Climate Change & Strategic Asset Allocation

Fidelity International

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08 April 2021

Agenda

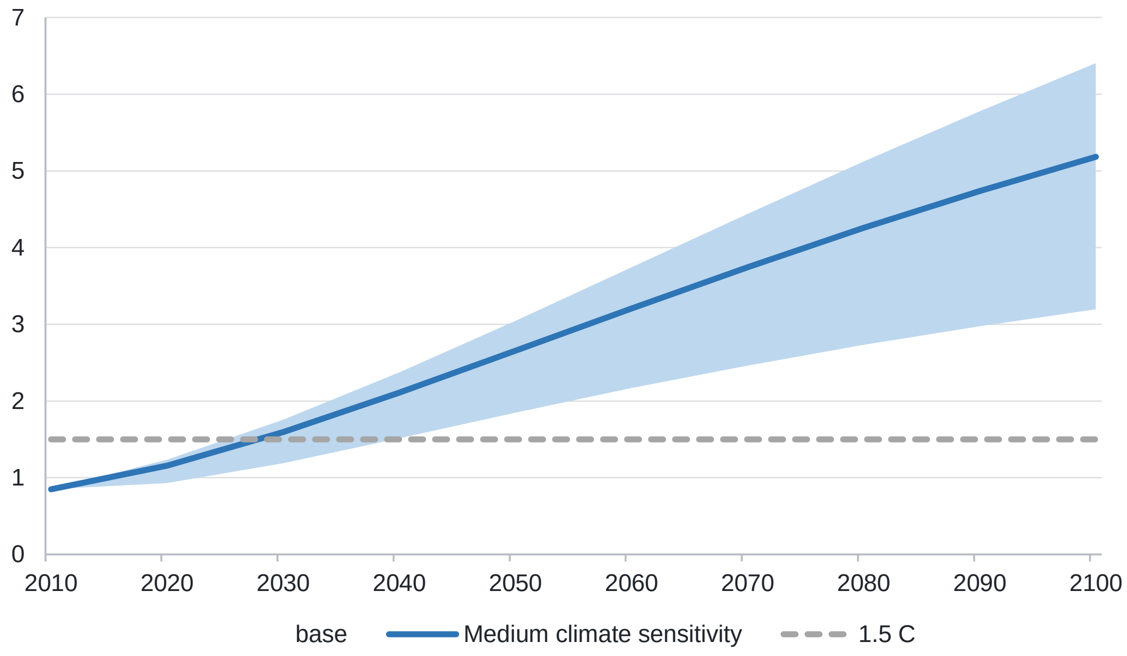
- Motivation for incorporating climate change in CMAs
- Climate Pathways and CMA – Our Approach
- Appendix

Motivation for incorporating climate change risks into macroeconomic scenarios and CMAs

Risks from unmitigated climate change

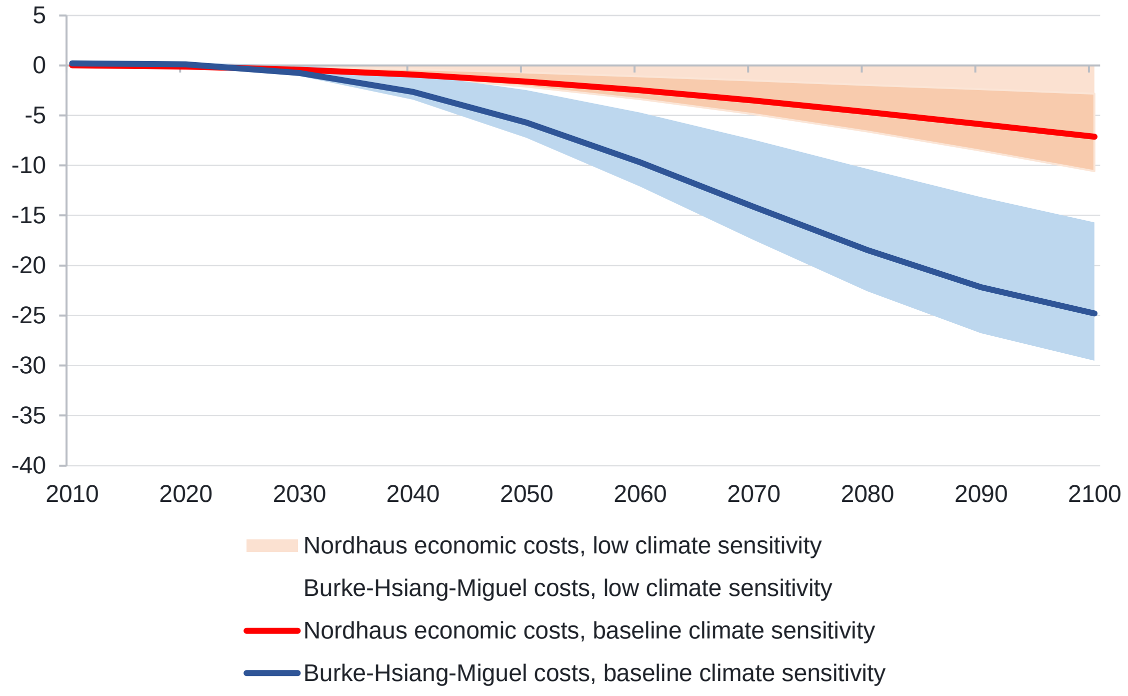
Substantial output losses, with high degree of uncertainty

Temperature under "business-as-usual"
(degree celsius above preindustrial average)



Source: IMF, October 2020. WEO Figure 3.1.

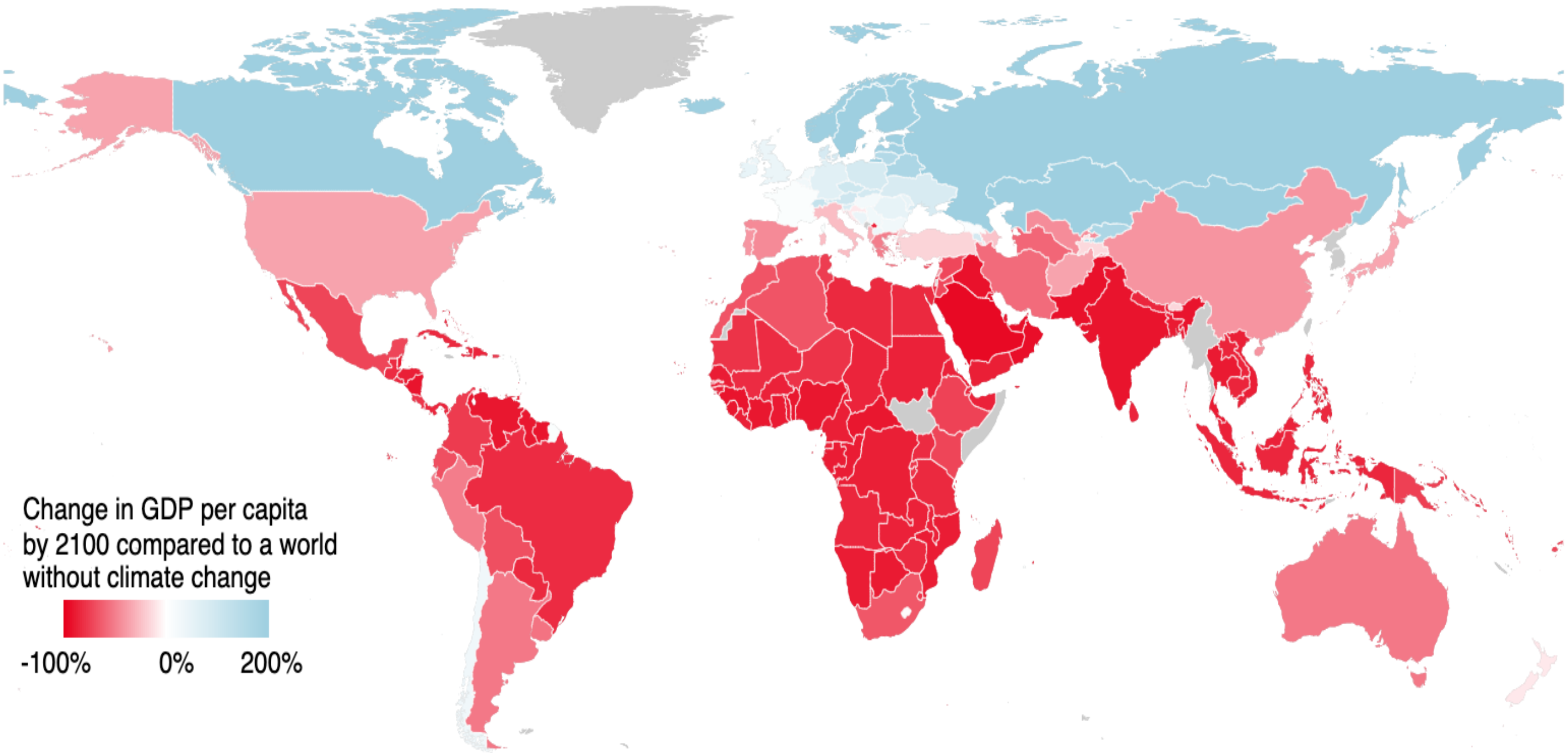
Output losses of climate change (%)

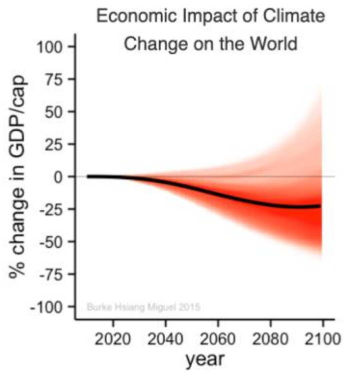


Source: IMF, October 2020. WEO Figure 3.1.

