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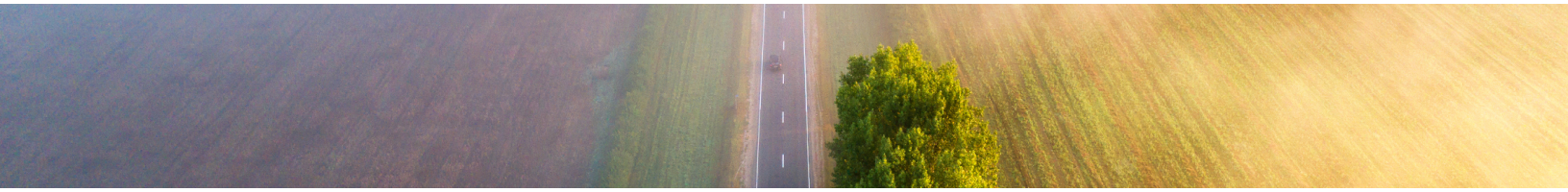

Global Investment Committee | February 2020

On the Markets

Let the Correction Run Its Course

Michael Wilson
Chief Investment Officer
Chief US Equity Strategist
Morgan Stanley & Co.

Since late January, global markets have been preoccupied with the coronavirus development. Obviously, this is an unfortunate and serious health concern. While the path it takes from here is unknown, one thing we do know is that equity markets were not prepared for it. Sometimes markets become so overbought a correction becomes inevitable and any reason can lead to a sell-off. Concerns about the coronavirus may have been that reason.

Besides overbought conditions, the stock prices had disconnected from the fundamentals. Specifically, while there have been some positive signs of economic growth troughing, they have been of the soft variety—things like surveys and confidence measures that tend to track the stock market. Hard data, like actual orders and business activity, have remained more elusive. Furthermore, while Morgan Stanley & Co.'s economists expect a global recovery this year, they believe it will be modest and mostly outside the US—primarily the emerging markets (EM).

With the economic impact from the coronavirus concentrated in China, the EM recovery may be at risk, and therefore the global economy, too. Any threats to a recovery can have an outsized impact on equity markets that are now pricing in a growth rebound. Offsetting these concerns is the almost unprecedented policy action from central banks. We think the equity rally over the past six months has been more the result of these aggressive policies than stronger growth.

Now it's tug of war between an unexciting recovery and plentiful liquidity. We turned incrementally bullish on equity markets last fall when the Federal Reserve, European Central Bank and the Bank of Japan said they would restart their respective Quantitative Easing programs. However, we kept a defensive/high-quality bias, suggesting interest rates were likely to continue to decline as the recovery remained uncertain and modest at best.

So far this year, the 10-year US Treasury yield has dropped by more than 35 basis points, while defensive stocks have outperformed cyclicals. Our advice of sticking to large-cap quality stocks with a defensive bias remains in place as headlines about the virus may keep the recovery uncertain and interest rates headed lower. We think a shift toward the cyclicals is coming, but this latest growth concern is keeping that move at bay. However, it's exactly what's needed to get the greater commitment to fiscal policy that is necessary to ignite the rotation. ■

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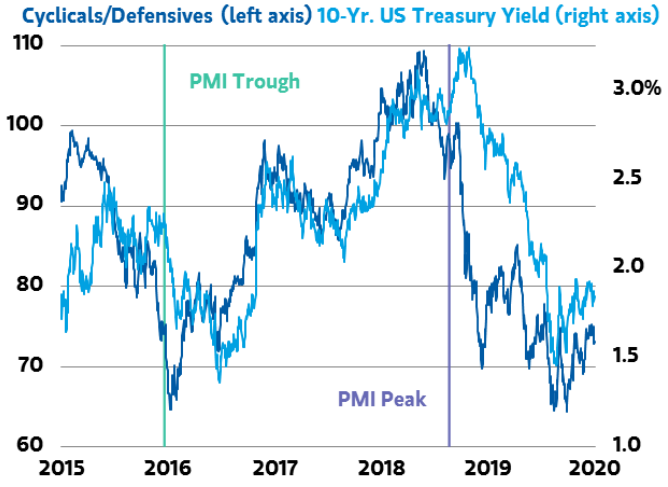
Cyclical Nirvana: When PMIs Trough

Kevin Demers, CFA, Equity Strategist, Morgan Stanley Wealth Management

Global risk assets navigated a difficult macro environment in 2019 as accommodative central bank actions offset disappointing growth. For the year, US GDP decelerated by 0.60 percentage points to 2.3%. When the fourth quarter is counted, S&P 500 earnings are expected to be flat—with underlying operating income actually coming in negative. While trade tensions, Brexit uncertainty and Middle East unrest affected corporate sentiment and investment, the natural maturation of the business cycle was inevitable. Even so, the S&P 500 ignored slowing fundamentals and finished the year up 31.5% as low interest rates allowed valuations to expand and investors stuck with the tech/growth leaders of the past decade.

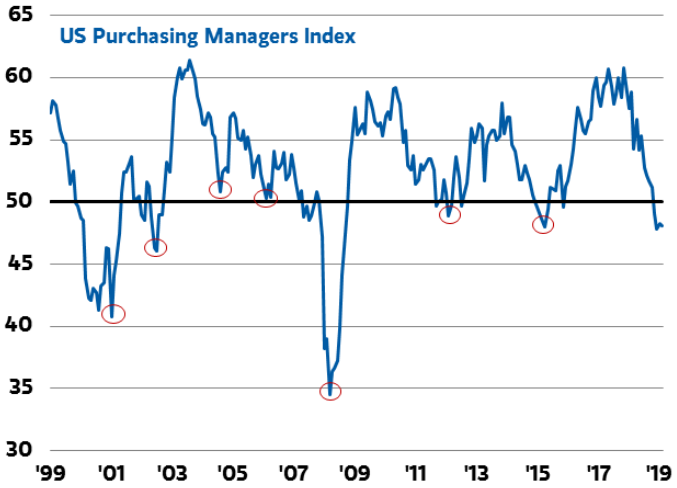
This slowdown in macro growth could be seen in closely watched economic indicators such as the ISM Purchasing Managers Index (PMI), a measure of manufacturing sentiment and expectations, which declined below 50, indicating a contraction in business activity. Since US PMI data peaked in August 2018, there has been a marked defensive shift in stock market leadership. Since then, defensive sectors have outperformed their high-beta cyclical counterparts by some 40% as investors rotated toward industries that are less sensitive to economic growth. Fixed income markets followed suit in recognizing uninspiring growth prospects, with the 10-year US Treasury yield falling to as low as 1.5% (see chart below). However, economic/business cycles tend to revert to the mean.

Since the 2018 PMI Peak, Defensive Stocks and the 10-Year Treasury Have Rallied



Source: Bloomberg as of Jan. 13, 2020

PMI Troughs Have Tended to Signal Opportunities in Cyclicals



Source: Bloomberg as of Jan. 13, 2020

Therefore, we caution investors that when the market recognizes better growth prospects, the rotation can be sharp and painful as underowned and undervalued cyclicals come back into favor. With Morgan Stanley & Co. economists forecasting a trough in global growth early this year and a recent de-escalation in trade tensions helping corporate sentiment, this inflection could happen sooner than many expect. So, how should investors position for a PMI improvement? We identified the last seven times US PMIs troughed, including five instances below 50 (see chart, above).

From there, we analyzed industry-level performance to identify parts of the market that consistently showed meaningful outperformance versus the market as a whole. Only eight industries consistently showed outperformance of 10% or more versus the market over the next 12 months: metals and mining, auto components, energy equipment and services, transportation, machinery, aerospace and defense, consumer finance and electrical equipment. Below, we have focused on the three of these for which we see catalysts that could potentially drive outsized gains in the coming year should economic data improve.

Transportation: Within transports, we view trucking companies as well positioned. As trade tensions ease, manufacturing activity should improve, supporting demand. At the same time, there are several meaningful supply-side catalysts that will likely benefit pricing: rising insurance premiums should pressure smaller competitors and stricter compliance of "electronic logging device" usage should decrease capacity. Improving demand and pricing should benefit trucker earnings outlooks in the next year, setting the stage for positive revisions.

