Alternative Thinking

Long-Term Expected Returns

Expected returns are among the most important inputs to investment decision-making but are difficult to assess, as any estimate comes with significant uncertainty.

How should investors go about making such assessments? A good framework helps, and we argue that three anchors are central: historical performance, theory and current conditions.

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AQR Capital Management, LLC
One Greenwich Plaza
Greenwich, CT 06830

p: +1.203.742.3600
f: +1.203.742.3100
w: aqr.com

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Executive Summary

- We describe three complementary anchors for estimating expected returns: history, theory, and current conditions
- We apply this framework to provide an expected return to equities and the U.S. 60/40 portfolio
- Finally, we suggest how these three anchors can be applied to setting expectations for alternative strategies

Three Anchors

How should investors go about forming return expectations? We argue that three anchors are central: **historical performance**, **theory** and **current conditions**.[1]

Identifying these anchors can be a useful step, but two challenges remain: first, there is (ample) room for argument within each anchor's return prediction; and second, the weight to assign to each anchor likely varies with return horizon. For example, historical average returns may warrant discounting due to some peculiarities of the sample period (say, windfall gains from one-off repricing of an asset class) or due to concerns about trading costs or data-mining. There are competing theories for any empirical finding and each theory can imply different return forecasts depending on the specifications and parameters. Even measures to assess the market's current valuation don't need to agree; for example, some indicators suggest that equity markets are historically rich, others that they are historically cheap.

The relative weights of the three anchors depend on an investor's prior beliefs but also on the horizon over which expected returns are assessed. To estimate really long-term expected returns–say beyond 20 years–current market conditions would matter less than the other two pillars (history and theory). However, to estimate returns for the next three to five years, current valuations matter the most. And to assess the tactical market outlook for the next few months (which we will not do here), even valuations would be overwhelmed by shorter-term drivers such as momentum and the macro environment.

All of this makes the assessment of expected returns as much an art as science. "The challenge is to refine the art of investment decision making in a way that exploits all our knowledge about historical experience, theories and current market conditions, without being overly dependent on any one of these." (Ilmanen 2011, p. 5). In short, some judgment is needed.

Example: Equity Markets

To forecast returns on equities, for example, we would employ our anchors to generate estimates and a theoretical foundation for those estimates, then construct a "net verdict" that incorporates all three inputs (**Exhibit 1**). This framework and these estimates are our opening gambit for dialogues both with investors and internally.

Any such estimates should come with serious qualifiers. Forecasting investment returns is inherently difficult, a problem compounded by the additional risks taken by timing positions (not just in increasing or decreasing risk at the portfolio level, but also through concentrating the portfolio in specific positions or asset classes) and the organizational pressures to give up on long-term positions that are under water ("too early" equals "wrong"). Humility is warranted even with these long-term forecasts, and more so with tactical positions (which, in our opinion, should be an order

[1] Asness (Foreword to Ilmanen's book *Expected Returns*, 2011 p. xiv) highlights three useful and complementary methods to estimate expected returns, in order from weakest to strongest: (1) looking purely at how something has done in the past, (2) based solely on your theory of how the world should work without examining the data, (3) jumping straight to current valuation measures (e.g., the Price-Earnings P/E ratio of stocks, or the nominal or real yield of bonds).

Exhibit 1 | *Three Anchors and Long-Term Expected Returns on Equities*

	Historical Performance	Theoretical Foundation	Current Yields/Valuations	Net Verdict
Argument	Global (U.S.) equities earned a compound average real return of 5.0% (6.3%) and excess return over cash of 4.1% (5.3%) since 1900, with a Sharpe ratio of 0.35 (0.37), based on the Dimson-Marsh-Staunton CS Global Yearbook.	In most models of modern finance, the central source of systematic risk is exposure to equity market direction (market beta). Participating in economic growth through equities requires sharing losses in downturns.	The prospective long-term real return on U.S. equities based on the Shiller E/P or a dividend discount model[2] is near 4%. Higher equity yields, especially in Europe, suggest higher prospective returns outside the U.S. (We assume no mean reversion toward long-run valuation levels.)	Combine the three anchors
Expected Real Return and Sharpe ratio	5% 0.35	~ 1-8% ~ 0.1-0.6	4-5% 0.25-0.30	4-5% 0.25-0.30
Notes	*Historical returns are upward-biased compared with today's prospects as they reflect higher starting yields (e.g., Dividend Payout Ratio (D/P) averaged >4% compared with current 2%) as well as some windfall gains when valuations improved. (We also do not predict higher returns for the U.S. than for global markets just because the U.S. was among the winners in the 20th century.) On the other hand, arithmetic mean returns are 1%-2% higher than geometric means (compound returns) shown above.*	*Theories do not make tight predictions about a fair level of real equity returns; thus the wide range. Theories do, however, imply that required returns for equities should be higher than for lower-risk fixed-income assets. Stocks' higher systematic risk also points to higher Sharpe ratios -but this may be balanced by leverage-averse investors' willingness to accept a lower Sharpe ratio for 'risky' assets that offer embedded leverage and conventionality.*	*The current environment is exceptional because cash is earning a negative real rate near −2%, instead of the long-run average near 1%. Thus, today's forward-looking real equity return is historically low, while today's forward-looking equity premium over cash near 6% is historically high. Mild normalization over the coming decade seems like a good base case, with average real cash rate near −1% (nominal cash rate averaging 1%-1.5% and inflation rates 2%-3%).*	

