



Executive
Perspectives

War in Ukraine: Global Update and Perspective on the Future of Trade

BCG Global Advantage and Energy Practice Area

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Introduction to this document

The war continues to be first and foremost a humanitarian crisis, and the top priority for all continues to be the safety and security of people

Moreover, the continuity of the war has resulted in profound economic impact, not only within Ukraine but globally — as supply chains face disruption, commodity prices rise, and unprecedented levels of sanctions take hold

We continue to examine the most pressing issues and questions on the minds of our clients and teams

This edition shares the latest update on the **global economic impact** of the war, as well the **future of global trade** based on the conflict and other factors. The document outlines our perspective on the future of trade, key sector impacts (particularly to energy), and implications for business leaders

War in Ukraine: Global Update & Perspective on the Future of Trade

AGENDA

Global economic impact of the war in Ukraine

Perspective on Future of Trade

- › Context and current situation
- › Focus on energy
- › Implications for leaders
- › Appendix

War in Ukraine continues to evolve along several dimensions

Interrelated dimensions

Duration

Geographic scope & materiality

Sectoral scope & materiality



- ◇ 03 Mar. ◆ 10 Mar. ◆ 17 Mar. ◆ 24 Mar. ◆ 31 Mar. ◆ 14 Apr.
- ◆ 26 Apr. ◆ 12 May ◆ 25 May ◆ 08 June ◆ 07 July ◆ 26 Oct

Ukraine regains territory in Eastern and Southern regions. Russia prepares to defend key occupied areas in Ukraine's South

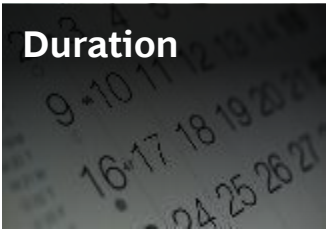
NATO membership for Sweden and Finland in-progress. Russia floats nuclear option, potentially dragging NATO into conflict

Inflation at levels not seen since early 1980s, including in energy, triggering potential recession

Implications from conflict more pronounced than expected at start of war

Interrelated dimensions

Duration



Expectations in February 2022

Short and swift conclusion to war

- Russian military superiority will lead to a quick victory or negotiated peace in Russia's favor
- Forced Ukrainian integration into Russian sphere

Situation today (~8 months in war)

No imminent resolution in sight

- Successful Ukraine counterattacks
- Sustained Western military aid
- Russia issues conscription to build troop numbers

Geographic scope & materiality



Limited geographic scope, spill-over possible

- Ukraine as the center of impact, including risks to central and western Ukraine
- Risk of military spill-over, though limited, to areas such as Moldova

Larger scope with economic impact, refugee movement

- Conflict mainly in Eastern & Southern parts of Ukraine
- Spill-over risk appears limited, but potential for escalation (e.g., nuclear weapons)
- Recovery Plan to cost ~€750B; EIB aims to raise €100B

Sectoral scope & materiality



Few sectors affected

- Full extent of trade disruptions to be determined, impact limited to energy, metals, and agrifoods
- High risk of food shortages from grain disruptions and higher energy costs

Increased global economic fragility

- Comprehensive reduction of Western trade (excl. energy) with Russia, with intent to end nearly all trade
- Second order impacts include world-wide inflation, triggering potential recession
- Actions by global governments mitigated famine risk, but food systems remain fragile (e.g., wheat, fertilizer)

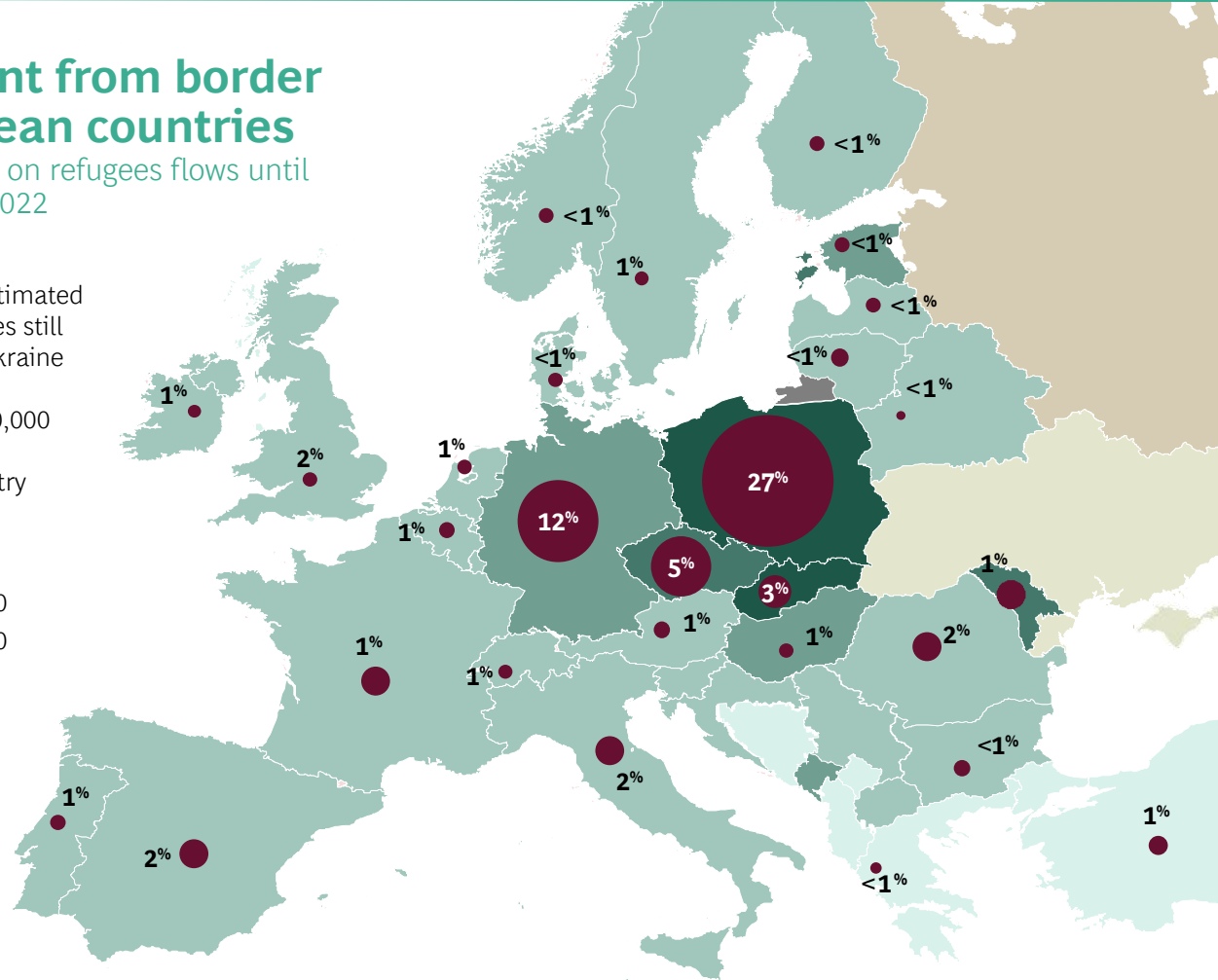
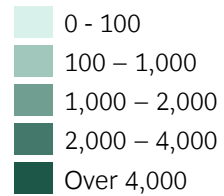
Ukrainian refugees | 7.7M refugees remain outside Ukraine, ongoing capacity constraints in Central Eastern Europe

Movement from border to European countries

Indicative view on refugees flows until October 25th, 2022

● X% of the estimated 7.7M refugees still outside of Ukraine

Refugees per 100,000 inhabitants in destination country



- > ~48% entered the Schengen Area through **Poland** and ~15% through **Hungary**
- > ~40% settling down in **Central Eastern Europe (CEE)**
- > ~60% already flowing to other **countries (including non-EU countries)**
- > **Limited flows to rest of the world**, with potential to increase long-term intake
- > ~2-3M refugees have returned to Ukraine (~20-30%), mostly from CEE countries; **uncertainty remains over permanence**

Note: Actual number of "unique" refugees might be slightly lower as the crossing are not counted as per "unique" person, however at this point it is uncertain whether the return is permanent or temporary. Note: Indicative view; recent analyses indicate that onward travel from directly neighboring countries (particularly Poland, Hungary, Slovakia) and hence also inflow to not directly neighboring countries (particularly Germany, Italy, France) might be higher than stated. Note: These analyses represent only potential scenarios based on discrete data from one point in time. They are not intended as a prediction or forecast, and the situation is changing daily. Source: UNHCR; interviews with NGOs; survey among refugees, Government websites and statistics; BCG calculation & analysis

Summary snapshot | War in Ukraine global economic impact

Global Growth Outlook

GDP Forecasts¹

	World Bank		Leading FIs	
	2021	2022	2022-23	
	Actual	Jan'22 Forecast	13 Oct – 25 Oct '22 Median Forecasts	
			2022F	2023F
Russia	4.7%	2.4%	-4.5%	-3.0%
Euro Zone	5.3%	4.2%	3.0%	-0.05%
Global	3.9%	4.1%	2.9%	2.3%

Note: The World Bank slashed global forecast to 2.9% on 7 June

Commodity Prices⁴

Commodity price (actual, \$)

Commodity	Jan 3 '22	Oct 24 '22	Change
Crude Oil (\$/bbl)	79.0	91.2	+15%
Gas (\$/MWh)	80.4	135.8	+69%
Coal (\$/t)	157.5	386.1	+145%
Wheat (€/bu)	274.0	339.0	+24%
Rapeseed (€/t)	728.5	645.0	-11%
Nickel (\$/t)	20,430.0	22,920.0	+12%
Palladium (\$/oz)	1,826.0	1,967.8	+8%

Supply Chain Metrics

Deep Sea Cargo Bosphorus Straits Transits (Avg. #/day)²

	Pre-War (Nov '21)	Prev. Wk (10/10-10/16)	Curr. Wk (10/17-10/23)	ΔCW-PreWar
Northbound	8.9	7.4	6.9	-22%
Southbound	9.6	7.3	5.9	-39%