Machinery: Few sectors have been as directly hit by the trade-induced capital spending slowdown as machinery. In particular, agricultural equipment sales stagnated as farm sentiment plummeted due to the implementation of Chinese tariffs on their goods. However, with the Phase One agreement with China explicitly calling for increased commodity purchases, demand headwinds could be fading. Should commodity prices stabilize in 2020, we expect strong replacement demand to drive growth in the industry.

Electrical Equipment: As automation has permeated traditional manufacturing industries, electrical equipment companies have emerged as innovators to help companies implement discrete and process automation technologies. Trade uncertainty caused a delay of major capital spending in 2019, leading to pent-up demand. A combination of cyclical improvements and secular drivers support our favorable view on earnings in the year ahead.

While many questions remain in the global economic picture —including continued China trade uncertainty, the upcoming US election, rising tensions in the Middle East and the coronavirus—we recommend that investors consider portfolio positioning for an eventual cyclical rotation. With defensive stocks currently trading at rich valuations, downside support may be limited. Having a list of quality cyclical companies to prepare for a turn in economic data seems prudent. ■

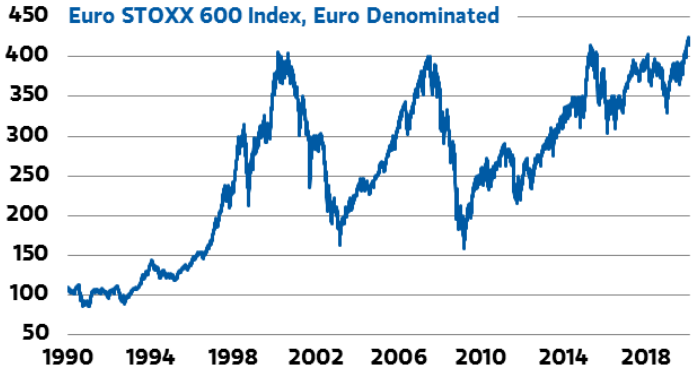
EQUITIES

Looking Across the Pond

Lisa Shalett, Chief Investment Officer and Head of Wealth Management Investment Resources, Morgan Stanley Wealth Management

For most of the past decade, European equities have disappointed investors as their performance compared with other regions has been weak, and relative valuations have fallen to multidecade lows. While the S&P 500 Index is up more than fourfold since the March 2009 bear market trough, the MSCI Europe Index has only doubled. The Euro STOXX 600 Index, a broader gauge of European companies that includes small and mid caps, has lagged even more, with the current index only fractionally above peaks hit in 2000, 2007 and 2015 (see chart). In US dollar terms, the Euro STOXX 600 remains roughly 15% below its 2007 peak, in part reflecting the relative weakness of the euro versus the greenback. Multiple headwinds certainly explain some of this performance deficiency, including: the EU's structural dysfunction that has prevented progress on budgetary integration and fiscal policy, risks around Brexit, perennial political and populist upheavals (especially in the so-called "southern periphery"), weak demographics, negative interest rates, persistently low inflation and banks that are feeble and debt laden.

At Last , the Euro STOXX 600 Index Breaks Through 22-Year Resistance Ceiling



Source: Bloomberg as of Jan. 29, 2020

ENTRY POINT. These obstacles are so well known that many investors believe the large current equity risk premium is not an opportunity but a permanent fixture. Equally important has been the issue of index composition, where bearish investors have noted the excessive skew in the European market toward cyclicals and financials and underrepresentation in secular growth stocks, especially technology leaders. Although we acknowledge all these issues, we see 2020 as a transitional year in global capital markets in which the decade-long dominance of US assets begins to fade, giving way to the valuation, cyclical and policy catalysts available in other regions. In that context, we now see an attractive entry point in European equities, especially for investors looking for new opportunities.

For starters, low expectations and evidence of green shoots around an economic turnaround have produced a two-year high in Euro Zone economic surprise indexes and a five-year high relative to other regions. After nearly two and a half years of declining activity and collapsing PMIs, manufacturing readings are beginning to stir. German new orders less inventories—a leading indicator for manufacturing PMIs with a two-month lead—have strongly inflected to 52 after troughing in December at 44, which was a 10-year low. The ZEW Economic Index, a monthly survey of growth expectations in Germany, has soared to 26.7, its highest level since July 2015. Employment dynamics have been stable, as has services' PMI, and improving consumer confidence has sustained positive gains in retail sales.

SUPPORTIVE POLICY. While fundamentals appear to be showing stabilizing trends and a positive change in direction, monetary policy should remain supportive. In September, before he completed his term as president of the European Central Bank (ECB), Mario Draghi implemented actions to cut interest rates, strengthen inflation-linked forward guidance and sustain open-ended bond buying. Those moves have paid off, as the money supply has been growing at a healthy annualized 6% clip. While interest rates are likely to remain on hold and not go deeper into negative territory, this dynamic has led to a steepening of the yield curve; the 10-year German Bund rate improved to roughly -20 basis points currently from -75 basis points last autumn. In turn, these monetary moves helped the banks, which are seeing positive earnings revisions. Still, other value-style stocks have not responded.

Christine Lagarde, who succeeded Draghi in November, is launching her tenure with a fundamental mission review. Although we don't expect the review to materially change the direction put in place by Draghi in the short term, her interests in topics like climate change and technological influences on the labor markets suggest that Lagarde will be an advocate for fiscal stimulus. In the UK, the labor market remains solid and PMIs are moving sideways, but we expect the Bank of England will cut the policy rate another 25 basis points as "insurance" against the risks of moving toward the last negotiating stage of Brexit, which is to conclude before the year's end.

POSITIVE FISCAL PRESSURE. Beyond the support of monetary policy and what is likely to be positive fiscal pressure from Lagarde, Morgan Stanley & Co. analysts have noted that government spending plans already in the pipeline set up 2020 to see the strongest fiscal impulse to growth since 2009. This could add another 35 to 40 basis points to

annual GDP growth. What's more, European policy uncertainty indexes are back to 2015 levels thanks to a Brexit resolution, the defeat of the Italian populist candidate and the apparent postponement of US-EU trade talks on the digital tax, luxury goods and autos. In contrast, policy uncertainty indexes are inflecting higher in the US given the ongoing impeachment trial, an upcoming presidential election and persistent Middle East stress.

Then there are sentiment, positioning, valuation and technicals to consider. Positive fundamentals and policy developments have yet to convince the skeptics. Europe is the least-owned region among hedge funds, where positioning has been in the last decade's 12th percentile. Europe has experienced the worst mutual fund outflows of any region over the last two years as investors liquidated some 15% of average assets under management.

Early readings of January flows suggest the potential for the first positive month in two years. Importantly, the Euro STOXX 600 has finally broken through its own resistance of 400 for the first time in 22 years.

VALUATION METRICS. On valuation, the MSCI Europe Index trades at a 25% discount to the MSCI World Index price/book value ratio and a 15% discount on forward price/earnings ratio. The MSCI Europe Index trades at roughly 15 times earnings versus 17 for the MSCI All Country World Index and nearly 19 for the S&P 500. Graham Secker, MS & Co.'s chief European strategist, says that Europe has only been this cheap relative to the rest of the world twice before in the past 30 years. UK stocks trade at a near-record 34% discount to the MSCI World Index's valuation composite metric. Finally, MS & Co.'s proprietary Market Timing Indicator for Europe remains neutral, suggesting there is still ample time to buy. ■

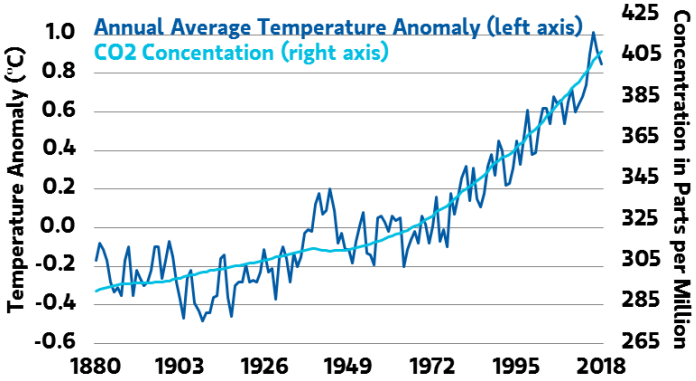
SUSTAINABILITY

Decarbonization: The Race to Net Zero

Jessica Alsford, CFA, Equity Strategist, Morgan Stanley & Co.

