The Green Bond

SEB

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SEB Green Bonds Website

Climate & Sustainable Finance

Letter to the reader

Green Bonds and Green Finance entering the Global Agenda

With the Green Bond market surpassing USD 100bn in issuance year to date, 6 weeks faster than last year, plus another USD 50bn from other sustainable debt capital market instruments like social bonds and sustainability-linked loans, Sustainable Finance is firmly entering the Global Agenda.

I am writing this having just returned from the Green Bond Principles annual general meeting, which once more confirmed the underlying strength of the transition to a more alert and engaged financial community.

The market remains strong with volumes on the upper side of our Bullish scenario and considering the strong underlying and structurally supported commitments of regional markets, we expect the full year issuance to remain well supported.

The strong regional engagement was confirmed last week at the AGM by Bundesbank board member Dr Sabine Mauderer (Full speech reprinted later in The Green Bond[1]), KfW's CEO Dr Günther Bräunig, and State of Hessen's State Secretary, Ministry of Economics, Energy, Transport & Housing, Dr. Philipp Nimmermann – and the message was clear – Green risk and management of climate related risk is getting much greater attention and regulations should be expected, but also, that we need to assure social stability and inclusion when talking about the "Green" transition.

Alongside the strong statements from Germany, we also have the new release of the EU Technical Expert Group, where EIB, being one of the core experts, have shared their raison d'être on the initiative and outcome - it almost feel like a mandatory reading, since the consequence of the EU engagement can be instrumental for how we price assets.

One of the hottest topics right now is exactly the challenge of transition and inclusivity – can we use science based targets as a benchmark, and if so, how do we verify the claims given by industry. We have in this edition tried to provide some reflections. As we all focus on phasing in new industries we often forget that this also means phasing out old technologies – when will this happen? And how do we price this? Another related area is the fact that we need to start working more intensively on technologies that can aggregate and extract CO2 from the atmosphere – and the financing of such initiatives can only come from two places 1) the public (via taxes) and/or 2) industries which benefit from this kind of technology (hence, polluting industries). In my world this means that we need to broaden the Green universe and start having a more inclusive dialogue – without giving away the overall goal which is the re-stabilization of air and water quality.

As a core part of the transition, many market players are waiting for regulatory action. From our side there are a number of core activities ongoing but it could be that the central banks and financial supervisors that form the Network for Greening the Financial System, NGFS, which consists of 36 leading insititutions, is the most important. Morgan Després from Banque de

[1] With the permission of Bundesbank

France and Irene Heemskerk from De Nederlandsche Bank, who are both members, have, in this edition, provided the Executive Summary of the NGFS' latest report. Alongside the coordinated efforts of the NGFS, regional leaders have taken action – we have (with permission from the Office of the New York State Comptroller) reprinted last week's statement by New York State on their Climate Action Plan for New York State Common. We have also been provided with an insight into the current EU standardization work by Aldo Romani from EIB.

Lastly (with some sorrow), I would, like to thank Christopher Kaminker for his excellent work over the last couple of years to establish this research as a core piece of intelligence for market participants worldwide. At the end of June, Chris will move to London for a new opportunity and will join the buy-side as an investor. This edition has been co-developed with Thomas Thygesen, Head of Cross Asset Strategy at SEB, who will now lead SEB's Climate & Sustainable Finance Research; with Chris having handed the process over in the last month.

We will maintain the same structure of the research with external contributions being a central part, a strong focus on market developments, but we will marginally adjust our macro focus from policies and frameworks to transition and technologies - to match the stage of development that we see in the market.

Enjoy your Reading

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Sustainable finance steps up

Energy transition will change markets

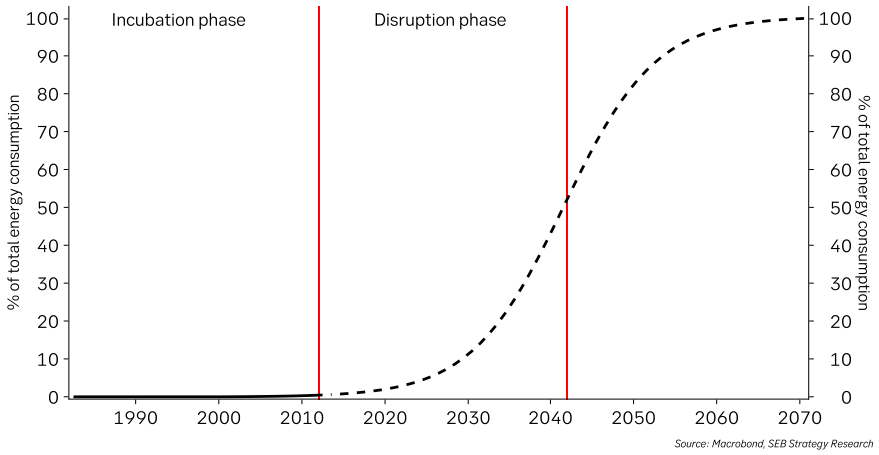
It has now been ten years since the first green bond was issued. Since then, the energy transition has progressed from vision to reality. Renewable energy and the cluster of sustainable technologies around it no longer need subsidies to beat the incumbents. Meanwhile, there is now general recognition that climate risks are real and that mobilizing capital to reverse it is important in ways that go beyond finance. As a result, the global economy stands at the beginning of a major reallocation of capital that will last a generation. Financing this massive investment need will take sustainable investment to the next level.

30 years of massive investment await us

Technology revolutions bring about changes that can be brutal, but also irresistible and irreversible. The transition to a sustainable energy system is brought on by such technologies. It must happen regardless of the price in order to reverse the global climate crisis, but they are so good that they would win because of their exponential efficiency gains, regardless of political decisions or regulation.

If you study past technology revolutions, they all follow a simple 30-30-30 pattern: 30 years of trial-and-error incubation below the radar, 30 years of winner-takes-all disruption after the relative price 'tipping point' and finally 30 years of deployment of now well-known blueprints.

The 30-30-30 model for renewable energy



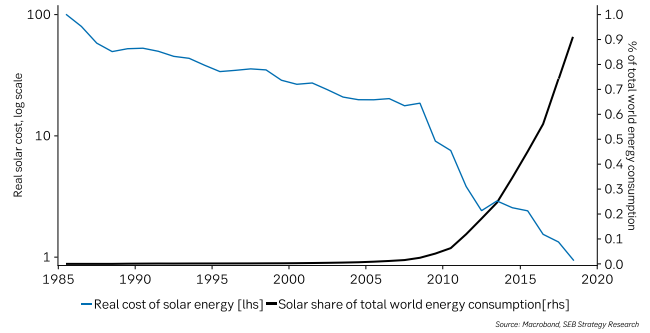
Source: SEB Strategy Research

Renewable energy sources and all the complementary technologies around them have only recently passed the same tipping point that IT reached in the 1980s, because the incubation period didn't start until we stopped investing in nuclear power at that time. However, after the usual 30 years of incubation, the renewable energy cluster is now ready to compete without external help.

They show exactly the same disruptive combination of falling prices and exploding volumes as earlier technological revolutions. Over the past decade, solar and wind power have reached some kind of cost parity in most parts of the world, and massive progress has been made in complementing technologies like storage and transportation. History suggests the combination

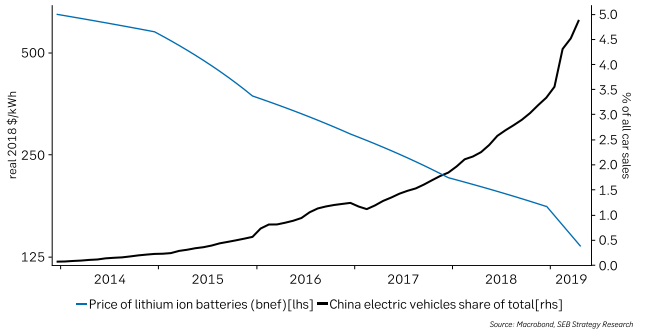
of exploding volumes and collapsing prices will continue until they have become the dominant infrastructure after 30 years.

Solar cost and consumption as % of total



Source Macrobond, SEB Strategy Research

Battery cost and Chinas EV share

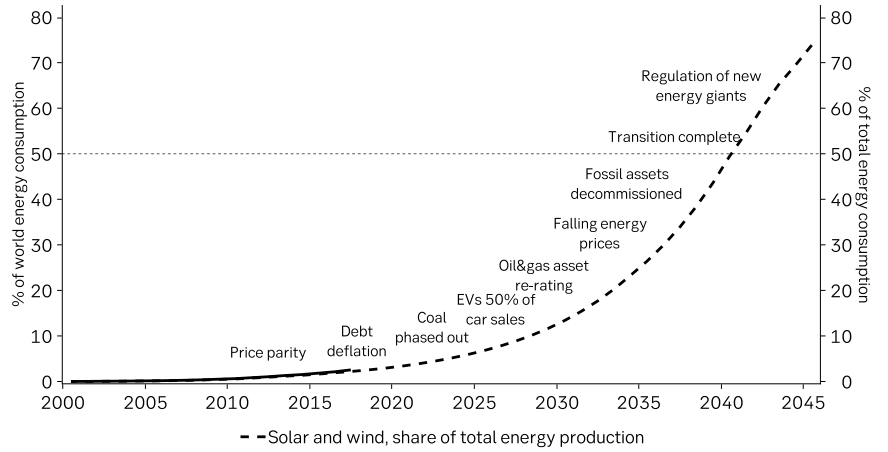


Source: BNEF, SEB Strategy Research

This is now likely to trigger 30 years of rapid diffusion and massive physical that will transform both the economy and capital markets. We call it 'the great electrification', because it will shift energy consumption to clean, abundant electric power. However, it will take decades before we complete this task and it will require massive investment also in areas with a large carbon footprint.

