Forecasting Equity Returns in the New Normal

Our clients consistently ask us for our views not only on individual asset classes, but also on how we think about different assets in overall portfolio terms. As part of our ongoing commitment to better serve our clients, PIMCO is introducing "*Asset Allocation Focus.*" The quarterly article will draw on the combined resources of the firm's asset allocation team and be lead-researched and written by Managing Director Saumil H. Parikh, a generalist portfolio manager focused on asset allocation strategies who also serves on the firm's Investment Committee and leads our cyclical economic forums. This inaugural edition of "*Asset Allocation Focus*" lays out PIMCO's framework for understanding and forecasting U.S. equity returns in a changing world.

PIMCO's founding investment philosophy and process are grounded by three basic principles.

1) Investing is a long-term, value-oriented endeavor, which requires discipline and patience

2) Successful investment processes focus on both top-down, macroeconomic drivers of returns as well as bottom-up, microeconomic drivers of returns

3) Commonsensical risk management is critical for avoiding "left tail" portfolio outcomes and managing portfolio volatility

No financial asset class exemplifies the need for an investment manager to abide by these three basic principles more so than equities.

By and large, the universe of financial assets (stocks, bonds and cash alternatives) derives its returns from the performance of real economic factors (capital, labor, materials and multi-factor productivity, the last being a measure of productivity that captures changes in the volume of goods and services produced with a combination of multiple "inputs" such as labor, materials and capital). Gross domestic product (GDP) and its growth rate are ultimately the source of all cash flows and returns that trickle down into various financial assets based on their individual seniority and place in the economic capital structure.[ii]

In this fundamental macroeconomic regard, equities are no different than bonds. A successful approach to secular equity investing must include a long-term view toward deriving forward value, an investment process that incorporates the roles of both macroeconomic growth as well as microeconomic change in producing returns, and a similar, intense focus on risk management, particularly when it comes to embedded leverage, optionality and the permanent loss characteristic of the asset class.

Equities provide unique risk factors

From an economic perspective, equities derive their unique risk factor from the ups and downs of multi-factor productivity growth. Within the universe of traditional financial assets, equities are the only asset class that can theoretically provide investors with the unlimited upside potential of the basic creative-destruction process that generates multi-factor productivity (see Figure 1). This is because equities are the most "junior" financial asset class in the economic capital structure and also because corporate profits are a residual with embedded costs of labor, materials and credit being relatively rigid in the short run. Equities are, therefore, the recipient of all "excess product" or cash flow when economic growth surprises to the upside.

FIGURE 1: EQUITIES DERIVE UNIQUE RISK FACTOR/RETURN CHARACTERISTICS FROM PRODUCTIVITY

Growth in real GDP per capita
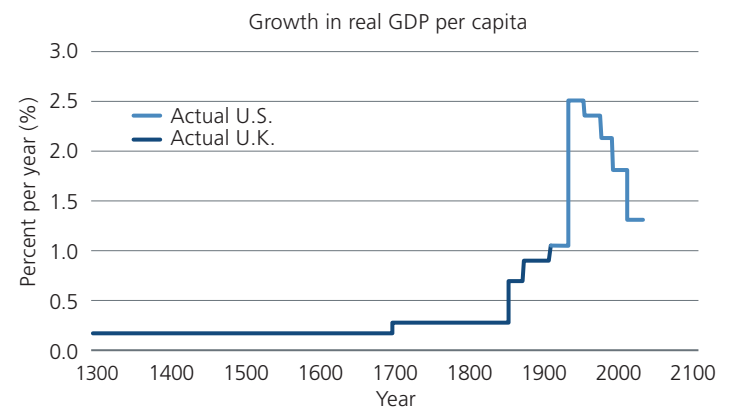
Source: Robert Gordon (2012)

Note: Real Gross Domestic Product (GDP) is an inflation-adjusted measure that reflects the value of all goods and services produced in a given year, expressed in base-year prices.
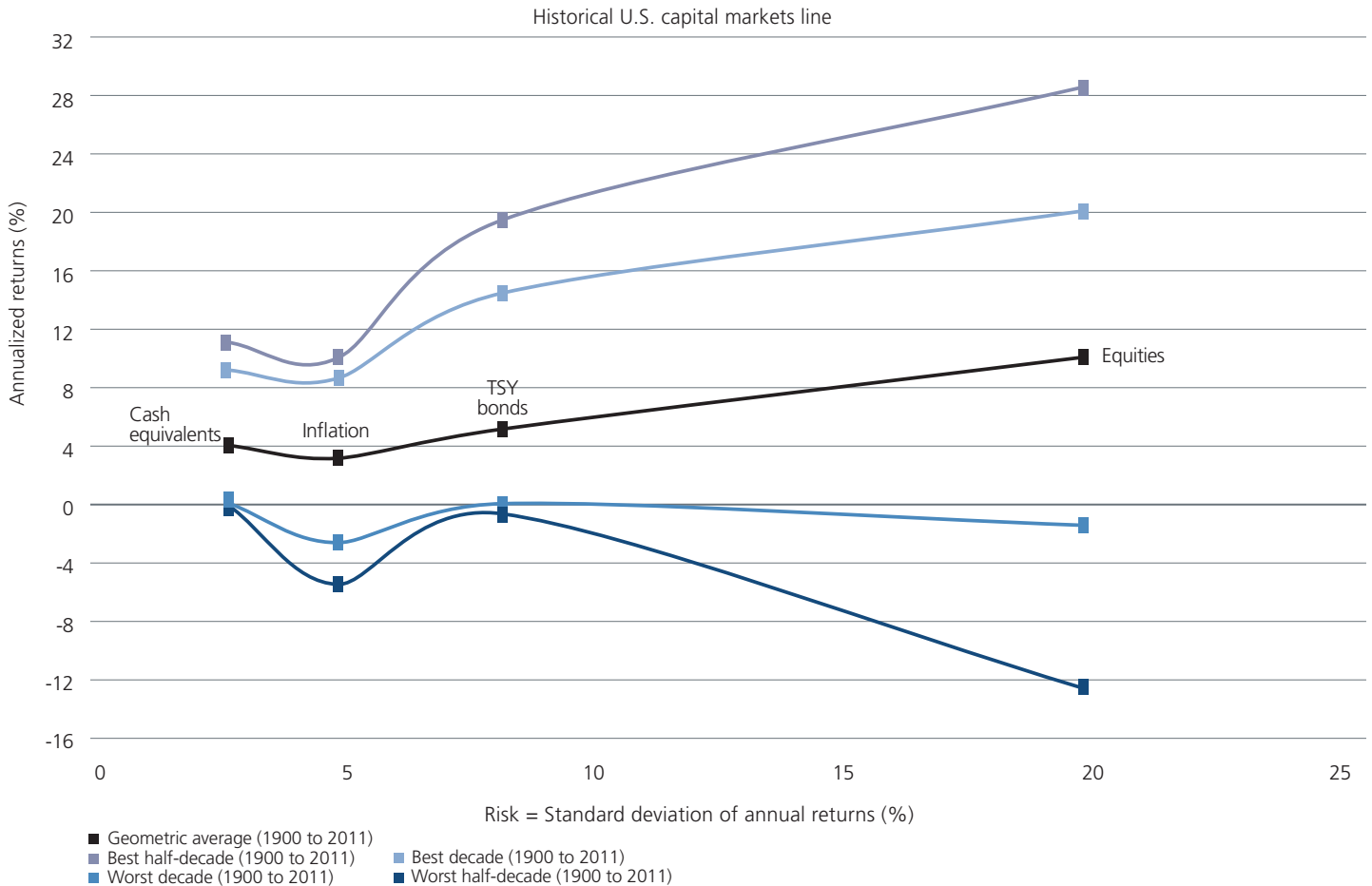
But, as one might expect, unlimited upside potential comes with substantial downside risk. Negative surprises in economic growth (among other influences), especially unanticipated economic contraction, can impart significant downside risks and permanent loss on equity returns as well.