Carbon dioxide (CO2) emissions are at their highest level in human history. Driven by a number of human-made factors, chiefly broader industrialization and the burning of fossil fuels, rising emissions have brought a steady increase in global temperatures. Relative to the average from 1951 through 1980, 18 of the 19 warmest years on record have occurred since 2001 (see chart). The number of extreme weather events is climbing, wildlife habitats are shifting, glaciers are retreating and sea levels are rising. The effects of climate change are here today, disrupting livelihoods and causing billions of dollars in economic damage.

Material Increases in Atmospheric Carbon Dioxide Have Coincided With Higher Temperatures



Source: NASA, NOAA, Morgan Stanley & Co. Research as of Oct. 21, 2019

To combat climate change, global greenhouse gas emissions need to be at or around net zero, according to the 2015 Paris Agreement. This means we must move toward lowering emissions and developing the capability to remove carbon from the atmosphere so that the two are in balance. We estimate that some $50 trillion will need to be invested globally in five decarbonization technologies—renewables, electric vehicles (EVs), carbon capture and storage (CCS), hydrogen and biofuels—during the next 30 years to remain on track to be at or around net zero global greenhouse gas emissions by 2050.

The infrastructure needed to support this transition translates to an annual investment of $1.6 trillion. That investment value parallels the amount of capital invested in the US during 2017 across all sectors of the economy, according to the US Census Bureau. Investment in specifically global clean energy totaled only $332 billion in 2018, according to Bloomberg's New Energy Finance team. Thus, decarbonization presents a material economic opportunity for companies and investors who choose to allocate capital to these key areas of growth. We see potential for $3 trillion to as much as $10 trillion of earnings before interest and taxes.

Our 2030 base case suggests we are far from being on track to stay within a 2 degree Celsius scenario (2DS). However, there is hope. We outline in this report the level of investment needed in each technology, and which ones we think could be the most successful. Failure to act on climate change could result in catastrophic flooding, wildfires, mass migration and destruction of biodiversity. If the social and environmental consequences are not sufficient to drive capital toward technology solutions, then consider that if global temperatures on average go above 2 degrees Celsius it will result in a loss of up to 7% of GDP by 2100.

The good news is that multiple technologies offer solutions to reduce energy-related carbon emissions:

Renewables

Renewable power is the cornerstone of decarbonization. Power generation produces a quarter of all global carbon emissions as coal, oil and gas still make up about 65% of electricity generation. Since the turn of the century, some 2,600 gigatons of renewable generation has been installed globally.

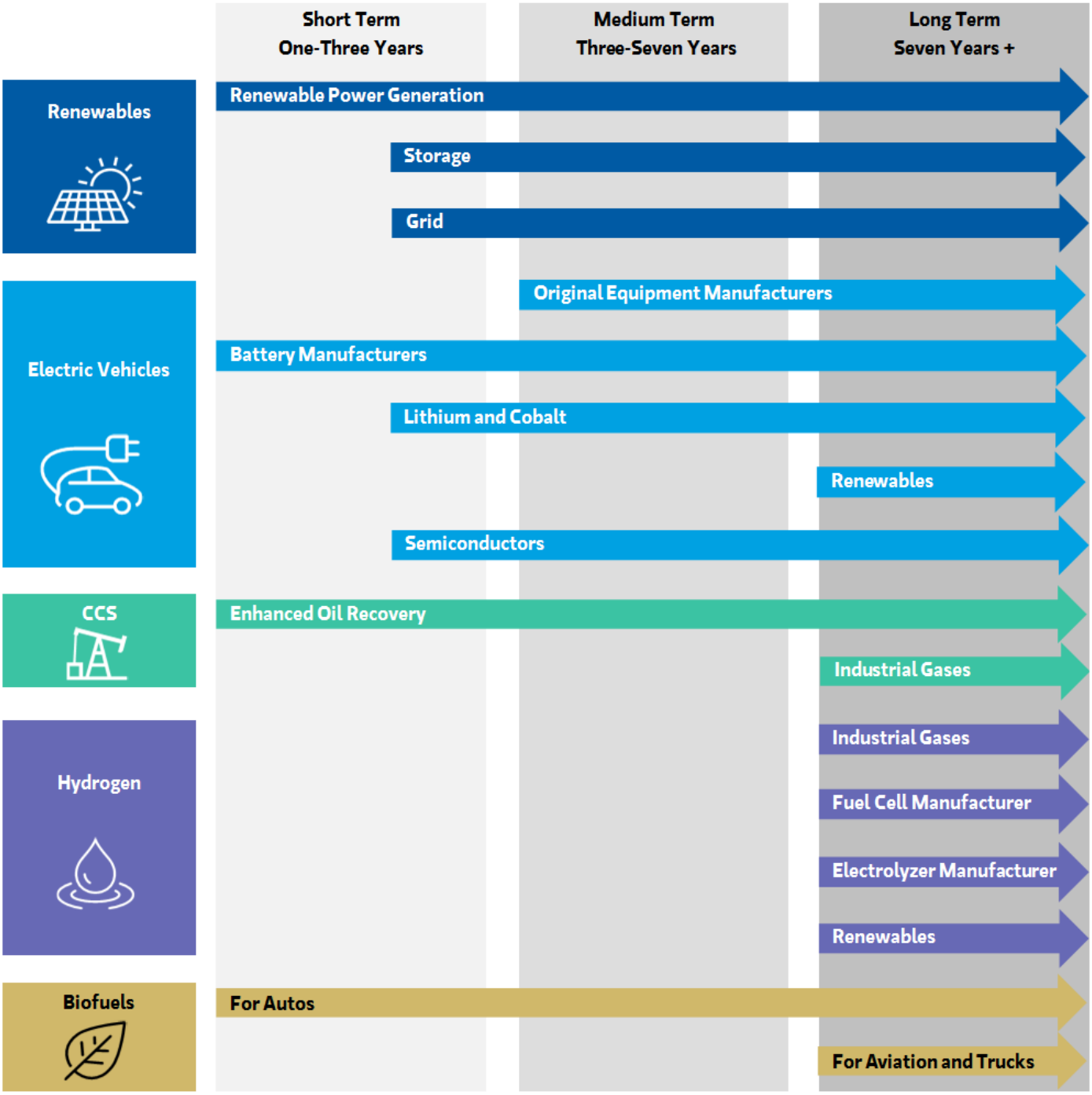
By our estimates, renewables need to deliver 80% of global power by 2050 to hit 2DS targets. This will require more than 11,000 gigawatts of additional renewable capacity (ex hydropower) during the next 30 years. Incremental renewable power is also needed for electric vehicles and hydrogen to truly offer a low-carbon solution for mobility and industry; we estimate these two technologies will need another 12,000 gigawatts of incremental power. We expect spending on renewable energy will be $14 trillion, or 28% of the total $50 trillion estimated on decarbonization, as it plays an integral role toward significantly decreasing carbon emissions.

Electric Vehicles

A hot topic among media pundits, EVs may not be as globally penetrating as initially meets the eye. In 2018, for example, there were only 5 million EVs sold globally. However, concerns around air pollution as well as climate change have helped to accelerate investment, with the internal combustion engine unlikely to meet strict combined CO2 and nitrogen oxide targets. Cars currently account for 7% of global greenhouse gas emissions. We have no doubt that the transition to EVs is underway, with regulation making it nearly impossible to meet tighter carbon emission standards without significant battery EV penetration, especially in Europe and China.

We forecast 113 million EVs globally by 2030 and 924 million by 2050. Reaching this level requires significant growth in sales to 23.2 million units in 2030, or about 23.7% of the market, up from about 1.3 million units in 2018, just 1.5% of market penetration. The expected growth in EVs over the next decade will have only a marginal impact on power consumption, but projected EV growth in 2050 could result in incremental electricity capacity close to the current level in the US—and this would need to be renewable power. In addition, network management must improve significantly. To fully build out the required global infrastructure to support electric vehicles, we forecast $11 trillion of total expenditure through 2050.

