



Global Investment Office | July 01, 2024

AlphaCurrents

Five Rules of Thumb for Thematic Investing

What is thematic investing? Broadly speaking, it's about uncovering big ideas—emerging trends and innovations that have the potential to shape the future, impact industries, drive market action and present opportunities for investing.

Thematic investing has gained popularity in recent years as exchange-traded funds (ETFs) have become more widely used, technology has disrupted many industries and momentum investing has gained mindshare among value investors. In this approach, investors hope to identify a durable theme, create a basket of investments tied to it and either buy and hold or dollar-cost-average until the theme no longer seems relevant.

It's generally understood that identifying themes early can be critical to maximizing returns, but there isn't a broad consensus around the structure of thematic investing. Themes may also be difficult to spot if there are no obvious catalysts, whether in technology or policy. That said, Morgan Stanley & Co. Research has studied decades of thematic investing data and outlined five general rules of thumb. We discuss them here, based on the April 10 report, "The Art and Science of Picking Themes," and share our favored investing ideas as we apply the rules to the current environment.

Denny Galindo, CFA

Investment Strategist

Denny.Galindo@morganstanley.com

James Ferraioli

Investment Strategist

James.Ferraioli@morganstanley.com

Special thanks to Jane Yu Sullivan for her contributions to this report.

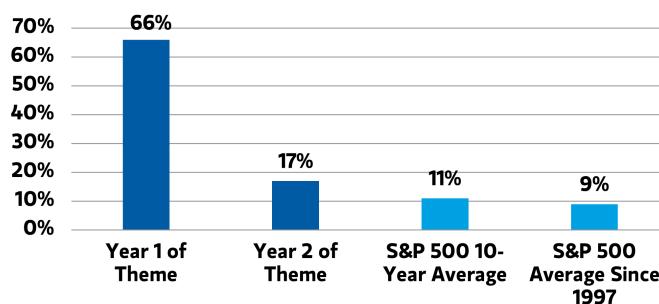
Morgan Stanley Wealth Management is the trade name of Morgan Stanley Smith Barney LLC, a registered broker-dealer in the United States. Morgan Stanley Wealth Management does and seeks to do business with companies covered in Morgan Stanley Wealth Management Research. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of Morgan Stanley Wealth Management Research. Investors should consider Morgan Stanley Wealth Management 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.

Rule 1: History Says It's Better To Stick With Outperforming Themes Than To Pivot to New Ones

The MS & Co. thematic research team studied whether it was better to hold on to investments related to a theme that's working (and risk selling too late) or attempt to find and pivot to a new theme (and risk being too early). Data over approximately the past 30 years supports the former approach. Since 1997, the best-performing themes of each year returned 66%, on average (see chart). In the subsequent year for the respective themes—or their “Year 2”—returns averaged 17%. In other words, even if investors were initially late to a developing theme, if they began investing in it and held through the year following its best year, history suggests they still would have seen double-digit returns—typically comfortably ahead of those of the S&P 500 Index.

Leading Themes' Returns Versus S&P 500 Returns



Note: S&P 500 Index data is as of Jan. 31, 2024.

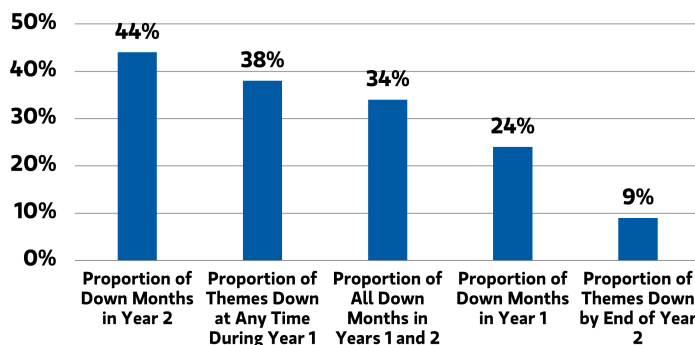
Source: Refinitiv Eikon, Datastream, Solactive, S&P Global, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management Global Investment Office as of June 25, 2024

Opportunity: Applying this rule to the current environment, “powering artificial intelligence (AI)” appears to be an emerging theme that may be a viable investing opportunity for at least another year. Increased power and data center demand will likely impact a wide array of sectors, and beneficiaries may include fuel cell manufacturer Bloom Energy (BE) and solar systems maker First Solar (FSLR). Broader infrastructure exposure may be achieved via ETFs such as First Trust NASDAQ Clean Edge Smart Grid Infrastructure Index Fund (GRID).

