

When it comes to return forecasts, there's no specific definition of "long term," though a widely accepted rule of thumb is a time period of more than 10 years. A balance is struck when you consider both shorter-term market fluctuations (think 2008) and extremely long periods of time when your confidence in making predictions greatly diminishes. Accordingly, the Schwab Center for Financial Research used a 20-year time horizon for the estimates provided here, though calculations using a time horizon between 15-30 years should produce similar results.

### **How do short- and long-term forecasts differ? Is one better than the other?**

For some investors, the strategic asset allocation can serve as a starting point to make shorter-term tactical changes to their asset allocation. For example, an investor may target a long-term, strategic allocation of 50% stocks and 50% bonds. Depending on the market environment, the investor may want to temporarily favor stocks over bonds, or vice versa.

Continuing with the example, suppose that the investor thinks that the stock market is currently undervalued. The investor may choose to act on this belief by temporarily adjusting her current allocation, possibly to 60% stocks and 40% bonds.

The process of making these shorter-term changes is called **tactical asset allocation**. These temporary shifts generally occur when estimates of short-term returns deviate from long-term estimates. Short-term return estimates are typically based on current economic and market conditions, whereas current conditions are not as relevant for estimating long-term returns.

When it comes to meeting your long-term goals, however, choosing an appropriate long-term, strategic asset allocation is more important than making short-term, tactical bets.

Some people argue that investors should focus exclusively on short-term returns and short-term asset allocation because it's difficult to accurately estimate long-term returns. The problem is that it's equally difficult to accurately estimate short-term returns!

And because most investors have at least one long-term goal—retirement—they need reasonable long-term return estimates to help them determine how much money they'll need to fund their retirement lifestyle, and in turn, how much they'll need to save.

For this reason, the focus of this study is on long-term returns

### **What are your long-term return estimates for stocks, bonds and**

**cash investments?**

<b>Large-cap stocks</b>	7.9% compounded annually
<b>Mid-/small-cap stocks</b>	9.3% compounded annually
<b>International stocks</b>	7.8% compounded annually
<b>Bonds</b>	3.9% compounded annually
<b>Cash investments</b>	2.6% compounded annually

These estimates are significantly below the historical annual compound returns on large-cap stocks and bonds of 10% and 8.3%, respectively, during the 1970-2010 time period. Of course, these are estimates of average returns—in any one year, stocks and bonds may earn far more or far less.

Why are the estimates below historical averages? There are two reasons.

- Our estimate of long-run inflation is 2.6%, just shy of two percentage points below the actual inflation rate during the 1970-2010 time period.
- Current and expected interest rates are much lower than what has transpired historically, especially compared to the high-interest-rate environment of the 1980s.

**What you can do now**

So, what can you do in a single-digit return environment? Thanks to the power of compound returns, what you do (or don't do) today can have big implications for your ability to meet your long-term goals.

When faced with expected returns that are lower than you may have anticipated, try to resist the temptation to simply wait in the hope that the market will provide higher returns in the future that will allow you to "catch up" on your financial plan. If it does, that will be a great bonus. But it's far better to plan for a more realistic scenario.

Here are a couple of things you can do. First, try to avoid unnecessary fees and taxes, particularly in a lower-return environment. Second, if you don't have a long-term financial plan, it's a good time to put one together.

**How do you calculate your estimates?**

Our return estimates contain two parts: a **current risk-free rate** component that's the same for all asset classes and an **asset-class premium** that varies by each asset class because of differences in expected risk.

**Estimating current risk-free rates**

The current risk-free rate is estimated by directly observing Treasury yields in the marketplace. Because we're estimating returns for a 20-year time horizon, the risk-free rate is measured as the yield of a 20-year US Treasury bond, which was 4.3% as of January 12, 2011.

**Estimating asset-class premiums**

The asset-class premium measures the incremental return (either higher or lower—generally higher for equity asset classes and lower for fixed-income asset classes) demanded by investors for investing in that asset class as opposed to a risk-free bond.

**Stocks:** The asset-class premium for large-cap stocks is called the **equity risk premium (ERP)**, which measures the relative attractiveness of large-capitalization stocks versus a risk-free bond. It also serves as the foundation for estimating asset-class premiums for mid/small-cap stocks and international stocks.

There are two primary ways of estimating the ERP:

- The **historical long-term approach** takes the historical difference in returns between stocks and risk-free bonds and assumes that the future will look like the past.
- The **valuation approach** relies on fundamental data, such as dividends, earnings, gross domestic product (GDP) growth and valuation levels and then uses well-established financial theory to estimate an ERP.

### **Valuation approach vs. historical long-term approach**

The primary criticism of the valuation approach is that it's very difficult to forecast variables such as dividends, earnings or GDP growth over the short-run, let alone over long horizons. As such, we view long-term return estimates that use this approach to be highly suspect.

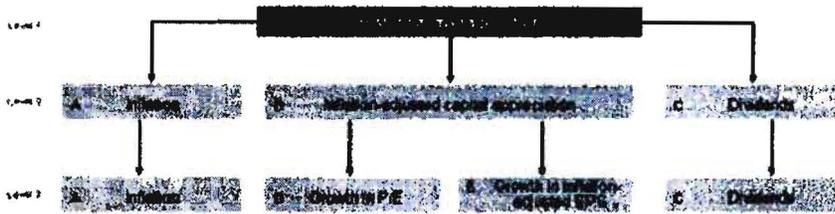
The historical-return approach is based on the realization that it's difficult, if not impossible, to forecast long-run stock market returns using current market or economic conditions. Since current market information is generally not a useful predictor of long-run ERP, the basis of the historical-return approach is that the best estimate of the future ERP is the historical average ERP calculated over a long history.

