Launch of Swiss Re's new *sigma* publication

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Swiss Re

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Swiss Re seeks to manage risk and reduce exposure in global supply chains, which are integral to our highly interlinked societies

Timeless challenges

- Unpredictability of supply
- Failure of transport and communication networks
- Interruptions in financing
- Regulatory & political risks

Catalysts for change

- Technology enhancement and developments
- Trade wars, and trade agreements
- Social awareness, disposable incomes
- Sustainability and reducing carbon footprints
- Regionalisation and domestic market protection

Examples of where insurance will play an important role

- **Business Interruption (BI)** resulting from physical damages
- E.g. parametric solutions for rising water levels designed for marine-based transportation

- **Non Damage BI (NDBI)** due to severe delays or disruption caused by factors outside of company control
- E.g. non-approval and certification from regulators in pharmaceutical manufacturing

- **Political risk** resulting from interference and/or currency trade
- E.g. currency covers for inconvertibility risks

Other:
- Ocean marine, trade credit and commercial insurance
- Broadening risk pools as means of mitigating downside

We leverage data and tech-enabled risk solutions to identify, assess and monitor vulnerabilities in supply chains

Role of Technology

- End-to-end data platform to reduce operational risk
- Data security and sharing of critical information across the supply chain
- Examples:
  - Low-cost sensor solutions
  - Big data analytics
  - Blockchain

New opportunities

- **Digital marketplace** – a broker-free distribution of existing products
- **Digital risk as a service** –Servicing risk with even-triggered, data-driven digital services and claims processing delivered directly via a digital ecosystem
- **Resilience as a service** – 360 º risk intelligence in real-time

Swiss Re Partnership

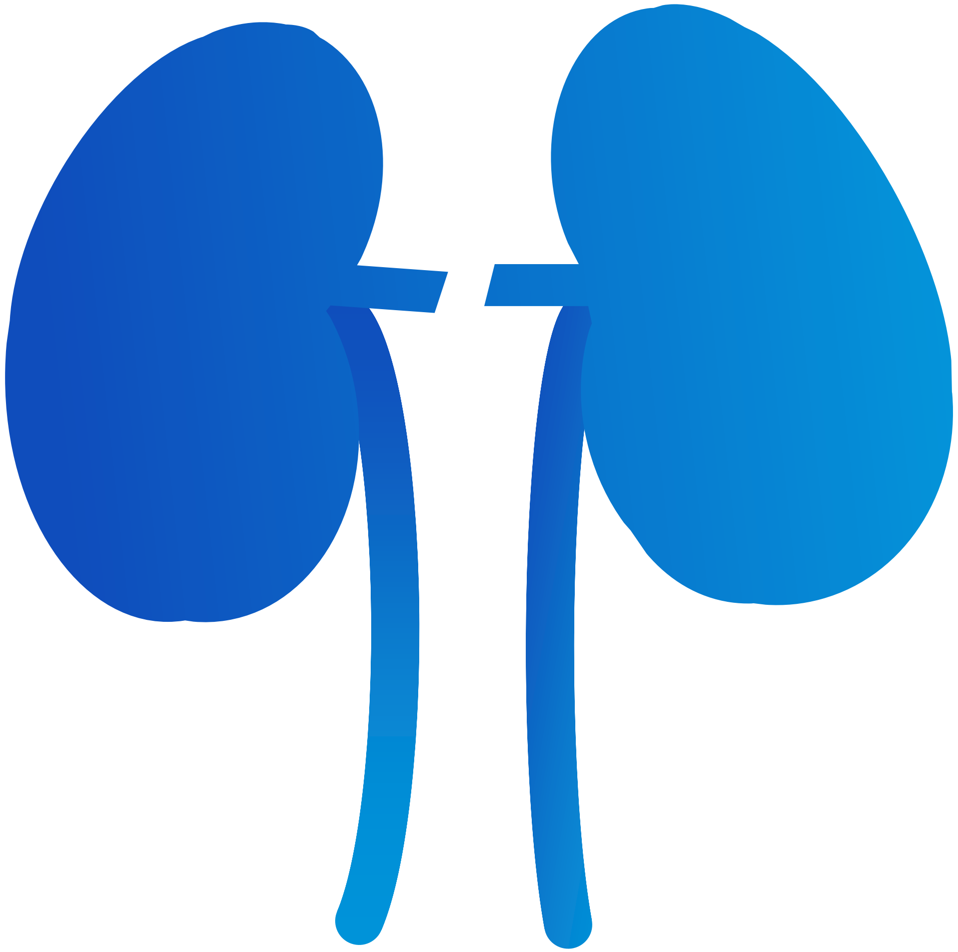
Partnership with Microsoft on a Digital Market Centre to help develop large-scale tools that predict and manage risks, and to offer new products:

