

Confidence
must be earned

Amundi
ASSET MANAGEMENT



May 2021

Tipping Point: Responsible Investing

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Promotional document solely for the attention of “professional investors”

Executive Summary

– Responsible Investment:

- Booming around the world;
- Although there is still a need to clarify the debate.

– Climate change:

- Triggered the move with a tipping point at the COP21;
- New role for investors: influence and making capital markets more resilient.

– Impact investing:

- Alignment of corporates' activity with societal forces (“societal alpha”);
- New growing trend.

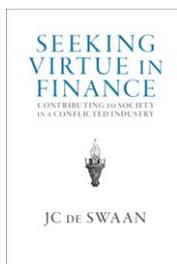
– Net-Zero Commitments:

- Alignment between all players;
- Call for solutions.

Cross Road: Private Sector, Innovation, Public Good



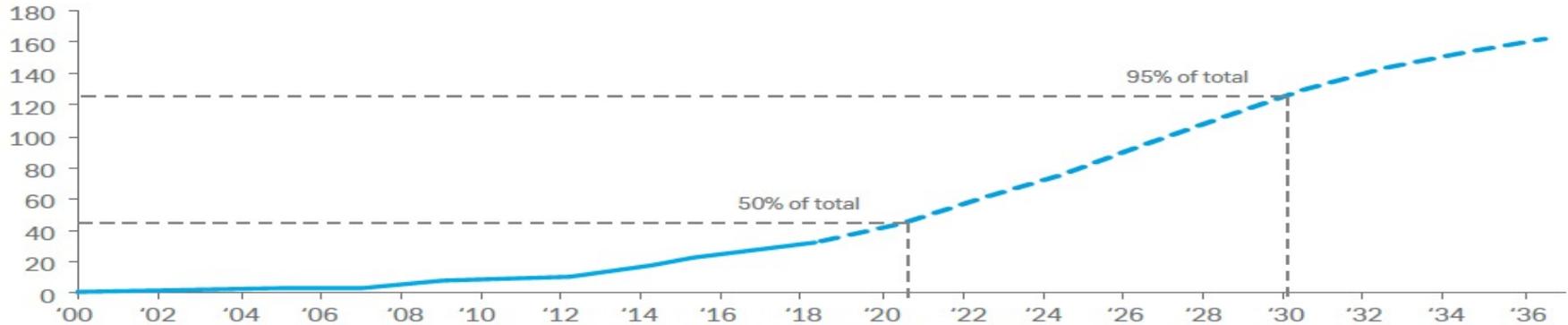
Sovereign Wealth Fund
RESEARCH INITIATIVE



- Launched the **Sovereign Wealth Fund Research Initiative (2010)**:
 - Partnership with Patrick Bolton and Joseph Stiglitz
 - SWFs as having to internalize some externalities (i.e., climate change)
- **Co-Launched the Portfolio Decarbonization Coalition**:
 - First investor coalition committed to decarbonizing their portfolios (2014)
 - Selected to represent the entire finance sector at the COP21 (2015)
- **Initiated some financial innovation**:
 - Mainstream low-carbon indexes (2014)
 - PPP Capital Markets (2018)
- **Advised policymakers**:
 - One Planet Lab Member (2018)
 - Testified before the US Senate (2020)
- **Co-published papers**:
 - Hedging Climate Risk (2016), Navigating the ESG World (2020), The Green Swan (2020), etc.

Responsible Investing: the New Normal

Global AUM falling under an ESG mandate (USD tn)



Source: Deutsche Bank, Global Sustainable Investment Alliance

Responsible Investing: a tsunami

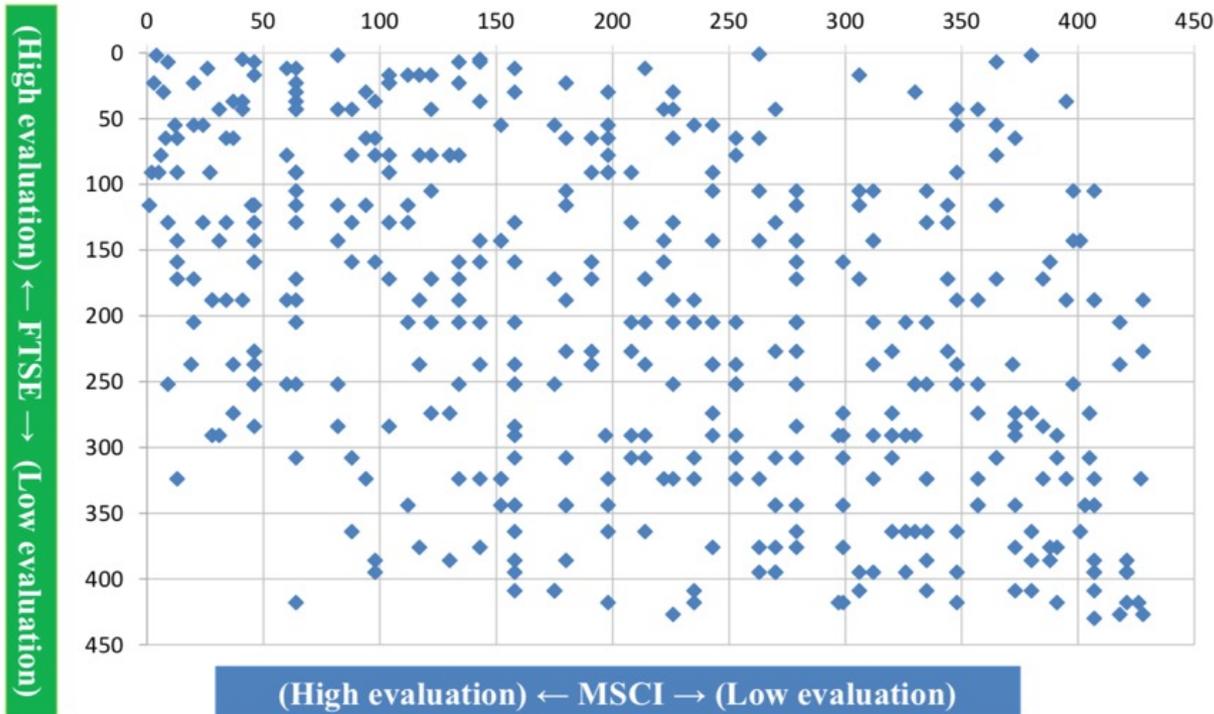
\$30tn in 2019
(one third of total AUM)