Investment Opportunities in the Race to Net Zero



Source: Morgan Stanley Research as of Oct. 21, 2019

Carbon Capture and Storage

Currently, there is more than 200,000 megawatts of coal-fired generation capacity under construction globally, and CCS is the only vehicle for decarbonizing these plants. We estimate that by 2050, $2.5 trillion of capital investment will be spent on CCS, which is about 5% of the total. CCS is likely to play a role in helping industries reduce their carbon footprint.

CCS projects require protracted project timelines and high upfront capital expenditure. We believe this will hinder private investment without strong government incentives or public-private partnerships. To make CCS attractive to investors long term, national-level policies need to incentivize emission reductions and put a price or credit on emissions avoided and stored. The International Energy Agency estimates that an incentive of $40 per ton of CO2 would enable the commercialization of 450 megatons of carbon for permanent geological storage. We estimate the current cost of CCS to be $711 million per million tons per annum of captured carbon. In addition, we expect the cost of building CCS plants to decline over time; we assume a 15% decline by 2040 and 30% by 2050.

Hydrogen

Hydrogen, produced using CCS or renewable power, offers a material opportunity to reduce carbon emissions in industry, which so far has struggled to find clean alternatives to many of the processes needed in, for example, making steel and cement. Today, most hydrogen is produced from fossil fuels. However, there is growing interest in the ability to produce hydrogen using low-carbon techniques. "Green" hydrogen, which is separated from water through electrolysis, can help manage electricity grid stability as more renewable energy comes on line, and can be used for heating and cooling as well. There is also an opportunity for hydrogen in mobility, although we question whether infrastructure for both EVs and fuel cell vehicles will be built for the passenger-car sector.

The Hydrogen Council, a global initiative of energy, transportation and industry companies, strives for hydrogen to account for 18% of energy demand by 2050. This implies a tenfold increase in hydrogen demand to more than 550 million tons a year, and creates an industry with $2.5 trillion of revenues globally. Achieving this will require more active government support to incentivize investment in infrastructure and reduce the cost of clean energy needed for the production process.

Biofuels

We estimate that 4% of transportation fuel will come from biofuels in 2030, but not all biofuels are alike. The first generation of biofuels is produced using food crops such as sugar cane, soybeans and corn, but this approach is neither sustainable nor green due to its impact on land water usage but also food supply if it were produced at scale. First generation feedstocks have higher emissions, particularly when indirect emissions are taken into account. Second-generation biofuels use nonfood feedstock such as waste, wood and animal fats. Third generation biofuels are derived from algae.

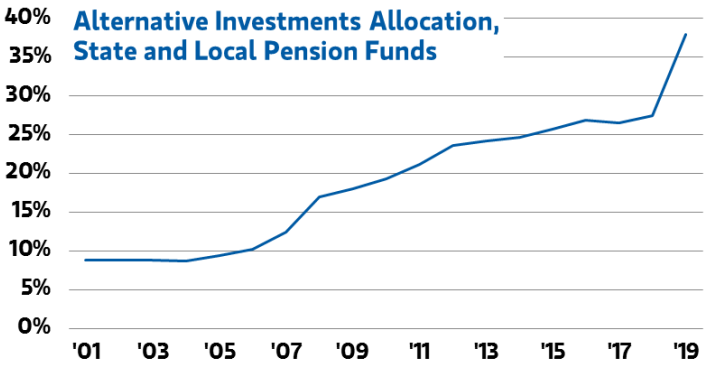
Building sufficient biofuels capacity to be aligned with a 2DS will require an investment of about $2.7 trillion by 2050. This assumes that aviation and road freight rapidly increase the adoption of biofuels in addition to further penetration of passenger road vehicles. ■

This article is an excerpt from "Decarbonization: The Race to Net Zero," a Morgan Stanley & Co. Blue Paper *published Oct. 21, 2019. For a copy of the report, contact your Financial Advisor.*

Short Takes

Public Pension Funds Have Boosted Their Allocations to Alternative Investments

During the past decade, state and local pension funds have increasingly moved away from lower-risk fixed income investments and gravitated toward relatively less-liquid alternative investments such as hedge funds, real assets and private equity (see chart). While alternatives offer higher upside potential, they also expose the pension funds to higher fees and greater risk of cash shortfalls. As the baby boomer population ages, pension funds are expected to have more cash outflows, which makes them more vulnerable to market volatility. That means yield-hungry pension funds will need more comprehensive checks for balancing the risk-versus-return trade-off in their investment portfolios.–*Vibhor Dave*



Source: Public Plans Database as of Dec. 31, 2019

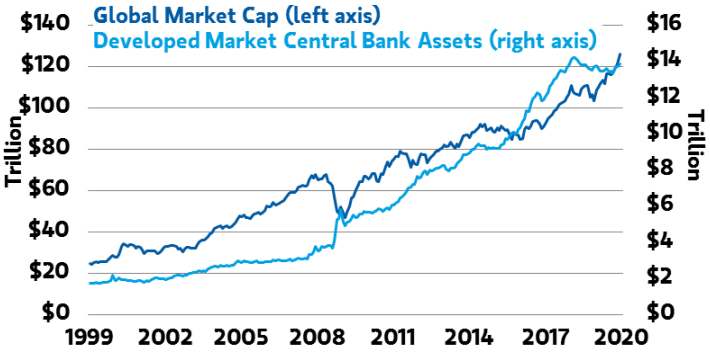
Slower Wage Gains Should Benefit Smaller US Companies

Source: Bloomberg as of Dec. 31, 2019

Against a backdrop of record-low unemployment, US average hourly earnings surprised to the downside in December, growing 2.9% year over year versus a 3.1% consensus forecast (see chart). December's wage gains are a significant step down when compared with a 3.4% year-over-year cycle high in February 2019. It points to a labor market that, while strong by historical standards, has cooled somewhat. A more modest increase in labor costs should benefit smaller companies that saw their earnings squeezed in 2019 when the competition for skilled workers kicked into high gear. Smaller companies typically don't have as much power as large companies to offset higher labor costs by raising prices or making productivity-enhancing capital improvements.–*Chris Baxter*

Central Banks' Appetite for High-Quality Assets Lowers Supply Left for Investors

Central banks have historically held both government and nongovernment securities on their balance sheets to facilitate normal financial market operations. After the financial crisis, central banks rapidly increased their ownership of such assets to boost the money supply and encourage lending and investment. However, the growth of these assets has outpaced market growth as measured by market capitalization (see chart). In 2002, central banks owned 6%, or $2.1 trillion, of all investable assets; in 2019, that number has nearly doubled to 11%, or $13.8 trillion. The combination of higher central bank holdings and an increased money supply puts upward pressure on bond valuations, lowering the supply available to investors and forcing buyers to accept a lesser yield.–*Nick Lentini*



Note: Global market cap is calculated as the aggregate market capitalization of the MSCI All Country World Index and the Bloomberg Barclays Global Aggregate Bond Index. Central banks are the Federal Reserve, Bank of Japan and European Central Bank.
Source: Bloomberg as of Jan. 22, 2020

Q&A

Can Muni Bonds Deliver Strong Returns Again in 2020?

The municipal bond market really outdid itself in 2019, with the Bloomberg Barclays Municipal Bond Index up 7.5% and the Bloomberg Barclays High Yield Municipal Bond Index climbing 10.7%. While Bob DiMella and John Loffredo of MacKay Municipal Managers don't believe the broad asset class will likely repeat such a strong showing in 2020, "overall," says DiMella, "it's still an attractive place—especially if you're selective." The portfolio managers anticipate a pickup in volatility later this year, but believe that plenty of opportunities remain in both investment grade and high yield muni credits. "Patience is very important—as is a disciplined, well-diversified approach," explains Loffredo. The two recently shared their insights with Susan McDowell, fixed income investment officer for Global Investment Manager Analysis at Morgan Stanley Wealth Management. The following is an edited version of their comments.

SUSAN MCDOWELL (SM): Let's start with your macro views. Can you begin with a recap of 2019 to set the stage?

