Goldman Sachs Asset Management

Market Know-How
Pressure Points

Triannual Insights and Implementation
2019: Edition 1

Strategic Advisory Solutions

Relative Asset Class Calendar-Year Performance

Best Performance	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 YTD
		EM Equity 79.0%									
		High Yield 59.4%			Int. Real Estate 38.5%						
		Int. Small Cap 45.1%			High Yield 19.6%						
	US Agg. Bonds 5.2%	Bank Loans 44.9%			EM Equity 18.6%						
	EM Debt -12.0%	Int. Real Estate 42.8%	US Real Estate 28.5%		Int. Small Cap 18.6%						
	Hedge Funds -21.4%	Int. Equity 31.8%	US Small Cap 26.9%	US Real Estate 8.9%	EM Debt 17.4%					EM Equity 37.8%	
	High Yield -26.9%	EM Debt 29.8%	Int. Small Cap 22.0%	US Agg. Bonds 7.8%	Int. Equity 17.3%					Int. Small Cap 32.3%	
	Bank Loans -28.8%	US Real Estate 29.0%	EM Equity 19.2%	EM Debt 7.3%	US Real Estate 17.1%			Int. Small Cap 5.9%	US Small Cap 21.3%	Int. Equity 25.0%	
	US Small Cap -33.8%	US Small Cap 27.2%	Int. Real Estate 18.1%	High Yield 3.1%	US Small Cap 16.3%	US Small Cap 38.8%	US Real Estate 31.9%	US Real Estate 4.5%	High Yield 14.3%	Int. Real Estate 22.1%	
	-37.0%	26.5%	15.1%	2.1%	16.0%	US Large Cap 32.4%	13.7%	1.4%	12.0%	21.8%	5.1%
	US Real Estate -39.8%	Commodities 13.5%	High Yield 14.8%	Bank Loans 1.8%	Bank Loans 9.4%	Int. Small Cap 26.1%	EM Debt 7.4%	EM Debt 1.2%	EM Equity 11.6%	US Small Cap 14.6%	US Real Estate 4.8%
	Int. Equity -43.4%	Hedge Funds 11.5%	EM Debt 12.2%	Commodities -1.2%	Hedge Funds 4.8%	Int. Equity 22.8%	US Agg. Bonds 6.0%	US Agg. Bonds 0.5%	Commodities 11.4%	High Yield 10.4%	Bank Loans 3.5%
	Commodities -46.5%	US Agg. Bonds 5.9%	Bank Loans 10.0%	US Small Cap -4.2%	US Agg. Bonds 4.2%	Hedge Funds 9.0%	US Small Cap 4.9%	Hedge Funds -0.3%	EM Debt 10.2%	EM Debt 10.3%	US Small Cap 1.0%
	Int. Small Cap -47.7%		Commodities 9.0%	Hedge Funds -5.7%	Commodities 0.1%	Int. Real Estate 8.3%	Int. Real Estate 3.9%	Bank Loans -0.4%	Bank Loans 9.9%	Hedge Funds 7.8%	US Agg. Bonds -1.8%
	Int. Real Estate -51.8%		Int. Equity 7.8%	Int. Equity -12.1%		High Yield 7.3%	Hedge Funds 3.4%	Int. Real Estate -0.7%	US Real Estate 6.6%	Commodities 5.8%	Hedge Funds -1.8%
	EM Equity -53.2%		US Agg. Bonds 6.5%	Int. Small Cap -14.5%		Bank Loans 6.2%	Bank Loans 2.1%	Int. Equity -0.8%	Int. Small Cap 3.7%	Bank Loans 4.2%	High Yield -3.3%
			Hedge Funds 5.7%	Int. Real Estate -14.7%		US Real Estate 1.3%	High Yield 0.0%	High Yield -2.7%	US Agg. Bonds 2.6%	US Real Estate 3.8%	EM Debt -5.5%
				EM Equity -18.2%		Commodities -1.2%	EM Equity -1.8%	US Small Cap -4.4%	Int. Real Estate 2.2%	US Agg. Bonds 3.5%	Commodities -6.6%
						US Agg. Bonds -2.0%	Int. Small Cap -3.4%	EM Equity -14.6%	Int. Equity 1.0%		Int. Real Estate -6.9%
						EM Equity -2.3%	Int. Equity -4.9%	Commodities -32.9%	Hedge Funds 0.5%		Int. Equity -9.4%
						EM Debt -5.3%	Commodities -33.1%				EM Equity -12.0%
Worst Performance											Int. Small Cap -12.8%

Source: GSAM. As of November 30, 2018. This example is for illustrative purposes only. **Past performance does not guarantee future results, which may vary.** Diversification does not protect an investor from market risks and does not ensure a profit. **Please see additional disclosures at the end of this document.**

Pressure Points

Investors today face a market of pressure points. These markers of sensitivity include the pace of economic growth, the ongoing withdrawal of monetary policy accommodation, escalating trade tensions, and geopolitical risk. Each of these can drive episodic volatility. While markets may come under pressure in 2019, we are both confident in the continued global expansion and cautiously optimistic of late-cycle conditions.

Among the reasons we remain constructive despite these pressure points: none appears to possess the muscle to initiate a recession on its own. Together, they magnify sensitivities emerging in the system, which is why they bear close watch. As the year unfolds, we believe that macroeconomic fundamentals and the evolving market environment will remain supportive of risk assets. Now is the time for investors to stay focused on a commitment to risk management and strategic portfolio design.

Consequently, we would emphasize:

- Revisiting the balance between growth and value style weights
- Emerging markets strike us as poised for a comeback
- Deploying alternatives to manage a riskier market landscape.

Macro

Economic conditions are beginning to return to more "normal" settings: GDP growth is slowing toward potential, rates are rising toward neutral, and volatility is reverting to mean.

GROWTH

Tightening financial conditions and the waning boost from fiscal and monetary policies may be contributing to a US-led deceleration in global growth, albeit to a still healthy pace of expansion. Trend-like growth could re-assert its gravitational pull over the next few quarters.

INFLATION

Headline rates of inflation globally may be driven in the short-term by developments in volatile energy markets. Underlying inflationary pressures still vary widely across regions, reflecting contrasting macro fundamentals and differing levels of slack left in the world's major economies.

MONETARY POLICY

We expect developed market central banks to continue pursuing a strategy of gradual normalization, while retaining tactical sensitivity to macro developments. Measured increases in interest rates will now also be accompanied by a progressive unwind of global central bank net asset purchases: a move from QE to QT.

