

Morgan Stanley

April 16, 2023 05:00 PM GMT



Morgan Stanley

10 Themes for 2023 – Q1 Progress Report

Edward Stanley

Equity Strategist

Morgan Stanley & Co. International plc+

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.

+ = Analysts employed by non-U.S. affiliates are not registered with FINRA, may not be associated persons of the member and may not be subject to FINRA restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

All information as at 14th April 2023

10 Themes for 2023

Macro

ESG

Micro

	Thesis Progress – Thesis Update	Analyst
1. Margin Pressure – Company earnings and margins are likely to come under pressure. Play Pricing Power.	1/5 - A slower start than projected but expect further pressure in Q2 for US/Europe	Wilson, Secker
2. Inventory – Inventory has grown sharply while demand for goods is falling. Play Deflation Enablers	2/5 – Price cuts across several sectors in 1Q but expect further unwind ahead	Weaver, Wilson
3. China Reopening – a V-shaped recovery in China growth is now likely. Play >20% Revenue exposed.	5/5 - China reopening largely playing out as expected; Long EM from here	Garner, Blake
4. ESG Rate of Change – We think ESG rate of change will be a critical focus for alpha generation.	4/5 - Thesis intact and performance indicative of alpha generation	Byrd, Sanchez
5. Earthshots – We need more decarbonisation accelerants; 40 equities are most exposed.	3/5 – Growth in projects continues to take share but with more challenging funding	Stanley, Byrd
6. Downround IPOs & Cash Calls – The year of the downround but a year for opportunistic investors.	4/5 – Structured/down rounds accelerated by post-SVB credit tightening. \$40bn Q cash-burn. Awaiting IPOs	Stanley, De Maere
7. India's Decade - An underappreciated, multi-year theme with gathering momentum.	2/5 - Slow-burn theme with AI creating debate over Gen-Z employment risks	Desai, Ahya
8. Rise of Saudi –c\$1 trn in gigaprojects, and rapid demographic shifts favour contractors and Luxury.	3/5 - Slow-burn theme. Social and Giga reforms continue. Oil price the key variable	Zavolock, Yamanari
9. Multi-Earner Era – With the emergence of ChatGPT, the future of work multiplicative.	4/5 - The emergence of HustleGPT suggests this secular theme is on track	Stanley, Richers
10. Obesity x Social Media – From a linear secular theme to an exponential one	3/5 - Supply bottlenecks have slowed roll-out but demand thesis accelerating	Purcell, Flynn

