Factor Alpha and International Investing

RESEARCH BY OSAM: SEPTEMBER 2016

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Strategies should deliver concentrated factor exposures designed to deliver alpha. Unfortunately, the proliferation of factor investing over the recent past has missed this key point. Instead, most factor-based or Smart Beta strategies consist of hundreds of holdings where the bulk of the weight is allocated to the largest companies while providing only slight factor tilts. A heavy large-cap bias prevents strategies from exploiting wider dispersion within the small- and mid-cap areas of the market. Smart Beta affords investors muted alpha potential but enables asset managers to achieve large assets under management.

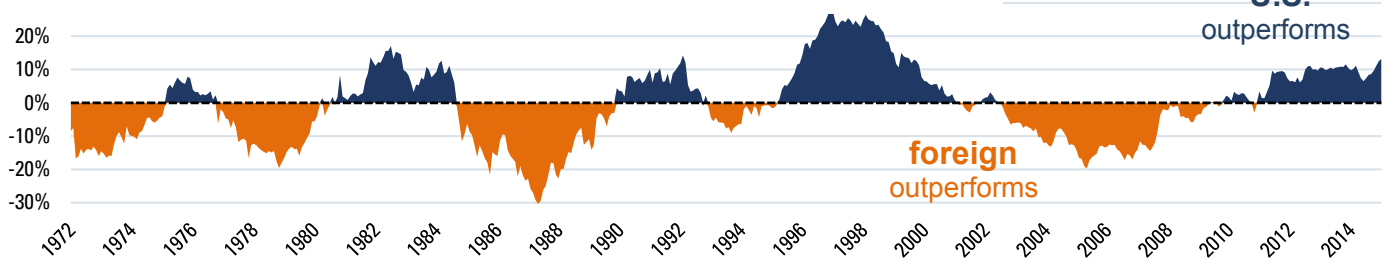
We believe in the opposite. Strategies should offer investors high alpha potential while scale is a secondary consideration. According to Morningstar, U.S. equity investors have allocated approximately $375 billion to passively-managed indexes, ETFs, or Smart Beta strategies while actively-managed funds have experienced approximately $308 billion of outflows over the past 12 months.[1] The active versus passive debate has largely been discussed in the context of U.S. equity markets but Smart Beta strategies have proliferated in the international space as well. International markets deserve more attention as they present an outsized alpha opportunity relative to the U.S.

As of the end of 2015, foreign equities accounted for approximately 47 percent of market capitalization according to the MSCI All-Country World Index. However, foreign stocks represent 76 percent of the 7,500 company opportunity set.

Despite the size and breadth of international markets, according to Morningstar, U.S. mutual fund investors allocated approximately 27 percent of their equity allocation to international funds as of the end of 2013. "Home Bias" is not unique to the U.S., this phenomenon is observed in other developed countries such as the U.K. and Canada.

Reasons for "Home Bias" among investors include familiarity with the stocks in their home country and the belief that their home country will outperform other regions. From May 2010, the U.S. has outperformed foreign markets in 62 of 68 rolling three-year periods. Since the 1970s there have been four prior cycles of U.S. outperformance, which tend to persist for several years. Just as stocks, bonds, and commodities (such as oil) come in and out of favor, a similar rotation happens among foreign and domestic stocks.

Figure 1: Cyclical Nature of U.S. vs. Foreign Returns (Rolling 3-Year Relative Returns, 1970–2015)