The primary criticism of the historical-return approach is that realized returns over a particular time period can differ, sometimes dramatically, from what's expected. As such, blindly extrapolating these returns into the future can result in unreasonable estimates.

The approach adopted in this study addresses this criticism.<sup>1</sup> To better understand it, we first break down the sources of average returns for large-cap stocks. In doing so, we look "under the hood" to help determine which components of average returns may be expected to repeat in the future and, more importantly, which ones may not.

### **Looking Under the Hood: Decomposition of Average Returns for Large-Cap Stocks**

Q&A: Estimating Long-Term Market Returns



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As you can see, there are three levels of decomposition:

**Level 1** starts with the return on large-cap stocks, which was about 9.5% compounded annually over the 1926-2010 time period.

**Level 2** breaks down the return on large-cap stocks into three primary components: inflation (A), returns derived from capital appreciation after inflation (B) and returns derived from dividends (C).

**Level 3** breaks down the inflation-adjusted capital appreciation component (B) into two additional pieces: growth in the historical price to earnings (P/E) ratio (D) and growth in inflation-adjusted EPS (E).

This results in a final equation of  $A + D + E + C = \text{historical average return}$ .

Plugging in the historical averages for large-cap stocks yields the following return composition:

$$3\% + 0.6\% + 1.7\% + 4\% \approx \text{historical average return}^2$$

Source: Schwab Center for Financial Research as of January 12, 2011.

In researching the sources of historical returns, we don't expect the growth in the P/E ratio—amounting to a roughly 0.6% per year average return—to repeat in the future, as this return did not come from earnings growth. Instead, it represents what the market was willing to pay for every dollar in earnings during the 1926-2010 time period.

There are a number of possible reasons why the P/E ratio expanded during this time, including higher expectations for future earnings and less return demanded by investors for holding stocks. Regardless, it's not realistic to think that such an expansion will occur again.

As a result, we do not include the 0.6% attributed to P/E growth when estimating future returns, which results in an adjusted historical return on large-cap stocks equal to the following components:

Inflation + growth in inflation-adjusted EPS + dividends

$$3\% + 1.7\% + 4\% \approx 8.7\%$$

The adjusted historical return of 8.7% is not our estimate of future returns

because it reflects historical interest rates and inflation. It's used to estimate the ERP. Specifically, we take the adjusted historical return on large-cap stocks and subtract from it the historical income return provided by the risk-free asset (proxied by the Ibbotson Long-term Government Bond Index) <sup>3</sup>:

$ERP \approx 8.7\% - 5.1\% \approx 3.6\%$  (compounded annually)

Therefore, our current risk-free rate of 4.3% + our asset-class premium (ERP) of 3.6% = a long-term return estimate of 7.9% for large-cap stocks.

**Mid-/small-cap stocks:** When estimating the asset-class premium for mid-/small-cap stocks, we use the ERP of 3.6% as the starting point, and then make adjustments based on the unique risk level for the mid-/small-cap asset class relative to the overall stock market.

To do this, we first adjust the ERP to reflect the premium for the overall stock market. We accomplish this by estimating the historical sensitivity, or beta, of overall stock market returns to large-cap stock returns. This beta of 1.01 is then multiplied by the ERP of 3.6% to obtain the asset-class premium for the overall stock market. The result is an asset-class premium for the overall market of just about 3.6%.

We then use this overall market premium to assist with estimating the mid-/small-cap premium. Specifically, we multiply it by the historical sensitivity between mid-/small-cap stock returns to overall stock market returns of 1.4.<sup>4</sup>

This results in a mid/small-cap asset premium of about 5%. Add that to our current risk-free rate of 4.3% and we get a long-term return estimate of 9.3%.

**International stocks:** Data limitations prevent us from analyzing the sources of historical returns for international stocks. As such, we explore two alternate approaches for estimating the international asset-class premium. The first uses the domestic stock market asset-class premium as an anchor in developing the international equity premium.

This approach has two steps, the first of which is to estimate the world ERP as measured by the return demanded by investors holding a world-stock portfolio that is more than the US risk-free rate. This is estimated by dividing the domestic stock market asset-class premium of 3.6% by the historical sensitivity of domestic stock returns to world stock market returns of 0.94, the quotient of which is a world ERP estimate of 3.8%.

In the second step, the world ERP is multiplied by the historical sensitivity of international market returns (excluding US stocks) to world market returns (including US stocks) of 1.04. This results in an asset premium estimate for the

international asset class of roughly 3.9%.

This approach assumes that domestic and international stock markets are integrated, meaning there are no barriers to financial flows and that assets with the same levels of risk command the same return no matter the country. In addition, the approach relies heavily on sensitivities between domestic and international returns that prove to be relatively unstable over time.

As an alternative approach, the international asset-class premium is estimated by taking the historical difference in returns between international and domestic stocks, which results in an estimate of about 3.1%.

The historical asset-class premium is substantially less than the estimate that uses the domestic ERP as an anchor. Which approach is better? Unfortunately, at the present time we have no overwhelming theoretical or empirical basis to choose one or the other method, as both are reasonable.

Having said that, our estimate of the international asset-class premium is the equal-weighted average of the two estimates, or about 3.5%.

**Bonds and cash investments:** The asset-class premium for bonds consists of two parts—a **horizon premium** and a **default premium**—while the asset-class premium for cash investments consists only of a horizon premium.

The horizon premium estimates the return differential derived from holding bonds with a maturity other than a 20-year time horizon. It's positive for bonds with a time horizon of more than 20 years and negative for bonds with a time horizon of fewer than 20 years. It's measured as the historical difference in monthly income returns between two government bonds, with the maturity of the first bond matching that of our asset-class benchmark and the maturity of a second matching the assumed time horizon of 20 years.

