ESG Monitor

MONETARY AND CAPITAL MARKETS DEPARTMENT

December 13, 2019

- Environmental, social and governance (ESG) considerations are being increasingly integrated in the decision-making of lenders, investors and firms. This is largely driven by rising concerns about climate-related *physical risks* (losses as climate-related changes disrupt economic activity and destroy capital) as well as growing awareness of *transition risks* (the potential for losses resulting from a shift toward a lower-carbon economy).
- Building on the October 2019 *Global Financial Stability Report,* which discussed sustainable finance and the role of ESG factors in financial markets, this ESG Monitor covers global developments in sustainable finance, and will provide periodic updates on the ESG issuance, asset price performance, and ongoing policy initiatives that affect the private sector perception of ESG-related risks.
- Highlights of this ESG Monitor are:
    - The realization of physical and transition risks from climate change are underway. Carbon prices are rising but remain well below levels needed to limit global warming to 2°C or less.
    - Policy action has accelerated in recent years, with Europe leading the way. Environmental disclosures by corporates and banks remain limited in Asia while Europe tends to lead. A new type of sovereign green bond by Denmark attempts to address liquidity considerations.
    - ESG equity and fixed income indices are tracking conventional benchmarks closely and fund flows into ESG funds have surged in 2019, especially in equities.
    - LIC and frontier sovereigns tend to be more exposed to climate change risks and portfolio flows.

Sustainable finance is the incorporation of a broad set of ESG principles in business and investment decisions.

1. Selected Environmental, Social, and Governance (ESG) Issues

Key Pillars	Key Themes	Key Issues	
Environment	Climate change	Carbon footprint	Vulnerabilities from climate change events
	Natural resources	Energy efficiency Sourcing of raw materials	Water efficiency Usage of land
	Pollution and waste	Toxic emissions Wastewater management Hazardous materials management	Air quality Electronic waste management
	Opportunities and policy	Renewable energy Clean technology	Green buildings Environmental and biodiversity targets and investment
Social	Human capital	Workplace health and safety Development opportunities	Employee engagement, diversity, and inclusion Labor practices (e.g., wages, working conditions)
	Product responsibility	Product safety and quality Selling practices and product labeling	Customer privacy and data security Access to products
	Relations	Community Government	Civil society
Governance	Corporate governance	Board structure and accountability Accounting and disclosure practices	Executive compensation and management effectiveness Ownership and shareholder rights
	Corporate behavior	Management of corruption Systemic risk management Earnings quality	Competitive behavior Management of business environment (e.g., legal, regulations) Transparency on tax and related-party transactions

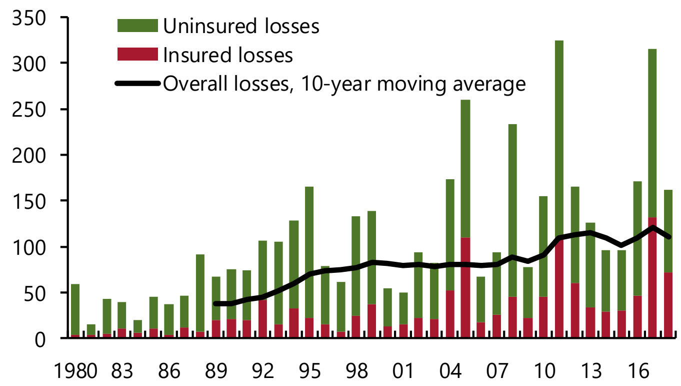
Source: IMF, Global Financial Stability Report (Chapter 6, October 2019).

This monitor was prepared by Han Teng Chua, Piyusha Khot, Evan Papageorgiou, Jochen Schmittmann (all MCMGA).