Source: OSAM calculations

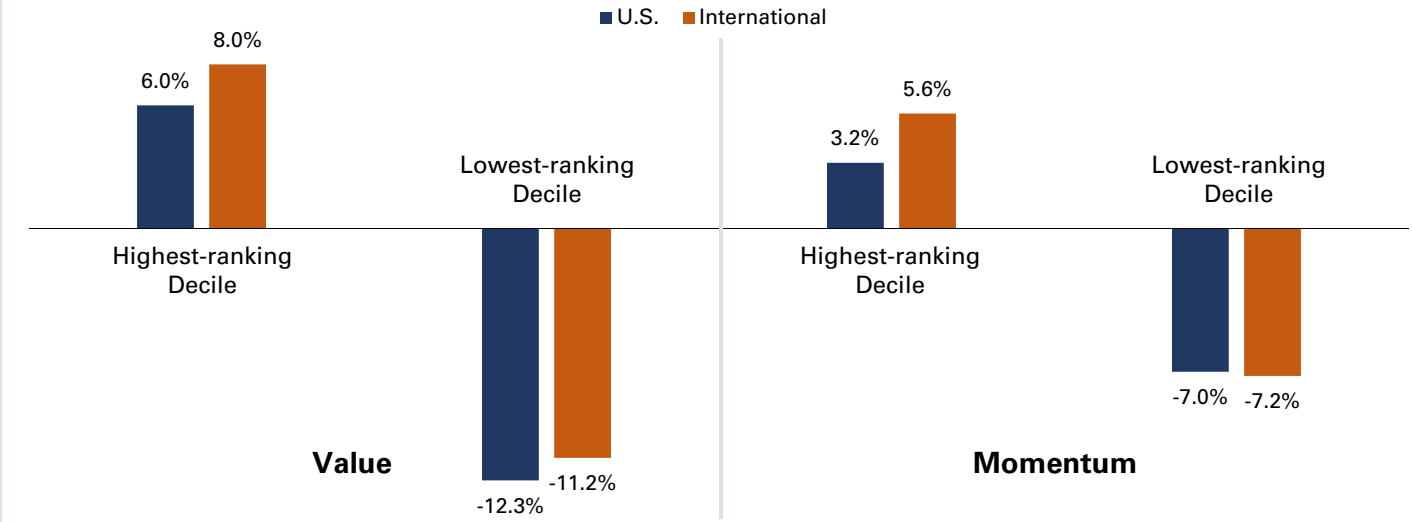
[1] See http://www.thinkadvisor.com/2016/06/17/passive-funds-trounce-active-rivals-in-may-morning

Within the institutional money management space many believe that you are better off going passive in the most efficient markets. We will examine international markets and address the dueling motivations of active managers seeking alpha and achieving scale. We will take a look at the structure of international markets and highlight how to take advantage of return dispersion and why factor investing is even more effective than in the U.S.

Factor Alpha Efficacy

Our goal is to generate alpha with a disciplined, repeatable process. We define our opportunity set as the universe of developed international stocks with a market capitalization greater than $200 million. A common way to evaluate the efficacy of a factor is to compare the return spread between the highest- and lowest-ranking decile. We can quantify the alpha opportunity by comparing the return spread of the two most important selection factors—value and momentum—to the U.S.

Figure 2: Factor Alpha Spreads (1988–2015)



Source: OSAM calculations

From 1988 to 2015, the spread between the cheapest and most expensive decile by value[2] in international markets is 19.2 percent, exceeding the 18.3 percent spread for the U.S. For momentum[3] we also see a greater spread in international markets of 12.8 percent versus 10.2 percent for the U.S. The wide spread suggests there are significant benefits derived from aligning portfolio characteristics with the proven themes of valuation and momentum. In particular, within the international space these themes have exhibited outsized efficacy relative to the U.S.