Risk: Data center growth may not keep up with demand, while changes in policy and supply chain disruptions can impact companies’ operations and profitability.

Rule 2: Volatility Picks Up in the Second Year

While returns may be solid in Year 2, studies showed that volatility does tend to pick up, leading to diminishing risk-adjusted return prospects. In aggregate, years following peak performance tended to see a major deterioration in Sharpe ratios. That said, MS & Co. Research analysts say the risk of calendar-year drawdowns for leading themes is less than what they had previously assumed. In the year in which themes performed best, only 24% of months were down (see chart). And among the themes observed, only 9% were down by the end of two years of buy-and-hold.



Source: Refinitiv Eikon, Datastream, Solactive, S&P Global, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management Global Investment Office as of June 25, 2024

Opportunity: We may be in Year 2 of the theme around the GPU technology underlying AI. There's been some volatility among chipmakers recently that may portend more ahead. That said, history suggests established themes take time to unwind. With this in mind, stocks that may have more runway to deliver positive performance include AI enablers such as Nvidia (NVDA) and Advanced Micro Devices (AMD).

Risk: The appeal of AI enablers may be strong enough to cause investors to hold on to or add exposure to the theme even as their portfolios potentially face heightened volatility.

Rule 3: Sustainability Themes See More Extremes

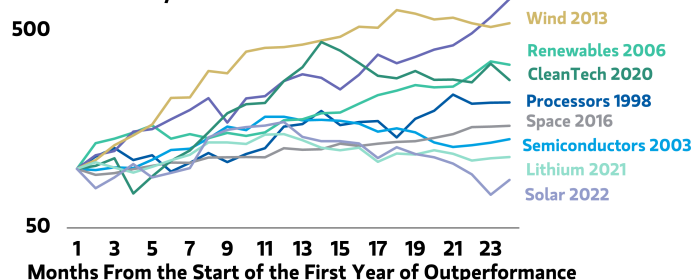
Data suggests sustainability-related themes such as alternative energy have experienced greater extremes while tech themes have seen a relatively narrow range of returns (see chart). Sustainability themes have been among the biggest outliers to the upside, while they've also been more likely to mean-revert to the downside in Year 2. There is not a simple explanation for this empirical finding, though for certain themes, profit margins and interest rate volatility may be contributing factors.

Interestingly, research shows that many performance reversals occur in January. This inflection point was particularly relevant for themes that were up or down at least 20% the prior year. With greater downside likely in sustainability themes once they do reverse, it may be prudent to take gains in such themes earlier in the year.

Opportunity: With large tech companies making net-zero commitments and looking to secure clean energy resources amid the AI boom, data center and infrastructure investments will likely pair with clean energy efforts. Beneficiaries of such a backdrop may include large-scale renewable developers AES (AES) and NextEra Energy (NEE), plus related funds like iShares Global Clean Energy ETF (ICLN) and Invesco WilderHill Clean Energy ETF (PBW).

Risk: Policy may pose a challenge to sustainability-related themes. A Republican sweep in this year's US elections, for instance, could put clean energy incentives and investments at risk.

Performance of Top Themes Over Two Years of Buy-and-Hold

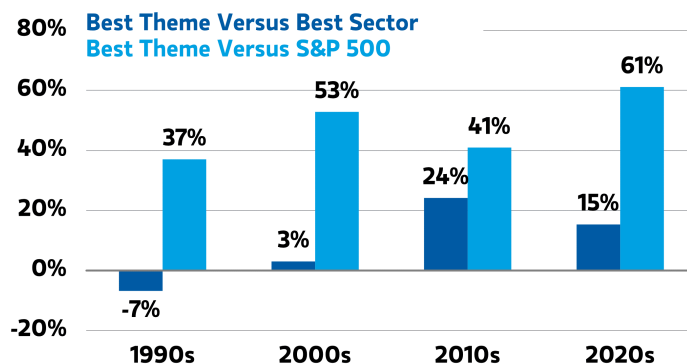


Note: Performance of select top themes over two years is rebased to the start of the first year of outperformance. The Y-axis is set to a logarithmic scale. Source: Refinitiv Eikon, Datastream, Solactive, S&P Global, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management Global Investment Office as of June 26, 2024

