

3Q 2024 REVIEW AND INSIGHTS

THIRD QUARTER 2024

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Q3 2024 CAPITAL MARKETS PERFORMANCE

The S&P 500 continued making new highs through September as corporate profits continued setting new records. The long-term trend in share count reduction through corporate stock buybacks continues to make a significant impact. Economic activity showed significant softening during the 3rd quarter, allowing the Federal Reserve to cut the benchmark federal funds interest rate by 0.50% (11-1 vote) to 4.75%-5.0%, and to lower their year-end inflation forecast to 2.3%.

Capital Market Returns

As of September 30, 2024; Private Real Estate as of June 30, 2024

ASSET CLASS	INDEX IN USD	3-MONTH	YTD	1-YR	3-YR ANN	5-YR ANN
Global Equity						
Global Equity	MSCI All Country World	6.7%	19.1%	32.3%	8.0%	12.9%
US Equity	S&P 500	5.9%	22.1%	36.4%	11.4%	16.4%
International Equity	MSCI All Country World ex US	8.2%	14.7%	26.0%	3.9%	7.9%
Emerging Markets Equity	MSCI Emerging Markets	8.9%	17.2%	26.5%	0.1%	5.8%
Global Fixed Income						
Investment Grade Fixed Income	Bloomberg US Aggregate	5.2%	4.4%	11.6%	-1.7%	0.0%
Inflation-Linked Securities	Bloomberg Universal Govt Inflation-Linked	3.2%	2.2%	8.6%	-3.3%	-0.1%
High Yield	Bloomberg Global High Yield (H)	5.5%	9.5%	18.0%	3.4%	4.3%
Alternative Investments						
Global REITs	FTSE EPRA/NAREIT Global REITs	16.3%	12.4%	29.1%	-0.4%	1.1%
Commodities	Bloomberg Commodities	0.7%	5.9%	1.0%	3.1%	7.8%
MLPs	Alerian MLP	0.7%	18.6%	24.5%	23.9%	14.8%
Hedged Strategies	HFRX Global Hedge Fund Index	2.1%	5.1%	6.9%	1.0%	3.2%
Managed Futures	HFRX Macro/CTA Index	-0.8%	3.8%	2.5%	0.9%	1.4%
Private Real Estate	NCREIF Private Real Estate	-	-1.2%	-5.5%	2.3%	3.4%
Global Cash						
Cash	Citigroup 3-month Treasury Bill	1.4%	4.2%	5.6%	3.6%	2.4%
Other Fixed Income						
Municipal Fixed Income	Bloomberg Municipal Bond	2.7%	2.3%	10.4%	0.0%	1.2%

Source: FactSet, Bloomberg, Morgan Stanley, Values as of September 30, 2024. Private real estate through June 30, 2024

RANKED ASSET CLASS RETURNS BY YEAR

China rebounded to the top of the return tables after significant declines the past 3 years, as global equity markets continue to provide solid gains in 2024. Declining inflation and central bank easing allowed fixed income to beat inflation as well.

Blue means you're beating inflation

Ranking	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 YTD
1	REITS (27%)	MSCI JP (9%)	Commod. (21%)	MSCI CN (51%)	USD Cash (0%)	S&P 500 (29%)	MSCI CN (28%)	REITS (32%)	Commod. (0%)	S&P 500 (22%)	MSCI CN (26%)
2	S&P 500 (13%)	REITS (2%)	US Small (19%)	MSCI EM (35%)	US 2yr (0%)	REITS (26%)	US Small (18%)	S&P 500 (20%)	USD Cash (-4%)	MSCI JP (17%)	S&P 500 (19%)
3	US 10yr (8%)	US 10yr (1%)	US HY (15%)	MSCI EU (24%)	US 10yr (-1%)	US Small (23%)	MSCI EM (17%)	Commod. (18%)	US 2yr (-10%)	MSCI EU (17%)	MSCI EM (14%)
4	MSCI CN (7%)	EM \$ Sov. (1%)	Global HY (12%)	MSCI JP (22%)	US Agg (-2%)	MSCI EU (22%)	S&P 500 (17%)	MSCI EU (9%)	EM Local (-14%)	US Small (13%)	REITS (11%)
5	US IG (7%)	S&P 500 (1%)	S&P 500 (10%)	S&P 500 (19%)	TIPS (-3%)	MSCI CN (21%)	MSCI JP (13%)	US Small (7%)	US HY (-17%)	Global HY (10%)	MSCI EU (11%)
6	EM \$ Sov. (6%)	US 2yr (0%)	MSCI EM (9%)	US Small (12%)	US HY (-4%)	MSCI JP (17%)	Commod. (10%)	TIPS (-1%)	TIPS (-17%)	US HY (10%)	MSCI JP (10%)
7	US Agg (5%)	US Agg (0%)	EM \$ Sov. (7%)	EM Local (12%)	US IG (-4%)	MSCI EM (16%)	TIPS (10%)	US HY (-2%)	Global HY (-18%)	REITS (8%)	US Small (8%)
8	US Small (4%)	USD Cash (-1%)	REITS (7%)	Global HY (8%)	EM Local (-5%)	US IG (12%)	US 10yr (9%)	MSCI JP (-5%)	US Agg (-18%)	EM \$ Sov. (7%)	Global HY (7%)
9	TIPS (3%)	US IG (-1%)	US IG (4%)	EM \$ Sov. (7%)	Global HY (-6%)	US HY (12%)	US IG (8%)	Global HY (-6%)	MSCI EU (-20%)	MSCI EM (7%)	EM \$ Sov. (6%)
10	US HY (2%)	TIPS (-2%)	EM Local (4%)	REITS (6%)	REITS (-6%)	EM \$ Sov. (11%)	US Agg (6%)	USD Cash (-7%)	US 10yr (-20%)	US IG (5%)	US HY (5%)
11	US 2yr (0%)	MSCI EU (-3%)	TIPS (3%)	Commod. (5%)	EM \$ Sov. (-6%)	Global HY (10%)	US HY (6%)	US 2yr (-7%)	US IG (-21%)	EM Local (3%)	Commod. (4%)
12	USD Cash (-1%)	Global HY (-3%)	MSCI JP (1%)	US HY (5%)	S&P 500 (-6%)	Commod. (8%)	Global HY (6%)	US IG (-8%)	MSCI JP (-21%)	US Agg (2%)	EM Local (3%)
13	Global HY (-1%)	US Small (-5%)	US Agg (1%)	US IG (4%)	Commod. (-12%)	EM Local (7%)	MSCI EU (5%)	US Agg (-8%)	EM \$ Sov. (-22%)	US 2yr (1%)	US IG (3%)
14	MSCI EM (-3%)	US HY (-5%)	MSCI CN (-1%)	US Agg (1%)	US Small (-13%)	US Agg (6%)	EM Local (4%)	EM Local (-8%)	S&P 500 (-23%)	TIPS (1%)	TIPS (2%)
15	EM Local (-3%)	MSCI CN (-8%)	US 2yr (-1%)	TIPS (1%)	MSCI JP (-14%)	US 10yr (6%)	EM \$ Sov. (4%)	MSCI EM (-9%)	MSCI EM (-25%)	USD Cash (0%)	US Agg (2%)
16	MSCI JP (-4%)	EM Local (-11%)	US 10yr (-1%)	US 10yr (0%)	MSCI EM (-16%)	TIPS (6%)	US 2yr (2%)	EM \$ Sov. (-9%)	US Small (-25%)	US 10yr (0%)	US 2yr (1%)
17	MSCI EU (-6%)	MSCI EM (-15%)	USD Cash (-2%)	USD Cash (-1%)	MSCI EU (-16%)	US 2yr (1%)	USD Cash (-1%)	US 10yr (-9%)	MSCI CN (-27%)	MSCI CN (-14%)	US 10yr (1%)
18	Commod. (-18%)	Commod. (-19%)	MSCI EU (-2%)	US 2yr (-2%)	MSCI CN (-20%)	USD Cash (0%)	REITS (-6%)	MSCI CN (-27%)	REITS (-30%)	Commod. (-14%)	USD Cash (0%)

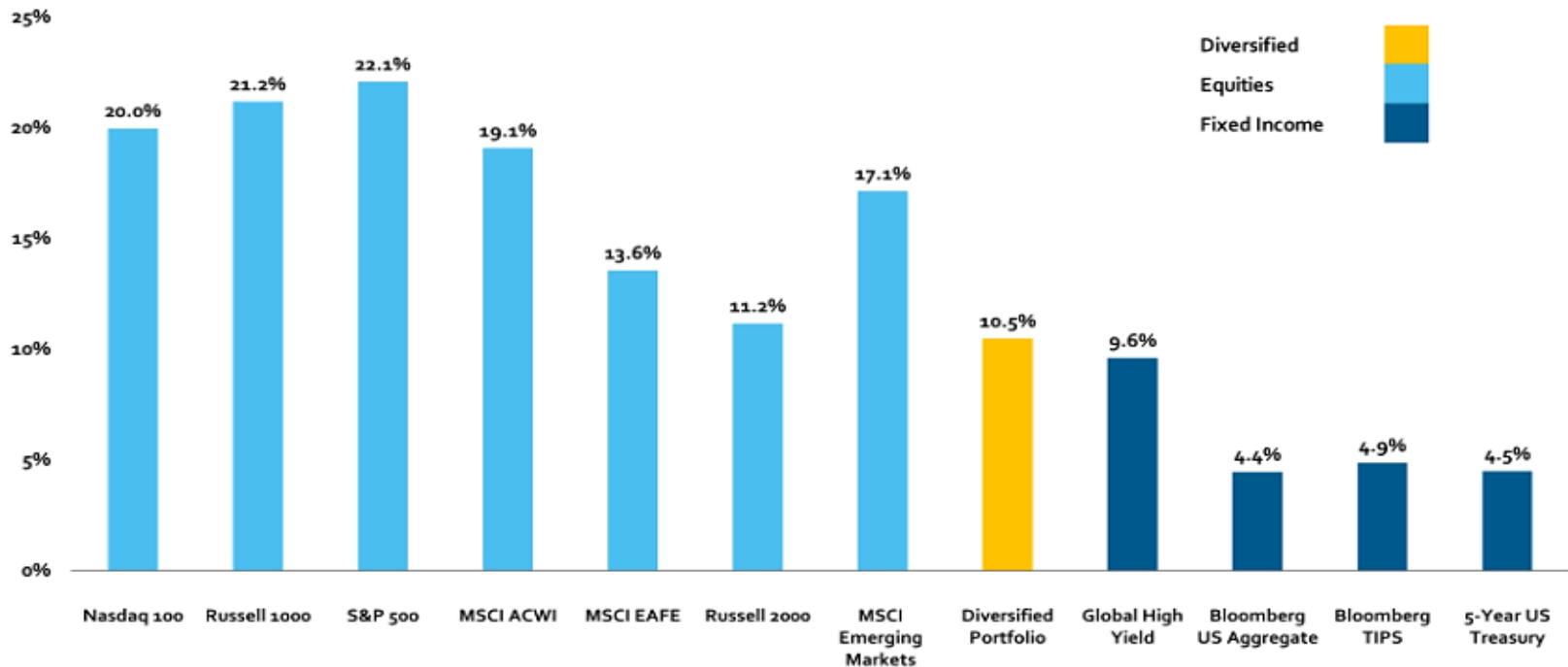
Source: Morgan Stanley Global in the Flow, October 1, 2024 S&P Dow Jones Indices Market Attributes, September 2024