POLITICS & POPULISM

Global (geo-)political uncertainties may be important drivers of both returns and volatility in the year ahead, as the market adjusts to trade uncertainties, spillovers from Brexit, and Italian budget risks.

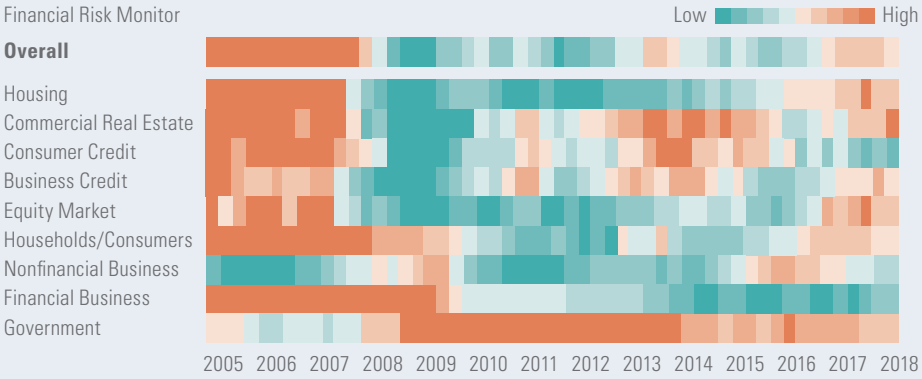
RISK

A combination of moderating global growth, late-cycle concerns, uncertainty around the timing and sequence of evolving central bank policies, and elevated geopolitical tensions is likely to remain a source of pressure points for investors. These risks create the potential for further spikes in market volatility.

Left Section Notes: 'GDP' refers to Gross Domestic Product. Potential GDP growth is the level of output growth that an economy can sustain at a constant inflation rate. Right Section Notes: 'QE' is a common reference to Quantitative Easing. 'QT' refers to Quantitative Tightening. **Please see additional disclosures at the end of this document.**

Financial Excess… or Lack Thereof

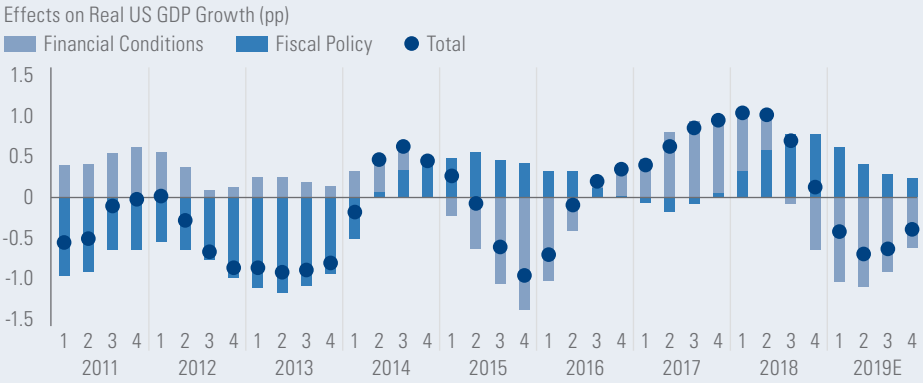
The current US economic recovery is likely to become the longest in history in 2019. Yet a smörgåsbord of leverage- and valuation-based indicators still points to few current imbalances in the economy. While the economy is probably closer to the end of this cycle than the beginning, financial excesses appear to be contained.



Source: Goldman Sachs Global Investment Research and GSAM.

A Resilient Economy

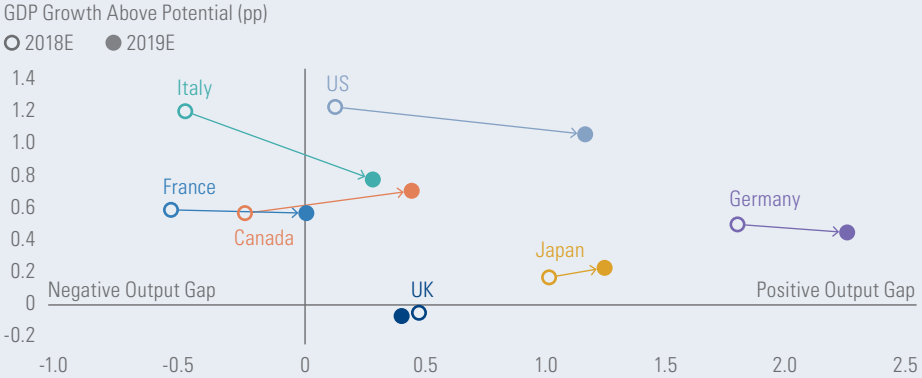
An expected gradual tightening of financial conditions over the next 12 months looks set to more than counterbalance the benefits of recent fiscal stimulus. Nonetheless, with the economy still displaying resilience and momentum, the resultant modest slowdown in growth need not be a cause for concern.



Source: Goldman Sachs Global Investment Research and GSAM.

Softer Growth, but Not Soft

A deceleration in growth may also be observed across several G7 economies in 2019. However, other than the UK, we see all G7 growth rates remaining above potential. Moreover, continued above-potential growth would coincide with all G7 economies operating with little or no remaining spare capacity.



Source: Organization for Economic Cooperation and Development (OECD) and GSAM.

Top Section Notes: As of July 2018, latest available. Indicators are shown as percentiles, where orange represents high risk and teal represents low risk. **Please see additional disclosures at the end of this document.** Middle Section Notes: As of November 2018. Chart shows a 3-quarter moving average of the estimated impact on US Gross Domestic Product (GDP) growth from financial conditions and fiscal policy. Bottom Section Notes: As of May 2018. 'Output Gap' refers to the deviation of actual GDP volume from potential GDP volume as a percent of potential GDP. Potential GDP is the level of output that an economy can sustain at a constant inflation rate.

Markets

After a period of leadership by the US, we think markets are set to transition back to global synchronization. Preparation is warranted as episodic volatility and potential stress on corporate earnings pose significant pressure points in 2019.

EQUITIES

Late-cycle dynamics reinforce the need for realistic return expectations. Nonetheless, equities remain our favored asset class, as earnings growth continues to fuel return potential moving forward. We believe the macro environment will stay supportive of risk assets, with emerging equities poised for a comeback.

RATES

Global sovereign rates continue their move higher toward fair value, with the US nearing the upper end of rate pressure. The rate differential between the US 10-Year and German Bund is unsustainably wide in our view, while concern over Italy's fiscal sustainability persists. The evolution of inflation remains a key catalyst for global yield shifts.

