



AH: “Sustainable Finance: Challenges related to greening the financial system”

Official Version edited and presented by
Prof. Andreas G. F. Hoepner.

Notes: The work is based on the excellent and tireless efforts of Claudia Bolli, Manuel Coeslier, Delphine Dirat, Steffen Hoerter, Jean-Christophe Nicaise Chateau, Sara Lovisolo, Veronique Menou, Chantal Sourlas and Jean-Yves Wilmotte. Edits by Prof. Hoepner are displayed as 'AH:' while omissions are not indicated. Andreas also gratefully acknowledges scientific support from Theodor Cojoianu, Saphira Rekker, Fabiola Schneider and Theresa Spandel.

AH: “The European Commission calls for a climate-neutral Europe by 2050.

On 28 November 2018, the Commission presented its strategic long-term vision for a prosperous, modern, competitive and **climate-neutral economy by 2050.**

... Following the invitations by the European Parliament and the European Council, the Commission's vision for a climate-neutral future covers nearly all EU policies and is in line with the Paris Agreement objective to keep the global temperature increase to well below 2°C and **pursue efforts to keep it to 1.5°C.**”

https://ec.europa.eu/clima/policies/strategies/2050_en

AH: The situation in August 2019

'Even we aimed to settle at an uncomfortable +4 degree, we would have to achieve net climate-neutral by 2100.'

Joeri Rogelj, Lead Author of IPCC's 1.5 degree report (Phone Call, August 14th 2019):

Ireland becomes world's first country to divest from fossil fuels

Bill passed by parliament means more than €300m shares in coal, oil, peat and gas will be sold 'as soon as practicable'



▲ A message to the Irish government to divest from fossil fuels is spelled out in lights in front of the lower house of parliament. Photograph: Sasko Lazarov/Photocall Ireland/Trócaire/350.org

Source: Guardian (July 2018)



Source: Irish Examiner (August 2019)

Next:

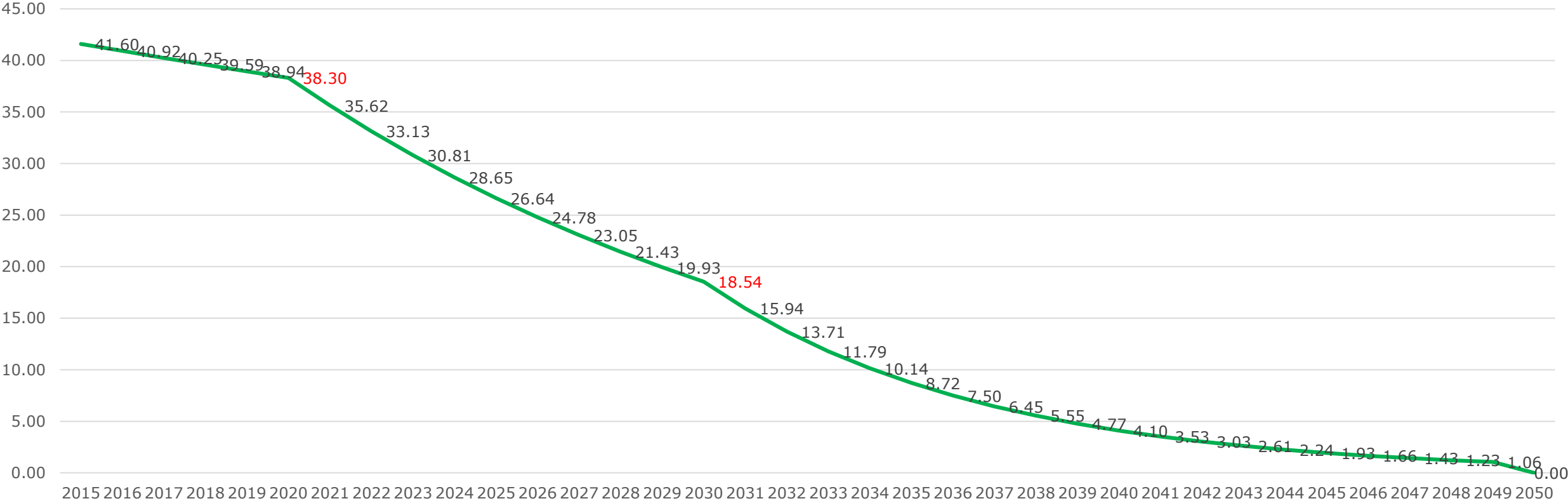


AH: What is needed?!

A trajectory to Net Carbon/Climate Neutral in 2050

IPCC based Trajectory to Net Carbon Neutral from Paris Agreement 1.5C scenario 'Total net GHG emissions' (in GtCO₂/yr)

based on IPCC Special Report on Global Warming of 1.5C (Table 2.1 & 2.4, Rogelj et al., 2018)



AH: “5 Challenges for today”

- 1) Risk: Markowitz knew more in 1959 than we in 2019!
- 2) Identification: rating the entity but reporting on the security?
- 3) Taxonomy: linked asset owners and activities, directly
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AH: Markowitz' (1959: 193-194) view on risk (1/3)

"Variance [V] is superior [to semi-variance [S]] with respect to cost, convenience and familiarity. [i] For example, roughly two to four times as much computing time is required (on a high speed electronic computer) to derive efficient sets based on S than ... on V. ... Unlike semi-variance, variance and standard deviation are known by many people acquainted with modern statistics."

AH: Markowitz' (1959: 193-194) view on risk (2/3)

"Familiarity, finally is a transient thing: use can make S as familiar as V .

Analyses based on S tend to produce better portfolios than those based on V .

Variance considers extremely high and extremely low returns equally undesirable. An analysis based on V seeks to eliminate both extremes.

An analysis based on S [emi-variance], on the other hand, concentrates on reducing losses."

AH: Markowitz' (1959: 193-194) view on risk (3/3)

"Efficient portfolios based on variance, however, cannot be characterized as [generally] bad or undesirable. ...

