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Dear members and friends,

We will start with EIOPA's assessment of the European insurers' exposure to physical climate change risks.



The report presents the first results based on a large data collection exercise from the industry. It focuses on property, content and business interruption insurance against windstorm, wildfire, river flood and coastal flood risks.

These risks have been identified as the most relevant and potentially most disruptive for the European property insurance business under a current and forward-looking perspective.

The report aims to provide an initial assessment of the European insurance sector's exposure to climate-related hazards and inform future work in this relatively new field. The results indicate that European groups and solo undertakings included in the sample have been historically well placed to handle claims stemming from three major European natural catastrophes analysed in the report.

However, it is important to note that the insurance sector's ability to continue to offer financial protection against the consequences of such events relies on their ability to measure the likely impact of climate change and adapt their business strategies.

EUROPEAN INSURERS' EXPOSURE TO PHYSICAL CLIMATE CHANGE RISK

Potential implications for non-life business

Participants surveyed for the paper said they expect all property-related lines of business to be impacted by physical climate change risks. There is an emerging consensus among them that premiums are likely to increase and that adaptation and mitigation measures will play a crucial role in reducing risk levels in the future.

Finally, the report's findings show that there is still work to do for the insurance industry to prepare for climate-related changes. EIOPA will continue its work with national competent authorities and the industry to raise awareness and contribute to the sector's preparation for the effects of climate change.

CLIMATE CHANGE AND PHYSICAL RISKS: THE "NEW NORMAL" IN THE INSURANCE SECTOR

Table 1: Examples of chronic and acute climate-related hazards

	Temperature-related	Wind-related	Water-related
Chronic	<ul style="list-style-type: none"> • Changing temperature (air, freshwater, marine water) • Heat stress • Temperature variability • Permafrost thawing 	<ul style="list-style-type: none"> • Changing wind patterns 	<ul style="list-style-type: none"> • Changing precipitation patterns (rain, hail, snow/ice) • Precipitation and/or hydrological variability • Sea level rise • Water stress
Acute	<ul style="list-style-type: none"> • Heatwaves • Cold waves/frost • Wildfire 	<ul style="list-style-type: none"> • Tropical cyclone • Windstorm (including blizzards, dust and sandstorms) • Tornado 	<ul style="list-style-type: none"> • Drought • Heavy precipitation (rain, hail, snow/ice) • Flood (coastal, fluvial, pluvial, ground water)

Source: Extract from Final report of the EU Technical Expert Group on Sustainable Finance (TEG, 2020)

The impacts of global warming on natural and human systems are already visible today. Warming from anthropogenic emissions are likely to cause further long-term changes such as rising temperatures, sea levels, and increase in frequency, severity and correlation of natural catastrophes and climate-related extremes (e.g. heat waves, heavy precipitation, droughts and storm surges) in many European regions, and worldwide.

The effects of these climate-related changes on the pricing and underwriting of risks are likely to be substantial for a sector whose business model involves offering financial protection against the consequences of such events.

Physical climate change risks are the risks that arise from the physical effects of climate change.

These can affect both the asset and the liability side of insurers' balance sheet. On the asset side, the increase in frequency and severity of extreme weather events across different perils may impact insurers for instance through direct property investments.

On the liability side, physical risk is likely to have pricing, revenue and claim implications. Higher than foreseen claims would also increase the insurers' underwriting and liquidity risks and put pressure on capital levels.

The impacts of climate change on physical risk could arise from both an increase of extreme weather events (acute impacts), as well as from gradual global warming (chronic impacts).

Table 1 summarises the key impacts. Acute impacts can lead to damage to property, business disruption or reduced productivity. Chronic impacts, particularly from increased temperatures, sea levels rise and precipitation, may affect labor, capital and agriculture productivity.

While progress is being made in terms of understanding the potential consequences of both acute and chronic impacts on the insurance sector, many challenges remain.

First, the expected increase in global temperature needs to be translated into changes in frequency and severity of weather-related catastrophes as well as in chronic effects such as sea-level rises.

Second, these estimations need to be converted into economic impacts on the undertaking's underwriting portfolio in relevant geographical areas.

Third, a view and understanding on the relevant time horizons over which

climate-related risk are most likely to materialise are essential.

Finally, the insurance business is also likely to evolve in the long-term to better adapt to climate change risks and opportunities.

For these reasons, an accurate assessment of physical climate-change related risks requires access to a unique set of granular data, scientific and actuarial expertise, new modelling methods as well as a deep understanding of the various business models employed in the insurance sector.

While an overall assessment is outside the scope of this discussion paper, the next section explains three key components required for an initial assessment of physical risks in general terms.

Physical risk analysis in light of climate change

When modelling physical climate-change risks, three key factors need to be considered: the level of exposure estimating the potential share and composition of the population or the value and properties of assets at risk, the hazard describing the physical characteristics, such as frequency and intensity, of weather-related events and the vulnerability of the exposures to weather-related damages.

To estimate the level of risk, information on the changes in hazard are combined with the level of exposure and its corresponding vulnerability. Further, an increase in frequency and intensity of weather-related catastrophes alone do not necessary imply an increase in physical risk.

If, for example, there is no property or people living in the affected areas or if there are sufficient preventive measures installed, the damages caused by the event may be limited or negligible.

To read more: <https://www.eiopa.europa.eu/media/news/eiopa-assesses-european-insurers%E2%80%99-exposure-physical-climate-change-risks>

https://www.eiopa.europa.eu/document-library/discussion-paper/discussion-paper-physical-climate-change-risks_en

Fostering resilience: a supervisor's perspective

Fausto Parente, EIOPA's Executive Director, at the AMICE Congress in Mainz



A very good morning to you all.

I am very pleased to be joining you at this year's congress.

I would like to thank AMICE for the invitation to address you and also to congratulate R+V – the hosts of this year's congress – on their 100 year anniversary.