- **\$45tn (50% of total AUM) in 2021**
- **\$125tn (95% of total AUM) in 2030**

Lack of Consensus on ESG Data

<Comparison of ESG evaluation by FTSE and MSCI>

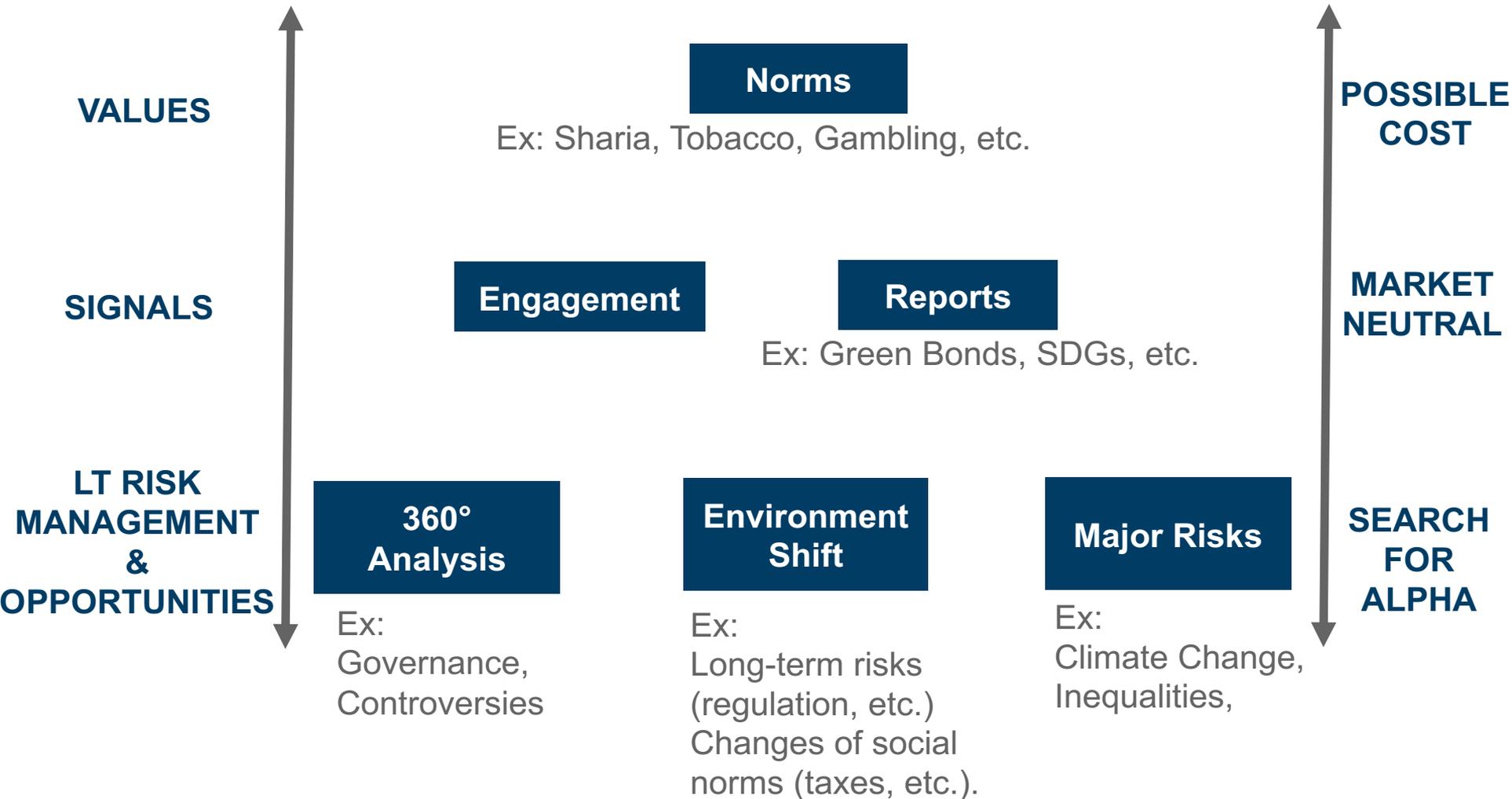


GPIF compared ESG scores provided by FTSE and MSCI on the Top 450 Japanese companies