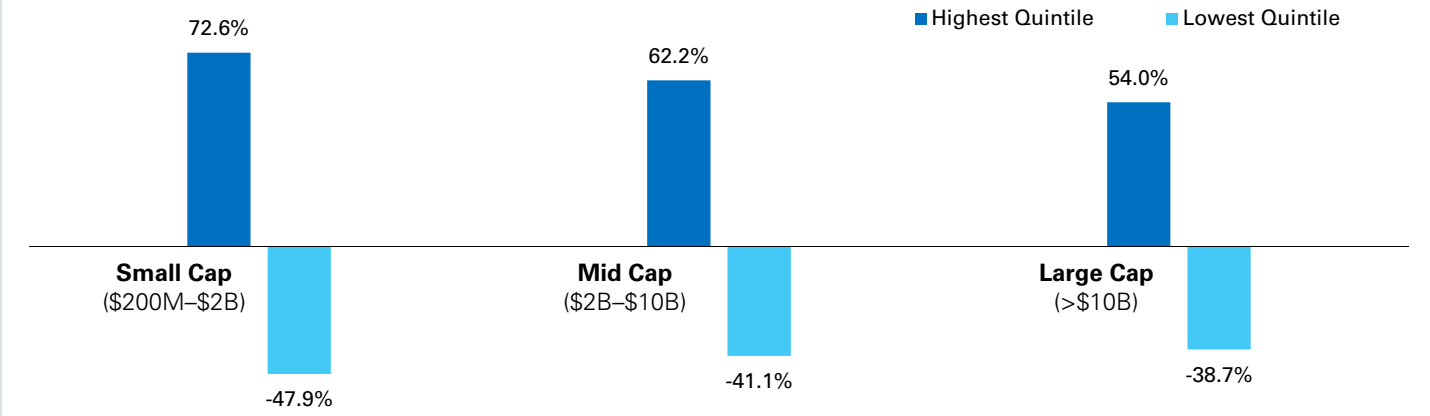
Beyond Market Cap — How Best to Pick Winners vs. Losers?

We would like to understand the alpha opportunity available to investors. To do this, we perform a simple test assuming we know in advance the return of each stock over the next 12 months and rank the return by quintile within each market cap bucket (see Figure 3). The universe of small-cap stocks has the greatest return spread between the highest and lowest quintile of 121 percent. Not surprisingly, as we move up the capitalization range the spread declines to 103 percent for mid-cap and 93 percent for large-cap stocks. The wider dispersion in returns for small- and mid-cap companies suggests there are greater opportunities for outperformance as you move down the capitalization spectrum. Indexes and Smart Beta strategies have difficulties exploiting these opportunities as they skew heavily toward the large-cap space.

[2] Value defined as price/sales, price/earnings, EBITDA/enterprise value, Price/Cash Flow, and shareholder yield; weighted equally.

[3] Momentum defined as 3-, 6-, and 9-month momentum and 12-month historical volatility; weighted equally.

Figure 3: Return Distribution by Market Capitalization (1988–2015)



Source: OSAM calculations

To exploit the inefficiencies within international markets, it is important to determine if there are common themes between winners and losers across the cap spectrum. To achieve this, we calculate average valuation, quality, and growth characteristics of outperformers and underperformers. Across the cap spectrum we see that winners consistently exhibit higher return on invested capital. The strong performers are also more conservative in terms of debt issuance. A cornerstone of our process is the belief that expensive stocks have high or unsustainable expectations built into their price. As a result, they tend to mean revert and underperform over the long run. The best performing stocks have traded at approximately a 20 percent discount across all cap ranges over time.

Table 1: Characteristics of Outperformers and Underperformers

SMALL CAP	Price-to-Earnings	Change in Debt	1-Year Earnings Growth	Return on Invested Capital
Highest Quintile	14.5	12.0	23.6	24.0
Lowest Quintile	18.5	21.3	18.3	20.0
Relative Advantage	22% cheaper	44% lower debt issuance	29% higher	20% higher

MID CAP	Price-to-Earnings	Change in Debt	1-Year Earnings Growth	Return on Invested Capital
Highest Quintile	16.0	9.8	26.4	24.5
Lowest Quintile	20.4	15.7	26.3	21.5
Relative Advantage	22% cheaper	38% lower debt issuance	—	14% higher

LARGE CAP	Price-to-Earnings	Change in Debt	1-Year Earnings Growth	Return on Invested Capital
Highest Quintile	16.5	10.1	23.6	25.8
Lowest Quintile	20.5	12.5	22.8	22.6
Relative Advantage	20% cheaper	19% lower debt issuance	4% higher	14% higher

The wide dispersion and consistent themes among winners and losers suggest there is significant alpha opportunity within international markets. Smart Beta indexes provide some exposure to themes such as valuation and quality. However, Smart Beta strategies are heavily skewed toward the large-cap space—the area of the market exhibiting the least dispersion. It is important for active managers to consider all capitalization ranges in order to deliver the greatest alpha potential.

