

Course 2021-2022 in ESG and Climate Risks

Lecture 1. Introduction

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February 2022

¹The opinions expressed in this presentation are those of the authors and are not meant to represent the opinions or official positions of Amundi Asset Management.

Agenda

- **Lecture 1: Introduction**
 - *Definition, Actors, the Market of ESG Investing (42 slides)*
- **Lecture 2: ESG Investing**
 - *ESG Scoring, ESG Ratings, Performance of ESG Investing, ESG Financing, ESG Premium (132 slides)*
- **Lecture 3: Other ESG Topics**
 - *Sustainable Financing Products, Impact Investing, Voting Policy & Engagement, ESG and Climate Accounting (82 slides)*
- **Lecture 4: Climate Risk**
 - *Definition, Global Warming, Economic Modeling, Risk Measures (176 slides)*
- **Lecture 5: Climate Investing**
 - *Portfolio Decarbonization, Net Zero Carbon Metrics, Portfolio Alignment (164 slides)*
- **Lecture 6: Mathematical Methods, Technical Tools and Exercises**
 - *Scoring System, Trend Modeling, Geolocation Data, Numerical Computations, Optimization (150+ slides)*

General information

1 Overview

The objective of this course is to understand the concepts of sustainable finance from the viewpoint of asset owners and managers

2 Prerequisites

M1 Finance or equivalent

3 ECTS

3

4 Keywords

Finance, Asset Management, ESG, Responsible Investing, Climate Change

5 Hours

Lectures: 18h

6 Evaluation

Project + oral examination

7 Course website

<http://www.thierry-roncalli.com/SustainableFinance.html>

Class schedule

Course sessions

- Date 1 (6 hours, AM+PM)
- Date 2 (6 hours, AM+PM)
- Date 3 (6 hours, AM+PM)

Class times: Friday 9:00am-12:00pm, 1:00pm-4:00pm, Location: University of Evry

Additional materials

<http://www.thierry-roncalli.com/SustainableFinance.html>

- Slides
- Past examinations
- Exercises + Solutions
- \LaTeX source of the slides + figures (in pdf format)
- Links to the references

Main references

Amundi publications on ESG Investing

- 1 Bennani *et al.* (2018), How ESG Investing Has Impacted the Asset Pricing in the Equity Market, DP-36-2018, 36 pages, November 2018
- 2 Drei *et al.* (2019), ESG Investing in Recent Years: New Insights from Old Challenges, DP-42-2019, 32 pages, December 2019
- 3 Ben Slimane *et al.* (2020), ESG Investing and Fixed Income: It's Time to Cross the Rubicon, DP-45-2019, 36 pages, January 2020
- 4 Roncalli, T. (2020), ESG & Factor Investing: A New Stage Has Been Reached, Amundi Viewpoint, May 2020

Available at <https://research-center.amundi.com> or www.ssrn.com

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Amundi publications on Climate Investing

- 1 Le Guenedal, T. (2019), Economic Modeling of Climate Risk, WP-83-2019, 92 pages, April 2019
- 2 Bouchet, V., and Le Guenedal, T. (2020), Credit Risk Sensitivity to Carbon Price, WP-95-2020, 48 pages, May 2020
- 3 Le Guenedal *et al.* (2020), Trajectory Monitoring in Portfolio Management and Issuer Intentionality Scoring, WP-97-2020, 54 pages, May 2020
- 4 Roncalli *et al.* (2020), Measuring and Managing Carbon Risk in Investment Portfolios, WP-99-2020, 67 pages, August 2020
- 5 Ben Slimane, M., Da Fonseca, D., and Mahtani, V. (2020), Facts and Fantasies about the Green Bond Premium, WP-102-2020, 52 pages, December 2020
- 6 Le Guenedal, Drobinski, P., and Tankov, P. (2021), Measuring and Pricing Cyclone-Related Physical Risk under Changing Climate, WP-111-2021, 42 pages, June 2021
- 7 Adenot *et al.* (2022), Cascading Effects of Carbon Price through the Value Chain and their Impacts on Firm's Valuation, WP-122-2022, 82 pages, February 2022
- 8 Le Guenedal *et al.* (2022), Net Zero Carbon Metrics, WP-123-2022, 82 pages, February 2022

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Amundi ESG Thema

- ① Créhalet, E. (2021), Introduction to Net Zero, *Amundi ESG Thema #1*, <https://research-center.amundi.com>
- ② Créhalet, E., Foll, J., Haustant, P., and Hessenberger, T. (2021), Carbon Offsetting: How Can It Contribute to the Net Zero Goal?, *Amundi ESG Thema #5*, <https://research-center.amundi.com>
- ③ Créhalet, E., and Talwar, S. (2021), Carbon-efficient Technologies in the Race to Net Zero, *Amundi ESG Thema #6*, <https://research-center.amundi.com>
- ④ Le Meaux, C., Le Berthe, T., Jaulin, T., Créhalet, E., Jouanneau, M., Pouget-Abadie, T., and Elbaz, J. (2021), How can Investors Contribute to Net Zero Efforts?, *Amundi ESG Thema #3*, <https://research-center.amundi.com>

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Main references

Academic publications

- ① Andersson, M., Bolton, P., and Samama, F. (2016), Hedging Climate Risk, *Financial Analysts Journal*, www.ssrn.com/abstract=2499628.
- ② Ardia, D., Bluteau, K., Boudt, K., and Inghelbrecht, K. (2021), Climate Change Concerns and the Performance of Green versus Brown Stocks, *National Bank of Belgium, Working Paper*, www.ssrn.com/abstract=3717722.
- ③ Battiston, S., Mandel, A., Monasterolo, I., Schütze, F., and Visentin, G. (2017), A Climate Stress-test of the Financial System, *Nature Climate Change*, www.ssrn.com/abstract=2726076.
- ④ Berg, F. Koelbel, J.F., and Rigobon, R. (2019), Aggregate Confusion: The Divergence of ESG Ratings, *Working Paper*, www.ssrn.com/abstract=3438533
- ⑤ Berg, F., Fabisik, K., and Sautner, Z. (2021), Is History Repeating Itself? The (Un)predictable Past of ESG Ratings , *Working Paper*, www.ssrn.com/abstract=3722087
- ⑥ Bolton, P., and Kacperczyk, M. (2021), Do Investors Care about Carbon Risk?, *Journal of Financial Economics*, www.ssrn.com/abstract=3594189
- ⑦ Bolton, P., Kacperczyk, M., and Samama, F. (2021), Net-Zero Carbon Portfolio Alignment, *Working Paper*, www.ssrn.com/abstract=3922686
- ⑧ Coqueret, G. (2021), Perspectives in ESG Equity Investing, *Working Paper*, www.ssrn.com/abstract=3715753

