The Green Bond

SEB

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SEB Green Bonds Website

Executive Summary

With supportive debt capital market conditions billowing the sails of the green bond market, we recorded another energetic performance in 1Q19; with **USD 45 bn** of issuance helping to set a further periodic record, up 8% YoY.

January and February both market records of their own with USD 18.9 bn and USD 16.8 bn up 29% and 5% YoY, respectively. While March started off on a solid footing, issuance receded somewhat towards the end of the month to reach USD 9.6 bn, down by 15% YoY (but figures are very likely to be revised upwards as the full volume is accounted for.

The focus of the market in 1Q19 was on **corporate non-financials** coming to market with **USD 28 bn**, the third highest amount from corporates during a quarter and accounting for 61% of green bond issuance YTD, up from 35% in 2018. Two new sectors of the economy joined the green bond market in 1Q: telecommunications (Verizon, Telefonica) and consumer home appliance (Electrolux). Companies from 15 different countries accessed the market in 7 currencies, but the market was dominated by American non-financial corporates with 6 issuers bringing benchmarks.

Financial corporates added **USD 12.6 bn** and were up 110% YoY; mostly banking and financial institutions but also a growing number of real estate companies; accounting for 20% of financial sector issuance YTD. Most of this real estate financing activity is in Sweden, but the U.S. and Japan have also featured issuers in 2019 so far.

In terms of country rank other than the U.S. once again sitting on top of the league tables, and China running somewhat below its potential, issuance in all other countries through the top 8 was up by double and triple digits. However, activity was underwhelming in a few key very large economies that many market participants hold great expectations for.

This edition also updates on some of the drivers of the market. New data shows that global sustainable investment assets under management have **increased by 34%** in the last two years to reach **USD 30.7 tn** with much of the growth in North America and APAC.

From the policy side, whilst central banks have been vocalising their concern for why climate change is relevant for financial stability and supervision since 2015, in recent months central bankers have begun to articulate their views on how **climate** can also have implications for **monetary policy**.

In other parts of the sustainable DCM, stealing the show once again is the sustainability-linked loan, with nearly **USD 17 bn** worth signed YTD, almost half way to the USD 35.5 bn such loans closed in all of 2018. Momentum was boosted in March through the launch of the Sustainability Linked Loan Principles (SLLP).

Letter to the Reader

"A TRANSITION - with the market at last beginning to feel some comfort with defining "Green", and politicians in Asia, Europe and selected parts of North America taking lead, as well as regulators and Central Banks creating white papers - the major question left is the scope and speed of implementation."

(Continues, pg. 2)

Christopher Flensborg
Head of Climate & Sustainable Finance, SEB

SEB Climate & Sustainable Finance Review

Guest contributors welcomed in this edition:

Fannie Mae: On their Multifamily Green Financing Business, its Mission & Impact;

Stora Enso: On the power of the trees: leading business and industry towards the bioeconomy;

Electrolux: On green finance and sustainability in the household appliances sector;

Asian Infrastructure Investment Bank: On the ESG challenge in Asia;

Letter to the Reader (full text):

A TRANSITION - with the market at last beginning to feel some comfort with defining "Green", and politicians in Asia, Europe and selected parts of North America taking the lead, as well as regulators and Central Banks delivering speeches and creating white papers - the major question left is the scope and speed of implementation.

As mentioned in our earlier research, SEB is a firm believer in an inclusive transition - where all parts of society, and an industry-wide engagement will be required for a "just transition".

A core element in such an inclusive transition needs to be an invitation to all those who fear the transition, on the back of their product and asset mix - and provide solutions for them to show how they are aligned with the Paris Agreement.

We are beginning to see more corporate activity, and we have the honour of having two prominent issuers, who provide an insight into their activities in the Green Bond space, in this edition. Additionally, AIIB are providing some insight, from an Asian investor perspective, and Fannie Mae provide some reflections on their state-of-the-art impact report, with a triple bottom line.

Enjoy your reading,

Christopher Flensborg

Head of Climate & Sustainable Finance, SEB

1. Green Bond Market Review and 2019 Outlook

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SEB

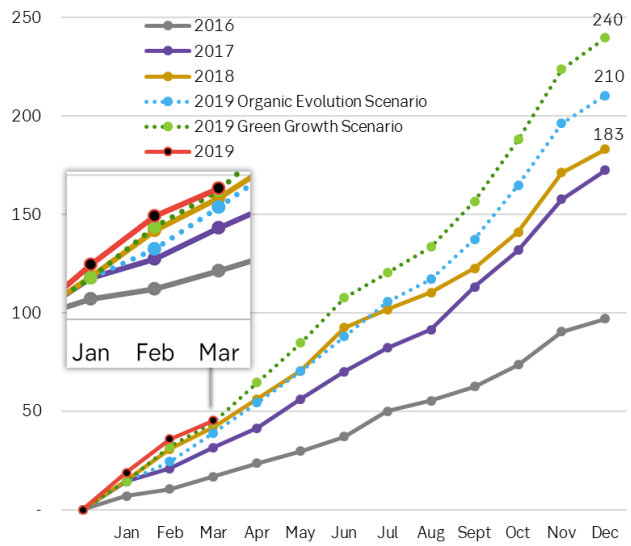
With supportive debt capital market conditions billowing the sails of the green bond market, we recorded another energetic performance in 1Q19; with USD 45 billion of issuance helping to set a further periodic record. Our preliminary 1Q19 figures show the green bond market up 8% Year-over-Year (YoY) and clocking in as the fourth most active quarter to date.

As the economic turbulence of 4Q18 seemed to recede quickly into the distance, the green bond market appeared to draw on a new type of momentum it became imbued with stemming from the now proven ability of this funding instrument to successfully raise capital during challenging capital market circumstances (see our last edition for a discussion).

January and February both set periodic market records of their own with USD 18.9 billion and USD 16.8 billion up 29% and 5% YoY, respectively. While March started off on a solid footing, issuance receded somewhat towards the end of the month to reach USD 9.6 billion, down by 15% YoY. However, as keen observers will be aware, numbers are very likely to be revised upwards as it takes time to account for the full volume of green bonds that have come to market.[1]

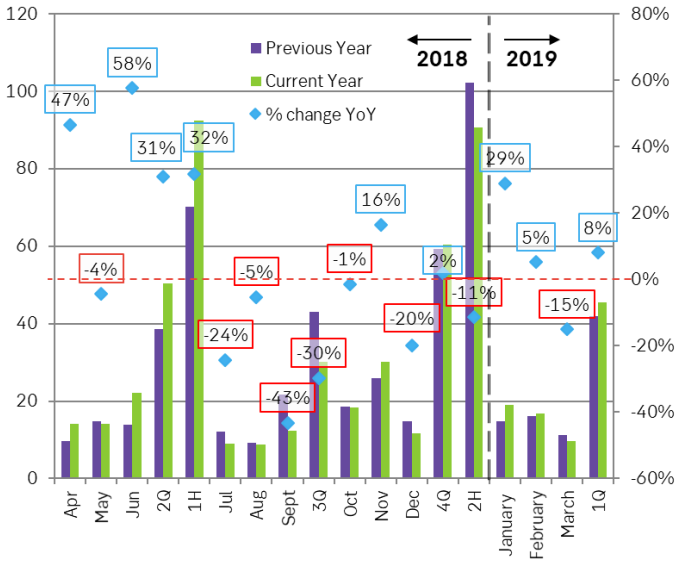
As seen in the detailing of Figure 1, cumulative issuance at the end of 1Q19 found its trajectory sitting even above the more bullish of our two scenarios for 2019 issuance. Our December Edition can be referred to for the particulars of these scenarios, but in brief, our reference-case **"Organic Evolution"** scenario sees the green bond market continuing this quest that we have become well acquainted with, of organically evolving in response to increasing investor demand across geographies and sectors to reach **USD 210 billion**. The **"Green Growth"** scenario uses similar assumptions but dials them up to reflect deeper project pipelines and broader spatial progress.