The theme that you have chosen for this year's conference 'The art of resilience' is particularly appropriate.

More and more resilience is becoming a highly valued quality – be it in organisations or individuals – to demonstrate our capacity to deal with shocks or change.

This is much the same for insurance – a sector that needs to be ready to respond and recover.

And I think for all of us, the term resilience took on a new importance during the pandemic.

We saw first-hand the importance of resilience.

For all of us, we put our agility and adaptability to the test. And we did this on many levels – societal, organisational and individual.

Indeed, we learnt many lessons from the pandemic about what it means to be resilient.

And as we are emerging from the pandemic to face new challenges, we are also seeing that resilience takes many forms.

And so in my remarks today, I will touch upon some of the broad issues that are on our radar and how we can be resilient in the face of those challenges.

Let me start with a few words about Russia's invasion of Ukraine. This is, of course, first and foremost a humanitarian crisis.

But we must also be aware of the potential impact of the aggression on the stability of the sectors that we supervise.

From our analysis, we see that there is a very limited direct impact on the insurance and pension sectors. Direct exposure from both the insurance and occupational pension sectors to Russia is low – around 0.1% for insurance and 0.2% for pensions.

But need to be mindful of the indirect impact of the war – rising oil and gas prices, along with higher commodity and food prices.

And so while Ukraine remains at the very top of our agenda, we also have a number of other issues on our radar.

A glance at the agenda of this year's Congress shows well enough the topics that are high on both our and your agenda.

I am talking about digitalisation, cyber, sustainability for example.

These are all areas that are resulting in profound changes to our insurance habits: the way we do business, the way we choose products.

Let me start with digitalisation.

I think that one of the biggest revelations of the pandemic was how easily we incorporated technology into all aspects of our life.

When we consider the rapid pace of technological development, we can expect digitalisation to further impact on our life.

One of the sub-themes of this conference is 'innovate' and herein lies one of the challenges that we as supervisors must face when it comes to digital technology: how do we enable innovation while ensuring consumer protection.

As insurance is a highly regulated activity, our regulatory frameworks already encompass some aspects of digitalisation.

Take artificial intelligence – or AI – for example.

Solvency II and the IDD already cover the use of AI. Then we have cross-sectoral frameworks, such as the General Data Protection Regulation

(GDPR) that provide a sound basis for the use of AI in the insurance sector as well.

In addition, the European Commission's legislative proposal for an Artificial Intelligence Act will provide a legal framework for the use of AI in the European Union.

Here EIOPA supports the Commission's risk-based approach reflected in the AI Act. Not all AI systems pose the same opportunities and risks, so there is definitely a need for proportionality. We also believe that any further regulation should specifically take into account AI use cases in insurance.

The use of AI is fairly well established in the insurance sector, however there are new trends that we are seeing that will require our attention.

First, let me mention platformisation.

We're seeing new actors including InsurTech start-ups and BigTech companies are entering the insurance market, both as competitors as well as cooperation partners of incumbent insurance undertakings.

In the case of the latter, insurers are increasingly turning to third-party service providers to gain quick and efficient access to new technologies and business models. In our thematic review on big data analytics – which is already four years old – some two-thirds of insurers reverted to outsourcing arrangements to implement AI-powered chatbots.

We're also seeing the emergence of Peer-to-Peer insurance business models using digital platforms and different levels of decentralisation to interact with members with similar risks profiles.

And of course the topic of open finance – or in our case – open insurance.

At EIOPA, we believe that open insurance may present a wide range of opportunities for both consumers and the sector, if handled appropriately and we will shortly be publishing the feedback to the consultation that we closed earlier this year on this topic.

We will also be providing input to the Commission's consultation on its open finance framework, as well as monitoring legislative initiatives related to the European Single Access Point proposal and the Data Act proposal.

We want to make sure that the voices and the view of both the sectors and supervisors are heard.

All these areas – AI, P2P, open insurance – they all depend on data and the sharing of data.

And this brings me to another aspect of resilience – that of financial inclusion.

Financial inclusion fosters a more resilient society because it means that vulnerable groups are better protected from shocks.

But when I talk about inclusion, I don't want to limit myself to just one demographic.

In insurance, for many consumers, the best offer is determined by the amount of data that the consumer provides.

This works in your favour if you are comfortable navigating financial services online.

Or if you are happy to share lots of data about yourself with insurance companies or with third party providers.

But what if you are not? And what if you find yourself excluded from products because of bias in algorithms.

We need to think about all of these things.

We need to make sure that people's data is used fairly. That those AI algorithms are free from bias so that people are not excluded from policies or products.

Transparency and explainability are two important concepts here.

Insurers must be able to explain how their algorithms work and be accountable for their systems, enabling consumers to have access to adequate redress mechanisms.

And consumers need to be aware of what is being done with their data and if they agree to share data, it must be a conscious decision to do so – so they need to really be clear on that they are sharing, what they are sharing and how it will be used.

Our consultative expert group on digital ethics has been looking at issues like these and last year published principles setting out key governance pillars for the ethical and trustworthy use of AI in insurance. A very helpful step.

And, when it comes to financial – or rather digital – inclusion, EIOPA, will assess the topic from a broad perspective, and regularly assess our own supervisory and policy work to make sure that we are looking at accessibility and inclusion.

Our increasing use of data and digital technology leads me to another aspect of resilience.

We need to make sure that all that data we share is kept securely. And that there are sufficient measures in place to protect against cyber attacks.

Indeed, digital operational resilience is essential for a well-functioning financial services sector.

The European Commission's proposal for a Digital Operational Resilience Act – or DORA, as part of the European Commission's digital finance strategy, sets out a comprehensive framework enabling a stronger supervision of the digital dimension of the sector.

The proposal builds on our work as well as that of our sister agencies – the European Banking Authority and the European Securities and Markets Authority.