- Initial focus on automotive industry, industrial manufacturing and natural catastrophe resilience
- New platforms will enable measuring of business risks with a focus on complex, interconnected systems and their wider implications for society, governments and economies

sigma 6/2020: De-risking global supply chains: rebalancing to strengthen resilience

Dr. Jérôme Haegeli, Group Chief Economist

Supply Chains: the key point(s) to remember!



Economic and insurance Outlook

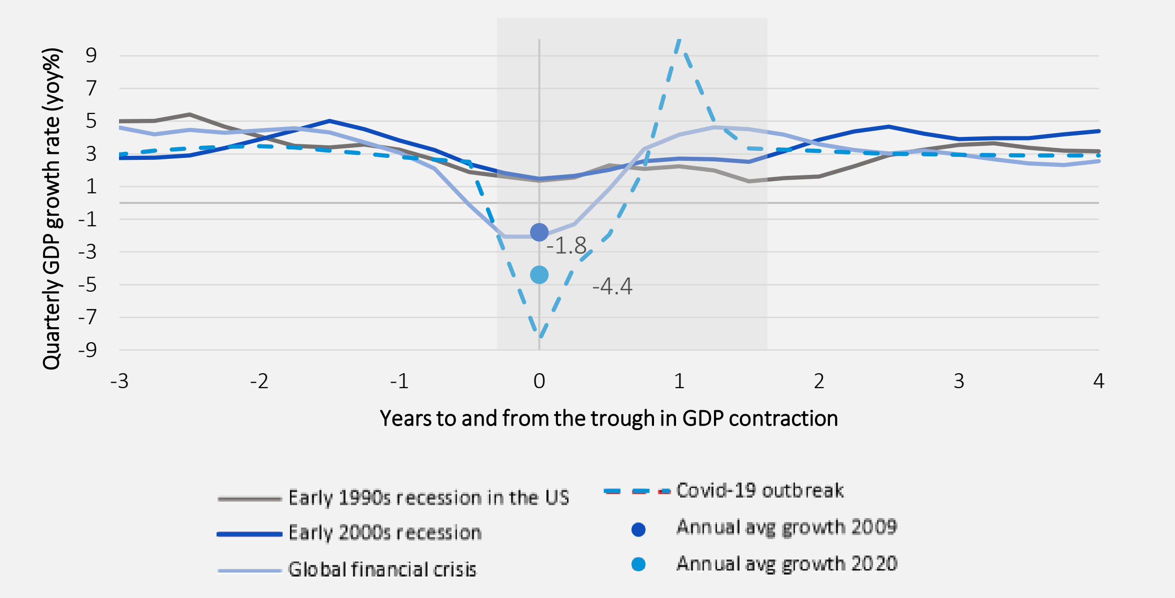
"COVID-19 is causing the deepest recession of our lifetime. However, we do expect a V-shaped recovery in insurance premiums."

Recession: deep with unusual dynamics
Growth will bounce back but output lost will not be recovered

Recovery factors to watch	Outlook*
1. **Lockdown exit,** incl. capacity build-up	
2. Changes to global **supply chains**	
3. **Unemployment** increase	
4. **Corporate defaults**	

*outlook for the next 6-12 months
Note: Color coding goes from green = benign, to red = challenging

COVID-19 induced a very unusual recession



Shadow box represents the time frame when global yoy GDP growth was computed from the US, Eurozone and China quarterly data for the recession induced by the COVID-19 outbreak. This approximation holds for 2020 and 2021 quarterly data.
Source: Swiss Re Institute