Passive or Active?

Weighting and Concentration

Factor selection is a key determinant of portfolio performance. The final part of portfolio construction that determines how much the portfolio differs from the benchmark is how stocks are weighted. The benchmark simply market cap-weights the stocks in the universe, giving the highest weighting to the largest companies. We would like to determine the effect concentration and market cap-weighting have on return and risk-adjusted return. To do this we start with the constituents of the MSCI EAFE Index and create portfolios based on value as tested above.

We create two versions of this strategy:

Version 1 sorts all stocks in the MSCI EAFE on each rebalance date by valuation and builds portfolios from 100 to all of the stocks in the benchmark (so the 100-stock version would be the 100 cheapest stocks on that date, and so on). Positions are equally-weighted (*e.g.*, one percent each in the 100-stock portfolio).

Version 2 takes the same portfolios with the same stocks (from 100 to all of the benchmarks holdings) but weights the positions according to market cap. This method can create very top heavy weightings in the more concentrated portfolios (*e.g.*, Toyota at 12 percent of the most recent 100-stock portfolio).

Figure 4 and 5 (below) illustrate the impact of concentration and cap-weighting on both forward one-year excess returns and active share versus the MSCI EAFE index. As concentration decreases, so does active share and excess return. Also, market cap-weighted portfolios offer significantly less return than equal-weighted. Even in the case where both portfolios own all of the stocks in the benchmark, the effect of equal-weighting adds 2.3 percent to excess return versus the benchmark. The ability for active managers to be different from their benchmark is critical to achieving success.

Figure 4: Average Excess Return (%)

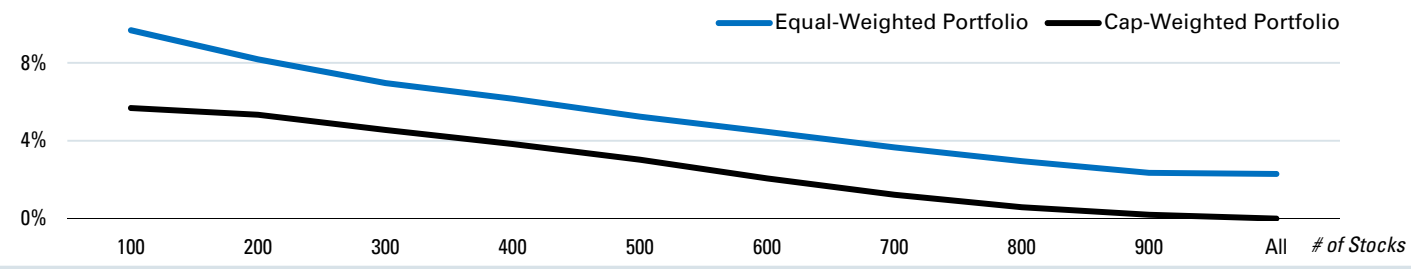
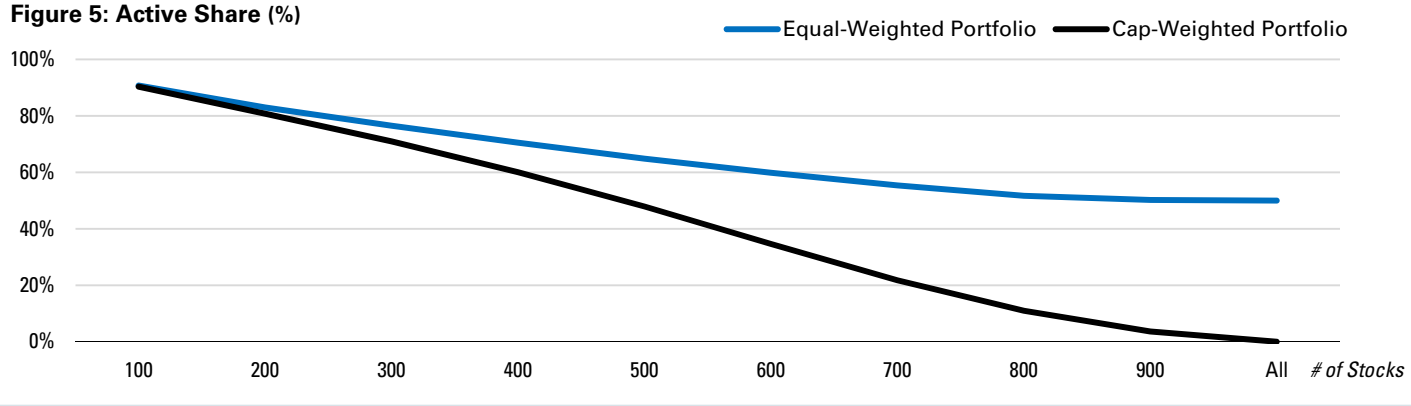