The proliferation of digital technology across the entire insurance value chain has increased the exposure of insurers to the risk of a major disruption if technology fails whether through deliberate attack or system flaw.

Similar risks can be identified for insurance intermediaries and in the occupational pensions sector.

This is why we need to have good regulatory frameworks in place to that there is a proper management risk and that market participants have sufficient safeguards in place to protect against cyber attacks and other risks.

We have long highlighted cyber security and ICT resilience as critical factors and will focus our immediate work on the implementation of our recently adopted cloud computing and ICT guidelines, as well as furthering our work on cyber insurance.

For retail and corporate clients, the insurance sector can play a key role in mitigating the impact of these cyber risks and facilitate the transformation of the digital economy and reduce protection gaps.

Furthermore, cyber insurance is expected to bring additional benefits, by promoting good risk management practices of policyholders and increasing their cyber awareness.

But we know that cyber risk exposures are under more scrutiny because there can be ambiguity in the terms and conditions regarding cyber coverage of some policies.

And when there is uncertainty around coverage, we risk losing trust of policyholders.

To read more: <https://www.eiopa.europa.eu/media/speeches-presentations/speech/fostering-resilience-supervisors-perspective>

Bank of England publishes results of the 2021 Biennial Exploratory Scenario: Financial risks from climate change

Bank of England

The Bank of England (the Bank) has run its first exploratory scenario exercise on climate risk, involving the largest UK banks and insurers.

This exercise supports the Financial Policy Committee (FPC) and Prudential Regulation Committee (PRC) in the pursuit of their statutory objectives. The financial risks from the physical effects of climate change and the transition to a net-zero economy have the potential to affect the vulnerability of banks and insurers to shocks, and the stability of the wider financial system.

The Prudential Regulation Authority's (PRA's) primary objectives are to promote the safety and soundness of firms that it regulates, and to contribute to the protection of insurance policyholders.

The FPC's primary objective is to protect and enhance the stability of the financial system of the United Kingdom. The FPC also has a secondary objective to support the economic policy of Her Majesty's Government, which includes ensuring the financial system can support the transition to a net-zero economy.

The Climate Biennial Exploratory Scenario (CBES) includes three scenarios exploring both transition and physical risks, to different degrees.

The exercise considered two possible routes to net-zero UK greenhouse gas emissions by 2050: an 'Early Action' (EA) scenario and a 'Late Action' (LA) scenario. A third 'No Additional Action' (NAA) scenario explores the physical risks that would begin to materialise if governments around the world fail to enact policy responses to global warming.

The CBES scenarios are not forecasts of the most likely future outcomes. Instead, they are plausible representations of what might happen based on different future paths of climate policies, technological developments and consumer behaviour, aimed at limiting the rise in global temperatures. Each scenario is assumed to take place over a period of 30 years.

In line with the stated aims of the exercise, the CBES has:

1. Assisted participants in enhancing their management of climate-related financial risks (hereafter 'climate risks'), including by fostering engagement with their large corporate customers to understand their vulnerability to climate risks.

The CBES has shown that UK banks and insurers are making good progress in some aspects of their climate risk management, and this exercise has spurred on their efforts further. But the Bank's assessment is that UK banks and insurers still need to do much more to understand and manage their exposure to climate risks.

The lack of available data on corporates' current emissions and future transition plans is a collective issue affecting all participating firms. The Bank will give firm-specific feedback to participants, and will use findings from the CBES to help target their efforts.

2. Sized the financial exposures of participants to climate risks. Climate risks captured in the CBES are likely to create a drag on the profitability of banks and insurers, particularly if they are unable to manage these risks effectively.

But there is substantial uncertainty around the true magnitude of these risks. And climate risks outside the scope of the CBES (such as trading losses for banks and mortality risk for life insurers) could be material.

3. Allowed policy makers to gauge challenges to banks' and insurers' business models from climate risk, to understand their likely responses, and to analyse the implications of those responses for the system as a whole.

All participating banks and insurers have published climate strategies or net-zero transition plans, which they broadly followed in their responses to all three of the CBES scenarios. Individual plans involve reducing finance, and in some cases insurance, to the most carbon-intensive industries, as well as engaging with corporate clients and counterparties to help facilitate their transition to net zero.

There is a risk, however, that the collective impact of such plans could have negative consequences for the wider economy. For example, there could be economic consequences if limits on lending and insurance to corporates involved in the supply of more carbon-intensive energy run ahead of the expansion of renewable energy supply and other measures to improve energy efficiency.

A transition to net zero would materially impact a number of sectors that banks and insurers are exposed to, forcing those in such sectors to adapt their business models or potentially risk becoming unviable over time. It will be in banks' and insurers' collective interests both to support the adaptation of those counterparties across the economy that have credible transition plans, and to gradually reduce their exposures to sectors of the economy that become less economically viable as a result of the transition

to net zero. Banks and insurers noted that they will be better able to prepare and plan for the transition if the evolution of climate policy is clear and well communicated.

Some responses – to the NAA scenario in particular – implied a material reduction in access to lending and insurance for sectors and households which were most exposed to physical risks.

In the NAA scenario, banks would reduce lending to properties facing greater physical risks, and insurers would substantially increase the premiums they charge to insure against such risks, making insurance coverage unaffordable for many of these households.

Key lessons and next steps

One recurrent theme across participants' submissions was a lack of data on many key factors that participants need to understand to manage climate risks. Another was the range in the quality of different approaches taken across organisations to the assessment and modelling of these risks.

All participating firms have more work to do to improve their climate risk management capabilities. The Bank will engage with firms individually and collectively to help them target their efforts, and share good practices identified in this exercise.

Inside the Bank, the findings from this exercise will inform the FPC's thinking around system-wide policy issues related to climate risk and the Committee's work in supporting the financial system's role in the economy's transition to net zero. The findings will also inform the PRA's supervisory policy and approach.

