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CONFRONTING THE UNKNOWN

ASSET ALLOCATION PERSPECTIVES / OUTLOOK FOR 2018

EXECUTIVE SUMMARY

Throughout 2017, our meetings and conversations with clients very frequently focused on the topic of risk. With the market doing so well for so many years, we all knew that downward volatility would eventually manifest, but we didn't know when, or to what extent.

In February, just days before publishing this report, it happened; the S&P 500 Index fell into correction territory, and no one can say for sure if the market will rebound or decline further in the coming weeks and months. We decided several months ago to focus this year's Annual Outlook report on risk. While February's volatility did not materially change our asset allocation views, it reinforced to us the importance of a comprehensive discussion about how we think about risk and how we manage it.

We tackle the topic of risk in several different ways throughout this report.

We describe the current investment landscape as one that offers both risk and opportunity; our current asset allocation model seeks to balance the two.

Although we focused on risk in this year's report, we note that our current investment outlook is cautiously constructive, and in several ways improved since our last comprehensive report a year ago. Economic growth and corporate earnings across the world improved notably throughout 2017, led by an acceleration in Europe, a rebound in emerging markets and improved sentiment in some U.S. sectors due to the recent tax law overhaul.

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However, alongside these positive fundamental trends we also see potential causes for concern—valuation risk, to be sure, but also macroeconomic and geopolitical risks. Rising interest rates, the potential for inflation, heightened tension among nations (particularly along fault lines that threaten global trade volumes)—all of these factors are worthy of discussion, particularly in light of elevated valuations. The volatility in February is an indication of the market's sensitivity to news about any of these risk factors.

In short, today's investment landscape offers reasons for optimism and reasons for caution. As always, we want to avoid skewing portfolios toward a specific market scenario, because we can't accurately predict which scenario will come to pass. Instead, we try to build portfolios that offer the best chance of success in the medium term (two to three years) and the long term (10-plus years), over the widest range of potential market outcomes.

As we described in last year's report (and as summarized in the centerfold section on pages 15–18 of this report), we use **long-term assessments** of various asset classes to set a target range (i.e., a maximum and minimum percentage) that serves as a boundary for our ongoing allocation to each asset class. Since last year's report, these long-term assessments have not changed very much, and as a result, our boundary ranges are also largely the same as last year. We then use **medium-term scenario analysis** to weigh pros and cons in each asset class and settle on a desired target allocation for each. Based on our current scenario analysis, we seek to mitigate the sensitivity of our portfolios to rising interest rates, tighter central bank policy and rising political tensions. We also want to reduce exposure to potentially "overheated" markets (for example, exposure to China's fast-growing credit markets) and markets that could be hurt by protectionist policies, while favoring markets with comparably attractive current valuations and economic momentum. These views have led us to **reduce exposure to large-cap U.S. equities, high-yield bonds and traditional fixed income, and increase exposure to European equities, lower-duration fixed income strategies and private investments.** We discuss our general outlook and our portfolio stances in more detail in the "Investment Landscape" section.

We explain our general approach to evaluating risk, and how it impacts our decisions.

Portfolios are subject to several types of **quantifiable risk:**

- **The risk of a short-term drawdown in portfolio value**
- **The risk posed by illiquid investments**
- **The risk of insufficient growth** (i.e., the risk that a portfolio won't grow quickly enough)
- **The risk of permanent capital impairment**

In addition to these quantifiable risks, all investors are prone to **behavioral risk.** Fear and greed constantly tempt all of us to make decisions that go against our best interests. In this report, we will discuss each of these risks, and how they interact with each other to affect asset prices in the short term and portfolio growth in the long term. We will then demonstrate how we put all of this theory into practice, then describe some of our key medium-term and long-term asset allocation decisions from recent years through the lens of this risk framework. For example, our medium-term decision to shift slightly away from U.S. equities and toward European equities is directly aimed at *reducing drawdown risk* without accepting *additional risk of insufficient growth*. Likewise, our decision to shift capital from hedge funds and to invest additional capital in private equity, private credit and real estate is rooted in our long-term views regarding *illiquidity risk* and the rewards that investors can reap by accepting illiquidity in portfolios.*

Finally, we review the specific risk scenarios that, in our view, have the greatest potential to meaningfully impact portfolios over the next two to three years.

Our asset allocation process accounts for a wide range of potential outcomes over the next 18–36 months. As noted in our centerfold discussion, our model is anchored around a moderately optimistic base-case scenario, but we also want the model to be resilient in the face of negative scenarios that may be unlikely but still could occur. In this publication, we will drill down into five specific risk scenarios—four that could pose a danger to risk assets, and a fifth that could pose a danger if clients are underexposed to risk assets:

1. **Interest rates rise significantly**
2. **China's "credit bubble" bursts**
3. **Protectionism vanquishes global trade**
4. **North Korean tension escalates into military conflict**
5. **"Upside risk" that stock valuations shift even higher**

Note that with the exception of a rising interest rate scenario, we think that there is a low probability that any of these outcomes will play out. However, we can still take steps in portfolios to mitigate exposure to these potential scenarios, while also maintaining an overall stance that embraces long-term growth.

One final note: We present a number of generalized views on capital markets in this publication, but in daily practice, our recommendations to any given client are highly tailored to that client's situation. We employ an objective approach to evaluate the risks that all investors face, but in the end, we need to exercise subjectivity as well so that every one of our clients' portfolios reflect their constraints and aspirations as well as the realities of the market.

We hope this discussion is informative and helps advance your understanding of our asset allocation thought process. We welcome your thoughts and comments and look forward to discussing these issues with you throughout 2018.

*Alternative investments may be available for qualified purchasers and/or accredited investors only.

INVESTMENT LANDSCAPE

In 2017, equity markets pushed forward to all-time highs, credit spreads improved to multiyear lows, and non-U.S. stock markets broadly outpaced U.S. equities (in U.S. dollar terms) for the first time since 2012.

It is tempting to draw potentially misleading conclusions from last year's results or from more recent downside volatility. Some investors greeted 2017 returns with skepticism, fearing that market appreciation had been driven by overly rosy views and did not adequately reflect the potential of rising interest rates and/or inflation (the downturn in February was a manifestation of these views). We think the facts suggest a more positive explanation for last year's results: The world's largest global economies all experienced a synchronized (albeit modest) acceleration in growth for the first time since the immediate aftermath of the Great Recession.

We still face long-term challenges that have loomed over markets for many years, such as currently elevated valuations, the potential for rising rates, and slowing GDP growth relative to history (as noted in the chart below, we have seen a clear reduction in steady-state global GDP growth compared to recent decades). However, the current global economic environment is one in which the risk of near-term recession (always a possibility, to be clear) has fallen and remains quite low.

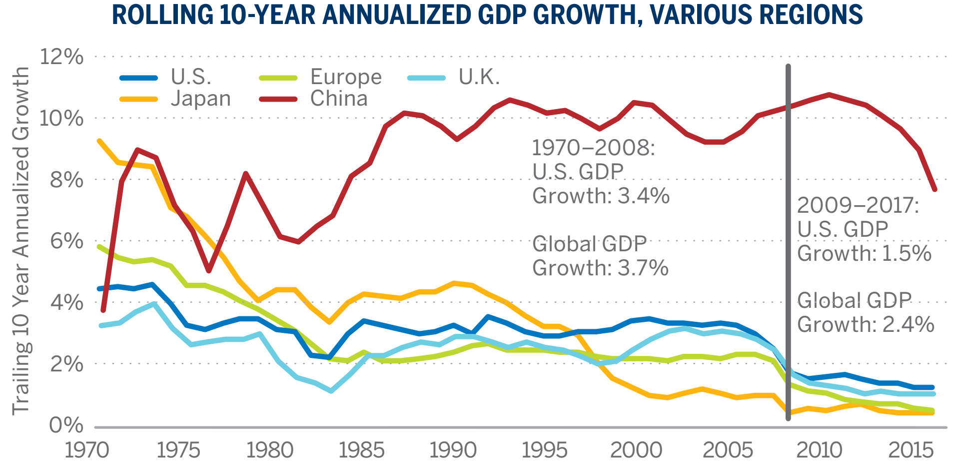
We are particularly focused on dampening the impact of severe drawdowns on our portfolios. Severe drawdowns tend to coincide with recessions, so we are equally focused on recession risk in our ongoing analysis. To repeat, we believe that recession risk is reduced today vs. a year ago.

Notably, last year's strong global equity returns were accompanied by fundamental improvements in trailing corporate earnings and rising expectations for forward earnings *(see chart on page 5)*. Although stocks in many non-U.S. markets outperformed U.S. stocks, valuations in Europe and many other non-U.S. markets ended the year no more expensive than they were at the start. U.S. investors did especially well last year in non-U.S. equities due to the rise of the euro and other currencies vs. the U.S. dollar. We note that U.S. dollar/euro currency moves have broadly tracked with the relative strength of economic recovery in the two regions, and historically this has been the case as well. In the years following the 2008–09 financial crisis, Europe experienced what amounted to a second wave of the financial crisis, as Greece veered toward default and the Eurozone model was called into question. The U.S. recovery was stronger during this period, so the value of the euro fell meaningfully vs. the U.S. dollar between 2012 and 2016. As a result of its delayed rebound relative to the U.S., Europe is in an earlier stage of recovery. Its

Global Downshift

Global GDP growth was relatively steady across the world from the 1980s through the mid-2000s, but after the 2008–09 credit crisis, growth declined meaningfully and has remained persistently low. Long-term asset returns may suffer if it turns out that this trend indicates a structural shift downward.

ROLLING 10-YEAR ANNUALIZED GDP GROWTH, VARIOUS REGIONS



SOURCE: WORLD BANK

Components of 2017 Equity Returns Across Various Regions

Strong earnings growth propelled stock market returns around the world last year. Multiples expanded in the U.S. and in emerging markets, but narrowed in Europe and Japan. For U.S. investors, the weakness of the dollar helped boost returns on investments in non-U.S. stocks.

	U.S.	Japan	Europe	Emer. Mkts.
Total 2017 Return	21.8%	24.0%	25.5%	37.3%
Impact From:				
Earnings Growth	11.2%	24.0%	21.0%	13.8%
P/E Expansion	8.2%	-12.9%	-14.5%	13.2%
Dividend Income	2.4%	3.7%	3.8%	3.0%
Currency	0.0%	9.2%	15.2%	7.3%

SOURCE: BLOOMBERG

economic growth accelerated in 2017, providing a boost to the euro and to investor confidence in the Eurozone.

For U.S. investors in European equities, this has been a boon. European companies have shown stronger growth in earnings, while local currency returns have lagged those in the U.S., and the valuation advantage for European stocks widened over the past year. These factors led us to increase many of our clients' exposure to Europe in the first half of 2017. European investors also benefited in 2017, albeit in a more balanced manner—their investments in their home markets generally performed well due to fundamental earnings strength, and their experience in U.S. stock markets was still positive despite currency headwinds.

Emerging market stocks outperformed the U.S. market for the first time since 2012, bolstered by strengthening GDP and earnings growth led by acceleration in China and India. We saw improvement in Latin America as both Brazil and Argentina emerged from painful recessions, with new leadership pushing market-friendly reform agendas. Emerging Asia continues to offer a highly compelling structural growth story, powered by the burgeoning middle class in that region. However, a variety of risks (including macro risks in China that we will discuss later in this report) have somewhat tempered the enthusiasm we felt about the region in recent years.

Another positive trend in 2017—at least for active managers—was a return to an environment where companies traded more on their own fundamentals, and correlations among individual stocks declined to more normal levels. For years, the post-crisis stock market was heavily influenced by macroeconomic shifts in interest rates, central bank policies and commodity prices; investors were broadly trading the market, not individual stocks, so there was reduced differentiation in individual stock performance. We appear to have moved from this long period of clustered stock performance, into a new period in which fundamental results once again have a greater impact on stock returns *(see chart on page 6)*. We believe that good active managers, with a focus on research and stock selection, can flourish in this environment.