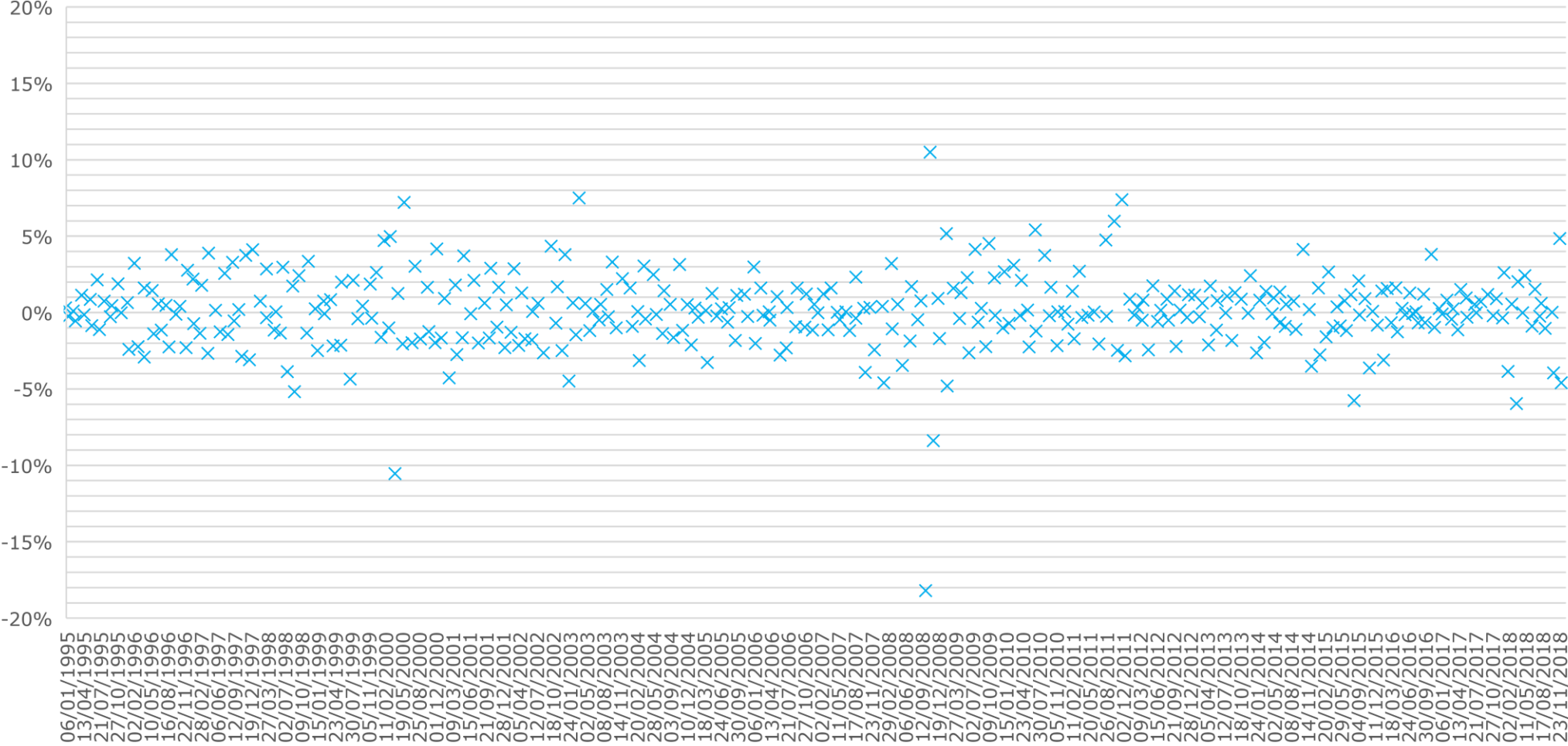
The only complaint one can raise about such a portfolio is that it sacrifices too much expected return in eliminating both extremes."

→ In other words, Mean/Variance Optimizations tend to have schizophrenic tendencies, since they aim to maximize (extremely) positive outcomes in the numerator while aiming to minimize extremely positive outcomes in the denominator.

S&P 500 Weekly Return Distribution 1995-2018

Mean 16bps, St.D. 236bps, Skewness -0.53

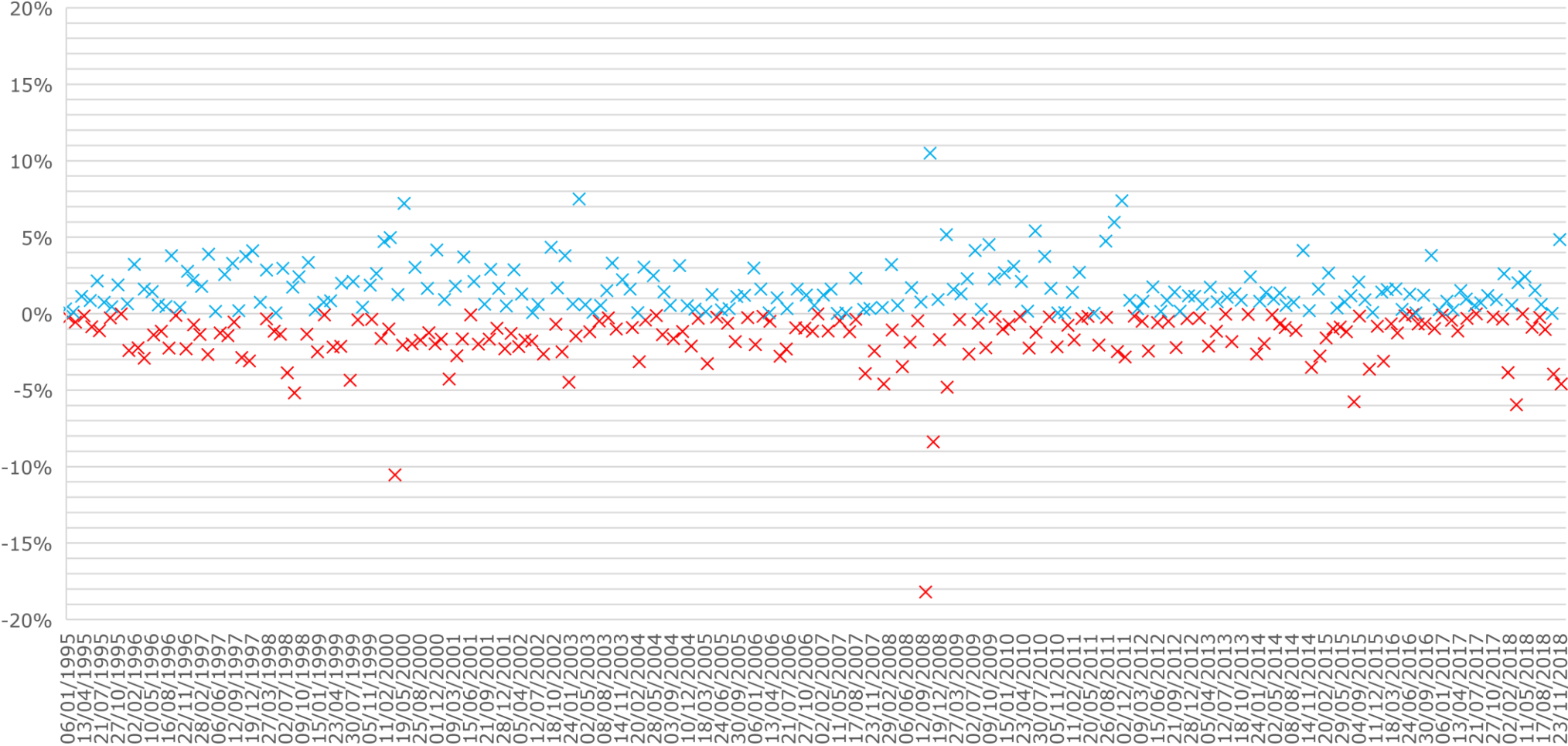
Weekly S&P500 Returns 1995-2018 (Mean: 16bps)