The energy transition will happen on the ground, not in the cloud, and it will require a lot of physical input. It will not only require investment in renewable energy production as such, but also changing the existing stock of real estate to embed sustainable technology, replacing transportation and logistics systems, transforming the production sectors, developing and building large-scale storage facilities and create intelligent electricity grids.

A tentative roadmap for the energy transition



Source: SEB Strategy Research

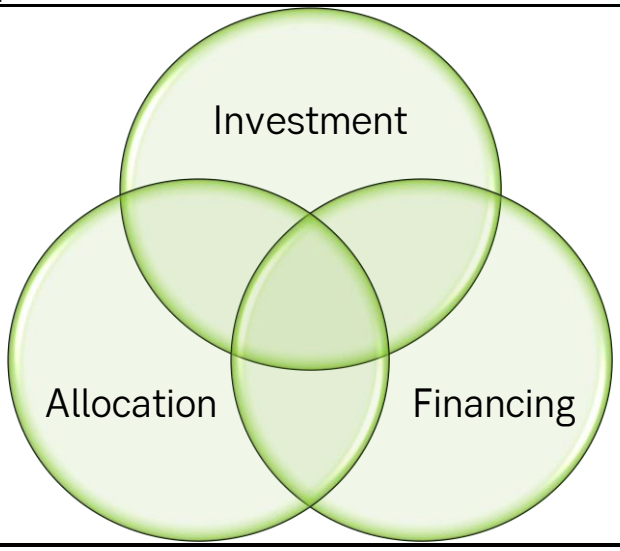
All of this will require significant amounts of metals and transportation services to realize. At the same time, oil and gas will remain the backbone of our energy infrastructure for at least another couple of decades. Delivering this physical input in the fastest and most sustainable way is an integrated part of the process.

What it means for companies, lenders and investors

The key task for capital markets is to allocate capital to the coming investment boom, and this will require a holistic approach. Companies need to invest in projects that actually make their production models more sustainable, banks and lenders must recognize that this particular type of investment will lead to

lower ex-post risk and financial investors have to understand that it will lead to higher returns in both equity and credit markets.

A holistic approach to sustainable investment



Source: SEB Strategy Research

Investing in the transition to a more sustainable economy will be associated with improvement in both relative growth prospects and financial risk, not just because the new technologies are cheaper and more efficient, but also because taxation and regulation ultimately will lead to possibly sharp cost increases for the laggards.

Companies and countries must therefore engage in a race to deploy them faster than their peers to remain competitive and means they will have to raise large amounts of capital. This will happen in all sectors, also those with the highest carbon footprint. In fact, if you focus on the delta and target a change in the footprint, then the largest improvement comes from helping companies to become 'best-in-class' when it comes to sustainable production technology.

Investors will increasingly demand that the capital is deployed in these areas in order to provide it. In order to do this, investors will need hard evidence to guide them. To attract their interest, companies will have to disclose information and provide proof that funds are deployed in the right way. This means that green bonds and other types of sustainable financing are likely to be the vehicle for financing physical investment. That will both ensure that capital is deployed in the right way and help build the information framework that is needed for investors in secondary markets generate excess returns in both equity and credit markets.

Transitions like these are once-in-a-generation events, and navigating these uncharted waters will be the single most important challenge for investors in the coming years. Green bonds and other ways of raising capital for sustainable investment will play a pivotal role, entering the mainstream in a way that would have been hard to imagine just a few years ago.

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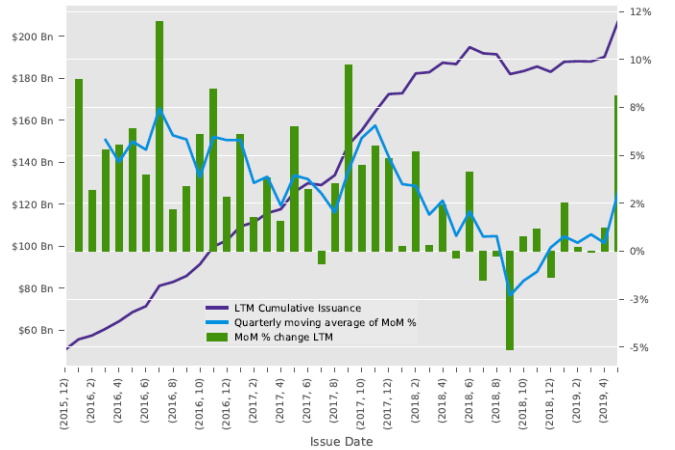
Green Bond Market Update

Mega-May, mainstreaming and 100 billion dollar mark

Despite geopolitical headwinds and more volatile debt capital market conditions in April and May 2019, the more dovish tone emanating from key central banks has been translated to a more bullish tone for fixed income markets and helped to generate propulsion for the Green Bond market, pushing it towards a historical record issuance volume for this point in the year; particularly on the back of an exceptionally strong result for May, the largest month of green bond issuance on record.

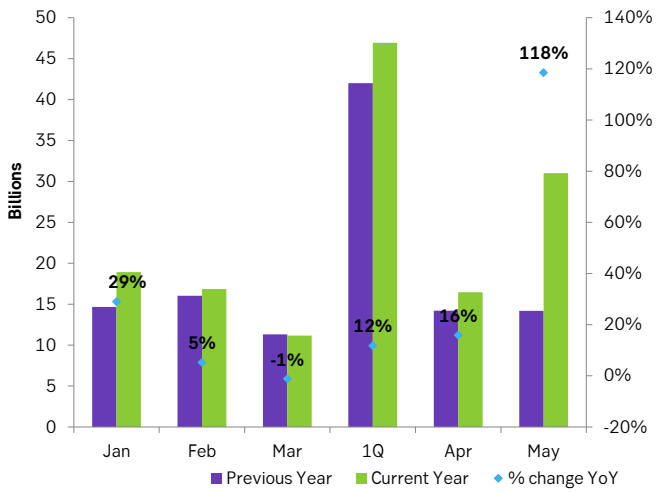
With total issuance in 2019 surpassing the symbolic USD 100 billion mark in the second week of June, and reaching USD 94.4 billion as of the end of May[2], the market is sticking comfortably to a pace ahead of 2018, up 26% Year-over-Year (YoY). It is interesting to note too that the market is moving an entire month of issuance ahead of last year, having surpassed the volume as of May 2019 that we saw at the half way point in 2018: USD 92.5 billion.

Figure 1: Green Bond Issuance – Last 12M (USD, Bn LHS) with %-change (RHS)



Source: SEB analysis based on Bloomberg (BNEF) and SEB data

Figure 2: Issuance previous year comparison (USD, Bn)

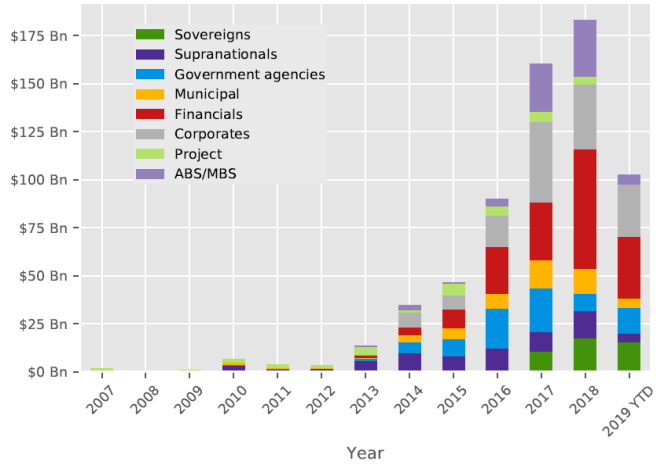


Source: SEB analysis based on Bloomberg and SEB data

When you look at Figure 4 which shows the distribution of issuer type, it points to continued issuer variety in the green bond market, leading us to believe that green bonds are becoming a mainstream product in many major jurisdictions. Sweden, Netherlands, France, Australia, China, Iceland and Canada are now all regularly in the statistics but it is interesting to note repeat and inaugural issuance on the rise in Finland, Norway, Switzerland, Korea, Germany, Ireland, Denmark, Spain, Austria, Belgium, Japan, Thailand, Singapore, Luxembourg, India and Hong Kong.

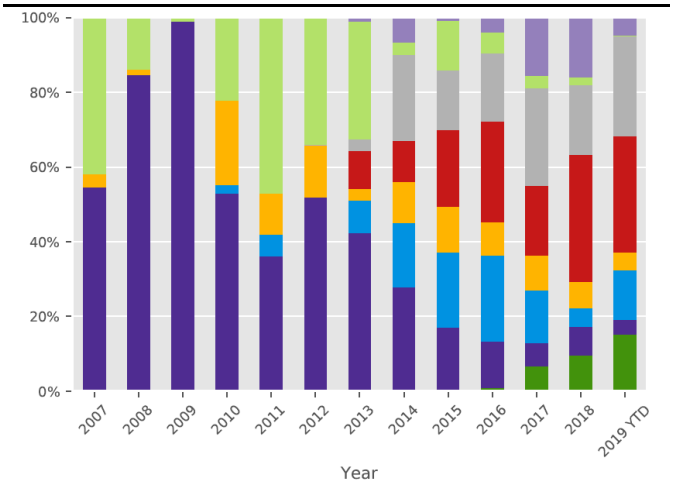
[2]Henceforth we use May as Year-to-Date figures (YTD)