Source: AQR. Dimson- Marsh-Staunton CS Global Yearbook (2012) and Robert Shiller's website. For a summary of the Shiller data set please see additional details at the end of this document. Analysis based on data from 12/31/2013. Past performance is not a guarantee of future performance. There is no guarantee, express or implied, that long-term return and/or volatility targets will be achieved. Realized returns and/or volatility may come in higher or lower than expected. Please read important disclosures at the end of this document.

of magnitude smaller than well-defined strategic allocations). To reflect this, we show ranges rather than point estimates.

According to our analysis, current market yields imply prospective real returns near 4% in the U.S. but higher in Europe. The forward-looking real

[2] The dividend discount model helps decompose realized returns conceptually into three building blocks which can also be applied to prospective returns: starting yield, assumed cash flow growth rate, and expected valuation change. This last term can be based on mean reversion (or momentum and even other predictors). We assume no valuation change but think that the sum of dividend yield and the real trend growth rate of earnings-per-share or dividends-per-share (about 1.5%) is another reasonable estimate of prospective real returns. The Shiller Earnings-Price Ratio (E/P) already embeds a growth estimate in it (recall that E contains both retained earnings and distributed dividends).

return estimates (averaging the Shiller E/P and 'Dividends/Price + 1.5%') are 4.0%-5.0% for both the U.S. and MSCI World, however, they are over 6.0% for MSCI Europe and under 4.0% for MSCI Japan.

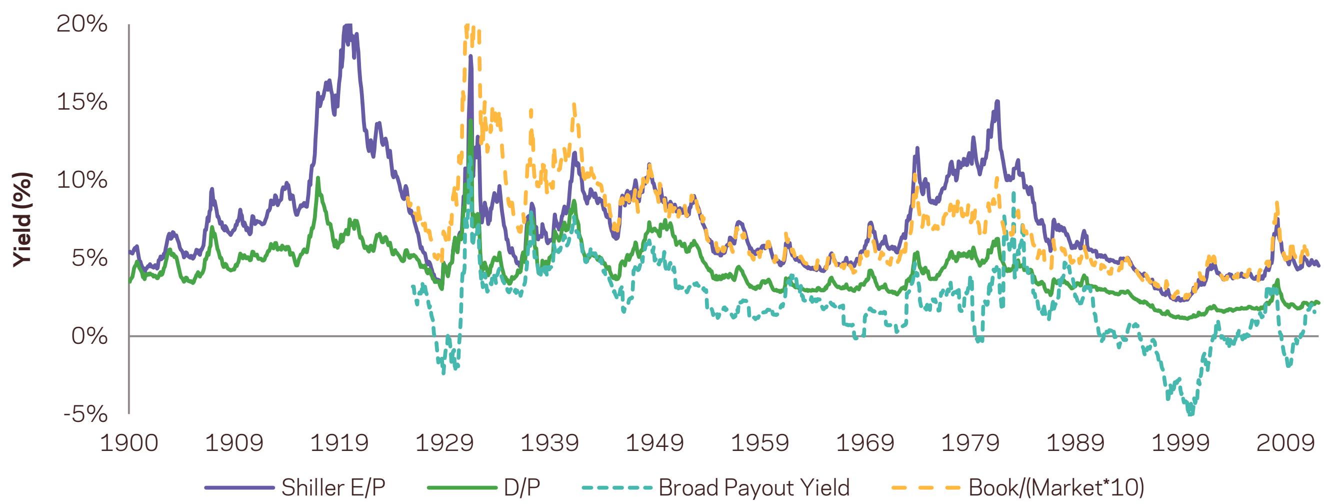
Our discussions on prospective equity returns tend to focus on the inverse of the Shiller P/E.[3] **Exhibit 2** compares the Shiller E/P with a few other yield or valuation metrics. All suggest that prospective equity market returns are below historical norms (for example, the Shiller E/P is in the bottom 20th percentile relative to its history), consistent with the wider low-return environment partly driven by monetary policies. The aggregate book-to-market ratio tends to track the Shiller E/P quite closely, and tells a similar story. Dividend yield is a classic valuation measure that often gets criticized for not including share buybacks. However, if the net of share buybacks and equity issuance (two mirroring activities, really) is added to the dividend yield to capture a broad payout yield, it is clear that this more comprehensive "equity carry" measure has been below the dividend yield through most of the history.