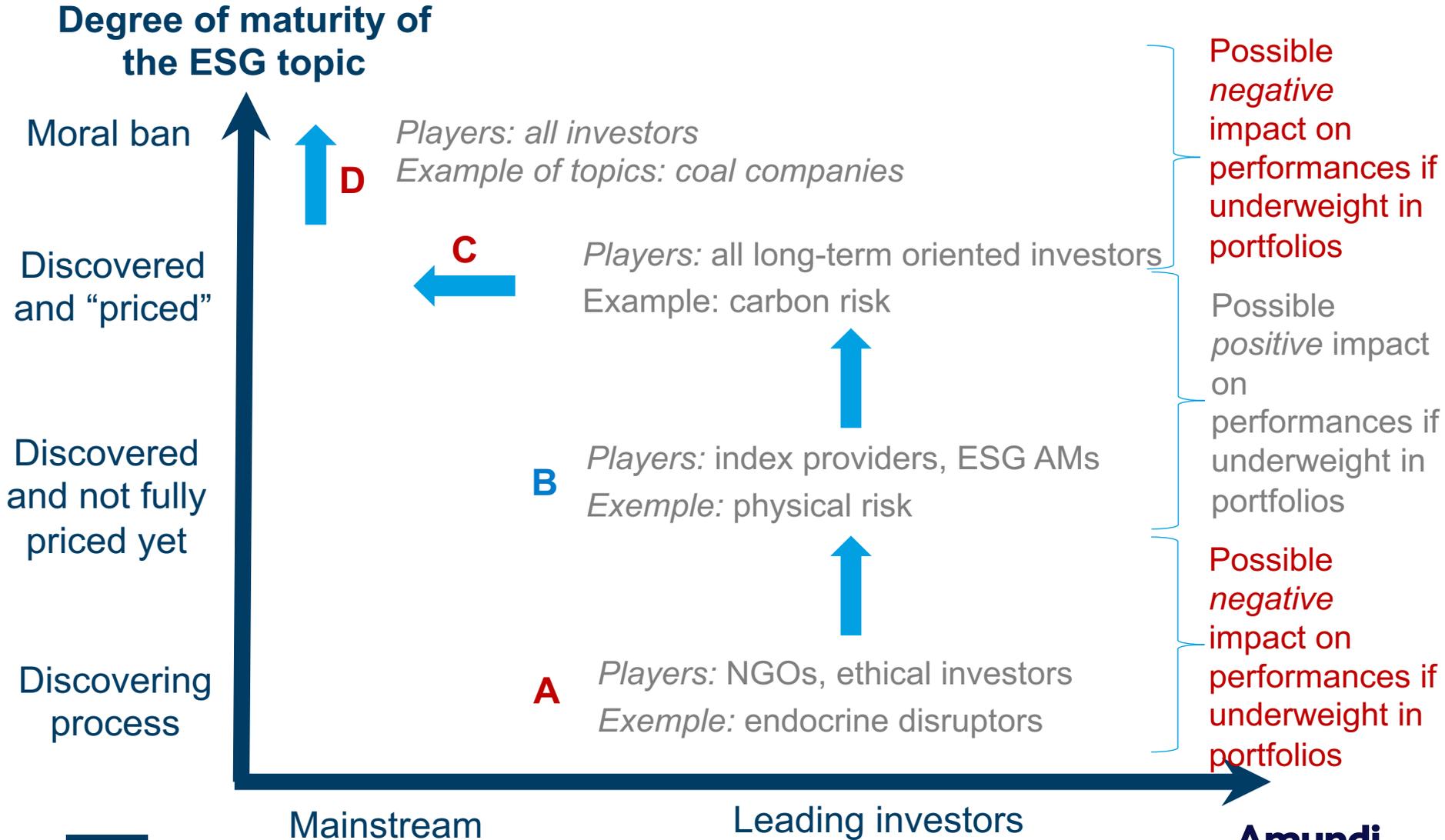
Absolute lack of correlation

ESG : A Growing Split of Objectives

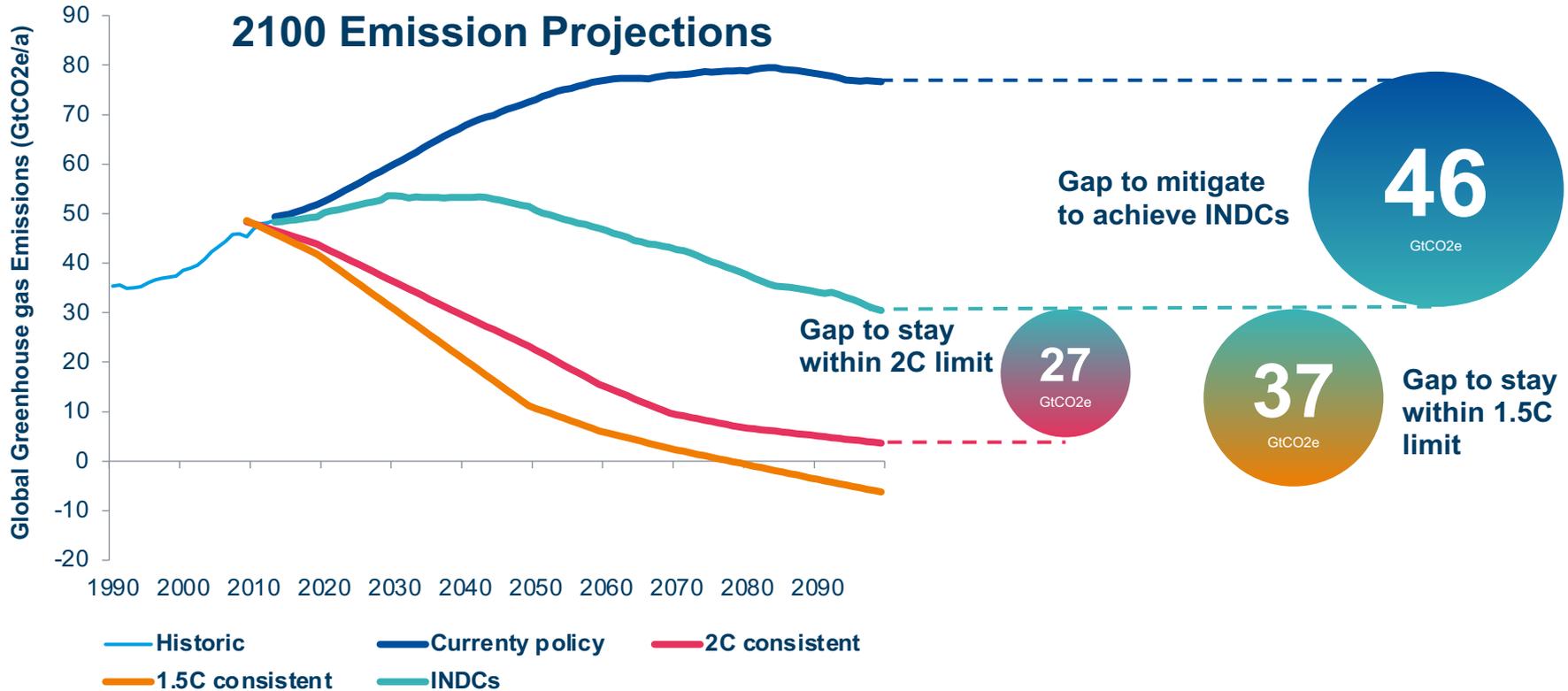


Source: Bolton, Levin, Samama (2020)

Dynamic ESG

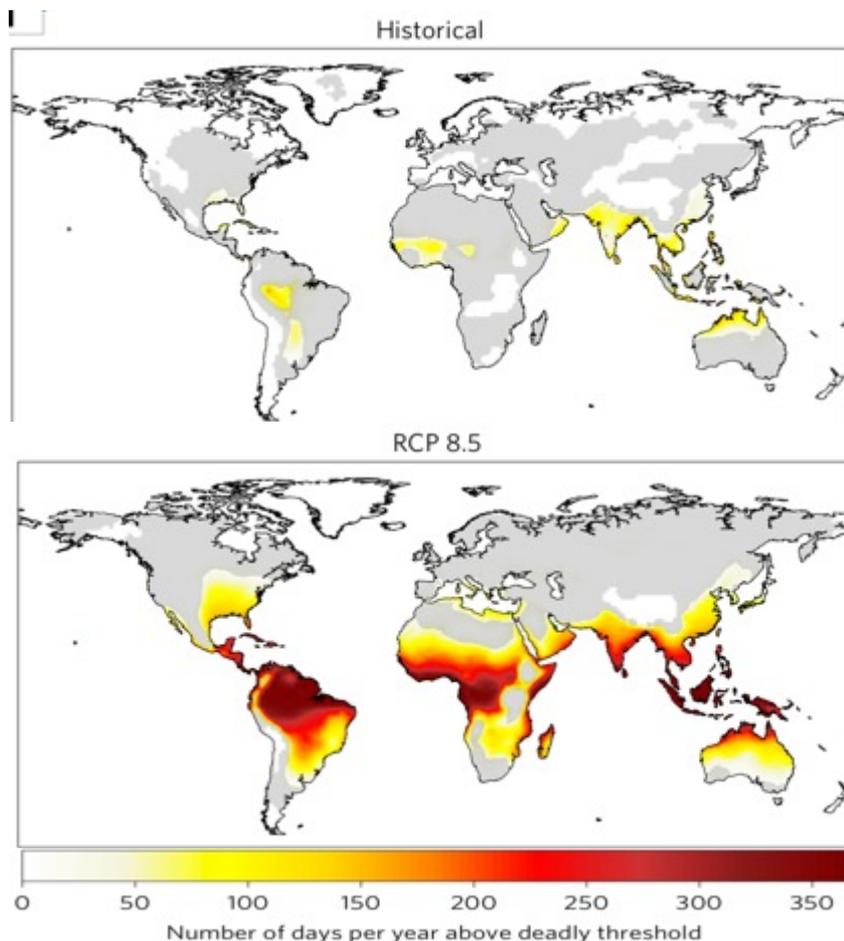


Climate Change: Unprecedented Challenge



Source: Climate Action Tracker Database, Global emissions time series, updated November 2017. Time series data for INDCs, 2C consistent, 1.5C consistent time series are computed as medians of highest and lowest potential global emission level results.