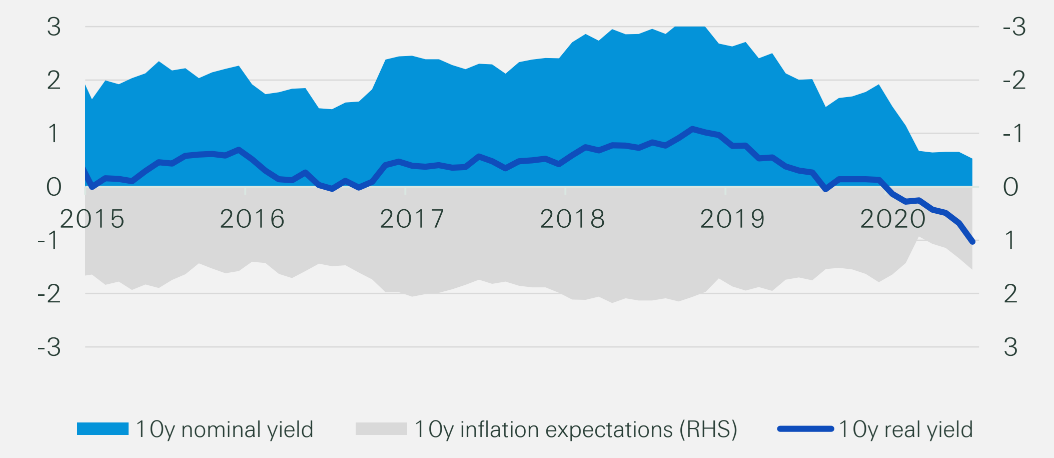
Inflation and interest rate environment will remain very challenging for insurers

- Changes in global supply chains to drive up inflation
- 10y real yields: balance of risk is to downside, interest rate environment will remain very challenging for insurers

Drivers of potential changes in inflation dynamics

- Active fiscal policy here to stay
- Central bank framework change
- Scrutiny and friction of trade and tech
- Deglobalisation and changes in supply chains

US real yield, in %

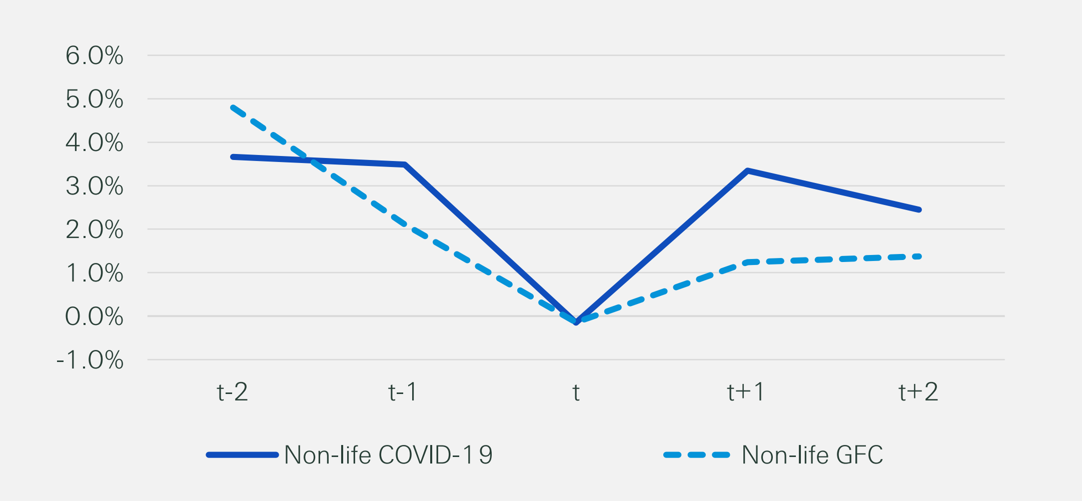


Source: Bloomberg, Swiss Re Institute
Note: Inflation expectations for the US are derived using 10y breakeven inflation rates

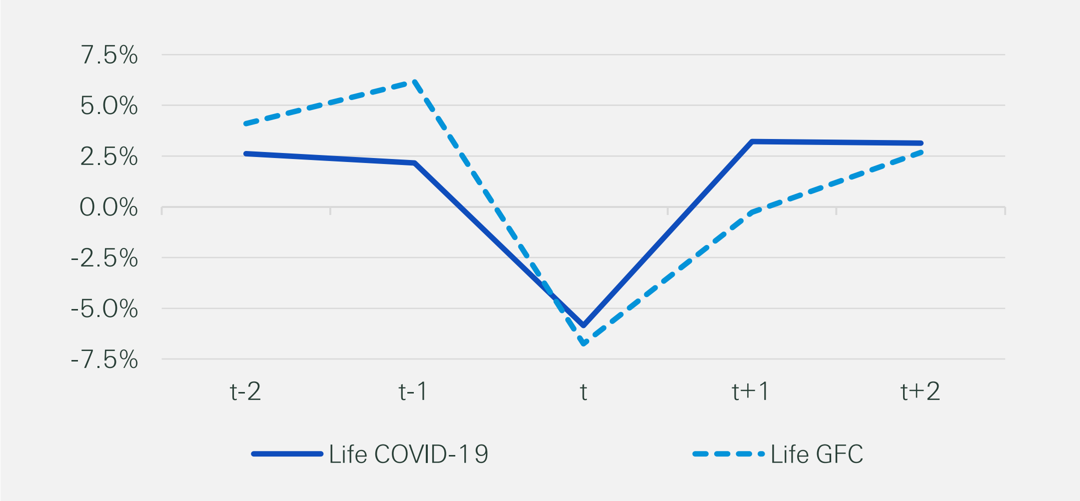
More resilient insurance premium outlook: a V-shaped recovery