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Academic publications

- 9 Crifo, P., Diaye, M.A., and Oueghlissi, R. (2015), Measuring the Effect of Government ESG Performance on Sovereign Borrowing Cost, *Quarterly Review of Economics and Finance*, hal.archives-ouvertes.fr/hal-00951304v3
- 10 Dennig, F., Budolfson, M.B., Fleurbaey, M., Siebert, A., and Socolow, R.H. (2015), Inequality, Climate Impacts on the Future Poor, and Carbon Prices, *Proceedings of the National Academy of Sciences*, www.pnas.org/content/112/52/15827
- 11 Engle, R.F., Giglio, S., Kelly, B., Lee, H., and Stroebel, J. (2020), Hedging Climate Change News, *Review of Financial Studies*, www.ssrn.com/abstract=3317570
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- 13 Harris, J. (2015), The Carbon Risk Factor, *Working Paper*, www.ssrn.com/abstract=2666757
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- 15 Le Guenedal, T., and Roncalli, T. (2022), Portfolio Construction and Climate Risk Measures, *Climate Investing*, www.ssrn.com/abstract=3999971

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- 17 Pedersen, L.H., Fitzgibbons, S., and Pomorski, L. (2021), Responsible Investing: The ESG-Efficient Frontier, *Journal of Financial Economics*, www.ssrn.com/abstract=3466417
- 18 Pástor, L., Stambaugh, R.F., and Taylor, L.A. (2021), Sustainable Investing in Equilibrium, *Journal of Financial Economics*, www.ssrn.com/abstract=3498354
- 19 Roncalli, T., Le Guenedal, T., Lepetit, F., Roncalli, T., and Sekine, T. (2021), The Market Measure of Carbon Risk and its Impact on the Minimum Variance Portfolio, *Journal of Portfolio Management*, www.ssrn.com/abstract=3772707
- 20 Van der Beck, P. (2021), Flow-driven ESG returns, *Working Paper*, www.ssrn.com/abstract=3929359

Many words, one concept



Figure 1: Many words, one concept

RI, SI, SRI, ESG, etc.

Responsible investment (RI)

Responsible investment is an approach to investment that explicitly acknowledges the relevance to the investor of environmental, social and governance factors, and of the long-term health of the market as a whole

Sustainable investing (SI)

Sustainable investing is an investment approach that considers environmental, social and governance factors in portfolio selection

Socially responsible investing (SRI)

SRI is an investment strategy that is considered socially responsible, because it invests in companies that have ethical practices

Environmental, Social and Governance (ESG)

Environmental, Social, and Corporate Governance (ESG) refers to the factors that measure the sustainability of an investment

Definition

Sustainable Investing
≈
Socially Responsible Investing (SRI)
≈
Environmental, Social, and Governance (ESG)

Remark

Blue Finance \subset **Green Finance**, Climate Finance \subset Sustainable Finance

Historical perspective

- Responsible investment (RI): 2000's
- ESG investing (ESG): 2010's
- Sustainable finance (SF): 2020's

Why?

Historical perspective

- At the beginning, sustainable finance mainly concerns final investors and asset owners (ethics) ⇒ **responsible investment**
- Then, it gains momentum in asset management ⇒ **ESG investing**
- Finally, it spreads across all financial actors (e.g. issuers, banks, central banks, etc.) ⇒ **Sustainable finance**

ESG motivations



Figure 2: The raison d'être of ESG investing

A myriad of acronyms



How many acronyms do you know?

A myriad of acronyms

CAT: Cap-And-Trade, CBI: Climate Bonds Initiative, **CDP: Carbon Disclosure Project**, CDR: Carbon Dioxide Removal, CDSB: Climate Disclosure Standards Board, CI: Carbon Intensity, **COP: Conference of the Parties**, **CTB: Climate Transition Benchmark**, DAC: Direct Air Capture, DICE: Dynamic Integrated Climate-Economy Model, ETS: Emissions Trading Scheme, Eurosif: European Sustainable Investment Forum, ESG: Environmental, Social and Governance, GB: Green Bond, **GBP: Green Bonds Principles**, : Greenhouse gas Emissions per unit of Value Added, **GHG: Greenhouse Gaz**, **GIIN: Global Impact Investing Network**, GLP: Green Loans Principles, GQE: Green Quantitative Easing, GRI: Global Reporting Initiative, **GSIA: Global Sustainable Investment Alliance**, HLEG: High Level Expert Group on Sustainable Finance, IAM: Integrated Assessment Model (economic model of climate risk), IIRC: International Integrated Reporting Council, **IPCC: Intergovernmental Panel on Climate Change**, **NDC: Nationally Determined Contribution**, NFRD: Non-financial Reporting Directive, NGFS: Network for Greening the Financial System, OPS: One Planet Summit, **PAB: Paris Aligned Benchmark**, PBOC: People's Bank of China (China green bonds), **PRI: Principles for Responsible Investment**, **RCP: Representative Concentration Pathway (climate scenario)**, SASB: Sustainability Accounting Standards Board, SB: Social Bond, SBP: Social Bonds Principles, SBT: Science-Based Target, SCC: Social Cost of Carbon (= optimal carbon tax), SDA: Sectoral Decarbonisation Approach **SDG: Sustainable Development Goals**, **SFDR: Sustainable Finance Disclosure Reporting**, SIB: Social Impact Bond, SRI: Socially Responsible Investing, SSB: Sustainability Standards Board (IFRS), SSP: Shared Socioeconomic Pathway, **TCFD: Task Force on Climate-Related Financial Disclosures**, TEG: Technical Expert Group on Sustainable Finance, UNPRI: Principles for Responsible Investment (PRI)

Many financial actors

ESG financial ecosystem

- Asset owners (pension funds, sovereign wealth funds (SWF), insurance and institutional investors, retail investors, etc.)
- Asset managers
- ESG rating agencies
- ESG index sponsors
- Banks
- ESG associations (GSIA, UNPRI, etc.)
- Regulators and international bodies (governments, financial and industry regulators, central banks, etc.)
- **Issuers** (equities, bonds, loans, etc.)
- Society and people