Unequal economic impact across geographies

Extreme variation in GDP impact, with substantial net loss for the world





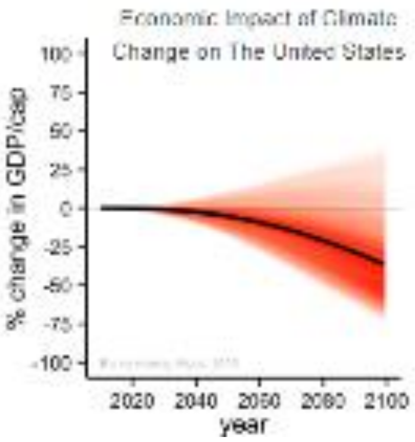
Likelihood climate change will reduce the World's GDP per capita by

- more than 0%: **71%**
- more than 10%: **63%**
- more than 20%: **51%**
- more than 50%: **12%**

Source: Stanford University, accessed at: https://web.stanford.edu/~mburke/climate/map.php.

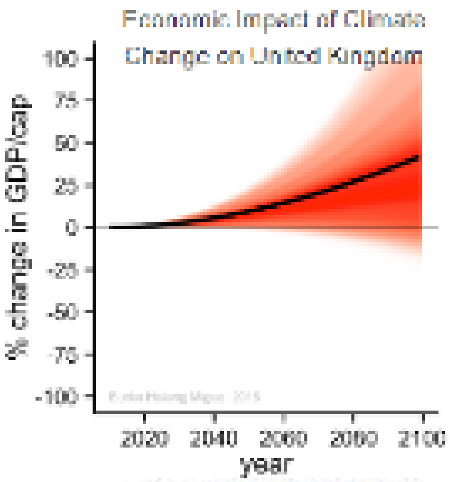
Vast heterogeneity across countries

Colder countries benefit from higher productivity



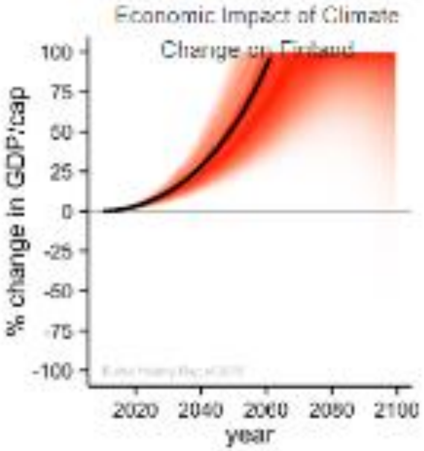
Likelihood climate change will reduce The United States's GDP per capita by

- more than 0%: **84%**
- more than 10%: **79%**
- more than 20%: **71%**
- more than 50%: **28%**



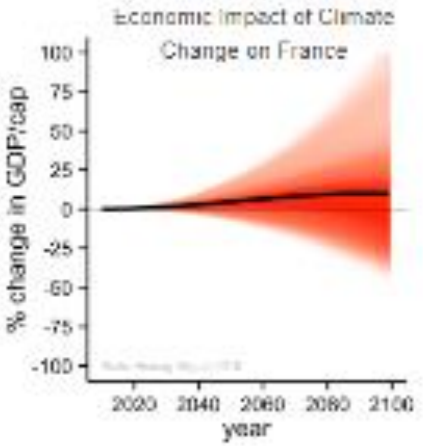
Likelihood climate change will reduce United Kingdom's GDP per capita by

- more than 0%: **13%**
- more than 10%: **6%**
- more than 20%: **3%**
- more than 50%: **0%**



Likelihood climate change will reduce Finland's GDP per capita by

- more than 0%: **0%**
- more than 10%: **0%**
- more than 20%: **0%**
- more than 50%: **0%**



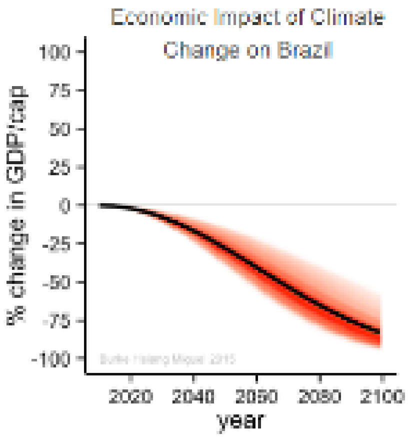
Likelihood climate change will reduce France's GDP per capita by

- more than 0%: **40%**
- more than 10%: **29%**
- more than 20%: **19%**
- more than 50%: **1%**

Source: Stanford University, accessed at: https://web.stanford.edu/~mburke/climate/map.php.

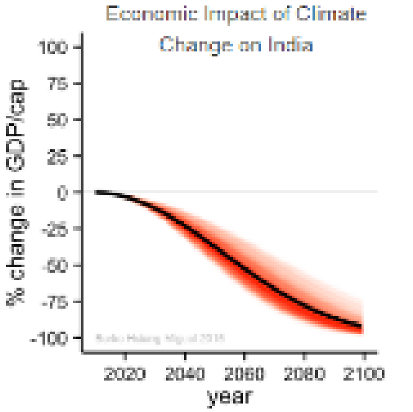
Vast heterogeneity across countries

Hot countries face devastating consequences under no mitigation



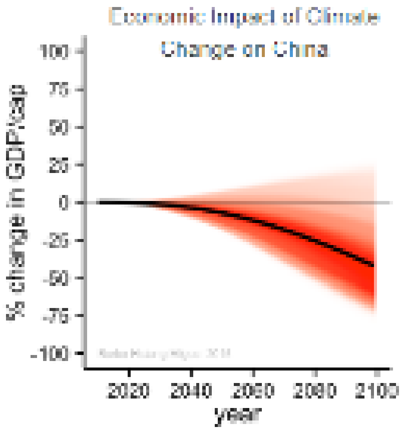
Likelihood climate change will reduce Brazil's GDP per capita by

- more than 0%: **100%**
- more than 10%: **100%**
- more than 20%: **100%**
- more than 50%: **98%**



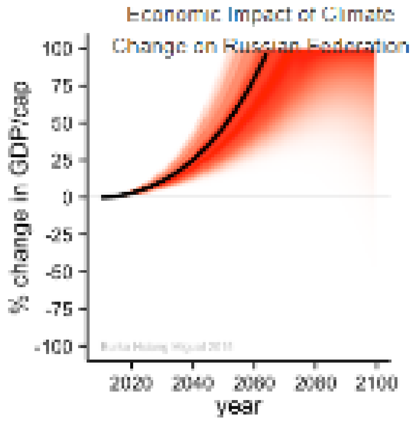
Likelihood climate change will reduce India's GDP per capita by

- more than 0%: **100%**
- more than 10%: **100%**
- more than 20%: **100%**
- more than 50%: **100%**



Likelihood climate change will reduce China's GDP per capita by

- more than 0%: **89%**
- more than 10%: **84%**
- more than 20%: **77%**
- more than 50%: **35%**



Likelihood climate change will reduce Russian Federation's GDP per capita by

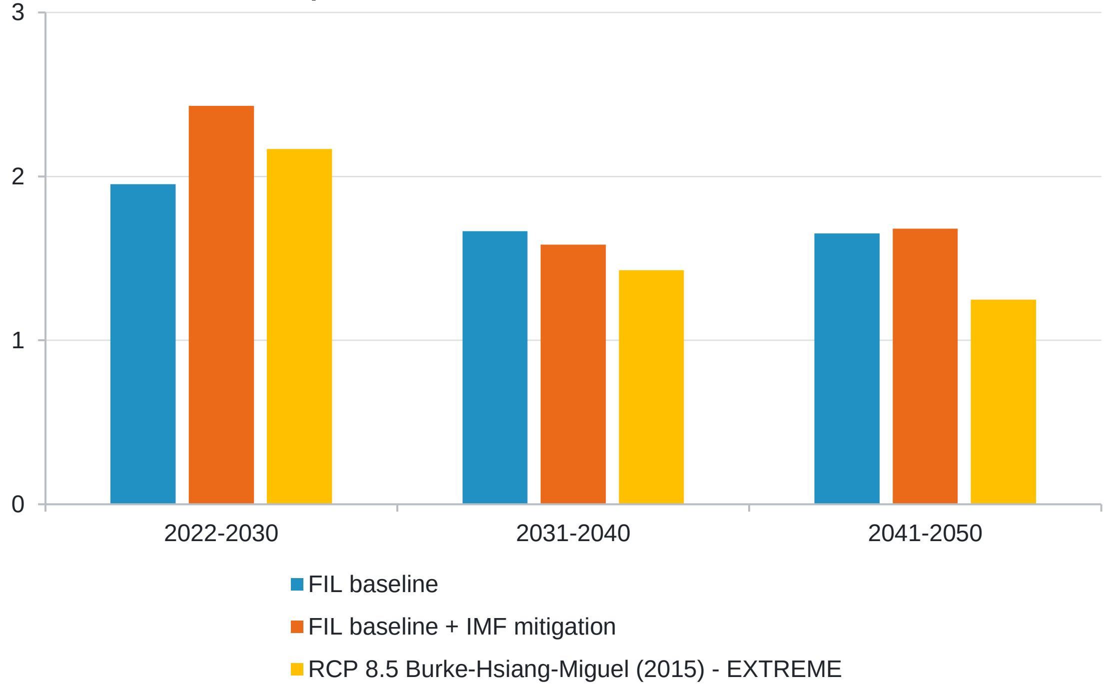
- more than 0%: **0%**
- more than 10%: **0%**
- more than 20%: **0%**
- more than 50%: **0%**

Source: Stanford University, accessed at: https://web.stanford.edu/~mburke/climate/map.php.