Outside the Bank, key lessons and themes emerging from the exercise will be shared with the UK Government and the Bank's international peers, helping to advance global thinking on how to manage climate-related financial risks, including around the appropriate role of bank and insurer capital requirements.

Scope

Given the focus of the exercise on driving improvements in risk management and understanding how firms may respond to the risks they could face, the CBES incorporated some key differences in design relative to climate stress tests run elsewhere. The exercise required participants to make granular assessments of their largest counterparties; particular emphasis was placed on banks' and insurers' ability to evaluate the net-

zero transition plans of their corporate counterparties; and the exercise focussed on participants' responses to climate risks to a greater extent.

For banks, loss projections were focussed on the credit risk associated with their lending activities, with an emphasis on detailed analysis of risks to large corporate counterparties. For insurers, the focus was on changes in the value of invested assets and the impact on insurance claims.

Given the difficulties inherent in accurately assessing climate risk, and the fact that this was the first detailed climate exercise involving both banks and insurers that the Bank has run, the CBES did not aim to evaluate the full impact on participants' income and capital positions.

Some factors were not included in the CBES. Examples of omissions include potential trading losses, and detailed projections of the impact of climate risks on banks' risk-weighted assets.

Loss projections for the CBES scenarios are based on the balance sheets of participants as they stood at the end of 2020. So they represent an expectation of losses that might materialise if banks and insurers do not act to reduce the climate risks they face.

This design feature makes interpretation of the results more straightforward and allows a clear, separate focus on specific actions that participants might take in response to the scenarios. But it is also likely to push projected losses upwards, as over the thirty year horizon of the CBES participants would likely be able to adjust their business models, and may reduce or mitigate some of the risks they face.

Scenarios

There are two key types of risk associated with climate change: the risks that arise as the economy moves from a carbon-intensive one to net-zero emissions, known as transition risks; and risks associated with the higher global temperatures likely to result from taking no further policy action, known as physical risks.

The CBES includes three scenarios exploring both transition and physical risks, to different degrees. These scenarios build on the climate scenarios developed by the Network for Greening the Financial System (NGFS). The CBES also includes an exercise to explore climate litigation risk facing general insurers, separate from these three scenarios.

The exercise considered two possible routes to net-zero carbon dioxide emissions globally by 2050: an Early Action scenario and a Late Action

scenario. These scenarios primarily explore transition risks from climate change:

Early Action (EA): Under this scenario, climate policy is ambitious from the beginning, with a gradual intensification of carbon taxes and other policies over time.

Global carbon dioxide emissions are reduced to net-zero by around 2050 and global warming (relative to pre-industrial levels) is successfully limited to 1.8°C by the end of the scenario, falling to around 1.5°C by the end of century.

The required adjustment in the economy creates a temporary headwind to growth but this dissipates in the latter half of the scenario once a significant portion of the required transition has occurred, and the productivity benefits of green technology investments begin to be realised.

Late Action (LA): The implementation of policy to drive the transition to a net-zero economy is assumed to be delayed by a decade under this scenario.

Policy measures are then more sudden and disorderly as a result of the delay. Global warming is limited to 1.8°C by the end of the scenario (2050) relative to pre-industrial levels, but then remains around this level at the end of the century.

The more compressed nature of the reduction in emissions also results in material short-term macroeconomic and financial markets disruption. UK unemployment rises to 8.5% and the economy goes into recession for a short period. Falls in output are particularly concentrated in emissions-intensive sectors.

In both these scenarios, climate risks have been managed by 2050. In reality, however, the effectiveness of climate policy is not certain.

Based on climate simulations and modelling of the impact of policy, the early action policy path has the highest probability of success in terms of limiting climate change.

From a practical perspective, acting late would leave less time to fine-tune policy as its effectiveness was revealed, and leave governments more exposed to the risk of policy co-ordination failure.

A third scenario explores the physical risks that would begin to materialise if governments around the world fail to enact policy responses to global warming and no additional action is taken to address climate change.

In contrast to the two transition scenarios, risks in the NAA scenario continue to build beyond the end of the scenario, making it more difficult to compare the effects of such a scenario.

Furthermore the scenario does not factor in other potential geopolitical impacts of severe climate change such as increases in migration and conflict, which alongside their enormous human costs, are likely also to result in further financial losses.

No Additional Action (NAA): This scenario primarily explores physical risks from climate change. It is a deliberately severe scenario, being based on climate outcomes that would only occur later this century under the assumption that no additional action is taken to address climate change, and represents a worse than expected outcome even under such conditions.

The absence of transition policies in this scenario leads to a growing concentration of greenhouse gas emissions in the atmosphere and, as a result, global temperature levels continue to increase, reaching 3.3°C higher relative to pre-industrial levels by the end of the scenario.

This leads to chronic changes in precipitation, ecosystems and sea-levels, which are unevenly distributed globally, and in some cases irreversible. There is also a rise in the frequency and severity of extreme weather events. There are permanent impacts on living and working conditions, buildings and infrastructure. As a result, UK and global GDP growth is permanently lower and macroeconomic uncertainty increases.

Reflecting the fact that the future looks materially worse at the end of the scenario, with the adverse effects of climate change set to worsen further, UK and US equity prices are respectively just under 20 and 25% lower than they might otherwise be.

Climate Risk Management

UK banks' and insurers' approaches to projecting losses in the CBES, taken together with other qualitative information provided, suggest that participants are making good progress in some aspects of climate risk management. And there is evidence that this exercise has spurred on participating firms to develop their risk management capabilities further.

But the Bank's assessment is that UK banks and insurers still need to do much more fully to understand and manage their exposure to climate risks, including through getting data on and understanding their counterparties' and customers' transition plans.

The findings are consistent with the PRA's assessments in relation to firms' progress against a Supervisory Statement the PRA issued in 2019 (SS3/19), which sets expectations for how banks and insurers should incorporate climate risks into their risk management practices and governance arrangements, which were set out in the PRA's Climate Change Adaptation Report 2021.

