

# YOUR INVESTMENTS



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## The Assets that Support Your Plan

Investing can be overwhelming. The seemingly endless array of choices can paralyze some investors. The memory of two deep bear markets for stocks in the last 15 years repels others, although each bear market followed (and was followed by) an extended market rally.

Busy lives also leave many people feeling that they don't have the time or patience to learn enough about the capital markets to make decisions about how to invest. All these feelings are natural—but doing nothing can be harmful.

Bank interest rates were close to zero at the time of this writing, so parking your money in a bank account would have virtually the same result as stuffing it under a mattress. Even modest inflation could erode the spending power of your wealth. And if inflation accelerates, cash that you expected to fund a comfortable lifestyle may suddenly prove inadequate.

Keeping all your money in something you understand—say, real estate, or your company's stock—may feel comfortable and could generate great wealth. It's also fraught with risk. In the last two decades, we've seen several booms and busts in real estate and in stock market sectors such as financial services, technology, energy, and biotech. Many stocks that seemed like sure winners crashed and burned, or were left in the dust as new leaders emerged.

As we explain in [The Company Stock Problem](#), concentrated positions in a single stock can add materially to portfolio risk, increasing your target financial capital requirement.

If you want to preserve your independence and security, fund your children's education, or meet other goals, you cannot afford to neglect investing your wealth. It's worthwhile to learn the basics of investing, even if you choose to entrust management of your investments to someone else.

In this section, we explain the basic principles of investing that undergird our approach to financial planning. If you're knowledgeable about investing, we suggest that you at least skim it: It should help you understand the logic behind our approach.

## Investing Basics: Three Broad Buckets

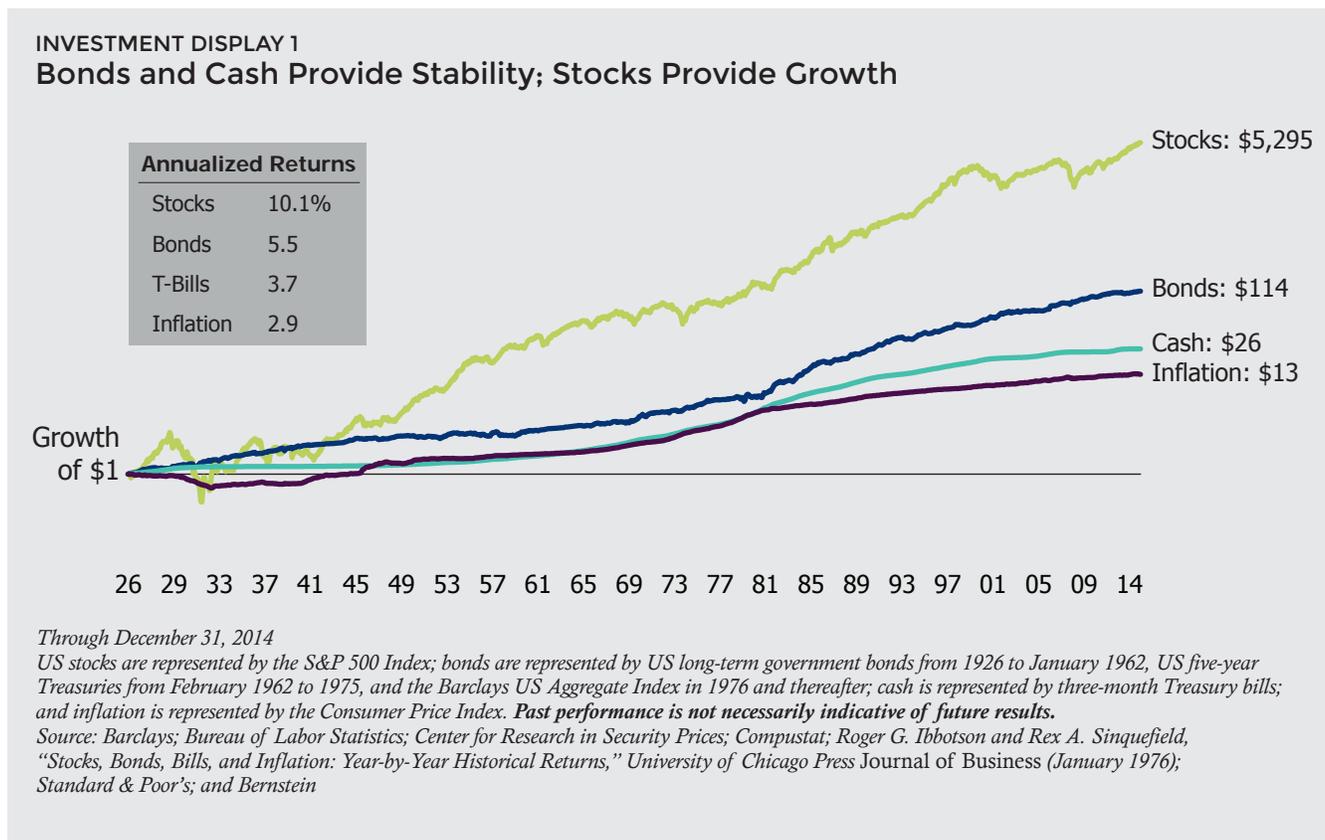
Our approach to asset allocation starts with categorizing investments by the role they play in portfolios. In our view, most portfolios should include well-diversified exposures to three groups of investments: return-seeking, risk-mitigating, and diversifying assets. The mix that is right for you depends on your circumstances, goals, time horizon, and risk tolerance.

This section describes the major types of investments in each category.

**Risk-mitigating investments are expected to provide stability and income, serving to counterbalance the higher volatility of return-seeking assets.** The two principal types of risk-mitigating investments are investment-grade bonds and cash instruments. As *Investment Display 1* shows, the long-term returns of both investment-grade bonds and cash are well below the returns of stocks but far more stable. There are few zigs and zags in their cumulative growth lines.

Bonds are tradable debt instruments issued by a national or local government, agency, corporation, or special-purpose vehicle. Investment-grade bonds are rated BBB– or higher (up to AAA) by credit-rating agencies, signaling that they are very likely to pay their coupons and repay principal on schedule. Bond prices fluctuate primarily in response to changes in prevailing interest rates and perceived credit quality. Prices for most bonds fall when interest rates rise or perceived credit quality declines (and rise when interest rates fall or perceived credit quality improves). Prices for some bonds also respond to changes in inflation or market volatility.

Cash instruments such as Treasury bills (T-bills) are debt with less than a year to maturity. They are typically less volatile than bonds: Investment Display 1’s light teal line is very smooth but also rises much less over time. Due to their very modest returns, the chief risk from cash instruments is that their purchasing power will be eroded by inflation.



A big benefit of risk-mitigating investments is that they have very low or negative correlations to return-seeking investments (*Investment Display 2*). That is, prices for bonds or cash generally don't move up and down with return-seeking investments, such as stocks—or they move in opposite directions.<sup>1</sup> Because of their low or negative correlation to stocks, risk-mitigating investments can reduce overall portfolio volatility, as well as provide income.

**Return-seeking assets are expected to generate more growth but also add more volatility and risk to a portfolio than cash or bonds.** This group includes stocks and high-yield bonds. Because these assets are volatile, diversification across region, sector, and style is important; see [Subcategories of Asset Classes](#).

Stocks are publicly traded ownership interests in a company; they offer significant appreciation (and depreciation) potential, due to expectations that the company's earnings power will grow (or decline) over time. Many stocks are highly liquid: They can be bought and sold quickly, with low transaction costs. Many stocks also provide regular income from dividends. Stocks are vulnerable to inflation over shorter time periods but

tend to withstand inflation better over time because higher prices eventually feed into corporate revenue and earnings.

Over the long term, stock market returns have far exceeded returns for other major asset classes, despite occasional deep market losses and more frequent, but smaller, dips, as *Investment Display 1* shows. Stocks have beaten bonds, cash, and inflation in more than 80% of all 10-year periods since 1926 (*Investment Display 3*).

There are also equity investments that are not traded in public markets. Venture capital represents ownership interests in early-stage companies that are not yet public. Most venture capital investments are made through partnership interests in a venture capital fund, but the direct, or "angel," investments you might make in early-stage companies also fall into this category. Private equity represents ownership interests in typically more established private firms. Sometimes, private equity investors buy out the shareholders in public companies, borrowing against the companies' assets to do so.

Because venture capital and private equity investments are not traded in public markets, they are illiquid and

## INVESTMENT DISPLAY 2 Correlations of Returns for Many Pairs of Asset Classes Are Low or Negative

Return Correlations for Major Asset Classes: 2001–2014

	Global Equities	Global High-Yield Bonds	Global Bonds	Cash	Municipal Bonds	Global REITs	Commodities	Hedge Funds
Global Equities	1.00	0.74	(0.10)	(0.06)	(0.10)	0.83	0.52	0.75
Global High-Yield Bonds	0.74	1.00	0.14	(0.10)	0.21	0.75	0.43	0.65
Global Bonds	(0.10)	0.14	1.00	0.04	0.73	0.12	(0.04)	(0.07)
Cash	(0.06)	(0.10)	0.04	1.00	0.02	(0.04)	0.03	0.07
Municipal Bonds	(0.10)	0.21	0.73	0.02	1.00	0.10	(0.07)	(0.01)
Global REITs	0.83	0.75	0.12	(0.04)	0.10	1.00	0.47	0.62
Commodities	0.52	0.43	(0.04)	0.03	(0.07)	0.47	1.00	0.60
Hedge Funds	0.75	0.65	(0.07)	0.07	(0.01)	0.62	0.60	1.00

*Global equities are represented by the MSCI All Country World Index; global high-yield bonds by the Barclays Global High-Yield Index (hedged); global bonds by the Barclays Global Aggregate Index (hedged); cash by the Citigroup 3-Month T-bill Index; municipals by the Barclays 1–10-Year Municipal Bond Index; global REITs by the FTSE EPRA/NAREIT Developed Real Estate Index; commodities by the Bloomberg Commodity Index; and hedge funds by the HFRI Fund of Funds Composite Index.*

*Source: Barclays, Bloomberg, Citigroup, FTSE, HFRI, Morgan Stanley Capital International (MSCI), and Bernstein*

<sup>1</sup>Pairs of asset classes that always move in the same direction have a correlation of 1; those that always move in opposite directions have a correlation of -1; those that move without regard to each other have a correlation of 0.

normally require long-term commitments. For investors with long-term horizons who don't expect to need to draw on this part of their portfolio, venture and private capital can offer compelling investment opportunities. The appropriate allocation to such investments varies, depending on the individual's circumstances, including his or her need for liquidity.