U.S. MARKET GAINS BROADEN IN 3Q 24

Ten of the eleven S&P 500 sectors posted positive returns in the third quarter, reflecting a broadening of the market leadership led by the Russell 2000 small cap index + 9.3%. The 10-year Treasury yield closed the quarter with a yield of 3.78%, vs 4.40% at the end of Q2 providing gains for most fixed income assets.

Total Returns for Select Asset Classes Year-to-Date 2024

Cumulative Return from December 29, 2023 - September 30, 2024

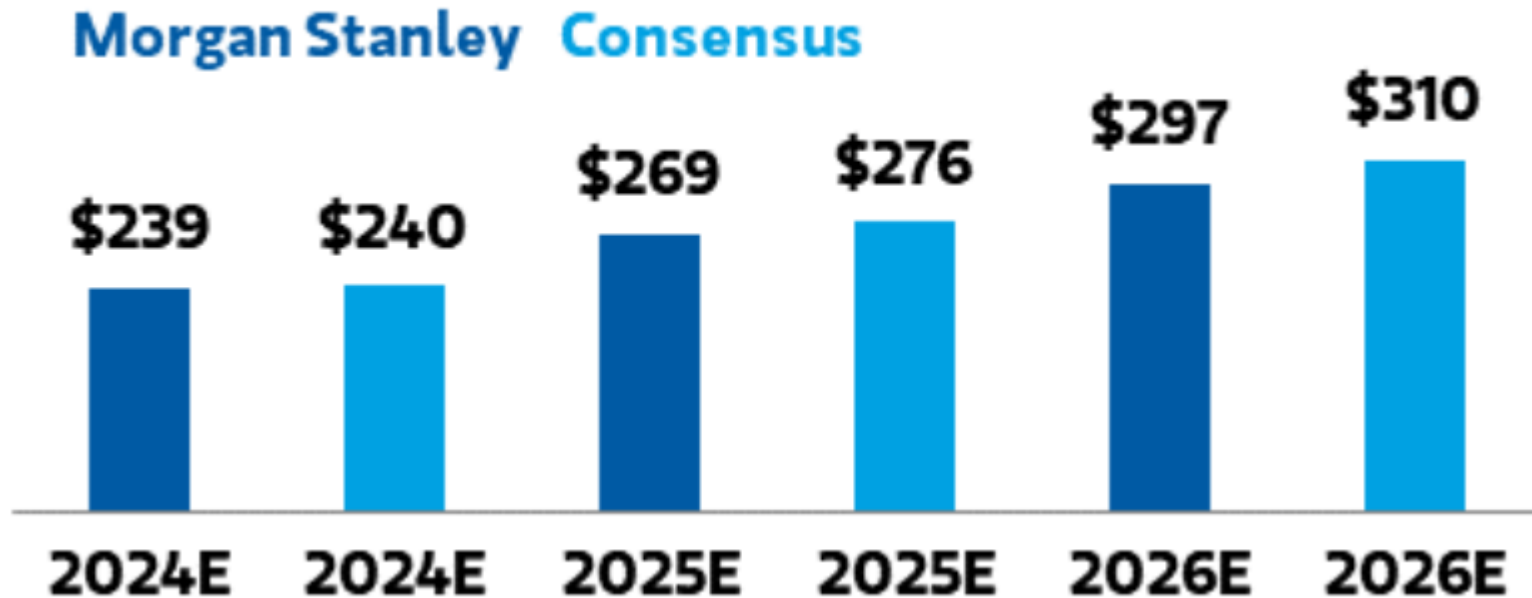


Source: FactSet, Bloomberg, Morgan Stanley as of September 30, 2024

EARNINGS OPTIMISM INCREASES

S&P 500 consensus earnings estimates continue to receive upward revisions. Alongside earnings, companies revised their capital spending guidance significantly higher, led by Gen AI investments. In aggregate, *S&P 500 capex estimates for 2024 have increased by \$40 billion thus far, to nearly \$1 trillion, with 70% of the increase coming from the Magnificent Seven.* The overall increase in capex suggests improving confidence in the macro environment, and companies' mentions of recession during earnings calls reached the lowest level since 4Q2021. Morgan Stanley estimates are only slightly less enthusiastic.

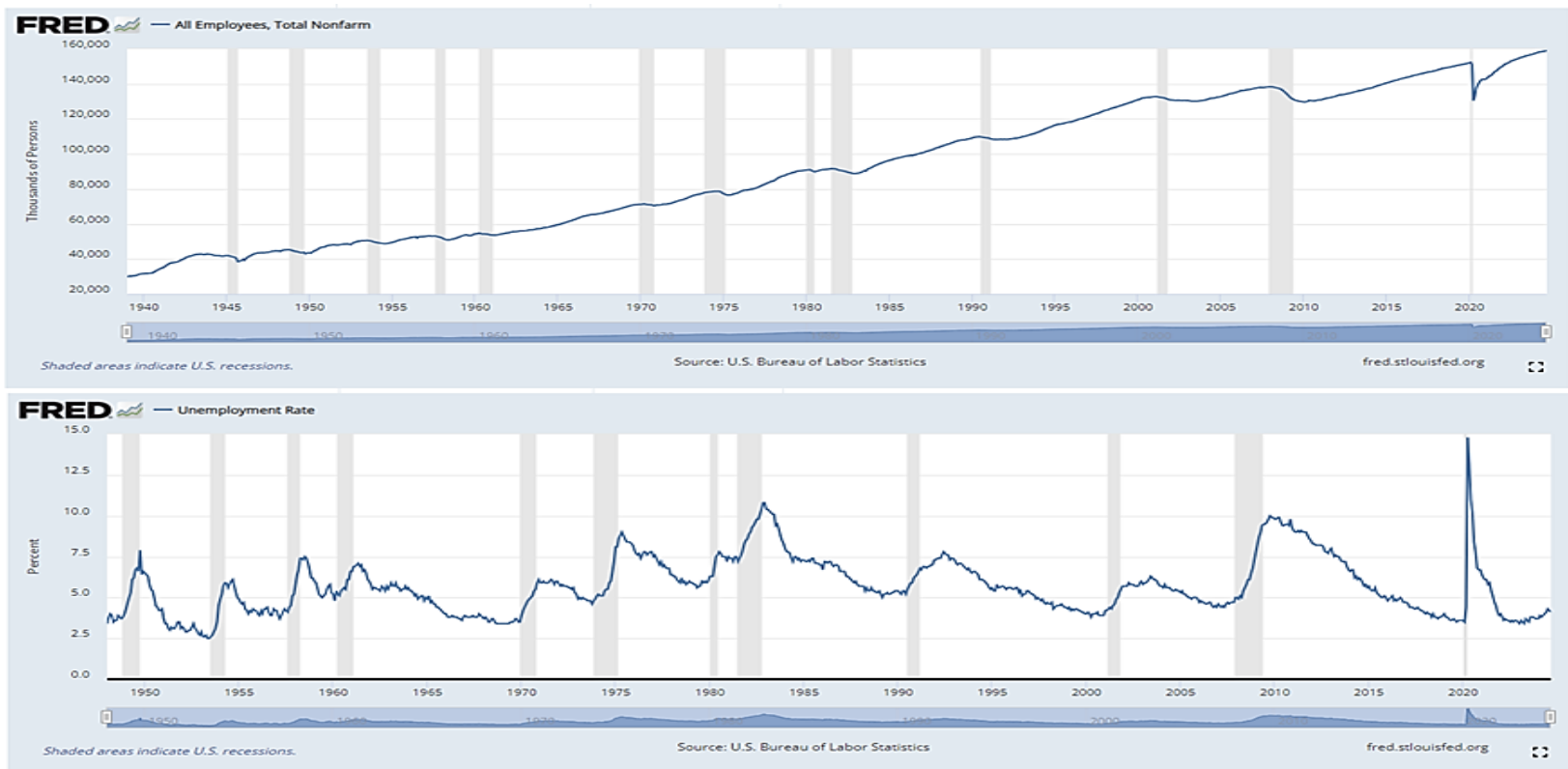
S&P 500 Earnings Estimates



Source: FactSet, Morgan Stanley GIC Weekly, October 14, 2024. Consensus 2026 earnings as of May 20, 2024

U.S. JOB CREATION CONTINUES..

The labor market reaccelerated from summer softness with payrolls increasing over 100,000 above consensus estimates to 254,000 and prior months were revised up by a cumulative 72,000. The unemployment rate fell 0.1% to 4.1% and wage growth remains strong. Given the broad reacceleration, Morgan Stanley economists continue to expect 25 basis points (0.25%) rate cuts at the November and December FOMC meetings.