CREDIT

Increased leverage, rising levels of corporate debt, and tight spreads reflect late-cycle conditions, highlighting the need to focus on idiosyncratic positioning. Fundamentals remain intact, but beta-caution is warranted in both investment grade and high yield, as security selection remains key.

CURRENCY

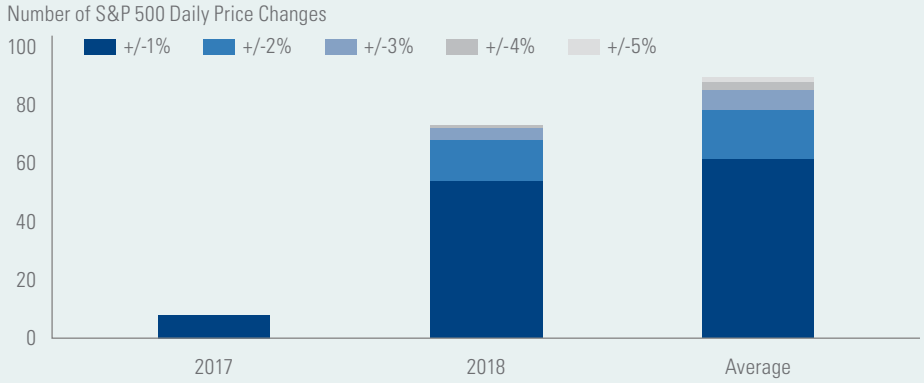
Despite US dollar strength in 2018, risk going forward may be to the downside given a reconvergence in global growth, interest rates, and monetary policy. Recovering growth outside the US could provide a tailwind for European and emerging market currencies, while sterling remains tethered to political risk in the UK.

VOLATILITY

Markets remain highly vulnerable to exogenous shocks potentially driven by escalating trade tensions, heightened political risks, and stressed liquidity. The rise of algorithmic trading intensifies the markets' susceptibility to episodic volatility as trade volume is increasingly dominated by speed, not capital.

Volatility: A Return to Normalcy

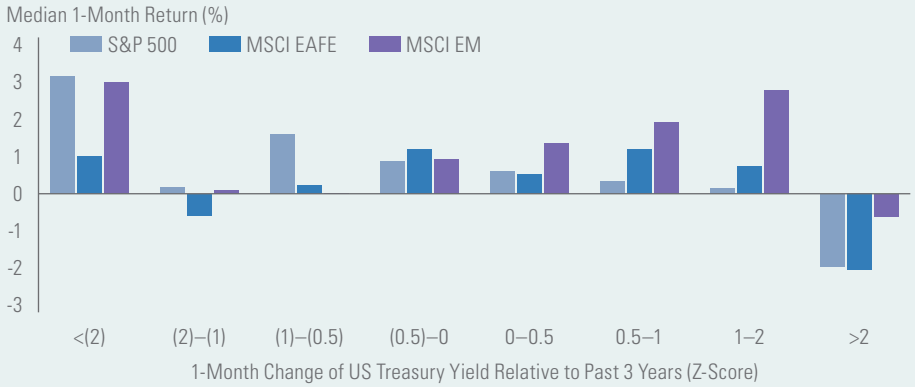
The increased velocity of volatility in 2018 has left investors unsettled. However, pockets of episodic volatility are the norm, while the sheer absence of volatility experienced in 2017 is the exception. For example, investors have experienced more than 60 days of 1% or more S&P 500 price moves in the average year, but saw just eight of those in 2017.



Source: Bloomberg and GSAM.

Equities: Resilient in the Face of Rising Rates?

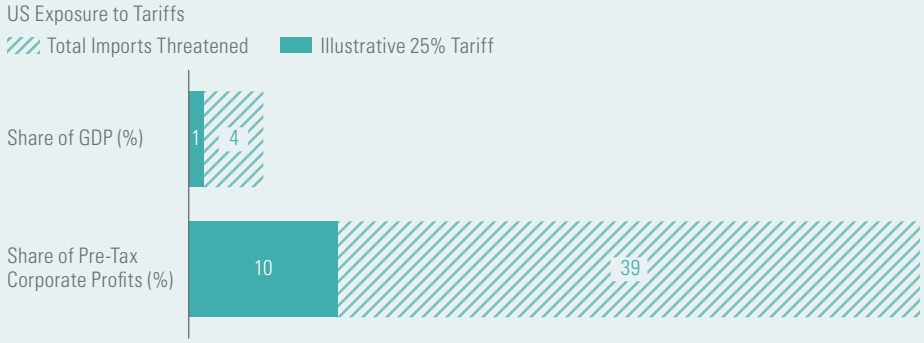
Interest rate movements buoyed by economic momentum, monetary policy, and fiscal stimulus remain on track to trend higher. While the level of rates matters, so does the speed at which rates rise. Markets, especially emerging markets, have often digested rate changes well, as long as those changes do not happen too quickly.



Source: Bloomberg and GSAM.

Tariffs: A Threat to Corporate Profits, Not the Economy

Trade tension escalation remains manageable for the US economy. Even with the full implementation of 25% tax rates, the tariff implication would remain limited, impacting GDP growth by <1%. Protectionist effects on corporate earnings, however, are much more pronounced, with pre-tax profits potentially retreating by 10%.



Source: US International Trade Council, Federal Reserve Economic Data, and GSAM.

Top Section Notes: As of November 30, 2018. Chart shows the number of absolute incremental daily price changes in the S&P 500 for 2017, 2018, and across a long-term average using data since 1928. Numbers are calculated on a cumulative basis (e.g., number of 1% S&P 500 daily changes will include counts of daily changes exceeding 1%). Middle Section Notes: As of November 30, 2018. Z-score is a standardized measure of the number of standard deviations from the mean. A rolling 3-year period of US 10-Year Treasury yields is used to compute the Z-score. At latest available, a 1 standard deviation and a 1 Z-score interest rate move from the average change in rates corresponds to a 20 basis point move. Bottom Section Notes: As of November 2018. 'Exposure' refers to total threatened US imports, relative to US GDP and pre-tax corporate profits. US imports, GDP, and pre-tax corporate profits are based on 2017 annual figures.