Figure 1. Cumulative annual green bond issuance & scenarios



Source: SEB analysis based on Bloomberg and SEB data

Figure 2. Green bond issuance (USD Bn) and % change YoY



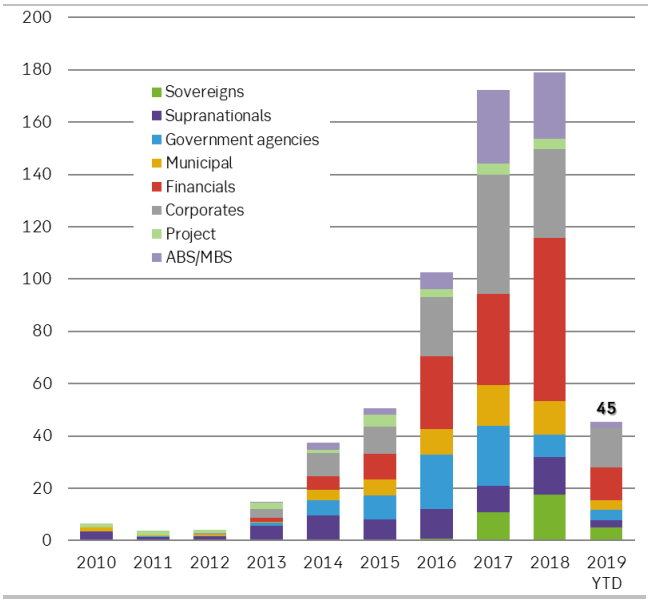
Source: SEB analysis based on Bloomberg and SEB data

Our Green Growth scenario's assumptions were repeatedly confirmed in 1Q19, with the entrance of the telecommunications sector (Telefónica and Verizon, as discussed in our February report) and in March another new sector joined the market as Electrolux successfully issued their inaugural green bond (with SEB acting as Sole Bookrunner and Sole Green Structuring Advisor on the SEK 1 billion trade). We believe this constitutes the first green bond to be issued from the home appliance sector (cooking, cleaning, etc.) and Electrolux shares their story of how this came to be in this edition.

In fact, a good deal of the dynamism so far this year is attributable to corporate issuers coming to market with USD 28 billion in 1Q18, the third highest amount from corporates during a quarter. As seen in the right-hand side of Figure 4 (also compare with Figure 6), corporate issuance accounted for 61% of green bond issuance YTD, up from 35% in 2018.

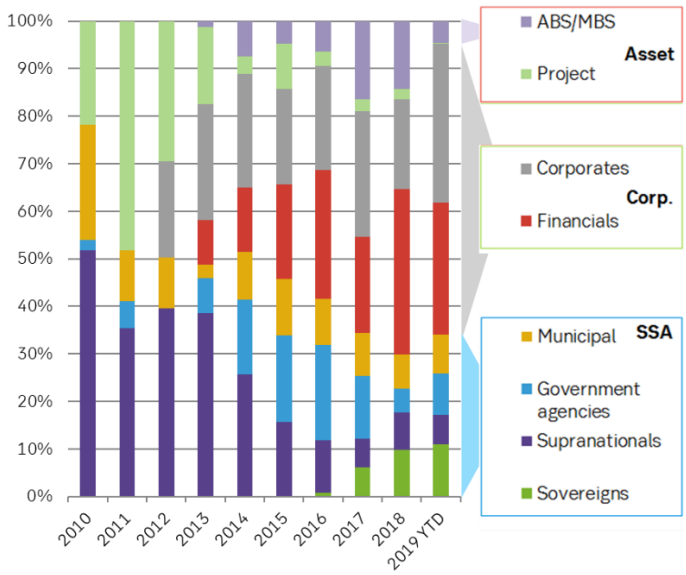
[1] As usual, figures will very likely be revised upwards in due course as elusive green securitizations, private placements, project bonds and domestic Chinese bonds are tracked down and catalogued in the Bloomberg Terminal.

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. SSA: Sovereign, sub-sovereign (municipal/regional), Supranational and Agency

Non-financial corporates such as these companies contributed USD 15.2 billion, the second highest volume of any quarter, up 75% YoY. There were companies from 15 different countries accessing the market in 7 currencies, but the market was dominated by American non-financial corporates with 6 issuers bringing benchmarks (5 over USD 500 million size) from the electric power and telecom sectors (Verizon, MidAmerican, Digital Realty, DTE Electric, Duke Energy). SEB was also privileged to work with Stora Enso on their SEK 6 billion triple tranche green bond; the largest corporate green bond in the SEK market to date. Stora Enso provides a view on its experience in this edition.

Financial corporates added a somewhat smaller quantum of USD 12.6 billion but were up 110% YoY. In our calculations this sector includes mostly banking and financial institutions but also includes a growing number of real estate companies as well; accounting for 20% of financial sector issuance YTD. Most of this real estate financing activity is in Sweden, but the US and Japan have also featured issuers in 2019 so far.

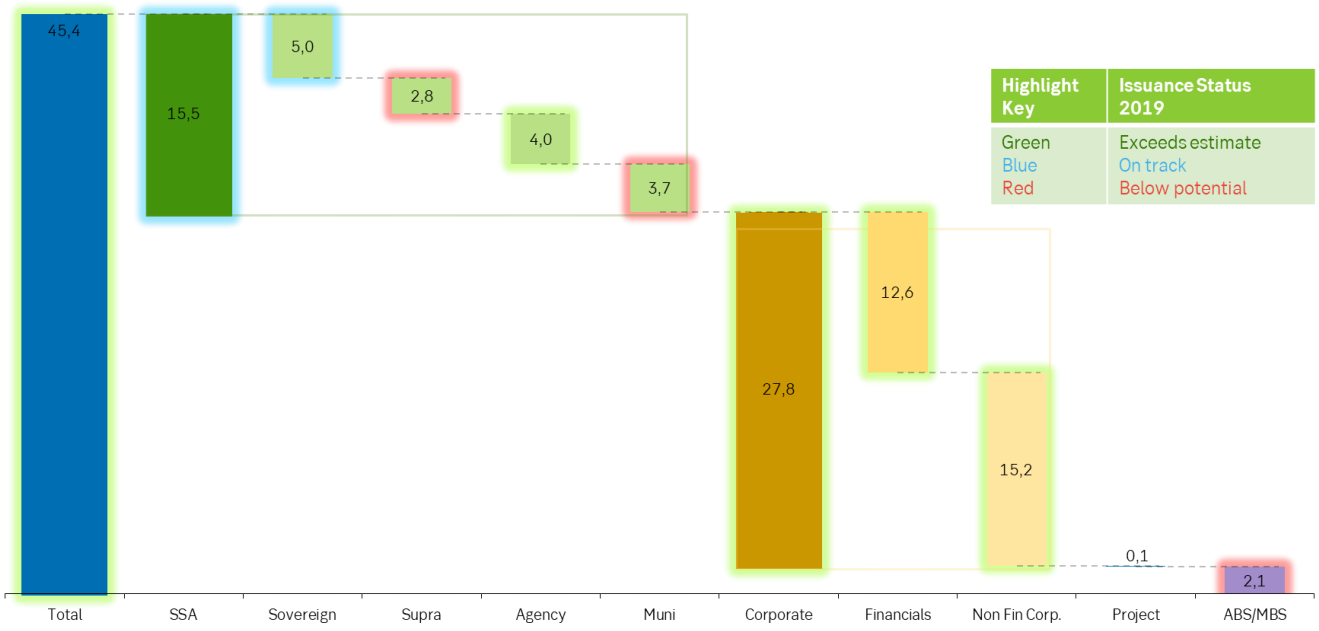
The other bright spot from an intra-sectoral growth perspective was government agencies, a group of issuers including national funding agencies and development banks that had languished all of 2018 but returned with gusto in 1Q19. Multiple entities in France were in the vanguard and other prominent repeat issuers returned to the stage in Europe, such as Kommuninvest which successfully issued a new SEK 3.5 billion benchmark - their fourth SEK green bond. SEB is honoured to have acted as joint lead manager on all Kommuninvest's green bond issues in SEK.