Deep Sea Cargo Port Calls (Avg. #/day)²

	Pre-War (Nov '21)	Prev. Wk (10/10-10/16)	Curr. Wk (10/17-10/23)	ΔCW-PreWar
Ukraine	4.5	0.9	0.6	-87%
Russia	21.6	20.6	20.3	-6%

Baltic Dry Index (Daily Avg)³

	Pre-War (Nov '21)	Prev. Wk (10/11-10/17)	Curr. Wk (10/18-10/24)	ΔCW-PreWar
BDI ³	2780	1855	1840	-34%

Sanctions & Policy Actions

Updates since July 22

- High-visibility sanctions enforcement by US and UK
- China and India continue declining to enforce non-UN sanctions
- Western sanctions increase after "referendum" vote in 4 annexed regions
- EU passes "8th round" implementing oil price cap as agreed at Sept G7
- Russia adds 8 countries to "unfriendly" list; slows Nordstream 1 "until sanctions are lifted"; expropriates Exxon's stake in Sakhalin-1 project

Cumulative # Sanctions⁵ in-place (Δ since previous)⁶



Corporate Actions in Russia Market

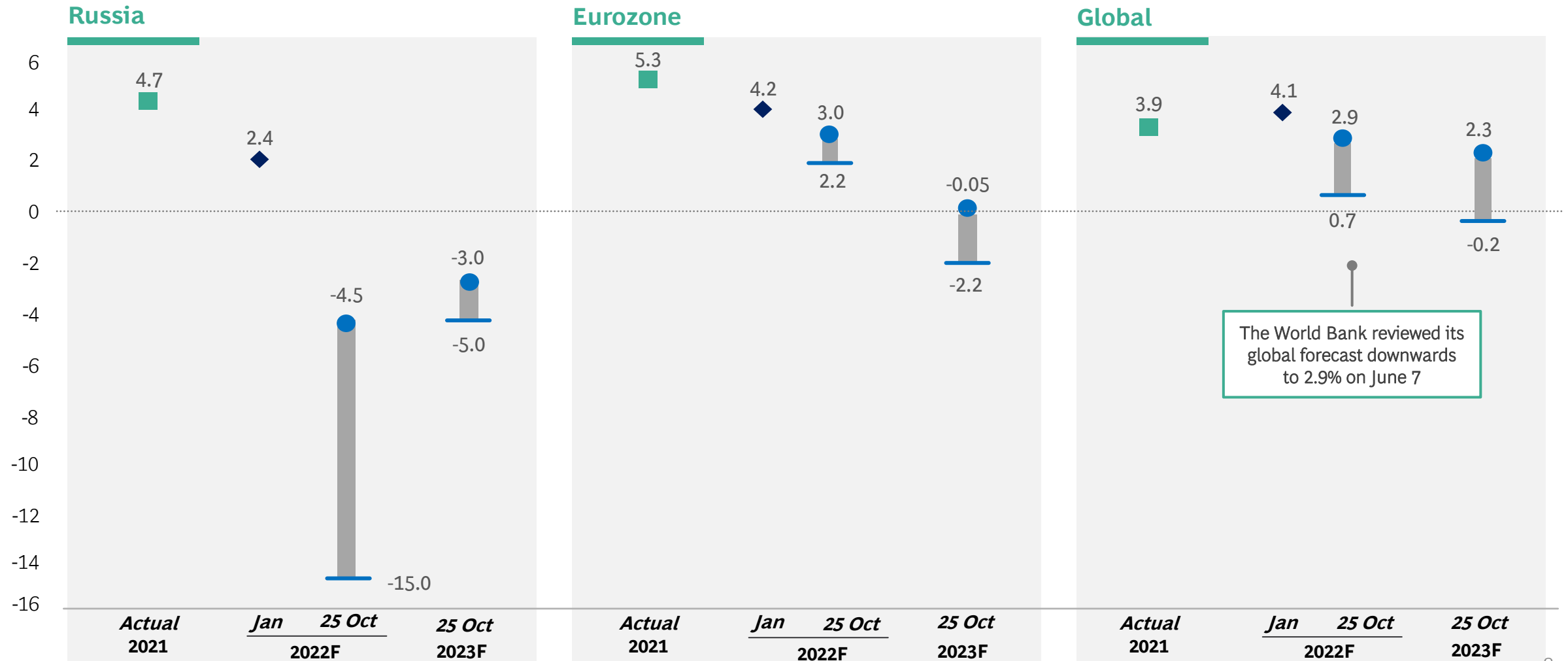
Based on sample of +1380 companies⁷



1. GDP forecasts from World Bank and FIs per Bloomberg database (15-56 FIs per forecast period) 2. Deep Sea Cargo: oil tankers MR & up, bulkcarriers Panamax & up, containerships 3,000+ TEU, VLGCs, LNG carriers 60,000+ cbm & PCTCs 6,000+ ceu. Clarkson Research (<https://www.clarksons.com/>) Clarkson Research Services Limited ("Clarkson Research"). © Clarkson Research 2021. All rights in and to Clarkson Research services, information and data ("Information") are reserved to and owned by Clarkson Research. Clarkson Research, its group companies and licensors accept no liability for any errors or omissions in any Information or for any loss or damage howsoever arising. No party may rely on any Information contained in this communication. Please also see the disclaimer at <https://www.clarksons.com/Portal/disclaimer>, which also applies. No further distribution of any Information is permitted without Clarkson Research's prior written consent. Clarkson Research does not promote, sponsor or endorse the content of this communication. 3. <https://www.bloomberg.com/quote/BDIY:IND>; Baltic Dry Index (BDI) is index of avg price paid for transport of dry bulk mat'ls across 20+ routes 4. S&P Capital IQ 5. Total sanctioned actions worldwide, excl. Russia, incl. duplication. Source: correctiv.org 6. Numbers in parenthesis 0 indicates increase /decrease since last update. Where there is a decrease this is because reclassification due to definitions, and company action recategorization from one to another. 7. Yale Chief Exec Leadership Inst.. Note: BCG does not provide legal or regulatory advice

Major decline forecasted in Russia GDP and EU GDP in 2023

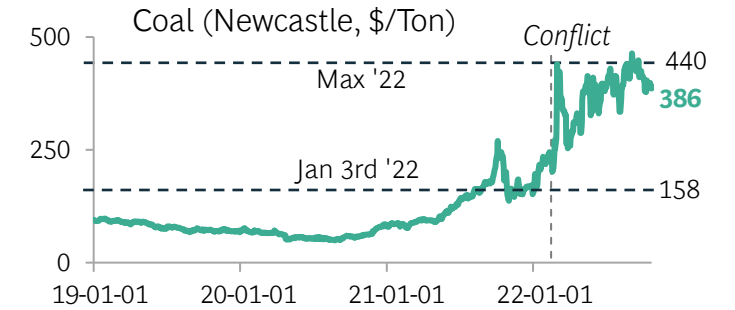
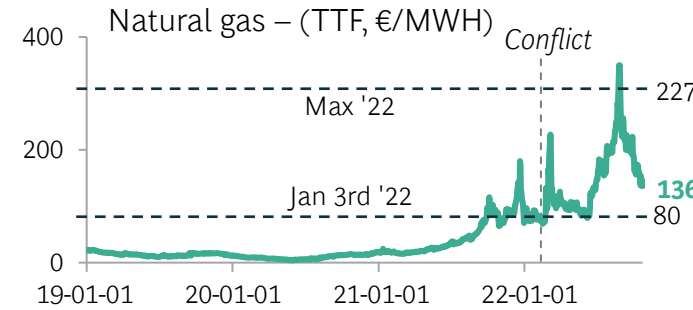
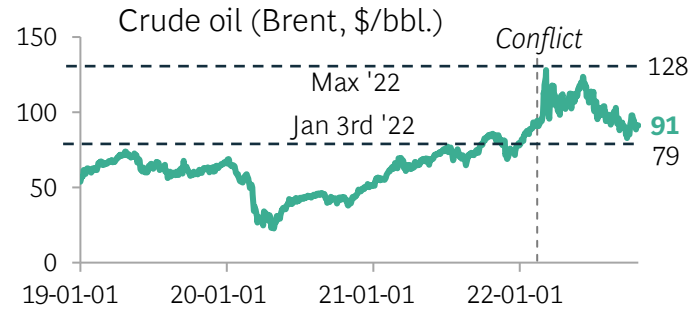
GDP Growth (%), Selected Regions, 2021A – 2023F



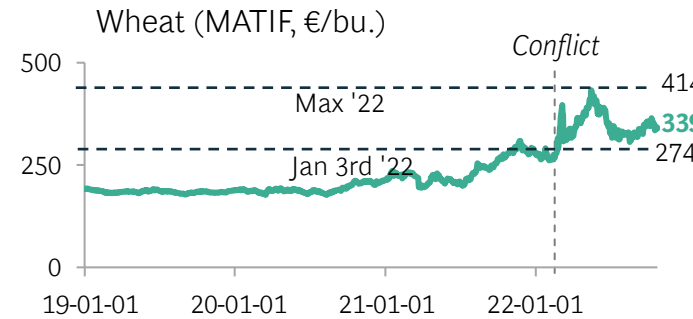
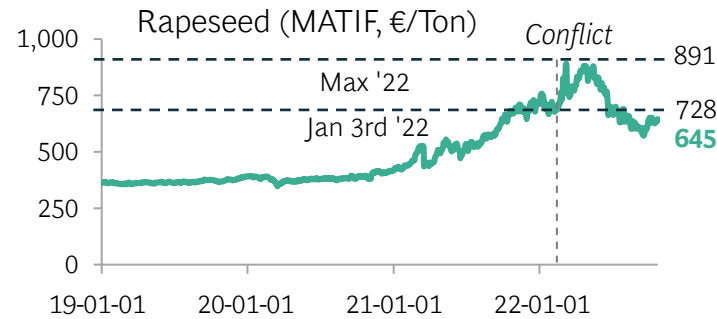
Note: 13 October - 25 October forecast of 15 FIs for Russia, 56 FIs for Eurozone, 29 FIs for Global
Sources: World Bank; Bloomberg; BCG Analysis