- **Non-life: hardening market** will support a strong rebound, but travel and trade related lines will take longer to recover
- **Life: improving financial markets** will support saving business, **rising risk awareness** bodes well for protection business
- **Lower interest rates for longer will be a drag on profitability**

Non-life premium real growth compared with Global Financial Crisis



Life premium real growth compared with Global Financial Crisis



Note: t = 0 represents the outbreak of each crisis period, GFC: Global Financial Crisis
Source: Swiss Re Institute

Economic growth and insurance market implications

"Relocation or reshoring will generate ~USD 1 trillion from additional exports and investments to alternative locations and USD 63 billion from new insurance premiums, as well as positive growth during the transition. But ultimately, long-term potential growth will be lower due to efficiency losses."

Potential impacts on economic growth and insurance

- The new dynamics will generate **USD 1 trillion from additional exports and investment to alternative locations** during the 5-year transition
- **Global GDP will gain by 0.2% per year during the transition, but long-term growth potential will be lower due to efficiency losses**
- New insurance demand will **increase global insurance premiums by USD 63 billion** during the transition

Potential winners

	Relocation to	Reshoring
1	Vietnam	US
2	Cambodia	Germany
3	Malaysia	France
4	Thailand	Italy
5	Philippines	UK

Note: Relocation countries are ranked by relative attractiveness; see "Production relocation scorecard" on slide 20 or Table 2 in report. Reshoring countries are ranked by 2018 volumes of intermediate goods imports.
Source: Swiss Re Institute

Our growth stimulation model

USD billion	Trade Effect	Additional investment needed	GDP effects p.a. (%)	Insurance premium
Relocation to countries	200	287	+0.70	**26**
Re-shoring countries	100	406	+0.20	**37**
World	300	694	+0.21	**63**

Note: (i) We assume that China loses 20% of value-added exports to 20 lower-wage emerging markets and another 10% to re-shoring to advanced markets over a five-year transition period. (ii) There is need for additional investment in plants and equipment to expand production in the new locations. We assume a capital-to-output ratio around 1.4 for the emerging economies and around 4.1 for the advanced. (iii) We assume China will take policy reaction to fully offset the negative impacts of the trade diversion and shift the production capacity to produce for domestic consumption and/or new export markets.

Driving forces: supply chain changes are under way

"Underlying drivers, such as diminishing cost arbitrage benefits, costly disruptions from more frequent natural catastrophe events, new technology and rising political risks, are reshaping global supply chains. COVID-19 is just an accelerator."