Physical and Transition Risks from Climate Change Are Rising

Physical risks are evident in the rising losses from natural disasters …

2. Insured and Uninsured Losses for Natural Loss Events Worldwide 1980—2018
(Billions of 2018 US dollars)

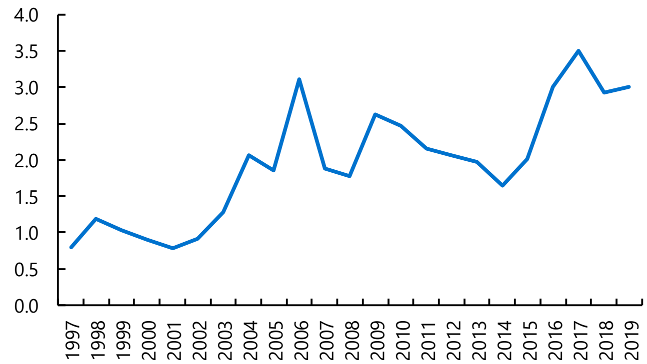


Source: NaCatSERVICE

- Spikes in uninsured and insured losses have been larger in recent years amid more frequent catastrophic events.
- Overall losses have surpassed $300 bn globally in 2011 and 2017.

… as well as from rising expected losses from catastrophic events implied by financial market pricing.

3. Average Expected Loss Implied by Catastrophe Bonds
(Percent)

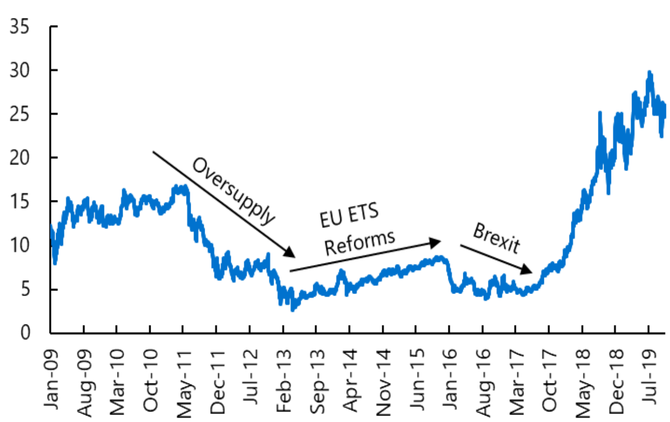


Source: Artemis

- Expected losses priced in catastrophe bonds have risen, reflecting increased probability of extreme weather events such as hurricanes.

Transition risks are reflected partly in the price of carbon in the EU emissions trading scheme as well.

4. Carbon Price in European Union Emissions Trading System
(Euro per Ton)

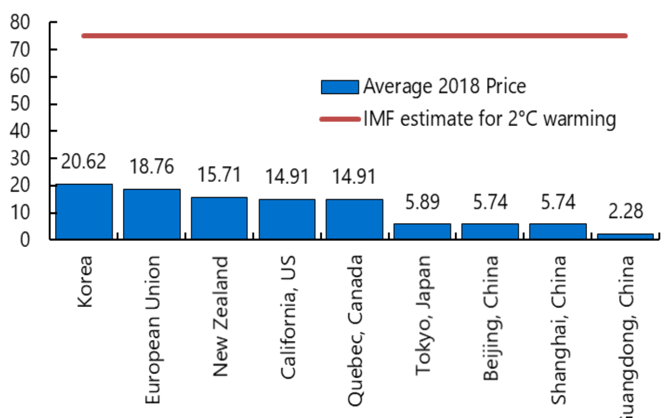


Source: Bloomberg

- EU carbon prices rallied more than 400% after bottoming out in mid-2017.
- This comes amid EU reforms to reduce the number of emission allowance given away for free to industry.

However, traded carbon prices remain well below levels needed to reach Paris Agreement goals.