ESG Investing ⇔ **ESG Financing (= Sustainable Finance)**

ESG regulations

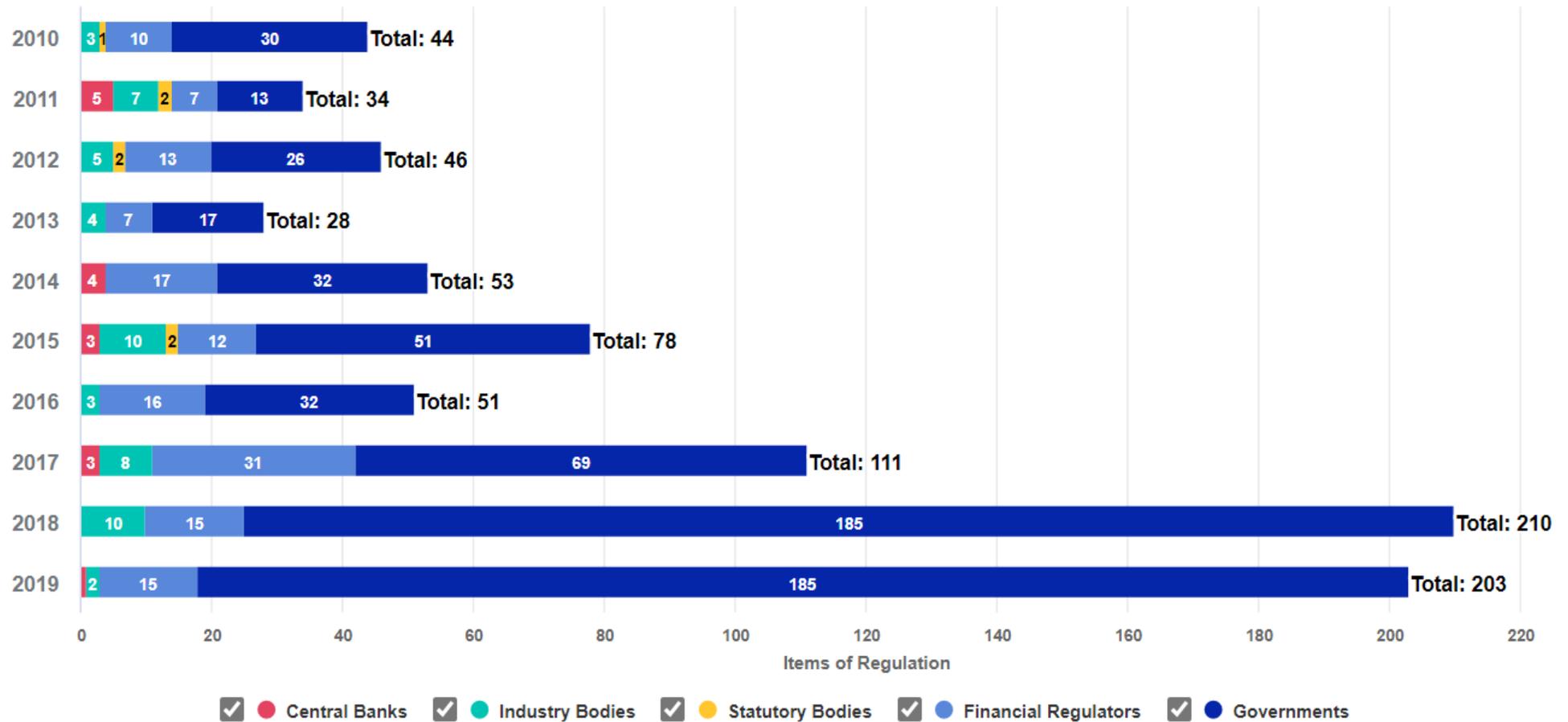


Figure 3: List of ESG regulations (MSCI, Who will regulate ESG?)

ESG regulations

Visit the MSCI website

<https://www.msci.com/who-will-regulate-esg>

and obtain the detailed list of regulations
by year, country, regulator, regulated investors, etc.

ESG regulators

The example of ESMA

ESMA strategy on sustainable finance

- 1 Completing the regulatory framework on transparency obligations via the Disclosures Regulation (joint technical standards with EBA and EIOPA)
- 2 TRV (trends, risks and vulnerabilities) reporting of sustainable finance
- 3 Analyse financial risks from climate change, including potentially climate-related stress testing
- 4 Convergence of national supervisory practices on ESG factors
- 5 Participating in the EU taxonomy on sustainable finance
- 6 Ensuring ESG guidelines are implemented by regulated entities (e.g. asset managers)

ESG regulators

The example of central banks

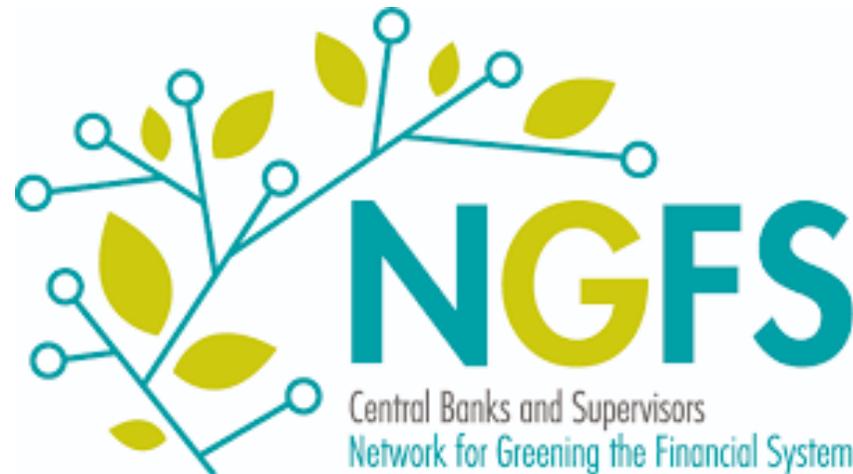


Figure 4: Network of Central Banks and Supervisors for Greening the Financial System (NGFS)

- Launched at the Paris One Planet Summit (OPS) on December 2017
- 8 founding members: Banco de Mexico, BoE, BdF, Dutch Central Bank, Buba, Swedish FSA, HKMA, MAS and PBOC
- As of March 19th 2021, the NGFS consists of 89 members (CBs, EBA, EIOPA, ESMA) and 13 observers (BCBS, IMF, IAIS, IOSCO)

ESG regulators

The example of central banks

Go the NGFS website (<https://www.ngfs.net>) and download the NGFS climate scenarios

See also <https://data.ene.iiasa.ac.at/ngfs> (NGFS scenario explorer hosted by IIASA²)

²International Institute for Applied Systems Analysis

ESG associations



Figure 5: Global Sustainable Investment Alliance (GSIA)

<http://www.gsi-alliance.org>

ESG associations



Figure 6: 2018 GSIA report



Figure 7: 2020 GSIA report

ESG associations

GSIA members

- The European Sustainable Investment Forum (Eurosif),
<http://www.eurosif.org>
- Responsible Investment Association Australasia (RIAA),
<https://responsibleinvestment.org>
- Responsible Investment Association Canada (RIA Canada),
<https://www.riacanada.ca>
- UK Sustainable Investment & Finance Association (UKSIF),
<https://www.uksif.org>
- The Forum for Sustainable & Responsible Investment (US SIF),
<https://www.ussif.org>
- Dutch Association of Investors for Sustainable Development (VBDO),
<https://www.vbdo.nl/en/>
- Japan Sustainable Investment Forum (JSIF),
<https://japansif.com/english>

