Understanding Expected Returns

Antti Ilmanen
Managing Director
AQR Capital Management (Europe) LLP
London

Investors tend to think of expected returns as a function of asset class risk, but this thinking may have led them to take on too much equity risk. For behavioral reasons, diversifying across investment styles, such as blending momentum and value, may offer greater returns for less risk. Limited market timing may also increase returns.

I will talk about expected returns, but I should make it clear that I am talking about very long-term expected returns—nothing about current markets, the eurozone crisis, or the impending recession. Compared with most commentators, having neutral views for the near term actually makes me appear to be a raving optimist among the current bearish consensus.

This presentation is based on my book, *Expected Returns: An Investor's Guide to Harvesting Market Rewards* (Ilmanen 2011). I decided to cover this huge topic—the book is 500 pages long—because I have dealt with so many different asset classes over the years. My goal in writing the book is to help improve the marketplace and the investor experience.

Big Picture for Investors

In the Indian fable of six blind men and an elephant, each man touches only part of the animal and each has a different idea of what the object is—for example, a wall of mud, a spear, a rope, a serpent, a fan, or a tree trunk. Each is partly right, but all are very wrong. The moral of the story is that people should look at multiple perspectives when thinking about anything and, in this case, when thinking about expected returns. Investors need to look beyond historical average returns; they should also look at theories and forward-looking indicators.

When applying this idea to the current difficult market situation, it is clear that many investors' portfolios are dependent on equity market direction. No matter how well diversified investors think they are, typically 90 percent or more of their portfolio risk comes from equities, which is something that many investors want to reduce because the roller coaster has been quite violent in the past 10 years. But it is difficult to reduce the risk, especially when everybody wants to do it at the same time. Investors are in a decade of low expected returns and heightened risk, so it is natural that many want to reduce risk.

There are three classic ways of reducing risk. One is a move toward riskless assets. Another one is insurance. The third one is diversification. Unfortunately, investors do not know anymore whether a riskless asset exists. If they do find a riskless asset, then they certainly will not earn much; and in fact, they are earning a negative real expected return. Insurance is very expensive now because of its popularity; consider the growing number of tail risk products being offered. Finally, the power of reducing risk with diversification is being challenged. Correlations are heightened in the current environment, but I would say diversification is still the best choice. My answer to the question of what investors should be doing now is that they should diversify aggressively to get away from portfolios that have concentrated equity market directional risk.

The main theme of my book is the importance of harvesting multiple premiums to form a more balanced portfolio. To find this balance, a good starting point is to identify the return sources that have worked well over long time periods. That process includes not only analyzing various types of asset class premiums but also looking beyond them. I will talk about the returns for different asset classes and investing styles as well as time-varying returns. The five styles that I emphasize are value, carry, trend or momentum, volatility, and liquidity. All of these return sources have some time variation in expected returns, and investors should try to take advantage of those differences. They should not

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look just at the long-run historical average and think that it will always be the same.

I will recommend a certain amount of contrarian timing, but it should be done modestly. Timing is a concentrated bet; it is a risky activity and should not be the bulk of what investors do.

Finding Returns from Multiple Asset and Style Sources

Table 1 shows the historical performance of many key return sources, both asset class premiums and style premiums, over a 20-year history and a longer available history. All numbers are excess returns, thus excluding cash income. No trading costs are subtracted, which helps certain high-turnover strategies. The last column shows when the time series started. Note that the premium of U.S. equities over U.S. bills was 5.2 percent between 1900 and 2009, but it is probably lower now.

For bond markets, the premiums for both longer terms and different credits are much smaller than the premiums in the equity markets. To get a return similar to equities, investors have to use leverage in these markets.

The lower part of Table 1 shows the various types of dynamic strategy premiums—value, carry, trend or momentum, volatility, and liquidity—generated over the long run, and they compare favorably with the equity premium. The history for the styles is not quite as long as the history for the asset classes, but the table suggests that investors can balance their equity risk premium concentration with some of these strategy alternatives.