In order to produce better estimates of climate risks in their portfolios, banks and insurers will need to prioritise investment in their climate risk assessment capabilities, both by focusing on their internal modelling and data capabilities and doing more to scrutinise data and projections supplied by third-party providers (upon which participants have relied heavily to compile CBES submissions).

The inability to capture appropriate and robust data in certain areas is a common limitation, which means many climate risks are only being partially measured.

Examples of gaps include information about the location of corporate assets to permit physical risk assessment, and a lack of standardised information about value chain emissions relating to corporate counterparties.

Banks and insurers will need to prioritise progress on data and will need to put in place interim measures to inform risk management until these data challenges are resolved. The Bank will continue to be supportive of co-ordinated initiatives to fill such data gaps.

A more developed and nuanced approach to risk management would allow banks and insurers to reflect climate risks more accurately in their business decisions (for example by explicitly incorporating possible future carbon prices and their impact on counterparties in pricing, lending and investment decisions).

This is important for their own long-term profitability and hence financial resilience. And it is also important to ensure that banks and insurers can support the economy in the transition to net zero. Absent these improvements, there is a risk that banks and insurers may resort to actions that do not appropriately reflect climate risks, such as withdrawing finance to those carbon-intensive businesses in need of external finance to support their transition to less carbon-intensive production. This could give rise to wider macroeconomic risks.

The Bank will help the banks and insurers it regulates to use the results of the CBES to improve their climate risk management capabilities, both through individual firm supervisory dialogue and by sharing and

discussing key thematic findings with the banking and insurance industry more broadly (including through the Climate Financial Risk Forum (CFRF)).

Exposures to climate risks

The loss estimates presented here are based on the simplifying assumption that banks' and insurers' balance sheets stay fixed over the scenario horizon, remaining as they stood at end-2020. In reality, banks and insurers business models are likely to respond to climate risks over time. These responses may act to mitigate some of the losses projected.

Across scenarios, participants' projections show that if banks and insurers do not respond effectively, climate risks could cause a persistent and material drag on their profitability.

Loss projections vary across participants and scenarios, but are equivalent to an annual drag on profits of around 10-15% on average. Losses of this magnitude could make individual firms, and the financial system overall, more vulnerable to other future shocks.

Due to the relative immaturity of firms' approaches and the complexity of modelling the impact of these risks, the uncertainty bands around projected losses are very large.

For example, participating firms' estimated loss rates on the same corporate customers can differ substantially, with the most conservative estimates for losses around ten times higher on average than the least conservative.

The impact of climate-related losses will depend on the time horizon over which they occur, which is also uncertain in reality. More clustered losses would have a bigger impact on banks and insurers.

Based on banks' and insurers' projections in this exercise, the overall costs to these firms from the transition to net zero should be bearable without substantial impacts on firms' capital positions – for example through a combination of lower retained earnings and increases in lending rates to sectors where risks increase, and also because not all of the losses on insurers' investments would ultimately fall on shareholders (Section 4). Firms' projections suggest that these costs will be lower if early, well ordered action is taken.

In the case of banks, for which projections were focused on realised credit losses only, as opposed to forward-looking asset prices, loss rates were projected to rise appreciably in all three scenarios.

Banks' projected climate-related credit losses were 30% higher in the Late Action (LA) scenario than the Early Action (EA) scenario. Loss rates in the LA scenario were projected to more than double as a result of climate risks – equivalent to an extra c.£110 billion of losses for participating banks over the period. Around 40% of these losses were realised during the first five years of transition.

Key drivers were the large increase in carbon prices contained in this scenario, which leads to large corporate loan losses across energy users and energy producers, and the economy-wide recession, including a rise in unemployment and fall in house prices caused by the sharp adjustment process, leading to significant mortgage impairments. These household losses were particularly heavily concentrated in the first five years after the delayed start of the transition.

At a corporate sectoral level, the industries in which banks projected the highest loss rates in the two transition scenarios were mining (including extraction of petroleum and natural gas), manufacturing, transport and wholesale & retail trade.

On average these sectors were projected by banks to have cumulative impairment rates of 35%, more than twice the aggregate projected impairment rate on corporate portfolios.

Insurers projected heavy corporate bond and equity losses in similar sectors, with assets in the mining of gas and oil sector suffering by far the largest losses. These sectoral results were in line with expectations given the carbon intensity of these industries' supply chains.

The NAA scenario also results in significant costs for banks and insurers during the scenario horizon, as the intensification of physical risks leads to higher losses on lending and insurance activities, and lowers the return on financial assets.

In contrast to the two transition scenarios, the NAA scenario only captures a subset of the costs of climate change, which would build far into the future beyond the 30-year horizon of the exercise and persist indefinitely. And the scenario does not factor in other potential geopolitical impacts of severe climate change such as increases in migration and conflict, which alongside the enormous human cost, are likely also to result in further financial losses.

Under the NAA scenario, impairments rates projected by banks were just over 50% higher than normal levels. But these estimates are particularly uncertain. In part that is because banks appeared less well equipped to

assess thoroughly the impact of physical risks prominent in the NAA scenario, particularly those arising from corporate vulnerabilities.

The aggregate results show that, for life and general insurers, the NAA scenario would be likely to have a more significant impact than either of the transition scenarios, even within the 30-year window of the exercise. For life insurers, this was because forward-looking asset price impacts are greatest at the end of that scenario with an overall impact worth just over 15% of total market value.

Such falls in asset prices would of course affect all holders of assets and participants in these markets. For general insurers, the key way that losses materialised was via a build-up in physical risks, which resulted in higher claims for perils such as flood and wind-related damage.

UK and international general insurers, respectively, projected a rise in average annualised losses of around 50% and 70% by the end of the NAA scenario. Staff analysis on UK insurance losses suggests increases could be as much four times higher than firms submitted.