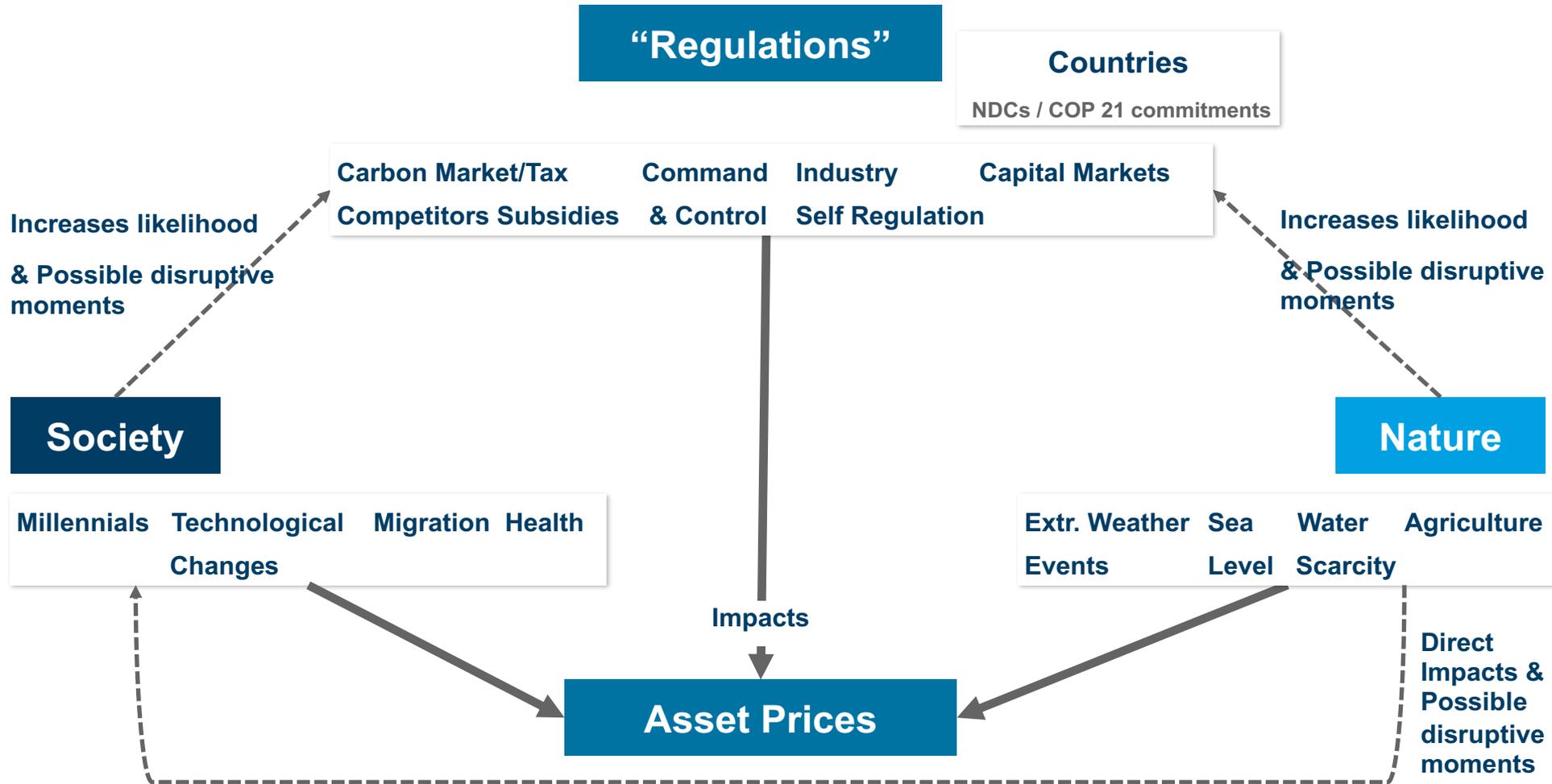
Impacts of Temperatures on Where to Live



- Human beings must regulate their internal heat, and so are exposed to the mix of :
 - External temperatures and
 - Humidity
- In 2000*, this was already a severe risk:
 - 13.2% of the planet's land area where 30.6% of the population resides...
 - was exposed to 20 or more days when temperatures and humidity surpassed the threshold beyond which such conditions become deadly.
- By the end of the century, in a BAU scenario, entire regions of the world would be inhabitable.

* Source: Global Risk of Deadly Heat (Nature 2017)

Multiple Forces Related to Climate Change Impacting Asset Prices



Source: Bolton, P., Despres, M., Pereira da Silva L., Samama, F., Svartzman, R., "The Green Swan. Central Banking and Financial Stability in the Age of Climate Change"

Climate Change: A Green Swan



100K+ downloads

– Climate change is a “Green Swan”¹:

- Certain;
- Carries a variety of non-linear and interacting risks: physical, regulatory, and societal;
- Could lead to extreme losses in the short term and even put human life at risk

– Climate change is a systemic risk that:

- Can’t be hedged;
- Goes beyond a corporate/investors way of being solved;
- Is now in the agenda of over 80 central banks.

– Covid-19 is another example of “Green Swan”

¹ Bolton, P., Despres, M., Pereira da Silva L., Samama, F., Svartzman, R., “The Green Swan. Central Banking and Financial Stability in the Age of Climate Change” *Bank for International Settlements*, 2020

Evolving Sources of Capital for Corporates



"Yes, the planet got destroyed. But for a beautiful moment in time we created a lot of value for shareholders."

Influence: Climate Action 100+



Joint statement between Total S.A. and Institutional Investors as participants in Climate Action 100+

Total takes major new steps to achieve its ambition to get to Net Zero by 2050

Three major steps to get Total to Net Zero:

1. Net Zero across Total's worldwide operations by 2050 or sooner (*scope 1+2*)
2. Net Zero across all its production and energy products used by its customers in Europe¹ by 2050 or sooner (*scope 1+2+3*)
3. 60% or more reduction in the average carbon intensity of energy products used worldwide by Total customers by 2050 (less than 27.5 gCO₂/MJ) - with intermediate steps of 15% by 2030 and 35% by 2040 (*scope 1 + 2 + 3*)

— Objective: engage with the 160 most polluting companies on climate change related risks

— Launched by CalPERS (Dec 2017)

— 500 investors representing \$47 trillion

— Members: ABP, Alecta, AP4, Allianz, CalPERS, CalSTRS, ERAFP, FRR, GPIF, NZ Superannuation Fund, PKA, USS,...

