Smart Beta: A Canadian Perspective

By Graeme Hay | February 11, 2015

For the past few years, the notion of smart beta has been a hot topic amongst institutional asset owners. Last year, Russell Investments conducted a study of institutional asset owners and found that 30% of respondents are currently evaluating smart beta or anticipate doing so, on top of the 32% that already have money invested in smart beta strategies.[1] And despite all of the interest in smart beta, there seems to be no clear consensus as to what smart beta even is, so much so that Russell devoted the first question of its survey to identifying the most popular definition. Proposed definitions have included the systematic exposure to investment styles (i.e. factors such as value, momentum, low volatility, profitability, etc.), alternative index construction methodologies (e.g. minimum variance, fundamental weighting, maximum diversification, etc.), some combination of the two or something else entirely. Some have gone so far as to say smart beta is nothing more than smart marketing of old ideas.[2]

Active Management, Lower Cost

Despite all of the confusion, one thing that is clear is that smart beta is a form of active management. Whether the chosen smart beta implementation tilts to a desired factor, eliminates undesirable securities or combines securities in a more optimal manner, along the way an active decision is being made to construct a portfolio differently than the cap-weighted index. The marketing appeal of smart beta lies in the fact that these decisions are typically made in a predetermined manner at fees that can be less than traditional forms of active management.

It is the opportunity to use active management at lower fees that should be of interest to asset owners. Industry data suggests that defined benefit pension plans, and likely other asset owners, dedicate the majority of their equity investments to active strategies. And yet, active management is constantly under fire as being a poor long-term decision given its high probability of disappointment. In a study published in 2010, the authors concluded that only 0.6% of domestic US equity mutual funds (just 12 funds from a sample of 2,076) deliver statistically significant alpha.[3] In other words, after accounting for fees and known factors of return (i.e. market, size, value and momentum), there was little evidence of factor timing or security selection skill by active managers. Based on our propensity to use active management, it would appear that we lack faith in such empirical evidence.

However, there is another interpretation that can be made from the academic research. Rather than dismissing the use of active management outright, such studies illustrate the importance of factors in the decision to employ active management. If no alpha exists after accounting for these factors, then perhaps the focus of any decision to hire an active manager should focus on their ability to capture the excess return potential of size, value, momentum or some other desirable factor, as opposed to a unique source of alpha. And of course, what is the most cost-efficient way of doing this? In this context, investment managers branded as smart beta managers are just one of the many active management options available to asset owners.

Investment Beliefs

If the previous logic makes sense, then there remain a lot of questions for asset owners to consider in the active management decision. Some of these questions may include:

- Is there evidence that the outperformance of a factor will persist?
- Is the factor pervasive across markets?
- If more than one factor is desirable, how should they be combined?
- What are the factor exposures of my current portfolio?
- What are the available implementation options?
- What degree of transparency makes sense for my governance model (i.e. should the

portfolio construction be simple or can a more complicated solution be considered)?

The answers to these questions will undoubtedly be unique to your plan's circumstances and investments beliefs.

The Need for Factor (Style) Diversification

One of the more common dilemmas faced by asset owners is how to combine factors. Even a well-accepted factor like value suffers from long periods of underperformance. For those that lived through the underperformance of value portfolios from 1997 to 2000, the benefits of style diversification was painfully obvious. The belief that value managers should be diversified with "growth" managers remains part of investment folklore to this day.

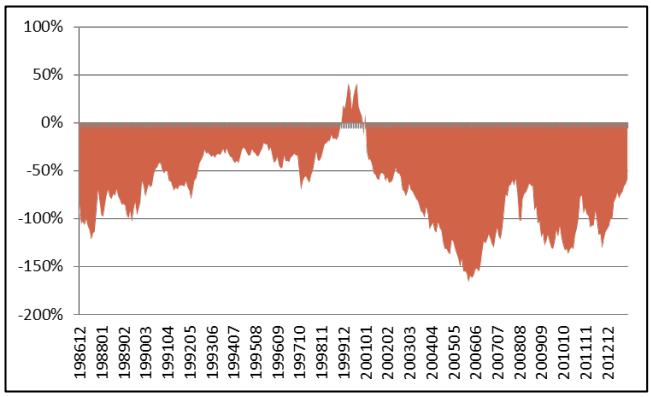
However, academic evidence suggests diversifying a portfolio of cheap stocks with a portfolio of expensive ones does not make a great deal of sense. Using Canada data from the Centre for Research in Security Prices (CRSP), growth stocks (high book equity-to-market equity) have underperformed the broad market over the full sample of available data.