The default premium estimates the extra return demanded for investing in corporate and mortgaged-backed securities. It is measured as the historical difference in monthly total returns between the Barclays Capital Aggregate Bond Index and a government bond maturity-matched to the Barclays Capital Aggregate Index.

For the bond asset class, the bond horizon and default premiums result in a net asset class premium of approximately -0.4%. Add that to our current risk-free rate of 4.3% and we get a long-term return estimate of 3.9%.

For cash investments, we take the greater of the long-term inflation rate or the sum of the asset-class premium and the current risk-free rate. In this instance, the sum of the asset-class premium (which equals the cash horizon premium, -1.9%) and current risk-free rate (4.3%) is 2.4%, whereas the long-term inflation rate is 2.6%. Therefore, our long-term return estimate

for cash investments is 2.6%.

### How we estimate long-term inflation

The 20-year inflation estimate is derived by comparing the yield of 20-year Treasury Inflation Protected Securities (TIPS) to the yield of US Treasury bonds of the same maturity. The yield on a conventional Treasury bond must compensate the investor for the expected decrease in purchasing power associated with inflation. Buyers of inflation-protected securities require no such compensation because interest and principal payments are indexed to inflation. T-bonds and TIPS of the same maturity should offer the same inflation-adjusted return because the US Treasury backs both of them.

If this were not the case, savvy bond-market investors would buy the security with the higher inflation-adjusted yield, causing its price to adjust, and resulting in both securities offering the same inflation-adjusted yield. Therefore, the yield difference between conventional treasuries and TIPS of the same maturity represents an estimate of the inflation rate expected by market participants. Using the spread as of January 12, 2011, this approach resulted in a long-term inflation estimate of roughly 2.6% per year for the next 20 years.<sup>5</sup>

### Asset class benchmarks

The table below lists the benchmarks assigned to each asset class. In cases where the benchmark has a short history, it's extended by using a statistically similar longer-lived proxy.

Asset class	Benchmark	Inception date	Benchmark extension	Period used
Large-cap stocks	S&P 500 Index	1957	Wilson and Jones	1926 - 1956
Mid-/small-cap stocks	Russell 2000 Index	1979	CRSP 6-8 Deciles	1926 - 1978
International stocks	MSCI EAFE	1970	n/a	n/a
Bonds	Barclays Capital Aggregate Bond Index	1976	Portfolio of Ibbotson Government Bond indexes with similar current maturity as the Barclays Aggregate	1970 - 1975
Cash investments	Citigroup U.S. Domestic 3 Month T-Bill Index	1978	Returns from Ibbotson 30 Day T-Bill Index adjusted to exhibit characteristics of Citigroup Domestic 3 Month T-Bill Index	1970 - 1977
Overall (domestic) stocks	Russell 3000 Index	1979	Portfolio of CRSP stock indexes with similar market capitalization as the Russell 3000 Index	1926 - 1978
World stocks	MSCI World	1970	n/a	n/a

Note: Although Ibbotson S&P 500 return data are available, we use returns from Wilson and Jones for the 1926-1956 time period because they provide a return series that represents a more diversified portfolio of large-cap stocks over this time period. The large-cap stock returns are obtained from Wilson and Jones, 2002, "An Analysis of the S&P 500 Index and Cowles's

## Q&A: Estimating Long-Term Market Returns

Extensions: Price Indexes and Stock Returns, 1870-1999," *Journal of Business* 75, 505-533. For bond and cash investments, we use returns that begin in 1970, even if we have access to a longer return history. This is because changes in the market structure and bond pricing in the fixed income markets make data prior to the 1970s not relevant when developing future prospects. These changes include the Federal Reserve changing its operating procedures from targeting interest rates to managing money-supply growth, the change from fixed—to floating—rate regimes, and the abolishment of the gold standard.

1. It is consistent with the approach developed in Ibbotson & Chen, 2003, "Long-Run Stock Returns: Participating in the Real Economy." *Financial Analysts Journal*, Volume 59, Number 1, 88-98.
2. The symbol  $\approx$  means approximately equals. The decomposition does not exactly equal the total return due to an approximation used to simplify the illustration.
3. When measuring the historical performance of our risk-free proxy, we use income returns instead of total returns. Income returns are derived from the cash coupon received from holding a fixed-income instrument. We use income returns for the risk-free asset because it provides a better estimate of what investors expected to receive for holding these bonds to maturity.
4. Another approach is to directly estimate the sensitivity of the asset class to large-cap stocks. We don't do this, however, due to data limitations. Specifically, historical benchmark returns for large-cap stocks prior to 1957 are from Wilson and Jones (2002). They provide returns on an annual basis. But we prefer to follow common practice and use monthly data, whenever possible, to estimate betas because doing so increases the accuracy of the estimate.
5. An alternative to this approach is to use statistical models and historical data to develop inflation estimates. These estimates, however, are often highly variable and rely heavily on numerous assumptions, making them highly suspect. Our approach prefers the use of directly-observable market yield spreads instead.

### Important Disclosures

The information provided here is for general informational purposes only and should not be considered an individualized recommendation or personalized investment advice. Any investments and strategies mentioned here may not be suitable for everyone. Each investor needs to review an investment strategy for his or her own particular situation before making any investment decision.

Examples and estimates provided are for informational purposes only and not intended to be reflective of results you should expect to achieve. Actual results year-to-year and overall will vary and may be worth more or less than estimated value.

Fixed income investments are subject to various risks, including changes in interest rates, credit quality, market valuations, liquidity, prepayments, corporate events, tax ramifications and other factors.

