
Verus
PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS
JANUARY 2015
Capital Market Assumptions

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Summary

Methodology

APPROPRIATE FRAME OF REFERENCE

— Over the short-term, capital markets may reflect irrational investor behavior as prices diverge from fair value.

— Mean reversion may occur over the long-run as prices converge to underlying fundamentals due to long-term investor rationality.

— In our opinion, a 10-year outlook is a reasonable time frame to expect fundamental valuation measures to mean-revert.

Asset	Return Methodology	Volatility Methodology
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the TIPS breakeven rate	-
Cash	Real yield estimate + inflation forecast	Last ten years of realized volatility
Bonds	Nominal bonds: current annualized yield Real bonds: real yield + inflation forecast	Last ten years of realized volatility
International Bonds*	Current yield + implied currency effect	Last ten years of realized volatility
Credit	Current option-adjusted-spread + U.S. 10-year Treasury – default rate	Last ten years of realized volatility
International Credit*	Current option-adjusted-spread + foreign 10-year Treasury – default rate + implied currency effect	Last ten years of realized volatility
Private Credit	High yield forecast + 2% illiquidity premium	Last ten years of realized volatility
Equity	Dividends (current yield) + real earnings growth (historical average) + inflation on earnings (inflation forecast) + P/E change (cyclical adjusted P/E)	Last ten years of realized volatility
International Developed Equity*	Dividends (current yield) + real earnings growth (historical average) + inflation on earnings (international inflation forecast) + P/E change (cyclical adjusted P/E) + implied currency effect	Last ten years of realized volatility
Private Equity	Small-cap domestic equity forecast + 3% illiquidity premium	20% higher than small-cap volatility
Commodities	Cash + inflation forecast	Last ten years of realized volatility
Hedge Funds	Return coming from traditional beta + 3.0% (alternative beta and alpha)	165% of last ten years of realized volatility
Real Estate	Cap rate – capex + Inflation forecast	Half of REIT's volatility
REITs	Same as private real estate	Last ten years of realized volatility
Risk Parity	Expected Sharpe Ratio*target volatility + cash rate	Target volatility

**We use local inflation for international developed equity and fixed income markets. When using local inflation rates, expected returns are adjusted for the implied currency effect based on currency forward contract rates (See Appendix)*

10 year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast	Ten Year Historical Sharpe Ratio
		Geometric	Arithmetic			
Equities						
US Large	S&P 500	5.7%	6.7%	14.7%	0.25	0.47
US Small	Russell 2000	4.7%	6.5%	19.8%	0.13	0.4
International Developed	MSCI EAFE	9.5%	11.0%	18.2%	0.41	0.25
International Small	MSCI EAFE Small Cap	9.2%	11.0%	19.7%	0.36	0.32
Emerging Markets	MSCI EM	11.5%	13.9%	23.7%	0.4	0.4
Global Equity	MSCI ACWI	7.4%	8.7%	16.5%	0.32	0.35
Private Equity	Cambridge Private Equity	7.7%	10.2%	23.7%	0.24	1.07
Fixed Income						
Cash	30 Day T-Bills	2.1%	2.1%	0.6%	-	-
US TIPS	Barclays US TIPS 5 - 10	2.6%	2.8%	6.3%	0.07	0.47
US Treasury	Barclays Treasury 7 - 10 year	2.2%	2.4%	6.4%	0.01	0.65
Global Sovereign ex US	Barclays Global Treasury ex US	2.5%	2.8%	7.9%	0.05	0.18
Core Fixed Income	Barclays US Aggregate Bond	3.1%	3.2%	3.2%	0.31	0.96
Core Plus Fixed Income	Barclays US Corporate IG	3.8%	4.0%	5.9%	0.29	0.67
Short-Term Gov't/Credit	Barclays US Gov't/Credit 1 - 3 year	2.3%	2.3%	1.3%	0.17	1.09
Short-Term Credit	Barclays Credit 1 - 3 year	2.6%	2.6%	2.3%	0.22	0.88
Long-Term Credit	Barclays Long US Corporate	3.7%	4.3%	11.0%	0.15	0.55
High Yield Corp. Credit	Barclays High Yield	5.2%	5.8%	10.5%	0.3	0.61
Bank Loans	S&P/LSTA	3.7%	4.1%	8.7%	0.19	0.44
Global Credit	Barclays Global Credit	1.9%	2.2%	7.4%	-0.02	0.49
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	5.7%	6.1%	8.9%	0.41	0.72
Emerging Markets Debt (Local)	JPM GBI EM Global Diversified	6.2%	7.0%	12.9%	0.32	0.46
Private Credit	High Yield + 200 bps	7.8%	8.4%	10.5%	0.55	-
Other						
Commodities	Bloomberg Commodity	4.1%	5.7%	18.2%	0.11	-0.1
Hedge Funds	HFRI Fund of Funds	6.0%	6.4%	9.1%	0.43	0.29
Core Real Estate	NCREIF Property	5.1%	5.9%	13.2%	0.23	0.93
REITs	Wilshire REIT	5.1%	8.1%	26.4%	0.11	0.38
Risk Parity		7.1%	7.6%	10.0%	0.50	-
Inflation		2.1%	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

Range of likely 10 year outcomes

Relevant market movements

— US equity investors experienced solid returns in 2014 for large cap equities, and moderate returns for small cap equities. Multiple expansion in 2014 proved a tailwind for large cap equities and a headwind for small cap equities. Valuations, as measured by the price-to-earnings ratio, remain above average for large cap equities and are near historic highs for small cap equities. This may indicate that multiple expansion will be less of a tailwind for these asset classes in the near future, and would indicate losses if valuations experience mean-reversion.

— EAFE equity investors saw losses in the low single-digits, which was driven primarily by price multiple contraction. Price multiples remain slightly below average for large cap equities, and more so in the small cap space. Small cap equities experienced a significant 17% multiple expansion in 2014. Our forecasts assume a repricing in EAFE equity which bolsters large cap and small cap equity returns by 0.75%.

— Emerging Market equity markets experienced considerable volatility, and ended 2014 with a slight loss. According to our price multiple indicators, Emerging Market equities is the most undervalued of the equity asset class. Mean reversion in this asset class would lead to healthy gains, and we forecast an additional 1.5% annual return to this asset class due to its relatively cheap valuation.

— Developed country sovereign yields have dropped to all-time lows upon concerns over lacking economic growth and deflation. Our forecast of 2.5% for global sovereign bonds reflects this movement. Global central bank policy continued to diverge, with the Bank of Japan and the European Central Bank implementing bond purchasing programs.

— U.S. breakeven inflation expectations fell further over the year to 1.7%, which has led to lower expected domestic inflation of 2.1%. Since inflation is a component of forecasted equity return, this decrease affects equity returns commensurately.

— Concerns about long-term global economic growth led to a strengthening of the US dollar relative to developed market currencies and a decrease in US long-term interest rates.

— Investment grade credit spreads widened over the year as companies took advantage of historical low interest rates to issue debt, making 2014 the largest year of debt issuance on record with $1.6 trillion of new issuance in this space.

— The price of oil dropped from nearly $100/barrel to below $50 since the beginning of 2014. While oil price movement has been a major political and economic story over the last six months, these large movements have typically had minimal effects on traditional portfolios with smaller allocations to commodities (and oil). Despite recent volatility, we generally expect commodities to return inflation plus a cash flow yield. Although roll return can be a large contribution to commodity returns, they are not considered in our forecast.

— Real estate cap rates remain near historic lows of the last three decades. Over the long-run, we expect no return contribution from a change in valuation.