Coal & gas prices remain most elevated since conflict vs. other commodities

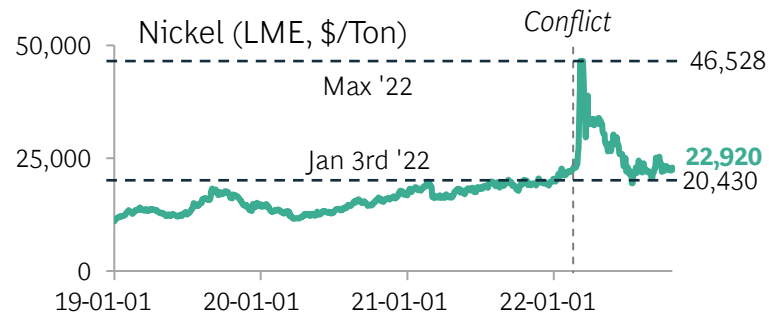
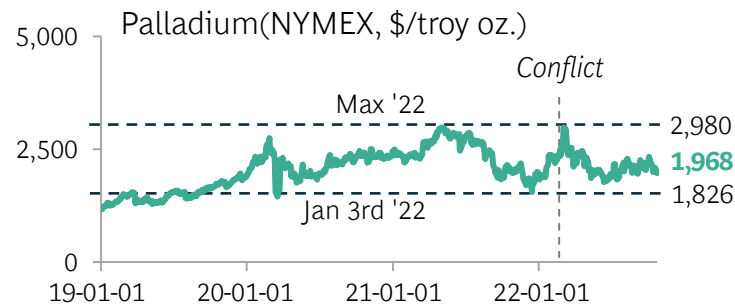
Hydrocarbons



Food



Metals



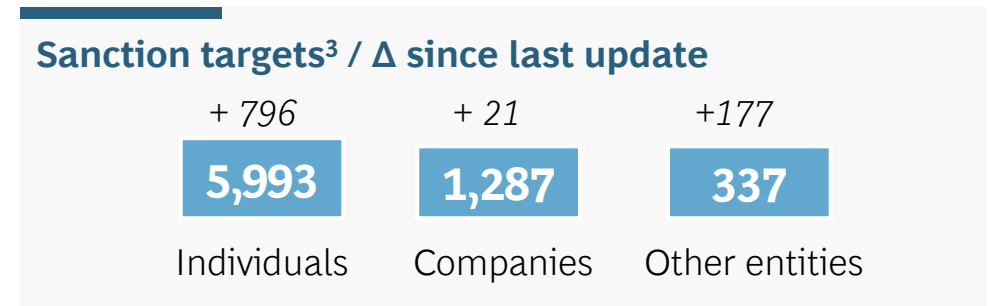
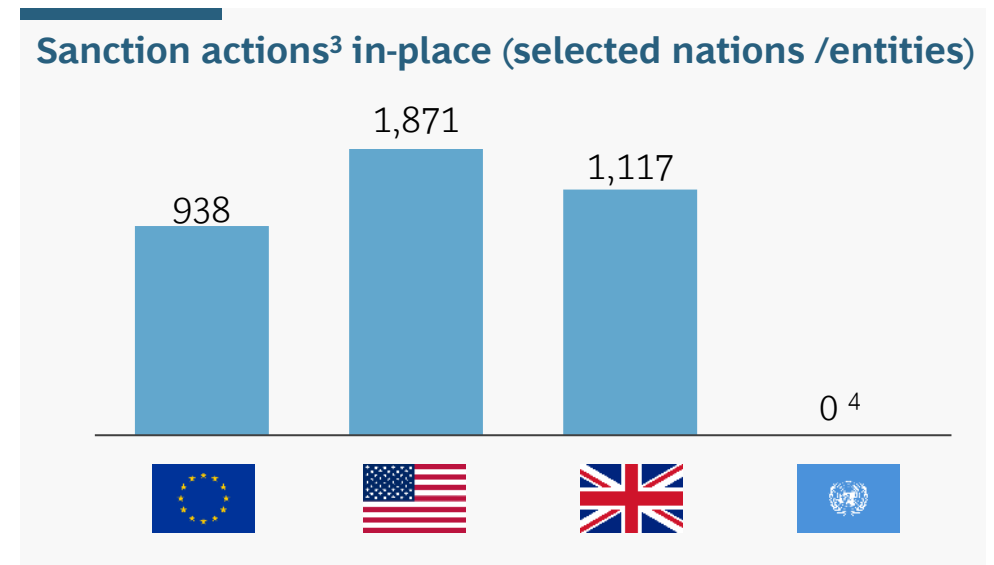
Source: S&P Capital IQ, 24 October 22; BCG analysis.

Key sanctions and policy actions currently in place

Current sanctions & policy actions (key examples)

"Western" Allies	 <ul style="list-style-type: none"> • Western Allies bloc strong coordination of policy/sanctions programs: <ul style="list-style-type: none"> – Limits SWIFT access, removes "MFN" status, places sanctions on key imports/exports – Expels/sanctions diplomats and "oligarch" assets, closes embassies/consulates, closes EU border crossings and ports, creates collaborative investigative/enforcement team – Limits/bans energy, coal, gold¹, key service parts, alcohol/luxury goods, steel, etc. – Bans professional services exports, media outlets, cultural exchanges, ed institutions ! Sanctions increase after Russia forces "referendum" vote in 4 annexed regions ! EU passes "8th Round" of sanctions, implementing oil price cap on sales to third countries ! High-visibility sanctions enforcement; e.g., US penalizes Iran for drones to RU; UK arrests British businessman Bonham-Carter for sanctions evasion benefitting Russian oligarch
Russia	 <ul style="list-style-type: none"> • Continues adding to "unfriendly" list: ! 8 more countries; govt officials, sports/media • Diverts EU oil/gas sales to India, China, Turkey, UAE, Sri Lanka, others • Seizes assets and luxury items, declares bankruptcy moratorium, asks payment in rubles ! Slows Nordstream 1 to EU "until sanctions are lifted" ! Expropriates Exxon's stake in Sakhalin-1 project
Other Parties	 <ul style="list-style-type: none"> ! UN General Assembly Resolution on Russian referendum and annexations condemned by vote of 143-5: 35 countries abstain, including China, India, Brazil, South Africa ! Turkey declines to enforce financial sanctions, desires to keep "intermediary" status • CN normal relations with RU, ! declines to enforce Western Allies sanctions; e.g., HK chooses not to enforce non-UN sanction by refusing to seize oligarch US-sanctioned asset ! India criticizes escalating war, but purchases RU oil/gas & declines to enforce sanctions

Current sanction actions by country and target



! New since Jul 2022

1. Intended to prevent selling gold reserves to finance war; 2. Basis ISO Country Codes
 Source: Government websites; Media reports; BCG analysis. Note: BCG does not provide legal or regulatory advice.

3. Total sanction actions, includes duplication. 4. Russia holds veto in UN Sec Council.
 Source: www.correctiv.org

Recent developments affecting the course of the conflict

Russia



- Russia **unilaterally annexed some occupied Ukrainian regions**¹ and **floated use of nuclear weapons** to defend them^{2,3}
- Russia **appointed Sergei Surovikin**, known for extreme tactics, as new commander for Ukraine ops⁴
- **Russia issued partial mobilization** to draft up to 300,000 reservists, and announced its completion on 31 October⁵
- After explosion damaged Kerch Strait Bridge between Crimea & Russia, **Russia launched retaliatory missile & drone strikes**⁶

Ukraine



- Ukraine launched a major counter-offensive, **recapturing thousands of sq km of Russian occupied territory**⁷
- President Zelensky said **Ukraine will not negotiate** with Russia so long as Putin remains president⁸
- President Zelensky **rejected the results of Russian referendums** in occupied territories⁹
- Ukraine formally applied for **accelerated accession to NATO**¹⁰ and was **granted candidate status** by the European Union¹¹

"Western allies"



- European gas supplies were impacted by sabotage on **Nord Stream 1 and 2**; investigation of the culprit is ongoing¹²
- The US and EU approved **additional military aid** to Ukraine, including missile and drone defenses¹³
- The US asked the EU to accelerate distribution of committed **loans to stabilize the Ukrainian economy**¹⁴
- The EU passed an 8th sanctions package laying **legal foundations for a proposed price cap on Russian oil**¹⁵

Other parties



- **India and China both called for de-escalation of conflict**, with Xi Jinping expressing "questions and concerns" and Narendra Modi asking to "move forward on the path of peace"¹⁶
- **Majority of UN General Assembly voted to condemn Russia's annexations**; China & India abstained, only 5 countries, incl. North Korea & Belarus, voting against¹⁷
- Turkey offered to again **mediate talks between Russia & Ukraine**¹⁸
- Turkey brokered a deal to **restart grain shipments through the Black Sea**, which continues despite uncertainty¹⁹


1. BBC (annexed regions are Luhansk, Donetsk, Zaporizhzhia, Kherson); 2. Reuters; 3. AP; 4. NYTimes; 5. WaPo, Reuters 6. BBC; 7. NYTimes; 8. WaPo; 9. Reuters; 10. NYTimes; 11. AP; 12. NYTimes; 13. AP; 14. WaPo; 15. NYTimes; 16. NYTimes; 17. UN; 18. AFP; 19. NYTimes
Note: BCG does not provide legal or regulatory advice

Multiple possible evolutions exist for Ukraine war

Main factors driving conflict

 Balance of **military power**, and choice of tactics and weapons

 **Sanctions** & policy actions by "West," and Russia's response

 Military **aid & support** from third countries ("West" & other)

 **Peacemaking** (bilateral, multi-lateral or third-country brokering)

 Domestic **political & economic conditions** in Russia

Potential conflict evolutions

Military conflict ceases

Fall of Ukraine
Russian forces control full country

David defeats Goliath
Ukraine repels Russian forces

Freeze in-place (Korea 2.0)
Negotiated peace / de facto partition

Military conflict persists

No end in sight (Afghanistan 3.0)
Protracted stalemate

Global spillover
Further conflicts in other theatres

Key impacts for business

- Sanctions remain indefinitely
- Sustained isolation of Russia
- Major re-build by Russia