International investing may involve greater risk than US investments due to currency fluctuations, unforeseen political and economic events, and legal and regulatory structure in foreign countries. Small-cap investing is subject to greater volatility than other asset categories.

The **S&P 500® Index** is a market-capitalization weighted index that consists of 500 widely traded stocks chosen for market size, liquidity and industry group representation.

Russell Indexes are subsets of the **Russell 3000® Index**, which contains the largest 3,000 companies incorporated in the United States and represents approximately 98% of the investable U.S. equity markets.

**Russell 2000® Index** is a market-capitalization weighted index composed of the 2,000 smallest companies in the Russell 3000.

**CRSP Cap-Based Portfolios** data tracks micro, small, mid and large-cap stocks on monthly and quarterly frequencies. CRSP ranks all NYSE companies by market capitalization and divides them into 10 equally populated portfolios. AMEX and NASDAQ stocks are then placed into the deciles determined by the NYSE breakpoints, based on their market capitalization. CRSP portfolios 1-2 represent large-cap stocks, portfolios 3-5 are mid caps, and portfolios 6-8 represent small caps. Portfolio Assignments are available as a CRSP Access stock module. The stock and indices types must match (monthly).

**MSCI EAFE Index®** (Europe, Australasia, Far East) is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the U.S. and Canada. As of March 2010, the MSCI EAFE Index consisted of the following 21 country indices: Australia, Austria, Belgium, Denmark, France, Finland, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom.

**The MSCI World Index<sup>SM</sup>** is a free float-adjusted market capitalization index that is designed to measure global developed-market equity performance. As of March 2010 the MSCI World Index consisted of the following 23 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States.

**Barclays Capital Aggregate Bond Index** includes fixed-rate debt issues rated investment grade or higher by Moody's Investors Service, Standard & Poor's, or Fitch Investor's Service, in that order. (It also includes commercial mortgage-backed securities.) Bonds or securities included must be fixed rate, must be dollar denominated and non-convertible, and must be publicly issued. Bonds included span the maturity horizon, although all issues must have at least one year to maturity. All returns are market-value weighted inclusive of accrued interest.

**Ibbotson U.S. Intermediate-Term Government Bond Index** is constructed from monthly returns of non-callable bonds with maturities of not less than five years, held for the calendar year.

**Ibbotson U.S. Long-Term Government Bond Index** is measured using a one-bond portfolio with a maturity near 20 years.

**Ibbotson 30-Day T-Bill Index** is measured by rolling over each month a one-bill portfolio containing at the beginning of each month, the bill having the shortest maturity not less than one month.

**Citigroup U.S. 3-month Treasury Bill Index** is an index that measures monthly total return equivalents of yield averages that are not marked to market. The Three-Month Treasury Bill Index consists of the last three three-month Treasury bill issues.

Indexes are unmanaged, do not incur management fees, costs, or expenses and cannot be invested in directly.

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**ESPECIALLY NOTEWORTHY:**

*This week, Wintrust Financial Corporation makes its debut in The Value Line Investment Survey. Our outlook for this Midwest bank can be found on page 792. In addition, Huntington Ingalls Industries joins the Aerospace/Defense Industry on page 715.*

*Cliffs Natural Resources seems to be well on its way to a stellar year in 2011, thanks to the combined effects of the recent acquisition of Consolidated Thompson Iron Mines and a strong pricing environment. Please turn to page 744 to learn more about this timely equity.*

*Investors looking at 2014-2016 may wish to read our report on The Timken Company, which is poised for a record performance this year and holds significant appeal as a longer-term play. Turn to page 737.*

*The recent selloff of Illinois Tool Works stock presents long-term investors with a more attractive entry point, as these top-quality shares hold above-average total return potential over the 2014-2016 investment horizon. See page 732 for more.*

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- ★★ Rank 1 (Highest) for Timeliness.
- ★ Rank 2 (Above Average).

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# ECONOMIC SERIES

700

Value Line's estimates of sales and earnings growth for individual companies are derived by correlating sales, earnings, and dividends to appropriate components or subcomponents of the Gross Domestic Product, presented below. A more detailed forecast appears periodically in *Selection & Opinion*.

## HYPOTHESIZED ECONOMIC ENVIRONMENT 3 TO 5 YEARS HENCE

The hypothesized 2014-2016 economic environment into which earnings are forecast is as follows: Unemployment will average about 7.5% of the national labor force. There will be no major war in progress at that time. Industrial production will be expanding 3.7% per year. Inflation will continue to be modest. Prices as measured by the broad-based GDP deflator

will advance about 2% per year on the average. The corporate income tax rate will be around 35%. Long-term interest rates on high-grade corporate bonds are projected to be about 6.5% in the years 2014-2016. We expect the Federal Reserve to pursue neutral-to-fairly accommodative policies except in years in which the economy is overheating. Based on these assumptions, the Gross Domestic Product will average \$18,204 billion in the years 2014-2016, a level that is roughly 25% above the 2010 total of \$14,527 billion.

Things may turn out differently. But in the absence of knowledge of the future, we use the above assumptions, which appear to be most plausible. Thus we are able to apply a common economic environment to all stocks for the purpose of measuring relative growth potential.