— Influence on Total:

— Joint press release (2020)

— Adjustment of Total climate policy

Market Resilience : Call for Financial Innovation & Prototypes



– Case study 1:

– Need for a low-cost, plug and play, scalable solution to reduce climate related risk

– Solution:

- Low carbon equity index
- Initiated by AP4 and FRR (2011 & 2015) ^{1 2}
- Now used by CalSTRS, GPIF, Fund, etc. (\$50bn market)⁵



– Case study 2:

– Need for green infrastructure financings in Emerging Markets

– Solution:

- PPP Capital Market
- Initiated and seeded by IFC (2018) ^{3,4}
- Replicated by EIB and AIIB (2019, 2020)

1 Anderson, M, Bolton, P., Samama, F., “Hedging Climate Risk” (2016)

2 Tepla, L., “MSCI Low Carbon Indices: A Free Option on Carbon” (2020)

3 Bolton, P., Musca, X., Samama, F. “Global Public-Private Investment Partnerships: A Financing Innovation with Positive Social Impact” (2020)

4 Buhr, B. “Converting Emerging Markets to Green Finance: Amundi and the IFC” (2020)

5 Eccles, B., Klimenko, S., “The Investor Revolution” (2019)

Low-Carbon Project: a Game Changer

Climate Change: a risk “in the future”

- **Assumption:** climate change is a risk that is not rewarded
- **Challenges:**
 - Need for scalable, low cost and easy to implement solutions
 - Need to address the “Tragedy of the time horizon”

Innovative Solution

Provider’s Selection

- **Index Provider**
- **Carbon Data**

Climate Risk Reduction

- **CO₂ emissions**
X% reduction of companies with the highest CO₂/Sales
- **Stranded assets**
Z% reduction of CO₂ reserves/Mkt Cap
- **Sector-neutral approach**

Tracking Error Reduction

- **Optimization of the weights**
- **Rebalancing**

Low-Carbon Performances

CUMULATIVE INDEX PERFORMANCE – GROSS RETURNS (USD) (NOV 2010 – SEP 2020)



— Annualized outperformance (2010-2020):

- World: +29 bp ⁽¹⁾
- North America: +30 bp
- Europe: +44 bp

— Even if supposed to be forward-looking

— Performance of concrete investments :

- Nov 2014 – Sept 2020
- Annualized outperformance: +19 ⁽²⁾ bp
- Information ratio⁽³⁾: 0.39

Past market trends are not a reliable indicator of future ones. Past performance does not prejudice future results, nor is it a guarantee of future returns. Source: MSCI

(1) Net monthly returns annualized in USD for the 11/30/2010 to 09/30/2020 period. Data prior to the launch date (Sep 16, 2014) is back-tested data (2) Net weekly returns annualized in USD for the 11/07/2014 to 09/25/2020 period. Outperformance in basis points. The cumulative index performance is from MSCI (3) A ratio of portfolio returns above the returns of a benchmark (usually an index) to the volatility of those returns

Academic World

Financial Analysts Journal
Volume 72 • Number 3
©2016 CFA Institute



PERSPECTIVES

Hedging Climate Risk

Mats Andersson, Patrick Bolton, and Frédéric Samama

We present a simple dynamic investment strategy that allows long-term passive investors to hedge climate risk without sacrificing financial returns. We illustrate how the tracking error can be virtually eliminated even for a low-carbon index with 50% less carbon footprint than its benchmark. By investing in such a decarbonized index, investors in effect are holding a "free option on carbon." As long as climate change mitigation actions are pending, the low-carbon index obtains the same return as the benchmark index; but once carbon dioxide emissions are priced, or expected to be priced, the low-carbon index should start to outperform the benchmark.

Harvard
Business
Review



The Investor Revolution



Pre-Release Version

Case Study

MSCI Low Carbon Indices

A Free Option on Carbon



• other picture here •

Hedging Climate Risk

- By M. Andersson, P. Bolton and F. Samama
- Published in the Financial Analysts Journal (2016)
- Very high grades for the paper
- Freely online and webinars

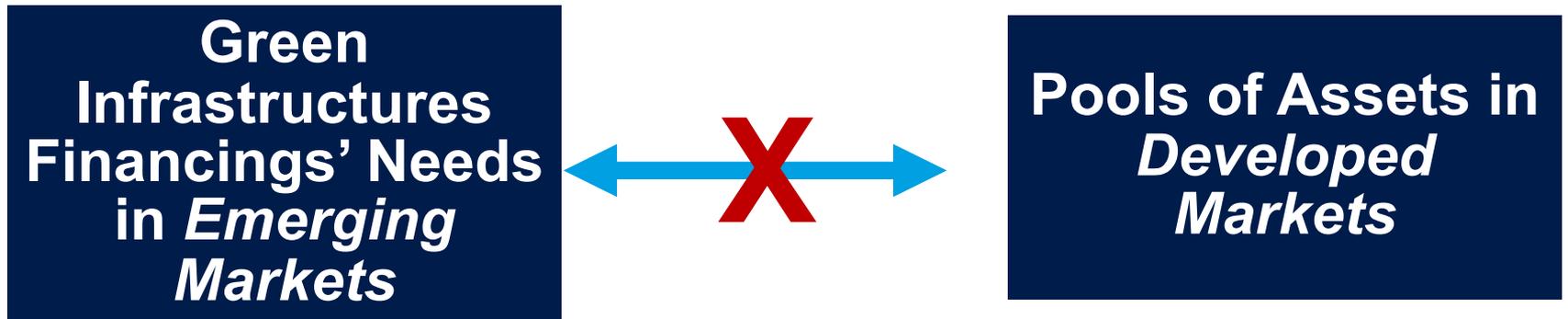
Harvard Business Review (May June 2019)

- By Bob Eccles
- Underscores the adoption by CalSTRS, NY Common Retirement Fund, GPIF, etc.
- Refers to “Hedging Climate Risk”
- \$50bn market

Insead case study (forth coming)