ESG associations

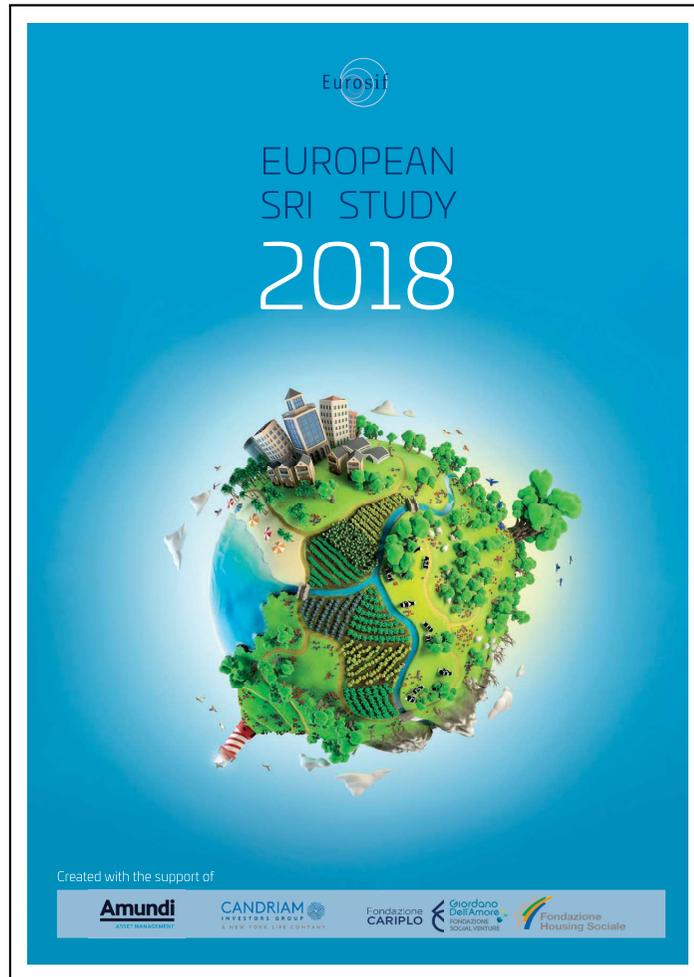


Figure 8: 2018 Eurosis report

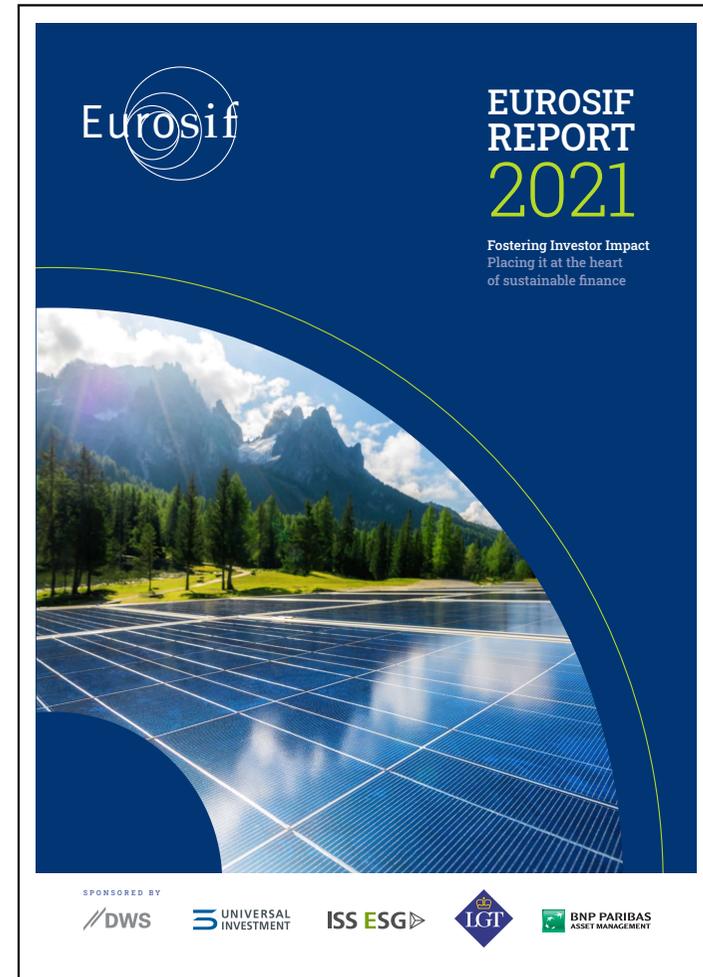


Figure 9: 2021 Eurosis report

ESG associations



Figure 10: Principles for Responsible Investment (PRI)

<https://www.unpri.org>

ESG associations

PRI (or UNPRI)

- Early 2005: UN Secretary-General Kofi Annan invited a group of the world's largest institutional investors to join a process to develop the Principles for Responsible Investment
- April 2006: The Principles were launched at the New York Stock Exchange
- 6 ESG principles
- The 63 founding signatories are 32 asset owners^a and 31 asset managers^b and data providers^c

^aAP2, CDC, CDPQ, CalPERS, ERAFP, FRR, IFC, NZSF, NGPF, PGGM, UNJSPF, USS, etc.

^bAmundi (CAAM), Sumitomo Trust, BNP PAM, Mitsubishi Trust, Threadneedle, Aviva, Candriam, etc.

^cTrucost, Vigeo, etc.

ESG associations

Signatories' commitment

“As institutional investors, we have a duty to act in the best long-term interests of our beneficiaries. In this fiduciary role, we believe that environmental, social, and corporate governance (ESG) issues can affect the performance of investment portfolios (to varying degrees across companies, sectors, regions, asset classes and through time). We also recognise that applying these Principles may better align investors with broader objectives of society. Therefore, where consistent with our fiduciary responsibilities, we commit to the following:

- Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.
- Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.
- Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.
- Principle 4: We will promote acceptance and implementation of the Principles within the investment industry.
- Principle 5: We will work together to enhance our effectiveness in implementing the Principles.
- Principle 6: We will each report on our activities and progress towards implementing the Principles.

The Principles for Responsible Investment were developed by an international group of institutional investors reflecting the increasing relevance of environmental, social and corporate governance issues to investment practices. The process was convened by the United Nations Secretary-General.

In signing the Principles, we as investors publicly commit to adopt and implement them, where consistent with our fiduciary responsibilities. We also commit to evaluate the effectiveness and improve the content of the Principles over time. We believe this will improve our ability to meet commitments to beneficiaries as well as better align our investment activities with the broader interests of society.

We encourage other investors to adopt the Principles.”