Figure 5: Active Share (%)



Source: OSAM calculations

Alpha vs. Capacity

In order to deliver strong investment results to their clients, asset managers must shift from the frictionless world of research to a real world setting. Another important aspect of capturing alpha in the international market is managing market impact. Using the ITG cost estimates we are able to get a sense of the estimated market impact when trading a portfolio. Trading commissions are a real cost but our focus here is on market impact, which matters more for large asset managers. When a money manager trades billions of dollars this can have the effect of moving the price of the stocks you are buying or selling—you pay a higher price when buying and receive a lower price when selling than if you were trading a much smaller $1 million account.

To show the impact of asset levels on market impact, we expand our universe to all stocks trading on developed international markets with a market capitalization greater than $200 million, which will include small- and mid-cap companies where market impact costs are greater. Similar, to the previous analysis we build portfolio based on valuation ranging from 100 to all stocks in the opportunity set. Positions are rebalanced on a rolling annual basis, meaning the holding period for each position is at least one year.

Table 2: Value Portfolios — Equal-Weighted

Assets ($ mil)	100 Stock	200 Stock	500 Stock	1,000 Stocks	All Stocks
50	0.32%	0.21%	0.17%	0.12%	0.00%
100	0.41%	0.25%	0.19%	0.14%	0.00%
250	0.56%	0.34%	0.25%	0.16%	0.01%
500	0.73%	0.43%	0.32%	0.20%	0.01%
1,000	0.96%	0.55%	0.40%	0.25%	0.01%
2,500	1.46%	0.80%	0.57%	0.35%	0.01%
5,000	2.04%	1.10%	0.76%	0.45%	0.02%
10,000	2.77%	1.53%	1.05%	0.60%	0.02%
20,000	3.49%	2.12%	1.46%	0.83%	0.03%
30,000	3.88%	2.50%	1.78%	1.00%	0.03%
40,000	4.15%	2.76%	2.01%	1.14%	0.04%
50,000	4.36%	2.96%	2.20%	1.26%	0.04%

Source: OSAM calculations

Table 3: Value Portfolios — Cap-Weighted

Assets ($ mil)	100 Stock	200 Stock	500 Stock	1,000 Stocks	All Stocks
50	0.13%	0.07%	0.05%	0.03%	0.01%
100	0.17%	0.09%	0.05%	0.03%	0.01%
250	0.25%	0.11%	0.07%	0.04%	0.01%
500	0.34%	0.14%	0.08%	0.05%	0.02%
1,000	0.46%	0.19%	0.10%	0.06%	0.02%
2,500	0.67%	0.30%	0.16%	0.08%	0.02%
5,000	0.87%	0.41%	0.22%	0.11%	0.03%
10,000	1.13%	0.55%	0.30%	0.15%	0.04%
20,000	1.48%	0.72%	0.41%	0.21%	0.05%
30,000	1.75%	0.84%	0.48%	0.25%	0.06%
40,000	1.99%	0.95%	0.54%	0.28%	0.07%
50,000	2.19%	1.04%	0.59%	0.31%	0.07%