To gain a better quantitative understanding of the trade-off between equity risk and return, a useful starting point in our journey to forecasting equity returns in what we at PIMCO call the New Normal is the historical experience of the equity asset class. The last 110 years of U.S. economic history and asset returns can be characterized as fairly all-encompassing (with one possible exception that we will return to in the known unknowns section later). There has been no shortage of wars, deflations, inflations, currency regime shifts, leveraging, deleveraging, productivity booms, financial fraud, manias, panics and crashes during this illustrious era.[iii] The "ex post" U.S. capital markets line (see Figure 2), derived from historical returns and return volatilities of this period, shows precisely the average trade-off between risk and return investors have encountered across asset classes and will most likely continue to encounter going forward over secular time horizons.

ii See Benjamin Graham and David L. Dodd, *Security Analysis*, 1934
iii See Charles P. Kindleberger, *Manias, Panics, and Crashes*, 2000

Historical U.S. capital markets line

Cash equivalents

Inflation

TSY bonds

Equities

Risk = Standard deviation of annual returns (%)

■ Geometric average (1900 to 2011)
■ Best half-decade (1900 to 2011)   ■ Best decade (1900 to 2011)
■ Worst decade (1900 to 2011)   ■ Worst half-decade (1900 to 2011)

Source: Dimson et al., *Triumph of the Optimists* (2000), Ibbotson Associates (2012), PIMCO calculations
Note: Cash equivalents = 3-month Treasury bills; Inflation = U.S. CPI; Treasury bonds = 10-20 yrs. maturity Treasuries; Equities = S&P 500

Over the last 110 years, the U.S. "market portfolio" represented in Figure 2 has delivered a return per unit of risk ratio of approximately 35%. That is, for every 1% increase in portfolio volatility (risk), the market portfolio delivered a 0.35% increase in return. Further, the upside and downside risk/return profiles of the market portfolio were uneven across both assets, as well as across measurement horizons.
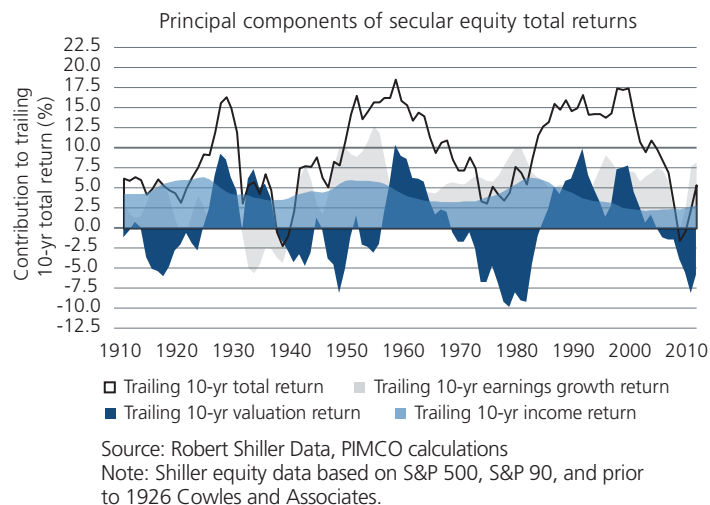
Lower volatility assets, such as cash alternatives and Treasury bonds, provided limited upside as well as limited downside with fairly symmetric distributions of returns over both short- and long-term measurement periods. In contrast, higher volatility assets such as equities provided substantial upside over both short- and long-term measurement periods, but provided substantial down-side only during short-term measurement periods. This asymmetric time-dimensional-return characteristic of equities informs both the value derivation framework we use here as well as the risk management objective we described at the onset. In PIMCO parlance, equities are a secular asset class that demands a value orientation, discipline, patience and active risk management.

Deriving components of secular equity returns

We begin our journey into the New Normal for U.S. equity returns with a derivation of the major components of returns over the long run (see Figure 3). Equity total returns can be decomposed into 1) returns from income, 2) returns from growth and 3) returns from valuation changes.[iv]

FIGURE 3: THE SOURCES OF SECULAR EQUITY RETURNS ARE INCOME, GROWTH AND VALUATION

Principal components of secular equity total returns

- □ Trailing 10-yr total return
- ▨ Trailing 10-yr earnings growth return
- ■ Trailing 10-yr valuation return
- ■ Trailing 10-yr income return