Adjusting our growth assumptions

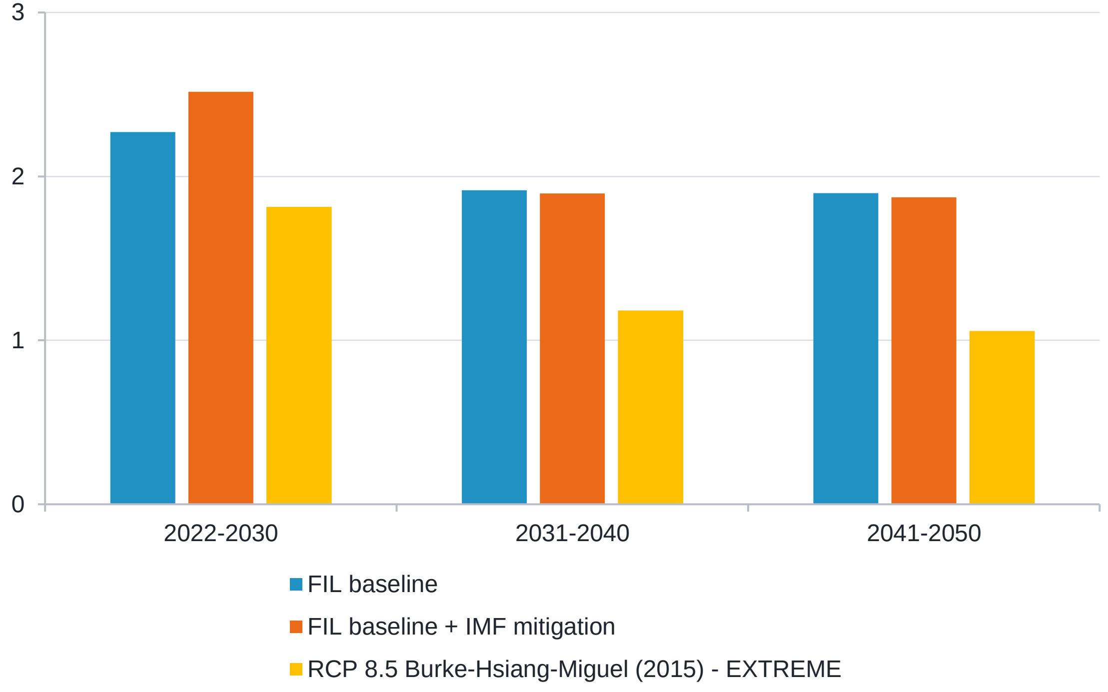
Relatively benign impact for Europe in extreme climate change scenario

Average real GDP growth rates under different scenarios: Europe



Source: Fidelity International, October 2020.

Average real GDP growth rates under different scenarios: US

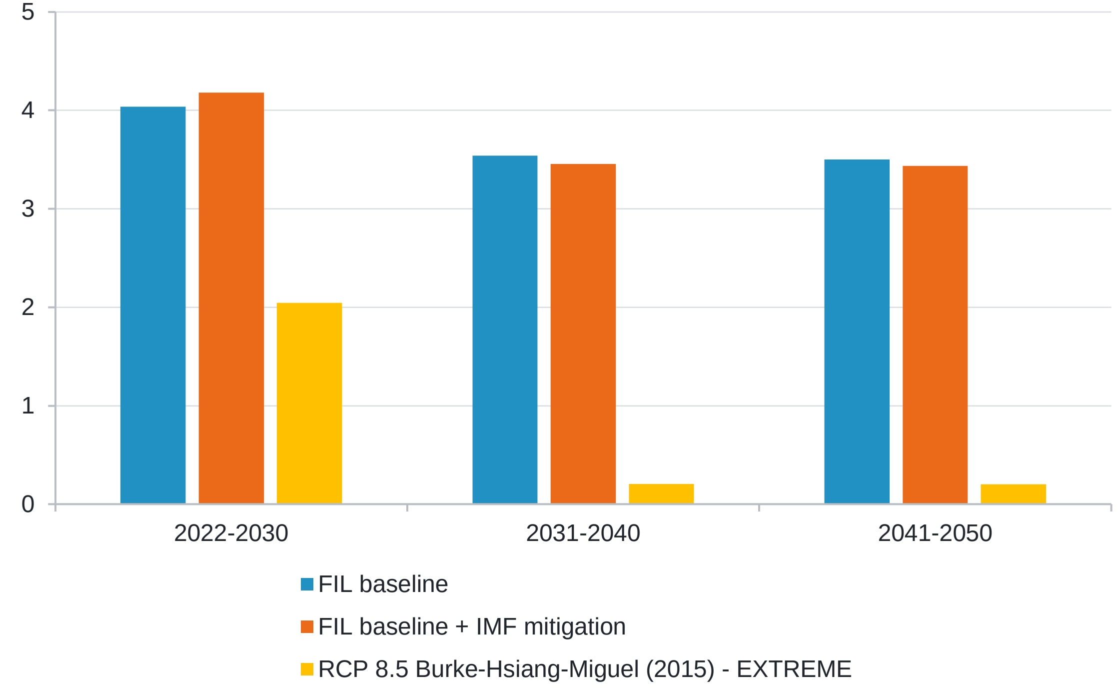


Source: Fidelity International, October 2020.