BOB DIMELLA (BD): In 2019, there were not a lot of regrets. It was a very strong year in both absolute and relative returns for investment grade and high yield—and pretty much across the entire yield curve.

That was due to a combination of positive fundamentals and technicals; fundamentals, because the economy continued to expand, and state and local governments continued to replenish their rainy day funds and surpluses. Although the growth of a lot of those balances slowed somewhat, the growth was still positive. In addition, revenue collections at the state levels are still high and growing, and we've seen more credit upgrades than downgrades, which continue into 2020.

The techincals were really the deciding factor of 2019: There was a significant shift from retail investors to increase their allocations into the municipal marketplace, which stemmed from the tax reform of 2017. If you were a wealthy individual in a high-tax state, for the most part, your tax liabilities went up.

To give you a general idea, approximately $90 billion in flows came into muni mutual funds last year versus an annual historical average closer to $25 billion—and mutual funds weren't the only place that saw flows. Separately managed accounts and even institutional investors saw increases.

SM: Amid such rosy conditions, were there any challenges?

BD: We definitely started seeing cracks in some high yield sectors and in continuous care retirement communities, which had some downgrades and some defaults starting to develop. Affordable multifamily housing bonds started showing some signs of stress.

Not everything was rosy, but look at it another way: New Jersey, which tends to be one of the more challenging states from a fundamental credit perspective, at the end of the day was one of the top-performing states last year.

Because so much money was coming in, it was a case that the rising tide raised all boats—both the weaker ones and the stronger ones. It was a very forgiving marketplace for credits that weren't necessarily positive.

JOHN LOFFREDO (JL): What really helped the market in general was that we started seeing some positive news out of two of the largest headline issuers. We saw some bright spots with regard to structural changes going on in Illinois and even started seeing signs of positive momentum in Puerto Rico. So, two of the spots that everyone was worried about looked like they were on the road to recovery.

SM: Where do you see the opportunities looking ahead?

BD: Any time you have a really strong year, it creates a bit of anxiety. Going into 2020, it's a little bit of uncharted territory. When you look at the relatively low-interest-rate environment that we are in today, credit spreads are much tighter than they have been in years. We do believe there was an element of misbehavior going on in 2019, with some investors chasing yield and income—and that's never really a good idea.

We're telling clients to emphasize quality on the chance that the strong and positive technicals start to slow down or reverse. So, pivoting into 2020, we are starting to go after more quality income in both investment grade and high yield. There is still some value in high yield, if you look at the credit structure, the coupon structure and the call structure. It's not only just quality from a credit perspective; it's quality from all of the relative-value strategies that you can implement in a well-structured municipal bond portfolio.

JL: On the high yield side, we still like munis whose revenues are tied to any type of taxes, whether it's excise tax, property tax or sales tax. We also favor transportation and essential services such as electric.

The one question we always get is: Should we be overweight or underweight high yield versus investment grade? Right now, we are neutral. For the average, moderate-risk investor, we believe you should have equal weight in high yield as well as investment grade. To clarify, a long-term neutral allocation for us is 80% investment grade and 20% in high yield.

SM: You have suggested that, in the muni market, it's going to be as much about what you don't own as what you do own. What are your thoughts on the effect that pockets of distress may have on the overall market, and how do you mitigate against that risk?

JL: As Bob mentioned, we have used the last quarter to upgrade the quality of our portfolios, whether it's high yield or investment grade. We don't think everything is going to evaporate nor do we think all high yield issues won't be able to make their interest payments.

We do believe that because of the strong bond market, certain credits have been able to come to market that in a normal market probably would not have been able to do so. We have stayed away from those deals. We think that as those projects come online and have to start trading, the true relative value will be shown in the market. If you stay away from where cracks might occur, you are better served.

SM: So it really comes down to security selection and active management in 2020?

JL: Correct. It's bond math. As the coupon goes lower, you're inherently going to have a higher volatility, and when you start seeing a change in the yield curve, especially as rates rise with the lower coupon, you have higher volatility. There also are times on the calendar when the municipal marketplace has lower liquidity—historically, March and October—during which there is a tactical opportunity that you can take advantage of if you have liquidity in your portfolio.

SM: What are your thoughts regarding the relative attractiveness of tax-free versus taxable bonds?

BD: For most of the time since the financial crisis, the municipal market has traded pretty cheaply on a relative basis versus US Treasuries and corporates, with the exception of two times when it got to full value or marginally rich.

That was last summer, when relative-value ratios hit multidecade lows, and in early January of this year, which was due to technicals; flows were coming in, bonds were maturing and a lot of dollars were trying to find muni bonds. Meanwhile, the bankers were not back in full swing yet, so there weren't a lot of deals hitting the market. It was a really strong technical market that, temporarily, was kind of fully valued.

Overall, we prefer tax-free bonds to taxable for the whole year of 2020, because—getting back to some of those macro themes I had talked about before—the fundamentals are still positive and so are the technicals. We still think the state exemption, especially for investors in high-tax states, will keep muni demand pretty high.

However, it doesn't mean every single municipal bond is still attractive, and that is why we think it's about which individual bonds you want to try to buy with regard to sector or along the yield curve.

We're not big fans of 30-year municipal bonds. For many years, we have felt that the municipal yield curve was going to continue to flatten, so you wanted more of a longer bias, but we're pulling away from that now and believe there's a little more risk to the long end with the potential for the yield curve to steepen.

SM: Has it gotten harder or easier to navigate this market since the financial crisis?

BD: We don't believe the inherent creditworthiness of the municipal marketplace has shifted significantly since 2008. While it has been more challenged because of the drop in revenues due to issues stemming from the financial crisis, just as important is the shift in the liquidity of the marketplace.

Committed capital by banks and broker-dealers has declined significantly since 2008, so as a municipal asset management firm, you have to own your own liquidity, in our view. That means not employing leverage, investing in bonds that trade more frequently and maintaining some cash reserves contribute to a stronger mutual fund liquidity profile. There's no big bank or firm out there, or capital markets group, that is just going to simply show us their balance sheet and show us liquidity—especially in times of crisis or technical dislocations. So, you have to own it.

SM: Are there any exciting trends worth noting in the muni marketplace?

JL: A lot of people have not yet focused on the taxable muni market. I think there will be a lot of opportunities as this market grows because, for the first time, you're going to start seeing clients put taxable munis in their individual retirement accounts. We're getting more and more questions about this, and we believe it's a high-quality area, with an average credit rating of A or AA.

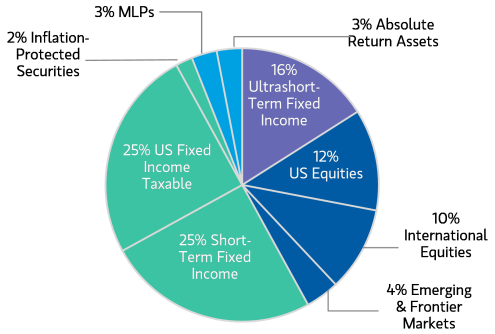
If people continue to seek security for their retirement savings, I think taxable munis offer a great option versus higher-volatility sectors, such as corporate bonds. ■

Bob DiMella and John Loffredo are not employees of Morgan Stanley Wealth Management or its affiliates. Opinions expressed by them are their own and may not necessarily reflect those of Morgan Stanley Wealth Management or its affiliates.

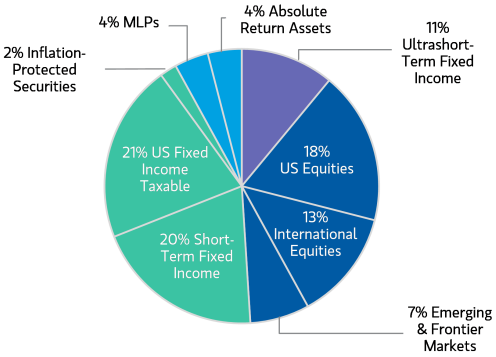
Global Investment Committee Tactical Asset Allocation

The Global Investment Committee provides guidance on asset allocation decisions through its various models. The five models below are recommended for investors with up to $25 million in investable assets. They are based on an increasing scale of risk (expected volatility) and expected return.

