Goldman Sachs Asset Management

Market Know-How

Insights and Implementation

Strategic Advisory Solutions

Q3 2017

Q3

GSAM's 'Market Know-How' explains what investors should **KNOW** about current market conditions, and **HOW** they can implement an investable strategy. The ideas presented in the Market Know-How are based on our expectations of global macro conditions, asset class performance, and sound portfolio construction.

To view this and other Market Strategy publications, please visit GSAMFunds.com.

2017

The Synchronized Expansion

The economic expansion has deepened and synchronized around the globe, with the participation of more than 98%[1] of world economies. The inputs are broad, including improving labor markets, accommodative monetary policy, supportive financial conditions, favorable sentiment, and the potential for fiscal impulses. Taken together, these inputs suggest the global expansion should persist.

Even so, markets remain vulnerable to shocks of volatility, and late-cycle dynamics reinforce the need for realistic expectations. We expect meaningfully lower annualized returns from risk assets due to market and policy realities such as full valuations, legislative bottlenecks, and diminishing excess economic capacity. Each of these factors serves to heighten our commitment to strategic portfolio design.

Our key views:

- Elevated US equity valuations create a rationale for moving beyond beta and beyond borders
- Political risk continues to loom over markets, even as events in Europe have retreated from the headlines
- Greater equity market return dispersion creates a target-rich environment for skilled active managers

1. Source: GSAM

Macro

GROWTH

Global growth has both broadened and deepened in the most synchronized recovery since 2010. Manufacturing and US labor appear particularly strong.

INFLATION

Inflationary impulses have paused, particularly in Europe. Diminishing excess capacity has supported prices in the US, while Sterling weakness has buttressed UK prices.

MONETARY POLICY

Divergent policy remains a global theme. The Federal Reserve's efforts to neutralize its policy stance contrasts with more expansive commitment in Europe and Japan.

POLITICS

The possibility of pro-cyclical US policy has continued to intrigue markets, but the news cycle of near-constant controversy and legislative bottlenecks are blocking meaningful initiatives.

RISK

Politics remains dominant, followed by the pace of US rate hikes, Brexit turbulence, stability of Chinese currency and growth, lofty valuations, and structurally diminished market liquidity.

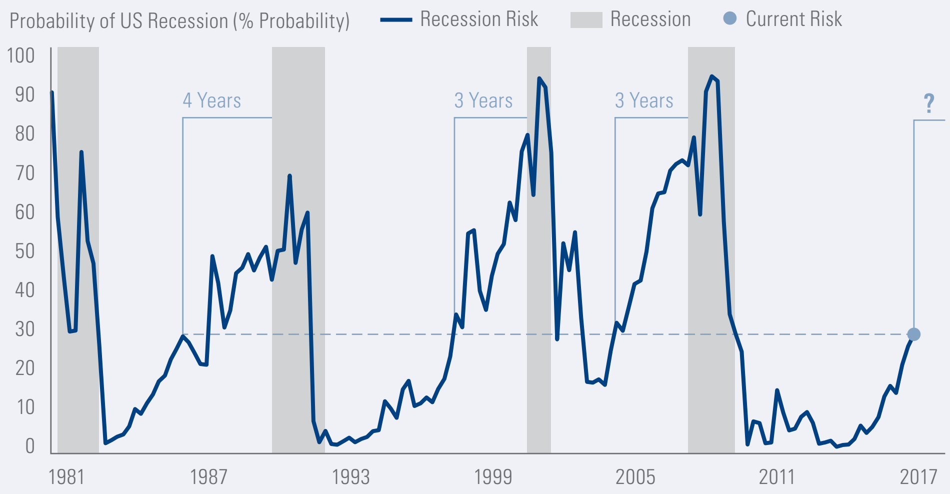
THE TREND IS YOUR FRIEND

Global Composite PMI — Contraction / Expansion

		May 2016	July 2016	September 2016	November 2016	January 2017	March 2017	May 2017	12m Δ
Regional	Global	50.9	51.7	51.7	53.2	53.9	53.7	53.7	2.7
	Developed Markets	51.4	51.5	51.9	54.0	54.6	54.1	54.3	2.9
	Emerging Markets	49.5	51.5	51.1	51.4	51.9	52.6	52.2	2.7
Developed Markets	US	50.9	51.8	52.3	54.9	55.8	53.0	53.6	2.7
	Japan	49.2	50.1	48.9	52.0	52.3	52.9	53.4	4.2
	UK	53.1	47.4	53.8	55.3	55.2	54.8	54.4	1.2
	Euro area	53.1	53.2	52.6	53.9	54.4	56.4	56.8	3.7
	Germany	54.5	55.3	52.8	55.0	54.8	57.1	57.4	2.9
	France	50.9	50.1	52.7	51.4	54.1	56.8	56.9	6.0
	Italy	50.8	52.2	51.1	53.4	52.8	54.2	55.2	4.4
	Spain	54.8	53.7	54.1	55.2	54.7	56.8	57.2	2.4
BRIC	Brazil	38.3	46.4	46.1	45.3	44.7	48.7	50.4	12.1
	Russia	51.2	53.5	53.1	55.8	58.3	56.3	55.3	4.8
	India	50.9	52.4	52.4	49.1	49.4	52.3	52.5	1.6
	China	50.5	51.9	51.4	52.9	52.2	52.1	51.5	1.0

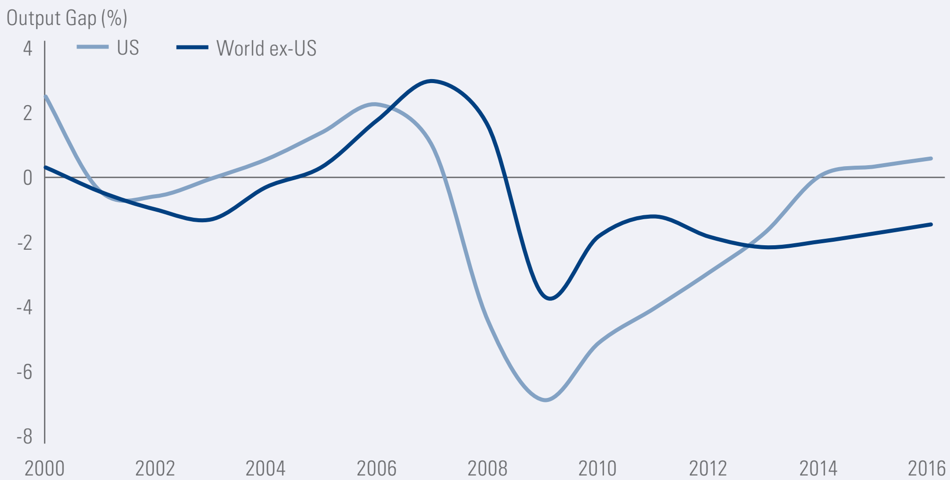
Source: Haver, Markit, and GSAM. Analysis as of May 2017. Table shows headline readings for Composite (weighted aggregation of manufacturing and services sectors) Purchasing Managers Indices. PMI surveys based on questionnaire responses from panels of senior purchasing executives (or similar). Respondents are asked to state whether business conditions for a number of variables have improved, deteriorated or stayed the same compared with the previous month, as well as to provide reasons for any changes. A reading of over 50 indicates expansion; a reading of less than 50 indicates contraction. 12m Δ represents the change since the reading 12 months prior to this document, i.e. May 2016. Developed Markets and Emerging Markets refer to GDP-weighted categories for regional PMIs as categorized by Haver. BRIC is an acronym that refers to Brazil, Russia, India and China, which are all grouped in a similar stage of economic development. The economic and market forecasts presented herein are for informational purposes as of the date of this document. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this document.