COVID-19 has instilled new urgency for restructuring of GSCs

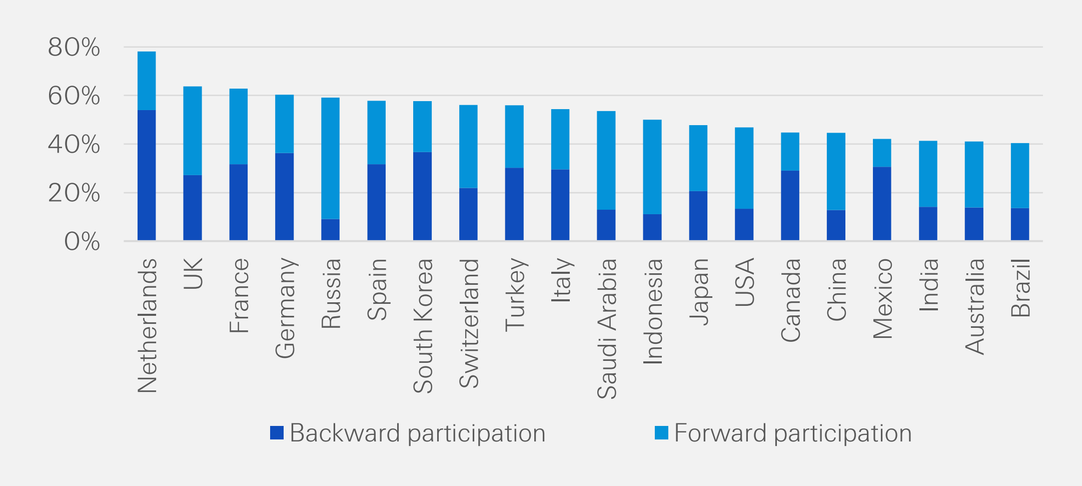
Underlying drivers	Accelerator	Supply chain adjustments
Diminishing cost arbitrage advantages (narrowing wage differentials)	COVID-19	**Diversification** (geographic, suppliers)
Rising political risk (i.e. rising protectionism, trade war)		**Relocation/parallel supply chain**
Social values (i.e. ESG, equality, diversity & inclusion)		**Reshoring/stay close to consumers**
Increasing cost of business interruption (i.e. natural catastrophes)		**Simplified supply chain**
3D printing and digital manufacturing (i.e. tailored products instead of mass production)		**Insurance and risk transfer solutions**

Source: Swiss Re Institute

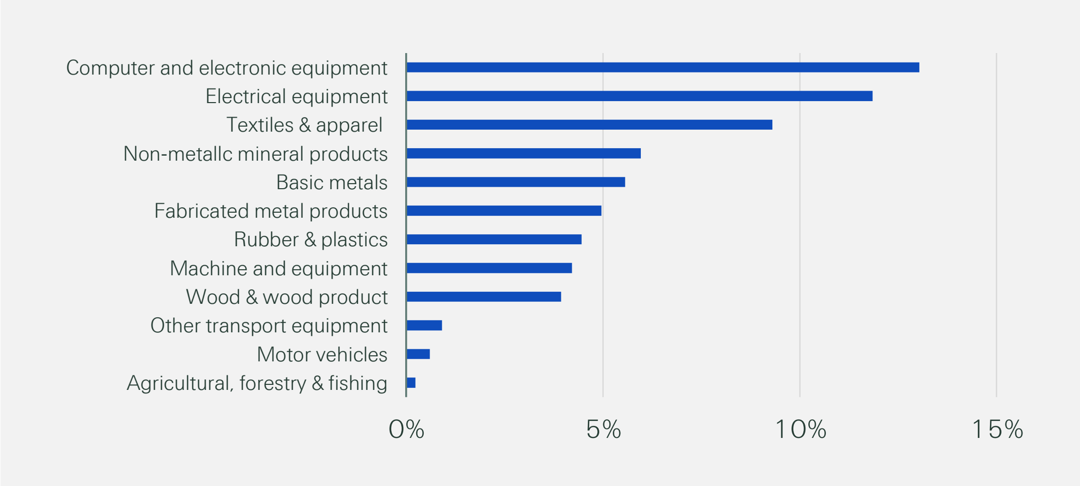
Global supply chain disruptions: China in focus

- In the **world's largest 20 economies, 40-80% of exports are integrated into global supply chains**
- **As the largest supplier of intermediate goods, China is at the core of GSCs and disruptions**
- **The computer and electronic equipment trade is most vulnerable,** with ~13% of its intermediate inputs coming from China

Participation of the 20 largest economies in GSCs (% of total export values added, 2018)



Chinese intermediate input as a % of total global output excl. China, by industry (2015)



Note: Forward participation is defined as a country's domestic value-added content embodied in intermediate exports that are further re-exported to third countries, as a percentage of total exports. Backward participation is foreign value-added content embodied in a country's exports as a percentage of total exports.
Source: UNCTAD-Eora database, Swiss Re Institute

Key takeaways

The urge for GSC resilience	**Macro trends in reshaping the global supply chains were in place already pre-COVID-19**. The ramping up of US-China trade tensions and COVID-19 instils greater urgency for GSC resilience
Opportunities during transition	**Parallel supply chains will emerge**. We estimate they **will generate ~USD 1 trillion from additional export and investments globally**, boosting growth **and adding USD 63 billion from insurance premiums over a 5-year period**
The trade-offs in the long-run	Medium-term global growth is expected to increase, but **longer-term economic growth will be adversely affected. The adverse impacts on growth will be larger, should politics lead to more friction in the trade of goods and services,** leading to further lowering of overall productivity