Source: OSAM calculations

The market impact estimates are based on the five-year period from 2010 to 2015. ITG cost curves are based on actual market conditions over this timeframe. This table illustrates the paradigm of alpha against scale. We've shaded boxes denoting the points where impact (annualized) exceeds one percent. Over the various concentration levels, the average forward one-year outperformance of the equal-weighted versus cap-weighted portfolios is approximately 2.5 percent (see Figure 4 above). The concentrated portfolios, while providing greater alpha, cannot accommodate the scale that Smart Beta or other large asset managers are looking for. For example, at an asset level of $5 billion the 200-stock equal-weighted portfolio has a market impact cost of 1.10 percent versus 0.41 percent for the market cap-weighted version. The key to achieving excess return is to invest in concentrated equal-weighted portfolios that select stocks based on proven themes—the caveat of course is you must be willing to accept lower asset levels.

Access International Markets via ADRs

For many investors the only vehicle available to invest in foreign local shares is through a mutual fund. A viable alternative for investors to access international stocks is through American Depository Receipts (ADRs). ADRs are U.S.-listed foreign securities that enable U.S. investors to invest in non-U.S. companies while giving non-U.S. companies easier access to U.S. capital markets. Today, approximately 92 percent of the MSCI EAFE index can be

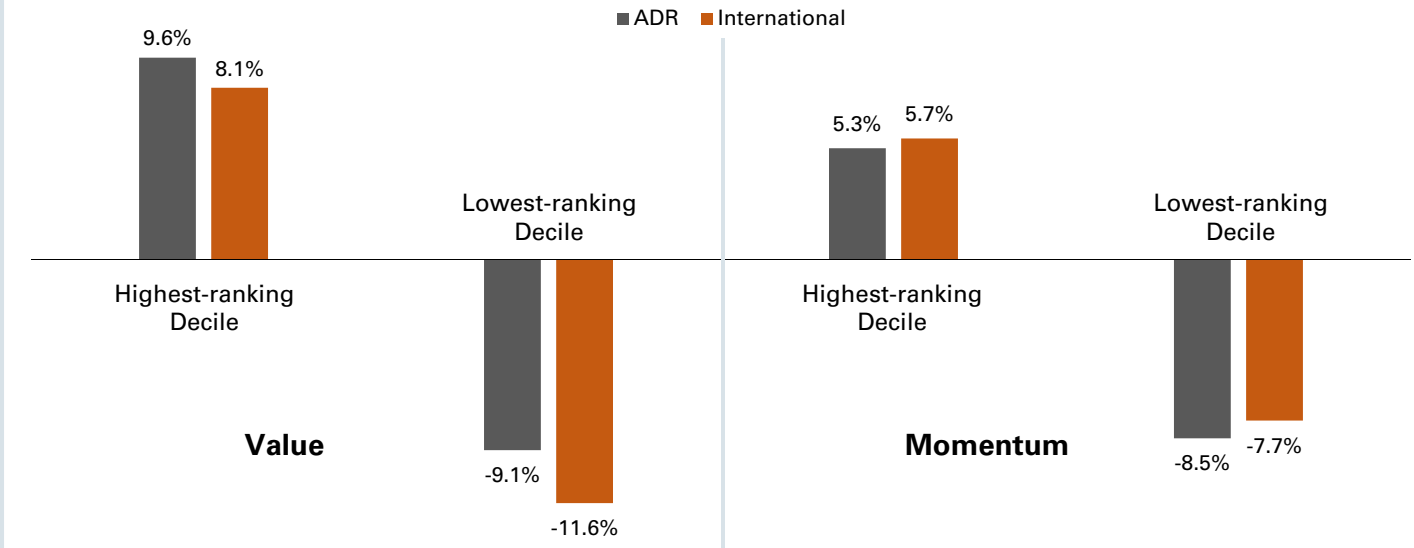
accessed via the ADR market in the U.S. on a cap-weighted basis. Investing via ADRs provides a cost advantage relative to the local share market while providing a robust alpha opportunity.

Factor Alpha Efficacy and Cost: ADRs

Similar to our analysis on foreign local shares, we would like to evaluate the efficacy of a factor in the ADR space by comparing the return spread between the highest- and lowest-ranking decile.