- Sanctions remain indefinitely
- Major re-build required

- Certain sanctions lifted
- Major re-build required

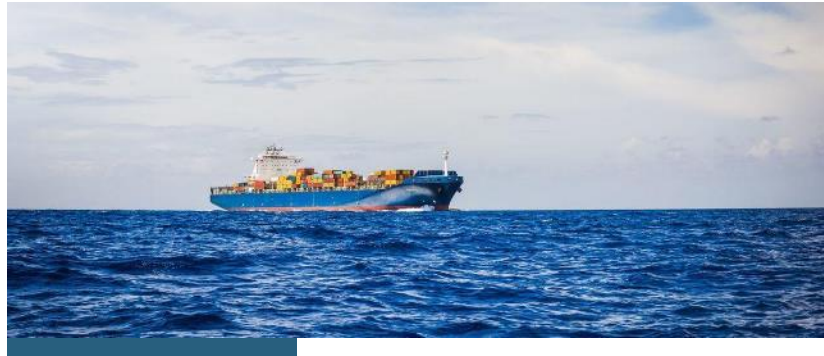
- Sanctions remain indefinitely
- Significant socioeconomic impact
- Sustained isolation of Russia

- Sanctions expand to other nations engaged in aggression

Global scenarios required to go beyond war evolutions and navigate an uncertain medium term

Stretched-yet-plausible worlds for 2030

Recall |
Four potential scenarios for 2030 can support strategic thinking and help build uncertainty advantage



Back to the future

Major powers see benefits in global cooperation and minimized military conflicts



Limited stalemate

Chronic conflict in Ukraine & elsewhere in non-NATO former Soviet republics; China keeps distance from Russia; economies survive sanction shock; West-inspired institutions struggle for relevance



Tripolar competition

Western & Eastern blocs coexist in new balance, while "non-aligned" nations seek 3rd path; norms and institutions differ within and among blocs



Global escalation

Economic & military confrontations erupt in multiple locations, disrupting trade patterns; economic & military power supplants institutional system

Think of a world where... 2030 scenarios overview

ILLUSTRATIVE & NON-EXHAUSTIVE; TO PROMOTE DISCUSSION



Back to the future

Domestic conditions drive leadership of global powers to **pull back from confrontational stance**



Tripolar competition

Eastern and Western poles coexist, while "non-aligned" countries seek a **third path** in global affairs



Limited stalemate

Chronic **conflict limited** to Ukraine & elsewhere in non-NATO former Soviet republics; major powers maintain confrontational stance



Global escalation

Major **powers clash** & military escalation spreads to **other theatres** (e.g., Central Asia, Middle East, Indo-Pacific)



Geopolitical relations



Strength of institutions



Trade & supply chains



Financial stability



Energy & climate



Technology & innovation



Consumption

Eastern powers pivot to a balance with **global Western-inspired institutions**

Global trade grows to historical highs; **Africa** increases share of global **supply chains**

Monetary policy alignment & markets integration support stocks & long-term investments

Global **policy coordination** and Chinese **Greentech** accelerate **energy transition**

Innovation in **AI & automation** push productivity but drive **higher inequality**; Western **networks & platforms** concentrate activity

Expansion of global markets & integration of Eastern players supports **demand growth**

In **Africa and Asia**, institutions sponsored by major powers coexist

Total global trade stable, but trade corridor **mix-shift occurs** as supply chains **near-shore**

Global financial markets decouple limiting access to capital

Politicization along bloc lines **disrupts the global consensus on climate action**, only partially offset by Greentech developments

Innovation in **decoupled networks** ("splinternet"), **payment systems** & strategic sectors as **defense & space**

Intra-pole **demand increases** but policy-driven barriers lead to shortages and **inflation pressure**

Western institutions try but fail to align other powers; **business tries** to shape global cooperation

Total global trade stable but **regionalization** shifts flows, and **intermittent supply shocks** continue to disrupt costs/prices

Sanctions & counter sanctions limit capital flows, hindering lending, valuations and long-term investment

Insecurity pushes US/ME **LNG** imports & **renewables in EU**, but EMs sustain high emissions

Cybersecurity is top priority; insecurity pushes **metaverse** as alternative to physical experiences; **parallel networks** keep growing

Stagflation reinforces negative demand cycle & **food crises persist** in developing world

State-led protectionism & nationalist policies shape socio-economic and political dynamics

Global trade plunges; chains localize; resource-endowed countries continue to provide essential supplies

Capital shifts to private investments, more opaque than public markets; **state investments** gain relevance

Fossil fuels & coal prevail in war economy & intensify **no-return point in climate crisis**

Innovation focuses on **hybrid warfare capabilities & cybersecurity**; **local networks** develop to ensure independence

Local consumption **shifts to basic goods & cryptocurrencies** enable **e-commerce continuity**

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Summary | Future of Trade affected by Ukraine crisis, other geopolitical forces

Future of trade

Future of Trade (FoT) perspective grounded in global geopolitical scenarios for 2030

Three major drivers underlie shifting trade flows:

- 1 **Russia-West fall-out:** EU-Russia trade sees massive decline as Western allies place sanctions on Russia; trade moves from Russia-EU to Russia-East (China, India), with most disruptive impacts in Energy
- 2 **China trade dynamics:** Slower US / EU trade with China, as increased focus on trade resilience in face of geopolitical risk drives trade growth with ASEAN, India, Mexico, and increasing "near-shoring" and "friend-shoring"
- 3 **ASEAN trade growth:** Region to benefit from strong growth with China, US, and EU; push (e.g., geopolitical tensions, higher cost structure in China) and pull (e.g., trade connectivity) factors drive growth

Impacts on energy

Energy trade changes **drive near-term price increases**; high prices to persist into 2023-24, particularly in EU. Reduced economic growth requires measures (e.g., subsidies) to **manage immediate energy shocks**

Longer-term policies to sustainably support EU phase-out of Russian energy could have **significant trade implications** (e.g., reoriented energy supply chains, accelerated shift to renewable energy build)

Implications

In short-term, businesses need to understand trade flow risks across value chain, prioritize no-regrets moves, and intensify contingency planning

In long-term, businesses must build capabilities to manage volatility and apply scenario planning for resilience

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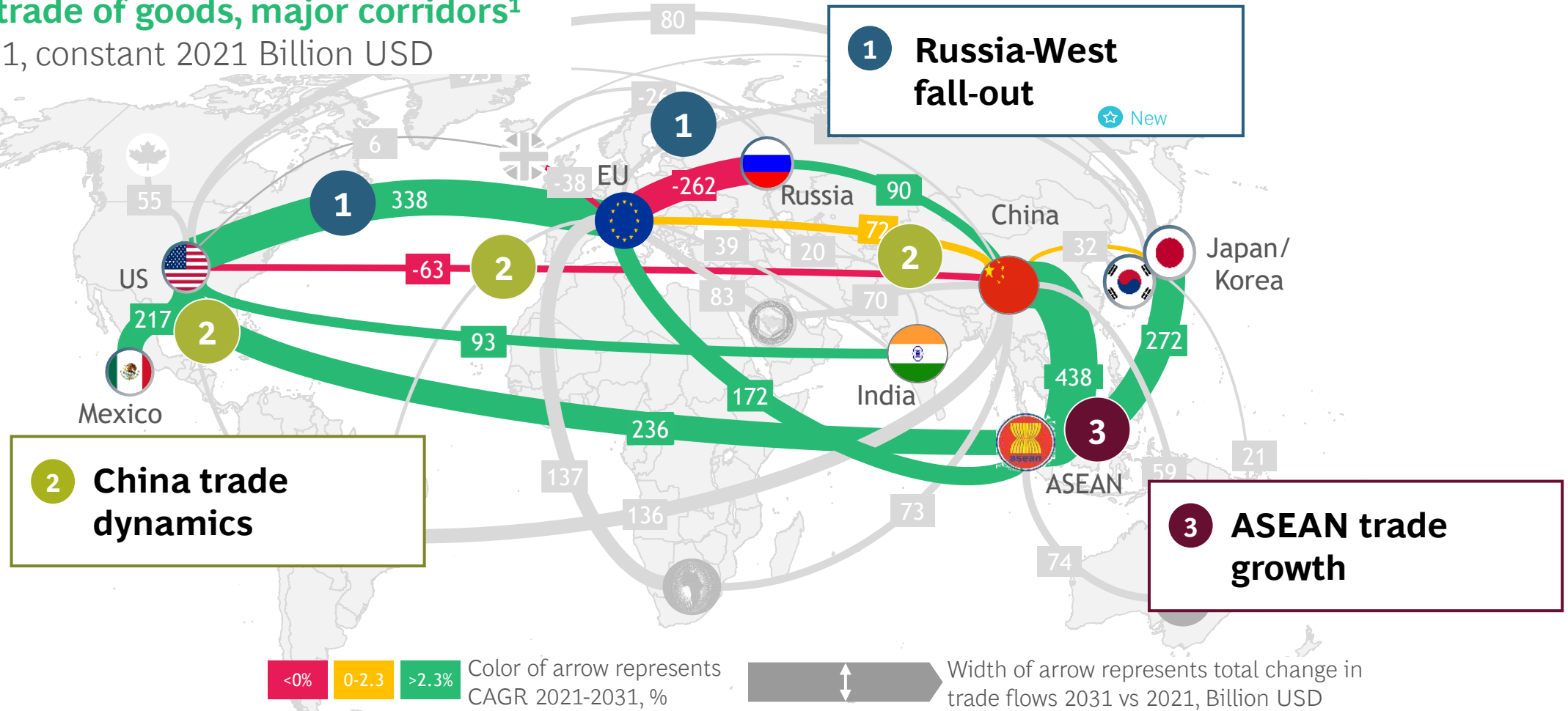
> Context and current situation

- > Focus on energy
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Three significant corridor shifts; one new, other two are trend accelerations

Change in trade of goods, major corridors¹

2031 vs. 2021, constant 2021 Billion USD



1. Corridors in the map above represent ~46% of global trade.

Note: EU Intra-trade estimated to grow by 1.5T USD by 2031 CAGR 1.8%; inflation adjusted; BCG does not provide legal or regulatory advice.