If you are an entrepreneur and are building a company, your ownership stake in your company is also equity. When thinking about your total wealth, including the equity risk in your company is crucial to determining your overall asset allocation.

High-yield bonds, as their name suggests, typically offer high income, but they may also offer significant appreciation (and depreciation) potential from a change in their perceived credit quality. Many high-yield bonds are issued by companies with credit ratings below BBB-, typically due to less steady cash flows or higher leverage. Others are issued by lower-quality governments, often in emerging markets. We characterize high-yield bonds as

return-seeking, rather than risk-mitigating, because they offer higher expected return and risk than investment-grade bonds and have a fairly high correlation to stocks and low or negative correlation to other bonds, as Investment Display 2 shows.

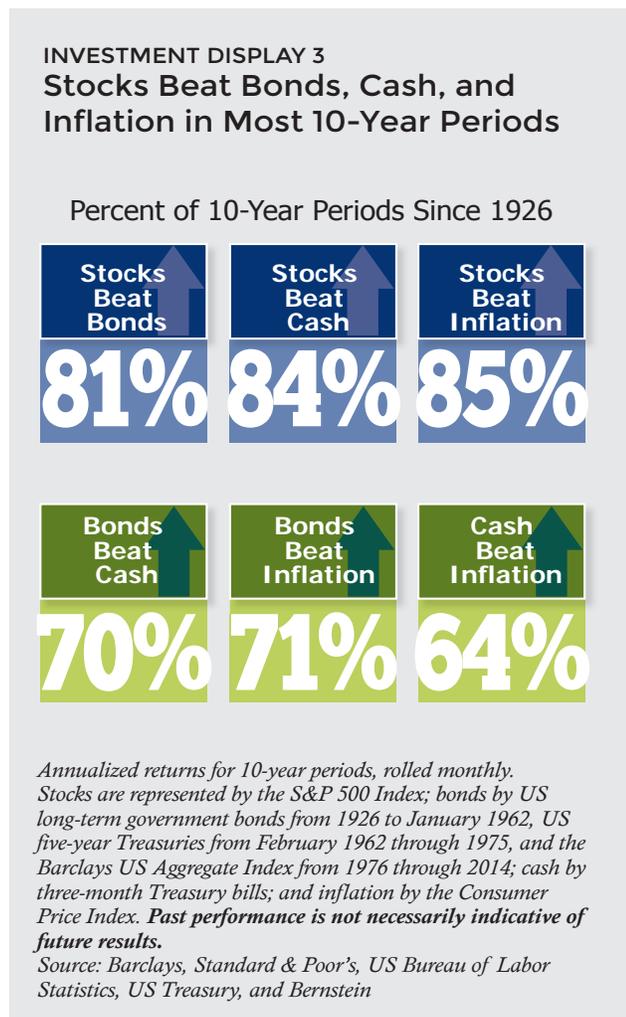
**Diversifying assets are expected to diversify both return-seeking and risk-mitigating assets.**

An allocation to diversifying assets can improve portfolio expected return without adding risk, or reduce risk without sacrificing expected return, which makes them valuable in times when expected returns are low. This group includes securities related to "real" (or nonfinancial) assets, including real estate and commodities, as well as alternative (or nontraditional) investments such as hedge funds. The return potential and risk of diversifying assets vary widely.

Real estate tends to be more resistant to the ravages of inflation than either stocks or bonds. Real estate investment trusts (REITs) are liquid investments and generally make high income distributions. While REITs, like bonds, are interest-rate-sensitive, they can be as volatile as stocks and offer similar long-term return potential. Private real estate equity and debt are not publicly traded and thus less liquid.

Commodities include futures and forward contracts on oil and gas, metals, and agricultural products. Prices can be extremely volatile. Their appeal lies in their role as an inflation hedge; like real estate, they tend to rise and fall with inflation or inflation expectations. But commodities and real estate do not always trade together because they are subject to different supply and demand cycles and because real estate provides an income stream, whereas commodities often have a holding cost.

Hedge funds are investment vehicles that may invest in any asset class, sometimes using leverage or taking short positions (investing to profit from an investment's price decline). Hedge-fund strategies vary widely but typically seek to generate returns primarily from manager skill, rather than market exposure; market-neutral hedge funds seek to eliminate market exposure entirely. Some hedge funds reduce overall market risk (or beta) by owning one security and going short a related security. Others take highly leveraged exposures to specific markets when betting on macroeconomic shifts. Because their return and risk come primarily from skill, not market exposure, hedge funds typically have low correlations to stock and bond markets, even if they



invest in stocks or bonds. Returns in any given year typically vary widely across and within hedge-fund categories. Our research suggests that manager selection and exposure to a diversified group of hedge funds are crucial for investment success in this investment category.

Most hedge funds are pooled vehicles that restrict when capital may be invested and withdrawn; most are private partnerships.

Risk and return characteristics, such as appreciation potential and interest-rate risk, for the asset classes discussed are shown in *Investment Display 4*.

#### INVESTMENT DISPLAY 4

### Risk and Return Characteristics of Selected Investments

	RISK-MITIGATING		RETURN-SEEKING	DIVERSIFYING			
	Cash and Equivalents	Bonds	Stocks	Real Estate Investment Trusts	Commodities	Hedge Funds	Illiquid Investments
<b>Income</b>	Yes	Yes	Varies widely	Yes	No (may be negative)	Limited	Varies widely
<b>Appreciation Potential</b>	No	Some	High	High	Some/High	High	Can be high
<b>Inflation Protection</b>	Low	Low	Moderate	High	High	Varies	Varies
<b>Interest-Rate Risk</b>	Low	High	Limited	Moderate/High	No	Varies widely	Varies widely
<b>Currency Risk</b>	None, if held in home-country currency	Yes, for foreign bonds, but can be managed	Yes, for foreign stocks, but can be managed	Yes, for foreign REITs, but can be managed	Low for US\$ investors; high for other investors	Varies widely	Varies widely
<b>Short-Term Price Risk</b>	No	Some	High	High	High	High	Low; assets mark to market infrequently
<b>Long-Term Return Uncertainty</b>	High	Some	Some	Some	High	High	High
<b>Transaction Costs</b>	Minimal	Low to moderate	Low to moderate	Low to moderate	Low	High	High
<b>Ease of Selling</b>	High	Usually moderate	Usually high	Usually high	High	Low	Very low

*Not an exhaustive list  
Source: Bernstein*

## Subcategories of Asset Classes

### INVESTMENT DISPLAY 5

#### Global Stock Portfolios Have Had Strong Returns with Less Risk

Annualized: 1976–2014

	Return	Risk
Global Stocks	11.3%	14.3%
US Stocks	11.6	15.0
Developed Foreign	9.6	17.1
Emerging Markets	9.9	22.3

As of December 31, 2014

US stocks are represented by the S&P 500 Index; developed foreign markets by the MSCI EAFE Index, with countries weighted by market capitalization and currencies unhedged; and emerging markets by a Bernstein simulation through 1984, by the International Finance Corporation (IFC) World Bank Global Index from 1985 to 1987 (IFC Index was reconstructed for the period April–Dec 1984), and by the MSCI Emerging Markets Index thereafter.

Global stocks comprise 70% S&P 500 Index, 25% MSCI EAFE Index, and 5% MSCI Emerging Markets Index. An investor cannot invest directly in an index, and index performance does not represent the performance of any AB mutual fund.

**Past performance is not necessarily indicative of future results.**

Source: Compustat, IFC, MSCI, Standard & Poor's, and Bernstein

Each of the major asset classes can also be categorized by region, sector, and/or style. Generally speaking, we favor investing globally in each asset class. In our view, this widens the opportunity set and reduces risk. For example, global stocks have had about the same return as US stocks since 1976, with less volatility (*Investment Display 5*).

Of course, global investing comes with foreign exchange risk—the risk that the currency of foreign investments will fall (or rise) versus the investor's home currency. We generally recommend active management of the currency risk that arises from foreign investments.

In other words, active managers should make two decisions: whether to hold a particular investment and whether to retain the currency exposure it may bring (see [Active or Passive?](#)).

Stocks can also be divided on the basis of economic sector (such as industrials or financials); size (whether the company's market capitalization is large or small); and other characteristics such as the stock's exposure to growth, value, quality, and so on. Different categories have distinct traits. For example, small-cap stocks tend to be more volatile and less liquid than large-cap stocks.

Bonds can also be divided into sectors with distinct characteristics. Most importantly, municipal bonds are tax-free and therefore appeal to investors in high tax brackets. Income on corporate bonds is fully taxable. Liquidity and quality can differ as well. Corporate bonds tend to be higher-yielding but less liquid than sovereign bonds. The credit quality of municipal, corporate, and sovereign bonds varies widely.