Inflation

Inflation

The market's expectations for 10-year inflation can be inferred by taking the difference between the U.S. 10-year Treasury yield and the U.S. 10-year Treasury Inflation-Protected (TIPS) yield (referred to as the breakeven inflation rate). While the breakeven rose in 2012, it fell throughout 2013 and then fell further in 2014 H2, with the latest breakeven pricing in a 1.68% rate of inflation over the next decade.

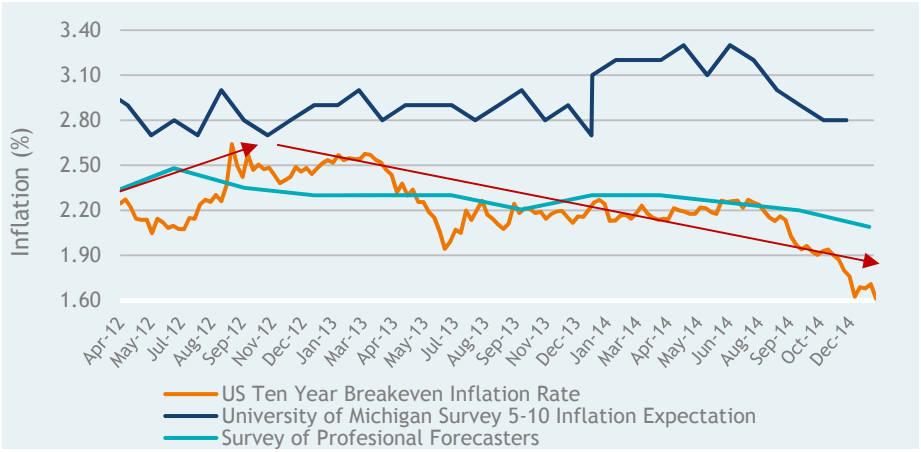
The latest University of Michigan Survey 5-10 year forward inflation expectation, a survey of about 500 households around the nation, is 2.8%. Historically, this survey of inflation tends to be higher than actual future inflation.

A more stable indicator over time has been the Survey of Professional Forecasters (conducted quarterly). The most recent expectation for long-term inflation is 2.09%.

To develop our inflation forecast, we assign a 50% weight on the 10-year TIPs Breakeven and a 25% weight on each of the two surveys. Based upon the December 31, 2014 data, our 10-year inflation forecast is 2.06%, which is 0.34% lower when compared to last year's estimate, and remains below the long-term average.

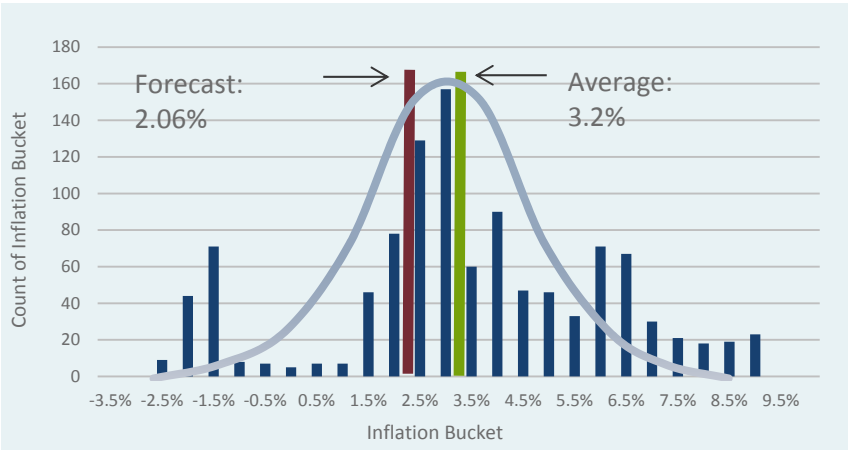
	10-Year Forecast
University of Michigan Survey *(25% weight)*	2.80%
Survey of Professional Forecasters *(25% weight)*	2.09%
US 10-Year TIPS Breakeven Rate *(50% weight)*	1.68%
Inflation Forecast	2.06%

MONTHLY BREAKEVEN INFLATION/UOM SURVEY/PROFESSIONAL FORECASTERS SURVEY



Source: Bloomberg, Philly Fed

US ROLLING TEN YEAR AVERAGE INFLATION HISTOGRAM SINCE 1923



Source: Bloomberg

Fixed income

Cash

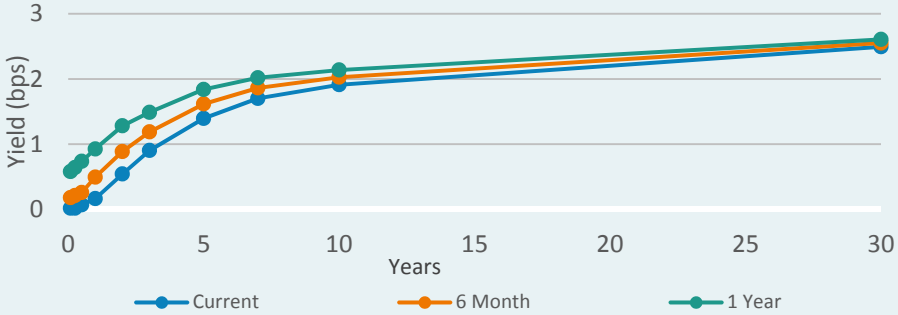
Over the course of 2014 the yield curve as a whole has fallen. The yield curve movement has caused cash rates to drop over this time period.

Over rolling ten year time periods, the average historical real return to cash has been 14% of the real return to long bonds.

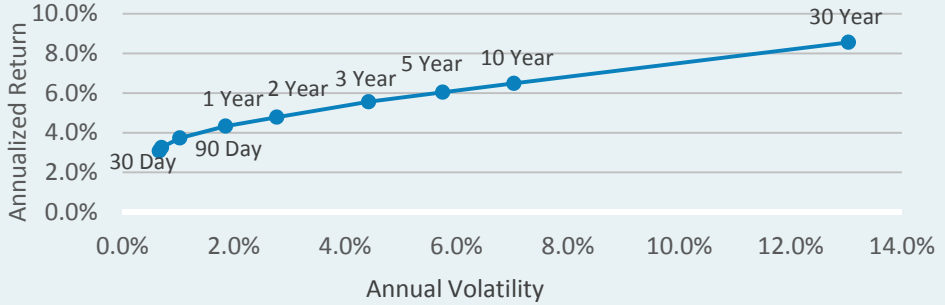
By applying the historical real return relationship between long bonds and cash, we get a 2 bps real return to cash from our current 11 bps real return forecast for long bonds.

Adding our inflation forecast of 2.06% results in a nominal return to cash of 2.08%.

US TREASURY ACTIVES CURVE



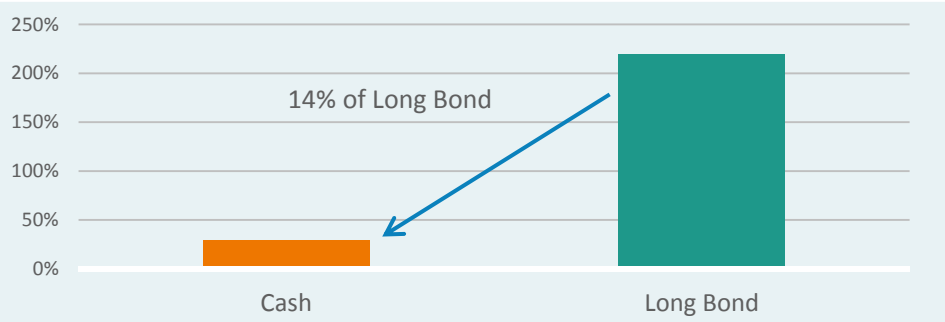
HISTORICAL TREASURY VOLATILITY TO RETURN (25 YEARS)



	10-Year Forecast
Cash	2.08%
Inflation Forecast	-2.06%
Real Return	0.02%

Source: Bloomberg

AVERAGE REAL RETURN



Source: MPI

Rates

Despite some market participants holding the view that rates would rise, the trajectory of 10 year Treasuries during 2014 was consistently towards lower yields.