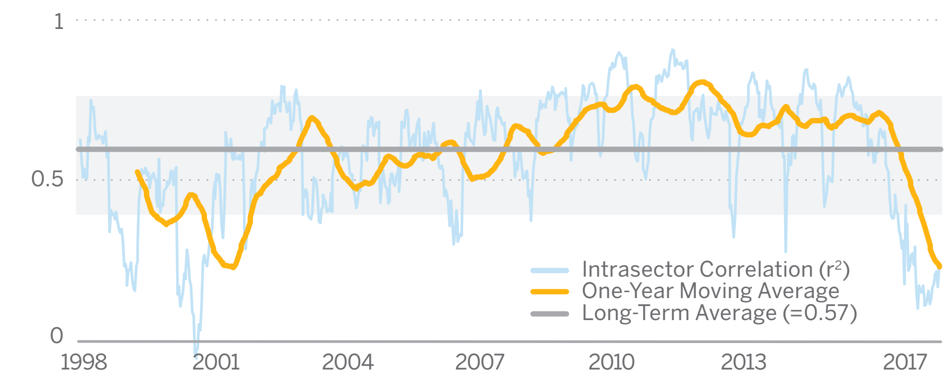
All in all, 2017 was a good year. Market conditions were largely beneficial, and we were able to add some incremental value through asset allocation and manager selection decisions. Additionally, we are less worried about a recession than we were a year ago, and thus our medium-term outlook has improved despite the choppy results seen in early 2018. However, none of this news boosts our long-term forecasts. We still believe that the next 10 years of returns for portfolios will fall short of the results that many investors have come to expect in recent decades.

We build portfolios that seek to achieve our clients' long-term return objectives. Germane to the discussion on risk throughout this report, we aim to produce those results with lower sensitivity to equity risk and interest-rate risk than our target benchmarks. We believe we can accomplish this task, especially in the current environment, by investing in high-quality companies trading at a discount to their intrinsic value, implementing certain alternative investments with less correlated returns that are derived from less efficient markets, and maintaining rigid

Drop in Correlations Between U.S. Stocks Creates Opportunity

In the last several years, correlations between U.S. equity sectors and individual stocks have fallen dramatically from the consistently high levels seen during the prior decade. We believe that these are excellent conditions for active stock pickers, but only the best managers will be able to consistently generate results from this opportunity.

S&P 500 INDEX INTRASECTOR CORRELATION, 1998–2017



SOURCE: BLOOMBERG. CHART DEPICTS THE CORRELATION BETWEEN THE SECTORS OF THE S&P 500 INDEX. A CORRELATION OF 1.0 WOULD MEAN THAT ALL SECTORS MOVED IN PERFECT SYNCHRONIZATION WITH EACH OTHER, WHILE A CORRELATION OF 0.0 WOULD MEAN THAT PRICE CHANGES ACROSS SECTORS HAD NO RELATIONSHIP.

discipline in periodically moving capital towards areas that offer, in our view, amplified prospects and away from areas with diminished prospects.

This year, we have made few adjustments to our allocation model; we raised our long-term strategic target allocation for private equity, we shifted our allocation to European equities slightly higher, and we reduced our allocation to high-yield bonds for taxable investors. Increasing our private equity allocation was a long-term strategic shift that reflects both our belief in the inefficiencies in the asset class and the access we have been able to secure with top managers. This shift should not be viewed as excitement regarding the current valuation environment, which faces the same problem of elevated asset prices as most other asset classes. Our addition to our European equity weighting was tactical—in two separate decisions, we removed a long-standing underweight, then moved to an overweight. Lastly, the reduction in high-yield bonds was the removal of a successful opportunistic investment we made in 2015–2016 during the steep drop in energy prices. While we are always looking for new, attractive opportunistic investments, we have not found any that we considered particularly compelling since our allocation to high yield. To some extent, the lack of stand-out opportunities right now is understandable given the attractive returns seen across many asset classes in recent years.

Our Current Stance

In general, we are modestly underweight both equities and traditional fixed income in portfolios while using a broad range of alternatives such as real estate and hedged strategies, given elevated valuations, low interest rates and the various macroeconomic and geopolitical risks discussed above. We believe that our current allocation stances, alongside our commitment to maintaining adequate liquidity pools in client portfolios, put us in a strong position to take proactive steps should market volatility offer compelling opportunities.

Equities: We seek to balance our exposure to equity markets (nearly always a large allocation within core portfolios) with exposure to other diversifying asset classes. Currently, we recommend the following:

- **Emphasize Europe within developed markets.** Valuations in the U.S. are high relative to history. We believe that the U.S. market still offers high quality and ample earnings growth potential, but European equities currently offer lower valuations. Europe is also attractive because it is earlier in its economic recovery cycle than the U.S., and currently inflation is lower in Europe than the U.S. This environment allows for growth without as much fear regarding higher inflation or interest rates. This is important; we saw in February how interest-rate and inflation fears triggered a sell-off in U.S. equities. As a result, we reduced our U.S. equity exposure and added to European exposure last year. Despite some recent structural reforms, Japan continues to struggle with long-term demographic, debt and productivity issues that lead us to a meaningful underweight.
- **Overweight U.S. small caps vs. large caps.** We continue to recommend that approximately one-third of U.S. equity allocations be placed in small-cap stocks, due to attractive valuations vs. large caps, the positive impacts of new tax laws on many smaller companies, and the inefficiency of the small-cap universe that opens up opportunities for managers to outperform.
- **Overweight emerging markets in a targeted manner—specifically, in smaller Asian growth companies and undervalued high-quality companies.** We believe that emerging Asia still represents a tremendous long-term growth opportunity, with the quality of companies improving and growth rates that exceed those of the developed world. We are underweight domestic Chinese equities (we discuss our thoughts on China later in this report), but overweight in Asian emerging markets outside of China. We are particularly attracted to small caps in this region, due to their greater exposure to their domestic markets and the fact that a lack of efficiency in emerging-market small caps creates opportunity for research-focused fundamental managers.

Fixed Income: We believe that current long-term yields offer little compensation for the associated interest rate risk and the risk posed by the current policy trajectory of the Fed and other central banks around the world. That said, we still believe that bonds are essential portfolio diversifiers, and we expect positive returns from our core fixed income portfolios even in a rising rate environment, so we have not abandoned the asset class as some others have. We currently emphasize credit exposure and low duration in our portfolios, and prefer managers that invest substantially in niche sectors that offer similar yields to longer-duration strategies. We have reduced our high-yield allocations due to tightening credit spreads and higher valuations, and shifted some capital from high-yield and core fixed income into structured credit and private lending strategies (we believe these areas offer more attractive valuations and more opportunity for managers to outperform).

Private Investments: We continue to allocate capital to private equity, real estate and private credit opportunities, with an emphasis on smaller managers focused on the lower middle market. While valuations and committed uninvested capital (or "dry powder") in the private investment space are higher than in the recent past, we believe that this asset class offers a great deal of alpha potential via manager selection, as well as value created by the general partners running top-quality funds. Market timing is extremely difficult in public markets, and nearly impossible in private markets, where managers put their money to work over multiple years. We focus on managers who we believe add significant value to the companies or assets they purchase, seeking to meaningfully increase future cash flows and effectively bring down the price they pay today. This is incredibly important given today's high valuations and low interest rates.

Hedge Funds: Hedge funds have lagged in a strong bull market, but we remain committed to hedged strategies as a method for diversifying risk and reducing overall equity exposure. Investor pessimism surrounding hedge funds has led to decreased competition for shorting stocks, generally lower shorting costs and improved fees and terms for investors; these factors have modestly enhanced our outlook for the hedge fund space. 2017 was a solid year for the industry, with many managers adding value on both the long and short sides of their portfolios. Hedge funds can doubly benefit from an improved environment for stock picking, as they can add alpha through their research on both sides of their book. For example, in struggling areas like retail and energy, managers have found ample opportunities to enhance return, as opposed to simply "hedging" exposure. If the favorable stock-picking environment continues, we believe that good hedge fund managers will be beneficiaries. We seek to balance our exposure to "blue chip," hard-to-access managers with newer, smaller, nimbler funds that offer differentiated portfolios and less correlation with the overall industry.

OUR FRAMEWORK FOR EVALUATING INVESTMENT RISK

The investment industry, at its core, spends its days focused on two fundamental concepts: return and risk. Knowing this, we are constantly amazed to see how the industry has, for decades, perpetuated a model for thinking about risk that fails to truly address its clients' long-term goals.

Many readers may be familiar with Modern Portfolio Theory (MPT), a concept that forms the basis for many investment frameworks in use today. In the simplest terms, MPT offers a model for "optimizing" a portfolio in terms of expected return relative to assumed risk.

MPT uses volatility as its sole proxy for risk; more volatility is equivalent to more risk within the MPT construct. While this idea is simple and elegant (and undeniably helpful in a variety of applications), we think this definition of risk is too narrow. To be specific, ***it does not effectively measure the actual probability that a portfolio will or won't meet an investor's needs.***

Why, then, has volatility become the de facto standard for measuring investment risk? Largely because volatility is a fairly simple concept and easily calculated, while true risk is not easily calculated. True risk is a function of numerous external factors, as well as the subjective perceptions and circumstances of each individual investor. In other words, volatility is a helpful shortcut for thinking about risk, but it is not a fully effective proxy.

We constantly consider four primary portfolio risks as part of our ongoing work managing balanced portfolios:

1. **Outsized and/or extended drawdown in market value:** When a decline in a portfolio's value threatens its ability to meet near-term needs, such as income generation
2. **Illiquidity:** When sufficient assets cannot be sold for cash, if and when cash is needed
3. **Insufficient long-term growth:** When a portfolio does not keep up with required returns
4. **Permanent impairment of capital:** When an irreversible investment loss occurs, or an investor exits an investment at a low point and misses its rebound

Each of these risks can be quantified to some extent. Additionally, we also grapple with a fifth, less quantifiable risk of **adverse decision-making**—the risk that an investor acts against his or her own best interest. This risk can manifest for many reasons—often due to fear about negative consequences, or "irrational exuberance" about perceived opportunity. Such decisions can produce any of the four quantifiable risk outcomes listed above, so it is important to think about this topic carefully as we counsel clients—and monitor our own decisions.

Note that "volatility" is not on this list. Volatility plays a role in all of these risks; volatility can heighten the likelihood of a drawdown in market value, or signal a drop in confidence regarding an investment's long-term growth expectations, and so forth. But in and of itself, volatility has little impact on a portfolio's long-term trajectory.

There are no shortcuts when assessing risk. We can only adequately evaluate risk for clients by using a comprehensive framework that takes all of the hazards listed above into account. In the following pages, we will discuss each of these risks, as well as some of the things we think about when seeking to manage them.

Adverse Decision-Making Risk: The Perils of Greed and Fear

Of all the risks we monitor, perhaps the most important—and most insidious—is the behavioral risk of adverse decision-making.

Throughout history, investors have hurt themselves over and over again by buying or selling the wrong investments at the wrong times. A notable recent example can be seen in the tremendous outflows from equity mutual funds that began during the late stages of the 2008–09 financial crisis and continued into the subsequent recovery. According to Morningstar, the Vanguard 500 Index Fund (a bellwether for broad-market behavior) had a 10-year trailing return of 8.4% as of the end of 2017, but the average investor in the fund experienced only a 4.0% return. In other words, due to poorly timed entries and exits, the average investor in this Vanguard fund missed out on over half of its returns!

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Five Risk Scenarios For 2018

The global economy entered 2018 with positive momentum, thanks in part to synchronized growth across developed and emerging countries. However, the improving growth and absence of volatility conceals some still-meaningful geopolitical and economic risks that could produce sustained and substantial impacts on markets. As noted earlier, volatility in February was a strong reminder that the market is highly sensitive right now to both real and perceived risks.

We never claim that we can predict future events with certainty, particularly in the political realm. But we do find value in a probabilistic mindset, in which we weigh the potential impacts of different risk scenarios that may unfold. Ultimately, our goal is to construct portfolios that aren't overly exposed to any particular risk factor. We believe this approach gives us the best opportunity to generate attractive returns across a wider range of market outcomes.

Our level of concern about a given risk scenario depends on three things: its likelihood of occurring, its potential impact on our portfolios, and the length of time that the impact would be felt (i.e., how long it would take to recover lost value). Risks that rank highly on these criteria tend to be the ones that capture our attention and time. **In this report, we highlighted the five risks that we view as most meaningful at present; each of these risks will be profiled in sections throughout the rest of this publication.**

We are cognizant of other risks besides the five we highlight in this report, but in our view, these are less likely to occur, or would produce lower investment impact if they do occur. For example, we are mindful of U.S. political risk stemming from the midterm elections in 2018; there is a meaningful chance that Democrats take control of Congress, an event that would likely disrupt market assumptions that are based on the Trump administration's agenda. We have also considered the risk of a mass exodus from risk assets where investments were contingent on low volatility, and the risk of a "Japanification" of developed world markets that leads to falling growth, rising debt and potential deflation. However, as noted, we believe these risks are broadly less likely to impact markets materially over a prolonged period of time than the ones highlighted in this report.

We want to emphasize that try as we might, we can never foresee every potential scenario. The future will always bring unforeseen risks that surprise investors and upend markets. That is why we are so insistent about portfolio diversification—it is the only way to pursue long-term investment targets while still maintaining the ability to survive and succeed across a wide range of scenarios.