There are caveats, of course. One is that these results may not be sustainable. Another important point is that these strategy premiums typically have lower volatility than equity markets. If an investor combines them with equities without any shorting or leverage, he or she is still going to have a very high equity market direction in the portfolio. Investors have to accept having some amount of leverage to really balance their portfolios properly. Many institutions cannot do that, so they remain with concentrated equity risk.

Figure 1 shows the premiums of various asset classes, Treasury maturities, and credit ratings. The line shows the long-range realized premiums, and the 20-year realized premiums are shown in the bars. Panel A shows the typical story, which is that risk taking is rewarded when investors go from bills to bonds to corporates to equities to small-cap stocks to value stocks. These asset classes offer higher returns over long histories.

Panel B shows various Treasury maturities. The long history shows that investors were rewarded by duration extensions of up to two to five years but then received nothing extra for further extensions. It is, of course, a different story during the last 20 years, when investors received windfall gains from falling yields. Panel C turns to the reward of bearing credit risk. Considering returns as a function of credit ratings, average returns up to a rating of BB show improvements but then the premium declines. The most speculative investments often give surprisingly poor rewards—a theme that continues to come up.

Value. Value stocks (those with low price-to-book multiples) have outperformed both the market and growth stocks (those with high price-to-book multiples) over many decades in all markets studied. Value also works when selecting countries and sectors, and it works in other asset classes. There may be risk-based explanations for this relationship; the worst time for value is during a deflationary recession, such as in the 1930s or in 2008.

Various behavioral interpretations, however, may offer more compelling explanations for the outperformance of value stocks. Here is the main narrative. Value investing works within markets and in many other contexts because of the overpricing of the hope for growth. If there is high growth in a stock or a sector or a country, investors tend to extrapolate further subsequent growth, resulting in high valuations. Typically, this expectation is followed by disappointment in the growth rate and the return.

Here is one macro example. From 1988 to 2009, the region that showed the strongest equity returns was Latin America, which produced returns of 18.8 percent, despite just 2.8 percent real GDP growth. During this period, Asia (excluding Japan) experienced much faster real growth but did not offer the highest equity returns. The reason Latin America did well was because valuations were very cheap in the late 1980s. That region had just emerged from its lost decade, and starting valuations matter.

Carry. Carry investing involves selling low-yielding assets to buy high-yielding assets. Although this activity is best known in currency markets, strategies that seek carry work in almost every asset class and context studied.

From 1993 to 2000, carry-seeking strategies generated excess returns in both fixed-income and currency market strategies. The strategy generates stronger performance when executed across countries rather than within one market. Although carry has worked almost anywhere, it does sometimes suffer. The rare but large losses tend to be concentrated

Table 1. Historical Long-Term Returns from Static Risk and Active Strategy Premiums

