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The development of China's exports – is there a decoupling from the EU and the United States?

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**Volker Brühl\***

### *Abstract:*

Some observers warn that a high level of economic dependence on China could negatively affect the economic resilience of Western economies and therefore recommend reducing such dependence by gradually decoupling from China. On the other hand, industry leaders emphasise the economic importance of China and warn against any kind of trade conflicts.

Against this background, we briefly analyse the development of China's export strategy. We find that the export intensity of the Chinese economy is diminishing and that exports are becoming more diversified overall. In addition, the relative importance of the United States and the European Union as export markets has been reduced, indicating a gradual decoupling of China from Western economies. Conversely, we find that exports to China have become more important, both for the EU and the United States. Although the figures remain at a non-critical level, Europe's export activities could be more diversified as well.

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# The development of China's exports – is there a decoupling from the EU and the United States?

Volker Brühl

## 1. Introduction

Some observers warn that a high level of economic dependence on China could negatively affect the economic resilience of Western economies and therefore recommend a gradual decoupling from China (e.g. Spillner et al., 2023; Scissors, 2020). On the other hand, industry leaders emphasise the economic importance of China and warn against any kind of trade conflicts. Many European companies continue to invest heavily in China or have announced plans to do so. China has been a primarily export-driven economy for many years, operating as a low-cost manufacturing hub that leverages cheap labour and low energy costs. In recent decades, China has progressed from a traditionally low-cost manufacturing hub to a leading country in numerous sectors, including high technology. Especially in the last decade, China's growth has been driven mainly by investments in domestic infrastructure, which comprises transportation to improve connectivity between urban and rural areas, energy generation and distribution, and digital infrastructure (Brühl, 2024; Naughton, 2022; Rogoff et al, 2023). Domestic consumption has also become more important due to rising disposable income levels.

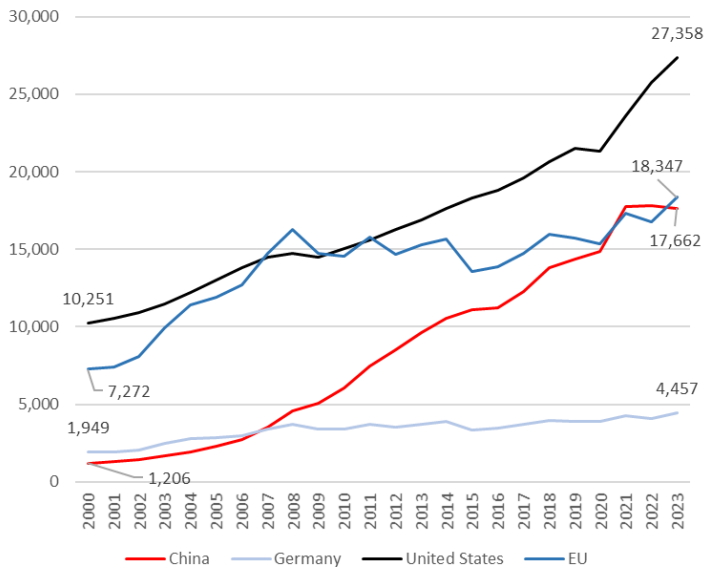
More recently, China has entered another phase of development that combines both a higher proportion of domestic value added – also known as the “Made in China” initiative – and a more focused foreign direct investment (FDI) strategy (both outbound and inbound) to close technology gaps in some sectors. The combination of these two factors is widely known as the Dual Circulation Strategy, which has been the major guideline of China's current Five-Year Plan (FYP, 2020-2025) (e.g. Brühl, 2024; Lin et al, 2021). The Belt and Road Initiative (BRI), also known as the New Silk Road, is an important element of the current development phase. The BRI is a global infrastructure initiative launched in 2015 that intends to improve the connectivity between China, Central and South East Asia with Europe and Africa. The BRI involved 64 countries from the outset and has expanded continuously since then (Ebel, 2023; OECD, 2018)

Against this background, we briefly analyse the development of China's export strategy. We find that the export intensity of the Chinese economy is diminishing and that exports are becoming more diversified overall. In addition, the relative importance of the United States and the European Union as export markets has been reduced, indicating a gradual decoupling of China from Western economies. Conversely, we find that exports to China have become more important, both for the EU and the United States. Although the figures remain at a non-critical level, Europe's export activities could be more diversified as well.