Source: UN Comtrade, Oxford Economics, IHS, WTO, BCG Global Trade Model 2022, BCG analysis

Ukraine crisis directly led to Russia-West fall-out & accelerated other trends

Immediate impact (new) →



1 | Russia-West fall-out

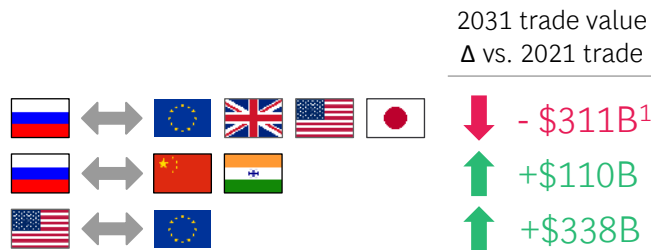
Significant Russia & West (primarily EU) trade decline

Russian exports to shift from West to East (e.g., China, India)

Key impact



2-way trade flow shifts



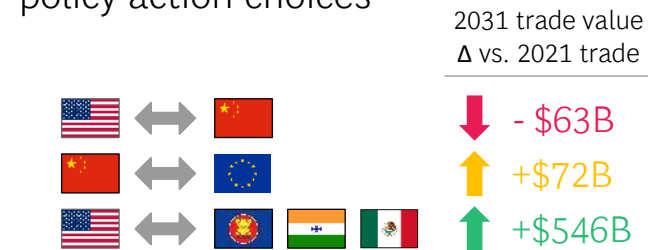
Accelerated trend →



2 | China trade dynamics

Uncertainty of geopolitical outcomes drive friend-shoring of supply chains

Relative decline US/EU-China trade, nuanced impact on sectors driven by policy action choices



3 | ASEAN trade growth

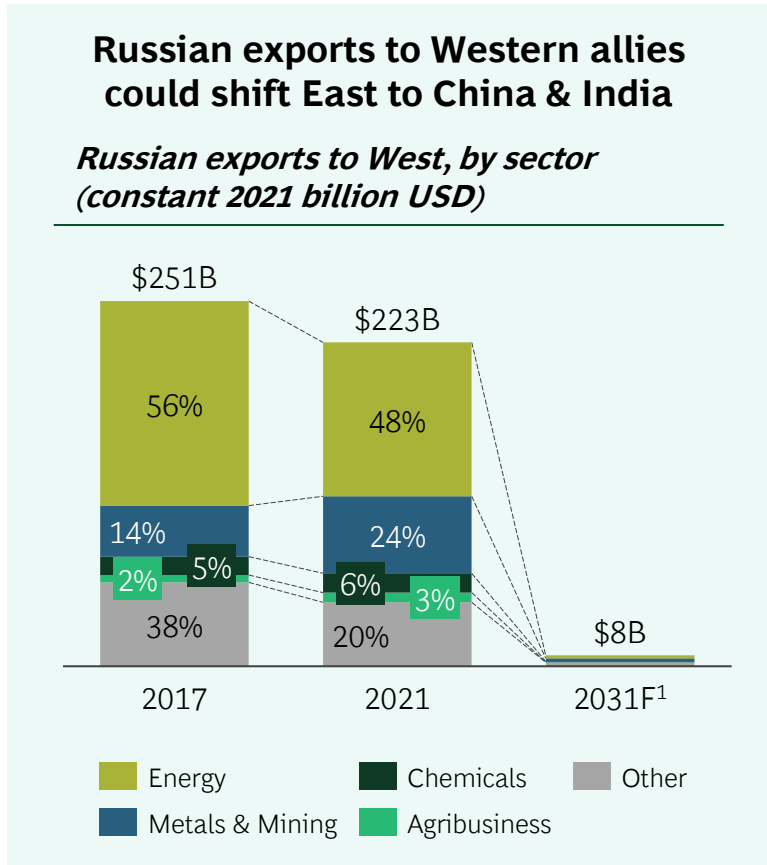
ASEAN trade increases; region gains from geopolitical tensions, low-cost structure & good trade connectivity

ASEAN exports continue to increase



1. Russia-Japan trade flows not included 2. Figure includes ASEAN-US trade (+\$236B) that is also counted under China Trade Dynamics
 Note: Above figures quoted in constant 2021 USD; country trade flows utilized in above calculations include RU-EU (-\$262B), RU-UK (-\$26B), RU-US (-\$23B), RU-CN (+\$90B), RU-IN (+\$20B), US-EU (+\$338B), US-CN (-\$63B), US-ASEAN (+\$236B), US-IN (+\$93B), ASEAN-CN (+\$438B), ASEAN-JP & KR (+\$272B), ASEAN-EU (+\$172B)

Russia → West | Most disruptive impacts in energy given sector's export share



Key sectors



Energy

Focus of following section



Metals & mining

Future of trade

- **Decreased trade flows** given Russian energy sanctions and EU's drive to energy independence
- **Reallocation to other energy sources and producing nations**



- **Early shocks** from material shortage, **mostly short-term** as firms finding alternative supply
- **Diversification of key suppliers, though limited for some rare materials** (e.g., palladium)



Example



EU expediting energy imports (e.g., LNG, low-carbon ammonia) from **Western Allies, Middle East**



Development of **new smelters and mines** (e.g., nickel in Indonesia, Philippines)

1. Breakdown is as follows: Energy (28%), Metals & Mining (26%), Chemicals (8%), Agribusiness (2%), Other (35%)
 Note: 2017 chosen as base year as year when trade tensions began (e.g., Trump came into office, Brexit negotiations began)
 Source: UN FAO Information Note, SP Global, UN Comtrade, BCG Global Trade Model, BCG analysis

Russia → West | EU aiming to end dependency on Russian energy by 2030



Two main EU plans to reduce import dependence...

6th Sanctions Package focuses on oil, petroleum

92% Target reduction in Russian oil imports by end of 2022

Further sanctions enacted by the EU in June '22 focus on oil and petroleum

The EU's aim is to minimize seaborne crude oil imports and cut other refined petroleum products over next 6-8 months

RePowerEU aims to reduce import of Russian gas

66% Target reduction in Russian natural gas supply by end of 2022

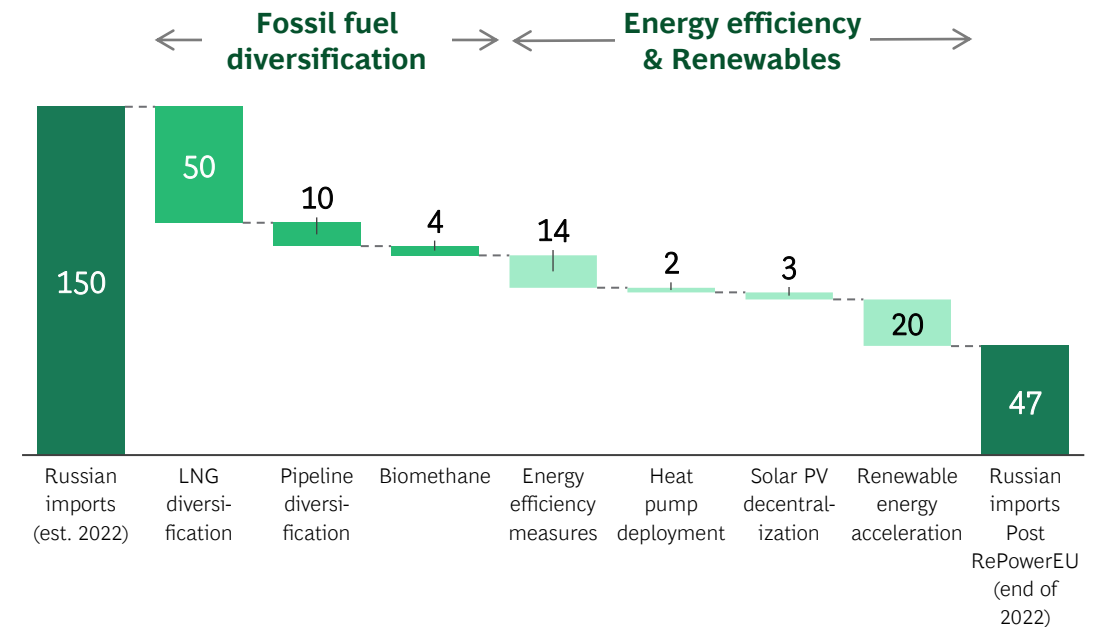
Requires strong coordination to realize, given risks (e.g., intense competition for LNG from Asia, pace of Net-Zero transition)

95% Long-term (~2030) reduction target of gas consumption requires front-loading of already aggressive plans

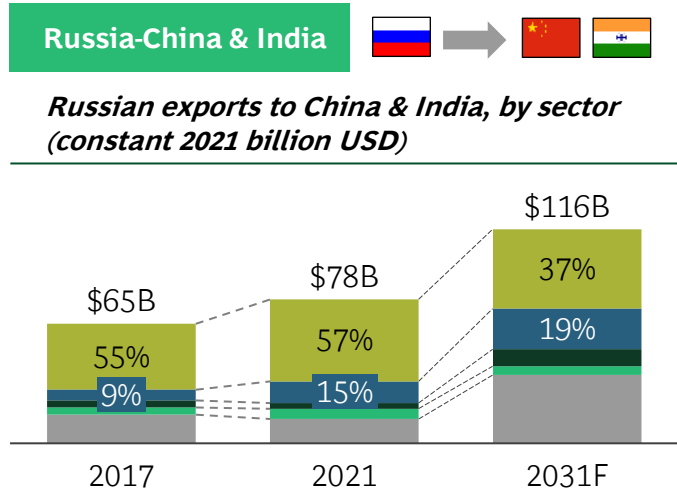
...plan to reduce gas dependence requires fossil fuel diversification & renewables