S&P 500 Weekly Return Distribution 1995-2018

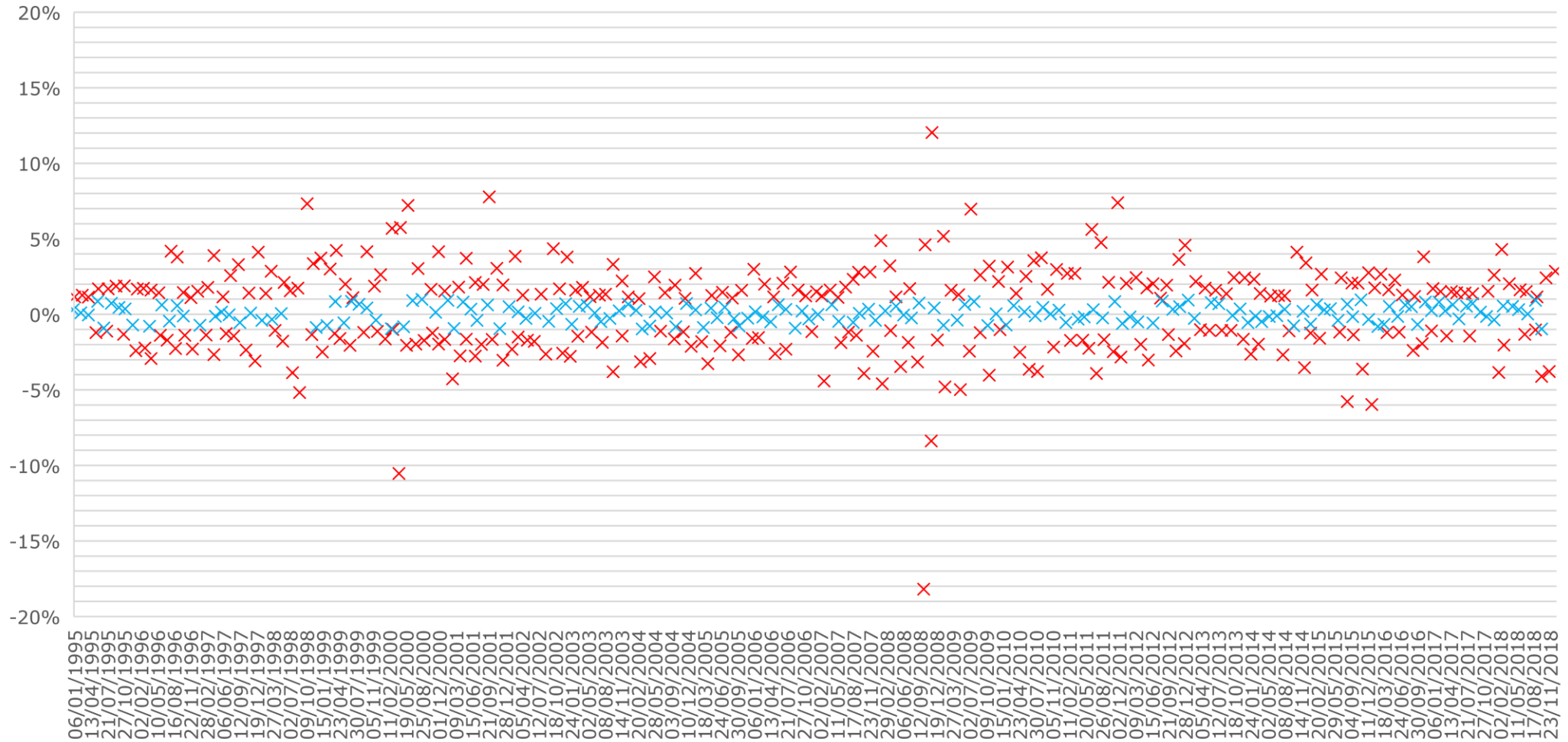
Which ones are 'risky'? Red ones, right?

Weekly S&P500 Returns 1995-2018 (Mean: 16bps)