Source: Robert Shiller Data, PIMCO calculations
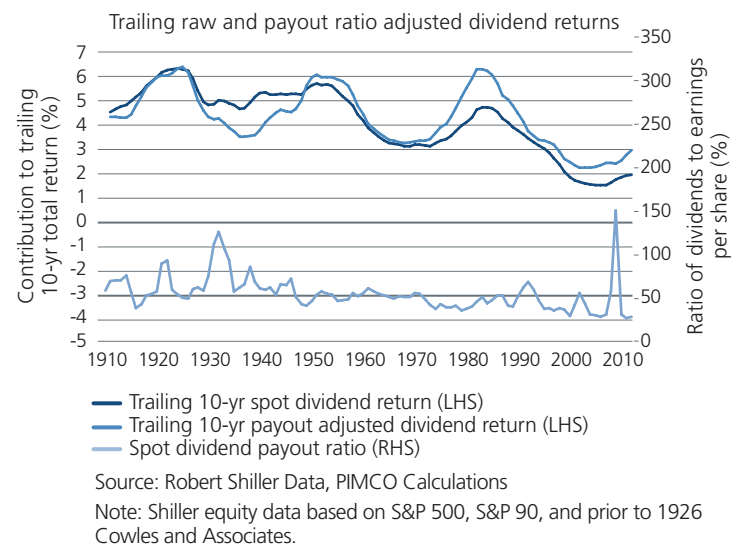Note: Shiller equity data based on S&P 500, S&P 90, and prior to 1926 Cowles and Associates.

Over the past 100 years, nominal total returns were sourced almost equally between returns from income (~5% per annum) and returns from growth (~5% per annum), with net returns from valuation changes over this time horizon being essentially zero.[v] Over shorter time horizons, however, market inefficiencies and fluctuating "animal spirits" created significant opportunities for disciplined value investors to effectively capture the fluctuations in the returns from the valuation component, and we will attempt to calibrate for these inefficiencies in the forecast section.

FIGURE 4: INCOME RETURNS ARE DRIVEN BY DIRECT DIVIDENDS AND SHARE REPURCHASES

Trailing raw and payout ratio adjusted dividend returns

- — Trailing 10-yr spot dividend return (LHS)
- — Trailing 10-yr payout adjusted dividend return (LHS)
- — Spot dividend payout ratio (RHS)

Source: Robert Shiller Data, PIMCO Calculations
Note: Shiller equity data based on S&P 500, S&P 90, and prior to 1926 Cowles and Associates.
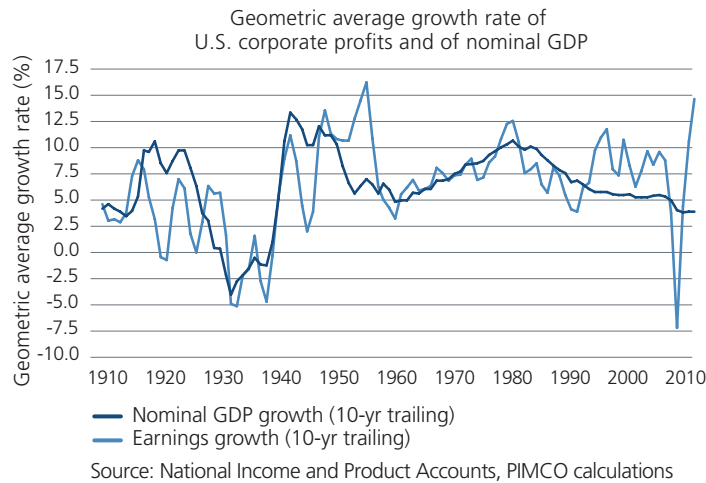
Returns from dividends and share repurchases

Speaking first to returns from income, this low volatility component of equity returns is predominantly driven by two factors (see Figure 4): the cash flow from dividends distributed to shareholders, and the cash flow from gross repurchases of equity by corporations distributed to shareholders. From an investor's perspective, the two activities are the same; however, forecasting their influence on future returns requires analysis on whether actual returns from income are either being boosted via the use of financial leverage or being suppressed via the retention of excess earnings in the given environment. To avoid the cyclical volatility of these issues from a top-down perspective, we find that adjusting actual dividends by the fluctuation in the dividend payout ratio[vi] over time produces a more useful and long-term sustainable forecast for the income component of equity total returns that captures both the actual payment of dividends as well as the expected gross repurchase of shares over time. This payout-ratio-adjusted dividend yield is our preferred factor in the forecasting section below.

[iv] See Grinold, Kroner, and Siegel (2011)

[v] Depending on the starting and ending valuation of your measurement period, the contribution of net returns from change in valuation can be positive or negative, but over the long run it is zero.

[vi] The dividend payout ratio is measured as the ratio of dividends per share to reported earnings per share.
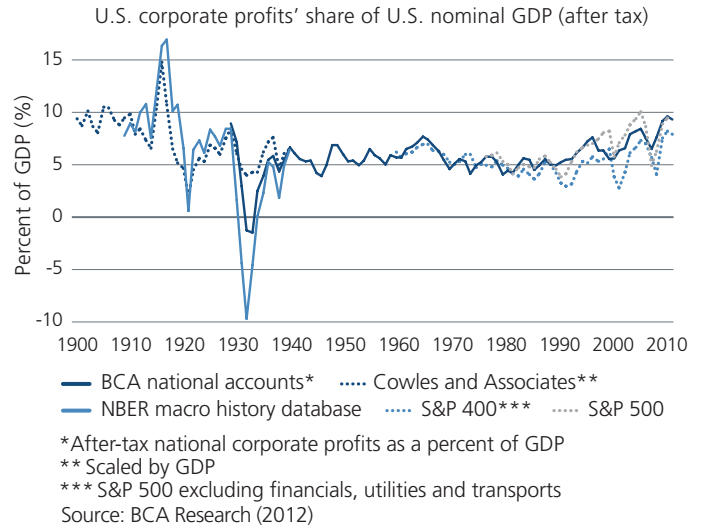
Returns from GDP and earnings growth

Turning next to returns from growth, we find these are also driven by two main factors (see Figures 5 and 6). The first, and most important, factor is the growth rate of the overall economy as represented by nominal GDP. The relationship between nominal GDP growth and earnings growth is least stable over short-term periods (less than five years), but as we extend the comparison to secular periods (greater than five years and up to 20+ years), the relationship becomes much more clear, stable and consistent as expected. We expect nominal GDP growth, earnings growth and dividends growth in aggregate to be equal to one another over a 10-year cycle.