Cross Asset: Relative Performance

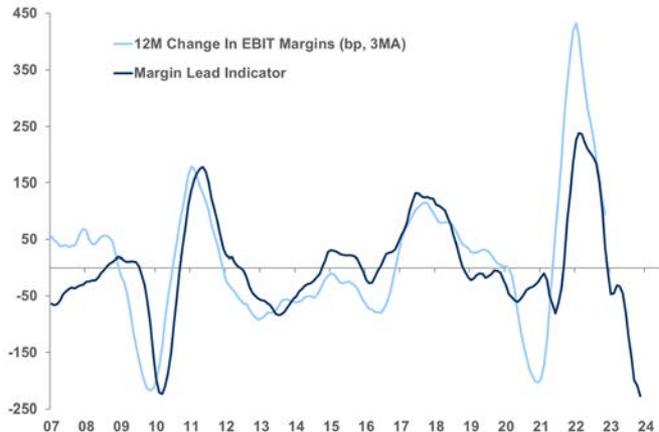
1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
US Venture 163%	Global Commodity 21.08%	US Real Estate 11.51%	Global Commodity 23.90%	US Venture 63.13%	US Real Estate 37.96%	EM Equity 34%	US Real Estate 42.12%	EM Equity 39.38%	US Fixed Income 5.24%	EM Equity 78.51%	Small Cap US Equity 26.85%	US Fixed Income 7.84%	US Real Estate 27.73%	US Venture 48.82%	US Venture 25.11%	US Venture 23.19%	Small Cap US Equity 21.31%	US Venture 55.82%	US Venture 8.52%	US Venture 53.66%	US Venture 67.91%	US Venture 23.15%	Global Commodity 13.75%	US Venture 10.71%
EM Equity 63.70%	US Real Estate 12.75%	US Fixed Income 9.19%	Global Fixed 22.37%	EM Equity 55.82%	EM Equity 25.55%	Global Commodity 17.50%	EM Equity 32.17%	US Venture 27.37%	Global Fixed 4.39%	US High Yield 58.21%	US Real Estate 19.63%	US High Yield 4.98%	US Venture 20.67%	Small Cap US Equity 38.82%	US Real Estate 15.02%	Large Cap US Equity 17.13%	US High Yield 17.13%	EM Equity 37.28%	Cash 1.87%	Large Cap US Equity 31.49%	Small Cap US Equity 19.96%	Large Cap US Equity 28.71%	Cash -1.75%	DM ex-U.S. Equity 7.83%
DM ex-U.S. Equity 23.67%	US Fixed Income 10.86%	Small Cap US Equity 5.62%	US Fixed Income 10.26%	Small Cap US Equity 47.25%	DM ex-U.S. Equity 20.38%	US Real Estate 15.35%	DM ex-U.S. Equity 25.17%	DM ex-U.S. Equity 12.44%	Cash 2.06%	US Venture 54.73%	EM Equity 18.88%	Global Fixed 4.36%	EM Equity 18.23%	Large Cap US Equity 32.39%	Large Cap US Equity 13.69%	US Fixed Income 0.55%	Large Cap US Equity 11.96%	DM ex-U.S. Equity 24.21%	US Fixed Income 0.01%	Small Cap US Equity 25.52%	Large Cap US Equity 18.40%	Global Commodity 27.1%	US High Yield -10.98%	Large Cap US Equity 7.34%
Small Cap US Equity 19.77%	Global Fixed 4.02%	US High Yield 5.09%	US Real Estate 2.82%	US Real Estate 40.69%	Small Cap US Equity 18.33%	DM ex-U.S. Equity 14.47%	Small Cap US Equity 18.37%	Global Fixed 11.03%	US High Yield -26.16%	US Real Estate 37.13%	Global Commodity 16.70%	US Venture 2.39%	DM ex-U.S. Equity 16.41%	DM ex-U.S. Equity 21.02%	US Fixed Income 5.97%	Cash 0.05%	Global Commodity 11.40%	Large Cap US Equity 21.83%	US High Yield -2.08%	DM ex-U.S. Equity 22.49%	EM Equity 18.31%	US Real Estate 26.09%	DM ex-U.S. Equity -15.34%	US Fixed Income 3.98%
Large Cap US Equity 19.64%	Cash 0.26%	Global Fixed 0.74%	Cash 1.78%	DM ex-U.S. Equity 39.42%	Global Fixed 12.54%	Large Cap US Equity 4.91%	Large Cap US Equity 15.79%	Global Commodity 11.10%	US Venture -32.6%	DM ex-U.S. Equity 33.67%	US High Yield 15.12%	Large Cap US Equity 2.11%	Small Cap US Equity 16.35%	US High Yield 7.44%	Small Cap US Equity 4.89%	US Real Estate -0.79%	EM Equity 11.19%	Small Cap US Equity 14.65%	Global Fixed -2.15%	US Real Estate 21.19%	Global Fixed 10.11%	Small Cap US Equity 14.82%	US Fixed Income -15.76%	Global Fixed 3.72%