Key Takeaway:
We see increasing evidence of economic synchronization across both advanced and emerging markets. Global growth data suggests the expansion could continue for another couple of years.



Source: Goldman Sachs Global Investment Research, National Bureau of Economic Research, and GSAM.

As the US expansion approaches triple digits (as measured in months), we see more of the same as we look ahead. One way to frame the economic outlook is to model the probability of recession over the next 2 years. Long-term averages suggest a 31% recession probability, leaving a more than two-thirds chance that the current US expansion becomes the longest on record.



Source: Goldman Sachs Global Investment Research and GSAM.

The sustainability of economic growth is often governed by the availability of labor and manufacturing capacity. We believe medium-term recession risk is rising in the US as resource utilization pushes above potential and pressures wages higher. We see global advanced and emerging markets forging slightly more runway in the form of additional productive capacity.

Top Chart Notes: As of May 31, 2017. The chart shows quarterly data of the unconditional probability of a US recession in the next 9 quarters from January 1981 to March 2017, the latest available data. The lines show the amount of time from current levels (31%) it has historically taken to enter a recession, as defined by the National Bureau of Economic Research. The economic and market forecasts presented herein are for informational purposes as of the date of this document. There can be no assurance that the forecasts will be achieved. Bottom Chart Notes: Analysis uses annual data from 2000 to 2016, the largest available data series. The output gap is the difference between actual and potential Gross Domestic Product (GDP) and is estimated based on measurements of spare capacity in the economy. The US output gap is calculated using the Federal Reserve Board of Governors' potential GDP estimates from the FRB/US Model package. The World ex-US output gap is calculated using a real GDP-weighted average of output gap across the 32 Organisation for Economic Co-operation and Development (OECD) countries, for which data is available, excluding the United States. **Past performance does not guarantee future results, which may vary.** Please see additional disclosures at the end of this document.

Market

EQUITIES

We continue to favor equities, but with modest return potential on account of valuations. Earnings growth is likely to be the primary driver of returns, favoring ex-US equity markets.

RATES

We expect the trend of higher rates to resume, driven by monetary policy evolution, global growth, and reduced excess capacity. Government debt may be a less effective hedge.

CREDIT

Tight spreads and higher leverage reflect late-cycle conditions, leaving us wary of investment-grade and high-yield beta, but confident in security selection.

CURRENCY

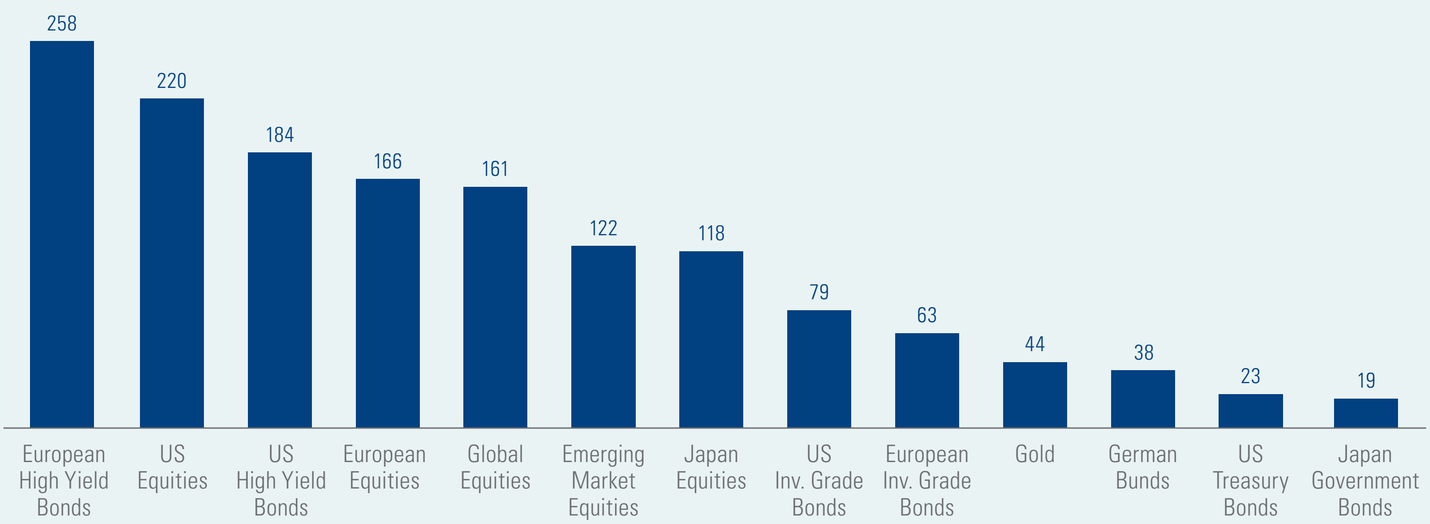
Despite recent weakness, Dollar risk may be to the upside given central bank divergence. Sterling is likely tethered to UK politics. Global growth could drive emerging market currencies.

VOLATILITY

Low volatility reflects the strong macro backdrop, but cannot insulate investors from exogenous shocks, especially any potential fallout from political risk in Washington and Europe.

IT'S BEEN A GOOD RUN (IF UNEVEN)

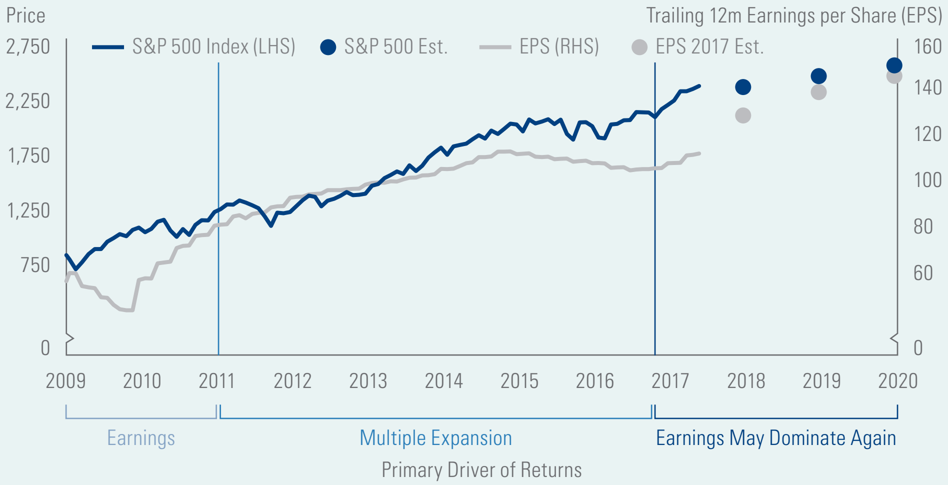
Cumulative Total Return (2009–2017) (%)



Source: Barclays Live, Bloomberg, and GSAM. Analysis from January 1, 2009 to May 31, 2017. Chart shows total cumulative returns for asset classes. US Equities represent the S&P 500 Index, European High Yield Bonds represents the Bloomberg Barclays Pan-Euro High Yield Index, Global Equities represents the MSCI World Index, European Equities represents the Stoxx Europe 600 Index, US High Yield Bonds represents the Bloomberg Barclays High Yield Corporate Bond Index, Japan Equities represents the TOPIX Index, Emerging Market Equities represent the MSCI Emerging Markets Index, German Bunds represents the German subset of the Bloomberg Barclays Aggregate Government Index, US Inv. Grade Bonds represents the Bloomberg Barclays US Corporate Bond Index, US Treasury Bonds represents the Bloomberg Barclays US Aggregate Treasury Index, Gold is represented by the Gold Spot Price $/oz, European Inv. Grade Bonds represents the Bloomberg Barclays Investment Grade European Corporate Bond Index, and Japan Government Bonds represents the Bloomberg Barclays Japan Aggregate Government Bond Index. **Past performance does not guarantee future results, which may vary.**