Rule 4: Momentum Is a Key Factor

Data suggests momentum is a key driver of thematic performance. In comparing best-performing themes with a wide array of factors, MS & Co. Research has found that themes tend to be most highly correlated with a clutch of momentum factors—with the highest correlation being with short-term momentum. By extension, themes were most negatively correlated with short-term momentum reversals. Meanwhile, they were generally negatively correlated with valuation metrics, such as price/earnings ratios and free cash flow yield.

Perhaps helped along by momentum, best-performing themes have also generally extended their degree of outperformance versus the broader market and leading sectors. As shown in the chart, in the 1990s, the best themes outpaced the S&P 500 by 37%, a lead that has widened to more than 60% in the 2020s.



Source: Refinitiv Eikon, Datastream, Solactive, S&P Global, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management Global Investment Office as of June 25, 2024

Opportunity: The momentum factor is having a strong year, with the S&P 500 Momentum Index up about 34% for the year to date as of late June, suggesting potential for capturing yet higher returns among winners if trends continue. Momentum's relative outperformance on the back of AI has helped drive tech names such as Amazon (AMZN) and Meta Platforms (META), as well as related ETFs like iShares Semiconductor ETF (SOXX).

Risk: While momentum factor exposure can contribute to outperformance of the broader market, a reversal can be abrupt and can touch off significant losses.

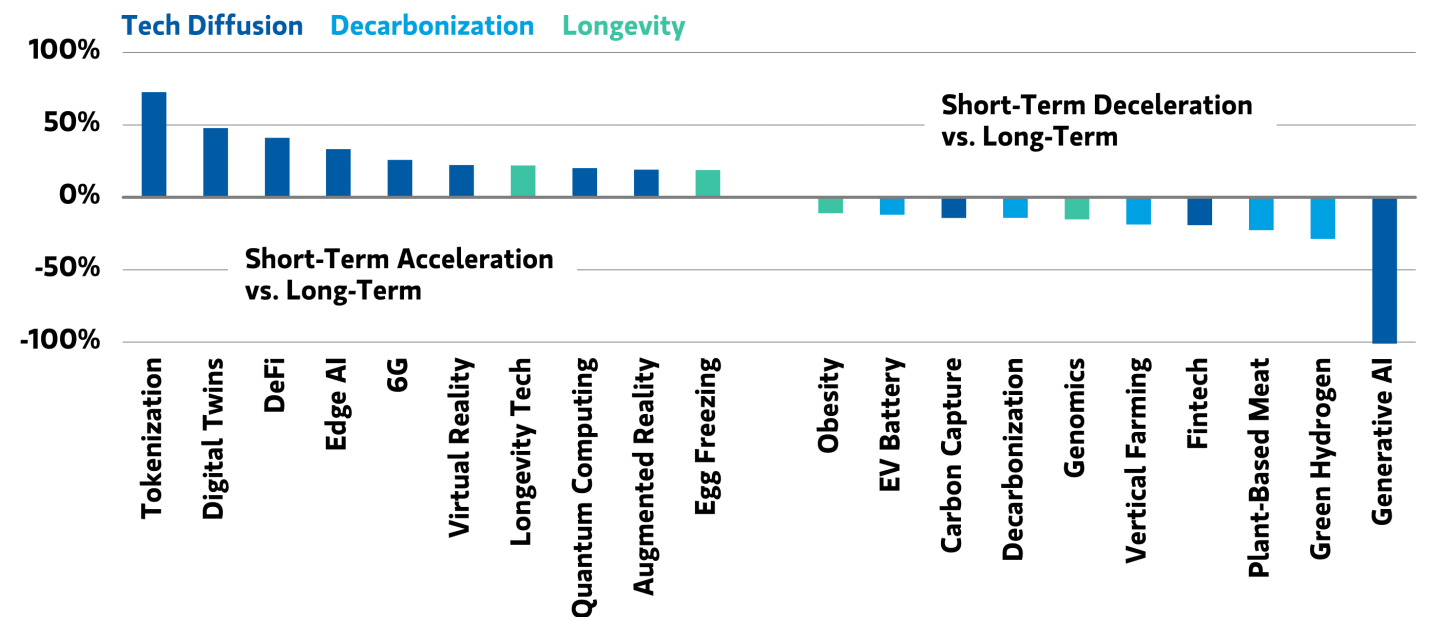
Rule 5: Consider Broadening Out to Sub-Themes