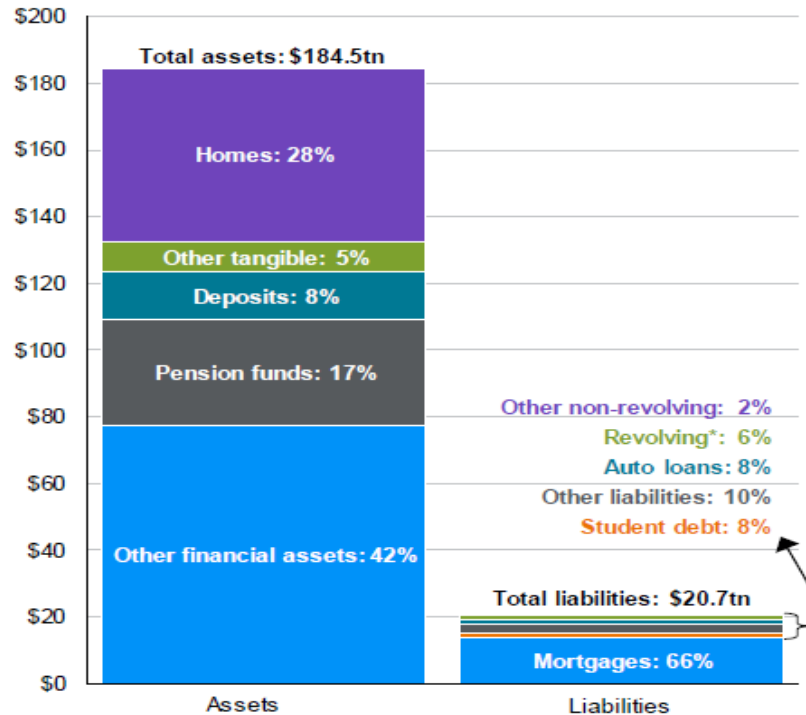
Source: U.S. Bureau of Labor Statistics, St. Louis Federal Reserve, as of October 4, 2024

.. AND, U.S. CONSUMERS BENEFIT

The University of Michigan Survey of Consumer Sentiment shows that a record-high 30% of the population own stocks worth more than \$500,000. Combined with record-high cash flows from fixed income investments, American consumers are enjoying a significant tailwind. U.S. consumer cash and equivalents have increased 38% to \$18.4B since the end of 2019, while consumer assets (housing and marketable securities) also increased 38% to \$184B.

Consumer balance sheet

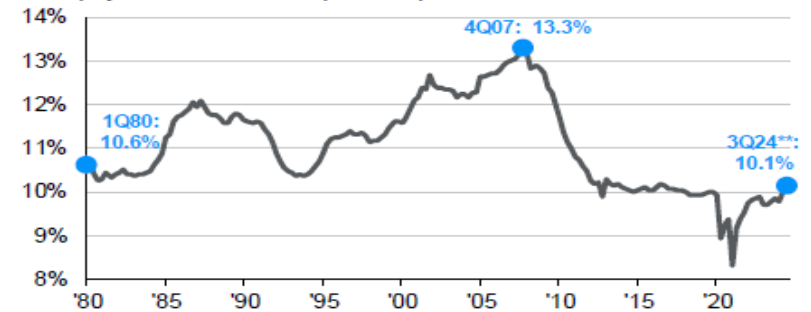
2Q24, USD trillions, not seasonally adjusted



Source: FactSet, FRB, JP Morgan Guide to the Markets, September 30, 2024

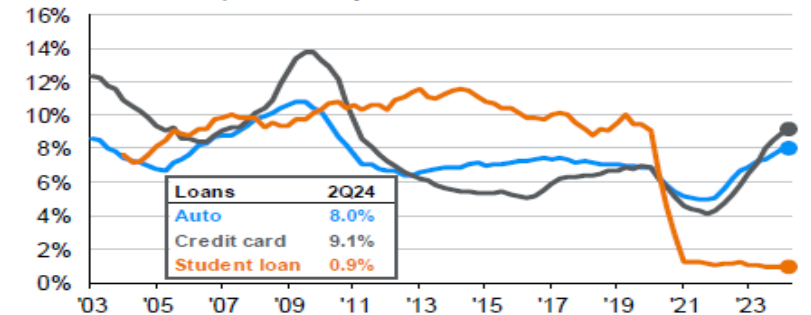
Household debt service ratio

Debt payments as % of disposable personal income, SA



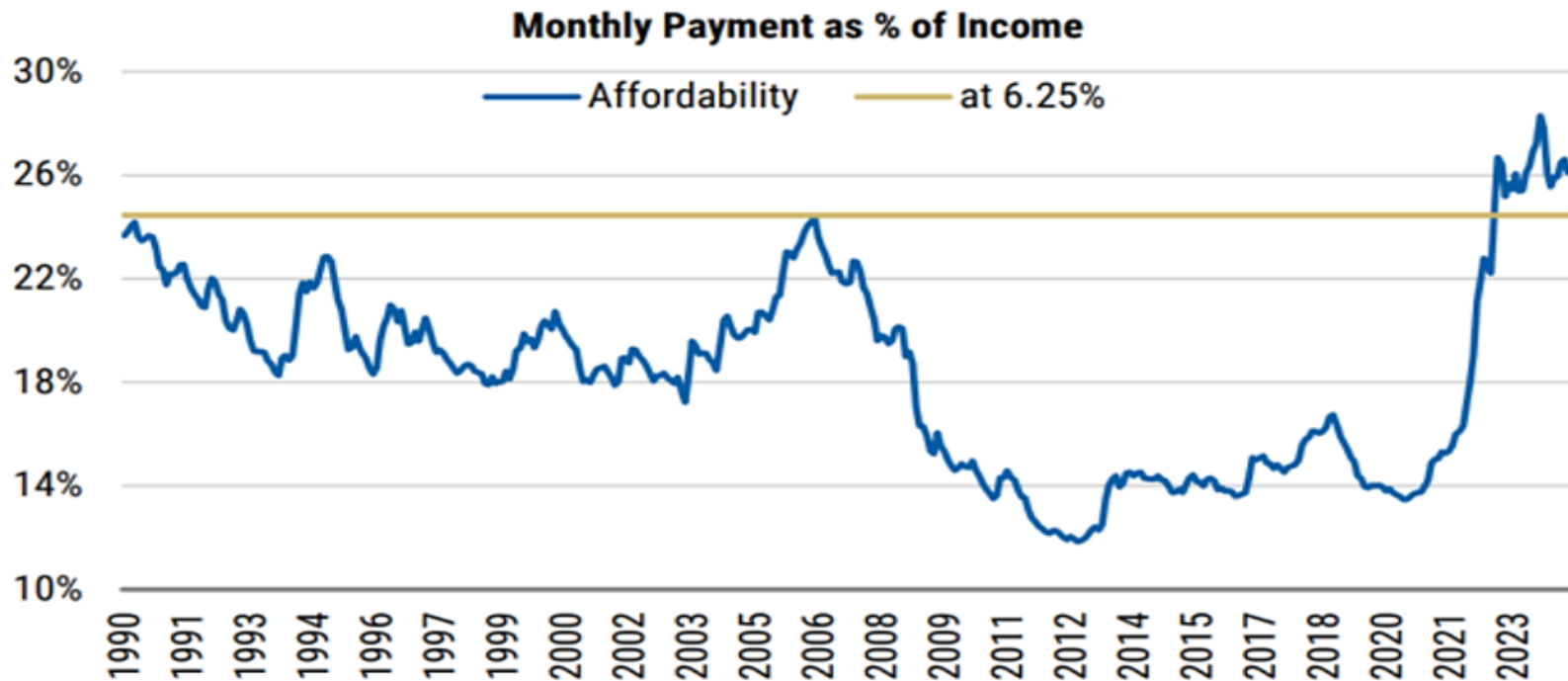
Flows into early delinquencies

% of balance delinquent 30+ days



HOME PRICES UP – INVENTORY DOWN

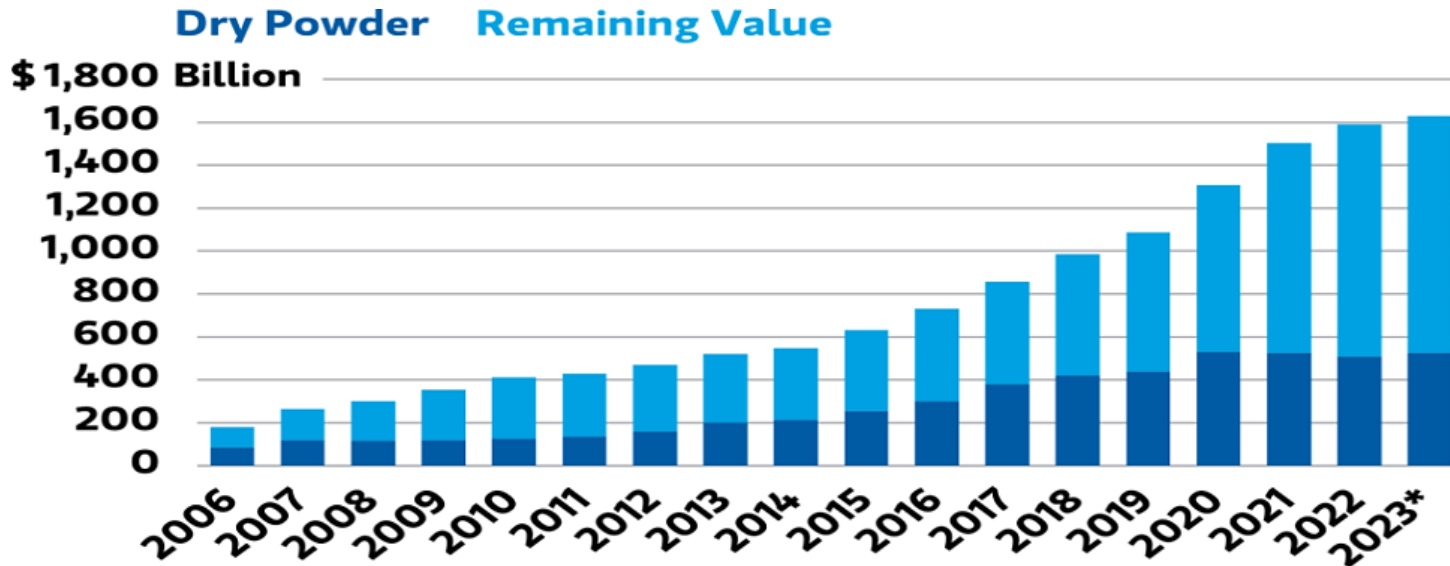
U.S. homebuyers have faced historically unaffordable conditions since the COVID-19 pandemic, with average home prices increasing by approximately 50% since 2019. The Federal Reserve rate-hiking cycle starting in 2022 caused mortgage rates to increase from under 3% in 2020 to peak rates at 7.8% in October 2023 for 30-year fixed mortgages. As of the Fed's policy action on 9/18, 30-year fixed mortgage rates hovered near 6.6%. Despite inventory rising for 8 straight months, Morgan Stanley housing strategists have estimated that home supply remains 30% *below* its pre-COVID low. While lower rates boosts home affordability, constrained supply will continue to minimize the housing opportunity for purchasers.