## Time Frame Matters

Stocks tend to perform best over longer time periods; but over shorter time periods, stock returns can be all over the map. Bond returns are far more predictable but usually lower. Since you can't know for sure what will happen in the period ahead, the right asset allocation for you depends on your time frame, appetite for return, and tolerance of risk (*Investment Display 6*).

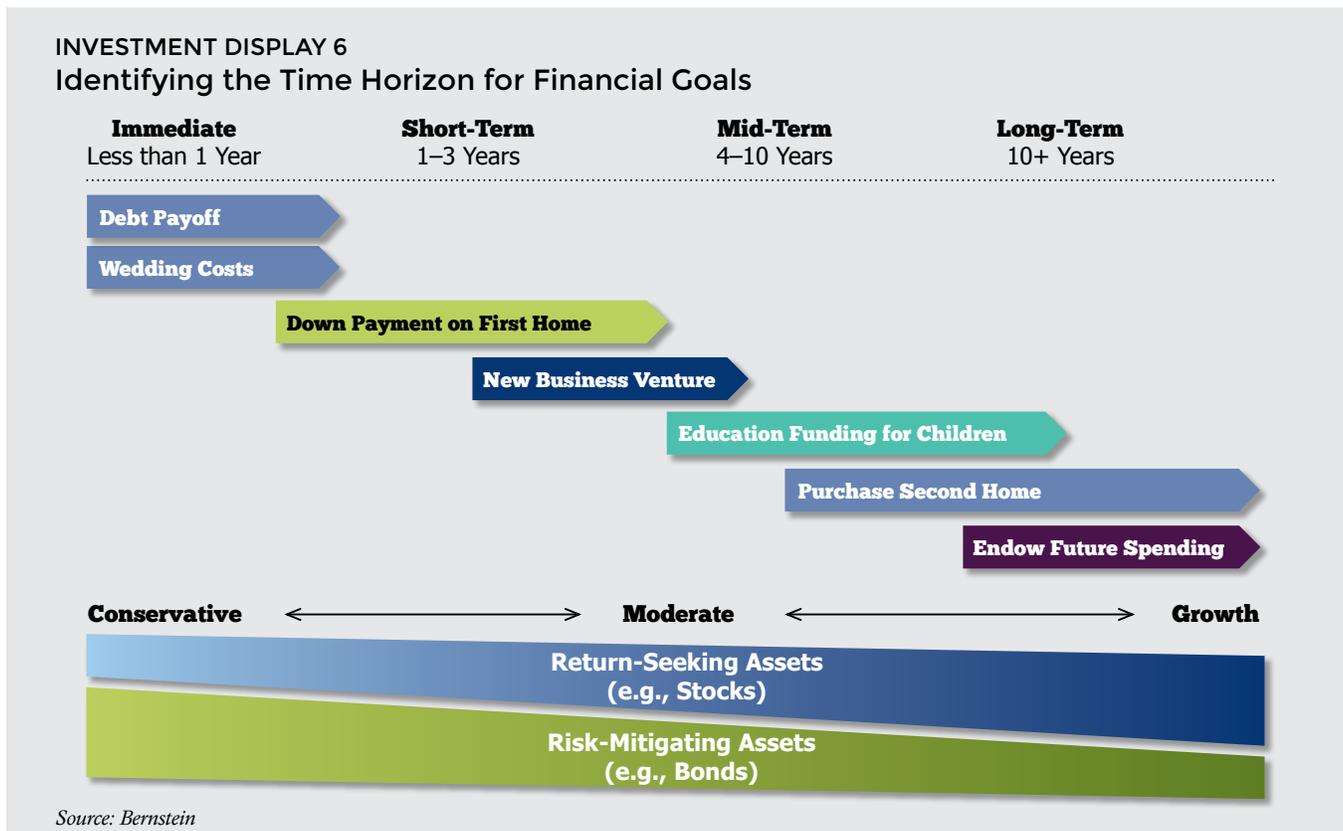
If you plan to use your money fairly soon (say, in less than two years) for something important, such as a down payment on a house or a wedding, it generally makes sense to keep most of that money in cash instruments or fairly short-term bonds. Cash rarely loses value in nominal terms: As you can see in *Investment Display 7*, cash has delivered negative returns in just 1% of all three-month periods and two-year periods since 1926. Even a 30% allocation to stocks increased the share of periods with negative returns materially.

Cash is also highly liquid: There's little chance that you won't be able to withdraw your money when you

want to, without accepting fire-sale prices or paying high transaction fees.

But holding cash has a cost. Cash returns have been lower than inflation over many three-year periods, as well as about one-third of all 10-year periods since 1926. Given the very low-interest-rate and low inflation environment at the time of this writing, we expect the return on cash after taxes and inflation to be negative over the next three years (*Investment Display 8*).

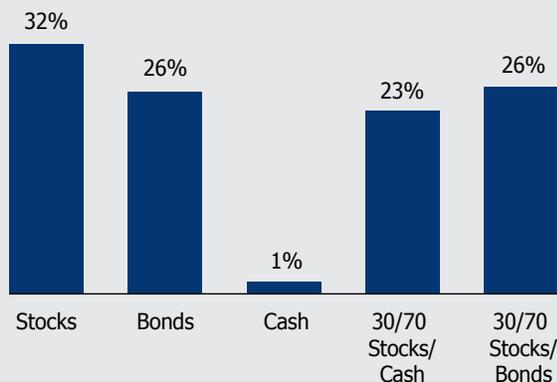
We expect the after-tax, inflation-adjusted return on bonds to be significantly better than cash over the next three years if market conditions are typical or very good; we expect bond returns to lag cash only slightly if market conditions are very bad. Even more remarkable, in the unusual market environment at the time of this writing, we estimate that returns for a conservative portfolio, with 30% in global stocks and 70% in bonds, would be no worse than cash if markets are hostile for the next three years—and would be much better if markets are typical or very good.



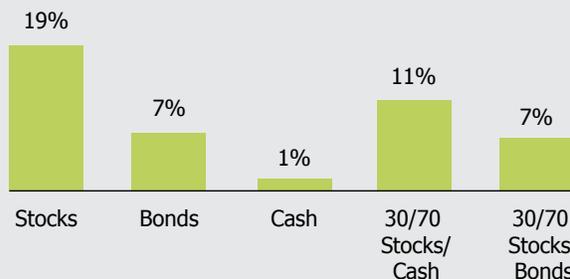
INVESTMENT DISPLAY 7

Cash Is Best When You'll Need All the Money Soon

Frequency of Loss for 3-Month Periods\*



Frequency of Loss for 24-Month Periods†



\*All rolling three-month periods with a loss as a percent of all rolling three-month periods from 1926 through 2014.

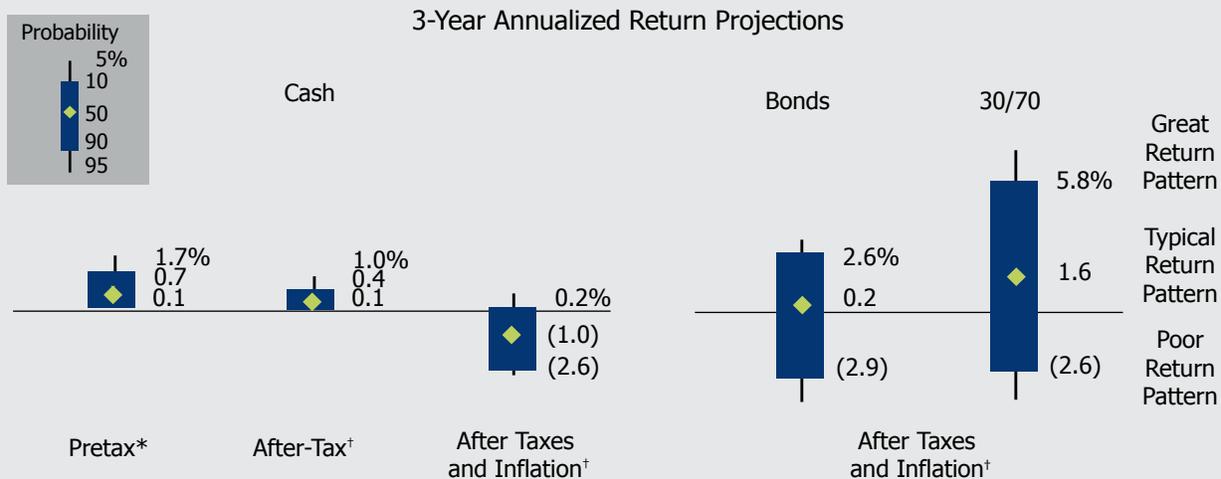
†All rolling 24-month periods with a loss as a percent of all rolling 24-month periods from 1926 through 2014.

Stocks are represented by the S&P 500 Index; bonds are represented by US long-term government bonds from 1926 to January 1962, US five-year Treasuries from February 1962 to 1975, and the Barclays US Aggregate Index in 1976 and thereafter; cash is represented by three-month Treasury bills; and inflation is represented by the Consumer Price Index. **Past performance is not necessarily indicative of future results.**

Source: Barclays; Bureau of Labor Statistics; Center for Research in Security Prices; Compustat; Roger G. Ibbotson and Rex A. Sinquefeld, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," University of Chicago Press Journal of Business (January 1976); Standard & Poor's; and Bernstein

INVESTMENT DISPLAY 8

Holding Cash Has a Cost, Even over Short Time Periods



\*Represents projected pretax compound annual growth rates.

†Assumes top marginal federal income tax rates and a 6.5% state income tax rate. Growth rates calculated based on the estimated market value; if the assets were liquidated, additional capital gains or losses would be realized that are not reflected here.

"30/70" means 30% stocks and 70% bonds. Stocks are modeled as 21% US diversified, 21% US value, 21% US growth, 7% US small- and mid-cap, 22.5% developed international, and 7.5% emerging market. Bonds are modeled as intermediate-term diversified municipals.