Over the period from 1990 to 2015 when ADR data became available we see healthy return spreads for value and momentum among ADRs. While the spread for value is comparable at 18.7 percent versus 19.7 percent for local shares, momentum outperforms within the ADR universe by a slight margin. This data coupled with adequate coverage of the international market gives us confidence that research performed on the local share market is relevant in the ADR space.

Figure 6: Factor Alpha Spreads



Source: OSAM calculations

While an inefficiently-priced market provides alpha opportunity for investors, it is not a cure all for achieving excess returns. A common concern about investing outside of the U.S. is related to cost. As ADRs trade on U.S. exchanges, the cost associated with trading these securities are no different from other U.S.-listed companies. The average ticket charge for trading a stock in the local share market from a developed country on the MSCI EAFE is approximately 22 dollars compared to six dollars for U.S.-listed securities. This cost differential makes smaller account sizes more viable in the ADR market, since fees can significantly erode return.

Table 4: Ticket Charges

U.S.	International
$6	$22

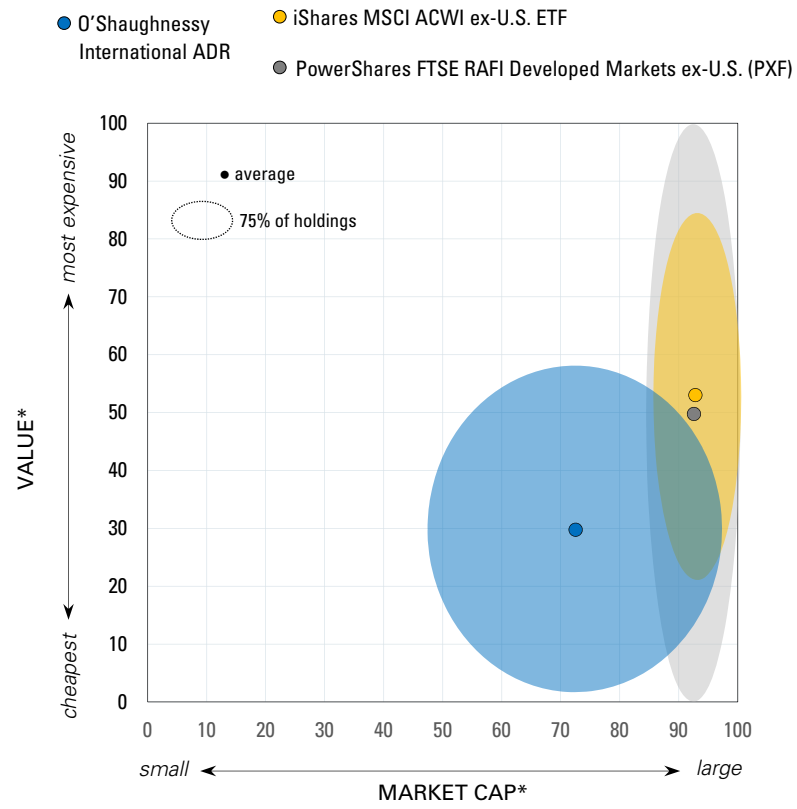
Active Management Landscape

We firmly believe that active management can provide investors with the opportunity to outperform over the long term. Looking like the benchmark in the international space can provide strategy *capacity*, but can significantly deteriorate the ability to generate *alpha*. As well, allocating based on size can lead you to overweighting stocks with poor characteristics that tend to consistently underperform. We believe a sound investment process should be disciplined but also nimble—constantly re-evaluating the opportunity set for the highest-ranking stocks.

In Figure 7 (below), we can contrast OSAM's approach with the index and other Smart Beta approaches. We plot market cap versus value as the dimensions on the chart. Instead of using price-to-book as the value metric of choice, we combine five factors shown to be more predictive of future excess return: shareholder yield, price-to-earnings, price-to-sales, EBITDA-to-enterprise value, and cash flow-to-price.