As seen in Figure 5, although it is still early in the year we put the entire market as "exceeding our estimate" as the progress made to date is above the assumptions of the more bullish of our scenarios and also in light of an unprecedentedly strong 4Q18, which can lead to a slower subsequent quarter as issuers may need to replenish project pipelines.

We view the SSA sector as "on track" despite municipals again lagging somewhat (-11%) and supranationals uncharacteristically slow in 1Q18, down -8%. However, the largest such issuer, the European Investment Bank has yet to come to market this year, and 2018 was a bountiful year for supras.

Sovereigns appear to be down significantly (-38%) but on closer inspection have been very busy in 1Q19 from a repeat issuer perspective; with France, Poland and Indonesia all returning to the market. The discrepancy is due to Beligum having issued its jumbo EUR 4.5 billion Green OLO in 1Q18, which skews the figures.

Figure 5. Green bond issuance in 2019 by sector and sub-sector (USD Billion)



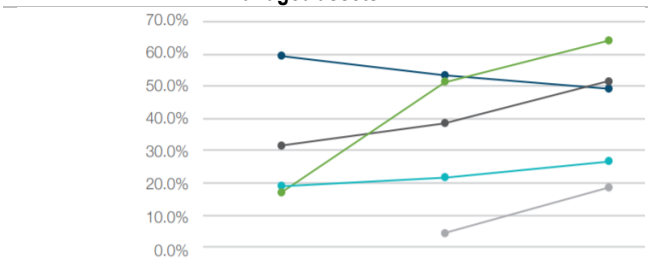
Notes: ABS/MBS = Asset Backed Securities/Mortgage Backed Securities; SSA = Sovereign, Supranational, Agency and Municipal, Regional and other sub-sovereign; Financials include Real Estate and Insurance; N-F Corp. = Non-Financial Corporates. SEB uses the BICS sector classification system with some adjustments using Bloomberg/MSCI green bond sector classifications. Bloomberg (see Guide to Green Bonds on the Bloomberg Terminal) methodologies used to qualify green bonds, including Schuldscheine and private placements, and excluding pure plays.

Source: SEB analysis based on Bloomberg/BNEF and SEB data.

As surveyed in many previous editions, the bullish view that we hold for prospects this year, as well as in the medium-to-long-term, applies not just to green bonds but for a wide range of sustainability-themed capital markets solutions. The risk-return fundamentals for the underlying green and sustainable infrastructure assets continues to improve, driven largely by technological, economic, market and social forces, but increasingly augmented through supportive policy attention. This is a fortuitous confluence of drivers as it joins up neatly with investor demand for sustainable investments that continues to grow as their increasingly compelling proposition propagates across new jurisdictions.

According to new data from GSIA, global sustainable investment assets under management have risen by 34% in the last two years to reach USD 30.7 trillion (Figures 6-7), with much of the growth in North America and APAC. After public equities, fixed income is the second largest asset allocation for sustainable investing globally, taking 36% of the total amount. At the same time, investor activism initiatives on climate change (e.g. the Climate Action 100+) have gained increasing prominence recently, with successful shareholders resolutions extracting a variety of meaningful new commitments on climate from companies such as Shell, BP, and Glencore.

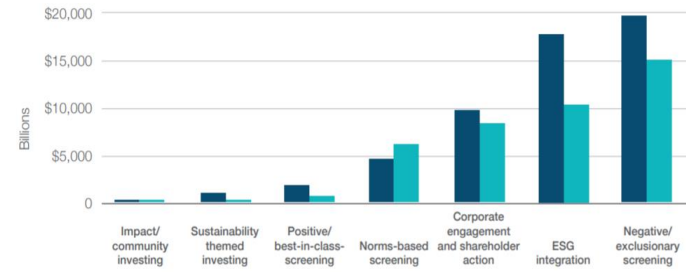
Figure 6. Proportion of sustainable investing relative to total managed assets



	2014	2016	2018
Europe	58.8%	52.6%	48.8%
United States	17.9%	21.6%	25.7%
Canada	31.3%	37.8%	50.6%
Australia/New Zealand	16.6%	50.6%	63.2%
Japan		3.4%	18.3%

Source: Global Sustainable Investment Alliance (2019) Global Sustainable Investment Review 2018

Figure 7. Global growth of sustainable investing strategies (2016-2018)



	Impact/ community investing	Sustainability themed investing	Positive/ best-in-class-screening	Norms-based screening	Corporate engagement and shareholder action	ESG integration	Negative/ exclusionary screening
2018	$444.26	$1,017.66	$1,841.87	$4,679.44	$9,834.59	$17,543.81	$19,770.96
2016	$248.47	$276.16	$818.01	$6,195.40	$8,385.17	$10,353.20	$15,063.57
Growth 2016–18	79%	269%	125%	-24%	17%	69%	31%
CAGR	33.7%	92.0%	50.1%	-13.1%	8.3%	30.2%	14.6%

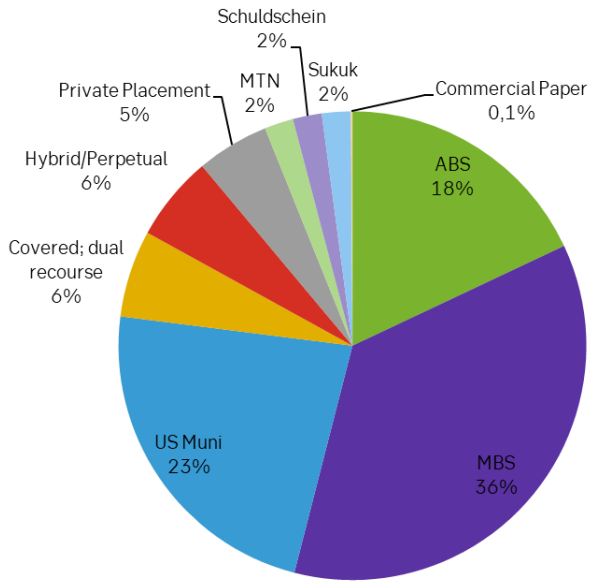
Source: Global Sustainable Investment Alliance (2019) Global Sustainable Investment Review 2018

While we covered some of the influential mobility and electricity policy changes instated by governments globally in the last edition, another arm of government has been focusing its attention on climate and sustainable finance but had been coming at the topic predominantly from the risk side of the equation. As Governor of the Bank of England, Mark Carney has

delivered a series of meticulously researched speeches on the topic, and his latest speech covers even more ground, expanding to the return side in examining how recent developments and a global approach to sustainable finance ought to unfold; and predicting that "in the future, climate and ESG considerations will likely be at the heart of mainstream investing".

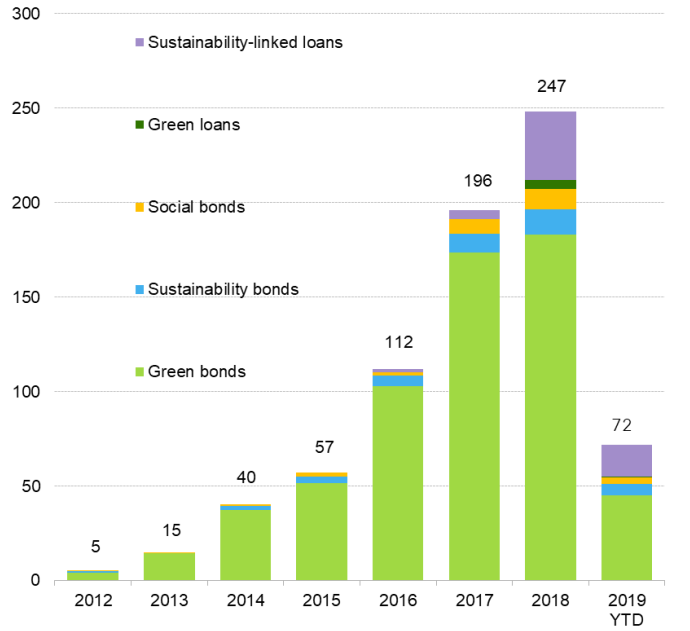
Whilst central banks have been vocalising their concern for why climate change is relevant for financial stability and supervision since 2015, in recent months central bankers have begun to articulate their views on how climate can also have implications for monetary policy. A speech by ECB executive board member Benoit Coure last November first broached the issue and argued that climate impacts pose a risk to the monetary policy decision-making apparatus by shifting the nature of supply-side shocks while weakening the effectiveness of monetary policy tools. A Reserve Bank of Australia paper focused on monetary policy and climate change followed this, with deputy governor Guy Debelle exploring the interaction between macroeconomic theory, models, and real-world outcomes. In the first acknowledgement of this matter from the United States, at the end of March a Federal Reserve Bank of San Francisco paper analysed how climate-related impacts are already arriving well within time horizons relevant for monetary policy.