### THESE ARE THE NATIONAL INCOME SERIES TO WHICH VALUE LINE SALES, EARNINGS, AND DIVIDEND ESTIMATES ARE CORRELATED

ANNUAL STATISTICS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*	2012*	2014-16*
Gross Domestic Product (\$Bil.)	9952	10286	10642	11142	11868	12638	13399	14062	14369	14119	14527	15187	15715	18204
Real GDP (2005 Chained \$Bil.)	11226	11347	11563	11840	12264	12638	12976	13229	13229	12881	13088	13301	13566	14911
Total Consumption (\$Bil.)	6830	7149	7439	7804	8533	8919	9074	9314	9265	9154	9221	9415	9627	10256
Nonresidential Fixed Investment (\$Bil.)	1269	1228	1125	1136	1263	1347	1454	1544	1557	1291	1319	1410	1480	1822
Industrial Prod. (% Change, Annualized)	4.2	-3.4	-0.1	1.3	2.5	3.3	2.2	1.7	-2.2	-9.3	5.3	3.4	2.8	3.7
Housing Starts (Mill. Units)	1.57	1.60	1.71	1.85	1.95	2.07	1.81	1.34	0.90	0.55	0.59	0.61	0.71	1.50
Total Light Vehicle Sales (Mill. Units)	17.4	17.1	16.8	16.6	16.9	17.0	16.5	16.1	13.1	10.4	11.6	12.5	13.4	16.0
Personal Savings Rate (%)	2.9	2.7	3.5	3.5	2.1	0.4	0.7	0.6	1.8	5.9	5.3	5.1	5.3	5.0
National Unemployment Rate (%)	4.0	4.7	5.8	6.0	5.5	5.1	4.6	4.6	5.8	9.3	9.6	9.1	9.1	7.5
AAA Corp Bond Rate (%)	7.6	7.1	6.5	5.7	5.6	5.2	5.6	5.6	5.6	5.3	4.9	5.2	5.5	6.5
10-Year Treasury Note Rate (%)	6.0	5.0	4.6	4.0	4.3	4.3	4.8	4.6	3.7	3.3	3.2	2.9	2.7	4.5
3-Month Treasury Bill Rate (%)	5.8	3.4	1.6	1.0	1.4	3.1	4.7	4.4	1.4	0.2	0.1	0.1	0.1	2.5
ANNUAL RATES OF CHANGE														
Real GDP	4.1	1.1	1.8	2.5	3.6	3.1	2.7	2.1	0.4	-2.6	3.0	1.6	2.0	3.4
GDP Deflator	2.2	2.3	1.6	2.2	2.9	3.3	3.2	2.7	2.2	0.9	1.2	2.2	1.3	2.0
Consumer Price Index	3.4	2.8	1.6	2.3	2.7	3.4	3.2	2.9	3.8	-0.3	1.6	3.1	1.8	2.5
QUARTERLY ANNUALIZED RATES		2010				2011				2012				
		1st	2nd	3rd	4th	1st	2nd*	3rd*	4th*	1st*	2nd*	3rd*	4th*	
Gross Domestic Product (\$Bil.)	14444	14574	14743	14873		14980	15114	15264	15390	15505	15632	15784	15941	
Real GDP (2005 Chained \$Bil.)	12938	13059	13140	13216		13229	13272	13322	13381	13448	13524	13605	13689	
Total Consumption (\$Bil.)	9121	9187	9247	9328		9377	9379	9425	9479	9538	9597	9656	9716	
Nonresidential Fixed Investment (\$Bil.)	1253	1308	1344	1372		1379	1400	1419	1440	1454	1469	1487	1512	
Industrial Production (% Change, Annualized)	8.1	7.1	6.7	3.1		4.8	0.8	5.0	3.0	2.5	2.5	3.0	3.0	
Housing Starts (Mill. Units)	0.62	0.60	0.59	0.54		0.58	0.58	0.62	0.65	0.68	0.70	0.72	0.75	
Total Light Vehicle Sales (Mill. Units)	11.0	11.4	11.6	12.3		13.0	12.1	12.5	12.5	13.0	13.0	13.5	14.0	

\*Estimated

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**Duke CFO magazine Global Business Outlook survey - U.S. - Third Quarter, 2011**

**11. On August 29, 2011 the annual yield on 10-yr treasury bonds was 2.3%. Please complete the following:**

	Mean	SD	95% CI	Median	Minimum	Maximum	Total
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	1.0	9.2	0.1 - 1.8	2	-50	100	453
Over the next 10 years, I expect the average annual S&P 500 return will be: Expected return:	6.5	7.5	5.8 - 7.2	5	-5	100	460
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	10.7	11.2	9.6 - 11.7	9	1	100	458
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	-4.6	11.3	-5.6 - -3.6	0	-50	100	454
Over the next year, I expect the average annual S&P 500 return will be: Expected return:	3.5	7.5	2.8 - 4.2	3	-50	100	459
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	9.2	8.4	8.4 - 10.0	8	-40	100	455

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LOW COST INVESTMENT MANAGEMENT

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### Investors Expect to Be Paid for Risk

All financial assets are priced based on their perceived risk. The greater the perceived risk, the greater the expected return. When the perceived risk of an asset class is low, the expected return is also low relative to more risky asset classes.

Each year, we analyze the primary drivers of asset class long-term returns including risk as measured by implied volatility, expected earnings growth based on GDP estimates and foreign business expansion, market implied inflation based on the spread between long-term Treasury Bonds and TIPS, and current cash payouts from interest and dividends on bond and stock indexes. These factors plus others are used in a valuation model to create an estimate for risk premiums over the next 30 years. In a sense, we believe these expected returns reflect what *the market* is estimating will be a fair payment for each asset class over T-bills over the long-term.

### Risk Based Methodology

There is a basic premise that is universal among investors. Riskier asset classes are expected to deliver higher long-term rates of return. If you can estimate the risk in an investment, you can also estimate the return required of that investment relative to all other investments.