Macro and Markets Recap

Macro:
Global expansion should continue despite late-cycle conditions

Markets:
Evolving market environment remains supportive of risk assets

Know-How

Growth Spurt: Trends in growth/value style leadership

Emerging Markets: Navigating the headwinds

Concentration Risk: Diversifying against declines

Alternatives: A late-cycle counterbalance

Municipal Bonds: BBBroadening out

Taxation: Strategies to manage the impact

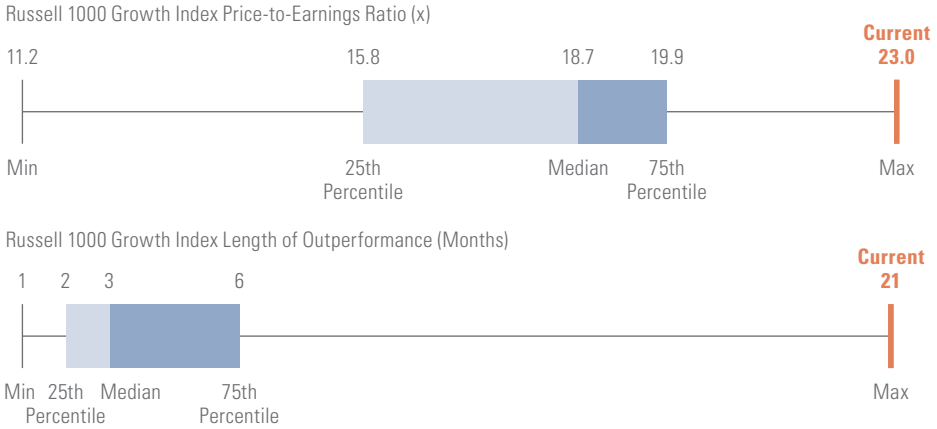
Views and opinions are current as of November 2018, and may be subject to change, they should not be construed as investment advice.

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.

Growth spurt. The outperformance of US large-cap growth stocks versus value has been unprecedented by some metrics.

The length of growth or value outperformance can vary across periods, making it difficult to time investment decisions for the two styles. The current length of growth outperformance has exceeded its long-term median length by a factor of four. At 21 months, growth dominance today is twice as long as the period during the dot-com bubble. At the same time, growth valuation continues to be stretched at its highest level ever.

Peak Growth

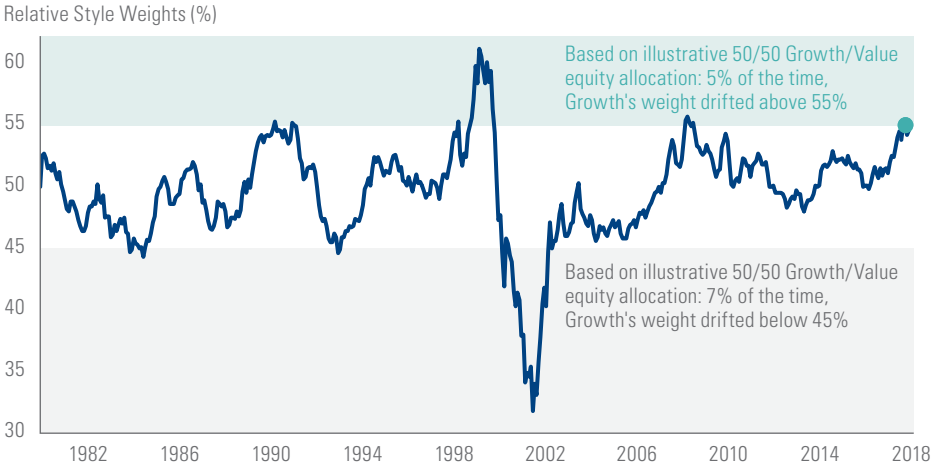


Source: Bloomberg and GSAM.

Balancing act. Growth's remarkable run may have created an unintended overweight.

Over recent years, rolling returns for US large-cap growth stocks have surpassed value stocks by a wide enough margin that an equally-weighted starting allocation to growth and value would have drifted to a markedly imbalanced allocation today. In our view, investors should be aware of any such imbalances, and should prepare their portfolios in the event of a regime change in growth-versus-value performance trends.

Growth Drift



Source: Bloomberg and GSAM.

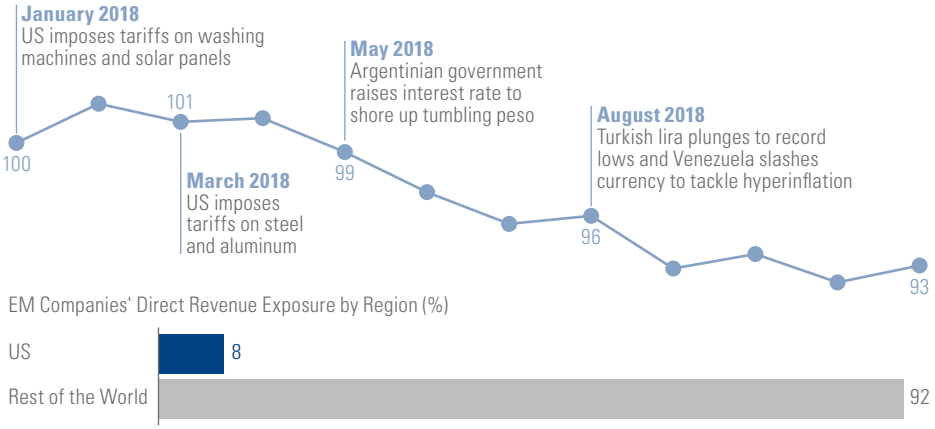
Top Section Notes: As of November 30, 2018. For illustrative purposes only. Valuations are represented by 12-month forward price-to-earnings (P/E) ratios. The length of outperformance is characterized by consecutive number of rolling 3-month periods where growth outperforms value. 'Current' reflects the rolling 3-month return period from December 2016 to November 2018. The most recent outperformance period by the Russell 1000 Growth relative to the Russell 1000 Value index is December 2016 to October 2018. The 'dot-com' bubble refers to the rapid rise in US equity valuations, roughly from 1995 to 2000, fueled by investments in internet-based companies. Bottom Section Notes: As of November 30, 2018. Chart shows the relative portfolio weights of an illustrative portfolio that started with equal allocation to US large-cap value and growth equities. US large-cap value and growth equities are represented by the Russell 1000 Value and the Russell 1000 Growth indices, respectively. The illustrative portfolio weights are based on rolling 2-year returns of the two indices. 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. **Past performance does not guarantee future results, which may vary.**

Navigating EM headwinds. A stronger dollar, country crises, and geopolitical headlines help explain challenged 2018 performance.

We believe that 2018 EM underperformance has been driven primarily by the trifecta of a stronger US dollar, idiosyncratic country risk, and Sino-US trade tensions. Performance may make a comeback as these conditions, which are likely temporary, start to unwind. Additionally, EM companies have limited revenue exposure to the US, which suggests that this headwind may not represent long-term structural risk.