A truly big theme like the internet in the 1990s or AI eventually broadens out to sub-themes. Specifically, in AI, broadening out could mean shifting from first-layer plays in foundational technologies toward categories such as power, grid infrastructure or Edge AI. In fact, MS & Co. Research has called out Edge AI—the deployment of AI models locally on devices rather than on a centralized cloud—as a key sub-theme, based on its quantitative framework for tracking themes. The chart below illustrates that metrics in the framework are accelerating for Edge AI while those for Generative AI are decelerating.

Opportunity: As AI diffusion continues at both the consumer and enterprise levels, Edge AI’s rise as a sub-theme may be

the play to focus on next year. Stocks to consider include Apple (AAPL), Dell Technologies (DELL) and Qualcomm (QCOM). Beyond AI, in “diabesity”—another prominent theme—broadening out may mean moving from glucagon-like peptide-1 (GLP-1) drug makers toward fill-and-finish consolidation targets, or even businesses perceived to be disrupted, like sleep apnea treatment provider Inspire Medical Systems (INSP) and diabetes tech company Insulet (PODD).

Risk: Implementation and scalability of Edge AI may face challenges, such as that of limited computing power in everyday devices like smartphones. The GLP-1 theme is in its early stages, and questions remain, including those around long-term health impacts, costs and insurance coverage.



Note: The graph is truncated at -100%. The figure for generative AI is -34.5%.
Source: Refinitiv Eikon, Google Trends, PatentScope, WIPO, AlphaSense, PitchBook, LinkUp, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management Global Investment Office as of June 26, 2024

Conclusion

There may not be an exact definition of what constitutes a theme, but as thematic investing continues to rise in prominence and draw investor attention, it should become increasingly formalized through guidelines such as these rules of thumb.

With dynamic economies and markets bringing various short- and long-term trends to the fore, the framework we’ve discussed may help investors develop a more thoughtful approach to thematic investing as part of a diversified portfolio.

Securities Mentioned in Report

Bloom Energy Corp (BE; \$13.04; MS & Co. Rating: Overweight/ Industry View: Attractive)
First Solar Inc (FSLR; \$249.92; MS & Co. Rating: Overweight/ Industry View: Attractive)
First Trust NASDAQ Clean Edge Smart Grid Infrastructure Fund ETF* (GRID; \$115.85; MS & Co. Rating: Not Covered/ Industry View: Not Covered)
NVIDIA (NVDA; \$123.99; MS & Co. Rating: Overweight/ Industry View: Attractive)
Advanced Micro Devices (AMD; \$159.47; MS & Co. Rating:
AES CORP (AES; \$19.09; MS & Co. Rating: Overweight/ Industry View: Attractive)
NextEra Energy Inc (NEE; \$73.72; MS & Co. Rating: Overweight/ Industry View: Attractive)
iShares Global Clean Energy ETF* (ICLN; \$13.77; MS & Co. Rating: Not Covered/ Industry View: Not Covered)
Invesco WilderHill Clean Energy ETF* (PBW; \$20.89; MS & Co. Rating: Not Covered/ Industry View: Not Covered)
Amazon.com Inc (AMZN; \$197.85; MS & Co. Rating: Overweight/Industry View: Attractive)
Meta Platforms Inc (META; \$519.56; MS & Co. Rating: Overweight/Industry View: Attractive)
iShares Semiconductor ETF* (SOXX; \$244.16; MS & Co. Rating: Not Covered/ Industry View: Not Covered)
Apple Inc (AAPL; \$214.1; MS & Co. Rating: Overweight/ Industry View: In-Line)
Dell Technologies Inc (DELL; \$139.43; MS & Co. Rating: Overweight/ Industry View: In-Line)
Qualcomm Inc (QCOM; \$195.15; MS & Co. Rating: Equal-weight/ Industry View: Attractive)
Inspire Medical Systems Inc (INSP; \$135.33; MS & Co. Rating: Overweight/ Industry View: Attractive)
Insulet Corp (PODD; \$206.98; MS & Co. Rating: Overweight/ Industry View: Attractive)