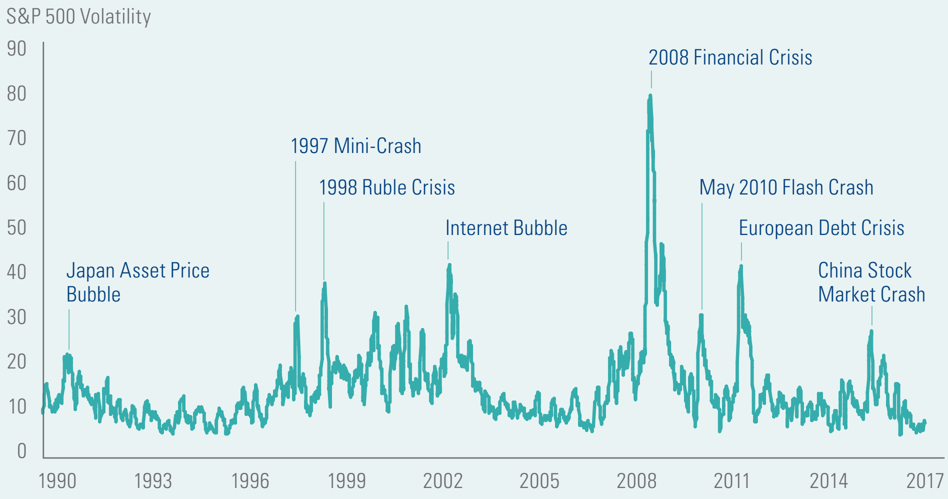
Key Takeaway:

We believe the macro backdrop remains supportive of risk assets, although full valuation and politics may limit near-term upside and intensify tail risk. We favor equities over credit, credit over sovereign debt, and emerging markets over developed markets.



Source: Goldman Sachs Global Investment Research, Bloomberg, and GSAM.

Decomposing US equity return drivers since the Global Financial Crisis reveals distinct periods of earnings growth dominance and multiple expansion. Earnings power once again appears primed to drive equity markets. Especially in Europe, Japan, and Emerging Markets, we anticipate strong earnings to revalidate the merits of global equity diversification.



Source: Bloomberg and GSAM.

Volatility currently remains anchored at the extreme lower end of historical experience, reflecting the market's confidence in global macro conditions. Still, we believe drawdown management remains important: 1) markets remain vulnerable to exogenous shocks, 2) high valuations increase the potential magnitude of drawdowns, and 3) volatility is generally a lagging indicator.

Top Chart Notes: Analysis as of June 28, 2017. Chart shows S&P 500 Index performance and trailing 12 month earnings per share. The first period is from December 31, 2008 to December 31, 2011 and is characterized as an earnings driven return environment because S&P 500 earnings growth was the primary driver of returns. The second period is from December 31, 2011 to December 31, 2016 and is characterized by a multiple expansion (price-to-earnings growth) driven return environment. The 2017–2019 estimates are S&P 500 Index price and earnings per share forecasts from Goldman Sachs Global Investment Research. The economic and market forecasts presented herein are for informational purposes as of the date of this document. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this document. Diversification does not protect an investor from market risk and does not ensure a profit. **Past performance does not guarantee future results, which may vary.** Bottom Chart Notes: As of May 31, 2017. Chart shows annualized 30-day rolling volatility (standard deviation) of the S&P 500 Index and labels various different market events that occurred when volatility moved significantly higher. These events are illustrative examples. **Past performance does not guarantee future results, which may vary.**

Know

Macro:
Globally Synchronized Expansion Persists

Markets:
Potential for Modest Returns and Drawdowns

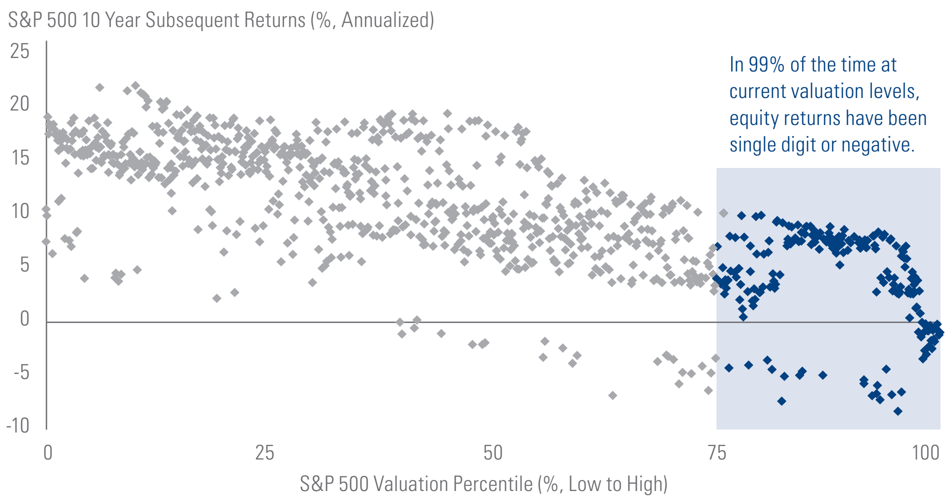
How

1. **Alternative Strategies:** Taking a Fresh Look
2. **International Equities:** Levered for Expansion
3. **International Small Caps:** Going Global, Thinking Local
4. **Emerging Markets:** Potential for Growth and Income
5. **Municipal Bonds:** Giving Them Some Credit
6. **ETFs and Mutual Funds:** Keeping an Open Mind

Views and opinions are current as of June 2017, and may be subject to change, they should not be construed as investment advice.

Economic and market forecasts presented herein reflect our judgment as of the date of this presentation and are subject to change without notice. These forecasts do not take into account the specific investment objectives, restrictions, tax and financial situation or other needs of any specific client. Actual data will vary and may not be reflected here. These forecasts are subject to high levels of uncertainty that may affect actual performance. Accordingly, these forecasts should be viewed as merely representative of a broad range of possible outcomes. These forecasts are estimated, based on assumptions, and are subject to significant revision and may change materially as economic and market conditions change. Goldman Sachs Asset Management has no obligation to provide updates or changes to these forecasts. Examples are for illustrative purposes only.

1 **High valuations, modest historical returns.** We think investors should temper their US equity return expectations.

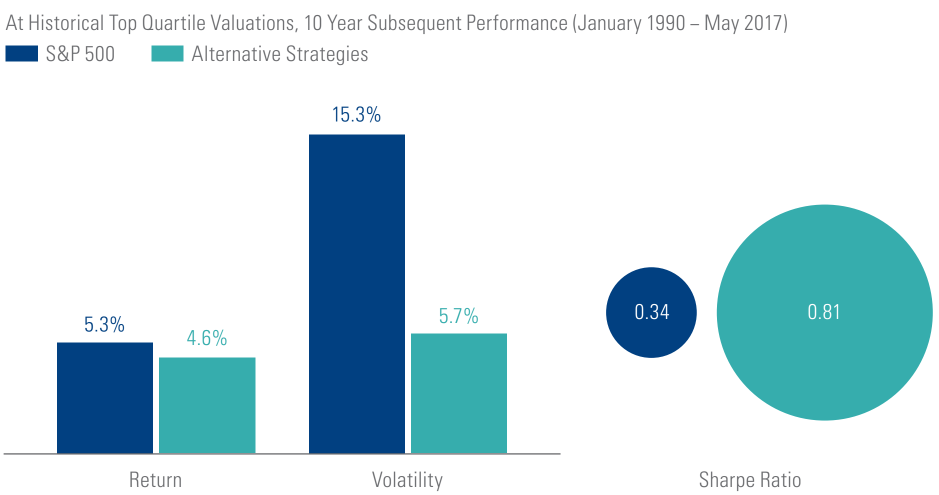


Source: Bloomberg, Robert Shiller, and GSAM.