A three-month Treasury bill has basically no risk except perhaps, the risk that inflation will be higher than the yield. A twenty-year Treasury bond has interest rate risk, meaning interest rates may rise after you buy the bond. Since there is greater risk in T-bonds over T-bills, we know that the expected return of T-bonds has to be higher than the T-bill over twenty years because the T-bond has interest rate risk. The difference in expected return on the twenty-year bond over the T-bill yield is called "term risk premium".

Instead of buying a twenty-year T-bond, an investor may decide to invest in a twenty-year "A" rated corporate bond. Unlike the T-bond, corporate bonds are not guaranteed by the U.S. government. As such, a "credit risk premium" is expected to be earned on the corporate bond in addition to a term risk premium.

Common stock of a company has more risk than its corporate bond because returns are based on earnings rather than interest, and in

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the case of bankruptcy, the stock holders get wiped out while the bond holders end up owning the company. Therefore, stockholders have greater risk than bond holders and are expected to earn a higher return. The extra return of stocks over bonds is known in academia as an "equity risk premium".

## Results and Limitations

The table below is our expected return for all major equity and fixed income asset classes over the next thirty-years. The table is provided to be a guide when constructing a long-term diversified portfolio. These estimates are not expected to be completely accurate. Actual returns will likely differ in several asset classes.

Of all the returns we estimate, perhaps inflation is the most difficult to forecast. There are so many variables that affect inflation that it's nearly impossible to guess the future. This is why we prefer to show expected market returns on a pre-inflation basis. We have more faith in our inflation-adjusted (real return) forecasts than our post inflation forecasts.

### Thirty-Year Estimates of Bonds, Stocks and REITs Assuming a 2.8% Inflation Rate

Asset Classes	Real Return	With 2.8%	
		Inflation	Risk*
<b>Government-Backed Fixed Income</b>			
U.S. Treasury bills (1-year maturity)	0.3	3.1	2
10-year U.S. Treasury notes	1.3	4.1	6
20-year U.S. Treasury bonds	1.5	4.3	7
20-year inflation protected Treasury (TIPS)	1.8	4.6	8
GNMA mortgages	1.8	4.6	8
10-year tax-free municipal (A rated)	1.5	4.3	7
<b>Corporate and Emerging Market Fixed Income</b>			
10-year investment-grade corporate (AAA-BBB)	2.4	5.2	9
20-year investment-grade corporate (AAA-BBB)	2.5	5.3	10
10-year high-yield corporate (BB-B)	4.0	6.8	15
Foreign government bonds (unhedged)	2.0	4.8	8
<b>U.S. Common Equity and REITs</b>			
U.S. large-cap stocks	5.0	7.8	19
U.S. small-cap stocks	6.0	8.8	22
U.S. micro-cap stocks	7.0	9.8	25
U.S. small-value stocks	8.0	10.8	27
REITs (real estate investment trusts)	5.0	7.8	19
<b>International Equity (unhedged)</b>			
Developed countries	5.0	7.8	19
Developed countries small company	6.0	8.8	22
Developed countries small value companies	8.0	10.8	27
All emerging markets including frontier countries	9.0	11.8	29

\*The estimate of risk is the estimated standard deviation of annual returns.

## Laddering Risk Premiums

Another way to look at asset class expected returns is by layering risk premiums. As you go down the list in the table below, each asset class has the premium of the asset class or category above it, plus a new risk premium. Adding risk premium layers derives an asset class expected return.

	T-Bills	10-year Treas. Notes	10-year Corp. Bonds	Large- Cap Stocks	Small- Cap Value Stocks
Real risk-free rate	0.3%	0.3%	0.3%	0.3%	0.3%
Term risk premium(intermediate)		1.0%	1.0%	1.0%	1.0%
Credit risk premium (intermediate)			1.0%	1.0%	1.0%
Equity risk premium				2.7%	2.7%
Value stock risk premium					2.0%
Small stock risk premium					1.0%
<b>Real Expected Return</b>	<b>0.3%</b>	<b>1.3%</b>	<b>2.3%</b>	<b>5.0%</b>	<b>8.0%</b>
Inflation	2.8%	2.8%	2.8%	2.8%	2.8%
<b>Total Expected Return</b>	<b>3.1%</b>	<b>4.1%</b>	<b>5.1%</b>	<b>7.8%</b>	<b>10.8%</b>

No one knows exactly what the returns of the markets will be over the next thirty years. However, the risk in an asset class is fairly stable over time, and that tends to drive the long-term risk premium.

The acceptance of a market forecast is an important step to creating a proper asset allocation. The forecast should always try to err on the conservative side. It is wise to expect and plan for lower returns and then be pleasantly surprised if the forecast is too low than to rely on a rosy forecast and possibly run out of money later in life. As the saying goes, it is better to be safe than sorry.