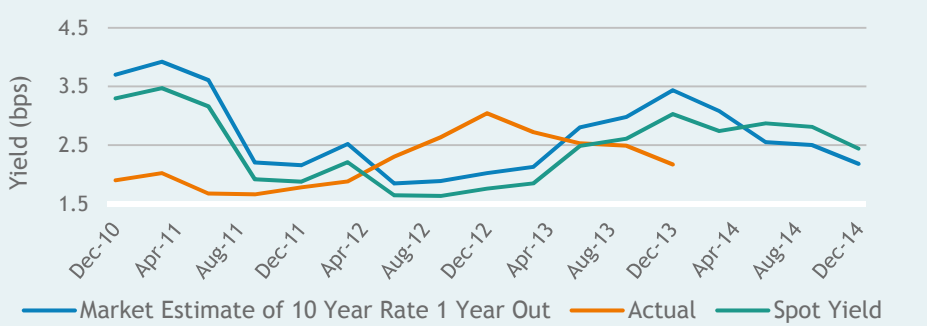
This move was particularly noticeable during the latter part of the year and the very early part of 2015.

Despite this US Treasury yields have been higher than a number of other government bond markets, including in countries regarded as significantly less financially stable.

Our forecast of rates is based upon the current yield, with all cash flows reinvested at the current yield.

	10-Year Forecast
US 10-Year Treasury	2.17%
Inflation Forecast	-2.06%
Real Return	0.11%

MARKET ESTIMATE OF 10 YEAR RATE 1 YEAR OUT



Source: Bloomberg

US 10-YEAR TREASURY YIELD

Source: Bloomberg

Real rates

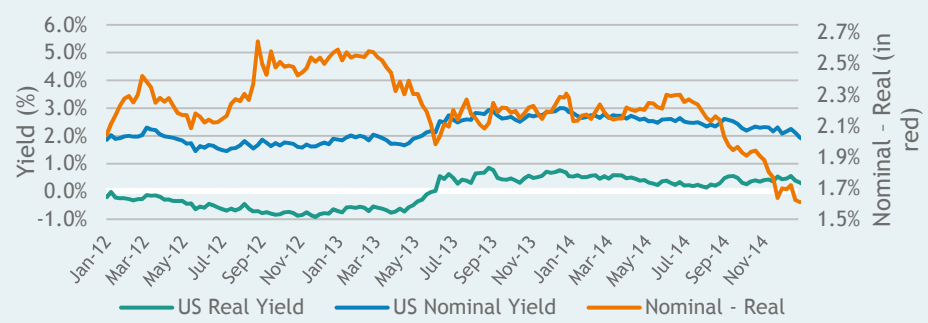
There was a notable divergence between real and nominal rates during 2014.

While the returns from TIPS can be volatile given the daily changes in the markets' inflation expectations over the long run, its performance is determined by the Consumer Price Index.

As TIPS are quoted in real terms, in order to get the nominal return forecast we add the TIPS current yield to our inflation forecast. Our nominal 10 year TIPS return forecast is 2.55%.

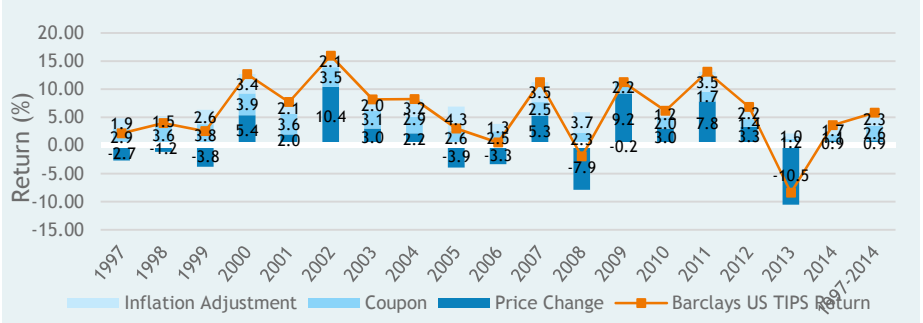
	10-Year Forecast
US 10-Year TIPS Yield	0.49%
Inflation Forecast	+2.06%
Nominal Return	2.55%

NOMINAL YIELD VS REAL



Source: Bloomberg

COMPOSITION OF BARCLAYS CAPITAL US TIPS INDEX RETURN



Source: DFA

Core fixed

Following continued healthy economic growth in the US, the Federal Reserve ended its bond purchasing program (QE). In anticipation of the Fed's announcement to raise interest rates, short-term US yields increased.

Within the Core universe, Investment Grade credit spreads widened over the year as companies took advantage of historically low interest rates to issue debt, making 2014 the largest year of issuance on record ($1.6 trillion).

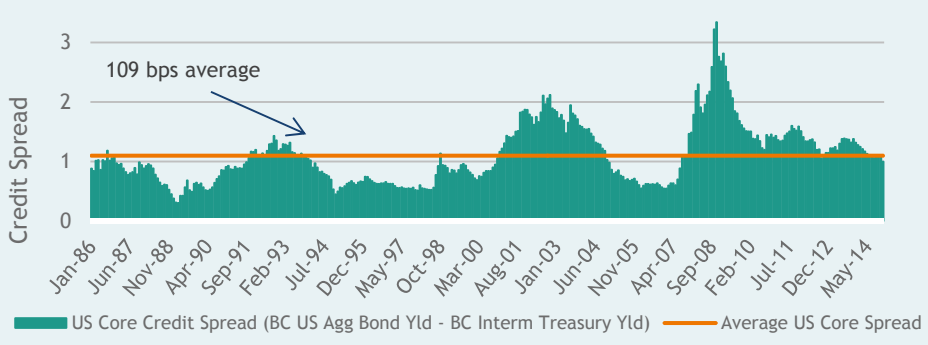
The mortgage-backed security (MBS) market continued to receive support from the Fed through the end of the QE program in October. As a result, MBS spreads remained tight to US Treasuries.

Credit fixed income return is composed of a bond term premium (duration) and credit spread.

We use appropriate default rates and credit spreads for each fixed income category to provide our forecast 10 year return.

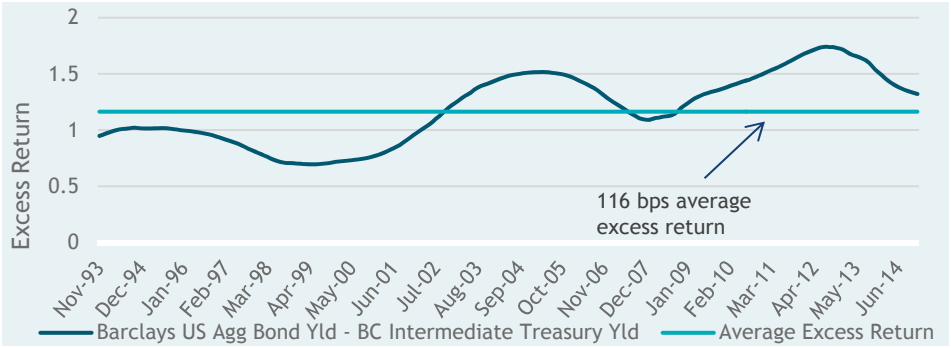
	10-Year Forecast
Barclays US Option-Adjusted Spread	+1.0%
Effective Default	0.10%
US 10-Year Treasury	+2.2%
Nominal Return	3.1%
Inflation Forecast	-2.1%
Real Return	1.0%