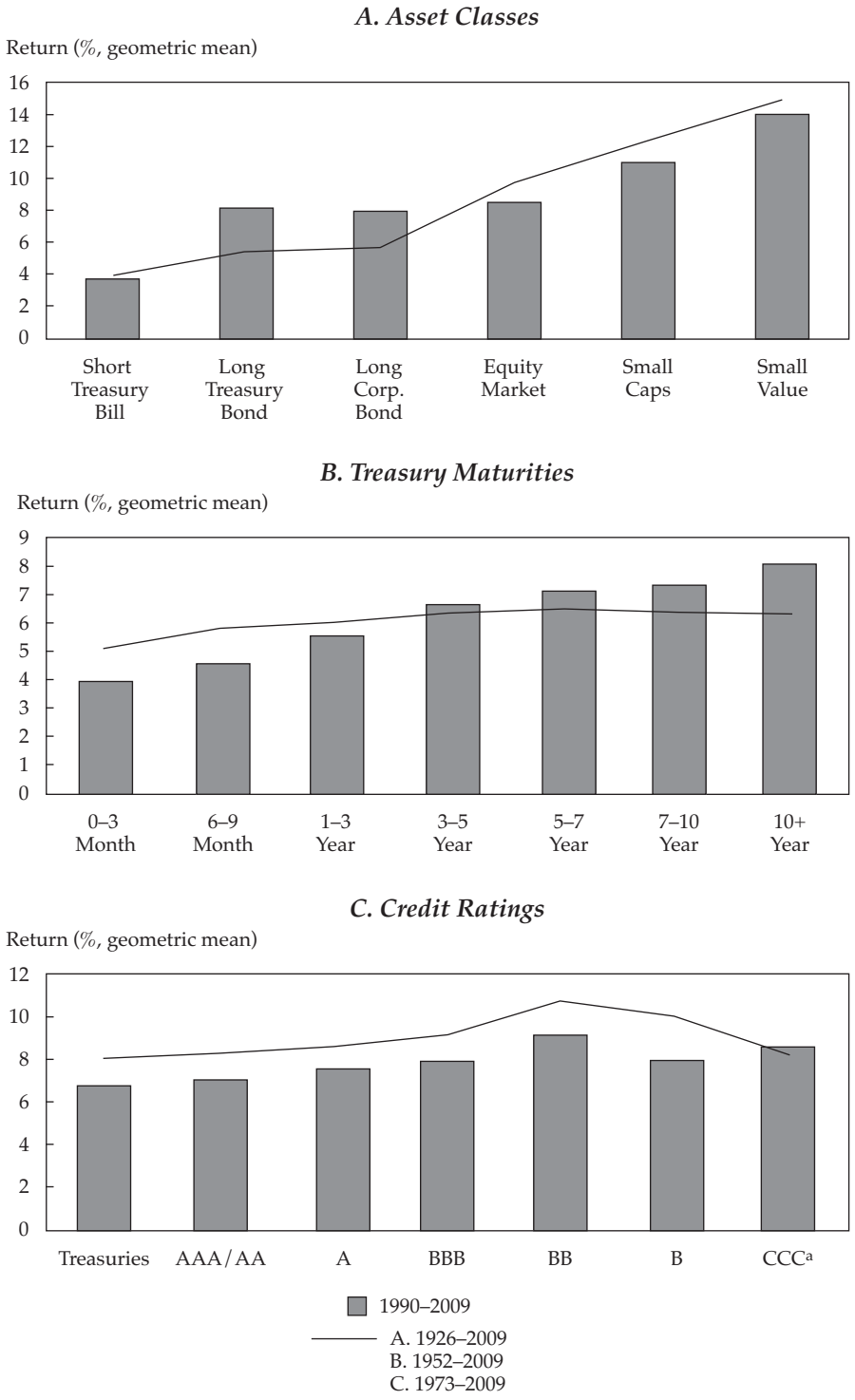
	1990–2009		Long History (ending in December 2009)			
	Compound Avg. Return	Sharpe Ratio	Compound Avg. Return	Annualized Volatility	Sharpe Ratio	Start Year
Static risk premiums						
World equity premium vs. U.S. T-bill	2.0	0.23	4.5	17.3	0.35	1900
U.S. equity premium vs. U.S. T-bill	4.4	0.32	5.2	20.1	0.37	1900
World term premium vs. U.S. T-bill	3.6	0.54	0.7	8.4	0.11	1900
U.S. term premium (7–10 year vs. T-bill)	3.4	0.57	1.4	6.7	0.26	1952
U.S. IG corporate credit premium vs. Treasury	0.2	0.07	0.3	4.4	0.08	1926
Dynamic strategy premiums						
Value (global equity selection)	3.6	0.52	4.6	7.2	0.68	1975
Carry (currency G–10 selection)	6.3	0.76	6.7	10.3	0.67	1978
Trend (commodity trend following)	9.2	0.88	10.2	12.1	0.85	1961
Volatility selling (equity index)	4.2	0.35	4.2	15.3	0.35	1990
Carry-seeking composite	13.0	1.07	6.9	9.8	0.76	1970
Trend-following composite	8.4	1.05	9.6	10.2	0.99	1961
Bet against beta composite[a]	4.4	1.18	8.5	8.9	0.95	1965
Liquidity risk factor in stocks[b]	6.7	0.54	5.1	12.3	0.47	1968

[a]Frazzini and Pedersen (2010).
[b]Pastor and Stambaugh (2003).