Rich equity valuations such as today's have often presaged returns of less than 10%.

Following periods of top-quartile valuations, the S&P 500 Index has delivered single-digit or negative returns 99% of the time. In nearly a fifth of instances (17%), returns were negative. High valuations have often persisted for years at a time, elongating the timeframe for modest equity returns.

Know your alternatives. In periods of lower equity returns, alternative strategies' performance has been attractive.



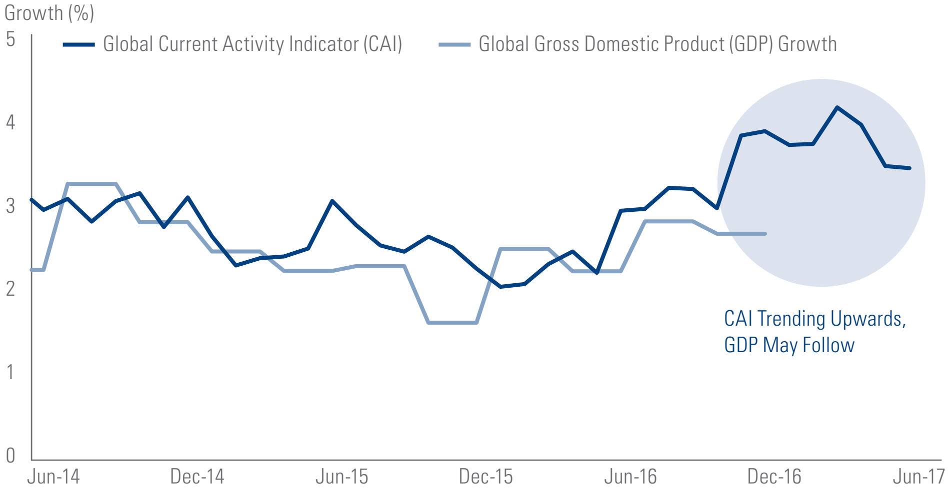
Source: Bloomberg and GSAM.

Historically, alternative strategies have been similar to equities in periods of muted returns, with less than half the volatility (standard deviation).

We believe we are entering a favorable environment for alternative strategies. During periods when equity market returns registered in single-digit or negative territory, these strategies outperformed the S&P 500 on a risk-adjusted basis. In light of high equity valuations and the potential for lower returns, we see the case for a fresh look at alternative strategies.

Top Section Notes: As of May 31, 2017. Subsequent 10 Year Annualized S&P 500 Returns and S&P 500 valuation percentile levels for the cyclically-adjusted price-to-earnings (CAPE) ratio are calculated from December 30, 1927, the inception of the S&P 500 Price Index. The shaded area reflects the top-quartile (75–100%). Bottom Section Notes: As of May 31, 2017. Analysis from January 1990 to May 2017. This time period is the longest common time period of the S&P 500 Index and HFRI Fund of Funds Index (inception is January 1990). Chart shows 10 year subsequent average returns, volatility and Sharpe Ratio of the S&P 500 Index (S&P 500) and the HFRI Fund of Funds Index (Alternative Strategies). Sharpe Ratio is a measure that indicates the average return minus the risk-free return divided by the standard deviation of return on an investment. Volatility is measured by standard deviation. **Investments in Alternatives expose investors to risks that have the potential to result in losses. These strategies involve risks that may not be present in more traditional (e.g., equity or fixed income) asset classes. Past performance does not guarantee future results, which may vary.**

2 **The recovery is global.** Growth has gained momentum internationally, broadening out the US-led recovery.

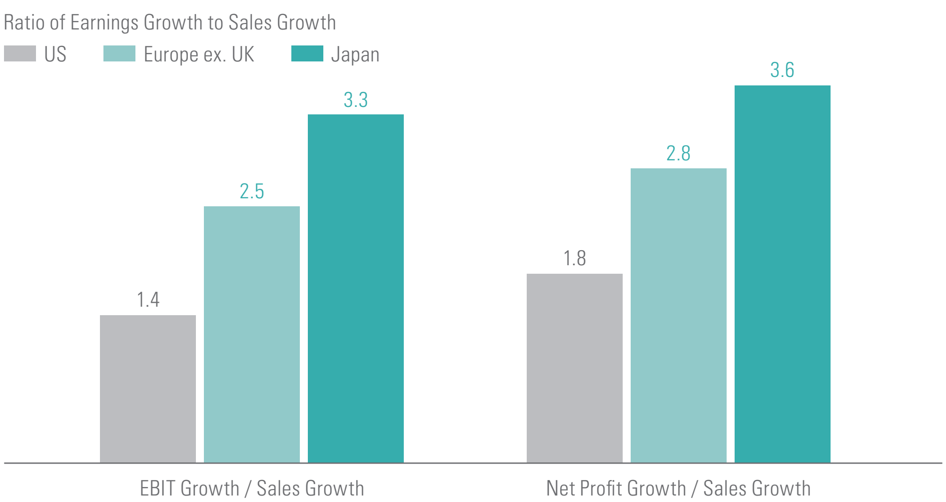


Source: GSAM.

The current macroeconomic backdrop is supportive of continued positive international momentum.

Developed economies have seen improvement in a number of economic indicators, led by manufacturing. We believe this trend, alongside the steady expansion in the consumer and labor sectors, suggests a robust global developed investing environment.

Watch the bottom line. Historically, earnings outside the US have improved more rapidly when growth rates have risen.



Source: Datastream, Goldman Sachs Global Investment Research, and GSAM.

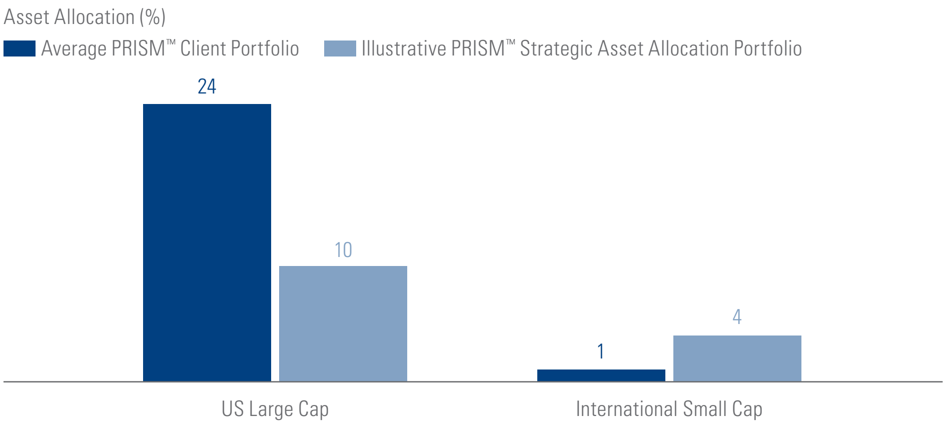
For every dollar in sales growth, the benefit to earnings has been greater outside the US.

In Europe and Japan, fixed costs tend to be a higher share of total costs than in other markets. This has caused Europe and Japan to historically see more earnings upside when sales have strengthened but also more earnings weakness when sales have weakened. Given our expectations for improving global growth, Europe and Japan seem particularly well positioned.

