

China and the transformation of value chains

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Key issues

1. The world is more linked to China while China becomes more vertically integrated
2. China's vertical integration leads to China's reduced dependence on Asian regional value chain
3. Europe's value chain increasingly dependent on China at the expense of its own regional integration
4. How do EU countries differ from Asian ones in their integration to China's value chain?
5. US rising dependency on Chinese intermediates while declining export of intermediates not just to China but the world
6. North Asia reshuffling supply chain to Southeast Asia in response to China's vertical integration

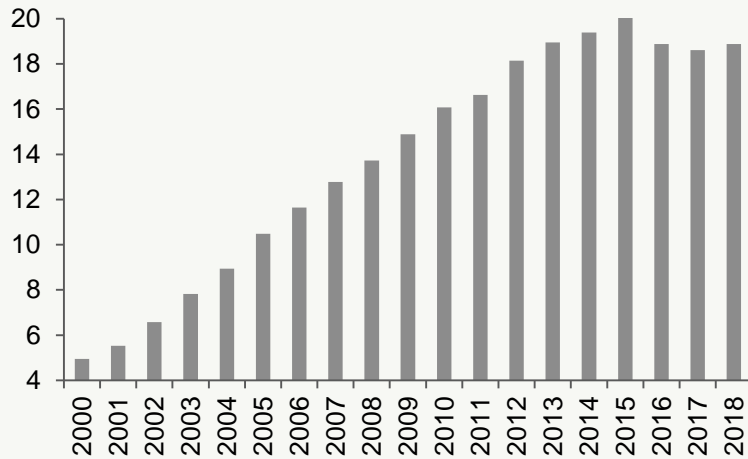
1. Supply chain transformation : The world is more linked to China while China becomes more vertically integrated

Related research:

[Supply chain transformation : The world is more linked to China while China becomes more vertically integrated](#)

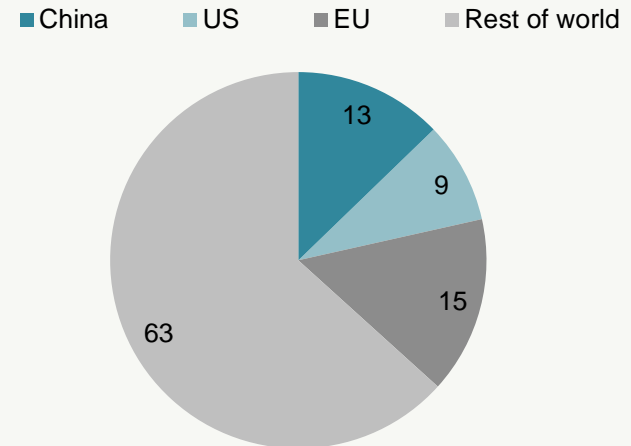
China is now the center of the global value chain as 19% of global manufacturing exports are produced in China

China's global market share of manufacturing exports (%)



Source: Natixis, UNCTAD

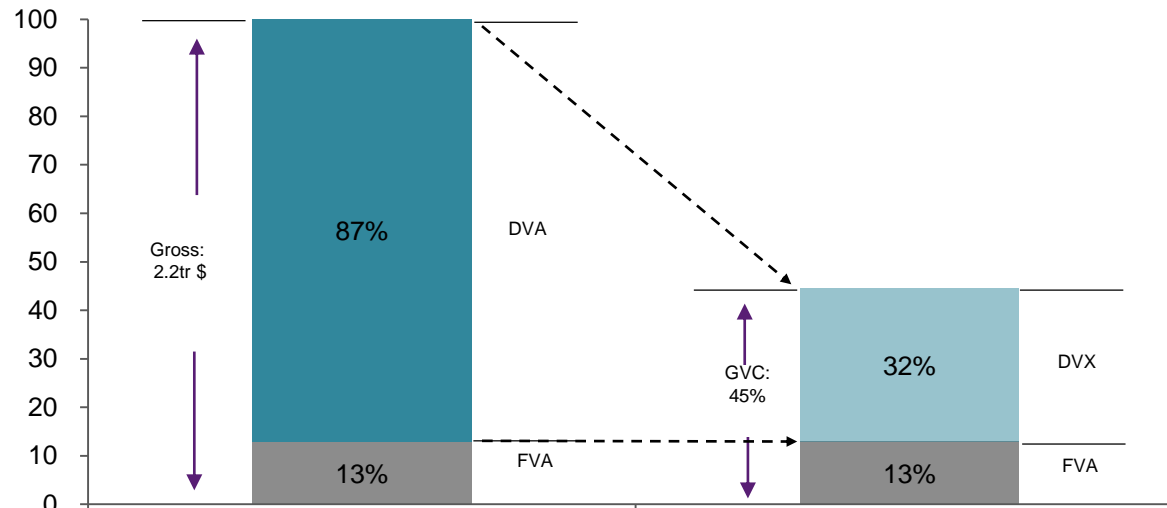
Share in world total exports (% ,2017)



Source: Natixis, WTO

Analyzing exports through a value chain (VC) approach

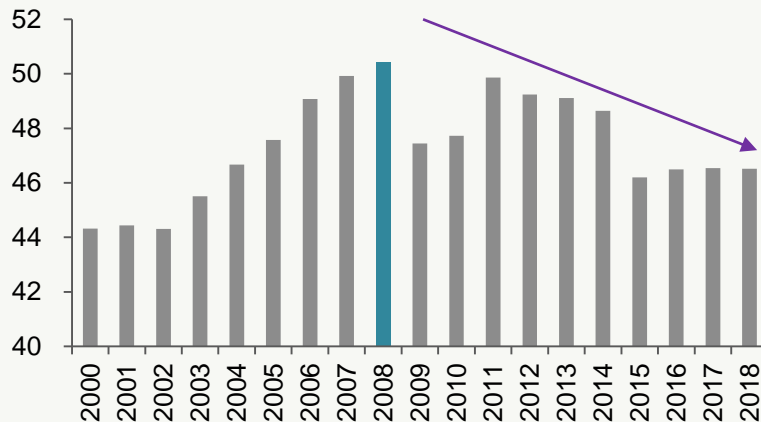
Breakdown of China's value added of gross exports (2018,%)



Source: UNCTAD-Eora database forecast, Natixis

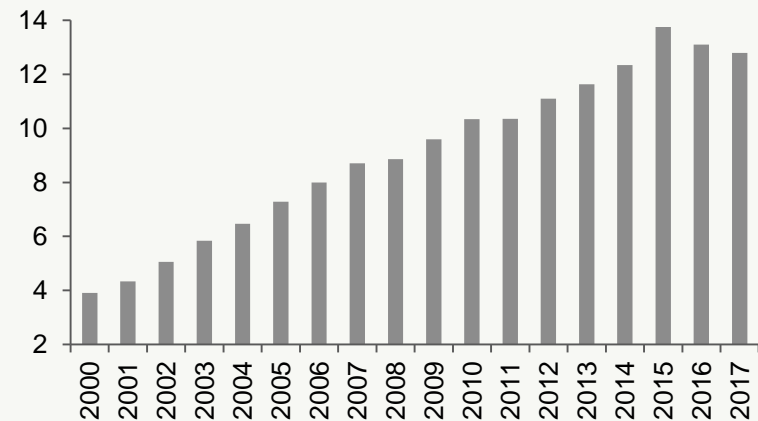
Global value chain (GVC) integration has been declining since the global financial crisis

World GVC Participation (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

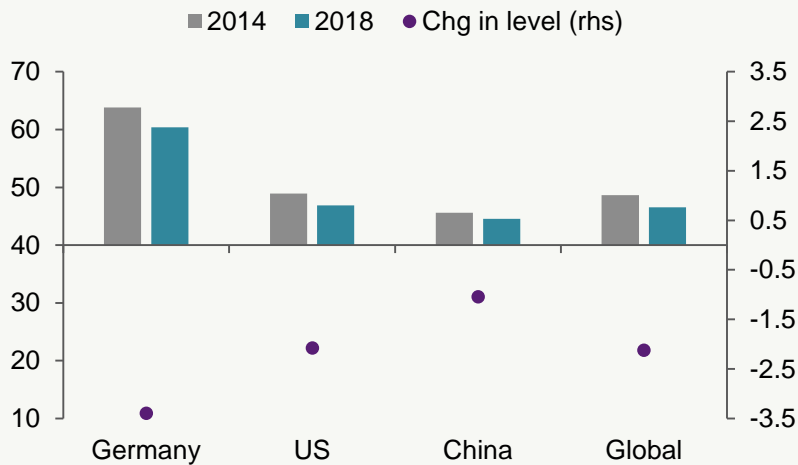
China's market share of global exports (%)