US CORE CREDIT SPREAD



Source: MPI

ROLLING 10 YEAR EXCESS RETURN



Source: MPI

Credit summary

	Core	Long-Term Credit	Global Credit	High Yield	Bank Loans	EM Debt (USD)	EM Debt (Local)	Private Credit
Index	BC US Aggregate	BC Long US Corporate	BC Global Credit	BC US High Yield	S&P LSTA	JPM EMBI	JPM GBI	BC US High Yield + 2%
Method	OAS + US 10-Year	OAS + US 10-Year	OAS + Global 10-Year Treasuries	OAS + US 10-Year	LIBOR + Spread	OAS + US 10-Year	Current Yield	High Yield + 2% illiquidity premium
Spread to	Intermediate US Treasury	Long-Term US Treasury	Global Long-Term Treasuries	Intermediate US Treasury	LIBOR	Intermediate US Treasury	-	-
Default Assumption	-1.0%	-4.5%	-3.0%	-3.8%	-3.5%	-0.5%	-0.5%	-
Recovery Assumption	90%	95%	40%	40%	90%	60%	40%	-
Spread	1.0%	1.7%	1.5%	5.3%	3.8%	3.7%	-	-
Yield	-	-	-	-	-	-	6.5%	-
Risk Free Yield	2.2%	2.2%	1.8%	2.2%	0.3%	2.2%	-	-
Effective Default	-0.1%	-0.2%	-1.8%	-2.3%	-0.4%	-0.2%	-0.3%	-
Expected Currency Effect	-	-	0.4%	-	-	-	-	-
Nominal Return	3.1%	3.7%	1.9%	5.2%	3.7%	5.7%	6.2%	7.8%
Inflation Forecast	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%
Real Return	1.0%	1.6%	-0.2%	3.1%	1.6%	3.6%	4.1%	5.7%

**We use local inflation for international developed equity and fixed income markets. When using local inflation rates, expected returns are adjusted for the implied currency effect based on currency forward contract rates (See Appendix)*

Equities

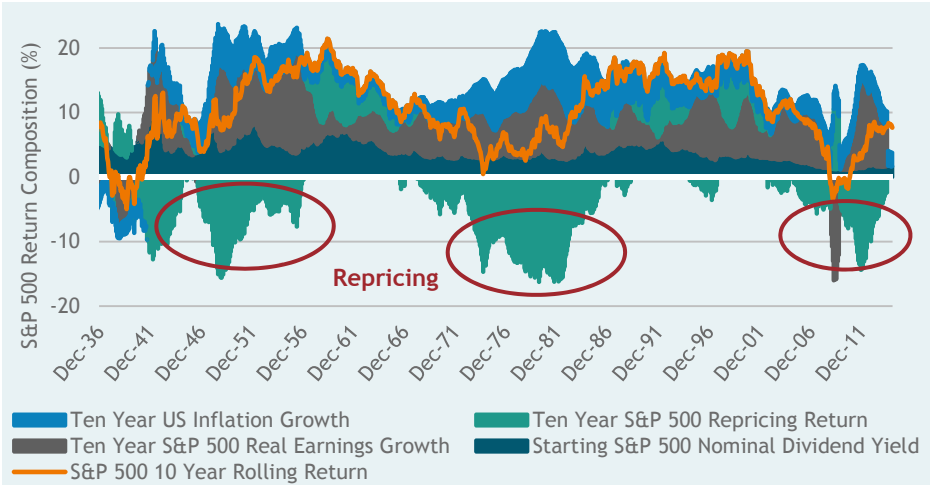
Equities

Historical equity returns can be broken down into earnings growth, dividend yield, inflation, and repricing. Over the very long-term, repricing represents a small portion of return to equity investors, but over shorter time frames, the effect on return can vary considerably.

If investors are willing to pay more for earnings, it could signal that investors are more confident in positive earnings growth going forward, while the opposite is true if investors pay less for earnings. It is somewhat surprising that investor confidence varies so much given that the long-term earnings growth is relatively stable.

Investor confidence in earnings growth can be measured using the Shiller P/E Ratio. In short, if the P/E ratio is too high/low relative to history, we expect future returns to be lower/higher than the long-term average. Implicit in this analysis is the assumption that P/E's will mean revert over 10 years.

TRAILING TEN YEAR S&P 500 RETURN COMPOSITION (%)

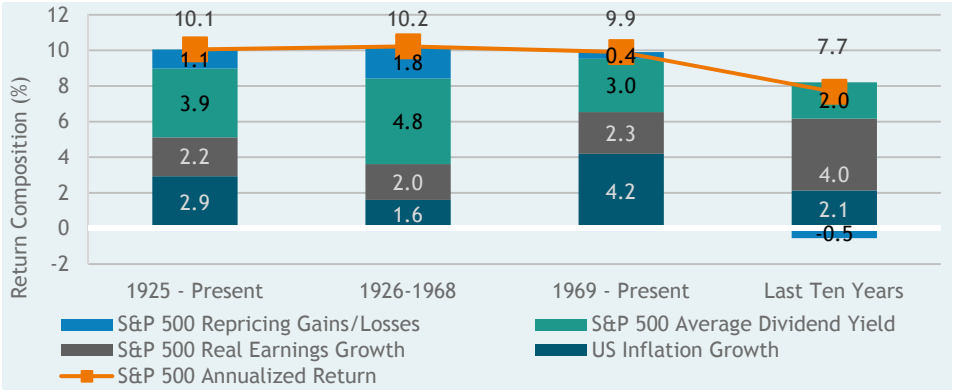


Source: Shiller, Verus

We make a conservative repricing estimate given how widely repricing can vary over time. We then skew the repricing adjustment because the percentage change in index price is larger with each incremental rise in P/E when P/E's are low, compared to when they are high.

Shiller P/E Percentile Bucket	Lower P/E	Upper P/E	Repricing Assumption
Lower 10%	-	10	2.00%
10% - 20%	10	11	1.50%
20% - 30%	11	12	0.75%
30% - 45%	12	15	0.50%
45% - 55%	16	17	0.0%
55% - 70%	17	20	-0.25%
70% - 80%	20	22	-0.50%
80% - 90%	22	26	-1.25%
Top 10%	26	-	-1.50%

S&P 500 RETURN COMPOSITION (%)



Source: Shiller, Verus

Global equity

Global Equity is a combination of US Large, International Developed, Canada, and Emerging Market equities. We can therefore combine our existing return forecasts for each of these asset classes, along with a Canada equity forecast, to arrive at our Global Equity return forecast.

We use the MSCI ACWI Index as our benchmark for Global Equity and apply the country weights of this index to determine the weightings for our Global Equity return calculation.

As with other equity asset classes, we use the historical standard deviation of the benchmark (MSCI ACWI Index) for our volatility forecast.

The valuation of Global Equities are driven by the richness/cheapness of the underlying markets, as indicated by the current Price/Earnings ratio.

The underperformance of Emerging Markets in recent years has detracted from Global Equity returns, while US equities have buoyed returns.

