



Executive  
Perspectives

# War in Ukraine: Risk Impact

**BCG Global Advantage and Risk & Compliance Practice Areas**

Prepared: 31 March 2022

# Introduction to this document

## The war in Ukraine is above all a political and humanitarian crisis...

Russia's invasion of Ukraine has led to a serious **humanitarian crisis**. BCG condemns this attack and the violence that is killing, wounding, and displacing so many people.

The top priority in moments like these must be the **safety and security of people**. Corporates, governments, and non-for-profit organizations should focus on supporting the people in Ukraine, Russia, Europe, and globally affected (physically and mentally).

It is the duty of political, societal, and business leaders to navigate through this crisis. **The intent of this document is to inform discussions and decisions on the global economic impact as well as the sanctions, regulatory and risk impact of the war in Ukraine.**

The situation surrounding Ukraine is dynamic and rapidly evolving - this document reflects information and analysis as of **31 March 2022**. It is not intended as a prediction of future events and is shared only as a resource for BCG and client conversations.





# BCG Executive Perspectives

## IN THIS DOCUMENT

### IMPACT ON RISK

The war in Ukraine marks a tectonic shift in the global business landscape, one with multiple short- and long-term strategic implications for companies.

Leaders must not only mitigate the risks to their business models caused by price shocks, supply disruptions, and sudden shifts in demand. They must also navigate the risks to their corporate reputations as they comply with sanctions and grapple with whether to suspend Russian operations or pull out entirely—as well as the potential consequences for their personnel and assets in Russia.

In addition, companies should weigh risks that could arise under several scenarios if the conflict broadens. What if sanctions are extended to third countries or business partners that decide to assist Russia, for example?

As the war unfolds, companies will need to shift their focus from managing the emergency to reassessing the risk and sanctions compliance landscape. This assessment should cover customers and connected third parties. Companies should review their global operations and businesses under a range of scenarios, as well as their preparedness for potential cyberattacks. In addition to immediate tactical moves, companies need a strategic action plan to mitigate risks and make their organizations more resilient to future disruption.

# War in Ukraine: Risk Impact

## AGENDA

### Perspective on risk impact

- Sanctions and policy actions
- Risks for companies
- Implications for companies

# Risks rooted in global tectonic shift arising from the war

**War in Ukraine has elicited unprecedented international response, including sanctions and policy actions that generate uncertainty for the global economy. Drivers of company risk arise from this context**

<b>Sanctions &amp; policy actions</b>	<p><b>Measures targeting Russia</b>   Increasing number of trade controls on strategic imports/exports (e.g., dual-use military-civilian items), ~3,650 sanctions targeting Russian individuals, corporations, and financial system. Further policy actions disrupting business, diplomatic and cultural ties</p> <p><b>Retaliation by Russia</b>   Russia restricting exports of agriculture, industrial equipment, social media (e.g., Facebook). Companies with Russian operations have limited options to protect assets and operations</p> <p><b>Uncertainty</b>   Risk of further escalation (e.g., secondary measures, asset seizures), accelerated long-term decoupling (e.g., parallel financial, energy &amp; tech systems) and potential actions taken by other countries (e.g., Eurasian Economic Bloc)</p>
<b>Risks for companies</b>	<p><b>Strategic</b>   Risks to business models and reputational concerns, with significant impact on portfolio decisions (e.g., localization) and short to medium-term priorities (e.g., company decarbonization targets and initiatives)</p> <p><b>Business &amp; Operational</b>   Potential top-line disruptions from price and demand shocks, supply shortages and cyber attacks</p> <p><b>Financial</b>   Increasing financial distress, but remains below COVID levels given the lower direct systemic impact – yet uncertainty from 2nd order risk implications</p>
<b>Implications for companies</b>	<p><b>Regulatory compliance</b>   Map exposures to new and escalating trade compliance requirements, sanctions and policy actions across footprint, financial transactions, and supply chain. Identify and implement proactive controls against potential liabilities</p> <p><b>Scenario-based planning</b>   Shift to continuous stress testing and trigger-based actions to rapidly adapt to new contexts, ensuring comprehensive coverage of direct and indirect risk exposure</p> <p><b>Build resilience</b>   Build buffer to secure critical services (e.g., dual sourcing)</p>