Source: Natixis, UNCTAD

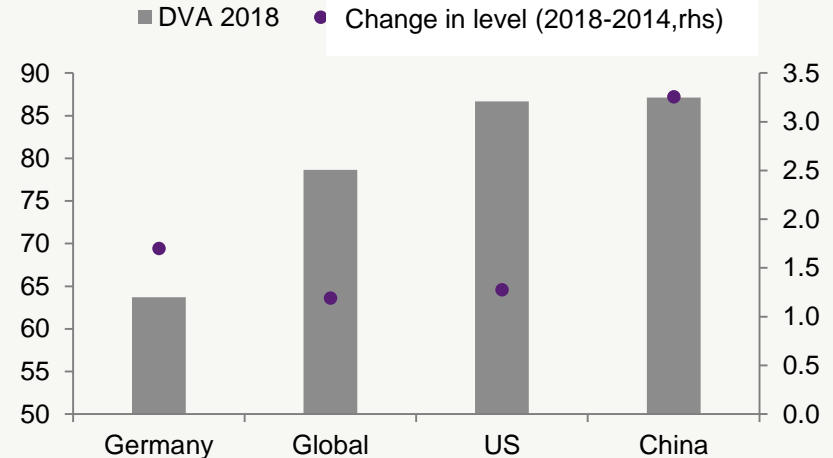
The drop in participation is driven by the decrease in usage of foreign inputs for exports, with China having the sharpest reduction in foreign dependency

GVC Participation (%)



Source: UNCTAD-Eora database, Natixis
N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

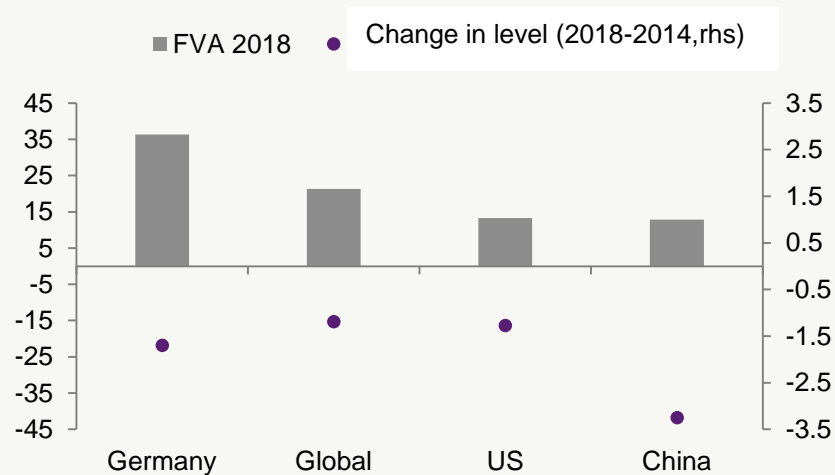
Domestic value added in export (%)



Source: UNCTAD-Eora database, Natixis
N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

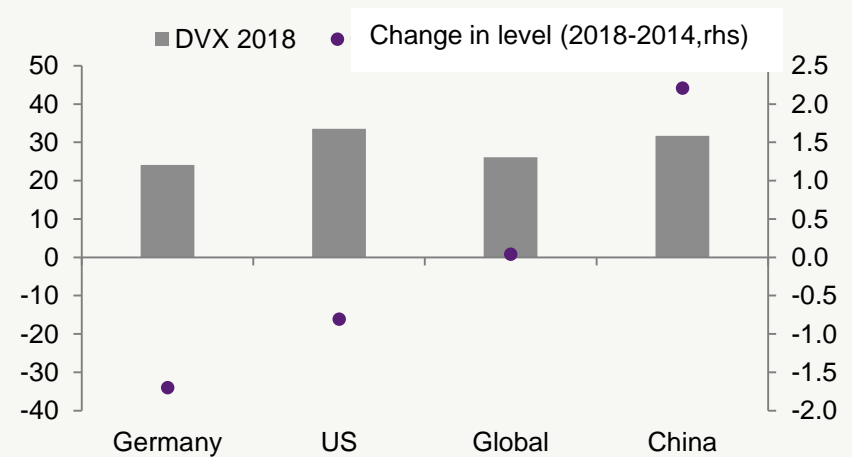
China has not only increased its vertical integration by reducing its reliance on imports of intermediates but also sharply increased its exports of intermediate goods

Foreign value added in export (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

Domestic value added in third country's export or DVX (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

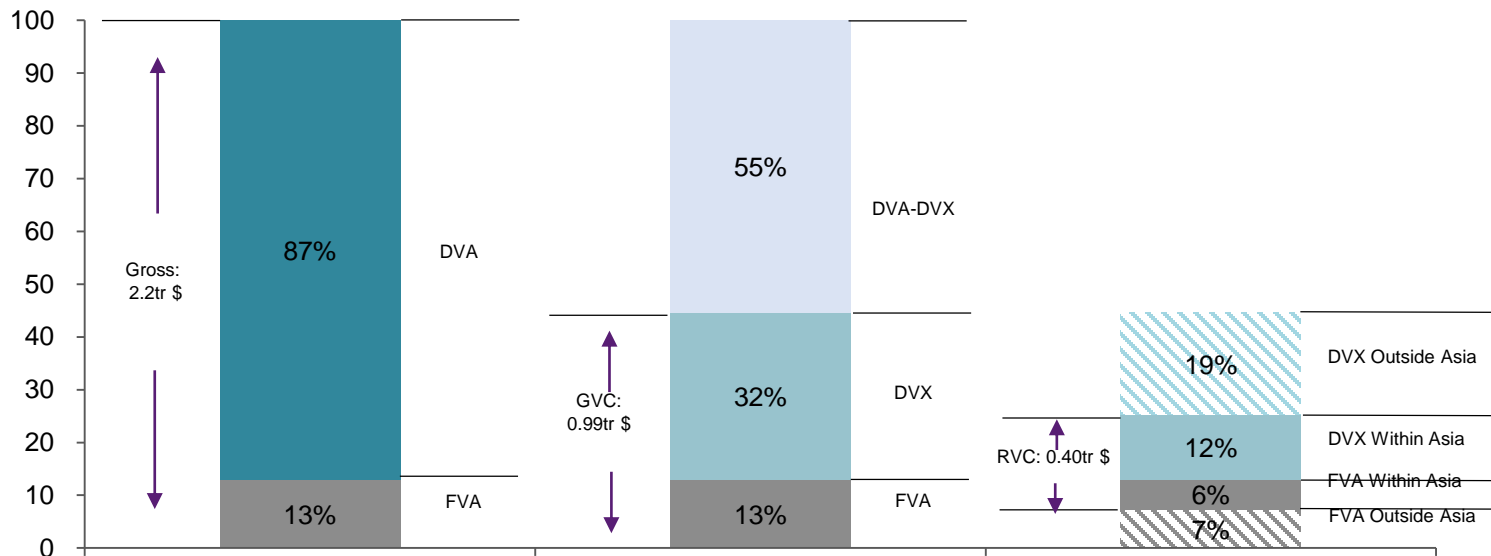
2. China's vertical integration leads to less dependence on Asian regional value chain

Related research:

[China's vertical integration leads to less dependence on Asian regional value chain](#)

Global and regional: a regional value chain approach

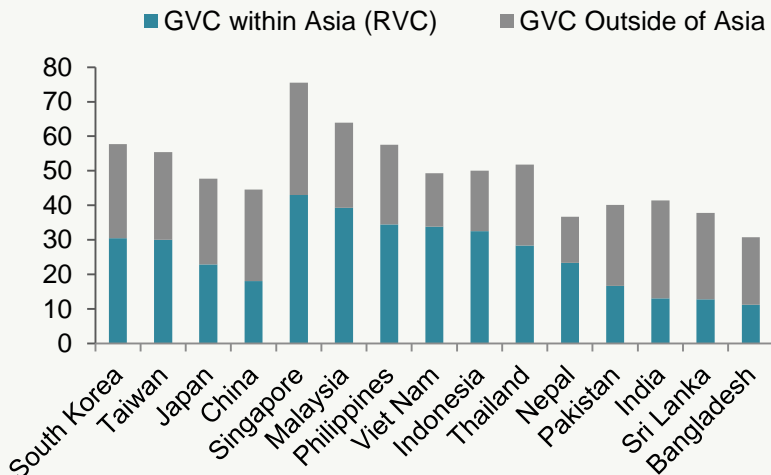
Breakdown of China's value added of gross exports (% · 2018)