A Series of Unfortunate Events

Illustrative Emerging Markets (EM) Currency Basket Performance (Growth of $100)



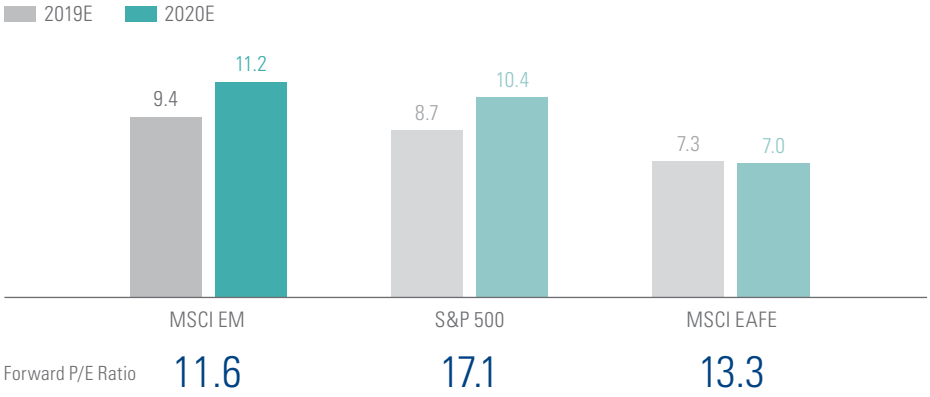
Source: Bloomberg, FactSet, and GSAM.

Leaning against the wind. Earnings growth in emerging markets remains stronger than in developed markets.

History tells us that over the long term, earnings growth is the predominant driver of returns in EM economies. We estimate that 2019 EM earnings growth will beat developed markets. In addition, EM valuations are lower than in developed markets. We believe this backdrop of attractive valuations and higher earnings growth may be supportive for EM market performance.

Growing Up Cheap

Earnings (EPS) Growth Forecasts (%)



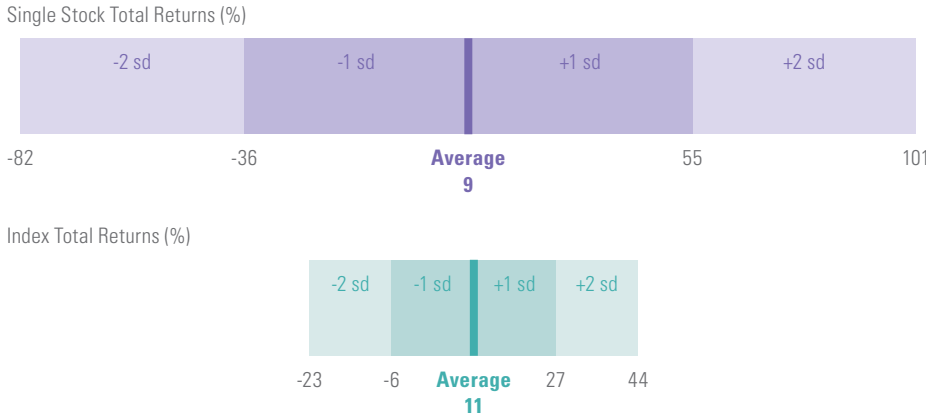
Source: Bloomberg, FactSet, and GSAM.

Top Section Notes: As of November 30, 2018. The top chart shows the performance of an illustrative emerging market currency basket against the US dollar. The illustrative emerging market currency basket equal-weighted the 24 countries (Brazil, Chile, China, Columbia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates) in the MSCI Emerging Markets (EM) Index. **Past performance does not guarantee future results, which may vary.** For illustrative purposes only. GROWTH OF $100: A graphical measurement of a portfolio's gross return that simulates the performance of an initial investment of $100 over the given time period. The example provided does not reflect the deduction of investment advisory fees and expenses which would reduce an investor's return. Bottom Section Notes: As of November 30, 2018. Earnings per share (EPS) is the portion of a company's profit allocated to each outstanding share of common stock and the estimates are calculated by market capitalization weighting each constituent within the index. Forward price-to-earnings (P/E) ratio measures current share price relative to next 12 month EPS forecasts. 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.

Comfort in the crowd. Individual stocks' vulnerability can be reduced by diversifying across a basket of equities.

Single stocks have greater exposure to both outsized gains and outsized losses. Sometimes they win big, but historically investors have faced losses in single stocks one-third of the time. We believe that diversification through an index can help investors reduce exposure to potentially punitive company-specific risk while still participating in the market.

Going it Alone Versus Sticking Together

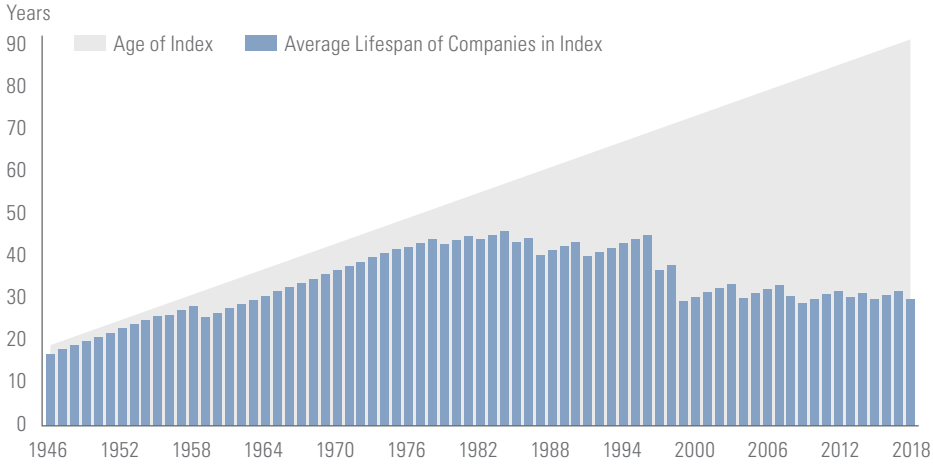


Source: Morningstar Direct and GSAM.

Know when to fold 'em (into an index). Disruption across equity markets has accelerated over recent decades.

Technology and globalization have made competition fiercer, faster, and disruption more commonplace. Accordingly, the staying power of companies has diminished. For example, the lifespan of the average company in the Dow Jones Industrial Average has shrunk by a third—from 46 years in 1984 to 30 years today. Companies no longer dominate their industries for long timespans the way that they used to. We would caution investors against overconcentration in any single equity.

Accelerating Disruption in the Index



Source: Bloomberg and GSAM.

