendsofeurope.org/wp/wp/content/uploads/2019/06/EUChina_report-compressed.pdf (accessed: 28.02.2021).

expected given the position of these economies in the world economy. The highest values of the index are reached by Germany, where the average value is 0.64. However, as we can see, the activity of German exporters to China did not change significantly during the period under review. The value of TII indicates Germany as the most important exporter to China among EU member states. The other examined countries also recorded only minimal changes in trade intensity during the period 2012 and 2019, which were also very low.

TII also points to the markedly low intensity of Dutch exports, proving that the Netherlands is an important export destination for China, but reciprocity is essentially nonexistent, as the Netherlands — China TII index averages only 0.18 after 2012.

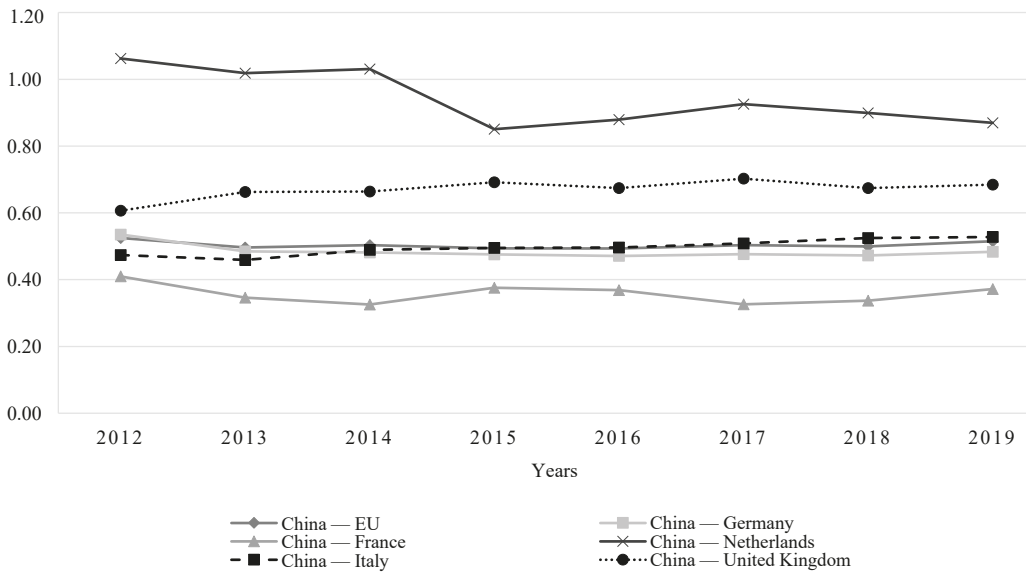

Fig. 8. Development of the trade intensity index China — EU and China's five largest trading partners from the EU countries between 2009 and 2019

Fig. 8 shows the development of TII exports of China to the EU and to China's five largest trading partners among EU member states in the years 2012–2019. The intensity of China's trade or China's exports to the EU is relatively stable at around 0.5, indicating that trade intensity has not changed significantly. Nevertheless, the value of the indices is less than 1, so we can say that trade between the countries studied is lower than expected.

Germany is China's largest trading partner among EU countries, but the intensity of activity of Chinese exporters has not increased during the period under review. It recorded the highest value in 2012 (0.54). In 2019, it was 0.48, which according to the World Bank methodology indicates a low trade intensity of trade between the surveyed countries.

Therefore, we accept H_1: *In the context of the BRI, China's trade intensity to the EU was higher than the EU's trade intensity to China during the examined period*, based on this research through the TII. The highest values of the index were recorded with the Netherlands, where TII was higher than 1 until 2014 during the period under review, and thus bilateral trade flow was higher than expected given the importance of the partner country in world trade. In 2019, however, the index reached only 0.87. The extensive activity of Chinese exporters to the Netherlands is not surprising. Because of its geographical loca-

tion with one of Europe's largest ports — Rotterdam, as well as airports such as Schiphol, design the Netherlands to be a major logistics hub for Chinese goods. Similarly, in the remaining partner countries, trade intensity persists relatively low, with only the United Kingdom achieving a more significant increase.

3.4. Export potential of EU's largest trading partners with China

In 2019, the share of Germany, France, Italy, and the Netherlands in total EU exports to China was up to 73.38 %. However, as it turned out, their exports have grown less sharply in recent years than in other Member States (Chart 4). Compared to exports in 2009, there was an average increase of 150 %. However, their export potential cannot be considered exhausted, so we express it based on the above methodology concerning the country's current exports.