Based on Bernstein's estimates of the range of returns for the applicable capital markets as of December 31, 2014. **Data do not represent past performance and are not a promise of actual future results or a range of future results.** See Notes on Wealth Forecasting in the Appendix.

Source: Bernstein

## F A Q S FREQUENTLY ASKED QUESTIONS

### *How should I invest outside my 401(k)?*

That depends on your time horizon. If you are investing for the long term (e.g., you don't intend to touch the funds for 10 years or more), you probably need a diversified portfolio that includes return-seeking, risk-mitigating, and diversifying investments, not unlike your 401(k) investments. All else being equal, with a long time horizon you can have more of your investments in return-seeking assets. If you are investing for the near term, you'll want most of the portfolio in risk-mitigating investments. See [Three Portfolios for Three Time Horizons](#) for an example of how one couple aligned the asset allocations of three portfolios with the time horizon for each.

That said, we recommend that clients create a comprehensive investment plan that looks at all their assets—those within their 401(k) and those outside it—as well as their projected income and expenses, and stress-tests how different investment allocations would affect the likelihood that they could meet their long-term financial goals.

### *How should I invest money I need in two years to make a down payment on my first home?*

If you want to minimize the odds that you'll lose some of this money in the two years before you buy a house, invest in something stable, safe, and liquid: cash or short-term bonds, or both.

# Asset Allocation for the Long Term

Typically, investors invest most of their money for longer than three years. You may have at least a 10-year investment time horizon to purchase a second home, pay for family expenses like college, or start your own business—and a more than 50-year investment horizon to support your spending in retirement. If you want to endow a foundation for perpetuity, your horizon may be longer still.

When investing over longer time horizons, two key risks should be weighed against market risk: shortfall risk (the chance that your investments won't grow enough to meet your spending needs); and inflation risk (the chance that inflation will erode the spending power of your wealth).

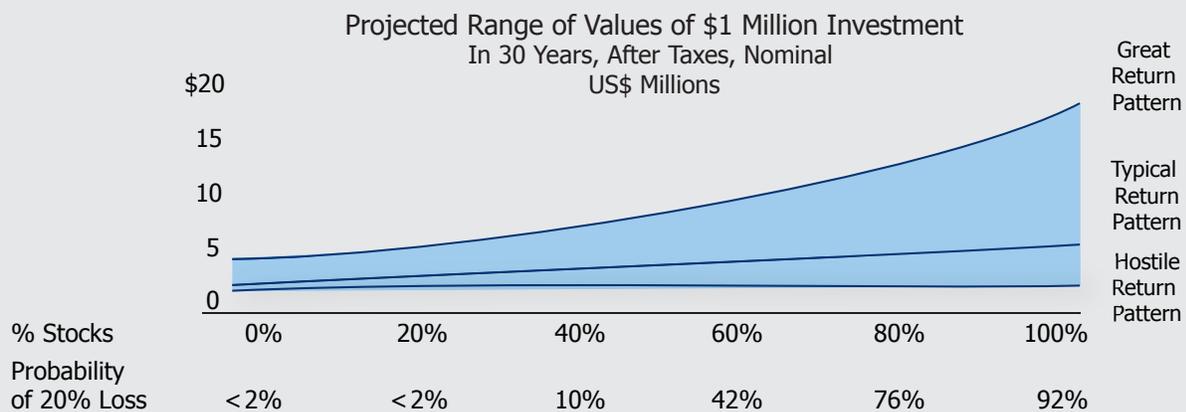
Unless your current wealth is very large relative to your projected long-term spending needs, you are likely to need a substantial allocation to return-seeking assets to

protect against shortfall risk; and a modest allocation to real assets or inflation-protected bonds to protect against inflation risk.

When we help clients choose the asset allocation that is right for them, we project the range of after-tax returns for various asset allocations, based on our proprietary Wealth Forecasting System. Because plans can succeed only if you stick with them in difficult times, we highlight the likelihood of experiencing a large peak-to-trough loss—such as 20%—at some point along the way. For clients who rely on their portfolio for spending, we also show the risk that they will run out of money.

*Investment Display 9* shows our projections for how much \$1 million could grow after taxes over the next 30 years if invested in several simplified asset allocations: all bonds at the far left, all stocks at

## INVESTMENT DISPLAY 9 Trading Off Risk and Return over the Long Term Various Stock/Bond Allocations



*Assumes top marginal federal income tax rates and a 6.5% state income tax rate. Asset values represent the estimated market value; if the assets were liquidated, additional capital gains or losses would be realized that are not reflected here. Stocks are modeled as 21% US diversified, 21% US value, 21% US growth, 7% US small- and mid-cap, 22.5% developed international, and 7.5% emerging market. Bonds are modeled as intermediate-term diversified municipals. Projections indicate the probability of a peak-to-trough decline in pretax, pre-cash-flow cumulative returns of 20% over the life of the forecast. Because the Wealth Forecasting System uses annual capital-market returns, the probability of peak-to-trough losses measured on a more frequent basis (such as daily or monthly) may be understated. The probabilities depicted above include an upward adjustment intended to account for the incidence of peak-to-trough losses that do not last an exact number of years. Based on Bernstein's estimates of the range of returns for the applicable capital markets as of December 31, 2014. Data do not represent past performance and are not a promise of actual future results or a range of future results. See Notes on Wealth Forecasting System in the Appendix.*

Source: Bernstein

the far right, and various mixes of the two. It also shows the odds of a large loss for each asset mix. The projected value in typical markets rises gradually with the equity allocation, while the projected value in great markets rises dramatically. Even the projected value in very poor markets rises with the equity allocation, until the portfolio has 60% in stocks and 40% in bonds; then it declines slightly, as the portfolio loses the diversification benefit of bonds.

We project that the all-stock portfolio will likely do much better than the all-bond or all-cash portfolio over the full 30-year span in average and great markets, and even in most poor market scenarios—but that it won't be smooth sailing. We also expect the all-stock

portfolio to fall at least 20% from peak to trough for some period within that 30-year horizon (a decline that the all-bond or all-cash portfolio is very unlikely to experience). As previously discussed, allocations to diversifying assets can further reduce the likelihood of a large loss, without reducing long-term return.

For most long-term investors, neither all stocks nor all bonds would provide an acceptable trade-off between long-term growth and the risk of large losses. Most younger investors who are not withdrawing for spending are likely to allocate between 60% and 80% of their target financial capital to stocks, unless they are unusually risk-averse.

## Case Study

# Three Portfolios for Three Time Horizons

To bring the relationship between time horizon and asset allocation into focus, let's go back to the entrepreneurs' financial-planning challenge first discussed in *The Entrepreneurs*.

Eric and Eleanor had three goals for the proceeds from the sale of their business, each with a different time horizon:

- Support \$360,000 in annual spending for the next five to seven years, while they started a new business;
- Secure their target financial capital, so that it would support \$240,000 in annual spending (adjusted for inflation) starting 25 years from now, when they plan to retire; and
- Fund a \$1 million trust for their three young children, and a \$1 million donor-advised fund for charitable giving.

To support their near-term spending, a conservative asset allocation is appropriate. Eric and Eleanor didn't want to risk a large decline in portfolio value that could force them to take money out of their target financial capital.

The time horizon for their target financial capital is much longer. Eric and Eleanor plan to work for another 25 years and to live off their earnings (and the near-term fund) until they retire, so the fund should grow untouched for 25 years. A moderate allocation with growth potential seemed reasonable.

The children's trust has an extremely long time frame, based on their children's expected lives, especially since the couple doesn't anticipate making any distributions from the trust until the children are in their thirties—some 20 years from now. The donor-advised fund similarly has a long time horizon, as it is earmarked for charity. For both, a growth-oriented asset mix made sense.

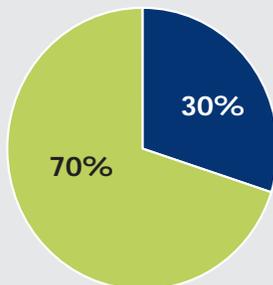
After careful analysis and consideration of the risk/return trade-offs of various allocations, the couple decided to adopt very different allocations for the three separate portfolios (*Investment Display 10*).

### INVESTMENT DISPLAY 10

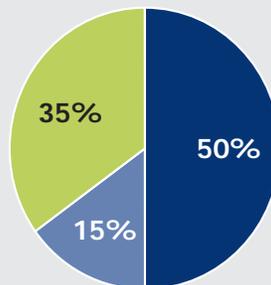
#### Setting a Distinct Allocation for Each Goal or Time Horizon

■ Return-Seeking   ■ Risk-Mitigating   ■ Diversifying

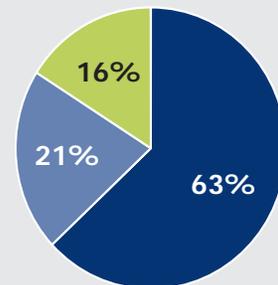
Near-Term Spending:  
Conservative Allocation



Target Financial Capital:  
Moderate Allocation



Children's Trust and  
Donor-Advised Fund:  
Growth Allocation



Source: Bernstein

## F A Q S FREQUENTLY ASKED QUESTIONS

*Since I sold my company, people have been asking me to invest in other early-stage companies. Should I?*

Investments in early-stage companies have the potential to create significant wealth—and to lose all value. Even when successful, they may not provide a return on investment for many years—and you may not be able to get your money out when you need it. We suggest that you consider such investments within the context of a comprehensive investment plan designed to meet all your financial goals.

*My mother's retirement fund was impaired by the 2008 market drop, shortly after she retired. Should I be worried?*

Your mother was very unlucky. Withdrawing funds after a big market drop can seriously erode wealth because you have to sell more securities to support the same spending—and the securities you sell don't participate in any subsequent market recovery. Your mother may have had to adjust her annual spending as a result.