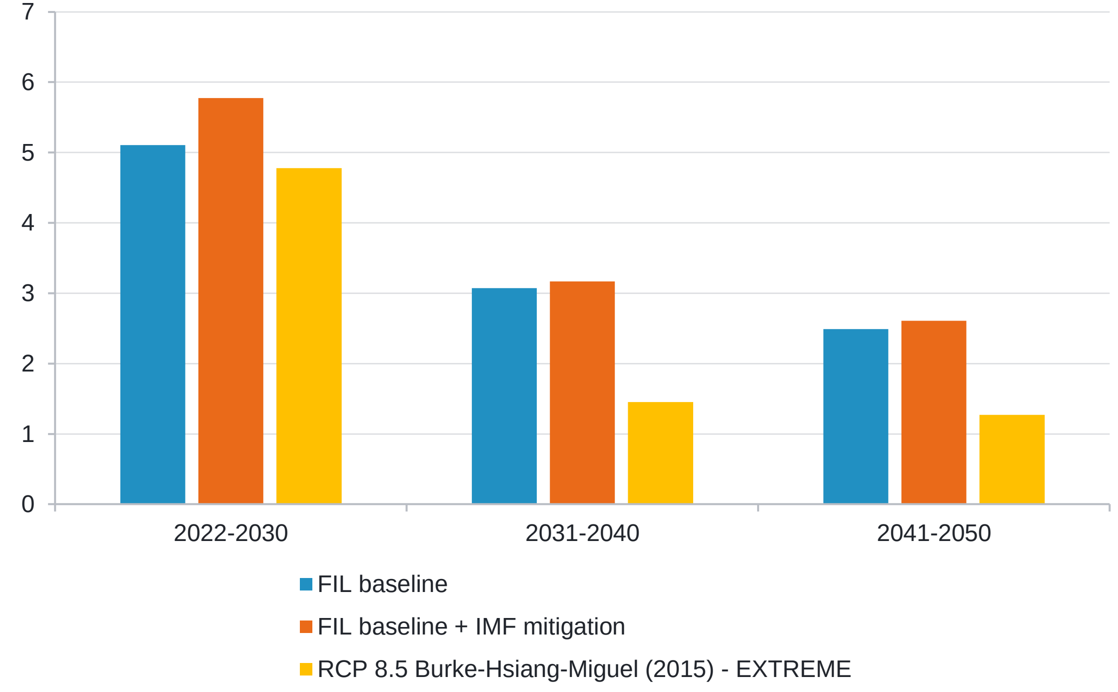
Adjusting our growth assumptions

Huge growth impact for EM in extreme climate change scenario

Average real GDP growth rates under different scenarios: EM

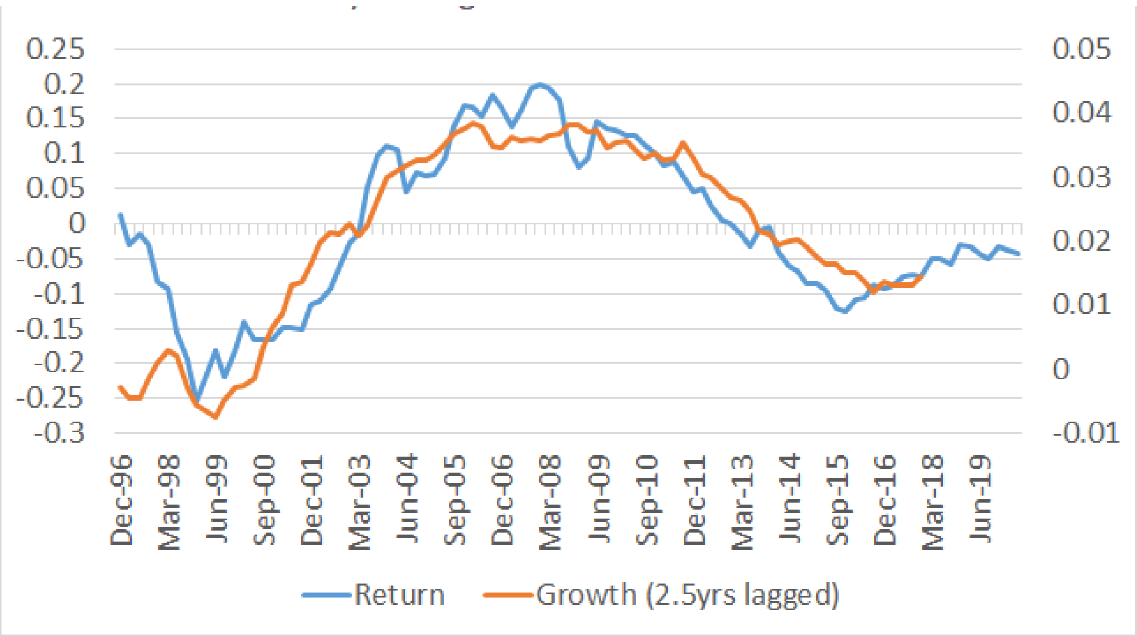


Average real GDP growth rates under different scenarios: China

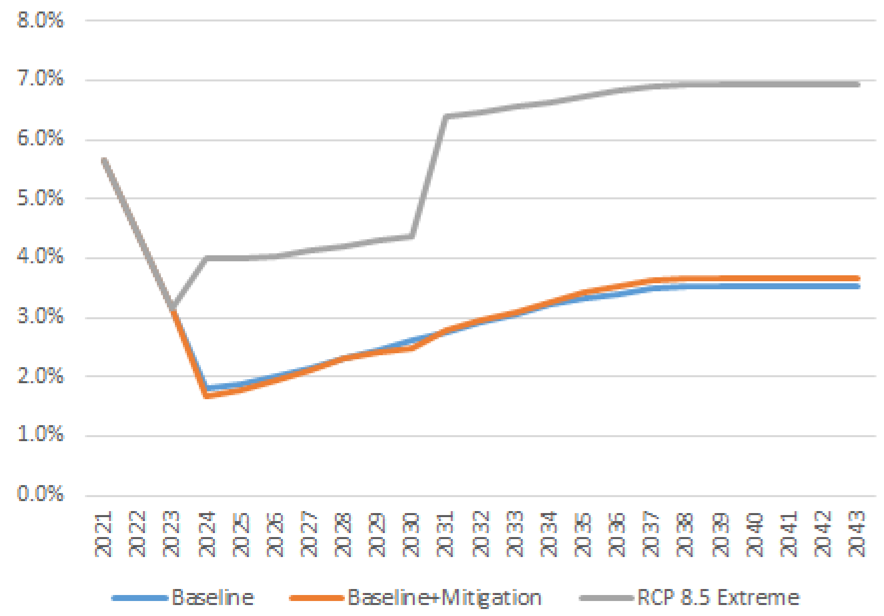


Implications for capital market assumptions

5y rolling EM-DM differentials

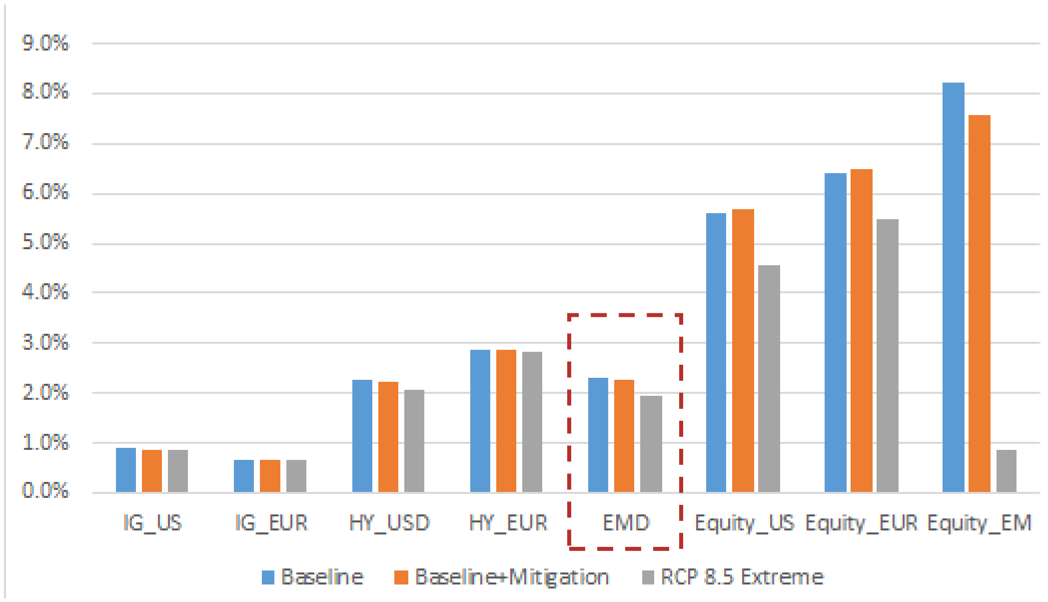


EMD SDR

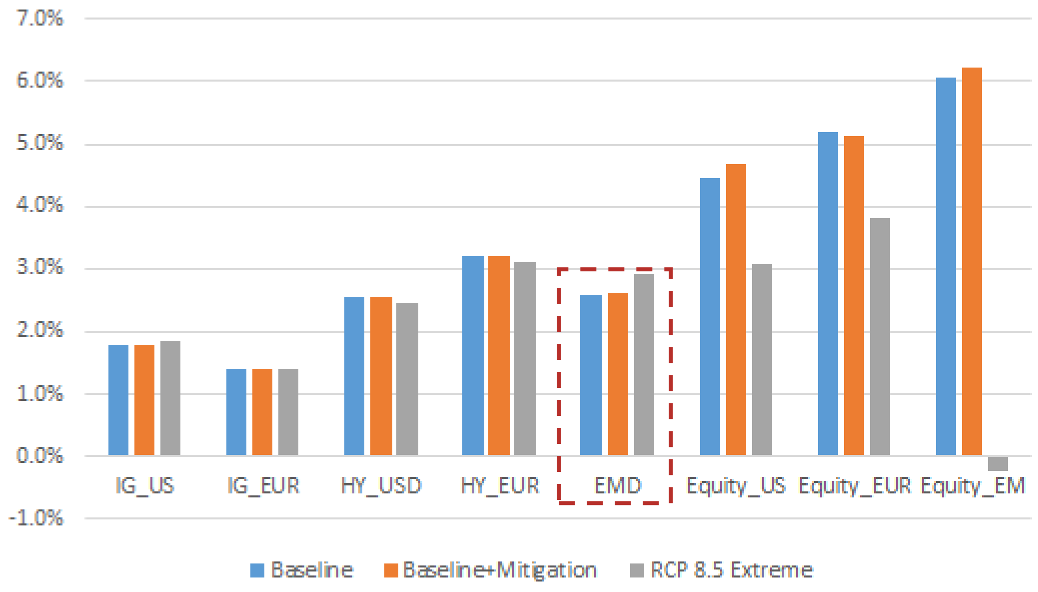


Implications for capital market assumptions

2020-2040 excess return over cash



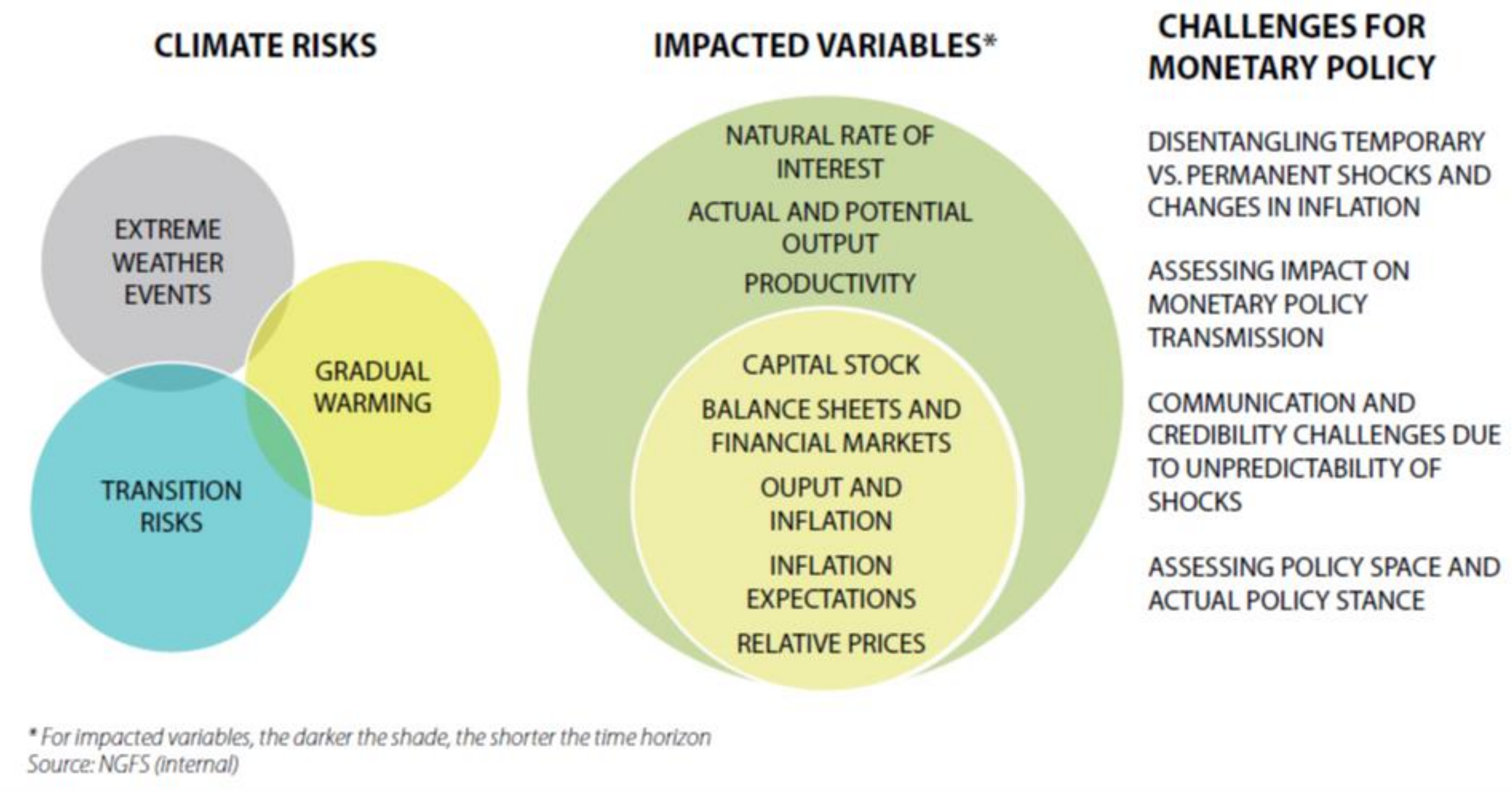
2040+ excess return over cash



Climate Pathways Incorporated CMAs – Our Approach

Climate risks and monetary policy

NGFS (Network for Greening the Financial System) framework



Source: NGFS Climate Change and Monetary Policy: Initial takeaways, June 2020.

NGFS Scenarios