Global Commodity 18.06%	US High Yield -5.69%	Cash 0.15%	US High Yield -1.37%	US High Yield 28.97%	US Venture 12.42%	Small Cap US Equity 4.55%	US High Yield 11.85%	US Fixed Income 6.97%	Small Cap US Equity -33.79%	Small Cap US Equity 27.17%	Large Cap US Equity 15.06%	Cash 0.10%	Large Cap US Equity 16%	US Real Estate 3.67%	US High Yield 2.45%	DM ex-U.S. Equity -3.04%	US Real Estate 4.06%	Global Fixed 10.51%	Large Cap US Equity -4.38%	EM Equity 18.44%	DM ex-U.S. Equity 7.59%	DM ex-U.S. Equity 12.62%	Global Fixed -16.25%	EM Equity 3.06%
US Real Estate 6.28%	Small Cap US Equity -8.46%	EM Equity -4.82%	EM Equity -6.16%	Large Cap US Equity 28.68%	US High Yield 11.13%	Cash 3.07%	US Venture 8.45%	Large Cap US Equity 5.49%	Global Commodity -36.60%	Large Cap US Equity 26.47%	US Venture 11.06%	Small Cap US Equity -4.18%	US High Yield 15.81%	Cash 0.07%	Cash 0.03%	Small Cap US Equity -4.41%	DM ex-U.S. Equity 2.75%	US Real Estate 10.36%	US Real Estate -5.63%	US High Yield 14.32%	US Fixed Income 7.51%	US High Yield 5.28%	Large Cap US Equity -19.44%	US High Yield 1.45%
US High Yield 2.39%	Large Cap US Equity -12.66%	Large Cap US Equity -10.53%	DM ex-U.S. Equity -15.80%	Global Commodity 22.70%	Large Cap US Equity 10.88%	US High Yield 2.74%	Global Fixed 8.16%	Cash 5%	Large Cap US Equity -37%	Global Commodity 18.70%	DM ex-U.S. Equity 8.95%	US Real Estate -6.46%	US Fixed Income 4.21%	US Fixed Income -2.02%	EM Equity - 2.19%	US High Yield -4.47%	US Fixed Income 2.65%	US High Yield 7.5%	Small Cap US Equity -11.01%	US Fixed Income 8.72%	US High Yield 7.11%	Cash 0.05%	EM Equity -20.56%	Cash 1.2%
Cash 1.15%	DM ex-U.S. Equity -14.13%	DM ex-U.S. Equity -17.83%	Small Cap US Equity -20.48%	Global Fixed 19.36%	Global Commodity 7.60%	US Fixed Income 2.43%	Cash 4.85%	US High Yield 1.87%	DM ex-U.S. Equity -43.56%	Global Fixed 7.53%	US Fixed Income 6.54%	DM ex-U.S. Equity -12.21%	Global Fixed 4.09%	EM Equity -2.6%	Global Fixed -3.09%	Global Fixed -6.02%	Global Fixed 1.49%	US Fixed Income 3.54%	Global Commodity -13.0%	Global Commodity 5.40%	Cash 0.67%	US Fixed Income -1.54%	Small Cap US Equity -21.56%	Small Cap US Equity 0.39%
US Fixed Income -2.54%	US Venture -25.5%	Global Commodity -20.11%	Large Cap US Equity -22.10%	US Fixed Income 4.10%	US Fixed Income 4.34%	US Venture -5.07%	US Fixed Income 4.33%	Small Cap US Equity -1.57%	US Real Estate -48.21%	US Fixed Income 5.93%	Global Fixed 4.95%	Global Commodity -13.40%	Cash 0.11%	Global Fixed -3.08%	DM ex-U.S. Equity -4.32%	EM Equity -14.92%	US Venture 0.36%	Cash 0.86%	DM ex-U.S. Equity -14.09%	Global Fixed 5.09%	Global Commodity -3.50%	EM Equity -2.54%	US Real Estate -26.25%	US Real Estate -0.21%
Global Fixed -5.63%	EM Equity -31.80%	US Venture -21.3%	US Venture -47.13%	Cash 1.15%	Cash 1.33%	Global Fixed - 8.65%	Global Commodity -2.70%	US Real Estate -7.39%	EM Equity -53.33%	Cash 0.21%	Cash 0.13%	EM Equity -18.42%	Global Commodity -1.10%	Global Commodity -9.60%	Global Commodity -17.30%	Global Commodity -24.70%	Cash 0.33%	Global Commodity 0.70%	EM Equity -14.57%	Cash 2.28%	US Real Estate -9.04%	Global Fixed -7.05%	US Venture -54.88%	Global Commodity -3.7%