Figure 3: Green bond market growth USD Bn) by sector



Source: SEB analysis based on Bloomberg and SEB data

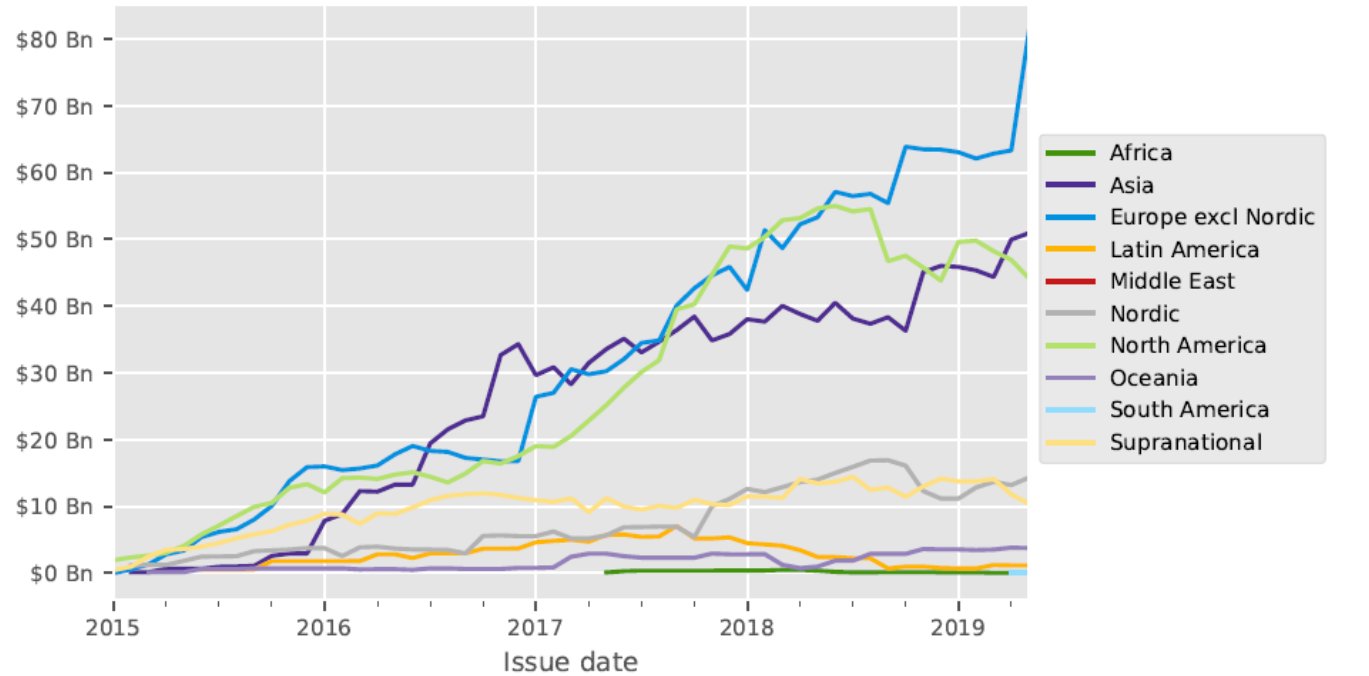
Figure 4: Sectoral evolution (% share of annual issuance)



Source: SEB analysis based on Bloomberg and SEB data

Furthermore, when looking at the regional distribution, the mainstreaming of the green bond product is particularly clear in Europe, driven in part by enthusiasm from the policy community; including efforts such as those of the central banks and financial regulators represented by the Network for Greening the Financial System (NGFS) and the European Commission's Technical Expert Group and their roadmap for sustainable finance. Both are featured as guest contributors in this edition of The Green Bond.

Figure 5: Green Bond Issuance – Analysis by region (USD Bn)

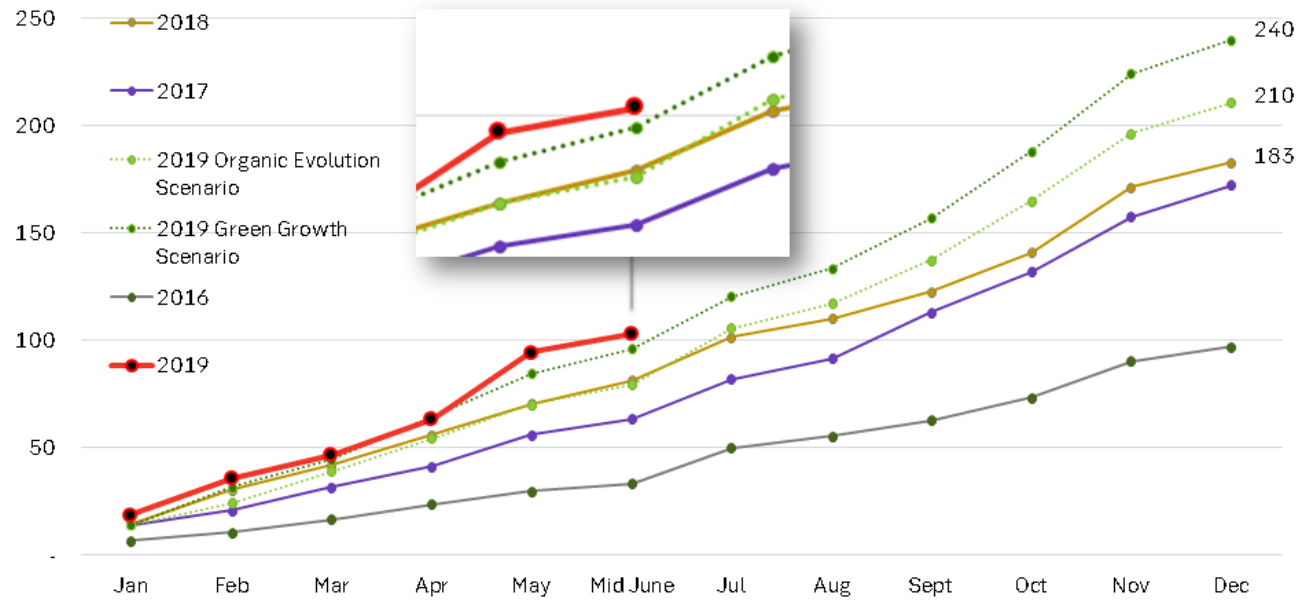


Source: SEB analysis based on Bloomberg and SEB data.

At 26% of total issuance YTD, the corporate sector is developing at pace with new jurisdictions such as Australia and Thailand adding to the issuance mix. With USD 27.5 billion raised so far YTD, the sector looks well set to soon surpass the USD 33 billion raised in the whole of 2018. We believe that efforts by the Task Force on Climate-related on Financial Disclosures (TCFD) have in

fact helped to position and prepare the corporate sector for participating in this market, through all of the incremental internal and external climate-related risk and opportunity analysis that it leads to being done by corporates. Green bond issuance is also specifically cited by the TCFD as a type of climate-related opportunity disclosure available to corporates to financially express their sustainability strategy to the market.

Figure 6: Cumulative annual green bond issuance & SEB scenarios (USD Bn)



Source: SEB analysis based on Bloomberg (BNEF) and SEB data, https://sebgroup.com/large-corporates-and-institutions/our-services/markets/fixed-income/green-bonds

Although April issuance was more subdued generally, issuers came back with a vengeance in May to propel the market back towards our more bullish "Green Growth" scenario that we mapped out in our December edition. In figure 6 the two SEB scenarios are shown, namely the "Organic Evolution" scenario which sees the green bond market continuing at a pace similar to that of 2018, organically evolving in response to increasing investor demand across geographies and sectors to reach USD 210 billion. However, the market so far in 2019 has put us more on track with SEB's "Green Growth" scenario, which uses similar assumptions to our Organic Evolution scenario but dials them up to reflect deeper project pipelines and broader spatial progress. This scenario sees total issuance for 2019 at USD 240 billion.

Looking more closely at April and May numbers, April showed a marginal increase in issuance compared with the same period in 2018 (16%), with the corporate and financial sectors the main contributors to the increase (up 77% and 166% respectively). However it is May that has delivered the boost, up a whopping 118% when compared to May 2018, the highest month of green bond issuance on record.

Looking sector by sector, a great deal of "Mega May" is attributable to the corporate non-financial and public sector issuers.

As mentioned above the corporate sector has surpassed USD 27.5 billion, and consistently beats the previous year's month-over-month volumes, with April and May 2019 registering a 79% and 107% increase respectively.

Worth noting is the geographical distribution represented in the corporate sector so far in 2019, with issuance registered from South Korea's LG Chem,

Thailand's BTS Group, and Australia's Woolworths Group, all bringing inaugural issuance and adding depth to the green bond market in the Asia Pacific region.

From Europe, we saw the inaugural issuance by Philips, the Dutch health technology company, which raised EUR 750 million under its new Green & Sustainability Innovation Bond Framework. Vodafone of the UK became the third telecommunications company (after Telefonica and Verizon) to issue a green bond, raising EUR 750 million for investments in improving the energy efficiency of its network operations, renewable energy and green buildings.

Also adding to the inaugural issuance list for June 2019 was Vattenfall AB, the Swedish energy company, which raised EUR 500 million through a 7-year transaction, the proceeds of which will target the company's investments in renewable energy, energy efficiency, electrification of transport and heat, and industrial projects. SEB was a joint lead manager on this transaction.

Moving to the government agency sector, which with a total issuance YTD of USD 13.5 billion has eclipsed already the 2018 total issuance volume from the sector of USD 8.8 billion. The most notable issuance providing the volume is KfW of Germany, which on the back of an update to their green bond framework to include energy efficient buildings, launched its largest ever green bond, a EUR 3 billion benchmark transaction, the largest green bond issued by a non-sovereign SSA issuer. Not only that, KfW followed up soon after with a SEK 7 billion green bond, the largest ever primary green bond issuance in the SEK market, a transaction that SEB was honoured to lead. Also worth note in the government agency segment is the issuance from Société de Grand Paris and SNCF Réseau that came to market in both April and May, raising a combined total of USD 1.4 billion for sustainable rail infrastructure.

Another public sector issuer segment delivering volume in 2019 is that of sovereign borrowers. Having reached USD 15.6 billion in issuance by the end of May, sovereigns look set to surpass handsomely the total 2018 volume of USD 17.6 billion by the end of the year. Notably, two inaugural sovereign issuers came to market in May, namely the Hong Kong Monetary Authority (HKMA) and the Netherlands. HKMA (rated AA+) launched a USD 1 billion 5-year issue under its USD 13 billion (HKD 100 billion) green bond programme which focuses on investments in clean transportation, air quality improvement and green buildings.