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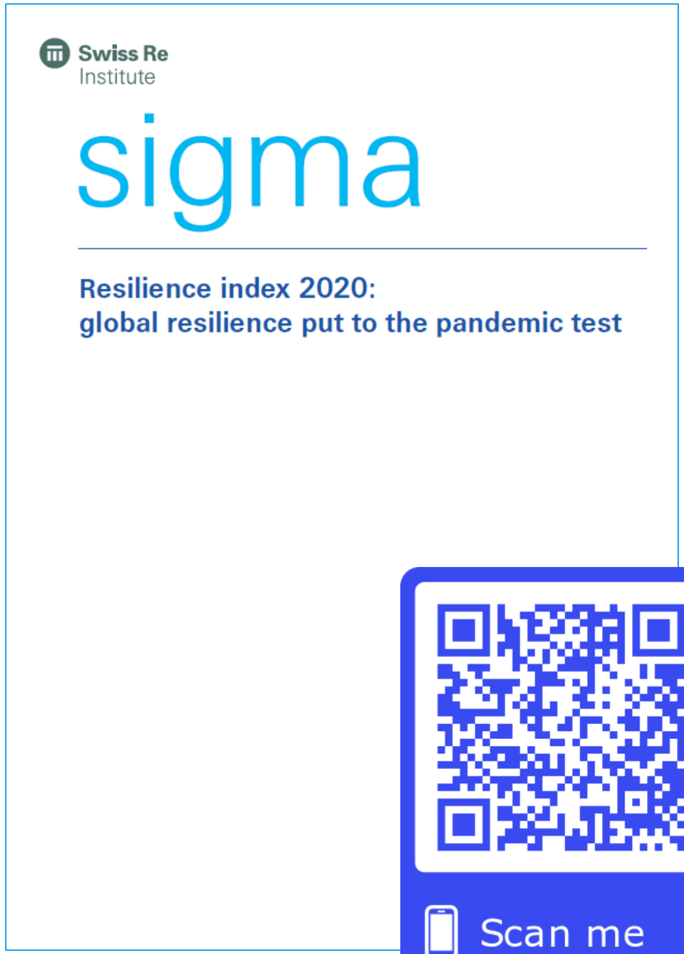

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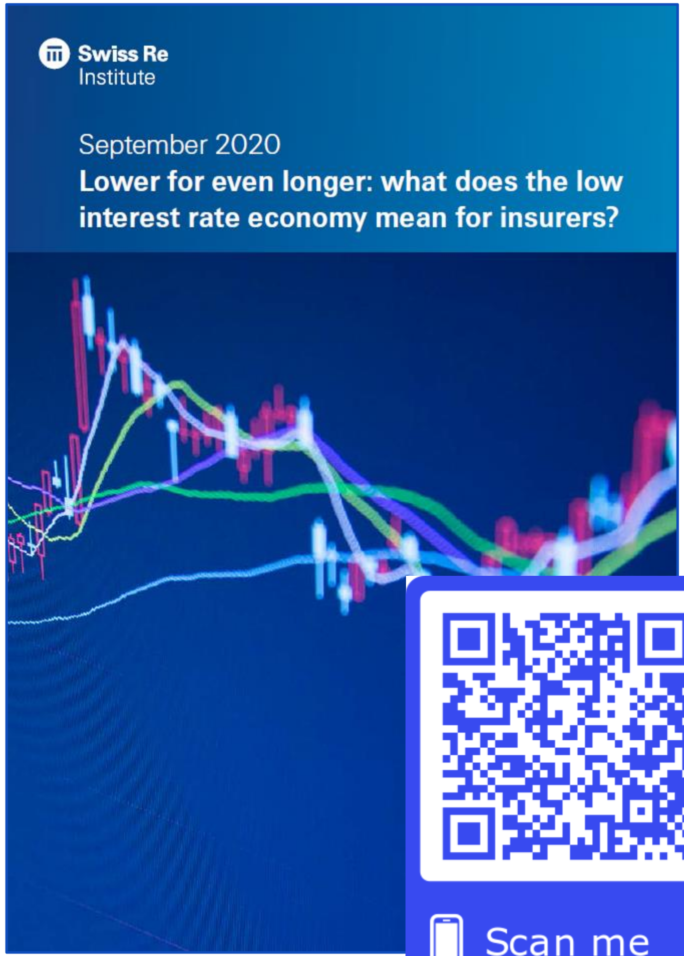