Source: Morgan Stanley Research, Daily Positioning, September 20, 2024

TRANSFORMATION - DEBT MARKET INNOVATIONS

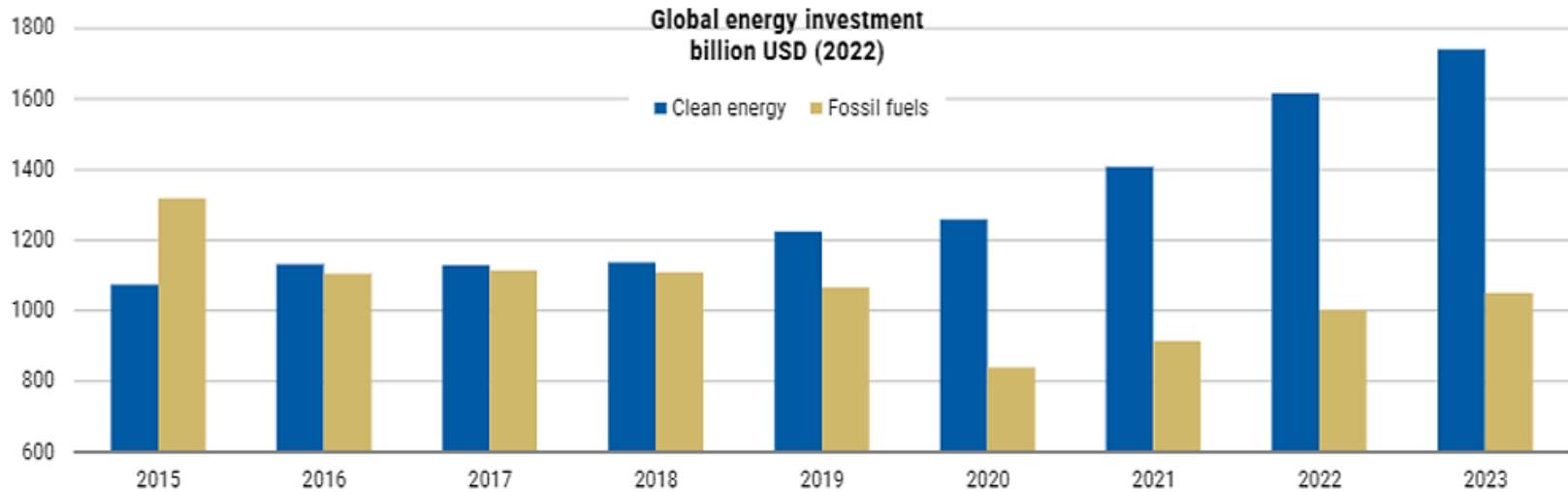
The rise of private credit since the Global Financial Crisis of 2008-'09 has been one of the financial industry's most consequential developments. As regulators clamped down on loans by banks, nonbank lenders such as alternative asset managers stepped-up to fill the void. Previously considered a niche product focused on financing LBO activity, private credit has become a serious rival to, as well as partner of, mainstream lenders covering a wide range of loan types and market segments. Investors have embraced the higher yields of the growing asset class, resulting in growth of assets under management to approximately *\$1.6 trillion*, at the same time that market volatility and regional bank failures have left banks on their back foot. Borrowers, typically middle-market private businesses, continue to seek more flexible deal terms as well as greater speed and certainty of execution than traditional debt channels provide. Dry powder the past four years has been relatively flat, given the increased level of opportunities to deploy it. Morgan Stanley estimates further growth ahead, with the total addressable market for private credit to be more than *\$30 trillion*.



Source: Morgan Stanley, The Next Leg of Growth for Private Credit, September 20, 2024

TRANSFORMATION - POWER GENERATION AT TIPPING POINT

Power consumption has tripled since 1980, and Morgan Stanley estimates global consumption to grow 26% faster through 2030 than in the last decade, and an unprecedented 140% faster if excluding China. Power prices for most of the past decade were flat (inflation adjusted). But spare system capacity was used up in 2023, and a 15% rise in long-term power prices have occurred. As onshoring of manufacturing accelerates, along with the increased demand for data centers, power markets should continue to tighten. This tightness has shown up in 10%-80% higher power prices in the U.S., Singapore, India and multiple other markets since 2019. These shifts have led to a restart of nuclear power plants and an acceleration of new gas and renewable capacity additions after a prior slowdown in capacity growth in most countries outside of China. The U.S. government announced power grid investment of \$3.46Bn in October 2023 and a further \$1.2Bn in February 2024 to strengthen our power grid's resilience and reliability as well as to construct new large-scale transmission lines. Longer term, the US Infrastructure Investment and Jobs Act includes \$65 Bn for upgrading and expanding national power infrastructure. It should be noted that approximately 70% of US transmission lines were designed to last 20-30 years, and are now over 25 years old.

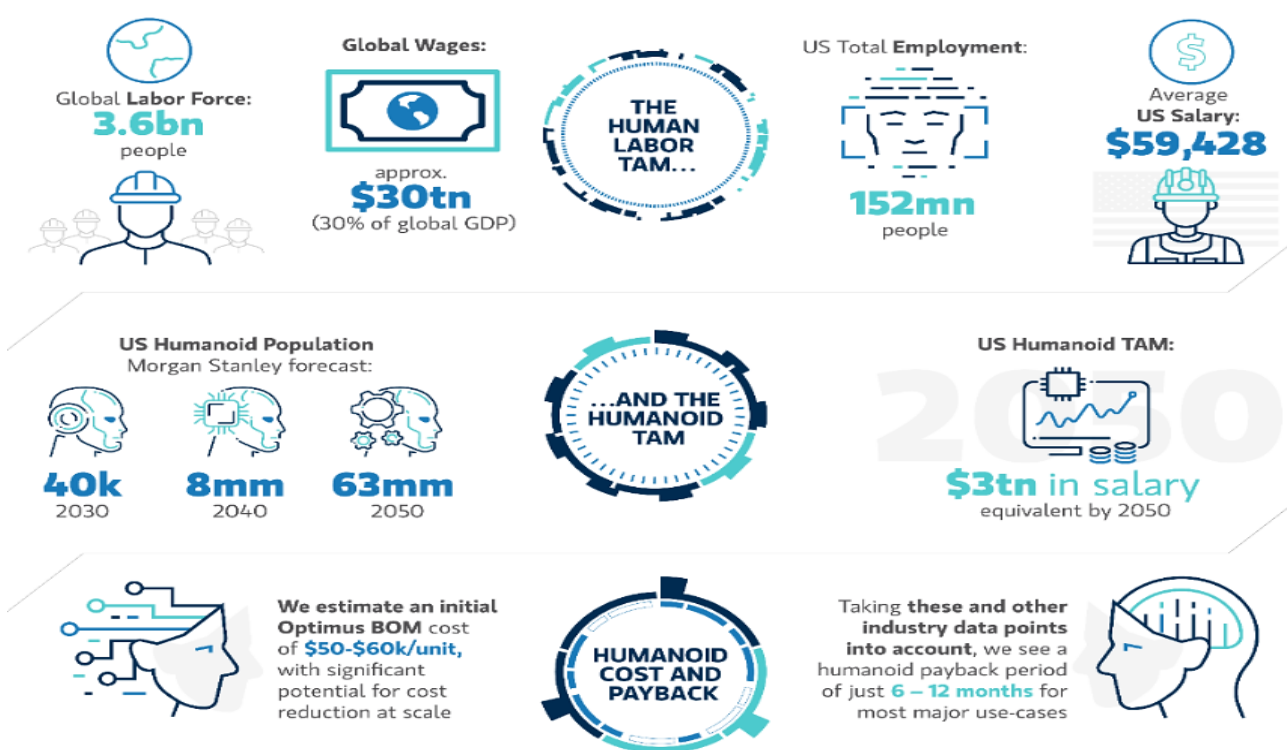


Source: Morgan Stanley Global Insight, September 29, 2024

FOR FURTHER THOUGHT

TRANSFORMATION - THE HUMANOIDS ARE COMING...