KEY RISKS WE ARE WATCHING IN 2018

	Risk	Probability	Potential Impact
1	Interest rates rise significantly	Moderate	Higher rates could lead to a decline in corporate profitability and cause equity market valuations to fall.
2	China's "credit bubble" bursts	Low	Slowdown in China and China-related economic activity would likely impact global equity markets. Asian markets would likely experience the most severe setbacks.
3	Protectionism vanquishes global trade	Low	If trade barriers rise, multinational corporations would likely see decreased profitability.
4	North Korean tension escalates into military conflict	Low	Global outcome would depend on severity, but most scenarios would likely hurt economic activity and valuations in the North Pacific.
5	"Upside risk" that elevated stock valuations shift even higher	Low	Current equity investors would see a one-time benefit, but would likely experience lower long-term returns after the readjustment. This scenario would also hurt cautiously allocated portfolios.

There are a variety of behavioral biases that cause these adverse decisions. Two major issues that plague investor decision-making are ***recency bias*** and ***loss aversion.*** Both of these behaviors are reinforced by thousands of years of human evolution.

- ***Recency bias*** causes people to overestimate the probability of recent events repeating themselves. Pattern recognition was very useful to our ancestors when they hunted prey or sought to avoid the animals who hunted them. However, reliance on patterns is less helpful as a guide to the dynamism of financial markets.
- ***Loss aversion*** is an outcome of fear or pain avoidance. Again, this tendency helped primitive humans when the loss of the day's food would lead to starvation, or moderate injury would leave them vulnerable to death at the hands of predators or the elements. Fortunately, most of us are no longer threatened by these dangers, but the instinct remains, and often leads us to overly conservative choices. Psychological studies repeatedly show how people generally react more strongly to potential pain or loss than they do to potential pleasure or gain. In investing, this can cause people to forgo potential opportunities due to a strong desire to avoid losses.

In the aftermath of the financial crisis, these two behavioral biases led many investors astray: They overestimated risk in the equity market due to declines they had just seen occur in 2008 and early 2009 (*recency bias*), and sold equities or held cash to avoid further blowback (*loss aversion*). As noted earlier, these behavioral risks often lead to a more concrete risk outcome. In this example, investors suffered a permanent impairment of capital that may have imperiled longer-term investment goals, in order to avoid a more immediate perceived threat.

This is an extreme example, but it highlights an unavoidable truth of investing: All investment decisions involve risk. Investing creates the risk of loss; withdrawing from investments creates the risk of missed opportunity. All

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FIVE RISK SCENARIOS FOR 2018:

1 Interest rates rise significantly

Low interest rates and contained inflation have had far-reaching impacts on capital markets. Central bank balance sheets have more than tripled to over $14 trillion in value since the 2008-09 financial crisis. For the first time since the aftermath of the Great Depression, short-term interest rates were pegged near zero for a multiyear period. Low interest rates have discouraged investors from holding cash and encouraged them to carry low-cost debt and take on risk; as a result, we have seen a steady rise in valuations. The volatility in February 2018 was largely a reaction to fears of rising rates, and how that may threaten current valuations.

Both businesses and individuals have been able to borrow inexpensively, resulting in manageable debt service levels but growing debt loads. Home prices in the U.S. are higher today relative to income than in 2007, in large part because the average mortgage payment is lower. Similarly, prices for leveraged buyouts are higher today than they were 10 years ago, because buyers can access inexpensive credit in the high-yield bond market; global stocks trade at higher multiples today due to lower bond yields and earnings yields. A mitigating factor is that the financial system is far less levered today than it was in 2007.

If interest rates rise substantially, we may see a reversal of these recent gains. This risk has been present for several years, but we (and many others) are more focused on it now because central bankers appear poised to end this era of easy money. The Federal Reserve has been raising rates for two years and is unwinding its bond-purchasing program. Similarly, the European Central Bank recently announced that it expects to cut its bond-buying program in half in 2018. Japan's bond-buying program has also quietly slowed. What happens as these central banks—by far the biggest bond buyers in the world—shrink their holdings?

This interest rate cycle may be different from past cycles in a few meaningful ways, which makes estimating its potential impact on markets more challenging. One notable difference is the sheer magnitude of monetary easing in recent years, and the unquantifiable impact it has had on rising asset prices. We know that rates and central bank policies have impacted valuations in recent years; we don't know by how much, but we do know that investors have been led to riskier asset classes at least in part due to the absence of yield and value available from cash and government securities. If rates move quickly to higher levels, many investors will seek to reallocate to take advantage of higher yields in stable assets, so it seems rational to at least prepare for a correction in equity markets and other risk assets.

However, central banks are tightening monetary policy at a much slower pace than they have in the past. This is largely in response to conditions such as fairly modest inflation and relatively low growth rates. Inflation has remained stubbornly low, partly due to the impact of globalization, as well as technological advancements in certain sectors that have driven down prices for goods and services. High debt levels, slow growth and a relatively weak labor market have also kept inflation at bay. Memories of the 2008-09 and subsequent Eurozone crises are still fresh in policymakers' minds, and there is a real chance that monetary policy may remain accommodative even if inflation were to rise a bit above the targets of central bankers. We also note the lower economic growth rates across developed economies; in the past, central banks have hiked rates in response to higher GDP growth and expectations of inflation. Without those expectations, they may be less likely to move swiftly.

Thus, we are watching most closely for indications of rising inflation, particularly without signs of improving growth. A tightening labor market in the U.S. or a shift toward protectionist trade policies could lead central bankers to raise interest rates more quickly than anticipated. This would increase the probability, in our view, of a more significant negative outcome for global markets.

Our Positioning

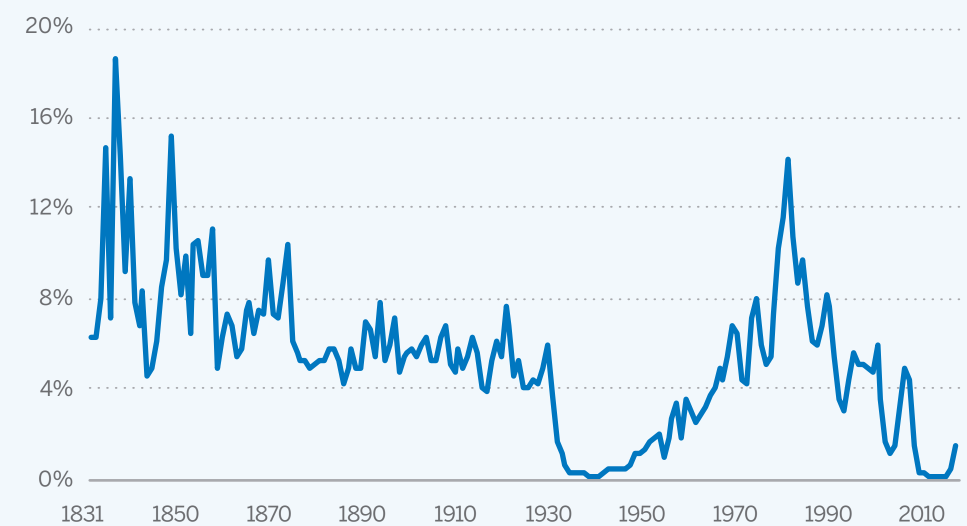
We believe that a rapid spike in rates is unlikely, but it could produce notable negative impacts if it occurred. We are seeking to limit exposure to highly interest rate-sensitive investments, especially ones whose valuations were impacted by recent policies.

- We are modestly underweight both equity risk and interest rate risk in our portfolios.
- We have pursued some fixed income strategies in which rate risk is somewhat hedged.
- We have tried to limit exposure to yield-oriented equities; across strategies, we have meaningful positions in financial firms that we believe should benefit from higher rates.
- We have also reduced exposure to purely yield-oriented real estate. (In contrast, we are more comfortable with value-added real estate strategies, which produce return primarily through price appreciation, not yield. These tend to be less sensitive to interest rate movements.)

Are Interest Rates Poised for Generational Turn?

For many years after the financial crisis, U.S. interest rates were held near zero, in a pattern not seen since the Great Depression. As rates begin to tick upward, investors need to focus on the factors that are driving rate hikes. Currently, a healthy economy has allowed for gradual rate increases that have had minimal impact on markets. But a spike in inflation could force a more rapid hiking cycle, and potentially hamper returns for both equities and bonds.

U.S. SHORT-TERM INTEREST RATES, 1831–2017



SOURCE: U.S. FEDERAL RESERVE

2 China's "credit bubble" bursts

In response to the financial crisis, China launched a massive economic stimulus (backed in large part with money borrowed by state-sponsored companies) that pumped hundreds of billions of dollars into infrastructure projects aimed at boosting economic growth. When its economy slowed again in 2016, the government launched yet another round of stimulus, aimed at many of the same sectors of the economy. In early 2017, Chinese President Xi Jinping announced plans for up to $1 trillion of spending on China's One Belt, One Road initiative—a series of infrastructure investments on the scale of the Marshall Plan across many countries in which China has economic and political ties.

While the rest of the world has been tightening its collective belt, China has been borrowing heavily to invest. It has nearly doubled its total corporate borrowings in U.S. dollar terms over the past five years, adding over $13 trillion in debt to its economy. In 2017, China's corporate debt eclipsed that of the U.S., and its debt balance is now more than 250% of its GDP.

Xi unveiled China's latest stimulus ahead of the Communist Party's National Congress, an important political event held every five years. China generally signals economic strength through ambitious stimulus in advance of these meetings, but often pulls back on stimulus afterward.

We wonder if this time will be any different. China has stabilized its GDP growth at a lower level today (approx. 7%) vs. 10 years ago (approx. 14%). But it has done so through debt-fueled infrastructure investments that have become less impactful over the years. The ratio of Chinese GDP growth vs. total debt growth averaged 0.89 from 2005–2011; from 2012 onward, that figure dropped to 0.57. This suggests that its debt spending has become less effective as an economic growth lever. While China has produced some global leaders in numerous corporate sectors, its economy remains stubbornly tied to government-led infrastructure investment. It has thus far failed in its effort to transition to a consumer-led economy; its fixed asset investment represents about 45% of GDP, nearly twice the global average and essentially unchanged vs. 10 years ago.

Meanwhile, prices for numerous infrastructure-related commodities have skyrocketed in China; copper and coal prices have nearly doubled since 2015, and steel prices have nearly tripled. Real estate prices in China have also risen markedly. Home prices in Shanghai, Beijing and Shenzhen have surpassed those in New York City despite the fact that average incomes in those cities are less than one-quarter of average New York incomes. Chinese homeowners are increasingly financing their homes as opposed to purchasing them with cash, and the Chinese mortgage market has tripled in size in the past five years.

Considering all of this, it is no wonder that some fear the formation of a Chinese credit bubble that is poised to burst. Such a scenario would undoubtedly have economic impact across the world; China has accounted for more than one-third of global GDP growth in recent years (more than double the contribution of the U.S.). China is an essential driver of our long-term global growth expectations.

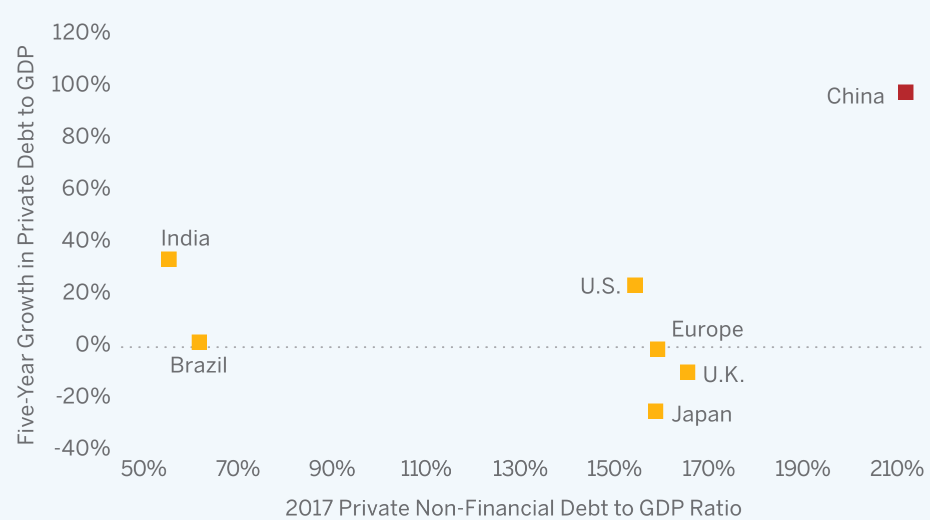
However, some mitigating factors may decrease the chances of a "hard landing" in China. It has a much lower federal debt/GDP ratio (46%) than most developed countries, and its population has one of the highest savings rates in the world. In addition, the Xi government has expressed support for financial reform; it has worked hard to curb real estate and investment speculation while also seeking more liberal international trade and open capital markets. China's debt is still held mostly by domestic investors (including its state-owned banks); its situation looks more like Japan in the late 1980s (when heavy debt led to a slow economic decline), and less like Southeast Asia during the mid-1990s or the U.S. in 2007 (when credit bubbles led to sharper economic crises). Finally, China's centralized control of its economy gives it enormous flexibility to act quickly and address credit issues as they arise.