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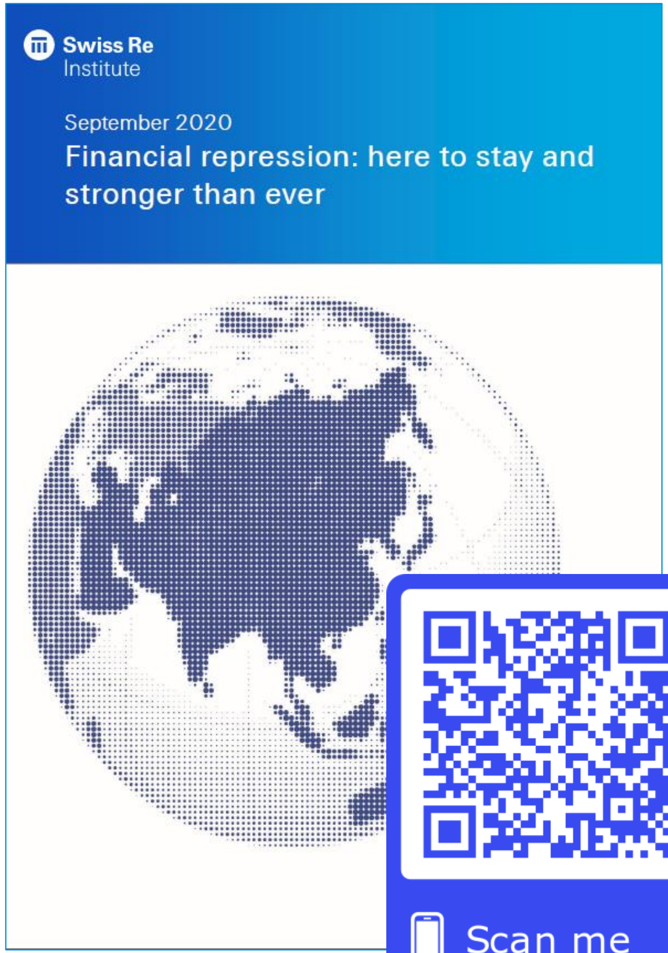

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Q&A

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Appendix

Economic Outlook: The worst in macro is likely behind us

Very sharp, deep and likely short with partial recovery

“Bad macro” is **not equal** to **“bad financial markets”**

>2x worse global recession than the GFC

Interest rates will remain very low with “financial repression” on the rise

	Swiss Re Institute				Consensus	
	2019	2020	2021	2022	2020	2021
Real GDP (% change)						
US	*2.3*	-6.4	4.2	1.9	-5.2	4.0
Eurozone	*1.2*	-7.5	4.8	1.0	-7.9	5.7
China	*6.1*	2.7	7.0	5.3	2.0	8.0
CPI (% change)						
US	*1.8*	0.7	1.7	2.3	0.9	1.7
Eurozone	*1.2*	0.2	1.0	0.8	0.4	1.1
China	*2.9*	2.3	2.6	2.5	2.7	2.2
10y Gov. Bond Yield (%)						
US	*1.9*	1.0	1.0	1.2	0.8	1.2
Eurozone	*-0.2*	-0.4	-0.4	-0.4	-0.4	-0.2
China	*3.2*	2.8	2.7	2.6	2.8	3.0

We do not expect economic activity to return to 100% GDP capacity utilisation this year. Instead we foresee a GDP capacity shortfall of around 4% and 5% by year-end for the US and Eurozone, respectively. The maximum shortfall in capacity utilisation in the US and the Eurozone is in April 2020 at roughly 16% and 18%, respectively

Source: Swiss Re Institute (consensus numbers as of 10 August 2020)
Note: No Consensus projections available for China, numbers refer to Bloomberg