5. Cap-and-Trade Average Carbon Prices in 2018
(US dollars per Ton)



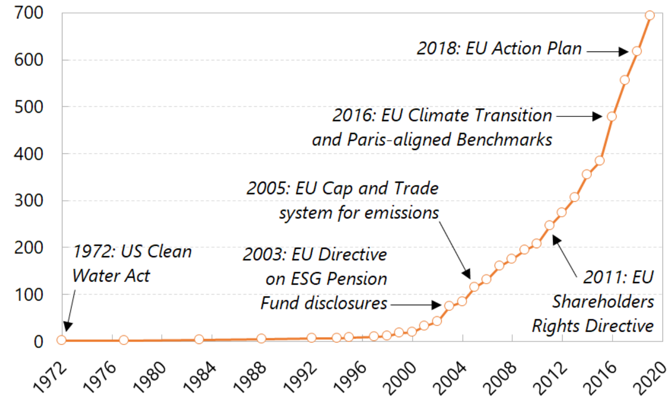
Sources: International Carbon Action Partnership, IMF

- Emissions trading systems have spread around the world since the launch of EU's Emissions Trading System in 2005.
- However, prices remain significantly below $75 (by 2030) needed to limit global warming to 2°C or less (IMF, Fiscal Monitor).

Policies to Promote Sustainable Finance Have Stepped Up, Mostly Notably in Europe

Policy action has accelerated in recent years …

6. Policy Interventions Related to Sustainable Finance
(Cumulative number of issued measures; 2019 is through Sep)

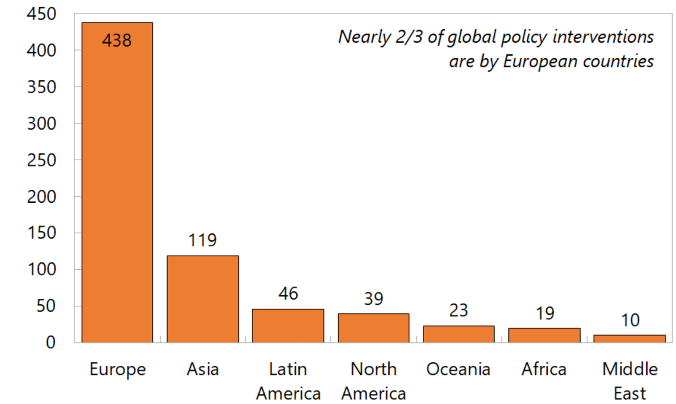


Sources: PRI; and IMF staff calculations.
Note: For the largest 50 economies. EU directives are counted separately for each European member country. Updates are counted as new interventions.

- The number of policy interventions has doubled in less than 5 years as the EU passes hallmark legislations.
- Some 60 percent of new interventions are government-imposed disclosures.
- Initially measures were meant as guidance, but they are increasingly more binding now (mandatory).

… led by the European Union and European countries.

7. Policy Measures by Region
(Cumulative number of issued measures 1972 to Sep 2019)

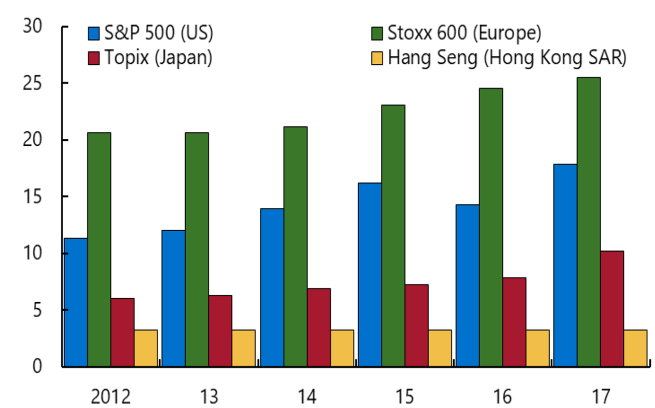


Sources: PRI; and IMF staff calculations.
Note: For the largest 50 economies. EU directives are counted separately for each European member country. Updates are counted as new interventions.

- European legislation is broad and is dubbed "ground zero for ESG regulations."
- The EU Action Plan for Financing Sustainable Growth intends to reorient capital to sustainable investments, manage risks from climate change, and foster transparency and long-termism.