Source: <https://www.unpri.org>

ESG associations

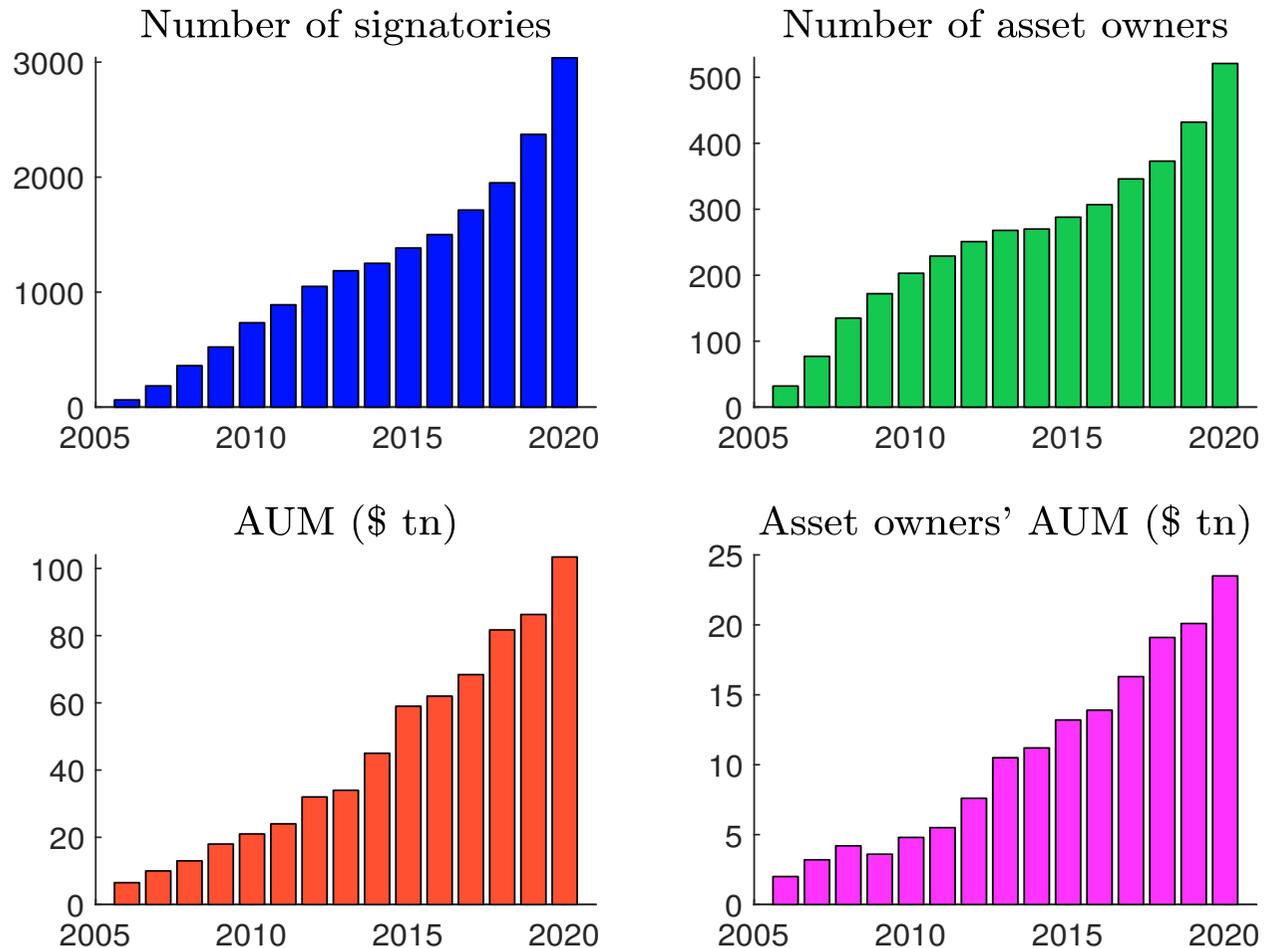


Figure 11: PRI Signatory growth

Source: <https://www.unpri.org>

Many collective initiatives

Responsible investment initiatives

- **SIFs: Sustainable Investment Forums**
- **PRI: Principles For Responsible Investment**
- **Finance for Tomorrow**
- Embankment Project for Inclusive Capitalism
- Pensions For Purpose
- St. Gallen Symposium
- Positive Economy Institute
- Institute for Responsible Capitalism
- Chair Sustainable Finance and Responsible Investment
- C3D: College of Sustainable Development Directors
- Swiss Sustainable Finance Association, FIR: French Sustainable Investment Forum, Medici Committee, ORSE: Observatory on Corporate Social Responsibility

Many collective initiatives

Environmental initiatives

- **TCFD: Task Force on Climate-related Financial Disclosures**
- **CDP: Carbon Disclosure Project**
- **PDC: Portfolio Decarbonization Coalition**
- **NZAOA: Net Zero Asset Owner Alliance**
- **NZAMI: Net Zero Asset Manager Initiative**
- **GBP: Green Bonds Principles**
- **IIGCC: Institutional Investors Group on Climate Change**
- **OPS: One Planet Sovereign Wealth Fund Asset Manager**
- **CBI: Climate Bonds Initiative**
- **FAIRR: Farm Animal Investment Risk & Return**
- **Climate Action 100+, Act4nature, Japan TCFD Consortium, Montreal Carbon Pledge, EPE: Entreprises pour l'Environnement, Fondation de la Mer**

Many collective initiatives

Social initiatives

- **SBP: Social Bonds Principles**
- **PLWF: Platform Living Wage Financials**
- PRI Human Rights Engagement
- Clinical Trials Transparency
- Access to Medicine Foundation
- Access to Nutrition Index
- RAFL: Human Rights Reporting and Assurance Frameworks Initiative
- Finansol
- Tobacco-Free Finance Pledge

Many collective initiatives

Governance initiatives

- ICGN: International Corporate Governance Network

The issuer point of view of ESG

Corporate financial performance (CFP)

- Friedman (2007)
- Shareholder theory
- Corporations have no social responsibility to the public or society
- Their only responsibility is to its shareholders (profit maximization)

Corporate social responsibility (CSR)

- Freeman (2010)
- Stakeholder theory
- Corporations create negative externalities
- They must have social and moral responsibilities
- Impact on the cost-of-capital and business risk