Table 1. **Germany's export potential to China, the top five commodities, billion USD**

Commodity	Export Potential	Actual Export	Untapped Potential
Motor vehicles for the transport of persons, nes	33.6	14.4	19.2
Aircraft > 15.000 kg	9.7	3.6	6.1
Parts & accessories of motor vehicles, nes	8.8	6.1	2.8
Other machinery	7.2	4.4	2.8
Medicaments consisting of mixed or unmixed products, for retail sale	5.6	2.9	2.7

China shows the largest absolute difference between potential and actual German exports in value terms, leaving room for further exports worth 114.7 billion USD. In terms of the sectoral structure of production, Germany's potential exports mainly concern electricity, motor vehicles and parts, optical products, and watches & medical instruments. The Table 1 shows goods with the greatest export potential.

Table 2. **Italy's export potential to China, the top five commodities, billion USD**

Commodity	Export Potential	Actual Export	Untapped Potential
Motor vehicles for the transport of persons, nes	2.1	0.9	1.2
Other machinery	1.7	0.6	1.1
Medicaments consisting of mixed or unmixed products, for retail sale	1.3	0.9	0.4
Parts & accessories of motor vehicles, nes	1.1	0.2	0.9
Handbags, outer surface of (composition/patent) leather	1	0.4	0.5

Italy has uncovered export potential to China for 21.7 billion USD. In terms of sectoral composition, Italian exports to China, as in the case of Germany, have the greatest potential for machinery, electricity, motor vehicles & parts, and pharmaceutical components. The five commodities with the largest export potential are presented in Table 2.

Table 3. **France's export potential to China, the top five commodities, billion USD**

Commodity	Export Potential	Actual Export	Untapped Potential
Aircraft >15.000 kg	10.7	6.1	4.6
Motor vehicles for the transport of persons, nes	2.6	0.1	2.5
Beauty, make-up & skincare preparations	1.8	1.2	0.6
Spirits obtained by distilling grape wine	1.4	0.7	0.7
Parts & accessories of motor vehicles, nes	1.4	0.4	1

China also represents the largest potential market for French exports, the absolute difference between potential and actual exports in value terms, leaving room to realize additional exports worth 24.9 billion USD. The products with the greatest export potential from France to China are aircrafts, spacecrafts & parts, machinery, electricity, and motor vehicles & parts. A specific overview of commodities is given in Table 3.

Table 4. **Dutch export potential to China, top five commodities, million USD**

Commodity	Export Potential	Actual Export	Untapped Potential
Medicaments consisting of mixed or unmixed products, for retail sale	687.4	184.9	502.5
Smart cards; electronic integrated circuits; LED lamps	507.9	188.2	319.7
Motor vehicles for the transport of persons, nes	487.2	200.9	286.3
Miscellaneous chemical products	366.8	50.0	316.8
Styrene	332.8	31.8	301.0

The Netherlands has uncovered export potential with China of 12.7 billion USD. The products with the greatest export potential from the Netherlands to China are machinery, electricity, chemicals, and optical products, watches & medical instruments (Table 4).

Based on the research of the export potential of selected countries, we accept H^2: *The export potential of the EU's most important partners to China in 2019 was focused on commodities with higher value-added in the context of the BRI.*

China is constantly promoting participation in the BRI as a remarkable opportunity in the form of investment, lending, or improving relations and achieving "win — win" partnerships. However, the Union's institutions supported by the EU's strongest economies, are not as confident about participation as many declarations and governmental actions show. France and Germany demand to improve access to the Chinese market and the furtherance of fair competition for foreign companies. The EU lacks a common strategy towards the Chinese BRI. That reflects China's divergent approach to negotiations and cooperation with EU member states, such as the CEE region, where the Memorandums of Understanding were signed at the government level as early as 2015.

In addition, trade and investment relations between China and the EU are accompanied by imbalances and non-reciprocity, which is due to the absence of a modern or comprehensive trade agreement. However, geopolitical changes and a global pandemic have forced both economies to intensify negotiations on such an agreement, leading to the con-

clusion of negotiations on the CAI, which may create the conditions for a new direction for this strategic partnership. However, ratification, which is not in sight, is still needed. The major problems are cultural, ethical, and governance issues that have complicated the relationship between these powers for many years.

Conclusion

Based on the research of the development of trade and investment relations between the EU and China in the context of the BRI, and their mutual trade intensity and export potential of China's largest trading partners from the EU, we came to the following conclusions.

During the period under review, the European Union was China's largest trading partner, with a growing trend in mutual trade. Conversely, China has long been the second largest after the United States. Since 2020, it has become the EU's most important trading partner, over the USA. For this reason, the BRI can be seen as a slightly positive impact on the development of trade and investment cooperation between the EU and China.