Disclosures by firms listed on major exchanges have improved in recent years but remain limited.

8. Environmental Disclosures Over Time
(Percent of firms with high disclosure score (greater than 50))

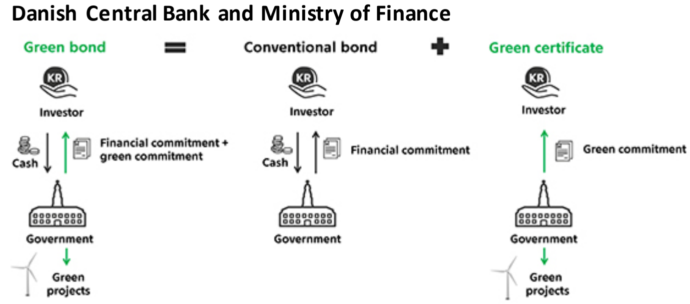


Source: Bloomberg

- Environmental disclosures by companies worldwide have improved, led by Europe, but there is room for higher quality reporting.
- Japan and Hong Kong SAR environmental disclosure remains limited due to a lack of consistent reporting obligations.

New solutions are being proposed to address concerns about limited liquidity of green bonds.

9. Illustration of the Proposed New Green Sovereign Bond by the Danish Central Bank and Ministry of Finance



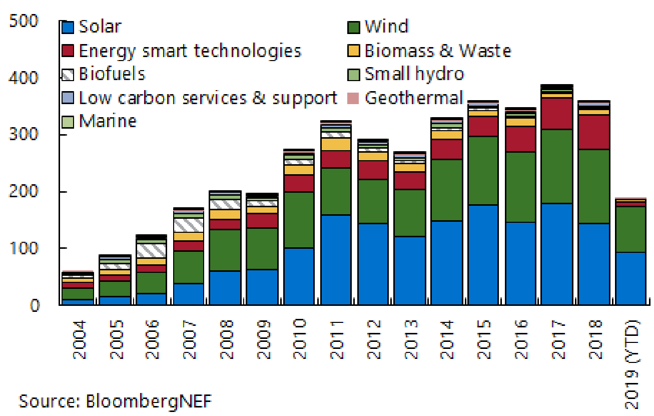
Source: Danmarks Nationalbank.

- The *new green bond* is similar to existing green bonds but with the ability to strip the green certificate, which can be traded separately in the secondary market (own ISIN).
- Essentially the green certificate is a "zero-coupon bond" that an investor can use to trade Denmark's commitment to green projects but without cost to the sovereign because it is zero redemption at maturity.
- Could the green certificates become offsetting credits to brown assets?

Private Investment in Clean Energy Has Been Rising Steadily, Though Remains Insufficient

Clean energy investment growth has decelerated after a rapid increase in the 2000s.

10. New Investment in Clean Energy
(Billons of US dollars; 2019 as of Oct)

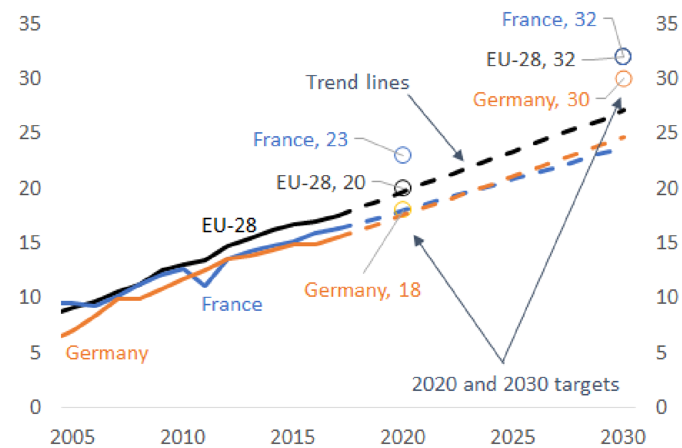


Source: BloombergNEF

- Incentives and strong policy push helped increase investments in clean energy over the past decade.
- Investments have largely been in solar and wind ($143 bn and $131 bn respectively in 2018).
- Asia Pacific countries, particularly China, have been leading investment growth.