January 1977 – December 2013[4]

	Market (CRSP Market)	Value (CRSP High BE/ME)	Growth (CRSP Low BE/ME)
Return	15.08%	16.11%	10.55%
Excess Return	---	1.03%	-4.53%
Volatility	15.96%	17.78%	19.79%

Over a more reasonable investment timeframe, using 10-year rolling periods, growth has outperformed the market only 4% of the time. In light of the full history of data, the outperformance of a growth portfolio in the late 1990s was a fairly rare event.

10-Year Rolling Cumulative Excess Returns: CRSP Low Book-to-Market (Growth) (December 1986-December 2013)[5]



However, the poor performance of a theoretical growth portfolio, as suggested by the CRSP data, is not necessarily consistent with the experience of plans investing with growth managers. Data from the eVestment database shows that approximately $60 billion is invested in Canadian equity products where growth is identified as the primary style emphasis (not far behind value at $92 billion and core at $84 billion). That is a staggering amount of money to have invested in a strategy where the excess return expectation is negative.

The Other Side of Value in the Canadian Market

A plausible explanation for the continued use of growth strategies is that other factors, outside of just a negative exposure to value, are driving performance. The academic literature has focused on two factors; profitability and momentum, as sources of excess return that are negatively correlated with value. Profitability is the tendency for stocks of profitable firms to earn higher returns.[6] Momentum is the tendency for past winning stocks to continue to outperform in the short term.[7]

While there is evidence to support the existence of profitability and momentum across markets, the research on profitability is still relatively young. Momentum, on the other hand, has been well researched over the past 20 years. Shortly after the seminal paper on momentum from Jagadeesh and Titman, Canadian academics began looking at its effectiveness in the

Canadian market. Early evidence suggested a strong momentum effect in Canada.[8] However, later research raised doubts about the outperformance of a momentum portfolio net of transaction costs due to its high turnover.[9] Despite these doubts, almost ten years later, researchers concluded that momentum is the largest and most significant factor present in the Canadian market.[10]

If we believe that momentum and other factors are sources of excess returns, then the obvious challenge is to find ways to capture these returns. For plans that rely on outsourced investment management, this means sifting through the universe of managers to determine a manager that is effective at capturing factor premiums. Though smart beta has largely been associated with quantitative investment managers, it is equally plausible that a fundamental manager follows a defined investment process that leads to exploiting a factor(s) by design and not by coincidence.

One tool that can help us determine whether a manager's performance is indicative of a well-defined process is regression analysis. In our previous example, where we sought to find a growth manager to offset a value exposure, regression can help us identify candidates in a manager search. Using an expanded data set from CRSP and the Compustat/XpressFeed Global Database that is publicly available, we can assess whether the performance of a Canadian growth manager can be explained by its exposure to momentum and other factors. As an example, regression can help us examine the performance of the three best performing Canadian equity growth managers over the past 10 years.

Using a single-factor CAPM regression, we can see that each manager has been able to generate alpha over their shared performance histories going back to 2001. The p-value for managers B and C, which measures the statistical likelihood of the result, indicates that there is a 3% or less chance that the alpha measured could have occurred due to luck. Though manager A has produced a much higher alpha, its p-value is unusually weak, due in part to the regression's poor explanation of the manager's performance with an R^2 of only 0.69.

CAPM Alpha (January 2001 – September 2014)[11]

Manager	Monthly Alpha	R^2	Factor Coefficients (P-value)
			MKT
A	+0.31% (0.32)	0.69	1.01 (<0.01)
B	+0.18% (0.02)	0.98	0.98 (0.02)
C	+0.28% (0.03)	0.92	0.89 (<0.01)

MKT = the market factor, which is the value-weighted return on all available stocks minus the one-month t-bill rate

Four-Factor Regression[12] (January 2001 – September 2014)