2015 CMA Forecast:

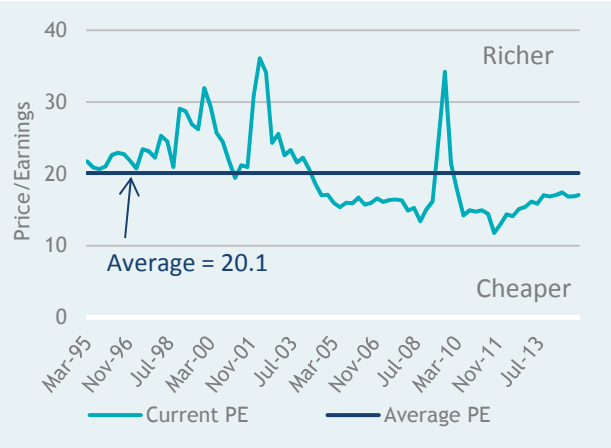
7.4% Geometric Rtn

8.7% Arithmetic Rtn

16.5% St. Deviation

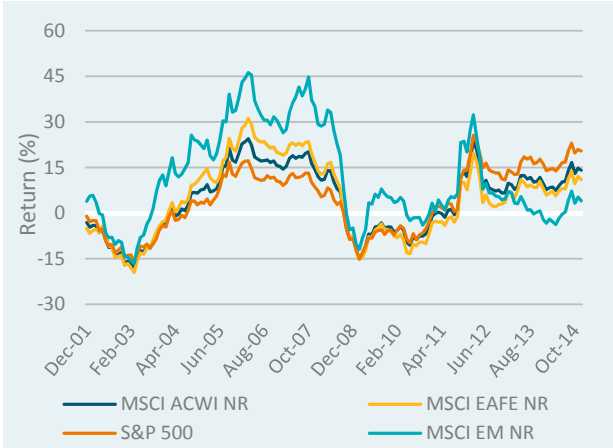
0.32 Sharpe Ratio

GLOBAL EQUITY P/E RATIO HISTORY



Source: Bloomberg, as of 2/1/15

MARKET PERFORMANCE (3 YR ROLLING)



Source: MSCI, Standard & Poor's, as of 12/1/14

MARKET WEIGHTINGS

Market	Weight	CMA return	Weighted return
US Large	57.6%	5.7%	3.3%
Developed Large	32.5%	9.5%	3.1%
Emerging Markets	6.6%	11.5%	0.8%
Canada	3.3%	9.4%	0.3%
Global equity forecast			7.4%

Source: Verus

Equity summary

	US Large	US Small	EAFE	EAFE Small	EM
Index	S&P 500	Russell 2000	MSCI EAFE Large	MSCI EAFE Small	MSCI EM
Method	Building Block Approach: current dividend yield + historical average real earnings growth + inflation on earnings + repricing + expected currency effect				
Current Shiller P/E Ratio	26.3	39.6	14.6	-	10.7
Regular P/E Ratio	18.2	33.0	16.4	20.7	12.7
2014 Shiller P/E Expansion	5.6%	0.5%	-9.6%	-	-12.5%
2014 Regular P/E Expansion	6.9%	-1.7%	-4%	-16.6%	0.6%
Current Shiller P/E Percentile Rank	90%	100%	15%	-	1%
Current Regular P/E Percentile Rank	70%	91%	45%	24%	25%
Average of P/E Methods' Percentile Rank	80%	96%	30%	24%	13%
2014 Total Return	13.7%	4.9%	-4.2%	-4.5%	-2.1%
Shiller PE History	1926	1988	1982	Not Enough History	2005
Long-Term Average Shiller P/E	17.5	20.8	23.8	-	18.4
Current Dividend Yield	1.9%	1.2%	3.2%	2.5%	2.9%
Long-Term Average Real Earnings Growth	2.2%	2.9%	2.6%	3.0%	5.0%
Inflation on Earnings	2.1%	2.1%	1.4%*	1.4%*	2.1%*
Repricing Effect (Estimate)	-0.5%	-1.5%	0.8%	0.8%	1.5%
Implied Currency Effect*	-	-	1.5%*	1.5%*	-
Nominal Return	5.7%	4.7%	9.5%	9.2%	11.5%
Inflation Forecast	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%
Real Return	3.6%	2.6%	7.4%	7.1%	9.4%

**We use local inflation for international developed equity and fixed income markets. When using local inflation rates, expected returns are adjusted for the implied currency effect based on currency forward contract rates (See Appendix)*

Alternatives

Private equity

Private equity and public equity returns are historically correlated because the underlying economic forces driving these asset class returns are quite similar.

The return relationship between the two can vary in the short-term, but over the long-term investors have traditionally believed the return from private equity should carry a premium, based on the illiquidity investors experience.

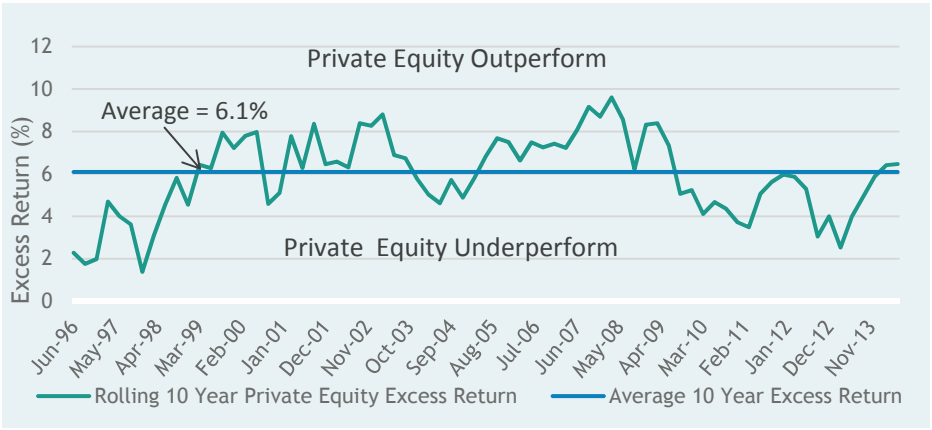
	10-Year Forecast
Small Cap Forecast	+4.7%
Illiquidity Premium Estimate	+3.0%
Nominal Return	7.7%
Inflation	-2.1%
Real Return	5.6%

The traditional approach, which we use this year again, is to estimate an illiquidity premium of 3.0% on top of our U.S. small cap forecast of 4.7%.

Recent literature has begun to suggest that it may be better to model private equity as being similar to a simple developed equity beta. This work suggests that some or all of the illiquidity premium is retained by the managers in the form of higher fees.

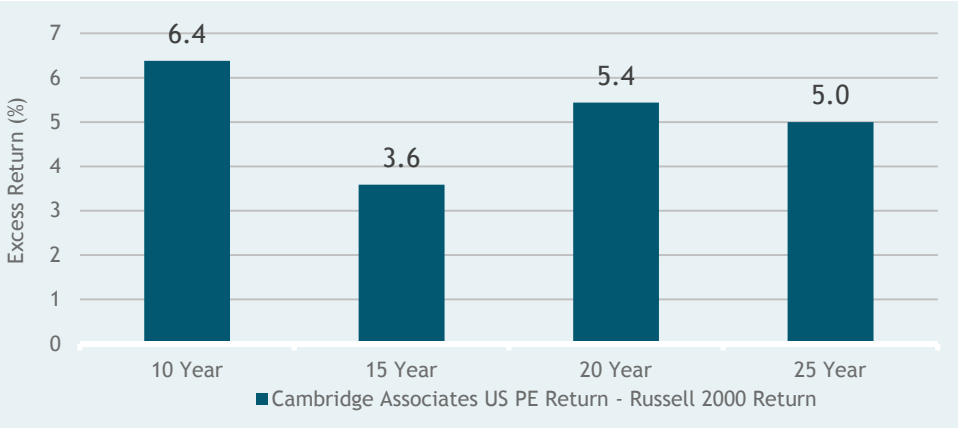
Over the course of 2015 we will be investigating this literature further and may choose to adjust our methodology for next year.

ROLLING 10 YEAR PRIVATE EQUITY EXCESS RETURN (PE – SMALL CAP)



Source: MPI

PRIVATE EQUITY EXCESS RETURN



Source: MPI

Hedge funds

Traditional betas explain approximately half of the variation in hedge fund net of fee returns, while the remaining unexplained portion can be attributed to alternative betas, skill, luck, or biases in the index.

We develop the systematic component of return by applying the historical weights of each traditional beta to our capital market assumptions.