Figure 8. Beyond Senior Unsecured and Secured: Diverse Green Bond Structures Emerge



Source: SEB analysis based on Bloomberg and SEB data. Note: Excludes senior unsecured and senior secured (except for if part of MTN program)

Figure 9. Sustainable Debt Issuance: Green, Social and Sustainability Bonds & Loans (USD Bn)



Source: Bloomberg New Energy Finance data & SEB calculations

As visualised in Figure 9, the first quarter of 2019 featured issuance of a raft of other types of sustainable debt instruments taking cumulative sustainable debt issuance to USD 72 billion YTD. Nearly USD 10 billion of social and sustainability bonds have come to market YTD, which puts this segment on track for the USD 38-45 billion potential that can be expected in 2019. However, stealing the show once again is the sustainability-linked loan, with nearly USD 17 billion worth signed YTD, almost half way to the USD 35.5 billion such loans closed in all of 2018. Momentum was boosted in March through the launch of the Sustainability Linked Loan Principles (SLLP), by the by the LMA, together with the APLMA and LSTA,

The sustainability linked loan product is an innovative product that enables lenders to incentivise improvements in the borrower's sustainability profile by aligning loan terms (for example, margins) to the borrower's performance against ambitious, pre-determined sustainability performance targets. On the latter point, the SLLP refers to the ground-breaking work of the Green Bond Principles on impact metrics and reporting.

From a geographic perspective, 23 jurisdictions[2] (excluding Supranationals) featuring green bond issuance in the first quarter, compared to 24 in 2018 YoY (and 45 in total during 2018).

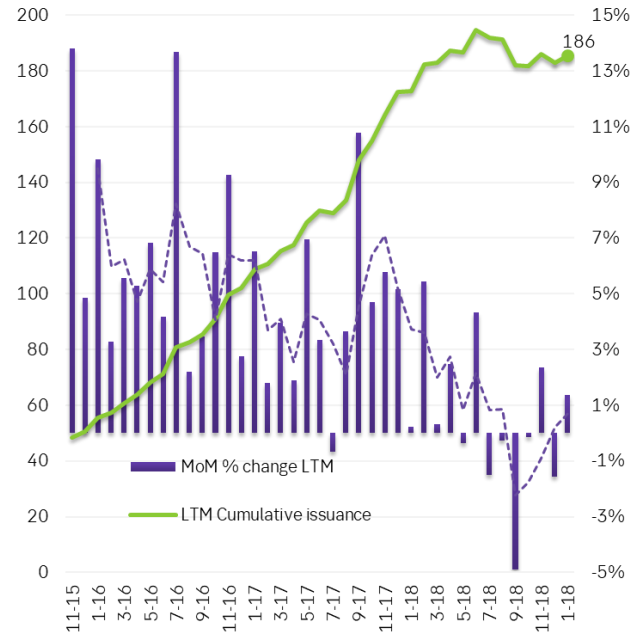
Europe continues to be the largest region for green bond issuance when measured for momentum with a moving Last Twelve Months (LTM) average of issuance shown in Figure 11. The Nordics had contributed to increasing volumes over 2018, helping Europe to maintain its

[2] Classified by Ultimate Parent Country of Risk.

lead over North America, which lost momentum in 3Q18. However, in 4Q18, European green bond momentum abruptly peaked at USD 81 billion over the trailing year and had fell by USD 7 billion into February, before recovering slightly thanks to activity from European utilities, sovereigns and a very strong showing in Sweden. While a counterfactual is indefinable, our view was that before the publication of the EU Taxonomy, the work of the European Commission on Sustainable Finance had supported green bond market confidence for both European issuers and investors for most of 2018. Whether concerns around the draft EU Taxonomy, which emerged in early December contributed to a fall in momentum, is unclear and remains an open question.

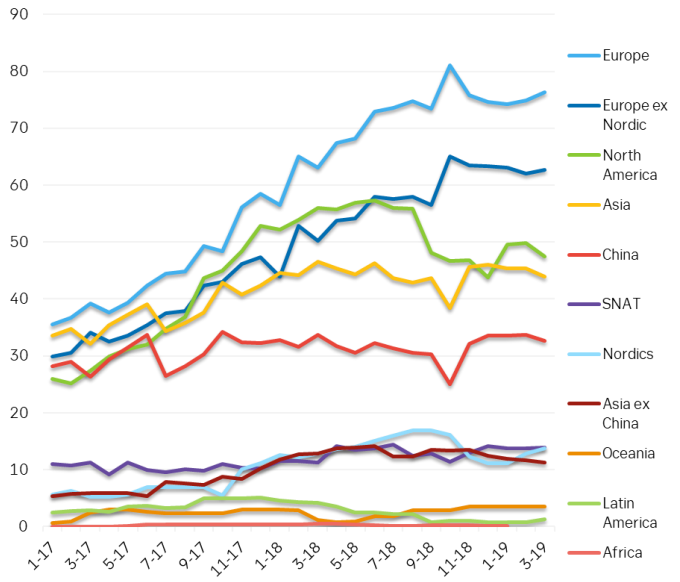
Chinese LTM numbers had dropped by almost USD 10 billion from their peak at USD 34 billion before bouncing back to USD 30 billion on the strength of financials resuming their traditional activity in 2H, and Japan continued to boost Asia-ex China issuance to surpass the Nordics, before reversing in March with the Nordics once again pulling ahead and also surpassing Surpanationals.

Figure 10. Green Bond Issuance Last Twelve Months Analysis (USD Bn, LHS) with % change (RHS)



Source: SEB analysis based on Bloomberg and SEB data.

Figure 11. Green Bond Issuance: Last Twelve Months Analysis by Region (USD Bn)



Source: SEB analysis based on Bloomberg and SEB data.

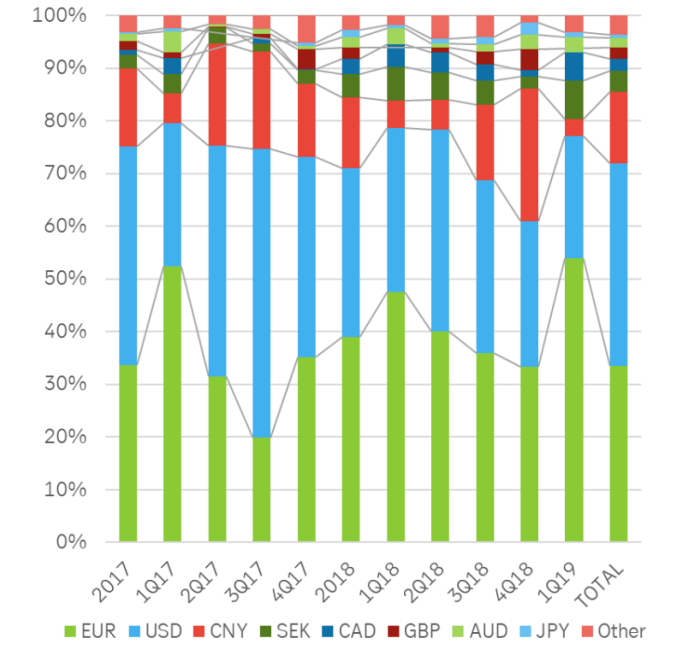
In terms of country rank (Figure 12) other than the U.S. once again sitting on top of the league tables, and China running below its potential, issuance in all other countries through the top 8 was up by double and triple digits. However, activity was underwhelming in a few key very large economies that many market participants hold great expectations for. After a promising 2018, Japan clung on to 15th place (down -15 YoY), and an uncharacteristically scant German green bond market failed to make the top 15 at all.