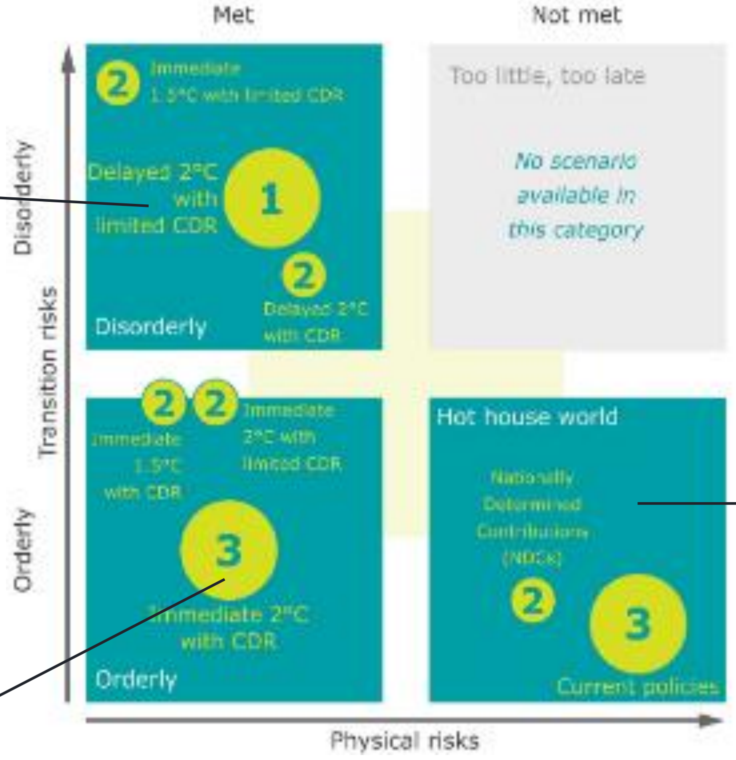
The NGFS Quadrant: Orderly, Disorderly, and Hot House World

Disorderly: No policies until 2030. Late action and limited CDR technologies means sharper emissions reductions needed to reach the same target. Transition risk is higher.

- Delayed 2C with limited CDR
- Delayed 2C with CDR
- Immediate 1.5C with limited CDR

Orderly: early and increasingly stringent climate policies. Physical and transition risks are low.

- Immediate 2C with CDR
- Immediate 2C with limited CDR
- Immediate 1.5C with CDR



Hot house world: no additional measure taken. Emissions grow until 2080, leading to 3C+ of warming. Low transition risk but severe physical risks.

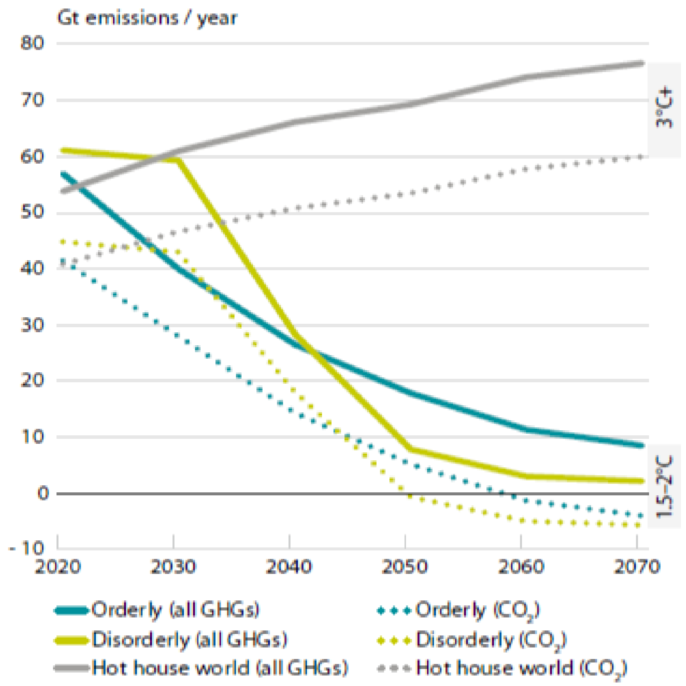
- Current policies
- Nationally Determined Contributions (NDCs)

Note: CDR stands for carbon dioxide removal. Source: Source: *NGFS Guide to climate scenario analysis for central banks and supervisors*, June 2020.

