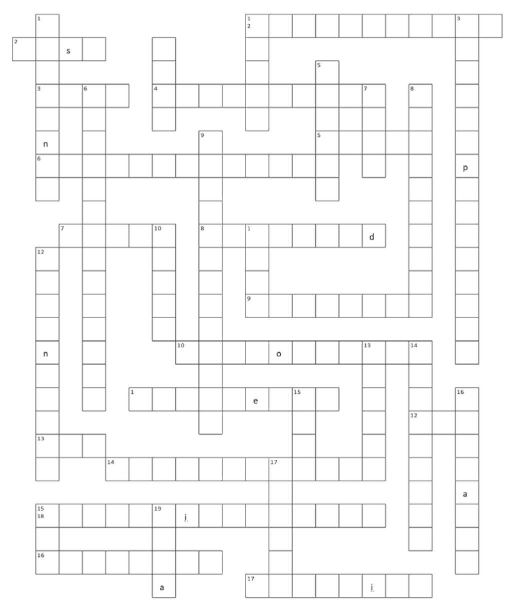
Swiss Re Institute

Economic Insights

Annual compendium 2020



See puzzle & clues inside!

Foreword

The re/insurance industry has weathered the COVID-19 pandemic and recession of 2020 better than we initially anticipated. Our *Economic Insights* (EI) series highlighted areas of resilience in the turbulence throughout the year. By mid-year, we estimated the global shock to life and health insurance premium growth at eight percentage points, and non-life premium growth for 2020 almost flat on 2019. Yet insurers responded to the challenge and found opportunities for growth. For example, the pandemic has heightened risk awareness, particularly for health and mortality risks, and reinforced the shift from savings to protection-type life insurance products; in commercial lines of business, rate hardening has supported non-life insurance. In our latest forecasts at year-end, we now see global life premiums returning to 3% trend growth, and non-life premiums to 3.6% growth, from 2021.

The pandemic has catalysed long-lasting paradigm shifts such as digital transformation and de-globalisation of supply chains. Insurers are adapting rapidly to high demand for digital insurance: in China, for example, more than half (61%) of consumers in our first-quarter 2020 survey preferred to buy simple and cheap insurance products online. Similarly, we see opportunities as companies reduce risk in their global supply chains. We estimate 5-10% higher demand for property and engineering covers in emerging Asian locations as production moves from China.

China's growth is of key importance. It will be the only major economy worldwide to grow in 2020 after quickly reopening and recovering from the COVID-19 shock. We forecast insurance premiums to increase by 10% annually over the next two years as numerous new risk pools emerge for insurers, including in residential insurance, compulsory motor, and health insurance. More broadly we remain confident that emerging markets will be the long-term growth engine of global insurance as their fundamental growth drivers are intact.

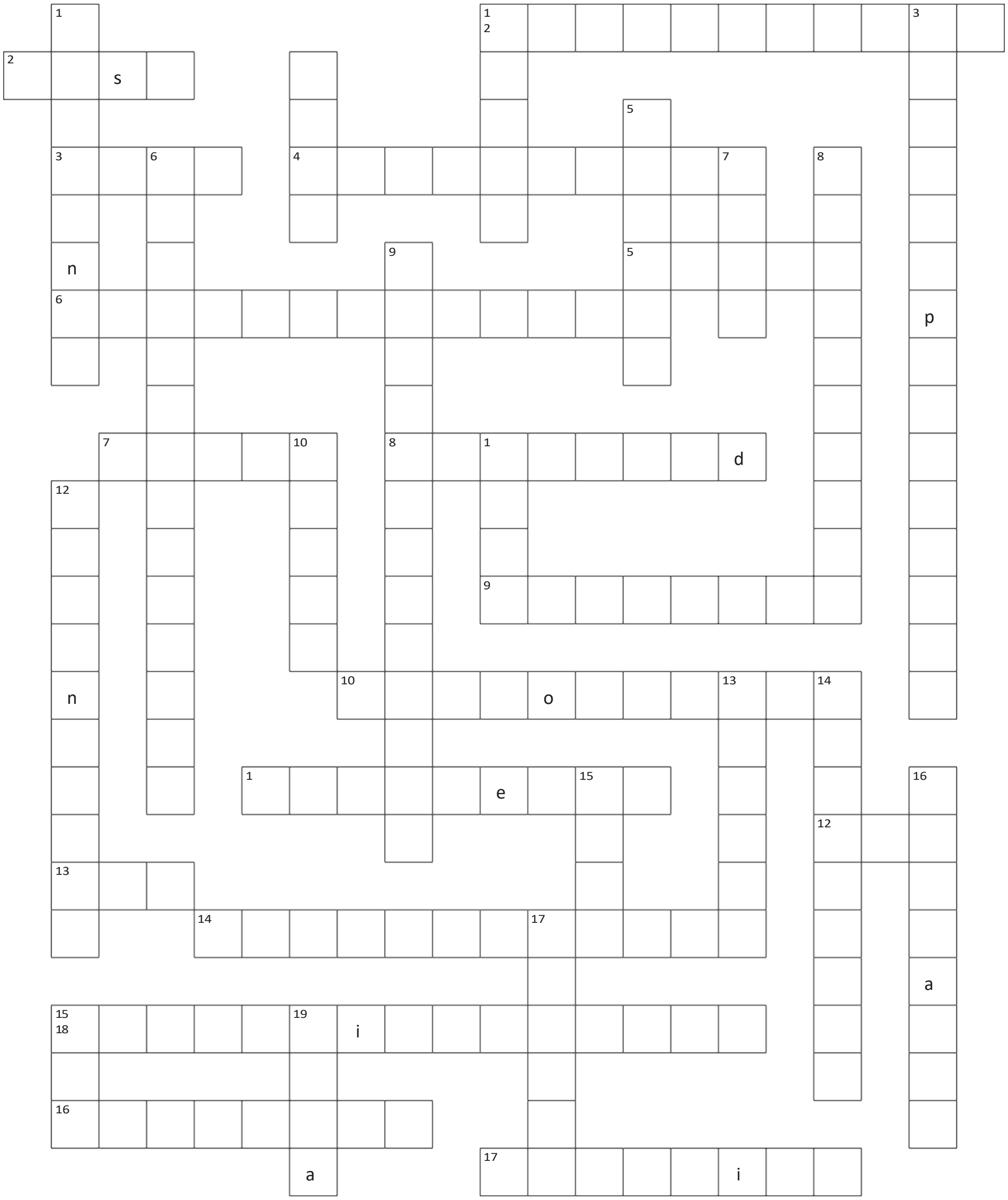
The unprecedented events of the pandemic featured in our EI series throughout 2020. In April, shutdown measures in major advanced economies cut economic activity by about 25%, each additional week costing about 0.5% of annual GDP. In May, as governments eased lockdowns, our pandemic macro clock pinpointed a "sweet spot" that balanced low infection rates and open economies. COVID-19 vaccine successes in late 2020 have raised hopes of a faster economic rebound, but the challenge is formidable due to structural damage of higher debt and inequality, coupled with weaker economic resilience.

As 2020 comes to an end, we look forward to economic recovery in 2021. We believe a policy reset, to make societies future fit and growth more inclusive, is needed. We see a huge opportunity for insurers and policymakers alike to rebuild better and replenish global resilience for the longer term.

I hope you enjoy reading the year's editions presented in this compendium and look forward to our continuing dialogue in 2021.

The compendium includes a crossword puzzle on the next page: some holiday fun for readers of Economic Insights, our *sigma* and Expertise Publications series, and/or those with a smattering of general economics knowledge. We will publish the answers alongside the first edition of Economic Insights of 2021.

Jerome Jean Haegeli
Swiss Re Group Chief Economist



Across

1 The 2019/2020 wildfire season in Australia was this
2 A grouping of advanced nations
3 A sticky ingredient in Brexit talks
4 The only country to systematically report net worth (3, 5)
5 A short-term lending rate
6 A connected millennial (7, 6)
7 This city's agreement can make the world greener
8 Gone back home
9 The WHO declared COVID-19 as this on 11 March 2020
10 In many countries, 2020 stimulus actions have significantly reduced this (5, 6)
11 National government debt
12 This body says renewable energy technology generation capacity in Africa will triple by 2030
13 Swiss Re Institute's university partner in establishing our Macroeconomic Resilience Index
14 Property is not all physical
15 This matters because male/female parity in the workplace can lift global GDP by 26%, according to Swiss Re Institute estimates (6,9)
16 In China, the volume of these is forecast to decline by 5% in 2021 because of reform in the motor insurance sector
17 Momentous shifts

Down

1 A benchmark overnight lending rate (3, 5)
2 Loss that rises over time
3 Chopper monetary stimulus (10, 5)
4 High earning paper, despite the name
5 Not all angels fly
6 In this environment, long-tail insurance business could be hit by rising prices
7 Owe more than you earn
8 Indemnification based on pre-set thresholds
9 Low, for a very long time
10 At this spot, the pandemic is not so sour
11 Regular hand washing with this kills coronavirus
12 Abstract financial value
13 There's been a lot of this stimulus in 2020
14 Closing protection gaps makes the world more this
15 What was there before the WTO
16 Financial protection against loss, damage and liability
17 A novel strain identified in January 2020
18 National output
19 Russia's parliament

Economic Insights 2020

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Swiss Re Institute

Issue 1/2020

Economic Insights

China's 14th Five-Year Plan: the road to a high-income economy

Key takeaways

- The 14th Five-Year plan for 2021-25 will target avoidance of the middle-income trap and transition China to a high-income economy.
- Structural reforms will target service sector developments and improved efficiency and productivity. We forecast average annual GDP growth of 5.4% in 2021-2025.
- The plan will have four priority areas: digitalisation, further opening of the economy, green development and support for less-developed regions.
- Insurance will be a key element in achieving the goals of the Five-Year Plan; we forecast 8.3% premium growth annually over the period.
- Among others, we see new opportunities in protection-type products, health, pensions, agriculture and cyber insurance.

About Economic Insights

Analysis of key economic developments and their implications for the global re/insurance industry.

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In a nutshell

China's 14th Five Year Plan will blueprint the transition toward a high-income economy, with a focus on four priority areas: digitalisation, further opening of the economy and financial markets, green development and support for less-developed regions. We believe the plan will generate insurance sector growth in protection-type products, mutual, health and pensions insurance, infrastructure investments and more business opportunities for foreign insurers, among others.

In 2020, China's government will formulate national strategy for transition to a high-income, modern economy, with focus on "broader well-being of the population."[1] We expect the 14th Five-Year Plan (FYP) for the years 2021-2025 to have four priority areas: digitalisation, liberalisation, green development and support for less developed regions. The underlying goal will be to avoid growth stagnation at the middle-income level (the "middle-income trap"), setting strategy across a wide range of domains ranging from environmental protection, regional and rural–urban disparities, and the aging population, all areas of insurance opportunity also.

In November 2019, Premier Li Keqiang chaired a workshop to kick off formulation of the 14th FYP. Two highlights were that China will: (1) keep economic growth within a reasonable range for the next five years. We believe this indicates the focus will be on quality rather quantity of economic, with structural reforms to promote development of the services sector and improvements in productivity; and (2) more opening up to further integrate China into the global economy. We forecast average annual gross domestic product growth of 5.4% in 2021-2025, below the consensus of 5.7%.[2]

Figure 1: Expected key focus areas for China's 14th Five-Year Plan

Source: Official websites, Swiss Re Institute

[1] The report delivered at the 19th National Congress of the Communist Party of China by President Xi Jinping on 18 October 2017, and *People's Republic of China: The Midterm Review of the 13th Five-Year Plan and the Initial Research Towards the 14th Five-Year Plan*, Asia Development Bank, May 2018.

[2] IMF working paper by Min Zhu, etc, *China's Productivity Convergence and Growth Potential —A Stocktaking and Sectoral Approach*, WP/19/263

16 January 2020

In line with previous practice, the formulation work will be done this year, and the National People's Congress will review and approve the FYP in 2021. To date the government has given strong policy support to insurance to be used as a means to improve national social welfare, and we expect this to continue. On 2 January 2020, the Vice Chairman of the China Banking and Insurance Regulatory Commission (CBIRC) revealed that the "Opinions on Promoting the Development of Commercial Insurance in the Social Service Sectors" was approved by the State Council at the end of 2019, and that it will issued by multiple ministries soon. The next day, the CBIRC published the "Guiding Opinions on Promoting the High-quality Development of the Banking and Insurance Industry in China". In our view, the two documents signal the inclusion of insurance as a formal contributor to achieving the goals of the 14th FYP. In setting the direction for the industry in 2021-2025, we believe the plan will support insurance growth opportunities across the areas listed below, and forecast average annual total premium growth of 8.3%, much higher than 1.8% of developed market during the same period.

- A broader scope of protection-type products, including: (1) liability insurance in relation to health, production and food safety; (2) credit and guarantee insurance for small- and medium-sized enterprises, and for personal lines in the areas of homeowner content, travel and sports insurance; (3) green insurance, including environmental liability and solutions to mitigate financial losses inflicted by natural catastrophes; (4) agri-insurance products to cover the costs of input losses resulting from disaster events and smoothing variance in revenue from farming and aquaculture; (5) pension insurance; and (6) insurance for new technologies and materials.
- Setting up of more players including institutions for mutual, health and pensions insurance business, a China Agricultural Reinsurance Company, and insurance intermediaries.
- Support insurance sector investment in: (1) industrial funds for strategic industries and advanced manufacturing; (2) venture capital and equity funds; and (3) a national China Insurance Investment Fund.
- Further opening-up the market by: (1) lowering barriers to entry and expanding business scope options for foreign insurers; (2) increasing the number of insurance branches in central, west and northeast China; and (3) encouraging Chinese insurers to invest overseas.
- InsurTech: (1) improving infrastructure; (2) decreasing cost through new tech; (3) developing mobile terminal business; and (4) ensuring cyber security and improved emergency response mechanisms.

Swiss Re Institute

Issue 2/2020

Economic Insights

Central and Eastern Europe: the future's bright in life

Key takeaways

- CEE economies have remained resilient to slowdown in Europe's industrial sector, due to a more diversified economic structure.
- Domestic rather than export demand has become the main growth driver, due to very strong wage growth and public investment.
- A strong rise in purchasing power will help lift insurance penetration in the CEE region.
- We forecast 7% annual growth in life premiums over the next five years, four times higher than over the past decade and five times the growth pace in advanced markets.

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In a nutshell

Central and Eastern European economies have grown strongly as greater economic diversity made the region more resilient to the ongoing slowdown in western European economies. With rising purchasing power, we see significant potential for insurance penetration in the region to increase over the coming years.

Central and Eastern European (CEE) economies have grown strongly in 2019, demonstrating remarkable resilience to the slowdown of their main trading partners. Most notably in Germany, industrial production has fallen 7.5% since the beginning of 2018, almost twice the euro area aggregate. In the main CEE economies, industrial production has risen on average by 3% over the same period (see Figure 1). This is a surprise, given that most CEE countries are small, open economies, highly integrated with supply chains across Europe. For instance, exports of EU-members of CEE[1] countries comprise around 54% of GDP, with a quarter going to Germany alone.

The reasons for the impressive resilience are mostly structural. Since the global financial crisis, CEE countries have rebalanced their economies and since 2014, domestic rather than export demand, has been the main growth driver. Developments in the labour market have supported consumption. Most of the region has experienced fast employment growth, resulting in record low unemployment and stellar wage growth. For instance, between 2008 and 2018, real earnings rose by 29% in Hungary and 27% in Poland, compared with 14% in Germany. This has led to a strong rise in purchasing power, fueling consumption. Consumption had additional support from remittance inflows. The World Bank estimates that CEE migrant workers sent about USD 27 billion home in 2017, with Poland alone having received close to USD 7 billion. Remittances constitute a relatively small share of GDP for larger countries (eg, 1.2% of GDP in Poland), but are significant for some of the smaller economies of the region (eg, Croatia 4.6% of GDP).

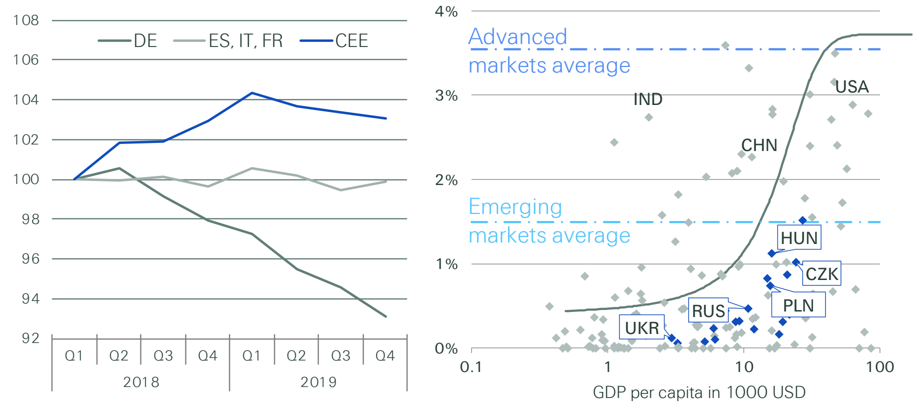
Government spending, low interest rates and an inflow of EU funds have also fueled growth. Over the past five years, public investment in CEE countries exceeded the euro area average by around 7-14% of GDP. Part of the investment boom has originated from inflows of EU structural funds. The IIF estimates[2] that over 2007-2018, these inflows contributed to average annual output growth by as much as 1.2 percentage points (ppt) in Poland and 0.7 ppt in Hungary. While the 2021-27 EU budget is likely to result in much smaller contributions for some of the CEE countries, strong investment growth should be sustained in the coming years as funds from the current budget period will continue to be disbursed well into 2023.

[1] Note: EU CEE countries are Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia
[2] *Macro Notes: EU Structural Funds Boost Growth in CEE*, IIF, 4 December 2019

05 February 2020

Figure 1 (LHS)
Industrial production index (Q1 2018=100), GDP weighted

Figure 2 (RHS)
Life insurance penetration 2018 (premiums as a % of GDP)



Source: Swiss Re Institute, Datastream; Note: CEE includes CZ, EE, LV, PL, RM, SK, SI, BG, HU

In the coming years, we expect domestic demand to continue to support economic growth in CEE economies, although GDP growth is set to slow given weakness in the European industrial sector. We believe economic resilience will also support demand for insurance in CEE, where significant protection gaps remain. For instance, non-life insurance premiums have grown strongly in the past decade but not as fast as GDP growth, resulting in a fall in insurance penetration to below pre-global financial crisis levels. This is in part due to too much focus on the auto sector, and little innovation in other lines. Over the next five years, we expect insurance penetration to rise gradually as real premiums grow at more than double the pace of the advanced markets average, at 3.6%[3].

Life insurance penetration in CEE is low and has fallen below the emerging market average as of 2018, as other emerging economies are closing the protection gap faster (see Figure 2). Low interest rates remain a challenge overall but the outlook for life insurers in the region looks promising, in our view. With the stark growth in purchasing power, we see significant potential for narrowing of the protection gap over the coming decade as insurance becomes relatively more affordable to households. Over 2020-2024 we expect annual average life premium growth of over 7%[4], four times higher than over the past decade, and five times stronger than in advanced markets. As a result, insurance penetration is set to increase.

[3] and [4] average real annual premium growth for the CEE-CIS region

Swiss Re Institute

Issue 3/2020

Economic Insights

PPP in Japan's public assets: a near USD 1 billion annual insurance opportunity

Key takeaways

- Japan stock of public assets is estimated to be JPY 693 trillion.
- GDP growth has lagged rate of increase in fixed asset investments, pointing to ineffective spending.
- Public-private partnerships (PPP) bring operational and financing efficiencies to infrastructure projects, and ease pressure on government coffers.
- The government targets JPY 21 trillion of PPP projects from 2013 to 2023. We estimate that PPP value still to be fulfilled as of 2018 will generate USD 0.9 billion in new insurance premiums annually .
- This will be across property, liability, business interruption and D&O insurance.

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In a nutshell

Public private partnerships (PPP) in public assets in Japan have been increasing gradually, and this is set to continue. This will alleviate pressure on public coffers in running and maintaining the nation's assets. And we estimate that the PPP schemes present an additional USD 0.9 billion premium opportunity for the global insurance sector annually from 2018 to 2023.

The total current value of public assets in Japan is estimated at around JPY 693 trillion.[1] To maintain, manage and replace these public assets is a huge financial burden on public coffers, a situation aggravated by the fast rising amount of "old" infrastructure stock. In 2018, 25% of bridges and 32% of water gates in Japan were over 50 years old.[2] The broader adoption of PPP schemes in public assets bodes well on many fronts: it will ease pressure on already-stretch public finances, bring private-sector driven efficiencies, boost the overall resilience of the economy, an important contribution given Japan's high exposure to extreme weather conditions and frequent occurrence of natural catastrophes, and, from 2018 to 2023, generate an estimated total USD 0.9 billion in additional premiums across different lines of business in P&C insurance each year.

Japan has experienced low growth for several years, and a main reason has been ineffective investment.[3] As Figure 1 shows, the relative values for gross domestic product (GDP) and fixed asset stock of the private and public sector (indexed to 1980) grew largely in tandem during the 1980s and 1990s. Since the late 1990s, however, the paths have diverged, with increases in GDP lagging growth rates in fixed asset investment, indicating diminishing stock effects. In 2000 the government introduced PPP schemes, to better align infrastructure investment with economic development and to finance replacement of aging infrastructure. Figure 2 shows that the aggregate contractual value of PPP schemes in Japan was close to JPY 7 trillion in 2018, mostly associated with public buildings.[4]

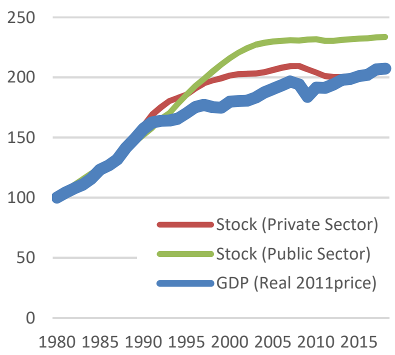
New PPP schemes were stopped in 2008 due to economic recession, but started up again in 2015, mainly for revenue-generating public infrastructure projects such as airports and toll roads. The first concession as for Kansai Airport in 2015, and the vehicle has proved popular for airport development. The government is now considering introducing alternative schemes like "available payment schemes"[5] to facilitate PPP financing of also not readily cash-flow generating public asset projects.

[1] According to data from the Cabinet Office of Japan.
[2] See *Infrastructure Maintenance Information*, Ministry of Land, Infrastructure, and Transportation.
[3] A. Smithers, "Why Japan invests too much", *ft.com*, 20 March 2014.
[4] These figures are first estimates of contractual value from the Cabinet Office and do not show actual size of invesment. In Japan, PPP is officially referred as Public Finance Initiative (PFI).
[5] In this scheme, private operators receive operation fee from governments based on performance, which enables private operators to avoid demand risk of infrastructure.

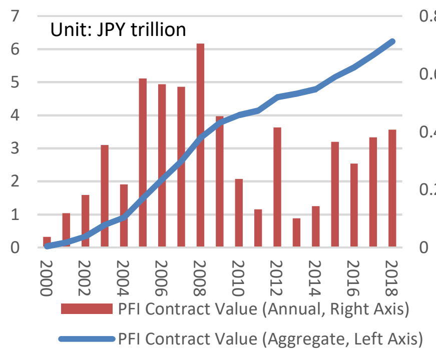
18 February 2020

Figure 1(LHS)
Relative value of GDP, public and private sector fixed asset stock (indexed to 100 in 1980)

Figure 2 (RHS)
Contractual value of PPP schemes in Japan (JPY trillion)



Source: Economic and Social Research Institute



Source: Cabinet Office

We believe the increasing involvement of PPP in public asset will yield multiple benefits. Private-sector initiative and management expertise will introduce new operating efficiencies, and ease the pressure on public budgets resulting from the spend on maintaining and replacing aging infrastructure. At the same time, PPP concessions open the possibility of greater participation by private-sector institutional investors in the financing of public infrastructure. For example, Japanese authorities are considering developing a secondary market for infrastructure investment by increasing the liquidity of equity of concessionaires.[6]

PPP in public asset is notable insurance opportunity too. Historically, local governments and public corporations have not insured their assets because central government has acted as default insurer, including in disaster event scenarios. However, in PPP concessions, the private-sector participants are normally required to be partly insured in their areas of involvement. The government set a new PPP business value target of JPY 21 trillion for the period 2013 to 2023. According to data from the Cabinet Office, by 2017 aggregate PPP business value had reached JPY 13.8 trillion, leaving JPY 7.2 trillion of the target outstanding. Assuming the target is achieved and that the premium ratio is similar to previous concession projects, we estimate that new PPP schemes from 2018 to 2023 will generate an additional USD 0.9 billion in insurance premiums annually. The lines of business that stand to benefit include property, liability, business interruption and D&O insurance.

[6] *Progress of Growth Strategy 2019 Follow Up* Cabinet Office, 18 December 2019.

Swiss Re Institute

Issue 4/2020

Economic Insights

The growing intangibility of business value: expanding the boundaries of insurability

Key takeaways

- Digital transformation has given rise to new business models which derive value mostly from intangible assets like intellectual property, networks, platforms, data and customer relationships
- Today intangible assets account for more than 80% of the enterprise value of S&P 500 companies
- Demand for insurance solutions is also moving from asset covers to protection for business risks like earnings and cash flow losses
- Increasing availability of data, the evolution of analytical capabilities and innovative trigger solutions, allow to insure risks which were previously uninsurable

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In a nutshell

Today, the world's biggest companies derive their economic value mostly from intangible assets, not from the production of physical assets. With the transformation of the corporate sector, demand for insurance solutions is moving from asset covers to protection for business risks that were previously uninsurable like earnings and cash flow losses.

An important implication of the rapid digitalisation of societies and businesses is the increasing value of information and other intangible assets as part of the valuation of companies. With this change, today the value of firms derives mostly from intangible assets, such as intellectual property, networks, platforms, data, brands and customer relationships. The intangible value of the FAANG tech companies (Facebook, Apple, Amazon, Netflix and Google) alone accounts for more than USD 3 trillion. Last year, tangible assets like property, plants and equipment accounted for just 16% of the enterprise value of the non-financial S&P 500 companies. In 1990, the share was around 46% (see Figure 1). There has been a significant shift in the activities of S&P 500 firms from making physical things to providing information and services, and the composition of balance sheets has shifted too. This has given rise to the development of innovative solutions to insure the previously uninsurable, such as exposure to potential of earnings and cash flow losses. Digitalisation has created opportunities in personal lines also, with new cover requirements for the use of private assets for commercial purposes.

A recent study by the McKinsey says corporates that capture the largest share of economic value creation share several common characteristics, including higher levels of digitalisation, greater labour skill and innovation intensity, more globalisation and more intangible assets.[1] Network effects create winner-takes-all types of economies of scale and ring-fence successful businesses quickly against competitors, protecting their attractive profit margins.

New business models …

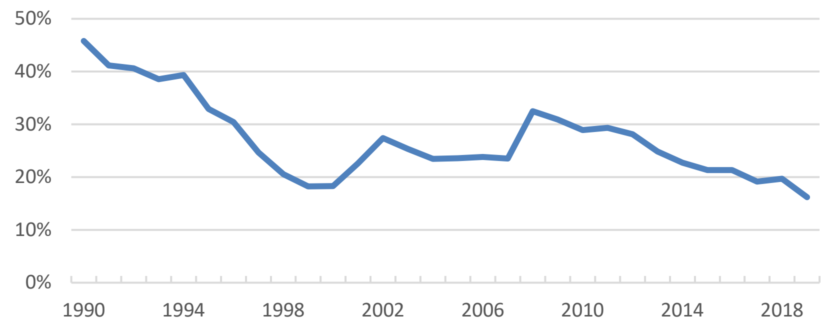
Digital transformation has given rise to new types of business models, most notably the sharing economy. Firms like Lyft and Uber own no cars, and Airbnb owns no rental units, yet they are overtaking traditional players in their respective sectors in terms of growth and market capitalisation. Instead of locking up capital to purchase or make physical assets, they achieve growth by focusing on connecting (existing) supply and demand in the market. The value creation in these businesses is based mostly on intangibles such as data, trust, brand recognition, scale and network effects.

We can expect to see the concepts of the sharing economy proliferate in many more areas. The commercial use of privately-owned assets is usually not protected by personal lines insurance policies, and there is insurance

[1] *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018.

need in at least three areas: (1) covers for the shared economy player; (2) covers for those gaining employment through the player; and (3) covers to end customers.

Figure 1)
Share of tangible assets of S&P 500 companies, 1990-2019 (net fixed assets as a % of enterprise value)



Source: Swiss Re Institute, Bloomberg

... new insurance opportunities

With the transformation of the corporate sector, demand for insurance solutions is moving from asset covers to protection for business risks that were previously uninsurable like earnings and cash flow losses. The source of these losses can be many, including disruption to business, cyber, product recall, reputation, and weather and energy price risks. The evolution of triggers, indemnity structures, and data and modelling advances means that insurance solutions for potential earnings and cash flow losses are now available. Challenges remain, however, as many these risks are fluid and demand more active management and collaboration in the fields of loss prevention and mitigation. Indeed, research suggests there remains plenty of scope for greater uptake of such solutions. For example, according to the Ponemon Institute, companies have cover for just 16% of their information assets losses, compared to 60% for property, plant and equipment exposures.[2]

Most innovative insurance solutions are custom-made to a protection buyer's specific need, achieved through the use of parametric triggers, double triggers and structured solutions. Regulatory constraints are sometimes headwinds to the implementation of new concepts. All new or expanded areas of risk transfer require modelling or underwriting and are enabled by the increased availability of data and the evolution of analytical capabilities. These new solutions expand the boundaries of insurability and in doing so enlarge the scope of insurance in risk management. Eventually, successful concepts develop into more mainstream products.