Source: UNCTAD-Eora database forecast, Natixis

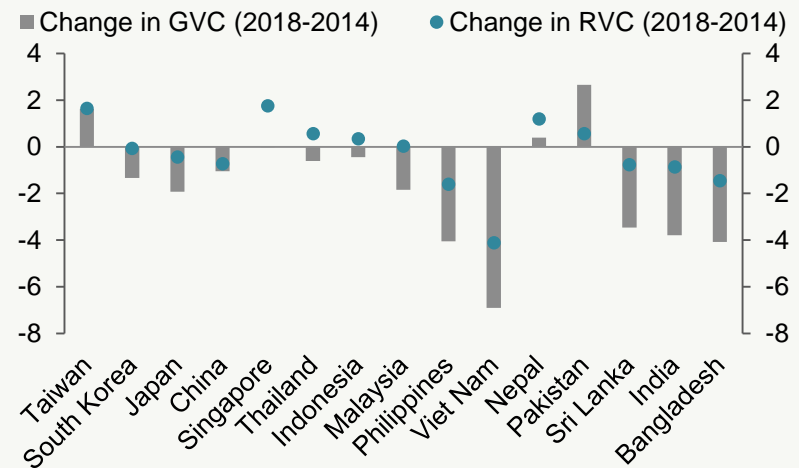
Value chains declining globally and at the regional level too for Asian economies

GVC breakdown by region (% ,2018)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

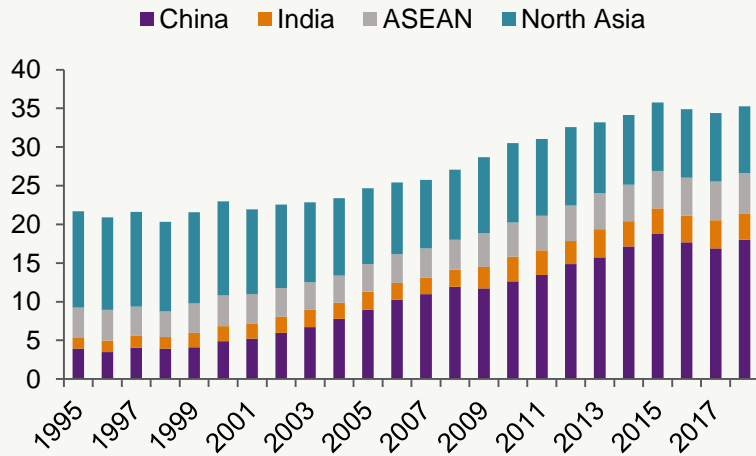
RVC participation within Asia (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

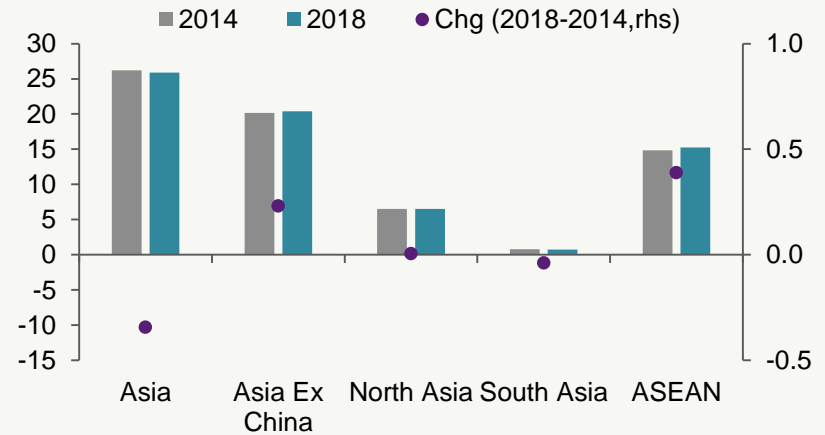
Integration at the sub-regional level is rising in ASEAN and to a lesser extent North Asia, while the decline of regional integration is driven by China and to a lesser extent South Asia

Share in global manufacturing exports (%)



Source: UNCTAD, Natixis

Regional and sub-regional value chain participation (%)



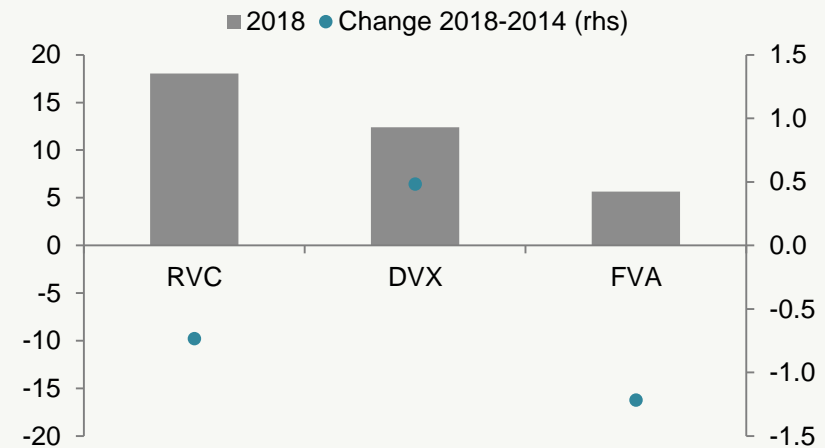
Source: UNCTAD-Eora database, Natixis
N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

Asian countries' value chain participation with China has declined, except for Bangladesh, Singapore and Vietnam, which is driven by China's vertical integration

Table 1 Change in value chain participation (2018-2014)				
	GVC	RVC	Sub-region	With China
South Korea	↓	↓	↓	↓
Taiwan	↑	↑	↑	↓
Japan	↓	↓	↓	↓
China	↓	↓	↓	N/A
Singapore	↓	↑	↑	↑
Malaysia	↓	↑	↑	↓
Philippines	↓	↓	↓	↓
Viet Nam	↓	↓	↓	↑
Indonesia	↓	↑	↑	↓
Thailand	↓	↑	↑	↓
Nepal	↑	↑	↑	↓
Pakistan	↑	↑	↑	↓
India	↓	↓	↓	↓
Sri Lanka	↓	↓	↓	↓
Bangladesh	↓	↓	↓	↑

Source: UNCTAD-Eora database, Natixis
N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

China's value chain integration within Asia (%)



Source: UNCTAD-Eora database, Natixis
N.B. Results for 2018 are forecasted by UNCTAD-Eora

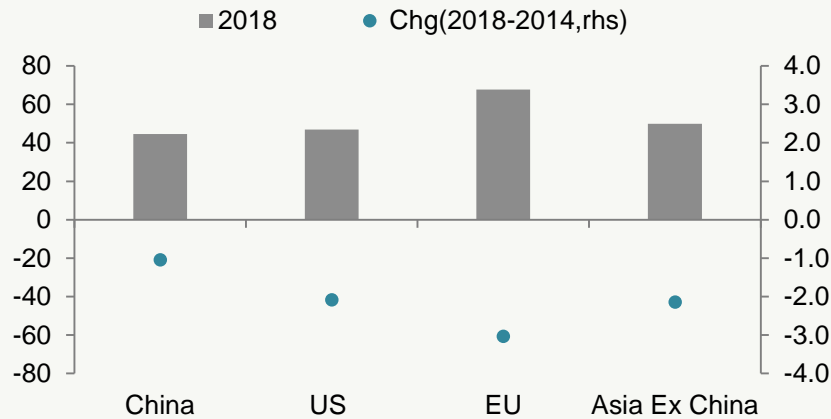
3. Europe's value chain increasingly dependent on China at the expense of its own regional integration

Related research:

[Europe's value chain increasingly dependent on China at the expense of its own regional integration](#)