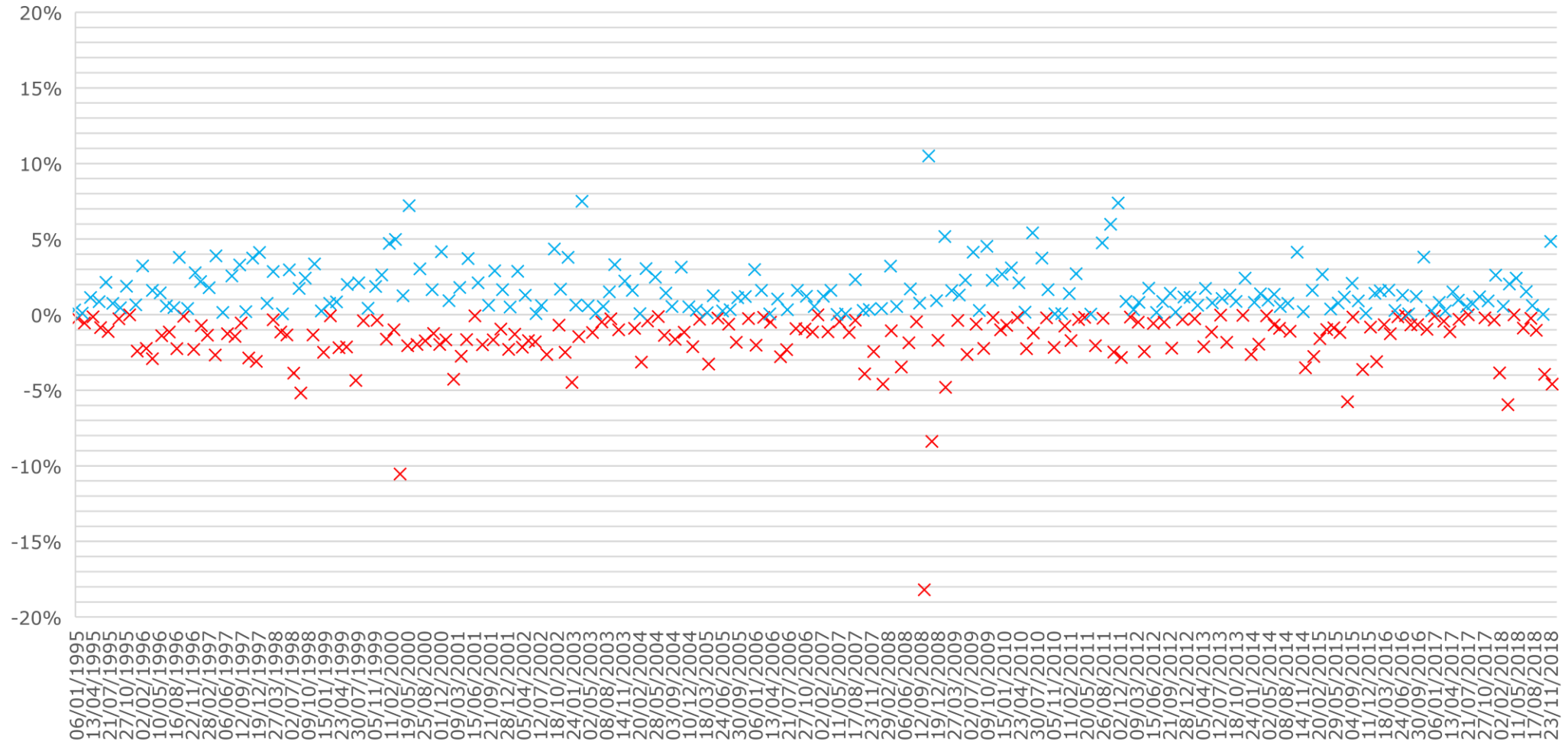
Standard Deviation considers all Red Dots Risky, all Blue Dots fine

Weekly S&P500 Returns 1995-2018



Standard Risk considers all Red Dots Risky, all Blue Dots fine

Weekly S&P500 Returns 1995-2018 (Mean: 16bps)



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A Holy Grail or political tragedy of commerce?

“Private industry made several attempts over the past 20 years to establish a global entity identification system but private firms [academic financial economists] and industry associations were unable to achieve the coordination needed to launch a single global solution.”

[Anonymous for now]

DATA & STANDARDS

Legal Entity Identifier - Frequently Asked Questions

What is the LEI?

The legal entity identifier (LEI) is a reference code — like a bar code — used across markets and jurisdictions to uniquely identify a legally distinct entity that engages in a financial transaction. The LEI is designed to be a linchpin for financial data — the first global and unique entity identifier enabling risk managers and regulators to identify parties to financial transactions instantly and precisely. A large international bank, for example, may have an LEI identifying the parent entity plus a LEI for each of its legal entities that buy or sell stocks, bonds, swaps, or engage in other financial market transactions.

Why do we need the LEI?

When Lehman Brothers collapsed in 2008, regulators and private sector managers were unable to assess quickly and fully the extent of market participants' exposure to Lehman and how the vast network of market participants were connected to one another. The financial crisis underscored the need for a global system to identify financial connections so regulators and firms can better understand the true nature of risk exposures across the financial system.

The establishment of the global LEI system is a significant achievement that responds to these vulnerabilities and provides meaningful long-term benefits for the public and private sectors.

The financial industry's adoption of the global LEI means data reported externally to supervisors and used internally for risk management purposes will be more consistent and usable. The global LEI helps regulators better monitor and analyze threats to financial stability. It also helps companies improve their internal management of operational risks and reduce costs in collecting, cleaning, and aggregating data, and in reporting data to regulators.

If a global LEI is so useful, why wasn't it established sooner?

Private industry made several attempts over the past 20 years to establish a global entity identification system but private firms and industry associations were unable to achieve the coordination needed to launch a single global solution. After the worldwide financial crisis in 2007-09, leaders from the world's largest economies, operating through the G-20 and Financial Stability Board (FSB), agreed to develop a coordinated solution to help overcome these impediments. This effort resulted in a public-interest initiative that is now the global LEI system.

DATA & STANDARDS

[Data & Standards](#)
[Interagency Data Inventory](#)
[Bilateral Repo Data Project](#)
[Legal Entity Identifier \(LEI\)](#)
[Data Quality in Swap Data Repositories](#)

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Source:
Office of
Financial
Research, U.S.
Department of
Treasury, 2013

Units of Analysis: do you have them all cleanly structured?

Unit of Analysis	Description
Ultimate Parent	The ultimate owner: a government, a holding company or a corporation itself.
Corporation	The key strategic decision maker: normally a group of legal entities lead by a management team which reports to a Chief Executive Officer (CEO) and determines the business strategy.
Legal Entity	An individual legal entity with its specific legal form (e.g. Ltd., LLC, LLP, Inc.). Many legal entities are subsidiaries of another legal entity which controls them. Depending on legal form, the liability of the parent legal entity may, however, be limited.
Security	An individual security issued by a single legal entity such as a class of shares or a specific bond issue. Many legal entities issue more than one share class and numerous bonds.
Exchange Listing / Private Placement	An individual security listed on a specific security exchange. Many equity securities are listed on more than one exchange. Bonds may privately placed instead of publicly listed.