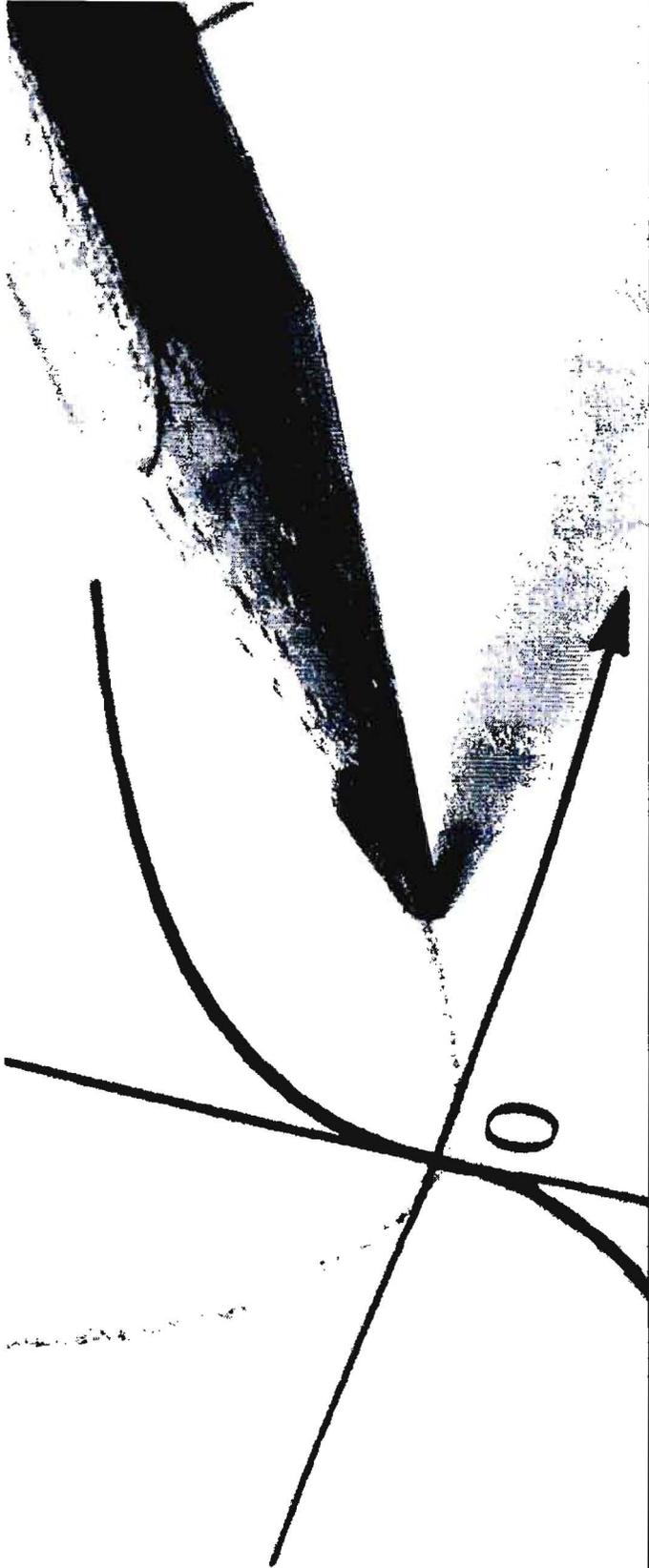
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J.P. Morgan Asset Management