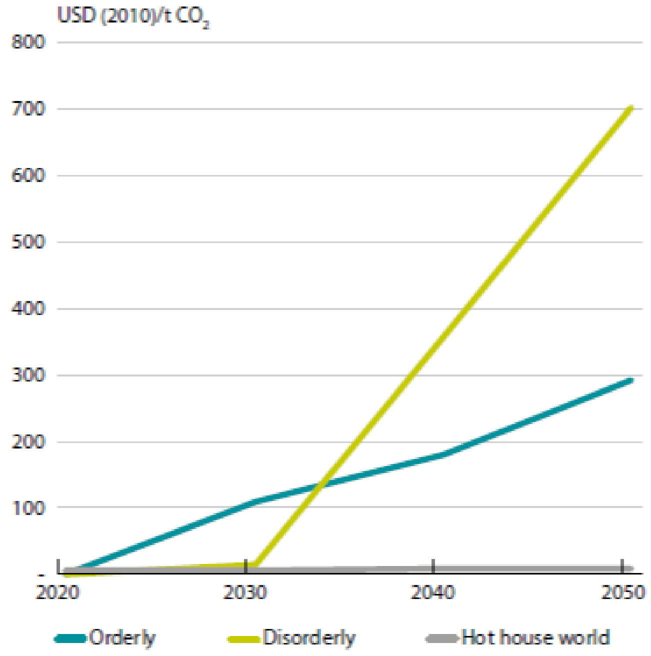
Key aspects of NGFS scenarios

SSP2 "Middle of the road" + 3 key design choices*

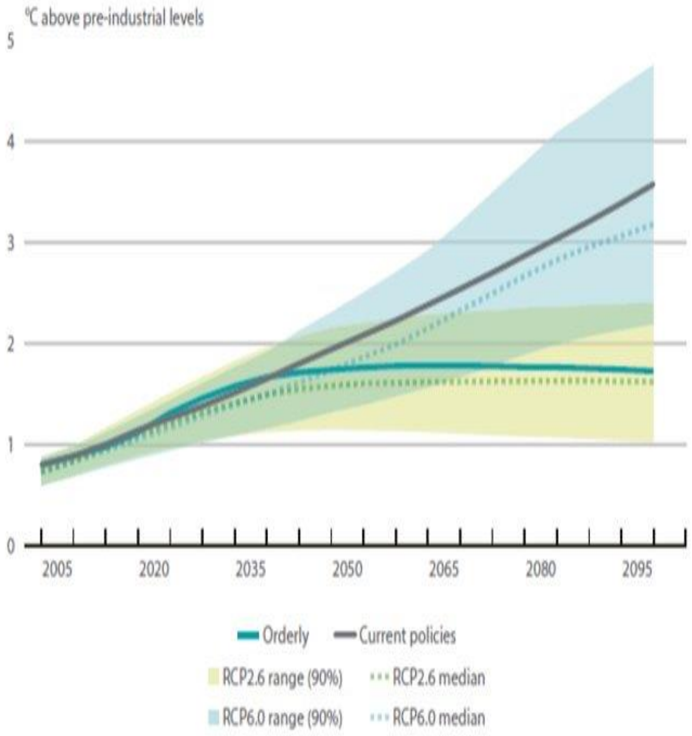
Emissions across scenarios



Emission price development across scenarios



Global mean temperature rise

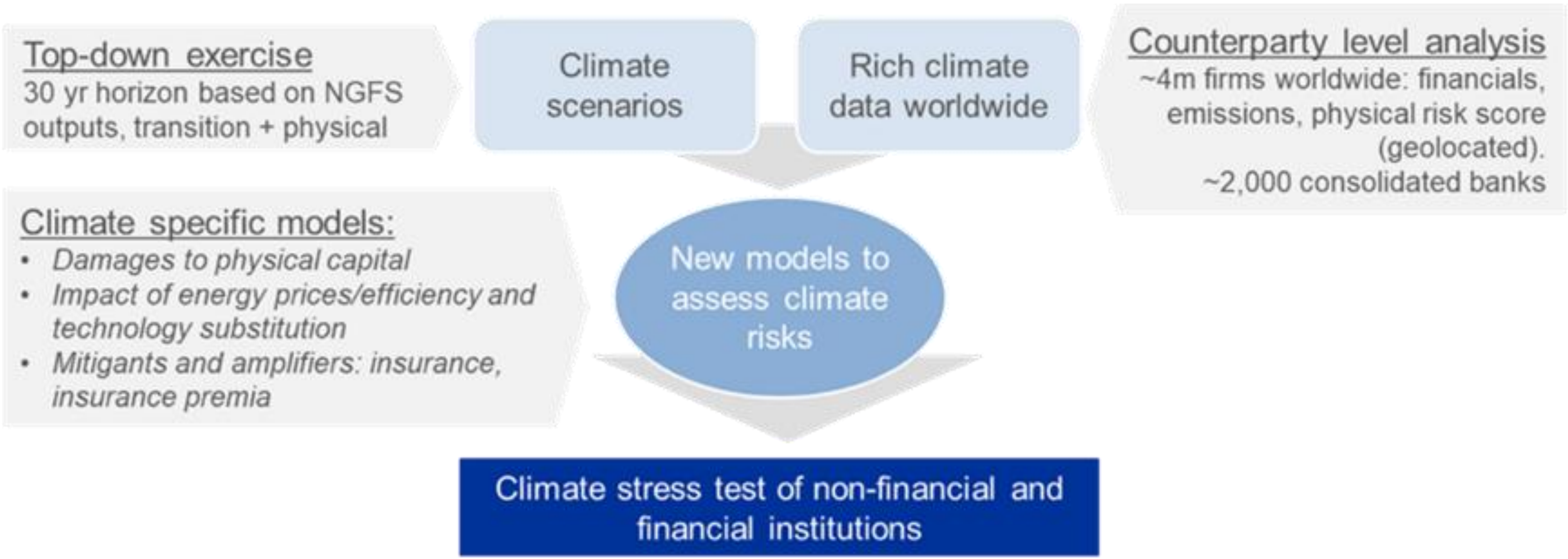


*long-term policy, short-term policy and technology availability

Source: NGFS Guide to climate scenario analysis for central banks and supervisors, June 2020.

ECB’s economy-wide climate stress test methodology

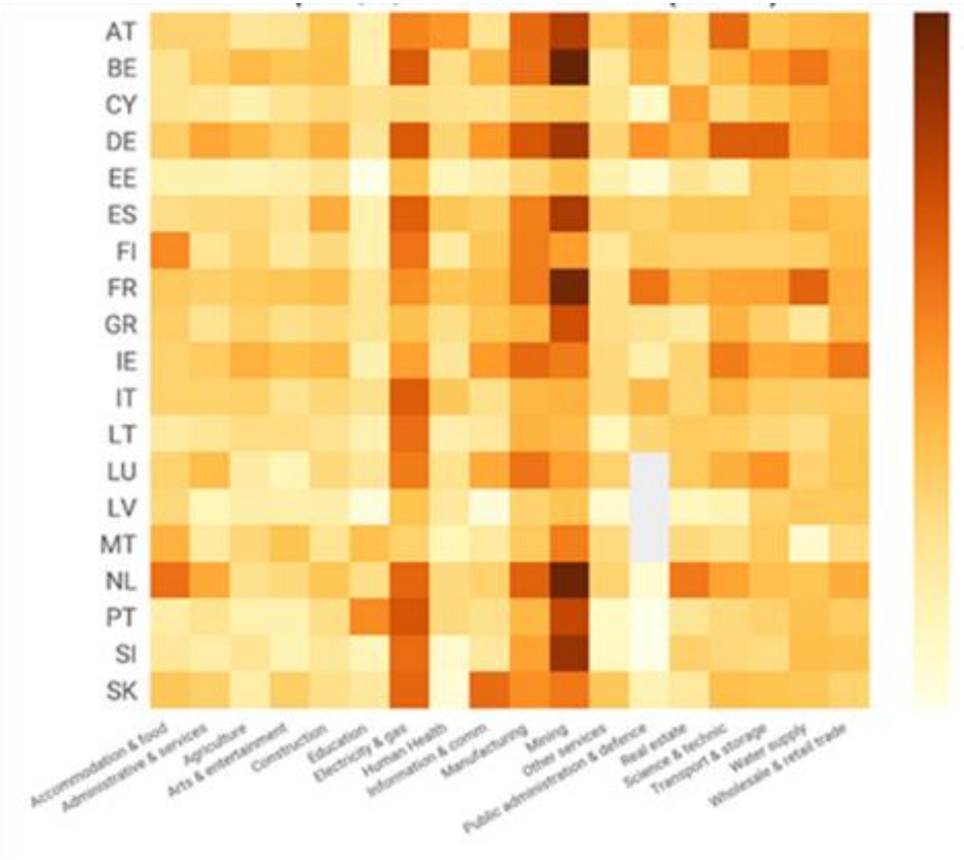
Innovative components of the ECB climate stress test



Source: The ECB Blog Shining a light on climate risks: the ECB's economy-wide climate stress test (europa.eu), March 2021

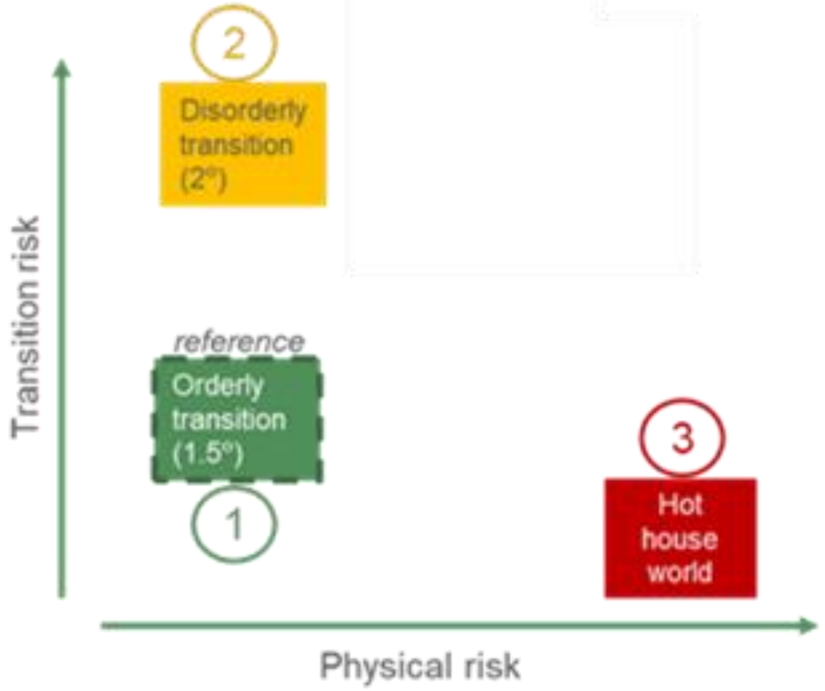
Transition risk

Carbon footprint of European firms averaged by country-sector (2018)



Source: The ECB Blog Shining a light on climate risks: the ECB's economy-wide climate stress test (europa.eu), March 2021

ECB climate scenarios



Expected impact

1. Orderly transition with limited physical risk
Early and effectively implemented policies
Limited costs associated with the transition and limited costs from damage from physical risk

