RESEARCH

UPDATE

May 3, 2024 04:01 AM GMT

Sustainability & Fixed Income | Global

ESG Bond Intel: A Green Treasury?

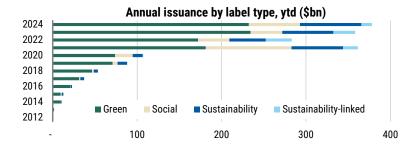
TBAC's latest blue sky report opens the dialogue on issuing a green Treasury bond. We discuss what this could look like and the potential hurdles to implementation.

Sustainability 💲

Key Takeaways

- The US is the only G10 country yet to issue a green bond. TBAC has opened consideration for a green Treasury bond; time to market could take years, not months.
- Regardless of administration in Washington, there is likely to be a base level of federal green financing that could be earmarked for a green bond.
- A green Treasury bond would likely be issued in the back end of the yield curve, due to both sizing considerations and the longevity of some projects.
- Elsewhere, ESG-labeled bond issuance falls 27% m/m to \$70bn. Total green bond supply is flat y/y at \$232bn, while social is up 61% and sustainability 20%.
- Sustainability-linked bond issuance is down 51% in total this year at just \$12.5bn.

Exhibit 1: We expect ESG-labeled bond supply to remain roughly flat y/y in 2024, at \$950bn; \$378bn has been issued in the first four months of the year



Source: Bloomberg, Morgan Stanley Research

Inside:

- TBAC Considers a Green Treasury
- ESG-Labeled Bond Issuance Trends
- Green Bond ETF Performance

MORGAN STANLEY & CO. LLC

Carolyn L Campbell

Strategist

Carolyn.Campbell@morganstanley.com +1 212 761-3748

Stephen C Byrd

Equity Analyst

Stephen.Byrd@morganstanley.com

+1 212 761-3865

Morgan Stanley does and seeks to do business with companies covered in Morgan Stanley Research. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of Morgan Stanley Research. Investors should consider Morgan Stanley Research as only a single factor in making their investment decision.

For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report.

TBAC Considers a Green Treasury

The Treasury Borrowing Advisory Committee (TBAC) meets quarterly with the Treasury Department, with the primary goal of providing recommendations on debt management. TBAC periodically issues so-called "blue sky" reports in which it presents an array of new or modified product offerings that could lower costs to the taxpayer. In its May 1, 2024 quarterly report, TBAC recommends that "Treasury could consider exploring the issuance of green bonds" in order to access the institutional investor base that has a target allocation for green investments or with a climate-related mandate, in particular capitalizing on the market's demand for dollar-denominated ESG-labeled bonds.

Primary goal would be to expand the investor base: The TBAC report states up-front that a green US Treasury bond could lead to "[a]ccess to a growing investor base which couldn't invest in traditional US Treasuries to the same extent: institutional investors with a target allocation for green investments (e.g. pension funds), investments funds with a climate-related mandate." Since the signing of the Paris Agreement in 2015, the number of asset managers and asset owners with net-zero or climate-related targets for their portfolios has steadily risen, buoyed by regulation in Europe (e.g., the SFDR). The Net Zero Asset Owner Alliance, for example, has 86 institutional investor signatories, with ~\$10tr in AUM, of which ~85% have intermediate (e.g., 2025-2030) climate targets. The Net Zero Asset Managers Initiative, on the other hand, has over 315 signatories with \$57tr in AUM; the organization is designed to support the goal of net-zero greenhouse gas emissions by 2050 or sooner, and limiting global temperature rise to 1.5°C or below (versus pre-industrial levels).

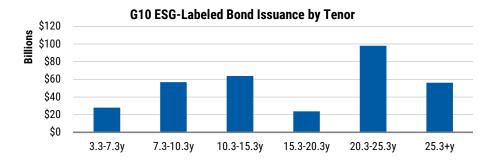
No shortage of projects that could meet the criteria: The latest federal budget includes at least \$90bn in financing for a wide array of environmental projects. Federal financing aims to help deploy clean energy, climate research, and severe weather and drought resiliency; address pollution and clean air mandates; provide climate financing; fund climate and clean tech research; and more. We believe there would be no shortage of projects to earmark for a green UST bond; one hurdle here, in our view, would be more bureaucratic in nature, in the sense that green bonds require frameworks and ongoing reporting on the allocation of proceeds.

We think a change in administration in Washington to a Republican-controlled Congress has the potential to result in reduced transparency on climate-related funds and less financing for green projects overall. We think some initiatives could see reduced or eliminated funding, but other pockets of financing, such as \$23bn in annual expenditures for climate resiliency (e.g., emergency financing for acute climate events), would likely remain intact regardless of administration. In our view, the uncertainty around annual green expenditures could deter the Treasury from issuing a green bond given the department's preference for regular and predictable issuance patterns; we do think, however, that there is a high-enough minimum environmental expenditure per annum by the federal government that a program could be designed to be independent of the party of the administration.

A green UST would likely fall around the long end of the curve: 30% of ESG-labeled bond issuance by G10 countries falls around the 25-year part of their respective curves, followed by 20% at the 15-year part and 17% at the 10-year part. We would expect that

Treasury, if it decided to proceed with a green bond, would look to the long end first and foremost, because we would expect that a green bond would have a smaller notional than traditional a vanilla bond (due to the available optimal financing), making the 20-plus-year part of the curve more suitable by this criteria alone. A green UST is likely to be smaller than a vanilla issuance regardless of maturity, but the ratio in the back end is likely to be smaller than in the belly of the curve and therefore more palatable from a relative liquidity perspective.