10 Themes For 2023

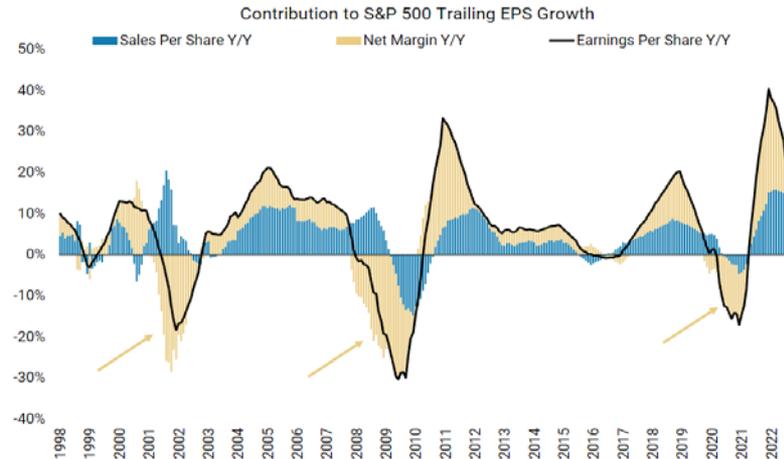
Theme 1: Margin Pressure (US)

Analysts: Michael Wilson, Michelle Weaver

We believe S&P 500 earnings will face significant pressure in 2023 and enter an earnings recession. The reason is negative operating leverage—when cost growth exceeds sales growth, earnings growth takes a steep hit. This phenomenon may be even more acute this cycle given (1) stickier wage costs amid a still tight employment market/labor shortages in certain industries and (2) excess inventory that was acquired at higher price points amid supply shortages and is just now being discounted in end markets (i.e., flowing through the income statement). [See report here](#)



Sources: Factset, Bloomberg, Morgan Stanley Research



Sources: Factset, Morgan Stanley Research

Margin Pressure (Europe)

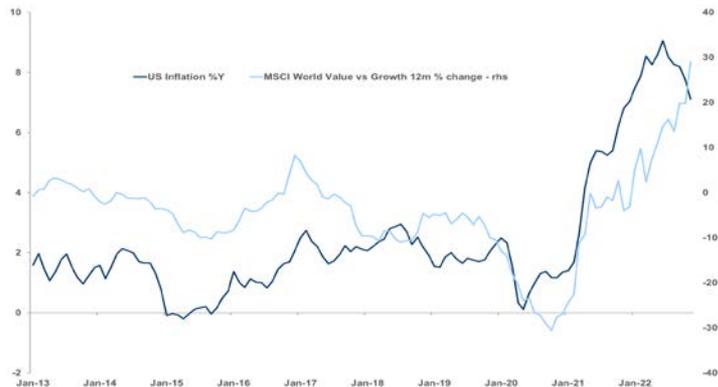
Analyst: Graham Secker

We assume European earnings will fall 10% this year as top line growth moderates and margins fall significantly. Our European margin lead indicator is pointing to over 200bps of margin contraction over the next 12m, comparable to that seen during the GFC. Higher wages, further cost inflation, slowing end demand and falling pricing power should all contribute to the negative operating leverage that we expect. [See report here](#)

Theme 2: From stagflation to disinflation (and recession?) ...

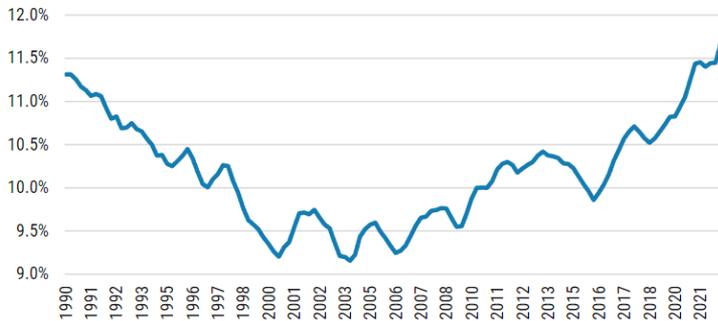
Analysts: Michael Wilson, Graham Secker

Inflation and higher rates have been the dominate driver of asset markets and sector performance trends in 2022. For 2023 we think the emphasis shifts to lower inflation and slower growth. Our US economists expect US inflation to fall materially over the coming quarters which should put downward pressure on bond yields and favour defensives and GARP stocks.



Sources: Factset, Morgan Stanley Research

Median Inventory/Sales (4 Quarter MA): Top 1000 Stocks ex REITs & Financials



Sources: Compustat, Morgan Stanley Research

... via Inventory Unwind

Analysts: Michael Wilson, Michelle Weaver

The problem with inventory is twofold - supply chains bottlenecks have cleared while demand, especially demand for goods, is slowing. Supply chains have stabilized for most industries and goods imports into the United States have surged higher on both a real and nominal basis. Inventory to Sales for the median US company has been on the rise since the Financial Crisis and is now at the highest level since 1990. We believe many companies will turn to aggressive discounting to solve their inventory problem. [See report here](#)

Theme 3: China/Asia re-opening

Analysts: Jonathan Garner, Daniel Blake, Graham Secker

Unlike Western economies that are likely to slow further during 2023, we see an improving outlook for China/Asia as policy restrictions ease and the region enjoys a re-opening upturn. In conjunction with the USD weakness that we expect, this backdrop should encourage increased investor interest and flow into Asia/EM/China assets, both fixed income and equities. We see >50 global stocks exposed to China (BBG ticker MSREGLCH Index) and >50 with exposure specifically listed in Europe (see appendix). A strong rally in this group is currently underway: [See report here for EM](#) and [here for Europe](#)



