WARATAH

Brad's Musings

Mo Money? Mo Problems

Almost everyone has heard of momentum investing. Practically speaking, momentum investing involves purchasing and adding to names that have outperformed while simultaneously selling (or shorting) stocks that have underperformed. In this musing I will outline how important and effective the momentum factor is as a source of investment returns, describe the dark side of momentum, and provide a few things you can do to reveal how much exposure you may have to momentum.

Some professional money managers openly admit to being momentum investors but for the most part there remains a stigma attached to momentum. Most money managers and their clients prefer to use respectable labels such as value, growth, quantitative, GARP (growth-at-a-reasonable-price), or a Warren Buffet inspired approach to intrinsic value. This is a mutually beneficial collusion. Investors want to believe they are paying for a disciplined approach, unique insights, and an intellectually sound investment philosophy. Investment managers want to believe the same things, especially when the returns are good. No one wants to admit that a large part of their investment performance may be explained by something as simple as buying the stocks that were already the best performers. Momentum is a significant factor in most actively managed portfolios for one primary reason – it works. Active managers with the best returns are not writing to their clients about their insights on Teck Resources Ltd. and Encana Corp. It's much more likely you will be reading about Dollarama Inc., CCL Industries Inc., and Valeant Pharmaceuticals International Inc.

Numerous academic studies over the last twenty years have shown that momentum has outperformed other factors including the well-known small-cap and value factors. Seminal work on momentum in US equities by Jegadeesh and Titman (1993) provided the initial analysis of this factor, finding that previous winners outperform previous losers by 1.49% monthly.[1] In a more recent study on equity market data from 1926 to 2011, Barroso and Santa-Clara found buying winners and shorting losers generated returns of 14.46% per year, with a Sharpe ratio higher than the market, as well as portfolios based on small-cap and value factors.[2] Papers examining momentum across multiple asset classes and geographies provide evidence of the returns attributable to this factor.[3]

This past year has been an exceptionally strong period for momentum investing. This can be seen in the performance of the Dow Jones Market Neutral Momentum Index which seeks to isolate the momentum factor. This index uses a simple strategy of going long the best performing stocks and shorting the worst performing stocks in each sector using trailing twelve month returns. It does

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[1] Jegadeesh, N., & Titman, S. (1993). Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency. *The Journal of Finance*, 48(1), 65-91.

[2] Barroso, P., & Santa-Clara, P. (2015). Momentum has its moments. *Journal of Financial Economics*, 116(1), 111-120.

[3] Barroso, P., & Santa-Clara, P. (2015). Momentum has its moments. *Journal of Financial Economics*, 116(1), 111-120.

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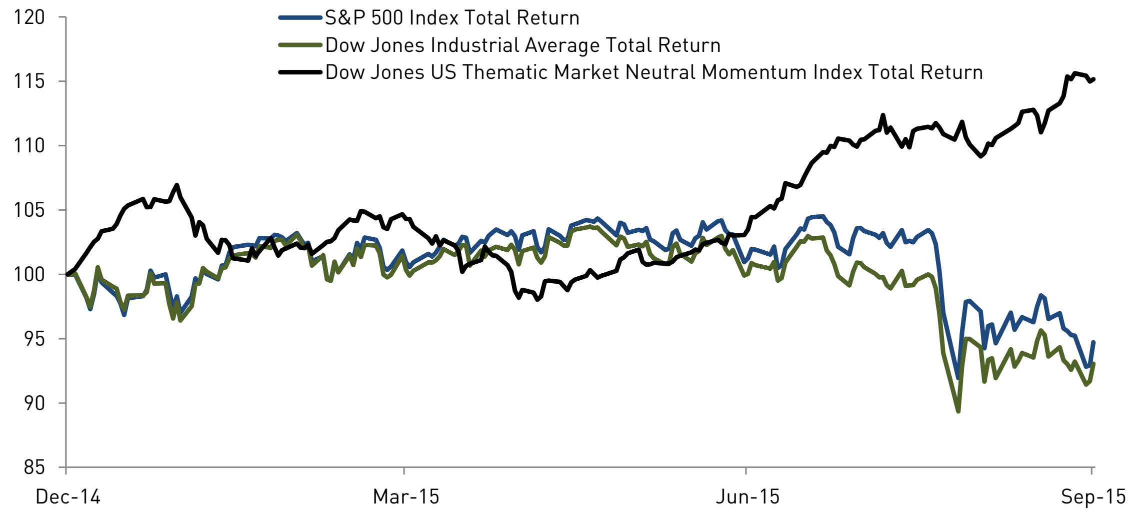
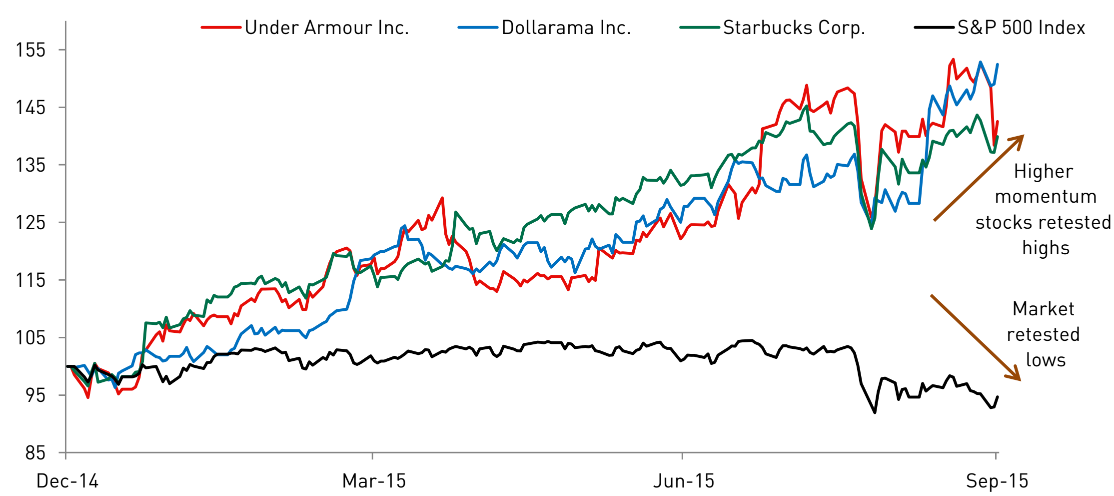
so while maintaining a market neutral and sector neutral position and it is rebalanced monthly. As at September 30, 2015 this index was up nearly 15.2% year-to-date while the S&P 500 was down -5.3% and the Dow Jones Industrial Average was down -7.0%. Even more remarkable is that this index produced these returns while using 400 positions and with no single stock representing more than 1% of the portfolio. In other words, it's pure momentum factor. The graph below shows the performance of the index compared to the S&P 500.