Exhibit 2: Cumulative ESG-labeled bonds

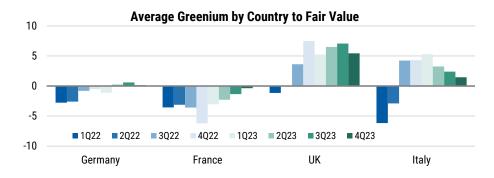


Source: Bloomberg, Morgan Stanley Research

A green UST would likely borrow from Germany's approach: Germany has issued over €60bn of green bonds since 2020 (~6% of its total issuance), and it has paired each green bond with a vanilla bond (i.e., with matching maturity dates). Each green bond is roughly a quarter of the size of the paired vanilla bond, and each was issued between 0.5bp and 2bp tighter to the vanilla. This is different from the approach of France, which taps a *new* point on the curve for each issuance. Given the Treasury auction and settlement calendar, we think a green UST would follow a program that resembles Germany's. The major advantage here, in our view, is the comparability of the green versus the vanilla bond, whereas the French program, which involves repeatedly tapping the green issuance rather than issuing incremental new issuance, favors liquidity and creates green bonds that are more comparable in size to vanilla debt. For greater detail on the design of sovereign green bond programs in developed markets, see our report here.

"Greenium" benefits are unclear, but likely beside the point: We find diminished evidence of a green premium in the EUR DM sovereign market, which we view as emblematic of declining marginal demand for non-inaugural green bonds (see our note here). With that said, we note that demand persists for new instruments and for USD-denominated ESG-labeled bonds; a green UST would meet both criteria and could see pricing benefits in the market. The greenium seems to be an add-on benefit for TBAC, however, and less of a driving factor behind the consideration: "We recommend that the decision to issue green bonds on a regular and predictable basis be primarily based on Treasury's investor base expansion objective, with greenium only being a potential secondary benefit."

Exhibit 3: The greenium for DM sovereigns has faded over time, as AUM growth in dedicated sustainability funds slows and as investors find declining marginal utility in incremental issuance

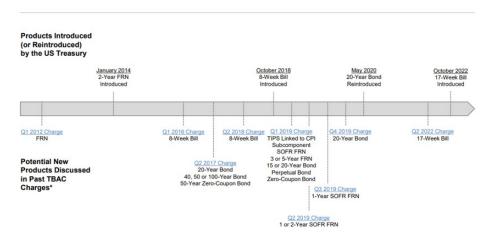


Should Treasury decide to proceed with a green bond issuance, it will likely still take years, not months: A historical look suggests that the introduction of new instruments by Treasury comes after years of discussion. The 2-year FRN was first discussed in the TBAC charge in 1Q12 and not introduced until 1Q14; the 20-year bond was considered in the 2Q17 charge and first issued in May 2O20. We expect that Treasury will first need to look at the amount of green projects that could be financed by a green bond regardless of administration. The other G10 sovereigns that issue green bonds have varying (and lower) levels of issuance calendar rigidity and therefore have more flexibility in their more sporadic issuance of Use of Proceeds bonds. Certainty by Treasury around continued green project financing would be a necessary prerequisite before embarking on a new green bond program.

Exhibit 4: Potential new products discussed in past TBAC Charges and timeline of introduction

Potential New Products Discussed in Past TBAC Charges

Since 2012



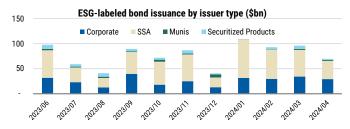
* Note that this includes products discussed but not necessarily recommended by the TBAC

Source: TBAC charge 2Q24

ESG-Labeled Bond Issuance Trends

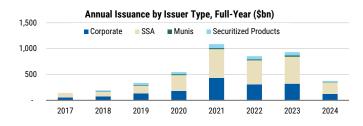
ESG-labeled bond trends

Exhibit 5: \$70bn of ESG-labeled bonds came to market in April, bringing YTD total to \$378bn.



Source: Bloomberg, Morgan Stanley Research

Exhibit 6: The year continues to track as the strongest on record, up 6% y/y vs 2023 Jan-Apr.



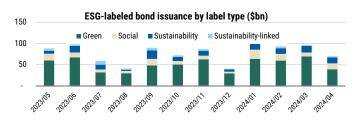
Source: Bloomberg, Morgan Stanley Research

Exhibit 7:Monthly and annual issuance of ESG-labeled bonds by issuer type

	Corporate		SSA		Munis		Securit	ized Products	Total	
April-24	\$	29	\$	36	\$	2	\$	3	\$	70
YTD Issuance	\$	125	\$	225	\$	6	\$	22	\$	378
m/m		-15%		-31%		-14%		-62%		-27%
y/y		16%		-33%		38%		-51%		-18%

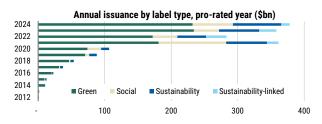
Source: Bloomberg, Morgan Stanley Research

Exhibit 8: Total issuance fell m/m by 27%, with April the slowest month of supply so far this year...