But you are still saving for retirement at some point far in the future. If there is a large market drop sometime in the next 10 years, you are not going to be forced to realize losses on withdrawals. In fact, if you are still saving for retirement at that point, you will benefit from the drop because you'll be able to invest at low prices, and then participate in the likely market recovery. You can afford to take more risk with your investments now than when you are close to—or past—retirement.

Nonetheless, we believe that it's important for all investors to stress-test their investment plans. You should understand the odds that your portfolio will sustain a large loss in value, at least temporarily, and feel comfortable with that risk.

## Active or Passive?

Debate has raged for decades over whether active managers can deliver enough added return to cover their costs, or whether passive index funds and ETFs (exchange-traded funds) are the better choice.

The main appeal of passive investing is lower management fees, which are possible because passive funds simply mimic the composition of a given index and do not research the securities involved. Passive funds also tend to trade less than actively managed portfolios and so generally have lower embedded transaction costs.

However, the advice and tailored execution that often come with active management can be very useful. For example, wealthier investors are typically subject to higher tax rates and can benefit most from an active manager's attention to deferring or avoiding large taxable gains. While some people argue that less

frequent trading makes passive management more efficient for taxable accounts, our research<sup>2</sup> suggests that the tax advantage of passive investing is actually quite small for two reasons:

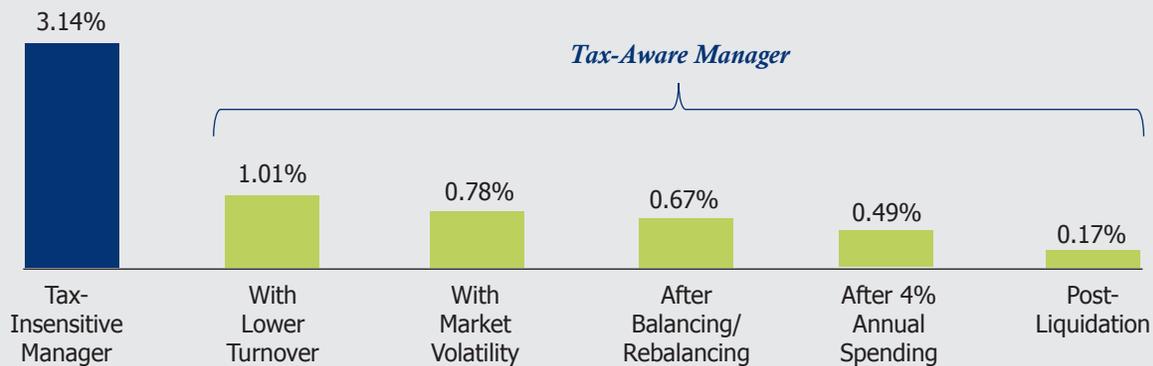
- Active managers can dramatically reduce tax costs by limiting portfolio turnover and taking advantage of volatility; and
- Investors in indexed funds realize significant taxable gains when they rebalance, withdraw money for spending, or liquidate their portfolios.

Just reducing portfolio turnover can cut the tax hurdle to about 1% from over 3%, we estimate; layering on additional tax-management strategies can reduce the tax hurdle to less than 0.2% (*Investment Display 11*). Can active managers enhance after-fee return and/

### INVESTMENT DISPLAY 11

#### Lowering the Bar: The Tax Benefit of Passive Investing Can Be Managed

Pretax Return Hurdle for Active Equity Managers to Beat Passive Indexes



*Assumes a simple asset mix: 60% US large-cap stocks and 40% municipal bonds.*

*Based on Bernstein's estimates of the range of returns for the applicable capital markets as of December 31, 2014.*

*Data do not represent past performance and are not a promise of actual future results or a range of future results. See Notes on Wealth Forecasting System in the Appendix.*

*Source: Bernstein*

<sup>2</sup>"Clearing the Hurdle," Bernstein, 2015.

or reduce risk relative to passive managers? That depends on the asset class and the manager.

For bonds, replicating a capitalization-weighted index can be quite risky. If a country or company issues more debt, index replication forces you to buy more of that debt—even if the added debt is degrading the issuer’s credit quality. And if companies and countries shift to issuing very long-term debt to lock in very low interest rates, index replication forces you to hold more long-term debt, which would trade off sharply if interest rates rise.

Active bond managers can outperform, in part, by avoiding such traps. Paying careful attention to each issuer’s credit quality and to the extra return for taking credit risk is crucial. It’s also critical to adjust the mix of short-, medium-, and long-term bonds in a portfolio when interest rates are rising or falling significantly.

For stocks and other asset classes, the potential benefit of active management is more complex. Active managers of stock portfolios can add value by using their research to avoid overvalued stocks or sectors that are likely to fall. They can also invest with high conviction in securities their research identifies as having potential to appreciate more than

the market, creating portfolios that are intentionally very different from indexes. And they can hedge the currency risk that comes with investing overseas. As a result, skilled active managers—especially those with a disciplined investment approach—can outperform indexes over time, even after fees and expenses. The challenge is to identify active managers to choose. Investors often select active managers with strong past performance, which tends to produce disappointing results because active strategies tend to cycle in and out of favor. We think that identifying a variety of active management teams with complementary approaches and skills can produce more consistent results across a wide range of market conditions.

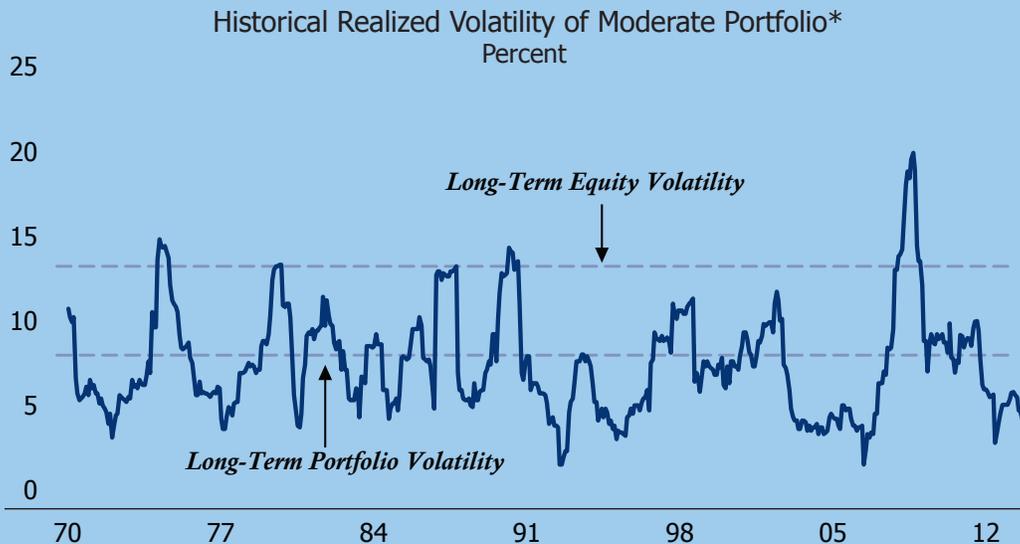
Note that alternative assets such as hedge funds are inherently active because their returns are driven mostly by manager skill rather than by underlying markets. As a result, alternative assets are also the most expensive.

As with most choices in investing, there may be roles for both active and passive portfolios. Investors should work with an advisor who understands their goals for return, volatility, and liquidity over relevant time frames.

## Active Risk Management

### INVESTMENT DISPLAY 12

#### The Problem with Traditional Asset Allocations



Through December 31, 2014

\*Rolling realized one-year volatility. Static portfolio results are based on a portfolio that is invested 60% in global equities and 40% in global bonds (as adjusted to reflect duration only) and rebalanced monthly. Average equity volatility is based on global equity returns.

Source: Barclays, MSCI, and Bernstein

The most important risk-management strategy, in our view, is to adopt a well-diversified strategic asset allocation that is suitable for the investor's time frame, need for return and liquidity, and tolerance for fluctuations in portfolio value.

But a strategic asset allocation that meets your tolerance for risk over the long term can become uncomfortable in the short term, as market conditions shift. Market volatility itself is volatile. In late 2008 and early 2009, even a 60/40 stock/bond mix was more volatile than stocks alone usually are; in the past three years, by contrast, stock market volatility has been unusually subdued (*Investment Display 12*).

When volatility soars even for balanced portfolios, frightened investors often flee return-seeking assets. Many investors thought that they were

de-risking their portfolios after the 2008 market drop by selling their return-seeking assets, but they instead missed the huge stock market recovery that followed. Similarly, when volatility falls, complacent investors often take on too much risk in the pursuit of return.

While it can make sense to seek to reduce fluctuations in portfolio value with short-term asset-allocation shifts, it's crucial that the shifts not be too large or maintained too long—and that they be driven by disciplined analysis, not emotion.

Our research has shown that dynamically adjusting your asset mix can cushion the impact of extreme markets, typically providing additional protection during downturns but giving up some gains during rallies, without reducing returns over the longer time frame.