[2] Ponemon Institute, 2019 Intangible Assets Financial Statement Impact Comparison Report, April 2019

Swiss Re Institute

Issue 5/2020

Economic Insights:
Economic Resilience in Action Now

Key takeaways

- In the face of a global recession, the framework of economic resilience allows us to understand the ability of countries to absorb shocks
- With none of the Eurozone G7 countries in the top ten most resilient economies, the Euro Area is more exposed to shocks than the US. Global policy coordination is now vital in reinforcing global resilience
- Policy makers will need to resort to unorthodox measures, with the subsequent recovery likely prolonged due to weaker structural economic factors to begin with
- Resilience, among other things, stems from monetary and fiscal space. Countries with weaker balance sheets experience deeper and longer recessions, followed by more protracted recoveries

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In a nutshell

COVID-19 is putting economic activity and resilience under pressure around the world, raising a key question: where do policy makers and the economy go from here? We believe that now more than ever, a coordinated policy response is essential given the weaker global economic resilience to begin with, combined with the uncertainty surrounding today's economic shock.

The coronavirus outbreak represents a sudden shock to the global economy, affecting supply, demand and financial conditions. Global growth was already weakened going into 2020, and we expect a global recession as a result of the shock[1]. The recession is still expected to be mild in a historical context, but the extent of it is highly dependent on the evolution of the outbreak, the subsequent containment measures and vigour in taking a coordinated policy response.

The coronavirus outbreak is a global test of macro economic resilience. Our SRI – LSE Macroeconomic Resilience Index[2] outlines an economy's ability to absorb shocks. As previously noted, we believe the global economy is less resilient to shocks than in 2007[3]. This is largely due to virtually exhausted monetary policy and often constrained fiscal space in advanced economies. This matters because countries with weaker balance sheets – such as several of the Eurozone countries[4] – experience recessions that are roughly twice as deep and two times as long, with the recoveries about a third as strong as is the case for countries with stronger balance sheets. Understanding the composition of buffers available to an economy is key to comprehend how best to address shocks. While the Eurozone is economically less resilient than the US, European countries are currently more exposed to the spread of the coronavirus. We believe global policy coordination is now vital in reinforcing country level resilience in the face of the ongoing shock – something that is being considered for the first time since the Global Financial Crisis.

In the context of our resilience index, relaxing monetary and fiscal policies results in a lower ability to stimulate economies in potential subsequent downturns. We therefore think that policy coordination needs to be strengthened, which should happen on two levels at this point in time: across G7 countries, and between monetary and fiscal policy makers. New growth recipes are needed to reach higher sustainable growth rates, and these should cease to rely solely on monetary policy. Fiscal policy can be a

1 See Economic and financial risk insights – Global recession is testing economic resilience, Swiss Re Institute.
2 See *sigma* 5/2019 – Indexing resilience: a primer for insurance markets and economies, Swiss Re Institute.
3 See *sigma* 6/2019 – Sustaining resilience amid slowing growth: global economic and insurance outlook 2020/21, Swiss Re Institute.
4 *Public Sector Balance Sheet Strength and the Macro Economy*, IMF Working Paper, 2019.

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substantial driver of economic growth, particularly when backed by cooperating central banks. In a benign case, the cooperation could enhance the fiscal multiplier 2-3x relative to normal times. Key is that the delivered stimulus increases the productive capacity of an economy[5]. This would provide the additional benefit of strengthening future economic resilience through higher and more sustainable growth rates.

Beyond the real economy, concerns surrounding COVID-19 have also translated into a substantial flight to quality in the financial markets with stock prices falling and corporate spreads widening, while government yields declined. The lack of market response to the Fed's decision to ease monetary policy further emphasises the need for policy coordination. Monetary policy alone cannot prevent a negative feedback loop of the tightening in financial conditions onto the global economy.

Figure 1
The five most resilient countries in 2018

Country	Rank
Switzerland	1
Canada	2
USA	3
Finland	4
Norway	5

The SRI-LSE Macroeconomic Resilience Index
The index is composed of nine components categorized into two overarching dimensions:

1) *Macro buffer components* – considers an economy's room to use monetary and fiscal policy
2) *Structural components* – considers the fundamental framework of an economy, such as access to talent, the banking industry backdrop, economic diversification, etc

Source: Swiss Re Institute - London School of Economics Macroeconomic Resilience Index

Looking ahead and despite the expected global stimulus, we don't expect a "V"-shaped economic recovery. Instead, we expect a protracted growth path part due to the relatively low levels of available buffers to major economies. In fact, within the Eurozone, only Finland and the Netherlands are in the top ten most resilient economies and there is a substantial gap between "core" and "peripheral" economies' resilience levels. For the Asia Pacific region, only Japan is in the top 10 and the region's aggregate resilience score is roughly the same as for the Eurozone.

[5] For more information please refer to the *sigma* 6/2019

Swiss Re Institute

Issue 6/2020

Economic Insights

Covid-19 pandemic and market risks: a systemic crisis in the making?

Key takeaways

- The novel coronavirus will trigger a global recession, and potentially a systemic crisis.
- While extreme monetary and fiscal measures curtail some of the economic and financial tail risk, uncertainties remain significant.
- The risk of a systemic crisis is higher than a decade ago. The euro area is more exposed to systemic risk than the US and China.
- Gauging transmission channels is crucial to interpret systemic risk.
- Key amplifiers such as high and risky debt levels and elevated liquidity risk contribute to prolonged and more severe recessions.
- Corporate debt levels have reached all-time highs, and we see 25% chance of a global credit crisis.

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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In a nutshell

We are sliding into a global recession caused by the Covid-19 outbreak, which could potentially morph into a full-scale systemic crisis. It's key to understand how various factors can amplify the impact of this shock on the economy. We believe the euro area remains more exposed to systemic risk than the US and China.

The Covid-19 pandemic will trigger a global recession. Given the unprecedented nature of this global event, we cannot rule out the possibility of an outright systemic crisis. Even though massive interventions by monetary and fiscal authorities have limited economic and financial tail risk, uncertainties remain significant. It's therefore key to understand the transmission mechanisms and amplifying factors to gauge the potential length and depth of the unfolding crisis and the imminent systemic risk.

In the context of increasingly interconnected economies amid a global shock, understanding transmission mechanisms is crucial. Although almost all parts of the world are shocked by the same event, the subsequent economic consequences are influenced by many global, regional and structural factors.

To assess systemic risk, we look at various political, economic and financial factors, that can amplify, or in contrast weaken the speed and impact of a recession. Among amplifying factors are highly indebted households or corporates. These are less able to service their debt as a downturn becomes more severe and incomes fall, making recessions deeper and recoveries more protracted.[1] Institutional buffers such as monetary policy actions can help to offset the shock, with central banks cutting interest rates and introduce asset purchase facilities to avoid extreme tail risks such as a global credit crisis.

We previously highlighted countries' reduced resilience from increasingly exhausted monetary policy and often constrained fiscal policy. Absent comprehensive global policy coordination, policymakers will have to come up with novel and unorthodox means to shield the economy from deeper recession. This could include tools like helicopter money (see *sigma* 5/2019).

Importantly, systemic risk and the underlying composition of economic amplifiers and buffers have changed since the global financial crisis (GFC) of 2008-09. This means that shocks will spread differently through economic systems. Overall the risk from amplifying factors has increased over the last decade. At the major region/country level, we think the euro area is more fragile than the US and China, with relatively less room for manoeuver on the monetary and fiscal policy fronts. In addition, a weaker banking sector (despite improved capital ratios) and more rigid labour markets make the euro area more fragile compared to the US. Figure 1 presents a stylized overview of amplifiers that we deem important for the different regions.

[1] O. Jordà et al "When Credit Bites Back",, *Journal of Money, Credit and Banking*, 2013.

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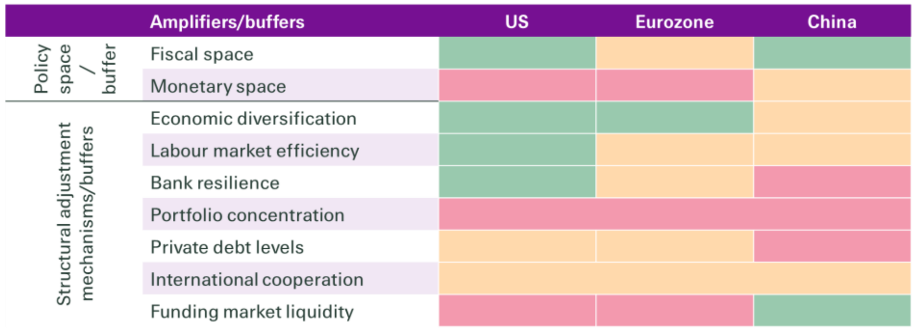
Figure 1
Stylised view of crisis amplifiers and buffers, current view by region (red: likely to amplify shocks, green: likely to act as buffer)



Source: Swiss Re Institute

Contrary to the GFC, we do not expect systemic risk from banks, especially in the US. However, debt outside financial institutions has become more worrisome. Corporate debt levels have reached all-time highs, and we see a 25% chance of a global credit crisis unfolding. The USD 10 trillion investment grade credit market has become riskier, with the share of BBB-rated debt growing from just 17% in 2001 to 50% today. Many of these bonds are just two downgrades away from slipping into junk status and exacerbating credit volatility. This risk is more elevated in the US than in Europe. Household debt, meanwhile, has resurfaced as an issue in the US, where increasing levels of student loans, credit card debt and auto loans are experiencing growing or high rates of delinquencies despite ongoing wage growth. Suddenly falling incomes could amplify widespread defaults of household debt. Central banks have restarted corporate bond buying schemes and encouraging loans to households. All to keep systemic risk at bay.

Severe liquidity issues – in some cases even more severe than during the GFC – have emerged both in corporate and government bond markets. Liquidity problems in funding markets can further amplify the depth of a recession and ultimately lead to a systemic crisis. Crowded investor positioning and simultaneous de-risking have also amplified risk asset volatility. International investors' portfolios have become increasingly homogenous as a result of more risk-taking and passive investing amid the low-yield environment.

Where does this all leave us? Amplifiers and buffers help us gauge whether a virus-born crisis ultimately morphs into a systemic crisis. Country-wide containment measures are targeted to avoid the worst health outcomes, while massive central bank and fiscal actions have somewhat reduced the financial and economic tail risk. But we are not out of the woods yet. Monitoring the state of amplifiers over the coming months will be crucial, as the uncertainty around the magnitude of this recession and its impacts on the global economy remain significant.

Swiss Re Institute

Issue 7/2020

Economic Insights

New infrastructure: China takes the lead, to mitigate slowdown and power future growth

Key takeaways

- China will invest in "new infrastructure" as part of fiscal stimulus to mitigate economic slowdown and boost growth.
- In absolute terms, there will be a near-fivefold increase in investment (USD 1800 billion) in new infrastructure spanning this decade.
- New infrastructure will accelerate growth of the digital economy, which will account for 50% of national output by 2030.
- Many commercial lines such as engineering and liability insurance, will benefit.
- Motor insurance will be materially impacted by digital transformation, with a likely declining share of total P&C premiums over time.

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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In a nutshell

China's government will leverage "new infrastructure" to mitigate economic slowdown and power growth. This reflects an inward-looking strategy to boost domestic demand and also manage external headwinds. Investments in "new infrastructure" will drive further expansion of the digital economy, which will account for half of national output by 2030. This will also extend the boundaries of insurability and open new investment opportunities.

Of late, China highly emphased "new infrastructure" as part of fiscal support to manage the sharp economic slowdown resulting from the Covid-19 crisis. We believe this signals a more inward-looking approach to boost domestic demand and mitigate external headwinds including this year's global recession, lingering risk of trade war and supply-chain disruptions caused by the pandemic. A near-fivefold increase in investment in absolute terms in new infrastructure by 2030 will accelerate digital transformation and upgrade urbanisation (more smart cities) and will fuel growth potential.[1] The digital economy as a whole will account for an estimated 50% of gross domestic product by 2030, up from 35% today.[2] The expansion will present insurers with new risk pools and avenues for investment in infrastructure.

According to the official definition, "new infrastructure" includes 5G base stations, industrial Internet of Things, artificial intelligence (AI), data centres, Ultra High Voltage (UHV), intercity high-speed railways (HSR) and rail transit, and electric vehicle (EV) charging stations.[3] Some areas like AI and data centres are the very first stages of development and will further promote hi-tech development. Others will be investment in emerging sectors in which China already has a leading position, such as 5G and EV.

Current investment value in new infrastructure accounts for just a small proportion in total infrastructure investment, and spending in traditional infrastructure will remain the main destination for invesment funds. Using the share of new infrastructure in the Public-Private-Partnership pool as a reference for the proportion of new in total infrastructure[4] based on announced project plans from official sources[5], we estimate new infrastructure investment of CNY 2.6 trillion (USD 370 billion), or 2.4% of GDP in 2020 (see Figure 1).[6] External estimates see a cumulative increase in investment in new infrastructure of USD 1800 billion by 2030.[7]

[1] Most recently, new infra was referenced at various Politburo meetings.
2 China Academy of Information and Communications Technology (CAICT), see http://tradeinservices.mofcom.gov.cn/article/yanjiu/hangyezk/201906/85232.html
[3] "New infrastructure projects embrace huge development potential", *People's Daily*, 11 March 2020, http://en.people.cn/n3/2020/0311/c90000-9667057.html
[4] New infrastructure investment is derived by multiplying proportion of new infra among PPP projects by the total amount of estimated investment in infrastructure.
[5] *What's new about new infrastructure*, China Central Commission for Discipline Inspection, 2020
[6] Data from Wind, assuming China's nominal GDP will grow at 3% in 2020.
[7] Time frame is from 2020 to 2030. *New Infrastructure Opportunities Handbook*, Morgan Stanley, 2020.

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Figure 1: Estimation of broad-defined new infrastructure investment

New Infrastructure areas (broader defined)	Estimated value in 2020 (CNY bn)	As % of 2020 GDP	Insurance lines to be benefited
5G, IoT, AI, Big data, Cloud computing	435	0.41%	Engineering, Motor, Property, Liability, Cyber
Digital transformation of traditional infra	815	0.78%	Engineering, Liability, Credit & Surety
Intercity HSR & rail transit	800	0.76%	Engineering, Liability, Property
EV charging stations	10	0.01%	Motor, Liability, Property
Ultra-high voltage	500	0.48%	Engineering, Liability
Total	**2625**	**2.4%[12]**	

Source: Wind, China State Grid, China Academy of Information and Communications, Swiss Re Institute

In insurance, engineering, liability, credit and surety lines will benefit from the construction phase of new infrastructure projects, such as 5G stations, high-speed railways, and UHV grids. For instance, the total investment in 5G stations during 2020-2030 as announced by telecom operators will reach CNY 2.6 trillion,[8] yielding an estimated CNY 5.8 billion in insurance premiums. Over time, the growing digitisation of infrastructure facilities will generate increasing volumes of real-time data and also demand for innovative risk protection solutions in cyber, liability and specialty lines.

Green development and smart cities are among key aspects of upgrading urbanisation in China. This will boost demand for green insurance, in particular environmental and general liability insurance. There will also demand for innovative solutions in both personal and commercial lines, to cover new risks emanating from the increasing digitisation of life.

Motor, the largest sector in P&C with 63% of total premiums in 2019, faces transformative challenges and new opportunities, courtesy of the EV. China is the largest EV market in the world, accounting for 48% of global sales last year.[9] The authorities target an increase in the share of EV sales domestically from 5% of total in 2019 to 25% by 2025.[10] The construction of EV charging stations will boost market development: in 2019 there were 1.2 million EV charging stations, well short of estimated demand of 3.7 million.[11] In terms of opportunities, there will be an increasing demand for EV-specific insurance, and also covers for charging stations. On the other hand, the 5G network and driving sensors will enable real-time data collection from EV themselves and the road network infrastructure. This will lead to improvements in road safety and accident rates, weighing on motor insurance premium growth. Over the longer term, we expect to see a decline in the share of motor as a proportion of total non-life premiums.

[8] *New Infrastructure Opportunities Handbook*, Morgan Stanley, 2020
[9] "China accounts for half of global EV sales in 2019", *Yiou*, February 2020, *https://www.iyiou.com/p/122960.html*
[10] *New energy vehicle industry development plan*, Ministry of Industry and Information Technology of the PRC, 2019
[11] *2019 Annual Report of Charging Infrastructure Development in China*, State Grid Info & Telecom Group, 2020

Swiss Re Institute

Issue 8/2020

Economic Insights

The Great Economic Shutdown: a quarter of the cake gone

Key takeaways

- Shutdown measures in major advanced economies lower overall economic activity by around one quarter, the biggest hit coming in the services sector.
- Every week of shutdown costs about 0.5% of annual GDP.
- Emerging markets are more vulnerable, with a 22-29% loss in output.
- Despite a large services sector, the US is less vulnerable due to a large share of the public sector.
- Sectors to suffer the most are hospitality, wholesale and retail trade, air travel, and other consumer facing services.
- The extent of overall output losses will depend on length and severity of shutdowns, sectoral compositions of economies, and policy measures.

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In a nutshell

We estimate the shutdown measures in place today on account of the Covid-19 outbreak are leading to a 20-25% reduction in economic activity in most advanced markets. The different sector compositions of countries will be a main factor in determining the size of the impact. Emerging markets are likely impacted more given their larger (in relative terms) consumer-facing sectors. Meanwhile, large public services and manufacturing sectors will contribute to stronger resilience in some other economies.

This current crisis is different from a typical economic downturn as the services sector, which is usually more stable, has been hit harder than manufacturing. This is because the containment measures to combat the Covid-19 pandemic have disproportionately restricted services, with largest output losses seen in hospitality, wholesale and retail trade, air travel, and other consumer facing areas. A few sectors such as online sales and telecommunications will benefit from the lockdown measures and contribute to the resilience of economies. And the public services sector is likely to benefit most from higher government spending on health and administration.

The length and severity of shutdown measures vary across countries and are important determinants of the output loss. The stringency index developed by Oxford University (see Figure 1) tracks the evolution of the measures' severity. The index tracks 7 indicators of public response including, eg, school and workplace closures. Italy and Spain are among the countries with the most stringent measures in place, whereas in Sweden the measures have been least drastic. Based on Italy's sectoral composition and the severity of the measures imposed, we estimate a hit to output of about one third due to a ban of all "non-essential" economic activities until very recently. Meanwhile as of today, the hit to Sweden's economy is likely to be less than half that of Italy. However, the more stringent measures in Italy (and elsewhere) may also result in shorter lockdowns, which may lessen longer-running economic damage.

Output losses will also depend on the sectoral composition of different economies. Looking at the world's 20 largest economies, we observe that emerging markets are particularly vulnerable in the current crisis. They tend to have relatively larger retail and wholesale sectors than advanced economies, and much smaller public service sectors. Among advanced economies, Spain stands out as an exception given its large hospitality sector (6.9% of gross value added), compared to 1-3% in others. Meanwhile, Germany has a large manufacturing footprint – a sector that is less affected by the shutdown in most countries with the exception of Italy, where all non-essential manufacturing has been shut.

To isolate the effect of different sectoral compositions from the stringency of the measures, we look at a stylized scenario, assuming that the measures taken are the same across G20 countries.[1] For example, we assume that hospitality and air transport operate at only 10% of normal capacity, retail and wholesale activity declines by 60%, construction runs at just above half its capacity, and manufacturing takes a 20% hit. On the positive side, activity in telecommunications and public services increases by 20%. The results show that in the stylized shutdown, on average economic activity in emerging markets declines by 22-29%, with Turkey hardest hit (-29%). For the advanced economies, the decline ranges from19% to 25%, with the US suffering least among the 20 largest economies (-19%). A 25% GDP shortfall is equivalent to a weekly output loss of around 0.5% of annual GDP.

While our estimation illustrates sectoral vulnerabilities to shutdown measures, the eventual economic impact will also depend on other factors including fiscal and monetary policy reactions. For instance, compared to emerging markets, most advanced economies have relatively generous unemployment schemes, which will protect a part of employees' incomes and therefore consumption. Also, many central banks reacted quickly by cutting policy rates and actioning liquidity and lending schemes, which will enable suffering companies to continue operating. Other central banks had less capacity to do so. We will look at the role of public policy response in an upcoming Economic Insights publication.

Figure 1 Stringency Index (0-100), consisting of 13 indicators of government response

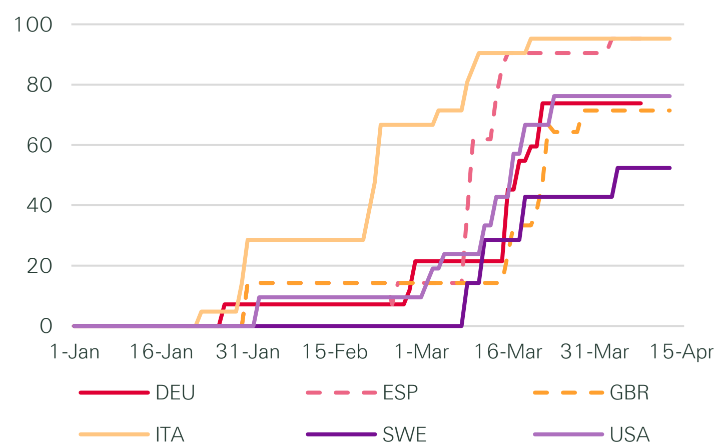
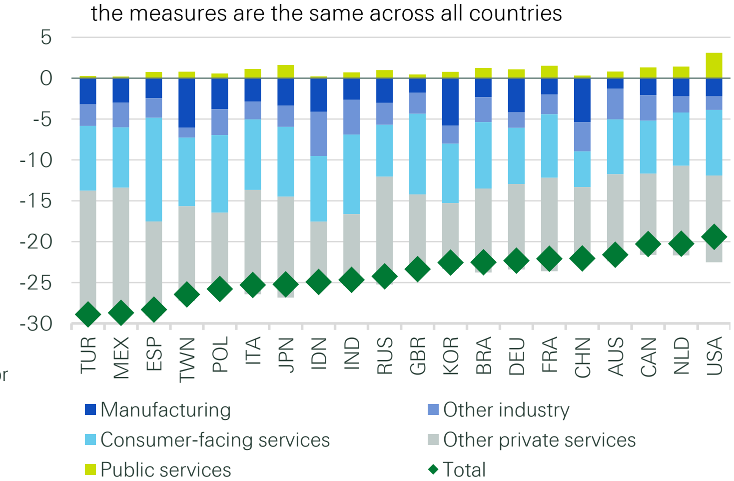


Figure 2 Direct impact on real GDP (%) of Covid-19 related shutdowns in 20 major economies, assuming the measures are the same across all countries



Sources: Oxford COVID-19 Government Response Tracker; Capital Economics, Swiss Re Institute

1 We consider these assumptions as broadly reasonable on average. However, the resulting impacts for individual countries will be imprecise as the variability in the measure stringency is ignored.

Swiss Re Institute

Issue 9/2020

Economic Insights
Covid-19 crisis to widen the economic resilience gap

Key takeaways

- The Covid-19 crisis is likely to widen the economic resilience gap.
- The most vulnerable economies from a sectoral perspective, including Spain, Mexico and Turkey, receive least fiscal stimulus.
- Increasing polarisation risks exacerbating the divisions across the European Union.
- Countries entering the crisis with weak economic resilience to start with look more vulnerable to the Covid-19 shock.
- China is the exception. Starting from a low/middle position, it looks well positioned to come out stronger from this crisis.

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In a nutshell

We expect the Covid-19 crisis to widen the economic resilience gap. The countries highly exposed to the hardest hit sectors are among those receiving least fiscal stimulus. Some European economies were among the least resilient already before the crisis, and look very vulnerable to the pandemic shock, risking further divisions across the EU. China – ranking in the middle to lower economic resilience levels before the onset of the pandemic shock – looks best positioned to emerge stronger from the crisis.

Among the large economies, China is the least vulnerable to the Covid-19 pandemic, in our view, followed by those countries which are structurally most resilient and which are also actioning fiscal and monetary policy stimulus. The countries most exposed to the sectors hit hardest by Covid-19, such as hospitality and retail trade (see EI 8/2020: *The Great Economic Shutdown: a quarter of the cake gone*), will need large and well-designed policy stimulus to cushion the negative GDP impact. However, Figure 1 reveals that some of the economies hit hardest, including Spain, Mexico and Turkey, will enjoy little fiscal stimulus. By contrast, some of the sectorially most resilient economies, including the US, Canada, Australia and Germany, will enjoy larger offsetting fiscal measures. Many European countries have announced large fiscal packages in the form of loans and guarantees (not included in Figure 1). Such measures may help economies weather the pandemic storm but they will also add to private debt burdens, which in turn will weigh on future economic resilience. In some vulnerable economies from a sectorial perspective (eg Turkey and Mexico), central banks have cut interest rates. During this crisis, however, we believe that fiscal, not monetary policy, will do the heavy lifting.

Some of the countries looking strongest from a sectoral perspective also exhibit some labour market characteristics that should make them more resilient to the Covid-19 shock. While strong labour protection may hamper economic dynamism during normal times, it is likely to help companies get up and running again more quickly once the lockdown measures are lifted. In addition, it provides income stability for households. For example, France and Germany are likely to benefit from strong labour protection. In addition, a large share of their jobs (45% in France and 37% in Germany) can be done remotely. While Italy and Spain have also strong labour protection, only about 15% of their jobs are suitable for teleworking. The US look vulnerable in this respect. While a decent proportion (33%) of jobs can be done remotely, labour protection is lowest among the largest 20 economies.

Aggregating the above and a few additional dimensions of economic structure and policy, China looks best positioned to weather the Covid-19 shock. Figure 2 provides a ranking of the 19 largest economies. China fares well on most dimensions, including strong labour protection, a relatively low share of services, as well as prompt monetary policy reaction, but so far just

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limited fiscal stimulus. Most countries positioned at the top when it comes to structural resilience also rank highly when it comes to policy stimulus. Meanwhile, some of the structurally weak economies, including Spain and Italy, look vulnerable when it comes to policy stimulus as well.

This polarisation bodes ill for the "economic resilience gaps" identified in *sigma* 5/2019. Figure 2 compares those economic resilience indices (which are based on a different and much broader set of indicators) to the Covid-19 vulnerability factors as discussed above. Economies at the bottom of the resilience rankings before the crisis look (fourth column in Figure 2) more vulnerable to the Covid-19 shock than those at the top. This risks exacerbating the divisions across the EU in particular. The pandemic shock is also likely to widen the resilience gap across countries. China is a notable exeption. Placed in the middle-to-lower ranks of economic resilience before the crisis, it may well emerge stronger from the Covid-19 shock.

Figure 1 Sectoral vulnerability (% of GDP, applying the same sectoral shock across all countries) vs fiscal stimulus (% of GDP) in major economies

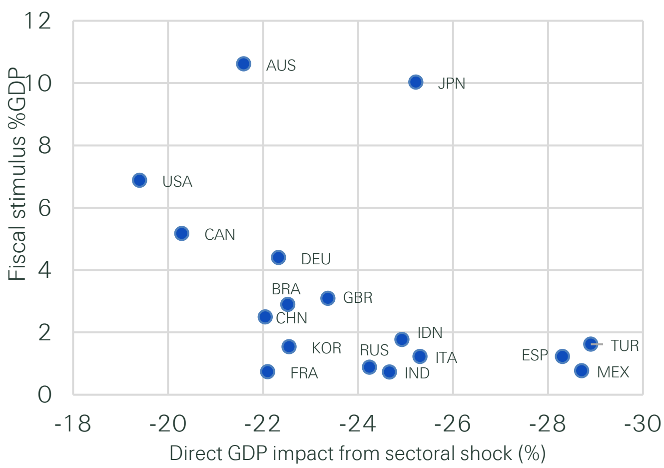


Figure 2 Vulnerabilty ranking to the Covid-19 shock of major economies, based on structural and policy indicators, compared with broader "Economic Resilience Index"

	Vulnerability to Covid-19 shock			Broad Economic Resilience Index
	Overall	Structural	Policy	(pre-Covid)
China	1	1	4	20
Australia	2	4	3	12
Germany	3	2	11	11
Netherlands	4	2	13	7
United States	5	9	1	3
United Kingdom	6	9	4	6
Indonesia	7	4	12	
South Korea	8	11	7	14
Russia	9	6	16	27
Mexico	10	8	9	24
Brazil	11	12	8	29
France	11	7	19	17
Canada	13	13	13	2
Turkey	14	16	2	26
Japan	15	13	15	9
Poland	16	18	4	
Italy	17	15	17	30
India	18	19	9	25
Spain	19	17	18	22

Note: Higher/lower numbers refer to higher/lower vulnerability. The structural index is based on the direct GDP impact resulting from a stylized sectoral shock as published in Swiss Re Economic Insights: *The Great Economic Shutdown: a quarter of the cake gone*, the share of consumer-facing services, the share of jobs that can be done remotely, the OECD labour protection index and the peak of the "stringency index" by Oxford University. The policy index is based on central bank interest rate drops since end February 2020, fiscal stimulus packages (including expenditures and revenues as well as guarantees and loans) and 2019 debt/GDP ratios. The "Economic Resisience Index" is based on a different and broader range of indicators.