As estimated by Ibbotson-Chen-Zhu 2010, the annualized unexplained portion of net of fee return is approximately 3.0%, which is statistically significant.

We add this estimate to our estimate of return coming from traditional betas to get a total net of fee return.

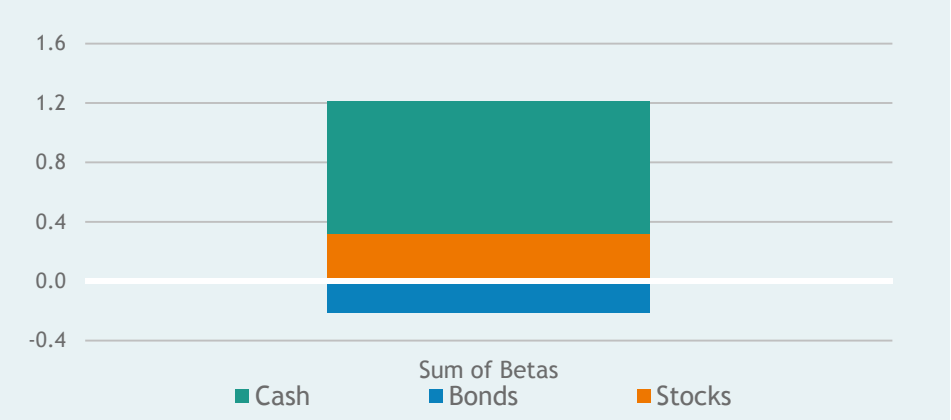
Returns Explained by Systematic Factors
Equity market betas
Other traditional betas (bond, credit)
Alternative betas (value, carry, momentum, volatility)

Returns NOT Explained by Systematic Factors
Skill
Luck
Biases

Source: Ilmanen, Antti. Expected Returns

Traditional Betas	Weight	2015 CMA	10-Year Forecast
Equity	32%	6.6%	2.1%
Bonds	-21%	3.9%	-0.9%
Cash	89%	2.1%	1.8%
Traditional Beta Nominal Return			3.0%
Alternative Beta, Skill			3.0%
Nominal Return			6.0%
Inflation			-2.1%
Real Return			3.9%

HISTORICAL BREAKDOWN OF TRADITIONAL BETA



Source: Ibbotson-Chen-Zhu 2010

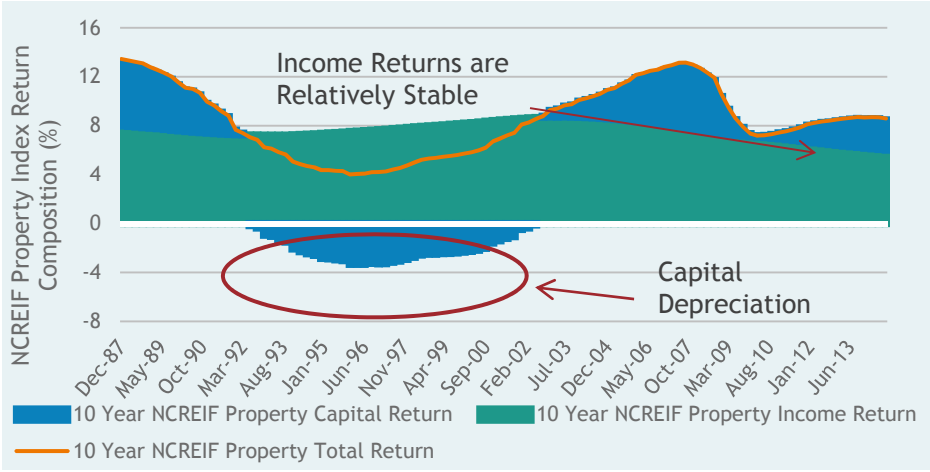
Private core real estate/REITs

Performance of the NCREIF property index can be decomposed into an income return (Cap Rate) and capital return. The return coming from income has historically been more stable than the return derived from capital changes.

The Cap rate is the ratio earnings less expenses to price, and does not include extraordinary expenses.

	REITs 10-Year Forecast
Nominal Return Forecast	5.1%
Inflation	-2.1%
Real Return	3.0%

TRAILING 10 YEAR NCREIF PROPERTY INDEX RETURN COMPOSITION (%)



Source: NCREIF

A more accurate measure of the yield investors receive should include non-recurring capital expenditures; we assume a 2.0% capex expenditure.

We also assume income growth will track inflation as inflation is passed through to rents.

Over the last ten years performance between private real estate and REITs is similar, although REITs have experienced a lower Sharpe ratio due to higher volatility.

Compared to private real estate, REITs should provide a higher return due to leverage and a lower return because of liquidity.

We assume the effects of leverage and liquidity offset each other, therefore our forecast for private real estate becomes our forecast for REITs.

	Private Real Estate 10-Year Forecast
Current Cap Rate	+5.0%
Capex assumption	-2.0%
Income Growth (Inflation)	+2.1%
Nominal Return	5.1%
Inflation	-2.1%
Real Return	3.0%

Commodities

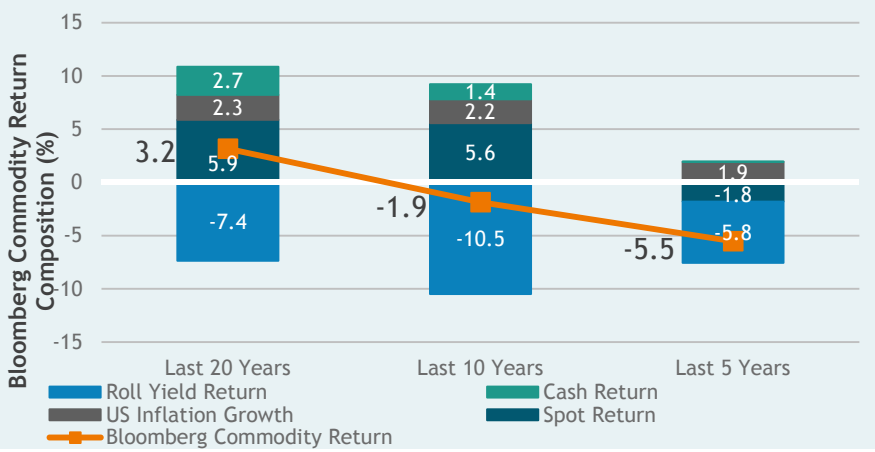
Commodity returns can be decomposed into four sources: collateral return (cash), inflation, spot changes, and roll yield.

	10-Year Forecast
Collateral Return (Cash)	+2.08%
Roll Return	+0.00%
Inflation	+2.06%
Nominal Return	4.14%
Inflation	-2.06%
Real Return	2.08%

Roll return represents either the backwardation or contango present in futures markets. Backwardation occurs when the futures price is below the spot price, which results in an additional profit. Contango occurs when the futures price is above the spot price, and this results in a loss to commodity investors. Historically, futures markets fluctuate between backwardation and contango. Although roll return can be a large contribution to commodity returns, they are not considered in our forecast as there is no consistent methodology to forecast roll return. Over the most recent 10-year period, roll return has been negative, contributing -10.5% to the Bloomberg Commodity total return.