# War in Ukraine: Risk Impact

## AGENDA

Perspective on risk impact

- **Sanctions and policy actions**

- Risks for companies

















- Implications for companies

# 4 types of sanctions and policy actions applied on Russia, increasing risk across industries



"Western" Allies

## NON-EXHAUSTIVE

Sanctions/policy actions	Types of measures	Selected applied measures
 <b>Trade Policies</b>	Impose <b>export and import</b> controls with severe penalties/prosecution Limit investment and public or private sector business relations	 Halted sale of <b>dual-use components</b>  Banned imports of <b>Russian energy</b>  Cancelled certification of <b>Nord Stream II</b>  Banned Russia ships from <b>docking</b>
 <b>Individual/Corporate</b>	Bar individuals from <b>travel, and access to funds/assets</b> <sup>1</sup> Bar or limit companies' operations	 <b>Seized assets</b> (e.g., yachts, houses) from sanctioned oligarchs and lawmakers  <b>Froze bank accounts</b> linked to sanctioned oligarchs & lawmakers
 <b>Financial Institutions</b>	<b>Freeze bank accounts and funds</b> Ban transactions in <b>foreign currency</b> Block FIs from <b>financial system infrastructure</b>	 Removed selected Russian banks from <b>SWIFT</b>  <b>Froze assets</b> of Russia's Central Bank 
 <b>Diplomatic/Other</b> <sup>2</sup>	<b>Reduce/cut diplomatic relations</b> Block participation in <b>sporting and cultural events</b>	 <b>Closed access to airspace</b> for Russian flyovers  Barred Russia from most <b>sporting competitions</b> , incl. Paralympics, FIFA, UEFA, etc. (global)  Russia <b>expelled from Council of Europe</b>

Note: BCG does not provide legal or regulatory advice; information is non-exhaustive 1. US extends sanctions on companies that are ≥50% owned by sanctioned individuals/entities 2. Sanctions laws are complex; not all countries' legal regimes follow the above categories strictly e.g., US comprehensive sanctions on the Ukrainian regions of Crimea, Donetsk, and Luhansk essentially preventing all business dealings Source: Tony Blair Institute for Global Change (As of March 22<sup>nd</sup>, non-comprehensive); Government reports; Press clippings; BCG analysis

# Measures applied on Russia expected to have far-reaching risk impact



"Western" Allies

## NON-EXHAUSTIVE

### Sanctions/policy actions

#### First-order impact

#### Second-order ramifications



#### Trade Policies

Inability to **import strategic products** (e.g., repair parts)  
**Inability to export** key products (e.g., oil & gas, agricultural output)  
 Difficulty to **circumvent** measures (e.g., shipping via 3<sup>rd</sup> countries)

**Supply chain shortages** at global scale (e.g., palladium, nickel)  
 Long-term **risk of losing competitiveness** for critical sectors deploying imported tech (e.g., O&G exploration, Auto)  
**"No business"** long-term stance by risk-averse companies  
 Foreign currency **reserves drainage** (mainly USD)



#### Individual/Corporate

Sanctioned individuals and corporates **unable to access capital, foreign assets or travel to certain destinations**

Sanctions affecting **companies owned** by targeted individuals (e.g., Chelsea FC)  
 Effects on **entities supporting transactions** related to sanctioned individuals (e.g., international banks)  
**Cryptocurrencies** under closer scrutiny



#### Financial Institutions

Financial Institutions based in Russia **unable to access foreign currency, assets and capital markets**

Pivoting of Russian financial system to **alternative currencies** (e.g., RMB)  
**Western banks operating in Russia** closing operations and risking assets seizure



#### Diplomatic/Other<sup>2</sup>

Diplomatic and cultural **isolation**  
 Strategic **government-to-government relations halted**

Ceasing **cultural and intellectual exchanges** (e.g., sports, R&D, academics)  
 Inability to align on **long-term global challenges** (e.g., Climate Change, space exploration)



# Retaliation is under way; limited choice for companies operating in Russia



Russia

## NON-EXHAUSTIVE

### Focus | Selected Russian actions

**Banned exports** of machinery, equipment and agricultural products to certain countries

- Pressuring Western consumers and companies

**Re-registered foreign-leased planes** from Bermuda to Russian registry

- Exposing Western lessors to \$ billions of write-offs

Proposed legislation allowing **seizure or expropriation of foreign-owned assets** in Russia