Sources: Capital Economics; Oxford University; OECD; Refinitiv; Bloomberg; IMF; J. I Dingel, B. Neiman, [How many jobs can be done at home?](), Brecker Friedman Institute; *sigma* 5/2019 - Indexing resilience: A primer for insurance markets and economies, Swiss Re Institute.

Swiss Re Institute

Issue 10/2020

Economic Insights
Trade war and pandemic to accelerate global supply chain restructuring

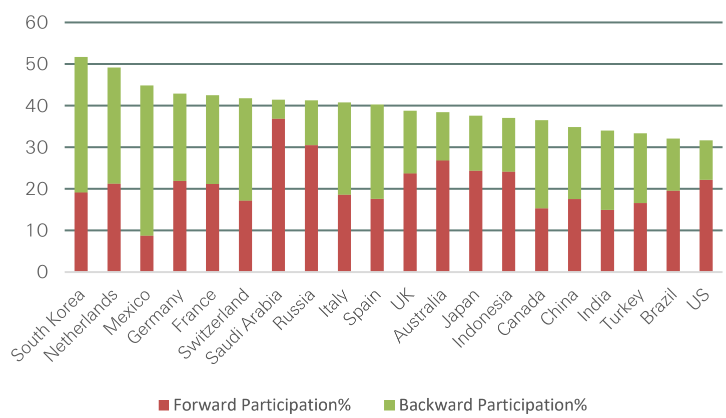
Key takeaways
- The US-trade trade war and Covid-19 pandemic will lead to major restructuring of global supply chains.
- Governments and manufacturers are reassessing future arrangements for production to reduce vulnerabilities.
- Restructuring will take the form of relocation and diversification of production bases, shortening and building of parallel supply chains.
- The changes will give rise to new demand for property, engineering, business interruption and credit & surety insurance, among others.

In a nutshell
The US-China trade war and Covid-19 pandemic are set to trigger major restructuring of global supply chains, including relocation of production to cut concentration risk, shortening of supply chains and/or building of parallel ones. This will likely give rise to new demand for property, engineering and business interruption insurance in those markets that become new host locations.

The Covid-19 crisis is set to accelerate changes to the global supply chain already in motion due to US-China trade war. The restructuring will give rise to new insurance opportunities. For example, we estimate a 5-10% gain in demand for property and engineering covers in markets in emerging Asia that become new host locations for production activities moved out of China. There will also be demand for credit & surety and business interruption insurance.

The supply chain is the network of corporations, information and resources involved in the production and movement of intermediary and final goods and services.[1] Today's products are mostly the output of intricate chains that span multiple markets. Figure 1 shows the participation of the world's top-20 economies in the global supply chain.

Figure 1
Markets' participation in the global supply chain (20 largest economies by GDP, % of total exports 2015)



Note: Forward participation is a country's domestic value-added (DVA) content in intermediate exports that are further re-exported to third countries, as a percentage of total exports. Backward participation is foreign value-added (FVA) content embodied in a country's exports as a percentage of total exports. Source: OECD

The level of integration of markets into the global supply chain varies and is ever in a state of flux depending on relative production costs, product and technological differentiation, closeness to end user and national industrial policies, regulations, trade governance and geopolitical developments. Two recent developments have heightened concerns about the resilience of the

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[1] Value chain is a broader concept including also design, branding, marketing and other after sales services. This report will focus on the development of the global supply chain.

05 May 2020

global supply chain and how the world economy will be affected. First, the US-China trade war is likely to accelerate some ongoing structural changes. In a recent survey of 600 multinational companies across Asia, 82% of respondents and 93% of Chinese companies said they are changing their supply chains because of the trade war.[2] Second, the Covid-19 pandemic has resulted in increasing concerns about supply chain disruptions.

Regardless of the outcome of Covid-19, governments and corporations will review their dependence on the global supply chain. If supply chain disruption is a systematic risk that cannot be mitigated through diversification of production bases/suppliers, firms will need to employ other strategies like shortening the chain significantly to reduce their vulnerability, which in turn could have significant implication on the national and global economies. Supply chain restructuring will be driven by factors including, 1) relative cost (arbitrage) considerations; 2) risk management requirements; 3) longer-term strategic considerations (eg, reducing reliance on overseas supply of critical medical equipment); and 4) the need to shield supply chain from future trade disputes. Some of the possible outcomes could include:

- *Accelerated relocation of manufacturing production out of China to reduce over-reliance on a single production base.* More manufacturers, both Chinese and others, will consider relocating part of their production. Emerging markets in Southeast Asia will likely benefit most as new hosts. Japan recently earmarked USD 2.2 billion to help its manufacturers to shift production out of China.
- *The build-up of redundant and parallel supply chains, particularly for products considered strategically important.* There will also be efforts to shorten supply chains and to re-shore production to reduce exposure.
- *De-risking of the supply chain, as a top risk management issue.* The use of technology to de-risk the supply chain could also gain importance. In the shorter-term, however, change of suppliers and relocation of production could undermine transparency and complicate risk management.

Relocations and building of parallel supply chains will entail construction of new business facilities in different locations. Coupled with increasing awareness of the risk of supply chain disruption, this will generate new demand across credit, surety, engineering, property and business interruption (BI) insurance in particular. For examples. we estimate a 5-10% increase in demand for property and engineering insurance in new host markets in emerging Asia. And demand for BI covers could rise 10-20% over the medium-term as more firm seek to mitigate supply chain risks.

[2] "Trade war forcing 93% of Chinese companies to transform supply chains survey shows", *South China Morning Post*, April 2019.

Swiss Re Institute

Issue 11/2020

Economic Insights

Lessons from past pandemics: strict and swift responses are key

Key takeaways

- We have revised our global growth outlook for 2020 to -3.8% and estimate a cumulative loss to global GDP of about USD 12 trillion over 2020-21. Western economies will be most affected.
- The cost of COVID-19 will be roughly -6.4% of global GDP in 2020.
- Past pandemics provide useful historical precedent, but the global economic environment is too different now to draw meaningful analogous conclusions.
- The prominent role of the services sector in the economy will make it difficult to recoup lost activity.
- Governments need to step in to power future growth.
- Inflation risks may resurface upon the revival of consumer demand propped up by fiscal stimulus, if supply chain disruptions persist.
- We expect a staggered and protracted recovery after strict containment measures are lifted.

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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In a nutshell

One thing is for sure: the global economy will shrink in 2020 due to COVID-19. While past pandemics provide a useful historical precedent, the current economic environment is too different to draw strong analogous conclusions. The ensuing recovery from this year's events will be protracted, and government support to ensure higher growth paths are achieved is vital.

We have revised down our forecast for 2020 global growth in light of recent developments, to -3.8% from -1.2% previously. We estimate the cost from COVID-19 will be roughly -6.4% of global GDP in 2020, with the west most affected. This estimate is towards the more severe end of the impact computed by McKibbin and Fernando using hypothetical model simulations (see Figure 1).[1] The subsequent rebound in 2021 will be only partial, leaving a cumulative loss to global GDP by of 12 trillion be the end of 2021.

The world has not faced a pandemic of the scale of COVID-19 since the 1918 Spanish flu, in which one third of the population was infected. While the environment today is too different to draw strong analogous conclusions on the potential economic outcome from COVID-19, historical precedents can offer some guidance on the handling of the situation. In particular, containment measures and fiscal spending (addressing the short-term impacts but also longer-term growth) are vital ingredients to manage the sharp downturn and subsequent recovery.

The economic impacts of pandemics are direct (eg, increased healthcare spending) and indirect (eg, reduced labour supply due to death and absenteeism from work, supply chain disruptions). When COVID-19 first emerged in China, western countries were initially concerned by the impact of disruption to global supply chains. As the virus quickly spread across the world, these economies came face-to-face with rising healthcare costs, as well as costs from the stringent containment measures. Research estimates that a lockdown affecting 50% of the population reduces consumption by 19% over a three-month period. More severe containment measures covering 90% of the population, would translate into a consumption cut of 32%.[2] While non-pharmaceutical interventions (NPIs) constrain economic activities reliant on social interactions, a study investigating the impact of the range of such responses to the 1918 flu across states in the US found that quick and aggressive NPIs do not worsen the economic downturn.[3] Instead, cities that responded swiftly and aggressively experienced a relative increase in manufacturing employment and output, and a rise in bank assets at the end of the outbreak. Our 2020 quarterly growth profile expectations point to this

[1] McKibbin and Fernando, *The Global Macroeconomic Impacts of COVID-19: Seven Scenarios*, 2020
[2] Oxford economics, 25 March 2020
[3] Sergio Correia, Stephan Luck, and Emil Verner, *Fight the Pandemic, Save the Economy: Lessons from the 1918 Flu*, Federal Reserve Bank of New York Liberty Street Economics, 27 March 2020.

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effect. We believe China will return to an expansionary trend following one quarter of negative growth in the first quarter, while the US and the euro area will see two subsequent quarters of negative growth. For the full year, we expect the US and euro area economic activity to contract by 6.4% and 7.5%, respectively. In contrast, we forecast full-year growth in China of 3.2%, albeit at a lower rate relative to its historical growth path.

The COVID-19 outbreak is often compared to the 1918 flu pandemic, but there are important differences. The 1918 flu inflicted a high death rate in young and healthy adults. After World War I world, families were robbed from their breadwinners which resulted in labour scarcity, putting upward pressure on real wages. With COVID-19, the most vulnerable are the elderly and those with underlying health issues. The pandemic may lead to high unemployment levels across a number of economies. Inflation risks in the era of COVID-19 may resurface upon the revival of consumer demand propped up by fiscal stimulus, if supply chain disruptions persist, not because of labour shortages.

With the 1918 flu outbreak, government spending on war efforts more than made up for the drop in consumption and private investments. This prevented a massive contraction akin to what is happening in 2020. Today, the supply side of the economy is also impacted by strict lockdown, and government demand will not provide similar support. The recovery from COVID-19 may also prove more challenging than in the aftermath of the Spanish flu. In the early 1900s, the manufacturing sector was a large driver of the economy. The downturn is thought to have been relatively short lived as many had saved during war time, and higher wages also boosted consumption. In 2020, the services sector plays a much more important role, and foregone spending on services will not be recouped. As such, in addition to cushioning the impact of COVID-19, we believe governments need to look beyond the outbreak for new drivers of sustainable growth, such as renewed spending on infrastructure. We expect that with the protracted recovery, the economic landscape will evolve with the COVID-19 experience acting as a catalyst for society towards a "new normal", the theme of an upcoming Economic Insights.

Figure 1
Estimated impacts of past influenza pandemics and COVID-19

Event	Global GDP impact	Attack rate	Case fatality rate	Deaths (thousands)
Spanish flu (1918)	-4.8%	10-40%	>2.5%	50'000-100'000
Asia flu (1957)	-2.0%	15-40%	0.04-0.3%	2'000
Hong Kong flu (1968)	-0.7%	10-30%	0.01-0.1%	1'000
H1N1 (2009)	-0.1%	10-25%	0.02-0.06%	203
COVID-19 (2019)	-1.8% to -7.4%	10-30%	2.0-3.0%	287*

Global GDP impact is for the first year. Note that as of April 2020, market consensus placed the cost of COVID-19 on global GDP at -4.6% for 2020. *Reported deaths due to COVID-19 are as of May 11th, 2020.
Source: World Bank, McKibbin and Fernando, UBS.

Swiss Re Institute

Issue 12/2020

Economic Insights
COVID-19 growth roadmap: are we ready to re-open?

Key takeaways

- The curve of new COVID-19 infections has peaked in most advanced economies, although the US and UK lag.
- The peak of activity restrictions occurred in early April in most advanced economies.
- The magnitude of restrictions was directly correlated to the drop in first-quarter GDP growth.
- We see China, Australia and Germany as most resilient to the negative shock from the shutdowns.
- Several large emerging economies are still on the upward trajectory of the pandemic curve.
- Political pressure can lead to premature re-opening; this heightens the risk of flare-ups or second waves and could also disrupt economic recovery.

About Economic Insights
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In a nutshell

The pace of new daily COVID-19 cases has peaked in most advanced economies. Mobility data indicate restrictions measures were at their most stringent in early April, and many markets are now easing lockdown. The stringency of lockdown correlates strongly with the degree of decline in economic activity in the first quarter. We see the economies of China, Australia and Germany as most resilient to the lockdown shock. Arguably, the current momentum for re-opening is more politically-driven than by advances on the pandemic curve. This could risk a second-wave of infections, which in turn could jeopardize economic recovery.

The COVID-19 pandemic is choking off the global economy. Government policies to flatten the curve of infections resulted in mandatory lockdowns for some 3.9 billion people in 92 countries by the beginning of April.[1] New infections have peaked in most advanced economies: some have begun to ease lockdown restrictions, and the same is being debated in others. The lifting lockdown measures should depend on whether the outbreak has been brought under enough control that available healthcare resources would be able to manage a potential second wave of infections. However, political pressures have created a momentum to ease that is not always linked to the progression of the pandemic along the curve. This is the case, for example, in the US where some states are re-opening as infection numbers are rising.

Monitoring the number of new infections is an indicator of a nation's epidemic trajectory, but identifying the peak of the pandemic using new case counts is difficult. The figures are affected by the extent of testing, which has increased in many countries over time. With more testing, there is an upward bias to the number of new cases. There is also the issue of data quality: reporting standards vary across nations and have been adjusted over time. Finally, there is the risk of second wave flare-ups, like recently in Australia, Korea and Iran.

Figure 1 graphs the number of days since new infection peaks in different countries, and the magnitude of how much new cases have declined since. China leads in terms of handling the pandemic and economic re-opening. Most European countries are well advanced (ie, well beyond the first peak) on the pandemic curve, and many are easing restrictions. So too are the US and UK which, while they may have reached the peak, are still registering a high number of new cases relative to peers (the orange curve represents the average experience). This suggests that the pace of re-opening *should* be slower than elsewhere. Meanwhile, new cases are rising in countries like Brazil, India, Indonesia, Mexico, Russia and South Africa, giving them less leeway for re-opening. Nevertheless, many are debating easing restrictions.

[1] *The Economist*, based on data compiled by the Blavatnik School of Government at Oxford University.

The link between the pandemic (curve) and the economic downturn lies in the interplay between the severity of activity restrictions and the vulnerabilities of the economies to shutdowns. We see China, Australia and Germany as most resilient to the negative shock from the shutdowns.[2] We monitor limitations to relevant activities with a mobility index derived from Google and Apple daily mobility data (see Figure 2). In most countries, restrictions peaked early April. The magnitude of restrictions correlates well with the drop in first quarter GDP growth. Economic activity is currently less restricted in the US, Germany and Australia – in the 30-35% range - than in most European countries (60-70%), even though the US lags on the curve. Constraints in Japan started later and were less but have now caught up with the lower range of advanced markets.

Resurging mobility will be an indicator to monitor for the predicted rebound of economic activity. After the early start in Asia, most advanced economies plunged into the COVID-19 recession simultaneously, dragging along emerging economies. Different positions and trajectories of countries on their pandemic curve suggest a more divergent growth path during the recovery phase. Risks of flare-ups or second waves add uncertainty to business planning and all baseline economic forecasts.

Figure 1 Relative position of countries on their pandemic curve. Days since and magnitude of new cases vs peak

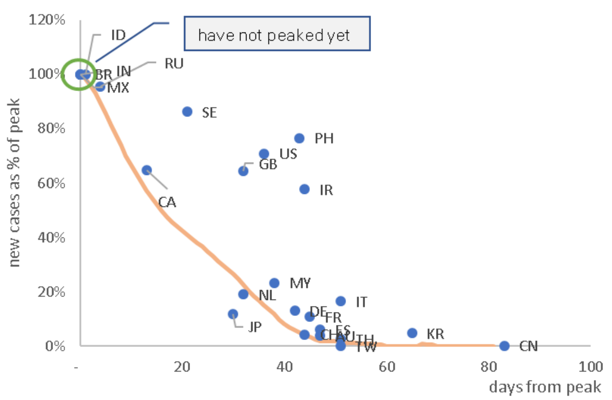
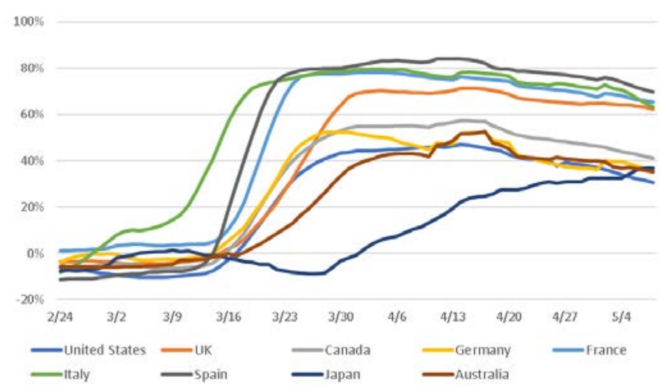


Figure 2 Change in mobility restrictions over time; composite index of Google and Apple mobility data



Source: Figure 1: European CDC via Our World in Data and Swiss Re Institute. Data as per 17 May, based on seven-day moving averages of new confirmed cases. Figure 2: Google and Apple mobility data and Swiss Re Institute. The mobility index is based on equal weights of the Google mobility index for retail and recreation, the Google mobility index for workplaces and the Apple mobility index for driving.

[2] See Economic Insights 9/2020 *COVID-19 crisis to widen the economic resilience gap*, Swiss Re Institute.

Swiss Re Institute

Issue 13/2020

Economic Insights

COVID-19: hitting the sweet spot on the pandemic macro clock

Key takeaways

- In the "new normal", the global economy will not return to full capacity, resulting in a protracted recovery.
- In the G20, we estimate that sweet spot economic capacity utilisation will be at 90-95%.
- A change in consumer behaviour and remaining operational constraints will hurt hospitality, wholesale and retail trade, air travel, and entertainment most post lockdown.
- The *SRI Pandemic Macro Clock* shows that R0 has declined below 1 in G7 economies.
- This is encouraging for the economic outlook, and the G7 can now work with careful easing towards reaching the "sweet spot".

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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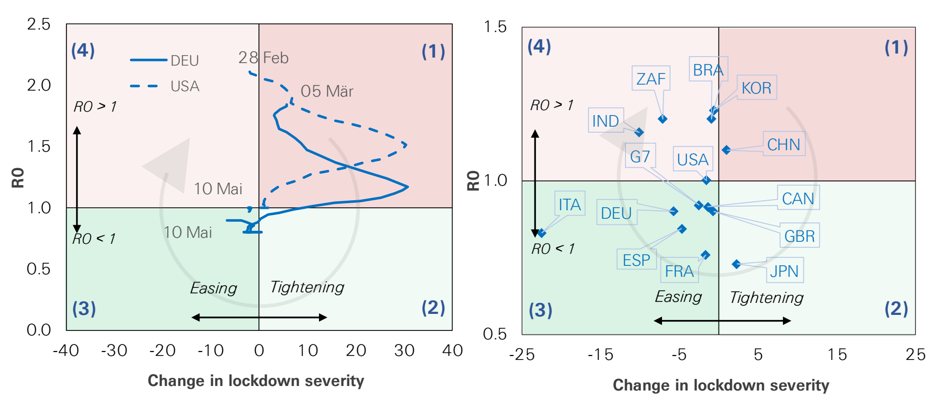
In a nutshell

Governments are working to strike a fine balance between easing lockdown measures and avoiding a second wave of COVID-19. The target is a "sweet spot" where infection rates are contained and the economy runs again, but at "new normal" capacity. We estimate this to be below 95% in most G20 countries, which means the recovery will remain protracted. The *SRI Pandemic Macro Clock* shows that most advanced markets have brought R0 below 1 and are now reopening their economies.

Following Asia's lead, lockdown measures are being eased across Europe and the rest of the world. In the post-lockdown "new normal", some restrictions will likely remain in place to avoid a second wave of COVID-19 infections until that time a vaccine is found. Defining the right exit strategy is key: stricter lockdown measures are associated with higher output losses, but a rapid easing could prolong the outbreak, likely resulting in the reinstatement of measures and thus increasing both economic and human costs.

Most countries move through four phases in the pandemic as determined by R0, the reproduction rate of the virus, and the government response. Figure 1 (left panel) shows the *SRI Pandemic Macro Clock*: (1) at the start of the outbreak, infections rise exponentially (R0>1) and lockdowns are imposed; (2) R0 declines below 1 as new infections are contained; (3) governments start easing lockdown measures; and (4) risk of infections picks up again as lockdowns are eased. The "sweet spot" on the clock is the axis between Phases 2 and 3. To maintain this fine balance, governments need to set the right lockdown exit speed – a careful and gradual easing, – to avoid Phase 4 and a move back to Phase 1, in which infections rise exponentially again.

Figure 1 SRI Pandemic Macro Clock over time (left), and today (right)



Note: 7-day moving-average; change in lockdown severity (w-o-w) is an index calculated using a combination of Google mobility data and the Oxford university stringency index. Values are available with a lag.
Source: Swiss Re Institute, Google, Oxford University

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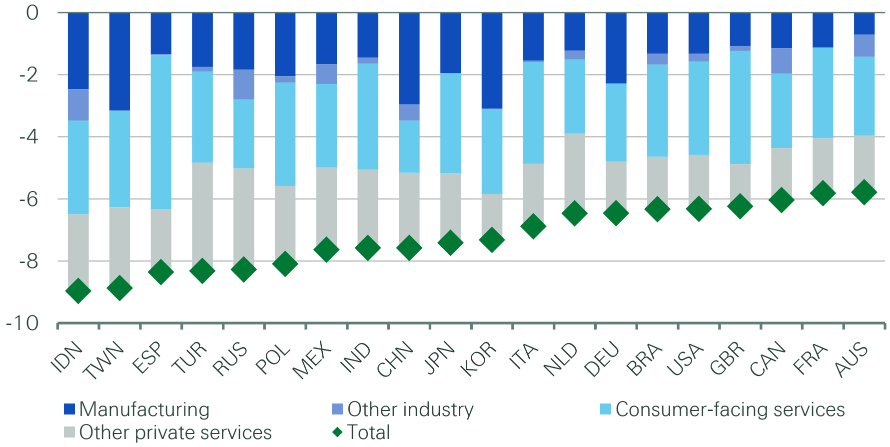
The right panel of Figure 1 shows where countries stand today on the pandemic macro clock. R0 is now below 1 for the GDP-weighted G7 index, and most of the countries have started easing lockdowns, an encouraging sign for economic activity.

Even if countries remain at the "sweet spot", many people will still avoid crowded places (eg, bars, restaurants, shopping centres) given the continued risk of infection. Additionally, limitations to the number of customers allowed per square metre, social distancing at the workplace, international travel restrictions and others will result in reduced business capacity well into 2021. The consumer-facing services sector will likely be disproportionally affected. The sectors to suffer the largest capacity restraints will be those we identified as most affected during the lockdown itself (see EI 8/2020: *The Great Economic Shutdown: a quarter of the cake gone*): hospitality, wholesale and retail trade, air travel, entertainment, and other consumer facing services.

To gauge the level of economic capacity utilisation in the new normal, we look at the sectoral composition of countries to determine by how much overall economic capacity will be limited. We assume that the international travel and hospitality sectors will be able to return to 60% capacity; that retail, wholesale and transport will operate at 80%; and that manufacturing activity will run at 90% capacity[1]. With other sectors less affected, under this scenario we estimate that most countries in the G20 will be able to return to 90-95% of pre COVID-19 economic capacity utilisation after lockdowns are lifted (see Figure 2). Thus, recovery will remain protracted even as activity snaps back.

Figure 2 Estimated shortfall in capacity utilisation in the new normal (% of GDP)



Source: Swiss Re Institute. Capital Economics

1 Based on the experience in China and lock-down easing plans published by major economies.

Swiss Re Institute

Issue 14/2020

Economic Insights
Longer-term implications of COVID-19: paradigm shifts

Key takeaways

- We expect COVID-19 to accelerate paradigm shifts that were already in the making.
- Such changes include a larger role of government, accelerated digital transformation and a restructuring of supply chains.
- Taken together, this could lead to a stagflationary and/or financial repression environment over the next two to three years, both very challenging for re/insurers.
- Evolving supply chains and accelerated digitalisation will create new re/insurance opportunities.

About Economic Insights
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In a nutshell

The COVID-19 experience will likely accelerate paradigm shifts already in the making before the crisis started: a larger role of government, accelerated digital transformation and de-risking of global supply chains. Higher inflation risk coupled with financial repression present challenges to re/insurers. At the same time, there will be great opportunities from evolving supply chains.

Every major crisis marks an inflection point. We believe the global economic shock from the current COVID-19 pandemic could trigger several paradigm shifts. For re/insurers, the following shifts are particularly important:

- **Fiscal/monetary coordination and outright debt monetization.** The 2008 playbook of central banks has been rolled out again, and in some cases policymakers have even been going beyond previous limits.[1] Looking ahead, policy measures previously considered unorthodox (eg, more extreme forms of fiscal/monetary coordination like monetization of government debt through "helicopter money"[2]), may well become the norm. Moves to this end are already underway with central banks buying public debt in large and even unlimited quantities. Central banks could also cap yields resulting in a prolonged period of financial repression, a challenging environment for long-term investors such as re/insurers.

- **Bigger role for government.** In response to the COVID-19 crisis, governments have emerged as spenders and lenders of last resort, taking a much more active role in the economy. They are unlikely to retreat hastily when the pandemic is over. There have already been public injections of capital into and nationalisations of private firms, and we expect more as loans turn into equity stakes and guarantees into bailouts. In addition, the crisis has accentuated the rise in economic inequality and we are likely to see more policy taboos being broken. For example, the idea of universal basic income is gaining traction[3], and higher taxation is becoming increasingly likely.

- **Peak of globalisation and emergence of parallel supply chains.** Besides the US-China trade war, the disruptions across the global supply chains due to the containment measures against COVID-19 will likely translate into companies restructuring their supply chains to make them more robust. Changes are likely to include relocation of production to cut concentration risk, shortening of supply chains

[1] For example, the ECB has dropped previous limit to buy no more than a third any country's eligible bonds for its EUR 750bn Pandemic Emergency Purchase Programme.
[2] For more information on "Helicopter money", please see *Sustaining resilience amid slowing growth: global economic and insurance outlook 2020/21*, Swiss Re Institute, *sigma* 6/2019
[3] Spain, for example, has recently introduced a basic income for the poor.

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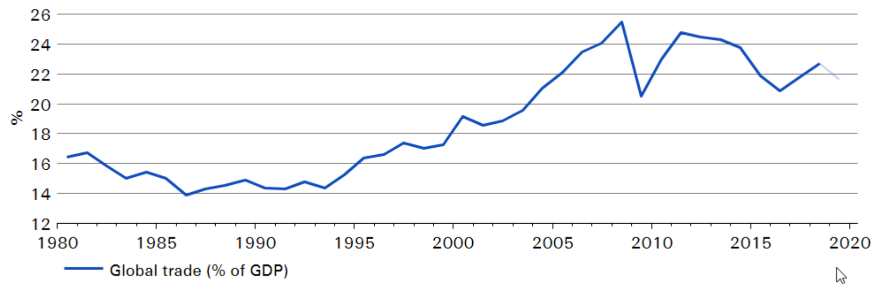
and/or building of parallel ones. Such changes will involve contstruction of new production units and associated infrastructure facilites, presenting new opportunities for property, engineering and business interruption insurance.[4]

- **Accelerated digital transformation.** We expect the digitalisation trend to intensify as a result of COVID-19 lockdown measures. For example, many desk-job employees have been working remotely and e-commerce companies and platforms become even more important. We believe the COVID-19 experience will only perpetuate these trends. There will be associated insurance opportunities, including in cyber, personal and commercial lines.
- **Bringing it all together: is the era of low inflation coming to an end?** After more than two decades of low inflation, the COVID-19 shock could trigger a turnaround. The current crisis could result in sharp declines of production capacities and persistent supply chain disruptions. Coupled with massive fiscal stimulus, this may result in stagflation – high inflation amid economic stagnation. A trend towards de-globalisation and monetary financing of government debt could add to inflation risks. We are not concerned about inflation in the near term. However, we attach a likelihood of around 10-15% to emerging stagflation over the next two to three years.

Extrapolating from experiences of the past few decades may not be a winning strategy going forward. For re/insurers, impending paradigm shifts will bring new challenges and opportunities. While a stagflationary environment[5] is not our base case, it would be a toxic scenario, coupling low real investment returns with high claims inflation. At the same time, parallel supply chains and accelerated digitalisation will create new opportunities for the industry.

Figure 1: Peak of globalisation?
Global trade, % of GDP



Source: IMF, Refinitiv, Swiss Re Institute

[4] *Trade war and pandemic to accelerate global supply chain restructuring*, Swiss Re Institute, Economic Insights, Issue 10/2020
[5] This is an environment of low economic growth, coupled with relatively high inflation.