Figure 12. Top 15 geography by issuance in 2018, incl. Supras

	2018	$ Bn	Rank Change YoY	Issuance Δ YoY	2019 YTD	$ Bn	Rank Change YoY	Issuance Δ YoY
1	USA	38.9	=	-14%	UNITED STATES	11.1	=	19%
2	CHINA	33.5	=	4%	FRANCE	7.9	+3	223%
3	FRANCE	17.0	=	-14%	CANADA	3.1	+8	153%
4	SUPRANAT.	14.2	+1	39%	SNAT	2.8	+1	-8%
5	NETHERLANDS	13.1	+4	202%	CHINA	2.7	-1	-25%
6	GERMANY	7.5	-2	-29%	SWEDEN	2.5	+2	91%
7	BELGIUM	6.7	NEW	∞	POLAND	2.3	+5	86%
8	SWEDEN	6.4	-1	30%	SPAIN	2.0	+7	92%
9	SPAIN	4.8	-2	-9%	ITALY	1.4	-2	-6%
10	CANADA	4.8	+2	39%	NETHERLANDS	1.3	-7	-72%
11	JAPAN	4.7	+6	109%	FINLAND	1.2	NEW	∞
12	UK	3.7	+4	62%	PORTUGAL	1.1	NEW	∞
13	NORWAY	3.5	+9	428%	NORWAY	1.0	-4	-22%
14	IRELAND	3.5	NEW	∞	INDONESIA	0.8	-5	-40%
15	AUSTRALIA	3.3	=	14%	JAPAN	0.7	+1	-12%

Source: SEB analysis based on Bloomberg and SEB data. SUPRANAT.: Supranational

Figure 13. Currency distribution of green bond issuance



Source: SEB analysis based on Bloomberg and SEB data

In terms of currencies (Figure 13) EUR remained popular in 2018, especially with sovereigns and corporates, although their share fell successively each quarter of the year as issuance picked up in USD and CNY. However, EUR returned with vigour in 1Q19 accounting for over half of issuance YTD. CAD, AUD, and SEK also proved popular currencies to target for issuers raising green capital in 2018. Sweden set another record in 1Q19 with 28% of all Swedish Krona (SEK) bond issuance coming in green format, up from an adjusted 10% throughout 2018.

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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.

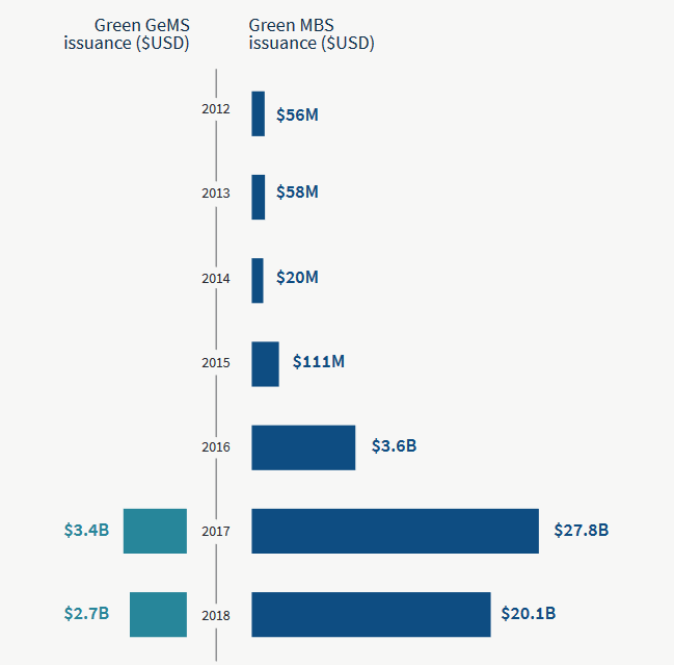
Multifamily Green Financing Business: Our Mission & Impact

Fannie Mae's vision is to be America's most valued housing partner. We deliver on this vision by providing and access to credit in all United States housing markets at all times, while effectively managing and reducing risk to our business, taxpayers and the housing finance system. Market forces in recent years have contributed to an overall decline in the supply of affordable housing in the United States for both single-family homes and multifamily rental housing.

Additionally, utility costs outpace inflation, rising over 50 percent in the last decade according to the Joint Center for Housing Studies at Harvard University. Green Financing and Green Bonds positively impact tenants' quality of life by making existing housing stock healthier and more affordable. Updates like better lighting and more efficient heating and cooling equipment can increase comfort and indoor air quality, while also lowering utility costs for families and individuals. Lower costs are crucial when considering that energy and water bills account for a substantial share of the cost of living in rental housing, especially among low-income tenants; one study found that low-income households spend a median of 7.2 percent of their total income on energy bills annually, more than twice what the median household spends. When living in an energy- and water-efficient property, families may have more money to spend on other important needs like education, transportation, healthcare, and childcare.

Fannie Mae is working on multiple fronts to help address housing affordability issues including reducing the cost for commercial owners to own and operate multi-unit rental apartment buildings and for families and individuals to rent apartment units. Since 2010, Fannie Mae has identified innovative ways to incentive apartment owners to rehabilitate properties and to reduce energy or water consumption. The improvements have made to the apartment buildings not only benefit the owners with better quality assets, but also benefits tenants with lower utility bills. Fannie Mae introduced the Green MBS product to the market in 2012 and has grown the book of business each year, now standing at over $50 billion as of year-end 2018. In addition, Fannie Mae has issued $6.1 in Green Real Estate Mortgage Investment Conduits (REMICs).

Fannie Mae Green Bonds: Green MBS and Green GeMS TM Issuances 2012-2018[3] [4]



Notes: Guaranteed Multifamily Structures (GeMSTM) are a re-securitisation of a pool of DUS MBS into a Real Estate Mortgage Investment Conduit (REMIC) structured product
Source: Fannie Mae "Multifamily Green Bond Impact Report," March 2019: https://www.fanniemae.com/content/tool/mf-green-bond-impact-report.pdf.

[3] Fannie Mae Multifamily Green Bond Issuances through YE 2018
[4] Fannie Mae included Green Preservation Plus and M-PIRE loans in issuances total. The 2015 volumes exclude a $136 million Green Bond Credit Enhancement transaction

As a result of this level of issuances, over 550,000 units financed by Fannie Mae have been retrofitted or have green building certifications, allowing more and more families and individuals are living in greener, healthier apartment units. Families and individuals are projected to save $72M annually, equivalent to 10 percent lower utility bills or saving $145 on average per year. Newly constructed or retrofitted green multifamily buildings are estimated to have contributed $7.2 billion in workers' income and $14.6 billion to gross domestic product (GDP) and supported 170,000 jobs. As a result of Fannie Mae Green Bonds, properties are projected to reduce water use by 5.9 billion gallons, equivalent to the amount of water consumed annually by nearly 54,000 American families and greenhouse gas emissions by 287,000 metric tons annually, equivalent to nearly 61,000 passenger vehicles driven for one year.