- Exposing owners to write-offs

### Three options for foreign companies, all of which raise reputational risk

**1. Continue 'business-as-usual'** operation

**2. Cease operations**

- Potentially, face risk of expropriation and/or criminal charges

**3. Transfer assets** to a local 'business partner' shareholder

- Challenge to attain a fair market value for transferred assets
- e.g., Major O&G players faced potential significant write-offs from the sale of Russian assets

# Outlook | Key uncertainties for sanctions, policy actions, and global decoupling

## NON-EXHAUSTIVE, KEY QUESTIONS TO CONSIDER REGARDING MEASURES



### Allied measures over Russia & others

How effectively will US/EU/Allies **enforce the sanctions, policy actions and anti-circumvention measures?** (e.g., transshipment via 3<sup>rd</sup> countries to Russia)

Will **secondary sanctions/policy actions** be imposed upon countries aligned with Russia?

Will the **scope of measures** intensify with escalation (e.g., EU ban on O&G imports)?

Will allies attempt to regulate **cryptocurrency** to prevent black market and evasion by sanctioned individuals/companies?

Would sanctions and policy actions **remain in place** after a diplomatic resolution to the conflict? If so, for how long?



### Retaliatory measures by Russia & others

Will Russia **escalate its retaliatory measures?** E.g.,

- Seize assets of foreign firms that leave the country
- Restrict foreign ships from entering Russian ports
- Cut gas supplies to the EU

**Will other countries retaliate?** (e.g., Eurasian Economic Union bloc, incl. Kazakhstan, Belarus, Armenia)

Will Russian **sourcing be re-localized and parallel value chains** be created with aligned trading partners?



- Re-sourcing of critical materials, parts and equipment
- Alternative technology platform
- Parallel payments infrastructure and financial system

# Hypothetical scenario | If China provided 'material support' to Russia, it could face implications that would significantly impact the global economy

“ [President Biden] described the **implications and consequences if China provides 'material support' to Russia**

**White House press release**  
March 18, 2022

'Material support' could translate in the application of **secondary sanctions and policy actions**, impacting a larger, more globally-interlinked economy (e.g., China), which would put **much more pressure on the global economy**

		 <b>Russia</b>	 <b>China</b>
<b>Macro fundamentals</b>	Imports <sup>1</sup> (\$T)	0.25	2.07
	Exports <sup>2</sup> (\$T)	0.43	2.50
<b>Financial flows</b>	# of top 100 banks <sup>3</sup>	1	19
	Share of global banking revenue <sup>4</sup>	~1%	25%
	% of cross-border transaction value <sup>5</sup>	~1.4%	~12.0%
<b>Corporate activity</b>	% Fortune Global 500 revenue <sup>6</sup>	~1%	~28%
	# top 100 tech companies <sup>7</sup>	0	12
	R&D spend (\$T) <sup>8</sup>	.04	.51

Note: BCG does not provide legal or regulatory advice; information is non-exhaustive. 1. Total value of 2019 imports (CIF), WITS 2. Total value of 2019 exports (FOB), WITS 3. Top 100 global banks based on '20 assets, S&P Global Based on '21 revenue per Fortune 4. In country (domestic) revenue (Retail + corporate + other banking) 5. 2019 data for Russia - based on outbound global payments only, excl. credit cards; value of Russia x-border payments/ value of x-border global payments BCG Trade Finance Model. 6. Fortune 2019 7. Thomson Reuters "Top 100 Global Tech Leaders" 8. Gross domestic spending on R&D, OECD Source: BCG Trade Finance Model; WITS; OECD S&P Global; Fortune; China State Administration of Foreign Exchange; BCG analysis



# War in Ukraine: Risk Impact

## AGENDA

Perspective on risk impact

➤ Sanctions and policy actions

➤ **Risks for companies**

➤ Implications for companies

# Three broad types of risks for companies with potential widespread impact

## NON-EXHAUSTIVE – MOST RELEVANT RISKS



### Strategic & Reputational

*Risk to achieve business objectives over the long-term*

**Business model viability threats** from long-term changes in demand patterns

Strategy adjustments **imposed by reputational concerns** over conflict

Change of strategic priorities with **long-term impact** (e.g., CO2 targets)



### Business & Operational

*Risk to company's operations, including supply chain and delivery of products/service*

**Top line risk** driven by shocks to price and demand

Risk of critical commodities **supply shortages** causing business continuity issues/disruptions and cost increases

Threat to **cybersecurity** driven by conflict tensions or boycott attempts



### Financial

*Risk of investment losses, business & financial deterioration (e.g., solvency)*

**Liquidity risks** driven by cash shortages rooted in business/operational disruptions

Risk of **financial disruption** due to stress propagation along own business network

Uncertain **financial markets outlook** (e.g., commodities, currency risk, etc.)