Top Section Notes: GSAM as of May 31, 2017. The GSAM Current Activity Indicator (CAI) is a measure of current economic activity that can be interpreted as the growth signal in the main high-frequency indicators for each economy. The Global CAI aggregates individual country-level CAIs into a global composite. Global Gross Domestic Product (GDP) is reported as percentage year-over-year change with each country weighted by its respective market capitalization. Bottom Section Notes: Analysis is from 1996 to 2016, the latest available. The earnings growth to sales growth ratio shows the median Earnings Before Interest and Taxes (EBIT) and Net Profit to Sales Growth ratio from 1996 to current. Both ratios are a measure of profit margins and operating profitability growth as a ratio of revenue growth. A higher profit margin indicates companies are profitable because operating expenses have grown at a slower rate relative to total revenue growth. Please see end disclosures for additional information. **Past performance does not guarantee future results, which may vary.**

3

Many investors overlook international small cap equities. We see a pronounced underweight in many client portfolios.

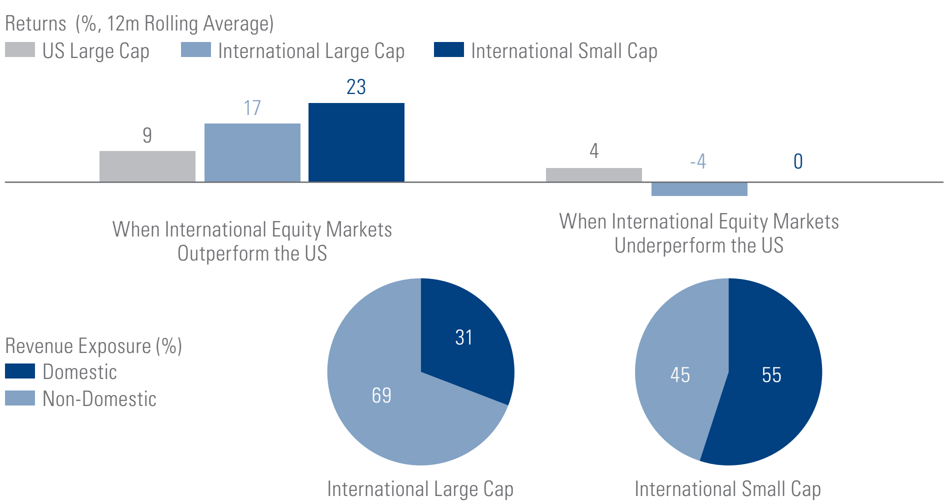


Source: GSAM PRISM™.

Our analysis of thousands of professional investors' portfolios through GSAM PRISM™ reveals a missed opportunity.

Investors are overweight US large caps by an average of 14 percentage points relative to our 70:30% PRISM™ strategic asset allocation. We see a case for greater diversification through international small caps, particularly at a time of lofty US equity valuations.

Think globally, act locally. International small caps may be well positioned to benefit from the global economic expansion.



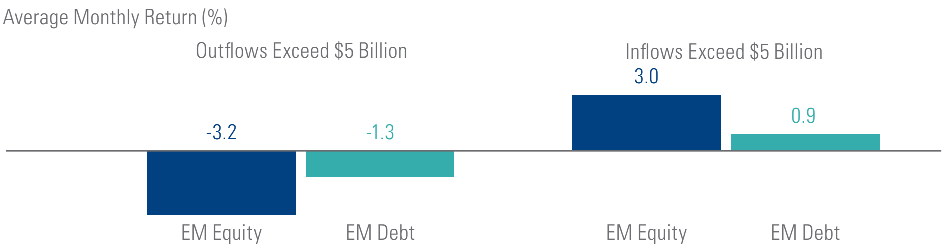
Source: FactSet, Bloomberg, and GSAM.

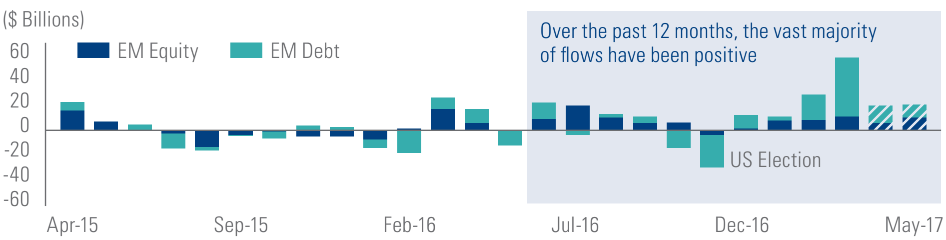
We see these stocks' exposure to domestic economies as a differentiator.

International small caps' exposure is 70% cyclical by sector and includes a relatively high degree (55%) of domestic revenue drivers. These domestically-oriented companies in the past have also been better positioned than international large caps during periods when broad international equity markets have outperformed the US.

Top Section Notes: GSAM PRISM™ is a registered trademark of GSAM. Average PRISM™ Client Portfolio is represented by looking at the average allocation of a GSAM PRISM™ Client Portfolio. Portfolio allocation represents the average percent allocation to the respective asset class across over 2800 financial advisors. The illustrative 70:30% PRISM™ Strategic Asset Allocation Portfolio is composed of 70% (Core Equity and Diversifiers) and 30% Core Fixed Income. Diversifiers are defined as non-traditional asset classes. Please see page 8 for the list of diversifiers and additional disclosures. These allocations are based on asset class views of GSAM Portfolio Strategy. International Small Cap is defined as small cap stocks in Europe, Japan, and other developed markets. Bottom Section Notes: As of May 31, 2017. Cyclical sectors are sectors that tend to perform best during business cycle peaks, and include: Consumer Discretionary, Industrials, Energy, and Information Technology. Domestic exposure represents the proportion of each index with revenue streams that are primarily domestic oriented. The chart shows 12 month rolling returns of the S&P 500 Total Return Index (US Large Cap), the MSCI EAFE Total Return Index (International Large Cap), and the MSCI EAFE Small Cap Total Return Index (International Small Cap) drawn only from periods where the MSCI EAFE Total Return Index outperformed the S&P 500 Total Return Index from December 31, 1998, common inception, to May 31, 2017. **Investments in foreign securities entail special risks such as currency, political, economic, and market risks. Please see end disclosures for additional information. Past performance does not guarantee future results, which may vary.**

4 **Emerging market flows have picked up.** In the past, EM inflows have been supportive of both equity and debt performance.



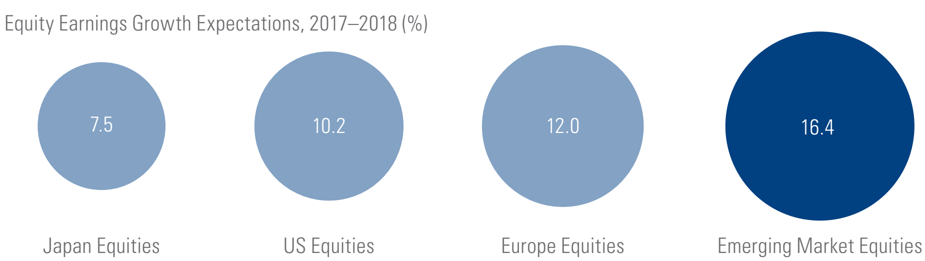


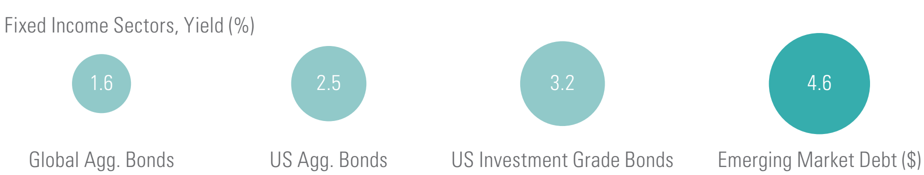
Source: Bloomberg, the Institute of International Finance (IIF), and GSAM.

We believe the improving macro backdrop has been supportive of emerging market flows and returns.