Greater effort is needed to meet the 2030 targets for use of renewable energy, including in the EU.

11. Progress to Renewable Energy Targets
(Share of renewable final energy consumption in total, percent)

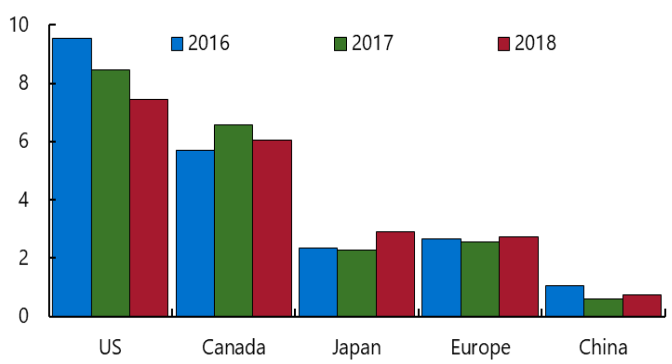


Sources: Bloomberg NEF; Eurostat; and IMF staff calculations.

- Progress toward the EU 2020 and 2030 energy targets varies considerably within the EU (Nordic countries ahead of pace; France, Netherlands behind schedule).
- Progress has been greater in use of renewables for electricity generation rather than transportation, or heating and cooling.
- The European Green Deal aims for Europe to achieve carbon neutrality by 2050.

Global bank exposures to fossil fuel financing have remained stable, except in the US.

12. Fossil Fuel Financing by Banks
(Percent of Overall Loans)

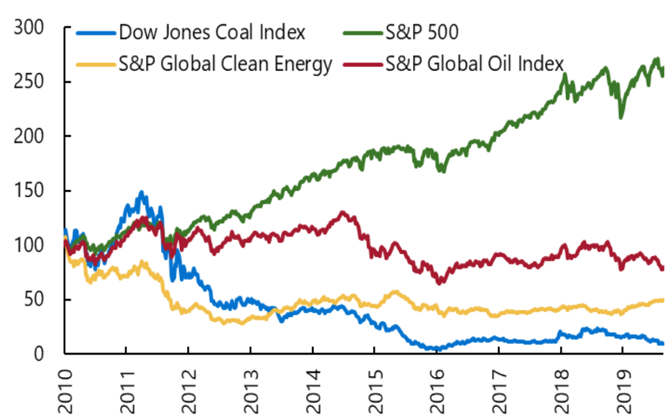


Sources: Banking on Climate Change 2019, Bloomberg, IMF staff calculation
Note: Calculations based on banks provided in Banking on Climate Change report.

- Global bank financing of fossil fuel has declined, primarily driven by large US banks.
- Exposure to fossil fuel financing has risen in Canada, Japan and Europe over the past couple of years, although it remains much lower than in the US.

Fossil fuel-related stocks, notably coal, have underperformed, reflecting transition risks.