China's most exported commodities in 2019 were mobile phones and automatic data processing machines. Chinese exports were dominated by goods from their traditional manufacturing sectors, in which they are world leaders, such as toys and clothing. Cars were the EU's leading export commodity. This sector has a long tradition of operation, and, at the same time, the EU makes the most investment in research and development in the world. The commodity structure of EU exports directly corresponds to the level of R&D investment in the various areas dominated by the pharmaceutical, aerospace, and electronics industries. With the inflow of foreign direct investment under the BRI initiative, an increase in China's trade interaction with EU countries has been observed. Among EU countries, Lithuania (561 %), Ireland (407 %), and Latvia (327 %) recorded the highest growth in exports to China between 2012 and 2019.

An examination of trade intensity in terms of Chinese exports to the EU, as well as in terms of aggregated EU exports to China, has shown that trade flows between the two are lower than would be expected given the position of their economies in the global market. As part of the examination of trade intensity from the point of view of China's largest trading partners, we can state that German exporters record the highest activity in the observed period, but the highest intensity of Chinese exports to the EU is recorded by the Netherlands. This is the only EU country where the trade flow of Chinese exports was higher during the period under review, as expected given the importance of this country in the world economy. The Netherlands is a key European logistics centre for China, often referred to as the "gateway to Europe". Speeding up transit routes or increasing the activity of European exporters through modern infrastructure interconnections, which are the cornerstone of China's BRI, could help to offset discrepancies in foreign trade between the partners, but we do not yet record this.

During the period under review, Germany, France, Italy, and the Netherlands accounted for over 70 % of total EU exports to China. Italy was the largest recipient of BRI investment among EU countries. The other major partners were conservative with the inflow of BRI investments aimed at protecting their national interests. At the same time, we can state that these four countries had untapped export potential with China in the

amount of 174 billion USD. In terms of the sectoral structure of production, the export potential of the countries concerned mainly motor vehicles and parts, machinery, and pharmaceutical components.

The issue of BRI is dynamic, constantly developing, and has no limited framework of duration or scope. It will probably take several more years before sufficient data will be available to allow more accurate empirical research to demonstrate the impact of BRI on the EU. However, we assume that the negotiated (but not ratified) agreement, the CAI, would have a much more favourable and significant impact on EU — China relations than the initiative. Unlike the initiative, the agreement contains legal obligations that would guarantee "win — win" cooperation to a much greater extent.

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Authors' information:

Elena Kašťáková — PhD in Economics, Associate Professor; elena.kastakova@euba.sk
Anabela Luptáková — PhD Candidate; anabela.luptakova@euba.sk
Barbora Družbacká — PhD Candidate; barbora.druzbacka@euba.sk

Торговое сотрудничество ЕС и Китая в контексте инициативы «Один пояс, один путь»: анализ и перспективы на различных примерах стран ЕС*

Э. Каштякова, А. Луптакова, Б. Дружбацка

Экономический университет в Братиславе,
Словакия, 85235, Братислава, ул. Дольноземская, 1

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Данная статья направлена на изучение внешнеторговых отношений ЕС с Китаем после внедрения инициативы «Один пояс, один путь» (Belt and Road Initiative, BRI), оценивает динамику интенсивности торговли и определяет экспортный потенциал крупнейших торговых партнеров Китая в ЕС. Для достижения целя были установлены две гипотезы: 1) в контексте BRI интенсивность торговли Китая с ЕС была выше, чем интенсивность торговли ЕС с Китаем в течение рассматриваемого периода; 2) экспортный потенциал важнейших партнеров ЕС в Китай в 2019 г. был сконцентрирован на товарах с более высокой добавленной стоимостью в контексте BRI. Для подтверждения первой гипотезы был использован индекс интенсивности торговли (trade intensity index). В случае второй гипотезы индикатор экспортного потенциала использовался для определения продуктов, которые имеют перспективы для дальнейшего экспорта. ЕС является крупнейшим торговым партнером Китая с растущей тенденцией взаимной торговли. Изучение интенсивности торговли показало, что торговые потоки между странами были ниже, чем ожидалось, учитывая их положение в мировой экономике. Немецкие экспортеры зафиксировали самую высокую активность, но Нидерланды зафиксировали самую высокую интенсивность китайского экспорта в ЕС. Вместе с тем можно сказать, что Германия, Франция, Италия и Нидерланды обладали неиспользованным экспортным потенциалом в Китае, который в основном касался автомобилей и запчастей, оборудования и фармацевтических компонентов. Из данного исследования можно сделать выводы, что BRI оказало небольшое положительное влияние на развитие торгового и инвестиционного сотрудничества между ЕС и Китаем.

Ключевые слова: BRI, торговое сотрудничество, внешняя торговля, индекс интенсивности торговли, экспортный потенциал.

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Контактная информация:

Каштякова Элена — канд. экон. наук, доц.; elena.kastakova@euba.sk
Луптакова Анабела — докторант; anabela.luptakova@euba.sk
Дружбацка Барбора — докторант; barbora.druzbacka@euba.sk

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