**Risks are interconnected, reinforcing each other in a highly uncertain context**

*High uncertainty for companies – Details in next pages*

# Strategic & Reputational | Business portfolio and long-term strategic priorities potentially affected by reputational risks

## Russian operations not only a financial concern, but also a reputational one

### BCG Investor Survey<sup>1</sup>

United States - March 2022

Investor perspectives on companies that continue operations in Russia

**73%**

**Unwilling to invest** in companies with operations in Russia

+

**20%**

Would invest only if **exposure to Russia is marginal** (e.g., <3% of revenues)

**+460**

Companies **suspending or scaling down business** ties with Russia<sup>2</sup>

## Direct risks and indirect reputational ramifications for companies

### First-order risks

**Western consumers & business partners boycotting** companies with Russian presence

- e.g., Renault decided to suspend activities in Russia after public opinion reacted to its presence<sup>3</sup>

**Investors** potentially halting investment or divesting from companies with Russian operations

- e.g., Norway's Sovereign Wealth Fund, with c. \$3B invested in Russian stocks, to exit Russian holdings<sup>4</sup>

**Ties with sanctioned entities/ individuals** forcing divestments or business strategy shifts

- e.g., Manchester United F.C. cancel their sponsorship deal with Russian state-owned airline Aeroflot<sup>5</sup>

### Second- & third-order ramifications

Companies adopting a **"no business" policy** with Russia and/or aligned countries to prevent future reputational issues

**Insecurity of assets and personnel** in Russian territory following suspension of operations

Players from non-sanctioning countries **may seize opportunity to gain market share** in Russia, strengthening competitive position

**Disruption** to international supply chains given loss of production capacity

1. BCG Investor Perspective Series, pulse check #19; n=150 companies, representing investment firms with +\$5T in combined assets under management. 2. Company Announcements re: Russia Market per Yale School of Management tracking (30 March 2022). 3. Renault Press Release & Deutsche Welle; 4. WSJ 5. Daily Mail. Source: BCG analysis and experience