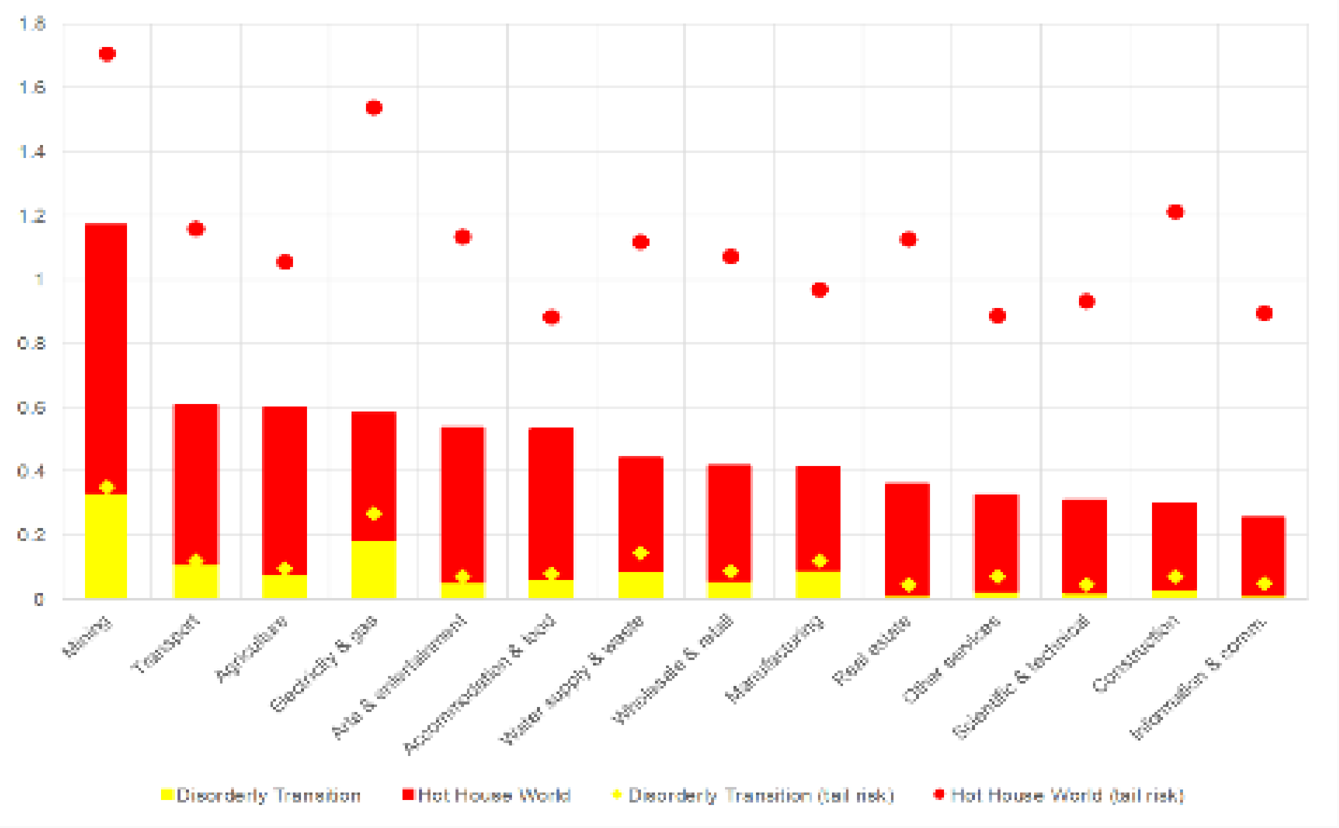
2. Disorderly transition with limited physical risk
Delayed policies implemented
High costs associated with the transition and limited costs from damage from physical risk

3. Hot house world with extreme physical risk
No new policies implemented (only current policies)
Very limited costs associated with the transition but extremely high costs from damage from physical risk

Source: The ECB Blog Shining a light on climate risks: the ECB's economy-wide climate stress test (europa.eu), March 2021

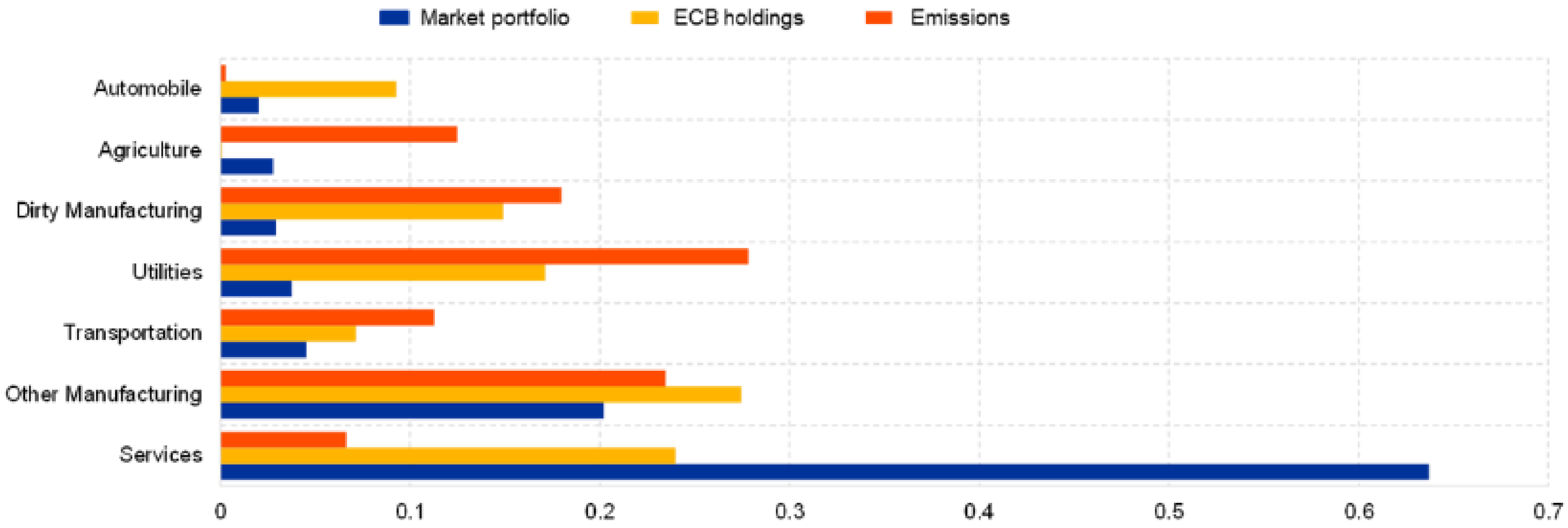
Differences in firms' default probabilities in adverse scenarios…

…with respect to the orderly transition scenario, by sector and group of firms (mean firms, and firms mostly exposed to physical risk)



Source: The ECB Blog Shining a light on climate risks: the ECB's economy-wide climate stress test (europa.eu), March 2021

Market portfolio vs. ECB holdings vs. sectoral emission intensity



Source: Speech by Isabel Schnabel From green neglect to green dominance? (europa.eu), March 2021

Scoping TAA in ESG

Scoping TAA in ESG

3-stage journey to explore how to integrate ESG risks and opportunities with the TAA process

In contrast to our ESG and climate integration with SAA, we are trading far shorter time horizons in TAA (months not years)

Stage 1:
Awareness

Exploring ESG integration in risk analysis and trade recommendations

How can analysts and portfolio managers quantify and understand the ESG risks in TAA trades?

Stage 2:
Implementation

Exploring ESG integration in the security selection and implementation process

How can we implement TAA trades via baskets to reflect client ESG requirements, such as exclusions or minimum ratings?

Stage 3:
Thinking outside the box

How do we treat thematic trades in potentially controversial regions or sectors, such as oil?

Stage 1: Awareness

1. Equity sectors

Considering an evaluation of the **carbon intensity** of equity sectors relative to the wider market, region and other sectors

- Question: How do we normalise emissions, whilst retaining comparability? Tonnes CO2 per m revenue, customers, employees, size of real estate, floor space, generation, distance travelled?

The ECB provides some framework here: currently discussing how to mitigate the emissions bias in the ECB portfolio induced by the market neutrality principle

2. Sovereigns

ESG ratings: there are many **NGO- and university-constructed indices**

- Problems around lagged data
- Methodologies can change across successive versions of the same indices

Considering a framework here: Do we prioritize climate science (given its potential impact), where quantitative data is easier to source and use of score regions relative to societal concerns?

Question: How do long-term ESG risks affect short-term TAA trades?

Stage 2: Implementation

We are at an early stage and are exploring the balance of feasibility and utility

Examining how to implement trades with bespoke stock baskets, which can accommodate client exclusions or minimum equity ESG scores

- Following the lead and progress made in the development of sustainable active and systematic funds and ETFs
- Can we use proxies for excluded exposures?
- Do we need different risk budgets for mandates with specialist ESG requirements for the implementation of TAA ideas? Will these convene over time?
- How do we approach shorting?

How are ESG considerations factored into risk and performance measurement, when we are still using traditional benchmarks for comparison?

How could exclusions modify the trade thesis?

Stage 3: Thinking outside the box

How do we approach tactical investment in potentially controversial sectors and geographies?

- How useful are sovereign indices? Is there a bias for political *stability* over political *freedom*, which up-weights some economies contrary to some expectations?
- How do we discuss the impact of exclusions on the TAA opportunity set? Do we need different risk budgets?
- How can we trade carbon within a TAA framework?