## 2. The growth of China's economy

The People's Republic of China's economy has grown enormously over the last twenty years. With a GDP of USD 18 trillion (2023), it is the second largest economy in the world behind the United States (OECD, 2023). With around 1.4 billion people, it is also the second largest country (close to India) in terms of population. In 2007 China surpassed Germany in terms of GDP. In 2021 China's economic output exceeded that of the whole European Union for the first time (Figure 1).

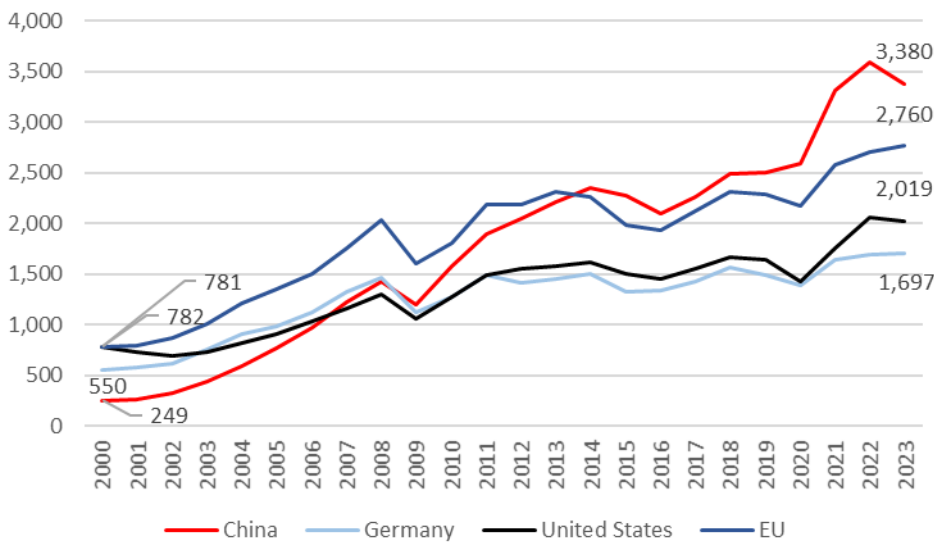
**Figure 1: The growth of selected industrialised economies compared to China (GDP in bn USD, current prices)**



Source: Own analysis based on IMF, WEO Data

The export of goods and services has been an important growth driver over the last twenty years. China has become the number one economy in terms of absolute volume of exported goods and services, ahead of Germany and the United States (Figure 2). Therefore, China has become an important trade and investment partner for many countries.