Source: Bloomberg, Morgan Stanley Research

Exhibit 9: ...with green bond issuance pacing comparably to 2023. Both social and sustainability are up. SLB issuance is down 50% y/y.



Source: Bloomberg, Morgan Stanley Research

Exhibit 10:Monthly and annual issuance of ESG-labeled bonds, by product type

	Green		Social		Sustainability		Sustai	nability-linked	Grand Total	
April-24	\$	39	\$	14	\$	14	\$	3	\$	70
YTD Issuance	\$	232	\$	61	\$	73	\$	13	\$	378
m/m		-43%		50%		-11%		48%		-27%
y/y		-33%		76%		-13%		-21%		-18%

Source: Bloomberg, Morgan Stanley Research

Exhibit 11: The share of non-EUR denominated bonds landed at 65% in April...

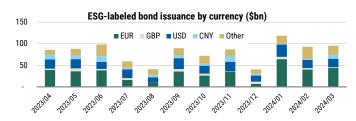
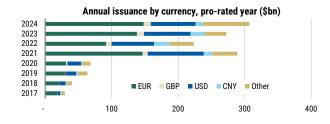


Exhibit 12: ...5pp above the 6-month average of 60%



Source: Bloomberg, Morgan Stanley Research

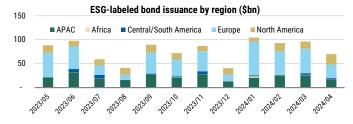
Exhibit 13:

Monthly and annual issuance of ESG-labeled bonds, by currency

	EUR		GBP		USD		CNY		Other	
April-24	\$	24	\$	2	\$	27	\$	4	\$	13
YTD Issuance	\$	173	\$	12	\$	95	\$	16	\$	83
m/m		-44%		-14%		30%		-53%		-38%
y/y		-38%		-50%		24%		-64%		22%

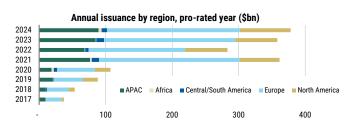
Source: Bloomberg, Morgan Stanley Research

Exhibit 14: American issuance was up 45% m/m to \$22bn in April...



Source: Bloomberg, Morgan Stanley Research

Exhibit 15: ...a continuation of the strength in issuance we have seen thus far this year.



Source: Bloomberg, Morgan Stanley Research

Exhibit 16:

Monthly and annual ESG-labeled bond issuance by region of domicile

	APAC		Africa	Central/South America		Europe		North Amer	ica
April-24	\$	17	\$) \$	2	\$	29	\$	22
YTD Issuance	\$	89	\$	5 \$	8	\$	200	\$	77
m/m		-33%	-77	%	-40%		-44%		47%
y/y		-31%	-60	%	-29%		-31%		35%

Agencies, (Sub-)Sovereigns, and Supranationals (SSAs) Issuance Trends

Exhibit 17: SSAs issued \$36bn in April...

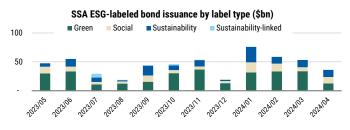
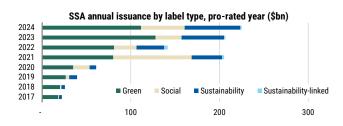


Exhibit 18: ...bringing the total YTD to \$225bn, 9% above 2023 equiv. issuance



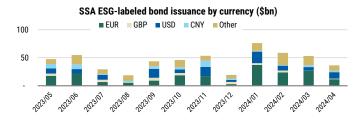
Source: Bloomberg, Morgan Stanley Research

Exhibit 19:Monthly and annual ESG-labeled bond issuance from SSAs

	Green	:	Social	Sustainability		Sustainability-linked	Grand Total
April-24	\$	13	\$ 1	1 \$	12	\$ 1	\$ 36
YTD Issuance	\$	111	\$	9 \$	63	\$ 1	\$ 225
m/m		-63%	60	3%	-2%	673%	-31%
y/y		-63%	10	1%	-11%	-45%	-33%

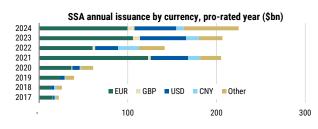
Source: Bloomberg, Morgan Stanley Research

Exhibit 20: EUR-denominated issuance (\$12bn, -56% m/m) accounted for 32% of SSA supply...



Source: Bloomberg, Morgan Stanley Research

Exhibit 21: ...totalling \$100bn so far this year (6% below 2023).



Source: Bloomberg, Morgan Stanley Research

Exhibit 22:

Monthly and annual SSA ESG-labeled bond issuance by currency

	EUR		GBP		USD		CNY		Other	
April-24	\$	12	\$	1	\$	12	\$	3	\$	10
YTD Issuance	\$	100	\$	8	\$	47	\$	9	\$	62
m/m		-56%		687%		75%		-23%		-42%
y/y		-61%		-23%		-14%		13%		28%

Exhibit 23: By region, a similar story unfolded in the SSA market this month

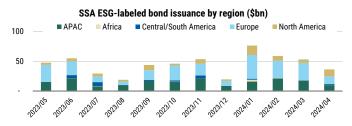
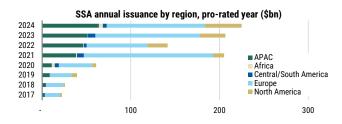