The Netherlands brought the first AAA-rated sovereign green bond to the market; raising close to EUR 6 billion with their inaugural Green Bond, a 20-year maturity, which attracted orders of approximately EUR 21 billion. An interesting feature of the Dutch green bond is the ability for investors to register themselves as Green according to a Dutch State Treasury Agency assessment, and thereby receive a better allocation.

In terms of repeat sovereign issuance, the French sovereign tapped its Green OAT for EUR 2 billion, taking its total green bond issuance to EUR19 billion. Nigeria also returned to the market, raising USD 41.3 million equivalent.

When we look more closely at the financial sector, it is again a story of seasoned issuers returning to the market plus new borrowers from new jurisdictions, again adding to our conviction of green bonds "mainstreaming".

Financials did not participate in Mega-May however (issuance was down 7% compared with May 2018), so the majority of the sector's issuance came in April, where issuance was 166% up April 2018. Total issuance YTD for

financials stands at USD 31.9 billion, just above of where we stood at the half-year point in 2018.

Chinese banks registered the largest chunk of volume for the period, with 10 borrowers raising USD 6.2 billion. The stand out issuance came from ICBC Singapore branch, bringing a multi tranche transaction in CNY, USD and EUR, raising a total of USD 2.2 billion for its green bond program.

More issuance from the banking sector in Japan was a welcome boost for the market there, which saw Sumitomo Mitsui Financial Group, Toyota Finance Corp, and three other financial sector issuers raise a combined total of USD 1.3 billion.

Interestingly, we saw some new entrants in the financial sector in Chile and Hong Kong, with Banco de Credito e Inversiones SA issuing a USD 10 million green bond in April, and Hysan MTN Ltd used the local HKD market to raise USD 31 million equivalent for green building investments.

Banks in Europe, excluding the Nordics, continued their activity in the period (raising USD 6.4 billion), with La Banque Postale from France, ABN AMRO from the Netherlands, BBVA of Spain and LBBW from Germany all adding to their green bond funding. This was supplemented by an inaugural issuance from Italian bank UBI Banca, which raised EUR 500 million under its Framework for the issuance of green and social bonds. In the Nordics we saw USD 2.4 billion raised in the period, from the likes of DNB Boligkreditt, Nordea, SBAB Bank and Nykredit Realkredit.

Supranational issuance data is firm, but volumes are not showing an increased pace relative to 2018. By the end of May we see issuance at USD 4.1 billion in 2019, which is down 49% compared with the same period in 2018. This decline in issuance however needs to put into context with the issuance activities the supranational sector is doing in the area of social and sustainability bonds, where the sector is developing with a focus on alignment to the broader sustainable development agenda and the UN SDG's.

Finally, we should add some reflections on the ABS and MBS markets where we have not seen the same rate of issuance in 2019 when compared to 2018. Year-to-date we see that a total issuance volume of USD 4.9 billion is 69% lower compared with the same period in 2018. While there is inevitably a lag in terms of reporting of ABS and MBS transactions and their discovery and integration into Bloomberg data, we believe that the focus from Fannie Mae on raising its eligibility criteria for green loans may have had some impact in terms of the MBS issuance levels in the US, but that once lenders readjust to the new terms, demand will return post summer to reach levels on par with 2018. We also note the forthcoming entrance of Freddie Mac to the green bond market, having introduced a green CMBS product, the KG series that will come to market on 17 June.

The same data discoverability challenge is also true of green project bonds, with Bloomberg not having reported any significant transactions so far in 2019, but last year a large number were retrospectively included from throughout the year with up to 10 months lag.

Publicly Announced Green, Social & Sustainability Bond Pipeline[3]

- Akademiska Hus Green (SEK)
- Alliander Green (EUR)
- BayWa Green (EUR)
- Boston Properties Green (USD)
- China Jinnah Green (USD)
- EDP Finance Green
- European Energy Green (EUR)
- Findeter COP
- Freddie Mac Green CMBS (USD)
- GLP J-REIT
- Korea Electric Power Green (USD)
- Landsea Green (USD)
- Republic of Chile Sovereign Green (USD)
- Talibia Green (EUR)

[3] As of 14th June 2019

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Measuring sustainability across sectors and regions

Carbon, waste and water intensity

A crucial first step towards understanding a company's current sustainability risks and potentials is measuring the actual exposure. Using SEB's quantitative model for measuring these exposures, any listed company can be measured on six sustainable operations factors and five impact factors.

- **Sustainable operations factors** measure how a firm conducts business,
- **Impact factors** measure the impact of the firm's product and services i.e. alignment with the UN Sustainable Development Goals.

This article focuses on three environmental factors that we refer to as "carbon intensity", "water stress intensity" and "waste intensity". Using the above-mentioned model, we can show that there are clear differences between sectors and regions in terms of sustainability. We also see large variations within the sectors. Starting off with the regional differences;

- Asia and Emerging Markets score relatively high, and thereby worse, on all three. This is not surprising considering the Asia and EM overweight to some of the "brown" industrials, utilities and materials companies.
- World ESG Leaders and the Nordics exhibit more favourable results on a general level in comparison to others, while Developed Markets as a whole and the US and Europe, end up somewhere in between.

Portfolio results: Regional

ESG Factor	Unit	World Dev	USA	Europe	Asia	Nordics	Emerging Markets	World ESG
Carbon Intensity	*(Tons CO2 equivalents / mUSD rev.)*	194 [77% reported]	188 [71% reported]	147 [93% reported]	300 [76% reported]	114 [87% reported]	316 [64% reported]	172 [83% reported]
Water Stress Intensity	*(m^3 water withdrawal in countries with water stress / mUSD rev.)*	193 [67% reported]	79 [60% reported]	487 [86% reported]	976 [71% reported]	102 [75% reported]	1479 [61% reported]	209 [71% reported]
Waste Intensity	*(Tons waste produced / mUSD rev.)*	230 [58% reported]	81 [48% reported]	312 [84% reported]	185 [63% reported]	168 [76% reported]	566 [52% reported]	204 [65% reported]

Source: SEB Solutions

Hence, one can draw the conclusion that the greatest utility of sustainability improvements is located in Asia and Emerging Markets. In other words, here impact investments have the largest effect from a global perspective. Impact investing is a tangible way to make a difference for the planet in the long term whilst achieving excess returns, another option is to finance green projects in developing parts of the world through e.g. green bonds.

From a sector perspective the utilities sector and the materials sector, as well as brown parts of the energy and industrials sector, stand out as the biggest contributors to more alarming scores in terms of factors connected to the environment.

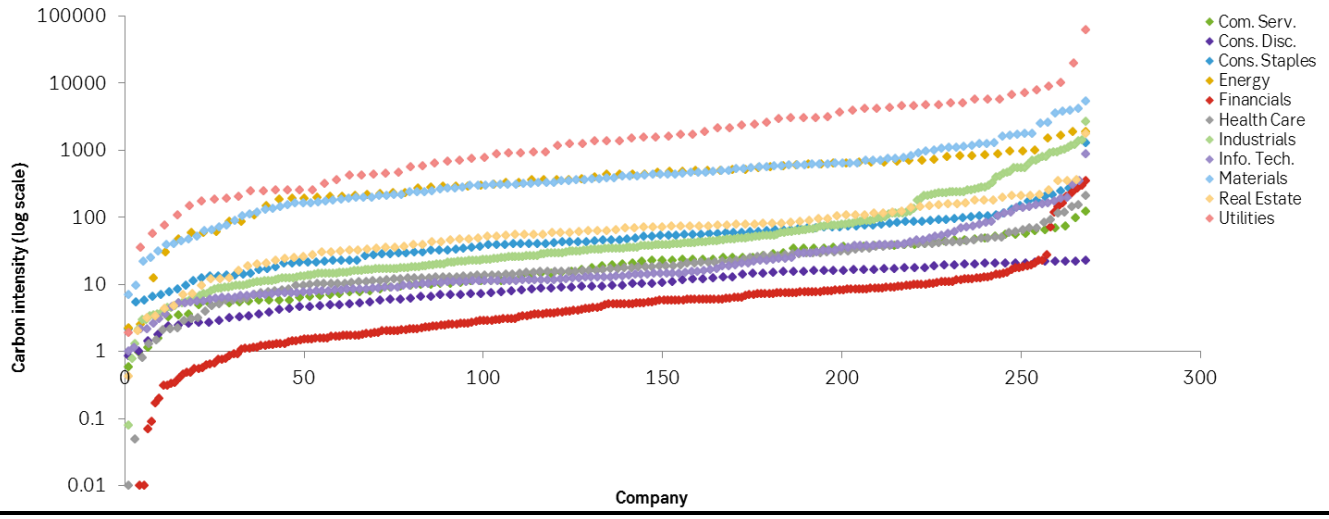
Portfolio results: Sector

ESG Factor	Unit	Com. Serv.	Cons. Disc.	Cons. Staples	Energy	Financials	Health Care	Industrials	Info. Tech.	Materials	Real Estate	Utilities
Carbon Intensity	*(Tons CO2 equivalents / mUSD rev.)*	26	54	60	514	15	24	120	25	693	99	2645
Water Stress Intensity	*(m³ water withdrawal in countries with water stress / mUSD rev.)*	3	15	109	399	2	26	101	42	1319	40	3322
Waste Intensity	*(Tons waste produced / mUSD rev.)*	4	7	17	107	4	7	12	2	5626	78	97

Source: SEB Solutions

Additionally, if we deep-dive into the carbon intensity factor on a sector level, it is clear how companies within each sector group together in similar patterns. On a general level, financials have the lowest carbon intensity while utilities have the highest, followed by materials and the energy sector. This is logical since e.g. a bank in scope 1 and 2 emits less carbon dioxide than e.g. an energy generation and distribution company. Since each dot represents a company within the sector, there are some outliers that affect the total score of the sector to a larger extent.