FIGURE 5: EARNINGS GROWTH RETURNS ARE LARGELY DRIVEN BY SECULAR GDP GROWTH

Geometric average growth rate of
U.S. corporate profits and of nominal GDP

Nominal GDP growth (10-yr trailing)
Earnings growth (10-yr trailing)
Source: National Income and Product Accounts, PIMCO calculations

FIGURE 6: PROFITS CAN GROW FASTER OR SLOWER THAN GDP OVER SOME SECULAR PERIODS, BUT IN THE LONG RUN, PROFITS' SHARE OF GDP IS MEAN REVERTING

U.S. corporate profits' share of U.S. nominal GDP (after tax)

BCA national accounts*   Cowles and Associates**
NBER macro history database   S&P 400***   S&P 500

*After-tax national corporate profits as a percent of GDP
** Scaled by GDP
*** S&P 500 excluding financials, utilities and transports
Source: BCA Research (2012)

As a corollary to these expectations, because returns from growth are such an important component for the asset class, and also because earnings can be very volatile over measurement periods less than five years, we strongly believe that equity portfolios and investment returns are best judged for their performance over a minimum rolling five-year measurement period. In fixed income space, we tend to measure performance over rolling three-year periods as a comparison.

Importance and derivation of profits' share of GDP

The second factor driving returns from growth, in addition to the growth rate of GDP and earnings, is the share of GDP going to aggregate corporate profits. Over the long run, profits cannot outpace the growth rate of GDP, unless capital miraculously gains the means to consume the product it is being employed to produce. The secular nature of GDP growth forecasting combined with the long-term mean-reverting nature of profits' share of GDP re-emphasizes our initial point, that the equity asset class truly belongs more in secular space and less in cyclical space from a risk, return and performance measurement perspective.

It is worth discussing profits' share of GDP in some more detail,[vii] particularly as this measure is always an important part of PIMCO's secular and cyclical economic forecasting process. Aggregate corporate income or profits (defined as the sum of retained earnings and dividends) are simply one of many financial balances that national income accounting produces. National income accounts (GDP accounts) are calculated on the foundation that total national income equals total national expenditure.[viii]

Gross domestic product, which is simplistically the sum of all consumption, all investment and net exports, is equal to gross domestic income, which is the sum of household income,[ix] corporate income and net national income from abroad.

If one further simplifies this identity by saying all consumption plus all investment equals household income plus corporate income, and re-expresses the identity in terms of corporate income, one arrives at the realization that corporate income equals all investment plus all consumption less household income.

Taking it yet one step further, with the added transformation that household income less all consumption equals household savings, and that households can be disaggregated into private and public (government), and adding back the difference between net exports and net national income from abroad, one arrives at the following identity:

> Total corporate income (profits) equals total investment less household savings less government savings less foreign savings (see Figure 7).

Levy/Kalecki profits equation in shares of GDP (1943, 1952)

Share of GDP (%)

- ■ Corporate profits' share
- ■ Household savings' share
- ■ Investments' share
- ■ Government savings' share
- □ Foreign savings' share

Source: National Income and Product Accounts, PIMCO calculations
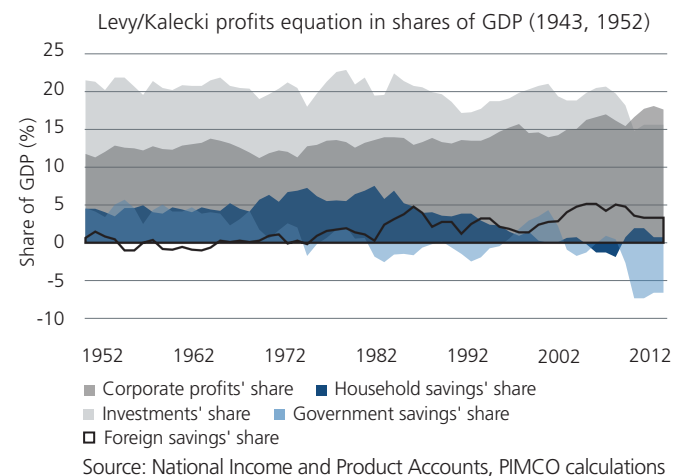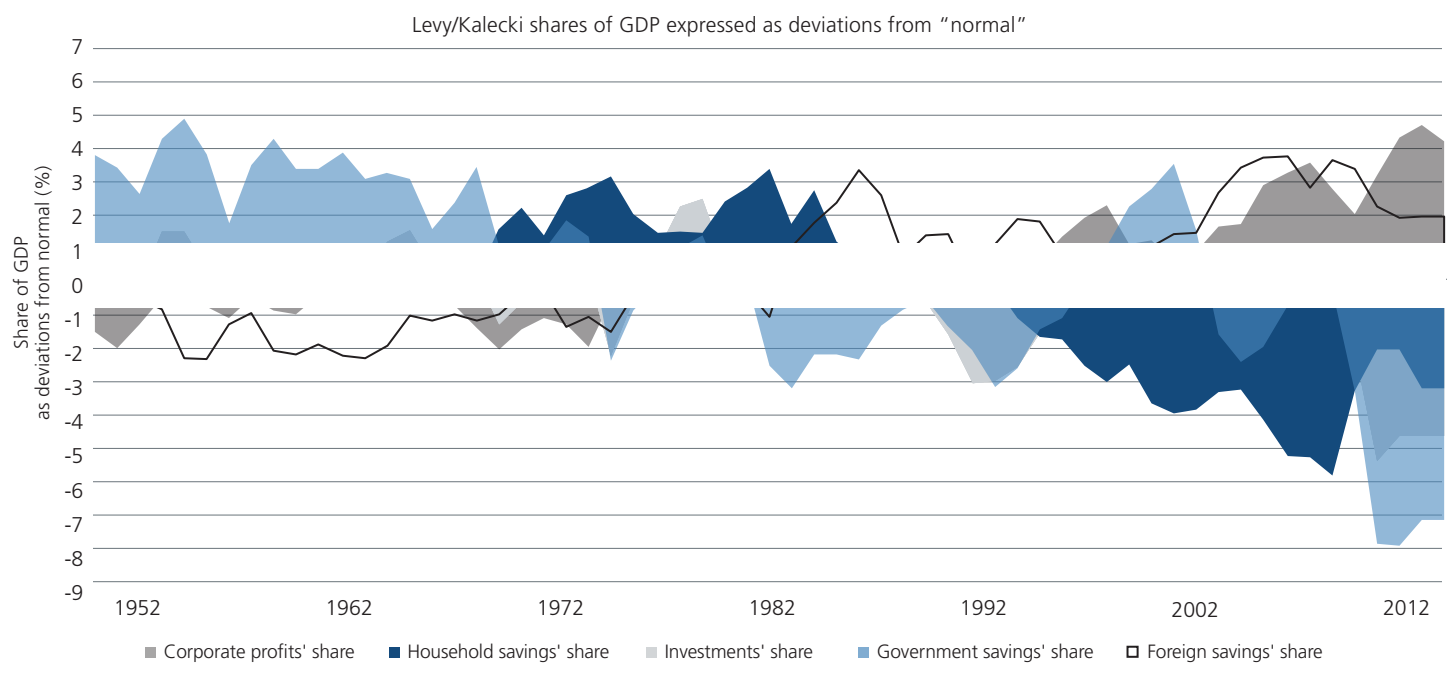
By definition, therefore, any one sector's financial balance improvement or deterioration must come at the cost or benefit of another or other sectors. In an open economy like the United States, the current account surplus or deficit would represent the foreign savings component. Household savings of course speak for themselves, and government savings are represented by the consolidated surplus or deficit of all branches of government (federal, state, and local).