The dot in the center of each oval represents the average value score and market capitalization for the portfolio while the entire circle accounts for 75 percent of the portfolio's weight. The O'Shaughnessy International ADR strategy utilizes both value and momentum as primary stock selection criteria. Even with momentum playing such a prominent role, the strategy exhibits a 41-percent discount to the MSCI All-Country World ex-U.S. Index and a 44-percent discount to the Smart Beta approach (PXF). The most prominent difference between OSAM's approach is the market cap range, represented by the width of each oval. All of the indexes share a common trait: the bulk of the portfolio is playing in a narrow range among the largest stocks in the universe. To put this in perspective, the MSCI All Country World ex-U.S. index has an average market capitalization of $55 billion versus $38 billion for the O'Shaughnessy International ADR strategy. We admit this strategy provides asset managers with scale, but allowing market capitalization to play such a prominent role in stock selection can significantly deteriorate alpha. Our philosophy, honed over two decades, leads us to believe factors should drive the investment decision making process to a far greater extent. We consistently avoid companies that exhibit unfavorable characteristics and hone in on areas of the market that are favorable in the ways we deem relevant.

Figure 7: Factor Style Grid — Smart Factor Alpha vs. Smart Beta



Source: OSAM calculations * Percentile rank, 1 is cheapest and/or smallest.

We believe active management will continue to work well in international markets. However, investors should be leery of managers charging active fees while at the same time looking very much like the benchmark. The key to delivering consistent excess returns is to focus on themes that have proven efficacy in picking winners and weeding out losers. Though looking like the benchmark can provide scale, doing so significantly erodes alpha opportunity. Asset managers must deliver alpha and not be afraid to close strategies once costs become too high.

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The risk-free rate used in the calculation of Sortino, Sharpe, and Treynor ratios is 5%, consistently applied across time.

The universe of All Stocks consists of all securities in the Chicago Research in Security Prices (CRSP) dataset or S&P Compustat Database (or other, as noted) with inflation-adjusted market capitalization greater than $200 million as of most recent year-end. The universe of Large Stocks consists of all securities in the Chicago Research in Security Prices (CRSP) dataset or S&P Compustat Database (or other, as noted) with inflation-adjusted market capitalization greater than the universe average as of most recent year-end. The stocks are equally weighted and generally rebalanced annually.

Hypothetical performance results shown on the preceding pages are backtested and do not represent the performance of any account managed by OSAM, but were achieved by means of the retroactive application of each of the previously referenced models, certain aspects of which may have been designed with the benefit of hindsight.

The hypothetical backtested performance does not represent the results of actual trading using client assets nor decision-making during the period and does not and is not intended to indicate the past performance or future performance of any account or investment strategy managed by OSAM. If actual accounts had been managed throughout the period, ongoing research might have resulted in changes to the strategy which might have altered returns. The performance of any account or investment strategy managed by OSAM will differ from the hypothetical backtested performance results for each factor shown herein for a number of reasons, including without limitation the following:

- Although OSAM may consider from time to time one or more of the factors noted herein in managing any account, it may not consider all or any of such factors. OSAM may (and will) from time to time consider factors in addition to those noted herein in managing any account.
- OSAM may rebalance an account more frequently or less frequently than annually and at times other than presented herein.
- OSAM may from time to time manage an account by using non-quantitative, subjective investment management methodologies in conjunction with the application of factors.
- The hypothetical backtested performance results assume full investment, whereas an account managed by OSAM may have a positive cash position upon rebalance. Had the hypothetical backtested performance results included a positive cash position, the results would have been different and generally would have been lower.
- The hypothetical backtested performance results for each factor do not reflect any transaction costs of buying and selling securities, investment management fees (including without limitation management fees and performance fees), custody and other costs, or taxes – all of which would be incurred by an investor in any account managed by OSAM. If such costs and fees were reflected, the hypothetical backtested performance results would be lower.
- The hypothetical performance does not reflect the reinvestment of dividends and distributions therefrom, interest, capital gains and withholding taxes.
- Accounts managed by OSAM are subject to additions and redemptions of assets under management, which may positively or negatively affect performance depending generally upon the timing of such events in relation to the market's direction.
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