**Covered by Michael Suchanick of Morgan Stanley Wealth Management Global Investment Office (GIO). Morgan Stanley Wealth Management GIO and its affiliates do not provide fundamental research ratings on exchange-traded funds (ETFs).*

Note: Prices as of market close on June 27, 2024

Disclosure Section

The information and opinions in Morgan Stanley Wealth Management Research were prepared by Morgan Stanley Smith Barney LLC under its trade name Morgan Stanley Wealth Management.

Environmental, Social and Governance ("ESG") investments in a portfolio may experience performance that is lower or higher than a portfolio not employing such practices. Portfolios with ESG restrictions and strategies as well as ESG investments may not be able to take advantage of the same opportunities or market trends as portfolios where ESG criteria is not applied. There are inconsistent ESG definitions and criteria within the industry, as well as multiple ESG ratings providers that provide ESG ratings of the same subject companies and/or securities that vary among the providers. Certain issuers of investments may have differing and inconsistent views concerning ESG criteria where the ESG claims made in offering documents or other literature may overstate ESG impact. ESG designations are as of the date of this material, and no assurance is provided that the underlying assets have maintained or will maintain and such designation or any stated ESG compliance. As a result, it is difficult to compare ESG investment products or to evaluate an ESG investment product in comparison to one that does not focus on ESG. Investors should also independently consider whether the ESG investment product meets their own ESG objectives or criteria. There is no assurance that an ESG investing strategy or techniques employed will be successful. Past performance is not a guarantee or a dependable measure of future results. The companies identified and investment examples are for illustrative purposes only and should not be deemed a recommendation to purchase, hold or sell any securities or investment products. They are intended to demonstrate the approaches taken by managers who focus on ESG criteria in their investment strategy. There can be no guarantee that a client's account will be managed as described herein.

For important disclosures (including copies of historical disclosures) regarding the securities and/or companies that are the subject of this Morgan Stanley Wealth Management Research product, please contact Morgan Stanley Wealth Management Research, 522 Fifth Ave., New York, N.Y. 10036, Attention: Research Management. In addition, the same important disclosures, with the exception of the historical disclosures, are contained on the Firm's disclosure website at <https://www.morganstanley.com/online/researchdisclosures>. Historical disclosures will be provided upon request back to June 1, 2009.

Morgan Stanley Wealth Management Analyst Certification

The Morgan Stanley Wealth Management research analysts principally responsible for the preparation and content of all or any identified portion of this research report, hereby certify that their views about the securities and/or companies 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. Unless otherwise stated, the individuals listed on the cover page of this report are Morgan Stanley Wealth Management research analysts.

Global Research Conflict Management Policy

Morgan Stanley Wealth Management has a Conflict Management policy available at: <https://www.morganstanley.com/online/researchconflictolicies>

Important US Regulatory Disclosures on Subject Issuers

The following analyst or strategist (or a household member) owns securities (or related derivatives), ETFs, or Closed-End funds that he or she covers or recommends in Morgan Stanley Wealth Management Research: James Ferraioli - APPLE INC..

Morgan Stanley Wealth Management or an affiliate beneficially owned 1% or more of a class of common equity securities of: ADVANCED MICRO DEVICES, INC., AMAZON.COM, INC., APPLE INC., BLOOM ENERGY CORPORATION, DELL TECHNOLOGIES INC., FIRST SOLAR INC., INSPIRE MEDICAL SYSTEMS, INC., INSULET CORPORATION, META PLATFORMS, INC., NEXTERA ENERGY, INC., NVIDIA CORPORATION, QUALCOMM INCORPORATED, THE AES CORPORATION.