Portfolio factor distributions: Carbon intensity



Source: SEB Solutions

Distributions vary substantially between sectors such that e.g. the financial sector has outliers on both the upside and downside, while the consumer staples industry has a more linear distribution. In other words, the consumer staples companies are similar in respect to the relation between carbon emissions and revenue. Hence, distributions with many outliers can easily be adjusted within sectors by excluding extreme outliers. This lowers the portfolio's total carbon intensity without sacrificing sector exposures and inherent diversification benefits.

In conclusion, the risks as well as potential of sustainable investing can be understood through regional and sector attributes, but one must look inside of the markets to achieve more favourable sustainability characteristics. Removing outliers within sectors is a first step in terms of gaining control of your sustainability effect in green versus brown operations. This may then be combined with the more traditional factors to construct robust portfolios are achieved in preparation for an energy transition as well as unexpected policy shifts, thereby hedging both policy and transition risk. In the very long run, the effect of capital on the planet is of course what matters most.

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Update from AGM of Green and Social Bond Principles

On the occasion of the 5th Annual General Meeting and Conference of the Green & Social Bond Principles held in Frankfurt on the 13th of June, the Executive Committee (of which SEB is a member) announced publications providing key guidance to complement the Principles (the Green Bond Principles, the Social Bond Principles and the Sustainability Bond Guidelines) as well as a new Advisory Council.

While the Principles remain unchanged (2018 versions remain applicable), the GBP SBP Executive Committee and Working Groups have issued publications offering key complementary guidance, consolidating certain existing material and adding new insights:

- Handbook – Harmonized Framework for Impact Reporting: This brings together in one publication a series of impact reporting frameworks for eligible green categories covering several sectors, released since 2017: Sustainable Water and Wastewater Management Projects, Sustainable Waste Management and Resource-Efficiency Projects, Clean Transportation Projects and Green Building Projects. This has been prepared by the Impact Reporting Working Group of the GBP SBP that benefits especially from the support and contributions from leading International Financial Institutions (IFIs) including Multilateral Development Banks and National Promotional Banks and Agencies.
- Green Project Mapping: This new material responds to market appetite for greater clarity on Green Project eligibility, regarding the contribution to the GBP's environmental objectives, as well as mapping to other green taxonomies & classifications and related environmental standards.
- Guidance Handbook: Market participants have regularly sought additional information on how to interpret the Principles. The responses provided by the GBP SBP Executive Committee have grown into an important body of knowledge and best practices. This has been assembled in an updated compendium of Q&As organised thematically. It covers: Fundamentals, Governance & Membership, Core Components of the GBP/SBP, Market and Technical Issues and Other Market and Official Sector Initiatives.

Updated 2019 editions of Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals and Working Towards a Harmonized Framework for Impact Reporting Social Bonds have also been published.

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Note that this text is provided by the contributing party and constitutes the opinion of the party and not necessarily that of SEB. SEB plays a role in enabling its stakeholders to benefit from a broad overview of initiatives by allowing key market participants to contribute through The Green Bond.

TEG brings more clarity to sustainability

The EU Technical Expert Group (TEG) on Sustainable Finance was established in July 2018 to assist the European Commission in different areas of the *EU Action Plan on financing sustainable growth*. The EIB is a Member of the TEG and specifically contributed to the working groups on EU Sustainability Taxonomy (EUT) and EU Green Bond Standard (GBS).

The TEG has published today:

- the Taxonomy Technical Report (the focus at this stage is on climate change mitigation and adaptation)
- the Report on EU Green Bond Standard.

Green bonds are bonds whose proceeds are allocated exclusively to investments that provide environmental benefits in the broader context of environmentally sustainable development, based on precise eligibility criteria whose application can be monitored transparently by investors.

Typically, the issuer's project specialists decide the eligibility criteria; the funding officers then put in place a Green Bond Framework (GBF) to implement, verify and validate the application of these criteria for reliable internal record and external information. Integrity thus builds from within the organisation, with the constructive support of external interlocutors. These are co-opted into a realistic and strategic dialogue with the issuer thanks to a well-structured market narrative coordinated and articulated by the funding officers.

The link between green bonds and environmentally beneficial investments is established via, on the one hand, ***ad-hoc* administration**, which enables trustworthy record and matching of the funds raised and invested; and, on the other hand, ***ad-hoc* reporting**, which enables public accountability of allocations as well as of the impact of allocated investments.

Experience shows that larger green bond issuance generates higher environmental accountability in the use of proceeds and engages market forces in a virtuous circle. Issuers' competition for investor recognition drives due diligence and development of best practices via a pragmatic dialogue of market and project specialists. Over time, this dialogue extends to policy-makers and civil society, who share the objective of extending reliable and comparable measurement of environmental impact.

In a nutshell, green bonds promote **visible and reliable reporting on investments <u>by environmental objective rather than by mere economic sector</u>**, the prevailing practice to date. This has lived up to impact investors` requests as well as growing regulatory requirements with regard to transparency, accountability and compliance of investment reports in the context of the Paris Agreement, and other environmental protection commitments. Recently, the same approach has started to be applied to broader areas of sustainable development.

It makes sense for public authorities supporting aforementioned commitments, to also support green bond issuance and investment as an intermediate policy

objective with the goal of improving and extending the measurement of how economic activities impact the environment. This is essential for the identification of projects that contribute to environmental policy objectives and the orientation of green capital towards them, which can then happen via green bonds, as well as any other financial instrument.

Growing awareness of such public support can by itself trigger favourable market expectations, reinforcing the already visible outperformance of green versus conventional bonds and leading to a market-driven improvement of funding conditions for green bond issuers.

Lower cost vis-à-vis conventional funding can help green bonds surge to relevant instruments of corporate strategy, enlarging the issuer spectrum and providing investors with the opportunity – so far limited by contained green bond supply - to establish dedicated investment policies. This can in turn enhance issuers' incentive to issue green bonds and therefore to extend the spectrum of their recipient green projects, with a loop of positive feedbacks favouring both the sustainable growth of the green bond market and the progressive greening of the economy.

These considerations are fostering the discussion on how to structure effective frameworks and incentives for green bonds in the context of the EU Action Plan on Financing Sustainable Growth. A first step forward consists of exploring ways to reduce uncertainty associated with the core features of green bonds, since ambiguity undermines credibility in the market, entails reputational risks and increases advisory costs. Credibility is also a *conditio sine qua non* for the concession of public incentives.

This is the *raison d'être* of an EU Green Bond Standard. Its impact can be described as follows.

A) Impact of the GBS on core green bond features

The GBS seeks to provide green bond market stakeholders (issuers, investors, external reviewers, public authorities and civil society) with more clarity in four fields:

1. Inclusive definition of "Green Projects" and proceeds tracking

The GBS explicitly includes physical and financial as well as tangible and intangible assets, the working capital necessary for their operation, *plus* capital- as well as selected operating expenditures. The GBS admits the practice of "equivalent amounts" for the tracking of proceeds.

2. Inclusive link to the EU Taxonomy ("EUT")

The GBS highlights the difference between:

a. a limited number of EU environmental objectives, already established by the EU, to one or more of which Green Projects have to contribute substantially, without significant harm to any of the other objectives, and subject to minimum social safeguards; and

b. project-specific technical screening criteria still to be established as reference by the EU (i.e. core impact indicators and significance thresholds to measure the relevance of Green Projects' contributions to EU environmental objectives).

The GBS requires all issuers to clarify their preferences uniformly with regard to a., but, in the absence of b., issuers are left free to define technical screening criteria of their own. A grandfathering provision for already issued bonds excludes negative implications from these choices once b. become available, whatever the features of b.

3. Mandatory disclosure (in standard format)

   The GBS requires completion by the issuer – in a standard format reflecting the fundamental principles of the EU taxonomy – of

   a. a Green Bond Framework (GBF) prior to bond launch; as well as
   b. regular reports on actual allocations and impact from the allocated projects after issuance.

   The GBS requires at least annual allocation reports until full allocation of proceeds, and only in case of substantial changes of circumstances thereafter.

4. Mandatory external verification by an accredited (and supervised) verifier

   The GBS requires that GBS-alignment of GBF and allocation reporting is verified externally. In special cases (e.g. EU Taxonomy not yet in force, unavailability of 2 b.) alignment is only requested with regard to 2 a). The GBS proposes that uniform practice in this field should be assured via centralized accreditation and later on, by official supervision of the verifiers.

   Ergo, the GBS

   i) removes elements of uncertainty in the design of green bonds, reducing issuers' reputational risk and maximizing the potential size of new issuance;
   ii) creates the conditions for comparable data on core aspects of Green Projects sustainability and stimulates market debate on technical screening criteria pending an official EU-stance;
   iii) enhances the accountability of the issuer, since it becomes easier to compare issuer engagement with issuer action over time. At the same time, the GBS takes a pragmatic stance on the length of the reporting requirements under unchanged impact assumptions;
   iv) lays the foundations for a more coherent system of external verification with regard to the substantial contributions of activities to objectives and the related do-no-significant-harm aspects.

B) Impact of the GBS on the green bond market

The GBS aligns with the EUT but is not constrained by the timeline of the EUT's technical development and legislative implementation. Thanks to its pragmatic approach, material innovations, and voluntary nature, the GBS already provides a clear direction to practitioners and a best practice tool that incentivizes **issuers** to take initiative and move forward, e.g.:

1. by clarifying the environmental objective(s) of their green project in reference to EUT;
2. by deciding autonomously what "substantial contribution" and "no significant harm" mean in areas yet to be tackled by the EUT;
3. by establishing the administration required;

4. by adopting new documentation language for the use of proceeds in line with the EUT-architecture[4].

Improved clarity and more informed investment decisions are likely to increase competition for investors' attention, with encouraging by-products: a strive for excellence by best-in-class borrowers, pressure on peers and a likely extension of the green bond issuer community. In each organisation, the finance department can act as motor and coordinator of change. The GBF-preparation permits to plan and communicate, both internally and externally, on sustainable development strategies.