## Key Takeaways

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This book covers a lot of territory. We hope you'll keep it as a reference book, while retaining a few key concepts:

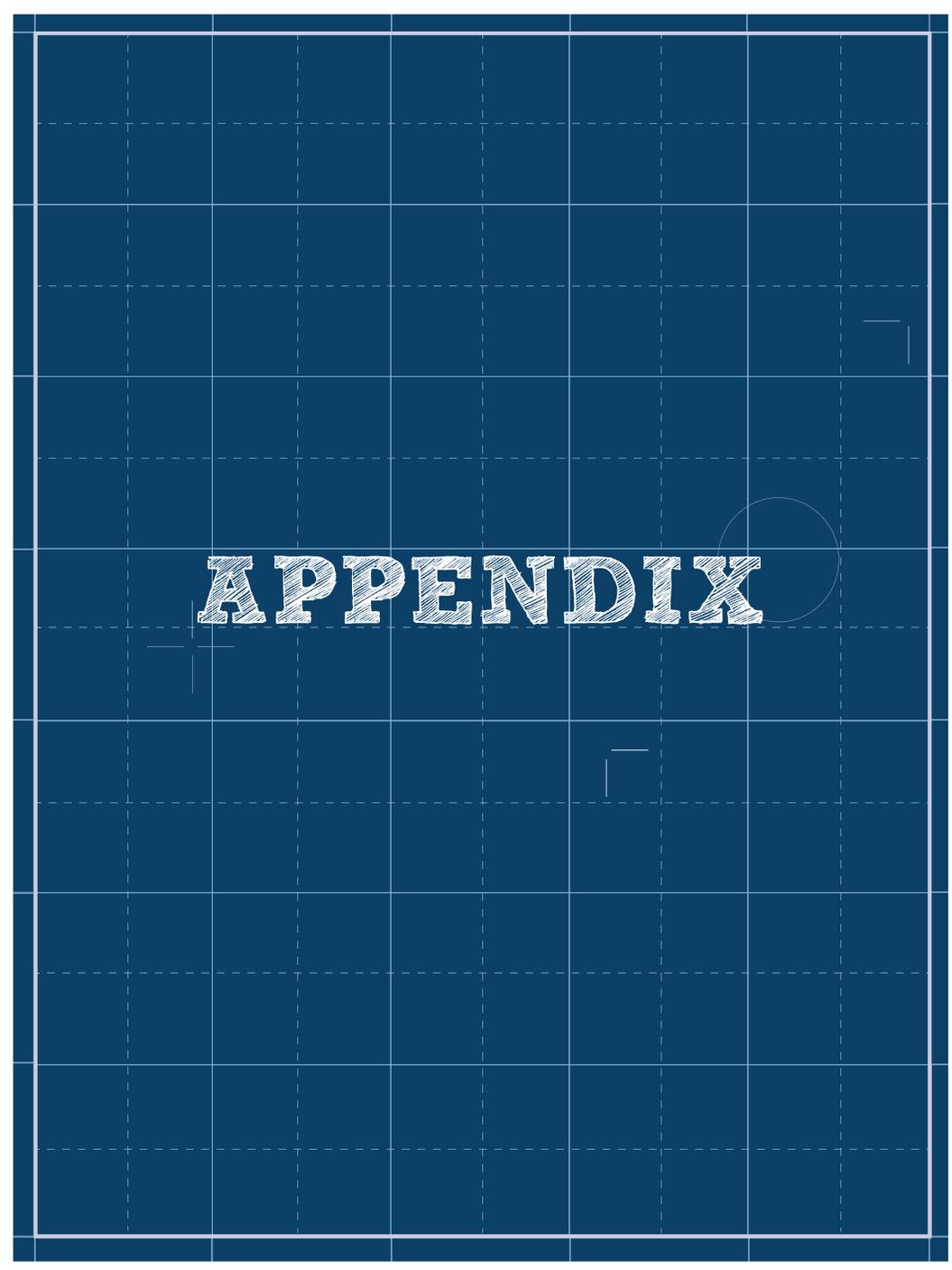
Planning can be daunting when you're young and have a very long time horizon; you can't know how your spending needs and income will develop in the decades ahead, or how the capital markets will perform. But take heart: A long horizon also gives you flexibility. Young investors have more ways to improve or change their financial outcomes than older investors do.

You will probably end up revising your plan as your career and your spending needs evolve. In fact, you should revisit your plan when your life circumstances change.

Your target financial capital is a key planning element to consider. This is the money you invest so that it will grow, over decades, into the capital needed to cover your anticipated spending needs when you stop working. While retirement may be far off, there are many things you can do today that can help you achieve your target financial capital. If you take care of them, you can have greater confidence that buying a new car or front-loading a 529 college savings plan for your children will not jeopardize your lifestyle in retirement.

You may have many other goals with various time frames—from buying a home next year, to starting a new business three years out, to transferring wealth to charity when all your personal needs have been met. It's important that you map out your near-term and long-term goals and communicate them to your advisors so that you can develop a plan to achieve them.

*Let your Bernstein Advisor know if we can help.*



# APPENDIX

## Glossary of Key Terms

*We recognize that the specialized language of the investment world can be daunting, if not downright off-putting; where possible, we have substituted plain-language terms. Inevitably, however, we have been forced at times to use financial jargon because certain terms are more precise. We have done our best to define industry terms as well as Bernstein terminology, at least the first time we use those terms. In addition, we have indicated which terms were created by Bernstein to describe metrics that we see as important to long-term planning.*

*Here are definitions of some key words and phrases that appear frequently in this book.*

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**Active management:** Making decisions about which securities to buy in order to increase return or manage risk, as opposed to passive management, which replicates an index.

**Annual exclusion:** An amount that you may give every calendar year to as many individuals (or certain trusts for their benefit) as you wish without incurring federal gift tax or using your lifetime inflation-adjusted exclusion. The annual exclusion, which is \$14,000 in 2015, is indexed for inflation.

**Applicable exclusion amount:** The cumulative amount that you may give during your lifetime in one or more taxable transfers (for which no other deduction or exclusion is available—e.g., the annual exclusion) without paying a gift tax. To the extent that it is not used during your lifetime, the applicable exclusion amount is available against the estate tax at death. It is \$5.43 million in 2015 and indexed for inflation.

**Asset classes:** Broad categories of investments, such as stocks, bonds, cash equivalents, real estate, commodities, and alternatives.

**Core capital:** Bernstein term for the amount of capital needed to support a desired level of spending in retirement, even if capital-market returns are poor, inflation is high, and you live a long time.

**Correlation:** A statistical measure of the degree to which the prices of two assets move together.

**Diversifying assets:** As used by Bernstein, investments expected to diversify both return-seeking and risk-mitigating assets. This group includes securities related to “real” or nonfinancial assets, such as real assets and commodities, as well as hedge funds.

**Educational/medical (ed/med) exclusion:** An unlimited exclusion from federal gift tax for educational and medical expenses that are paid directly to the provider on behalf of someone else.

**Estate tax:** A transfer tax that is imposed on the property owned, or deemed to be owned, by a deceased person. The federal estate tax, after various deductions, exclusions, and credits, including the applicable exclusion amount, is imposed at a top rate of 40%. Some states also impose an estate tax.

**Financial capital:** Money or financial investments.

**Generation-skipping transfer (GST) tax:** A transfer tax that is imposed, in addition to the gift or estate tax, upon certain transfers during lifetime or at death that pass to or for the benefit of grandchildren or more remote descendants (or to unrelated persons who are more than 37.5 years younger than the donor). The GST tax has several exclusions and exemptions, including the GST tax exemption, which can shelter up to \$5.43 million (in 2015) from the GST tax. Like the applicable exclusion amount, which it resembles in concept, the GST tax exemption is indexed for inflation.

## Glossary of Key Terms

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**Gift tax:** A transfer tax that is imposed on certain gifts (i.e., gratuitous transfers) that you make during your lifetime. The federal gift tax is currently imposed at a top rate of 40%.

**Human capital:** Ability to work to generate financial capital that you can invest.

**Inheritance tax:** A transfer tax imposed by some states on the recipient of a deceased person's property.

**Marital deduction:** An unlimited deduction from estate and gift tax for transfers to a spouse (or certain kinds of trusts for his or her benefit), provided that the recipient spouse is a US citizen.

**Options:** Instruments that give you the right, but not the obligation, to buy a stock, bond, or index, at a specified price at some point in the future. Options are in-the-money when exercising them would be profitable; they are out-of-the-money when it would not be profitable to exercise them.

**Passive management:** Replicating an investment index or a benchmark, or buying an instrument that replicates an investment index or a benchmark, as opposed to active management.

**Potential surplus capital:** Bernstein term for financial capital in excess of target financial capital that may be available to fund other spending, charitable gifts, or wealth transfers.

**Required minimum distribution (RMD):** The minimum amount that must be distributed annually from certain qualified retirement accounts. For accounts owned by the participant, RMDs typically begin at age 70.5, or at the participant's retirement for some 401(k) plans. For inherited accounts, RMDs typically commence at the time of inheritance. The amount of the RMD is often (but not always) based on actuarial and age-related factors relevant to the recipient.

**Return-seeking assets:** As used by Bernstein, investments that tend to generate more growth over time, usually with significant short-term volatility. The two principal types of return-seeking investments are stocks and high-yield bonds.

**Risk-mitigating assets:** As used by Bernstein, investments that tend to provide stability and income and that counterbalance the higher volatility of return-seeking investments. The two principal types of risk-mitigating investments are high-quality bonds and cash.

**Surplus capital:** Bernstein term for financial capital in excess of required core capital that may be available to fund other spending, charitable gifts, or wealth transfers.

**Target financial capital:** Bernstein term for the money you invest to grow over decades to cover your anticipated spending needs in retirement; essentially, an estimate of required core capital in advance of retirement, when your financial and life circumstances are still fluid.

**Total philanthropic value (TPV):** A Bernstein term for the total value of the distributions over time and the remaining principal of a private foundation or donor-advised fund.

**Volatility:** The extent to which the price of a financial asset or market fluctuates, measured by the standard deviation of its returns. Volatility is a commonly cited risk measure.