ESG strategies

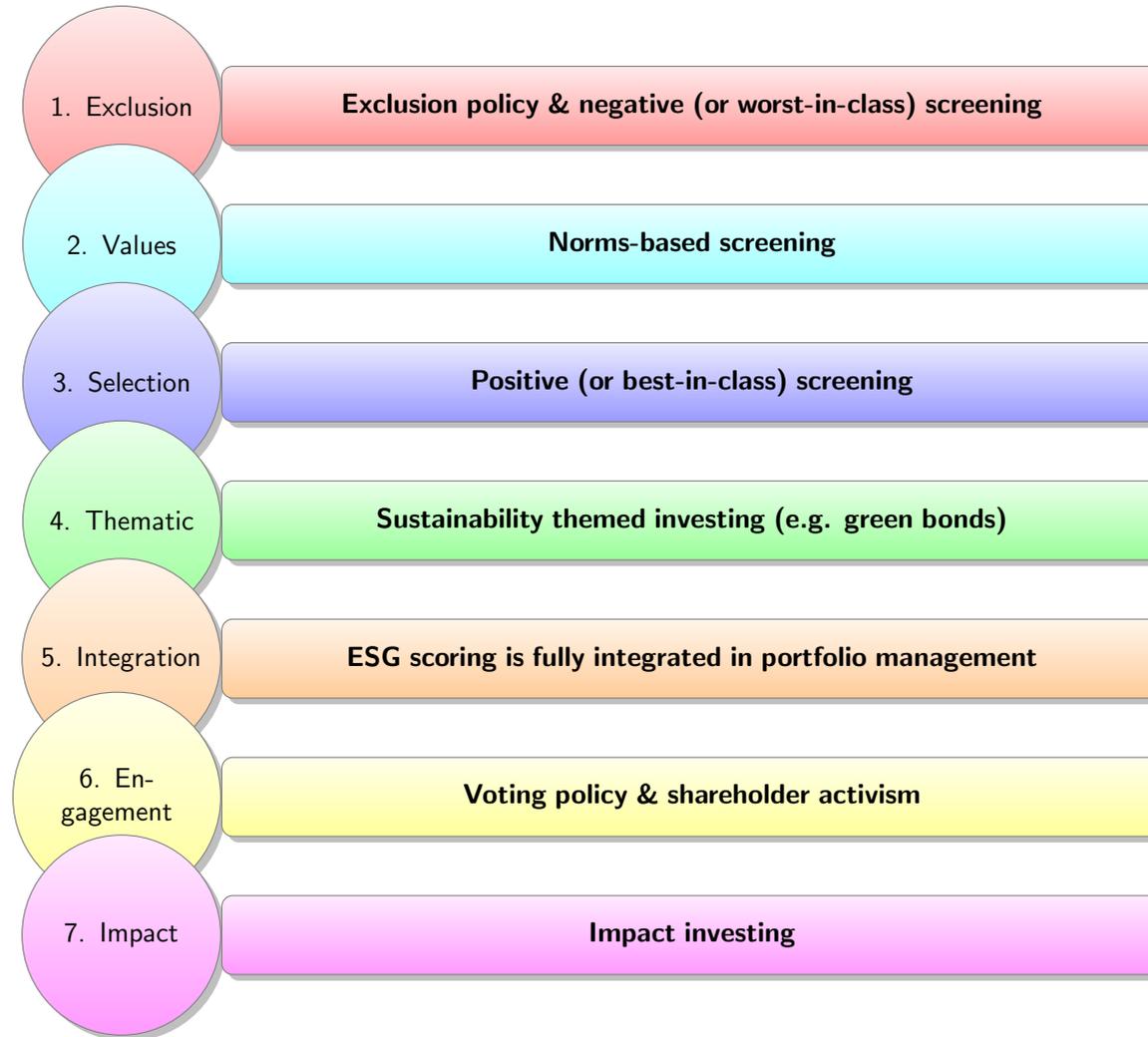


Figure 12: Categorisation of ESG strategies (Eurosif, 2019)

ESG strategies

Exclusion/Negative Screening

The exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria (worst-in-class)

Source: Global Sustainable Investment Alliance (2019)

Examples:

- Systematic exclusion of issuers rated **CCC**
- Exclusion of issuers rated **BB**, **B** and **CCC**
- Sector exclusion (e.g., Energy)
- Sub-industry exclusion (e.g. Coal & Consumable Fuels)
- Exclusion list of individual issuers

ESG strategies

Values/Norms-based Screening (and Red Flags)

Screening of investments against minimum standards of business practice based on international norms, such as those issued by the OECD, ILO, UN (Global Compact) and UNICEF^a

^aIn Europe, the top exclusion criteria are (1) controversial weapons (Ottawa and Oslo treaties), (2), tobacco, (3) all weapons, (4) gambling, (5) pornography, (6) nuclear energy, (7) alcohol, (8) GMO and (9) animal testing (Eurosif, 2019)

Source: Global Sustainable Investment Alliance (2019)

Examples:

- Controversial sectors: controversial weapons, conventional weapons, civilian firearms, nuclear weapons, nuclear power, thermal coal, tobacco, alcohol, gambling, adult entertainment, genetically modified, fossil fuels production & reserves
- Many ETF funds

ESG strategies

Selection/Positive Screening

Investment in sectors, companies or projects selected for positive ESG performance relative to industry peers (best-in-class)

Source: Global Sustainable Investment Alliance (2019)

Examples:

- Selection of issuers rated **AAA**, **AA** and **A**
- Selection of issuers that have improved their rating (Momentum ESG strategy)

ESG strategies

Thematic/Sustainability Themed Investing

Investment in themes or assets specifically related to sustainability (for example clean energy, green technology or sustainable agriculture)

Source: Global Sustainable Investment Alliance (2019)

Examples:

- Funds invested in Green Bonds
- Funds invested in Social Bonds
- Funds invested in Sustainable Infrastructure
- Funds invested in Natural Resources

ESG strategies

ESG Integration

The systematic and explicit inclusion by investment managers of environmental, social and governance factors into financial analysis

Source: Global Sustainable Investment Alliance (2019)

Examples:

- The stock picking score is a mix (50/50) of a fundamental score and an ESG score
- The fund must have an ESG score greater than the score of its benchmark

ESG strategies

Corporate Engagement/Shareholder Action

The use of shareholder power to influence corporate behavior, including through direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.

Source: Global Sustainable Investment Alliance (2019)

Examples:

- Voting policy
- Public divestment
- Biodiversity and deforestation financing
- Engagement with target companies on a specific subject (e.g., pay ratio or living wage)
- Escalated engagement: concerns public, proposing shareholder resolutions & litigation

ESG strategies

Impact Investing

Targeted investments aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose

Source: Global Sustainable Investment Alliance (2019)

Examples:

- Funds with a Social Impact objective
- Funds invested in Green Bonds
- PAB and CTB ETFs

ESG strategies

Impact Investing/Community Investing

- Impact Investing
Investing to achieve positive, social and environmental impacts – requires measuring and reporting against these impacts, demonstrating the intentionality of investor and underlying asset/investee, and demonstrating the investor contribution
- Community Investing
Where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose. Some community investing is impact investing, but community investing is broader and considers other forms of investing and targeted lending activities.

Source: Global Sustainable Investment Alliance (2021)