Fannie Mae's Green Rewards program encourages apartment building owners to make energy and/or water savings improvements to their properties and to integrate sustainability considerations into their operations. In order to qualify for a Fannie Mae Green Rewards mortgage loan in 2019, apartment building owners must commit to reducing their property's energy and water consumption by 30% over the property's prior 12 month baseline, where at least 15% is through solely energy consumption reduction. The borrower also commits to provide ongoing annual reporting of their property's energy performance metrics. Additionally, Fannie Mae's Green Building certification program provides financing to properties holding a third-party issued, Fannie Mae-approved, Green Building Certification.

In March 2019, Fannie issued its inaugural Multifamily Green Bond Impact Report offers projected impacts for the economy, tenants, and the environment. Fannie Mae estimates the following positive Triple Bottom Line impact through its Green Bond issuances:

ENVIRONMENTAL

- 36 percent of water being saved is in water-stressed areas across the U.S.
- Properties are saving annually 4.3 billion kBtu of source energy, which is equivalent to the amount of energy used at over 34,000 American homes in one year.
- Properties are reducing greenhouse emissions by 287,000 metric tons, equivalent to nearly 61,000 passenger vehicles driven for one year.
- Properties are projected to save approximately 5.9 billion gallons of water annually, which is equivalent to the amount of water consumed annually by nearly 54,000 American families.

Positive environmental impacts through Fannie Mae green bonds

	Projected Annual Energy Savings (kBtu)	Projected Annual CO_2 eq Emissions Savings (MT)	Projected Annual Water Savings (gallons)
2012 - 2016	324M	29,339	159M
2017	2,235M	149,630	2,460M
2018	1,711M	108,064	3,258M
Total	**4,270M**	**287,032**	**5,877M**

Source: Fannie Mae "Multifamily Green Bond Impact Report," March 2019: https://www.fanniemae.com/content/tool/mf-green-bond-impact-report.pdf.

SOCIAL

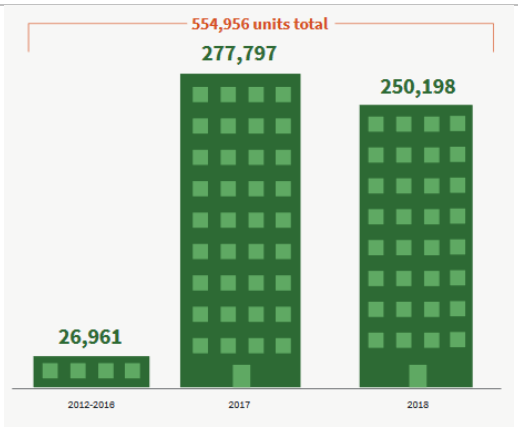
- Families and individuals are projected to save $72M annually, equivalent to 10 percent lower utility bills or saving $145 on average per year.
- Jobs that construct or renovate multifamily buildings with green certifications are well-paying, with annual average earnings of $42,000.

- Over 550,000 units financed by Fannie Mae have been retrofitted or have green building certifications, allowing more and more families and individuals are living in greener, healthier apartment units. The number increased from just over 400 units in 2012 to over 250,000 units in 2018.

FINANCIAL

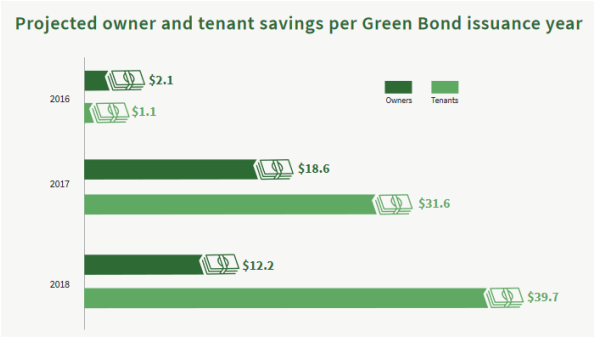
- 170,000 jobs were created or supported to build and/or to retrofit over 550,000 units in the Fannie Mae Green Bond issuances.
- Newly constructed and retrofitted green multifamily buildings contributed $7.2 billion in workers' income and $14.6 billion in gross domestic product (GDP).
- Over seven years from 2012 to 2018, Fannie Mae borrowers committed to invest $208M in energy- and water-saving capital improvements to retrofit over 2,000 properties.
- For every dollar spent retrofitting properties through a Fannie Mae Green Rewards loan, $1.85 has been created in economic output.
- On average, owners recoup investment within seven years. When tenant savings are also considered, the combined cost savings exceed investment cost within two years, on average.
- Savings are adding up year over year: $105M annually in combined tenant and owner savings as of 2018.

More and more families are living in greener, healthier apartment units



Source: Fannie Mae "Multifamily Green Bond Impact Report," March 2019: https://www.fanniemae.com/content/tool/mf-green-bond-impact-report.pdf - 2008 issuances as estimated by Ernst & Young

Projected owner and tenant savings per Green Bond issuance year



Source: Fannie Mae "Multifamily Green Bond Impact Report," March 2019: https://www.fanniemae.com/content/tool/mf-green-bond-impact-report.pdf - 2008 issuances as estimated by Ernst & Young

Fannie Mae has also been recognized by key industry groups for our Green finance work, including being named the World's Largest Issuer of Green Bonds in 2017 by the Climate Bonds Initiative and receiving the U.S. EPA's ENERGY STAR® Partner of the Year Award every year since 2015. The Center for International Climate Research (CICERO) reviewed Fannie Mae's Green Bond framework and provided a light-to-medium second opinion and recognized our governance and reporting processes as a "key strength."

Fannie Mae's Green bond program was recognized at Climate Bonds Initiative's (CBI) 4th Green Bond Pioneer Awards in the "Green Bond Framework 2018" category for its role as the largest green bond issuer worldwide and for bringing transparency to this growing market. Fannie Mae's Chrissa Pagitsas, Vice President, Enterprise ESG, was also recognized by CBI as the "Green Bond Champion 2018" for her role in bringing structural diversity and innovation to the market through Fannie Mae's multifamily green mortgage finance program. The 2019 Green Bond Pioneer Award winners are selected by a panel of external industry-based advisers in recognition of their efforts to create innovative green bond markets.

Fannie Mae Green Bonds are more than just an investment vehicle: they are designed to offer significant environmental, financial and social impact, thus delivering on our commitment to the Triple Bottom Line framework. By incentivizing green building and improved energy and water efficiencies, Fannie Mae hopes to enhance the financial and environmental sustainability, and

extend the useful life of the portfolio of multifamily housing stock securing the loans it buys and the Multifamily securities it issues, thereby helping to serve the nation's rental housing needs. We are constantly innovating new ways to make housing sustainable and affordable with our partners to address the housing needs of the future.

With our green bond issuance, we're making green financing into far more than just a specialty product: we're making it the new standard in multifamily lending.

Power of the trees: first industrial green bond in the Nordics by Stora Enso!