Target levers for reduction of Russian gas dependence

Billion cubic meters equivalent, for year 2022



Russia → Others | China & India set to benefit most from trade fallout



Key sectors

Energy

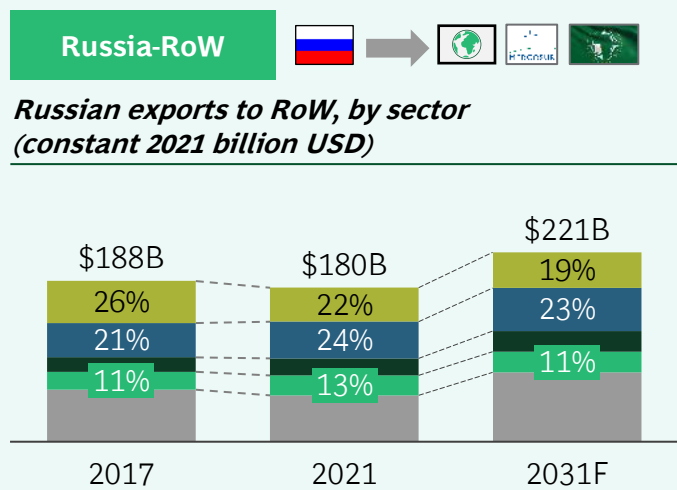
Future of trade

- **Given sanctions**, potential for China & India to continue buying **discounted Russian energy**
- **China & India well-positioned** to capture decline in Russian sales to West; however, value offset by lower forecasted prices

Increasing

Example

Russia & China discussing potential **major gas pipeline project**, the Power of Siberia 2



Key sectors

Agribusiness

Future of trade

- **Emerging countries susceptible to food pricing shocks**, especially where Russia has outsized market share (e.g., Wheat)
- **Uncertain current & long-term impacts** for grain & fertilizer exports; need for countries with high dependence on RU to **seek alternate suppliers**

Mixed

Example

India, Canada & Australia emerging as **alternatives to Russian wheat (IN) & rapeseeds (CA, AUS)**

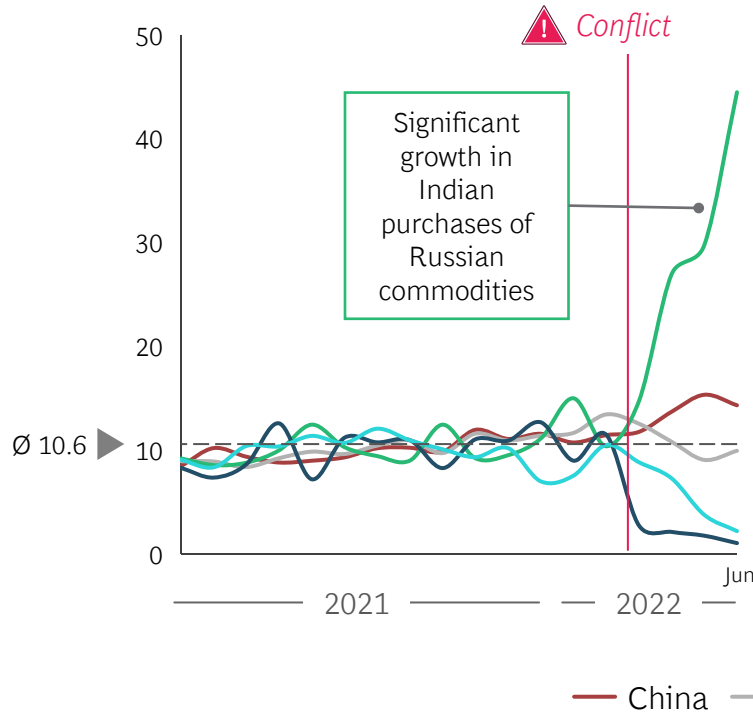
■ Energy
 ■ Metals & Mining
 ■ Chemicals
 ■ Agribusiness
 ■ Other

Note: 2017 chosen as base year as year when trade tensions began (e.g., Trump came into office, Brexit negotiations began); RoW = Rest of World excluding Western Allies, China, and India
 Source: UN Comtrade, BCG Global Trade Model, BCG analysis

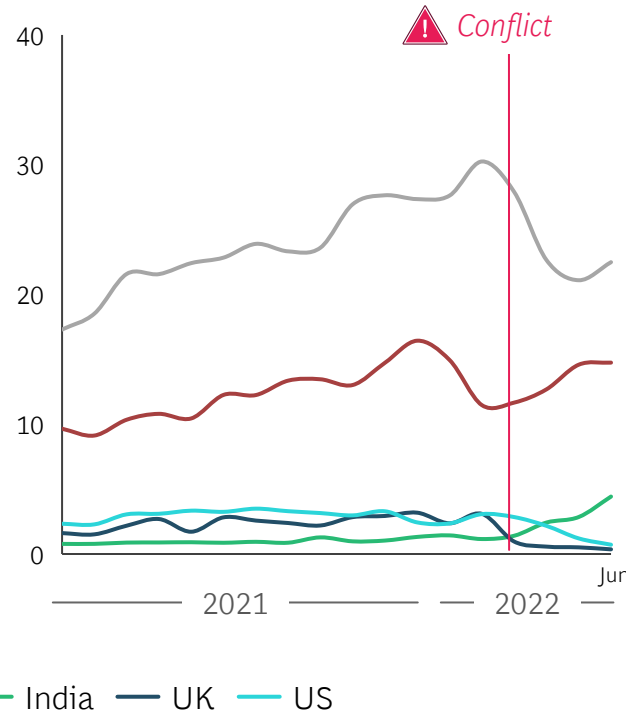
Russia → Others | Post-conflict trend in trade from West to East to continue

Russia's monthly total trade by partners

Relative to 2021 monthly average ('21 – '22 Jun, 10 = 2021 monthly average)

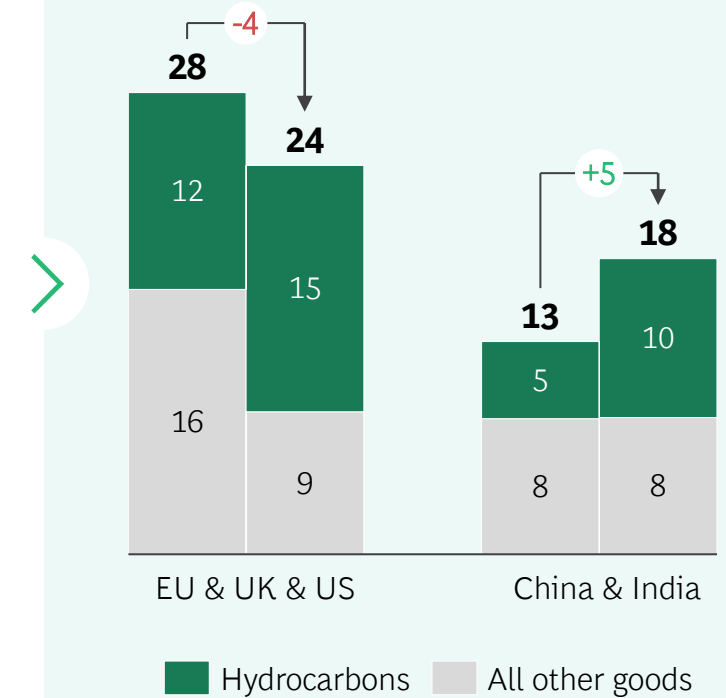


Absolute basis ('21 – '22 Jun, USD B)



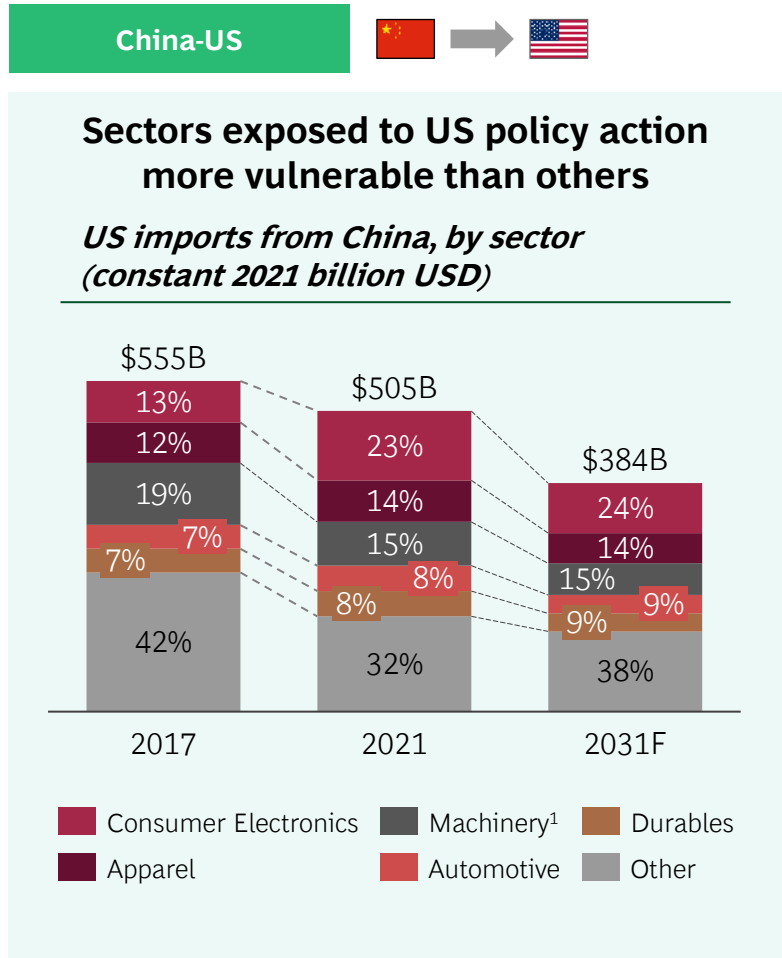
Shifts from West to East

Monthly average Russia trade value by trade groups ('21 vs '22 post-conflict to Aug '22, USD B)



Note: Trade data based on China, EU, India, UK and US's reported trade with Russia from Jan 2021 to June 2022; The inflation is not captured in the analysis
Source: IHS Markit; BCG analysis