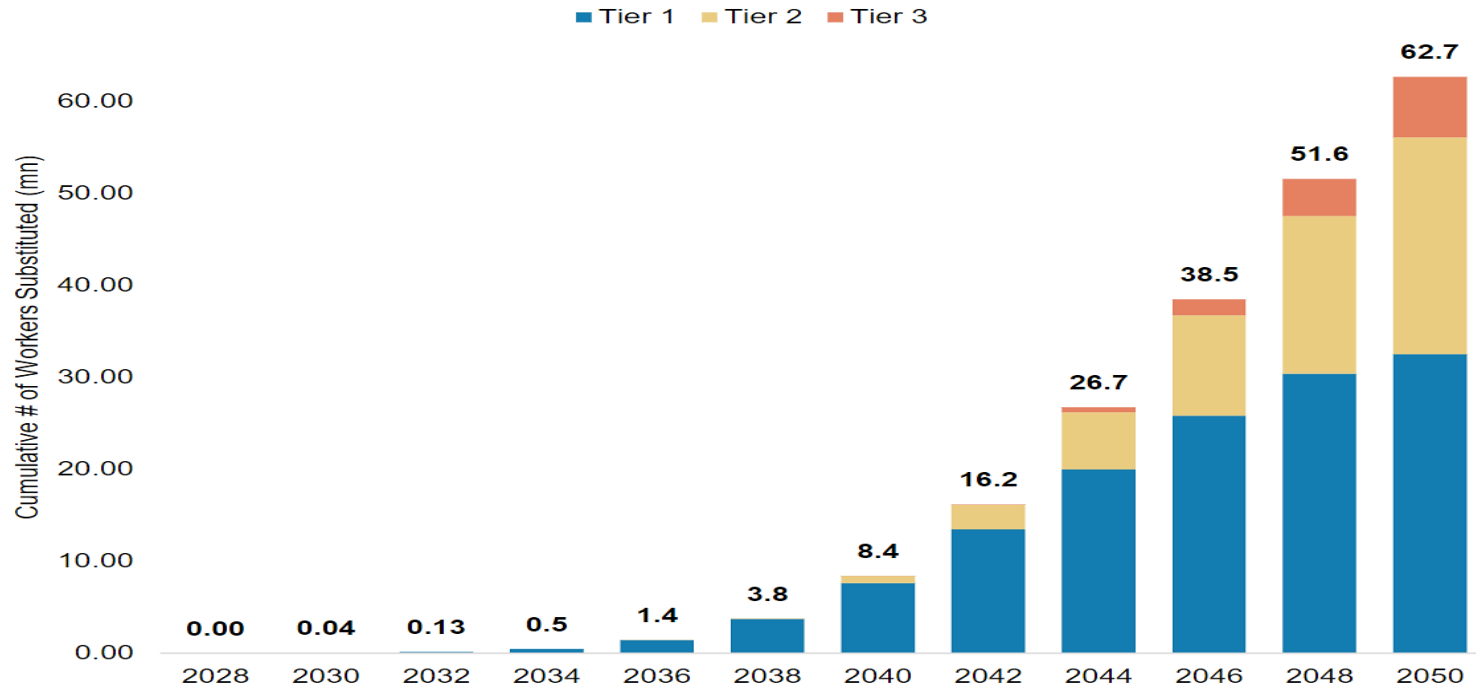
The combination of Large Language Models (LLMs) and Generative Artificial Intelligence (GenAI) is driving a transformational change in robotics. Labor tightness and aging populations further drive favorable economics for robotics in the \$30 trillion global labor market. Morgan Stanley built a proprietary model examining labor dynamics and humanoid optionality across over 800 job classifications and believes the adoption of 'embodied AI' may be far more rapid than for autonomous vehicles. Corporate investors include Amazon, NVIDIA, OpenAI, Microsoft, Softbank, Tiger Global and many others.



Source: BLS, Company Data, Morgan Stanley Research, Humanoids: Investment Implications of Embodied AI, June 26, 2024

.. AND A LOT ARE COMING

Nvidia CEO Jensen Huang recently stated *“The easiest robot to adapt into the world are humanoid robots because we built the world for us. We also have the most amount of data to train these robots than other types of robots because we have the same physique.”* Tesla first unveiled its humanoid robot, Optimus, in September 2022, and at Tesla’s June 13th, 2024 annual shareholder meeting, CEO Elon Musk said he expects to have at least 1,000 Optimus robots working at Tesla in 2025, and that *“things are gonna scale up very rapidly from there.”* Each new tier (below) represents a new and improved humanoid, which Morgan Stanley estimates could represent \$3 Trillion in equivalent human salaries by 2050.



Source: BLS, Company Data, Morgan Stanley Research, Humanoids: Investment Implications of Embodied AI, June 26, 2024

A P P E N D I X

THE WBS GROUP



David Wilkinson
Managing Director
Private Wealth Advisor

With more than four decades of experience in the financial services industry, David works exclusively with ultra-high net worth multi-generational families. Much of his career has been spent at Morgan Stanley, apart from 1996-2000 when he worked for a single family office. Throughout his tenure at Morgan Stanley David has received several accolades and awards including Barron's Top Financial Advisors and Forbes Best-In- State Wealth Advisors. David is an Alternative Investments Director, a designation awarded by the firm for select Advisers with advanced expertise in that asset class.

David holds a B.S. from Iowa State University and a Trium MBA with distinction from the London School of Economics, NYU Stern School of Business and HEC Paris.

*2009-2010, 2015-2023 Barron's Top 100 Financial Advisors (formerly referred to as Barron's Top 1,000 Financial Advisors: State-by-State) Source: Barrons.com (2009-2010, 2015-2022). Data compiled by Barron's based on 12-month period concluding in Dec of the year prior to the issuance of the award.
 2015-2023 Forbes Best-In- State Wealth Advisors Source: Forbes.com (2015-2023). Data compiled by SHOOK Research LLC based 12-month time period concluding in June of year prior to the issuance of the award.



Bradley Bass
Managing Director
Private Wealth Advisor

Drawing on twenty years of experience in the financial services industry, Bradley focuses primarily on the development and implementation of customized investment strategies for ultra high net worth families. Prior to joining Morgan Stanley in 2015, Bradley spent seven years at Barclays, where he was a Director and served on the Investment Representative Advisory Council, a small group of the firm's most influential Advisors. While at Barclays, Bradley worked with several members of the Forbes 400 and numerous other affluent families with complex financial and estate planning needs. Bradley started his Wealth Management career as an Associate at Lehman Brothers, where he focused on private equity and hedge fund investments. He is an active member of the Economics Club of Chicago and sits on the advisory board of Invest For Kids, a nonprofit organization that has raised over \$20 million for Chicago-based children's charities.

Bradley holds a B.S. from the University of Colorado and an MBA from the University of Chicago.



Brian Schneider
Executive Director
Financial Advisor

For over two decades, Brian has been on the leading edge of trends in markets. Employing professional market analysis, Brian maintains risk management as his number one priority. He is actively engaged in capital markets, managing the team's active fixed income portfolios. Brian joined Morgan Stanley in 2015 from Barclays, where he served as an investment representative. Brian has also been a market maker and trader in various products such as CBOT BUND and gold futures, Eurex U.S. 10-year and 5-year futures, and DAX futures. A contributor on Bloomberg Radio, CNBC and First Business, Brian was a member of the Chicago Board of Trade, CME and NYSE. Brian and his family are engaged participants in community service activities through The Honeycomb Project.

He earned a B.A. cum laude in economics from Tufts University in 1998, and received his MBA from the University of Illinois, College of Business in 2011.

THE WBS GROUP



Frank Mahoney
Private Wealth Advisor

Frank Mahoney joined Morgan Stanley Private Wealth Management in 2009 and focuses on alternative asset manager analysis, investment strategy and relationship management. Prior to moving to Chicago, he spent two years managing an investor services team in the Morgan Stanley Alternative Investments department in New York. He began his career as a hedge fund reporting analyst with AllianceBernstein.

Frank is on the board of Pilot Light Chefs, an organization that supports students by advocating for informed food choices, and by bridging the lessons they learn in their classrooms to the foods on their lunch trays, at home, and in their communities. He also serves on the Syracuse University Chicago Regional Council.

Frank graduated from Syracuse University with degrees in Finance, Marketing, and Economics and holds the Chartered Alternative Investment Analyst (CAIA) designation.



Cindy Jaracz
Vice President
PWM Group Director

With over twenty years of experience in the financial services industry, Cindy Jaracz specializes in private equity administration, trading and operational procedures for the team. Prior to rejoining Morgan Stanley in 2015, Cindy began her career as an analyst at a consulting firm in Chicago in 1997 focusing on client performance reporting for 401(k), endowments and pensions. In 2001, she joined the performance reporting group at Morgan Stanley, focusing on ultra-high net worth clients. In 2007, Cindy joined the Private Investment Management Division of Lehman Brothers where she provided sales and administrative support for the team and has remained with the team since.

Cindy attended Loyola University Chicago where she received a B.A. in political science.



Chelsea Fosse
Portfolio Associate

Chelsea joined Morgan Stanley in 2018 focusing on portfolio maintenance, investment implementation and administrative support. She has been working with the WBS group for the past three years maintaining client relationships, building out our planning framework and spear heading the team's philanthropic initiatives. In addition to her role on the team, Chelsea currently serves as the Private Wealth Management Mid-America Market Coach helping train and lead other support professionals within the firm. She also participates in several charitable ventures both internally at Morgan Stanley, as well as outside the firm.

Chelsea received her B.S. in Economics, in conjunction with a B.A. in Business Legal Studies from Arizona State University and her MBA from DePaul University.



Cameron Preston
Vice President
Business Development
Associate

With over fifteen years of experience in the financial services industry, Cammie began her career at Citi Personal Wealth Management in 2006, providing client service for affluent families. She joined Morgan Stanley in 2010 specializing in ultra-high net worth client relationships, portfolio maintenance, trading operations and investment implementation. She joined the WBS team in 2016 to help lead the team's reporting and asset allocation initiatives. She supports clients with Custom Reporting and crafts framework for financial planning and portfolio allocations. Cammie is an avid runner and is an active volunteer at the St. Louis Food Bank.

Cammie attended Western Michigan University, where she received a B.A. in marketing, as well as a minor in French.



Taylor Coughlin
Vice President
Wealth Management
Associate

Taylor has been in the financial service industry since 2010, starting her career at a boutique wealth management firm in Chicago. Taylor joined the Morgan Stanley Private Wealth Management division in 2015, focusing on cultivating ultra-high net worth client relationships, asset allocation, portfolio implementation, and customized client reporting. Taylor works extensively on the WBS team's alternative investment practice, working with clients on the administration and maintenance of these portfolios. Taylor supports several charitable organizations throughout the Chicagoland area.