	Monthly Alpha (P-value)	R^2	Factors Coefficients (P-value)			
			MKT	SMB	HML	UMD
A	+0.03% (0.91)	0.74	1.02 (<0.01)	0.11 (0.24)	-0.15 (0.06)	0.21 (<0.01)
B	+0.17% (0.01)	0.98	1.00 (<0.01)	-0.09 (<0.01)	-0.07 (<0.01)	0.03 (<0.01)
C	+0.04% (0.72)	0.95	0.95 (<0.01)	-0.15 (<0.01)	0.24 (<0.01)	0.07 (0.01)

MKT = market factor
SMB = size factor
HML = value factor
UMD = momentum factor

Looking at each manager's performance using an expanded four-factor regression, we get a much better picture of the true underlying factor exposures. Judging by the negative coefficient on the value factor, only manager A and B's performance tends to move in the opposite direction when value is underperforming. Contrary to its marketing profile, growth manager C's performance tends to move in the same direction as value stocks and would likely be a poor diversifier to an existing value manager. Only manager A has a high exposure

to momentum that is also statistically significant. Coincidentally, this portfolio is purposefully constructed in a manner consistent with the first studies of momentum in Canada. On that basis, it is perhaps the best out-of-sample test that refutes the early concerns about the efficacy of momentum net of transaction costs. Would it be fair to refer to this manager's strategy as smart beta?

In this example, as it is in all manager searches, regression is just one tool in performance analysis to help us understand what really drives a manager's performance. Rather than being the definitive tool to hire or fire a manager, it can lead to many more questions that will either confirm a manager's stated investment process or challenge it.

Conclusion

Smart beta may be an effective moniker for marketing old forms of active management as something new. But rather than dismissing the concept outright due to its sudden popularity, it does serve as a reminder to asset owners about what is actually being bought with active management. More often than not, active management involves an investment process designed to capture known factors of return - hopefully by design. An exploration of the factors that are important in active management is a worthwhile exercise for asset owners that depend on the performance of active managers. This self-study will undoubtedly influence or be influenced by a plan's investment beliefs. If some worthwhile factors are not represented in the portfolio, then that should serve as marching orders to plans looking to diversify the active portion of their equity portfolios. If a so-called smart beta manager can deliver other factor exposures at a low cost, then smart beta may not be such a dumb idea after all.

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[1] Russell Indexes. "Smart Beta: A Deeper Look at Asset Owner Perceptions." Accessed November 24, 2014. http://www.russell.com/documents/indexes/research/smart-beta-survey.pdf (http://www.russell.com/documents/indexes/research/smart-beta-survey.pdf).

[2] Montier, J. "No Silver Bullets in Investing (just old snake oil in new bottles)". Accessed November 24, 2014, https://www.gmo.com/America/CMSAttachmentDownload.aspx?target=JUBRxi51IIBEIq6GNuTKr%2bf2o0WPxzkpzr%2bP3HvjlK76FjNoPoANwwlALT63inFW79ZpF3%2flV38cZqUS7omOesbovw5OtEXWvLdvJOMPjKplKGSys5%2byS6cvvjNvW5SS.

[3] Barras, Laurent, Olivier Scaillet, and Russ Wermers. "False Discoveries in Mutual Fund Performance: Measuring Luck in Estimated Alphas." *The Journal of Finance* 65, no. 1 (2010): 179-216.

[4] French, Kenneth R. "Data Library." Accessed November 24, 2014. http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

[5] Ibid

[6] Novy-Marx, Robert. "The Other Side of Value: The Gross Profitability Premium." *Journal of Financial Economics* 108, no.1 (2013): 1-28.

[7] Jagadeesh, Narasimhan, and Sheridan Titman. "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *Journal of Finance* 48, no. 1 (1993): 65-91.

[8] Foerster, Stephen, Anoop Prihar and John Schmitz, "Back to the Future: Price Momentum Models and How They Beat the Canadian Equity Markets." *Canadian Investment Review* 7 (1994/95): 9-13.

[9] Korkie, Bob and John Plas, "Back to Reality: Another Look at Share Price Momentum Strategies." Working Paper, University of Alberta (1995): 1-8.

[10] L'Her, Jean-Francois, Tarek Masmoudi, and Jean-Marc Suret, "Evidence to Support the Four-Factor Pricing Model from the Canadian Stock Market." *Journal of International Financial Markets, Institutions and Money* 14, (2004): 313-28.

[11] "Quality Minus Junk: Factors, Monthly". AQR. Accessed November 24, 2014. https://www.aqr.com/library/data-sets/quality-minus-junk-factors-monthly

[12] Ibid