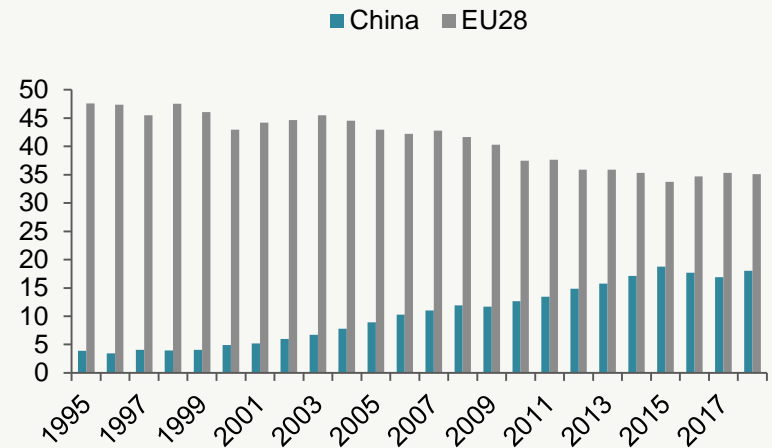
The European Union is experiencing a sharp reduction in global value chain participation

GVC Participation (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora
 EU's GVC includes individual EU economy's integration within EU

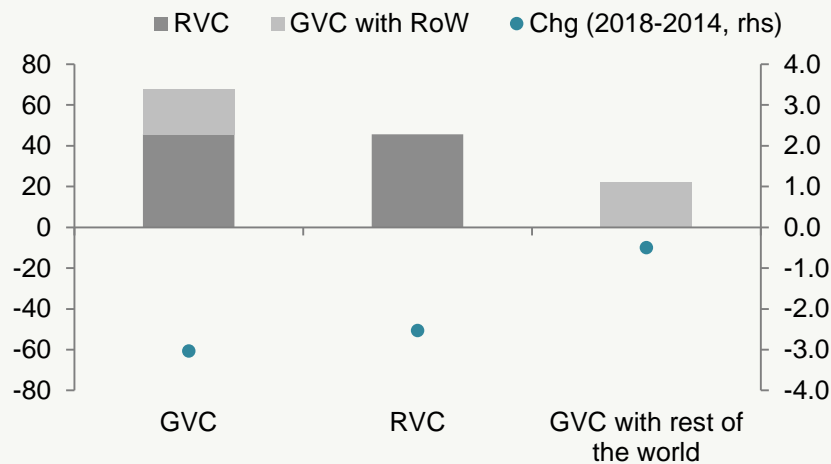
Share in global manufacturing exports (%)



Source: UNCTAD, Natixis

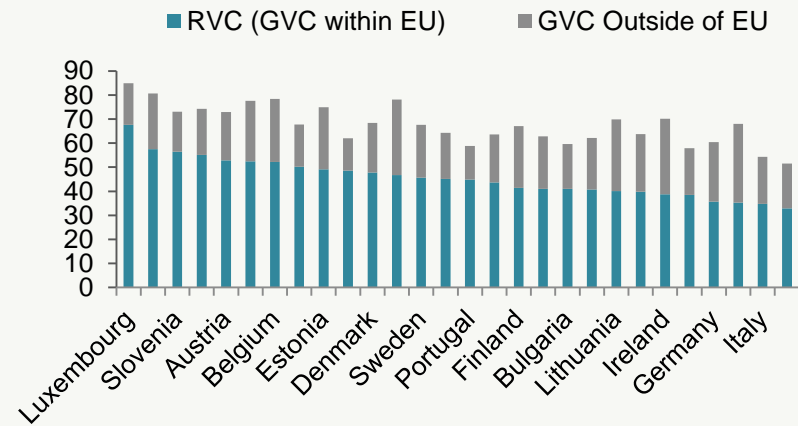
And it is not because of shortening of the supply chain as EU's regionalization of its value chain decreases

EU's value chain participation (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

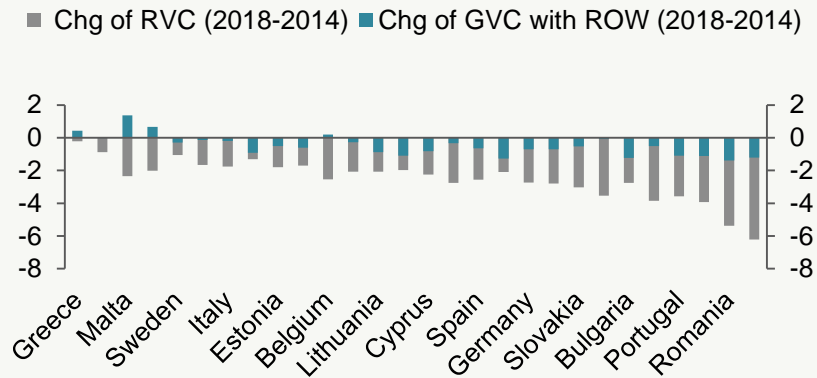
GVC breakdown by region (% 2018)



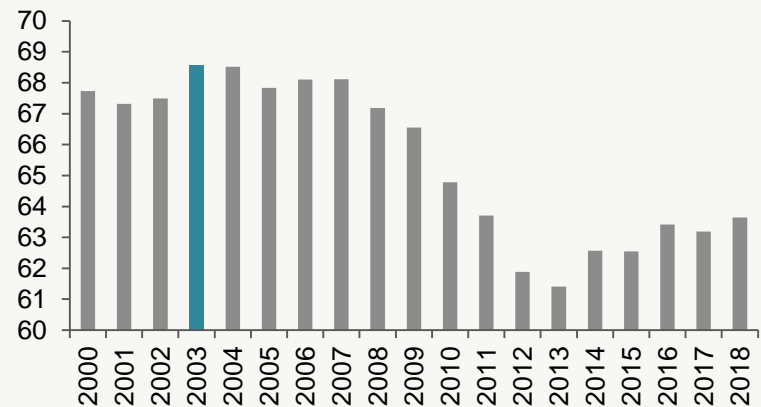
Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

RVC has dropped across all European Union economies. Correspondingly, share of intra-EU in EU's gross exports also declined

RVC participation within EU28 (%)



Share of intra-EU in EU's global exports (%)

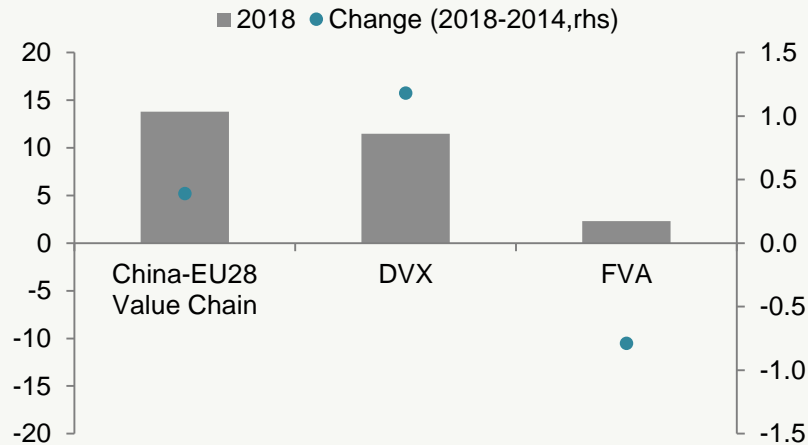


Source: UNCTAD-Eora database, Natixis
N.B. Results for 2018 are forecasted by UNCTAD-Eora

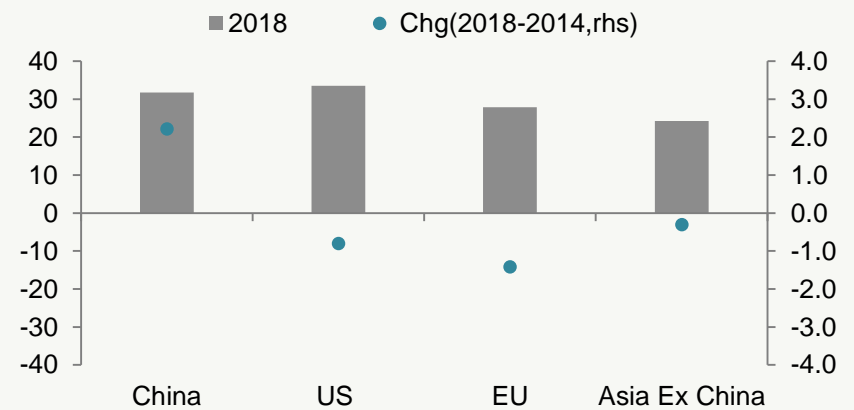
Source: Natixis, UNCTAD

EU's weaker regional integration coincides with increasing linkages with China's value chain