Swiss Re Institute

Issue 15/2020

Economic Insights

China's Two Sessions: no target, but home-market reforms will power growth

Key takeaways

- Economic growth will be driven by market reforms targeted at boosting domestic consumption and investment.
- Fiscal policy will support, but at an estimated 6% of GDP, spending will be lower than in many other major economies.
- The government sees insurance market reforms as key to support its socio-economic targets.
- We see new coverage opportunities in agriculture, life, health, pension, workers' compensation and engineering and liability lines of insurance business.

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In a nutshell

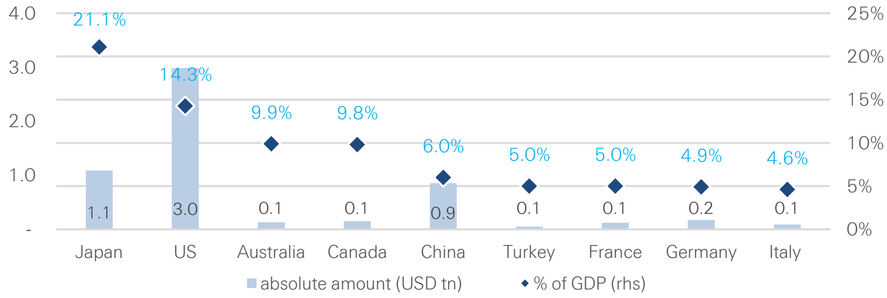
China's 2020 Government Work Report confirmed a more inward-looking policy approach for the economy, with a focus on market reforms, and boosting domestic consumption and investment. Fiscal stimulus will be relatively conservative.

China's government has not set an explicit gross domestic product (GDP) growth target for 2020, the first time it has not done so since introducing said targets in 1994. This is in response to the many uncertainties and downside risks to the growth outlook due to the COVID-19 crisis and also ongoing US-China trade tensions. In the *Government Work Report* released over Two Sessions, the main development objectives are market-oriented reforms, and an inward-looking strategy to boost domestic consumption and investment. Fiscal stimulus will remain a main policy tool, but the level of spending announced is below market expectations and less than in other major economies. Insurance has been earmarked as a key area for reforms in order to support growth, and we see many new opportunities for commercial lines.

This year's socio-economic priorities for China's government are safeguarding employment, maintaining fair income growth and eliminating poverty. The target for number of new jobs in 2020 is set at 9 million, 18% lower than last year. The targets for urban surveyed and registered unemployment rates are around 6% (2019: 5.5%) and 5.5% (2019: 4.5%), respectively. By extrapolating the 3.54 million new jobs created in the first four months of 2020, even amidst the disruption caused by COVID-19, the total number of new jobs in the full year will be around 10 million. In addition, fiscal support measures will help lower companies' financial burden and help sustain employment. Given today's unemployment rates are lower than the targets, we believe the employment goals are achievable as China is already in the recovery phase of the current economic cycle.

The government will use fiscal and monetary policy to achieve its goals. However, the fiscal stimulus package announced is less that what the market had expected and is also smaller than in other major economies. China has lifted the fiscal deficit-to-GDP ratio cap significantly to "above 3.6%" for 2020 from 2.8% in 2019. We estimate that total fiscal stimulus this year, including bond issues and tax cuts, will be around CNY 6.1 trillion, lower than market expectation of between CNY 8-10 trillion. In terms of percent of GDP, at about 6% this is the fifth highest in the world, behind Japan, the US, Australia and Canada (see Figure 1). Notably, in terms of percent of GDP, the fiscal stimulus is also well below the 11.5% China's government spent at the time of the global financial crisis. In our view, the government's strategy is to keep fiscal stimulus at a reasonable scale to avoid incurring additional long-term problems, such as high(er) debt burden, financial risks and overcapacity.

Figure 1
Fiscal stimulus amount in absolute value and as percent of GDP (%), by country



Source: IMF, Swiss Re Institute

Meanwhile, monetary policy will remain in accommodative mode. We expect the People's Bank of China to cut the required reserve ratio (RRR) and lower interest rates, particularly those affecting the SME and rural sectors, in the second half of 2020. The *Government Work Report* says higher growth rates for M2 money supply and total social financing (TSF) will be allowed for this year, and the CPI target is 3.5% (2019: 3.0%). We estimate that M2 and TSF growth will be 2 percentage points higher than in 2019. With the intent to boost economic growth we also expect an acceleration of structural reforms in the second half of 2020. The mains areas will include reform of factors of production (eg, land, labour and capital market), supply-side reforms, reform of state-owned enterprises and digital transformation of the industrial sector.

In addition, the *Report* highlights the growing role of insurance in socio-economic development to build on China's already well-established basic social protection scheme. As part of its fiscal stimulus, the government has lowered the required ratio of revenue contribution of corporates to social security schemes and, with supportive policy incentives, is promoting greater involvement from commercial insurance in this field. Insurers can also expect to face and respond to rising consumer demand given general increased risk awareness and appreciation of the value of insurance, particularly after the COVID-19 experience. We believe the lines to benefit most will include agriculture, life, health, pension and workers' compensation insurance. Meanwhile, the nationwide poverty alleviation strategy will promote integration of urban and rural areas, which will boost demand for agriculture and also various covers in Life Health for rural residents and the more than 400 million currently under-insured migrant workers.

Government spending on infrastructure and major construction projects will bring further opportunities in engineering, liability, cargo and credit insurance during the construction phase, and property, liability insurance during the operational phase. Meanwhile, there will also be rising demand for export credit insurance to safeguard cross-border activities and foreign investments.

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Issue 16/2020

Economic Insights

COVID-19: listening to the heartbeat of recovering industries

Key takeaways

- The sectors hit hardest by the COVID-19 shock in include leisure, hospitality, transport and construction.
- Leisure and hospitality have the longest way to go in recouping pandemic-induced losses, even though sector equities are showing strong gains.
- Looking at financial markets alone does not reveal the full picture. Equity markets tend to move more in tandem with sector momentum than with the distance travelled on the path back to normal.
- The sectors with highest momentum tend to be those that still lag in the recovery journey: hardest hit are the leisure and hospitality sectors.
- These will also be most vulnerable to a second round of infections and renewed lockdown measures.

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In a nutshell

The COVID-19 shock has hit different industry sectors to varying degrees, and recovery to pre-pandemic levels of activity will not be synchronized. The bounce-back in financial markets reflects strong economic momentum of the sectors hit hardest. However, these sectors also lag on the path back to normality, and therefore are most vulnerable to the risk of second waves of virus outbreak.

The global COVID-19 recession is unusual because the "sudden stop" has had a disproportionate effect on some of the services sectors, which tend to be a stabilising force in a typical downturn. Hospitality, leisure, transport and construction were among the hardest hit by the pandemic shock. Only a few sectors, such as agriculture, financial services and real estate, showed relative resilience. Here we assess the outlook across sectors based on forward-looking financial market, survey and other indicators. We find that in general, the sectors that were hardest hit are showing higher recovery speed (*momentum*) across both financial market (ie, share price and credit) and other economic indicators. However, these high-momentum sectors also tend to lag on the path back to pre-crisis normal positions. In this respect, we believe hospitality and leisure sectors in particular are most vulnerable to sustained weakness, and also to a second wave of COVID-19 infections.

Overall, the US equity market[1] has recovered strongly since the lows hit in late March this year, although with wide disparity between sectors. For example, airlines and power industry share prices have barely moved from their trough, while biotech and pharma, and also metals and mining stocks have recovered all of their post-COVID-19 shock-related losses. The online retail sector, meanwhile, has climbed to more than 60% above its pre-crisis valuation peak.

Equity market reaction offers just one pointer of how sectors are faring, by moving more in tandem with sector momentum (see Panel A in Figure 1) than with the distance travelled on the path back to normal. For a more comprehensive analysis of momentum and position on the recovery path, we have also created an index of cross-sector signals from a range of financial market, and also survey and labour market data.[2] Panel B compares these two dimensions across different sectors. The chart shows the sectors that were hardest hit by the crisis are catching up more quickly (ie, show higher momentum). For instance, recovery in the leisure and hospitality sectors is well underway, as a more than doubling in Tourism and Recreation PMIs from April to May suggests. Nevertheless, it also suggests that when considering the broad range of indicators, these initially hardest-hit sectors still lag others in terms of fully recouping their crisis-related losses and also return to survey reported pre-pandemic levels of activity. For example, taking hiring as a yard

[1] Up to the end of May, the S&P500 index had regained around 70% of the trough reached in late March.
[2] We include surveys (PMI, US Census Small Business Pulse Survey, European Commission's sectoral confidence indicators), financial market data (sectoral S&P500 indices, US and EU credit spreads) and economic data (Gross Value Added for European countries and US labor market statistics).

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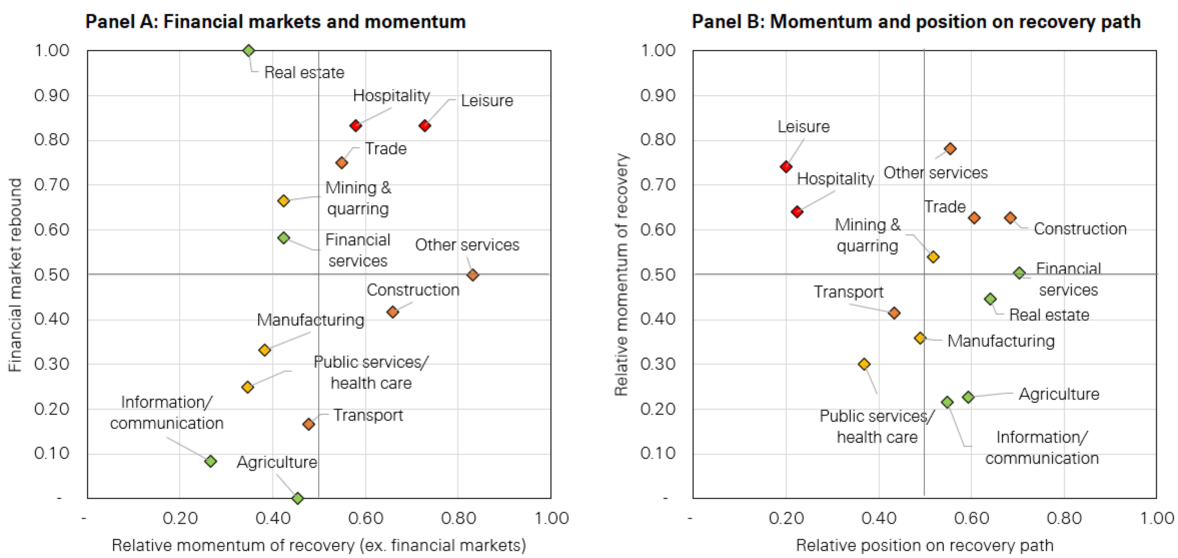
stick, by the end of May leisure firms in the US had only rehired 1% of the staff dismissed between February and April, despite increasing optimism.

Sectors that were more resilient to the COVID-19 shock are recovering well, in particular financial services and real estate, even though they exhibit weaker comeback momentum than the hardest hit ones. Our indices suggest that in mining & quarrying, which was less impacted than other sectors (eg, leisure, hospitality and transport), recovery has also been relatively strong, despite the commodity weakness that accompanied the pandemic shock. However, it is too soon to say the sector is out of the woods. For example, in the US the sector continued to shed jobs in May, one of the few industries to do so. Meanwhile, compared to leisure and hospitality, the also hard hit construction sector has made up sizeable ground and continues to display relatively high recovery momentum across the forward-looking indicators. This suggests that the sector comeback will be sustainable and offer some resilience in the event of a second wave of infections.

By looking at financial market performance alone (see Panel B in Figure 1), it is tempting to say that many sectors have recovered significantly and some even beyond pre-crisis levels of activity. However, our analysis suggests that those sectors with strong economic and financial market momentum tend to lag on the path back to pre-crisis normal. In our view, this makes them vulnerable to sustained overall weakness and also to a second waves of infections. The sectors most at risk are leisure and hospitality. Next would be transport.

Figure 1
Relative impact and recovery indices synthesizing a broad range of economic indicators; colour scale from red (indicating hardest hit sectors) to green (least hit)



Note: Index is based on cross-sector percentile ranking of various indicators. A value of 0 (1) indicates that the sector ranks last (first) across all variables.
Source: Refinitiv, Eurostat, European Commission, US Census Bureau, IHS Markit, Swiss Re Institute

Swiss Re Institute

Issue 17/2020

Economic Insights

Going separate ways? The disconnect between macro and markets

Key takeaways

- US risk assets have rallied since March, even though the contraction in economic activity in the second quarter is likely to be more extreme than in the first.
- A number of factors can explain the seeming disconnect between the performance of risk assets and the real economy:
  - Monetary policy supports financial markets but less so the real economy. Longer term, fiscal and monetary easing will burden firms' balance sheets.
  - Unlike economic indicators, financial markets are forward-looking.
  - The composition of the US stock market and economy differ greatly.

About Economic Insights
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In a nutshell

While we expect the global economy to bottom in the second quarter of 2020 as a result of the pandemic, financial markets appear to have long moved on from COVID-19. The US stock market delivered its best monthly performance since 1987 in April. This leaves us wondering, what are we not seeing?

We expect sharper contraction in activity across the major economies during the second quarter of 2020 relative to the first. This year's first quarter trough in risk assets, however, seems nothing but a distant memory, with US stocks and bonds rallying since the end of March. The disconnect between the economy and financial markets is particularly pronounced in the current COVID-19 crisis, but there has been divergence in asset prices and the real economy since the time of the global financial crisis (GFC) in 2008-09.[1] This can be explained by several factors. Even so, in the here and now we continue to see downside for risk assets: the economic environment is set to remain challenging for a while yet, putting downward pressure on corporate earnings.

Monetary easing is a main catalyst of the divergence. Central bank actions can and do support financial markets, but they are less effective in stimulating the real economy. This holds particularly true in these unprecedented times, when no amount of monetary easing will be able to jolt consumer spending given the strict lockdowns. In rapidly unveiling its playbook from the GFC, the Fed provided much needed liquidity support. However, the announcement that the Fed would become active in the corporate bond market also spurred record levels of debt issuance. Higher debt issuance along with the fiscal measures is leading to a rise in corporate leverage. Years of record low interest rates have not only fueled strong growth in the corporate bond sector since 2007, but also a deterioration in credit quality.[2] We believe the increase in credit to bridge the downturn, combined with a protracted economic recovery leaving earnings under pressure, will expand the debt burden. As such, we anticipate actual defaults will rise even if spreads move sideways or tighten further. Credit will become particularly exposed to downside risks if Fed purchases prove unsuccessful in providing a sustainable backstop. However, the vast purchase programs from major central banks are a clear positive "game changer" for the corporate bond market (see Figure 1).[3]

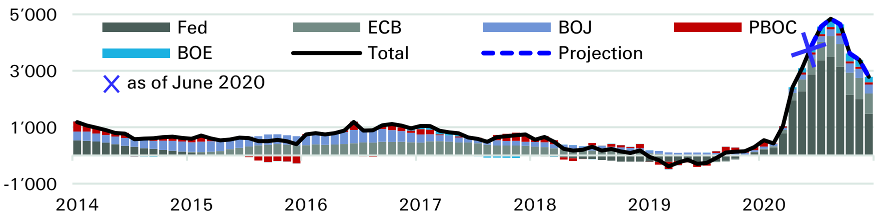
The second reason for the disconnect is that financial markets are typically forward-looking, whereas economic releases tend to look backwards. At the most fundamental level, a company's share price should be a reflection of future earnings. While near-term earnings may correlate with a country's economic growth, the value of a stock looks beyond current developments to

[1] Governments and central banks provided significant fiscal and monetary stimulus in response to the GFC, thus distorting asset prices. The S&P 500 Index increased by more than 300% between 2009 and 2019, while the US nominal GDP is up only 50% over the period.
[2] US corporate bond market is proxied by the ICE BofAML US Corporate Bond Index which more than tripled in size since 2007. The BBB-rated segment increased to roughly half the IG universe from a third in 2007.
[3] Fed requires companies to certify compliance to certain criteria which may deter firms that may not want to share that they are in distress.

discount future earnings expectations. On 23 March 2020, the Atlanta Fed reported that US firms were bracing for a massive contraction in sales as a result of developments surrounding COVID-19.[4] This coincided with the trough in the US stock market, which had fallen by more than 30% since the start of the month.[5] By end-April, the equity market had retraced more than 80% of those losses, despite US companies expecting even larger impacts from COVID-19 on their revenues. This apparent disconnect may point to equity investors looking beyond the immediate collapse in broad fundamentals in anticipation of a relatively rapid rebound in activity. Corporate credit investors seem to share the same view: the implied default probability of the US IG market has more than halved from the wides of March. While central bank support is containing spread risk, actual defaults will still rise as companies struggle to remain solvent. This makes sector allocation key.

Last but not least, a country's financial market is not a reflection of its economic composition. Economic output can be measured by the aggregate expenditure which translates into revenues for companies. As such, one may expect a relationship between equity returns and economic growth. In reality, however, there are important differences between the stock market and the economy. In the US, for instance, smaller firms have little stock market presence despite representing 44% of the economy.[6] In contrast, the five largest US companies make up 20% of stock value, but only 4% of national gross domestic product (GDP).[7] Globalisation has allowed large firms to diversify their revenue streams, and the five largest get nearly 50% of their revenues from exports.[8] However, exports represent less than 12% of GDP. Although international revenue diversification is unlikely to noticeably mitigate domestic headwinds given the global nature of the COVID-19 shock, our expectation for a multi-speed recovery across key economies might deliver overseas support to large US firms at a time when domestic demand is weak.

Figure 1 Selected central bank quantitative easing purchases (6-month rolling average in USD bn)



Source: Datastream, Swiss Re Institute. PBoC has never operated QE, data refers to the change of aggregate assets and liabilities of banks in China (incl. private and commercial and central bank).

[4] *American Firms Foresee A Huge Negative Impact of the Coronavirus*, Federeal Reserve Bank of Atlanta, March 2020.
[5] Stock market is proxied by the S&P 500 Index.
[6] *Small Business GDP 1998-2014*, Office of Advocacy, December 2018.
[7] The five largest companies by market capitalisation in the S&P 500 Index are Apple Inc, Microsoft Corp, Amazon.com Inc, Alphabet Inc and Facebook Inc. The contribution of these companies to US GDP is estimated by their revenues over the nominal GDP, and does not account for revenues not repatriated.
[8] Revenues earned outside the US are sourced from company filings for 2019. The exports as a proportion of revenues across the five largest companies are aggregated according to the respective company's revenues.

Swiss Re Institute

Issue 18/2020

Economic Insights

Rural revitalisation in China: a "Blue Ocean" opportunity for insurers

Key takeaways

- Supportive government policy and digital penetration will power strong gains in rural economic value, helping China offset the impact of a slowing global growth environment.
- The government targets zero poverty in rural areas this year.
- Rural incomes and consumption are growing by 9-10% annually. There will be new demand for insurance, in a market with still limited competition.
- We forecast an 11% annual increase in rural premiums to more than CNY 1 trillion in 2025.
- Rural health insurance premiums will grow by around 20% annually, agriculture by close to 13%, motor by 11% and other P&C by 22%.

In a nutshell

Zero poverty and increased investment in rural infrastructure are key 2020 targets for the Chinese government. The size of the rural population represents large consumption and overall economic growth potential, and a source of increased demand for insurance. We forecast that rural-emanating premiums in China will grow by 11% annually to more than CNY 1 trillion in 2025.

Developing China's rural economy has been part of the government's policy agenda for many years. The government has not set an explicit growth target for 2020, but is pursuing a broader set of socio-economic goals, including achieving a 0% poverty rate under existing standards[1] and also increased investment in rural infrastructure (see Table 1). We believe these objectives will help China offset a slowing global growth environment, one that had already weakened due mainly to trade tensions with the US before the onset of this year's COVID-19 crisis. Relative to the urban setting, the rural consumer and infrastructure sectors present significant growth potential. For insurers, the rural sector is a "Blue Ocean" opportunity of untapped demand and still limited competition. We forecast that total rural premiums written will grow by 11.1% annually from 2020 to reach CNY 1 trillion in 2025, a notable uptick from 3% annual growth in agro premiums in the last five years.

Rural China accounts for around 40% of the country's total population. In 2019, the average disposable income for the rural population was CNY16 000, a 9.6% increase from 2018. For urban residents, it was CNY 42 000, up by 7.9%.[2] Average rural consumption per capita grew by 9.9% from 2018 (urban +7.5%). An increase at current rates will power strong rural consumer and infrastructure[3] demand over next few years.

To date some structural obstacles have held back deeper rural economic reform in China. A major impediment has been that farmland, which is collectively-owned, cannot be free-market sold or rented. Another obstacle has been the widening inequalities between urban and rural populations in terms of access to pension, medical, education and other welfare provisions. To solve these problems, the Two Sessions held earlier this year specifically emphasized the need for market-based allocation of land, and the importance of progressing regional economic integration through coordination of urban and rural development.[4] In recent years, with supportive government policy[5] and rapidly growing digital (including mobile) penetration in rural areas,[6] new business areas and models have started to emerge in agriculture and in rural regions generally. These include, for example, facility agriculture,[7] e-

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[1] Net income per person per year. The current standard, set in 2010, is around CNY 4 000 in 2020 prices.
[2] *Residents' income and consumption in 2019*, National Bureau of Statistics of China, 2020
[3] Including new infrastructure featured in information sector and modern agricultural facilities.
[4] *Economic Insights – China's Two Sessions*, Swiss Re Institute, 9 June 2020.
[5] For example, *The Decision on the Right to Authorize the Use of Land*, State Council, 2020
[6] In 2019, number of rural internet users reached to 250 million, accounting for 26.3% in total internet users.
[7] Using man-made facilities for planting and aquaculture, to increase yields and quality of agriculture products.

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commerce and rural tourism, which has all created more wealth in the rural economy. In 2018, online sales of agricultural products accounted for 19% of all-sector revenue in same year, and the share continues to increase. In the same year, rural tourism generated CNY 800 billion in revenue, accounting for 15.6% of total domestic sector turnover.

With continued government support and late-mover advantage, we believe ongoing development of the rural economy will present many opportunities for insurers, especially in health, agriculture and motor. Insurance companies are already working with the government to provide tailored products for rural residents, agricultural production and property. Based on a continuation of current trends, we forecast that agricultural modernisation and increases in rural incomes will lead to 11.1% CAGR in rural premiums from 2020 to more than CNY 1 trillion in 2025. We estimate that rural L&H premiums will reach CNY 480 billion by 2025, accounting for 8.7% of the national total. Rural P&C premiums are forecast to grow to CNY 529 billion, making up 23.2% of China's total P&C market. [8] By lines of business, the totals will include CNY 200 billion for rural migrant workers [9] (CAGR 4.1%), CNY 100 billion in rural life (10%), CNY 180 billion in rural health (20.3%), CNY 171 billion in agriculture (12.7%), CNY 302 billion in motor (10.8%) and CNY 56 billion in premiums from other P&C lines (CAGR 22.9%).

Figure 1: Focus of Annual No.1 Government Document, issued by China's central government since 2004

2020	Eradicate poverty and increase investment in rural infrastructure	**2011**	Accelerate water conservancy reform and development
2019	Continued poverty alleviation; broaden farmers' income channels	**2010**	Continued investment in rural areas and agriculture; improve agricultural subsidy system
2018	Rural revitalization plan; promote green agriculture	**2009**	Significantly increase investment in rural infrastructure, and agricultural subsidies
2017	Rural reform; mordernise agriculture	**2008**	Improve farmers' income
2016	Rural reform; promote growth of farmers' income	**2007**	Continued investment in agriculture, farmer, and rural areas; construct modern agricultural system
2015	Modern agriculture construction; promote farmers' income growth	**2006**	Continue to increase investment in agriculture and rural area; improve rural residents' income levels
2014	Strengthen agricultural support and protection systems	**2005**	Stabilise and strengthen policy support for agricultural development; accelerate innovation in agriculture
2013	Strengthen policy support to farmers; innovation in agricultural production & management	**2004**	Support grain sector and increase farmer incomes
2012	Agriculture modernisation through education and technology training		

Source: Compiled by Swiss Re Institute

[8] *Rural Revitalization: extending the reach of insurance across China's rural areas,* Swiss Re Institute, 2020.
[9] Rural migrant workers are workers with a rural household registration who are working and living in an urban area. According to national statistical bureau, there were an estimated 291 million rural migrant workers in China in 2019.

Swiss Re Institute

Issue 19/2020

Economic Insights

COVID-19: accelerating digital health insurance take-up in China

Key takeaways

- We forecast 43% annual growth in online health insurance premiums in China to 2025.
- COVID-19 will encourage consumers to seek contactless routes to insurance products and prioritise health coverage.
- More than 60% of consumers prefer to buy simple and cheap insurance online, with health products among the top three.
- 'Gen Y' consumers, aged under 40 and affluent, are most likely to trust insurance distributed online.
- Within the health segment, medical and short-term CI covers are the products consumers most prefer to buy online.

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In a nutshell

China's online health insurance market is growing strongly, expected to expand at an average 43% per annum until 2025. Swiss Re surveyed consumer attitudes towards insurance, finding that more than 60% of interviewees prefer to buy simple and cheap insurance covers online, and health insurance is among the top three product types that consumers prefer to purchase online.

China's digital insurance sector is booming, and health covers are one of the top three products that consumers want to buy online. All-sector online insurance premiums reached CNY 269.6 billion in 2019, an average annual growth rate of 45% from CNY 29.1 billion in 2013 (when this data was first published). Last year, online health insurance premiums were up 92% from 2018, the fastest growing of all business lines, to CNY 23.6 billion, The segments' share of all-sector online premiums continued to rise to 8.8% from 6.4% the previous year.[1] The growth can be attributed to advances in insurtech, the infrastructure behind digital insurance, and to consumers' rising risk awareness and greater internet access. We forecast 43% average annual growth in online health insurance premiums over the next five years to a 20% share of all-sector online premiums by 2025, up from 10% in 2020. In health specifically, we expect that digital medical and short-term critical illness (CI) products will see the strongest growth.

We expect that the COVID-19 experience will further boost take-up of digital insurance. The pandemic has heightened consumers' health awareness, increasing demand for health cover. Lockdown measures have hindered agent sales this year, the predominant distribution channel, and consumers are increasingly seeking contactless online routes for services from health consultations to purchases of tailored insurance, particularly health policies.[2]

Insights from our recent consumer survey support this outlook. From December 2019 to February 2020, Swiss Re conducted a survey of Chinese consumers' attitudes to purchasing insurance, interviewing 3 000 people from Tier 1, 2 and 3 cities nationwide.[3,4] The data (see Figure 1) show that more than half (60.8%) of interviewees prefer purchasing simple and cheap insurance products such as short-term health policies online, with convenience and simplicity the most cited advantages (69.3%). Almost half of users (49%) prefer to buy insurance online due to better information

[1] Report on China Internet Life Insurance Market, Insurance Association of China, 2020
[2] According to various market data: Micro Insurance (Tencent) added 25 million new active users during the epidemic; gross premium income written in January-February 2020 by ZhongAn Insurance (China's first online-only insurer) was 55.2% higher yoy to CNY 2.565 billion.
[3] Survey carried out by Swiss Re Life Capital from December 2019 to February 2020.
[4] Interviewees were from seven cities: Tier 1: Beijing (800 samples), New tier 1: Hangzhou & Chengdu (800), Tier 2: Zhuhai & Dalian (800), Tier 3: Yichang, Tier 4: Pingdingshan (600). Surveyed population was 1500 male, 1500 female; four age groups: 500 <=25, 1000 <=26-35, 1000 <= 36-45, 500 =>45.

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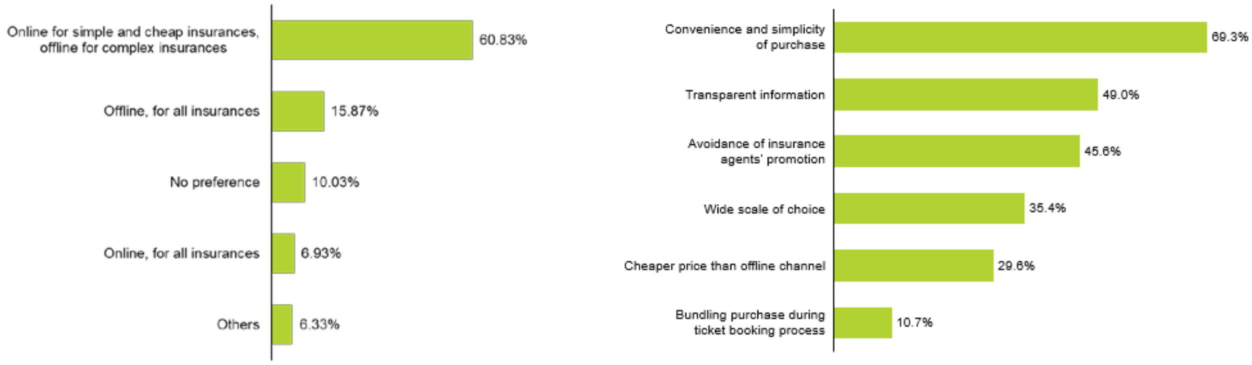
transparency. This is a key factor in the popularity of online medical insurance policies with sum-assured of more than CNY 1 million: simple products and a simple purchasing process.