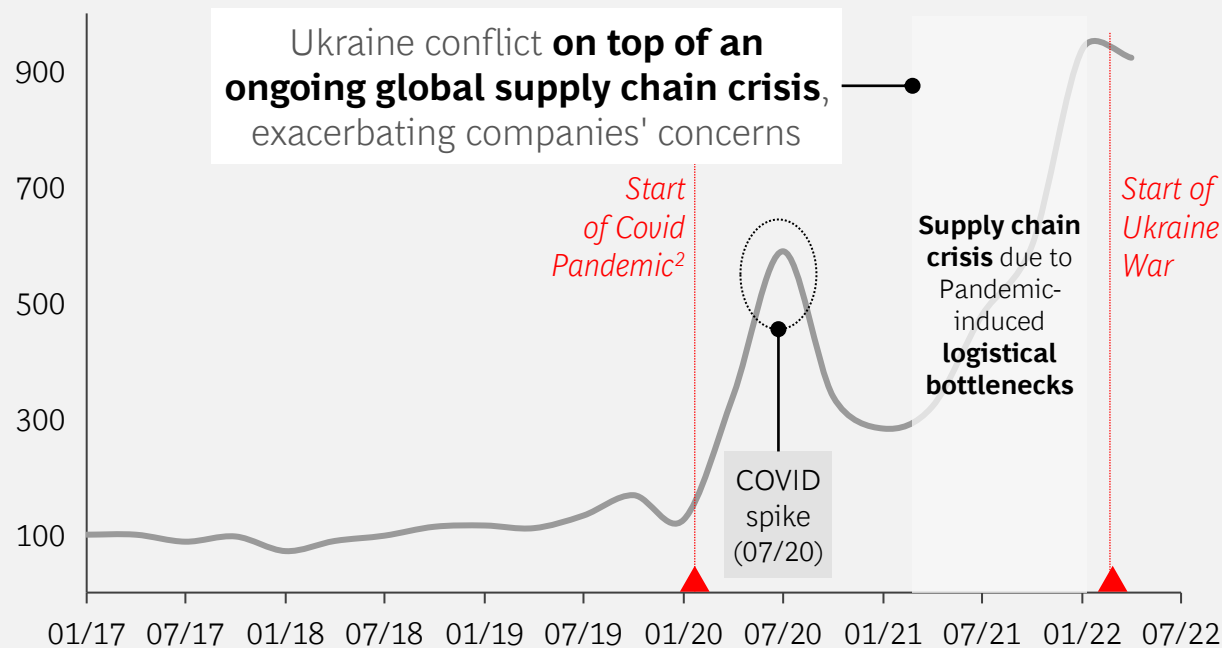


# Operational – Supply Chain | War in Ukraine to create further impacts in an already stressed supply chain post-COVID context

## Companies highly concerned with supply chains

**Companies' sentiment on supply chain risk:** proportion of references to supply chain risk per earning call transcript<sup>1</sup>

Values Indexed for Jan 2017



## 4 key supply chain risks boosted by the war

	<b>Commodity shortages &amp; price volatility</b>	Difficulty sourcing and higher key commodities prices	<b>~2x</b>	Increase in key commodities <sup>3</sup> prices since Jan/22
	<b>Product sourcing</b>	Inability to source manufactured goods and inputs	<b>3.5M</b>	Potential fewer vehicles produced in the world in 2022 <sup>4</sup>
	<b>Demand 2<sup>nd</sup> order effects</b>	Slowdown in manufacturing / inability to import	<b>7.6%</b>	Russia, Ukraine and Belarus share of EU imports <sup>5</sup>
	<b>Logistics</b>	Higher logistics costs due to capacity and fuel impact	<b>27%</b>	Increase in jet fuel prices <sup>6</sup> month by month

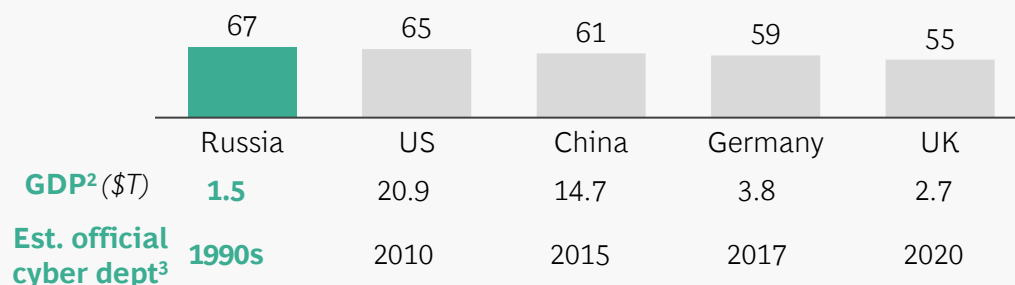
1. BCG investor and company sentiment measurement proprietary tool, NL Analytics and BCG Center for Growth and Innovation Analytics. Measured as % of referents to supply chain in context of risk per earning call transcript. 2. Estimated – official data of pandemic start could differ among countries. 3. Nickel, Wheat, Crude Oil data Mar/2001 – Mar 7, 2022. 4. IHS Market global vehicles forecast. 5. IHS for Jan-Dec 2021. 6. IATA: Europe-Asia, Asia-North America most heavily hit by airspace closure, Based on CTks (cargo ton kilometers) over the past 12 months. Source: BCG analysis and experience.

# Operational – Cybersecurity | Russia possesses leading cyber capabilities, and evidence of increasing attacks on Ukraine

## Russia has outsized cyber capabilities...

Russia has **longest-established and strongest cyber-offensive capabilities, outsized for nation size**

**Top 5 countries out of 50** with highest Cyber Capability Index - offensive capability (Harvard Belfer Center<sup>1</sup>)



## ...and has been alleged to have been behind destructive<sup>4</sup> NotPetya cyber attack in 2017

- UK, US, and AUS **attributed attack to Russia<sup>5</sup>**
- **Targeted Ukraine**, spreading across EU & globe, impacting multinationals (e.g., Merck, DHL, etc.)