China's value chain integration with EU28 (%)



Domestic value added in third country's export or DVX (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora
 EU's GVC includes individual EU economy's integration within EU

But such linkages are increasingly asymmetric in China's favor

Table 1
Change in value chain participation (2018-2014)

Country	GVC	RVC	W/CN
Belgium	↓	↓	↑
Croatia	↓	↓	↑
Cyprus	↓	↓	↑
Czech Republic	↓	↓	↑
Estonia	↓	↓	↑
Greece	↑	↓	↑
Hungary	↓	↓	↑
Ireland	↓	↓	↑
Italy	↓	↓	↑
Lithuania	↓	↓	↑
Luxembourg	↓	↓	↑
Malta	↓	↓	↑
Netherlands	↓	↓	↑
Poland	↓	↓	↑
Portugal	↓	↓	↑
Romania	↓	↓	↑
Slovakia	↓	↓	↑
Slovenia	↓	↓	↑
Spain	↓	↓	↑
Austria	↓	↓	↓
Bulgaria	↓	↓	↓
Denmark	↓	↓	↓
Finland	↓	↓	↓
France	↓	↓	↓
Germany	↓	↓	↓
Latvia	↓	↓	↓
Sweden	↓	↓	↓
UK	↓	↓	↓

Source: UNCTAD-Eora database, Natixis
N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

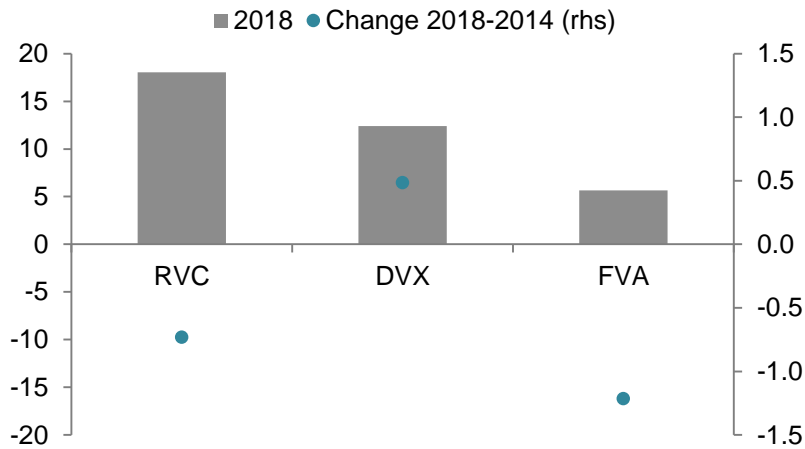
4. How do EU countries differ from Asian ones in their integration to China's value chain?

Related research:

[How do EU countries differ from Asian ones in their integration to China's value chain?](#)

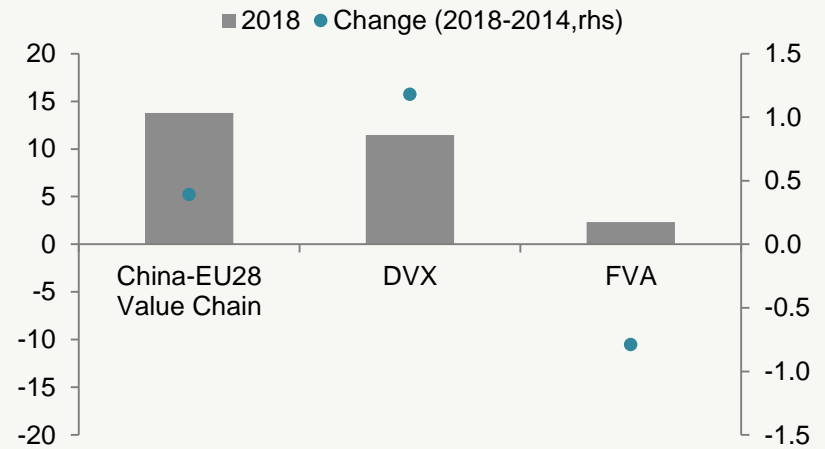
Level of integration in China's value chain about the same but trends are different

China's value chain integration within Asia (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

China's value chain integration with EU28 (%)







Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

European economies is increasing its dependence on China

Table.2 Change in value chain participation (2018-2014)				
	VC with China	FVA from China	DVX to China	Overall
Austria	↓	↑	↓	☹
Belgium	↑	↑	↓	☹
Bulgaria	↓	↑	↓	☹
Croatia	↑	↑	↓	☹
Cyprus	↑	↑	↓	☹
Czech Republic	↑	↑	↓	☹
Denmark	↓	↑	↓	☹
Estonia	↑	↑	↓	☹
Finland	↓	↑	↓	☹
France	↓	↑	↓	☹
Germany	↓	↓	↓	☹
Greece	↑	↑	↓	☹
Hungary	↑	↑	↓	☹
Ireland	↑	↑	↓	☹
Italy	↑	↑	↓	☹
Latvia	↓	↑	↓	☹
Lithuania	↑	↑	↓	☹
Luxembourg	↑	↑	↓	☹
Malta	↑	↑	↓	☹
Netherlands	↑	↑	↓	☹
Poland	↑	↑	↓	☹
Portugal	↑	↑	↓	☹
Romania	↑	↑	↓	☹
Slovakia	↑	↑	↓	☹
Slovenia	↑	↑	↓	☹
Spain	↓	↑	↓	☹
Sweden	↓	↑	↓	☹
UK	↓	↑	↓	☹

Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora
 Belt & Road member economies are shaded in grey

 stands for lower FVA from China and higher DVX to China
 stands for higher FVA from China but lower DVX to China
 stands for higher FVA from China and higher DVX to China
 stands for lower FVA from China and lower DVX to China

But Asian economies are reducing it

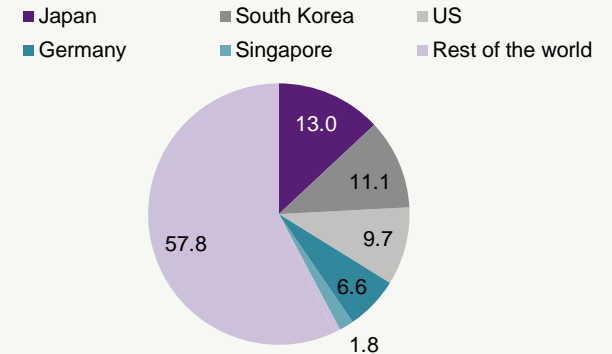
Table.1
Change in value chain participation (2018-2014)

	VC with China	FVA from China	DVX to China	Overall
Bangladesh	↑	↑	↓	☹️
India	↓	↓	↓	📄
Indonesia	↓	↓	↓	📄
Japan	↓	↑	↓	☹️
Malaysia	↓	↑	↓	☹️
Nepal	↓	↓	↓	📄
Pakistan	↓	↓	↑	😊
Philippines	↓	↓	↓	📄
South Korea	↓	↑	↓	☹️
Singapore	↑	↑	↓	☹️
Sri Lanka	↓	↑	↓	☹️
Taiwan	↓	↑	↓	☹️
Thailand	↓	↑	↓	☹️
Viet Nam	↑	↑	↓	☹️

Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora
 Belt & Road member economies are shaded in grey

😊 stands for low er FVA from China and higher DVX to China
 ☹️ stands for higher FVA from China but low er DVX to China
 📄 stands for higher FVA from China and higher DVX to China
 📄 stands for low er FVA from China and low er DVX to China

Total foreign value added in China's exports (% , 2018)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