Source: See footnote 4 below

Of note, is that the momentum index rallied to new highs even as the market approached a retest of its September lows. Any manager who follows the market knew this intuitively even without knowledge of this index as stocks with high momentum factors such as Starbucks Corp., Dollarama Inc., and Under Armour Inc. largely ignored the market correction and quickly rallied back to their highs.

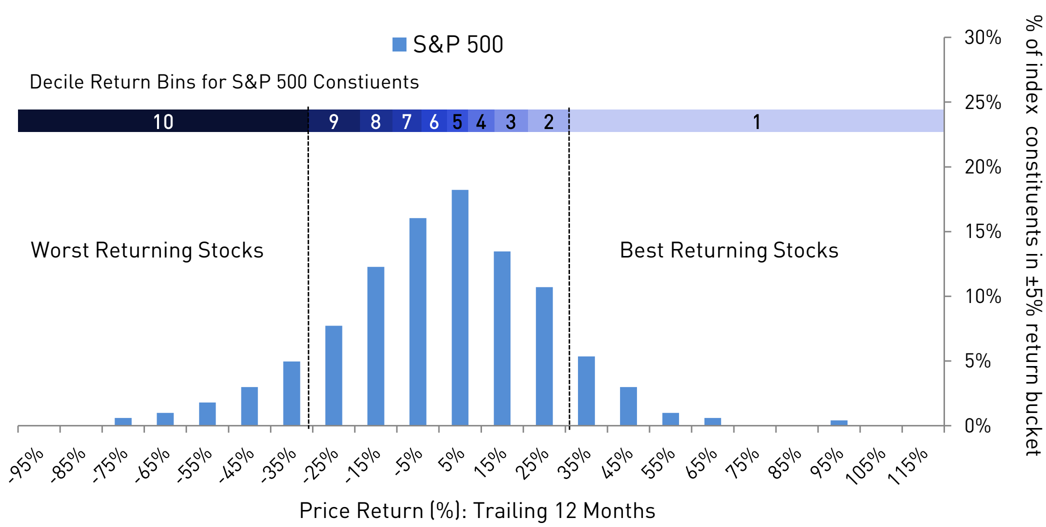


Source: See footnote 5 below

[4] Source: Bloomberg: SPXT Index, DJITR Index, DJTMNMO Index, from December 31, 2014 to September 30, 2015.
[5] Source: Bloomberg: SPXT Index, UA US Equity, DOL CN Equity, SBUX US Equity, from December 31, 2014 to September 30, 2015.

Momentum investing works and yours truly happens to own many 'momentum' names. So why don't we all make life easier, face the facts and embrace momentum completely? I'm sorry to disappoint you but it turns out that when it comes to momentum, there is no such thing as a free lunch. Momentum has a dark side: the large excess returns come with both a high excess kurtosis and left skew.[6] Kurtosis is a measure of whether the data set is peaked or flat relative to the normal distribution. Skewness measures the symmetry of return distribution: a negative skew means the left tail of the distribution is longer. Distributions with high kurtosis tend to have heavy tails and when it comes to investing it's the left tail (where the negative returns are) that you have to worry about. How heavy are the left tails when it comes to the momentum factor? About as heavy as a neutron star. In 1932, a long winners, short losers market neutral strategy led to a -91.59% return in just two months and again, in 2009, it led to a 73.42% loss over three months.[7] If you received a guaranteed 8% net return, it would take you more than 32 years to recover from the 1932 momentum crash and more than 16 years to recover from the 2009 event. Even then we haven't yet accounted for your lost purchasing power or the taxes that you would have to pay along the way as you tried to rebuild your wealth. The appeal of momentum reminds me of the story of Adam and Eve and the tree of knowledge of good and evil. After being tempted by the serpent, Eve "….saw that the fruit of the tree was good for food and pleasing to the eye, and also desirable for gaining wisdom, she took some and ate it…then the eyes of both of them were opened, and they realized that they were naked…."[8] Momentum has the sweet appeal of the forbidden fruit, but with it comes the equivalent of financial mortality.