The recent uptick in emerging markets equity (EME) and debt (EMD) inflows follows an extended period of easier financial conditions and improved corporate earnings. In the past, such periods of strong inflows have helped drive performance. EME and EMD returns rose an average of 3.0% and 0.9%, respectively, during months with inflows greater than $5 billion.

Potential for growth and income. We think EM earnings and yields warrant attention in today's market environment.





Source: Bloomberg, Goldman Sachs Global Investment Research (GIR), and GSAM.

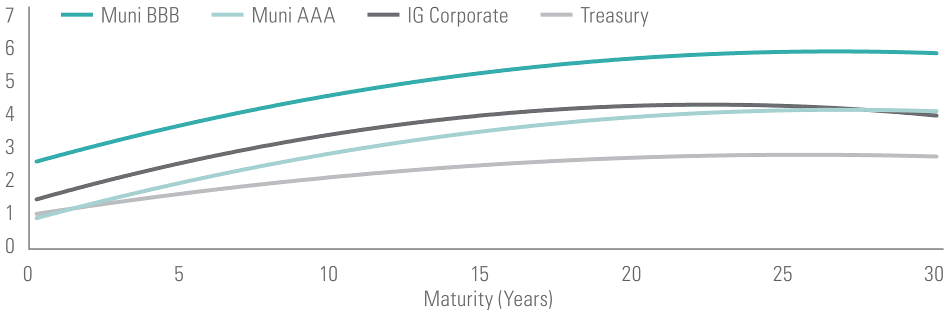
EM equity and debt investments stack up favorably vs. other major regions when measured by yield and earnings growth expectations.

For equities, we expect the recent positive emerging markets earnings growth trends to continue driving performance, and is reflected in forward-looking expectations. In a low-rate environment, dollar-denominated EMD yields stand out versus US investment grade bonds, US aggregate bonds, and global bonds.

Top Section Notes: As of June 1, 2017. Chart includes readings up to June 1, 2017. Flows for April and May are IIF preliminary estimates for emerging market debt (EMD) and emerging market equity (EME) portfolio flows. Average monthly returns are calculated for January 2005 to June 2017, for months when IIF EM Equity flows are greater than $5 billion and for months where flows are less than $5 billion. This threshold was selected as representative of the average EM equity and debt flows during months of inflows and outflows respectively. Bottom Section Notes: As of June 28, 2017. Top Chart: Equity Earnings Growth Expectations is the simple average of the fiscal year 2017 GIR forecasted earnings per share (EPS) growth and the fiscal year 2018 forecasted EPS growth. Bottom Chart: Yield is represented by Yield to Worst (YTW), as of June 28, 2017. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. **Investments in foreign securities entail special risks such as currency, political, economic, and market risks. Emerging markets securities may be less liquid and more volatile and are subject to a number of additional risks, including but not limited to currency fluctuations and political instability. All indices are defined in the end notes for both charts. Please see page 8 for additional chart disclosures. Past performance does not guarantee future results, which may vary.**

5 **Taxing policy.** Municipal bond investors are focused on US tax policy outcomes.

Tax Equivalent Yield (Hypothetical 35% Tax Rate)



Default Rates (1970–2015)	0.00% Muni AAA	0.38% Muni BBB	0.40% IG Corp AAA	4.03% IG Corp BBB

Source: Barclays Live, Bloomberg, Moody's, US Department of Treasury, and GSAM.

Municipal tax equivalent yields may remain higher than US government or corporate debt, even assuming a tax cut to 35%.

Often underutilized by investors, the breadth of the municipal market potentially provides compelling opportunities to enhance tax equivalent yields (TEY) through the diversification of term structure and credit.

Give munis some credit. Adding credit and term structure diversification to a muni portfolio may improve outcomes.

Illustrative Muni Portfolio	Muni Short	Muni HY	Muni Agg	Yield Match	Duration Match	Volatility Match
Allocation (%) (Muni Short / Muni HY / Muni Agg)	100	100	100	13 / 54 / 33	22 / 20 / 58	39 / 15 / 46
Tax-Equivalent Yield (%)	1.85	9.31	3.29	Match	4.33	5.42
Duration (Years)	2.50	9.55	6.19	4.64	Match	6.95
Volatility (%)	1.77	6.37	4.12	2.72	3.70	Match
Average Credit Rating	AA-	B	AA	AA-	A+	A-
Results				Lower Duration Lower Volatility	Higher Yield Lower Volatility	Higher Yield Higher Duration

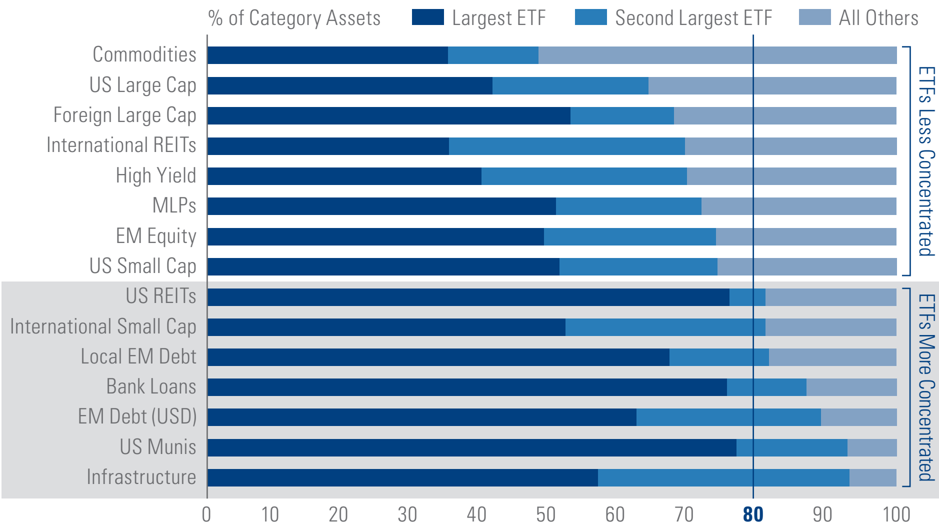
Source: Bloomberg, Barclays Live, and GSAM.

Muni diversification has the potential to provide improvement to yield, volatility, and interest rate risk.

In the table to the left, we introduce high quality short duration muni bonds and high yield muni bonds to match key metrics of a static municipal benchmark. We find that simple adjustments to a core muni bond portfolio can potentially generate a meaningful increase in income, a reduction in interest rate sensitivity, or both.

Top Section Notes: As of May 31, 2017. The chart shows Tax-Equivalent Yield curves which show comparable yields of tax-free municipal bonds by adjusting for tax-free earnings of municipal bonds. The hypothetical 35% tax rate reflects presidential administration tax proposals. Goldman Sachs does not provide accounting, tax, or legal advice.
Bottom Section Notes: As of May 31, 2017. Chart shows several illustrative municipal portfolios which represent what a typical portfolio that matches the historical tax-equivalent yield, duration, or volatility of the Bloomberg Barclays Muni Aggregate Index respectively might potentially look like. Volatility is the annualized standard deviation of daily returns from 1997 to 2017. Duration is a measure of the sensitivity of the price of a fixed income investment to a change in interest rates. Tax-Equivalent Yield, Duration, Volatility, and Average Credit are portfolio weighted averages of index data. These illustrative results do not reflect any GSAM product and are being shown for informational purposes only. No representation is made that an investor will achieve results similar to those shown. The performance results are based on historical performance of the indices used. The result will vary based on market conditions and your allocation. Diversification does not protect an investor from market risk and does not ensure a profit. Please see page 8 for additional definitions on both the top and bottom chart. **Past performance does not guarantee future results, which may vary.**

6 **A deep bench matters.** We believe a deep bench of funds for a given asset class can help investors ensure they have backup options.