Within the last 12 months, Morgan Stanley Wealth Management or an affiliate received compensation for investment banking services from the following issuers (if the security is an ETF or Closed-End Fund, the compensation is from the fund's investment manager or advisor): AMAZON.COM, INC., APPLE INC., BLOOM ENERGY CORPORATION, DELL TECHNOLOGIES INC., INSULET CORPORATION, NEXTERA ENERGY, INC., THE AES CORPORATION.

In the next 3 months, Morgan Stanley Wealth Management or an affiliate will seek compensation for investment banking services from the following issuers (if the security is an ETF or Closed-End Fund, the compensation is from the fund's investment manager or advisor): ADVANCED MICRO DEVICES, INC., AMAZON.COM, INC., APPLE INC., BLOOM ENERGY CORPORATION, DELL TECHNOLOGIES INC., INSULET CORPORATION, META PLATFORMS, INC., NEXTERA ENERGY, INC., NVIDIA CORPORATION, QUALCOMM INCORPORATED, THE AES CORPORATION.

Within the last 12 months, Morgan Stanley Wealth Management or an affiliate managed or co-managed a public offering (or 144a offering) for: BLOOM ENERGY CORPORATION, DELL TECHNOLOGIES INC., NEXTERA ENERGY, INC., THE AES CORPORATION.

Within the last 12 months, Morgan Stanley Wealth Management or an affiliate has provided or is providing investment banking services to, or has an investment banking client relationship with, the following issuers (if the security is an ETF or Closed-End Fund, the services were or are being provided to, or the relationship is with, the fund's investment manager or advisor): ADVANCED MICRO DEVICES, INC., AMAZON.COM, INC., APPLE INC., BLOOM ENERGY CORPORATION, DELL TECHNOLOGIES INC., INSULET CORPORATION, META PLATFORMS, INC., NEXTERA ENERGY, INC., NVIDIA CORPORATION, QUALCOMM INCORPORATED, THE AES CORPORATION.

Within the last 12 months, Morgan Stanley Wealth Management has received compensation for products or services other than investment banking services from the following issuers (if the security is an ETF or Closed-End Fund, the compensation is from the fund's investment manager or advisor): iShares Global Clean Energy ETF, iShares Semiconductor ETF, PowerShares WilderHill Clean Energy.

Within the last 12 months, Morgan Stanley Wealth Management has either provided or is providing non-investment banking, securities-related services to and/or in the past has entered into an agreement to provide services or has a client relationship with the following issuers (if the security is an ETF or Closed-End Fund, the services were or are being provided to, or the agreement is with, the fund's investment manager or advisor): ADVANCED MICRO DEVICES, INC., AMAZON.COM, INC., APPLE INC., BLOOM ENERGY CORPORATION, DELL TECHNOLOGIES INC., INSPIRE MEDICAL SYSTEMS, INC., iShares Global Clean Energy ETF, iShares Semiconductor ETF, NEXTERA ENERGY, INC., PowerShares WilderHill Clean Energy, QUALCOMM INCORPORATED, THE AES CORPORATION.

An affiliate of Morgan Stanley Wealth Management has a significant financial interest in relation to the following issuers (if the security is an

ALPHACURRENTS

ETF or Closed-End Fund, the significant financial is in relation to the fund's investment manager or advisor): AMAZON.COM, INC., APPLE INC., BLOOM ENERGY CORPORATION, INSULET CORPORATION, META PLATFORMS, INC., NEXTERA ENERGY, INC., NVIDIA CORPORATION, QUALCOMM INCORPORATED, THE AES CORPORATION. For an explanation of the determination of significant financial interest, please refer to the applicable policies for managing conflicts of interest, which can be found at <https://www.morganstanley.com/online/researchconflictolicies>.

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

Morgan Stanley Wealth Management and its affiliates do business that relates to companies/instruments covered in Morgan Stanley Wealth Management Research. Morgan Stanley Wealth Management and/or its affiliates sells to and buys from customers the securities/instruments of issuers covered in this Morgan Stanley Wealth Management Research report on a principal basis.

Morgan Stanley Wealth Management and others associated with it may have positions in and effect transactions in securities of ETFs mentioned and may also perform or seek to perform brokerage and other services for those ETFs and may enter into transactions with them. Affiliates of Morgan Stanley Wealth Management may participate in the creation and redemption of the securities covered in this report and as an authorized participant or otherwise, and may acquire such securities from the issuers for the purpose of resale.