There have been plenty of investors calling for a hard China landing for many years. It may never come, but if a bear scenario on China develops, we believe that it may look more like a gradual, drawn-out slowdown than a crisis moment.

On Debt Growth, China Stands Alone

China has grown its debt levels tremendously in recent years compared to other major world economies. The debt/GDP ratio is a key leverage metric for any economy, and looking at how that ratio is growing illustrates the extent to which borrowing is outpacing economic growth. China's private debt/GDP ratio has grown far more rapidly than that of other major economies.

KEY TRENDS IN REGIONAL DEBT GROWTH, 2012–2017



SOURCE: BANK FOR INTERNATIONAL SETTLEMENTS

Our Positioning

- We maintain an overweight in emerging Asian equities in our portfolios but with a meaningful underweight to China specifically.
- We consistently seek to minimize exposure to segments of the Asian markets vulnerable to a credit-led slowdown. These include state-owned enterprises, commodity-focused companies, real estate and any companies that rely heavily on borrowed funds.
- However, there are still consumer-oriented businesses that cater to China's growing economy and have little or no reliance on credit. We are comfortable with our exposure to these firms through the portfolios of our emerging-market managers.

investors need to remember this truth, consider the risks involved in each available choice, and weigh those risks objectively. If investors let instinct prevail over logic, they may overreact to one risk or ignore another, and end up jeopardizing progress toward their long-term goals.

Drawdown Risk: The Investment Roller Coaster

"Drawdown" is a very broad term. It can refer to any situation in which an investment declines in value. The downside volatility in February 2018 was certainly a drawdown in technical terms; while certainly painful, we are more focused on the potential for such corrections to turn into more "serious" downturns, which we define as true bear markets (declines of 20% or more) that are protracted (over a period measured in years, not months).

By this definition, we believe that drawdown risk is the most relevant medium-term risk for investors at any given time. Outsized and/or extended drawdowns can threaten a portfolio's ability to meet an investor's immediate goals, such as income generation. Depending on an investor's allocation mix and time frame, drawdowns of this nature may also put that investor's long-term goals further from reach, or out of reach entirely, requiring a reassessment of long-term goals and plans.

The problem is that drawdowns are highly unpredictable—there is really no way to know when they will occur, how long they will last, or by how much values will decline. The challenge is one of statistical significance. Because large market drawdowns occur infrequently (at least from a statistical perspective), we simply don't have enough data to support conclusions with a high degree of confidence. The S&P 500 Index has had only 19 drawdowns of 10% or more over the last 50 years. Statisticians would want to see at least 30 drawdown examples before they would feel confident drawing any conclusions from the data.

This sample size challenge is one reason why investors like to think about volatility—or, in statistical parlance, standard deviation—as a proxy for drawdown risk. The two concepts are clearly related, and we have a *very* large sample size of many thousands of observations to draw upon when it comes to the volatility of daily or weekly market returns. Thus, investors use standard deviation as a convenience when they want to extrapolate the probability of a large market drawdown.

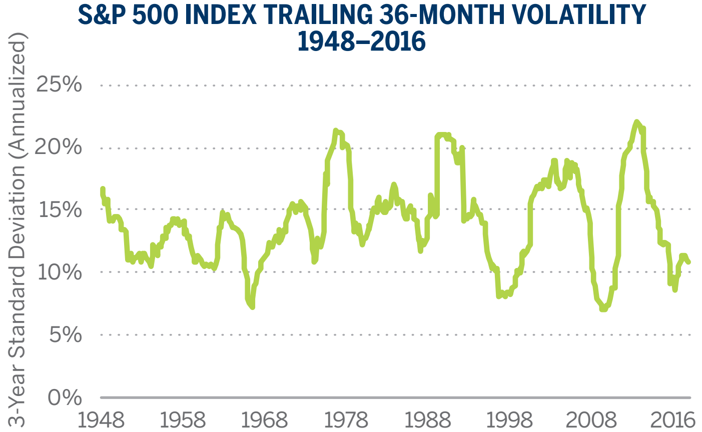
It isn't that simple. The problem comes down to two basic rules of statistical analysis. To draw meaningful conclusions about drawdowns from volatility, the volatility of returns needs to be constant, and results need to conform to a normal "bell curve" distribution.

Financial markets do not meet either of these conditions. The volatility of the S&P 500 Index has not been constant over time; it has varied from under 10% to over 20% *(see chart below)*. If anything, the fluctuation has increased in the past few decades.

Additionally, market returns do not conform to a normal "bell curve" distribution—extreme tail events occur more often than what one would expect in a normal distribution. For example, over the past 50 years, the S&P 500 Index has produced an approximate average annualized return of 10% with a standard deviation of 15%. If the Index's annual returns followed a bell curve distribution, it should produce a 35% decline (three standard deviations from the average return) once every 300 years. Instead, we've had two such declines in the past 20 years.

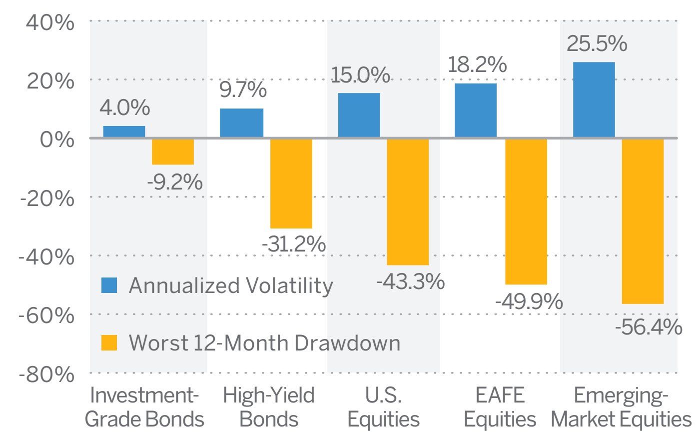
Volatility may be limited as a predictor of returns, but history shows that it is still helpful in understanding risk.

S&P 500 INDEX TRAILING 36-MONTH VOLATILITY 1948–2016



SOURCE: BLOOMBERG

VOLATILITY VS. LARGEST ONE-YEAR DRAWDOWNS 1970–2017



SOURCE: BLOOMBERG. PLEASE SEE THE END OF THIS REPORT FOR A COMPLETE LIST OF INDEXES USED TO REPRESENT THE HISTORICAL RETURNS OF VARIOUS ASSET CLASSES AND REGIONS.

As we see in the chart above, more volatile asset classes have produced deeper one-year drawdowns since 1970. This information is an important ingredient in our decisions about asset allocation and portfolio construction, from an objective perspective as well as from the perspective of individual clients and their specific circumstances.

By examining this information alongside other related metrics, we can start to determine the drawdown risk of different potential portfolio allocations. We also include estimates for diversification benefits across asset classes—for example, the worst periods for stocks and bonds have not coincided historically, so holding complementary allocations in both asset classes may reduce a portfolio's "worst drawdown" risk. All of this analysis feeds into our recommendations for core asset allocations that match the specific return goals and risk tolerances of our clients.

In any asset allocation, equity assets are likely to be the main driver of portfolio drawdown volatility. In most investment portfolios, equities are the primary growth asset, and they exhibit higher drawdown risk than other core portfolio assets, such as investment-grade bonds. Therefore, to understand what drives portfolio drawdowns, it is important to understand what drives equity market downturns. In the table on page 19, we summarize

(continued on page 19)

2018 ASSET ALLOCATION VIEWS

We present our current asset allocation stance in the chart on pages 16–17; the chart summarizes our long-term (approximate 10-year time horizon) target ranges for various asset classes, as well as our medium-term (approximate two-year time horizon) target allocations within each of those ranges. *If you would like more information about how we develop our allocation models, we invite you to read our 2017 report, "Balance in an Uncertain Time," in which we discussed our asset allocation process in detail.*

Long-Term Outlook/ Changes to Long-Term Target Ranges

Our asset allocation views are strongly influenced by our long-term return estimates across asset classes. The key inputs that drive our long-term return estimates are *starting valuations*, *interest rates* and *economic growth expectations* (or potential GDP growth). Our high-level outlook has not changed much from last year: We expect moderately lower long-term returns in many asset classes vs. previous decades, given slower potential GDP growth across all geographies, interest rates near all-time low levels and generally elevated valuations.

In 2017, we adjusted some of our long-term allocation ranges, specifically in U.S. equities and in high-yield bonds. Valuations in both asset classes have marched higher, resulting in meaningfully lower forward return estimates. We have gradually allocated away from these asset classes and increased our exposure in developed non-U.S. equities, where valuations are relatively more attractive and an improvement in global growth will provide a boon to these stocks. Overall, we are maintaining underweight exposure to both traditional stocks and bonds, and allocating toward differentiated asset classes, such as hedge funds, private equity, real estate and unconstrained bond funds.

Medium-Term Outlook/ Changes to Scenario Analysis

The base-case scenario for our medium-term outlook is continued steady economic growth, low to moderate inflation and gradual steps by the Fed to raise rates and normalize its balance sheet. Central banks across the globe are likely to maintain accommodative policies as inflation remains muted and global growth continues to pick up.

(continued on page 18)

2018 LONG-TERM RETURN ESTIMATE SUMMARY

Equity Market	Current P/E Ratio	Trend GDP Growth Rate	Current Interest Rate	Starting Valuation	Expected GDP Growth	Interest Rate Expectation	Baseline 10-Yr. Return Expectation
U.S.	20.0	2.3%	2.4%	High	At Trend	Somewhat Higher	6.4%
U.K.	15.6	2.1%	1.3%	High	Below Trend	Somewhat Higher	5.9%
Europe (ex. U.K.)	16.5	1.5%	0.4%	High	Below Trend	Somewhat Higher	5.7%
Japan	15.1	0.7%	0.1%	High	Below Trend	Somewhat Higher	5.1%
Asia (ex. Japan)	14.8	7.8%	3.4%	Moderate	Below Trend	Steady	7.9%
Latin America	15.8	2.7%	5.4%	Moderate	At Trend	Lower	7.5%

SOURCES: BLOOMBERG FOR CURRENT P/E RATIO AND CURRENT INTEREST RATE; WORLD BANK FOR TREND GDP GROWTH RATE; BROWN ADVISORY ANALYSIS FOR ALL OTHER INFORMATION. ALL DATA AS OF 12/31/17. PLEASE SEE THE END OF THIS REPORT FOR A COMPLETE LIST OF INDEXES USED TO REPRESENT THE RETURNS AND CHARACTERISTICS OF VARIOUS ASSET CLASSES AND REGIONS.

2018 ASSET ALLOCATION VIEWS

Long-Term Ranges/Medium-Term Targets

Note: Asset allocation ranges and targets presented in the table are intended for U.S.-dollar based portfolios.