# Notes on Wealth Forecasting System

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## 1. Purpose and Description of Wealth Forecasting System

Bernstein's Wealth Forecasting System<sup>SM</sup> is designed to assist investors in making their long-term investment decisions as to their allocation of investments among categories of financial assets. Our planning tool consists of a four-step process: (1) Client-Profile Input: the client's asset allocation, income, expenses, cash withdrawals, tax rate, risk-tolerance level, goals, and other factors; (2) Client Scenarios: in effect, questions that the client would like our guidance on, which may touch on issues such as when to retire, what his/her cash-flow stream is likely to be, whether his/her portfolio can beat inflation long-term, and how different asset allocations might affect his/her long-term security; (3) The Capital Markets Engine: our proprietary model that uses our research and historical data to create a vast range of hypothetical market returns, which takes into account the linkages within and among the capital markets, as well as their unpredictability; and (4) A Probability Distribution of Outcomes: based on the assets invested pursuant to the stated asset allocation, 90% of the estimated ranges of probable returns and asset values that the client could experience are represented within the range established by the 5th and 95th percentiles on "box-and-whiskers" graphs. However, outcomes outside this range are expected to occur 10% of the time; thus, the range does not guarantee results or establish the boundaries for all outcomes. Estimated market returns on bonds are derived taking into account yield and other criteria. An important assumption is that stocks will, over time, outperform long bonds by a reasonable amount, although this is in no way a certainty. Moreover, actual future results may not meet Bernstein's estimates of the range of market returns, as these results are subject to a variety of economic, market, and other variables. Accordingly, the analysis should not be construed as a promise of actual future results, the actual range of future results, or the actual probability that these results will be realized. Of course, no investment strategy or allocation can eliminate risk or guarantee returns.

## 2. Retirement Vehicles

Each retirement plan is modeled as one of the following vehicles: traditional IRA, 401(k), 403(b), Keogh, or Roth IRA/401(k). One of the significant differences among these vehicle types is the date at which mandatory distributions commence. For traditional IRA vehicles, mandatory distributions are assumed to commence during the year in which the investor reaches the age of 70.5; for 401(k), 403(b), and Keogh vehicles, mandatory distributions are assumed to commence at the later of: (1) the year in which the investor reaches the age of 70.5; or (2) the year in which the investor retires. In the case of a married couple, these dates are based on the date of birth of the older spouse. The minimum mandatory withdrawal is estimated using the Minimum Distribution Incidental Benefit tables, as published on [www.irs.gov](http://www.irs.gov). For Roth IRA/401(k) vehicles, there are no mandatory distributions. Distributions from a Roth IRA/401(k) that exceed principal will be taxed and/or penalized if the distributed assets are less than five years old and the contributor is less than 59.5 years old. All Roth 401(k) plans will be rolled into a Roth IRA plan when the investor turns 59.5 years old, to avoid minimum distribution requirements.

## 3. Rebalancing

Another important planning assumption is how the asset allocation varies over time. We attempt to model how the portfolio would actually be managed. Cash flows and cash generated from portfolio turnover are used to maintain the selected asset allocation between cash, bonds, stocks, REITs, and hedge funds over the period of the analysis. Where this is not sufficient, an optimization program is run to trade off the mismatch between the actual allocation and targets against the cost of trading to rebalance. In general, the portfolio is expected to be maintained reasonably close to the target allocation. In addition, in later years, there may be contention between the total relationship's allocation and those of the separate portfolios. For example, suppose an investor (in the top marginal federal tax bracket) begins with an asset mix consisting entirely of municipal bonds in his/her personal portfolio and entirely of stocks in his/her retirement portfolio. If personal assets are spent, the mix between stocks and bonds will diverge from targets. We put primary weight on maintaining the overall allocation near target, which may result in an allocation to taxable bonds in the retirement portfolio as the personal assets decrease in value relative to the retirement portfolio's value.

## 4. Expenses and Spending Plans (Withdrawals)

All results are generally shown after applicable taxes and after anticipated withdrawals and/or additions, unless otherwise noted. Liquidations may result in realized gains or losses, which will have capital-gains tax implications.

## 5. Modeled Asset Classes

The following assets or indexes were used in this analysis to represent the various model classes:

Asset Class	Modeled as...	Annual Turnover Rate
Cash Equivalents	3-month Treasury bills	100%
Intermediate-Term Diversified Municipals	AA-rated diversified municipal bonds of 7-year maturity	30
Intermediate-Term In-State Municipals	AA-rated in-state municipal bonds of 7-year maturity	30
Intermediate-Term Taxables	Taxable bonds of 7-year maturity	30
US Diversified Stocks	S&P 500 Index	15
US Value Stocks	S&P/Barra Value Index	15
US Growth Stocks	S&P/Barra Growth Index	15
US Small-/Mid-Cap Stocks	Russell 2500 Index	15
Developed International Stocks	MSCI EAFE Unhedged Index	15
Emerging-Market Stocks	MSCI Emerging Markets Index	20
Real Assets	1/3 FTSE NAREIT Index, 1/3 MSCI ACWI Commodity Producers Index, 1/3 DJ-UBS Commodity Index	30
Diversified Hedge-Fund Portfolio	Diversified hedge-fund asset class	33

## 6. Volatility

Volatility is a measure of dispersion of expected returns around the average. The greater the volatility, the more likely it is that returns in any one period will be substantially above or below the expected result. The volatility for each asset class used in this analysis is listed on the Capital-Market Projections page at the end of these Notes. In general, two-thirds of the returns will be within one standard deviation. For example, assuming that stocks are expected to return 8.0% on a compounded basis and the volatility of returns on stocks is 17.0%, in any one year it is likely that two-thirds of the projected returns will be between (8.9)% and 28.8%. With intermediate government bonds, if the expected compound return is assumed to be 5.0% and the volatility is assumed to be 6.0%, two-thirds of the outcomes will typically be between (1.1)% and 11.5%. Bernstein's forecast of volatility is based on historical data and incorporates Bernstein's judgment that the volatility of fixed-income assets is different for different time periods.

## 7. Technical Assumptions

Bernstein's Wealth Forecasting System is based on a number of technical assumptions regarding the future behavior of financial markets. Bernstein's Capital Markets Engine is the module responsible for creating simulations of returns in the capital markets. These simulations are based on inputs that summarize the current condition of the capital markets as of December 31, 2014. Therefore, the first 12-month period of simulated returns represents the period from December 31, 2014, through December 31, 2015, and not necessarily the calendar year of 2015. A description of these technical assumptions is available on request.

## 8. Tax Implications

Before making any asset-allocation decisions, an investor should review with his/her tax advisor the tax liabilities incurred by the different investment alternatives presented herein, including any capital gains that would be incurred as a result of liquidating all or part of his/her portfolio, retirement-plan distributions, investments in municipal or taxable bonds, etc. Bernstein does not provide tax, legal, or accounting advice. In considering this material, you should discuss your individual circumstances with professionals in those areas before making any decisions.

## 9. Tax Rates

Bernstein's Wealth Forecasting System has used various assumptions for the income tax rates of investors in the case studies. See the assumptions in each case study (including footnotes) for details. The federal income tax rate is Bernstein's estimate of either the top marginal tax bracket or an "average" rate calculated based upon the marginal rate schedule. For 2014 and beyond, the maximum federal tax rate on investment income is 43.4% and the maximum federal long-term capital-gains tax rate is 23.8%. Federal tax rates are blended with applicable state tax rates by including, among other things, federal deductions for state income and capital-gains taxes. The state tax rate generally represents Bernstein's estimate of the top marginal rate, if applicable.

## 10. Target Financial Capital Analysis

The term "target financial capital" means the money you invest to grow over decades during the accumulation phase so that in retirement you will have the amount of money necessary to cover anticipated lifetime net spending. All financial assets in excess of this target financial capital are "potential surplus capital." Bernstein estimates target financial capital by putting information supplied by the client, including current and expected future income and spending, into our Wealth Forecasting System, which simulates a vast range of potential market returns over the client's anticipated life span. From these simulations we develop an estimate of the target financial capital the client will require today to grow over time to required core capital. Variations in actual income, applicable tax rates, and market returns may substantially impact the likelihood that a target financial capital estimate will be sufficient to grow to the desired level of core capital. Accordingly, the estimate should not be construed as a promise of actual future results, the actual range of future results, or the actual probability that the results will be realized.

## 11. Core Capital Analysis

The term "core capital" means the amount of money necessary to cover anticipated lifetime net spending. All non-core-capital assets are termed "surplus capital." Bernstein estimates core capital by inputting information supplied by the client, including expected future income and spending, into our Wealth Forecasting System, which simulates a vast range of potential market returns over the client's anticipated life span. From these simulations we develop an estimate of the core capital the client will require to maintain his/her spending level over time. Variations in actual income, spending, applicable tax rates, life span, and market returns may substantially impact the likelihood that a core capital estimate will be sufficient to provide for future expenses. Accordingly, the estimate should not be construed as a promise of actual future results, the actual range of future results, or the actual probability that the results will be realized.

## 12. Mortality

In our mortality-adjusted analyses, the life span of an individual varies in each of our 10,000 trials in accordance with mortality tables. To reflect that high-net-worth individuals live longer than average, we subtract three years from each individual's age (e.g., a 65-year-old would be modeled as a 62-year-old). Mortality simulations are based on the Society of Actuaries Retirement Plan Experience Committee Mortality Tables RP-2000.

## 13. Taxable Trust

The taxable trust is modeled as an irrevocable tax-planning or estate-planning vehicle with one or more current beneficiaries and one or more remainder beneficiaries. Annual distributions to the current beneficiary may be structured in a number of different ways, including: (1) an amount or a percentage of fiduciary accounting income (FAI) (which may be defined to include part or all of realized capital gains); (2) FAI plus some amount of principal, expressed as a percentage of trust assets or as an amount; (3) an annuity, or fixed dollar amount, which may be increased annually by inflation or by a fixed percentage; (4) a unitrust, or annual payment of a percentage of trust assets, based on the trust's value at the beginning of the year or averaged over several years; or (5) any combination of the above four payout methods. The trust will pay income taxes on retained income and will receive an income distribution deduction for income paid to the current beneficiaries. Capital gains may be taxed in one of three ways, as directed: (1) taxed entirely to the trust; (2) taxed to the current beneficiaries to the extent the distributions exceed traditional income; or (3) taxed to the current beneficiaries on a pro rata basis with traditional income.

