SelectAlts
Wisely Managed Absolute Return Portfolios

# ETF Return Model

## ETF Return Model Components

Our proprietary ETF return forecasts are comprised of the *sum of four components*:

1. Sensitivities to the four basic risk indexes (S&P 500, 10Y Treasury, US Dollar and Oil) and the expected returns of those risk indexes.
2. Yield – cash yield or commodity roll yield.
3. Value – cumulative residual return mean reversion, and for equity ETFs, factors using aggregate earnings, book values, and sales.
4. Momentum – various short-term and intermediate-term momentum factors, and for equity ETFs, aggregate earnings estimate revision.

The methodology for calculating expected return is the same for factors in all four components based upon the following formula:

ETF factor sensitivity X Forecasted factor return = ETF Expected return

## Risk Factor Return Forecasts

Above we described the process for estimating the sensitivities of ETFs to the four basic risk indexes that we use to measure and control systematic risk. When looking *backward*, it is easy to calculate how much risk-related return contributed to an ETF's total return—the ETF's risk factor sensitivities and the risk factor returns are all known variables.

For example, on January 31, 2015, our ETF Risk Model estimated the MKT sensitivity of the PowerShares Buyback Achievers ETF (PKW) at 101.4%. The return of the S&P 500 (the MKT index) was 5.59% in February 2015, so the return contribution from PKW's MKT sensitivity was 5.66% (101.4% X 5.59%).

Forecasting *future* risk-related returns is much more difficult. To do that, we must forecast the returns of the four risk factor indexes. Our methodology for making these forecasts is to first make a *base case* forecast of the long-term future average return, and then adjust the base case to reflect current conditions (which we call "*mispricing*"):

Base case (long-term expected average)
+ Mispricing (dynamic adjustments based upon current conditions)
= Risk factor expected return

For the MKT factor, our base case formula is:

Current dividend
+ Long-term real growth rate
+ Long-term inflation
= Base case MKT expected return

The current dividend is directly observable. Long-term real growth can be modeled based upon a combination of current consensus economic real growth expectations and long-term historical dividend growth rates. Long-term inflation can be modeled based upon the Treasury-TIPS spread.

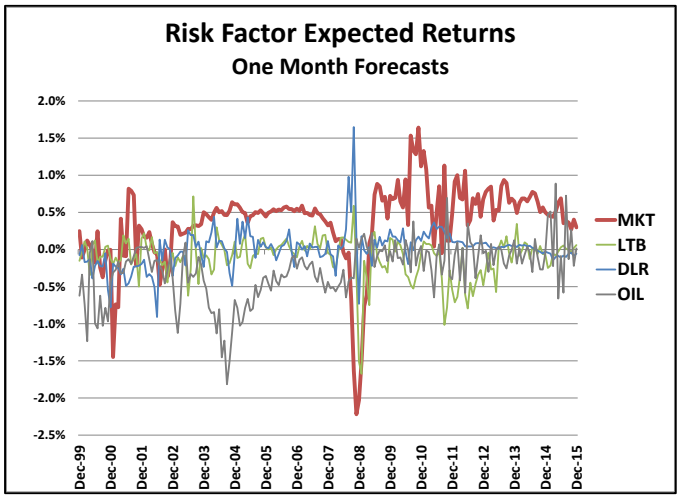
Recently, the S&P 500 dividend yield has been a little over 2%, real growth has been a little over 2%, and inflation has been well under 2%. Adding these together would result in a base case S&P 500 return forecast of about 6%.

The base case forecasts for LTB, DLR, and OIL are all simple: *zero*. Unlike for MKT risk, there is little or no long-term expected return from these three other sources of risk.

Mispricing forecasts are based upon multiple regression analysis using a variety of common sense fundamental variables, though not all of the variables are applied to all of the risk factors:

1. Value – long-term mean reversion (all 4 risk factors)
2. Momentum – short-term trend following (LTB, DLR and OIL)
3. Purchasing Manager's Index – (MKT and LTB)
4. Credit spread – High-yield corporate bond option-adjusted spread minus 10 yr. Treasury yield (MKT only)
5. Earnings growth – S&P 500 year/year earnings growth (MKT only)
6. Earnings yield – S&P 500 normalized earnings yield minus 10 yr. Treasury yield (MKT only)
7. Market sentiment – VIX index minus realized S&P 500 volatility (MKT only)
8. Yield curve slope – 10 yr. Treasury yield minus 3 mo. Treasury yield (MKT only)

These variables are used to forecast monthly risk factor returns only to the extent that they have empirically shown a strong relationship with future monthly returns over both a long-term (10 year) and intermediate-term (36 month) trailing period. That is, only information that was known prior to the return period is used to validate and calibrate the eight independent variables listed above. As expected with an empirically-validated modeling approach, following periods of volatility, the forecasts become somewhat more volatile, as seen at right.