13. US Equities, Clean Energy, Coal and Oil Company Stock Prices
(Normalized to 100 as of start-2010)



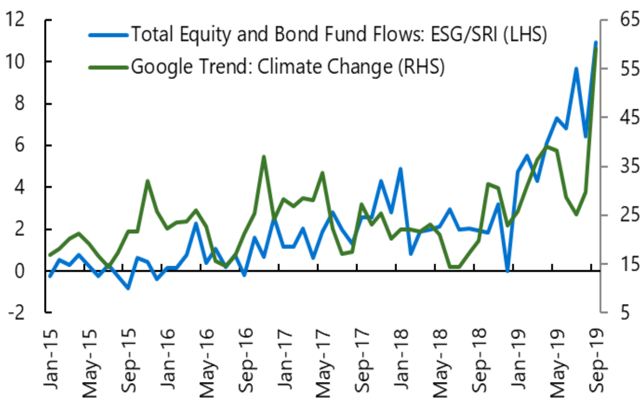
Source: Bloomberg

- After peaking in 2011, coal-related equities have performed very poorly, losing 95% amid large-scale divestments.
- The decline in clean energy stock prices since 2010 was partly due to oversupply in electricity (from subsidies) and too-low carbon prices. Positive sentiment for renewables helped clean energy stocks rally by 30% in 2019.

Investor Interest in ESG Mutual Funds Has Picked up This Year

Flows into ESG equity and bond funds have risen alongside public interest in climate change …

14. Flows into ESG/SRI Funds and Climate Change Google Trend
(Billions of US dollars, left scale; trend Index, right scale)

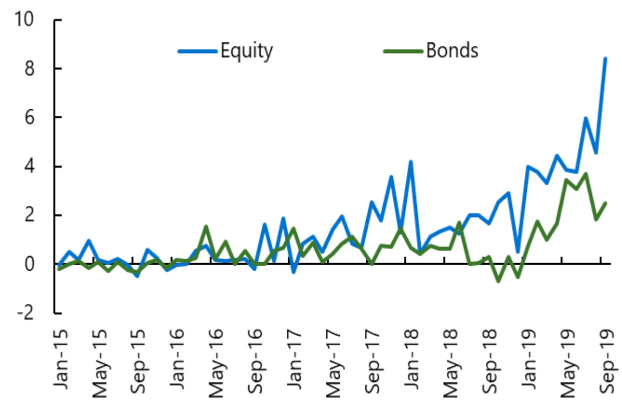


Sources: EPFR, Google Trends

- Overall flows into ESG funds reached a monthly high of $10 bn in September 2019, five times larger than the average monthly $2 bn recorded in the previous year.
- This came in synch with greater interest in climate change issues as seen from google searches.

… dominated by inflows into ESG equity funds.

15. Overall Equity and Bond Flows into ESG/SRI Funds
(Billions of US dollars)

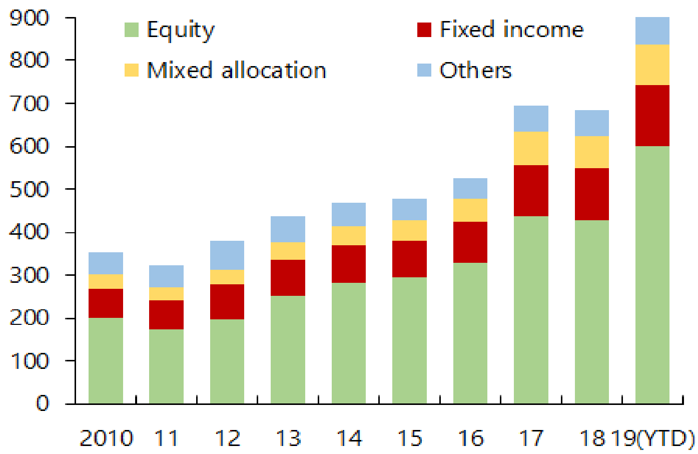


Source: EPFR

- Monthly ESG fund flows have been dominated by equities, surging to $8 bn in September 2019.
- ESG fund flows into bonds are much lower at $2 bn, but also saw a sizeable increase in recent months.

Equity funds have adopted ESG factors faster than bond, reaching $600 bn in assets under management.