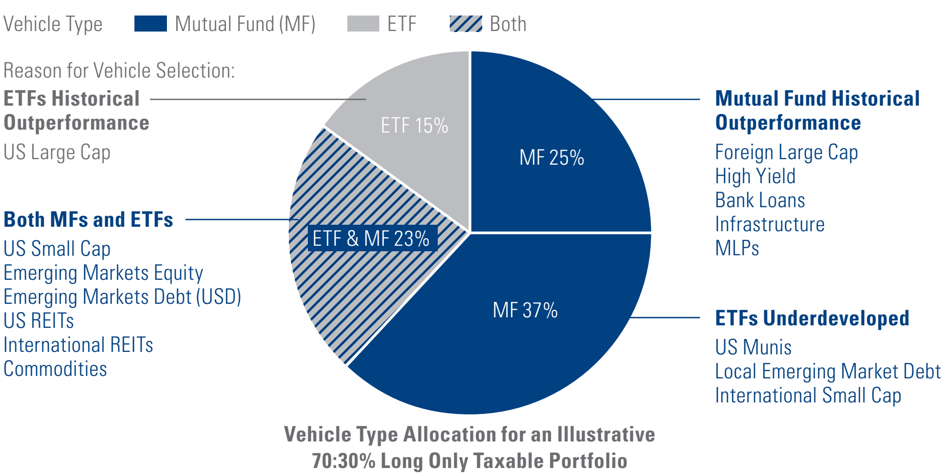


Source: GSAM Strategic Advisory Solutions/Portfolio Strategy and Morningstar.

Reinvestment risk and tax-loss harvesting are two of the reasons we think investors should look for a deep bench of substitutable funds.

One method we use to test product depth is the "80, 2" screen. A category may fail this screen if 80% or more of exchange-traded fund (ETF) assets under management are concentrated in two or fewer ETFs. National municipal bonds and emerging market debt are two areas that provide limited fallback options.

Think mutual fund and ETF. We think investors should be open to a range of fund types; no fund structure can serve every purpose.



Vehicle Type Allocation for an Illustrative 70:30% Long Only Taxable Portfolio

Source: GSAM Strategic Advisory Solutions/Portfolio Strategy and Morningstar.

Portfolio diversification and due diligence require a broad and deep product set.

Applying our fallback rules as well as historical performance, we see a case for building portfolios with ETFs where the product offerings are extensive, such as in large cap US equities. We also see a case for mutual funds where ETF coverage is less extensive and where mutual fund managers historically have outperformed, such as in foreign large cap stocks and high yield bonds.

Top Section Notes: Charts as of August 31, 2016. For illustrative purposes only. The asset class categories refer to the following Morningstar Categories: Infrastructure, Muni National Interm (US Munis), Emerging Markets Bond (EM Debt USD), Bank Loan (Bank Loans), EM Local-Currency Bond (Local EM Debt), Foreign Small/Mid Blend (Int'l Small Cap), Real Estate (US REITs), Small Blend (US Small Cap), EM Equity, Energy Limited Partnership (MLPs), High Yield Bond (High Yield), Global Real Estate (Int'l REITs), Foreign Large Blend (Foreign Large Caps), Large Blend (US Large Cap), Commodities Broad Basket (Commodities). Bottom Section: The Illustrative 70:30% Long Only Taxable Portfolio (composed of 70% equities and 30% fixed income) is sourced from GSAM PRISM™ Strategic Advisory Solutions. The figures shown in the pie represent allocations to this Illustrative 70:30% Long Only Taxable Portfolio. "Mutual Fund Historical Outperformance" and "ETFs Historical Outperformance" vehicle type was determined by looking at historical performance on rolling 3-year performance (net of fees) for mutual funds against the largest ETF in their respective category. For example, the case to allocate 15% to ETFs instead of MFs in US Large Cap is based on ETFs historical outperformance in this category. "ETFs Underdeveloped" refers to asset classes that did not pass the top chart concentration screen, and lack product depth (less than 10 ETFs or less than $10B in assets). For example, the case to allocate 37% to MFs instead of ETFs in US Munis, Local EM Debt and Int'l Small Cap is based on the high concentration of ETFs along with a lack of product depth, in these categories. Please see end disclosures for additional information.

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Investors should also consider some of the potential risks of alternative investments: Alternative Strategies. Alternative strategies often engage in leverage and other investment practices that are speculative and involve a high degree of risk. Such practices may increase the volatility of performance and the risk of investment loss, including the entire amount that is invested. **Manager experience.** Manager risk includes those that exist within a manager's organization, investment process or supporting systems and infrastructure. There is also a potential for fund-level risks that arise from the way in which a manager constructs and manages the fund. Leverage. Leverage increases a fund's sensitivity to market movements. Funds that use leverage can be expected to be more "volatile" than other funds that do not use leverage. This means if the investments a fund buys decrease in market value, the value of the fund's shares will decrease by even more. **Counterparty risk.** Alternative strategies often make significant use of over-the-counter (OTC) derivatives and therefore are subject to the risk that counterparties will not perform their obligations under such contracts. **Liquidity risk.** Alternative strategies may make investments that are illiquid or that may become less liquid in response to market developments. At times, a fund may be unable to sell certain of its illiquid investments without a substantial drop in price, if at all. **Valuation risk.** There is risk that the values used by alternative strategies to price investments may be different from those used by other investors to price the same investments. The above are not an exhaustive list of potential risks. There may be additional risks that should be considered before any investment decision.

Equity securities are more volatile than fixed income securities and subject to greater risks. Small and mid-sized company stocks involve greater risks than those customarily associated with larger companies.

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General Disclosures

Know-How #3 Bottom Chart Notes:

Diversifiers include Emerging Market Debt (USD), Emerging Market Debt (Local Currency), Global High Yield, Bank Loans, Emerging Markets Equity, International Small Cap Equity, International Real Estate, US Real Estate, Global Infrastructure and Master Limited Partnerships, Commodities. Core Equity includes US Equity and International Developed Equity. Core Fixed Income includes US Aggregate Fixed Income and Global ex-US Aggregate Fixed Income.

Know-How #4 Bottom Chart Notes:

Emerging Market Equities is the MSCI Emerging Markets USD Index, Japan Equities is the Japan Topix Index, Europe Equities is the Stoxx Europe 600 Index, and US Equities is the S&P 500 Index. YTW is a worst-case yield scenario, assuming, for instance, that premium bonds get called by the issuer at face value. Global Agg. Bonds refers to the Bloomberg Barclays Global Aggregate USD Hedged Bond Index, US Agg. Bonds refers to the Bloomberg Barclays US Aggregate Bond Index, US Inv. Grade Bonds refers to the Bloomberg Barclays US Investment Grade Corporate Bond Index, EMD ($) refers to the Bloomberg Barclays Emerging Market USD Aggregate Bond Index (unhedged).

Know-How #5 Top Chart Notes:

AAA Muni, BBB Muni, and IG Corp refer to the Bloomberg Barclays AAA Municipal Bonds, BBB Municipal Revenue Bonds, and Investment Grade Corporate Bonds respectively. Treasuries refers to US Treasury Bonds. Default rates refer to average cumulative default rates over 10 year periods from 1970 to 2015, the most recent study available from Moody's. Maturity is the number of years until a bond matures.