Top Section Notes: As of November 2018. Chart shows the average and +/- 1 and +/- 2 standard deviation (sd) of total returns of an illustrative single stock in the S&P 500 and of the S&P 500 index itself. The average of single stock total returns is calculated as the average of all available annualized returns from 1987–2017 for all stocks that have been in the S&P 500 since 1990, earliest available member data. The average of index total returns is calculated as the average annualized total return for the same period, 1987–2017. The standard deviation for the single stock is calculated as the average of the standard deviations of all available individual stocks' annual returns from 1987–2017. Bottom Section Notes: As of November 2018. Chart shows the age of the Dow Jones Industrial Average (DJIA), as it exists now, and the average lifespan of all companies in the DJIA each year. The DJIA was reconstituted to be a 30-member large-cap index representative of industries' most dominant companies on October 1, 1928. In 2018, it had an age of 90 years. This age represents the maximum amount of time that a company could have been in the DJIA. Average company lifespan is a representative average of the number of years that all companies in the DJIA have been in the DJIA. Change of name or acquisition does not reset the lifespan. Diversification does not protect an investor from market risk and does not ensure a profit.

A two-way street. Sitting on the sidelines can mean missing out on gains even if investors succeed at the task of avoiding losses.

Some of the strongest equity market returns have come within days of a market bottom. We are wary of investors' tendency toward loss aversion, which may lead to missing out on gains while trying to time the market. Investors are rarely able to achieve perfect timing—even if they miss drawdowns, they may still fail to benefit from rebounds. We advocate for a risk-aware approach and maintaining a strategic allocation.

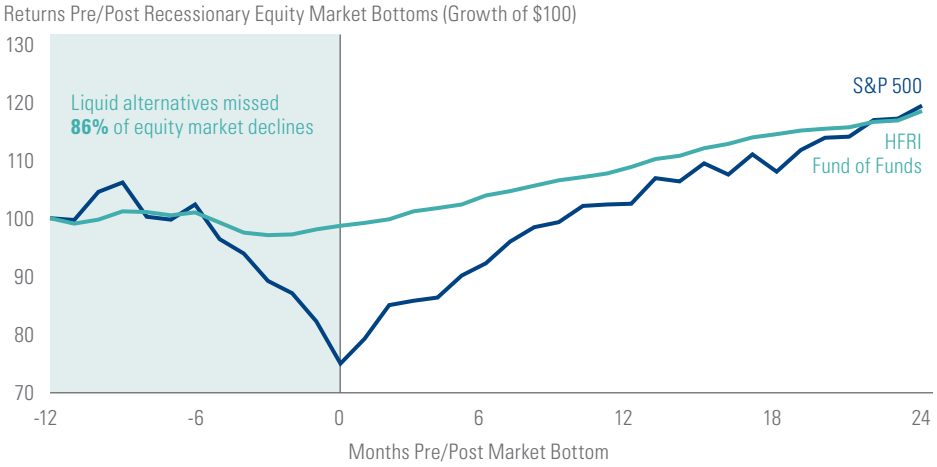
Missing the Bottom, Missing the Bounce

Source: Bloomberg and GSAM.

Gearing up for a bumpy ride. Long-term strategic market exposure has often beaten market timing strategies.

Liquid alternatives, in our view, can be a valuable late-cycle diversifier and counterbalancing asset for periods of heightened episodic volatility. Historically, as the economic cycle turns, investors who have held liquid alternatives have seen smaller losses than those who held only equities, while still participating in the subsequent recovery. In our view, alternatives offer an efficient solution for investors to de-risk yet remain invested.

Know Your Alternatives



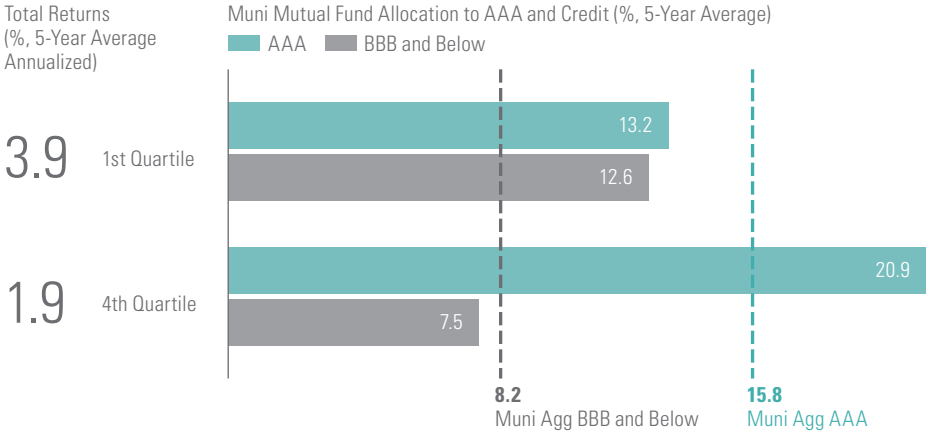
Source: Bloomberg and GSAM.

Top Section Notes: As of November 2018. Chart shows the average 5-year total return of the S&P 500 from the last three economic cycles' market bottoms (March 9, 2009, October 9, 2002, and October 19, 1990). 'Stay Invested' means remaining invested in the S&P 500 at the market trough and on average total return equaled 147% from the market bottom. The 'gained' proportion of total return represents the proportion of the full potential return of staying invested. The 'missed' proportion of total return represents the average amount of return that an investor missed out on by being uninvested for the given period versus staying invested through the market trough. 'Invest 2 Days After Bottom' means being uninvested for the first two days after the market trough, then being fully invested in the S&P 500. 'Invest 1 Month After Bottom' means being uninvested for the 21 trading days following the market trough, then being fully invested in the S&P 500. Bottom Section Notes: As of November 2018. Chart shows the average monthly growth of a $100 investment made one year before an average economic cycle market bottom (March 2009, October 2002, and October 1990) in both the S&P 500 and the HFRI Fund of Funds Index (HFRIFOF), a common index for liquid alternatives. The analysis uses data from October 1988 to March 2011 for the S&P 500 and from January 1990 to March 2011 for the HFRIFOF, the earliest available data through 24 months after the most recent recession. GROWTH OF $100: A graphical measurement of a portfolio's gross return that simulates the performance of an initial investment of $100 over the given time period. The example provided does not reflect the deduction of investment advisory fees and expenses which would reduce an investor's return. **Investments in Liquid Alternative Funds 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) mutual funds. Past performance does not guarantee future results, which may vary.**

Credit where it's due. Municipal bond managers who diversify across the credit spectrum have outperformed over time.