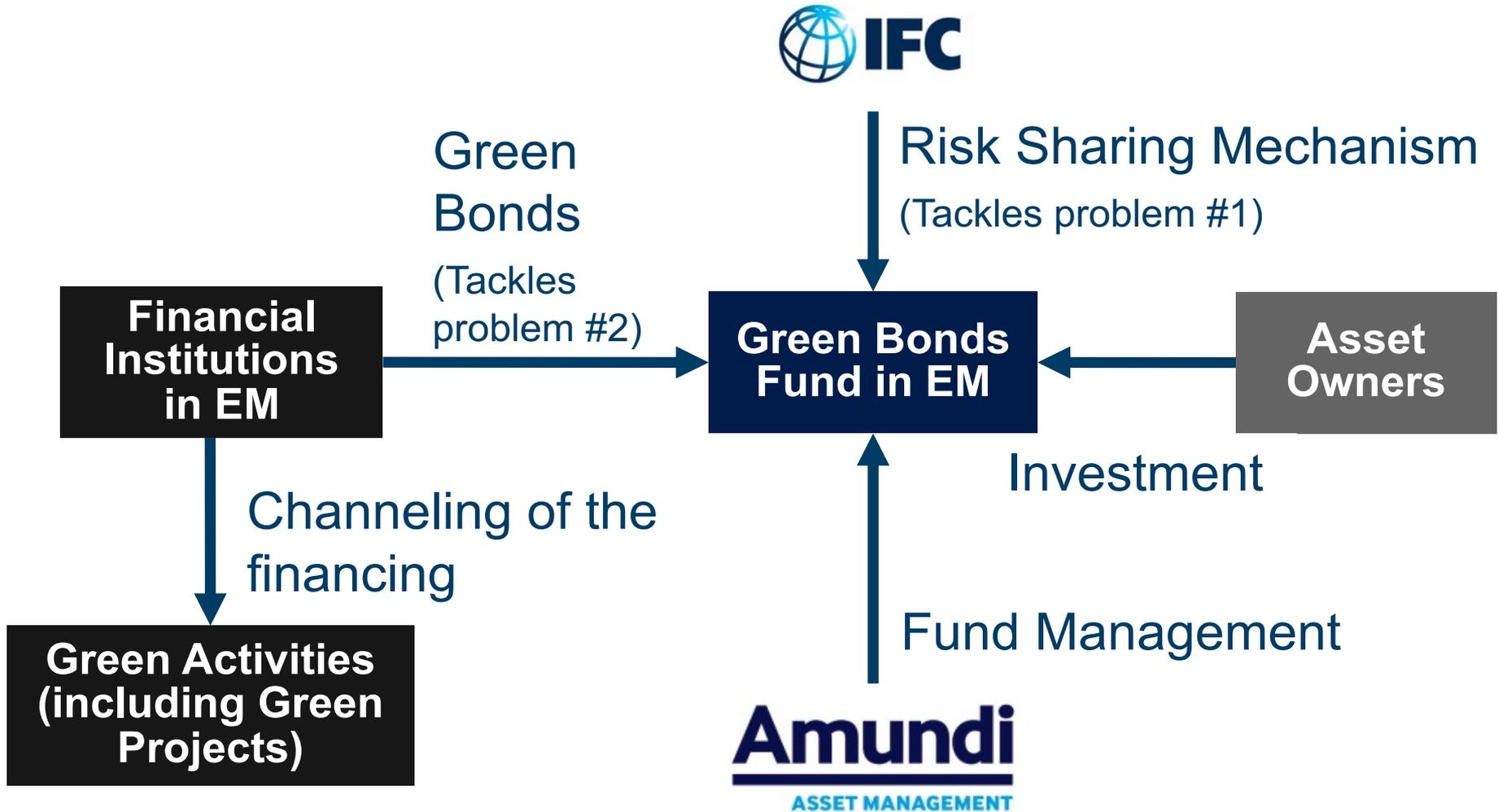
- By L. Tepla

Green Infrastructures' Financing Gap



- Costly for both parties
- 2 main obstacles:
 - Emerging Markets considered as too risky by many investors
 - Lack of knowledge on infrastructures financing (even locally)

IFC Deal: Elegant Solution



Source: Bolton, P., Musca, X., Samama, F., (2020)

High Recognition

From partnership inception to fund launch

Partnership launch

FINANCIAL TIMES

IFC invests \$325m in green bond fund for emerging markets

Arm of World Bank to support environmentally friendly projects in developing markets



World Bank's IFC, Amundi to create \$2 billion green bond fund

Fund closing

FINANCIAL TIMES

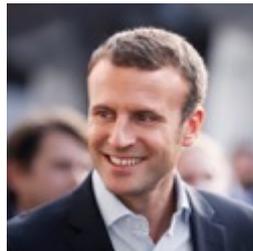
Green investing generates returns, not just a warm glow

Sustainability is now seen as a way of looking at often ignored externalities

GILLIAN TETT [+ Add to myFT](#)



ASSET MANAGEMENT
Amundi and World Bank close largest green bond fund at \$1.4bn



G20 Report

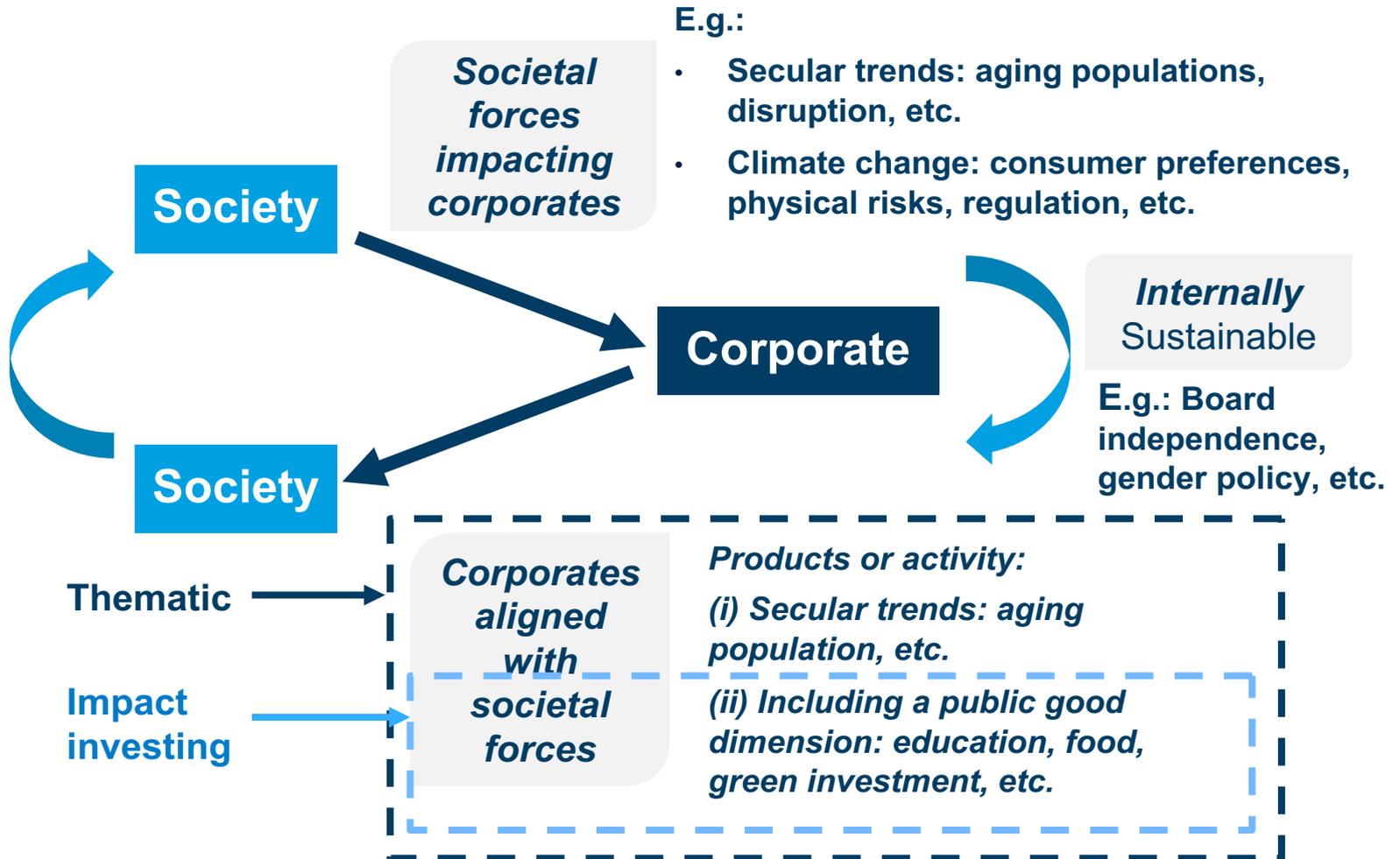
Presented by **X. Musca**, former Head of the French Treasury and President Sarkozy Chief of Staff.