**\$10B**

**Total damage estimated**

**65+**

**Countries impacted**

## Evidence of increasing cyberattacks on Ukraine

US & UK accredited **Feb 15 cyberattacks on Ukraine's critical infrastructure, incl. Defense Ministry & banks<sup>4</sup> to Russia**

**~10x**

Increase in **cyber attacks on Ukraine<sup>6</sup>**

## Leaders should consider four key cyber threats, and potential for contagion from original target

### Geopolitical

**Direct attacks on Ukraine** (e.g., defense ministry, banking system) prior to invasion

### Retaliatory

Multinationals & Governments anticipate **retaliation for sanctions & aid provisions**

### Reconnaissance

Allegations of **reconnaissance performed against countries' critical infrastructure**

### Activism

Attacks from non-state backed groups **motivated by ethical/ moral views**

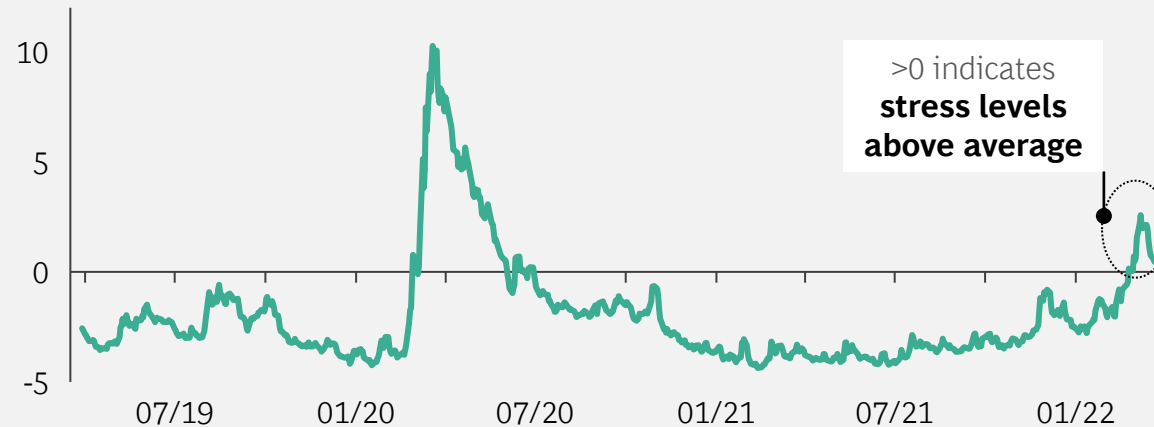
1. Cyber Offense Capability Score 2020 (Harvard Belfer Center). 2. 2020, USD \$T, World Bank 3. Official Government Cyber Department responsible for integrating country's cyberspace operations; RUS: [ccdcoc.org](http://ccdcoc.org); US: [cybercom.mil](http://cybercom.mil); China: [jamestown.org](http://jamestown.org); DE: [Bundeswehr.de](http://Bundeswehr.de); UK: [gov.uk](http://gov.uk). 4. US: Anne Neuberger, US National Security Advisor, Feb 18, White House; UK NSCC. 5. US: [Homeland Security](http://HomelandSecurity.gov), [CIA](http://CIA.gov), [White House](http://WhiteHouse.gov); UK: [Foreign Office Minister](http://ForeignOfficeMinister.gov.uk); [Australia](http://Australia.gov.au). 6. Quad9, cybersecurity tool blocked 10x DNS requests coming from [UK](http://UK.gov.uk), [KrebsonSecurity](http://KrebsonSecurity.com) Source: BCG analysis, Forbes

# Financial | Distress growing but below COVID levels because of a lower direct systemic impact – uncertainty from second-order risk implications

## Increasing financial stress, but below COVID levels

### Elevated global financial stress<sup>1</sup>

Global FSI index, Mar 2019 – Mar 2022



Index incorporates 5 indicators: credit, equity, funding, safe assets & volatility

### Deteriorating credit for Russia & Russian entities

- Fitch downgraded Russian Sovereign Debt to **"C"**<sup>2</sup> and Ukrainian to **"CCC"**<sup>2</sup>
- Moody credit agency downgraded at least **95 Russian**<sup>3</sup> & **3 Ukrainian** corporates<sup>3</sup>