China → US | China still core partner, nuanced sectoral impact from tensions



Key sectors



Consumer electronics



Apparel




Automotive & Machinery¹

Future of trade

- **Complex trade impact** as firms diversify from China while retaining China capacity
- So far, most consumer electronics have **not attracted tariff policy action** in US-China

 *Mixed*

- **Trade continues to decrease** driven by rising Chinese costs and trade concerns
- Chinese industrial policy seeking to **exit low value-add manufacturing**

 *Decreasing*

- **Trade reduction in sectors subject to policy actions** (e.g., Trump-imposed Sect. 301 tariffs)
- **US policy drives near- / friend-shoring** (e.g., US IRA, USMCA tariff preferences)

 *Decreasing*

Example



Chinese laptop OEM **maintains #3 share in US market**



Major sport fashion apparel co. **moving from China to ASEAN**



Major EV manufacturer locating **battery production in Great Lakes Region**

1. Includes electrical and mechanical machinery
 Note: 2017 chosen as base year as year when trade tensions began (e.g., Trump came into office, Brexit negotiations began)
 Source: SCMP, Area Development, Foreign Policy, UN Comtrade, BCG Global Trade Model, BCG analysis

US → China | US exports to China forecast to grow




Key sectors



Agribusiness

Future of trade

- **Uncertain trade impact** given growing Chinese consumption, but subject to policy actions
 - Under Jan 2020 **"Phase 1" deal**, China agreed to buy US agricultural goods², leading to 112% inc. vs. 2019; deal expired Dec 31, 2021
-  *Mixed*


Example



High Chinese demand for soybean imports persist, despite Chinese domestic production



Machinery¹


- **Uneven trade impact** by machinery type
 - **US aircraft deliveries to China collapsed** in midst of COVID; uncertainty on rebound
 - US remains leader in machinery; despite innovation efforts, **China will continue to rely on US**
-  *Mixed*



~140 unfilled Chinese orders from major US aircraft manufacturer



Semiconductors

- **Uneven trade impact** based on tech sensitivity
 - **More sensitive technologies at higher risk** of US government action given national security concerns; could hurt Chinese goals of innovation
 - Less sensitive tech **so far unaffected**
-  *Mixed*



New US export controls on advanced chips & tech to China

1. Includes electrical and mechanical machinery; 2. However, China only purchased ~58% of agreed-upon US exports (~83% of agricultural goods) in the deal

Note: 2017 chosen as base year as year when trade tensions began (e.g., Trump came into office, Brexit negotiations began)

Source: US Farm Bureau, Reuters, US-China Business Council, SCMP, Leeham, PIIE, UN Comtrade, BCG Global Trade Model BCG analysis

Favorable conditions driving significant growth in ASEAN trade

Push factors are driving some trade growth away from existing partners...



Geopolitics Shifting Trade

Greater concern over geopolitical risk disrupting existing trade routes



China relatively more expensive

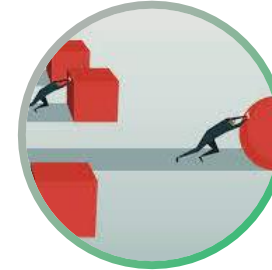
ASEAN labor now priced 10-15% lower than Chinese labor

...while **pull factors** make the ASEAN region attractive to international trade connections



Large Fast- growing Economy

ASEAN will be 4th largest economy by 2030; high economic growth to continue



Sectoral Diversity

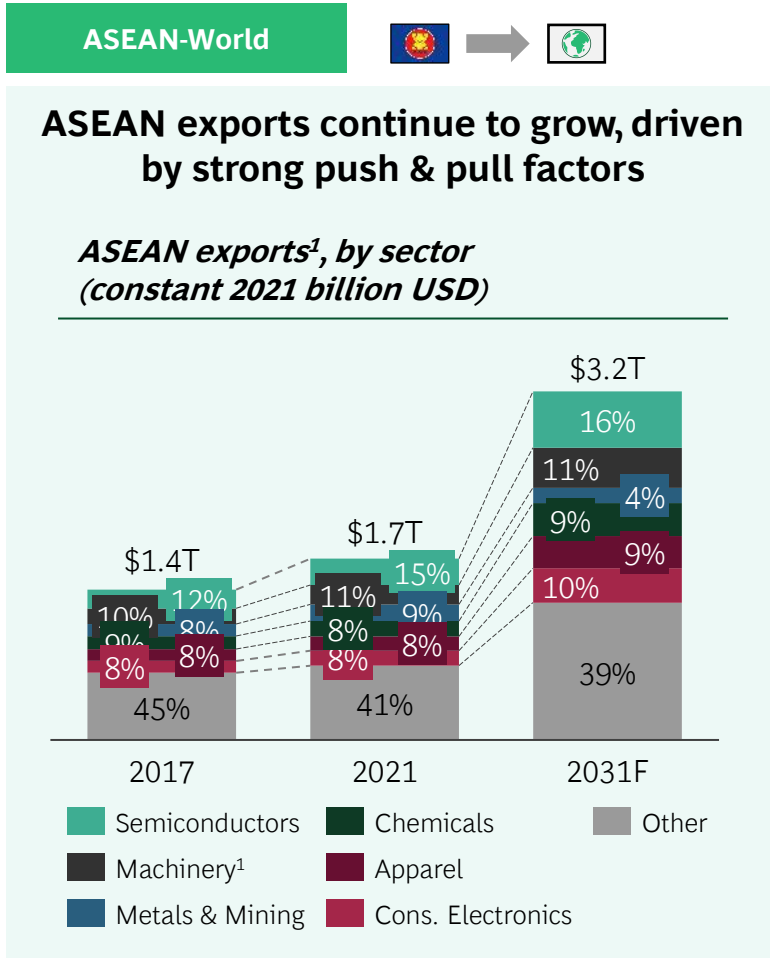
Strong manufacturing, tech, consumer, mining, agriculture & construction sectors



Good Trade Connectivity

Strong market access from membership in both RCEP & CP-TPP trade blocs

ASEAN → World | ASEAN becoming an attractive trading partner globally



1. Intra-ASEAN trade is included in these figures;
 Note: 2017 chosen as base year as year when trade tensions began (e.g., Trump came into office, Brexit negotiations began)
 Source: Nikkei Asia, UN Comtrade, BCG Global Trade Model, BCG analysis

Key sectors



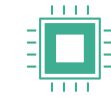
Semiconductors

Future of trade

- **Growing production** due to competitive costs, geopolitical diversification (e.g., relative to China)
- **Diversification** of sourcing **benefits ASEAN producers** incl. Thailand and Malaysia

 *Increasing*

Example



Leading semiconductor manufacturer considers **Singapore expansion**



Metals & Mining

- **Growing production** with high FDI (e.g., Malaysia, Indonesia, Philippines), **value offset by forecasted decline in commodity prices**
- Given critical mineral reserves, **ASEAN well-positioned to grow** & potentially attract downstream value chains

 *Increasing*



Automotive giants adding **Indonesian nickel** to battery supply chain



Other sectors

- **Growing, well-diversified economy** (e.g., consumer, manufacturing, agriculture)
- **ASEAN trade to grow** in virtually all sectors with every major trading bloc

 *Increasing*



Leading consumer electronics firm **partially migrating flagship goods** to Vietnam

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AGENDA

Global economic impact of the war in Ukraine

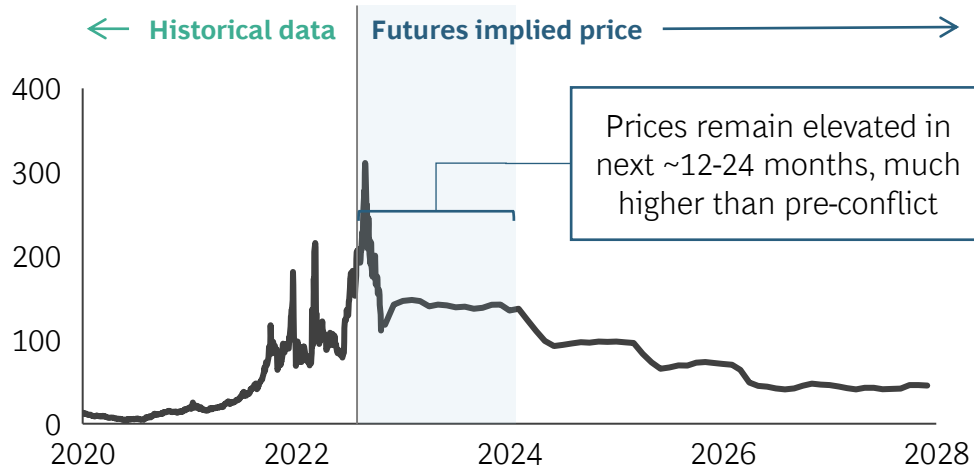
Perspective on Future of Trade

- › Context and current situation
- › **Focus on energy**
- › Implications for leaders
- › Appendix

Risks associated with Russian energy phase-out must be carefully managed

In near-term, high energy prices to persist, leading to inflation & lower economic growth