External reviewers will have the incentive to develop the technical capabilities required to measure environmental impact, also beyond climate change, and to contribute to the definitions for regulatory purposes, especially if such capabilities are assessed on the basis of objective criteria for official accreditation.

The uniform identification and monitoring of core environmental contributions establishes a more solid basis for dedicated investment policies, which are enticed by the strong issuer commitment to clarity via the GBF and the explicit statement of GBS-alignment in allocation reports. This solid ground also nourishes the consideration of additional aspects (e.g. further ESG-criteria) that are of interest to **investors**. Here, external reviewers and other standard setters remain free to enrich and differentiate their own standards from the ones of their competitors, extending the investment options while keeping them anchored in the EUT.

These developments are bound to accelerate now that the EC has published the first taxonomy on climate change mitigation and adaptation, putting the whole approach on a practical, tangible footing. The credibility gains associated with more clarity establish a more solid framework for **official authorities** to address the opportunity of incentives, which can and have to be fine-tuned compatibly with other public objectives (e.g. market neutrality, financial and price stability).

Geographically, the application of the GBS is of direct relevance for EU-market participants. Still, it offers a touchstone against which other standards can be proofed for the development of a shared approach to fundamentals across jurisdictions and stronger cross-border issuance and investment flows. This does not imply a one-size-fits all approach but rather the establishment of internationally comparable indicators that permit the clarification of the preferences prevailing in different jurisdictions and their objective comparison for mutual understanding and cooperation among official authorities (the G20-approach).

In a world of free-market decisions, the GBS may well emerge eventually as the global standard of choice in light of its intrinsic merits in the eyes of both international issuers and investors.

In summary, the GBS is bound to establish a dynamic framework of synergistic interactions that is likely to spur the growth of the green bond market worldwide. Most importantly, market development will be increasingly driven

[4] EIB, for example, has done so on 4/4 with its first CAB of 2019 (https://www.eib.org/en/investor_relations/press/2019/fi-2019-06-eib-cab-2042.htm)after anticipating this step at COP 24 in December last year

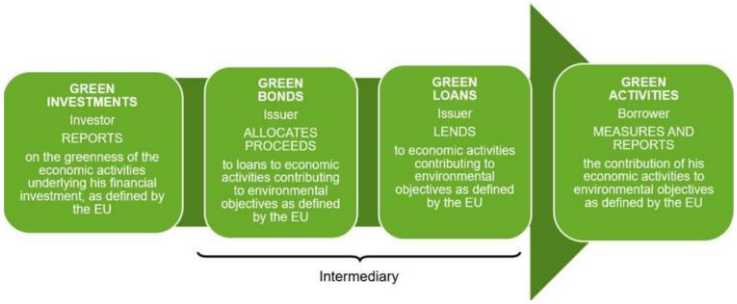
(https://www.eib.org/attachments/fi/white-paper-green-finance-common-language-phase-2.pdf).

by a healthy strive for transparency and quality helped by clear public guidance and ongoing cooperation of all relevant constituencies. Increasingly, this market will be perceived as serving the common good, helping the reconciliation of finance and society.

C) Impact of the GBS on EU environmental policy

The GBS is part of the EU *Action Plan on Financing Sustainable Growth*, which aims to increase the volume of sustainable investment with the help of the EUT. The EUT's approach is rooted in Article 1 of the *Regulation proposal on the establishment of a framework to facilitate sustainable investment* - which states that the "Regulation *establishes the criteria for determining whether an economic activity is environmentally sustainable for the purposes of establishing the degree of environmental sustainability of an investment*."

Thanks to the EUT-link established by the GBS, the aforementioned approach to classification implies consistent use of the EUT along the entire green bond investment chain (see graph).



In other words, green bond funding is conditional upon EUT-compliant classification and impact measurement of issuers' Green Projects. The volume of green bond funding over the total of the issuer's activities comes to measure the portion of the issuer's projects that the market can assess according to the EUT-criteria, providing an indicator of how such portion evolves over time (a proxy for additionality).

More specifically: for an intermediary the EUT applies *in primis* to its lending activities to Green Projects eligible for allocation from its green bonds[5]. Larger green bond issuance by banks promotes EUT-based classification and impact-measurement of their loan portfolios. This tagging, in turn, can establish a basis for the systematic collection and provision by banks of:

i) reliable and comparable environment-related impact data;
ii) reliable and comparable environment-related risk data.

This may offer an additional rationale for consideration of a preferential regulatory treatment for green bonds.

In this perspective, plain vanilla use-of-proceeds green bonds are the financial instrument with potentially the strongest impact for the EU action on sustainable finance, on two major accounts:

[5] EIB, for example, has inaugurated this approach in December 2018 (https://www.eib.org/en/press/all/2018-362-first-eib-green-loan-endesa-receives-eur-335m-to-build-15-wind-farms-and-three-photovoltaic-plants-in-spain.htm)

1. they address the largest spectrum of potential investors and could mobilize the largest amounts of financial resources;
2. provide the quickest and most visible price signals, i.e. could create the highest degree of accountability and the most effective impulse for the ongoing improvement of such projects within the framework that the EC is putting in place.

For the record: EIB has published since 2016 a CAB Statement describing its green bond practice, including allocation and impact reports. The document is assured with reasonable assurance by KPMG. The 2018 edition has just been published under the name of CAB Framework in alignment with the EU GBS terminology[6].

[6] https://www.eib.org/attachments/fi/eib-cab-framework-31-12-2018-signed_secured.pdf

Climate & Sustainable Finance

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Sustainable finance

Commission publishes guidelines to improve how firms report climate-related information and welcomes three new important reports on climate finance by leading experts

Press Release, Brussels, 18 June 2019
The European Commission has today published new guidelines on corporate climate-related information reporting, as part of its Sustainable Finance Action Plan. These guidelines will provide companies with practical recommendations on how to better report the impact that their activities are having on the climate as well as the impact of climate change on their business.

The Commission has also today welcomed the publication of three new important reports by the Technical Expert Group on sustainable finance, including key recommendations on the types of economic activities that can make a real contribution to climate change mitigation or adaptation (taxonomy).

Valdis **Dombrovskis**, Vice-President responsible for Financial Stability, Financial Services and Capital Markets Union, said: *"The climate emergency leaves us with no choice but transit to a climate-neutral economy model. Today's new guidelines will help companies to disclose the impact of the climate change on their business as well as the impact of their activities on climate and therefore enable investors make more informed investment decisions. I also welcome the three reports by the Technical Expert Group, which are an important contribution to European policy-making and global debate on green finance."*

Today's guidelines are part of the Commission's ongoing efforts to ensure that the financial sector – private capital – can play a critical role in transitioning to a climate-neutral economy and in funding investments at the scale required. They will provide guidance to around 6,000 EU-listed companies, banks and insurance companies that have to disclose non-financial information under the Non-Financial Reporting Directive. They are inspired by recent proposals by the Technical Expert Group on sustainable finance (TEG), and integrate the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) established by the G20's Financial Stability Board.

Also today, the Commission welcomes three important expert reports published by the TEG on sustainable finance:

- The first is a classification system – or taxonomy – for environmentally-sustainable economic activities. This aims to provide practical guidance for policy makers, industry and investors on how best to support and invest in economic activities that contribute to achieving a climate neutral economy. The group has extensively screened activities across a wide range of sectors, including energy, transport, agriculture, manufacturing, ICT and real-estate. It has identified low-carbon activities like zero-

emissions transport but also transition activities like manufacturing of iron and steel in order to compile the most comprehensive classification system for sustainable activities to date. This expert report is published as the Commission's proposal on taxonomy awaits agreement by the co-legislators.

- The second expert report on an EU Green Bond Standard recommends clear and comparable criteria for issuing green bonds. In particular, by linking it to taxonomy, it will determine which climate and environmentally-friendly activities should be eligible for funding via an EU green bond. The Commission expects this to boost the green bond market allowing investors to scale up sustainable and green investment.
- Finally, a third expert report on EU climate benchmarks and benchmarks' ESG disclosures sets out the methodology and minimum technical requirements for indices that will enable investors toorient the choice of investors who wish to adopt a climate-conscious investment strategy, and address the risk of greenwashing. The report also sets out disclosure requirements by benchmark providers in relation to environmental, social and governance (ESG) factors and their alignment with the Paris agreement. This expert report relates to the Commission's proposal on low-carbon benchmarks, which has recently been agreed by the co-legislators.

Background

The TEG commenced its work in July 2018 and was composed of 35 members from civil society, academia, business and the finance sector. These reports are the outcomes of one year of extensive work on key aspects of the Commission's Action Plan. These reports therefore supplement the legislative proposals on taxonomy and benchmarks presented by the Commission in May 2018. They aim to further incentivise and channel private sector investment into sustainable development, by making investors more aware of what they invest in and by giving investors important tools to invest sustainably.

On June 24, the Commission will host a stakeholder dialogue on climate-related reporting and the TEG reports. The event will be livestreamed on a dedicated event page. The TEG will conduct a call for feedback on the EU Taxonomy report and on the interim Climate benchmarks report. The EU budget is also a driver of climate mainstreaming. To implement the Paris Agreement and the commitment to the United Nations Sustainable Development Goals, the Commission proposes to raise the level of ambition for climate mainstreaming across all EU programmes, with a target of at least 25% of EU expenditure contributing to climate objectives between 2021-2017.

