Stats:  
Average return of stocks in window compared to SP500, show excess returns.  
Show average price relative to change date like signalplot.com  
Consecutive winning/losing trades  
Average position duration

Stats sheet: Volume analysis, number of stocks added in period, number of changes due to market cap and acquisitions, average length of window. Year by year: number of changes, average length of window, longest and shortest windows, average return on stocks and spy in window.

Presentation:  
We knew that the returns of stocks in index transition has been analyzed but we also wanted to look at options.  
A lot of work went into the data collection and processing phase. Getting the correct announcement dates and connecting tickers to the correct securityid was far from trivial. We went through SP press releases to determine if changes were due to takeovers or not  
We looked at offsetting the closing position, gave worse results. Reverse strategy is just flipping the equity graph.

News on index-front running. Recent Bloomberg arcticle.

Look at intraday data to see when trading occurs. Check how after-hours trading works and when It started.

About the index

About changes, types of changes and update rules

Our research, studies have shown excess returns after announcement… Trading strategies and options (informed trading)

The data set, we acquired a list of all changes going to all index changes going back to 1995 with announcement and change dates. There were issues with the dates so we went through press releases and double checked all the data. Then connected tickers to correct security id’s in the database when possible.

Stats from the data set. Numbers by year.

Simple stock trading strategy. Entering firms only and pair trades. Optimal timing.

Test on new data. Wharton database. Ran the same strategies “out of sample”.

Options. What we looked for, no signals.

S&P5x00 Component Changes

The S&P 500 index consists of 500 large companies listed on the NYSE or NASDAQ stock exchanges. It is one of the most commonly followed equity indices and many consider it one of the best representations of the US stock market.

The components of the index are updated periodically, typically in response to acquisitions and spin-offs, or to keep the index up to date as companies grow or shrink in value. In other words, they are not on a fixed schedule but are made as needed. The changes themselves are determined by the S&P index committee, which makes its decisions behind closed doors based on market capitalization, industry representation, liquidity, trading volume, and financial soundness. Market capitalization is a very important criterion, but from an investor's point of view significant residual uncertainty remains about index changes. Over the past 50 years there have been around 1200 component changes to the S&P 500 index or around 24 per year. Changes and announcements are always made after the close of trading.

Over the past decade there has been a massive inflow of capital into passively managed funds that are designed to track an underlying index such as the S&P 500. Those funds aim to minimize tracking error which is the difference between the funds return and the underlying indexes return. This compels fund managers to respond rapidly to changes to index constituents by buying those entering the index and selling those leaving. Furthermore, since the market capitalization of the entering and exiting companies rarely match exactly, some rebalancing of all remaining stocks must also take place.

Since October 1989 changes to the S&P 500 index are announced beforehand and the general guideline is that announcements are made 5 days before the effective change date. This creates an interesting dynamic in the market and a predictable imbalance in the supply and demand of stocks entering or leaving the index. In 2013 S&P estimated that the total amount passively tracking the S&P 500 index was over 10% of the indexes total market capitalization. This means that at that point in time one could assume that passive funds tracking the index would in total have to acquire (get rid of) 10% of a company’s float when it entered (left) the index. This by itself would create problems for fund managers due to limited liquidity of some stocks but in addition, since all fund managers want to minimize their tracking error, they all want make the changes at the same time and to top it off the rest of the market knows all of this in advance. Thus, it is reasonable to assume that the stock price of companies entering the index will drift upwards from announcement date to change date due to excess demand and similarly drift downwards for companies leaving the index due to excess supply. From a fund manager’s perspective, this poses a problem since he will face of trade-off between minimizing his tracking error and minimizing his slippage or trading costs. On the other hand, this creates an opportunity for other market participants which can take advantage of the situation by trading in advance of the funds, hoping to catch the drift of the stock price of companies entering or leaving the index.

Many studies have concluded that an addition to the S&P 500 index has a positive impact for a company’s share price. For example, in 1997, Lynch and Menemsha proved a positive abnormal return for shares added to the index of about 3.8% over the period starting the day after the announcement and ending the day before the effective date of the change. Similarly, they showed that the removal of a company from the index causes significant decrease in stock prices. More recently, in 2014, Bernard explored this topic from the perspective of fund managers and came to similar conclusions although his study indicated that the effect of index changes on stock prices has reduced in more recent times.

Our approach

See if stock prices actually drifted upwards or downwards in reaction to index change announcements and if so, see if one could take advantage of it by trading between the announcement and effective change dates.

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Data set –

We acquired a list of all S&P 500 component changes from 1970 – 2015, including announcement and effective change dates from Sibil Research. We then went through

It is important between types of index changes when conducting research such as this one. The most important events are when the index committee decides to make a change based on their selection criteria. For example, when a company outside of the index has grown rapidly and passed a company in the index in market cap. In those cases passive funds will need to add the company entering the index to their portfolio and get rid of the company leaving the index. This creates trading opportunities on both sides.

Other index changes will usually only require passive funds to trade either the entering or leaving company and thus only create a supply and demand imbalance for one company. For example, when a company that is a part of the index is taken over by another or taken of the market. Another example is when a company that is already a part of the index spins off another company such that both parts are still large enough to be a part of the index.

Trading

Studies have been performed

Momentum

Not tradable: Class B or C shares being added.

Other strategies, after results

Predicting which stocks will be selected to enter by monitoring the criteria set out by the index committee. That way one can catch the full effects of the supply and demand imbalance.

Other indexes might provide better opportunities than the SP500. Since it is the one most widely tracked.

Types of additions/deletions

<http://us.spindices.com/documents/methodologies/methodology-sp-us-indices.pdf>

<https://en.wikipedia.org/wiki/S%26P_500_Index>

<http://siblisresearch.com/data/historical-components-sp-500/>

<http://www.signalplot.com/index-front-running-what-happens-when-a-stock-is-added-to-an-index/>

Annual Survey of Indexed Assets as of December 2012

<http://pages.stern.nyu.edu/~alynch/pdfs/jb97lm.pdf>

<http://www.valuewalk.com/wp-content/uploads/2015/07/WWP_HiddenCosts_final_revised.pdf>