## 14. Endowment

The endowment is modeled as a nontaxable permanent fund bestowed upon an institution to be used to support a specific purpose in perpetuity. The endowment may receive an initial donation and periodic funding from either the personal portfolio modeled in the system or an external source. Annual distributions from the endowment may be structured in a number of different ways, including: (1) an annuity or fixed dollar amount, which may be increased annually by inflation or by a fixed percentage; (2) a unitrust, or annual payout of a percentage of endowment assets, based on a single year or averaged over several years; (3) a linear distribution of endowment assets, determined each year by dividing the endowment assets by the remaining number of years; or (4) the greater of the previous year's distribution or any of the above methods. These distribution policies can be varied in any given year.

## 15. Intentionally Defective Grantor Trust

The intentionally defective grantor trust (IDGT) is modeled as an irrevocable trust whose assets are treated as the grantor's for income tax purposes but not for gift or estate tax purposes. Some income tax and transfer tax consequences associated with transfers to, and the operation of, an IDGT remain uncertain, and the strategy may be subject to challenge by the IRS. Hence, this technique requires substantial guidance from tax and legal advisors. The grantor may give assets to the trust, which will require using gift tax exemptions or exclusions, or paying gift taxes. The IDGT is modeled with one or more current beneficiaries and one or more remainder beneficiaries. Distributions to the current beneficiaries are not required, but the system permits the user to structure annual distributions in a number of different ways, including: (1) an amount or a percentage of fiduciary accounting income (FAI) (which may be defined to include some or all realized capital gains); (2) FAI plus some principal, expressed either as a percentage of trust assets or as a dollar amount; (3) an annuity, or fixed dollar amount, which may be increased annually by inflation or by a fixed percentage; (4) a unitrust, or annual payment of a percentage of trust assets, based on the trust's value at the beginning of the year or averaged over several years; or (5) any combination of the above four payout methods. Because the IDGT is modeled as a grantor trust, the system calculates all taxes on income and realized capital gains that occur in the IDGT portfolio each year, based on the grantor's tax rates and other income, and pays them from the grantor's personal portfolio. The IDGT may continue for the duration of the analysis, or the trust assets may be distributed in cash or in kind at a specific point in time or periodically to: (1) a non-modeled recipient; (2) a taxable trust; or (3) a taxable portfolio for someone other than the grantor. If applicable, an installment sale to an IDGT may be modeled as a user-entered initial "seed" gift followed by a sale of additional assets to the trust. The system will use one of two methods to repay the value of the sale assets plus interest (less any user-specified discount to the grantor): (1) user-defined payback schedule; or (2) annual interest-only payments at the applicable federal rate (AFR) appropriate for the month of sale and the term of the installment note, with a balloon payment of principal plus any unpaid interest at the end of the specified term.

## 16. Grantor Retained Annuity Trust

The grantor retained annuity trust (GRAT) is a wealth transfer vehicle that receives its initial funding from the grantor and transfers annuity payments to the grantor's personal portfolio each year. The annuity amounts, which are determined in advance, may be fixed (the same amount each year) or increasing (growing each year by no more than 20% of the previous year's amount). The annuity payment is made first from available cash, and then from other portfolio assets in kind. Because the GRAT is modeled as a grantor trust, the system calculates all taxes on income and realized capital gains that occur in the GRAT portfolio each year, based on the grantor's tax rates and other income, and pays them from the grantor's personal portfolio. When the GRAT term ends, the remainder, if any, may be transferred in cash or in kind (as the user specifies) to: (1) a non-modeled recipient; (2) a continuing grantor trust; or (3) a taxable trust. If the remainder is transferred in kind, the assets will have carryover basis.

## 17. Rolling Grantor Retained Annuity Trust

The rolling grantor retained annuity trust (GRAT) is a wealth transfer strategy that consists of a series of GRATs. Each GRAT is a wealth transfer vehicle that receives its initial funding from the grantor and transfers annuity payments to the grantor's personal portfolio. Each year, the annuity payments from all existing GRATs are used to establish a new GRAT. The annuity amounts, which are determined in advance, may be fixed (the same amount each year) or increasing (growing each year by no more than 20% of the previous year's amount). Because the GRAT is modeled as a grantor trust, the system calculates all taxes on income and realized capital gains that occur in all GRAT portfolios each year, based on the grantor's tax rates and other income, and pays them either from the grantor's personal portfolio or, if specified, from annuity payments before funding the next GRAT. The remainders of all individual GRATs may be transferred in cash or in kind to: (1) a non-modeled recipient; (2) a continuing grantor trust; (3) a taxable trust; or (4) a taxable portfolio for someone other than the grantor. In each year in which a new GRAT is to be created (aside from year 1), we use our Capital Markets Engine to generate an IRS Section 7520 rate that is consistent with the concurrent yield-curve environment. Using this rate as a discount rate, we are able to continually construct new "zeroed-out" GRATs in an ever-changing interest-rate environment.

## 18. Charitable Remainder Trust

The charitable remainder trust (CRT) is modeled as a tax-planning or an estate-planning vehicle, which makes an annual payout to the recipient(s) specified by the grantor, and at the end of its term (which may be the recipient's lifetime), transfers any remaining assets, as a tax-free gift, to a charitable organization. Depending on the payout's structure, the CRT can be modeled as either a charitable remainder unitrust (CRUT) or a charitable remainder annuity trust (CRAT). The CRUT's payout is equal to a fixed percentage of the portfolio's beginning-year value, whereas the CRAT's payout consists of a fixed dollar amount. In the inception year of the CRT, its grantor receives an income tax deduction typically equal to the present value of the charitable donation, subject to the applicable adjusted gross income (AGI) limits on charitable deductions and phaseout of itemized deductions, as well as the rules regarding reduction to basis of gifts to private foundations. Unused charitable deductions are carried forward up to five years. Although the CRT does not pay taxes on its income or capital gains, its payouts are included in the recipient's AGI using the following four accounting tiers: Tier 1—Ordinary Income (Taxable Interest/Dividends); Tier 2—Realized Long-Term Capital Gains; Tier 3—Other Income (Tax-Exempt Interest); and Tier 4—Principal. CRTs are required to pay out all current and previously retained Tier 1 income first, all current and previously retained Tier 2 income second, all current and previously retained Tier 3 income third, and Tier 4 income last.

## 19. Charitable Lead Trust

The charitable lead trust (CLT) is modeled as a portfolio that receives its initial funding from the grantor and transfers payments to one or more charitable recipients each year for a specified number of years or for the life or lives of certain individuals. The annual payments may be a fixed dollar amount (charitable lead annuity trust or CLAT) or a percentage of the trust's assets as valued every year (charitable lead unitrust or CLUT). In the case of a CLAT, annuities may be fixed (the same amount each year), or increasing. The annual payment is generally made first from available cash and then from other trust assets in kind. In a non-grantor CLT, the trust itself is subject to income taxation, and generally pays income tax with respect to retained income and receives a charitable income tax deduction with respect to certain income paid to the charitable recipient(s). Realized capital gains may be taxable to the trust or treated as a distribution to charitable recipient(s) (and therefore eligible for a charitable income tax deduction), depending upon the provisions of the trust instrument and other factors. In a grantor CLT, the trust is a "grantor" trust for income tax purposes such that the grantor is personally taxed on all items of trust income. The grantor is entitled to a charitable income tax deduction upon funding for the portion of the CLT then calculated to be payable to the charitable recipient(s) over its term (often the entire funding amount). This charitable income tax deduction is subject to recapture rules if the grantor dies during the term of the CLT. For both the non-grantor and grantor CLT, when the CLT term ends, the remainder, if any, may be transferred as directed by the trust agreement, including to a non-modeled recipient, a taxable trust, or a beneficiary's portfolio. The assets transferred from the CLT will have carryover cost basis.

## 20. Capital-Market Projections

	Median 30-Year Growth Rate	Mean Annual Return	Mean Annual Income	One-Year Volatility	30-Year Annual Equivalent Volatility
Cash Equivalents	3.1%	3.5%	3.5%	0.3%	10.1%
Intermediate-Term Taxables	4.3	4.7	5.9	4.5	8.5
Intermediate-Term Diversified Municipals	3.3	3.5	3.4	3.6	7.7
Intermediate-Term In-State Municipals	3.2	3.5	3.4	3.6	7.7
US Diversified Stocks	7.1	8.7	2.8	14.4	19.5
US Value Stocks	7.4	8.9	3.3	14.3	19.2
US Growth Stocks	6.8	8.8	2.3	15.6	20.7
US Small-/Mid-Cap Stocks	7.2	9.3	2.4	16.1	21.6
Developed International Stocks	7.8	9.9	3.3	15.7	20.5
Emerging-Market Stocks	5.9	9.8	3.9	20.6	25.8
Real Assets	6.5	7.7	3.9	11.7	17.1
Diversified Hedge-Fund Portfolio	5.9	6.5	3.3	9.5	15.9
Inflation	2.9	3.3	N/A	1.1	11.5

Based on 10,000 simulated trials, each consisting of 30-year periods. Reflects Bernstein's estimates and the capital-market conditions as of December 31, 2014. For hedge-fund asset classes, "Mean Annual Income" represents income and short-term capital gains.

**Data do not represent past performance and are not a promise of actual future results or a range of future results.**

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