Sources: Thomson, Morgan Stanley Research



Sources Reuters, Morgan Stanley Research estimates

Theme 4: ESG Rate of Change Drives Alpha

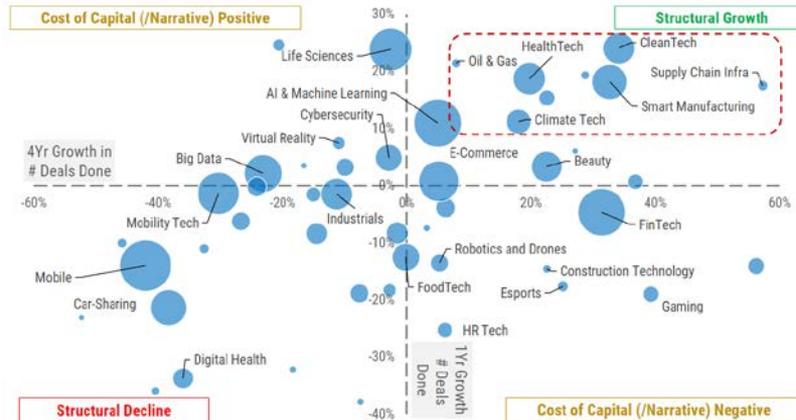
Analyst: Stephen Byrd

We think ESG rate of change will be a critical focus for investors looking to identify companies that can generate alpha and ESG impact. Of our global coverage, there are 90 stocks that our analysts believe will see significant improvement in at least one ESG metric, leading to a positive impact on financials and valuation. We believe our work is a better gauge of the likely future ESG rate of change of stocks than typical data services, which are often backward-looking and/or are not driven by in-depth, sector-specific analyses: [See report here](#)

Theme 5: Earthshots

Analysts: Edward Stanley, Stephen Byrd

Our analysts list [>50 companies](#) with embedded game-changing sustainability technology, from the cutting edge in Ginkgo Bioworks, Codexis and Oxford Nanopore, to the enablers in Siemens, Sunrun and Occidental. Moreover, this report demonstrates the sheer breadth and speed of innovation from c200 private companies funded with \$500bn of capital that are jostling to disrupt the lethargic decarbonisation status quo. [See report here](#)

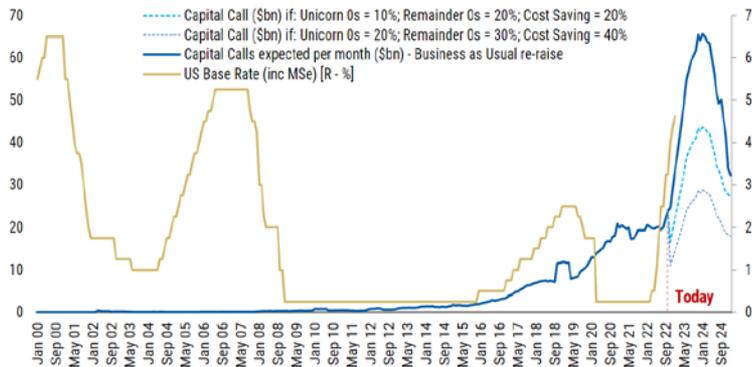


Sources: Pitchbook, Morgan Stanley Research

Theme 6: Downround IPOs & Cash Calls

Analyst: Edward Stanley

We are in the upswing of unicorns needing to re-raise. In the absence of unicorn consolidation, expect money to flow out of public equities to support (or compensate for) private investments. Only 3% of 1420 companies IPO'd on a downround over the past 15 years; yet over 50% continued to grow and IPO'd or were acquired at higher subsequent valuations. If downround IPOs are to happen then it is most likely to occur mid-year 2023 for most newly minted unicorns. History suggests that the companies that raised at the peak of the 2021 upswing will raise at a downround around 2Q23 and then could IPO on a subsequent up-round 9-12 months later. [See report here & here](#)