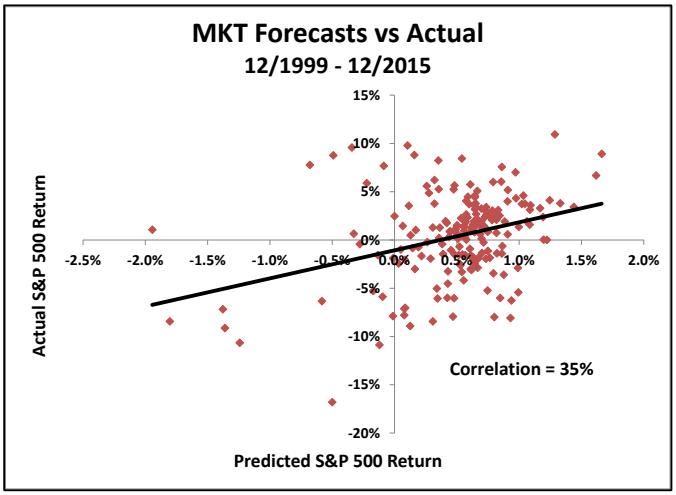



In practice, MKT return forecasts are particularly important (red line above). MKT risk has high volatility and it affects many ETFs profoundly. Note how the MKT monthly forecasts are often close to the base case of around 6% (or .5% per month). Note also how the monthly forecasts for LTB, DLR, and OIL tend to stay close to the base case of zero most of the time.

Forecasting stock market returns is famously difficult and perilous. We recognize the difficulty of making such forecasts, but we also recognize that decisions regarding how much stock market risk to

accept at any point in time are probably the most important decisions that investors will make. Even modest changes in stock market exposure will have a significant impact on a portfolio's risk and return. We believe that managing stock market risk for our investors is a vital part of our value-added. Our stock market return forecasts are anchored by the long-term base case forecast, providing important stability, but our tactical "mispricing" adjustments to the base case are firmly grounded in economic and financial theory and strongly validated by with continuous empirical testing.

As shown in the scatter plot at right, there has been a strong positive relationship between beginning-of-month forecasts and actual monthly S&P 500 returns since 12/1999. The correlation has been 35%, which is quite high. (A correlation above 10% is often considered economically significant.) This is certainly a strong enough relationship to warrant taking these forecasts into account when deciding how much MKT risk to accept at any point in time, at least to some extent.




We update our MKT beta targets every day. In order to achieve these target exposures, we invest in hedging ETFs that have concentrated positive or negative exposures to the MKT risk factor. In addition, the selection of individual ETFs is influenced by the risk-related return forecasts that, combined with residual return forecasts, comprise the overall return forecasts for ETFs. That is, when the MKT return forecast is high, ETFs with high sensitivities to MKT (high MKT betas) are more likely to be selected for inclusion as long positions. Conversely, if the OIL return forecast is extremely negative, ETFs with high sensitivities to OIL are more likely to be selected for inclusion as short positions and avoided as long positions.

**Residual Return Forecast**

We use a multi-factor model with factors that can be grouped into three components in forecasting the residual (non-risk related) return of an alternative ETF:

- Yield
- Value
- Momentum

*Yield* is the most solid component in that it is the surest source of expected return. *Cash yield* is either the indicated dividend yield or the 12-month dividend yield of the ETF, whichever seems to provide a more reasonable forecast of future dividends from income (stock dividends or bond coupon interest). For futures-based commodity ETFs (which have no dividend yield), we calculate the *"futures roll yield"* taking into account the roll return as futures move towards expiration and converge on the spot price.

For equity ETFs, *value* factors include several factors constructed using bottom-up accounting aggregates, including earnings, book values, and sales. For all ETFs, including equity ETFs, a time-series return factor is calculated by comparing the current level of the ETF's residual return index with its 5-

and 10-year trend line, assuming an exponential mean-reversion so that only large deviations from trend are important.

Return from *momentum* is calculated using several different factors: 1) an exponentially-weighted 12-month moving average of the residual returns (net of our proprietary risk model), 2) a measure of the upside residual returns minus the downside residual returns (skewness), and 3) the average of six- , nine-, and twelve-month residual return slope. In addition, for equity ETFs, we include a factor that captures changes in future aggregate earnings estimates.

We sum the individual terms to get the overall return forecast for an ETF. The expected return is the primary driver of how much we will invest in an ETF, long or short, if at all.

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First edition: October 23, 2012
Second edition: July 15, 2013
Third edition: January 25, 2016

# SELECT ALTERNATIVE INVESTMENTS LLC

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