The market of ESG investing

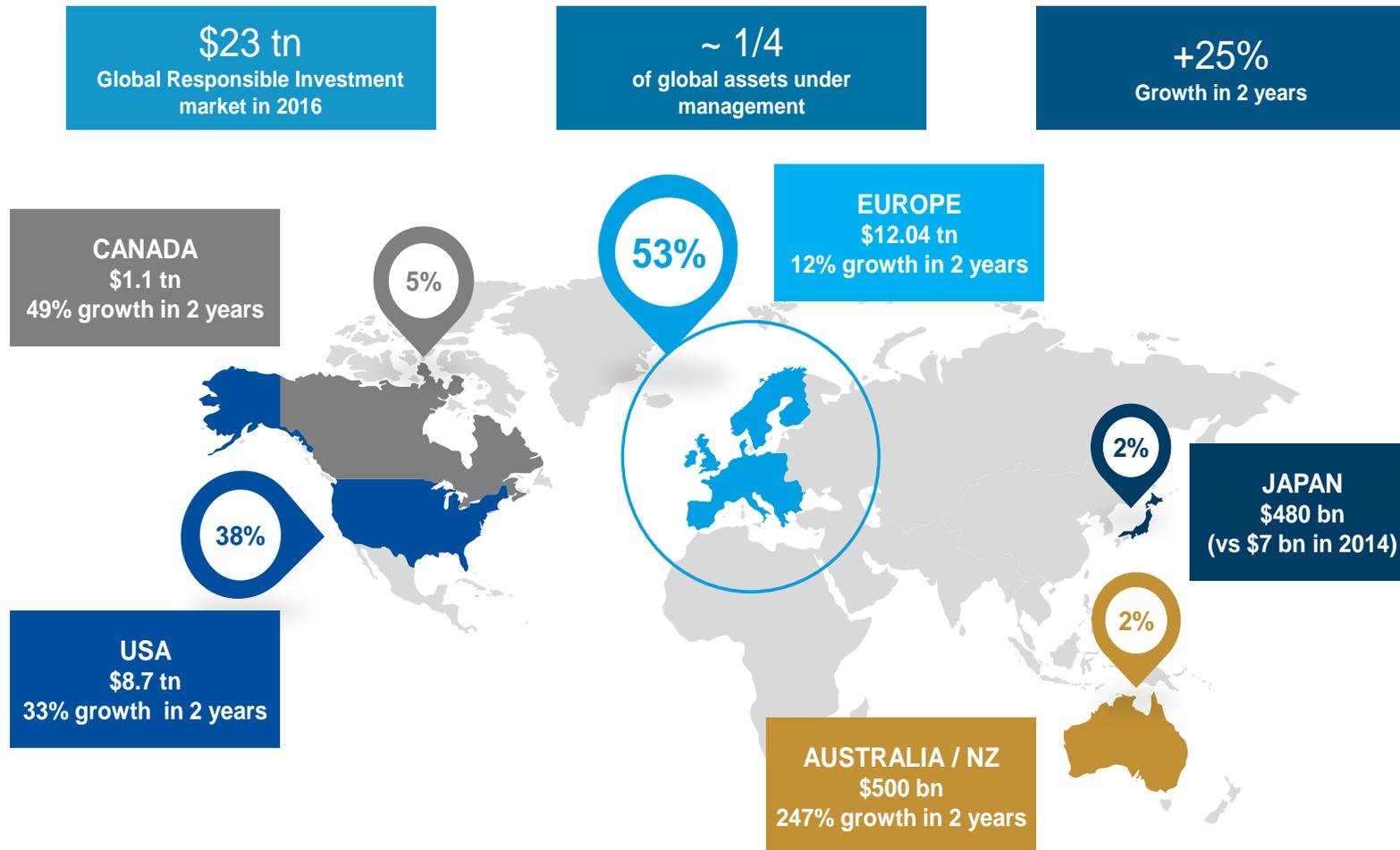


Figure 13: ESG at the start of 2016

Source: Global Sustainable Investment Alliance (2017)

The market of ESG investing

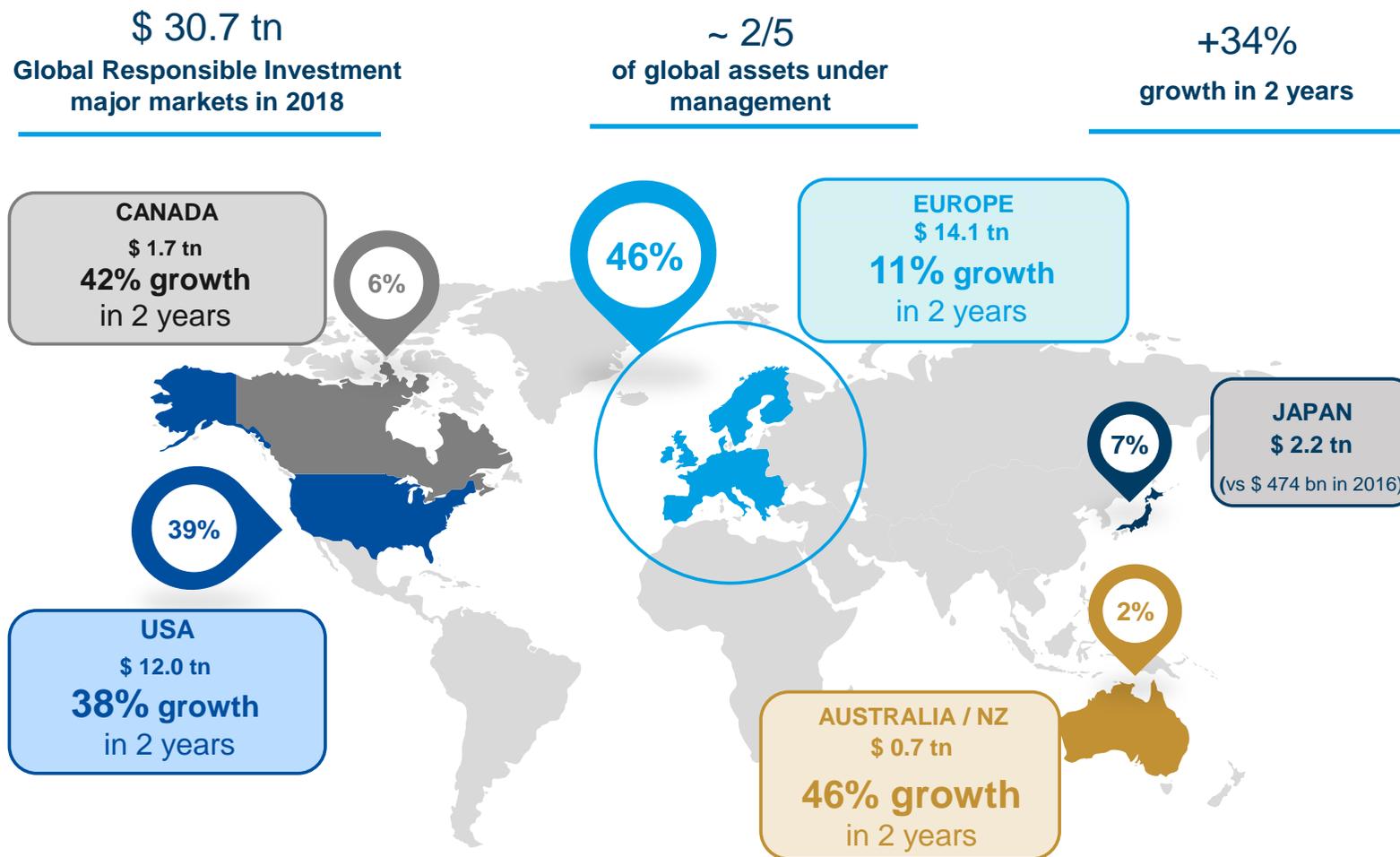


Figure 14: ESG at the start of 2018

Source: Global Sustainable Investment Alliance (2019)