**Figure 2: Export volumes of China and selected industrialised countries (bn USD, current prices, 2000 to 2023)**

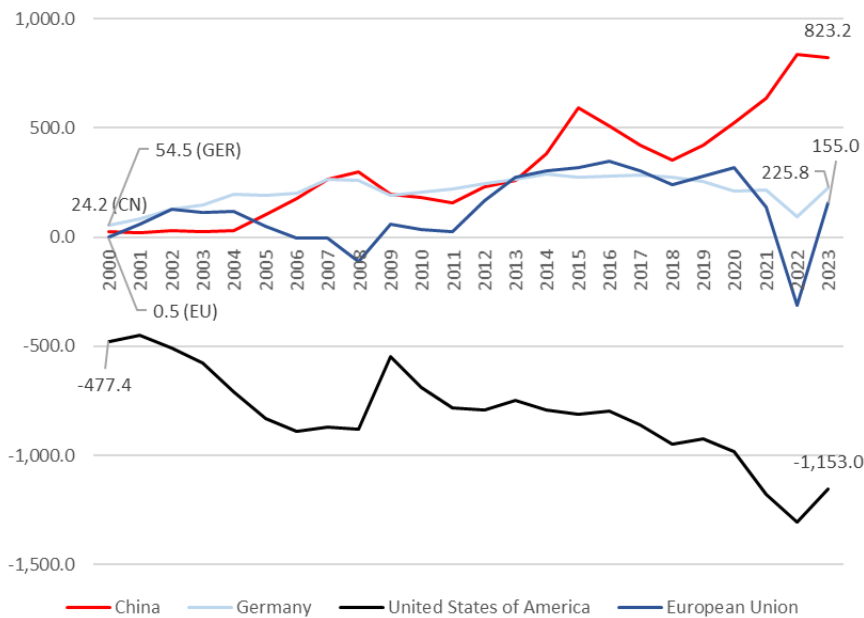


Source: Own analysis based on UN Comtrade Database

In the past, China was primarily a low-cost manufacturing hub for less technologically sophisticated, often labour-intensive standard products. High government subsidies, comparatively low unit labour costs despite rising wages, low energy costs and comparatively low environmental standards have ensured that Chinese companies still have considerable cost advantages over foreign suppliers in several global markets. Furthermore, in these mainly state-owned enterprises (SOEs), profitability targets clearly play a minor role compared to the goal of maximising capacity utilisation, which is achieved through price dumping.

The trade balance surplus of China versus the rest of the world has increased massively since the year 2000 and, despite a weak economic environment, reached approximately USD 823 bn (2023), while the United States displays increasing deficits, reaching a negative value of around USD 1.1 trillion in 2023 (Figure 3). The trade deficit between the EU and China was around EUR 291 bn in 2023 (EUR 397 bn in 2022), while the trade deficit between the United States and China amounted to approximately USD 279 bn in 2023 (USD 382 bn in 2022).

**Figure 3: Trade balance of selected industrial economies (in bn USD)**



Source: Own analysis based on UN Comtrade Database

These persistent imbalances in trade relationships between China and both the EU and the United States have triggered many controversial debates about unfair competition through dumping and infringements of intellectual property. The “United States–China trade war” initiated under the Trump administration is a prominent example.

A key area of concern is currently the development and the manufacturing of high-performance semiconductors, which are critical to many high-tech applications such as artificial intelligence, electric vehicles, factory automation and defence. An important milestone in the US strategy has been the CHIPS and Science Act, which became U.S. law in 2022. The CHIPS and Science Act provides more than USD 50 billion for semiconductor research, development and manufacturing as well as workforce development. It also provides a 25% investment tax credit for capital expenses for manufacturing of semiconductors and related equipment (The White House, 2022). The European Union established the European Chips Act in 2023 with the objective of increasing semiconductor manufacturing capacities from currently 10% of global chip manufacturing situated in Europe to 20% of the global market by 2030 (EU Commission, 2023).

Another important piece of legislation affecting both the US-China and the US-EU trade relationships is the Inflation Reduction Act (IRA) adopted by the Biden administration in 2022 (IRS, 2022). Apart from the objectives of curbing inflation by reducing fiscal deficits and reforming drug prescription prices and other healthcare costs, the promotion of clean energy stands out. China has been the largest supplier of lithium-ion batteries to the United States for many years. In order to support domestic manufacturing and capacity building of critical minerals and batteries, the IRA stipulates that tax credits for the purchase of “clean” vehicles – e.g. electric vehicles (EVs), plug-in hybrid electric vehicles (PIHEVs) or fuel cell electric vehicles (FCEVs) – are only granted if the cars are assembled in the United States and if they meet certain sourcing requirements for both the critical minerals and battery components contained in the vehicle. In addition, clean vehicles will not be eligible for tax credits if the vehicles contain critical minerals (as of January 1, 2025) or battery

components (as of January 1, 2024) from a “foreign entity of concern”, a category that currently includes companies based in or controlled by China, Russia, North Korea and Iran (Bettle, 2024 IRS, 2024b).