Insurers reported that the impact of these increased domestic and international insurance claims would fall, ultimately, on households and businesses through higher insurance premiums or through lower availability of insurance cover.

Projected loss rates from individual banks and insurers spanned a wide range. This suggests significant uncertainty around the true magnitude of these risks, reflecting the fact that participants' climate risk assessment techniques are still developing, as well as the wide range of approaches taken by participants. The significant degree of uncertainty is corroborated by sensitivity analysis conducted by the Bank.

This exercise also highlighted data gaps and potential risks to international general insurers from climate-related litigation, which could impact the cost and availability of Directors' & Officers' liability insurance cover.

An increase in climate litigation risk would clearly also affect those businesses being litigated against beyond the insurance sector.

Challenges to business models and participants' responses to scenarios
By examining jointly the potential responses of banks and insurers to climate risk, the results of the CBES shed light on the possible collective impact of participants' behaviours, including whether they may give rise to unintended or undesirable system-wide consequences.

UK banks and insurers typically expected to respond to the scenarios in this exercise by following their existing plans around the transition to net-zero emissions, including in this instance by increasing counterparty engagement to support the transition.

In this exercise, banks and insurers planned to reduce their exposure to carbon-intensive sectors, with banks projecting the largest reductions in the petroleum and gas extraction, petroleum manufacturing, and mining and quarrying sectors. The sectors that banks and insurers planned to reduce their exposure to were broadly similar across all three scenarios.

These strategies raise the possibility that some corporate sectors (particularly some carbon-intensive ones) may struggle to access finance as the transition progresses, especially from banks. Unless the transition is carefully managed, this could have significant impacts on businesses and consumers, and through them the financial sector.

For example there could be potential macroeconomic consequences if limits in the supply of finance and insurance to fossil fuel producers could outpace the new investment in sustainable energy alternatives and improvements in energy efficiency.

Participating firms identified more business opportunities in the transition scenarios than in the NAA scenario. And banks were able to quantify more new opportunities than life insurers in this exercise.

Life insurers noted that their ability to seize some investment opportunities would be dependent upon improvements in disclosures. Some insurers expressed a concern that a surge in 'green' investment could unduly raise asset prices.

In the two transition scenarios, banks planned to increase lending substantially to some components of the gas and electricity supply sector, specifically to renewable energy firms and those developing technology for electric vehicle batteries.

At the same time, banks planned to reduce lending to firms within this sector that were particularly reliant on revenues from fossil fuels. They also envisaged increasing lending to the construction sector, reflecting greater investment in retrofitting and flood defence improvements.

Banks also planned to expand into retail lending opportunities created by the transition, including offering green mortgages, and providing financing products for home energy efficiency improvements.

General insurers also planned to expand further into opportunities that would be created by a net-zero transition, for example by providing insurance to renewable energy projects, and to companies developing battery and fuel cell technology.

In the NAA scenario, banks and insurers generally sought to reduce their exposures to similar sectors as in the transition scenarios. General insurers planned to increase the price of insurance to reflect the increases in physical risk in the scenario.

These firms' insurance contracts are typically written to cover one year, allowing them to alter pricing relatively quickly as risks change. And insurers noted that UK household flood insurance coverage could fall sharply in such a scenario, particularly as insurance on some properties would become unaffordable once the Flood Re scheme ended as per current legislation in 2039, though the vast majority of households would still be able to afford insurance.

In the NAA scenario participants' responses indicated that around 7% of UK households that they currently cover could be forced to go without insurance – because their properties become uninsurable, or because they cannot afford insurance at the prices offered. The share of households affected could be greater than this, to the extent that general insurers have underestimated the physical risk impact of the NAA scenario.

Households and corporates that insurers become unwilling to insure, or where insurance premiums become unaffordable, may face difficulty in accessing finance from banks. UK households in regions most exposed to physical risk would face challenges re-mortgaging their properties in the NAA scenario because they would fall in value due to severe flooding and/or become uninsurable.

45% of the mortgage impairments in the scenario are accounted for by just 10% of the 4-digit postcode areas analysed. Affected households may find themselves stranded on the more expensive Standard Variable Rate mortgages.

Both banks and insurers noted that these risks could be in part mitigated by investment in flood defences, increasing flood resilience measures for properties, and encouraging flood-resilient repairs. They also noted their support for a continuation of a publicly supported UK flood reinsurance pool in such a scenario, and an extension to include properties built after 2009.

The Bank will work with the Government and the FCA to support greater understanding of risks to the provision of financial services highlighted by the CBES exercise.

To read more: <https://www.bankofengland.co.uk/stress-testing/2022/results-of-the-2021-climate-biennial-exploratory-scenario>

FSB Europe Group discusses regional vulnerabilities, crypto-assets and climate change



The Financial Stability Board (FSB) Regional Consultative Group for Europe held their first in-person gathering since the onset of the COVID-19 pandemic.

Members discussed the outlook for global and regional financial stability considering recent developments, including rising and volatile commodity prices triggered by Russia's invasion of Ukraine, higher inflation, vulnerabilities in the non-bank financial sector and other areas that warrant particular attention over the coming months.

Members received an update on the FSB's 2022 work programme, and discussed items of particular relevance to the European region.

The group discussed regulatory and supervisory issues related to crypto-assets, and the associated challenges for policymakers.

Members were briefed on the FSB's recently established workstream to examine supervisory and regulatory issues raised by "unbacked" crypto-assets which complements continuing FSB work on issues raised by stablecoins.

The group provided feedback on the areas that could benefit most from international cooperation.

Finally, the group discussed work on a number of fronts to address financial risks related to climate change, which the FSB is coordinating through its Roadmap published in July 2021.

This included an overview of the International Sustainability Standard Board's (ISSB) work on developing global baseline sustainability disclosure standards, beginning with climate.