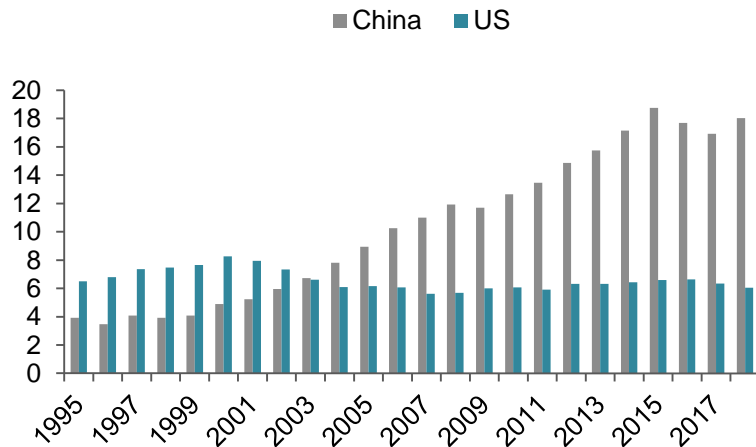
5. US-China value chain relationship increasingly asymmetric in China's favor

Related research:

[US-China value chain relationship increasingly asymmetric in China's favor](#)

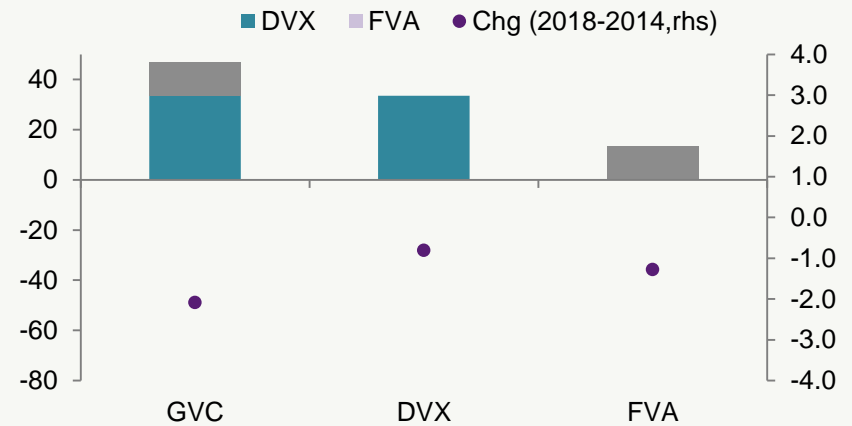
The US participation has declined, mirroring its reduction in global manufacturing share

Share in global manufacturing exports (%)



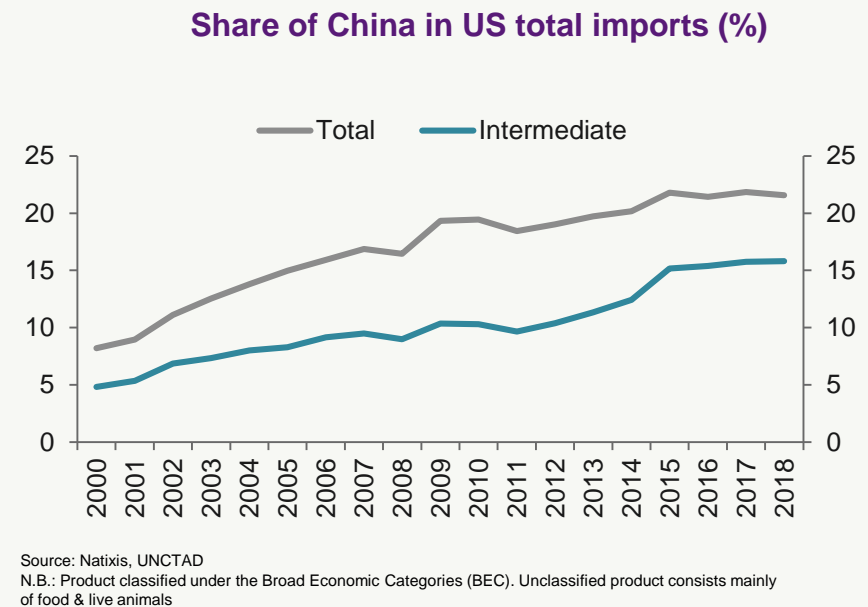
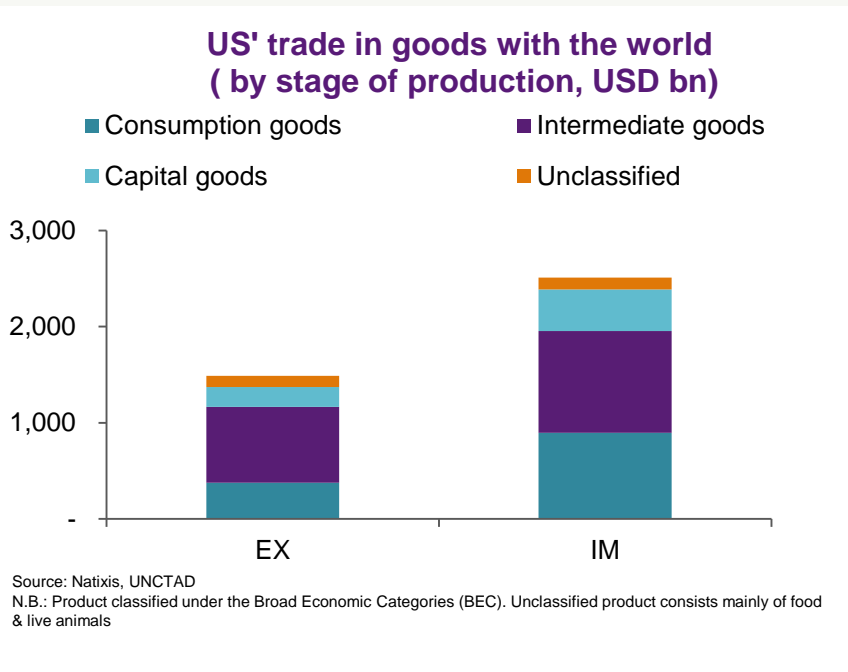
Source: UNCTAD, Natixis

US global value chain participation (%)



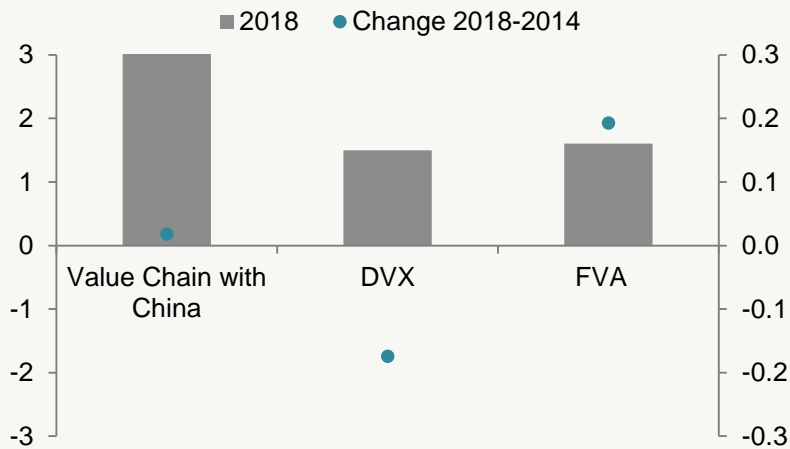
Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

The US sees declining export of intermediates but rise of import of Chinese intermediates for exports



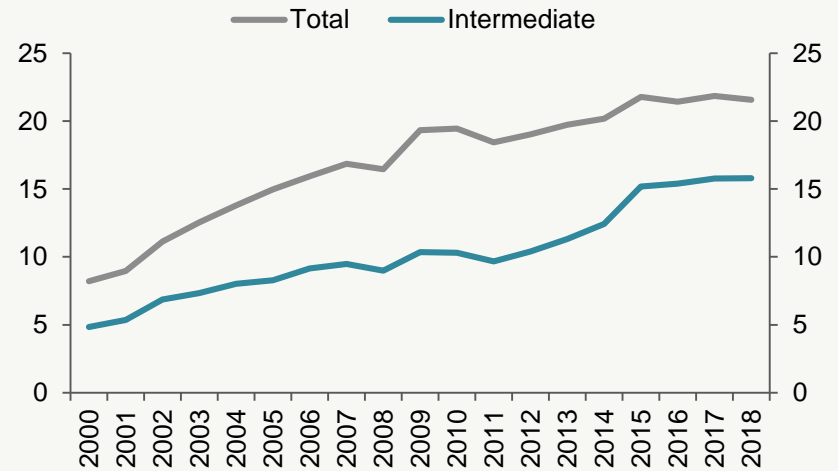
The US is losing grounds to China in terms of bilateral value chain relationship

US value chain integration with China (%)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

Share of China in US total imports (%)