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vii See Levy (1943) and Kalecki (1952)

viii For a detailed discussion of national income and product accounting, see McCulla and Smith, *A Primer on GDP and the National Income and Product Accounts*, (2007)

ix For simplicity, we include government in households here, but we disaggregate them as we develop the derivation of profits' share of GDP in terms of national savings.

FIGURE 8: TODAY'S ABNORMALLY HIGH PROFITS' SHARE IS SUSCEPTIBLE TO AN UNANTICIPATED RISE IN GOVERNMENT OR HOUSEHOLD SAVINGS

Levy/Kalecki shares of GDP expressed as deviations from "normal"

Legend: ■ Corporate profits' share ■ Household savings' share ■ Investments' share ■ Government savings' share □ Foreign savings' share

Source: National Income and Product Accounts, PIMCO calculations

In recent years, the rising corporate income (or profits') share of GDP (see Figure 8) has been produced despite a falling investment share of GDP due almost exclusively to a large reduction in government savings' share of GDP. In other words, the massive deficits being run by U.S. federal, state and local governments in combination are directly responsible for the outsized gains in corporate profits' share of GDP this economic cycle (to date). This is especially the case given that the other major driver of high profits' share of GDP, a high investment share of GDP, is not the contributing factor today.

The deviations of shares of national savings from their long-run averages are informative in forecasting what profits' share of GDP is likely to do in the future. In this case, we believe, the outlook for U.S. corporate profits' share of GDP is fairly predictable. If investment in the U.S. economy does not pick up substantially over the next five to 10 years, the unsustainability of large public sector deficits will put

tremendous pressure on corporate profits and their ability to keep up with nominal GDP growth. We will return to this important point in the forecasting section.

Cyclically adjusted multiples and returns from valuation changes

The third component of equity returns is the return from valuation changes. Over the long run, the net return from this component should be zero. This is mainly because equity prices have tended to keep pace with earnings (see Figure 9), giving equity valuations (price-to-earnings ratios) their long-run mean-reverting character (see Figure 10). Once we account for income returns and growth returns independently, we find that the residual equity total return over secular periods (measured as five to 10 years) is very significantly driven by fluctuations in what is essentially a long-run zero sum factor we call "return from valuation changes."

FIGURE 9: OVER TIME, EARNINGS ANCHOR PRICES, GIVING P/E MULTIPLES THEIR MEAN-REVERTING CHARACTER

Principal components of secular equity total returns

- Price per share of S&P500 index (LHS)
- Earnings per share of S&P500 index (RHS)

Source: Robert Shiller

Note: Shiller equity data based on S&P 500, S&P 90, and prior to 1926 Cowles and Associates.
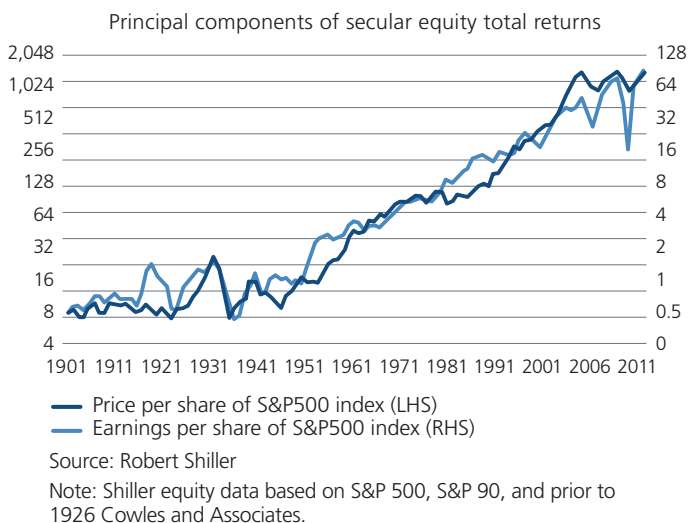
FIGURE 10: VALUATION RETURNS ARE DRIVEN BY THE MEAN-REVERTING NATURE OF P/E MULTIPLES

Valuation returns come from mean reversion

- Trailing 10-yr valuation return
- Change in cyclically adjusted P/E multiple

Source: Robert Shiller, PIMCO calculations

Note: Shiller equity data based on S&P 500, S&P 90, and prior to 1926 Cowles and Associates
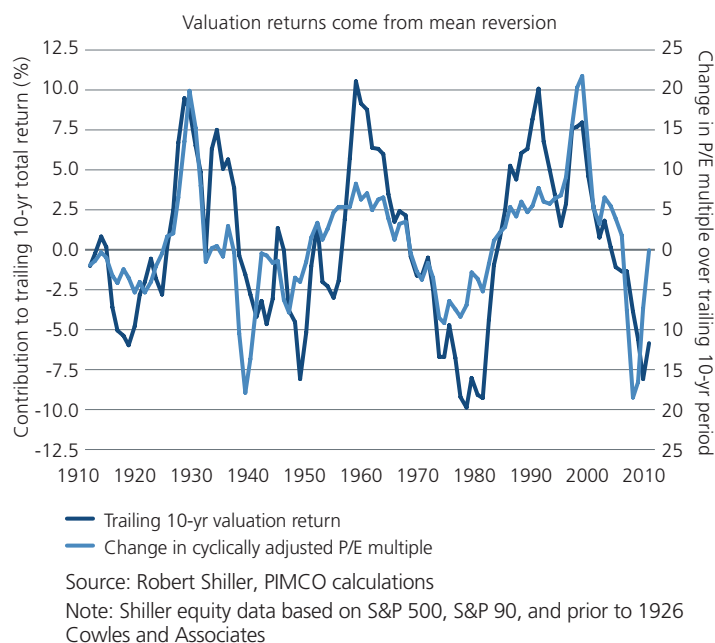
Robert Shiller, in his book *Irrational Exuberance* (2000), used theory from Graham and Dodd's seminal 1934 work *Security Analysis* to expound on this very concept and on the use of cyclically adjusted P/E multiples in managing equity portfolios. The basic theory is simple: Since earnings are very volatile from year to year (over the last 110 years, reported earnings have been twice as volatile as equity prices), and equity prices derive their valuation anchor from said volatile earnings, a cyclical adjustment is useful in removing/reducing volatility from earnings so that they become a more useful anchor for prices. Shiller's preference was to use a trailing 10-year average of reported earnings as a cyclically adjusted measure. We have chosen to use a trailing 10-year plus a forward 10-year average of reported and realized/forecasted earnings in our efforts to produce a more stable and practical measure in the forecasting section below.