Top-quartile muni managers have broadly positioned their portfolios with an overweight to credit—as measured by their exposure to muni bonds rated BBB and below—relative to the Bloomberg Barclays Municipal Aggregate Index. Bottom-quartile performers have been consistently overweight quality, meaning AAA-rated bonds. We read these data points as evidence that full participation in the broader municipal landscape represents an effective long-term strategy.

BBBroadening Out Conventional Muni Investing

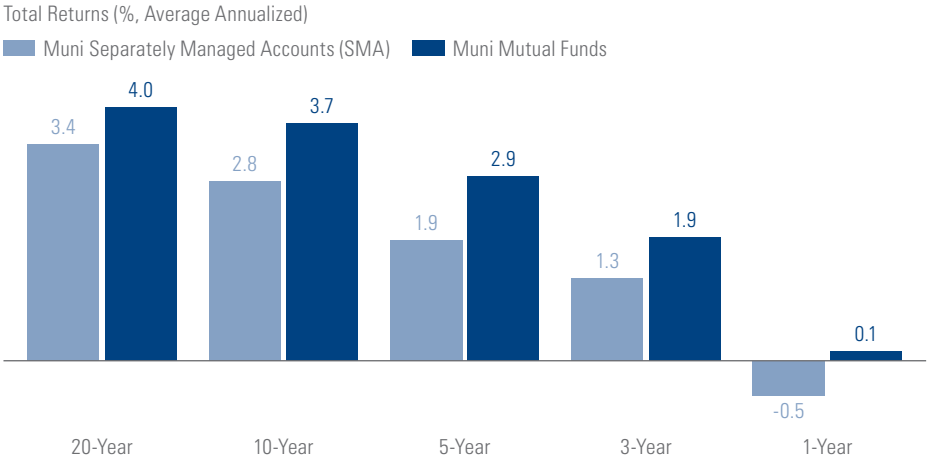


Source: Morningstar Direct, Bloomberg Barclays, and GSAM.

Mutually advantageous. Muni mutual funds have consistently generated higher net returns than similarly benchmarked SMAs.

We view mutual funds as structurally better designed to express credit preferences in municipal bonds than SMAs. Consistent with that view, muni mutual funds outperformed similarly benchmarked SMAs for the last 20 years. In a universe of 50,000+ securities, the median muni SMA held 30 positions, compared to 217 for the median mutual fund.

Mutual Funds' Long-Term Outperformance Versus SMAs



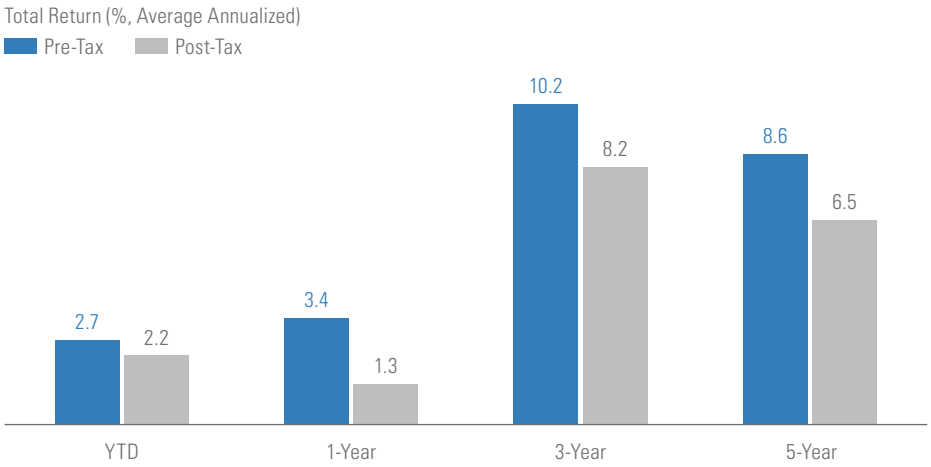
Source: Morningstar Direct, eVestment, and GSAM.

Top Section Notes: As of September 30, 2018, latest quarter-end data. Analysis is from September 30, 2013 to September 30, 2018. 'Muni Agg' refers to the Bloomberg Barclays Municipal Bond Index. 'Credit' refers to BBB and below rated munis. Quartiles are sorted based on performance, with the 1st quartile being the top performers. 'Muni Mutual Funds' refers to the funds listed in Morningstar that are benchmarked to 'Bloomberg Barclays Municipal TR USD'. Average allocation represents average allocation over the past 5 years for each Morningstar peer group. Bottom Section Notes: As of September 30, 2018, latest quarter-end data. Analysis is from January 1, 1998 to September 30, 2018. 'Muni Separately Managed Accounts (SMA)' refers to the eVestment universe of accounts that are benchmarked to 'Bloomberg Barclays US Municipals'. Performance reflects average annual total returns (net of fees). Average SMA fees are 42 basis points (bps), and reflect all available data reported by SMAs benchmarked to the 'Bloomberg Barclays US Municipals' category. Average muni mutual fund fees are 51 bps, as defined by Morningstar for net expense ratio. **Please see end notes for material differences between Mutual Funds and Separately Managed Accounts.** 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 end notes for additional definitions. **Past performance does not guarantee future results, which may vary.**

A taxing situation. Investors consistently experience a contrast between pre- and post-tax returns.

Following an extended run of equity gains, being thoughtful about taxation is more important now than ever. On average, investors have lost roughly 2% of their returns to tax liabilities across 1-, 3- and 5-year investment horizons. This tax gap widens further in asset classes for which taxable distributions are larger and/or more common. Being tax-conscious, in our view, is one of the most important methods of enhancing potential returns.

Returns Withheld



Source: Morningstar Direct and GSAM.

Managing up. Investors do not have to take their tax bills lying down.

Investors can deploy a range of strategies designed to manage the impact of taxes on their investment returns: tax loss harvesting, asset location, and tax-efficient vehicles. Tax loss harvesting utilizes market volatility to bolster returns by offsetting capital gains with realized losses. Asset location strategically places assets into tax-advantaged accounts in an effort to maximize after-tax returns. Tax-efficient vehicles by nature typically have little to no tax obligations.

Pick Your Position

	Strategies	Methods of Implementation
Tax Loss Harvesting	Improving after-tax returns by offsetting capital gains with realized losses	Active Loss Realization Tax Lot Management Loss Carryforward Optimization
Asset Location	Placing investments which make distributions subject to ordinary income tax or have high turnover inside tax-advantaged accounts	Annuity Products Qualified Accounts (e.g., 401(k), IRAs)
Tax-Efficient Vehicles	Minimizing taxable distributions; taking advantage of tax-free or tax-deferred returns	Annuity Products Municipal Bonds Separately Managed Accounts Exchange Traded Funds

Source: GSAM.