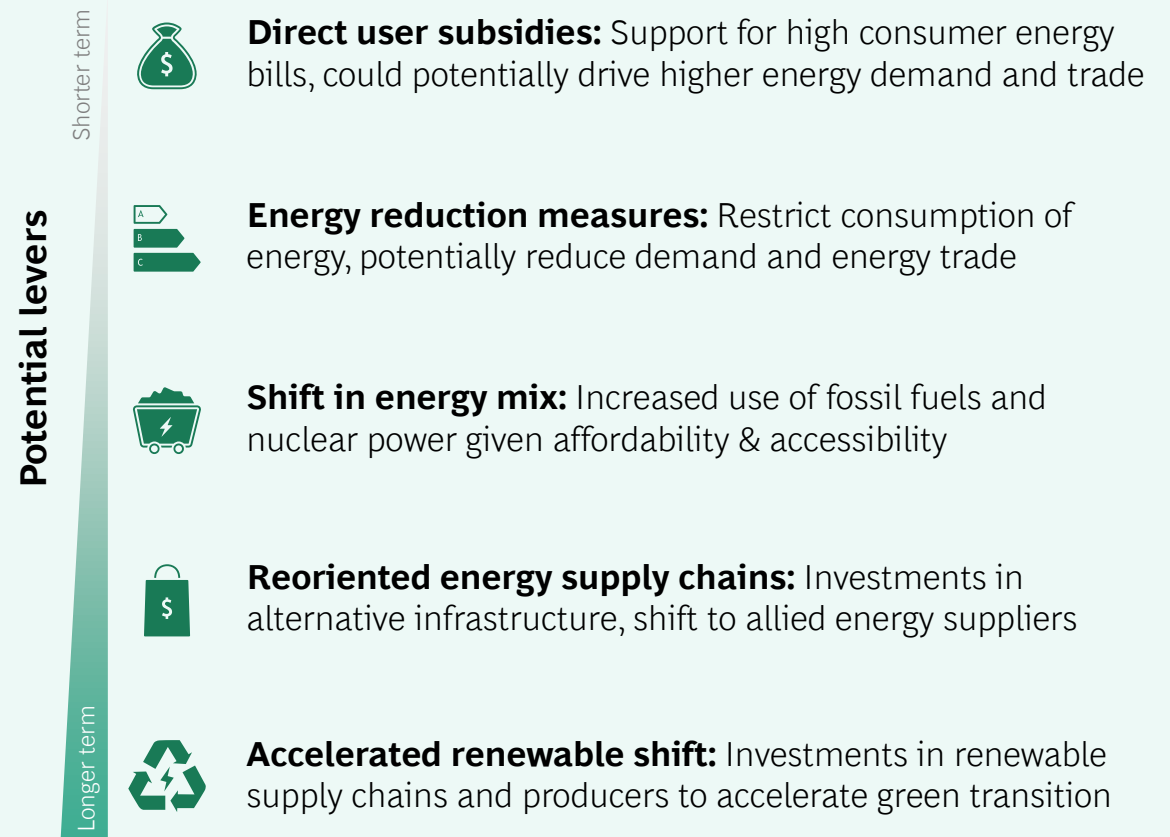
Natural gas TTF, € per MWh



Key drivers of tight energy market:

- **Supply:** Sanctions on Russian energy, OPEC+ cuts
- **Demand:** Impending winter demand

Multiple policy levers in response to Russian energy trade fall-out, with varied trade impact



Tight markets continue to drive high EU energy costs, economic ripple effects

High energy prices expected to continue...

Restricted supply from sanctions on Russian energy and OPEC+ production cuts...

...the impact of **impending winter demand**...

...and **limited alternative supply beyond gas storage** to meet EU energy demand

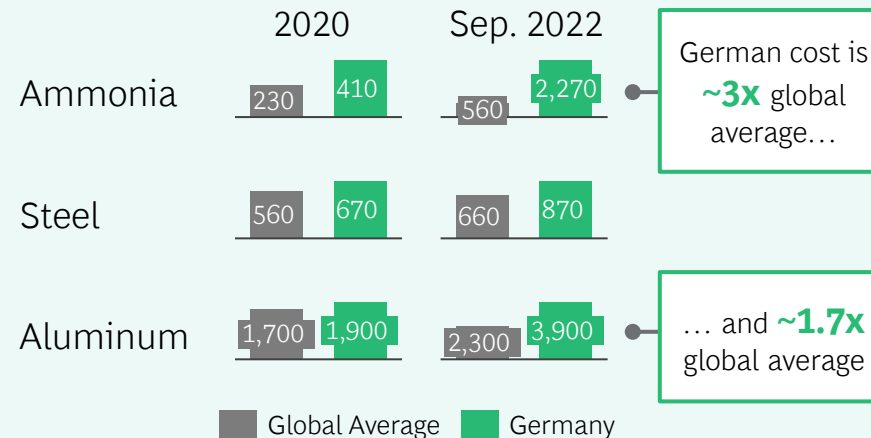
...reducing competitiveness of energy intensive industrial production in Europe...



Case example: Germany production costs for industrial goods uncompetitive

Largest industrial producer within EU (~27% as of 2021)

Production costs for energy-intensive industrial goods, €/t



...with long term economic impacts



Industrial slowdown from Europe energy crunch could **risk long-term damage to future growth**



Some companies are redirecting industrial investment to **more energy-secure locales**













Consumer wallets constrained; **decline in consumer spending could further slow economic growth**

Many levers can support phase-out; longer-term ones likely to impact trade

Shorter term policies manage shocks as they occur, mixed trade impact...

...longer-term structural changes support phase-out of Russian energy, could significantly alter trade routes

	 Direct user subsidies	 Energy reduction	 Shift in energy mix	 Reoriented energy supply chains	 Accelerated renewable shift
Policy Intent	Reduce energy costs paid by consumers	Reduce aggregate energy usage	Improve energy accessibility via existing facilities	Improve energy security, accessibility with new infrastructure	Improve energy security, accessibility via sustainable energy
Potential trade impact on EU	<i>Minimal:</i> Increase purchases along existing energy trade networks	<i>Minimal:</i> Decrease purchases along existing energy trade networks	<i>Large:</i> Decreased trade with Russia , replaced with existing sources of coal, nuclear, etc.	<i>Large:</i> "Friend-shoring" & shift in energy imports from friendly countries, high strain on global LNG supplies	<i>Large:</i> Shift from focus on hydrocarbon imports to renewable energy build (e.g., materials, resources)
Examples	 Policies to cap portion of payments for home heating	 Voluntary EU goal of a 15% reduction in energy usage	 Germany extending operating life of coal and nuclear plants	 Poland, Bulgaria using LNG imports from neighboring countries	 REPowerEU efforts to accelerate green transition

At any stage in phase-out, need to ensure sufficient energy flow among countries

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Implications for leaders as Future of Trade continues to evolve under geopolitical tensions and dynamics



Shorter Term

Understand key value chain risks to better respond

E.g., *What* key commodities impact operations, *where* biz-ops take place, and *who* are key/alternative suppliers

Prioritize no-regrets moves to bolster supply chain resilience

E.g., Build up buffer inventory of at-risk key commodities, pre-qualify alternative suppliers

Begin contingency planning for any at-risk key commodities identified in value chains

E.g., Fund R&D for alternatives of rare minerals, develop supplier relationships across multiple continents



Longer Term

Embed scenarios planning into capital allocation and strategic planning processes

E.g., Test against range of scenarios incl. trade, geopolitics and pandemic impact to build contingency plans

Leverage scenario plans to develop a long-term supply chain resilience plan that best fits strategy

E.g., Utilizing more regionally-based or diversified sourcing given geopolitical tensions in key trade corridors

Build control tower capabilities to gain visibility of emerging disruptions or external shocks

E.g., Put in place people and systems with ability to rapidly detect shocks & respond and adjust quickly

Teams across BCG are actively monitoring impact

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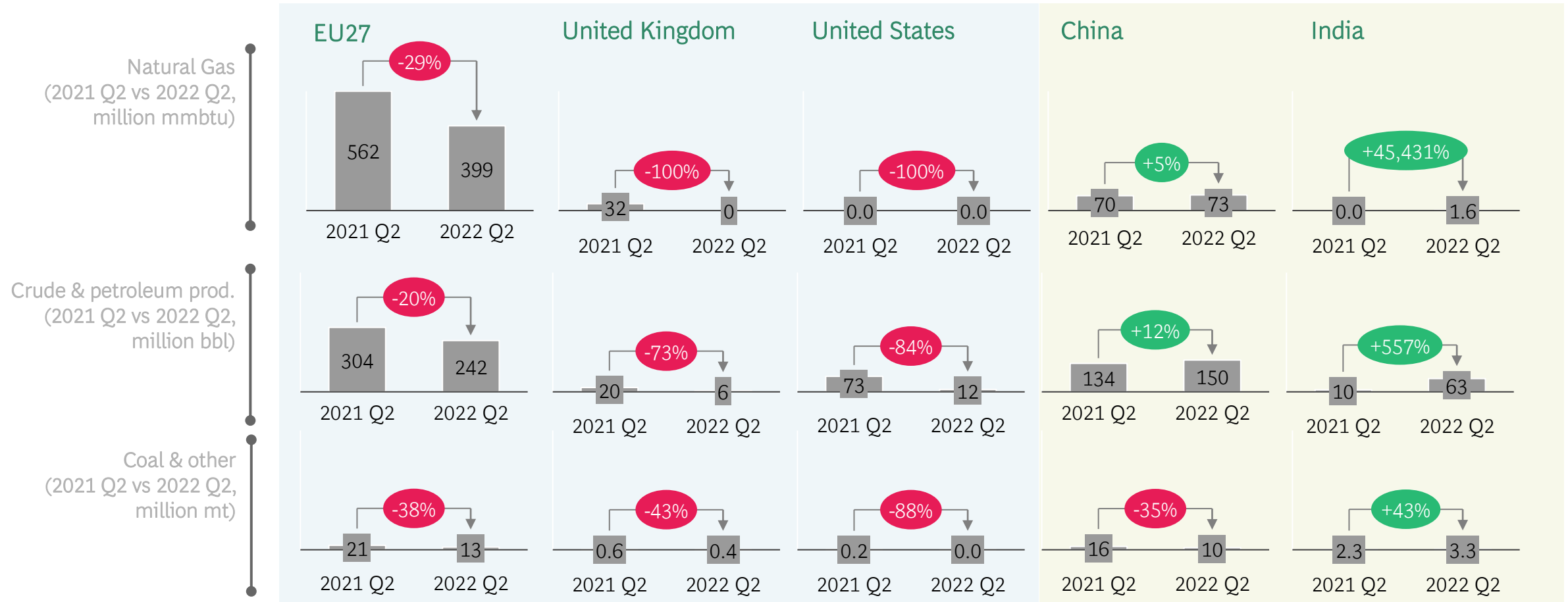
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Russian Energy | EU, UK, US decreasing while China & India picking up

Hydrocarbons total trade by estimate volumes¹ and major trade partners



1. Estimate volumes calculated by quarterly average commodity prices reported from World Bank; Note: Hydrocarbons based on HS chapter 27
 Source: World Bank, IHS Markit; BCG analysis

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