In either case, the usefulness of a cyclically adjusted P/E multiple in forecasting return vectors is clear (see Figure 11). Both cyclical and secular mean returns are dominated by the initial cyclically adjusted valuation of equities, and we find no better and more commonsensical tool for capturing residual returns from valuation changes than our variant of Shiller's cyclically adjusted P/E.

FIGURE 11: INITIAL VALUATIONS PROVIDE AN IMPORTANT VECTOR TO REALIZED RETURNS

Cyclically adjusted P/E multiples and realized returns

Initial cyclically adjusted P/E valuation	1-yr forward real return	3-yr forward real return (CAGR)	5-yr forward real return (CAGR)	10-yr forward real return (CAGR)
<5	25.4%	19.1%	21.2%	16.0%
5 to 10	14.5%	12.7%	12.2%	11.5%
10 to 15	10.6%	8.1%	7.0%	7.9%
15 to 20	6.4%	4.9%	5.3%	5.5%
20 to 25	1.6%	5.6%	8.4%	2.5%
25 to 30	1.3%	-0.5%	-1.2%	3.0%
30 to 35	1.9%	0.0%	-1.5%	-0.7%
>40	-12.5%	-17.3%	-5.4%	-3.9%

Today's market value → 20 to 25

Source: Robert Shiller, PIMCO Calculations.

Data as of 31 December 2011.

Note: Shiller equity data based on S&P 500, S&P 90, and prior to 1926 Cowles and Associates. Data shows mean Compound Annual Growth Rate (CAGR) of total returns for various periods based on starting value of cyclically adjusted P/E. CAGR is the year-over-year growth rate of an investment over a specified period of time. The compound annual growth rate is calculated by taking the nth root of the total percentage growth rate, where n is the number of years in the period being considered.

FIGURE 12: VALUATIONS ARE HIGHEST WHEN GROWTH AND VOLATILITY OF GDP ARE LOW AND POSITIVE

P/E multiples in varying growth and volatility regimes

Cyclically adjusted P/E (LHS) ——— Min P/E (LHS) - - - -
Max P/E (LHS) - - - - GDP volatility (RHS) ———
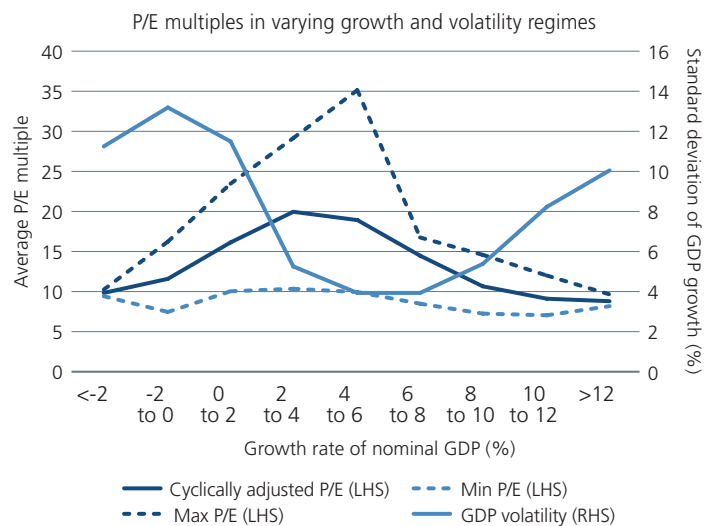
Source: Robert Shiller, PIMCO calculations. Data range is 1910 - 2010. Note: Shiller equity data based on S&P 500, S&P 90, and prior to 1926 Cowles and Associates

We have shown initial valuations drive forward returns due to the mean-reverting nature of prices to earnings over time. But are there other factors that drive valuations too? A historical analysis of P/E multiples (see Figure 12) shows that equity investors are most exuberant during periods of low but positive nominal GDP growth (greater than 2% but less than 6% per annum) but quickly become more pessimistic when nominal GDP growth either falls below 2% per annum or rises above 6% per annum. This is partly explained by the fact that the volatility of GDP and earnings is higher in the wings of the growth distribution, but is also driven by the fact that negative growth is associated with permanent losses and double digit growth is associated with rising costs of credit/discount rates. The growth and discount rate factors discussed above will also be critical in forecasting returns below.

Forecasting U.S. equity returns

As a first step to forecasting broad U.S. equity returns in this environment, we have combined the three major components of equity returns into a more sophisticated expression for explaining equity total returns.

Trailing 10-year total return from equities =

1) Initial payout-adjusted dividend yield +

2) Beta (nominal GDP growth) +

3) Beta (annualized change in profits' share of GDP) +

4) Beta (annualized change in cyclically adjusted P/E multiple) +

5) Beta (annualized change in real long-term Treasury yields) –

6) 1.8% (this represents an equity dilution factor that generates growth)

In mapping this expression to the three components we described above, the return from income is represented by the initial payout-adjusted dividend yield. The return from growth is represented by the nominal GDP growth rate, plus the change in profits' share of GDP. And the return from valuation change is represented by the change in cyclically adjusted P/E multiples as well as the change in real long-term (20-year maturity) Treasury yields.

The addition of real long-term Treasury yields to the expression is important. Because we are attempting to explain equity total returns, and not equity excess returns, the fundamental discounting factor for long-term financial assets (such as equities) must be included and forecasted to produce expected total returns. This departure from simply using a mean-reverting cyclically adjusted P/E multiple will prove to be informative, especially in the New Normal era of negative real interest rates we currently find ourselves in – and expect to stay in over the secular horizon.