Exhibit 24: North American SSA-issued was up 100% to \$12bn, bring YTD total to \$40bn



Source: Bloomberg, Morgan Stanley Research

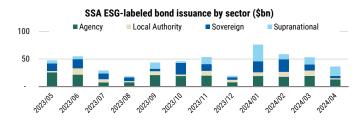
Exhibit 25:

Monthly and annual issuance by region from SSAs

	APAC	Africa		Central/South America	Eur	оре	North America
April-24	\$	10 \$	0	\$	2 \$	13	\$ 12
YTD Issuance	\$	64 \$	4	\$	4 \$	111	\$ 41
m/m		-42%	-50%	6	0%	-55%	98%
y/y		-24% n/a		-1:	8%	-55%	18%

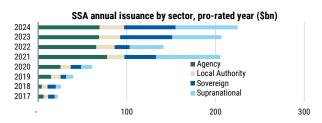
Source: Bloomberg, Morgan Stanley Research

Exhibit 26: Sovereign issuance slumped 62% m/m to \$4bn ...



Source: Bloomberg, Morgan Stanley Research

Exhibit 27: ...but agency issuance was up 33% m/m to \$13bn instead.



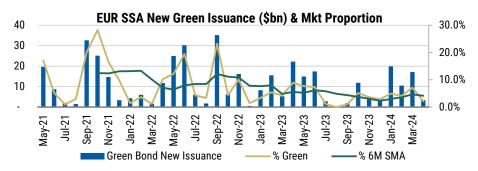
Source: Bloomberg, Morgan Stanley Research

Exhibit 28:

Monthly and annual issuance from SSAs by sub-sector

	Agency		Local Authority		Sovereign		Supranational		Grand Total	
April-24	\$	13	\$	2	\$	4	\$	17	\$	36
YTD Issuance	\$	69	\$	28	\$	58	\$	70	\$	225
m/m		-33%		-78%		-62%		31%		-31%
y/y		-11%		-42%		-82%		38%		-33%

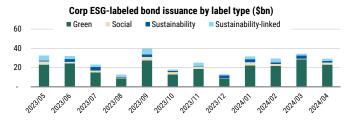
Exhibit 29: EUR SSA new green issuance fell in April to 2% of the total market, down from 7% in March. The 6-month average is 4.1%



Source: Bloomberg, Morgan Stanley Research. Issuance figures do not include taps or other ESG-labels (e.g., social, sustainability).

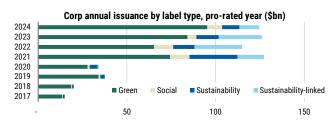
Corporate Issuance Trends

Exhibit 30: Corporates issued \$29bn of ESG-labeled bonds in April (\$23bn green)...



Source: Bloomberg, Morgan Stanley Research

Exhibit 31: ...roughly similar to the previous three years' issuance rates.



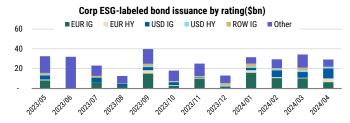
Source: Bloomberg, Morgan Stanley Research

Exhibit 32:Monthly and annual corporate ESG-labeled bond supply

	Green	So	ocial	Sustainability	Sustainability-linked	Grand Total
April-24	\$	23 \$	2	\$ 2	\$ 2	\$ 29
YTD Issuance	\$	95 \$	8	\$ 10	\$ 11	\$ 125
m/m		-19%	190%	-46%	25%	-15%
y/y		24%	38%	-28%	-12%	16%

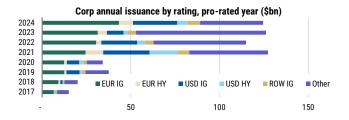
Source: Bloomberg, Morgan Stanley Research

Exhibit 33: EUR IG issuance fell 38% to \$7bn in April



Source: Bloomberg, Morgan Stanley Research

Exhibit 34: Though EUR IG corporate issuers are the leaders and are above pace of 2023.



Source: Bloomberg, Morgan Stanley Research



Exhibit 35:

Monthly and annual ESG-labeled bond supply from corporates by currency/rating

	EUR IG	EUR H	Y	USD IG		USD HY		ROW IG		Other	
April-24	\$	6 \$	4	\$	10	\$	2	\$	0	\$	7
YTD Issuance	\$	43 \$	8	\$	25	\$	6	\$	7	\$	36
m/m		-38%	596%		74%		-15%		-85%		-46%

Source: Bloomberg, Morgan Stanley Research

Exhibit 36: Issuance from American corporates rose 180% y/y to \$6bn...

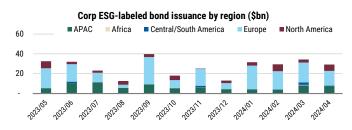
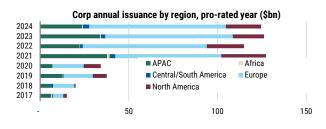


Exhibit 37: ...while European issuance rose 50% y/y to \$15bn



Source: Bloomberg, Morgan Stanley Research

Source: Bloomberg, Morgan Stanley Research

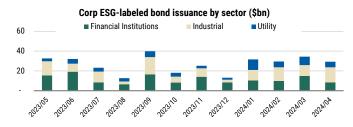
Exhibit 38:

Monthly and annual ESG-labeled bond supply from corporates, by region of domicile

	APAC	A		Central/South America	Europe	North America
April-24	\$	8 \$	-	\$ 1	\$ 15	\$ 6
YTD Issuance	\$	24 \$	0	\$ 4	\$ 77	\$ 20
m/m		-10%	-100%	-80%	-26%	109%
y/y		-35%	-100%	-50%	50%	184%

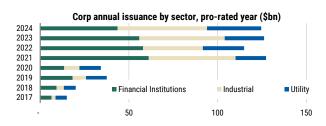
Source: Bloomberg, Morgan Stanley Research

Exhibit 39: Industrials supplied \$15bn of bonds in April and Utilities issued \$6bn...