More information

DG FISMA: sustainable finance - landing page
Factsheet on Sustainable Finance
Commission Guidelines on reporting climate-related information
Summary of the EC guidelines on reporting climate-related information
Technical Expert Group (TEG) – landing page
TEG report on EU taxonomy
Summary of the TEG report on EU taxonomy
TEG report on EU Green Bond Standard
Summary of the TEG report on EU Green Bond Standard
TEG interim report on Climate benchmarks
Summary of the TEG interim report on Climate benchmarks

Dr Sabine Mauderer
Member of the Executive Board of the Deutsche Bundesbank

Link to speech

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Scaling up green finance: the role of central banks

Speech at the 2019 Green Bond Principles and Social Bond Principles Annual General Meeting and Conference

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Ladies and gentlemen,

I am delighted to speak to you right here in the middle of Frankfurt's famous Palmengarten. The Palmengarten was opened in 1871, and, like many sights in Frankfurt at that time, was financed by a private civic initiative. To raise the necessary funds, several citizens founded the Palmengarten stock company. The Palmengarten is an early example of a fruitful combination: of green and finance. Even now, the Palmengarten is close to green finance: KfW, the biggest German Green Bond issuer is located close to the Palmengarten. And the Bundesbank, which is also closely involved in Green Finance, is located just north of the Palmengarten.

A "Green Week" is currently taking place in Frankfurt, with all ICMA and sideline meetings. The "Green Week" originally was, and still is, a large and famous agricultural fair in Berlin. As Frankfurt is the financial centre of Germany, it is the perfect place for the "Green Finance Week".

In my speech, I wish to focus on three topics:

First, the Green Finance activities of the international Central Banks and Supervisors Network on Greening the Financial System, or NGFS, of which the Bundesbank is a founding member. Second, let me provide some insights into the Bundesbank's activities on Green Finance in our different business areas. Third, I will briefly take stock of current German political initiatives on Green Finance.

1 NGFS Activities

Beginning with the NGFS, let me first point out the key message of our network: Central banks all over the world acknowledge that climate change is a source of financial risks. Therefore, green finance is a field of work for central banks and the whole financial sector. Combating climate change and preserving the environment: this is no longer a hobby-horse of eco-activists, but a key factor for economic and financial systems. This awareness can be seen in the growing support for NGFS: We started with central banks and supervisors from eight jurisdictions and have grown to 40 members and six observers, representing all five continents and overseeing two-thirds of the globally systemically important financial sector. We are, so-to-say, a "coalition of the willing".

Central banks always play a key role in the financial system, and this is also the case for green finance. In many ways, the market for green assets can be compared to the early stages of other relatively new market segments. For market dynamics to fully unfold, investors need a stable investment

framework, including reliable market standards, market indices and transparency. And central banks are trusted parties. Given our advisory role in politics and our perceived role as anchor investors, we can serve as catalysts for further market growth. But given our enormous market power and our independence, we have to act responsibly and be accountable. To address central banks' crucial role, the NGFS sees itself as a platform for best practices and for the exchange of views and experience between central bankers and supervisors.

In our first comprehensive report, published in mid-April, we put forward six practical recommendations.

The four recommendations addressed to central banks and supervisors are:

1. Integrating climate-related risks into financial stability monitoring and micro-supervision. This includes assessing climate-related risks in the financial system and integrating them into prudential supervision.
2. Integrating sustainability factors into own portfolio management. The NGFS encourages central banks to lead by example in their own operations.
3. Bridging data gaps. Public authorities are asked to share data relevant to Climate Risk Assessment and make these data publicly available.
4. Building awareness and intellectual capacity and encouraging technical assistance and knowledge-sharing. The NGFS encourages all financial institutions to build in-house capacity and to collaborate to improve their understanding of how climate-related factors translate into financial risks and opportunities.

Two NGFS recommendations are addressed to policymakers:

Achieving robust and internationally consistent climate and environment-related disclosure. Investors need to know about the climate risks in their investments.

And supporting the development of a taxonomy of economic activities. A taxonomy makes investing green easier and prevents "green washing". It creates more market transparency on which activities are really green and which are not.

The NGFS is tackling these challenges in three workstreams: on banking supervision, on macrofinancial supervision and on scaling up green finance. I am a member of the NGFS steering committee and, as of April, I have also taken over the chair of workstream 3. Tomorrow, workstream 3, hosted by the Bundesbank, will convene here in Frankfurt. As a deliverable for this year, we are working on a handbook of best practices for incorporating sustainability criteria into central banks' portfolio management, with a particular focus on climate-friendly investments. We plan to publish the handbook by October this year.

2 Bundesbank Activities

As you can see: the Bundesbank is an active member of the NGFS. And to confirm our strong commitment to the issue, we have also integrated green finance into our own business areas.

Under my leadership as the responsible board member for the Bundesbank's market-related operations, we manage public sector funds as well as our own

funds. Looking at the public sector funds, we have a long track record in sustainable investments. As a fiscal agent, Bundesbank has been managing several large-scale public pension fund portfolios for Federal states as well as the central government for more than ten years. 4 out of 16 portfolios are already invested according to an ESG approach or invest in Green Bonds. In total, these portfolios have a volume in the range of substantial single-digit billions of euros. And we expect this number to grow in the near future. Four more fiscal clients are currently discussing introducing ESG considerations in their investment strategy, while additional two are already planning to do so. So 10 out of 16 of our fiscal clients are investing sustainable or are on their way to do so.

Our public sector clients mainly focus on the inclusion of ESG criteria in equity investments, followed by initial approaches in fixed-income portfolios. Based on a passive investment strategy, we combine various best-in-class approaches with exclusionary screening. Our experience over the past few years has shown that developing a sustainable investment strategy requires thorough preparation. There is no "one-size-fits-all" approach to ESG criteria. Moreover, when talking about sustainable investing, each investor tends to define a set of ESG criteria consistent with its individual values. Furthermore, we advise our fiscal clients, namely the states of Hesse, Baden-Wuerttemberg and North Rhine-Westphalia, to design and create tailor-made sustainability and ESG indices that we use for our benchmarking.

Moreover, the Bundesbank is also considering investments in sustainable assets in its own funds. We enjoy more freedom of choice with regard to the selection of investments in our own funds, unlike – for instance – in the FX reserve management portfolios or even with monetary policy operations. We are currently in the process of assessing ways we can enlarge the scope of assets and take sustainable investment criteria into account in our own funds. We also contribute to a Eurosystem working group on sustainability in the management of non-monetary portfolios.

As regards monetary policy, we have to be careful not to jeopardize our primary mandate of price stability by pursuing other policy objectives. However, since market neutrality is an integral principle of our monetary policy operations, sustainable assets are alongside the market within the scope of the Eurosystem's asset purchase programme. So the more the market is invested in green finance, the more the ECB and the national central banks can reflect this development in the asset purchase programme.

Besides the investments, the Bundesbank is closely looking at the risks resulting from climate change. We look at individual risks in our banking supervision and at systemic risks in our supervision of financial stability. We are making the case for individual financial institutions to disclose their climate-related financial risks and look at these risks in banking regulation and supervision. Regarding financial stability, we evaluate whether the financial system as a whole is able to deal with asset devaluations resulting from physical climate risks or from transformation risks following political decisions to address climate change, for example on energy policies.

Furthermore, the Bundesbank is intensifying the public dialogue to raise even more awareness among market participants and the general public. In the fourth quarter of 2019, we will publish a report which analyses major market trends in ESG and green finance including an outlook on the way forward. And we are organising a financial markets conference on sustainability in October.

3 Government Activities

All this comes at a time when German politics has been paying ever-closer attention to Green Finance, as climate protection commands broad support across virtually the entire political spectrum. In February, the State Secretaries' Committee for Sustainable Development declared that Germany should become a leading hub for sustainable finance. Chancellor Merkel reaffirmed this aspiration just a few weeks ago.

And just last week, the Federal Government's new Sustainable Finance Advisory Committee met for the first time. The Bundesbank is an advisory member of this committee. The committee is tasked with monitoring the European discussion on sustainable finance, improving knowledge, strengthening sustainable finance and, of course, advising the government. The government is also planning a strategy for communicating to consumers and the financial industry to promote green finance. And the government plans to further discuss greening their own pension fund portfolios.

Most important for market participants: the idea of issuing a Green Bund is gaining traction. There are different models and ideas of how to design such a Green Bund. The challenge is to establish this Green Bund on the market while neither affecting the high secondary market liquidity of conventional Bunds nor fragmenting the existing financing instruments. Gathering from recent experience of other AAA issuers, we can expect a high demand for a Green Bund.

4 Conclusion

Ladies and gentlemen, the current Frankfurt Green Finance Week is not a one-hit wonder, but an evergreen: Our work for scaling up green finance will continue – as a central bank, but also in the political arena.

Green Finance will also be an important task for the new European Parliament and European Commission. The EU action plan on sustainable finance will definitely shape our work going forward. So we will not only have "Green Weeks" in Berlin and Frankfurt, but also green months and years in Brussels.

Let us all keep the spirit up and work together to scale up green finance. Thank you for your attention.

Morgan Després
Banque de France

Irene Heemskerk
De Nederlandsche Bank

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NGFS: A call for action – Climate change as a source of financial risk

Executive Summary

Reproduced with permission from the Executive Summary of the Network for Greening the Financial System: First Comprehensive Report

In the October 2018 progress report, NGFS members acknowledged that ***"climate-related risks are a source of financial risk. It is therefore within the mandates of central banks and supervisors to ensure the financial system is resilient to these risks."*** The legal mandates of central banks and financial supervisors vary throughout the NGFS membership, but they typically include responsibility for price stability, financial stability and the safety and soundness of financial institutions. Even though the prime responsibility for ensuring the success of the Paris Agreement rests with governments, it is up to central banks and supervisors to shape and deliver on their substantial role in addressing climate-related risks within the remit of their mandates. Understanding how structural changes affect the financial system and the economy is core to fulfilling these responsibilities.