Pasi Kyckling
SVP Group Treasurer
Stora Enso

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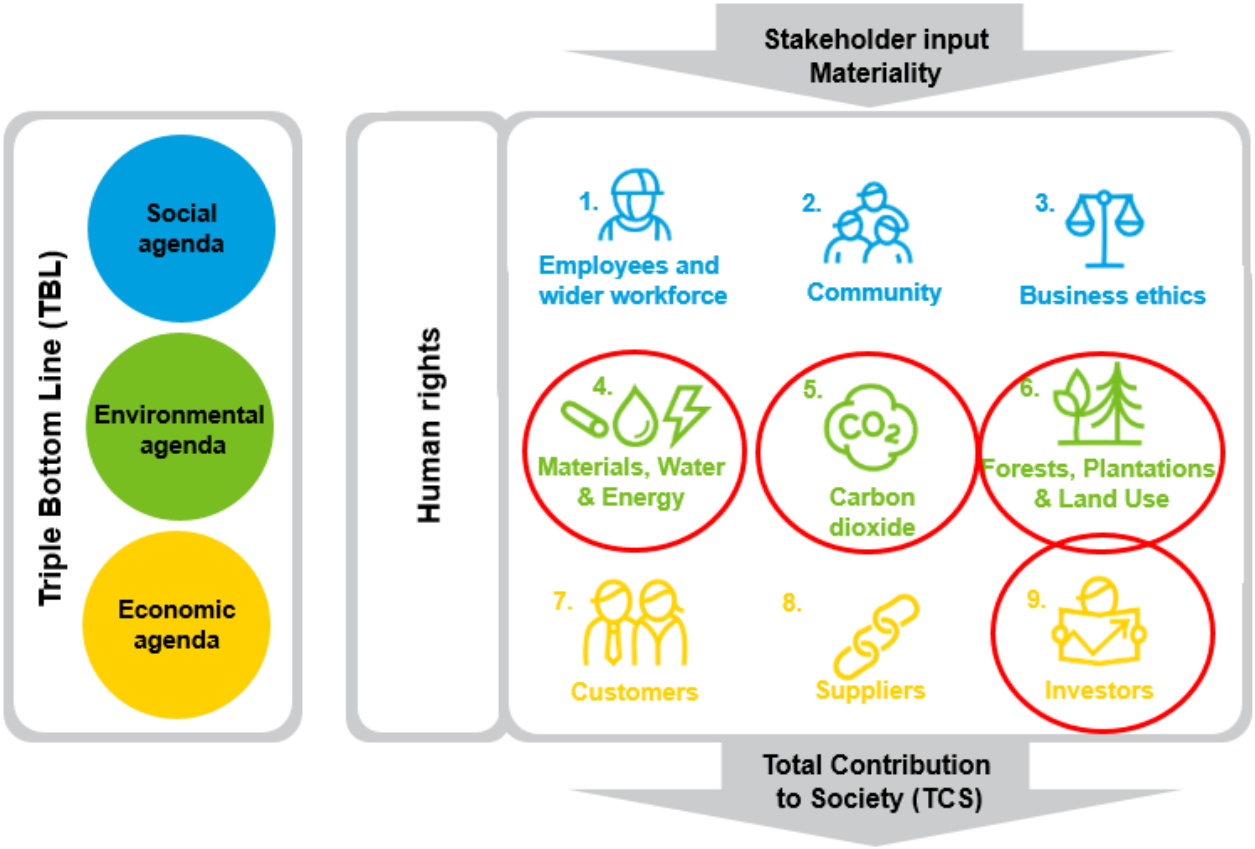
Part of the bioeconomy, Stora Enso is a leading global provider of renewable solutions in packaging, biomaterials, wooden constructions and paper. We employ some 26 000 people in more than 30 countries and our shares are listed on the Helsinki (STEAV, STERV) and Stockholm (STE A, STE R) stock exchanges.

Stora Enso's raw material – the trees - is renewable, recyclable and fossil-free. This provides us with a great advantage in addressing the global megatrends and in leading business and industry towards the bioeconomy. Across markets and in businesses, there are calls for change because consumers are increasingly turning to eco-friendly products and solutions. Stora Enso's promise for a renewable future is based on sustainability, innovation and having the technological capabilities to meet the
demands for a greener world. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.

Our Sustainability Agenda is described in the picture below. It encompasses the social, environmental, and economic responsibility of our operations throughout the value chain. The agenda is based on the Triple Bottom Line framework widely used in corporate responsibility work. It addresses the ten sustainability topics identified as material to Stora Enso and our key stakeholders. The four red circled items are the basis for our green bond framework.



Source: XX.

We have successfully issued our first Green Bonds in February 2019. The bonds are issued under the EMTN (Euro Medium Term Note) programme. The total aggregated principal amount of the transaction was SEK 6 000 million. The bonds are issued under our Green Bond framework published in May 2018. The bonds have a floating tranche for 2.5 years' maturity and both fixed and floating trances for 5 years maturity.

We have a long-term aim to secure funding partners that have sustainability as a fundamental part of their agenda. We are very pleased to successfully have issued our first Green Bonds. The proceeds are intended entirely to finance our ongoing acquisition of forest assets in

Bergvik Skog in Sweden. In the acquisition, we are turning our current indirect ownership of 1.1 million hectares to direct ownership of 1.4 million hectares. This is fully in line with Stora Enso's Green Bond Framework, as Bergvik Skog's forest lands are 100% certified to sustainable forestry. The successful Green Bond is also a further evidence that Stora Enso's Sustainability Agenda underpins core business processes, such as the raising of new finance to grow our share of the bioeconomy.

On top of the green bond we have in the Revolving Credit Facility with a green aspect given the RCF pricing includes a component linked with carbon emission reductions of the company.

We have been active with green financing because we believe it fits well with our overall company strategy and sustainability focus. Putting in place the green bond framework and launching the green bond have also provided an opportunity to deepen the co-operation between our Sustainability and Treasury teams. Looking externally the investors have increasing ESG focus and this puts positive pressure for the issuers to launch green bonds. At the same time the investor community expects more transparent and reliable non-financial disclosures going forward. We are happy to be part of such a development journey! Finally, we believe that green bond pricing is equal or a bit lower compared to traditional bonds.

Investing for the future together with Electrolux

Electrolux, which turns 100 this year, is a global leader in the production of innovative and sustainable household appliances with product areas ranging from cooking products, refrigerators and dishwashers, to washing machines and vacuum cleaners.

On March 12, Electrolux launched the first green bond framework within its industry. An exceptionally successful green bond transaction followed, attracting substantial interest from the investor community both in the bond issue as well as during the presentation of the green framework. In the same way that Electrolux delivers products that help make their customer's everyday lives better, the issue means that Electrolux is taking another step towards making the world more sustainable.

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Now you might be thinking, "How can household appliances such as refrigerators and washing machines be sustainable?" Well, the food sector accounts for about 30% of all greenhouse gases and by keeping food in the refrigerator; you preserve food and therefore reduce food waste. A washing machine on the other hand, substantially reduces the amount of energy, water and detergents needed to wash clothes compared to washing by hand. On top of that, Electrolux's modern washing machines are able to wash garments more gently than before which significantly prolongs their lifetime.

Looking beyond the tangible environmental benefits, household appliances also serve the fundamental purpose of freeing up time for families, enabling otherwise impossible lifestyle choices and giving homemakers the possibility to educate themselves, their children and/or join the working community. Today, millions of families in developing countries are moving into middle class at a rate previously unheard of and home appliances such as refrigerators are oftentimes among the first products to be purchased when disposable income increases. By 2030, the number of refrigerators in stock in developing countries is projected to double to 1.6 billion. It is not a surprise that a tremendous feat is required in terms of making these home appliances more sustainable and Electrolux is currently leading this revolution.

Sustainability is a key driver for Electrolux which is why the Group has implemented a sustainability framework called For the Better which consists of three different areas: Better solutions, Better operations and Better society. Each separate area consists of three distinct sustainability promises to make a positive change for the better.

The sustainability framework – For the Better

In 2018, Electrolux introduced a set of science based targets that was approved by the Science Based Targets Initiative, making Electrolux one of the first 100 companies in the world to have their sustainability targets validated. In practice, this validation means that the group's commitment of reducing greenhouse gas emissions from its operations by 80% and from its products by 25% by 2025 are aligned with the 2015 Paris Climate Agreement on climate change, which aims to keep global temperature rise well below 2°C this century. In 2019, Electrolux was further recognised for its sustainability work as the Group was included in the

Climate Change A-list as well as being named industry leader in its category in the Dow Jones Sustainability World Index, in which the Group has been recognized for twelve consecutive years.

The most recent addition to Electrolux's sustainability agenda For the Better is the launch of the Green Bond Framework and the issuance of the industry's first Green Bond. The Framework limits the use of proceeds raised by Green Bonds to projects that fall within at least one of five eligible green categories derived from the sustainability framework thus qualifying as Eligible Green Assets.