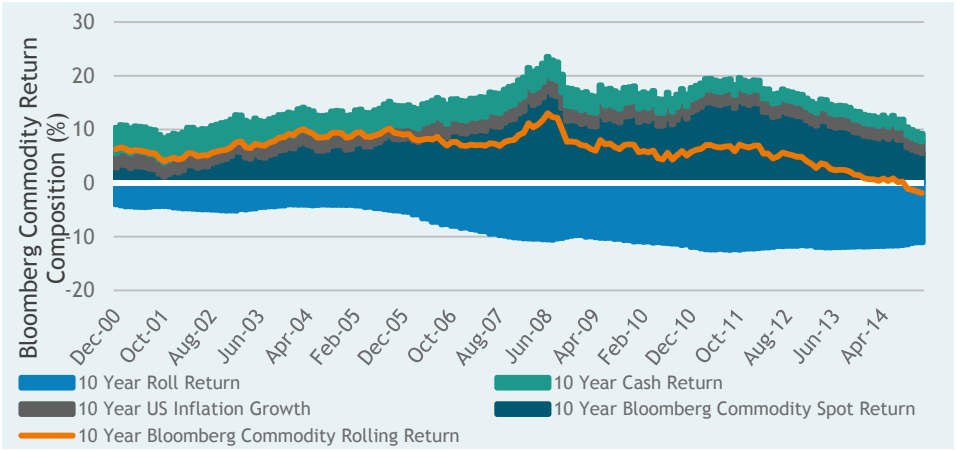
Our 10-year commodity forecast combines collateral (cash) return with inflation to arrive at the nominal return, and subtracts out inflation to arrive at the real return.

BLOOMBERG COMMODITY RETURN COMPOSITION (%)



Source: MPI, Verus

TRAILING 10 YEAR BLOOMBERG COMMODITY RETURN COMPOSITION (%)



Source: MPI, Verus

Risk parity

Risk Parity is built upon the philosophy of allocating to risk premia rather than to asset classes. Because Risk Parity by definition aims to diversify risk, the actual asset allocation can appear very different from traditional asset class allocation.

We model Risk Parity using an assumed Sharpe Ratio of 0.5, which takes into consideration the historical performance of Risk Parity. The expected return of Risk Parity is determined by this Sharpe Ratio forecast, along with a 10% volatility assumption.

We used a 10-year historical return stream from a market-leading product to represent Risk Parity correlations relative to the behaviors of each asset class.

Through greater diversification exposures, Risk Parity funds are suggested to be better able to withstand various difficult economic environments - reducing volatility without sacrificing return, over longer periods.

It is difficult to model Risk Parity, since strategies can differ significantly across firms/strategies. Risk Parity almost always requires explicit leverage. The amount of leverage will depend on the specific strategy implementation style, as well as expected correlations and volatility.