Figure 1: Purchasing preferences of China's insurance consumers and key reasons for purchasing online



Source: Compiled by Swiss Re Institute

Our survey finds that a higher percentage of "Generation Y" consumers aged under 40 with annual income of CNY 101 000 to CNY 300 000 are active internet users. In the case of CI covers, these consumers are more likely to trust insurance distributed online (64% vs. 52% for the whole sample population), especially by reputable third-party platforms (31%) and insurers' websites (21%). Digitalised insurance solutions offer such consumers efficiency, low cost and can be integrated into their online ecosystems, enabling them to research and purchase products, as well as file claims.

For insurers, online third-party platforms create new customer touchpoints. Banner ads on platforms such as Alipay and weChat are emerging as key purchase channels in China, particularly for simple and cheap policies such as one-year CI cover (31.5% of interviewees had purchased via this channel), which consumers can make unplanned purchases of while browsing. Alipay is the most well-known (64.3% of interviewees) and trusted (89.8%) platform for insurance purchasers, followed by WeChat (47.5%, 67.6% respectively). Digitalised health insurance can also help insurers better understand their customers, using digital data sources to support individuals' lifetime needs through personalised advice, seamless experience and value-add services.[5]

[5] *sigma* 1/2020: Data Driven Insurance, Swiss Re Institute, 2020

Swiss Re Institute

Issue 20/2020

Economic Insights
COVID-19: Reopened too early? A move away from "sweet spot"

Key takeaways

- Lockdown easing is creating a bounce-back in many advanced economies to above 90% of pre-crisis capacity utilisation, we estimate.
- In the US, around 50% of lockdown measures are still in place, according to our new SRI US lockdown index - but easing stalled in July.
- After narrowing significantly, the US GDP shortfall index is widening again as lockdown easing and mobility pause to manage a resurgence in infection.
- COVID-19 resurgence has moved the *SRI Pandemic Macro Clock* away from the sweet spot, and we see a more moderate economic recovery going forward.
- We continue to expect global GDP to contract by around 4% this year.

In a nutshell

The great shutdown is coming to an end and economic capacity utilisation has rebounded to above 90% of pre-crisis levels. Yet after the initial bounce, a spike in new COVID-19 cases threatens the pace of recovery. In the US, our new lockdown index shows easing stalled at roughly 50% in July - and the US GDP rebound paused. As the *SRI Pandemic Macro Clock* moves away from the "sweet spot" for other economies too, we expect recovery to slow.

Global economic activity surprised to the upside in early summer as many economies reopened. The easing of virus containment measures was immediately reflected in a recovery in mobility and in June's composite purchasing manager indices (PMIs)[1], all pointing to a stabilising economy. However, reopening has also created new challenges. In the US, around 50% of major lockdown measures are still in place, on average, but a spike in new COVID-19 infections is causing several states and municipalities to pause or reverse lockdown relaxation. To gauge the state of the US lockdown with its differences in reopening across US states and their relative weight in the US economy, we built the SRI US lockdown index (Figure 1). In contrast to the Oxford University stringency index, which only considers the national level, it shows the progression in easing since May and a visible flatlining in July.

Indications of a rising reproduction rate (Rt) in other advanced economies also pose downside risk to the nascent global recovery. Our updated *SRI Pandemic Macro Clock*[2] (Figure 2) shows many countries have moved away

Figure 1 SRI US lockdown index

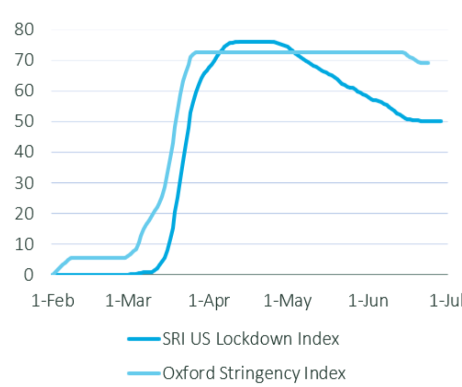
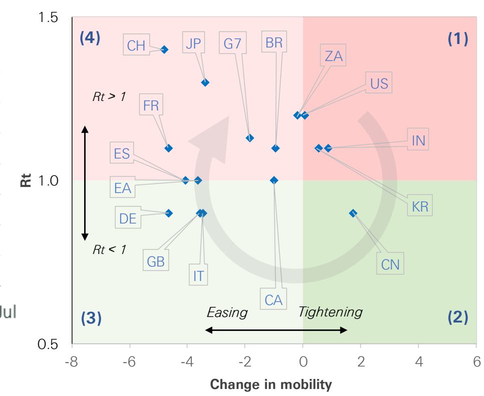


Figure 2 SRI Pandemic Macro Clock



Note: 7-day moving-averages; SRI US lockdown index is a state GDP weighted average of six binary variables including stay at home orders, restrictions on travel, gatherings, the opening of non-essential and any businesses, the opening of educational facilities; values available with a lag only. Last value: 25 June.
Source: Swiss Re Institute, Google, Oxford University, EpiForecasts, WIND, IHME

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[1] IHS Markit June Composite PMI US (+10.9 pts to 47.9), Euro area (+16.6 pts to 48.5), China Caixin services PMI +3.4 pts to 58.4).
[2] See Economic Insights 13/2020 COVID-19: Hitting the sweet spot on the pandemic macro clock, Swiss Re Institute.

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from the "sweet spot" in field 3 and into the next phase of the pandemic (field 4), where the virus again spreads exponentially as mobility increases.

Mobility is a very good predictor for economic activity during the COVID-19 pandemic, our analysis shows. Changes to mobility explain about 70% of the variation in first quarter (1Q20) GDP in advanced markets (Figure 3). We obtain the sensitivity of GDP to changes in mobility with a simple regression analysis, putting into relation the deviation of 1Q20 real GDP growth from FY19 with the average fall in mobility for these markets in 1Q20.

Rising mobility has led to a sharp rebound in output, which we estimate at above 90% of pre-COVID-19 capacity utilisation[3] by the end of June, using our mobility-based SRI GDP shortfall index (Figure 4). However, considerable disparities exist. The US GDP shortfall index first narrows to less than 8% but subsequently struggles to maintain momentum as lockdown easing and mobility pause to manage the resurgence of infection – similar to our SRI US lockdown index. At 15%, the shortfall is significantly higher in the UK, which is experiencing one of the longest lockdowns in Europe. We have downgraded our growth projections for the UK as a consequence.

We believe renewed virus outbreaks are likely, but tolerance for large-scale shutdowns has fallen significantly and we anticipate governments will impose more targeted local rather than national lockdowns in future. As a result, after the initial sharp rebound, we expect the economic recovery to moderate in pace going forward, with global GDP contracting by around 4% this year.

Figure 3 GDP sensitivity to mobility

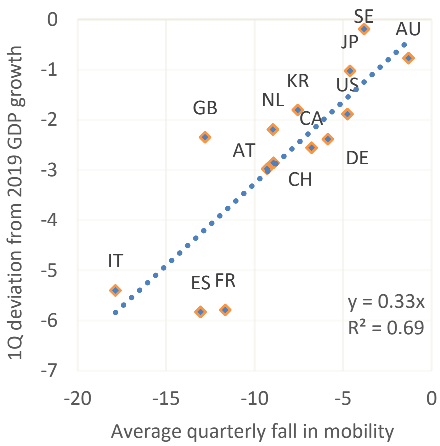
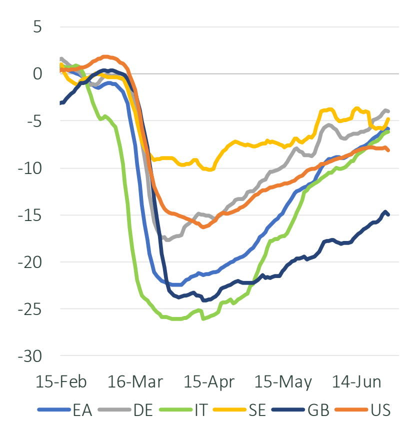


Figure 4 SRI GDP shortfall index



Note: SRI GDP shortfall index, 7-day moving average, is calculated by multiplying the GDP sensitivity to mobility by the google mobility index, which represents the average change in frequency of visits to workplaces, public transportation, and retail center. Source: Google, Swiss Re Institute

[3] GDP shortfall = 100 - capacity utilisation

Swiss Re Institute

Issue 21/2020

Economic Insights

Global life and health: 2021 to offer respite after COVID-19 hit this year

Key takeaways

- Global life and health insurance premiums are expected to contract 2.9% to USD 4.2 trillion this year but recover swiftly to 3.2% growth in 2021.
- We estimate that COVID-19 will cut life and traditional health premiums (excluding medical cover) by 8ppt globally to fall by 4.4% in real terms this year.
- Protection-type insurance products should be more resilient to the COVID-19 hit than savings business, which typically suffers during downturns.
- Heightened health risk awareness and normalising financial market conditions should drive the rebound.
- We continue to expect manageable life and health claims, partly due to typically lower mortality rates in the insured vs general population.

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In a nutshell

The global life and health insurance sector is displaying resilience in the COVID-19 crisis. An expected 2.9% premium contraction this year will be followed by a swift recovery to 3.2% growth in 2021. Life savings business lines will be hardest hit, but protection-type business should see slight growth.

COVID-19 will take a toll on life and health (L&H) insurance premiums this year as the global economy goes through the sharpest and deepest economic recession in modern history. Combined, we expect premiums to contract by almost 3% in real terms to USD 4.2 trillion in 2020. However, the pain will be unequally spread: while life savings business will be hit hard, we forecast greater resilience in health lines (traditional health and medical insurance[1]), where premium growth should remain positive. We estimate that COVID-19 will cut life (including savings and annuities) and traditional health insurance premiums globally by 8 percentage points in real terms in 2020 (see Figure 1), resulting in a forecast premium contraction of 4.4% this year. While the impact of COVID-19 on medical insurance is hard to quantify, we expect a marginal 0.4% real terms rise in global medical premiums, to USD 1.4 trillion.

By line of business, savings premiums typically suffer more during economic downturns as consumers face lower incomes and rising economic uncertainty. Lapses tend to rise with loss of employment and the need to access the cash value of savings policies as emergency funds. Protection-type life and health insurance products are in general less affected and should receive an uplift from rising risk awareness among consumers in response to COVID-19 (see Figure 3).

We expect life and health premiums to recover swiftly, growing by 3.2% in 2021 to USD 4.4 trillion. The rebound should be faster than after the global financial crisis in 2008-2009 (see Figure 2) despite a deeper downturn in global GDP (we estimate a 4% fall in 2020 vs. 2% in 2008). Across all lines, new sales are expected to grow strongly in line with relaxation of lockdown measures, which have hindered agency sales, the predominant distribution channel. Insurers are also expanding online distribution and accelerated underwriting of products to adjust to the "new norm" of digital interaction.

Life savings products (over 50% of total life and health premiums globally) are expected to be a key driver for recovery, as gradually normalising financial market conditions increase demand. We do not expect the same lengthy financial turmoil as seen during the financial crisis. Nevertheless, savings products will be less appealing as investment vehicles in an

[1] We define medical insurance as products reimbursing medical costs, and traditional health insurance as products such as critical illness, disability and long-term care insurance.

21 July 2020

Figure 1:
COVID-19 impacts on life & traditional health premiums, 2020

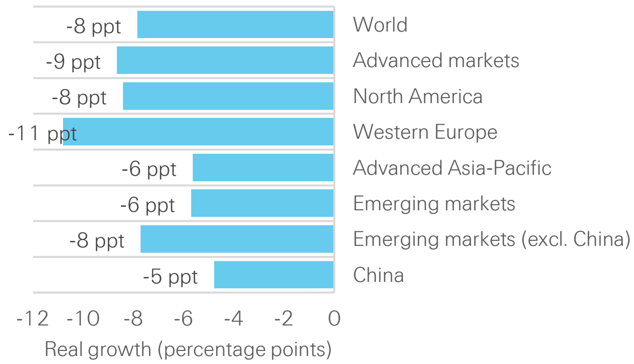
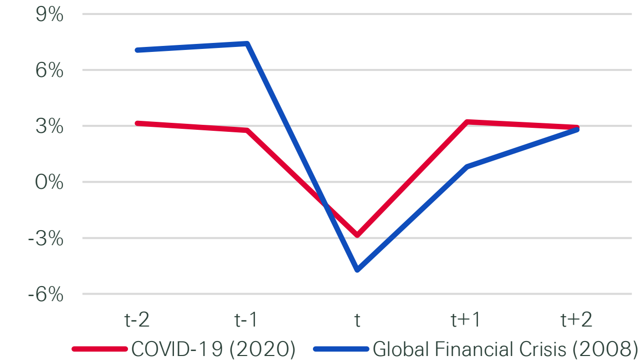


Figure 2:
Life & health premium real growth: COVID-19 vs GFC



Note: t represents the outbreak of each crisis period.
Source: Swiss Re Institute

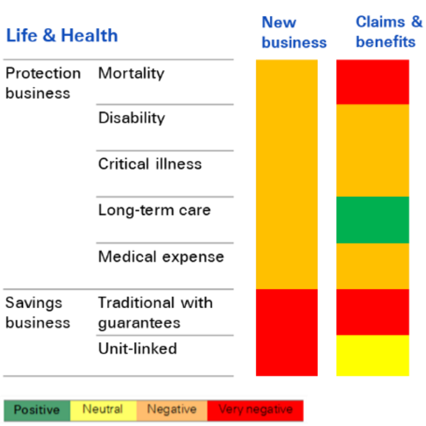
environment of low interest rates. On the other hand, the rising health risk awareness will bode well for health insurance demand. In Asia-Pacific, for example, our consumer survey in April found increased interest in life and health insurance, and respondents indicated that insurance was a priority to retain should a financial sacrifice be needed [2].

Claims for life and health insurers look set to increase (see Figure 3). Direct claims related to COVID-19 will come from two main sources: death benefits from excess mortality, and medical expenses. Claims from COVID-19 testing and costly stationary care treatments (eg intensive care) will increase.

On the life book, we believe the mortality "shock" to in-force books will be lower than for the overall population for two reasons: 1) Age: deaths from COVID-19 have been concentrated among older adults, which may not be among the insured population (typically 30-65 years old). 2) Comorbidities: death rates are higher among people with pre-existing chronic medical conditions (eg, cardiovascular disease, diabetes, respiratory diseases, hypertension). Those with life insurance are typically healthier than the general population.

The impact on life insurers should consequently be manageable in our view, unless the number of deaths increases significantly – which will depend on the future success of virus containment and social-distancing policies.

Figure 3: Covid-19 impacts on life and health business lines in 2020-2021



Source: Swiss Re Institute

[2] *Swiss Re COVID-19 Consumer Survey: Financial anxiety, demand for insurance products accelerates across Asia*, Swiss Re, 29 April 2020.

Swiss Re Institute

Issue 22/2020

Economic Insights
COVID-19 puts emerging market health resilience in spotlight

Key takeaways

- Emerging markets face a health protection gap of about USD 420 billion, close to 70% of the global gap.
- Households bear high health costs, paying for 40% of healthcare costs from out-of-pocket expenditure, vs 24% in advanced markets.
- China is the only market of the BRICS economies to have increased hospital bed density between 2000 and 2017.
- Insurers can play a vital role in strengthening household resilience by providing health cover to complement publicly funded programmes.

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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In a nutshell

The COVID-19 experience has exposed emerging markets' enduring challenge of insufficient health infrastructure.[1] Public health spend undershoots the World Health Organization's (WHO) target of 5% of GDP, while out-of-pocket expenditure represents more than 40% of all healthcare spending, leaving households vunerable to financial stress. Insurance can play a central role in alleviating this stress and help narrow the emerging market health protection gap of around USD 420 billion.

The COVID-19 pandemic has shone a spotlight on the importance of health infrastructure to enable countries to cope in a crisis. A well-functioning health system is able to both control disease in emergencies (such as by vaccinating and infection tracking), and reduce costs for universal and private healthcare in normal times. For emerging markets, the challenge is typically twofold: the need to scale up health infrastructure to provide treatment for their populations throughout their lives; and the need to protect households from catastrophic health expenditure – defined by the WHO as out-of-pocket payment of 10% to 25% of total household consumption or income. Affordable health insurance can play a central role in enhancing protection.

With lower incomes and corresponding weaker heath infrastructure, emerging markets are less resilient to both ongoing health challenges and emergencies. This is reflected in data on both human (doctors and nurses, see Figure 1) and physical capital (hospital beds). The underlying cause is systemic under-investment, with pro-cyclical public spending that is typically subject to political intervention.[2] Public spending on health in most countries is beneath the WHO recommended target of at least 5% of GDP that is deemed necessary to successfully implement universal healthcare,[3] with only high-income countries meeting this level of investment in 2016 (see Figure 2).

Healthcare infrastructure provision plays an important role in population health, measured by life expectancy, as we see when we use hospital bed density as a proxy (see Figure 3). Yet emerging markets have struggled to strengthen their health infrastructure: OECD data shows that of the BRICS[4] economies, only China saw an increase in bed density between 2000 and 2017. By undermining access to treatment, insufficient health infrastructure can be a severe obstacle to economic growth: empirical evidence suggests that one additional year of life expectancy translates into a 4% increase in

[1] We define health infrastructure as health-related physical capital (hospitals, distribution networks, IT systems) and human capital (doctors and nurses). Correlation is positive across several indicators.
[2] *sigma* 3/2020: Power up: investing in infrastructure to drive sustainable growth in emerging markets, Swiss Re Institute.
[3] *Spending targets for health: no magic number*, WHO Health Financing Working Paper No.1, 2016.
[4] Brazil, Russia, India, China and South Africa.

23 July 2020

Figure 1
Doctor and nurse density and income per capita

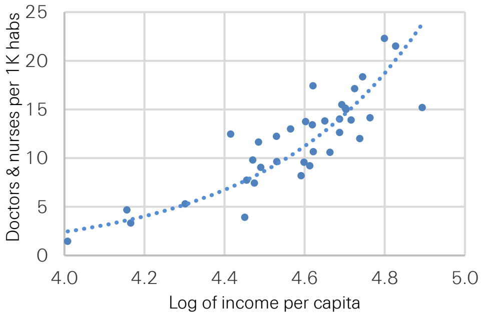
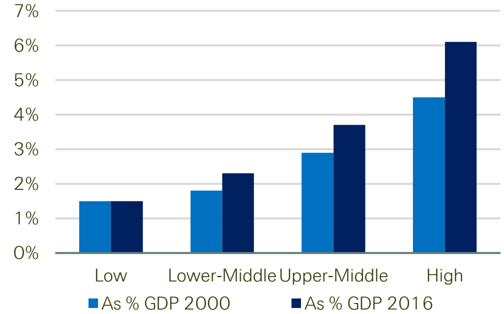
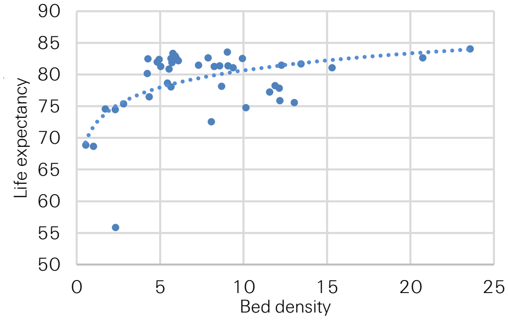


Figure 2
Public health spending by income level



Source: WHO, OECD and Swiss Re Institute

Figure 3
Bed density and life expectancy



output.[5] This is particularly a challenge for emerging markets, since lower-income countries with greater reliance on labour for national output benefit more from the positive economic externalities of a healthier labour force.

Higher, more reliable public funding for health infrastructure that expands treatment capacity is one part of the solution for emerging markets. The other is enabling greater utilisation of healthcare by make it more affordable and accessible, since paying for healthcare is a challenge even where access exists. Out-of-pocket expenditure[6] represents more than 40% of all healthcare spending, leaving households vulnerable to financial stress in cases of catastrophic costs. In contrast, in advanced markets only 24% of total healthcare expenditure is funded from households' out-of-pocket spending, while about 69% is covered by national heathcare or social health insurance schemes.

Swiss Re estimates emerging markets' health protection gap at about USD 420 billion, close to 70% of the more-than USD 600 billion global gap.[7] Private insurers can play a critical role by providing insurance coverage to reduce the financial risk to households from catastrophic health expenditure. Extending health insurance cover can be supported by regulation and policies, and backed up by government programmes for populations who cannot afford it. Together, these can increase emerging markets' resilience to future crises such as pandemics, and help to close the health protection gap.

[5] D. E Bloom, D. Canning, J. Sevilla, "The effect of health on economic growth: theory and evidence", *National Bureau of Economic Research* No. w8587, 2001.
[6] *Global Spending on Health: A World in Transition*, WHO, 2019.
[7] *sigma* 5/2019: Indexing resilience: a primer for insurance markets and economies, Swiss Re Institute.

Swiss Re Institute

Issue 23/2020

Economic Insights
COVID-19: emerging market stimulus poses challenge to growth

Key takeaways

- Governments in emerging markets are rolling out stimulus packages in response to COVID-19.
- Emerging markets continue to be most attractive for long-term growth potential in our view.
- Fast-rising fiscal spending is increasing government debt leverage, estimated to reach 65% in 2021 from 53% in 2019.
- Unconventional monetary policy has been launched by 13 central banks and we expect more to follow suit.
- Emerging markets are vulnerable to a spike in risk premia if credit and liquidity conditions worsen.
- More investment in infrastructure is needed for sustaining long-term economic growth.

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In a nutshell

Emerging market governments are turning to unconventional fiscal and monetary policies more typical of advanced economies to counter recessions caused by COVID-19. This may impact the sustainability of their long-term growth, unless productivity can be lifted through investment in human and physical infrastructure.

Emerging market governments are responding to the impact of COVID-19 with extraordinary fiscal and monetary measures that will likely have long-lasting effects. Fiscal stimulus packages rolled out to counter recessions in the first half of 2020 vary widely in scale but will push some governments close to their fiscal limits (see Figure 1). A total of 13 emerging market central banks have also engaged in quantitative easing (QE)-like measures including direct purchases of government bonds this year (see Figure 2).[1] While we believe such measures are necessary, the increase in overall debt adds to existing challenges for emerging economies with weak health infrastructure[2], large informal sectors and limited policy room.

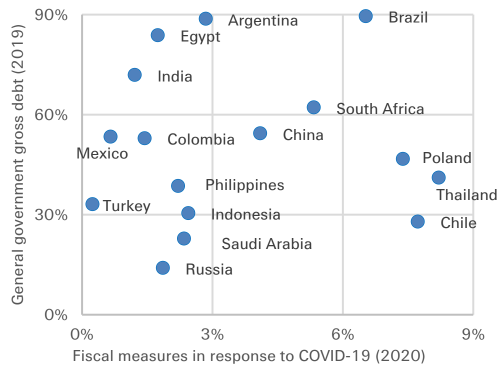
Emerging markets have shown more economic resilience than advanced markets in the past and will emerge strongly from the pandemic shock. Nonetheless, economic activity so far remains depressed and the virus continues to spread, with the infection curve yet to flatten in economies such as India and Brazil. Only in China, which has so far contained the pandemic and relaxed most lockdown measures, do we see real GDP growth holding up well, climbing 2.7% in 2020 and 7.0% in 2021. We expect the rest of the emerging market universe to contract by 3.7% in 2020 before recovering to 4.2% growth in 2021, outperforming their advanced market counterparts.[3]

We believe fiscal stimulus is necessary to prevent free-fall economic contraction and fill the significant health protection gaps in these markets. However, the International Monetary Fund (IMF) estimates that the average emerging market government debt-to-GDP ratio will jump to 64.6% in 2021 from 53.2% in 2019.[4] Large economies with high direct fiscal spending in 2020, including Brazil, South Africa and Thailand, are also those that had high public debt leverage in 2019 (see Figure 1), raising doubts over their long-term debt sustainability. Higher fiscal expenditure also increases sovereign credit risk and raises the risk of rating downgrades, and potentially leaves markets vulnerable to further waves of capital outflows of the kind seen during the global market sell-off in March 2020. Finally, it may raise governance concerns, since fiscal packages can support higher-risk individuals and businesses (eg, through loan provisions and guarantees),

[1] *EM Relying on Unconventional Policy Tools*, Macro Notes, IIF, June 2020.
[2] *COVID-19 puts emerging market health resilience in spotlight*, Swiss Re Institute, 23 July 2020
[3] We forecast advanced markets to contract by 6.4% in 2020 and grow by 3.9% in 2021.
[4] *Fiscal Monitor*, IMF, April 2020

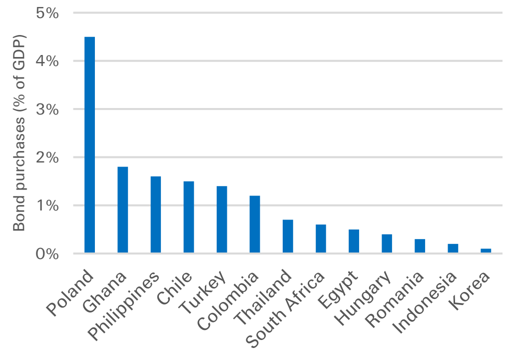
06 August 2020

Figure 1: Fiscal stimulus, government debt (% of GDP)



Source: IMF

Figure 2: Central bank bond purchases, year-to-date 2020



Source: IIF
Note: Data as of 24 June 2020.

potentially encourage excessive risk-taking (the "moral hazard" problem) and disincentivise agents from preparing for the next economic threats ahead.

On monetary policy, emerging markets have largely followed advanced economies in aggressively cutting interest rates, but some have gone further and embraced unconventional monetary tools such as QE. A few have done so extensively: Poland's government bond purchases represented around 4.5% of its GDP as of June. In July, Indonesia announced a USD 40 billion "burden-sharing" programme to monetarise government debt, albeit for one year only[5]. With interest rates at record lows in some markets, we expect more emerging countries to follow suit. And while QE is typically used for yield curve control and to fund public deficits, emerging markets also aim to curb capital outflows given the large foreign ownership of domestic bonds.

We believe that in the short term, the macroeconomic backdrop remains conducive for emerging markets to effectively implement QE programmes, particularly if a weak US dollar helps to limit local currency risk. In addition, inflation remains low in line with commodity prices, and current account deficits are fast vanishing as collapsing domestic demand dampens imports. However, emerging markets' risk premia could rise, and fast, should inflation become a threat or major central banks wind down their QE strategies. Managing debt sustainability and maintaining investor confidence are key short-term issues for emerging markets, but a focus on promoting infrastructure investment and intellectual capacity will further unleash their productivity potential and help improve their long-term sustainable growth.

[5] A. Wail Akhlas, "Govt, BI agree on $40b burden-sharing scheme", *Jakarta Post*, 8 July 2020.

Swiss Re
Institute

Issue 24/2020

Economic Insights
COVID-19 knocks emerging market insurers but China resilient

Key takeaways

- COVID-19 will reduce emerging markets' insurance premium growth by 3.6 ppt on average in 2020 and 2021, we estimate.
- Regions differ significantly with emerging Asia, led by China, expected to recover most quickly.
- China will outperform with 7% average premium growth this year and next due to greater economic resilience, government policy support, and insurers' success in leveraging higher risk awareness.
- We continue to be confident of the fundamental attractiveness of emerging insurance markets.
- The pandemic is accelerating trends including digitalisation that can increase insurance penetration in emerging markets.

About Economic Insights
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In a nutshell

Emerging market insurers will be the hardest-hit globally by COVID-19, with a 3.6 percentage point impact on premium growth in each of 2020 and 2021. China's insurance market is the exception, with average premium growth of 7% over 2020-2021, supported by a swift economic recovery, government policies, rising risk awareness and active customer engagement by insurers. We expect the shift in the global insurance opportunity to emerging Asia, and particularly China, to continue.

We expect the shock of COVID-19 to lower emerging markets' insurance premium growth by 3.6 percentage points (ppt) in 2020 and 2021 (see Figure 1). This is a sharper premium fall than in advanced markets (-2.5 ppt) and deepens further to 4.5 ppt when China is excluded, primarily due to steep declines in emerging Europe, Latin America, the Middle East and Africa. Overall, we expect premium volumes to recover to pre-pandemic levels in 2021, with emerging Asia led by China rebounding fastest (see Figure 2).

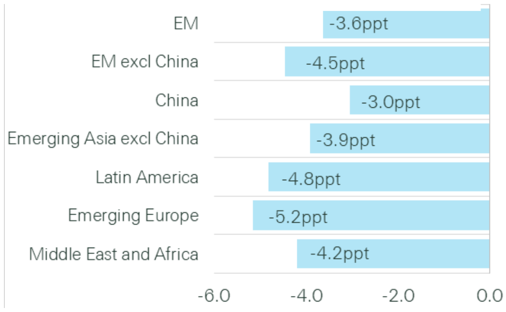
China's insurance market strength is the exception among emerging markets. Premium growth is expected to average 7% this year and next due to a fast-recovering economy and supportive government policies. Insurers have also stepped up customer engagement and promotion activity through digital distribution channels to leverage rising risk awareness. A recent Swiss Re survey[1] found that more than 75% of Chinese consumers had been contacted by their insurers by April 2020, compared to 17% in Australia, 34% in Singapore, and 50% in Hong Kong. More than half (59%) of Chinese consumers also expressed interest in buying more insurance, higher than in the other markets surveyed.