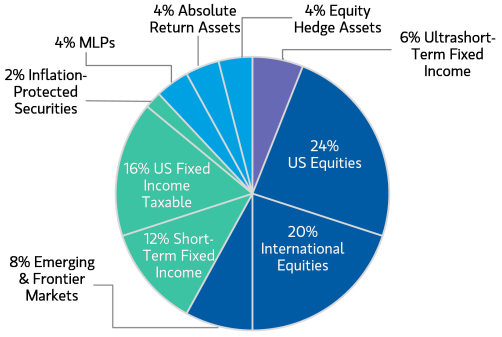
Wealth Conservation



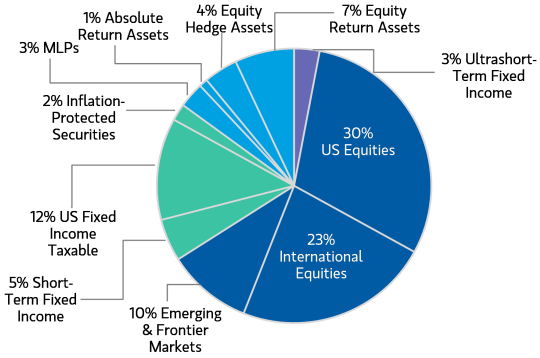
Income



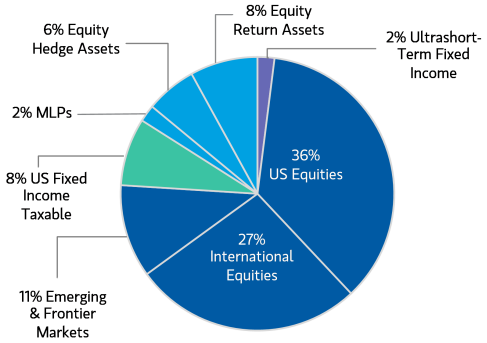
Balanced Growth



Market Growth



Opportunistic Growth



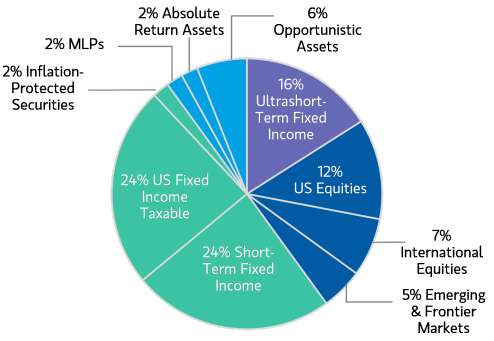
Key

- Ultrashort-Term Fixed Income
- Fixed Income & Preferreds
- Equities
- Alternatives

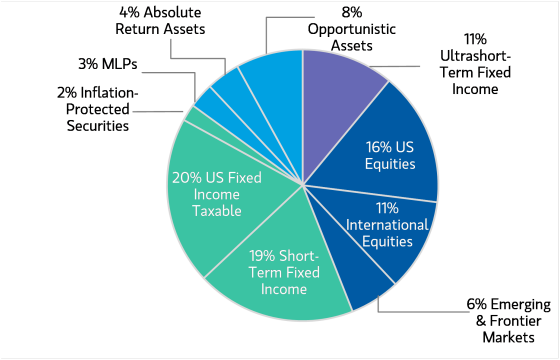
Source: Morgan Stanley Wealth Management GIC as of Jan. 31, 2020

The Global Investment Committee provides guidance on asset allocation decisions through its various models. The five models below are recommended for investors with over $25 million in investable assets. They are based on an increasing scale of risk (expected volatility) and expected return.

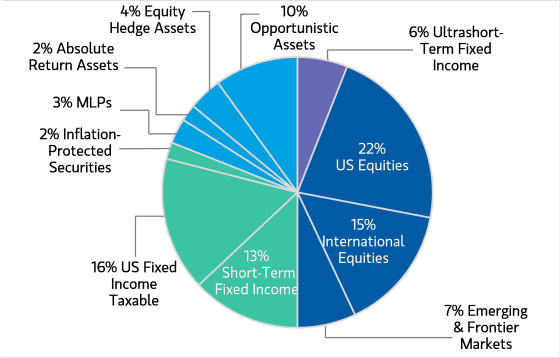
Wealth Conservation



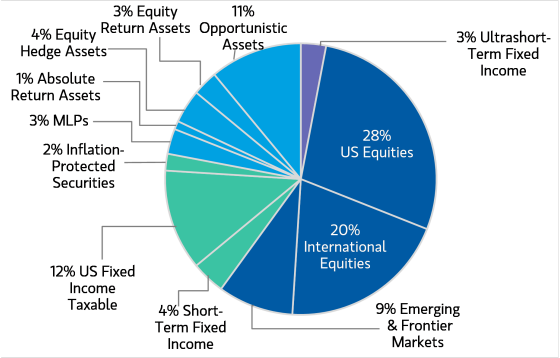
Income



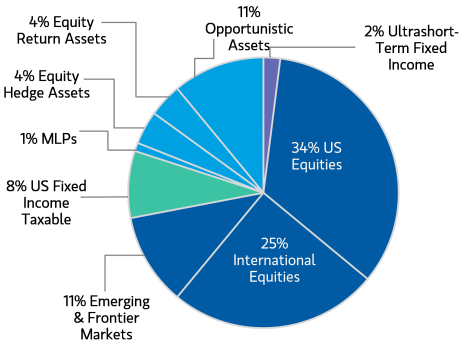
Balanced Growth



Market Growth



Opportunistic Growth



Key

- Ultrashort-Term Fixed Income
- Fixed Income & Preferreds
- Equities
- Alternatives

Source: Morgan Stanley Wealth Management GIC as of Jan. 31, 2020

Tactical Asset Allocation Reasoning

0Global Equities	Relative Weight Within Equities	
US	Underweight	The benchmark S&P 500 continues to make all-time highs premised on optimism about the de-escalation of US-China trade tensions, the potential for reflation from global central bank easing and the Fed's temporary liquidity injections. We are concerned about the disconnect between the index and fundamentals, which are still weak. Expectations for earnings growth look unachievable and the potential for further policy stimulus in an election year is low. Our year-end 2020 base case S&P 500 price target remains 3,000.
International Equities (Developed Markets)	Overweight	We maintain a positive bias for Japanese and European equity markets. The populist movements around the world are likely to drive more fiscal policy action in both regions, especially in Europe, which will allow the central banks to exit their extraordinary monetary policies and help valuations to rise. Christine LaGarde's leadership at the European Central Bank and resolution of Brexit uncertainty are catalysts.
Emerging Markets	Overweight	The combination of trade tension resolution, global growth rebound, ample liquidity from the Fed and a weakening dollar should catalyze investor interest. China stands to gain the most from US tariff rollbacks and global trade dynamics should improve. Valuations are attractive and local central banks should be able to maintain accommodation and stimulus.
Global Fixed Income	**Relative Weight Within Fixed Income**	
US Investment Grade	Market Weight	We have recommended shorter-duration* (maturities) since March 2018 given the extremely low yields and potential capital losses associated with rising interest rates from such low levels, but added to long-dated Treasuries in mid-2019 as a hedge against recession risks. We are also increasingly concerned that credit spreads do not reflect the earnings recession in the US or the significant leverage on corporate balance sheets. While interest coverage remains benign, overall ratios of debt/equity are stretched. Therefore, we are market weight US investment grade.
International Investment Grade	Underweight	Yields are even lower outside the US, leaving very little value in international fixed income, particularly as the global economy begins to recover more broadly. While interest rates are likely to stay low, the offsetting diversification benefits do not warrant much, if any, position, in our view.
Inflation-Protected Securities	Overweight	With the recent collapse in real yields from the Fed's pivot, these securities offer relative value in the context of our expectations for global growth to eventually accelerate, oil prices to trough, the US dollar to top and US wages to continue to benefit from tight labor markets. The Fed's guidance to "let inflation run hot" should be trusted and bought.
High Yield	Underweight	High yield bonds have rebounded with equity markets this year as the Fed pivoted to a more dovish policy and option-adjusted spreads once again are closing in on cycle tights. We see this as dangerous given signs of stress in CCC-rated bonds, leveraged loans and collateralized debt.
Alternative Investments	**Relative Weight Within Alternative Investments**	
REITs	Underweight	Real estate investment trusts (REITs) have performed very well as global growth slowed and interest rates fell. However, REITs remain expensive and are vulnerable to credit risks. We will revisit our position as nominal GDP troughs and/or valuations become more attractive.
Master Limited Partnerships/Energy Infrastructure*	Overweight	With oil prices recovering and a more favorable regulatory environment, MLPs should provide a reliable and attractive yield relative to high yield. Global supply/demand dynamics in light of OPEC-plus production discipline remain supportive for fracking activity and pipeline construction, both of which should lead to an acceleration in the growth of distributions.
Hedged Strategies (Hedge Funds and Managed Futures)	Overweight	This asset category can provide uncorrelated exposure to traditional risk-asset markets. It tends to outperform when traditional asset categories are challenged by growth scares and/or interest rate volatility spikes, a scenario that is increasingly probable given valuations and year-end stock market euphoria. We prefer very active and fundamental strategies, especially equity long/short.