Factors		U.S. Equities	Europe and U.K. Equities	Japan Equities	Asia Equities (ex. Japan)	Latin American Equities	Investment-Grade Bonds
	graphic not to scale	Top of Range: 35% Target: 26% Bottom of Range: 25%	Top: 15% Target: 13% Bottom: 5%	Top: 8% Target: 2% Bottom: 0%	Top: 10% Target: 7% Bottom: 3%	Top: 7% Target: 2% Bottom: 0%	Top: 35% Target: 24% Bottom: 20%
Long-Term (10 years)	**Expected Baseline Return**	6.4%	5.7%	5.1%	7.9%	7.5%	3.5%
Long-Term (10 years)	**Alpha Opportunity**	0–1%	2–3%	2–3%	3–4%	3–4%	0–1%
Long-Term (10 years)	**Drawdown Risk**	35–45%	40–50%	45–55%	50–60%	55–65%	5–8%
Medium-Term (2–3 years)	**Valuation**	Slightly Negative	Neutral	Slightly Positive	Positive	Neutral	Slightly Negative
Medium-Term (2–3 years)	**Macroeconomics**	Neutral	Slightly Positive	Negative	Neutral	Neutral	Slightly Negative
Medium-Term (2–3 years)	**Most Favorable Scenarios**	Global and/or U.S. acceleration	Global acceleration, emerging market rebound	Global acceleration	Emerging market rebound	Emerging market rebound	Hard China landing, geopolitical conflict
Medium-Term (2–3 years)	**Least Favorable Scenarios**	Inflation, anti-globalization	Anti-globalization	Geopolitical conflict	Hard China landing, geopolitical conflict	Anti-globalization, hard China landing	Global acceleration, inflation heat

Factors		High-Yield Bonds	Hedged Strategies*	Commodities	Private Equity*	Real Estate*	Private Credit*
	graphic not to scale	Top of Range: 10% Target: 3% Bottom of Range: 2%	Top: 15% Target: 8% Bottom: 5%	Top: 5% Target: 0% Bottom: 0%	Top: 15% Target: 8% Bottom: 5%	Top: 8% Target: 5% Bottom: 2%	Top: 8% Target: 3% Bottom: 2%
Long-Term (10 years)	**Expected Base Return**	4.8%	4.2%	3.1%	9.8%	8.3%	8.0%
Long-Term (10 years)	**Alpha Opportunity**	1–2%	2–3%	0%	3–7%	3–5%	2–4%
Long-Term (10 years)	**Drawdown Risk**	20–25%	25–30%	40–50%	50–60%	25–30%	20–25%
Medium-Term (2–3 years)	**Valuation**	Slightly Negative	Slightly Negative	Slightly Negative	Slightly Negative	Slightly Negative	Neutral
Medium-Term (2–3 years)	**Macroeconomics**	Slightly Positive	Neutral	Neutral	Neutral	Slightly Positive	Slightly Positive
Medium-Term (2–3 years)	**Most Favorable Scenarios**	Global and/or U.S. acceleration	Global and/or U.S. acceleration	Inflation	Global and/or U.S. acceleration	Inflation	Global and/or U.S. acceleration
Medium-Term (2–3 years)	**Least Favorable Scenarios**	Inflation heat	Inflation, anti-globalization	Hard China landing	Inflation, anti-globalization	Anti-globalization	Combination of inflation and slow growth

*Alternative investments may be available for qualified purchasers and/or accredited investors only.

SOURCE: BROWN ADVISORY ANALYSIS

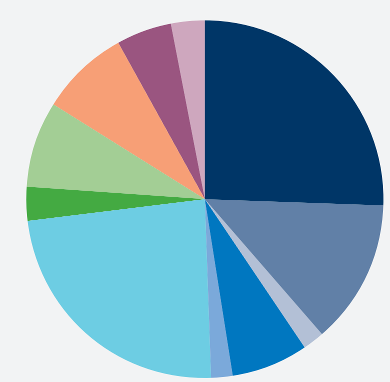
Notes

The **long-term ranges** in the chart (depicted by the vertical lines) express what we consider to be prudent boundaries for each asset class in a typical, long-term-oriented portfolio, given our 10-year outlook for that asset class. We consider a variety of factors in setting these boundaries; three of the most important drivers of our thinking are our expectations for **baseline 10-year annualized return**, maximum likely **drawdown risk** over a 12–18 month period, and finally the **alpha opportunity** we think we can reasonably achieve from selection of adept managers.

The **medium-term targets** in the chart (depicted by the hollow dots placed along each vertical line) express our current guideline for where to position portfolios within each asset class, based on a disciplined process in which we develop a number of potential market scenarios that may play out in the next two to three years, and then assess the likely performance of various asset classes within each of those scenarios. An essential goal of this exercise is to select targets that we believe offer us the **best aggregate outcome across all potential scenarios,** as opposed to any attempt to pick the "right" scenario and build an investment plan dependent on that scenario playing out.

Below, we compiled our medium-term targets into a summary graphic, but we want to strongly emphasize that this is not a "model portfolio" that we would implement with any specific client. We are opposed to the concept of applying universal model portfolios to broad groups of clients. Instead, we use our asset allocation research as a foundation, from which we tailor every client's portfolio specifically to address their return goals, risk tolerance, liquidity needs and other factors unique to their circumstances.

Medium-Term Allocation Targets as of 12/31/2017



U.S. Equities	26%
Europe and U.K. Equities	13%
Japan Equities	2%
Asia Equities	7%
Latin American Equities	2%
Investment Grade Bonds	24%
High-Yield Bonds	3%
Hedged Strategies	8%
Commodities	0%
Private Equity	8%
Real Estate	5%
Private Credit	3%

Numbers may not add to 100% due to rounding.

We have adjusted our medium-term outlook for several scenarios since last year:

- **We believe that our "U.S. acceleration" and "Anti-globalization" scenarios are less likely.** U.S. labor markets are healthy with little slack, but wage growth and inflation have been muted. U.S. economic growth is likely to remain stable, but with the Fed raising rates and the economic cycle in the U.S. aging, the chance of an acceleration in U.S. growth appears less likely. Our concern about protectionism hurting trade has also waned slightly *(see page 21)*.

- **"Global acceleration" is more likely.** The economic recovery in markets outside the U.S. since the recession had been tepid at best, but 2017 marked a renewed acceleration in global economic activity. Central bankers across the globe will likely keep policies loose, which would support economic activity and could be a boost for non-U.S. stocks going forward.

- **"Geopolitical conflict or instability" is a new scenario.** While the economic environment has improved, political uncertainty remains quite high. The risk of policy missteps or of rhetoric causing geopolitical conflicts to escalate could rattle markets and catalyze a market sell-off. While we consider political developments, we never construct portfolios around geopolitical outcomes—it is exceedingly difficult to estimate their probability or their potential impact on markets.

2018 SCENARIO ANALYSIS SUMMARY

Base-Case Scenario	Bear-Case Scenarios	Bull-Case Scenarios
Steady as It Goes Moderate developed market growth with 2–3% growth expected in most major economies. The Fed gradually raises rates to 2–2.5% by the end of 2018. Inflation gradually rises as economic slack dissipates. *Most Likely Scenario*	**Anti-Globalization** Nationalist political forces continue to rise, leading to protectionist policies and rising geopolitical tensions. Global trade suffers, impacting global economic growth. *Low Likelihood*	**Global Acceleration** Global economic activity accelerates, but economic slack keeps inflation modest. *Moderate Likelihood*
	Inflation Heat Inflation rises as employment in U.S. and Europe reaches near-full levels, and in reaction, central banks rapidly curtail stimulus and raise interest rates faster than markets anticipate. *Moderate to Low Likelihood*	**Emerging Market Rebound** Nascent cyclical improvements in China and Brazil bear fruit, leading to a broad rebound in emerging markets. *Moderate to Low Likelihood*
	Geopolitical Conflict or Instability Geopolitical tensions, most likely stemming from North Korea, escalate to the point where open conflict occurs or seems to be an imminent possibility, causing global economic confidence to wane and economic activity to slow. *Moderate to Low Likelihood*	**U.S. Acceleration** U.S. economic growth sees a boost from potentially stimulative policies, increased business investment and steady household consumption. *Low Likelihood*
	Hard China Landing China's growth slows considerably, leading to capital flight and rising default rates, potentially creating a negative spiral. *Low Likelihood*	

SOURCE: BROWN ADVISORY ANALYSIS.

What Drives Equity Market Drawdowns?

Since 1968, downturns in the equity market that did not coincide with recessions were generally short and shallow. Downturns during recessions (highlighted in gray below) were generally longer and more severe.

Start Date for Downturn in S&P 500 Index	Length of Correction (Months)	Percentage Drop	Time to Recover to Previous Peak (Months)
11/29/68*	**18**	**-36.1**	**21**
04/28/71	7	-13.9	2
01/11/73*	**21**	**-48.2**	**83**
09/21/76	18	-19.4	17
09/12/78	2	-13.6	9
10/5/79	1	-10.1	3
02/13/80	1	-13.7	4
11/28/80*	**21**	**-27.1**	**3**
10/10/83	10	-14.4	6
08/25/87	3	-33.5	20
10/9/89	4	-10.2	4
07/16/90*	**3**	**-19.9**	**4**
07/17/98	2	-19.3	3
03/24/00*	**31**	**-49.1**	**56**
11/27/02	3	-14.7	2
10/9/07*	**17**	**-56.8**	**49**
04/23/10	2	-16.0	4
04/29/11	5	-19.4	5
05/21/15	9	-14.2	5
01/26/18	?*	-10.2*	?*
Averages:			
Overall	9	-23.7	16
Recession*	17	-38.7	34
No Recession	5	-16.4	6

SOURCE: BLOOMBERG. *AS OF FEBRUARY 13, 2018.

which recent drawdowns in the S&P 500 Index coincided with recessions, and which did not. We can see the clear differentiation: During recessions, the downturns were predominantly serious bear markets with an average decline of nearly 40% and an average duration of more than four years (with 17 months of decline and 34 months of recovery). Downturns that did not coincide with recessions were much shorter and milder. Therefore, our assessment of drawdown risk goes hand in hand with our assessment of recessionary risk. For example, despite recent market volatility, we believe that the risk of recession in the current environment is relatively low.

A final note on drawdown risk: History confirms that the occurrence of drawdowns is fairly random. For example, there were four drawdowns in less than four years in the late 1970s, but there was an eight-year span without a single correction between 1990 and 1998. For this reason and many others, we do not believe it is particularly useful to try and predict if or when a correction will occur, or even if or when a recession will occur. Later in this discussion, we will delve deeper into why we think market-timing efforts make little sense for long-term investors. Rather than trying to predict a specific market outcome, we focus on balancing portfolios to perform well in a wide range of market outcomes, tilting towards the asset classes that we believe offer the best risk-adjusted returns.

Illiquidity Risk

Illiquidity risk represents the probability that an investor will not be able to convert an investment into cash (i.e., liquidate it) when they need to do so. It manifests primarily in two forms:

- **Structural illiquidity.** Various investments state liquidity terms up front. Hedge funds may require advance notice of several months (or years, in some cases) before an investor can liquidate an investment. Most private equity and venture capital investments do not offer redemption rights to limited partners, and investments are made with the expectation of commitment for the life of the fund. In cases of structural illiquidity, the "risk" is less about the probability of being able to convert the investment to cash, and more about whether the investor will need the money when structural terms prohibit them from liquidating.
- **Market illiquidity.** Assets that trade freely on exchanges are not immune to illiquidity risk. If there are few potential buyers for a public asset, sellers may need to accept a significant price discount in order to liquidate their holdings, if they are able to do so at all.

As we will discuss later, it is important to remember that illiquidity is not inherently negative. Many skilled investment managers are able to capitalize on the committed capital within an illiquid fund structure to great effect—in fact, the concept of an "illiquidity premium" is widely accepted due to the consistent long-term outperformance of locked-up private investment partnerships over public investment funds. For long-term investors, the willingness to take on illiquid commitments opens the door to specialized investments that can provide greater portfolio diversification, potentially greater return opportunity and access to inefficient markets.

In assessing the illiquidity risk in an asset or a portfolio of assets, structural liquidity is generally easy to identify. But market illiquidity is more of a challenge; one needs to dig into trading history data to reveal illiquid holdings, and often that data won't actually reveal an illiquid holding if conditions have changed recently to cause liquidity to evaporate.

Additionally, sometimes structural liquidity masks market illiquidity. In simpler terms, a fund may offer frequent liquidity to its investors, but that won't help if the fund's underlying holdings can't be sold to meet redemptions. In a recent well-publicized example, the Third Avenue Focused Credit Fund produced strong performance from 2009 through the middle of 2014, by investing primarily in high-yield bonds and building large positions in the lowest credit-quality segment of its universe. (We were not investors in this fund.) As the credit market weakened in 2014 and 2015, many investors began to redeem just as liquidity in credit (and specifically, in this fund's underlying holdings) was drying up. By December 2015, the fund suspended client redemptions and was forced to close—a classic example of a mismatch between *perceived* liquidity of a fund and *actual* illiquidity of its underlying assets.

We use a two-stage approach to manage illiquidity risk in client portfolios. First, before we introduce any structural illiquidity into a client portfolio, we ask how much illiquidity the portfolio can handle before the client's objectives are in danger, and also assess how much liquidity the client actually needs. Given a client's expected and potential need for cash in the immediate future and over the next five to 10 years, we will develop appropriate

(continued on page 23)

3 Protectionism vanquishes global trade

The global economy—multinational corporations in particular—benefited greatly from falling tariffs and growth in global trade in recent decades. However, over the past 10 years, that trend has reversed, with trade lagging the broader economy and dragging down overall growth levels. A key component of that trend has been the resurgence of protectionist sentiment. Protectionism represents a potential threat to global GDP growth, and also carries the potential to spur inflation higher through rising tariffs. We are constantly watching for any sign of acceleration of this trend, as that scenario might lead us to reduce our expectations for global growth and capital market returns.

Many feared that President Trump's election and the rise of nationalist parties in Europe would cause the balance to tip further toward protectionism, but in fact we saw an increase in global trade in 2017. Trade grew at its fastest rate in five years and outpaced the broader global economy. This is mainly due to synchronized growth across both developed and emerging markets, and a large uptick in China's international trade activities coinciding with its economic recovery.