## Impact varies based on exposure

### First-order risks

**Threat to liquidity buffers** from hefty margin calls on derivatives and difficult receivables collection

**Increased default risk** on Russian/Ukrainian loans

Potential for **Russia/ Ukraine sovereign debt default**

**Rising interest rates** affecting banks' balance sheet and top line, as well as companies re-financing terms

### Second- & third-order ramifications

**Solvency issues/default** following sustained liquidity drains from margin calls and/or unpaid receivables

**Propagation of solvency/ credit issues** to network of financially distressed entities (e.g., suppliers)

**Lower money supply to the economy**, with potential effects on production, consumption and unemployment

1. [Global OFR FSI index](#) is a daily market-based snapshot constructed from 33 financial variables incorporating five categories of indicators: credit, equity valuation, funding, safe assets and volatility, FSI shows stress across US, other advanced economies & emerging markets 2. [Fitch Ratings Agency](#) 3. [Moody's as of Mar 10](#) Source: Reuters, Bloomberg, BCG analysis and experience



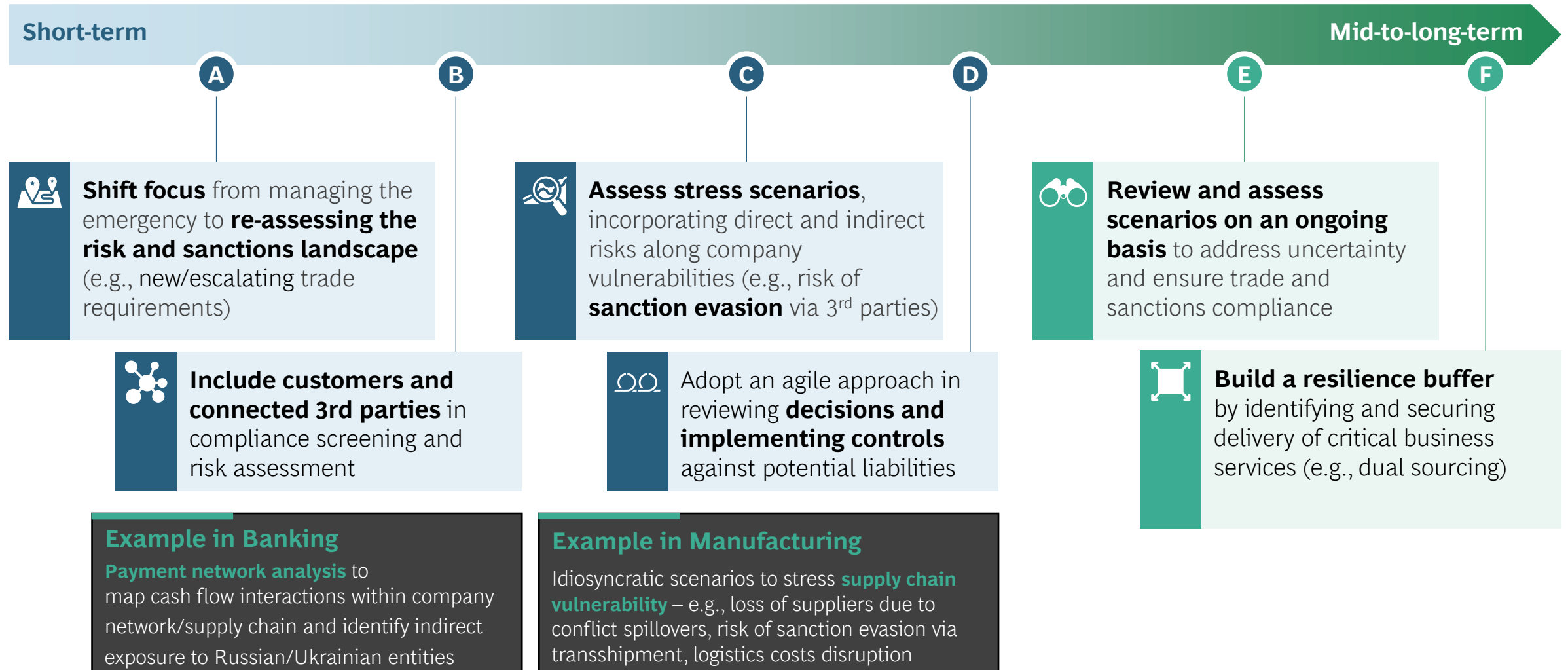
# War in Ukraine: Global Update and Risk Impact

## AGENDA





Perspective on risk impact

- Sanctions and policy actions
- Risks for companies
- **Implications for companies**