Making the case of the IFC deal being a case study of a new business model for developing banks

6 Awards

Thematic and Impact Investing

Impacts on valuations *if/when* the societal force is priced.



E.g.:

- Secular trends: aging populations, disruption, etc.
- Climate change: consumer preferences, physical risks, regulation, etc.



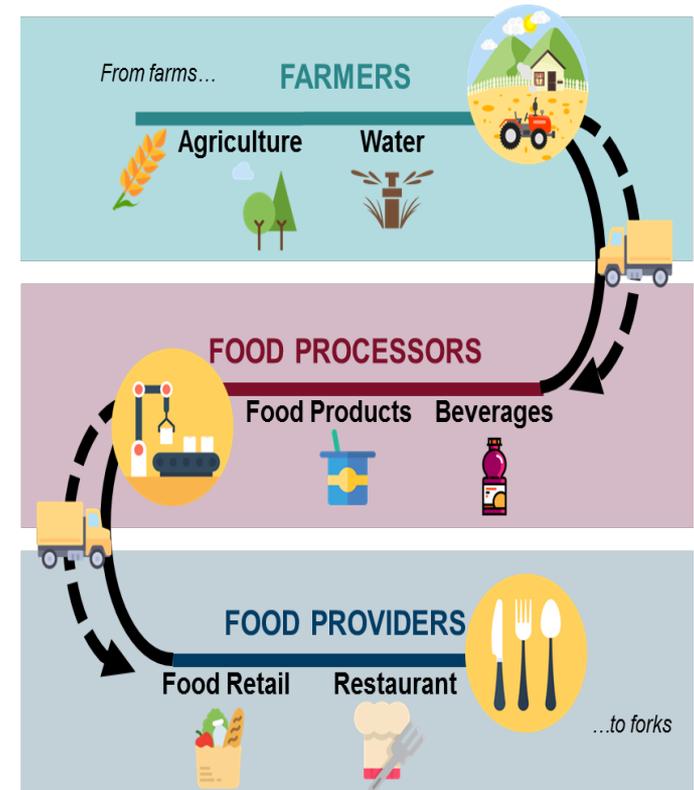
Food for Generations

- **World population growth**, economic development and urbanization lead to:
 - Increase in food and water demand
 - Evolution in eating habits
- **Growth opportunities:** animal protein, convenience food, health & wellness
- **But still a challenge:**
 - **More food**
 - **With less resources** and no environmental harm
- **Investing:**
 - **Throughout the food value chain**
 - **With a multisector coverage:** Agriculture, Water, Food Products, Beverages, Food Retail and Restaurants
 - While improving metrics on **carbon intensity, water and waste recycling**
 - **Impact investing: providing sufficient food for everyone worldwide & growth segment**

Challenge

Solution

INVESTING THROUGHOUT THE ENTIRE FOOD VALUE CHAIN

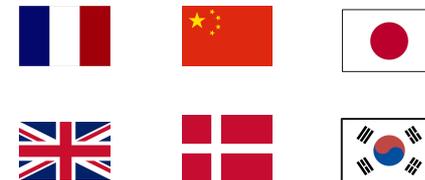


Source: OECD-FAO, Agricultural Outlook, 2015-2024

Recent Global convergence towards 1.5° alignment

– 113 countries have committed to be carbon neutral :

- ~ 50% world GDP;
- 9 countries have set legally binding targets;
- Countries with large pools of assets.



– Asset Owners: Net Zero Asset Owner Alliance

- 37 institutional investors;
- \$5.7 trillion AUM ;
- Transition investment portfolios to net-zero GHG emissions by 2050.



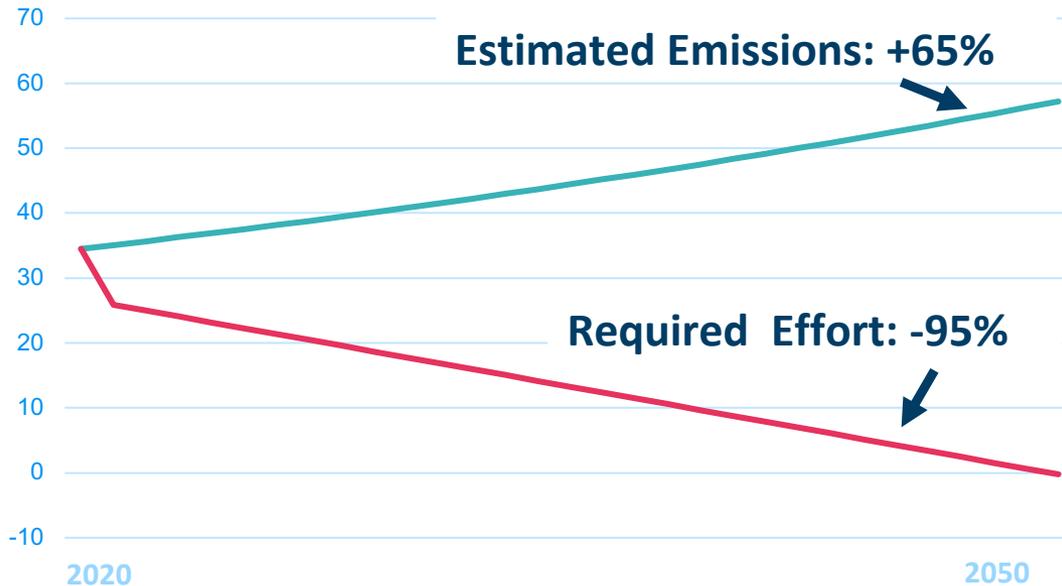
– Asset Managers: Net Zero Asset Managers Initiative

- 87 global signatories;
- \$37 trillion AUM
- Work in collaboration with clients to achieve target-based net zero goal by 2050 or sooner.