# Long-term Capital Market Return Assumptions

AS OF NOVEMBER 30, 2010

**J.P.Morgan**  
Asset Management

FOR INSTITUTIONAL USE ONLY

## J.P. Morgan Asset Management Long-term Capital Market Return Assumptions

As of November 30, 2010

	Expected 10-15 year annualized compound returns <sup>1,2</sup> (%)	Rationale	
<b>U.S. ECONOMIC INDICATORS</b>	Inflation	300	High unemployment and deleveraging of the private and public sectors to keep inflation low in the near-term. Aggressive reflationary central bank policy suggests materially higher inflation over the medium to longer term. Stronger growth and currency appreciation in the emerging economies should drive commodity prices higher, causing headline inflation to outstrip core.
	Core Inflation	250	
	Real GDP	250	Private and public sector deleveraging, a higher Federal debt burden and slowing labor force expansion to place constraints on economic growth.
<b>FIXED INCOME<sup>2</sup></b>	U.S. Cash	250	Policy rates to eventually rise from today's extraordinarily low levels, but Federal Reserve to keep real rates close to zero in order to stimulate higher inflation.
	U.S. Intermediate Treasury <sup>3</sup>	300	
	U.S. Long Treasury <sup>4</sup>	325	Yields to rise towards a higher equilibrium nominal rate as inflation eventually rises and federal debt levels increase. The resulting capital loss to constrain total returns.
	U.S. TIPS	375	TIPS to outperform nominal Treasuries as expected inflation rises from current levels.
	U.S. Aggregate	375	
	U.S. Long Duration Govt/Credit	450	
	U.S. Investment Grade Corporate	475	
	U.S. Long Corporate	550	Moderate further spread narrowing expected, but total returns to be constrained as overall yields rise with Treasury rates.
	U.S. High Yield	650	Further narrowing in spreads expected, but offset by higher Treasury rates. Haircut applied to total returns for expected defaults.
	World Government Bond (local)	225	
	World ex-U.S. Government Bond (local)	200	Government bond yields to rise globally from current levels leading to capital losses as rates converge to equilibrium.
	World ex-U.S. Government Bond	275	Dollar depreciation against weighted average of WGBI currencies expected to boost returns to U.S. investors.
Emerging Market Sovereign Debt	625	Spreads currently close to equilibrium, but total returns constrained as overall yields rise with U.S. Treasury rates.	
Emerging Market Local Currency Sovereign Debt	650	Yields currently close to equilibrium, with emerging economy inflation to remain moderate. Total returns to come largely from income.	
Emerging Market Corporate Debt	650	Moderate further spread narrowing expected, but total returns to be constrained as overall yields rise with Treasury rates.	
U.S. Municipal	300	Yield ratio versus Treasuries to be little changed as impact of deteriorating local government finances offsets the effect of expected future increases in Federal tax rates.	
<b>EQUITY<sup>2</sup></b>	U.S. Large Cap	775	Sum of below building blocks (Nominal EPS growth + Dividend Yield + P/E return impact). Total returns close to norms of pre-crisis years as relatively weak nominal earnings growth is offset by improvement in valuation from today's historically attractive levels.
	U.S. Large Cap EPS Growth	525	Earnings growth rate expected to exceed nominal GDP as companies maintain cost discipline and continue to benefit from foreign-sourced revenues.
	U.S. Large Cap Dividend Yield	250	Dividend yields to rise slightly from current levels as companies favor payouts over new capital expenditure given constraints on economic growth.
	U.S. Large Cap P/E Return Impact	000	Valuation multiples still slightly below historical averages, but unlikely to rise materially given uncertainties over deleveraging and future price inflation.
	U.S. Mid Cap	825	
	U.S. Small Cap	825	Premium to large cap assumed for both. Small- and mid-cap companies likely to be acquisition targets for larger companies, especially given significant cash build-up on large cap corporate balance sheets.
	U.S. Large Cap Value	800	Value to outperform growth over time, especially given likelihood of increased investor demand for yield.
	U.S. Large Cap Growth	750	
	Europe ex-U.K. Large Cap (local)	775	Earnings premium to nominal GDP given relatively large share of emerging market sourced revenues and proactive approach to fiscal consolidation. Valuations to remain under pressure given likelihood that resolution of sovereign debt crisis will be protracted. No major change in dividend policy expected.
	Japan Large Cap (local)	450	Demographic challenges and ongoing battle with deflation to mean that Japan equities continue to lag significantly behind the rest of the world.
	U.K. Large Cap (local)	800	Earnings premium to nominal GDP given benefit from foreign-sourced revenues and proactive approach to fiscal consolidation. Valuations and dividend yields to remain close to current levels.
	MSCI EAFE (local)	725	Market capitalization weighted average of expectations for regional equity returns.
	MSCI EAFE	725	Exchange rate movements against weighted average of EAFE currencies expected to yield no net benefit to U.S. investors.
	Emerging Market Equity	900	Relatively healthy emerging economy fundamentals, high rates of productivity and favorable demographics make for strong economic growth. Lower expected rates of return in developed markets to encourage more capital flows into the emerging world.
	Asia ex-Japan Equity	900	Headwinds from higher imported commodity prices offset by stronger underlying economic growth than other emerging regions.
	Global Equity	775	Market capitalization weighted average of expectations for regional equity returns.
	<b>ALTERNATIVE/OTHER<sup>2</sup></b>	U.S. Private Equity <sup>5,6</sup>	825
U.S. Direct Real Estate (unlevered) <sup>5,6</sup>		700	Returns typically between stocks and bonds, but larger premium to fixed income reflects current undervaluation and reversion to fair pricing over the forecast period.
U.S. Value Added Real Estate (unlevered) <sup>5,6</sup>		825	Premium to direct real estate assumed as in prior years for specialized acquisition and management expertise.
European Real Estate (unlevered, local) <sup>5,6</sup>		675	Some valuation boost from prior year, but shallower downturn and earlier recovery make for lower valuation premium than U.S.
U.S. REITs		650	Slight discount to underlying core real estate return given recent rapid price adjustment back towards equilibrium in more liquid REIT market.
Global Infrastructure <sup>5,6</sup>		800	Exposure to government-regulated sectors limits return downside. Returns boosted by leverage and likely increase in privatizations.
Hedge Fund—Diversified <sup>5,6</sup>		625	Diversified hedge fund betas are primarily a blend of global equity and fixed income, with a modest contribution from non-beta factors. Effective volatility management expected to produce attractive risk-adjusted returns for the median manager. Sizeable divergences expected between managers.
Hedge Fund—Event Driven <sup>5,6</sup>		700	The key beta drivers of Event Driven managers are primarily equity risk and secondarily fixed income credit risk, with a moderate contribution from manager idiosyncratic risk taking. Return discount to global equities with sizeable divergences expected between managers.
Hedge Fund—Long Bias <sup>5,6</sup>		750	The large majority of Long Bias managers' returns are attributable to global equity exposures. Median manager expected to return slight discount to global equities. Sizeable divergences expected between managers.
Hedge Fund—Relative Value <sup>5,6</sup>		500	Relative value key return drivers are primarily investment grade credit, with some contribution from equity and manager idiosyncratic risk taking, world government bonds, and currencies. Consistent with historical data, Relative Value managers expected to return a modest premium to Aggregate Bonds. Sizeable divergences expected between managers.
Hedge Fund—Macro <sup>5,6</sup>	750	Macro managers exhibit multi-market exposures, particularly in global equity, commodities, and currency. Manager idiosyncratic risk taking is a larger component of return than in other strategies. Sizeable divergences expected between managers.	
Commodities <sup>5</sup>	700	Returns based on expectation for global nominal GDP growth, with the majority of demand growth coming from the emerging economies.	

<sup>1</sup> Return estimates are on a compound or internal rate of return (IRR) basis. Equivalent arithmetic averages, as well as further information, are shown on the following page.

<sup>2</sup> All asset class assumptions are in total return terms, including equity return assumptions. All returns are in U.S. dollar terms unless otherwise indicated.

<sup>3</sup> U.S. Intermediate Treasury returns based on Barclays 7-10 yr Treasury index.

<sup>4</sup> U.S. Long Treasury returns based on Barclays 20+yr Treasury index.

<sup>5</sup> Private Equity, Hedge Funds, Real Estate, Infrastructure and Commodities are unlike other asset classes shown above in that there is no underlying investible index. Hedge fund returns are shown net of manager fees.

<sup>6</sup> The return estimates shown for these asset classes are our estimates of industry medians—the dispersion of returns among managers in these asset classes is typically far wider than for traditional asset classes. See additional notes on the following page.



**“ We expect the global economic recovery to continue but to be dampened by persistent debt burdens. Moderate growth should carry equity markets and interest rates higher over time. ”**

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**J.P.Morgan**  
Asset Management

# Long-Term Capital Market Forecasts

January 2011

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