Life business lines will be more affected than non-life business in emerging markets during this crisis. Emerging markets' life premium growth is expected to stagnate in 2020 before recovering to grow by 7% in 2021. While emerging Asia including China is expected to be resilient, in the other regions we expect deep recessions and labour market deterioration to affect demand for life insurance, resulting in large declines in premiums even in major economies such as Brazil, Mexico, Turkey and South Africa. In non-life, we forecast overall premium growth of 3% in 2020 and of around 7% in 2021, again on the back of robust growth in China, where government policies including large-scale investment in rural infrastructure[2] and a strong push on compulsory liability insurance should support demand. Non-life premiums in emerging Europe and central Asia will decline strongly this year due to their proximity to and trade dependence on western Europe, where growth is

[1] Consumer survey by Swiss Re in Australia, Singapore, Hong Kong, and mainland China in April 2020 to gauge sentiment towards insurers.
[2] Rural revitalization in China: a "Blue Ocean" opportunity for insurers, *Economic Insights* 18/2020, Swiss Re Institute 25 June 2020.

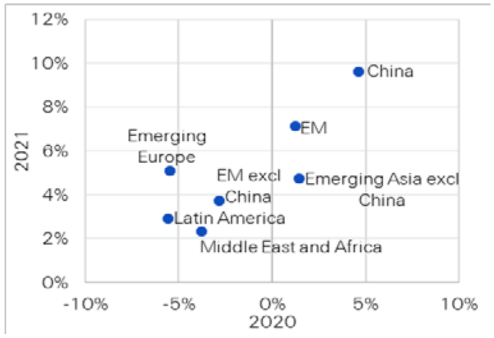
expected to be weak, as well as recessions in Russia and Turkey. Latin America, the Middle East and Africa will also contract, as economic weakness prior to the outbreak of COVID-19 is coupled with falls in commodity prices and external revenues. In all lines, the direct impact on claims should be manageable since most policies would have excluded infectious diseases, and insurance penetration is still low in emerging markets. While emerging market insurers' investment returns are under pressure from low yields, equity market rallies in countries such as Brazil, Russia and China may cushion this impact.

Figure 1: COVID-19 impact on annual average premium growth in 2020 and 2021



Source: Swiss Re Institute

Figure 2: Real premium growth in 2020 and 2021



Despite the near-term challenges, we remain confident that emerging markets will be the growth engine of global insurance in the long term as their fundamental growth drivers, including urbanisation, growth of the middle class and rising consumer risk awareness, are still intact. The experience of COVID-19 has if anything reinforced current trends such as the shift from savings to protection-type life products, accelerated government investment in healthcare to enable better value creation of medical insurance, and greater adoption of digital solutions that offer growth opportunities for insurers.

Economic resilience is also a key determinant of the outlook. China's insurance market strength is closely linked to its greater economic resilience,[3] whereas in other emerging markets weaker resilience will make the downturn deeper and the recovery more protracted, in turn weighing on insurance demand. We expect the ongoing shift in the global insurance opportunity towards emerging Asia, and China in particular, to continue. We forecast that, excluding medical premiums[4], China remains on track to be the world's largest insurance market by the mid-2030s.

[3] See also *sigma 5/2019* – Indexing resilience: a primer for insurance markets and economies, Swiss Re Institute.
4 We exclude medical premiums from all markets due to the large contribution that accident and health business written by US health insurers makes to the US insurance market.

Swiss Re Institute

Issue 25/2020

Economic Insights

Supply side boosts China's recovery from COVID-19 downturn

Key takeaways

- China reported 3.2% GDP growth in the second quarter of 2020, up from -6.8% in 1Q.
- The supply side is leading the recovery with capital formation up 5%, the largest contributor to 2Q growth.
- Policy support will be essential to offset external headwinds and sustain economic recovery in the second half of the year.
- Insurance premium growth has returned quickly to pre-COVID-19 levels.
- The insurance industry is receiving strong regulatory support and we expect China to lead the global insurance recovery in 2020 with a return to trend growth in 2021.

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In a nutshell

China's economic recovery is on track, driven by a rebound in supply-side activity. The government is supporting the rebound with measures to boost domestic demand and structural reforms to enhance fundamentals and productivity. China's insurance sector has returned to pre-pandemic rates of premium growth and is also benefiting from regulatory support. We expect insurance growth in 2020 to be the strongest worldwide, and double-digit growth to resume in 2021.

China is recovering strongly from the COVID-19 shutdown, reporting 3.2% GDP growth in the second quarter to reverse a 6.8% contraction in Q1. Capital formation was the largest contributor with a 5.0% real growth rate and net exports grew by 0.5%, together offsetting a 2.3% fall in consumption (see Figure 1). The labour market continued to strengthen and the surveyed urban unemployment rate declined to 5.7%, meeting the government target (~6.0%). The government priority now is boosting domestic demand through all-round policy support[1] and we expect consumption to pick up growth momentum in 2H20. Wider structural reforms under way are designed to give the market a greater role in resource allocation to enhance economic fundamentals and improve production efficiency. We maintain our forecast of 2.7% full-year GDP growth. China's insurance sector is demonstrating resilience in the face of COVID-19 and we expect it to lead the industry globally in 2020. Health premiums grew 20% year-on-year in the first half and premiums for short-term health products, which are sold largely online, rose by 40% yoy.

Monthly data show the supply side leading the recovery while the demand side lags. Industrial production growth was 4.8% year-on-year in June, a turnaround from a contraction of 13.5% in February at the peak of COVID-19. This reflects the return of China's manufacturing PMI to expansionary territory after dropping to 35.7 in February. Export growth rose to 7.2% in July despite recessions in most of China's trading partners, largely due to surging global demand for medical supplies and electronic devices. Public investment benefited from fiscal stimulus measures (estimated at ~6% of GDP) and returned to pre-crisis growth, boosting domestic overall fixed-asset investment by an estimated 3.7% yoy in June or 5.9% month-on-month. In contrast, retail sales contracted by 1.8% yoy in June (Q1: -19%) despite the lifting of most virus containment measures. However, retail sales growth rate is improving month-by-month and monthly growth rebounded to 0.2% in July with car sales increased 12.3%, reflecting a solid recovery of consumption.

Counter-cyclical policies will be key to safeguard China's economic recovery against accumulating headwinds that include escalating US-China tensions, weak external demand and rising risks from global supply chain evolution as the world deglobalises. Escalating US-China tension is the major risk that may weigh on the economic recovery, by depressing exports as well as channels such as financial

[1] "China's Two Sessions: no target, but home-market reforms will power growth", *Economic Insights*, Swiss Re Institute, June 2020.

20 August 2020

investment. The fiscal stimulus should continue to strengthen growth in fixed assets (both private and public) and support economic growth. The People's Bank of China has also cautiously shifted its monetary stance from crisis mode to normal, targeting structurally lower financing costs while maintaining liquidity to the corporate sector and particularly SMEs. As a result, we expect growth in the money supply (M2) and total social financing, which accelerated to 10.7% and 12.9% respectively in July, to remain at low double-digits in the second half of 2020, facilitating the economic recovery.

Figure 1: Real GDP growth by sector

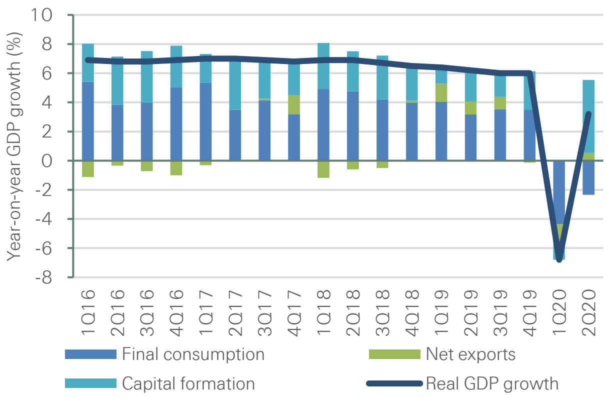
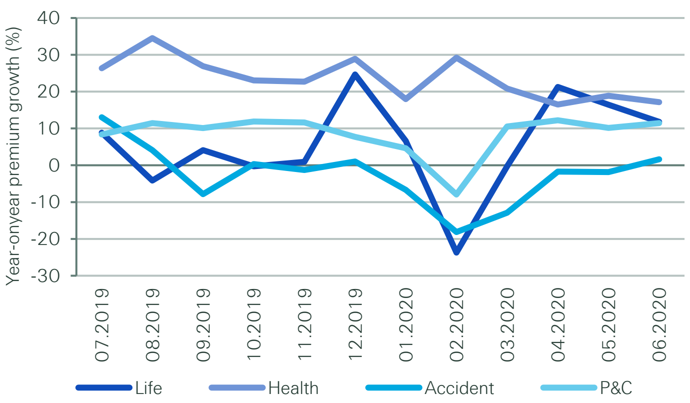


Figure 2: Insurance premium growth by business line



Source: Swiss Re Institute

China's insurance industry is performing robustly, with premium growth returning quickly to its pre-pandemic trend rate. Health insurance maintained a 20% growth rate in the first half of the year as demand surged. The transition to online distribution channels for insurance products also continued at pace: premiums for short-term health products, which are primarily sold online, rose by 36% yoy in Q2 after jumping by 54% in Q1 and by 97% in February alone.

We expect the industry to benefit from the economic recovery due to a combination of strong regulatory support and rising consumer risk awareness. The insurance regulator has issued new guidelines to support insurers. These include targeting 80% digitalisation of certain P&C lines by 2022 to promote online insurance business; raising the upper limit of the equity allocation in qualified insurers' asset portfolios to 45% from 30% to help mitigate the impact of low interest rates; and promoting the development of reinsurance business, particularly by encouraging international reinsurers to participate. Coupled with the wider structural reforms, we expect this support to ensure China's insurance market leads the global recovery in 2020 and resumes double-digit annual growth rate from 2021.

Swiss Re Institute

Issue 26/2020

Economic Insights

China: can a new risk pool improve protection for urban residents?

Key takeaways

- Almost 70% of China's urban households' assets are concentrated in property.
- Residential insurance premiums represented only 0.01% of China's GDP in 2019.
- In China 43.4% of urban households have a mortgage but residential insurance is not a lender requirement.
- Special maintenance funds (SMF) protect common areas of residential communities but less than 2% of funds are utilised.
- Insurers have an opportunity to develop mortgage-linked products and leverage the SMF.

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In a nutshell

Most of China's urban household assets are concentrated in home ownership, but property is significantly under-insured. Residential insurance[1] premium income is only 0.01% of GDP, far below other markets. We see a huge opportunity for insurers to tap this market by partnering with banks on mortgage-linked residential insurance and by leveraging China's residential special maintenance funds through a public-private partnership model.

Home ownership is the largest single contributor to household assets for Chinese urban residents, accounting for almost 70%[2] of the CNY 3.2 million that they owned on average in 2019 (the remainder is financial assets). Protecting homes from value impairment such as from fires or natural catastrophes is vital to strengthen household resilience. Residential insurance can offer this protection, but market growth has been weak in the past decade due to a lack of fit-for-purpose products and low risk awareness by residents. Residential insurance premiums totalled only CNY 9.1 billion in 2019: less than 20% of all property insurance premiums, 0.7% of total property and casualty (P&C) premiums, and 0.01% of China's GDP (see Figure 1). In comparison, US residential insurance penetration was 15% of the total P&C portfolio and 0.48% of GDP in 2019. We see an opportunity for insurers to access a new risk pool to grow this protection.

Low penetration is partly a result of China's unique residential insurance market. In other countries,[3] mortgage lenders typically require residential insurance as part of the mortgage approval process for risk control purposes. This indirectly promotes residential insurance and reduces the catastrophic protection gap. In China 43.4% of urban households have a mortgage[4] but residential insurance is not a lender requirement. The result is a significant protection gap. Demand-side awareness is also low due to the widespread perception that the government will step in as insurer of last resort. However, government compensation for disasters is typically inadequate. For example, in May 2018, the Wenchuan earthquake caused a total loss of CNY 845 billion, of which 27% was losses from rural and urban housing. However, the government's subsidy for house rebuilding was only CNY 1 000 to CNY 8 000 per household, far less than the sums needed. The total insurance payment for the earthquake was only CNY 3 billion, or 0.3% of the total loss.

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[1] Residential insurance includes contents insurance (traditional home insurance) and building/strata insurance, which covers common facilities in residential communities. Strata insurance is new in China and most condos/apartments lack protection.
[2] "China's urban housing ownership rate reaches 96%, with average household assets exceeding CNY 3 million", *xinhuanet.com*, 27 April 2020.
[3] Markets include the US, Japan, Singapore, Taiwan, Hong Kong and Macau.
[4] "China urban household debt concentrated in bank mortgage", cctv.com, 25 April 2020.

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Figure 1: Comparison of residential insurance in global markets in 2019 (USD billion)

	Country	Residential*	Residential/GDP	Residential/P&C	Residential/Property
Advanced markets	US	104.3	0.48%	15%	51%
	Germany	12.5	0.32%	14%	56%
	France	12.3	0.45%	16%	62%
	Japan	9.0	0.18%	10%	53%
	UK	8.9	0.32%	9%	34%
Emerging Markets	Brazil	3.2	0.23%	15%	58%
	South Africa	2.7	0.92%	29%	82%
	Russia	2.5	0.16%	18%	93%
	China	**1.3**	**0.01%**	**1%**	**16%**

Note: *Residential insurance includes strata insurance and content insurance.
Source: Swiss Re Institute

Condos and apartments, which make up most of China's property market, are vulnerable to devaluation from damage because the shared structures and facilities are not insured. This cover, strata insurance, is new and still unfamiliar in China. Apartment and condo owners instead contribute to a special maintenance fund (SMF)[5] designed to keep buildings and public facilities in residential communities in repair. The SMF for 660 cities totalled approximately CNY 1 trillion in 2019[6,7] but in practice it is difficult to access the funds and utilisation rates are only 0.2% to 1.6% across cities. Applications to the SMF are complicated and time-consuming, requiring a high level of consent from owners of the apartments in the block.

We see two routes for insurers to help enhance financial resilience for China's urban residents by significantly increasing residential insurance protection. First, insurance companies could partner with banks to introduce mortgage residential insurance against property losses caused by nat cat and accident events, like fire, with the support and endorsement of regulators. Second, insurers could leverage China's CNY 1 trillion SMF to increase protection for residents. This would be a new risk pool to explore. A Swiss Re Institute[8] survey in May 2020 found urban residents very open to the idea of transforming part of the SMF into residential insurance to protect buildings, which they believed would both raise the utilisation rate and materially improve their properties. Insurers could form public-private partnerships by leveraging governments' right to set up the relevant rule to use the SMF. Insurers can work with owners' committees and property management companies on product development, reducing decising-making costs while providing maintainance, claims processing and risk management services.

[5] SMF refers to funds intended for the maintenance, renewal, and transformation of common area facilities and equipment in case of destruction/damages. It is maintained by the government.
[6] Shuyun Chen, "Challenges in managing SMF", *Problems in the City*, vol 11, 2018.
[7] "Over trillions of SMF is staying dormant", people.com, 23 September 2016.

Swiss Re Institute

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Economic Insights

Emerging markets macro resilience: beware fading global tailwinds

Key takeaways

- Emerging markets have lost less than 10% of their economic resilience due to COVID-19, versus 25% for advanced economies.
- They have benefited from advanced economy stimulus responses, which have supported aggregate demand and eased financial conditions.
- China is the only major economy for which resilience is unchanged by COVID-19 as swift containment measures led to faster resumption of activity and less need for stimulus.
- Emerging markets will need to rely on domestic resilience as further global stimulus is unlikely and containment measures remain strict.
- Looking ahead, strengthening domestic resilience will be of utmost importance.

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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In a nutshell

Emerging markets' macroeconomic resilience has benefited from the extraordinary global stimulus rolled out in response to the COVID-19 crisis, which has eased financial conditions. As strict government containment measures continue, emerging market governments will need to rely more on their own resilience. The priority is to replenish resilience buffers as soon as possible.

Emerging markets have lost less than 10% of their macroeconomic resilience in 2020 as a result of the COVID-19 crisis, compared to about 25% in advanced economies, according to our latest annual SRI Macroeconomic Resilience Index[1]. Their resilience scores have benefited from their own fiscal and monetary easing measures but also, importantly, from those delivered globally by advanced economies. We believe emerging markets will need to draw on this resilience to do more of the heavy lifting going forward if further global stimulus is limited and virus containment measures continue.

A key reason for the relative stability of economic resilience in emerging markets is the extraordinary stimulus by advanced economies. This has supported aggregate demand and eased financial conditions significantly[2]. The measures announced by the US and several euro area countries in 2020 exceed all bailouts in these countries of the past 50 years combined.[3] The easing of financial conditions matters tremendously for emerging markets since about two thirds of their external debt is denominated in US dollars[4]. Concurrently, emerging markets have engaged in domestic monetary and fiscal easing to loosen financial conditions further. However, as our resilience index shows, monetary policy in most advanced economies is now largely exhausted (see Figure 1). Their fiscal buffers are also much more depleted – we estimate that advanced economy fiscal space is more than 50% lower than in 2007 before the global financial crisis. As a result, a similar scale of global easing is next to impossible should another shock occur. Emerging markets will need to rely more on domestic policy reserves and their own economic resilience in future.

Ongoing government-imposed virus containment measures are likely to impact emerging markets' economic resilience going forward. Containment measures have been more stringent in emerging markets in general while advanced economies have become less restrictive.[5] We consequently

[1] *sigma resilience index 2020: global resilience put to the pandemic test*, Swiss Re Institute.
[2] The GS US Financial Conditions Index indicates that current financing conditions are among the loosest of the past 20 years.
[3] *The biggest bailouts in history*, Deutsche Bank Research, April 2020.
[4] *Pull, Push, Pipes: Sustainable Capital Flows for a New World Order,* Speech by Mark Carney of the Bank of England, 6 June 2019.
[5] We refer to the Oxford Stringency Index, which measures the quantity and severity of government-imposed restrictions.

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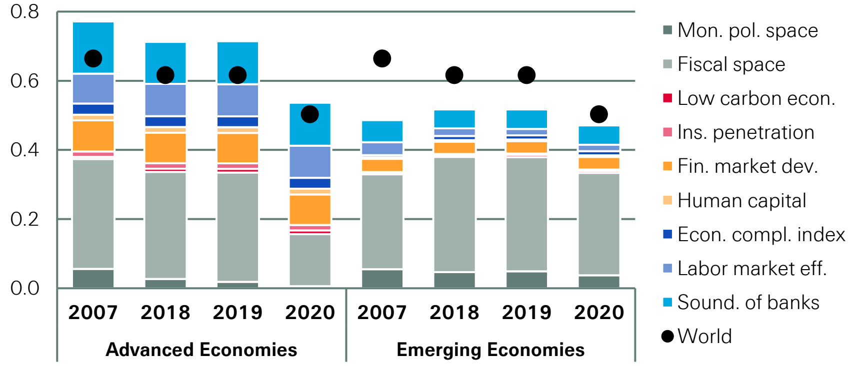
estimate that the GDP shortfall in emerging Asian economies is still around 10%, compared to about 7% for the G7 economies. Having said this, some emerging market economies have had less need to engage in large-scale public policy easing. China imposed strict and rapid virus containment measures that have resulted in less stimulus being required given the quicker resumption in economic activity. China is the only one of the four big global economies for which overall resilience will be unchanged post-COVID-19.[6]

Figure 1 Composition and levels of advanced and emerging markets' macro resilience indices over time and of global macro economic resilience



Source: Swiss Re Institute Macroeconomic Resilience Index

In short, most emerging markets will need to do more of the heavy lifting themselves going forward given still-strict government containment measures and more constrained advanced economy stimulus. Emerging market governments should not take comfort in still possessing monetary and fiscal headroom. Though clearly an encouraging start point, we anticipate that emerging markets will have to deploy more of their fiscal buffers if containment measures remain as stringent as today.

The top policy priorities for all societies need to be improvement of long-term growth prospects and replenishing economic resilience. Economies with higher levels of insurance penetration tend to exhibit less volatile growth and experience the impact from a shock onto public finances to a lesser extent. Given that emerging markets continue to have significantly lower levels of insurance penetration than advanced economies, a key focus going forward should be to enable higher penetration. Emerging markets should also focus on structural reforms to strengthen resilience such as targeted investments into sustainable infrastructure, the digital economy and the transition to a low-carbon economy. Governments should also foster human capital, deepen the liquidity and dynamism of financial markets, and improve the efficiency of labour markets.

6 The four largest economies by GDP in the world are the US, China, Japan and Germany.

Swiss Re Institute

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Economic Insights
Health protection gaps after the pandemic: an upward path?

Key takeaways

- Global health resilience looks set to weaken in 2020 as incomes fall and health expenditure rises.
- COVID-19 has triggered the deepest recession in modern history and we expect global real GDP to fall by 4% this year, potentially widening health protection gaps.
- The global health protection gap reached a new record high of USD 588 billion in 2019.
- Emerging markets accounted for almost two thirds of the health protection gap in 2019 and their health resilience score was 16ppt lower than advanced economies.
- Closing the health protection gap calls for partnerships between insurers, governments, public policymakers, healthcare and medical service providers that maximise financing efficiency by sharing healthcare risks.

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In a nutshell

If history is a guide, global health resilience is likely to deteriorate following the COVID-19-driven recession. The pandemic is pushing households into financial stress, particularly in emerging markets. This is expected to widen the global health protection gap to well above the record-high USD 588 billion in 2019. Stronger health insurance can help to alleviate this stress and increase societal resilience to future crises.

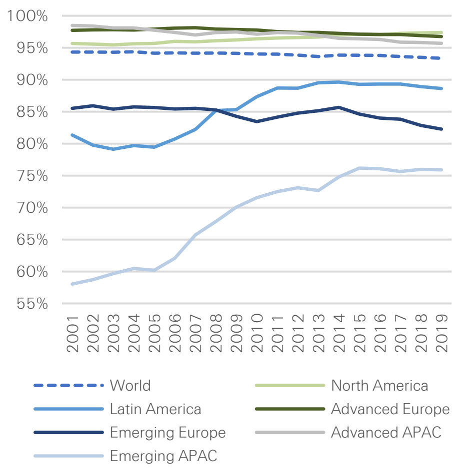
The COVID-19 crisis has put global health resilience in the spotlight. We expect our annual Swiss Re Institute Health Resilience Index (Health I-RI) to weaken in 2020 as falling incomes and high healthcare expenses increase households' exposure to stressful health spending. [1] This will likely widen the global health protection gap – the funding shortfall needed to meet households' heathcare needs – to well above the record-high USD 588 billion in 2019. The pandemic highlights the importance of health infrastructure in enabling countries to cope in a crisis, and the role of insurance in alleviating financial stress.[2] COVID-19 has triggered the sharpest and deepest global recession in modern history and we expect global real GDP to fall by 4% this year, more than double the 1.8% contraction in 2009 during the global financial crisis (GFC). If history is a guide, global health resilience is likely to deteriorate following this recession.

Our data show that economic downturns hurt health resilience. After the GFC, Health I-RI scores were 9.5 percentage points (ppt) down in emerging Europe, 1.4 ppt lower in advanced Europe and 1.3 ppt reduced in advanced Asia Pacific (see Figure 1). This was primarily due to rising healthcare costs and ageing populations in most advanced Asian markets, and strained government budgets in European countries. While health resilience in Latin America and emerging Asia Pacific improved after the GFC, the pace of improvement also slowed.

We expect emerging markets' health resilience to be harder-hit than advanced economies' by the current crisis, due to their weaker health infratructure and lower health resilience scores. The emerging market average Health IR-I score was 80.6%, 16 percentage points (ppt) lower than the advanced economy average of 97%, in 2019. By region, North America was the most resilient globally with a Health I-RI of 97.4%, while emerging Asia-Pacific was the least resilient region with a score of 75.9%. Health resilience declined slightly in all regions except North America in 2019.

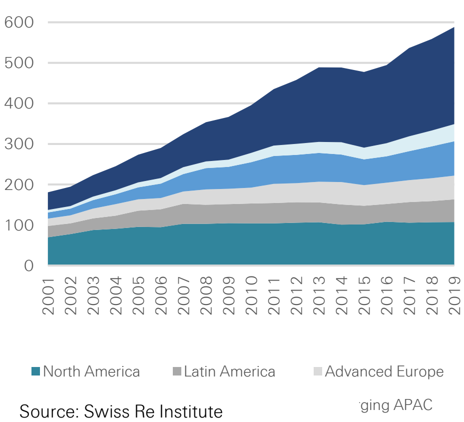
[1] The SRI Health Resilience Index ranges from 0-100%. The higher the score, the more resilient. *sigma* Resilience Index 2020: global resilience put to the pandemic test, Swiss Re, August 2020.
[2] We define health infrastructure as health-related physical capital (hospitals, distribution networks, IT systems) and human capital (doctors and nurses).

Figure 1
Swiss Re Institute Health Resilience Index



Source: Swiss Re Institute

Figure 2
Health protection gap (USD billion)



Source: Swiss Re Institute

The provisions of public healthcare systems and insurance schemes matter. The less protection is available from governments and private insurance schemes, the more exposed (or less resilient) a household is to stressful healthcare spending. Emerging markets accounted for 65% of the global health protection gap in 2019, and emerging Asia-Pacific alone represented 41% of the total global gap (see Figure 2). Households tend to be more vulnerable to health emergencies when out-of-pocket expenditure on healthcare is high. This disproportionately affects low-income countries, where out-of-pocket expenditure typically represents more than 40% of all household healthcare spending, compared with only 24% in advanced economies.[3] Households with lower resilience may be forced to sell off productive assets, put the accumulation of retirement assets on hold, fail to maintain their health, or forego education (among others) in order to cope.

Insurers are a key stakeholder in the healthcare ecosystem and many governments recognise the role a strong private health insurance sector plays in addressing the health protection gap. The traditional reliance on public budgets and household savings to fund healthcare will become increasingly difficult given rising concern over fiscal sustainability, higher treatment costs, greater incidence of chronic diseases and rising consumer expectations. Closing the health protection gap calls for a multi-stakeholder approach involving insurers, governments, public policymakers, healthcare and medical service providers. These can explore new partnerships that maximise efficiency by sharing healthcare risks, while supporting market development with solutions that deliver value and choice for consumers.

The health protection gap represents a global opportunity for insurers worth hundreds of billions of dollars in annual premiums. It is also an opportunity to innovate. Insurance products customised to local markets can offer cost-effective, customer-centric, technology-enabled healthcare solutions that improve societal access to healthcare. As well as improve policyholder health, these services enable insurers to differentiate. COVID-19 is also accelerating changes in consumer behaviour, particularly towards digitalisation. Swiss Re's COVID-19 survey in April found consumers interested in value-added services and most respondents in favour of fully online processing of insurance policies.[4] Finally, by investing in big data capabilities, insurers can improve underwriting and help consumers make informed decisions. Together all of these can increase societal resilience to future crises such as pandemics.

[3] *Global Spending on Health: A World in Transition*, WHO, 2019. The WHO defines catastrophic health expenditure as out-of-pocket payment of 10% to 25% of total household consumption or income.
[4] *Swiss Re COVID-19 Consumer Survey: Financial anxiety, demand for insurance products accelerates across APAC*, Swiss Re, April 2020.

Swiss Re Institute

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Economic Insights

COVID-19 reinforces the value of insurance to cover mortality risk

Key takeaways

- Global mortality resilience will likely weaken in 2020, as excess deaths rise while household assets suffer in the deepest recession of modern times.
- The global mortality protection gap is expected to widen above its high of USD 427 billion in 2019.
- Mortality resilience has declined globally since 2001, though Latin America and Asia now have greater life insurance coverage.
- Swiss Re Institute's latest Asia consumer surveys show that premium level and add-on features are among key decision factors for mortality insurance purchases.

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In a nutshell

The COVID-19 pandemic is highlighting households' lack of adequate financial protection against the premature death of a breadwinner. We expect the global mortality protection gap to widen further in 2020 from a high of almost USD 430 billion in 2019. It is crucial that insurers understand the factors affecting insurance purchase decisions in order to narrow the mortality protection gap and improve societal resilience.

The pandemic is showing starkly the fragility of many households' livelihoods. It is also highlighting the crucial role insurance can play in ensuring resilience. The global death toll from the virus reached 937 391 on 17 September 2020.[1] While deaths are heavily skewed towards the elderly, they have also impacted the working-age population. For instance, in the US, where COVID-19-related mortality is highest globally, 21% of related deaths are among those aged 15-64.[2] Yet many households lack sufficient financial protection against the premature death of a primary breadwinner, leaving them vulnerable to financial hardship. We expect global mortality resilience to fall in 2020 compared with 2019 (see Figure 1) as COVID-19 leads to higher excess deaths while household assets decline in the deepest global recession of modern history. However, the pandemic has also triggered higher interest in insurance purchases, which will help build resilience against future shocks.

The Swiss Re Institute Mortality Resilience Index (Mortality I-RI) declined slightly to 43.6% in 2019 from 44.4% in 2018.[3] This indicates that less than 44% of the funds needed to maintain household living standards in the event of the death of the primary breadwinner are "protected" by assets such as life insurance, social security survivor benefits or household savings (in other words, 56% of the mortality risk is unprotected). Emerging markets' mortality resilience score, at 29.2%, is only roughly half the level of advanced markets (57.6%). The most resilient region, advanced Asia-Pacific, had a score of 66.9%, and the least resilient, emerging Asia-Pacific, of 22.6%. Most regions showed a decline in mortality resilience in 2019 compared to 2018.