Source: Bloomberg, Morgan Stanley Research

Exhibit 40: ...while Financials' issuance pace is lagging 2023 and 2022, with just \$344bn brought to market thus far



Source: Bloomberg, Morgan Stanley Research

Exhibit 41:

Monthly and annual ESG-labeled bond corporate supply, by sector

	Financial Institutions	Industrial		Utility	
April-24	\$ 8	\$	15	\$	6
YTD Issuance	\$ 44	\$	50	\$	31
m/m	-43%		37%		-33%
y/y	-41%		102%		73%

Exhibit 42: Corporate issuance continues to be concentrated in financials and utilities...

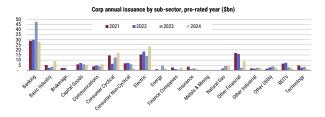
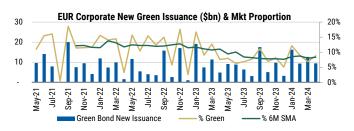
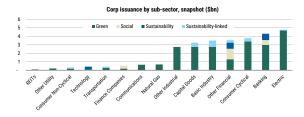


Exhibit 44: Green bonds were 9% of monthly issuance in EUR in April



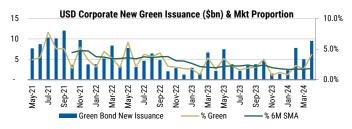
Source: Bloomberg, Morgan Stanley Research

Exhibit 43: ...and over time the skew towards green bonds has also increased.



Source: Bloomberg, Morgan Stanley Research

Exhibit 45: ...in USD it rose to 4.1%, above the 6-month SMA.



Green Bond ETF Performance

We look at green bond ETF performance vs. comparable vanilla benchmarks across three areas: global, Europe corporate, and US corporate.

Exhibit 46: The Global Green bond index rose 0.27% in April...



Source: Bloomberg, Morgan Stanley Research

Exhibit 48: The European green bond index rose 0.24% in April...



Source: Bloomberg, Morgan Stanley Research

Exhibit 50: The US green bond index rose 0.23% in April...



Source: Bloomberg, Morgan Stanley Research

Exhibit 47: ...outperforming the vanilla index by 0.23%



Source: Bloomberg, Morgan Stanley Research

Exhibit 49: ...outperforming the vanilla index by 0.04%



Source: Bloomberg, Morgan Stanley Research

Exhibit 51: ...outperforming the vanilla index by 0.01%



Source: Bloomberg, Morgan Stanley Research

No investment recommendation is made with respect to any of the ETFs or mutual funds referenced herein. Investors should not rely on the information included in making investment decisions with respect to those funds.



Disclosure Section

The information and opinions in Morgan Stanley Research were prepared or are disseminated by Morgan Stanley & Co. LLC and/or Morgan Stanley C.T.V.M. S.A. and/or Morgan Stanley México, Casa de Bolsa, S.A. de C.V. and/or Morgan Stanley Canada Limited and/or Morgan Stanley & Co. International plc and/or Morgan Stanley Europe S.E. and/or RMB Morgan Stanley Proprietary Limited and/or Morgan Stanley MUFG Securities Co., Ltd. and/or Morgan Stanley Capital Group Japan Co., Ltd. and/or Morgan Stanley Asia Limited and/or Morgan Stanley Asia (Singapore) Pte. (Registration number 199206298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore (which accepts legal responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research) and/or Morgan Stanley Taiwan Limited and/or Morgan Stanley & Co International plc, Seoul Branch, and/or Morgan Stanley Australia Limited (A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents), and/or Morgan Stanley Wealth Management Australia Pty Ltd (A.B.N. 19 009 145 555, holder of Australian financial services license No. 240813, which accepts responsibility for its contents), and/or Morgan Stanley India Company Private Limited having Corporate Identification No (CIN) U22990MH1998PTC115305, regulated by the Securities and Exchange Board of India ("SEBI") and holder of licenses as a Research Analyst (SEBI Registration No. INH00001105), Stock Broker (SEBI Stock Broker Registration No. INZ000244438), Merchant Banker (SEBI Registration No. INM000011203), and depository participant with National Securities Depository Limited (SEBI Registration No. IN-DP-NSDL-567-2021) having registered office at 18th Floor, Tower 2, One World Center, Plot- 841, Jupiter Textile Mill Compound, Senapati Bapat Marg, Lower Parel, Mumbai 400013, India Telephone no. +91-22-61181000; C

For important disclosures, stock price charts and equity rating histories regarding companies that are the subject of this report, please see the Morgan Stanley Research Disclosure Website at www.morganstanley.com/researchdisclosures, or contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY, 10036 LISA

For valuation methodology and risks associated with any recommendation, rating or price target referenced in this research report, please contact the Client Support Team as follows: US/Canada +1 800 303-2495; Hong Kong +852 2848-5999; Latin America +1 718 754-5444 (U.S.); London +44 (0)20-7425-8169; Singapore +65 6834-6860; Sydney +61 (0)2-9770-1505; Tokyo +81 (0)3-6836-9000. Alternatively you may contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY 10036 USA.