Top Section Notes: As of November 30, 2018. For illustrative purposes only. Chart shows the average annualized total pre- and post-tax returns of US mutual funds across all US capitalizations, including large blend, large growth, large value, mid-cap blend, mid-cap growth, mid-cap value, small blend, small growth, and small value. Bottom Section Notes: As of November 2018. Chart shows the potential tax-efficient strategies and accompanying implementation methods that one may deploy to manage the impact of taxes on investments. This information is shown for illustrative purposes only to demonstrate a sample of implementation methods within the broader tax-managed universe. **Past performance does not guarantee future results, which may vary**. Goldman Sachs does not provide accounting, tax or legal advice. Please see end notes for additional disclosures.

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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.

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Investments in fixed-income securities are subject to credit and interest rate risks. Bond prices fluctuate inversely to changes in interest rates. Therefore, a general rise in interest rates can result in the decline in the bond's price. Credit risk is the risk that an issuer will default on payments of interest and principal. This risk is higher when investing in high yield bonds, also known as junk bonds, which have lower ratings and are subject to greater volatility. All fixed income investments may be worth less than their original cost upon redemption or maturity.

Although Treasuries are considered free from credit risk, they are subject to interest rate risk, which may cause the underlying value of the security to fluctuate.

Income from municipal securities is generally free from federal taxes and state taxes for residents of the issuing state. While the interest income is tax-free, capital gains, if any, will be subject to taxes. Income for some investors may be subject to the federal Alternative Minimum Tax (AMT).

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Page 2 Relative Asset Class Calendar-Year Performance Notes: Bank Loans are represented by the Credit Suisse Leveraged Loan Index. Commodities are represented by the S&P GSCI Commodity Index. Emerging Market (EM) Debt is represented by the JPM EMBI Global Composite Index. Emerging Market (EM) Equity is represented by the MSCI Emerging Markets Index. Hedge Funds are represented by the HFRI Fund of Funds Index. High Yield is represented by the Bloomberg Barclays Global High Yield Index. International Equity is represented by the MSCI EAFE Index. International Real Estate is represented by the S&P Developed ex-US Property Index. International Small Cap is represented by the S&P Developed ex-US Small Cap Index. US Aggregate Bonds are represented by the Bloomberg Barclays Aggregate Bond Index. US Large Cap is represented by the S&P 500 Index. US Real Estate is represented by the Dow Jones US Select Real Estate Securities Index. US Small Cap is represented by the Russell 2000 Index.

Page 5 Top Section Financial Excess Monitor Notes: As of July 2018, latest available. Households/Consumers is a category that includes personal saving, mortgage, and non-mortgage debt, Nonfinancial Business includes corporate debt and interest expenses, debt to assets, and debt to GDP, Financial Business includes bank equity ratios, financial sector liabilities, leverage, and loan-to-deposit ratios, Government includes debt/GDP and deficit/GDP for federal, state, and local governments, Housing includes price-to-rent and price-to-income, house prices, mortgage spreads, lending standards, and credit scores, Commercial Real Estate includes commercial cap rates, commercial real estate prices, collateralized mortgage bond spreads, and lending standards, Consumer Credit includes credit card interest rates, personal loans, auto loan originations, credit card loans, and other consumer loans, Business Credit includes corporate debt spreads, commercial and industrial lending standards, and high yield debt issuance, and Equity Market includes valuations, equity risk premiums, and volatility. Indicators are shown as percentiles relative to all available data, dating to 1990.

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Glossary

Equities

The **Dow Jones Industrial Average (DJIA)** is a price-weighted average of the stocks of 30 US large-cap publicly traded companies.

The unmanaged **MSCI EAFE Index** (unhedged) is a market capitalization weighted composite of securities in 21 developed markets.

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 **Russell 1000 Growth Index** is an index that measures the performance of the large-cap growth segment of the U.S. equity universe.

The **Russell 1000 Value Index** is an unmanaged index of common stock prices that measures the performance of the large-cap value segment of the US equity universe.

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

The **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 **S&P Developed ex-US Small Cap Index** covers the smallest 15% of companies from developed countries (excluding the US) ranked by total market capitalization.

Fixed Income

The **Bloomberg Barclays 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 Global High Yield Index** provides a broad-based measure of the global high-yield fixed income market.

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 **Credit Suisse Leveraged Loan Index** tracks the investable leveraged loan market by representing tradable, senior-secured, US-dollar denominated, noninvestment-grade loans.

The **J.P. Morgan EMBI Global Composite** is an unmanaged index tracking dollar-denominated debt instruments issued in emerging markets.

Other

Beta refers to the tendency of a security's returns to respond to swings in the market.

The **Dow Jones US RESI** tracks companies that are both equity owners and operators of real estate in the US.

The **Gross Domestic Product (GDP)** is the value of finished goods and services produced within a country's borders over one year.

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

Leverage refers to the use of borrowed capital as an investment strategy.

Populism is a political ideology in which there is a perceived belief in the control of the government by "the common man."

The **price-to-earnings (P/E)** ratio measures current share price relative to per-share earnings.

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

Quantitative Easing (QE) consists of large-scale asset purchases by central banks, usually of long-maturity government debt but also of private assets, such as corporate debt or asset-backed securities. Typically, QE occurs in unconventional circumstances, when short-term nominal interest rates are very low, zero or even negative.

Quantitative Tightening (QT) consists of large-scale asset sales, shrinking the central bank's balance sheet, and is the reverse of QE.

Risk assets refers to assets that carry a degree of price volatility.

The **S&P Developed ex-US Property Index** measures the performance of real estate companies domiciled in countries outside the United States.

The **S&P GSCI Commodity Index** is a composite index of commodity sector returns, representing an unleveraged, long-only investment in commodity futures that is broadly diversified across the spectrum of commodities.

Spread is the difference between two prices or interest rates.

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

Volatility is a measure of variation of a financial instrument's price.

In addition to the Market Know-How, we offer timely market updates and implementation on asset classes. For additional content, please visit us at **gsam.com**.

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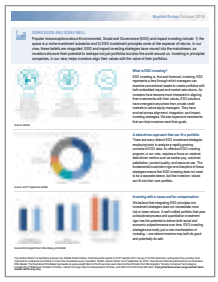
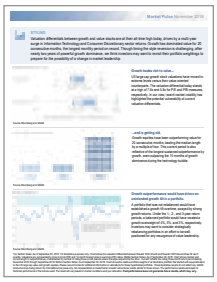


Doing Good and Doing Well



Styling

Catching Down

A Long-term Partnership

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