The COVID-19 crisis may further increase the global mortality protection gap in 2020 due to excess mortality and reduced household assets as a result of the recession. The global mortality protection gap widened by 1.7% yoy to a new high of USD 427 billion in 2019, continuing the rising trend of the past two decades (see Figure 2). This was largely caused by a widening mortality

[1] Coronavirus Disease (COVID-19) Dashboard, World Health Organization, 2020.
[2] Provisional COVID-19 death count by week, US Centers for Disease Control and Prevention, 2020.
[3] The Swiss Re Institute Mortality Resilience Index ise based on research into protection gaps and measure the relation between protection needed and available. The value ranges from 0-100%. The greater the value, the greater the protection relative to the needs and the higher the resilience. Some historical values changed due to data revision or revised estimates. More details about the methodology, please see *sigma* Resilence Index 2020: global resilience put to the pandemic test.

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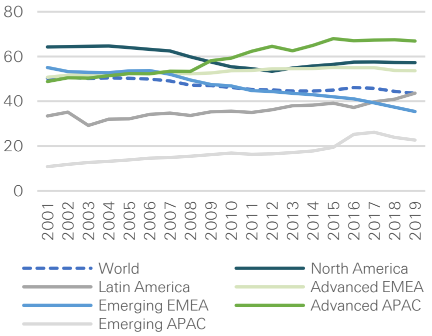
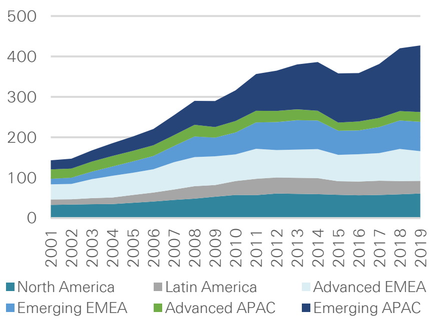
Figure 1: Mortality Resilience Index by region



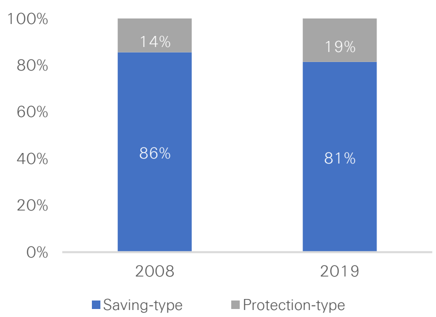
Source: Swiss Re Institute

Figure 2: Mortality protection gap by region (USD billion)



Source: Swiss Re Institute

Figure 3: Life premiums by product type



Source: Swiss Re Institute

protection gap in Asia Pacific. In emerging Asia, China's protection gap expanded by 12% in 2019, primarily due to rapidly growing household debt. Advanced Asia experienced a drop in household financial assets and reductions in the sum-insured value of life insurance in Korea and Taiwan.

Global mortality resilience has weakened steadily for 20 years, down from 50.3% in 2001, driven by the increasing weight of emerging markets with lower Mortality I-RI values. Resilience has trended down in North America and emerging Europe. North America's score declined by 5.2 percentage points after the global financial crisis (GFC), as wage replacement needs and debt grew faster than accumulated financial assets and almost-stagnant life coverage; in emerging Europe, the decline is attributable to growth in wage replacement needs. Most countries in Latin America and Asia (advanced and emerging) are more resilient to mortality risk now than in 2001, largely due to greater life insurance coverage. For example, in Brazil, life premiums grew by 13% yoy in 2019. In advanced Asia Pacific, life insurance penetration rates in Taiwan, Hong Kong, South Korea and Japan are among the highest in the world, driven by savings-type products, but these have seen little improvement in the last few years. In emerging Asia, too, the positive trend has reversed in recent years, which has been the key driver of the widening in the global mortality protection gap.

Risk protection – and mortality coverage in particular – is a core value proposition of life insurers, but to date the life insurance market has focused more on saving-type business and only a relatively small share of life insurance premiums stem from risk protection. However, the years of ultra-low interest rates since the GFC have negatively impacted sales of saving-types products, and life insurers have turned to products such as biometric risk instead.[4] The share of saving-type products in total life premiums declined to 81% in 2019 from 86% in 2008 (see Figure 3) – a positive development given many households still lack adequate protection against mortality risk.

It is crucial that insurers understand how people make insurance decisions, in order to address the mortality protection gap. Swiss Re's recent surveys in 10 key Asian markets reveal consumers' preferences towards mortality products.[5] Factors influencing purchase decisions include premium levels, sum assured, length of cover and availability of return of premium. Most consumers also prefer bundled products with add-on features, rather than pure life policies. As acceptance of digital interaction grows, life insurers should develop tools to engage with consumers online across all stages of the purchase journey.

[4] Low interest rates: what they mean for insurers, Swiss Re Institute, September 2020.
[5] Closing Asia's mortality protection gap, Swiss Re Insitute, July 2020.

Swiss Re Institute

Issue 30/2020

Economic Insights

Natural catastrophe resilience remains low as climate risks increase

Key takeaways

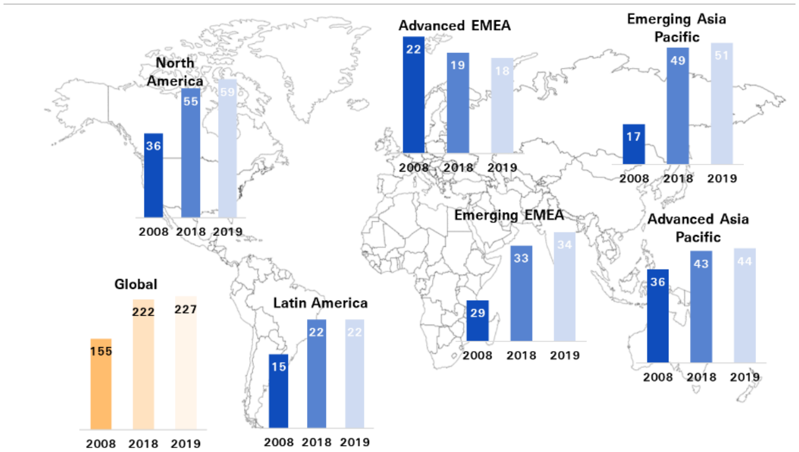
- Natural catastrophe losses in H1 2020 were higher than in the same period in 2019, with greater losses from secondary perils.
- The global SRI Natural Catastrophe Resilience Index stayed low at around 24% in 2019, with 76% of global exposure remaining unprotected.
- The natural catastrophe protection gap widened marginally to USD 227 billion globally in 2019.
- NatCat I-RIs for advanced Europe and advanced Asia Pacific improved slightly in 2019 but were lower for all other regions.
- Climate change is expected to weigh heavily on societal resilience, unless governments and private stakeholders implement mitigation and adaptation measures to withstand the impact.

In a nutshell

Insured natural catastrophe losses in the first half of 2020 were higher than in H1 2019, but below the 10-year average. The active hurricane and fire seasons under way in North America will likely push up losses and may widen the global natural catastrophe protection gap by year end. In 2019 the gap increased slightly to USD 227 billion and natural catastrophe resilience remained low with 76% of global exposure unprotected. Insurance has a key role in strengthening societal resilience.

Losses from natural catastrophes ticked up in the first half of 2020 relative to H1 2019, primarily from "secondary peril" events such as thunderstorms and floods. We expect these to continue to impact the second half too, for instance as wildfires ravage the western US. Losses from secondary perils are expected to increase in both the near and long term, driven by the warming climate. Natural catastrophes pose a major threat to societies but there is a significant lack of protection against the cost of damage to businesses and property. The global natural catastrophe protection gap widened slightly to USD 227 billion in 2019 (2018: USD 222 billion).[1] Insurance has a vital role to play in protecting families from the financial consequences of natural disasters, and so strengthening economic resilience.

Figure 1: Natural catastrophe protection gap by region, 2008-2019



Source: Swiss Re Institute

The annual Swiss Re Institute Natural Catastrophe Resilience Index (NatCat I-RI), which models exposure to three key perils (storms, earthquakes and floods) stood at about 24% in 2019, meaning 76% of global exposure was unprotected.[2] This is largely on par with 2018 and slightly down from 2008.

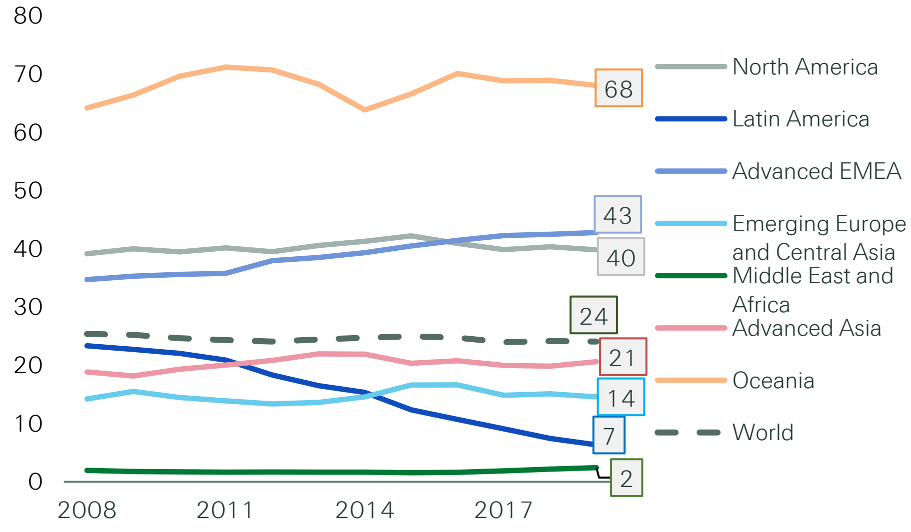
[1] *sigma* Resilience Index 2020: global resilience put to the pandemic test, Swiss Re Institute.
[2] See *sigma* 5/2019, Indexing Resilience: a primer for insurance markets and economies, Swiss Re Institute.

1 October 2020

Economic Insights

Natural catastrophe resilience remains low as climate risks increase

Figure 2: Natural catastrophe insurance resilience indices, 2008-2019



Source: Swiss Re Institute

Natural catastrophe index scores improved slightly in advanced Europe and advanced Asia Pacific in 2019 but were lower for all other regions, including North America. The driver was higher frequency of floods relative to other peril events last year, since flood risk is typically less insured. The US protection gap remains large despite lessons learned from floods and hurricanes in recent years. The most resilient region, Oceania, had a NatCat I-RI of 68.1%, down marginally from 2018 but significantly improved since 2008, due to greater insurance penetration following devastating floods in 2010-11. In the least resilient region, Middle East and Africa, the score was just 2.4%, implying roughly 98% of losses were unprotected.

Climate change will amplify the scale of secondary peril events and their associated losses. How effectively societies mitigate and adapt to this evolving situation will determine their resilience to disaster risk. The long-term profitability of the insurance industry will also rely on successfully modelling and pricing secondary peril risk, which is harder to assess than primary risk. If the total economic cost of disasters continues to increase, the natural catastrophe protection gap will also widen (and resilience decrease) without taking measures to significantly increase protection through insurance and loss mitigation. reduce greenhouse gas emissions – a societal challenge – is the major mitigation strategy against climate change. Insurers can support this transition to a low-carbon economy through innovation in the products and solutions they offer.

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Swiss Re Institute

Issue 31/2020

Economic Insights

Perception matters: understanding China's mortality protection gap

Key takeaways

- China's mortality protection gap stood at USD 41 trillion in 2019 by our estimate, equating to about 280% of GDP.
- Life insurance makes a far smaller contribution to mortality risk protection in China than in advanced economies and others of similar GDP per capita in Asia.
- Consumers share a perception that life insurance protection is not necessary, despite high awareness.
- The premium growth potential is estimated at USD 160 billion per year in China should the mortality protection gap be closed.
- Insurers can help to ensure consumers fully understand the benefit of using life insurance to mitigate mortality risk.

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In a nutshell

Insurance protection for mortality risk in China is low, with life insurance penetration of only 0.3% of GDP in 2019 despite double-digit growth in the life market for the past decade.[1] Consumer awareness of life insurance is high, but perceptions mean many do not use it to mitigate mortality risk. We estimate China's mortality protection gap in terms of sum insured at USD 41 trillion in 2019, or about 280% of national GDP. Insurers will need to communicate the benefits of life cover to seize this significant growth opportunity.

China's life insurance market has grown at a compound annual growth rate of 12% in the decade to 2019. Despite this, life insurance penetration remains low, at 0.3% of GDP in 2019, leaving households significantly exposed to mortality risk. Swiss Re's Institute's latest study estimates China's mortality protection gap – the shortfall in financial resources to maintain households' living standards and repay debts in the event of loss of the primary breadwinner(s) – at USD 41 trillion in terms of sum insured in 2019.[2] This equates to 282% of annual GDP, or 8.4x total annual household income, and represents almost half of the total Asia mortality protection gap (see Figure 1). Swiss Re Institute estimates that 70% of households' mortality risk remains unprotected. For life insurers this is a growth opportunity that could generate USD 160 billion of additional life insurance premiums per year on average from 2020 to 2030 (the premium-equivalent mortality protection gap).

The drivers of the mortality protection gap are significant income replacement needs due to China's large working population; rising wages, incomes and cost of living; and growing household debt. Under-protection is also a factor. Life insurance is the smallest contributor to protection available in China, after non-primary property, and financial and illiquid assets, accounting for only 11% of households' total available financial resources (see Figure 2). This is far below the 44.2% average for advanced Asia as well as emerging markets such as Thailand (27%) and Indonesia (19%).[3]

To close this gap will require addressing perception issues that contribute to low take-up of life insurance. Consumers in China typically avoid discussion of mortality risk and do not proactively seek protection for their families. Swiss Re's surveys found that only 17% of Chinese respondents felt they can openly discuss mortality with their families, the lowest level in Asia and below the Asia average of 24%. A third of Chinese respondents felt it was unnecessary to prepare for mortality risk – the highest level in Asia – and overlooked the mortality risk of their families. When estimating their risk exposure, almost 60% of high-risk Chinese respondents underestimated the magnitude of their potential financial stress. And those who

[1] Swiss Re Institute estimate. This refers to life insurance solely to cover mortality risk.
[2] *Closing Asia's mortality protection gap*, Swiss Re Institute, July 2020. Study based on Asia mortality protection surveys. Covers all survey references in this report. For more on the mortality protection gap, see *sigma Resilience Index 2020: global resilience put to the pandemic test*, Swiss Re Institute, 2020.
[3] GDP per capita (2019) in China, Thailand and Indonesia are USD 9751, USD 7834 and USD 4135 respectively.

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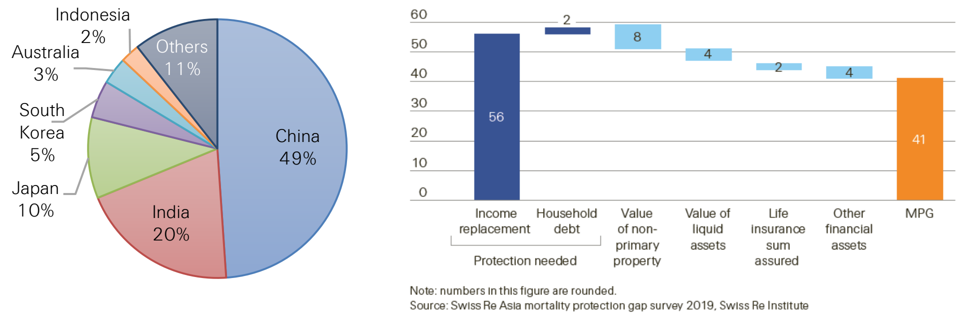
were aware of mortality risk and had searched for life products online often did not complete the insurance application process. The surveys also found that a significant share of Chinese respondents (27%) decided not to buy a life policy after searching online – less than in Japan (36%) but nearly 10 percentage points higher than the other Asian markets surveyed. Only 37% of respondents owned life policies, making China's awareness-to-ownership gap of 59% the largest in Asia (Asia average: 40%).

Figure 1:
(LHS) Asia's mortality protection gap by market
(RHS) Components of mortality protection in China (USD tn)



Source: Swiss Re Institute

Chinese consumers are also less willing to consider buying life policies because they are more confident of their protection from other sources. Swiss Re's Asia mortality protection surveys found life insurance awareness in China was as high as 86%, above even popular lines such as critical illness (77%), medical insurance (79%) and accident (84%). However, life policies in China typically contain a significant saving component so are often viewed as wealth management products rather than risk covers, although they contribute to household wealth so form part of mortality protection. Chinese consumers may also be more inclined to seek health protection instead of coverage for mortality risk since they underestimate their need for mortality protection. The surveys found more than two thirds of Chinese respondents planned to purchase health or accident insurance rather than life cover to improve protection against mortality risk. This compared with only 39% for the rest of the Asian markets surveyed.

Life insurance in China offers great potential for insurers due to its low penetration and high unmet demand. The regulator is also supportive and is guiding the industry towards more protection-type products. For insurers, strategies to address perception issues include collaborating with government or using social media to educate consumers on how life insurance can mitigate mortality risk. We expect consumers will still need clear, proactive in-person communication alongside digital engagement. Insurers should use new digital capabilities to improve pricing and underwriting efficiency, while taking advantage of China's high digital penetration to extend their reach to customers in rural areas.

Swiss Re Institute

Issue 32/2020

Economic Insights

Motor insurance reform in China: a win-win for consumers and insurers

Key takeaways

- China's motor sector reforms include an increase in compulsory and voluntary coverage limits, lower rates and more dynamic pricing.
- The changes will likely lead to near-term pricing volatility.
- We also forecast a 5% contraction in motor premium volumes in real terms in 2021 as new base rates and risk loading factors phase in.
- However, we see a swift return to 3% premium trend growth in real terms in 2022.
- In the longer term, consumers will benefit from lower prices, more choice and better protection.
- With more dynamic pricing, insurers will develop more varied revenue streams from new products such as electric vehicle and usage-based and telematics insurance.

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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In a nutshell

The Chinese regulator launched the largest motor insurance segment reform of the past two decades in September 2020. The shock will likely result in increased price volatility and premium growth slowdown in the near term, but will benefit both the consumers and insurers in the longer term. We forecast a swift return to trend sector growth.

China is the second largest car ownership market in the world, and motor insurance is the largest P&C line of business in the country. Last year 260 million motor vehicles were insured in China, generating premiums of CNY 818.8 billion.[1] The stage is set for further market development as the national regulator introduced comprehensive reforms of motor insurance including on pricing, fee structures and scope of coverage. The reforms will address long-standing issues that have hindered development of a more dynamic market such as high commissions, non-transparent fee structures, product homogeneity and inflexible pricing. The reforms will likely generate near-term market disruptions but in the long run, consumers will benefit, and we forecast a swift return to annual 3% motor premium trend growth in real terms from 2022 onwards.

We expect the changes will generate near-term pricing volatility. The new market conditions will be challenging for small- and medium-sized insurers in China heavily reliant on motor business, and we forecast a 5% drop in premium volumes in 2021 in real terms as new premium rates and risk loading factors phase in. The longer-term outlook, however, is positive. There will likely be a decline in the motor insurance expense ratio which, at 40%, is currently among the highest in the world. Likewise, the sector's combined ratio, which has hovered at around 100% since 2005, could improve. When the new higher loss and lower expense ratio requirements come into play, intermediaries' profits will be squeezed, prompting more efficiency initiatives. Firms with better sales expenses management will benefit. Also, optimised rating factors and lower risk premiums will incentivise safe driving behaviour, encourage more innovative product design, enriched services and dynamic pricing.

The outcomes will be positive for both consumers and insurers. Consumers will benefit from lower prices, more choice and better protection, while insurance companies will see more varied revenue streams from new products and services such as electric vehicle insurance, usage-based insurance and telematics, laying the foundation of sustainable industry development. China is the world's largest electric vehicle manufacturer and market in the world, with an electric car parc of more than 4 million in 2019.[2] The burgeoning market creates demand for electric insurance with different pricing mechanisms than for traditional gasoline cars. With strong government support and fast-growing demand, usage-based insurance is also gaining traction.

In terms of detail, the scope of this motor insurance reform is unprecedented. By increasing both the compulsory (RMB 122 000 to RMB 200 000) and voluntary

[1] See http://www.xinhuanet.com/auto/2020-04/10/c_1125836541.htm (in Chinese only)
[2] See http://energy.people.com.cn/n1/2020/0325/c71661-31647590.html (in Chinese only)

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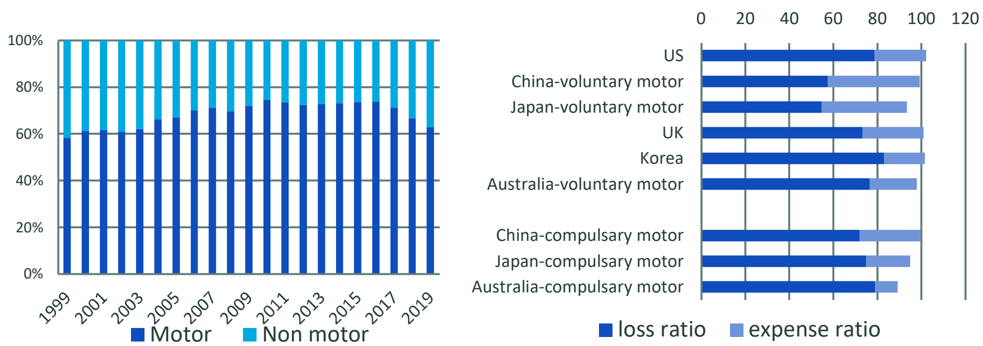
(RMB 5 million to RMB 10 million RMB) motor insurance coverage limits, the level of sums of insured in China will close to that of advanced markets. Consumers will benefit by having more cover at the same or lower prices, as the regulator has also cut premium rates by decreasing the expense rate loading factor that insurers can charge from 35% to 25%, and re-calibrating industry base rates accordingly. The effect will be to reduce the base rates and render more discounts for no-accident policy holders. Also, the industry is preparing for further de-tariffication through a two-step approach. First, insurers will be able to set rates in a range of 0.65 and 1.35 of base rates and, when market conditions allow, the authorities will remove the range altogether, giving insurers full pricing power. Part of the supervisory requirements for P&C have already been moved to province level to meet the local needs with respect to the reforms.

The development path of motor insurance has differed across countries but the overall experience of reform and de-tariffication has been to make markets function more efficiently. For voluntary motor insurance, the common trend across countries has been towards lighter regulation and market-led pricing. For the economies with stand-alone compulsory motor insurance, some regulatory intervention and tariffs have avoided cut-throat pricing and competition, as in the case of Australia and Japan. International experience also indicates that de-tariffication tends to lead to market restructuring. For instance, after the reforms of late 1990s in Japan, 13 P&C insurers consolidated into three mega insurance groups with over 80% market share. Similar patterns have been observed in other advanced markets. Motor insurance is a typically low-margin business, and scale is important factor in sustainability. In the US, UK and Koreas, for example, the motor insurance sectors have all experienced substantial underwriting losses in the past 20 years, and the combined ratio remains at around the break-even point. Countries with a higher proportion of direct distribution channels like the US and UK tend to have lower expense ratios and better insurance scheme efficiency. Japan is an exception, with still long-term and stable relationships between insurers and intermediaries, and also a higher expense ratio than the US and euro area.

Figure 1
Motor insurance premium share in China P&C market (LHS); Combined ratio of motor insurance in selected markets (2016-2018 average, %, RHS)



Sources: China Bank and Insurance Regulatory Commission (CBIRC), Insurance Information Institute(III), General Insurance Association of Japan (GIAJ), Association of British Insurers(ABI), Korea Insurance Development Institute(KIDI), Australian Prudential Regulatory Authority (APRA), Swiss Re Institute

Economic Insights

Italy: COVID-19 is a wake-up call to bolster national resilience

Key takeaways

- COVID-19 has hit Italy hard, with real GDP expected to contract by 10% in 2020, and low economic resilience will constrain its recovery.
- The pandemic is exposing existing vulnerabilities such as high public debt, which will reach above 160% of GDP this year.
- Health resilience is likely to weaken due to COVID-19 as public spending and incomes fall.
- The crisis offers an opportunity to build future resilience with support from EU funds, of which Italy is the largest single recipient.
- The private insurance sector can play a role in reducing healthcare system vulnerabilities.

In a nutshell

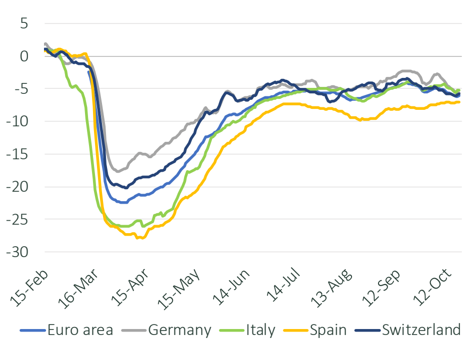
The COVID-19 pandemic represents an acute health and economic crisis for Italy. The country's low economic resilience, driven by high public debt and adverse demographics, will hamper the recovery. Still, the crisis creates an opportunity to build future resilience, aided by EU funds. Public and private stakeholders, including insurers, will need to step up efforts to support healthcare provision to improve resilience.

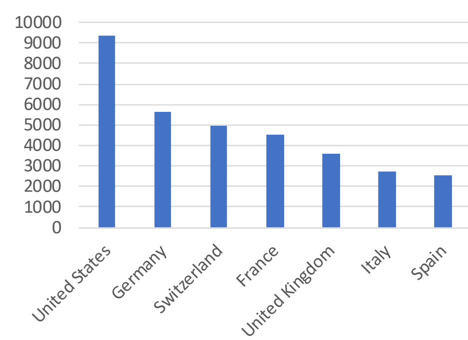
Italy was the first country outside Asia to experience a major COVID-19 outbreak. The government imposed the most stringent restrictions in Europe to relieve pressure on the healthcare system, with more than a quarter of economic activity shut down at the crisis peak in April (see Figure 1, left hand chart).[1] Real GDP fell by 18% in the first half, worse than the Euro area average of 15% and behind only Spain (-23%) and France (-19%), which also imposed strict lockdowns. We expect Italy's real GDP to contract by close to 10% in 2020 before recovering 5% in 2021, though the latest rise in new infections is a downside risk to that foreast. Public health spend per capita is less than half that of Germany and Italy's healthcare system, which is regionally fragmented with limited national coordination, will remain under pressure. Insurers are a key stakeholder in the healthcare ecosystem and can support healthcare provision to increase the country's resilience to shocks.

The COVID-19 crisis exposes existing vulnerabilities in Italy such as a shrinking working-age population and falling fertility. The share of people aged 65 and above is growing, projected to increase from 23% in 2020 to 27% by 2030. Without a boost to productivity, Italy will stagnate. The pandemic is estimated to lift this year's fiscal deficit to 13% of GDP and public debt above 160% of GDP by the end of 2020,[2] reducing the government's room for manoeuvre. Italy's economy is unlikely to return to its pre-crisis expansion path due to the country's low economic resilience (our

Figure 1 (LHS)
Estimated GDP shortfall indices, based on Google and Apple mobility data

Figure 1 (RHS)
Public health spending (including compulsory schemes), select economies, USD purchasing power parities





Source: Google, Apple, OECD, Swiss Re Institute

[1] By the Oxford University Government Response Stringency Index measure of stringency.
[2] According to IMF estimates.

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recent *sigma* study ranked Italy 30 out of 31 major global markets for economic resilience in 2019, mainly due to low fiscal space).[3] We estimate real GDP will be 4% below the pre-crisis path by the end of 2022.

The pandemic has highlighted the importance of strong health infrastructure. Italians became painfully aware of this as the strain on their healthcare system contributed to one of the world's highest COVID-19-related mortality rates per number of reported cases, and one of the highest of advanced countries by mortality per 100 000 people.[4] Italy has universal health coverage, but public healthcare spending per capita is 40% lower than in France and less than half that of Germany (Figure 1, right hand side), and a portion of healthcare protection needs are not met by either the government or private insurance schemes.[5] We expect the country's health resilience to weaken due to COVID-19, as falling incomes and strained public finances increase households' exposure to stressful healthcare spending.

COVID-19 is a reminder to Italy's policymakers of the importance of long-term planning and preparedness in healthcare. Pressure on the healthcare system will likely grow due to tight fiscal budgets, higher treatment costs, rising incidence of chronic diseases and the ageing population. We expect this to make it harder to fund healthcare from public spending and household savings alone. Insurers are a key stakeholder and a strong private health insurance sector can support the public sector. Strong political commitment and consistent policy decisions will help to create a role for the private sector to strengthen long-term healthcare sustainability and national resilience to future shocks. Policymakers could also strengthen the national coordination of healthcare to make more effective use of public-private partnerships.

There are reasons to be hopeful. Italy is the largest recipient of the EU's Next Generation funds, to be disbursed over the next five years.[6] The funds amount to 12% of Italy's GDP, just over a third of which will be grants. The funding will allow Italy to step up its fiscal stimulus in 2021 and improve the composition of the fiscal response. According to the draft budget, almost half of the 2021 stimulus will be funded by EU programmes. While national funds are skewed towards transfers and tax cuts (75%), EU funds are 100% focused on investment. These have the potential to improve growth over the medium term. The ECB's asset purchases and Italy's access to cheap EU loans should also keep government funding costs low.

