Return Predictability and Market-Timing

Problem

Both institutional and retail investors have to make asset allocation decisions. The typical advice has been to put 60% of one's portfolio into equities. However, because expected returns vary over time, it doesn't make sense to keep a constant exposure. Investors should dynamically adjust their equity positions. Two problems arise with adjusting equity exposure. First, one must be able to reliably forecast returns. Second, the investor must constantly monitor his forecast and to take appropriate positions.

Solution

We construct a market-timing strategy that provides a superior alternative to buy-and-hold. This strategy automatically adjusts the equity exposure depending on return forecasts. Investors can replace the buy-and-hold portfolio of their passive equity allocation with our market-timing strategy. In doing do, they are able to delegate the tactical asset allocation decision to our strategy, which appropriately manages their equity exposure based on rigorous statistical evidence of strong return predictability. Those who take advantage of market timing can achieve higher returns with less risk, while getting the same diversification benefits across asset classes.

Trading Return Predictability

There has been a long-standing debate on forecasting market returns by both academics and practitioners, and it has been traditionally considered nearly impossible for a fund manager to implement a market-timing strategy. However, three significant recent changes make market-timing a reality. First, many academic research papers have demonstrated the predictive power of carefully chosen variables, strengthening the statistical evidence in favor of forecasting returns. Second, there has been an explosion of both financial and non-financial data. Third, modern statistical techniques have been developed to take advantage of big data and to enhance the reliability of statistical results.

We take advantage of these three developments to illustrate a market-timing strategy in our paper "A Practitioner's Defense of Return Predictability". We combine 20 return predictors from the academic literature, broadly categorized as follows:

- Price ratios: Dividend yield, price-to-earnings, book-to-market, CAPE, PCA-price, stock-to-commodity price ratio
- Rates: Bond yield, default spread, term spread
- Real economy: Baltic Dry Index, new orders/sales, CPI, cay
- Technical: Moving average, PCA-tech
- Misc: Sell in May, variance risk premium, short interest, implied correlation, oil price shocks

By combining a broad set of variables, we expand our information set and get better forecasting results compared to using them separately. We combine the variables through correlation screening (CS), only including the most informative variables that have at least a 10% correlation with our forecasting target. With the screened variables, we fit multivariate forecasting regressions on the 130-ahead market excess returns. The model is refit every 20 days using 10 years of data. Each refit is used to produce return forecasts for the next 20 days, and we simulate a trading strategy by taking positions in the S&P 500 ETF, SPY, proportional to our return forecasts. After 20 days, we refit the model and repeat the process.