Climate change is one of many sources of structural change affecting the financial system[7]. However, it has distinctive characteristics that mean it needs to be considered and managed differently. These include:

1. **Far-reaching impact in breadth and magnitude:** climate change will affect all agents in the economy (households, businesses, governments), across all sectors and geographies. The risks will likely be correlated with and potentially aggravated by tipping points, in a non-linear fashion. This means the impacts could be much larger, and more widespread and diverse than those of other structural changes.
2. **Foreseeable nature:** while the exact outcomes, time horizon and future pathway are uncertain, there is a high degree of certainty that some combination of physical and transition risks will materialise in the future.
3. **Irreversibility:** the impact of climate change is determined by the concentration of greenhouse gas (GHG) emissions in the atmosphere and there is currently no mature technology to reverse the process. Above a certain threshold, scientists have shown with a high degree of confidence that climate change will have irreversible consequences on our planet, though uncertainty remains about the exact severity and time horizon.
4. **Dependency on short-term actions:** the magnitude and nature of the future impacts will be determined by actions taken today, which thus need to follow a credible and forward-looking policy path. This includes actions by governments, central banks and supervisors, financial market participants, firms and households.

[7] The report focusses on climate-related risks rather than environment-related risks

While today's macroeconomic models may not be able to accurately predict the economic and financial impact of climate change, climate science leaves little doubt: action to mitigate and adapt to climate change is needed now. The NGFS recognises that there **is a strong risk that climate related financial risks are not fully reflected in asset valuations.** There is **a need for collective leadership and globally coordinated action** and, therefore, the role of international organisations and platforms is critical.

The NGFS, as a coalition of the willing and a voluntary, consensus-based forum provides **six recommendations** for central banks, supervisors, policymakers and financial institutions to enhance their role in the greening of the financial system and the managing of environment and climate-related risks. The recommendations are not binding and reflect the best practices identified by NGFS members to facilitate the role of the financial sector in achieving the objectives of the Paris Agreement.

Recommendations n° 1 to 4 *are aimed at inspiring central banks and supervisors – NGFS members and non-members – to take these best practices on board when it fits within their mandate. Parts of these recommendations may also be applicable to financial institutions.*

Recommendation n°1: Integrating climate-related risks into financial stability monitoring and micro-supervision.
Important steps in this regard include:

a) Assessing climate-related financial risks in the financial system by:

1. mapping physical and transition risk transmission channels within the financial system and adopting key risk indicators to monitor these risks;
2. conducting quantitative climate-related risk analysis to size the risks across the financial system, using a consistent and comparable set of data-driven scenarios encompassing a range of different plausible future states of the world;
3. considering how the physical and transition impact of climate change can be included in macroeconomic forecasting and financial stability monitoring.

b) Integrating climate-related risks into prudential supervision, including:

1. Engaging with financial firms:

   – to ensure that climate-related risks are understood and discussed at board level, considered in risk management and investment decisions and embedded into firms' strategy;

   – to ensure the identification, analysis, and, as applicable, management and reporting of climate-related financial risks.
2. Setting supervisory expectations to provide guidance to financial firms as understanding evolves.

Recommendation n°2: Integrating sustainability factors into own-portfolio management.
Acknowledging the different institutional arrangements in each jurisdiction, the NGFS encourages central banks to lead by example in their own operations. Without prejudice to their mandates and status, this includes integrating sustainability factors into the management of some of the portfolios at hand (own funds, pension funds and reserves to the extent possible).

Notwithstanding that the focus of central banks incorporating environmental, social and governance (ESG) aspects into their portfolio management has been on own funds and pension portfolios, some voices have called for an extension of this approach to monetary policy. Going forward, the NGFS considers exploring the interaction between climate change and central banks' mandates (beyond financial stability) and the effects of climate-related risks on the monetary policy frameworks, paying due regard to their respective legal mandates.

Recommendation n°3: Bridging the data gaps
The NGFS recommends that the appropriate public authorities share data of relevance to Climate Risk Assessment (CRA) and, whenever possible, make them publicly available in a data repository. In that respect, the NGFS sees merit in setting up a joint working group with interested parties to bridge the existing data gaps.

Recommendation n°4: Building awareness and intellectual capacity and encouraging technical assistance and knowledge sharing.
The NGFS encourages central banks, supervisors and financial institutions to build in-house capacity and to collaborate within their institutions, with each other and with wider stakeholders to improve their understanding of how climate-related factors translate into financial risks and opportunities. The NGFS also encourages relevant parties to offer technical assistance to raise awareness and build capacity in emerging and developing economies

Recommendations n°5 and 6 *do not fall directly within the remit of central banks and supervisors but point to actions that can be taken by policymakers to facilitate the work of central banks and supervisors. Parts of these recommendations may also be applicable to the private sector.*

Recommendation n°5: Achieving robust and internationally consistent climate and environment-related disclosure
The NGFS emphasises the importance of a robust and internationally consistent climate and environmental disclosure framework. NGFS members collectively pledge their support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The NGFS encourages all companies issuing public debt or equity as well as financial sector institutions to disclose in line with the TCFD recommendations. The NGFS recommends that policymakers and supervisors consider further actions to foster a broader adoption of the TCFD recommendations and the development of an internationally consistent environmental disclosure framework.

Recommendation n°6: Supporting the development of a taxonomy of economic activities

The NGFS encourages policymakers to bring together the relevant stakeholders and experts to develop a taxonomy that enhances the transparency around which economic activities (i) contribute to the transition to a green and low-carbon economy and (ii) are more exposed to climate and environment-related risks (both physical and transition). Such a taxonomy would:

1. facilitate financial institutions' identification, assessment and management of climate and environment-related risks;
2. help gain a better understanding of potential risk differentials between different types of assets;
3. mobilise capital for green and low-carbon investments consistent with the Paris Agreement.

To some extent, recommendations n°1-4 require the implementation of recommendations n°5-6, but this does not preclude central banks and supervisors from acting now.

Going forward, the NGFS will continue its work as long as its members deem it necessary and useful. The lesson drawn from the first sixteen months of NGFS activity is that climate change presents significant financial risks that are best mitigated through an early and orderly transition.

To ensure such a smooth transition, there is still a significant amount of analytical work to be done in order to equip central banks and supervisors with appropriate tools and methodologies to identify, quantify and mitigate climate risks in the financial system. This calls for a close and specific dialogue with academia and for further technical work to translate the NGFS recommendations or observations into operational policies and processes.

More precisely, the NGFS is planning to develop:

(i) a handbook on climate and environment-related risk management for supervisory authorities and financial institutions;

(ii) voluntary guidelines on scenario-based risk analysis;

(iii) (iii) best practices for incorporating sustainability criteria into central banks' portfolio management (particularly with regard to climate-friendly investments).

Link to press release

Note that this text is provided by the contributing party and constitutes the opinion of the party and not necessarily that of SEB. SEB plays a role in enabling its stakeholders to benefit from a broad overview of initiatives by allowing key market participants to contribute through The Green Bond.

NYS Common Retirement Fund

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New York State Comptroller Thomas P. DiNapoli today released a Climate Action Plan to protect and invest the assets of the $210 billion New York State Common Retirement Fund (Fund). The plan lays out a path for the Fund to further address climate risk in its portfolio. Subject to fiduciary analysis, the Fund may divest from companies that fail to meet minimum standards. As a first step standards will be developed for thermal coal, followed by other major industries or sectors that present climate risk to the Fund.

DiNapoli's Climate Action Plan follows his April 16 release of a report from the Decarbonization Advisory Panel, which he created with Gov. Cuomo. The Plan incorporates many of the Panel's recommendations for managing the Fund's exposure to climate risks.

"Climate change is one of the most significant risks facing investors and the warnings are growing increasingly dire," DiNapoli said. "The Fund has taken many steps to assess and address climate risk already, but clearly more must be done and done quickly. This is a proactive plan to mitigate climate risk, capitalize on opportunities in the growing low carbon economy and protect the fund's long term value. The plan builds on the important work of the Decarbonization Advisory Panel."

DiNapoli will double, from $10 billion to $20 billion over the next decade, the Fund's commitment to its Sustainable Investment–Climate Solutions Program. The Fund will also hire dedicated staff to identify sustainable investment opportunities including climate solutions.

The climate action plan will also:

1. Continue engagement with portfolio companies to encourage and support climate risk management, strategic planning and reporting;
2. Refine external manager evaluation to better assess the climate-related strategies of the Fund's managers; and
3. Encourage index providers to integrate climate risks and opportunities into their index construction

"It will become self-evident in the coming years that the actions taken by the New York State Common Retirement Fund will show up in its leading investment performance," said **Joy-Thérese Williams, Chair of the Decarbonization Advisory Panel, and Senior Advisor at Mantle314**. "Other pension funds and investment managers would be well served to use the Fund's Climate Action Plan as a blueprint for their inevitable move to climate resiliency."

"We applaud New York State Common Retirement Fund's new climate action plan as it will be a leading initiative among the nation's largest public pension funds," said **Mindy Lubber, Ceres CEO and President.** "It reflects Comptroller DiNapoli's commitment to address the long term risks of climate change and focus on the investment opportunities of our carbon constrained future. We especially applaud the commitment to building staff and investment manager expertise to assess sectors that face high risks from climate change and to create minimum standards to evaluate investments in those sectors."

Since taking office in 2007, DiNapoli has been recognized as a global leader in addressing climate change-related investment risks and pursuing opportunities for the Fund's investments. For two consecutive years, the Asset Owners Disclosure Project ranked the Fund as the top U.S. pension fund, and third globally, for its efforts to assess and combat climate-related investment risk. DiNapoli's Climate Action Plan is key to the Fund's efforts to reduce its exposure to climate risk and to capitalize on opportunities.

The full plan can be found here: https://osc.state.ny.us/pension/climate-action-plan-2019.pdf.

About the NYS Common Retirement Fund

The New York State Common Retirement Fund is the third largest public pension fund in the United States with estimated assets of $210.2 billion as of the March 31, 2019 end of its most recent fiscal year. The Fund holds and invests the assets of the New York State and Local Retirement System on behalf of more than one million state and local government employees and retirees and their beneficiaries. It has consistently been ranked as one of the best managed and best funded plans in the nation.

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