Taylor graduated from Indiana University's Hutton Honors College, with degrees in Public Affairs Management and Business Foundations, as well as a minor in Spanish.

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Equity securities may fluctuate in response to news on companies, industries, market conditions and general economic environment.

Bonds are subject to interest rate risk. When interest rates rise, bond prices fall; generally the longer a bond's maturity, the more sensitive it is to this risk. Bonds may also be subject to call risk, which is the risk that the issuer will redeem the debt at its option, fully or partially, before the scheduled maturity date. The market value of debt instruments may fluctuate, and proceeds from sales prior to maturity may be more or less than the amount originally invested or the maturity value due to changes in market conditions or changes in the credit quality of the issuer. Bonds are subject to the credit risk of the issuer. This is the risk that the issuer might be unable to make interest and/or principal payments on a timely basis. Bonds are also subject to reinvestment risk, which is the risk that principal and/or interest payments from a given investment may be reinvested at a lower interest rate.

Bonds rated below investment grade may have speculative characteristics and present significant risks beyond those of other securities, including greater credit risk and price volatility in the secondary market. Investors should be careful to consider these risks alongside their individual circumstances, objectives and risk tolerance before investing in high-yield bonds. High yield bonds should comprise only a limited portion of a balanced portfolio.

Investing in smaller companies involves greater risks not associated with investing in more established companies, such as business risk, significant stock price fluctuations and illiquidity.

International investing entails greater risk, as well as greater potential rewards compared to U.S. investing. These risks include potential and economic uncertainties of foreign countries as well as the risk of currency fluctuations. These risks are magnified in countries with emerging markets, since these countries may have relatively unstable governments and less established markets and economics.

REITs investing risks are similar to these associated with direct investments in real estate; lack of liquidity, limited diversification, and sensitivity to economic factors such as interest rate changes and market recessions. portfolio.

Private equity interests may be highly illiquid, involve a high degree of risk and be subject to transfer restrictions.

Managed futures investments are speculative, involve a high degree of risk, use significant leverage, are generally illiquid, have substantial charges, subject investors to conflicts of interest, and are suitable only for the risk capital portion of an investor's portfolio. Before investing in any partnership and in order to make an informed decision, investors should read the applicable prospectus and/or offering documents carefully for additional information, including charges, expenses and risks. Investors should read the prospectus and/or offering documents carefully for additional information, including charges, expenses and risks. Managed futures investments do not replace equities or bonds but rather may act as a complement in a well diversified portfolio.

The prices of real assets – precious metals tend to fluctuate widely and in an unpredictable manner, and have historically experienced periods of flat or declining prices. Their prices are affected by several factors, including global supply and demand, investors expectations with respect to the rate of inflation, currency exchange rates, interest rates, investment and trading activities of hedge funds and commodity funds, and global or regional political, economic or financial events and situations.

Investing in commodities entails significant risks. Commodity prices may be affected by a variety of factors at any time, including but not limited to, (i) changes in supply and demand relationships, (ii) governmental programs and policies, (iii) national and international political and economic events, war and terrorist events, (iv) changes in interest and exchange rates, (v) trading activities in commodities and related contracts, (vi) pestilence, technological change and weather, and (vii) the price volatility of a commodity. In addition, the commodities markets are subject to temporary distortions or other disruptions due to various factors, including lack of liquidity, participation of speculators and government intervention.

Various factors, including an economic downturn, may cause a company to reduce or eliminate its dividend.

DISCLOSURES:

Any allocation containing alternative investments should note that they are highly illiquid and are only suitable for investors willing to put capital at risk for an indefinite period of time. Alternative investments often engage in leverage and other speculative investment practices, may involve complex tax structures, typically have higher fees, and generally are not subject to the same regulatory requirements as traditional asset classes.

An investment in alternative investments can be highly illiquid, is speculative and not suitable for all investors. Investing in alternative investments is only intended for experienced and sophisticated investors who are willing to bear the high economic risks associated with such an investment. Investors should carefully review and consider potential risks before investing. Some of these risks may include:

- loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices;
- lack of liquidity in that there may be no secondary market for the fund and none is expected to develop;
- volatility of returns;
- restrictions on transferring interests in a fund;
- potential lack of diversification and resulting higher risk due to concentration of trading authority when a single advisor is utilized;
- absence of information regarding valuations and pricing;
- complex tax structures and delays in tax reporting;
- less regulation and higher fees than mutual funds; and
- Risks associated with the operations, personnel, and processes of the manager

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Information contained herein has been obtained from sources considered to be reliable, but we do not guarantee their accuracy or completeness.

- 2009-2010, 2015-2023 Barron's Top 100 Financial Advisors (formerly referred to as Barron's Top 1,000 Financial Advisors: State-by-State)
Source: Barrons.com (2009-2010, 2015-2023). Data compiled by Barron's based on 12-month period concluding in Dec of the year prior to the issuance of the award. Barron's Top 100 Financial Advisors bases its ratings on qualitative criteria: professionals with a minimum of seven years of financial services experience, acceptable compliance records, client retention reports, customer satisfaction, and more. Financial Advisors are quantitatively rated based on varying types of revenues and assets advised by the financial professional, with weightings associated for each. Because individual client portfolio performance varies and is typically unaudited, this rating focuses on customer satisfaction and quality of advice. The rating may not be representative of any one client's experience because it reflects a sample of all of the experiences of the Financial Advisor's clients. The rating is not indicative of the Financial Advisor's past or future performance. Neither Morgan Stanley Smith Barney LLC nor its Financial Advisors or Private Wealth Advisors pays a fee to Barron's in exchange for the rating. Barron's is a registered trademark of Dow Jones & Company, L.P. All rights reserved.
- 2015-2023 Forbes Best-In- State Wealth Advisors
Source: Forbes.com (Awarded 2015-2022) Data compiled by SHOOK Research LLC based 12-month time period concluding in June of year prior to the issuance of the award. Forbes Best-in-State Wealth Advisors ranking was developed by SHOOK Research and is based on in-person and telephone due diligence meetings to evaluate each advisor qualitatively, a major component of a ranking algorithm that includes: client retention, industry experience, review of compliance records, firm nominations; and quantitative criteria, including: assets under management and revenue generated for their firms. Investment performance is not a criterion. Rankings are based on the opinions of SHOOK Research, LLC and not indicative of future performance or representative of any one client's experience. Neither Morgan Stanley Smith Barney LLC nor its Financial Advisors or Private Wealth Advisors pay a fee to Forbes or SHOOK Research in exchange for the ranking. For more information: www.SHOOKresearch.com.

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Indices are unmanaged. An investor cannot invest directly in an index.

S&P 500 Index is an unmanaged, market value-weighted index of 500 stocks generally representative of the broad stock market.

Russell 3000® Index measures the performance of the 3,000 largest U.S. companies based on total market capitalization, which represents approximately 98% of the investable U.S. equity market.

The **Russell 2000 Index** measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 is a subset of the Russell 3000® Index representing approximately 10% of the total market capitalization of that index. It includes approximately 2000 of the smallest securities based on a combination of their market cap and current index membership.

The **MSCI World Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. As of May 30 2011, the MSCI World Index consists of the following 24 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom.

The **MSCI Emerging Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of May 30 2011, the MSCI Emerging Markets Index consists of the following 21 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

The **MSCI EMU (European Economic and Monetary Union) Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of countries within EMU. The MSCI EMU Index consists of the following 11 developed market country indices: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, and Spain.

The **MSCI Japan Index** is a free-float adjusted market capitalization weighted index that is designed to track the equity market performance of Japanese securities listed on Tokyo Stock Exchange, Osaka Stock Exchange, JASDAQ and Nagoya Stock Exchange. The MSCI Japan Total Return Index takes into account both price performance and income from dividend payments. The MSCI Japan Index is constructed based on the MSCI Global Investable Market Indices Methodology, targeting a free-float market capitalization coverage of 85%. The index has a base date of December 31, 1987.

The **MSCI Frontier Markets Index** is a free float adjusted market capitalization index that is designed to measure equity market performance of frontier markets.

The **Nikkei 225 Index** is an index showing the average closing prices of 225 stocks on the Tokyo Stock Exchange.

Barclays Capital Global Aggregate Bond Index contains investment grade and high yield credit securities from the Multiverse Index. (The Multiverse Index is the merger of two index groups: the Global Aggregate Index and the Global High Yield Index.) The investment grade component of the Global Credit Index is a subset of the Global Aggregate Index, and contains credit securities from the U.S. Aggregate, Pan-European Aggregate, Asian-Pacific Aggregate, Eurodollar, 144A, and Euro-Yen indices. The high yield component is a subset of the Global High Yield Index, and contains securities from the U.S. Corporate High Yield, Pan-European High Yield, and Emerging Markets indices.

Barclays Capital Global Inflation-Linked Index measures the performance of the major government inflation-linked bond markets. The index is designed to include only those markets in which a global government linker fund is likely to invest. Markets currently included in the index are Australia, Canada, France, Germany, Greece, Italy, Japan, Sweden, the United Kingdom and the United States.

Barclays Capital US Corporate High Yield Bond Index: This index is composed of fixed-rate, publicly issued, non-investment grade debt.

Barclays Capital Global High Yield Index is a broad-based measure of the global high-yield fixed income markets. The Global High-Yield Index represents that union of the U.S. High-Yield, Pan-European High-Yield, U.S. Emerging Markets High-Yield, CMBS High-Yield, and Pan-European Emerging Markets High-Yield Indices.

JP Morgan GBI-EM Global Diversified Index is a comprehensive Emerging Markets debt benchmark that tracks local currency bonds issued by Emerging Market governments. The GBI-EM Indices are comprised of only those countries from the GBI universe that meet our criteria for an Emerging Market, resulting in 17 countries from four regions. The GBI-EM Global is positioned as the investable benchmark that includes only those countries that are accessible by most of the international investor base. The GBI-EM Global excludes countries with explicit capital controls, but does not factor in regulatory/tax hurdles in assessing eligibility (India and China resulting in 15 investable countries). The GBI-EM Global is classified as the most investable of the three indices. The need for registration of the foreign investor with the local supervisory authorities or notification of transactions is not considered a significant restriction that would warrant exclusion.