Note: All returns are computed without subtracting trading costs, but all are excess returns (i.e., not including cash return).

Sources: Remaining numbers based on data from Bloomberg; Bank of America Merrill Lynch; Barclays Capital; CRSP; Citigroup; Dimson, Marsh, and Staunton (2010); Ibbotson Associates (Morningstar); Ilmanen (2011); and Kenneth French's website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/).

Figure 1. Realized Returns of Various Asset Classes, Treasury Maturities, and Credit Ratings for 20 Years and Long Term



[a]Uses B returns before 1985.

Sources: Based on data from Bloomberg, Bank of America Merrill Lynch, Barclays Capital, CRSP, Citigroup, Ibbotson Associates (Morningstar), and Kenneth French's website. In the top chart, the three U.S. fixed-income indices are from Ibbotson Associates (Morningstar), while the value-weighted U.S. equity market index and its two subsets are from Kenneth French's website.

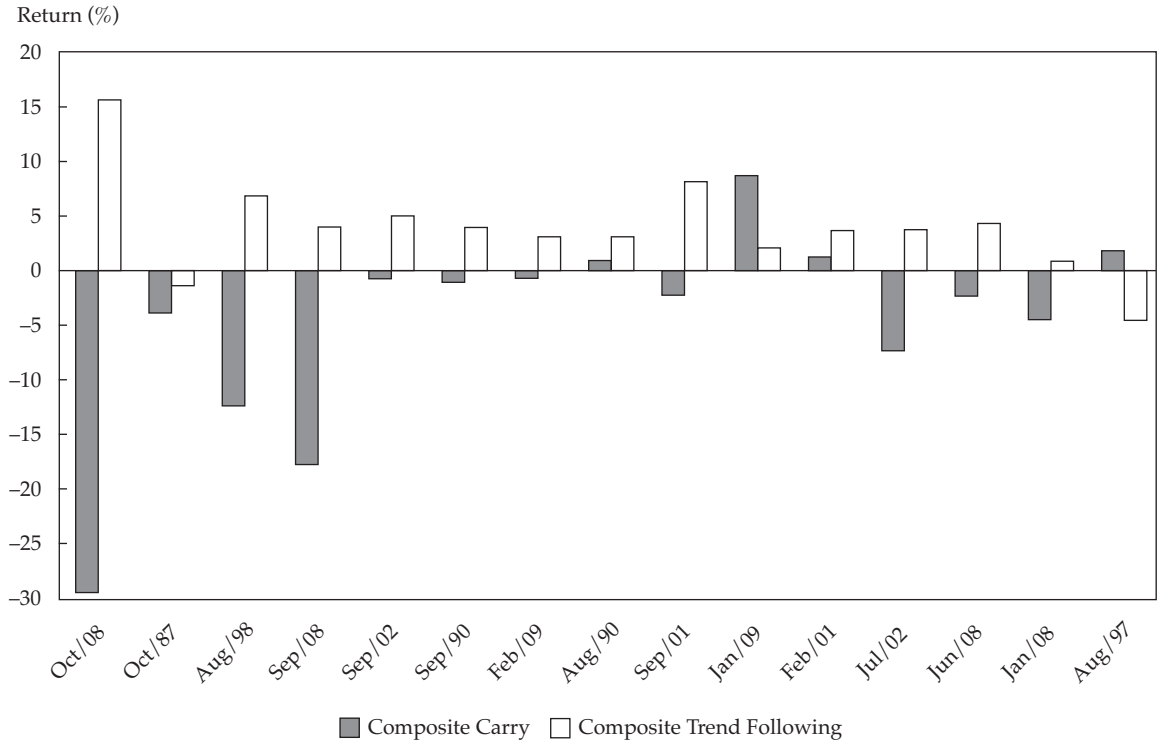
during bad times. With carry, it seems that alpha has morphed into beta over time; it is an attractive strategy, but it is also risky.