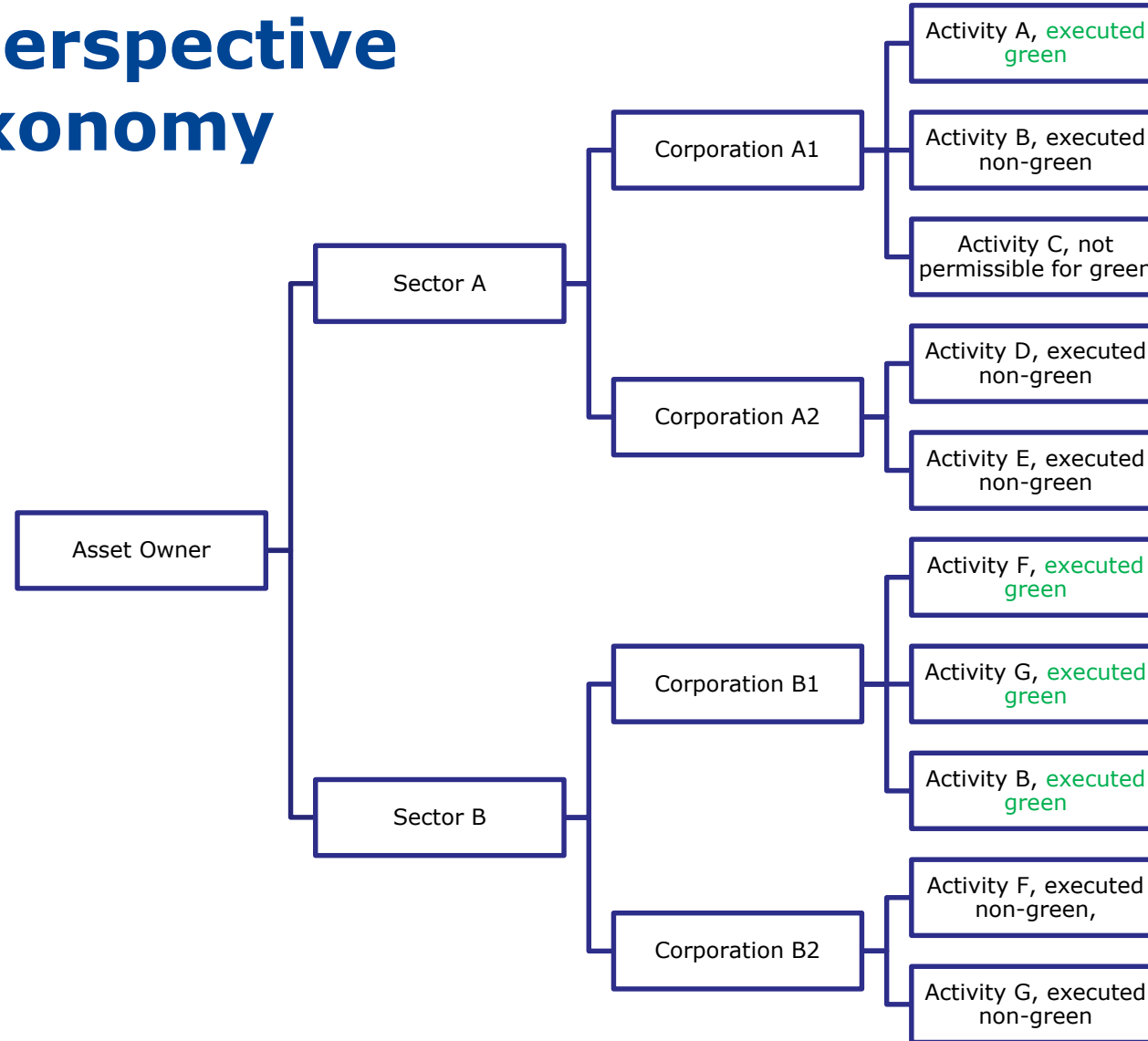
Units of Analysis: do you have them all cleanly structured?



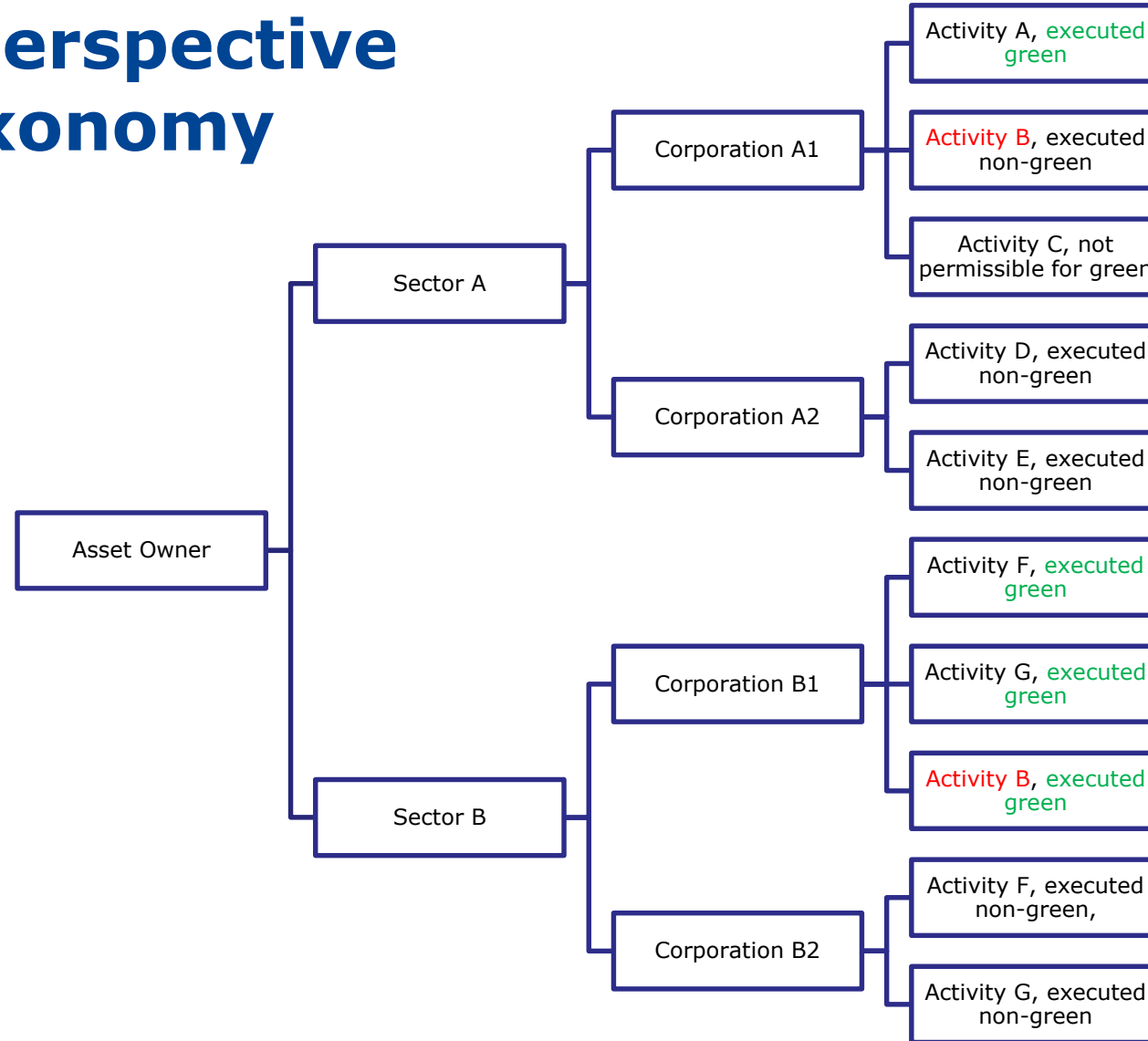
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AH: A technical perspective on Green Taxonomy