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[3] sigma Resilience Index 2020: global resilience put to the pandemic test, Swiss Re, 2020.
[4] According to Johns Hopkins University Mortality Analyses.
[5] According to 2019 OECD data, based on purchasing power parities.
[6] Including the Recovery and Resilience Facility.

Swiss Re Institute

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Economic Insights

Improving supply chain resilience against global disruption

Key takeaways

- The COVID-19 crisis has highlighted supply chain risk management and resilience for global companies.
- GSCs are exposed to risks including pandemics, trade tensions and natural catastrophes; insurance can mitigate these.
- Insurance solutions provide financial relief from GSC risks such as damage to external parties' property, disruptions and delays, or pandemics and political risks.
- Parametric covers designed to correlate with the risk exposures can overcome difficulties in proving the complex causal chain of a loss.
- Digital technologies can enable companies and insurers to better identify, assess and mitigate risks, as well as expand their insurability.

In a nutshell

The COVID-19 pandemic has reaffirmed companies' need for protection against costly supply chain disruptions. Global supply chain (GSCs) are complex with often-opaque inherent risk exposures. Insurance has a growing role in managing GSC risk. Solutions include contingent business interruption (CBI), supply chain, and non-damage business interruption (NDBI) insurance. Digital technologies can deliver more granular data, and stronger analytical capabilities help to expand the insurability of risks.

The global supply chain (GSC) has been honed over decades for efficiency and cost-effectiveness, but today risk management considerations are increasingly important. Events this year, from high trade tensions to the COVID-19 crisis, have exposed GSCs' vulnerabilities. Companies face risks such as failures of transport and communication networks, natural and man-made catastrophes, interruptions in financing and currency convertibility, and regulatory and political risks. The frequency of costly supply chain disruptions from natural catastrophes has risen notably over the past 15 years. Examples of high-visibility supply chain events are the Tohoku earthquake and tsunami in Japan (2011), floods in Thailand (2011) and the Tianjin harbour explosions in China (2015). Risk transfer via insurance can offset GSC risks. Several insurance solutions exist to address national and international disruptions (see Figure 1).

Many global manufacturers are focusing on strengthening supply chain resilience in response to greater disruptions. Strategies include re-shaping GSCs by reducing the number of suppliers and clients, increasing inventories, simplifying and shortening the production process, and regionalising and reshoring supply chains. In addition, the changing geopolitical landscape, especially rising tensions between the US and China, results in a decoupling of geographical spheres of influence and building of parellel supply chains.[1] Insurance is emerging alongside these as an effective risk management tool.

CBI insurance is linked to the property risks of an external party such as a supplier or client, compared with standard business interruption (BI) insurance, which is triggered only in the event of an insured's own-property loss. CBI can therefore mitigate certain supply chain risks. While typical BI and CBI policies cover physical damage risks, they do not cover other supply chain risks such as pandemics or political risks. NDBI insurance solutions can cover events such as pandemics, strikes, civil unrest or military action, and/or where regulatory actions, political risk or natural disaster events (earthquake, flood or volcanic eruption etc) lead to significant delays or disruptions.

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[1] *sigma* 6/2020 - De-risking global supply chains, Swiss Re Institute, September 2020.

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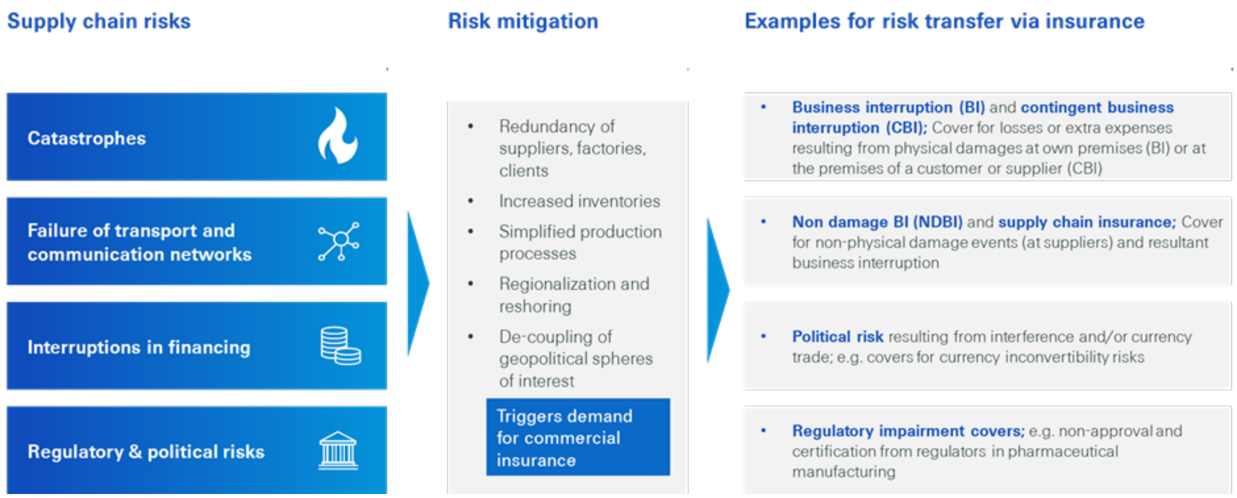
Figure 1

Supply chain risks, risk mitigation and insurance solutions



Source: Swiss Re Institute

Supply chain insurance is a further solution that provides specific coverage for disruptions or delays in the receipt of products, components or services from named suppliers where no physical damage to property is involved. Other related covers are regulatory impairment insurance and political risk covers for currency inconvertibility risks. Some of these solutions are based on parametric insurance rather than indemnity due to the nature of the risks. Parametric covers are tied to pre-defined parameters, which are chosen to correlate with the risk exposures. This can overcome difficulties in proving the complex causal chain of a loss.

Corporates and insurers alike need to assess complex and often opaque risk exposures to identify the risks inherent in GSCs. Mapping different tiers of suppliers is critical to model and monitor production flow. More granular data and deeper analytical capabilities are crucial to improve risk mitigation as well as to develop new insurance solutions. Digital technologies offer ways to better understand the supply chain, enabling risks to be identified, assessed, monitored and mitigated in a more targeted manner. New digital supply-chain platforms and ecosystems, and sensor technologies, are transforming the granularity of data available to corporates and insurers. Similarly, structured and unstructured data can be collated increasingly effectively by fast-evolving analytical capabilities, enabling deeper insight into complex, interconnected systems. With these insights, corporations and insurers can develop solutions to proactively mitigate and insure risks.

Swiss Re Institute

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Economic Insights

Financial inclusion: an opportunity for insurers as digitalisation accelerates

Key takeaways

- The COVID-19 crisis reinforces the importance of improving financial inclusion to strengthen the global economy.
- Insurance plays a key role in providing financial reliefs to buffer household from shocks, but the most vulnerable tend to have very limited coverage.
- The acceleration in digitalisation prompted by COVID-19 enables insurers to offer more affordable products via digital channels to the under-served.
- Public-private partnerships will be crucial to build a digital-friendly environment and ensure equal access.

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In a nutshell

The COVID-19 crisis is disproportionately affecting more vulnerable parts of society and highlights the need for broader financial inclusion. Insurance plays a key role in expanding access to financial services and reducing protection gaps. This can help countries rebuild better and more inclusively post-pandemic. Insurers have an opportunity to leverage the acceleration in digitalisation from COVID-19 to offer tailored, affordable products to under-served segments to improve societal resilience.

The pandemic is having a disproportionate impact on small businesses and low-income households. These typically lack financial inclusion as they have less access to financial services such as bank accounts, payments, loans, savings and insurance. Almost a third of adults globally (about 1.7 billion people) remain unbanked, half of whom are from the poorest 40% of the world population.[1] Extending traditional financial services to such groups can increase economic growth and reduce income inequality, International Monetary Fund (IMF) studies have found.[2] Lack of financial inclusion also hampers insurance penetration, which relies in many ways on access to the formal financial sector. However, COVID-19 is accelerating the digitalisation of financial services and can enable insurers to provide tailored, affordable products to under-served consumers. Mobile telephony is important to offer solutions such as mobile-based microinsurance, but broad-based gains in financial inclusion will rely on public policy steps including infrastructure investment and digital-friendly regulation.

Expanding the reach of insurance is a crucial step to strengthening household and societal resilience, as it provides financial reliefs to cushion economic, health or mortality shocks. The most vulnerable people have very limited insurance coverage to protect them: Swiss Re Institute estimated a global insurance protection gap for health, mortality and catastrophe risks of USD 1.2 trillion (in premium equivalent terms) in 2019, over 60% of which originated from emerging economies.[3] Affordability is one key reason for low insurance takeup, but lack of financial inclusion is another. Insurance penetration is correlated with access to the formal financial sector, empirical evidence shows.[4] Examples of this include the need for banking payment systems to access traditional insurance products, and requirements for insurance protection for loan collateral (e.g. mortgages). Bancassurance is a

[1] Without an account at a bank, microfinance or another type of regulated financial institution. The Global Findex Database 2017.
[2] *Financial inclusion: can it meet multiple macroeconomic goals?* IMF staff discussion note, September 2015, Finance and inequality, IMF staff discussion note, 17 January, 2020
[3] *sigma Resilience Index 2020: global resilience put to the pandemic test*, Swiss Re Institute, 2020.
[4] Holzheu, T., and Turner, G, The natural catastrophe protection gap: Measurement, root causes and ways of addressing underinsurance for extreme events, *The Geneva Papers on Risk and Insurance-Issues and Practice* 43(1), 2018.

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main distribution channel in many countries, as sales of insurance often complement other customised financial products. Greater financial literacy, a benefit of engaging with banking services, drives insurance take-up. However, digital and mobile distribution are increasingly reaching those with limited access to traditional financial products.

The COVID-19 experience is accelerating the trend of digitalisation of financial services.[5] We expect this to benefit low-income households and small enterprises, where access to traditional financial services is more limited. Digital technology can increase efficiency, lower distribution costs and remove barriers from geographic distance. An IMF study found that between 2014 and 2017 digitalisation raised financial inclusion even where traditional banking services were contracting.[6] Digitalisation also enables insurers to offer new, tailored, more affordable products to reach under-served segments. For example, in Brazil, the Insurtech TôGarantido – in partnership with Chubb – recently launched a low-cost life insurance product (100% digital) bundled with health benefits, targeting low- and middle-income segments.[7]

Table 1: Top 10 countries for unbanked adults and mobile phone ownership

	Unbanked adults, mn	Unbanked adults, %	Unbanked adults owning a mobile phone, %
China	224.3	20%	82%
India	191.3	20%	54%
Pakistan	99.0	79%	47%
Indonesia	96.6	51%	64%
Nigeria	62.7	60%	59%
Mexico	58.7	63%	55%
Bangladesh	57.9	50%	59%
Vietnam	49.3	69%	79%
Brazil	48.4	30%	79%
Philippines	46.0	66%	71%

Source: The Global Findex Database 2017.

Mobile distribution is particularly relevant for reaching the under-served since two-thirds of unbanked adults globally own a mobile phone (see Table 1). Mobile-based microinsurance can leverage existing mobile platforms to reach low-income populations in rural and remote areas and so support financial inclusion. In Ghana, where more than seven million adults are unbanked, four million insurance policies are tied to mobile network operators.[8] Alternative channels like utility and online third-party platforms also contribute to increasing insurance access. In China, banner ads on platforms such as Alipay and WeChat are emerging as key purchase channels, in particular for simple and cheap insurance policies.

The pandemic has underlined the world's unequal access to digital services due to infrastructure limitations such as internet coverage, digital ID and literacy. The need for public and private investments and a digital-friendly regulatory environment is ever-more relevant. Higher financial inclusion in China and India, where 80% of adults are banked compared to 63% in emerging markets overall, was achieved through conducive government policies, private sector innovation and an effort to open low-cost accounts.

[5] *Realizing the digital promise. COVID-19 catalyzes and accelerates transformation in financial services*, Deloitte and Institute of International Finance, 2020.
[6] *The promise of fintech: Financial inclusion in the post COVID-19 era*, International Monetary Fund, July 2020.
[7] "Chubb partners with startup TôGarantido to offer policies for "less favored"", *Sonho Seguro*, 2 April 2018.
[8] *Financial inclusion in insurance*, MAPFRE Economics, June 2020.

Swiss Re Institute

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Economic Insights

Wealth of nations: why it matters for policy makers and investors

Key takeaways

- Integrated reporting incorporating "net assets" provides a more complete view of a country's financial health than debt-to-GDP.
- Spend smarter: governments can earn about 3% of GDP in new revenue if they know what they own and how to put assets to better use.
- To date, only New Zealand systematically reports net worth.
- The information can help countries with weaker balance sheets to better manage their typically deeper recessions and slow recoveries.
- Net worth reporting would also give investors an additional yardstick to assess sovereign risk.

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In a nutshell

A truer picture of a country's "net worth" that includes insights on national assets and liabilities would allow for better-informed policy decisions and unlock new public-sector revenue generation opportunities. It would also provide global insurers and other private-sector investors an additional yardstick to assess sovereign credit risk.

Long overdue: integrated public financial reporting that provides insights on national assets and liabilities, in addition to standard income statement details of revenue streams and spending outlays. It is something every country can, but which nearly all, do not do. The practice would help governments better manage national resources through balance sheet risk and policy analysis. The IMF estimates that governments could generate additional revenues of about 3% of GDP annually if they knew what they owned and put their assets to better use.[1] Such reporting would also give investors, including insurers, more visibility into a country's true fiscal capacity and resilience.[2] The advanced economy sovereign bond market is liquid and transparent, but absent information on national assets and liabilities, it remains difficult to ascertain holistically a country's true long-term creditworthiness. A consolidated view of national finances that includes net asset would offer an additional yardstick of a country's longer-term solvency prospects beyond that priced in by financial markets through sovereign credit default swaps (CDS, see Figure 2).

Accounting for assets and liabilities exposes what can be a fundamental shortfall of simple debt-to-GDP ratios. For example, Japan, with a public debt-to-GDP ratio of around 265%, is often cited as a high risk. However, its asset base is one of the largest in the world (see Figure 1), resulting in a roughly neutral "net worth" (assets – liabilities incl. pensions). Meanwhile, the UK's government debt ratio is about 110% of GDP, below Japan and many euro area countries. [3] But with relatively high liabilities and comparatively few assets, UK net worth is negative at almost -125% of GDP. Germany has a relatively low government debt ratio of around 70%, but its net worth is also negative at around -20% of GDP. This highlights that in many cases, public balance sheets may be less resilient than usual macro variables describe.

COVID-19 may change this dynamic still further. The crisis has led to a huge expansion in government guarantees, typically backing corporate loans.[4] In many cases these dwarf the direct fiscal stimulus packages but are "off-

[1] *The Wealth of Nations: Governments Can Better Manage What They Own and Owe*, IMF, 9 October 2018.
[2] Roughly 50% of global life insurers invest in sovereign bonds, according to the OECD Global Insurance Market Trends 2019 report.
[3] According to the IMF's fiscal monitor projection of October 2020, the debt-to-GDP ratio in France and Spain is at around 120%, and at about 160% in Italy. The estimates in figure 1come from the IMF from 2016
[4] E.g. in Germany, direct fiscal stimulus in 2020 will be equivalent to roughly 10% of GDP, while equity, loans and guarantee provisions amount to about 30% of GDP, according to the IMF's October 2020 Fiscal Monitor.

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balance sheet" liabilities and only show on-balance when drawn. Other contingent liabilities such as pension commitments are similarly often not adequately accounted for.

Figure 1
Country net worth as % of GDP

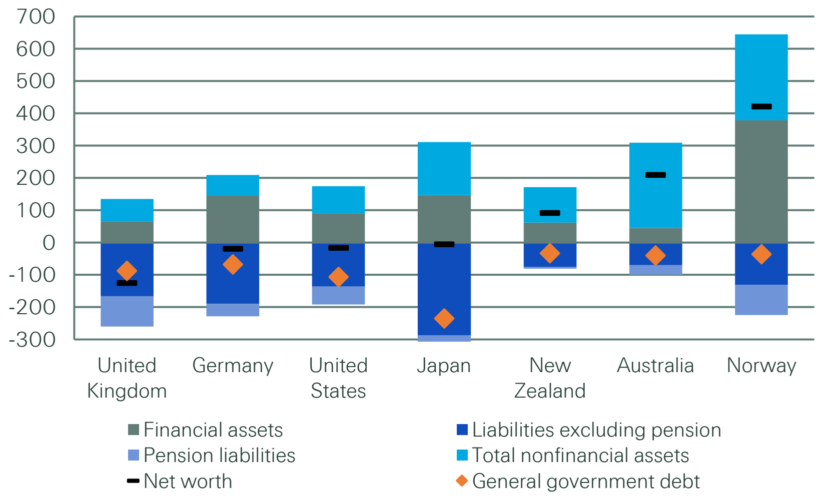


Figure 2
Sovereign 5-year CDS spreads, in bps

Australia	15
Germany	13
Japan	19
New Zealand	18
Norway	13
UK	22
US	19

Source: Left: IMF, Swiss Re Institute. Latest available data is from 2016. Right: CDS data is obtained from Bloomberg, as of 6 November 2020

An integrated approach to evaluating public finances would enable cleaner decision-making when considering trade-offs between fiscal policy choices, allowing governments to better manage their resources to meet economic and social goals. This is crucial because countries with weaker balance sheets – such as several euro area countries – experience recessions roughly twice as deep and long as those with stronger balance sheets, and recoveries only about a third as strong.[5] The IMF estimates that governments could earn about 3% of GDP more in revenue each year if they knew what they owned and how to put their assets to better use. Integrated public financial reporting would enable investors to better understand a country's true fiscal capacity, particularly as rating agencies typically only include a qualitative assessment of the reporting principles when rating a sovereign.

New Zealand typifies international best practice in public financial reporting as it continuously reports its net worth. Importantly, every country can do so.

[5] *Public Sector Balance Sheet Strength and the Macro Economy*, IMF Working Paper, 2019.

Economic Insights

US social inflation amid the COVID-19 recession – here to stay?

Key takeaways

- Social inflation in the US is driven primarily by outsized awards for non-economic damages.
- Disinflationary forces from the COVID-19 recession will provide temporary relief, but the crisis is aggravating trends like inequality.
- A policy reset that prioritises inclusion and equality could reverse some of the underlying trends contributing to social inflation.
- The insurance industry may benefit from more focus on forward-looking liability exposure management and product innovation, as well as adapting their defence strategies.

In a nutshell

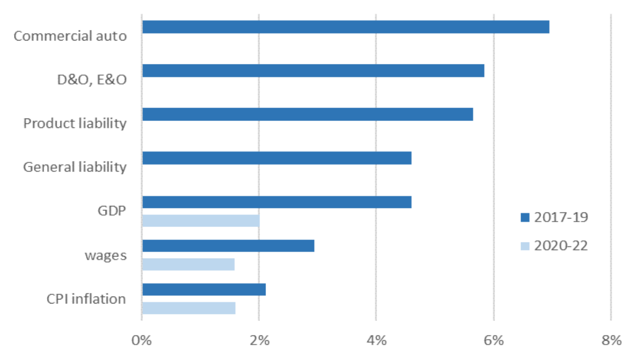
We believe social inflation in the US is here to stay. The pain has spread across commercial liability lines of business, due to outsized awards for non-economic damages. The COVID-19 recession will ease pressure from economic drivers but will aggravate contributing social trends like inequality. A policy reset towards societal inclusion is needed. Insurers may benefit from more focus on forward-looking liability exposure management, product innovation and on adapting their defence strategies.

We have flagged social inflation for some time as a key factor pushing up loss costs in US excess liability and reinsurance.[1] We expect this trend to continue in the next couple of years, despite the short-term disinflationary forces from the COVID-19 recession. Social inflation generally refers to the increasing severity of insurance claims beyond economic drivers, due to societal trends. There will be casualty claims directly linked to COVID-19 that are out of scope of this note. Social inflation has spread across commercial casualty lines in recent years due to non-economic drivers that include the trial bar's use of psychology-based strategies; litigation funding; and inequality (see Table 1).

The effects of social inflation are felt most heavily in the US due to a rise in nuclear verdicts, mostly driven by outsized awards for non-economic damages.[2] The recent escalation of US liability insurance claims is concentrated on large verdicts and (large) commercial defendants. For general liability, the probability distribution of losses has become more skewed towards large claims rather than a trend of accelerating average claims severity. In commercial auto, professional liability and product liability lines, also average claims growth has accelerated and exceeds economic activity as measured by nominal GDP (see Figure 1).

Figure 1

US claims growth and economic drivers; annual average growth [3]



[1] For example: *Social inflation: a building pain point in US liability insurance,* Swiss Re Institute, Economic Insights, November 2019.
[2] Loosely defined as jury verdicts that exceed USD 10 million.
[3] Claims growth is based on accident-year schedule P data. Sources: SNL, Swiss Re Institute.

About Economic Insights
Analysis of key economic developments and their implications for the global re/insurance industry.

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We expect economic drivers of claims inflation, such as consumer price inflation and wage growth, to be lower than recent pre-COVID 19 trends for next year. However, this relief will only be temporary while there is slack in the economy and inflation risks are rising in the medium term. It is primarily the non-economic factors that explain the increase in nuclear verdicts and so contribute to social inflation (see Table 1). These include a general anti-corporate environment, expanding concepts of liability, greater willingness to settle conflicts via the legal system, attorney advertising, application of psychology-based strategies, litigation funding, broader insurance policy interpretation and more generally, a plaintiff-friendly environment.

The current crisis is likely to amplify rather than alleviate the societal factors in play, such as economic, educational and health inequality. Without a broader policy reset to reduce inequality, social inflation is here to stay. From an insurance industry perspective, investments into forward-looking liability exposure management and product innovation will need to be more prominent, alongside adapting their defence strategies.

Table 1
Outlook for the non-economic factors contributing to social inflation

Plaintiff / defendant bar tactics	• The plaintiff bar's applied psychology tactics (focus on emotions rather than facts) will spread as more law firms adopt them. • Defence lawyers are only slowly adapting to react effectively to the tactics of the plaintiff bar, hence the defence bar may regain some control but catching up will be challenging and take time.
Litigation funding	• Litigation funding is expected to continue to grow over the next five to 10 years as more players enter the space and awareness among lawyers increases. • Regulation could be a counter-force, e.g. requiring disclosure of litigation funding or capping usury rates of funders.
Social attitudes	• Mismanagement of the COVID-19 crisis is likely to further erode trust in corporations and institutions and strengthen support for social activism through the tort liability system. • (Social) media continue to swiftly broadcast negative news driving outrage and polarisation. • Mid- to long-term changes are less clear and will depend on whether society and politics are further divided or manage to come closer together and adopt inclusive policy changes.
Inequality	• COVID-19 has deepened economic, educational and health inequality. • Without a major policy reset, there is no indication that the long-term trend of rising inequality would change.
Tort reform	• Tort reform has curbed prior episodes of social inflation. No significant legislative developments on tort reform are expected in the next few years. It is not considered a pressing issue by either major political party and a divided Congress makes reforms unlikely at federal level. • There is no clear trend at state level.
Court leaning	• A large number of federal judge appointments by the Trump administration (> 222) has turned federal courts more conservative, which could tilt decision-making to be more defendant-friendly. • However, most cases (97%) are treated in state courts where no clear trend is apparent.

Source: Swiss Re Institute

Swiss Re Institute

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Economic Insights

Power up: insurance-backed investment to fuel sustainable growth in Africa

Key takeaways

- Renewable energy sources are cost-competitive with fossil fuels.
- This will drive development of the renewable energy technologies (RETs) sector in Africa.
- Investment in RETs will help close the existing power gap and underpin sustainable economic growth on the continent.
- With a regulatory environment that encourages private-sector involvement, we estimate total investments in RETs in Africa of USD 180-400 billion up to 2030.
- The RET sector represents a USD 6-8 billion premium opportunity for insurers over the same time span, or USD 500-700 million per year.

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In a nutshell

Investments in renewable energy technologies will play a key role to fill the existing power void in Africa. Given now low costs, the sector can kick-start recovery and sustainable growth after this year's recession. Insurance will be a key facilitator for investments.

We estimate this year's pandemic will lead to a contraction in full-year real gross domestic product (GDP) in Africa of 2.9%, the deepest recession on the continent in more than three decades. We project slow 2% recovery in 2021, with commodity-intensive producers in particular hit by low oil prices and well overdue economic reforms. We remain positive for the longer term: as in other emerging markets, infrastructure investments will be a key growth driver.[1] In Africa specifically, investment in renewable energy technologies (RETs) can help bridge the existing power gap and underpin sustainable economic growth. For example, it is estimated that an upgrading of RET productive capacity will create about 1 million new jobs by 2030.[2] Supporting transition to renewable energy is low cost: contrary to popular perception, RETs are cost-competitive. With a supportive regulatory environment, insurers can facilitate sector development as providers of risk capital and risk covers, including for volatility in revenue streams. This will make the RET sector a more attractive investment proposition. For the insurance industry at large, Swiss Re Institute estimates that RET-sector related covers in Africa will yield cumulative premiums of USD 6 billion to more-than USD 8 billion by 2030.

The future of Africa's power sector relies on RETs. Since 2010 modern technologies such as photovoltaic solar, wind and concentrated solar power have grown strongly, from a low base. Also, penetration is still below other emerging regions. The International Energy Agency (IEA) projects strong growth, with installed RET generation capacity in Africa set to triple to 150 GW by 2030.[3] To date hydro power has been a mainstay of the renewables sector but in the future, in excess of 85% of additional capacity will come from more modern varieties. In the IEA's more optimistic "sustainable development scenario", capacity is project to increase by a factor of five. On aggregate we estimate total investments in RETs will range from USD 180 billion to USD 400 billion (optimistic case) over the next 10 years.

The main driver of the shift to renewable power in Africa is low cost. Mature RET such as hydro, bioenergy or geothermal power have been cost competitive with fossil fuel equivalents for many years already. And sharp cost reductions for photovoltaic solar have made this segment consistently less costly than new coal- or gas-fired powerplants.[4] Other RETs like wind and

[1] *sigma* 3/2020 - Power up: investing in infrastructure to drive sustainable growth in emerging markets, Swiss Re Institute.
[2] Global Renewables Outlook Edition 2020, IRENA, 2020.
[3] *World Energy Outlook 2020*, International Energy Agency, 2020.
[4] Ibid. Measured by levelized cost of electricity (LCOE) per unit of electricity.

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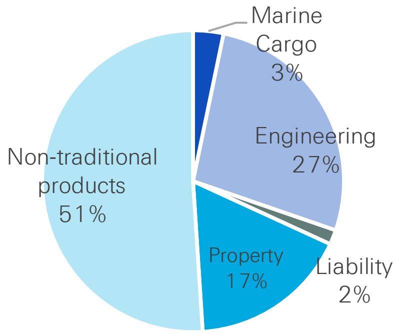
concentrated solar power are also entering the fossil-fuel cost range.[5] The trend of cost declines will continue as photovoltaic solar panels and larger wind turbines become more efficient.[6] In this cost reality, building new or maintaining coal power plants no longer makes economic sense. Other factors are important too, including the ample availability of renewable resources in Africa and the global move to a low-carbon economy. There is pressure on business and corporates to reduce the greenhouse gas footprint of supply chains. This and digitisation are enabling new business models of decentralised production and integration of RETs with variable power output.

A notable feature of renewable energy projects is that they are more capital intense than fossil-fuel alternatives. To this end, private-sector finance, including insurance that helps financially de-risk RET projects are critical. In the past, investment in power in Africa has been mostly state funded, supported by development finance institutions. With government budgets at full stretch, the private sector needs to take on a bigger role. First, however, local national authorities will need to build on the progress made in the last 10 years in establishing the regulatory and institutional environment conducive to private-sector investment in renewable energy.[7]

Figure 1 Premium potential for RET in Africa by line of business (2020-2030)



The contribution of the insurance industry is twofold. As a provider of risk capital and in building local underwriting expertise. Traditional insurance such as for marine cargo, engineering, construction or property is well established in Africa. Such is not the case for innovative covers that offer protection against volatility in revenue streams due to weather or technology risks. By smoothing revenue volatility with associated indemnification through, for instance, parametric solutions, insurers can help lower the cost of capital for operators in the RET sector. That in turn will make the sector a more attractive investment proposition. However, that underwriting expertise is still in short supply in Africa and further evolution is needed. The potential will only be realised as financiers start to demand that operators buy such insurance covers as a pre-requisite for any investment in RET projects.

Transition to renewables in Africa is also a growth opportunity for insurers. Swiss Re Institute estimates that the cumulative premium potential by 2030 from RET projects in Africa – including from traditional and non-traditional innovative covers (see Figure 1) -- will range from USD 6 billion to more than USD 8 billion (the latter assuming the IEA's sustainable growth scenario).

[5] *Renewable Power Generation Costs in 2019*, International Renewable Energy Agency, Abu Dhabi.
[6] Wind speed increases with altitude. As turbines get taller, they allow to access higher wind speeds.
[7] *Renewable energy: new power for Africa's economy and insurance markets*, Swiss Re Institute, 2020.

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