*For more about the risks to Master Limited Partnerships (MLPs) and Duration, please see the Risk Considerations section beginning on page 15 of this report.
Source: Morgan Stanley Wealth Management GIC as of Jan. 31, 2020

Disclosure Section

The Global Investment Committee (GIC) is a group of seasoned investment professionals from Morgan Stanley & Co. and Morgan Stanley Wealth Management 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 asset allocation model weightings, as well as produce a suite of strategy, analysis, commentary, portfolio positioning suggestions and other reports and broadcasts.

Jessica Alsford, Chris Baxter, Vibhor Dave, Kevin Demers and Nick Lentini are not members of the Global Investment Committee and any implementation strategies suggested have not been reviewed or approved by the Global Investment Committee.

Index Definitions

For index, indicator and survey definitions referenced in this report please visit the following: https://www.morganstanley.com/wealth-investmentsolutions/wmir-definitions

Risk Considerations

Alternative Investments

The sole purpose of this material is to inform, and it in no way is intended to be an offer or solicitation to purchase or sell any security, other investment or service, or to attract any funds or deposits. Investments mentioned may not be suitable for all clients. Any product discussed herein may be purchased only after a client has carefully reviewed the offering memorandum and executed the subscription documents. Morgan Stanley Wealth Management has not considered the actual or desired investment objectives, goals, strategies, guidelines, or factual circumstances of any investor in any fund(s). Before making any investment, each investor should carefully consider the risks associated with the investment, as discussed in the applicable offering memorandum, and make a determination based upon their own particular circumstances, that the investment is consistent with their investment objectives and risk tolerance.

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 information contained herein may constitute forward-looking statements. Due to various risks and uncertainties, actual events, results or the performance of a fund may differ materially from those reflected or contemplated in such forward-looking statements. Clients should carefully consider the investment objectives, risks, charges, and expenses of a fund before investing.

Alternative investments involve complex tax structures, tax inefficient investing, and delays in distributing important tax information. 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.

Interests in alternative investment products are offered pursuant to the terms of the applicable offering memorandum, are distributed by Morgan Stanley Smith Barney LLC and certain of its affiliates, and (1) are not FDIC-insured, (2) are not deposits or other obligations of Morgan Stanley or any of its affiliates, (3) are not guaranteed by Morgan Stanley and its affiliates, and (4) involve investment risks, including possible loss of principal. Morgan Stanley Smith Barney LLC is a registered broker-dealer, not a bank.

Hypothetical Performance

General: Hypothetical performance should not be considered a guarantee of future performance or a guarantee of achieving overall financial objectives. Asset allocation and diversification do not assure a profit or protect against loss in declining financial markets.

Hypothetical performance results have inherent limitations. The performance shown here is simulated performance based on benchmark indices, not investment results from an actual portfolio or actual trading. There can be large differences between hypothetical and actual performance results achieved by a particular asset allocation.

Despite the limitations of hypothetical performance, these hypothetical performance results may allow clients and Financial Advisors to obtain a sense of the risk / return trade-off of different asset allocation constructs.

Investing in the market entails the risk of market volatility. The value of all types of securities may increase or decrease over varying time periods.

This analysis does not purport to recommend or implement an investment strategy. Financial forecasts, rates of return, risk, inflation, and other assumptions may be used as the basis for illustrations in this analysis. They should not be considered a guarantee of future performance or a guarantee of achieving overall financial objectives. No analysis has the ability to accurately predict the future, eliminate risk or guarantee investment results. As investment returns, inflation, taxes, and other economic conditions vary from the assumptions used in this analysis, your actual results will vary (perhaps significantly) from those presented in this analysis.

The assumed return rates in this analysis are not reflective of any specific investment and do not include any fees or expenses that may be incurred by investing in specific products. The actual returns of a specific investment may be more or less than the returns used in this analysis. The return assumptions are based on hypothetical rates of return of securities indices, which serve as proxies for the asset classes. Moreover, different forecasts may choose different indices as a proxy for the same asset class, thus influencing the return of the asset class.

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.

ETF Investing

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. Investing in an international ETF also involves certain risks and considerations not typically associated with investing in an ETF that invests in the securities of U.S. issues, such as political, currency, economic and market risks. These risks are magnified in countries with emerging markets, since these countries may have relatively unstable governments and less established markets and economics. ETFs investing in physical commodities and commodity or currency futures have special tax considerations. Physical commodities may be treated as collectibles subject to a maximum 28% long-term capital gains rates, while futures are marked-to-market and may be subject to a blended 60% long- and 40% short-term capital gains tax rate. Rolling futures positions may create taxable events. For specifics and a greater explanation of possible risks with ETFs, along with the ETF's investment objectives, charges and expenses, please consult a copy of the ETF's prospectus. Investing in sectors may be more volatile than diversifying across many industries. The investment return and principal value of ETF investments will fluctuate, so an investor's ETF shares (Creation Units), if or when sold, may be worth more or less than the original cost. ETFs are redeemable only in Creation Unit size through an Authorized Participant and are not individually redeemable from an ETF.

Investors should carefully consider the investment objectives and risks as well as charges and expenses of an exchange-traded fund or mutual fund before investing. The prospectus contains this and other important information about the mutual fund. To obtain a prospectus, contact your Financial Advisor or visit the mutual fund company's website. Please read the prospectus carefully before investing.

MLPs

Master Limited Partnerships (MLPs) are limited partnerships or limited liability companies that are taxed as partnerships and whose interests (limited partnership units or limited liability company units) are traded on securities exchanges like shares of common stock. Currently, most MLPs operate in the energy, natural resources or real estate sectors. Investments in MLP interests are subject to the risks generally applicable to companies in the energy and natural resources sectors, including commodity pricing risk, supply and demand risk, depletion risk and exploration risk.

Individual MLPs are publicly traded partnerships that have unique risks related to their structure. These include, but are not limited to, their reliance on the capital markets to fund growth, adverse ruling on the current tax treatment of distributions (typically mostly tax deferred), and commodity volume risk.

The potential tax benefits from investing in MLPs depend on their being treated as partnerships for federal income tax purposes and, if the MLP is deemed to be a corporation, then its income would be subject to federal taxation at the entity level, reducing the amount of cash available for distribution to the fund which could result in a reduction of the fund's value.

MLPs carry interest rate risk and may underperform in a rising interest rate environment. MLP funds accrue deferred income taxes for future tax liabilities associated with the portion of MLP distributions considered to be a tax-deferred return of capital and for any net operating gains as well as capital appreciation of its investments; this deferred tax liability is reflected in the daily NAV; and, as a result, the MLP fund's after-tax performance could differ significantly from the underlying assets even if the pre-tax performance is closely tracked.

Duration

Duration, the most commonly used measure of bond risk, quantifies the effect of changes in interest rates on the price of a bond or bond portfolio. The longer the duration, the more sensitive the bond or portfolio would be to changes in interest rates. Generally, if interest rates rise, bond prices fall and vice versa. Longer-term bonds carry a longer or higher duration than shorter-term bonds; as such, they would be affected by changing interest rates for a greater period of time if interest rates were to increase. Consequently, the price of a long-term bond would drop significantly as compared to the price of a short-term bond.