Production relocation scorecard

	Growth potential (2020-2023E)	External trade		Labour cost	Infrastructure		FDI % of GDP (2016-2018)	Aggregate ranking Normalized Z-score
		Trade dependency	Exports similarity with China		Logistics	Ease of doing business		
Vietnam	1.5	2.2	0.7	0.9	0.2	-0.4	1.2	0.99
Cambodia	2.3	0.9	-1.9	0.9	-2.5	-2.3	3.4	0.73
Malaysia	0.3	0.7	0.4	0.6	0.1	1.0	0.0	0.40
Thailand	-0.2	0.0	0.4	0.5	0.5	0.8	-0.6	0.13
Philippines	1.0	-0.6	0.4	0.9	-0.8	-1.1	-0.2	0.13
Taiwan	-0.2	0.4	0.9	-0.3	0.7	1.1	-0.6	0.07
India	0.8	-1.0	-0.4	0.9	-0.1	-0.3	-0.4	0.07
Czech Republic	-0.5	1.3	0.9	-1.4	1.0	0.3	0.4	0.06
Indonesia	1.0	-1.0	-0.9	0.8	-0.1	-0.5	-0.5	0.01
Hungary	-0.6	1.3	0.9	-0.8	0.5	0.0	-0.2	-0.06
Turkey	0.0	-0.6	0.0	0.2	-0.2	0.5	-0.4	-0.07
Poland	-0.6	0.0	0.6	-0.7	0.7	0.3	-0.2	-0.14
Mexico	-1.2	-0.1	0.4	0.6	-0.4	-0.2	0.0	-0.16
South Korea	-0.6	-0.4	0.8	-1.7	0.8	1.2	-0.7	-0.36
Brazil	-0.9	-1.2	-1.5	0.7	-0.6	-1.8	0.2	-0.50
Russia	-0.8	-0.8	-2.1	0.1	-1.5	0.6	-0.4	-0.60
Japan	-1.3	-1.0	0.4	-2.2	1.7	0.6	-0.9	-0.71

Notes: **Growth potential**: average expected real GDP growth between 2020-2023E; **Trade dependency**: (Exports + Imports)/GDP; Exports similarity with China: similarity of exports product composition over the 99 product categories as defined in ITC Trade Map, calculated as $S(j,k) = \sum\left[\min(X_{ij}, X_{ik})\right]$, where X_{ij} represents product i's share of country j's total exports, and k refers to country China; **Labour cost**: average annual labour cost in manufacturing sector;

Logistics and ease of doing business: ranking index as defined by World Bank; **FDI**: average FDI inflow between 2016-2018 as % of GDP
Green cells indicate numbers larger than one standard deviation from sample mean (z-score>1), and red cells denote z-score less than -1.
Source: CEIC, ITC Trade Map, JETRO, World Bank, UNCTAD, Swiss Re Institute

Globally, industry sectors most likely to move ……

Non-economic factors such as national strategic priorities are becoming increasingly important in decision-making

	Economic factors	Non-economic factors	Share of export (%) with shift potential		Market capitalisation
			low	high	USD bn
Pharmaceuticals			38	60	6’044
Apparel			36	57	868
Communication equipment			34	54	2’720
Medical devices			37	45	2’760
Transportation equipment			29	43	564
Textiles			23	45	113
Furniture			22	45	90
Aerospace			25	33	1’137
Computers and electronics			23	35	111
Electrical equipment			23	34	1’519
Machinery and equipment			19	25	1’332
Automotive			15	20	1’611
Semiconductors and components			9	19	2’570
Chemicals			5	11	2’477

Note: Non-economic factors include policy driven shifts (eg, essential goods for national security). Market capitalisation as of13 August 2020.
Source: Risk, resilience and rebalancing in global value chain, 6 August 2020, McKinsey, Thomson Reuters, Swiss Re Institute

High Low

Quantifying the effects on insurance risk pools

	Insurance premium from			
USD billions	Change to trade	Additional investments	income effect	Total
Export substitution countries				
• Income effect			22	
• Commercial insurance [operations]		3.1		
• Engineering [construction]		0.6		
• Subtotal				25.7
Import substitution countries				
• Income effect			30.8	
• Commercial insurance [operations]		5.9		
• Engineering [construction]		0.6		
• Ocean marine	-0.5			
• Subtotal				36.9
World*				
• Income effect			52.8	
• Commercial insurance [operations]		9		
• Engineering [construction]		1.2		
• Ocean marine	-0.5			
• Total				62.6
China**				
• Income effect			-29.7	
• Commercial insurance [operations]		-3.6		
• Engineering [construction]		-0.9		
• Subtotal				-34.2
World **				
Income effect			**23.2**	
Commercial insurance [operations]		**5.4**		
Engineering [construction]		**0.3**		
Ocean marine	**-0.5**			
Total				**28.4**

Source: Swiss Re Institute

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