Members considered ways they could further support the ISSB in finalising its exposure draft.

Members also provided feedback on the recommendations set out in the FSB's consultative report on regulatory and supervisory approaches to climate-related financial risks that was published last month. They also exchanged views on the financial stability implications of wider sustainability issues, including nature and biodiversity.

The meeting was preceded by an Informal Seminar on Climate Change and Energy Market Dynamics to discuss the implications for financial stability of climate transition risks and recent energy market challenges and the role the financial sector can play in supporting the climate transition.

Notes

The FSB Regional Consultative Group for Europe is co-chaired by Henry Ohlsson, Deputy Governor, Sveriges Riksbank, and Lowri Khan, Director, Financial Stability at the UK Treasury.

Membership includes financial authorities from Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Ukraine, United Kingdom and the Group of International Finance Centre Supervisors.

The European Commission, the European Central Bank (ECB) and the ECB Banking Supervision also attended the meeting.

The FSB has six Regional Consultative Groups, established under the FSB Charter, to bring together financial authorities from FSB member and non-member countries to exchange views on vulnerabilities affecting financial systems and on initiatives to promote financial stability.

Typically, each Regional Consultative Group meets twice each year.

The FSB coordinates at the international level the work of national financial authorities and international standard-setting bodies and develops and promotes the implementation of effective regulatory, supervisory, and other financial sector policies in the interest of financial stability.

It brings together national authorities responsible for financial stability in 24 countries and jurisdictions, international financial institutions, sector-specific international groupings of regulators and supervisors, and committees of central bank experts.

The FSB also conducts outreach with approximately 70 other jurisdictions through its six Regional Consultative Groups.

The FSB is chaired by Klaas Knot, President of De Nederlandsche Bank.

The FSB Secretariat is located in Basel, Switzerland, and hosted by the Bank for International Settlements.

Regulation and Supervision of Fintech: Considerations for EMDE Policymakers



Fintech is transforming the global financial landscape. It is creating new opportunities to advance financial inclusion and development in Emerging Markets and Developing Economies (EMDEs), but also presents risks that require updated supervision policy frameworks.

Fintech encompasses new financial digital products and services enabled by new technologies and policies.

Although technology has long played a key role in finance, recent fintech developments are generating disruptive innovation in data collection, processing, and analytics.

They are helping to introduce new relationship models and distribution channels that challenge traditional ways of finance, while creating additional risks.

While most of these risks are not new, their effects and the way they materialize and spread across the system are not yet fully understood, posing new challenges to regulators and supervisors.

For example, operational risk, especially cyber risk, is amplified as increasing numbers of customers access the financial network on a 24/7 basis. Likewise, increased reliance by financial firms on third parties for provision of digital services, such as cloud computing, may lead to new forms of systemic risks and concentration on new dominant unregulated players such as big tech firms.

This note aims to provide EMDE regulators and supervisors with high-level guidance on how to approach the regulating and supervising of fintech, and more specific advice on a few topics. Preserving the stability, safety, and integrity of the financial system requires increased attention to competition and ensuring a level playing field and to emerging data privacy risks.

As a general principle, policy response should be proportionate to risks posed by the fintech activity and its provider. While striking the right balance can be challenging in the absence of global standards, the IMF-World Bank Bali Fintech Agenda (BFA), along with guidance by Standard Setting Bodies, provides a good framework for reference.

A sound policy design must start with assessment of the fintech landscape, its risks and regulatory gaps. Simplicity and pragmatism—for example

combining simple regulations with supervisory judgment—increases the odds of successful policy.

In practice, this will mean different things, depending on local context. In many cases, a clarification or review of existing frameworks will be sufficient and is easily done through enhanced supervisory guidance.

In others, a full regulatory overhaul might be required. In some systems, an activities-based, technology-neutral approach, based on the function of the financial service can help balance stability and innovation goals.

In others, a combined approach, taking into account the activity and the entity, might be necessary to ensure financial stability.

In any case, there needs to be clear definition of which activities are under the regulatory perimeter and which requirements apply, including the need for licenses.

Some fintech activities will require licences with integrity (AML/CFT) and conduct requirements. The introduction of data protection provisions in licensing frameworks is common. Activities that could potentially pose risks to stability should face prudential requirements.

Competition and inclusion objectives will become more relevant from a financial policy view, given the growing interdependencies and trade-offs with core priority mandates of preserving stability, integrity, and safety of the financial sector.

The multiplicity of new entrants and the potential for dominant players (for example, incumbents, big tech firms, platforms) and first movers (for example, M-Pesa) to create barriers and generate distortions has led to an increased recognition of the strong links between inclusion, competition, and financial stability.

Indeed, a targeted participation by financial service authorities in competition policy matters is increasingly being observed in EMDEs. The potential role of prudential and conduct regulation in mitigating barriers to market access and reining in abusive dominant practices should not be understated.

Cooperation, both interagency and cross-border, can help in the design and implementation of a sound supervisory response to fintech, which can be particularly challenging for EMDE countries suffering from supervisory capacity constraints or juggling competing policy priorities.

An effective supervisory function for fintech activities is as essential

as an appropriate regulatory regime. Supervisory processes and methods may need significant changes.

Supervisors' knowledge, skills, and tools should keep pace with the speed of innovation and related risks, including cyber threats.

Building proper expertise is crucial and supotech and regtech solutions could be excellent catalysts for this. Fintech is cross-sectoral and cross-country, making cooperation among agencies at the national and international levels essential for sound supervision.

To read more (please choose download full report) at:

<https://www.worldbank.org/en/publication/fintech-and-the-future-of-finance>

The screenshot shows the World Bank website page for 'Fintech and the Future of Finance'. The page features a blue header with the title 'Fintech and the Future of Finance'. Below the header, there is a navigation menu with 'Notes' and 's'. The main content area is divided into two sections: a large image of the report cover and an 'Overview' section. The report cover features the title 'Fintech and the Future of Finance' and the World Bank Group logo. The 'Overview' section contains a large blue arrow pointing downwards, followed by a paragraph of text and a list of links: 'Download Full Report', 'Executive Summaries', 'Overview Paper', 'Technical Notes', and 'Glossary'.