Appendix

Fidelity Solutions & Multi Asset

Global team with over $48bn in assets under management

Our team and approach

- Managing multi asset mandates since the 1980s
- Team-based disciplined investment process, designed with flexibility to deliver value
- Research-driven and results-oriented
- Working with clients on an advisory or discretionary basis according to their needs

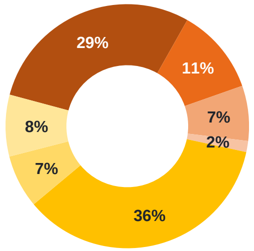
Well-resourced team

Global team with over 90 professionals including, but not limited to:

- 14 Portfolio Management team members
- 19 Research Analysts
- Dedicated analytics resources of 5 people
- 12 Implementation team members
- Dedicated Client Solutions team of 23 people
- Operations team of 12 people
- Dedicated Portfolio Research & Engineering team of 4 people

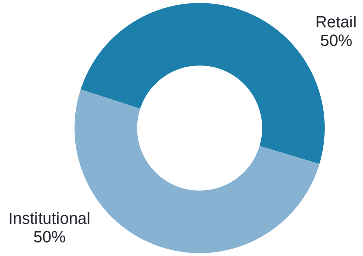
Our offering

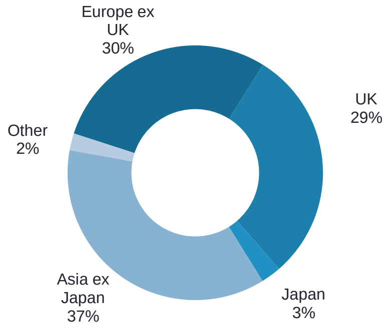
Outcome-focused	AUM $bn
Income	14.0
Risk Rated and Open Architecture	5.5
Volatility Targeted	3.5
Absolute and Total Return	0.7



Benchmark-aware	AUM $bn
Strategic Benchmarked	17.1
Equity Multi Manager	3.4
Target Date/Rolldown	3.9

Our clients





Source: Fidelity International. Assets and resources are shown as at 31 October 2020. Operations team includes operational due diligence, investment operations and change teams. Four members of the Portfolio Management team also perform research functions. One member of the Portfolio Management team is Head of Portfolio Management and Risk.

Fidelity Solutions & Multi Asset

Team structure and responsibilities

Henk-Jan Rikkerink
Global Head of Solutions and Multi Asset
Overall responsibility for Fidelity's multi asset and systematic capabilities

Multi asset investment and research

Eugene Philalithis
Head of Multi Asset Investment, Europe

Matthew Quaife
Head of Multi Asset Investment, Asia

Portfolio management

Ultimate responsibility for portfolio performance, combining positions to deliver investment objectives

Grethe Schepers
Director of Research

Generating investment ideas through identifying the right vehicles and instruments to implement investment views

Salman Ahmed
Global Head of Macro and Strategic Asset Allocation

Formulating Fidelity's capital market assumptions based on analysis of global macroeconomics

Client solutions and portfolio design

Alastair Baillie-Strong
Head of Systematic Investing

Systematic Investing and Portfolio Research & Engineering

Designing and optimising investment solutions to deliver client needs Enhancing our systematic capabilities delivering Fidelity's fundamental & quant research to clients

Systematic investing specialists working across Fidelity's investment teams

Katie Roberts
Head of Client Solutions

Client engagement

Understanding client needs, working with investment teams to build solutions that deliver the right outcomes, as well as ongoing engagement

Operations

Shillan Leach
Head of Multi Asset Implementation & Equity Operations, Europe

Implementation

Efficient access to markets through a variety of instruments

Portfolio Construction & Risk

Ongoing risk management and monitoring

Portfolio Analytics

Regular analysis of portfolio exposures and characteristics

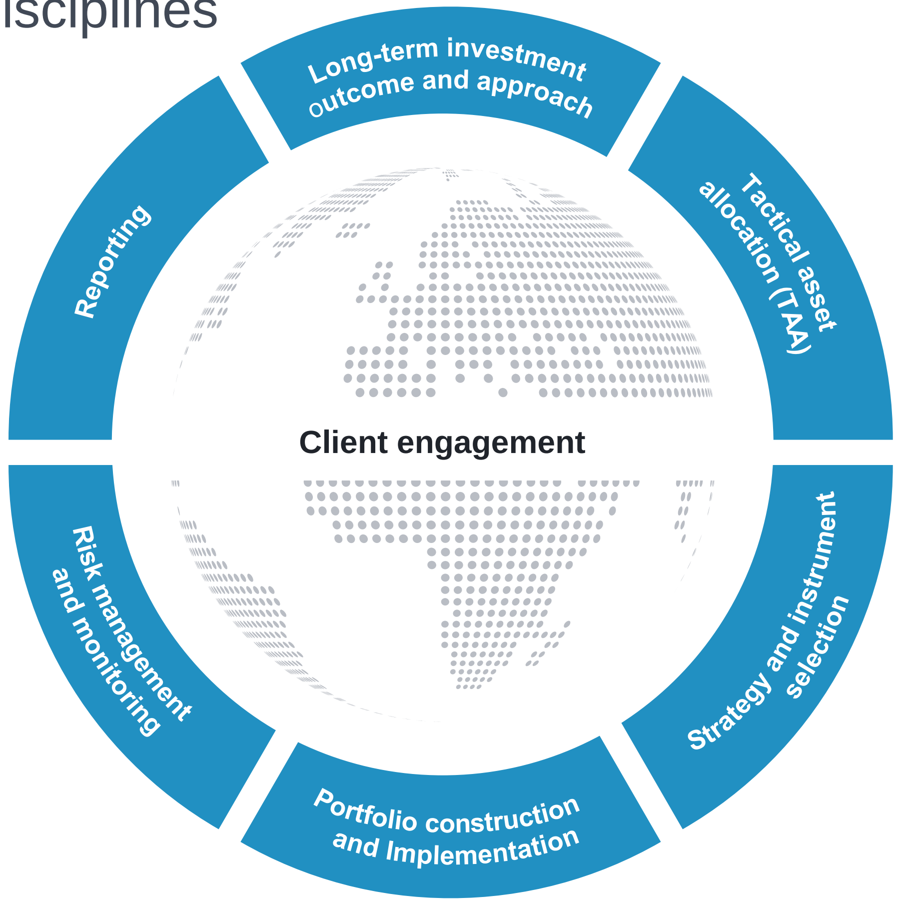
Change & Investment Operations

Supporting business evolution in response to client needs

Source: Fidelity International, Source: Fidelity International, as at 28 February 2021. Grey boxes reflect membership of Solutions & Multi Asset Leadership Team.

Fidelity Solutions & Multi Asset

Overview of core investment disciplines

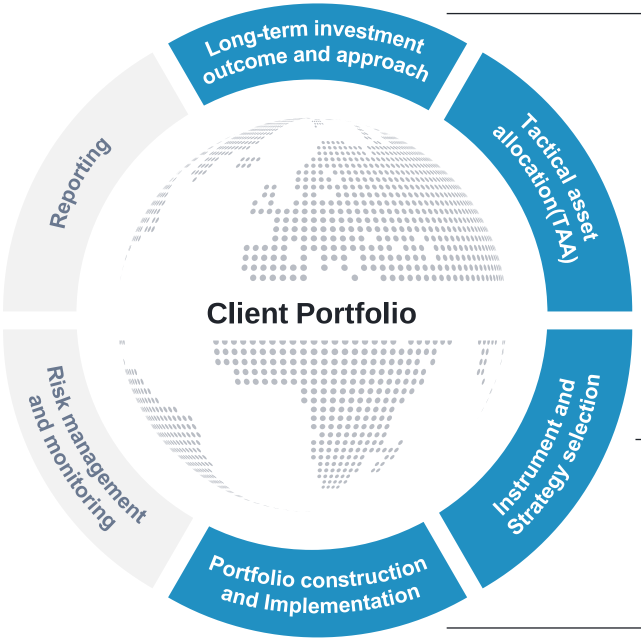


Research-driven, client-focused, results-oriented

Source: Fidelity International, 2020.

Fidelity Solutions & Multi Asset

Using our capabilities to build solutions that meet client needs



- Long-term outcome-based approach
- Decide which asset classes are required/permitted
- Optimise the strategic asset allocation or benchmark if required
- Showcase a range of expected outcomes: central, good and poor

- Decide TAA boundaries or limits
- Share our market views and/or recommend tactical positions
- Implement TAA views in portfolios

- Showcase our Instrument and Strategy selection process
- Recommend a preferred list of managers/instruments
- Build model portfolios for clients based on recommended instruments

- Provide trade instructions and rationale
- Develop and deliver overlay strategies
- Construct model portfolios focused on maximising portfolio diversification.

Working as true partners with clients to deliver strong results through a disciplined investment process

Source: Fidelity International, 2021.

Fidelity Solutions & Multi Asset

Extracting value across the investment process

Diversification

Unconstrained access to asset classes including broad range of alternatives

Selecting the right asset classes

Flexible and dynamic approach to respond to changing market conditions

Selecting the right managers

Identifying the best talent from across the industry

Blending managers to deliver a smoother investment journey

Combining managers to mitigate risk and to access styles

Managing beta exposure

Focusing on uncorrelated alpha streams

Opportunistic and thematic ideas

Accessing Fidelity's global research platform

Asymmetrical approach to capturing opportunities

Looking for opportunities skewed to the upside to access 'free hedges'

Efficient implementation

Constant focus on minimising costs of access

Source: Fidelity International 2020. For illustrative purposes only.

Fidelity Solutions & Multi Asset

Accessing Fidelity's investment capabilities through a range of solutions

Creating an investment solution is an iterative process, involving a close working relationship between clients and Fidelity's sales and investment teams

A range of options to access Fidelity's capabilities

Client need

- **Existing and well-established range of strategies**
- **Tailoring existing strategies by including different asset classes, building blocks and instruments**
- **Fully customised, bespoke portfolios**

Fidelity Solutions & Multi Asset

Delivered as:

- Pooled fund vehicles across a range of structures and domiciles
- Segregated mandates
- Customised fund vehicle for client platform
- Advisory services including model portfolios

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