Trend and Momentum. Trend following refers to market timing with one asset at a time. Momentum strategies typically refer to long–short strategies, such as buying stocks that were last year's winners and selling stocks that were last year's losers. A distinction does exist between time-series strategies, such as trend following, and classic cross-sectional strategies, such as long–short momentum trading, because only the former take directional net exposure.

A simple strategy of buying an asset that has been going up in the last year or selling one that has been going down has added value in many contexts. This strategy has given good long-run results in commodity futures, equity country indices, interest rate futures, and currencies. It may seem contradictory to say that investors can earn excess returns by both buying when valuations are cheap and buying recent winners, but the difference is a matter of time horizon. It seems that winners tend to persist in performance for up to a year, and after that, a reversal effect takes over. The bad news for many investors is that their own behavior tends to be wrong. They often chase returns on multiyear horizons, which is when the reversal effects dominate. Reversal effects happen with asset classes and with manager selection. Moving synchronously with the medium-term crowd is one of the key behavioral mistakes that investors make.

Figure 2 shows the returns for a composite carry strategy and composite trend-following strategy in the worst 15 months for global stocks during 1985–2009, which also happens to be a 5 percent tail of worst returns. The results show that trend-following strategies made money (4 percent, on average) in 13 of the 15 months and the carry strategies lost (–5 percent, on average) in 11 of those 15 months. Trend following has been a good hedge against long-tail risk, not only in 2008 but also going

Figure 2. Excess Returns for Composite Carry and Trend-Following Strategies in the 15 Worst Months for Global Equities between 1985 and 2009



Note: The composite carry portfolio is composed of four carry strategies in fixed-income and foreign exchange markets, whereas the composite trend-following portfolio is composed of trend-following strategies in commodity, equity, and fixed-income futures as well as in foreign exchange.

Sources: Based on data from Bloomberg and author's own calculations in Ilmanen (2011).

further back in history. It is difficult to tell a risk story that would explain why this strategy has delivered positive results. Again, the explanation is probably behavioral.

Volatility. The fourth strategy is volatility. I like to think of this strategy in terms of a two-tail distribution: The left tail is about buying or selling insurance, and the right tail is about demand for lottery tickets.

The best-known insurance strategies involve various methods of selling equity index volatility. Doing so earns good long-run returns but at the risk of huge losses when bad times occur. Selling insurance pays off for others when the losses happen. In 2008, investors experienced a huge systemic crisis that caused many to lose their fortunes. The key idea in financial theory is that investments should earn a positive risk premium if they perform poorly in bad times. If certain investments make a little money almost all the time but incur concentrated losses at the worst times, those are the things that, in theory, should offer the largest risk premiums. Investors may have underestimated the severity of this risk before 2008, and in the aftermath of the crisis, few are willing to sell this type of insurance.

At the other tail are high-volatility assets, which I call "lotteries," that offer speculative returns. It turns out that the most volatile assets within every asset class offer surprisingly poor long-term returns. Meanwhile, low-volatility assets offer surprisingly good returns for taking a small risk. Defensive investments often provide the same or perhaps better absolute returns and certainly much better risk-adjusted returns than their more speculative peers. This result explains why low-risk investing has become popular in stock markets and may also attract attention outside of equities. For example, Panel B in Figure 1 shows that there is no reward for holding bonds with a maturity greater than five years and Panel C shows that CCC rated bonds underperformed more highly rated credits.

There are three main explanations for the better returns on defensive investments. First, people overpay for insurance. They also overpay for lottery tickets. When they do the same thing in financial markets, those types of investments tend to be overvalued and deliver poor long-run returns.

A second reason is that many investors will not use leverage, and the strategies with the best reward for risk often require it. Many institutions dislike volatility but dislike leverage even more. Therefore, these institutions often create a substitute for leverage by buying the most volatile assets in any asset class, making this segment overpriced. Predictably, these assets earn disappointing long-run returns and much lower risk-adjusted returns than low-volatility or low-beta assets.