What Does Digital Money Mean for Emerging Market and Developing Economies?



Physical cash and commercial bank money are dominant vehicles for retail payments around the world, including in emerging market and developing economies (EMDEs).

Yet payments in EMDEs are marked by several key deficiencies—such as lack of universal access to transaction accounts, widespread informality, limited competition, and high costs, particularly for cross-border payments.

Digital money seeks to address these deficiencies.

This note categorizes new digital money proposals. These include crypto-assets, stablecoins, and central bank digital currencies (CBDCs). It assesses the supply and demand factors that may determine in which countries these innovations are more likely to be adopted.

It lays out particular policy challenges for authorities in EMDEs. Finally, it compares these with digital innovations such as mobile money, retail fast-payment systems, new products by incumbent financial institutions, and new entrants such as specialized cross-border money-transfer operators.

Proposals for global stablecoins have put a much-needed spotlight on deficiencies in financial inclusion, and in cross-border payments and remittances in EMDEs. Yet stablecoin initiatives are no panacea.

While they may achieve adoption in certain EMDEs, they may also pose particular development, macroeconomic, and cross-border challenges for these countries and have not been tested at scale.

Several EMDE authorities are weighing the potential costs and benefits of CBDCs. We argue that the distinction between token-based and account-based money matters less than the distinction between central bank and non-central bank money.

Fast-moving fintech innovations that are built on, or improve existing financial plumbing, may address many of the issues in EMDEs that both private stablecoins and CBDCs aim to tackle.

Introduction

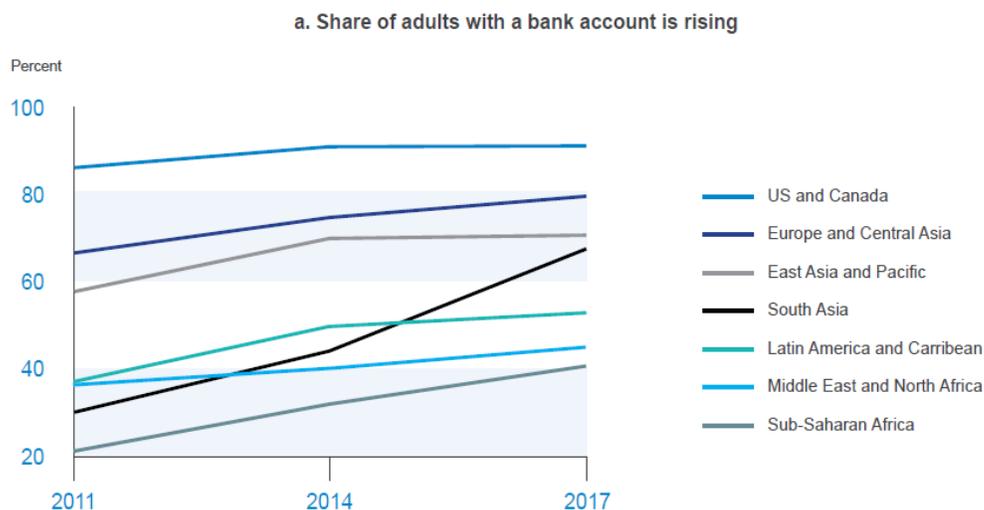
From the ancient Indian rupya, to cacao beans in the Aztec empire, to the first paper money in China, money and payments have been evolving for

centuries. The countries that are today called emerging market and developing economies (EMDEs), which collectively make up 84 percent of the world's population but only 37 percent of GDP at current prices, are no exception.

In recent decades, physical cash and claims on commercial banks (deposits) have become the main vehicles for retail payments around the world (Bech et al., 2018). Compared to physical cash, commercial bank money provides more safety, enables remote transactions, and allows banks to extend other useful financial services. This may ultimately benefit economic efficiency and enhance economic policy oversight (Listfield and Montes-Negret, 1994).

Yet for retail users, especially in EMDEs, commercial bank money poses at least three key challenges.

Figure 1. Access to Bank Accounts and Bank Services Is Heterogeneous, but Rising



First, it requires a bank account—access to which is rising (figure 1, left-hand panel) but is still far from universal. The poor often lack the proper documentation to comply with banks' customer due diligence (CDD) requirements.

In some cases, they live too far from a bank branch, or find the maintenance costs or minimum balances too onerous. E-money, which can be seen as a variant of commercial bank money, seeks to address these challenges.

Together with simplified CDD and networks of agents, e-money has improved access to transaction services. Still, in countries where bank accounts and e-money have not reached universal levels, the poor rely heavily on cash.

This reliance on cash helps perpetuate informality, also known as the shadow economy—economic activities hidden from authorities for monetary, regulatory, and institutional reasons (Medina and Schneider, 2019).

Indeed, informality is higher in countries with lower use of digital payments like bank accounts and e-money (figure 1, right-hand panel).

To read more (please choose download full report) at:

<https://www.worldbank.org/en/publication/fintech-and-the-future-of-finance>

The screenshot shows a web browser window with the URL [worldbank.org/en/publication/fintech-and-the-future-of-finance](https://www.worldbank.org/en/publication/fintech-and-the-future-of-finance). The main heading is "Fintech and the Future of Finance". Below the heading, there is a "Notes" section on the left and an "Overview" section on the right. The "Overview" section contains a large blue downward-pointing arrow and text describing the report's focus on the implications of fintech and digital transformation. Below the arrow, there are links for "Download Full Report", "Executive Summaries", "Overview Paper", "Technical Notes", and "Glossary". The World Bank Group logo is visible in the bottom left corner of the page content.

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