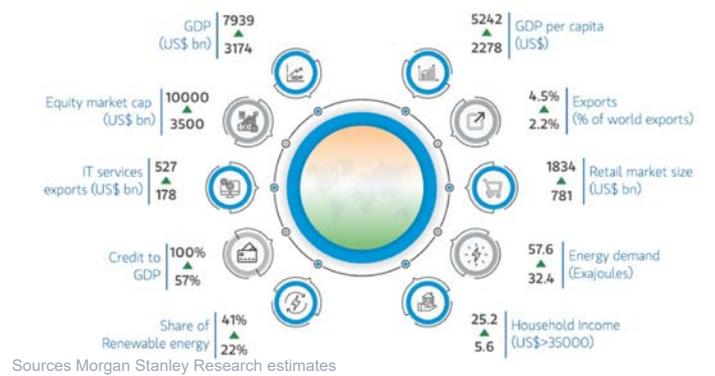
Sources: Pitchbook, Bloomberg, Morgan Stanley Research estimates. See full note above for detail behind the scenarios.

Theme 7: India's Decade

Analyst: *Ridham Desai*

India has the conditions in place for an economic boom fueled by offshoring, investment in manufacturing, the energy transition, and the country's advanced digital infrastructure. These drivers will make it the world's third-largest economy and stock market before the end of the decade. The New India will drive a fifth of global growth through the end of this decade, led by offshoring, investment in manufacturing, the energy transition, and digital differentiation. [See report here](#)

THE NEW INDIA WILL DRIVE A FIFTH OF GLOBAL GROWTH THROUGH THE END OF THIS DECADE



Sources: Google Maps, Morgan Stanley Research

Theme 8: Saudi – Emerging at ‘Giga’ speed

Analysts: *Marina Zavolock, Edward Stanley*

Saudi's extensive Vision 2030 economic and social reform program was launched in 2016 but gained significant momentum in 2022. Political will behind reforms is high, and the runway for continued momentum should extend into the next decade. We estimate giga, mega, and related project spending commitments to 2030 of c. \$900bn (versus an estimated \$50bn spent thus far). Korean and Indian contractors as well as Luxury look set to benefit. We see 20 global stocks with exposure to Vision 2030. [See report here](#)

Disclosure section

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.

The information and opinions in Morgan Stanley Research were prepared or are disseminated by Morgan Stanley Europe S.E., regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin) and/or Morgan Stanley & Co. International plc, authorized by the Prudential Regulatory Authority and regulated by the Financial Conduct Authority and the Prudential Regulatory Authority. Morgan Stanley & Co. International plc disseminates in the UK research that it has prepared, and approves solely for the purposes of section 21 of the Financial Services and Markets Act 2000, research which has been prepared by any of its affiliates. As used in this disclosure section, Morgan Stanley includes RMB Morgan Stanley Proprietary Limited, Morgan Stanley Europe S.E., Morgan Stanley & Co International plc and its affiliates.

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 USA.

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: Edward Stanley.

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/conflictolicies. A Portuguese version of the policy can be found at www.morganstanley.com.br

Disclosure section

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.

Disclosure section

Global Stock Ratings Distribution

(as of March 31, 2023)

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.

Stock Rating	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment	
						Services Clients (MISC)	
	Count	% of Total	Count	% of Total IBC	Rating Category	Count	% of Total Other MISC
Overweight/Buy	1354	37%	279	42%	21%	591	38%
Equal-weight/Hold	1651	45%	302	46%	18%	722	47%
Not-Rated/Hold	5	0%	1	0%	20%	1	0%
Underweight/Sell	646	18%	79	12%	12%	229	15%
Total	3,656		661			1543	

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.

Disclosure section

Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed 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). The stock's total return is expected to be in line with 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 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). The stock's total return is expected to be below 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 (I): 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.

Stock Price, Price Target and Rating History (See Rating Definitions)

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

Disclosure section

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.

Disclosure section

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.

Disclosure section

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.

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 Comisión 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 T14FC0118J); 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; 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 Regulatory Authority and regulated by the Financial Conduct Authority and the Prudential Regulatory Authority, disseminates in the UK research that it has prepared, and approves solely for the purposes of section 21 of the Financial Services and Markets Act 2000, research which has been prepared by any of its affiliates. 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 Inc. 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.

Disclosure section

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.

The Americas

1585 Broadway
New York, NY 10036-8293
United States
+1 212 761 4000

Europe

20 Bank Street, Canary Wharf
London E14 4AD
United Kingdom
+44 (0)20 7425 8000

Japan

1-9-7 Otemachi, Chiyoda-ku
Tokyo 100-8109
Japan
+81 (0) 3 6836 5000

Asia/Pacific

1 Austin Road West
Kowloon
Hong Kong
+852 2848 5200