Protectionist rhetoric from the White House and anti-globalization sentiment in Europe have been mixed compared to the dire predictions from some observers last year, and actions taken thus far have been mild. But political risk remains. Globalization has benefited global growth, but has also contributed to wealth and income inequality in many nations, a trend that has powered populist movements focused on immigration, trade restrictions and protection for domestic industries. Brexit was a direct result of this trend, and we are watching closely for similar situations that may change our outlook for both growth and inflation.

It is difficult to estimate the likelihood of these political outcomes, or how severely they would affect the global economy. President Trump has not yet implemented heavy trade limitations as discussed during his campaign, so at the moment, it seems unlikely that we will see draconian shifts in U.S. trade policy. We have little visibility into why this is the case; perhaps the White House also sees the potential for harming economic growth—a key measure of success (fairly or unfairly) for any presidential administration. If the administration were to heavily restrict trade with Mexico, Canada, the Eurozone or China, we would likely see retaliation from those trade partners. This scenario could produce a broadly negative impact across the world, and especially for the regions targeted by U.S. policies, for any nations where trade represents a high percentage of GDP, and for export-oriented companies in areas such as commodities, energy and industrials. We are watching NAFTA renegotiations closely for further signals about the future path for U.S. trade policy.

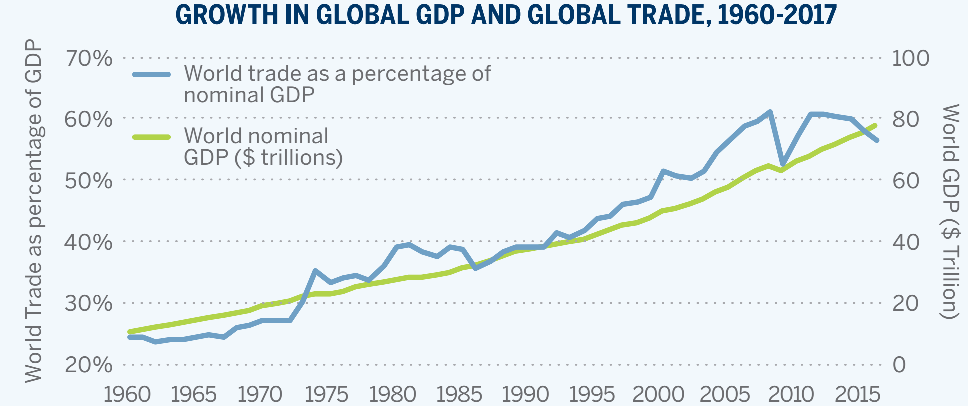
Our Positioning

- We are underweight in many regions that are potential targets of restrictive U.S. trade policy. In China, we emphasize domestically oriented companies less sensitive to trade; similarly, our U.S. small-cap holdings tend to be less dependent on foreign revenue than larger multinationals.
- Europe represents our greatest point of risk from this scenario. Many European companies we own are world-class exporters, but exporters nonetheless. We balance this risk against the compelling growth and valuation we see in Europe, and consider it a risk we are willing to take.

The Blessing (and Curse) of Globalization

The rapid increase of global trade has been a key driver of world GDP growth. But it has also contributed greatly to income and wealth disparities in many countries and catalyzed populist, protectionist movements in the U.S., U.K. and elsewhere. Any meaningful unwinding of global trade activity could threaten global growth and could also potentially spur inflation.

GROWTH IN GLOBAL GDP AND GLOBAL TRADE, 1960-2017



SOURCE: WORLD BANK

4 North Korean tension escalates into military conflict

The threat of North Korea's nuclear program definitively increased in 2017. North Korea may now possess a nuclear weapon capable of reaching the U.S. Moreover, the war of words between President Trump and the Kim regime has further degraded relations between the two countries.

While volatility has spiked briefly when Trump and Kim have traded barbs, for the most part, markets have not reacted to the increased potential for armed conflict. We are in no way an authority on this topic, but as investors, we clearly want to understand the probability and potential market impact of such a scenario.

To us—and again, we want to be clear that foreign policy is not our area of expertise—several factors seem to suggest a low probability of conflict, despite recent posturing on both sides. Historically, North Korea has used its nuclear program repeatedly as a leverage point in negotiating for concessions elsewhere. And despite inflammatory rhetoric, the U.S. is still committed to diplomatic options in practice. Neither side truly benefits from a war; North Korea would risk losing China's protection if it initiated hostilities, and most options for the U.S. carry terrible risk for South Korea given Seoul's proximity to the Korean DMZ.

How might markets react to an actual conflict between North Korea and the U.S. and/or South Korea? On one hand, we know that geopolitical shocks have had surprisingly little impact on markets historically *(see table below)*. This specific situation could lead to a much larger conflict between the U.S. and China, which could have disastrous implications for the global economy and modern civilization. But the mutual interdependence of the American and Chinese economies gives the two countries every reason in the world to avoid a war.

Any conflict would put South Korea at risk. Beyond the obvious military threat, South Korea also has deep economic ties to both China and the U.S., which could be threatened as well. Trade makes up nearly 80% of South Korean GDP, and over 40% of its exports go to China and the U.S.

Our Positioning

Frankly, we cannot prepare a portfolio for a war between global superpowers like China and the U.S. Fortunately, that scenario is extremely unlikely, at least in our view. The situation in North Korea is one of many reasons we are generally underweight risk assets in our portfolios. We are focused on owning high-quality equities that we believe can withstand adverse economic scenarios; meanwhile, we seek to balance this equity exposure with noncorrelated sources of return across different asset classes.

We are modestly overweight in South Korea, through our investments with specialist emerging markets and Asian managers that are devoted to bottom-up, fundamental research into each of their holdings. They have placed capital in South Korean companies only after careful consideration of the geopolitical risks involved. We note that the South Korean market trades at a notable discount to its Asian peers (approximately 11x earnings vs. 14x for the rest of Asia), despite similar quality and growth characteristics. This discount is partly due to the specific geopolitical risks faced by South Korea.

Shock Resistant

A conflict with North Korea would be a terrible outcome for many reasons, but if history is a guide, it probably would not produce a major U.S. stock market upheaval. Since World War II, **most major geopolitical shocks have led to fairly mild S&P 500 Index drawdowns,** and in recent decades, the market has fully recovered very quickly from these downturns.

S&P 500 INDEX RESPONSE TO SELECT GEOPOLITICAL SHOCKS, 1940–PRESENT

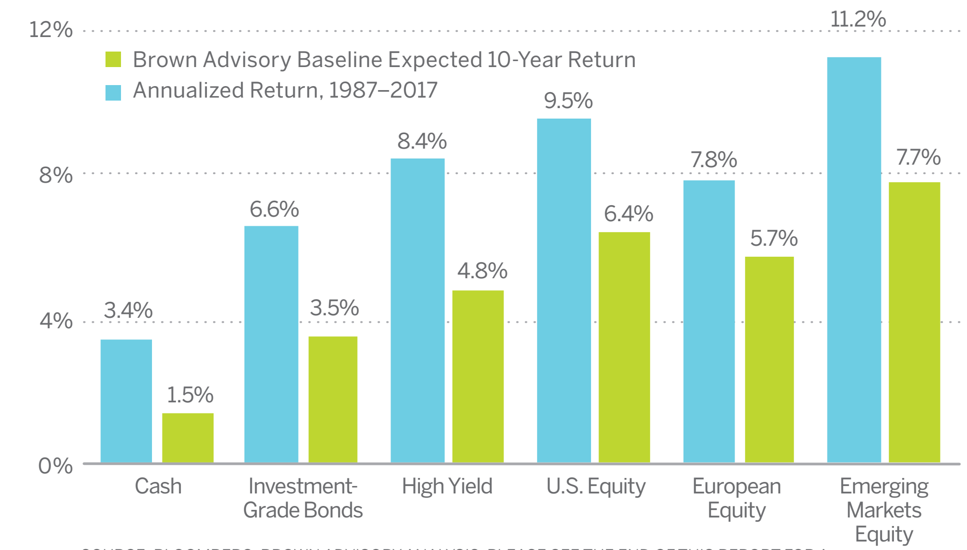
Event	Date	1-Day Return	3-Month Return	6-Month Return	Months To Recover
Germany Invades France	5/10/1940	-3.0%	-10.5%	-0.8%	32
Oil Embargo	10/16/1973	0.1%	-12.4%	-13.4%	27
President Nixon Resigns	8/9/1974	-0.9%	-6.1%	-0.2%	6
Iraq Invades Kuwait	8/2/1990	-0.9%	-10.4%	-0.6%	6
9/11 Terror Attacks	9/11/2001	-4.9%	4.4%	7.7%	1
Iraq War	3/20/2003	0.2%	14.2%	19.3%	1
Brexit	6/23/2016	-3.6%	3.0%	8.3%	1
Median		**-0.9%**	**-6.1%**	**-0.2%**	**6**

SOURCE: BLOOMBERG, BROWN ADVISORY ANALYSIS

The Rising Risk of Falling Growth Rates

As shown in the chart, our 10-year return expectations for cash, bonds, developed-market equities and emerging-market equities are all considerably lower than the returns those asset classes produced in recent decades. This has clear implications for any investor pursuing long-term growth with a balanced portfolio.

ANNUALIZED RETURNS, 1987–2017, VS. BROWN ADVISORY BASELINE EXPECTED 10-YEAR RETURNS



SOURCE: BLOOMBERG, BROWN ADVISORY ANALYSIS. PLEASE SEE THE END OF THIS REPORT FOR A COMPLETE LIST OF INDEXES USED TO REPRESENT THE HISTORICAL RETURNS OF VARIOUS ASSET CLASSES AND REGIONS.

guidelines for the percentage of portfolio assets that should remain in daily liquidity assets, vs. those of moderate liquidity (i.e., measured in months) or low liquidity (i.e., measured in years).

Second, for any fund with known structural illiquidity or potential market illiquidity (i.e., with an investment strategy that embraces illiquid investments), we do a specific deep dive on that fund to fully understand stated liquidity terms, the liquidity of underlying investments and the manager's reliability (in our estimation) in fulfilling obligations to investors. To that end, transparency becomes key for any manager to whom we entrust capital, so that we can feel comfortable that our underlying investments have adequate liquidity.

Insufficient Growth Risk

If an investor wants to receive substantive returns, some type of risk is unavoidable. But for those investors who need growth in order to meet their long-term goals, it can be more dangerous to avoid market risk than it is to embrace it. If investors are too conservative due to their desire to avoid volatility, drawdown risk and illiquidity, they may end up guaranteeing that they will fall short of their ultimate objectives.

We think that this risk is particularly worrisome in today's environment. Whether investors choose to "de-risk" their portfolios or not, the fact remains that factors such as elevated valuations, below-average global growth and the potential for a rising interest rate environment are all likely to weigh on long-term returns going forward. We discussed this topic at length in our report last year, and today our long-term return expectations in many asset classes are still well below the levels to which investors have grown accustomed *(see chart above)*.

Given that these conditions are likely to persist for some time, we believe that discipline and patience are key in reducing the risk of insufficient growth in client portfolios. Here are a few of the key principles that consistently guide our thinking:

The Folly of Market Timing

The figures in this chart are based on an aggregation of the major S&P 500 Index downturns since 1968; the average downturn produced a decline of 33.6%. Each figure represents a different market-timing scenario—how close an investor came to calling the peak and the bottom, and hence how much of that 33.6% downturn they avoided (a negative number means the investor missed out on a positive return). As the chart shows, a slight miss on either end of a timing call usually translated to disappointing results.

EXIT TIMING, RELATIVE TO MARKET'S PEAK

RE-ENTRY TIMING, RELATIVE TO MARKET'S BOTTOM	12 Months Early	6 Months Early	At Peak	6 Months Late	12 Months Late
12 Months Early	-6.6%	-1.0%	11.5%	4.4%	-2.1%
6 Months Early	-9.0%	-3.5%	9.1%	1.9%	-4.5%
At Trough	12.0%	17.6%	33.6%	23.0%	16.6%
6 Months Late	-10.5%	-5.0%	7.6%	0.4%	-6.0%
12 Months Late	-15.7%	-10.2%	2.4%	-4.8%	-11.2%

With perfect timing, an investor could avoid the entire 33.6% downturn...

...but if that investor is just six months late in exiting and re-entering, he or she gains virtually nothing from the attempt (while still generating transaction costs and possible tax consequences).

SOURCE: BROWN ADVISORY ANALYSIS, USING S&P 500 INDEX RETURN DATA OBTAINED FROM BLOOMBERG.