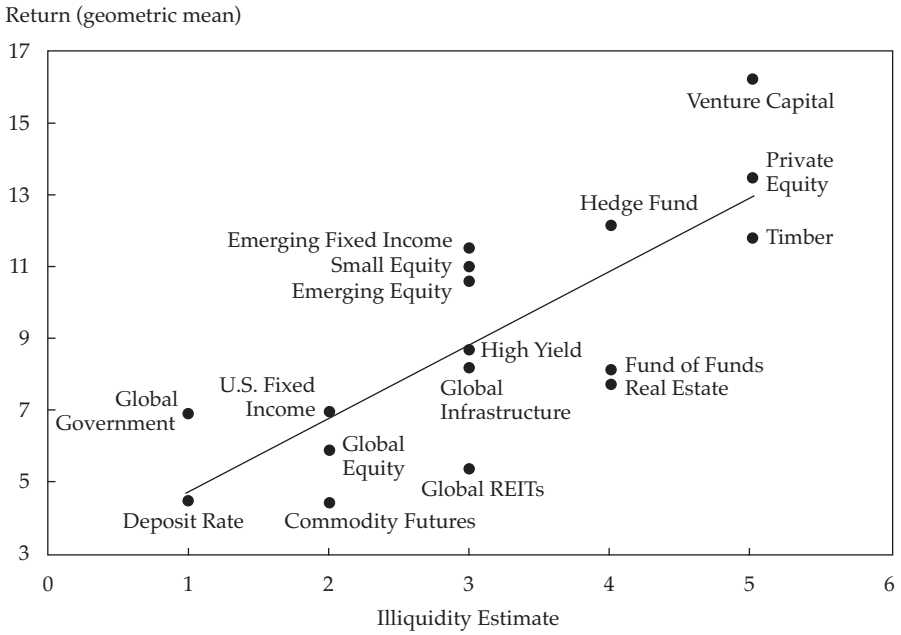
The third reason defensive investments earn better returns is that managers who have a benchmark treat risk symmetrically. Managers with a benchmark will increase risk (tracking error) whether they are acting more aggressively or more conservatively than the benchmarks because both actions are deviations. When many investors think in those terms, absolute risk may no longer be rewarded in financial markets.

Liquidity. Before the financial crisis, investors had a complacent sense that they would always be rewarded for bearing illiquidity risk or holding illiquid assets. By 2006–2007, however, the various illiquidity premiums had been beaten down to ridiculously narrow levels, and then an avalanche of bad events occurred in 2008. Despite this experience, evidence remains that investors earn a long-run reward for bearing illiquidity.

Illiquidity shows up in many different contexts, such as venture capital, commodities, equities, and government bonds. Unfortunately, no one metric exists that can measure illiquidity in all of these different types of illiquidity. Working with the Dutch pension fund company APG, I developed an illiquidity score for different types of investments. As shown in **Figure 3**, I used a scale of one to five along the x-axis, with five being the least liquid. Then I plotted the 20-year average return against those illiquidity estimates, which shows a positive relationship. The results may be overstated because not just total illiquidity but also other risks increase along the scale, and there are upward biases in venture capital, hedge funds, and private equities because of voluntary reporting. Nevertheless, over this time period, there seems to have been a positive long-run reward for illiquidity.

Conclusion. Style diversification is more effective than asset class diversification. If investors combine various asset classes, they can create a portfolio that is similar to a global market-cap portfolio. They will not get much volatility reduction because the market direction dominates, so their Sharpe ratios will improve only by a small amount. By combining various trading styles that have, on average, near-zero pairwise correlation, investors can add good diversifiers (which may also have attractive Sharpe ratios). With this approach, they can cut their volatility in half and double their Sharpe ratio, but it does require shorting and leverage.