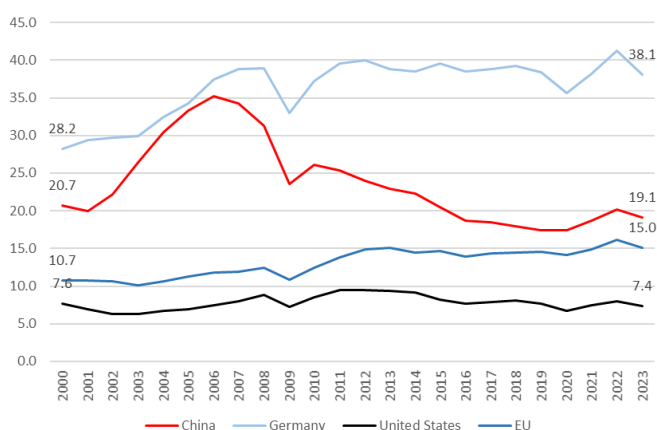
Nevertheless, China is now much more than just a low-cost production location with a huge domestic market. With more than 1 million patents in 2023, China has registered more patents than any other country in the world and is now even one of the innovation leaders in some areas (Brühl, 2024; Wipo, 2023).

### 3. Export intensity of China’s economy

It should be noted that the dependence of China’s economic development on exports is decreasing and lower than in countries such as Germany (Figure 4), which supports the assumption that China intends to reduce its dependence on from major trading partners.

While China’s export ratio has fallen from its peak of almost 35% of GDP (in 2005) to around 19% at present, the corresponding figure for Germany is around 38% (2023) versus 28% in 2000. The export intensity of the EU (excluding intra-EU trade flows) has increased in the same period from 10.7% to around 15.0%, which is substantially lower than the corresponding ratios of the United States (7.6%, 7.4%). During the 11th FYP (2005-2010) and the 12th FYP (2010-2015) the export intensity of the Chinese economy decreased as the focus of its economic development policy shifted towards pushing public and private investment as well as domestic consumption.

**Figure 4: Export intensity 2000 to 2023 (in % GDP)**



Source: Own analysis based on UN Comtrade, IMF, WEO Data

Furthermore, China has not only reduced its export intensity but also diversified its portfolio of trading partners. Table 1 illustrates the development of the top 50 trading partners from the year 2000, showing how their relative importance and their export rankings have changed by 2023. Although China’s top 10 trading partners are largely congruent, as the USA, Hong Kong, Japan, South Korea, Germany and the United Kingdom are still among the top 10, it should be noted that the importance of China’s top 10 trading partners has decreased significantly. While the cumulative export volumes of the top 10 accounted for 74.8% of total exports in 2000, the corresponding figure in 2023 is around 51.4% (Table 2). Furthermore, the geographical composition of Chinese exports has shifted to Russia, India, countries in South East Asia (e.g. Vietnam, Philippines, Malaysia), Central Asia (e.g. Kazakhstan, Tajikistan) and South America (Brazil, Chile, Mexico), while some European countries (e.g. Italy, Spain, France, Sweden) have become less important export markets from a Chinese perspective. In addition, the trading relationships with several African countries have been expanded.