Source: Natixis, UNCTAD
 N.B.: Product classified under the Broad Economic Categories (BEC). Unclassified product consists mainly of food & live animals

The US is also reducing its participation with neighboring Latin America, Asia ex China and Europe

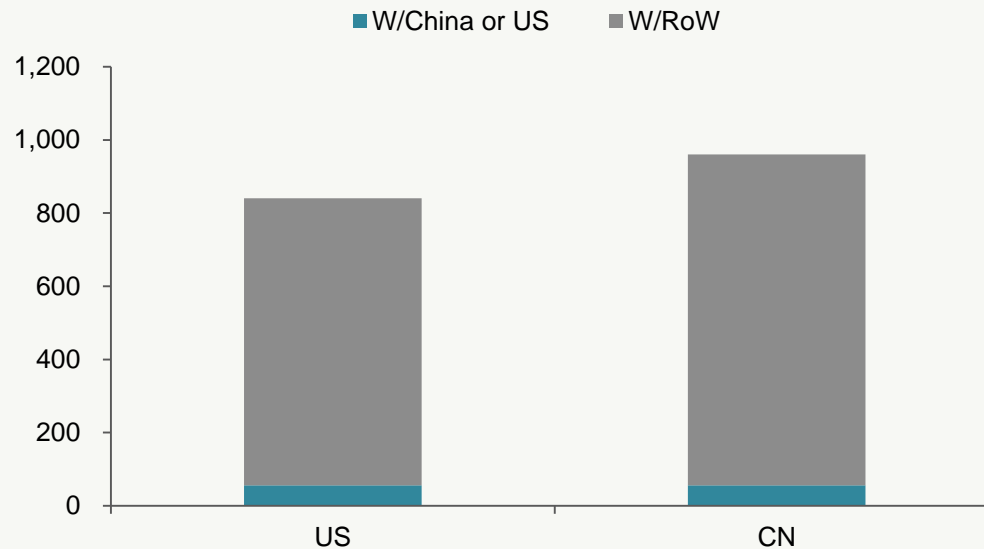
Table 1 Value chain integration with key regions		
Region	US	China
Asia Ex CN	↓	↓
CN	↑	N/A
EU28	↓	↑
LATAM	↓	↑

Source: UNCTAD-Eora database, Natixis

N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

Note that most bilateral value chains between the US and China are for final consumption so the BVC is small

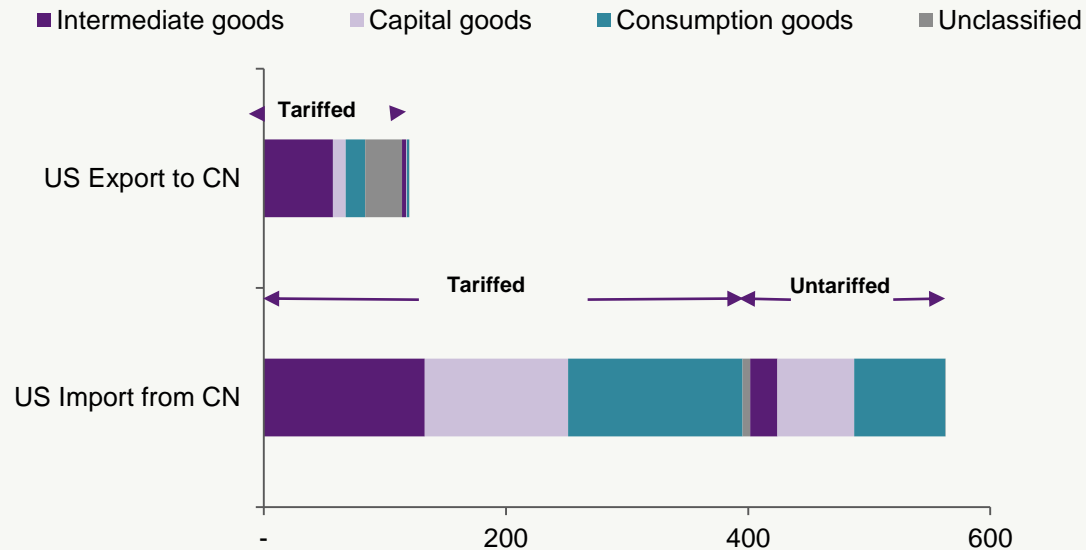
**Bilateral VC for US and China
(USD bn, as of 2018)**



Source: UNCTAD-Eora database, Natixis
N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

The trade-war zeros in on this bilateral intermediate relationship

US trade with China (USD bn)



Source: Natixis, UNCTAD

6.

North Asia reshuffling supply chain to Southeast Asia in response to China's vertical integration

Related research:

[North Asia reshuffling supply chain to Southeast Asia in response to China's vertical integration](#)

The Asia Pacific region has become less integrated with China via the value chain while still importing more Chinese intermediates for exports.

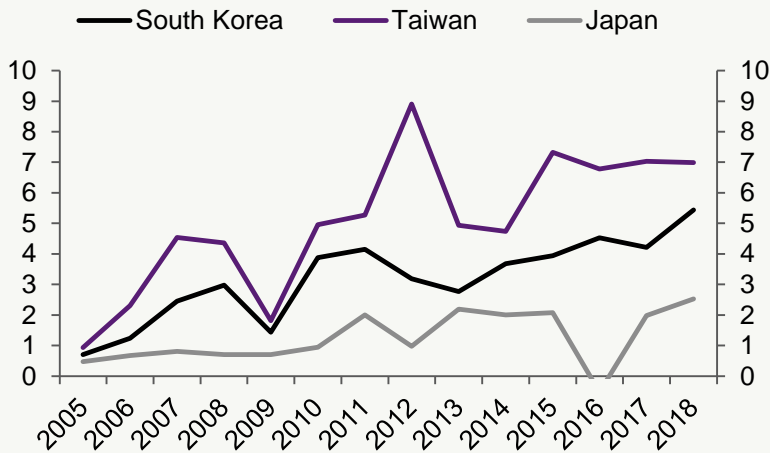
Table.1 Change in value chain participation (2018-2014)					
	GVC	VC with China	FVA from China	DVX to China	Overall with China
China	↑				
Japan	↓	↓	↑	↓	☹️
South Korea	↓	↓	↑	↓	☹️
Taiwan	↑	↓	↑	↓	☹️
Indonesia	↓	↓	↓	↓	📄
Malaysia	↓	↓	↑	↓	☹️
Philippines	↓	↓	↓	↓	📄
Singapore	↓	↑	↑	↓	☹️
Thailand	↓	↓	↑	↓	☹️
Viet Nam	↓	↑	↑	↓	☹️
Bangladesh	↓	↑	↑	↓	☹️
India	↓	↓	↓	↓	📄
Nepal	↑	↓	↓	↓	📄
Pakistan	↑	↓	↓	↑	😊
Sri Lanka	↓	↓	↑	↓	☹️

Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora
 Belt & Road member economies are shaded in grey

😊 stands for low er FVA from China and higher DVX to China
 ☹️ stands for higher FVA from China but low er DVX to China
 📄 stands for higher FVA from China and higher DVX to China
 📄 stands for low er FVA from China and low er DVX to China

North Asian economies are not standing by idly, with a rise of foreign direct investment into Southeast Asia