1. **Stay invested in risk assets like stocks.** Lower expected returns may reduce the appeal of risk assets, but remember that expected returns for defensive assets have also declined. Equity markets still offer the greatest long-term growth opportunity of any core asset class.
2. **Avoid market timing.** When return expectations are low, investors who need long-term returns can't afford to miss out on a strong period in the stock market, but they risk that outcome if they attempt to time the market to avoid short-term losses. Regardless of motive, adding value through market timing is extremely difficult. As depicted in the chart above, you need to be extremely accurate with not one, but two timing decisions—when to exit the market, and when to re-enter. Even the ranges in this chart do not adequately express the potential damage of an early market exit—for example, those who heeded Fed Chairman Greenspan's famous "irrational exuberance" warning in 1996 would have missed years of strong returns. Note also that the figures in the table do not account for transaction costs or potential adverse tax consequences from selling stocks.

   Put more simply: Equity markets produce positive returns far more often than negative returns. Use those odds to your favor.
3. **Diversify the types of risk in your portfolio.** Different types of risk can help you extract return in different ways. Equity market risk, illiquidity risk from commitments to private funds, interest rate risk from credit investments—these need to be assessed and monitored on their own, but if balanced against each other properly, they can also complement each other and increase the maximum potential of your portfolio.
4. **Revisit expectations and aspirations.** Finally, it makes sense to review spending rates and long-term targets given the realities of today's market. While reducing one's aspirations is never the first choice in financial planning, such a step obviously increases the chances that one can achieve those aspirations! Investors should consider and exhaust all reasonable possibilities for staying on track with their goals, but they should avoid making unreasonable assumptions or taking unreasonable risks to achieve those goals.

(continued on page 26)

KEY RISK SCENARIOS FOR 2018:

5 "Upside risk" that elevated stock valuations shift even higher

Not every risk we consider is one in which the outcome is a decline in portfolio value. We also need to look at scenarios that could cause a substantial and unexpected move higher in markets. While generally beneficial, a major uptick in valuations can reduce subsequent long-term return expectations. Additionally, portfolios that are underweight risk assets may fall behind during such scenarios.

In the current landscape, investors are concerned about rising rates hurting returns, but it is also feasible that low interest rates and low inflation become a "new normal" and, as a result, higher stock valuations also become a "new normal." If investors expect interest rates to stay at low levels for many years into the future, they may begin to discount future cash flows and earnings at a lower rate, and support multiples at current levels or drive them higher still. Investors may consider it reasonable for stocks to trade at 20 times earnings today, but in a few years, they may support valuations of 25 or even 30 times earnings.

The chart below illustrates the relationship over time between bond yields and the "earnings yield" of stocks (this is the inverse of the price-to-earnings ratio—when P/E rises, earnings yield falls, and vice versa). These yields have tracked with each other over time, exhibiting a fairly reliable equilibrium. A wide gap has emerged between the two in recent years. Stocks have gotten more expensive, but they don't look as expensive relative to the yield available from bonds. Many observers expect a "reversion to the mean," where bond yields rise and stock valuations fall—this would cause both the lines on the chart below to rise. But another path to equilibrium is for bond yields to remain low and for the earnings yield to fall further to meet them.

We see this as a low-probability event, and generally we consider it a red flag when we see fundamental investors lowering the discount rates in their models. However, we have heard this argument for higher valuations from numerous investors, and we take this risk seriously. This is yet another reason for us to maintain a healthy overall equity weighting in our portfolio; despite elevated valuations, we believe that stocks still look quite cheap relative to bonds.

Our Positioning

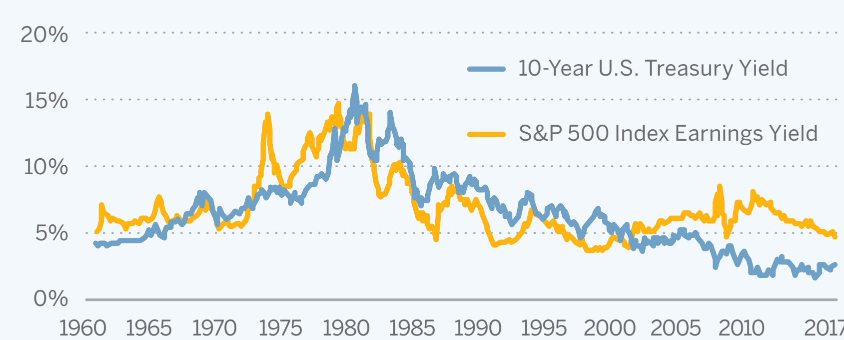
We are often asked why, with all of the risks we have outlined in this report, we are not more cautiously positioned in client portfolios. We are underweight both equities and bonds, and we are focused on higher-quality companies, but we have not taken drastic measures to "go to cash" or deviate significantly from our long-term targets.

We strongly believe that investors are poorly served by deviating too far from targets or trying to time the market. Additionally, we are aware of the potential for underperformance if we are underinvested in equities during a period when valuations rise further. As noted, we consider this a low-probability event, but it is an entirely plausible outcome that we need to factor into our decisions. Downside volatility in early 2018 does not change that fact. If we and our clients were to miss a repricing of equities to higher multiples, it could prove to be a large opportunity cost.

Are Higher Valuations Becoming the "New Normal"?

For decades, stock valuations and interest rates have had a strong relationship. As shown in the chart, U.S. Treasury yields have generally tracked with the "earnings yield" (the inverse of the P/E ratio) of stocks; whenever the two measures diverged, the gap generally closed in due course. As of early 2018, persistently low interest rates have left a notable gap between Treasury yields and earnings yields. If Treasury yields stay low, then we could see earnings yields drop even lower (which translates to earnings multiples rising higher).

RELATIONSHIP OF STOCK VALUATIONS AND TREASURY YIELDS, 1962–2017



SOURCE: BLOOMBERG FOR S&P 500 INDEX DATA, U.S. FEDERAL RESERVE FOR TREASURY YIELD DATA.

Permanent Impairment of Capital

The risk of permanent capital impairment is arguably the most dangerous risk on this list, but with a thoughtful approach to investing, one can largely avoid letting it impact one's portfolio materially.

For the most part, there are only two ways that a portfolio will experience material permanent impairment. Either an underlying investment suffers an irreversible loss, or an investor makes a decision about an investment with irreversible consequences.

In the first case, an investment can suffer permanent impairment due to a bankruptcy or similar event. No security is truly immune to this possibility, which is one of many reasons that we are so focused on fundamental research on individual companies in our investment process. Many companies have earned "blue chip" status and built tremendous competitive advantages for themselves, only to unexpectedly succumb to poor decisions or entropy. The "Nifty Fifty" of the 1970s offered several such examples: These were viewed as "one-decision" stocks that could be bought and held forever, but the list included companies like Sears and Kodak that failed to adapt to changing economic dynamics, as well as AIG and MGIC, whose businesses turned out to be far more risky than most market participants believed.

Over a lifetime of investing, most investors will eventually hold a company that fails in some manner. In well-diversified portfolios, these events should not have a material impact on progress toward long-term goals. However, investors with highly concentrated positions in individual companies or funds need to be vigilant about those investments' circumstances and prospects.

Investors can also generate permanent capital impairment through their own decision-making. Earlier, we discussed the many investors who greatly reduced their equity exposure in 2008 and 2009, driven by recency bias and a desire to avoid losses. These investors, in effect, permanently impaired their capital position by "locking in losses" from the 2008–09 downturn and not participating in the market's rebound in subsequent years.

To avoid this second type of permanent impairment, it is important to be aware of behavioral biases and take conscious steps to counter them. One such step that we take with all clients is the development of a "financial allocation" that sits atop any subsequent asset allocation or portfolio construction decisions. We refer to this step colloquially as our "three-bucket approach," as it involves dividing a client's assets into three distinct pools of capital, each with a specific purpose:

- Each client's **operating account** holds cash as well as other highly stable, liquid investments; this pool of capital is sized to cover short-term needs and provide an emotional buffer. The intent is to ensure that clients are comfortable committing their remaining assets to longer-term investments, and that they don't need to sell later to fund near-term needs (typically 12–24 months of needs), or feel tempted to sell for emotional reasons.
- The client's **core portfolio** holds a strategic mix of growth and stability assets. This can be viewed as the "traditional" investment portfolio that balances the pursuit of long-term goals with the tolerance for short-term losses.
- The third pool is an **opportunistic allowance** that is sized based on the client's ability and desire to explore timely investments that may offer outsized returns but may also carry additional risks. The actual amount of capital dedicated to these opportunities will fluctuate over time, based on whether such opportunities exist at any moment and, if they do, how strong our conviction is about them. Any capital devoted to these opportunities is weighed against the clients' specific risk tolerance, as well as the general risk created by diverting capital from the core portfolio.

As discussed earlier, all investors (ourselves included) are prone to these sorts of behavioral challenges. By designing a portfolio properly at its inception, we can minimize or eliminate the need to sell volatile securities due to concerns over near-term spending needs, or due to overriding fears about future losses.

Putting It All Together

As we have noted in this discussion, there are limits to the statistical conclusions we can draw about risk from historical market data. We prefer to think about risk using a framework that is part science and part art. We take into account different kinds of risk—drawdown, illiquidity, insufficient growth, permanent capital impairment—and try to understand how these risks interact with each other in a given situation, for a given client. We believe that this approach is extremely useful in guiding our decisions.

As a simple illustration of how these risk factors interact, consider the following historical exercise. Assume that 100 hypothetical investors each retired at the beginning of the past 100 years (in other words, the first retired in 1917, the second retired in 1918, and so on). Each retired with a $5 million nest egg and sought to maintain $250,000 of annual expenses that grew with inflation throughout their golden years. Finally, each investor remained fully invested at all times, in a portfolio made up of two basic investment options—large-cap U.S. stocks and investment-grade U.S. bonds. How many years of retirement could each of these investors enjoy, assuming various asset allocation mixes?

We summarized the results of this test below. Instinctively, many investors will gravitate to conservative positioning during retirement, but as shown in the table, the more conservative, bond-heavy allocation options were generally *less* successful at preserving capital than those with larger weightings in stocks. By emphasizing stocks, investors increased their chance of supporting their retirement for 25 or more years. Put another way, they *accepted greater drawdown risk*, but *reduced their risk of insufficient growth,* and usually the trade-off worked in their favor.

Surprisingly, the least successful of our 100 hypothetical investors did not retire at a notable market peak such as 1929 (before the Great Depression). The worst year to retire turned out to be 1968, and in general, the mid- to late 1960s was the least successful period in the data set—this marked the start of a prolonged period of mediocre returns for both stocks and bonds alongside elevated inflation. These year-by-year results illustrate the importance

(continued on page 29)

The 100-Year Test

We tested portfolios implemented over each of the trailing 100 years, and how stock/bond allocation decisions would have affected how long they could maintain a given spend rate. (The "last" portfolio actually began in 1992; we excluded examples that were too recent to produce a clear answer. If a portfolio was implemented 10 years ago, we don't know yet whether it will last for 25!)

More often than not, these portfolios would have lasted longer with heavier stock allocations; this runs counter to the instinctive preference for a conservative allocation in retirement.

IMPACT OF STOCK/BOND ALLOCATION ON PORTFOLIO LONGEVITY
(SUCCESS RATE FOR INVESTORS RETIRING IN EACH YEAR FROM 1917 TO 1992)

Portfolio Longevity	30/70	40/60	50/50	60/40	70/30	80/20	90/10
>=25	84%	88%	90%	93%	94%	91%	91%
>=30	60%	73%	84%	86%	86%	86%	84%
>=35	50%	61%	71%	78%	81%	81%	81%
>=40	43%	53%	68%	74%	78%	80%	80%

SOURCE: BLOOMBERG, BROWN ADVISORY ANALYSIS. STOCK ALLOCATION IS REPRESENTED BY THE S&P 500 INDEX. BOND ALLOCATION IS REPRESENTED BY U.S. COMMERCIAL PAPER DATA FROM THE U.S. FEDERAL RESERVE BETWEEN 1917 AND 1976, AND BY THE BLOOMBERG BARCLAYS AGGREGATE INDEX THEREAFTER.

WHAT ABOUT BITCOIN?

No topic captured the investment world's attention in 2017 quite like cryptocurrencies did. Bitcoin appreciated tenfold in 2017 (and severely declined in 2018). Blockchain technology offers potential uses that extend far beyond cryptocurrencies.