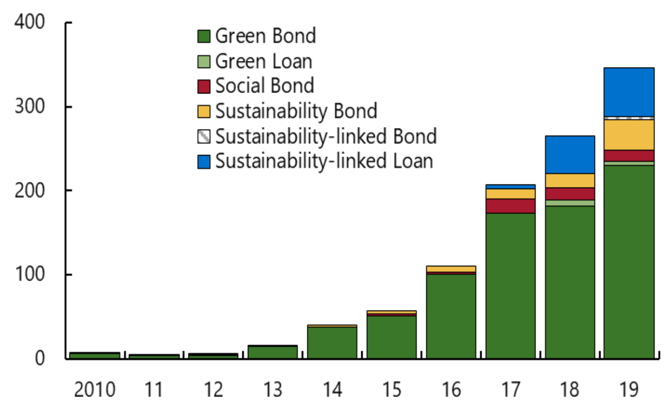
16. Assets under Management of ESG-Listed Funds
(Billions of US dollars; 2019 through November)



- ESG-listed equity funds grew faster because of higher upside potential, time horizon, and engagement rights.
- ESG-listed funds across all asset classes are still small (about 2% of total), but the impact of ESG in investment decisions is understated from these figures.
- A lack of consistent definitions makes it difficult to estimate the total assets under management of ESG funds globally, but conservative estimates are at least $3 trillion.

Sustainable debt issuance has picked up in recent years led by green bonds.

17. Global Sustainable Debt Issuance
(Billions of US dollars)



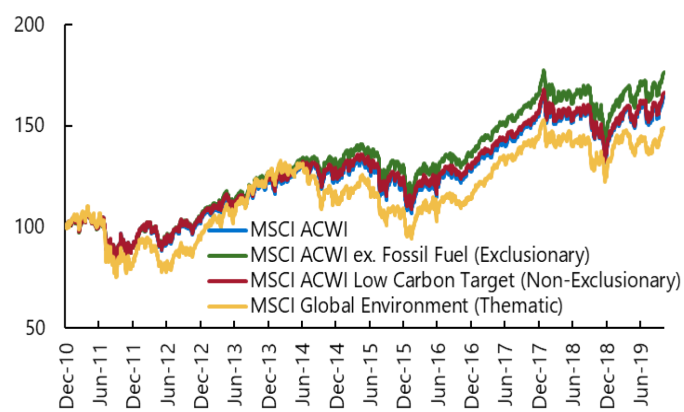
Source: BloombergNEF

- Greater recognition of the importance of ESG standards and official sector sponsorship has boosted sustainable bond issuance in recent years.
- Green bond issuance reached $230 bn in early-November 2019.
- Sustainability-linked loan issuances are also growing fast.

The Performance of ESG Funds Relative to Conventional Funds Has Been Mixed; LICs Are Likely to Be Affected by Greater Integration of ESG Factors in Investor Portfolio Decisions

Performance of ESG-focused global equities has varied depending on strategy type.

18. MSCI All-Country World Index (ACWI) and Various ESG Indices
(Index; Normalized to 100 as of end-2010)



Sources: Bloomberg, IMF staff calculation

- Global equities that exclude fossil fuel companies have outperformed. Exclusion strategies remain the most common ESG approach (non-exclusionary usually refer to best-in-class and positive screening strategies—see endnote for more information).
- Other strategies that weigh stocks based on relative carbon intensity have been less successful.

ESG EM sovereign fixed income have marginally outperformed conventional funds in 2019.

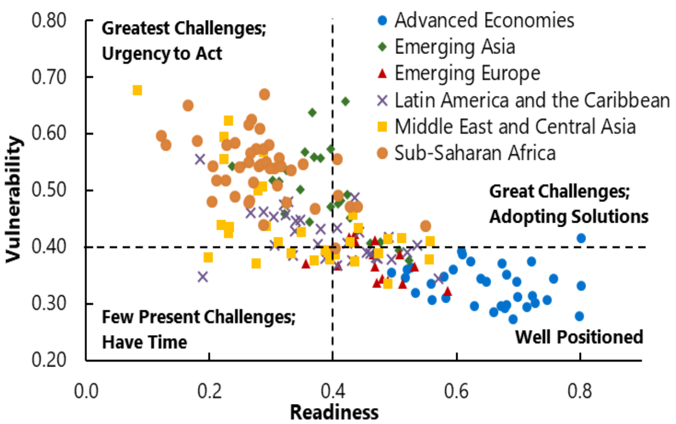
19. Sovereign Bond Total Return Indices
(Index; End-2012 = 100)