The market of ESG investing

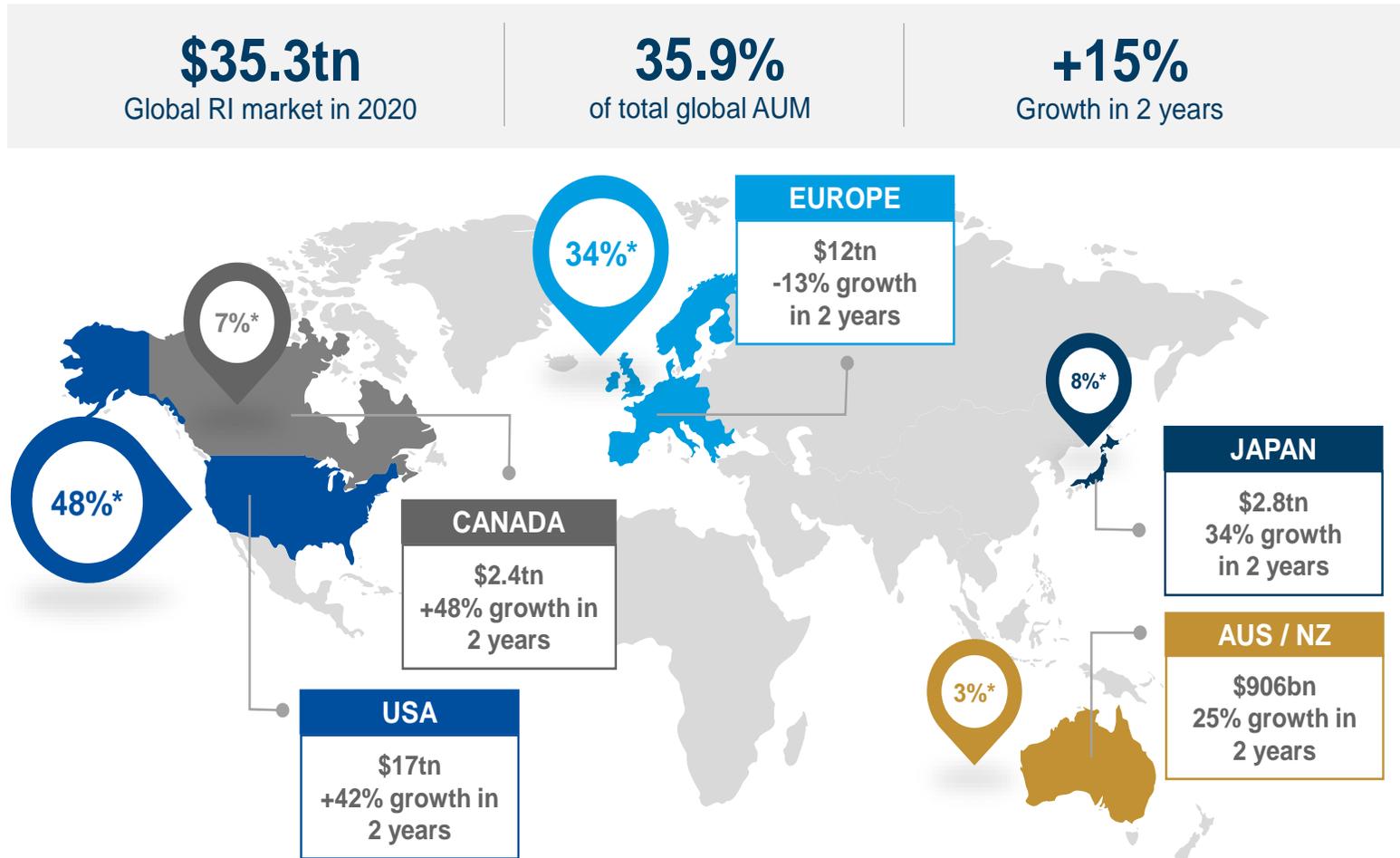


Figure 15: ESG at the start of 2020

Source: Global Sustainable Investment Alliance (2021)

The market of ESG investing

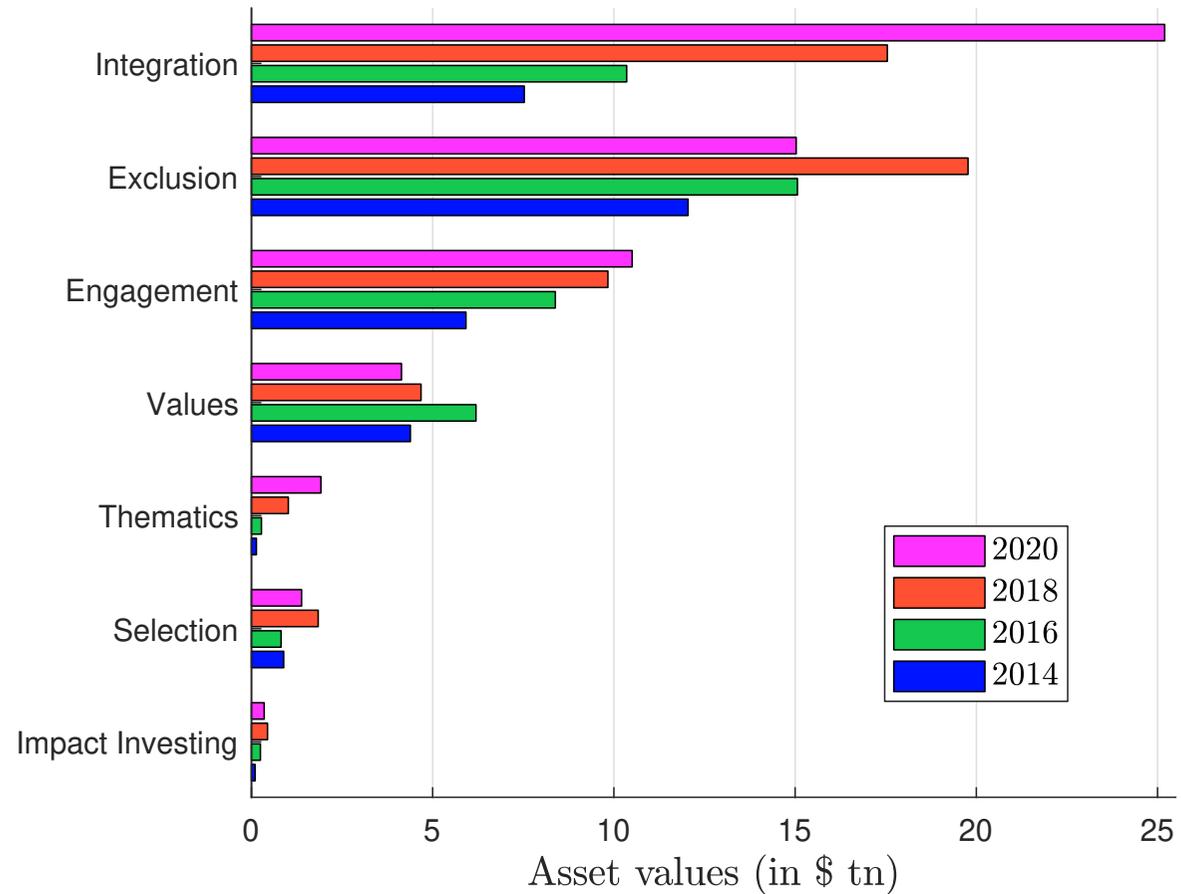


Figure 16: Asset values of ESG strategies between 2014 and 2018

Source: Global Sustainable Investment Alliance (2015, 2017, 2019, 2021)

The market of ESG investing

Table 1: Annual growth of ESG strategies

	2014-2016	2016-2018	2018-2020
Integration	17.4%	30.2%	43.6%
Exclusion	11.7%	14.6%	-24.0%
Engagement	18.9%	8.3%	6.8%
Values	19.0%	-13.1%	-11.5%
Thematics	55.1%	92.0%	91.4%
Selection	7.6%	50.1%	-24.9%
Impact Investing	56.8%	33.7%	-20.8%

Source: Global Sustainable Investment Alliance (2015, 2017, 2019)

The concept of ESG investing

Environmental, Social and Governance (ESG)

- ESG **analysis**: extra-financial analysis \neq financial analysis
- ESG **scoring**: quantitative measures of ESG dimensions
- ESG **ratings**: provide a grade (e.g. AAA, AA, A, etc.) to an issuer (\approx credit ratings)
- ESG **screening**: process of scanning and filtering issuers based on ESG analysis and scoring (\approx stock screening, bond screening, stock picking)
- ESG **investment process**: define how the investment process integrates ESG
- ESG **reporting**: provide ESG information and measures on the investment portfolio (e.g. ESG risk of the portfolio vs ESG risk of the benchmark, repartition of ESG ratings, top/bottom ESG issuers, etc.)