Other Investments

For the other main asset class, nominal government bonds, the horizon-matching starting yield is an excellent measure of the likely nominal return for a fixed horizon. (Granted, inflation surprises make realized real returns uncertain, and even default risk can no longer be totally ruled out.) Also for a constant-maturity or constant-duration strategy, such as rolling 10-year bonds, the starting yield is a strong anchor for the realized return over a multiyear horizon. The reason is that any capital losses due to rising yields tend to be balanced by higher reinvestment rates.[4]

Assuming random-walk yields and given the bond yield plus some roll-down returns in an upward-sloping curve environment, nominal expected returns are near 2% in many markets. This implies zero or marginally negative prospective real returns—which is historically low but still comfortably beats cash at -2% real. Combining equities and government bonds into a 60/40

Exhibit 2 | *Historical Measures of U.S. Equity Market Yields or Valuation Ratios, 1900–2012*



Sources: AQR, Robert Shiller's website. For a summary of the Shiller data set and important disclosures please refer to the end of this document. All these measures relate some fundamental metric to the U.S. equity market price: the Shiller E/P uses smoothed earnings over the past decade (inflation-adjusted); D/P uses past year's dividends; Broad Payout Yield adds to the dividends gross share buybacks and subtracts gross equity issuance (including IPOs and delistings); and Book/(Market*10) uses the market's aggregate book value (divided by 10 for graphing convenience).

[3] See "An Old Friend: The Stock Market's P/E" and "The 5% Solution." Even if we think this measure is as useful as any for assessing market's long-run return prospects, we do not find it so useful for tactical market timing. A future paper may elaborate.

[4] Leibowitz-Bova ("Duration Targeting: A New Look At Bond Portfolios," Morgan Stanley Research, 2012)

portfolio gives a real prospective return of 2.4%, well below many institutions' target of 5%.

When it comes to alternative beta premia (dynamic long-short strategies with low directional exposures), prospective returns are even harder to predict. We finish with a few observations on the effect of diversification and the three anchors above on those prospective returns:

- **Diversification helps**: Certain individual alternative beta premia may have similar forward-looking Sharpe ratios as market-risk premia (0.2 to 0.4) and both benefit from diversification, but alternatives tend to benefit more. Diversified composites of market-risk premia are unlikely to have Sharpe ratios exceeding 0.5 to 0.6, while composites of alternative-beta premia can have Sharpe ratios of 0.7 to 1.0, perhaps more. For the best alternative-beta premia portfolios, it is plausible to assume higher Sharpe ratios than those for market-risk premia. The reason is the more effective diversification enabled by the use of leverage and shorting that can magnify any edge, although that many investors are constrained from using these tools (see Section 2). Of course, those constraints are precisely why we believe these alternative-beta premia may be priced to deliver higher Sharpe ratios—if they were easier to exploit, they would logically be priced to lower expected returns.
- **Theory**: It is advisable to ask the question "who is on the other side?" for any strategy that is claimed to provide a sustainable long-run edge. Some purists would expect sustainably positive Sharpe ratios only for premia with a compelling risk-based explanation. ("Behavioral effects will disappear when investors learn about them," they might say, despite evidence of a century of added value.) We do not go as far, but we agree that investors should require higher Sharpe ratios from strategies with substantial systematic tail risks (e.g., volatility selling) than from strategies with apparently benign tail behavior (e.g., trend following) – although the historical experience may be different.
- **History**: Empirical backtest evidence is important but deserves some skepticism. It is more credible if it involves out-of-sample results, long histories and cross-validation (similar patterns in many asset classes) instead of a great fit to recent historical episodes.
- **Current markets**: When investors are concerned about time-varying opportunities, it may help to check whether current valuations differ significantly from past averages. Even then it is worth stressing that contrarian timing signals are rarely as helpful for tactical trading as are trend signals—and neither are reliable enough to justify large deviations away from good strategic allocations.

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AQR Capital Management, LLC

One Greenwich Plaza, Greenwich, CT 06830
p: +1.203.742.3600 | f: +1.203.742.3100 | w: aqr.com