AH: A technical perspective on Green Taxonomy

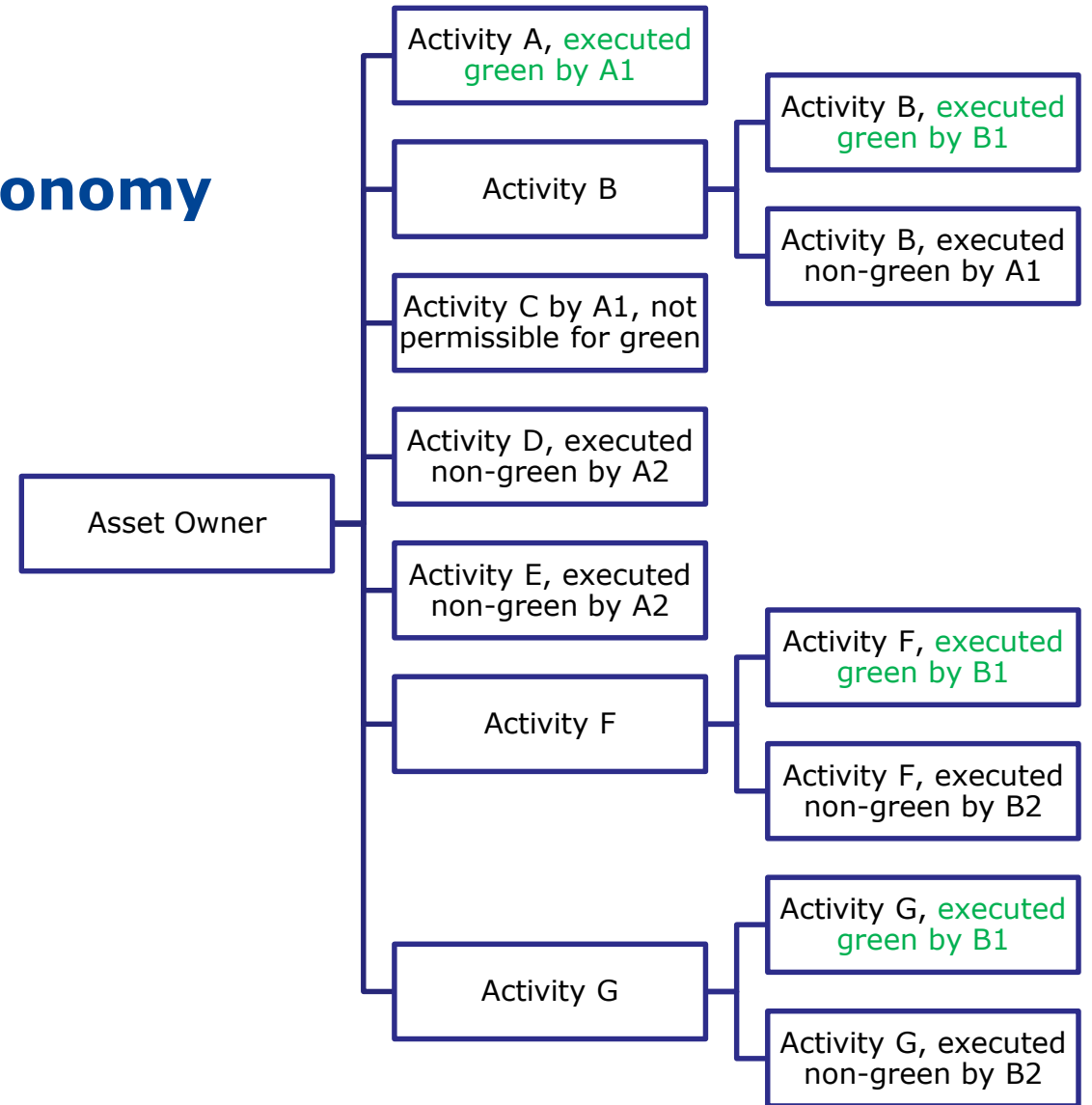


AH:
A technical perspective on Green Taxonomy
with ideal information displayed

Clearly:
Primary Market for
Corporate Fixed Income

more relevant here

than Secondary Market for
Listed Equities



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Serving High Ambitions, Breaking New Ground

The amending regulation sets high ambitions by introducing:

1

Two climate benchmarks aimed at reallocating capital towards a low-carbon and climate resilient economy

2

Disclosures for all benchmarks – except interest rate and currency benchmarks – against which trillion euros in assets are managed, that will provide clarity on the ESG profile and the degree of alignment with the decarbonization goals of the Paris Climate Agreement



Climate benchmarks

Disclosure for all benchmarks



EU TECHNICAL EXPERT GROUP ON
SUSTAINABLE FINANCE

Objectives of the Climate Benchmarks

1

*Allow a significant level of **comparability of climate benchmarks** while leaving benchmarks' administrators with an important level of flexibility in designing their methodology ;*

2

*Provide investors with an appropriate **tool that is aligned with their investment strategy** ;*

3

***Increase transparency** on investors' alignment with the needs of ambitious climate scenarios*

4

Prevent greenwashing.