Investors should consider the investment objectives, risks, charges and expenses of each investment company carefully before investing. The prospectuses and product descriptions contain this and other information about the investment company and should be read carefully before investing. Investors may obtain product descriptions and prospectuses for the ETFs mentioned in this report from the ETF distributor, their brokers or the exchange upon which the particular ETF is listed. Morgan Stanley & Co. LLC or its affiliates is an authorized participant for one or more ETFs of the following fund families: BlackRock Fund Advisors, 1-800-474-2737; Charles Schwab Investment Management, Inc., 1-800-435-4000; DirexionShares, 1-866-476-7523; ETF Securities, 1-212-918-4954; Guggenheim Funds, 1-888-949-3837; Merrill Lynch & Co., 1-212-449-1000; PIMCO ETFs, 1-888-400-4383; PowerShares Capital, 1-800-983-0903; ProShares, 1-866-776-5125; StateStreet Global Advisors, 1-866-787-2257; United States Commodity Funds, 1-800-920-0259; The Vanguard Group, 1-866-499-8473; VanEck Associates, 1-212-687-5200; WisdomTree, 1-866-909-9473.

ETFs are redeemable only in Creation Unit size through an Authorized Participant.

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

Closed-End Fund Rating System

Morgan Stanley Wealth Management only rates Closed-End Funds ("CEF"). For CEFs, Morgan Stanley Wealth Management uses a relative rating system using the terms Overweight, Equal-weight, Underweight, and Not Covered (see definitions below). Morgan Stanley Wealth Management does not assign ratings of Buy, Hold or Sell to the CEFs we cover. Overweight, Equal-weight, and Underweight are not the equivalent of buy, hold and sell. Investors should carefully read the definitions of all ratings used in Morgan Stanley Wealth Management Research. In addition, since Morgan Stanley Wealth Management Research contains more complete information concerning the analyst's view, investors should carefully read Morgan Stanley Wealth Management Research, in its entirety, and not infer the contents from the ratings 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 security or fund should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

Closed-End Fund Ratings Definitions

Overweight (O): The closed-end fund's total return is expected to exceed the average total return of the analyst's industry coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E): The closed-end fund's total return is expected to be in line with the average total return of the analyst's industry coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U): The closed end fund's total return is expected to be below the average total return of the analyst's industry coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not Covered (NC): Indicates that the analyst does not cover the fund.

Closed-End Fund Ratings Distribution (as of date May 31, 2024)

Morgan Stanley Wealth Management only rates CEFs. Thus, this Ratings Distribution table only displays the distribution data for the rated CEFs. For disclosure purposes only (in accordance with FINRA requirements), we include the category of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, and Underweight. Morgan Stanley Wealth Management does not assign ratings of Buy, Hold or Sell to the CEFs we cover. Overweight, Equal-weight, and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definition below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight to hold and Underweight to sell recommendations, respectively.

Closed-End Fund (CEF) Rating Category	CEF Coverage Universe		Investment Banking Clients (IBC)		
	Count	% of Total	Count	% of Total IBC	% of Rating Category
Overweight/Buy	26	35.1%	13	36.1%	50.0%
Equal-weight/Hold	35	47.3%	19	52.8%	54.3%
Underweight/Sell	13	17.6%	4	11.1%	30.8%
Total	74	100.0%	36	100.0%	

Data includes CEFs currently assigned ratings. An investor's decision to buy or sell a fund should depend on individual circumstances (such as an investor's existing holdings) and other considerations.

The Investment Banking Clients data above applies only to Morgan Stanley Wealth Management's CEF coverage universe. The data indicates

ALPHACURRENTS

those CEF investment managers for whom Morgan Stanley Wealth Management, provided investment banking services within the previous 12 months.

Other Important Disclosures

This Morgan Stanley Wealth Management Research does not provide individually tailored investment advice. Morgan Stanley Wealth Management Research has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. Morgan Stanley Wealth Management recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial advisor. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives. The securities, instruments, or strategies discussed in Morgan Stanley Wealth Management Research may not be appropriate for all investors, and certain investors may not be eligible to purchase or participate in some or all of them.