Figure 1 presents the wealth accumulation process of $1 starting in 2001 for the CS and buy-and-hold strategies. The bottom panel shows the CS positions.
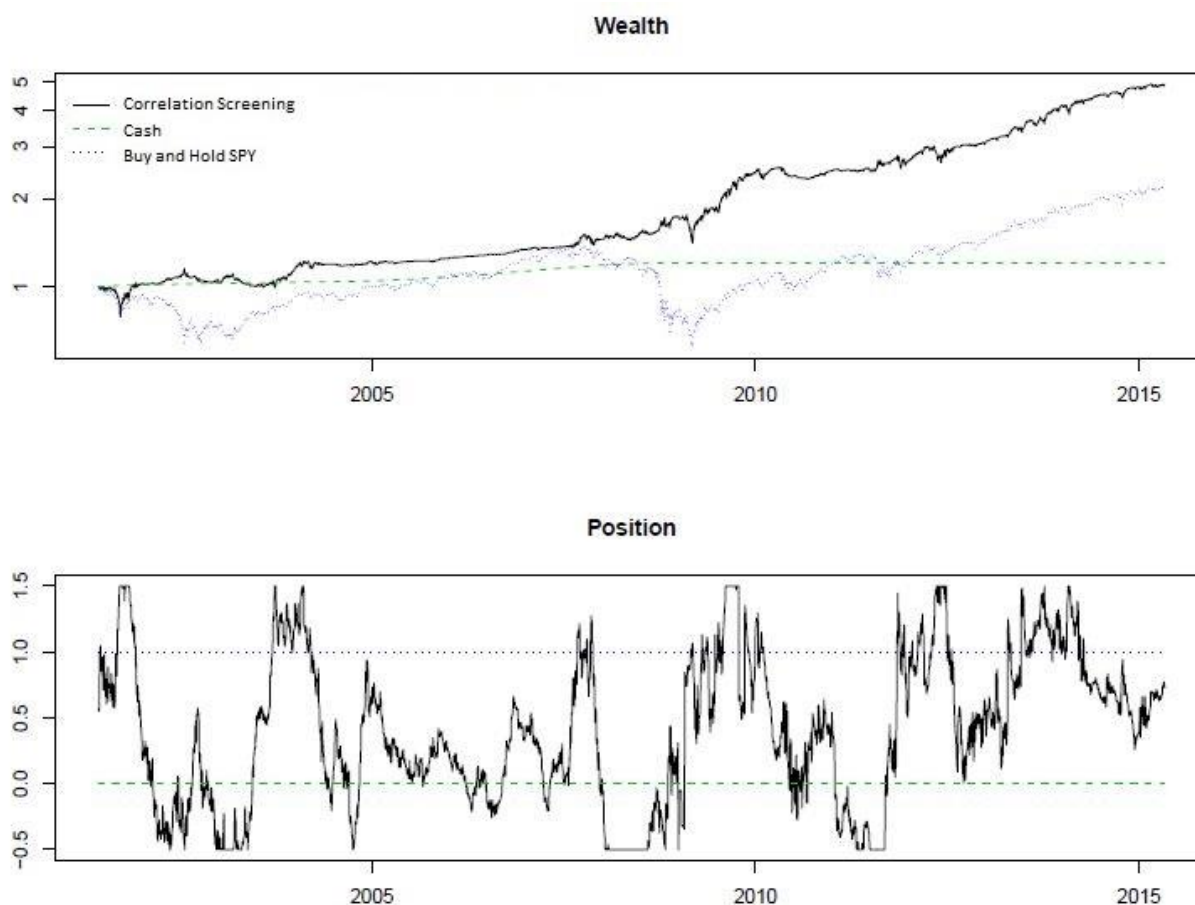
Wealth

Position

Figure 1. Wealth Accumulation and Positions of the Correlation Screening Model. The top panel plots the cumulative returns ($1 compounded) of the market timing strategy (black solid line) from the correlation screening (CS) model, buy and hold SPY (blue dotted line), and cash (green dashed line). The bottom panel plots the changing positions of the strategy. The strategy is capped at 150% long and 50% short SPY.

From 2001 to 2015, annual returns of the simulated CS strategy (12.11%) are more than twice that of buy-and-hold (5.79%), with half of the volatility. The Sharpe ratio of CS is 0.85, compared to 0.21 for buy-and-hold. The annualized max drawdown of CS (SPY) is 21.12% (55.20%), and CS does not suffer large downturns in the recent recessions in 2002 and 2008. These results illustrate that it is possible to implement a successful market-timing strategy.

Hull Investments LLC

Hull Investments LLC was founded by Blair Hull. A fixture in the trading community for four decades, Mr. Hull founded Hull Trading Company in 1985 and served as the firm's CEO until he sold the company to Goldman Sachs in 1999. Hull Trading used technological innovation and breakthrough quantitative methodology to become one of the world's premier market-making firms operating on 28 equity, options and futures exchanges in nine countries. Worth Magazine named Mr. Hull one of "Wall Street's 25 Smartest Players." In 2014, he was awarded the *Joseph W. Sullivan Options Industry Achievement Award* recognizing his lifetime contribution to growth and integrity of the U.S. options market. In June 2015, Blair established Hull Tactical Asset Allocation, LLC, which operates the Hull Tactical Funds ETF, an actively managed exchanged traded fund listed on NYSE Arca.

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