Analyst Certification

The following analysts hereby certify that their views about the companies and their securities discussed in this report are accurately expressed and that they have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report: Stephen C Byrd; Carolyn L Campbell.

Global Research Conflict Management Policy

Morgan Stanley Research has been published in accordance with our conflict management policy, which is available at www.morganstanley.com/institutional/research/conflictpolicies. A Portuguese version of the policy can be found at www.morganstanley.com.br

Important Regulatory Disclosures on Subject Companies

The equity research analysts or strategists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality of research, investor client feedback, stock picking, competitive factors, firm revenues and overall investment banking revenues. Equity Research analysts' or strategists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

Morgan Stanley and its affiliates do business that relates to companies/instruments covered in Morgan Stanley Research, including market making, providing liquidity, fund management, commercial banking, extension of credit, investment services and investment banking. Morgan Stanley sells to and buys from customers the securities/instruments of companies covered in Morgan Stanley Research on a principal basis. Morgan Stanley may have a position in the debt of the Company or instruments discussed in this report. Morgan Stanley trades or may trade as principal in the debt securities (or in related derivatives) that are the subject of the debt research report.

Certain disclosures listed above are also for compliance with applicable regulations in non-US jurisdictions.

STOCK RATINGS

Morgan Stanley uses a relative rating system using terms such as Overweight, Equal-weight, Not-Rated or Underweight (see definitions below). Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold and sell. Investors should carefully read the definitions of all ratings used in Morgan Stanley Research. In addition, since Morgan Stanley Research contains more complete information concerning the analyst's views, investors should carefully read Morgan Stanley Research, in its entirety, and not infer the contents from the rating alone. In any case, ratings (or research) should not be used or relied upon as investment advice. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

Global Stock Ratings Distribution

(as of April 30, 2024)

The Stock Ratings described below apply to Morgan Stanley's Fundamental Equity Research and do not apply to Debt Research produced by the Firm.

For disclosure purposes only (in accordance with FINRA requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, Not-Rated and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.



	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1456	38%	343	46%	24%	645	41%
Equal-weight/Hold	1746	46%	336	45%	19%	725	46%
Not-Rated/Hold	2	0%	0	0%	0%	1	0%
Underweight/Sell	606	16%	70	9%	12%	221	14%
Total	3,810		749			1592	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

Analyst Stock Ratings

Overweight (O or Over) - The stock's total return is expected to exceed the total return of the relevant country MSCI Index or the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis over the next 12-18 months.

Equal-weight (E or Equal) - The stock's total return is expected to be in line with the total return of the relevant country MSCI Index or the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis over the next 12-18 months.

Not-Rated (NR) - Currently the analyst does not have adequate conviction about the stock's total return relative to the relevant country MSCI Index or the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U or Under) - The stock's total return is expected to be below the total return of the relevant country MSCI Index or the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (1): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below. Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below. Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Important Disclosures for Morgan Stanley Smith Barney LLC & E*TRADE Securities LLC Customers

Important disclosures regarding the relationship between the companies that are the subject of Morgan Stanley Research and Morgan Stanley Smith Barney LLC or Morgan Stanley or any of their affiliates, are available on the Morgan Stanley Wealth Management disclosure website at www.morganstanley.com/online/researchdisclosures. For Morgan Stanley specific disclosures, you may refer to www.morganstanley.com/researchdisclosures.

Each Morgan Stanley research report is reviewed and approved on behalf of Morgan Stanley Smith Barney LLC and E*TRADE Securities LLC. This review and approval is conducted by the same person who reviews the research report on behalf of Morgan Stanley. This could create a conflict of interest.

Other Important Disclosures

Morgan Stanley Research policy is to update research reports as and when the Research Analyst and Research Management deem appropriate, based on developments with the issuer, the sector, or the market that may have a material impact on the research views or opinions stated therein. In addition, certain Research publications are intended to be updated on a regular periodic basis (weekly/monthly/quarterly/annual) and will ordinarily be updated with that frequency, unless the Research Analyst and Research Management determine that a different publication schedule is appropriate based on current conditions.

Morgan Stanley is not acting as a municipal advisor and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Morgan Stanley produces an equity research product called a "Tactical Idea." Views contained in a "Tactical Idea" on a particular stock may be contrary to the recommendations or views expressed in research on the same stock. This may be the result of differing time horizons, methodologies, market events, or other factors. For all research available on a particular stock, please contact your sales representative or go to Matrix at http://www.morganstanley.com/matrix.

Morgan Stanley Research is provided to our clients through our proprietary research portal on Matrix and also distributed electronically by Morgan Stanley to clients. Certain, but not all, Morgan Stanley Research products are also made available to clients through third-party vendors or redistributed to clients through alternate electronic means as a convenience. For access to all available Morgan Stanley Research, please contact your sales representative or go to Matrix at http://www.morganstanley.com/matrix.