FIGURE 13: EQUITY DILUTION FACTOR DRIVEN BY RISING CAPITAL TO INCOME RATIO

U.S. nominal GDP level outpaces S&P 500 earnings per share level

U.S. nominal GDP growth rate = +6.4% per annum
S&P 500 earnings per share growth rate = +4.6 per annum

(chart: U.S. nominal GDP level vs. S&P 500 earnings per share level, data indexed to 1.0 in 1900, logarithmic scale, y-axis 0 to 1,000, x-axis years 1904–2012)

Legend:
— U.S. nominal GDP level
— S&P 500 earnings per share level

Source: National Income and Product Accounts, Robert Shiller
Note: Shiller equity data based on S&P 500, S&P 90, and prior to 1926 Cowles and Associates

One interesting realization from this exercise is that the growth rate of earnings per share does not keep pace with that of aggregate corporate profits and GDP growth (see Figure 13). We call this the "equity dilution factor" above. This occurs mainly because economic development and growth are increasingly capital intensive, such that capital-to-income ratios at an economy-wide level need to rise to generate the total factor productivity captured in equity returns. It is also because capital does get destroyed from time to time, due to natural disasters, wars and other known unknowns, which eventually gets borne by equity. While this equity dilution factor is a time-varying concept based on changing phases of economic growth, the inclusion of this factor is important particularly as we look to forecast equity returns across both developed and developing economies with different structures. So what are PIMCO's main assumptions for broad U.S. equity returns in the New Normal?

First, we expect U.S. nominal GDP growth of between 4% and 5% on average going forward (compared to 6.4% average over the 110-year history). This expected reduction in growth is dominated by two macroeconomic factors, a

demographic decline (see Figure 14) as well as a productivity decline precipitated by reduced net new investment during a period of debt deleveraging.

FIGURE 14: DEMOGRAPHIC OUTLOOK PRESENTS A GROWTH AND VALUATION RETURN HEADWIND

Old-age, working-age, and young-age shares of U.S. population

(chart: One year U.S. population growth, by age group (in millions), y-axis -1.0 to 2.5, x-axis years 1950–2030; annotations "The baby boom", "The baby bust", "The boomers retire", two "10x" markers)

Legend:
— Under 20
— Working age 20-64
— 65 and over

Source: Research Affiliates (2011)
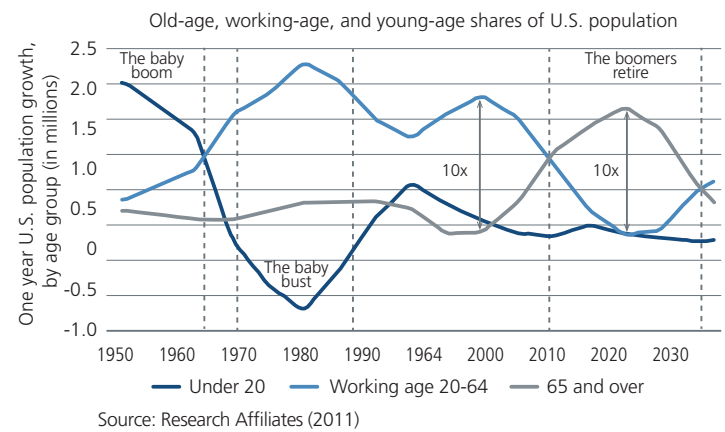
Second, we currently see payout-adjusted dividend yields for the broad U.S. equity market at 3.7% as measured by the S&P 500 as of 31 October 2012.

Third, because of the unsustainability of U.S. government deficits and the low likelihood of a surge in investments' share of GDP, we expect corporate profits' share of GDP to revert to their long-term average over the next five to 10 years. This means an annualized decline in profits' share of GDP of between 0.25% and 0.5% per annum.

Fourth, we expect cyclically adjusted P/E multiples to continue on their past 10-year journey toward a partial mean reversion, imparting a further reduction from current levels of ~21 times cyclically adjusted earnings toward 17 times cyclically adjusted earnings over the next five to 10 years.

And finally, we expect a very gradual rise in real, long-term Treasury yields (10-year – 20-year maturity blend) from their current –0.6% value back toward +0.5% over the next five to 10 years.

Our forecasts for the destination of cyclically adjusted P/E and real long-term Treasury yields should be viewed in conjunction with and not exclusive of one another. These forecasts reflect the environment of financial repression the U.S. economy finds itself in today due to deleveraging, and one that we see persisting to some degree over the next five to 10 years.

Under these baseline assumptions (see Figure 15), we forecast the broad U.S. equity market to produce nominal annualized total returns in the +4.0% to +5.1% compounded per annum range over the next five to 10 years. These returns are far below the S&P 500 historical long-term realized returns of nearly 10% compounded per annum, but better than the past decade of total returns delivering just over 2% compounded per annum. A long-term history of our top-down model for broad U.S. equity returns (as proxied by the S&P 500 looking backward) suggests there is a ~68% probability that realized returns will fall within +/- 2.5% of estimated returns over the forecast horizon (see Figure 16).

Our forecast will change either if we expect nominal GDP growth to accelerate or decelerate from our 4% to 5% baseline assumption, or if we see a substantial shift in the profits' share of GDP forecast based on a productivity-growth-based resurgence in investment in the U.S. economy, as shown in the forecast table.

FIGURE 15: PUTTING EVERYTHING TOGETHER: PIMCO'S FORECAST AND RANGES (WITH PARTIAL REVERSION*)

PIMCO's secular (five- to 10-year) forecast for broad nominal U.S. equity total returns

PIMCO nominal equity returns forecast		Nominal GDP growth					
		2%	3%	4%	5%	6%	7%
Annual profits' share of GDP change	-1	1.8%	2.7%	3.6%	4.4%	5.3%	6.2%
	-0.75	2.0%	2.9%	3.8%	4.7%	5.5%	6.4%
	-0.5	2.2%	3.1%	4.0%	4.9%	5.8%	6.6%
	-0.25	2.5%	3.3%	4.2%	5.1%	6.0%	6.8%
	0	2.7%	3.6%	4.7%	5.3%	6.2%	7.1%
	0.25	2.9%	3.8%	4.7%	5.5%	6.4%	7.3%

Source: PIMCO
*Assumes +0.5% 20-year Treasury real yield and 16.7 cyclically adjusted P/E valuation destination.
Note: Figure provided for illustrative purposes and is not indicative of the past or future performance of any PIMCO product. Forecasts, estimates, and certain information contained herein are based upon proprietary research and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. Numerous factors will affect actual results. There is no guarantee that actual results will be the same or similar to the above.