Recommendations for climate benchmarks: Minimum Standards

The TEG recommends minimum standards for the **EU Climate Transition Benchmark** and the **EU Paris-aligned Benchmark**:

Climate Scenario

IPCC 1.5°C

with no or
limited
overshoot

EU
CTB



EU
PAB



Climate benchmarks

Disclosure for all benchmarks

Recommendations for climate benchmarks: Minimum Standards

The TEG recommends minimum standards for the **EU Climate Transition Benchmark** and the **EU Paris-aligned Benchmark**:

Climate Scenario	Relative decarbonization
IPCC 1.5°C with no or limited overshoot	CTB: -30% PAB: -50% Minimum reduction in GHG emissions intensity (GHG/Enterprise Value) compared to market index

**EU
CTB**



**EU
PAB**



Climate benchmarks

Disclosure for all benchmarks

Recommendations for climate benchmarks: Minimum Standards

The TEG recommends minimum standards for the **EU Climate Transition Benchmark** and the **EU Paris-aligned Benchmark**:

Climate Scenario	Relative decarbonization	Self decarbonization
<p>IPCC 1.5°C</p> <p>with no or limited overshoot</p>	<p>CTB: -30% PAB: -50%</p> <p>Minimum reduction in GHG emissions intensity (GHG/Enterprise Value) compared to market index</p>	<p>-7%</p> <p>Minimum yearly reduction in GHG emissions intensity until 2050</p>

EU CTB



EU PAB



Climate benchmarks

Disclosure for all benchmarks

Recommendations for climate benchmarks: Minimum Standards

The TEG recommends minimum standards for the **EU Climate Transition Benchmark** and the **EU Paris-aligned Benchmark**: AH: 2-factor Greenwashing Protection

Climate Scenario	Relative decarbonization	Self decarbonization	Heavy Sector Constraint
<p>IPCC 1.5°C</p> <p>with no or limited overshoot</p>	<p>CTB: -30% PAB: -50%</p> <p>Minimum reduction in GHG emissions intensity (GHG/Enterprise Value) compared to market index</p>	<p>-7%</p> <p>Minimum yearly reduction in GHG emissions intensity until 2050</p>	<p>= or ></p> <p>AH: Degree of Exposure to "asset heavy" sectors compared with investable universe [Equity Only]</p>

EU CTB



EU PAB



Climate benchmarks

Disclosure for all benchmarks

Recommendations for climate benchmarks: Minimum Standards

The TEG recommends minimum standards for the **EU Climate Transition Benchmark** and the **EU Paris-aligned Benchmark**: AH: 2-factor Greenwashing Protection

Climate Scenario	Relative decarbonization	Self decarbonization	High Stakes Sector Constraint	Activity Exclusion
IPCC 1.5°C with no or limited overshoot	CTB: -30% PAB: -50% Minimum reduction in GHG emissions intensity (GHG/Enterprise Value) compared to market index	-7% Minimum on average per annum reduction in GHG emissions intensity until 2050	= or > AH: Degree of Exposure to "asset heavy" sectors compared with investable universe [Equities Only]	1) Coal (1%+ rev.) 2) Oil (10%+ rev.) 3) Natural Gas 4) Electricity producers with carbon intensity of lifecycle GHG emissions higher than 100gCO2e/kWh (both 50%+ rev)

EU CTB

✓

✓

✓

✓

EU PAB

✓

✓ ✓

✓

✓

✓

Climate benchmarks

Disclosure for all benchmarks

Recommendations for climate benchmarks: GHG emissions

GHG emissions should be considered using Life-Cycle Analysis with scope 3 being phased-in during a four year period

Period considered	NACE Level 2 (L2) Sectors considered	Suggested metric to be used by order of priority	Potential reduction target
At the date of implementation	At least energy (O&G), mining (i.e. NACE L2: 05, 06, 07, 08, 09, 19, 20)	Scope 3 emissions, Fossil fuel reserves (volume or revenue data)	30% for CTBs, 50% for PABs
Two years after implementation	At least transportation, construction, buildings, materials, industrial activities (i.e. NACE L2: 10-18, 21-33, 41- 43, 49-53, 81)	Scope 3	30% for CTBs, 50% for PABs
Four years after implementation	Every sector	Scope 3	30% for CTBs, 50% for PABs

Double counting can be addressed by 'Footprinting Scope 1' and separately 'Benchmarking Scope 2 & 3', with at least 7% reductions on both

Recommendations for climate benchmarks: Companies' Targets

It is crucial to understand that IPCC trajectory alignment can only be sufficiently assessed for 'self-sufficient subsets of the economy' (i.e. diversified indices).

- Analysis on sector or firm level ignore the interactions between firms and sector specific carbon budgets are usually constructed by sector insiders, who tends to give themselves a too large share of the global carbon budget.

Hence, a firm itself cannot be 1.5 degree aligned unless it is net climate/carbon neutral. Firms can only be assessed as 'suitable, somewhat suitable or unsuitable for 1.5 degree alignment'

Benchmarks administrators shall consider increasing the weight of a company that set and publish evidence based decarbonisation objectives in case all of the subsequent conditions apply:

- a) the benchmark administrator deems the company's Scope 1 GHG emissions reporting fully credible in terms of consistency and accuracy
- b) the benchmark administrator deems the company's Scope 2 GHG emissions reporting fully credible in terms of consistency and accuracy
- c) the benchmark administrator deems the company's Scope 3 GHG emissions reporting fully credible in terms of consistency and accuracy
- d) the benchmark administrator observes the company to have reduced its total GHG emissions intensity of Scope 1, 2 and 3 emissions by an average of at least 7% per annum for at least three consecutive years.

Recommendations for climate benchmarks: Reviews

*The report emphasizes the need for a **regular update** of these requirements, considering evolutions in the state of the market and the research in the field, [AH:] and newly released IPCC reports.*