We believe that cryptocurrencies are highly speculative and risky assets for a number of reasons. First, they are highly volatile, and their liquidity is questionable. Purely on trading characteristics alone, they add enormous risk to a portfolio; any asset that could lose half its value in a week is difficult to hold as a meaningful allocation. Second, there are few barriers to entry in this space, and there are many reasons to think that each new cryptocurrency improves upon previous ones. Even if, someday, a significant amount of global commerce is conducted in cryptocurrency, it may be a cryptocurrency that hasn't been invented yet. Third, regulatory regimes are already moving to clamp down on the many illegal uses of cryptocurrencies, which potentially could hobble legal use of cryptocurrencies. Most governments do not want competing currencies in their economies, and there is ample evidence to suggest that many early adopters of cryptocurrencies are those who are seeking to move money without legal scrutiny. Fourth, cybersecurity issues are a clear and present threat to cryptocurrency holders; investors have already lost fortunes when their digital wallets were stolen or hacked.

Does our lack of participation mean that we may miss out on some return? Certainly. None of this is to say that we are predicting the path of cryptocurrency valuations in the near term. Some of our early-stage technology investors have examined cryptocurrency-related investments, and it is certainly possible that future uses will validate today's prices. We simply think that the range of potential outcomes is extremely wide.

However, the point we want to emphasize is that evaluating cryptocurrencies is far afield of the fundamentally oriented investing that we practice. While our research team is spending time thinking about the applications for blockchain technology, we are not focused on Bitcoin or any other cryptocurrency investments. Our investment process is driven by deep, fundamental research to understand the long-term value of each investment we make; cryptocurrencies do not fit that framework readily, as they do not produce cash flow and have no industrial use. Additionally, we don't seek to take speculative positions in individual currencies (in fact, we sometimes seek to hedge out currency risk from certain situations). So, in the end, our fundamental orientation does not give us a strong basis for supporting an argument for or against cryptocurrencies.

of focusing on long-term returns, rather than the risk of imminent drawdowns.

Clearly, there are shortcomings to this test. It is restricted to U.S. markets, which have generally outperformed other regional counterparts over the past 100 years, and that may not continue in the future. It also assumes a totally mechanical investor who maintains a consistent investment strategy through the decades—and as we've discussed, many investors find it exceedingly difficult to maintain that level of consistency over many years. The exercise was simply intended to illustrate how these different types of risks trade off against one another, and how a balanced consideration of all of them can lead to better long-term decision-making.

These risk trade-offs are just as relevant in practice as in theory. We think about them as part of our ongoing decision-making process, whether we are considering medium-term adjustments or longer-term commitments.

For example, our decision to adjust our equity allocation in 2017—shifting assets away from the U.S. and toward Europe—was a medium-term adjustment very much guided by this risk framework. Despite their elevated valuations, we still believe that public equities are one of the best sources of long-term growth available to investors. Therefore, a core equity allocation helps investors ***avoid insufficient growth risk.*** However, we can adjust our exposure over time to emphasize regions with more attractive growth and valuation prospects, thereby ***reducing drawdown risk.*** This was, in part, the basis for our shift toward Europe, which is earlier in its recovery cycle than the U.S. and, in our view, currently offers a better mix of growth and valuation than the U.S.

Another decision we made in 2017 was to shift more capital toward private investments. This longer-term allocation commitment—the illiquid nature of these investments requires a longer-term mindset—was also guided by our risk framework. ***Illiquidity risk*** is real and tangible for our clients, but for those who have been able to comfortably commit capital for the duration of the private investment cycle (typically more than 10 years), the return benefits over time have been substantial. In other words, investors have substantially reduced the ***insufficient growth risk*** of their overall portfolio. We made this decision in 2017 partly due to the elevated ***drawdown risk*** of public equities and the lower long-term growth rates we expect in that asset class. Given that backdrop, we believe it makes sense to adjust our allocations to illiquid investments by reducing exposure to hedged equity in favor of private equity, credit and real estate investments. To be sure, deal valuations in the private market are also elevated at the moment, but in our experience, the best private fund general partners can generate substantial value by being selective about when they invest and on what terms, and by actively contributing to their portfolio companies' success. Manager selection is critical in this asset class, but we believe that our process and experience have helped us to identify worthy managers who can add value for clients.

Monitoring Risk

Given all of these risks, how can investors continually monitor their portfolio relative to their risk tolerance? Let us break this down into the four risks discussed previously:

Drawdown risk: Identify the major market risks, and then identify the best metrics for measuring the portfolio's sensitivity to those risks. There are a variety of risk metrics available for evaluating volatility relative to return—beta, alpha, Sharpe ratio and many others. Each of these is instructive, and we monitor them to better understand how our portfolios behave and how our different investments correlate with each other over time. However, as discussed in this report, we believe that any metric based on volatility inevitably falls short as a predictor of drawdown risk (or other risks), so it makes sense to use these metrics alongside others to develop a broader perspective.

For equities, what is the sensitivity of the portfolio in a major market downturn scenario? For fixed income, what are the portfolio's duration and credit risk? Also, consider "idiosyncratic" risks for highly concentrated positions and/or unique investment strategies: What if several factors go wrong at the same time, thereby threatening the investment logic that underpins a concentrated holding? Questions like these can ensure realistic drawdown risk expectations in various downside scenarios, such as a major market correction or a substantial and rapid increase in interest rates.

Illiquidity risk: On a regular basis, organize the portfolio by liquidity bucket, and ensure that it aligns with the liquidity needs of the portfolio and other cash flow needs. As discussed, we include each client's "operating bucket" as part of this regular review. Keep in mind how large the less-liquid portions of a portfolio could become if market forces cause the liquid portion to decline materially in value. Additionally, as part of this process, consider any changes to liquidity dynamics in the market that may cause liquidity to dry up for a particular sector or investment.

Insufficient growth risk: A regular review of both investor growth needs and portfolio growth expectations will determine how well a portfolio is aligned with its long-term investment objectives.

Permanent impairment of capital risk: Monitoring all of the above will help to prevent a permanent impairment caused by stressed sales of investments at impaired prices. Additionally, it is important to understand whether any single investment is large enough to cause a material portfolio impairment were that investment to suffer a worst-case idiosyncratic scenario. These situations are sometimes unavoidable for some of our clients (for example, if a client is a key executive of a public company and has a large equity stake in that firm); in such cases, it is essential to redouble efforts to understand and monitor the specific risks embedded in that position, and to seek ways to offset that risk if feasible.

In addition to these monitoring activities, we also regularly consider a wide range of scenarios that may unfold in the global market over the medium term. From this, we can focus on negative scenarios and what the likely market outcomes would be for the variety of strategies in which we invest on behalf of clients. This process takes the abstract risk issues previously discussed, applies them in the context of risk in the current market environment, and illuminates whether a portfolio is imprudently vulnerable to any particular outcome.

By taking these steps, we believe that we can maintain a risk level within client portfolios that is both consistent with their long-term investment objectives and with their expectations and tolerances. In the table above, we summarize the broad risk parameters of our generic model portfolio *(discussed in the centerfold of this publication);* just as we modify this standard model to align with each client's circumstances, so too do we modify these risk parameters to effectively target each client's risk tolerance, time horizon, liquidity needs and other factors.

Risk Parameters of Standard Brown Advisory Asset Allocation Model

We build each of our clients' portfolios to fit specific return, risk and liquidity parameters. The figures in the table represent the risk parameters of our standard asset allocation model as outlined in the centerfold section of this report.

	Brown Advisory Model Portfolio
Target 10-year annualized return	5.5–6.5%
Est. 12-18 month drawdown risk	22–27%
Liquidity less than daily	25%
Liquidity less than annual	14%

SOURCE: BROWN ADVISORY ANALYSIS

CONCLUSION

In this publication, we embarked on a lengthy discussion of risk, and readers may infer from that topic, as well as the specific backdrop of volatility that coincided with this report's publication, that our market outlook is dour. But that is not the case. We believe that understanding risk, and embracing it in an appropriate and balanced manner, is the only path to earning consistent, long-term returns.

The investment opportunity in Asia offers an excellent current example of this principle. Two of the five key risks we identified for 2018 are centered in Asia—the potential for a credit bubble in China, and the potential for conflict on the Korean Peninsula. However, we are fairly upbeat about the potential for growth in emerging Asia, as we have been for several years. One reason is that we believe the lower valuations in emerging Asia provide us with compensation for the risks in the region. Additionally, there are plenty of positive factors supporting our thesis, such as faster GDP growth than the developed world, improving political dynamics in India and an inefficient market where good managers can reap substantial rewards from adept fundamental research. Our investments in Asia carry a wider spectrum of potential outcomes than, say, U.S. equities; we believe that the potential range of outcomes is skewed in our favor, but the risks are meaningful, and we size our allocations accordingly.

"Balance" is a word we used frequently throughout this discussion; it was both the theme and part of the title of our report in 2017. We hope that if readers take just one thing away from this year's report, it is the importance of balance. Balancing risk and opportunity helps identify investments with potentially attractive risk-adjusted return. Balancing stability, growth and liquidity helps build portfolios capable of meeting long-term objectives without undue risk. Balancing different types of investment risks can appropriately diversify a portfolio—again, offering investors the ability to mitigate downside risk from various worst-case scenarios in a specific sector or investment. Finally, and perhaps most challenging, finding balance in one's outlook—focusing on logic and avoiding the powerful pull of fear and/or greed—can help investors avoid emotionally driven investment behavior and stay focused on the long term during difficult market periods such as what we experienced in early 2018.

Achieving and mastering balance across all of these aspects of investing is an enormous challenge. Most experienced investors will admit that the more they learn, the more humble they become about their decision-making. We dedicate a great deal of time and energy to our research, and we know that despite our best efforts, the market will continue to surprise us and make quick work of our assumptions over time. Because of that, balance is the most important deliverable we can offer to clients, so that our results over long periods of time have the best chance of success despite inevitable bumps in the road.

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The following indexes were used throughout this report to represent returns and characteristics of various asset classes and regions:

U.S. Equities: The **S&P 500® Index** represents the large-cap segment of the U.S. equity markets and consists of approximately 500 leading companies in leading industries of the U.S. economy. Criteria evaluated include: market capitalization, financial viability, liquidity, public float, sector representation, and corporate structure. An index constituent must also be considered a U.S. company. Standard & Poor's, S&P, and S&P 500 are registered trademarks of Standard & Poor's Financial Services LLC ("S&P"), a subsidiary of S&P Global Inc.

Emerging-market equities: The **MSCI Emerging Markets® Index** captures large and mid-cap representation across 23 Emerging Markets countries. With 834 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country. ***European equities:*** The **MSCI Europe Index** is designed to represent the performance of large- and mid-cap equities across 15 developed markets. As of December 2017 it had more than 400 constituents and covered approximately 85% of the free float-adjusted market capitalization across European developed-market equity. ***Japan equities:*** The **MSCI Japan® Index** is designed to measure the performance of the large and mid-cap segments of the Japanese market. With 319 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in Japan. ***EAFE equities:*** The **MSCI EAFE Index** is designed to represent the performance of large and mid-cap securities across 21 developed markets in Europe, Australasia and the Far East, excluding the U.S. and Canada. With more than 900 constituents as of December 2017, the MSCI EAFE Index covered approximately 85% of the free float-adjusted market capitalization in each country. ***U.K. equities:*** The **MSCI United Kingdom Index** is a free-float weighted equity index. It was developed with a base value of 100 as of December 31, 1969. ***Europe ex-U.K. equities:*** The **MSCI Europe ex UK Index** captures large and mid cap representation across 14 Developed Markets (DM) countries in Europe*. With 343 constituents, the index covers approximately 85% of the free float-adjusted market capitalization across European Developed Markets excluding the U.K. ***Asia ex-Japan equities:*** The **MSCI AC Asia ex Japan Index** captures large and mid cap representation across 2 of 3 Developed Markets (DM) countries* (excluding Japan) and 9 Emerging Markets (EM) countries* in Asia. With 646 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country. ***Latin American equities:*** The **MSCI Emerging Markets (EM) Latin America Index** captures large and mid cap representation across 5 Emerging Markets (EM) countries* in Latin America. With 110 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

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Short-term U.S. Treasuries: The **ICE BofAML U.S. 3-Month Treasury Bill Index** is comprised of a single issue purchased at the beginning of the month and held for a full month. At the end of the month that issue is sold and rolled into a newly selected issue. The issue selected at each month-end rebalancing is the outstanding Treasury Bill that matures closest to, but ***not beyond, three months from the rebalancing date. To qualify for selection, an issue must have settled on or before the month-end rebalancing date.***

Investment-grade bonds: The **Bloomberg Barclays Aggregate Bond Index** is an unmanaged, market-value weighted index composed of taxable U.S. investment grade, fixed rate bond market securities, including government, government agency, corporate, asset-backed and mortgage-backed securities between one and 10 years. ***High-yield bonds:*** **Bloomberg Barclays U.S. Corporate High Yield Index** measures the USD-denominated, high yield, fixed-rate corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch and S&P is Ba1/BB+/BB+ or below. Bonds from issuers with an emerging markets country of risk, based on Barclays EM country definition, are excluded.

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