Figure 3. Compounded Annual Return for Various Asset Classes Plotted on Illiquidity Estimate, 1990–2009



Sources: Based on data from Bank of America Merrill Lynch, Barclays Capital, Bloomberg, Cambridge Associates, Citigroup, FTSE, Global Property Research, Hedge Fund Research, Ibbotson Associates (Morningstar), Ilmanen (2011), J.P. Morgan, Kenneth French's website, MIT-CRE, MSCI Barra, NCREIF, Standard & Poor's, and UBS.

Broadening Perspectives to Time-Varying Expected Returns

Once institutions address the equity risk in their portfolios, they can find other ways to enhance returns at the margin. One way is market timing. It should not be a primary form of risk taking, but it can add value.

For years, both academics and practitioners were negative about any kind of market-timing allocation, but this attitude is changing because market volatility has been so violent over the last 10 years. With hindsight (and arguably, with foresight), valuation indicators provided investors with some useful contrarian signals.

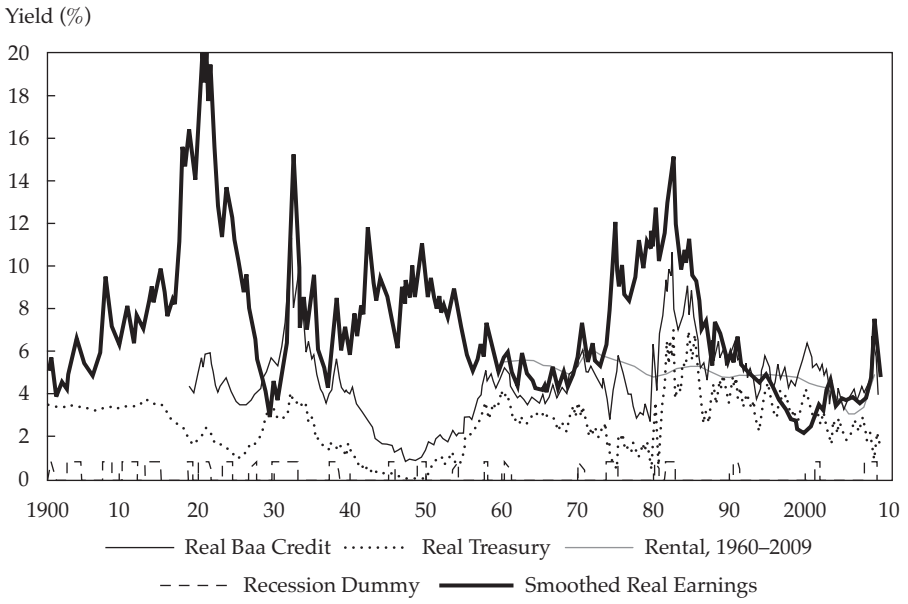
There are many ways to practice market timing. One approach is contrarian timing based on valuation indicators—buying investments that have underperformed and selling those that have done well. **Figure 4** shows more than 100 years of forward-looking real yields for various U.S. asset classes. Comparing these starting yields with future returns shows positive correlations. These valuation indicators seem to be able to slightly improve long-run Sharpe ratios. Of course, market timing has many risks, including high concentration and career risks; being early often equals being wrong.

Besides valuation indicators, investors can consider such indicators as measuring the macro environment and investor risk aversion. In almost any investment, there are both short-run momentum and long-run reversal effects to consider because of speculative dynamics in investor behavior. Timing, however, is difficult because systematic value signals and discretionary stories tend to give opposing messages.

For example, almost everyone is bearish on Europe right now, but the valuation indicators tell investors to buy European assets because they are very cheap compared with those of other regions. It will be a few years before it is known which view is right.

In the last few years, important valuation questions have been raised about emerging markets versus developed markets, as well as about oil versus other commodities. Investors should consider whether there are ongoing structural changes that justify ignoring valuation indicators. These are incredibly difficult questions, so it is no surprise that many investors decide to stay with neutral allocations over time.