So how much are your investments exposed to the momentum factor? Here are a few things you can do to find out. Ask your financial advisor to provide with you a breakdown by deciles of the S&P 500 (or S&P/ TSX Composite for Canadian stocks) returns by stock over the trailing twelve months. Anyone with a Bloomberg Terminal will be able to do this. The following table shows returns by decile for the US market:



Source: See footnote 9 below

[6] Barroso, P., & Santa-Clara, P. (2015). Momentum has its moments. *Journal of Financial Economics*, 116(1), 111-120.
[7] Barroso, P. & Santa-Clara, P. (2012). *Managing the Risk of Momentum.* Unpublished working paper.
[8] Genesis. 3:6-7 New International Version.
[9] Source: Bloomberg: SPXT Index, from September 30, 2014 to September 30, 2015.

In the above chart, "Decile Return Bins" each contain 10% of the constituents of the S&P 500. The distribution of returns for individual names is shown in the bar chart. The top 10% of all S&P 500 stocks (Return Bin 1 for the S&P 500) are up an average of 44%. Now, ask your financial advisor or money manager to provide you with your portfolio broken up by the same buckets. Compare your distribution of the portfolio constituents' returns with the distribution of returns for the market. We did this for the long side of our WARATAH One strategy, looking specifically at our US holdings, and here are the results:

S&P 500 Decile	S&P Average Decile Return	WARATAH One Proportion of Longs
1	44%	29%
2	25%	2%
3	17%	13%
4	10%	12%
5	4%	6%
6	-1%	3%
7	-8%	5%
8	-16%	9%
9	-25%	12%
10	-47%	8%

Source: See footnote 10 below

As seen in the above table, WARATAH One has a definite momentum skew in its long US positions. Stocks that are among the first performance decile make up 29% of the portfolio. Almost 1/3 of our long portfolio is composed of stocks that were among the top 10% of all stock performers last year. This group of "super performers" appears to be where the bulk of our exposure lies. Looking through the rest of the deciles, the risk concentration starts to diffuse. The top three deciles comprise 45% (compared to 30% for the market) and the top five deciles make up 63% (compared to the 50% for the market). Looking at our long portfolio in isolation, there is reason to be cautious given the extent of our momentum exposure.

However, this is only half of the picture (actually it's 1/4 of the picture but more on that later) because we also have a short portfolio that can offset our momentum risk if we choose. The table below shows our US short portfolio by decile:

[10] Source: Bloomberg: SPXT Index, from September 30, 2014 to September 30, 2015; internal unaudited estimates, proportion of US long positions in Waratah One Canadian Limited Partnerships as at September 30, 2015.

S&P 500 Decile	S&P Average Decile Return	WARATAH One Proportion of Shorts
1	44%	28%
2	25%	8%
3	17%	9%
4	10%	2%
5	4%	7%
6	-1%	6%
7	-8%	3%
8	-16%	7%
9	-25%	12%
10	-47%	18%

Source: See footnote 11 below

Not coincidentally, 28% of our US short portfolio happens to be in stocks that fall within the first performance decile. The top three deciles sum to 45% and the top five sum to 54%. These percentages are very similar to our long portfolio and aggregate to form a very good hedge. If one of your goals includes limiting drawdowns and managing volatility the following axiom applies: *it's ok to play with fire as long as you do it on both sides of your portfolio*.

Now that we've looked at our long and short momentum exposure, we're half done. There's more work to do because of negative momentum. In laymen's terms, being short a stock that's down say 90% is just as dangerous as being long a stock that's up 90%. The previous decile charts show that we haven't done as good a job at hedging negative momentum in the portfolio. Stocks in the bottom decile of performance make up 18% of our short portfolio but only 8% of our longs - that's a gap of 10%. By the time we get to the bottom three and bottom five deciles things normalize at 37% short, 30% long and 46% short, 37% long, respectively.

Momentum is just one of many factors that we keep an eye on. Having a large or inadvertent exposure to some of these factors can lead to large drawdowns regardless of whether a portfolio is market neutral. After all, net exposure to the market is only one factor worth paying attention to and it's not even the most dangerous one.

Brad Dunkley

October 14, 2015

[11] Source: Bloomberg: SPXT Index, from September 30, 2014 to September 30, 2015; internal unaudited estimates, proportion of US short positions as at September 30, 2015.

Legal Information and Disclosures

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