Know-How #5 Bottom Chart Notes:

Yield Matching Muni Portfolio allocation (an illustrative muni portfolio): 54% Bloomberg Barclays 3 Year Municipal Bond Index, 33% Bloomberg Barclays Municipal Aggregate Bond Index, and 13% Bloomberg Barclays Municipal High Yield Bond Index. Duration Matching Muni Portfolio allocation (an illustrative muni portfolio): 20% Bloomberg Barclays 3 Year Municipal Bond Index, 58% Bloomberg Barclays Municipal Aggregate Bond Index, and 22% Bloomberg Barclays Municipal High Yield Bond Index. Volatility Matching Muni Portfolio allocation (an illustrative muni portfolio): 15% Bloomberg Barclays 3 Year Municipal Bond Index, 46% Bloomberg Barclays Municipal Aggregate Bond Index, and 39% Bloomberg Barclays Municipal High Yield Bond Index. A Matching Muni Portfolio refers to a portfolio with either tax equivalent yield, duration, or volatility set equal to the Bloomberg Barclays Municipal Aggregate Bond Index by combining various weights of the Bloomberg Barclays Municipal Aggregate Bond Index, the Bloomberg Barclays 3 Year Municipal Bond Index, and the Bloomberg Barclays Municipal High Yield Bond Index.

Know-How #6 Bottom Chart Notes:

The number of funds in each category is listed in parentheses (as of 8/31/16). Bank Loan (45), Commodities Broad Basket (372), Diversified Emerging Mkts (172), Emerging Markets Bond (56), Emerging-Markets Local-Currency Bond (19), Energy Limited Partnership (17), Foreign Large Blend (188), Foreign Small/Mid Blend (24), Global Real Estate (54), High Yield Bond (166), Infrastructure (18), Large Blend (408), Muni (All Categories) (81), Real Estate (64), Small Blend (214).

The Morningstar category definitions for each of the categories above can be found through their methodology paper—"The Morningstar Category Classifications."

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In an effort to distinguish funds by what they own, as well as by their prospectus objectives and styles, Morningstar developed the Morningstar Categories. While the prospectus objective identifies a fund's investment goals based on the wording in the fund prospectus, the Morningstar Category identifies funds based on their actual investment styles as measured by their underlying portfolio holdings (portfolio and other statistics over the past three years).

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Glossary

Equities

The **FTSE 100 Index** is a market-capitalization weighted index of UK-listed blue chip companies. The index is part of the FTSE UK Series and is designed to measure the performance of the 100 largest companies traded on the London Stock Exchange that pass screening for size and liquidity.

The **MSCI Emerging Markets Equity Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets.

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.

The **S&P 500 Index** is the Standard & Poor's 500 Composite Stock Prices Index of 500 stocks, an unmanaged index of common stock prices. The index figures do not reflect any deduction for fees, expenses or taxes. It is not possible to invest directly in an unmanaged index.

The **Stoxx Europe 600 Index** represents the performance of the 50 largest companies among the 19 supersectors in terms of free-float market cap in 11 Eurozone countries.

The **TOPIX Index** is a free-float adjusted market capitalization-weighted index that is calculated based on all the domestic common stocks listed on the Tokyo Stock Exchange First Section.

Fixed Income

The **10-Year Treasury** is a US Treasury debt obligation that has a maturity of 10 years.

The **Bloomberg Barclays 3 Year Municipal Bond Index** consists of a broad selection of investment grade general obligation and revenue bonds of maturities ranging from two to four years. An investment cannot be made directly in an index.

The **Bloomberg Barclays Emerging Markets USD Aggregate Index** is a flagship hard currency Emerging Markets debt benchmark that includes fixed and floating-rate US dollar-denominated debt issued from sovereign, quasi-sovereign, and corporate EM issuers.

The **Bloomberg Barclays Euro-Aggregate: Corporates Bond Index** is a rules based benchmark including investment grade, EUR denominated, fixed rate, and corporate bonds only. Only bonds with a maturity of 1 year and above are eligible.

The **Bloomberg Barclays Global Aggregate Bond Index** is market capitalization weighted that includes Treasury securities, Government agency bonds, Mortgage-backed bonds and Corporate bonds. It excludes Municipal bonds and Treasury Inflation-Protected securities because of tax treatment.

The **Bloomberg Barclays High Yield Municipal Bond Index** covers the high yield portion of the USD-denominated long-term tax exempt bond market. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds.

The **Bloomberg Barclays Japanese Government Aggregate Index** includes securities issued by the Japanese government (JGB). Floating rate and inflation linked JGBs are excluded. Securities in the index must have a remaining maturity of at least one year.

The **Bloomberg Barclays Municipal Bond Index** is an unmanaged index that is considered representative of the broad market for investment grade, tax-exempt bonds with a maturity of at least one year.

The **Bloomberg Barclays Pan-European High Yield Index** covers the universe of fixed-rate, sub-investment-grade debt denominated in euros or other European currencies (except Swiss francs). This index includes only euro-and sterling-denominated bonds, because no issues in the other European currencies now meet all the index requirements. To be included, the bonds must be rated high-yield (Ba1/BB+ or lower) by at least two of the following ratings agencies: Moody's, S&P, Fitch.

The **Bloomberg Barclays US Aggregate Bond Index** represents an unmanaged diversified portfolio of fixed income securities, including U.S. Treasuries, investment-grade corporate bonds, and mortgage backed and asset-backed securities.

The **Bloomberg Barclays US Corporate Bond Index** measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD denominated securities publicly issued by US and non-US industrial, utility and financial issuers.

The **Bloomberg Barclays US High Yield Index** measures the USD-denominated, high yield, fixed-rate corporate bond market.

The **Bloomberg Barclays US Treasury Bond Index** measures US dollar-denominated, fixed-rate, nominal debt issued by the US Treasury, excluding Treasury Bills and STRIPs.

The **BVAL Muni AAA Benchmark Yield Curve** is a Bloomberg Value Yield Curve that plots that daily yields of a broad universe of AAA rated Municipal Bonds of maturities from 3 months to 30 years.

The **US Revenue BBB Muni BVAL Yield Curve** is a Bloomberg Value Yield Curve that plots that daily yields of a broad universe of BBB rated Municipal Revenue Bonds of maturities from 3 months to 30 years.

Other

A **basis point** is one hundredth of one percent.

Beta is a measure of the volatility of a security in comparison to the market as a whole, as measured by an index or other benchmark.

The **Cyclically Adjusted Price-to-Earnings (CAPE) ratio** is a valuation measure usually applied to the broad equity market, that uses real per-share earnings over a 10-year period, smoothing out real earnings to eliminate fluctuations in net income cause by variations in profit margins over a typical business cycle.

Covenants refer to debt agreements between a Municipality and its creditors regarding the terms of debt payment. Collateral refers to assets that a borrower offers as a way to secure the loan from a creditor. Municipal bonds have structurally better covenants and collateral because of their ability to raise taxes, unlike corporate entities.

Drawdown is the peak-to-trough decline during a specific recorded period of an asset class.

Earnings per share (EPS) is the portion of a company's profit allocated to each outstanding share of common stock. Earnings per share serves as an indicator of a company's profitability.

The **Global Composite Purchasing Managers' Index (PMI)** is a GDP-weighted measure of composite data in 33 countries across the world calculated by Haver Analytics. Global Composite PMI is a weighted aggregation of manufacturing and services sectors.

The **HFRI Fund of Funds Index** is an equal weighted, net of fee, index composed of approximately 800 fund-of-funds which report to HFR.

A **recession** is defined as a significant decline in economic activity spread across the economy, lasting more than a few months.

Sharpe Ratio is a measure for calculating risk-adjusted return.

Standard Deviation is defined as a measure of the dispersion of a set of data from its mean.

Tail Risk refers to a low probability and high impact event. Tail Risk is a form of portfolio risk.

The **U.S. dollar index** (DXY) is a measure of the value of the U.S. dollar relative to the value of a basket of currencies of the majority of the U.S.'s most significant trading partners.

Volatility is a measure for variation of price of a financial instrument over time.

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