FTSE EPRA-NAREIT Global Total Return Index provides investors with diverse representation of publicly traded equity REITs and listed property companies globally.

The **Dow Jones/UBS Commodity Index** is composed of commodities traded on U.S. exchanges, with the exception of aluminum, nickel and zinc, which trade on the London Metal Exchange.

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The **Barclay CTA Index** measures the composite performance of established programs. For purposes of this index, an established trading program is a trading program that has four years or more documented performance history. Once a trading program passes this four-year hurdle, its subsequent performance is included in this unweighted index. The Barclay Index does not represent an actual portfolio, which could be invested in, and therefore the index performance results should be deemed to be hypothetical in nature and of comparative value only.

HFRI Fund of Funds Index -- Fund of Funds invest with multiple managers through funds or managed accounts. The strategy designs a diversified portfolio of managers with the objective of significantly lowering the risk (volatility) of investing with an individual manager. The Fund of Funds manager has discretion in choosing which strategies to invest in for the portfolio. A manager may allocate funds to numerous managers within a single strategy, or with numerous managers in multiple strategies. The minimum investment in a Fund of Funds may be lower than an investment in an individual hedge fund or managed account. The investor has the advantage of diversification among managers and styles with significantly less capital than investing with separate managers.

Barclays Global Majors ex US is a subset of the Barclays Capital Global Bond Index in that it excludes the U.S. The index includes local currency denominated sovereign debt of 12 countries: Canada, France, Italy, Germany, Japan, United Kingdom, Australia, Belgium, Denmark, Netherlands, Spain and Sweden.

Barclays US TIPS is an unmanaged market index comprised of all U.S. Treasury Inflation Protected Securities rated invested grade (Baa3 or better), have at least one year to final maturity, and at least \$250 million par amount outstanding.

HFRX Macro/CTA is a Macro strategy managers trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top down and bottom up theses, quantitative and fundamental approaches and long and short term holding periods. Although some strategies employ RV techniques, Macro strategies are distinct from RV strategies in that the primary investment thesis is predicated on predicted or future movements in the underlying instruments, rather than realization of a valuation discrepancy between securities. In a similar way, while both Macro and equity hedge managers may hold equity securities, the overriding investment thesis is predicated on the impact movements in underlying macroeconomic variables may have on security prices, as opposed to EH, in which the fundamental characteristics on the company are the most significant and integral to investment thesis.

Citi 3M Treasury Bill is equal dollar amounts of three-month Treasury bills are purchased at the beginning of each of three consecutive months. As each bill matures, all proceeds are rolled over or reinvested in a new three-month bill. The income used to calculate the monthly return is derived from subtracting the original amount invested from the maturity value. The yield curve average is the basis for calculating the return on the index. The index is rebalanced monthly by market capitalization.

JP Morgan EMBI is the JP Morgan Emerging Markets Bond Index

MSCI EAFE is Europe, Australasia, Far East - is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US and Canada. The MSCI EAFE Index consists of the following 21 developed market country indexes: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom (as of June 2014). Gross total return indices reinvest as much as possible of a company's dividend distributions. The reinvested amount is equal to the total dividend amount distributed to persons residing in the country of the dividend-paying company. Gross total return indices do not, however, include any tax credits.

Alerian MLP is a composite of the 50 most prominent energy Master Limited Partnerships that provides investors with an unbiased, comprehensive benchmark for this emerging asset class. The index, which is calculated using a float-adjusted, capitalization-weighted methodology, is disseminated real-time on a price-return basis (NYSE: AMZ), and the corresponding total-return index is disseminated daily through ticker AMZX. Relevant data points such as dividend yield are also published daily. This is the price return.

HFRX Global Hedge Funds is designed to be representative of the overall composition of the hedge fund universe. It is comprised of eight strategies; convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted based on the distribution of assets in the hedge fund industry.

Barclays Capital Municipal Bond Index is a broad measure of the municipal bond market with maturities of at least one year. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds.

For index, indicator and survey definitions referenced in this report please visit the following: <http://www.morganstanleyfa.com/public/projectfiles/id.pdf>

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Global Investment Manager Analysis (GIMA) Focus List, Approved List and Tactical Opportunities List; Watch Policy. GIMA uses two methods to evaluate investment products in applicable advisory programs: **Focus** (and investment products meeting this standard are described as being on the Focus List) and **Approved** (and investment products meeting this standard are described as being on the Approved List). In general, Focus entails a more thorough evaluation of an investment product than Approved. Sometimes an investment product may be evaluated using the Focus List process but then placed on the Approved List instead of the Focus List. Investment products may move from the Focus List to the Approved List, or vice versa. GIMA may also determine that an investment product no longer meets the criteria under either process and will no longer be recommended in investment advisory programs (in which case the investment product is given a "Not Approved" status). GIMA has a "Watch" policy and may describe a Focus List or Approved List investment product as being on "Watch" if GIMA identifies specific areas that (a) merit further evaluation by GIMA and (b) may, but are not certain to, result in the investment product becoming "Not Approved." The Watch period depends on the length of time needed for GIMA to conduct its evaluation and for the investment manager or fund to address any concerns. Certain investment products on either the Focus List or Approved List may also be recommended for the **Tactical Opportunities List** based in part on tactical opportunities existing at a given time. The investment products on the Tactical Opportunities List change over time. For more information on the Focus List, Approved List, Tactical Opportunities List and Watch processes, please see the applicable Form ADV Disclosure Document for Morgan Stanley Wealth Management. Your Financial Advisor or Private Wealth Advisor can also provide upon request a copy of a publication entitled "Manager Selection Process."

The **Global Investment Committee** is a group of seasoned investment professionals who meet regularly to discuss the global economy and markets. The committee determines the investment outlook that guides our advice to clients. They continually monitor developing economic and market conditions, review tactical outlooks and recommend model portfolio weightings, as well as produce a suite of strategy, analysis, commentary, portfolio positioning suggestions and other reports and broadcasts.

The GIC Asset Allocation Models are not available to be directly implemented as part of an investment advisory service and should not be regarded as a recommendation of any Morgan Stanley investment advisory service. The GIC Asset Allocation Models do not represent actual trading or any type of account or any type of investment strategies and none of the fees or other expenses (e.g. commissions, mark-ups, mark-downs, advisory fees, fund expenses) associated with actual trading or accounts are reflected in the GIC Asset Allocation Models which, when compounded over a period of years, would decrease returns.

Adverse Active Alpha (AAA) is a patented screening and scoring process designed to help identify high-quality equity and fixed income managers with characteristics that may lead to future outperformance relative to index and peers. While highly ranked managers performed well as a group in our Adverse Active Alpha model back tests, not all of the managers will outperform. Please note that this data may be derived from back-testing, which has the benefit of hindsight. In addition, highly ranked managers can have differing risk profiles that might not be suitable for all investors. Our view is that Adverse Active Alpha is a good starting point and should be used in conjunction with other information. Morgan Stanley Wealth Management's qualitative and quantitative investment manager due diligence process are equally important factors for investors when considering managers for use through an investment advisory program. Factors including, but not limited to, manager turnover and changes to investment process can partially or fully negate a positive Adverse Active Alpha ranking. Additionally, highly ranked managers can have differing risk profiles that might not be

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The Global Investment Manager Analysis (GIMA) Services Only Apply to Certain Investment Advisory Programs GIMA evaluates certain investment products for the purposes of some – but not all – of Morgan Stanley Smith Barney LLC's investment advisory programs (as described in more detail in the applicable Form ADV Disclosure Document for Morgan Stanley Wealth Management). If you do not invest through one of these investment advisory programs, Morgan Stanley Wealth Management is not obligated to provide you notice of any GIMA Status changes even though it may give notice to clients in other programs.

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Consider Your Own Investment Needs: The model portfolios and strategies discussed in the material are formulated based on general client characteristics including risk tolerance. This material is not intended to be a client-specific suitability analysis or recommendation, or offer to participate in any investment. Therefore, clients should not use this profile as the sole basis for investment decisions. They should consider all relevant information, including their existing portfolio, investment objectives, risk tolerance, liquidity needs and investment time horizon. Such a suitability determination may lead to asset allocation results that are materially different from the asset allocation shown in this profile. Talk to your Financial Advisor about what would be a suitable asset allocation for you, whether CGCM is a suitable program for you.

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Please consider the investment objectives, risks, fees, and charges and expenses of mutual funds, ETFs, closed end funds, unit investment trusts, and variable insurance products carefully before investing. The prospectus contains this and other information about each fund. To obtain a prospectus, contact your Financial Advisor or Private Wealth Advisor or visit the Morgan Stanley website at www.morganstanley.com. Please read it carefully before investing.

An investment in a money market fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Although the Fund seeks to preserve the value of your investment at \$1.00 per share, it is possible to lose money by investing in the fund.

The type of mutual funds and ETFs discussed in this presentation utilizes nontraditional or complex investment strategies and/or derivatives. Examples of these types of funds include those that utilize one or more of the below noted investment strategies or categories or which seek exposure to the following markets: (1) commodities (e.g., agricultural, energy and metals), currency, precious metals; (2) managed futures; (3) leveraged, inverse or inverse leveraged; (4) bear market, hedging, long-short equity, market neutral; (5) real estate; (6) volatility (seeking exposure to the CBOE VIX Index). Investors should keep in mind that while mutual funds and ETFs may, at times, utilize nontraditional investment options and strategies, they should not be equated with unregistered privately offered

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alternative investments. Because of regulatory limitations, mutual funds and ETFs that seek alternative-like investment exposure must utilize a more limited investment universe. As a result, investment returns and portfolio characteristics of alternative mutual funds and ETFs may vary from traditional hedge funds pursuing similar investment objectives. Moreover, traditional hedge funds have limited liquidity with long “lock-up” periods allowing them to pursue investment strategies without having to factor in the need to meet client redemptions and ETFs trade on an exchange. On the other hand, mutual funds typically must meet daily client redemptions. This differing liquidity profile can have a material impact on the investment returns generated by a mutual or ETF pursuing an alternative investing strategy compared with a traditional hedge fund pursuing the same strategy.