2015 CMA Forecast:

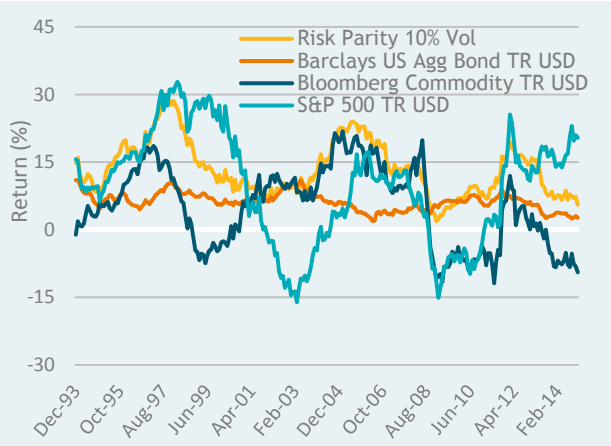
7.1% Geometric Rtn

7.6% Arithmetic Rtn

10% St. Deviation

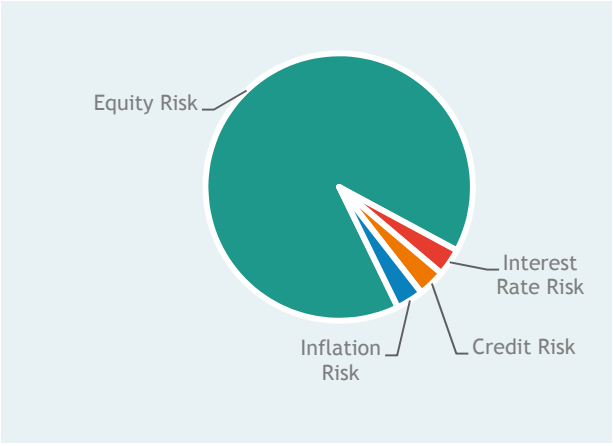
0.5 Sharpe Ratio

VS TRADITIONAL ASSET CLASSES



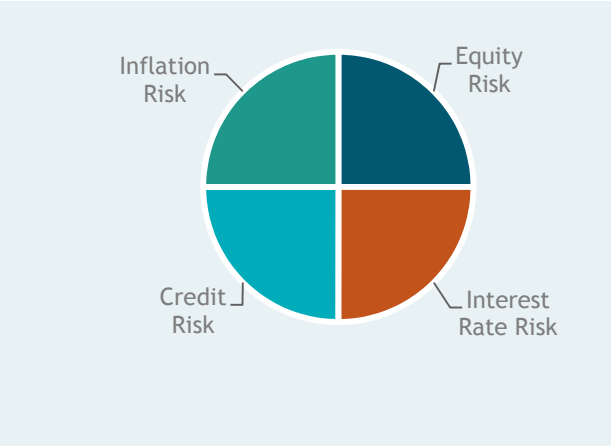
Source: MPI, as of 12/1/14

TRADITIONAL ASSET ALLOCATION



Source: Verus

RISK PARITY

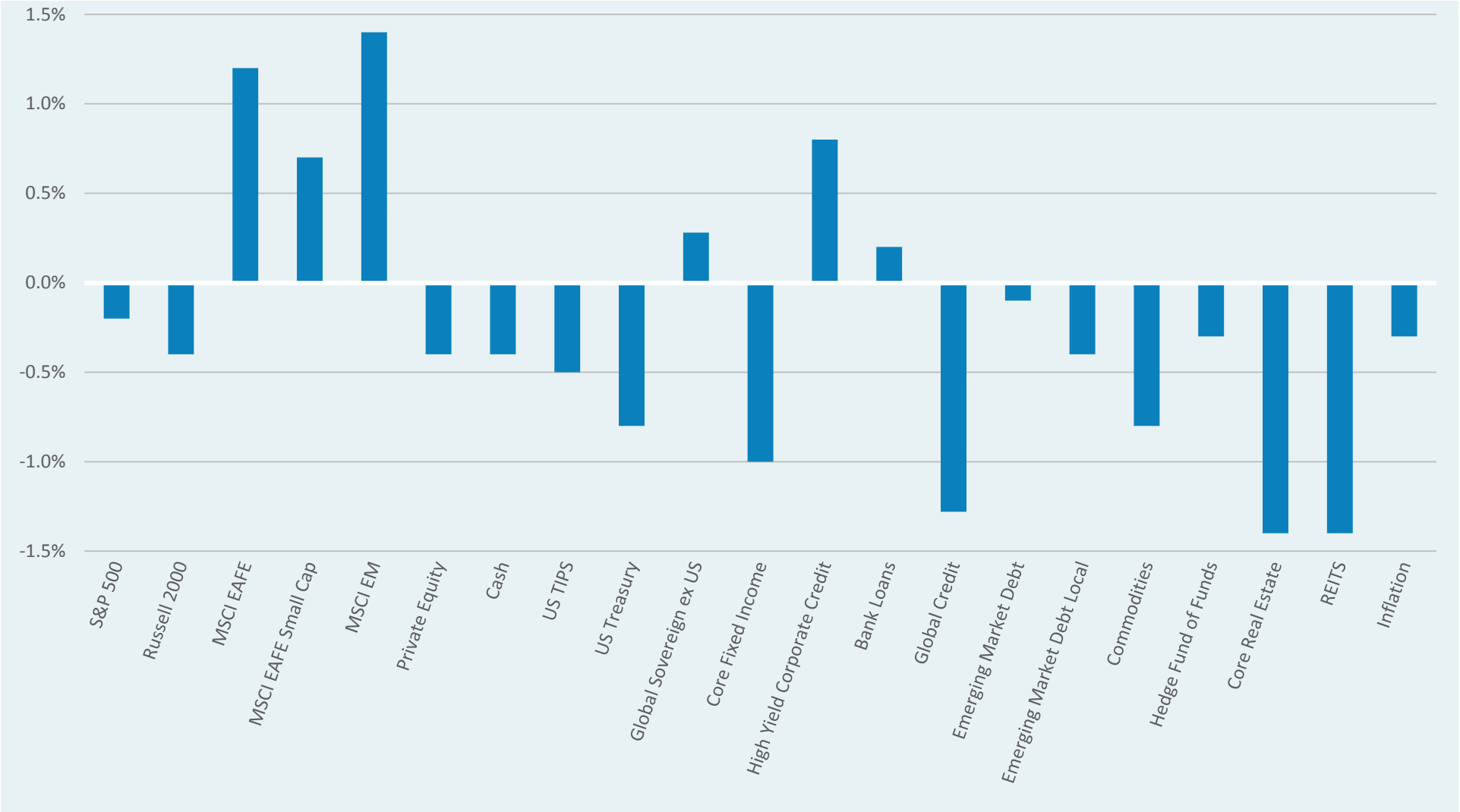


Source: Verus

Appendix

2015 vs 2014 return forecast

2015 VS 2014 RETURN FORECAST



The currency effect

— This last year has re-emphasized the important effect that currency returns can have on unhedged international portfolios. Verus has traditionally taken the view that we do not attempt to forecast currency market movement.

— When forecasting currencies, the "no opinion" position is reflected in the currency forward markets. This market prices currencies at a range of forward dates based on interest rate differentials - they represent the **SPOT** currency price for **FORWARD** delivery. Divergence from these rates is described as currency surprise.

— Investors with no active opinion regarding which direction exchange rates are headed would expect to earn the local currency return of foreign assets after correcting for the forward exchange rate (as priced by the currency forward market). We describe these returns as "hedged".

— An investor with no active view regarding which direction exchange rates are headed would expect the unhedged and hedged returns from a foreign asset exposure to be identical.

— We therefore forecast foreign assets in local currency terms, then correct for expected currency movement based on currency forward market prices. We do this using 10-year forward rates. Because Verus has not historically expressed a view on currency, this is directly comparable to our previous forecasts.

Currency adjustment

THE EXPECTED CURRENCY EFFECT CAN BE CALCULATED BY IDENTIFYING THE FOLLOWING:

1. Today's currency spot rate
2. The price of a forward currency contract with a maturity equal to our forecasting horizon (10 years)
3. The annualized currency effect implied by this currency contract

EQUATION:

[(10 year contract rate)/(spot rate)]^(1/years)-1

FOR EXAMPLE:

If a US investor wishes to determine the likely currency affect of investing in Euro-denominated investments, and the EURUSD is currently trading at 1.13 (the spot rate), and a 10-year EURUSD currency forward contract is trading at 1.30, then the investor can use the equation below to calculate the implied currency effect:

(1.30/1.13)^(1/10) - 1 = 1.41%

This tells us that the expected annualized currency effect for a US investor investing in Euro-denominated assets is a +1.41% currency return.

Correlation assumptions

	Cash	US Large	US Small	Developed Large	Developed Small	EM	PE	TIPS	US Treasury	Global Sovereign	US Core	US Core Plus	Short – Term Govt/Credit	Short-Term Credit	Long-Term Credit	US HY	Bank Loans	Global Credit	EMD USD	EMD Local	Commo-dities	Hedge Funds	Real Estate	REITs	Global Equity	Risk Parity	Inflation
Cash	1																										
US Large	-0.1	1																									
US Small	-0.1	0.9	1																								
Developed Large	0.0	0.9	0.8	1																							
Developed Small	0.0	0.8	0.8	1.0	1																						
EM	0.1	0.8	0.7	0.9	0.9	1																					
PE	-0.2	0.7	0.7	0.8	0.8	0.7	1																				
TIPS	0.0	0.2	0.1	0.2	0.3	0.3	0.2	1																			
US Treasury	0.0	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	0.6	1																		
Global Sovereign	0.0	0.2	0.2	0.4	0.4	0.4	0.5	0.6	0.5	1																	
US Core	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.8	0.9	0.6	1																
US Core Plus	-0.1	0.4	0.3	0.5	0.5	0.5	0.6	0.7	0.5	0.5	0.8	1															
Short –Term Govt/Credit	0.3	-0.1	-0.1	0.1	0.1	0.1	-0.2	0.6	0.6	0.6	0.7	0.6	1														
Short-Term Credit	0.0	0.3	0.3	0.5	0.5	0.5	-0.2	0.6	0.2	0.5	0.6	0.8	0.7	1													
Long-Term Credit	-0.1	0.3	0.2	0.4	0.4	0.4	0.1	0.6	0.5	0.5	0.8	1.0	0.4	0.6	1												
US HY	-0.1	0.7	0.7	0.8	0.8	0.7	0.6	0.4	-0.2	0.3	0.2	0.6	0.1	0.6	0.5	1											
Bank Loans	-0.1	0.6	0.6	0.6	0.6	0.6	0.2	0.2	-0.4	0.0	0.0	0.4	-0.1	0.5	0.3	0.9	1										
Global Credit	-0.1	0.6	0.5	0.8	0.8	0.7	0.7	0.6	0.2	0.8	0.6	0.8	0.5	0.8	0.7	0.7	0.5	1									
EMD USD	-0.1	0.6	0.5	0.7	0.7	0.7	0.5	0.7	0.3	0.5	0.6	0.8	0.4	0.7	0.7	0.8	0.6	0.8	1								
EMD Local	0.1	0.7	0.6	0.8	0.8	0.8	0.6	0.5	0.1	0.6	0.4	0.6	0.3	0.5	0.5	0.7	0.4	0.8	0.8	1							
Commodities	0.1	0.5	0.4	0.6	0.6	0.7	0.2	0.3	-0.2	0.4	0.1	0.3	0.1	0.4	0.2	0.5	0.4	0.6	0.5	0.6	1						
Hedge Funds	0.1	0.7	0.6	0.8	0.8	0.8	0.7	0.2	-0.3	0.1	0.0	0.4	0.0	0.4	0.2	0.6	0.6	0.6	0.5	0.6	0.7	1					
Real Estate	-0.1	0.4	0.3	0.3	0.3	0.3	0.3	0.1	-0.1	0.1	0.0	0.2	-0.1	-0.1	0.1	0.2	0.0	0.2	0.2	0.3	0.0	0.3	1				
REITs	0.0	0.8	0.8	0.7	0.6	0.6	0.6	0.2	-0.1	0.3	0.2	0.4	0.0	0.3	0.4	0.7	0.5	0.6	0.6	0.6	0.3	0.4	0.4	1			
Global Equity	-0.1	1.0	0.9	1.0	0.9	0.9	0.8	0.2	-0.2	0.4	0.1	0.4	0.0	0.4	0.4	0.8	0.6	0.7	0.7	0.8	0.6	0.8	0.3	0.7	1		
Risk Parity	0.0	0.5	0.4	0.6	0.6	0.6	0.6	0.7	0.4	0.6	0.6	0.7	0.5	0.6	0.6	0.5	0.3	0.7	0.7	0.7	0.6	0.5	0.3	0.5	0.6	1	
Inflation	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	-0.3	0.0	-0.3	-0.2	-0.2	0.0	-0.3	0.2	0.4	0.0	0.0	0.1	0.3	0.2	0.1	0.1	0.1	0.0	1

Note: Correlation assumptions are based on the last ten years. Private Equity and Real Estate correlations are especially difficult to model – we have therefore used BarraOne correlation data to strengthen these correlation estimates.