FIGURE 16: PIMCO SECULAR EQUITY RETURN MODEL: HISTORICAL PERFORMANCE AND FORECAST
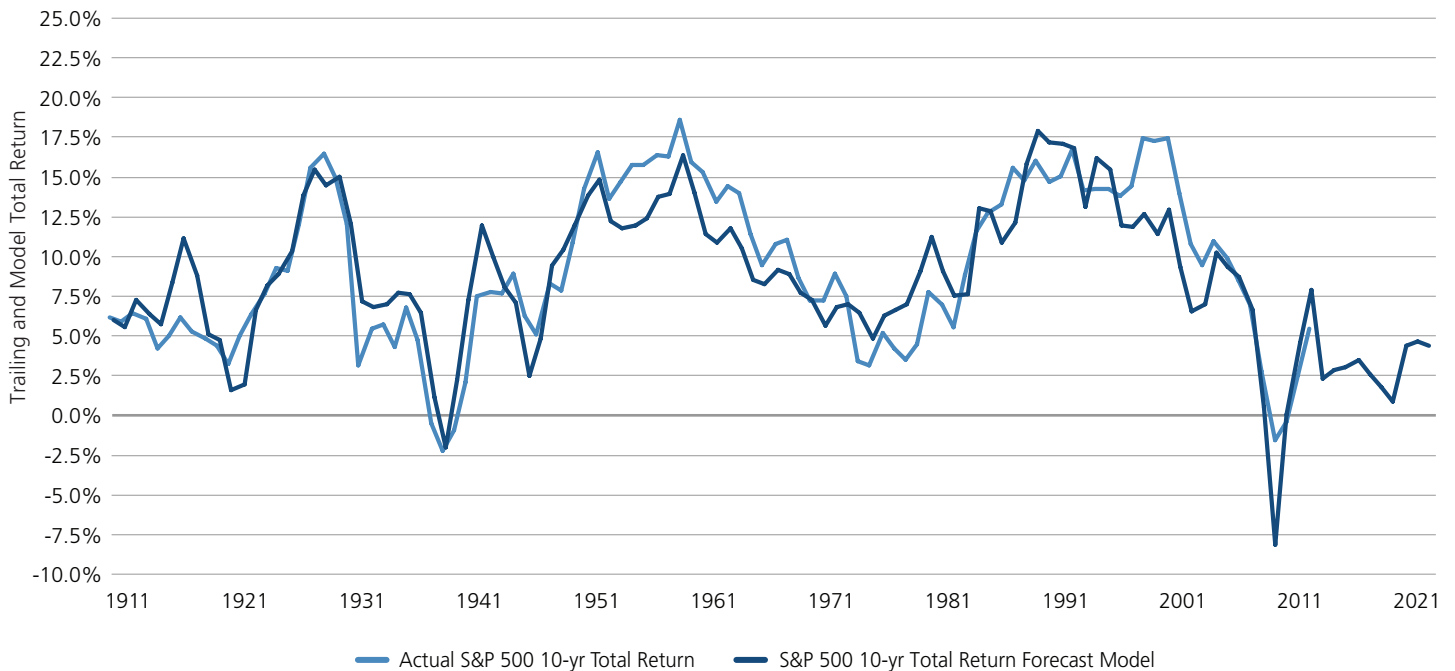
Source: PIMCO

Hypothetical example for illustrative purposes only. S&P 500 10-yr Total Return Forecast Model is based on a PIMCO proprietary model. The model is provided for illustrative purposes and is not indicative of the past or future performance of any PIMCO product. The model is limited by a set of assumptions that may or may not collectively develop over time. There is no guarantee that the model return will be similar to actual returns and actual returns will vary.

Known unknowns for New Normal forecast

We would like to leave you with some thoughts for further research and consideration. These are all issues that have and will continue to get significant air time at PIMCO's annual secular forums (led by Mohamed El-Erian).

On future economic growth assumptions, we believe the key "right tail" unknown (i.e., potential upside surprise) is productivity and the technological progress being made predominantly in the fields of alternative energy sources and molecular biology. Resource constraints in both energy and food supply are likely to be hindrances to future economic growth rates, and technological progress on this front will be critical to analyze going forward.

On the profits' share of GDP assumption, the U.S. "fiscal cliff" as well as the longer-term treatment of unfunded liabilities

that are crystallizing on balance sheets at an accelerated pace due to demographic decline will be cyclical and secular unknowns for investors to digest. The more unfunded liabilities that actually crystallize on balance sheets, the more structural and less financially sustainable U.S. government deficits become, imparting larger negative expectations on equity total returns in the future.

On valuation change assumptions, there are two known unknowns: The first is the longevity of current financial repression, which might lead to even lower long-term real interest rates sustaining high cyclically adjusted P/E multiples. How long will the Federal Reserve stay at zero? The second is the role demographics will play in reducing U.S. savings even further. The national savings rate of the U.S. is already negative after accounting for depreciation. This means the

U.S. has to import almost all the financing needed to expand investment above the rate of depreciation going forward. Given the aging demographics we currently face, the pressure on U.S. savings is going to increase, which will either lead to a drop in investment (bad for profits) or a rise in costs of capital (bad for P/E multiples).

And finally, the important known unknown of survivor bias in our model and forecast. The past 110-year returns on U.S. equities have been greater than those of other developed and currently developing economies, mostly because the U.S. economy has not encountered catastrophic destruction of capital during this period, as other countries have. The U.S. has not encountered a major domestic war during this period of observation, and in fact it has benefited from the widespread destruction of competing capital in other economies over this period.

Conclusions

Forecasting equity returns requires both a top-down view of economics as well as a bottom-up view on the creative-destruction process we encounter every day.

Equities as an asset class are a necessary component of long-term portfolios, and unique in their ability to provide significant upside over time through careful allocation changes based on a framework of return forecasting we have described above. Patience, diligence and the careful avoidance of downside risks can greatly enhance the experience asset allocation portfolios can achieve from this volatile but infinitely interesting asset class.

In future editions of *"Asset Allocation Focus"* we will look at PIMCO's forecasts for total returns from other asset classes, such as fixed income, commodities and inflation.

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