# Companies should re-assess their operational and risk environment to build resilience via scenario-based planning



# Mitigation actions can range from tactical to structural based on urgency or complexity

NON-EXHAUSTIVE			
Sanctions	 <b>Current &amp; potential</b>	<b>Tactical actions</b> <ul style="list-style-type: none"> <li>✓ Develop <b>action plan</b> to mitigate immediate impact on business network (e.g., suppliers)</li> <li>✓ Verify denied-party screening and CDD<sup>1</sup> <b>data collection/storage processes</b></li> <li>✓ Verify/Remediate denied-party screening and CDD<sup>1</sup> <b>data quality</b></li> <li>✓ <b>Strengthen sanction clauses</b> on existing commercial agreements, and consider <b>certification</b> of higher-risk 3<sup>rd</sup>-parties</li> </ul>	<b>Structural actions</b> <ul style="list-style-type: none"> <li>✓ Pressure test <b>denied-party screening and CDD<sup>1</sup> process</b> (e.g., larger screening scope, new screening logics)</li> <li>✓ Conduct ongoing <b>connected parties screening</b></li> <li>✓ Consider <b>method to detect/prevent circumvention</b> via trade finance</li> </ul>
	 <b>Strategic &amp; reputational</b>	<ul style="list-style-type: none"> <li>✓ Include/Develop geo-political dimension in <b>risk management framework</b> (e.g., indicators, escalation mechanism)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Implement <b>on-/near-shoring initiatives</b></li> <li>✓ Permanently <b>discontinue operations</b> in select geographies</li> </ul>
	 <b>Business &amp; operational</b>	<ul style="list-style-type: none"> <li>✓ <b>Increase inventory</b> of critical inputs/parts</li> <li>✓ <b>Raise cyber awareness</b> at all org. levels and increase <b>monitoring frequency</b></li> <li>✓ Engage routinely in <b>tabletop exercises/ war-gaming</b> against cyber attacks</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Diversify supply chain</b> (e.g., dual sourcing)</li> <li>✓ Strengthen priority <b>cyber controls</b> against typical vectors and invest in <b>cyber resilience</b></li> <li>✓ Review <b>Incident Response, Business Continuity</b> and <b>Disaster Recovery</b> plans</li> </ul>
Other risks	 <b>Financial</b>	<ul style="list-style-type: none"> <li>✓ <b>Increase liquidity/cash</b> conversion cycle</li> <li>✓ <b>Re-assess hedging</b> strategy</li> </ul>	<ul style="list-style-type: none"> <li>✓ Increase <b>capital/equity buffers</b></li> <li>✓ Engage in <b>debt restructuring</b></li> </ul>



# Disclaimer

The services and materials provided by Boston Consulting Group (BCG) are subject to BCG's Standard Terms (a copy of which is available upon request) or such other agreement as may have been previously executed by BCG. BCG does not provide legal, accounting, or tax advice. The Client is responsible for obtaining independent advice concerning these matters. This advice may affect the guidance given by BCG. Further, BCG has made no undertaking to update these materials after the date hereof, notwithstanding that such information may become outdated or inaccurate.

The materials contained in this presentation are designed for the sole use by the board of directors or senior management of the Client and solely for the limited purposes described in the presentation. The materials shall not be copied or given to any person or entity other than the Client ("Third Party") without the prior written consent of BCG. These materials serve only as the focus for discussion; they are incomplete without the accompanying oral commentary and may not be relied on as a stand-alone document. Further, Third Parties may not, and it is unreasonable for any Third Party to, rely on these materials for any purpose whatsoever. To the fullest extent permitted by law (and except to the extent otherwise agreed in a signed writing by BCG), BCG shall have no liability whatsoever to any Third Party, and any Third Party hereby waives any rights and claims it may have at any time against BCG with regard to the services, this presentation, or other materials, including the accuracy or completeness thereof. Receipt and review of this document shall be deemed agreement with and consideration for the foregoing.

BCG does not provide fairness opinions or valuations of market transactions, and these materials should not be relied on or construed as such. Further, the financial evaluations, projected market and financial information, and conclusions contained in these materials are based upon standard valuation methodologies, are not definitive forecasts, and are not guaranteed by BCG. BCG has used public and/or confidential data and assumptions provided to BCG by the Client. BCG has not independently verified the data and assumptions used in these analyses. Changes in the underlying data or operating assumptions will clearly impact the analyses and conclusions.