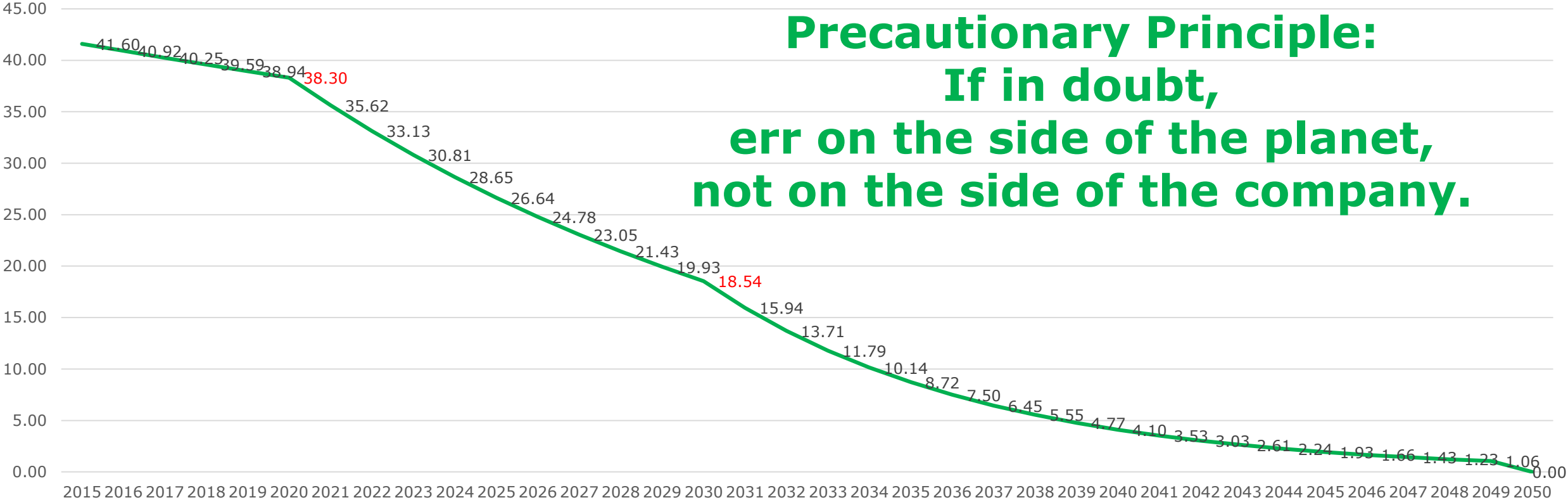
*These updates in the regulation will be key to the **success and consistency** of both climate benchmarks over time.*

*In light of the legislative text as agreed between co-legislators, the Commission shall **review the minimum standards** of the benchmarks by 31 December 2022, in order to ensure consistency with the **EU Taxonomy**.*

AH: Precautionary Principle for estimation of corporate GHG data

IPCC based Trajectory to Net Carbon Neutral from Paris Agreement 1.5C scenario 'Total net GHG emissions' (in GtCO2/yr)

based on IPCC Special Report on Global Warming of 1.5C (Table 2.1 & 2.4, Rogelj et al., 2018)

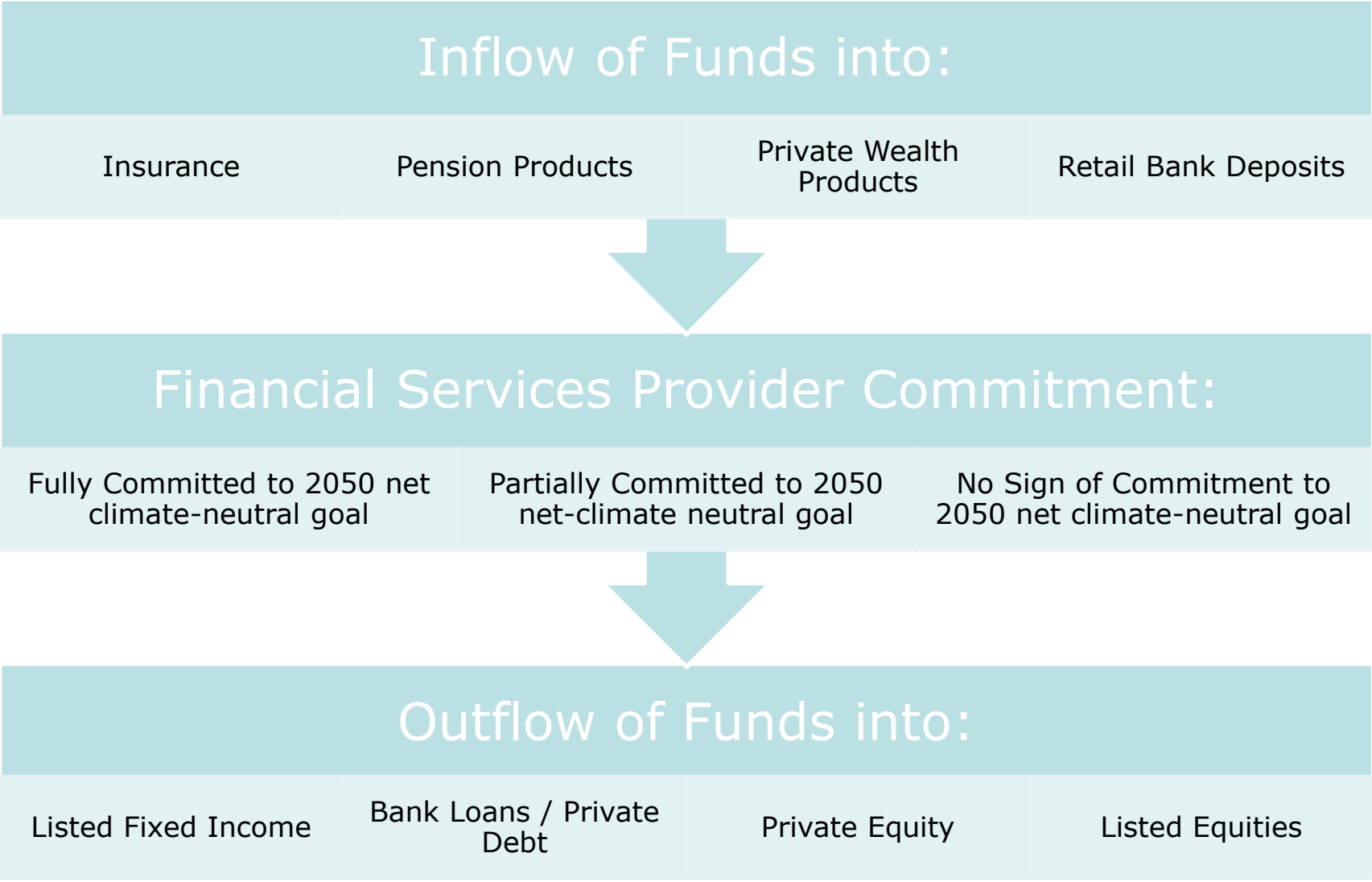


**Precautionary Principle:
If in doubt,
err on the side of the planet,
not on the side of the company.**

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AH: Ecolabel Assessments can take place for each combination





Thank you for your attention!

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