Category 1: Improve product performance and efficiency
Financing within this category shall go towards investments and R&D in manufacturing equipment or tooling that relate to specific products with the aim to improve energy and/or water efficiency. In order to classify as an eligible Green Assets, investments or R&D-projects need to result in products that are 15% more energy efficient compared to the average of current products produced for a specific market. The use of Electrolux's products accounts for approximately 85% of the Group's overall climate impact. The Pure D9 Green uses 1/3 of the energy of a regular vacuum cleaner.

Category 2: Make better use of resources
Financing within this category shall go towards investments and R&D in improving the efficiency of materials that the Group uses and increasing the use of recycled materials. In order to classify as an eligible Green Asset, those potential efficiency improvements need to result in in a material composition of at least 25% recycled material being used. Goods and services purchased by the group currently accounts for 7% of their overall climate impact. Washing machines contain approx. 14% recycled plastic

Category 3: Eliminate harmful materials
Financing within this category shall go towards investments in processing equipment or R&D towards such equipment that uses refrigerants or foam blowing agents with global warming potential of less than 15 carbon dioxide equivalents. Such greenhouse gases account for approximately 6% of the Group's overall climate impact.

By phasing out HFCs the climate impact from refrigerators in North America will be reduced by more than 2 million tons of carbon dioxide.

Category 4: Achieve more with less
Financing within this category shall go towards investments in commercial buildings, either new or renovations of current ones that results in those buildings being 30% more energy efficient compared to applicable building codes or prior to the renovation. Investments in new or renovated factory or warehouse buildings and equipment must lead to a 20% increase in energy efficiency. Investments in equipment that aims to reduce water usage, improves waste water treatment and reduces emissions of harmful substances and manufacturing waste are also eligible as Green Assets under this category. Emissions from the group's operations account for less than 1% of the overall climate impact.

Energy efficient manufacturing is a priority in the new refrigerator factory in Anderson, USA.

Category 5: Climate targets
Financing within this category shall go towards investments that focus on the reduction of direct or indirect greenhouse gas emissions such as to equipment relating to the generation of renewable energy or the replacement or conversion of equipment that uses fossil fuels to equipment which uses renewable energy.

Electrolux's Green Bond Framework has been examined by CICERO (Center for International Climate Research – Oslo) and classified as Medium Green. CICERO further explicitly highlights that "*Electrolux has in place a sound management and government structure"* in addition to transparent reporting regarding green bond projects which motivates an *Excellent* Governance rating.

°C | °CICERO Medium Green

AIIB | ASIAN INFRASTRUCTURE INVESTMENT BANK

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Principal Environmental Specialist

Thomas Walenta
Senior Investment Officer

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For anyone who believes in the positive impact of environmental, social and governance (ESG) investing, Asia represents a key priority because of the sheer size of its markets and the number of lives affected. The region comprises 60% of the world's population and half of the world's poorest people. According to the Asian Development Bank, more than 1.7 billion people lack access to basic sanitation and an estimated 3.4 billion could be living in water-stressed areas by 2050[5].

Paradoxically, despite the environmental and social challenges that Asia faces, the region lags Europe and North America in the uptake of ESG investing strategies. Of the $22.9 trillion in assets that are defined as socially responsible, only 4.6% comes from Asia and only 0.2% comes from countries outside of Japan, Australia and New Zealand[6]. However, the region also has the fastest growth of socially responsible assets under management.

Last year, the Asian Infrastructure Investment Bank's (AIIB) Board of Directors approved USD500 million for investment in corporate bonds with the aim of developing debt capital markets for infrastructure and catalyzing ESG strategies in emerging markets in Asia.

By setting up the portfolio, our objective is to develop a proof of concept and demonstrate to other like-minded investors the potential of ESG investing in emerging market infrastructure. In parallel, we are talking to index providers with the aim of developing an *ESG Enhanced Infrastructure Index for Asia Emerging Markets*.

As we set out to develop the investment policy and ESG framework to govern the portfolio, we encountered several challenges and identified medium- to long-term solutions to address them.

Lack of suitable benchmarks. We found a lack of suitable benchmarks that covered our investment universe: infrastructure-related corporates in emerging markets in Asia. Furthermore, a lack of ESG indices for the region can be a barrier to sustainable investing. This is particularly true for asset managers who perceive a competitive disadvantage in implementing ESG strategies for portfolios benchmarked to traditional indices.

Solution: Most asset managers we spoke to agree that developing an ESG index for Asia Emerging Markets would be a very positive outcome. This could be an index on the broader market or focused on infrastructure-related issuers. Such indices would contribute to disseminating information and guidance to financial markets on ESG performance in Asia and improve the accessibility of infrastructure-related issuances.

Lack of ESG ratings coverage for emerging markets. We found gaps in third-party ESG ratings coverage of corporates in many of our target markets. While coverage of China now includes 500+ corporates, coverage in other countries (e.g. India, Indonesia, Malaysia, Thailand) is only 50-100 corporates per market.

Solution: Expanding ESG ratings coverage of issuers in Asia is an important step in the creation of ESG indices for the region. AIIB will initiate expanded ESG coverage of emerging market corporates as part of the investment mandate of the asset manager. However, ESG ratings are only as good as the disclosures made by the issuer. In parallel, we are launching an *ESG Markets Initiative* that will focus on promoting greater transparency and disclosure in the market.

ESG strategies in the absence of data. According to the Global Sustainable Investment Alliance, the most deployed ESG strategy in Asia (excluding Japan) is sustainable/thematic investing (e.g. Green Bonds)[7]. ESG integration is growing, particularly in China, but access to data remains a challenge.

Solution: In our ESG Framework, we aim to test and report on the effectiveness of a variety of approaches including norms-based screening, positive/best-in-class screening, and ESG integration. This will require a phased approach, as a percentage of our holdings (approximately 30% upon completion of portfolio construction) will not have ESG ratings or good data disclosure. As a result, we have developed an ESG Framework with three levels of data analysis:

[5] ADB, Asian Water Development Outlook (2016)
[6] Global Sustainability Investment Association (2016)
[7] Global Sustainability Investment Association (2016)

- Level 1 covers all the issuers in our portfolio and screening using the big data service, RepRisk. This helps identify potential issues based on over 100,000 online sources, including social media.
- Level 2 covers about 70% of the portfolio, where we have some data – typically focused on governance with some disclosures on environmental performance (often climate).
- Level 3 is where we have third party ESG rating coverage of the issuer that is backed by robust disclosure and engagement with the asset manager.

Over time, we expect to increase the percentage of our portfolio that is backed by Level 3 ESG rating coverage.

Lack of investor ESG capacity. The primary objective of setting up the USD500 million managed portfolio is to develop sustainable debt capital markets for infrastructure and catalyze ESG strategies in emerging markets in Asia. However, as referenced previously, the lack of capacity in ESG from both investors and issuers remains a challenge.
Solution: To address this, we are launching the ESG Markets Initiative. To catalyze and encourage the development of ESG strategies for fixed income, AIIB will work with research partners to share insight and cutting-edge knowledge on the emerging issues and key trends that drive ESG investing in infrastructure in Asia.

As a first ESG research theme, we are exploring how we can assess the exposure and vulnerability of the corporates in our portfolio to physical climate risk like typhoons in Southeast Asia or drought in China. With the asset manager, we plan to test and report on integration techniques that will allow us to model the potential impacts to our portfolio under different climate scenarios.

Additionally, deepening the debt capital markets in emerging markets in Asia and improving the understanding of ESG will require on-going capacity building of all market participants (e.g. corporates, investors, rating agencies, securities exchanges and regulators, etc.). Through the ESG Markets Initiative, AIIB will work with implementation partners to build capacity in selected local markets through workshops and other industry events.

Finally, we will make public our ESG Framework, our research, and what we learn from implementing the framework to help build capacity in local markets.

As a bank created to address the infrastructure gap, AIIB believes the capital markets are key to unlocking the vast amount of private capital needed. Investing in infrastructure that is sustainable will require ESG strategies, particularly for emerging markets. AIIB can – and will - provide financial market leadership, but we count on the support of all stakeholders. We invite you to join us in building the sustainable capital markets of the future.

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