Nontraditional investment options and strategies are often employed by a portfolio manager to further a fund’s investment objective and to help offset market risks. However, these features may be complex, making it more difficult to understand the fund’s essential characteristics and risks, and how it will perform in different market environments and over various periods of time. They may also expose the fund to increased volatility and unanticipated risks particularly when used in complex combinations and/or accompanied by the use of borrowing or “leverage.”

KEY ASSET CLASS CONSIDERATIONS AND OTHER RISKS

Investing in the markets entails the risk of market volatility. The value of all types of investments, including stocks, mutual funds, exchange-traded funds (“ETFs”), closed-end funds, and unit investment trusts, may increase or decrease over varying time periods. To the extent the investments depicted herein represent **international securities**, you should be aware that there may be additional risks associated with international investing, including foreign economic, political, monetary and/or legal factors, changing currency exchange rates, foreign taxes, and differences in financial and accounting standards. These risks may be magnified in **emerging markets and frontier markets**. **Small- and mid-capitalization companies** may lack the financial resources, product diversification and competitive strengths of larger companies. In addition, the securities of small- and mid-capitalization companies may not trade as readily as, and be subject to higher volatility than, those of larger, more established companies. The value of **fixed income securities** will fluctuate and, upon a sale, may be worth more or less than their original cost or maturity value. Bonds are subject to interest rate risk, call risk, reinvestment risk, liquidity risk, and credit risk of the issuer. **High yield bonds** are subject to additional risks such as increased risk of default and greater volatility because of the lower credit quality of the issues. In the case of **municipal bonds**, income is generally exempt from federal income taxes. Some income may be subject to state and local taxes and to the federal alternative minimum tax. Capital gains, if any, are subject to tax. **Treasury Inflation Protection Securities’ (TIPS)** coupon payments and underlying principal are automatically increased to compensate for inflation by tracking the consumer price index (CPI). While the real rate of return is guaranteed, TIPS tend to offer a low return. Because the return of TIPS is linked to inflation, TIPS may significantly underperform versus conventional U.S. Treasuries in times of low inflation. There is no guarantee that investors will receive par if TIPS are sold prior to maturity. The returns on a portfolio consisting primarily of **environmental, social, and governance-aware investments (“ESG”)** may be lower or higher than a portfolio that is more diversified or where decisions are based solely on investment considerations. Because ESG criteria exclude some investments, investors may not be able to take advantage of the same opportunities or market trends as investors that do not use such criteria. 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. **Options** and margin trading involve substantial risk and are not suitable for all investors. Besides the general investment risk of holding securities that may decline in value and the possible loss of principal invested, **closed-end funds** may have additional risks related to declining market prices relative to net asset values (NAVs), active manager underperformance and potential leverage. Closed-end funds, unlike open-end funds, are not continuously offered. There is a one-time public offering and once issued, shares of closed-end funds are sold in the open market through a stock exchange. NAV is total assets less total liabilities divided by the number of shares outstanding. At the time an investor purchases shares of a closed-end fund, shares may have a market price that is above or below NAV. Portfolios that invest a large percentage of assets in only one industry sector (or in only a few sectors) are more vulnerable to price fluctuation than those that diversify among a broad range of sectors.

Alternative investments often are speculative and include a high degree of risk. Investors could lose all or a substantial amount of their investment. Alternative investments are suitable only for eligible, long-term investors who are willing to forgo liquidity and put capital at risk for an indefinite period of time. They may be highly illiquid and can engage in leverage and other speculative practices that may increase the volatility and risk of loss. Alternative Investments typically have higher fees than traditional investments. Investors should carefully review and consider potential risks before investing. Certain of these risks may include but are not limited to: Loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices; Lack of liquidity in that there may be no secondary market for a fund; Volatility of returns; Restrictions on transferring interests in a fund; Potential lack of diversification and resulting higher risk due to concentration of trading authority when a single advisor is utilized; Absence of information regarding valuations and pricing; Complex tax structures and delays in tax reporting; Less regulation and higher fees than mutual funds; and Risks associated with the operations, personnel, and processes of the manager. As a diversified global financial services firm, Morgan Stanley Wealth Management engages in a broad spectrum of activities including financial advisory services, investment management activities, sponsoring and managing private investment funds, engaging in broker-dealer transactions and principal securities, commodities and foreign exchange transactions, research publication, and other activities. In the ordinary course of its business, Morgan Stanley Wealth Management therefore engages in activities where Morgan Stanley Wealth Management’s interests may conflict with the interests of its clients, including the private investment funds it manages. Morgan Stanley Wealth Management can give no assurance that conflicts of interest will be resolved in favor of its clients or any such fund. All expressions of opinion are subject to change without

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These limitations include survivorship bias (the returns of the indices may not be representative of all the hedge funds in the universe because of the tendency of lower performing funds to leave the index); heterogeneity (not all hedge funds are alike or comparable to one another, and the index may not accurately reflect the performance of a described style); and limited data (many hedge funds do not report to indices, and the index may omit funds, the inclusion of which might significantly affect the performance shown). The HFRI indices are based on information self-reported by hedge fund managers that decide on their own, at any time, whether or not they want to provide, or continue to provide, information to HFR Asset Management, L.L.C. Results for funds that go out of business are included in the index until the date that they cease operations. Therefore, these indices may not be complete or accurate representations of the hedge fund universe, and may be biased in several ways. 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Individual funds have specific risks related to their investment programs that will vary from fund to fund. Clients should consult their own tax and legal advisors as Morgan Stanley Wealth Management does not provide tax or legal advice.

While the HFRI indices are frequently used, they have limitations (some of which are typical of other widely used indices). These limitations include survivorship bias (the returns of the indices may not be representative of all the hedge funds in the universe because of the tendency of lower performing funds to leave the index); heterogeneity (not all hedge funds are alike or comparable to one another, and the index may not accurately reflect the performance of a described style); and limited data (many hedge funds do not report to indices, and the index may omit funds, the inclusion of which might significantly affect the performance shown). The HFRI indices are based on information self-reported by hedge fund managers that decide on their own, at any time, whether or not they want to provide, or continue to provide, information to HFR Asset Management, L.L.C. Results for funds that go out of business are included in the index until the date that they cease operations. Therefore, these indices may not be complete or accurate representations of the hedge fund universe, and may be biased in several ways.

It should be noted that the majority of hedge fund indexes are comprised of hedge fund manager returns. This is in contrast to traditional indexes, which are comprised of individual securities in the various market segments they represent and offer complete transparency as to membership and construction methodology. As such, some believe that hedge fund index returns have certain biases that are not present in traditional indexes. Some of these biases inflate index performance, while others may skew performance negatively. However, many studies indicate that overall hedge fund index performance has been biased to the upside. Some studies suggest performance has been inflated by up to 260 basis points or more annually depending on the types of biases included and the time period studied. Although there are numerous potential biases that could affect hedge fund returns, we identify some of the more common ones throughout this paper.

Self-selection bias results when certain manager returns are not included in the index returns and may result in performance being skewed up or down. Because hedge funds are private placements, hedge fund managers are able to decide which fund returns they want to report and are able to opt out of reporting to the various databases. Certain hedge fund managers may choose only to report

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returns for funds with strong returns and opt out of reporting returns for weak performers. Other hedge funds that close may decide to stop reporting in order to retain secrecy, which may cause a downward bias in returns.

Survivorship bias results when certain constituents are removed from an index. This often results from the closure of funds due to poor performance, "blow ups," or other such events. As such, this bias typically results in performance being skewed higher. As noted, hedge fund index performance biases can result in positive or negative skew. However, it would appear that the skew is more often positive. While it is difficult to quantify the effects precisely, investors should be aware that idiosyncratic factors may be giving hedge fund index returns an artificial "lift" or upwards bias.

Hedge Funds of Funds and many funds of funds are private investment vehicles restricted to certain qualified private and institutional investors. They are often speculative and include a high degree of risk. Investors can lose all or a substantial amount of their investment. They may be highly illiquid, can engage in leverage and other speculative practices that may increase volatility and the risk of loss, and may be subject to large investment minimums and initial lockups. They involve complex tax structures, tax-inefficient investing and delays in distributing important tax information. Categorically, hedge funds and funds of funds have higher fees and expenses than traditional investments, and such fees and expenses can lower the returns achieved by investors. Funds of funds have an additional layer of fees over and above hedge fund fees that will offset returns. An investment in an **exchange-traded fund** involves risks similar to those of investing in a broadly based portfolio of equity securities traded on an exchange in the relevant securities market, such as market fluctuations caused by such factors as economic and political developments, changes in interest rates and perceived trends in stock and bond prices. An investment in a **target date portfolio** is subject to the risks attendant to the underlying funds in which it invests, in these portfolios the funds are the Consulting Group Capital Market funds. A target date portfolio is geared to investors who will retire and/or require income at an approximate year. The portfolio is managed to meet the investor's goals by the pre-established year or "target date." A target date portfolio will transition its invested assets from a more aggressive portfolio to a more conservative portfolio as the target date draws closer. An investment in the target date portfolio is not guaranteed at any time, including, before or after the target date is reached. **Managed futures** investments are speculative, involve a high degree of risk, use significant leverage, are generally illiquid, have substantial charges, subject investors to conflicts of interest, and are suitable only for the risk capital portion of an investor's portfolio. Managed futures investments do not replace equities or bonds but rather may act as a complement in a well diversified portfolio. Managed Futures are complex and not appropriate for all investors. **Rebalancing** does not protect against a loss in declining financial markets. There may be a potential tax implication with a rebalancing strategy. **Asset allocation and diversification** do not assure a profit or protect against loss in declining financial markets. Past performance is no guarantee of future results. Actual results may vary.

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