Strong Needed Reductions Although Increase is Expected

Budget Spending versus Estimated Emissions



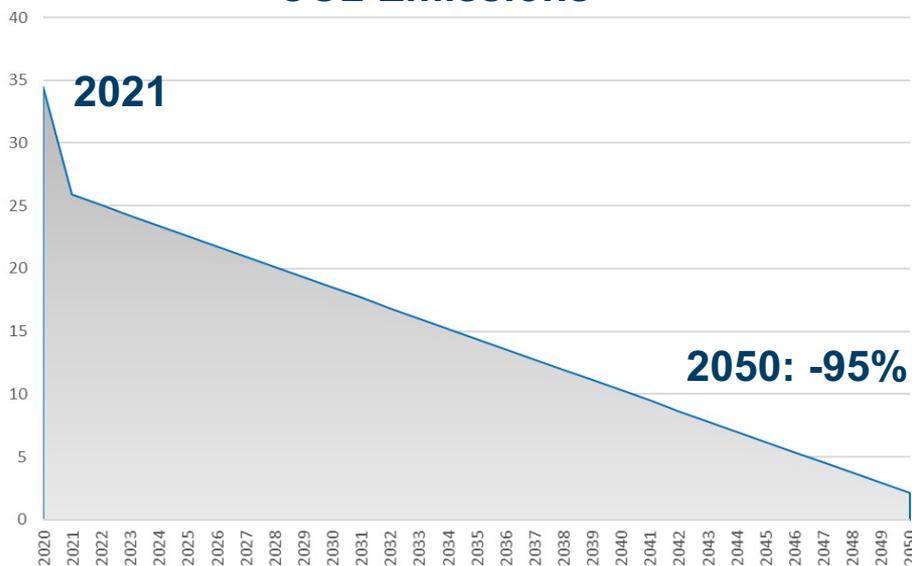
*Based on a 2% GDP growth

- **Forward looking:**
 - +1.75%/year;
 - +65% overall increase*.
- **We are not even on a trajectory to decrease, but quite the opposite.**
- **While the level must tend to zero.**

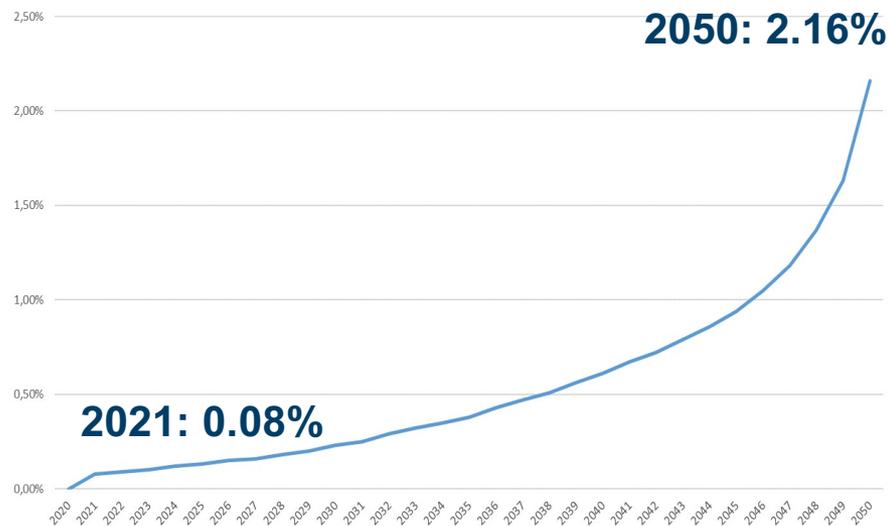
Source: Iceberg Data Lab and calculated on the MSCI Europe Universe

Net Zero Portfolio

CO2 Emissions



Tracking Error



– Assumptions:

- Scope 1, 2 and 3 upstream (Trucost);
- TE minimization & sector deviation constraint (+/- 2% compared to initial portfolio).

– Results:

- The active risk generated remains very low;
- It is starting from .08% towards 2.16% in 2050 (below 1% until 2046).

– Release: Green Swan Conference June 2-4

- *Estimated with BARRAONE risk model*

Appendix

Education

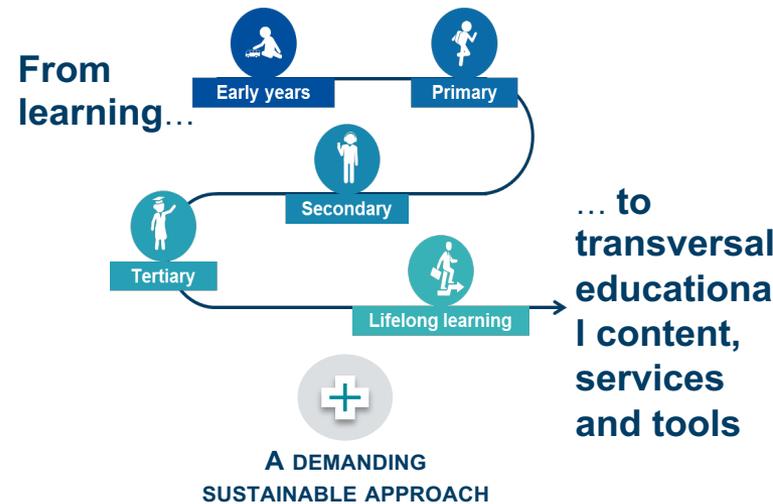
Challenge

- **Double challenge:**
 - **Inequalities** are threatening our economies; and lack of education is the first source of inequalities
 - **Fast moving market:**
 - Demand in EMs,
 - New technologies,
 - Privatizations.

Solution

- **3 pillars:**
 - Schools & training,
 - Content & tools,
 - Educational services.
- **Impact investing:** tackling the first source of inequalities (education) & benefiting from a growth market

COMPLETE ECOSYSTEM COVERING THE ENTIRE EDUCATION TIMELINE



RETURNS & POSITIVE IMPACTS

Academic World

Global Public-Private Investment-Partnerships: A Financing Innovation with Positive Social Impact

by Patrick Bolton, Columbia University, Xavier Musca, Credit Agricole Group, and
Frédéric Samama, Amundi Asset Management*

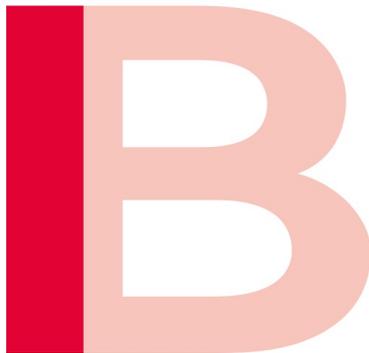
The energy transition away from fossil fuels is already underway in some of the most advanced economies. Unfortunately, however, the most climate-virtuous countries produce only a small fraction of global carbon emissions. One of the greatest challenges in achieving the energy transition on a global scale is to wean emerging market economies from their fossil fuel dependence and so encourage their development on a sustainable, carbon-free basis.

Imperial College
Business School

Imperial means
Intelligent Business

Converting Emerging Markets to Green Finance: Amundi and the IFC

March 2020



Journal of Applied Corporate Finance

- Patrick Bolton, Xavier Musca, Frederic Samama
- Global Public-Private Investment Partnerships: A Financing Innovation with Positive Social Impact
- Forthcoming July 2020

Imperial College case study

- By Bob Buhr
- Converting Emerging Markets to Green Finance: Amundi and the IFC
- March 2020