Any access and/or use of Morgan Stanley Research is subject to Morgan Stanley's Terms of Use (http://www.morganstanley.com/terms.html). By accessing and/or using Morgan Stanley Research, you are indicating that you have read and agree to be bound by our Terms of Use (http://www.morganstanley.com/terms.html). In addition you consent to Morgan Stanley processing your personal data and using cookies in accordance with our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html), including for the purposes of setting your preferences and to collect readership data so that we can deliver better and more personalized service and products to you. To find out more information about how Morgan Stanley processes personal data, how we use cookies and how to reject cookies see our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html).

If you do not agree to our Terms of Use and/or if you do not wish to provide your consent to Morgan Stanley processing your personal data or using cookies please do not access our research. Morgan Stanley Research does not provide individually tailored investment advice. Morgan Stanley Research has been prepared without regard to the circumstances and objectives of those who receive it. Morgan Stanley recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial adviser. The appropriateness of an investment or strategy will depend on an investor's circumstances and objectives. The securities, instruments, or strategies discussed in Morgan Stanley Research



may not be suitable for all investors, and certain investors may not be eligible to purchase or participate in some or all of them. Morgan Stanley Research is not an offer to buy or sell or the solicitation of an offer to buy or sell any security/instrument or to participate in any particular trading strategy. The value of and income from your investments may vary because of changes in interest rates, foreign exchange rates, default rates, prepayment rates, securities/instruments prices, market indexes, operational or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in securities/instruments transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. If provided, and unless otherwise stated, the closing price on the cover page is that of the primary exchange for the subject company's securities/instruments.

The fixed income research analysts, strategists or economists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality, accuracy and value of research, firm profitability or revenues (which include fixed income trading and capital markets profitability or revenues), client feedback and competitive factors. Fixed Income Research analysts', strategists' or economists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

The "Important Regulatory Disclosures on Subject Companies" section in Morgan Stanley Research lists all companies mentioned where Morgan Stanley owns 1% or more of a class of common equity securities of the companies. For all other companies mentioned in Morgan Stanley Research, Morgan Stanley may have an investment of less than 1% in securities/instruments or derivatives of securities/instruments of companies and may trade them in ways different from those discussed in Morgan Stanley Research. Employees of Morgan Stanley not involved in the preparation of Morgan Stanley Research may have investments in securities/instruments or derivatives of securities/instruments of companies mentioned and may trade them in ways different from those discussed in Morgan Stanley Research. Derivatives may be issued by Morgan Stanley or associated persons.

With the exception of information regarding Morgan Stanley, Morgan Stanley Research is based on public information. Morgan Stanley makes every effort to use reliable, comprehensive information, but we make no representation that it is accurate or complete. We have no obligation to tell you when opinions or information in Morgan Stanley Research change apart from when we intend to discontinue equity research coverage of a subject company. Facts and views presented in Morgan Stanley Research have not been reviewed by, and may not reflect information known to, professionals in other Morgan Stanley business areas, including investment banking personnel.

Morgan Stanley Research personnel may participate in company events such as site visits and are generally prohibited from accepting payment by the company of associated expenses unless pre-approved by authorized members of Research management.

Morgan Stanley may make investment decisions that are inconsistent with the recommendations or views in this report.

To our readers based in Taiwan or trading in Taiwan securities/instruments: Information on securities/instruments that trade in Taiwan is distributed by Morgan Stanley Taiwan Limited (*MSTL*). Such information is for your reference only. The reader should independently evaluate the investment risks and is solely responsible for their investment decisions. Morgan Stanley Research may not be distributed to the public media or quoted or used by the public media without the express written consent of Morgan Stanley. Any non-customer reader within the scope of Article 7-1 of the Taiwan Stock Exchange Recommendation Regulations accessing and/or receiving Morgan Stanley Research is not permitted to provide Morgan Stanley Research to any third party (including but not limited to related parties, affiliated companies and any other third parties) or engage in any activities regarding Morgan Stanley Research which may create or give the appearance of creating a conflict of interest. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation or a solicitation to trade in such securities/instruments. MSTL may not execute transactions for clients in these securities/instruments.

Certain information in Morgan Stanley Research was sourced by employees of the Shanghai Representative Office of Morgan Stanley Asia Limited for the use of Morgan Stanley Asia Limited. Morgan Stanley is not incorporated under PRC law and the research in relation to this report is conducted outside the PRC. Morgan Stanley Research does not constitute an offer to sell or the solicitation of an offer to buy any securities in the PRC. PRC investors shall have the relevant qualifications to invest in such securities and shall be responsible for obtaining all relevant approvals, licenses, verifications and/or registrations from the relevant governmental authorities themselves. Neither this report nor any part of it is intended as, or shall constitute, provision of any consultancy or advisory service of securities investment as defined under PRC law. Such information is provided for your reference only.