Sources: Bloomberg, JP Morgan, IMF staff calculation

- The JESG EMBI (ESG EM bond index) delivered a total return of 13.4% in the first three quarters of 2019, outperforming the benchmark by 40 bps.
- However, ESG outperformance was driven by the exclusion of more challenging credits such as Lebanon.

Low income countries are more vulnerable and less prepared to tackle climate risks ...

20. Notre Dame Sovereign Climate Risk Score
(Number, out of 1.0)

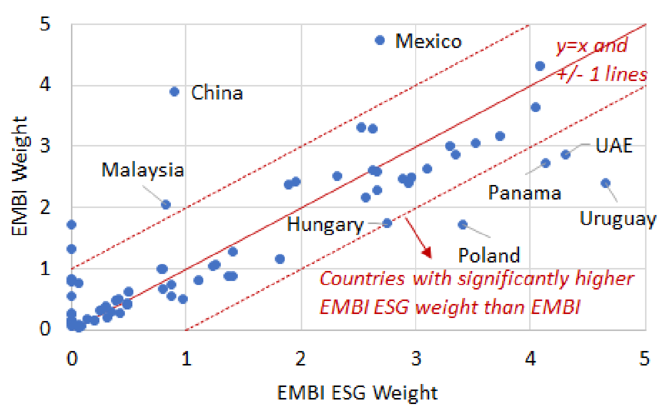


Sources: University of Notre Dame Global Adaptation Index, IMF staff calculation

- Most sub-Saharan African countries are highly vulnerable to climate risks and are not prepared to cope with financial risks.
- Advanced economies are better positioned to deal with climate change, with Europe at the forefront.

... and may be adversely affected by increased use of ESG indices by portfolio investors.

21. Country Weights in JP Morgan EMBI GD and JESG EMBI
(Percent; November 2019)



Sources: JP Morgan; and IMF staff calculations.
Note: Several large EMBI constituents (weight > 0.5 percent) are not included in the EMBI ESG (Angola, Iraq, Lebanon, Nigeria, Pakistan).

- Angola, Nigeria, Pakistan dropped out of the ESG version of the benchmark EM bond index because of low scores.
- Uruguay, Panama, UAE and Poland have high weights in the ESG index compared to the benchmark index.
- Mexico's weight was recently decreased due to PEMEX dropping out of the ESG index.

Glossary of Frequent Terms in Sustainable Finance

COP21	21st Conference of the Parties (2015 United Nations climate change conference)
ESG	Environmental, Social and Governance
ETS	Emissions Trading System (related to carbon emissions)
GRI	Global Reporting Initiative
NGFS	Network (of Central Banks and Supervisors) for Greening the Financial System
SASB	Sustainability Accounting Standards Board
SDGs	United Nations Sustainable Development Goals
SRI	Sustainable, Responsible and Impact Investing
TCFD	Task Force on Climate-related Financial Disclosures
PRI	Principles for Responsible Investment (international network of investors)

Endnote: Sustainable and Responsible Impact Investing Strategies

Impact and underperformance concerns have led the evolution of ESG strategies from exclusions to more selective inclusion and investor activism. Initially, sustainable investing was primarily about negative screening strategies that excluded firms or entire sectors from investment portfolios. Over time, concerns about risk management, benchmark underperformance, and a need to demonstrate material ultimate impact have given rise to strategies based on positive screening for companies with good ESG performance (best-in-class, improvement), companies that fulfill certain minimum standards or norms (norm-based screening), or sectors that are considered sustainable (sustainability-themed investments). For more information see Chapter 6 of the October 2019 *Global Financial Stability Report*.