Table 1: Top 50 export partners of China in 2000 and change in ranking by 2023

Top 50 export partners (Year 2000)						Top 50 export partners (Year 2023)			
Country	Rank (2000)	in %	cumu- lative (%)	Rank (2023)	Trend	Country	Rank	in %	cumu- lative (%)
USA	1	20.93	20.93	1	→	USA	1	14.83	14.83
Hong Kong SAR	2	17.86	38.79	2	→	Hong Kong SAR	2	8.12	22.95
Japan	3	16.72	55.51	3	→	Japan	3	4.66	27.61
Rep. of Korea	4	4.53	60.04	4	→	Rep. of Korea	4	4.41	32.02
Germany	5	3.72	63.76	8	↓	Vietnam	5	4.07	36.09
Netherlands	6	2.68	66.45	9	↓	India	6	3.48	39.57
United Kingdom	7	2.53	68.98	12	↓	Russian Fed.	7	3.28	42.86
Singapore	8	2.31	71.29	13	↓	Germany	8	2.98	45.83
Other Asia, nes	9	2.02	73.31	16	↓	Netherlands	9	2.96	48.80
Italy	10	1.53	74.84	22	↓	Malaysia	10	2.59	51.38
France	11	1.49	76.33	24	↓	Mexico	11	2.41	53.79
Australia	12	1.38	77.71	15	↓	United Kingdom	12	2.31	56.10
Canada	13	1.27	78.97	21	↓	Singapore	13	2.28	58.37
Indonesia	14	1.23	80.20	17	↓	Thailand	14	2.24	60.61
Malaysia	15	1.03	81.23	10	↑	Australia	15	2.18	62.80
Belgium	16	0.92	82.15	28	↓	Other Asia, nes	16	2.03	64.83
Thailand	17	0.90	83.05	14	↑	Indonesia	17	1.93	66.75
Russian Fed.	18	0.90	83.95	7	↑	Brazil	18	1.75	68.50
Spain	19	0.86	84.81	25	↓	United Arab Emirates	19	1.65	70.15
United Arab Emirates	20	0.83	85.65	19	↑	Philippines	20	1.55	71.70
India	21	0.63	86.27	6	↑	Canada	21	1.33	73.04
Vietnam	22	0.62	86.89	5	↑	Italy	22	1.32	74.35
Philippines	23	0.59	87.48	20	↑	Saudi Arabia	23	1.27	75.62
Mexico	24	0.54	88.01	11	↑	France	24	1.25	76.87
Panama	25	0.52	88.53	46	↓	Spain	25	1.17	78.04
Brazil	26	0.49	89.02	18	↑	Turkiye	26	1.15	79.19
Saudi Arabia	27	0.46	89.48	23	↑	Poland	27	1.10	80.29
Turkiye	28	0.43	89.91	26	↑	Belgium	28	0.96	81.25
South Africa	29	0.41	90.32	30	↓	Kazakhstan	29	0.73	81.99
Bangladesh	30	0.36	90.68	31	↓	South Africa	30	0.70	82.68
Hungary	31	0.36	91.04	50	↓	Bangladesh	31	0.68	83.36
Poland	32	0.35	91.39	27	↑	Nigeria	32	0.60	83.96
Finland	33	0.34	91.72	92	↓	Kyrgyzstan	33	0.58	84.54
Sweden	34	0.33	92.05	51	↓	Chile	34	0.58	85.12
Egypt	35	0.32	92.38	38	↓	Pakistan	35	0.51	85.63
Chile	36	0.31	92.69	34	↑	Czechia	36	0.48	86.12
Denmark	37	0.31	93.01	54	↓	Israel	37	0.44	86.56
Switzerland	38	0.30	93.31	64	↓	Egypt	38	0.44	87.00
Israel	39	0.29	93.59	37	↑	Iraq	39	0.42	87.42
Iran	40	0.29	93.88	48	↓	Greece	40	0.38	87.80
Macao SAR	41	0.28	94.17	80	↓	Cambodia	41	0.38	88.18
Pakistan	42	0.27	94.43	35	↑	Uzbekistan	42	0.37	88.55
Argentina	43	0.24	94.68	47	↓	Colombia	43	0.37	88.91
Kazakhstan	44	0.24	94.92	29	↑	Peru	44	0.36	89.27
Greece	45	0.23	95.15	40	↑	Myanmar	45	0.34	89.61
Nigeria	46	0.22	95.37	32	↑	Panama	46	0.33	89.94
Myanmar	47	0.20	95.57	45	↑	Argentina	47	0.32	90.26
Norway	48	0.20	95.77	86	↓	Iran	48	0.30	90.56
Dem. P. Rep. of K	49	0.18	95.95	105	↓	Liberia	49	0.29	90.85
Sri Lanka	50	0.18	96.13	81	↓	Hungary	50	0.29	91.14