Morgan Stanley Research is disseminated in Brazil by Morgan Stanley C.T.V.M. S.A. located at Av. Brigadeiro Faria Lima, 3600, 6th floor, São Paulo - SP, Brazil; and is regulated by the Comissão de Valores Mobiliários; in Mexico by Morgan Stanley México, Casa de Bolsa, S.A. de C.V which is regulated by Comision Nacional Bancaria y de Valores. Paseo de los Tamarindos 90, Torre 1, Col. Bosques de las Lomas Floor 29, 05120 Mexico City; in Japan by Morgan Stanley MUFG Securities Co., Ltd. and, for Commodities related research reports only, Morgan Stanley Capital Group Japan Co., Ltd; in Hong Kong by Morgan Stanley Asia Limited (which accepts responsibility for its contents) and by Morgan Stanley Bank Asia Limited; in Singapore by Morgan Stanley Asia (Singapore) Pte. (Registration number 199206298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore (which accepts legal responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research) and by Morgan Stanley Bank Asia Limited, Singapore Branch (Registration number T14FC0118)); in Australia to "wholesale clients" within the meaning of the Australian Corporations Act by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents; in Australia to "wholesale clients" and "retail clients" within the meaning of the Australian Corporations Act by Morgan Stanley Wealth Management Australia Pty Ltd (A.B.N. 19 009 145 555, holder of Australian financial services license No. 240813, which accepts responsibility for its contents; in Korea by Morgan Stanley & Co International plc, Seoul Branch; in India by Morgan Stanley India Company Private Limited having Corporate Identification No (CIN) U22990MH1998PTC115305, regulated by the Securities and Exchange Board of India ("SEBI") and holder of licenses as a Research Analyst (SEBI Registration No. INH000001105); Stock Broker (SEBI Stock Broker Registration No. INZ000244438), Merchant Banker (SEBI Registration No. INM000011203), and depository participant with National Securities Depository Limited (SEBI Registration No. IN-DP-NSDL-567-2021) having registered office at 18th Floor, Tower 2, One World Center, Plot-841, Jupiter Textile Mill Compound, Senapati Bapat Marg, Lower Parel, Mumbai 400013, India Telephone no. +91-22-61181000; Compliance Officer Details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: tejarshi.hardas@morgan $stanley.com; Grievance\ officer\ details: Mr.\ Tejarshi\ Hardas,\ Tel.\ No.: +91-22-61181000\ or\ Email: msic-compliance\\ @morgan stanley.com; in\ Canada\ by\ Morgan\ Stanley\ Canada\ Limited; in\ Germany$ and the European Economic Area where required by Morgan Stanley Europe S.E., authorised and regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin) under the reference number 149169; in the US by Morgan Stanley & Co. LLC, which accepts responsibility for its contents. Morgan Stanley & Co. International plc, authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, disseminates in the UK research that it has prepared, and research which has been prepared by any of its affiliates, only to persons who (i) are investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"); (ii) are persons who are high net worth entities falling within Article 49(2)(a) to (d) of the Order; or (iii) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000, as amended) may otherwise lawfully be communicated or caused to be communicated. RMB Morgan Stanley Proprietary Limited is a member of the JSE Limited and A2X (Pty) Ltd. RMB Morgan Stanley Proprietary Limited is a joint venture owned equally by Morgan Stanley International Holdings and A2X (Pty) and AInc. and RMB Investment Advisory (Proprietary) Limited, which is wholly owned by FirstRand Limited. The information in Morgan Stanley Research is being disseminated by Morgan Stanley Saudi Arabia, regulated by the Capital Market Authority in the Kingdom of Saudi Arabia, and is directed at Sophisticated investors only.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (DIFC Branch), regulated by the Dubai Financial Services Authority (the DFSA), and is directed at Professional Clients only, as defined by the DFSA. The financial products or financial services to which this research relates will only be made available to a customer who we are satisfied meets the regulatory criteria to be a Professional Client. A distribution of the different MS Research ratings or recommendations, in percentage terms for Investments in each



sector covered, is available upon request from your sales representative.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (QFC Branch), regulated by the Qatar Financial Centre Regulatory Authority (the QFCRA), and is directed at business customers and market counterparties only and is not intended for Retail Customers as defined by the QFCRA.

As required by the Capital Markets Board of Turkey, investment information, comments and recommendations stated here, are not within the scope of investment advisory activity. Investment advisory service is provided exclusively to persons based on their risk and income preferences by the authorized firms. Comments and recommendations stated here are general in nature. These opinions may not fit to your financial status, risk and return preferences. For this reason, to make an investment decision by relying solely to this information stated here may not bring about outcomes that fit your expectations.

The trademarks and service marks contained in Morgan Stanley Research are the property of their respective owners. Third-party data providers make no warranties or representations relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages relating to such data. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P.

Morgan Stanley Research, or any portion thereof may not be reprinted, sold or redistributed without the written consent of Morgan Stanley.

Indicators and trackers referenced in Morgan Stanley Research may not be used as, or treated as, a benchmark under Regulation EU 2016/1011, or any other similar framework.

The issuers and/or fixed income products recommended or discussed in certain fixed income research reports may not be continuously followed. Accordingly, investors should regard those fixed income research reports as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or individual fixed income products. Morgan Stanley may hold, from time to time, material financial and commercial interests regarding the company subject to the Research report.

Registration granted by SEBI and certification from the National Institute of Securities Markets (NISM) in no way guarantee performance of the intermediary or provide any assurance of returns to investors. Investment in securities market are subject to market risks. Read all the related documents carefully before investing.

The following authors are Fixed Income Research Analysts/Strategists and are not opining on or expressing recommendations on equity securities: Carolyn L Campbell.

© 2024 Morgan Stanley