**Foreign direct investment into ASEAN
(USD bn)**



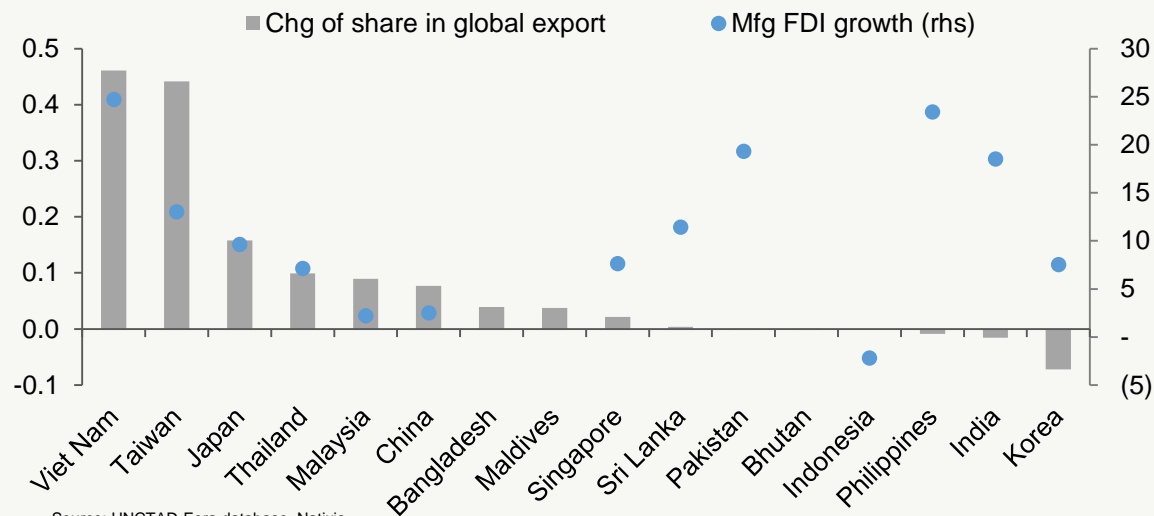
Source: Natixis, CEIC

Table.2 Change in value chain participation (2018-2014)		
	RVC	Sub-region
China	↑	↓
Japan	↓	↓
South Korea	↓	↓
Taiwan	↑	↑
Indonesia	↑	↑
Malaysia	↑	↑
Philippines	↓	↓
Singapore	↑	↑
Thailand	↑	↑
Viet Nam	↓	↓
Bangladesh	↓	↓
India	↓	↓
Nepal	↑	↑
Pakistan	↑	↑
Sri Lanka	↓	↓

Source: UNCTAD-Eora database, Natixis
N.B. Results for 2016-2018 are forecasted by UNCTAD-Eora

That process of North Asian economies, and increasingly China too, deploying FDI into Southeast Asia has resulted in a surge of FDI in the region

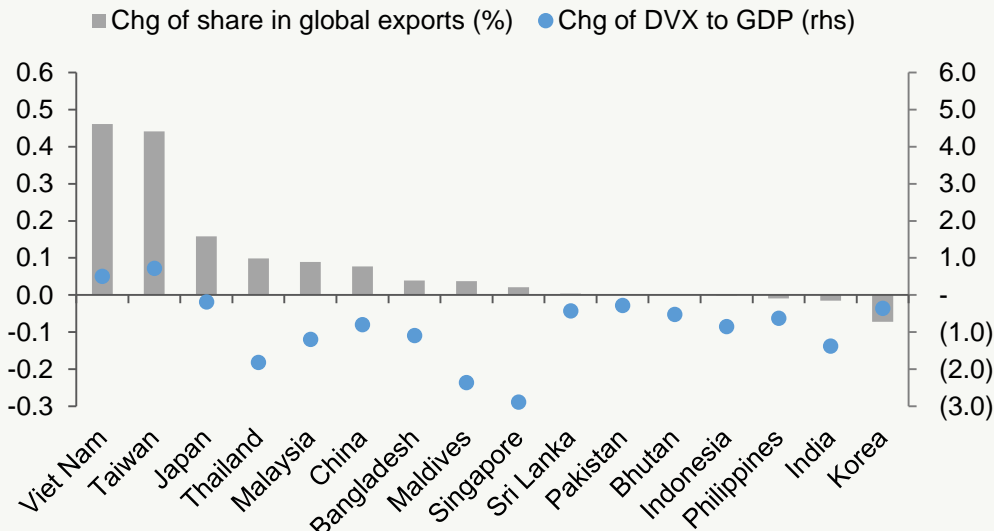
Change of share in global exports (% , 2018)



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

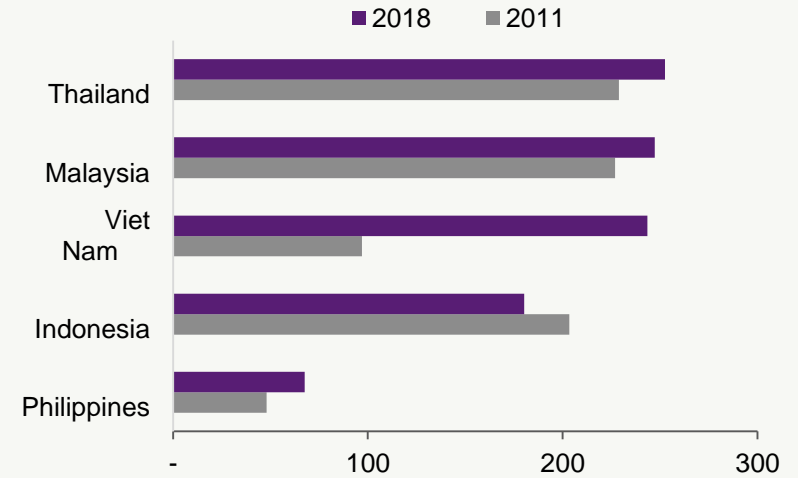
If FDI supports regional supply chain, this is good news for investors (North Asia) and recipients (ASEAN)

Change of share in global exports (%), 2018



Source: UNCTAD-Eora database, Natixis
 N.B. Results for 2018 are forecasted by UNCTAD-Eora

Gross export to the world (USD bn)



Source: Natixis, UNCTAD

Vietnam retains its number 1 in 2019 ranking and Thailand jumped from third to second most attractive relocation in Asia.

Table 3. A summary of our relocation metrics and ranking

Country	Demographics (%)	Wage (\$ per month)	Input Electricity (\$ per liter)	Institution/Doing Biz Ranking	Infrastructure Ranking	Investment Mfg/Total FDI (%)	Import tariff on Mfg goods (%)	Overall Rankings 2019	Overall Rankings 2018
CN	-1	493	1	31	26	30	9	4	4
ID	6	296	1	73	46	35	9	5	5
IN	7	265	1	63	44	61	10	6	2
ML	7	413	1	12	41	30	6	3	6
PH	9	220	1	95	60	14	6	7	7
TH	-2	413	1	21	32	37	9	2	3
VN	1	227	1	70	39	36	9	1	1

Source: Natixis, UNCTAD, Jetro, UN Population Statistics, World Bank, Global Petrol

Related research:

[Impact of trade war on emerging Asia: No short-term winner but Vietnam, India and Thailand to gain in the medium-term](#)

Vietnam tops the table again for labor intensive but is fourth for medium-tech. Thailand tops our relocation index for medium-tech and China retains second place.

Table 4. Country rank by Manufacturing Group (2019)

	Medium-tech capital-intensive	Labor-intensive
CN	2	7
ID	6	2
IN	5	4
ML	3	5
PH	7	3
TH	1	6
VN	4	1

Source: Natixis, UNCTAD, Jetro, UN Population Statistics, World Bank, Global Petrol

All in all

- Global value chains are going through a very rapid transformation, in particular their size is shrinking since the global financial crisis.
- At first sight, one could imagine that the reason is the regionalization of global value chains but this is not what we find in our analysis.
- In the case of Asia, further regionalization of the value chain is happening within ASEAN and, to a lesser extent, North Asia but not in the rest of Asia and, most importantly, not so much with China.
- This is even more the case for the European Union where its regional value chain is losing ground while its linkages with China are growing.
- In any case, both for Asia and the EU, their integration with China's value chain is becoming more asymmetric in China's favor. In other words, while the EU and Asia are reducing their exports of intermediate goods for China's own exports, China is increasing its exports of such intermediate goods.
- The US declining participation in the global value chain is driven by both its reduction in exporting of high-tech intermediates used for inputs in others' exports and its reliance on foreign inputs for its production. At the same time, the US is increasingly dependent on Chinese intermediates for exports.
- While China has clearly benefited from its vertical integration of the value chain, regional counterparts are not standing by idly, especially North Asian economies by raising foreign direct investment into Southeast Asia.
- In other words, China is less dependent on the rest of the world, as it continues to vertically integrate its production, but the rest of the world is increasingly dependent on China's exports.

Thanks!

Appendix:

The UNCTAD-Eora Global Value Chain (GVC) database offers global coverage (189 countries and a “Rest of World” region) and a timeseries from 1990 to 2018 of the key GVC indicators: foreign value added (FVA), domestic value added (DVA) and indirect value added (DVX). Results from 1990 to 2015 are generated from EORA Multi-Region Input-Output tables (MRIOs). Results for 2016 -2018 are nowcasted based on the IMF World Economic Outlook.