Source: Own analysis based on UN Comtrade Database



We have performed a similar analysis for the United States, Germany and the European Union, based on the top 50 export partners of the respective country/region (Table 2), their change in percentage points and the corresponding values of the Herfindahl index as well as their percentage change. The Herfindahl index is calculated as the sum of the squared relative proportions of the export shares for the respective country  $i$  ( $\alpha_i$ ) whose value can be between 0.02 (equal distribution of shares of 50 trading partners) and 1 in case of one export partner only. In our case, we use the top 50 export partners as a basis rather than the total number of trading partners.

$$HF_{Index} = \sum_{i=1}^{50} (\alpha_i)^2 \quad \text{with} \quad \frac{1}{50} \leq HF_{Index} \leq 1$$

The results of our analysis are summarised in Table 2. Except for the European Union, we find that the cumulative proportion of the top 10 export partners has been reduced, indicating a higher level of diversification for China, the United States and Germany. With regard to the EU figures, it needs to be taken into account that the intra-EU trade flows have been left out and that the number of EU members has increased from 15 in 2000 to 27 in 2023. However, China has made the largest progress in terms of export diversification, as it managed to reduce the top 10 ratio by more than 23 pp. Furthermore, China's has significantly decreased its concentration of trade relationships, as measured by the Herfindahl index. From 0.111 in the year 2000, the figure is down almost 60% to 0.045 in 2023, which is close to the lowest value in the underlying peer group (Germany: 0.044).

Table 2: Level of diversification of export partners in 2000 and 2023 (selected countries/regions)

<b>United States</b>	<b>2000</b>	<b>2023</b>	<b><math>\Delta</math> (pp, %)</b>
Top 10 Export partners in % total	68.89	63.79	-5.10
Herfindahl-Index	0.091	0.073	-19.80
<b>China</b>	<b>2000</b>	<b>2023</b>	<b><math>\Delta</math> (pp, %)</b>
Top 10 Export partners in % total	74.84	51.38	-23.46
Herfindahl-Index	0.111	0.045	-59.52
<b>Germany</b>	<b>2000</b>	<b>2023</b>	<b><math>\Delta</math> (pp, %)</b>
Top 10 Export partners in % total	65.78	59.97	-5.81
Herfindahl-Index	0.054	0.044	-18.12
<b>European Union</b>	<b>2000</b>	<b>2023</b>	<b><math>\Delta</math> (pp, %)</b>
Top 10 Export partners in % total	61.52	63.81	2.29
Herfindahl-Index	0.10	0.08	-23.60

Source: Own analysis based on UN Comtrade Database

Both observations suggest that China has reduced its overall dependence on individual economies more than the United States, Germany or the EU. Looking at the development of export flows between the United States, China, the EU and Germany from the year 2000 to 2023, we find that the relative importance of China as an export partner has increased quite substantially for the United States, the EU and Germany. The proportion of exports of the United States to China has more than tripled to 7.32% of total exports, while EU exports to China have nearly tripled to 8.65% and the corresponding figure for Germany has almost quadrupled to 6.24%. However, the respective percentage figures are still clearly below 10% of total exports. In addition, the export flows between the United States and the EU are far more important than those between any individual economies. Conversely, the figures underscore that the United States remains the most important single geographic export market for China (14.83%), although the trend is declining. The importance of the

EU for Chinese exports has slightly increased to approx. 14.84% in 2023, which is very close to the United States. Germany is the most important trading partner (in both directions) for China in the EU. However, the proportion of Chinese exports to Germany has diminished to 2.98% (2023).