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

Investing in currency involves additional special risks such as credit, interest rate fluctuations, derivative investment risk, and domestic and foreign inflation rates, which can be volatile and may be less liquid than other securities and more sensitive to the effect of varied economic conditions. In addition, international investing entails greater risk, as well as greater potential rewards compared to U.S. investing. These risks include political 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 economies.

Managed futures investments are speculative, involve a high degree of risk, use significant leverage, have limited liquidity and/or may be generally illiquid, may incur substantial charges, may subject investors to conflicts of interest, and are usually 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. Managed futures investments are not intended to replace equities or fixed income securities but rather may act as a complement to these asset categories in a diversified portfolio.

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.

Physical precious metals are non-regulated products. Precious metals are speculative investments, which may experience short-term and long term price volatility. The value of precious metals investments may fluctuate and may appreciate or decline, depending on market conditions. If sold in a declining market, the price you receive may be less than your original investment. Unlike bonds and stocks, precious metals do not make interest or dividend payments. Therefore, precious metals may not be suitable for investors who require current income. Precious metals are commodities that should be safely stored, which may impose additional costs on the investor. The Securities Investor Protection Corporation ("SIPC") provides certain protection for customers' cash and securities in the event of a brokerage firm's bankruptcy, other financial difficulties, or if customers' assets are missing. SIPC insurance does not apply to precious metals or other commodities.

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.

Interest on municipal bonds is generally exempt from federal income tax; however, some bonds may be subject to the alternative minimum tax (AMT). Typically, state tax-exemption applies if securities are issued within one's state of residence and, if applicable, local tax-exemption applies if securities are issued within one's city of residence.

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.

Ultrashort-term fixed income asset class is comprised of fixed income securities with high quality, very short maturities. They are therefore subject to the risks associated with debt securities such as credit and interest rate risk.

Although they are backed by the full faith and credit of the U.S. Government as to timely payment of principal and interest, Treasury Bills are subject to interest rate and inflation risk, as well as the opportunity risk of other more potentially lucrative investment opportunities.

CDs are insured by the FDIC, an independent agency of the U.S. Government, up to a maximum of $250,000 (including principal and accrued interest) for all deposits held in the same insurable capacity (e.g. individual account, joint account, IRA etc.) per CD depository. Investors are responsible for monitoring the total amount held with each CD depository. All deposits at a single depository held in the same insurable capacity will be aggregated for the purposes of the applicable FDIC insurance limit, including deposits (such as bank accounts) maintained directly with the depository and CDs of the depository. For more information visit the FDIC website at www.fdic.gov.

The majority of $25 and $1000 par preferred securities are "callable" meaning that the issuer may retire the securities at specific prices and dates prior to maturity. Interest/dividend payments on certain preferred issues may be deferred by the issuer for periods of up to 5 to 10 years, depending on the particular issue. The investor would still have income tax liability even though payments would not have been received. Price quoted is per $25 or $1,000 share, unless otherwise specified. Current yield is calculated by multiplying the coupon by par value divided by the market price.

The initial interest rate on a floating-rate security may be lower than that of a fixed-rate security of the same maturity because investors expect to receive additional income due to future increases in the floating security's underlying reference rate. The reference rate could be an index or an interest rate. However, there can be no assurance that the reference rate will increase. Some floating-rate securities may be subject to call risk.

The market value of convertible bonds and the underlying common stock(s) will fluctuate and after purchase may be worth more or less than original cost. If sold prior to maturity, investors may receive more or less than their original purchase price or maturity value, depending on market conditions. Callable bonds may be redeemed by the issuer prior to maturity. Additional call features may exist that could affect yield.

Some $25 or $1000 par preferred securities are QDI (Qualified Dividend Income) eligible. Information on QDI eligibility is obtained from third party sources. The dividend income on QDI eligible preferreds qualifies for a reduced tax rate. Many traditional 'dividend paying' perpetual preferred securities (traditional preferreds with no maturity date) are QDI eligible. In order to qualify for the preferential tax treatment all qualifying preferred securities must be held by investors for a minimum period – 91 days during a 180 day window period, beginning 90 days before the ex-dividend date.

Principal is returned on a monthly basis over the life of a mortgage-backed security. Principal prepayment can significantly affect the monthly income stream and the maturity of any type of MBS, including standard MBS, CMOs and Lottery Bonds. Yields and average lives are estimated based on prepayment assumptions and are subject to change based on actual prepayment of the mortgages in the underlying pools. The level of predictability of an MBS/CMO's average life, and its market price, depends on the type of MBS/CMO class purchased and interest rate movements. In general, as interest rates fall, prepayment speeds are likely to increase, thus shortening the MBS/CMO's average life and likely causing its market price to rise. Conversely, as interest rates rise, prepayment speeds are likely to decrease, thus lengthening average life and likely causing the MBS/CMO's market price to fall. Some MBS/CMOs may have "original issue discount" (OID). OID occurs

if the MBS/CMO's original issue price is below its stated redemption price at maturity, and results in "imputed interest" that must be reported annually for tax purposes, resulting in a tax liability even though interest was not received. Investors are urged to consult their tax advisors for more information.

Rebalancing does not protect against a loss in declining financial markets. There may be a potential tax implication with a rebalancing strategy. Investors should consult with their tax advisor before implementing such a strategy.

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

Companies paying dividends can reduce or cut payouts at any time.

Value investing does not guarantee a profit or eliminate risk. Not all companies whose stocks are considered to be value stocks are able to turn their business around or successfully employ corrective strategies which would result in stock prices that do not rise as initially expected.

Growth investing does not guarantee a profit or eliminate risk. The stocks of these companies can have relatively high valuations. Because of these high valuations, an investment in a growth stock can be more risky than an investment in a company with more modest growth expectations.

Asset allocation and diversification do not assure a profit or protect against loss in declining financial markets.

REITs investing risks are similar to those associated with direct investments in real estate: property value fluctuations, lack of liquidity, limited diversification and sensitivity to economic factors such as interest rate changes and market recessions.

Because of their narrow focus, sector investments tend to be more volatile than investments that diversify across many sectors and companies. Technology stocks may be especially volatile. Risks applicable to companies in the energy and natural resources sectors include commodity pricing risk, supply and demand risk, depletion risk and exploration risk.

Yields are subject to change with economic conditions. Yield is only one factor that should be considered when making an investment decision.

Credit ratings are subject to change.

The indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment.

The indices selected by Morgan Stanley Wealth Management to measure performance are representative of broad asset classes. Morgan Stanley Smith Barney LLC retains the right to change representative indices at any time.

Disclosures

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This material has been prepared for informational purposes only and is not an offer to buy or sell or a solicitation of any offer to buy or sell any security/instrument, or to participate in any trading strategy. Any such offer would be made only after a prospective investor had completed its own independent investigation of the securities, instruments or transactions, and received all information it required to make its own investment decision, including, where applicable, a review of any offering circular or memorandum describing such security or instrument. That information would contain material information not contained herein and to which prospective participants are referred. This material is based on public information as of the specified date, and may be stale thereafter. We have no obligation to tell you when information herein may change. We make no representation or warranty with respect to the accuracy or completeness of this material. Morgan Stanley Wealth Management has no obligation to provide updated information on the securities/instruments mentioned herein.

The securities/instruments discussed in this material may not be suitable for all investors. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives. Morgan Stanley Wealth Management recommends that investors independently evaluate specific investments and strategies, and encourages investors to seek the advice of a financial advisor. The value of and income from 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 and other issuers or other factors. Estimates of future performance are based on assumptions that may not be realized. Actual events may differ from those assumed and changes to any assumptions may have a material impact on any projections or estimates. Other events not taken into account may occur and may significantly affect the projections or estimates. Certain assumptions may have been made for modeling purposes only to simplify the presentation and/or calculation of any projections or estimates, and Morgan Stanley Wealth Management does not represent that any such assumptions will reflect actual future events. Accordingly, there can be no assurance that estimated returns or projections will be realized or that actual returns or performance results will not materially differ from those estimated herein.

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