Morgan Stanley Smith Barney LLC, its affiliates and Morgan Stanley Financial Advisors do not provide legal or tax advice. Each client should always consult his/her personal tax and/or legal advisor for information concerning his/her individual situation and to learn about any potential tax or other implications that may result from acting on a particular recommendation.

Morgan Stanley Wealth Management 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 "Important US Regulatory Disclosures on Subject Issuers" section in Morgan Stanley Wealth Management Research reports or the "Listing of Important U.S. Regulatory Disclosures by security" section of the firm's disclosure website at <https://www.morganstanley.com/online/researchdisclosures> lists all issuers mentioned where Morgan Stanley Wealth Management or its affiliates own 1% or more of a class of common equity securities of the issuers. For all other issuers mentioned in Morgan Stanley Wealth Management Research, Morgan Stanley Wealth Management or its affiliates 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 Wealth Management Research. Employees of Morgan Stanley Wealth Management Research are not involved in the preparation of Morgan Stanley Wealth Management Research, may have investments in securities/instruments or derivatives of securities/instruments of issuers mentioned and may trade them in ways different from those discussed in Morgan Stanley Wealth Management Research.

The summary at the beginning of the report may have been generated with the assistance of artificial intelligence (AI).

Morgan Stanley Wealth Management Research is based on public information. Morgan Stanley Wealth Management 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 Wealth Management Research change apart from when we intend to discontinue equity research coverage of a subject company. Facts and views presented in Morgan Stanley Wealth Management Research have not been reviewed by, and may not reflect information known to, professionals in other Morgan Stanley Wealth Management business areas, including investment banking personnel.

Morgan Stanley Wealth Management Research personnel conduct site visits from time to time but are prohibited from accepting payment or reimbursement by the company of travel expenses for such visits.

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.

Morgan Stanley Wealth Management may make investment decisions or take proprietary positions that are inconsistent with the recommendations or views in this report.

Investing in closed-end funds involves risks. These include the general risks associated with investing in securities, possible changes in market prices relative to net asset values and manager performance.

Besides the general risk of holding securities that may decline in value, closed-end funds have risks related to leverage and the potential for discounts to widen.

Morgan Stanley Wealth Management's Global Research Department produces and distributes research products for clients of Morgan Stanley Wealth Management.

This research is disseminated in Australia to "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).

Morgan Stanley Wealth Management is not incorporated under the People's Republic of China ("PRC") law and the research in relation to this report is conducted outside the PRC. In the PRC, this report will be distributed only upon request of a specific recipient. This report does not constitute an offer to sell or the solicitation of an offer to buy any securities in the PRC. PRC investors must have the relevant qualifications to invest in such securities and must be responsible for obtaining all relevant approvals, licenses, verifications and or registrations from PRC's relevant governmental authorities.

If your financial adviser is based in Australia, Switzerland or the United Kingdom, then please be aware that this report is being distributed by the Morgan Stanley entity where your financial adviser is located, as follows: Australia: Morgan Stanley Wealth Management Australia Pty Ltd (ABN 19 009 145 555, AFSL No. 240813); Switzerland: Morgan Stanley (Switzerland) AG regulated by the Swiss Financial Market Supervisory Authority; or United Kingdom: Morgan Stanley Private Wealth Management Ltd, authorized and regulated by the Financial Conduct Authority, approves for the purposes of section 21 of the Financial Services and Markets Act 2000 this research for distribution in the United Kingdom.

Morgan Stanley Wealth Management is not acting as a municipal advisor to any municipal entity or obligated person within the meaning of

ALPHACURRENTS

Section 15B of the Securities Exchange Act (the "Municipal Advisor Rule") and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of the Municipal Advisor Rule.

This material is disseminated in the United States of America by Morgan Stanley Wealth Management.

The trademarks and service marks contained in Morgan Stanley Wealth Management Research are the property of their respective owners. Third-party data providers make no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages of any kind relating to such data.

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

Morgan Stanley Wealth Management Research is disseminated and available primarily electronically, and, in some cases, in printed form.

Additional information on recommended securities/instruments is available on request.

© 2024 Morgan Stanley Smith Barney LLC. Member SIPC.

RSI1719615222967 06/2024