Table 3: Mutual export ratios of selected economies/regions in 2000 and 2023

in % of total exports					in % of total exports				
2000	United States	China	EU	Germany	2023	United States	China	EU	Germany
United States	-	2.07	16.27	3.77	United States	-	7.32	18.30	3.79
China	20.93	-	13.97	3.72	China	14.83	-	14.84	2.98
EU	28.04	3.04	-	N/A	EU	19.41	8.65	-	N/A
Germany	10.26	1.57	56.74	-	Germany	10.11	6.24	53.61	-

Source: Own analysis based on UN Comtrade Database

#### 4. Conclusions

The increasing importance of China as a global trade and investment partner is triggering discussions about whether the European Union and the United States, as well as individual countries, are already too dependent or at risk of becoming too dependent on the Chinese economy. Voices in favour of a gradual decoupling from China argue that China could leverage its growing economic strength to further its geopolitical ambitions. Some observers point to the existing dependence in the field of critical minerals, which are essential in a number of high-tech applications such as consumer electronics, renewable energies, batteries or weapon systems. This paper has specifically analysed the development of export flows from the United States, the EU and Germany to China and vice versa. It turns out that the relative importance of China has substantially increased between the years 2000 and 2023, though the level of dependence remains fairly acceptable from a macroeconomic perspective. The situation may look different on a sector level, as China is the most important market for specific industries (e.g. automotive). On the other hand, the United States and the EU as a whole are still crucial markets for Chinese enterprises as of today and the foreseeable future. Nevertheless, we can see a clear tendency of China reducing its export intensity and placing greater focus on domestic consumption and capital expenditure, both domestically and abroad, in the context of the BRI. The relative importance of the United States and Germany as export markets is declining, while the EU remains more or less stable. Furthermore, China has diversified its export flows over the last twenty years. Although the United States, the EU, Japan and South Korea still belong to the top ten export partners, their absolute importance has decreased and other economies such as South East Asia, Central Asia and Russia have gained export share. Therefore, it may not be an exaggeration to state that China is gradually decoupling from the United States and the EU. Hence, it could be reasonable for both the United States and the EU to also consider a broader diversification of their own trade and investment relationships, e.g. by joining or developing new trade zones.

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## References

- Brühl, V. (2024), The economic rise of China – an integrated analysis of China’s growth drivers, CFS working papers (No. 720), Frankfurt a.M., April 2024
- American Geosciences Institute (2024), Critical Minerals, Alexandria, USA, 2024
- Bettle, L. (2024), What the Inflation Reduction Act Means for OEMs and Auto Suppliers, ERA Environmental Management Solutions, February 08, 2024
- Ebel, P. (2023), China’s Belt and Road Initiative: Ten years on, Council on Geostrategy, London, May 2023
- EU Commission (2023), Digital sovereignty: European Chips Act enters into force today, Press Release, Brussels, 21 September 2023
- IRS (2024a), The Inflation Reduction Act 2022, Washington D.C., May 6 2024
- IRS (2024b), IRS releases final guidance for certain clean vehicle credits under the Inflation Reduction Act, Washington D.C., May 3, 2024
- Lin, J. Y., Wang, X. (2021), Dual Circulation: a New Structural Economics view of development, Journal of Chinese Economic and Business Studies, 10.1080/14765284.2021.1929793, 20, 4, (303-322)
- Naughton, B. (2022), The Chinese Economy – adaptation and growth, Cambridge 2022
- OECD (2018), China's Belt and Road Initiative in the Global Trade, Investment and Finance Landscape, OECD Business and Finance Outlook, Paris
- Rogoff, K., Yang, Y. (2023), Rethinking China’s Growth, 78th Economic Policy Panel Meeting, 19-20 October 2023, CEPR Economic Policy Panel, Madrid 2023
- Scissors, D. (2020), Partial Decoupling from China: A Brief Guide, American Enterprise Institute, Washington D.C.
- Spillner, O., Wolff, G. (2023), China “De-risking” - A Long Way from Political Statements to Corporate Action, German Council on Foreign Relations, Policy Brief, Berlin
- The White House (2022), Fact Sheet: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China, Washington D.C., August 09, 2022
- World Intellectual Property Organization (WIPO) (2023), Global Innovation Index - Science and Technology Cluster Ranking 2023, Geneva

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