Figure 4. Forward-Looking Real Yields of Various U.S. Asset Classes, 1900–2010



Sources: Based on data from Bloomberg; Robert Shiller's website (www.econ.yale.edu/~shiller/); Ibbotson Associates (Morningstar); Moody's; Davis, Lehnert, and Martin (2006); Lincoln Institute of Land Policy; Kozicki and Tinsley (2006); Federal Reserve Bank of Philadelphia; Blue Chip Economic Indicators; and NBER.

For many institutions, the big question is how to achieve a 4–5 percent real long-run return when equities are offering only 4–5 percent returns, fixed-income returns are averaging 0–2 percent, and cash is giving negative real returns in developed markets. The first answer is that investors need to adjust their expectations lower, which is happening. But it is natural to try to boost returns beyond these slim offerings. Growth-related premiums can be earned not only by owning equities but also through holding some highly correlated assets. The endowment model that came into vogue after the previous crisis 10 years ago emphasized adding illiquidity premiums and alpha through hedge funds. There is some role for all of these approaches.

The way I prefer to improve performance includes working with a range of investment styles. Investors can add return by diversifying across multiple premiums, not just across different asset classes. After investors harvest long-run rewards from multiple sources, they can consider some mild tactical tilts to exploit time-varying expected returns.

This article qualifies for 0.5 CE credits.

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Question and Answer Session

Antti Ilmanen

Question: How do you mix momentum and contrarian styles?

Ilmanen: Besides thinking about expected returns, investors need to think about how to combine things. I recommend that investors view their portfolio diversification in risk terms and not just in nominal capital allocation. If investors do not consider asset volatilities, then they do not realize that equities are dominating performance and risk even in a 50/50 portfolio. It helps to think in terms of volatility rather than dollars.

Next, think about correlations. It is good to have some negatively correlated investments. Investors have been able to enjoy that government bonds and stocks have been negatively correlated for the past 15 years. Most investors have both of these, so they have benefited from some natural diversification. That was not the case during the previous 30 years and may not be the case in the future.

Concerning styles, the best combination is value and momentum—meaning for value, buy something that is cheap, and for momentum, buy recent winners. Value is highly correlated with the losers of the last few years, but it is less highly correlated with the losers of the last few months. In this way, investors can benefit from good diversification, although the two strategies do not completely offset each other.

When value and momentum strategies are combined, the result is basically two alpha sources that may have a clear negative correlation with each other. Even if investors get only a small return gain from those as a package, it is good. If investors hold value investments, they should consider adding a little bit of momentum so they do not miss this diversification opportunity. Likewise, if an investor tends to be momentum oriented, then some amount of value is a good diversifier.

Question: Can you talk more about why momentum works?

Ilmanen: I think momentum and trend following reflect behavioral stories. In general, people extrapolate in expectations. They also take such actions as using stop-loss rules or VaR limits that make investors act as trend followers on the risk management side even if they do not chase returns.

The other part of the behavioral explanation is underreaction. There is quite a lot of evidence that markets respond quite efficiently to news. News can have a large instantaneous impact on prices. A little bit of information, however, is almost always left on the table. Investors discover it in many different contexts, so part of momentum is the delay effect of past news. It tends to be more pronounced in less liquid assets, such as small-cap stocks or emerging markets.

Question: Could there be industry structure effects as investors copy decisions of major financial institutions?

Ilmanen: For any kind of financial idea, being copied can be good news at first because it will give the idea a tailwind. In the long run, however, growing popularity will decrease the *ex ante* profitability of any strategy. There is a valid concern that ideas lose value when they become public—the opportunity to profit from them will be reduced. Academics would say that if there is a pure risk premium behind these ideas, then some positive reward will be sustained. If it is pure market inefficiency, investors learn about it and the premium goes away.

The momentum effect, for example, has not worked as well in the last 10–15 years than it did in the past, but on average and globally, it has worked even after it was known. I think investors should expect somewhat lower returns for strategies that are more like inefficiencies, but I think they will not fall all the way to zero. Returns will fluctuate over time, and the strategy will again become unpopular, just as some systematic strategies did in recent years. Paradoxically, the fluctuating doubts about a strategy's sustainability may sustain these premiums in the long run, even the behavioral ones.