PASSIVE, UBIQUITOUS, LIMBER, SEPARATE, EFFICIENT (PULSE)

Tactics to Capture Beta
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Introduction

**be • ta (ˈbādə)**
Beta is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. The higher the beta, the more sharply the security's price has moved in relation to the market's movement.

Investors are inundated with information about the best approach to maximize wealth. The ideas span a spectrum of approaches with varying levels of research and quantifiable data to review. It is surprising that while so much research concerning portfolio theory exists, so little of it is presented to the individual investor, while access appears greater for a similar size institutional investor. This disparity often excludes some options readily available and may restrict the individual investor’s best thinking as they approach their asset management and oversight decisions.

For many long-term investors, capturing the movement, or beta, of a variety of broad market exposures over an extended period of time is a basic aspiration and can yield sound results that dominate other investment styles over longer time periods. Beta, as initially defined in the Capital Asset Pricing Model,¹ has demonstrated a cogent ability to explain variance in returns among well-diversified portfolios or indices and now serves as a casual synonym for owning the market itself or being “long the market.”

In an age where index replication and proliferation have reached new heights, there are finer details to consider and best practices to employ.

Being passively invested as a core holding needs to move beyond replication and low cost; instead, the best approach will consider the flexibility of the position, its general orientation and the net real results over the long haul, especially for taxable investors.

Within the classic context of core-satellite portfolio construction, this paper will focus on the core of the portfolio and define those elements that enrich the implementation of the position, and by extension, investor returns. In contrast, satellite positions employ alternate methods to lift returns (see Abbot Downing white paper: Concentration, Opacity, Illiquidity, Leverage, Skill (COILS)²).

For the core position, we describe the optimal tactics and considerations to follow using the mnemonic “Passive, Ubiquitous, Limber, Separate, and Efficient” or PULSE. Depending on a given investor’s individual willingness to take on risk, the size of the core holding vis-à-vis the satellite positions will differ. But it is our hypothesis that for all investors, this core portion of the portfolio should represent a large or majority holding of the overall portfolio.

**P – Passive**
**U – Ubiquitous**
**L – Limber**
**S – Separate**
**E – Efficient**

1 PULSE: Tactics to Capture Beta
Passive

The first step in constructing an effective core is to develop a passive position. This passive position should encompass broad exposure across asset classes, major and minor. The central portfolio will include global exposure for both equities and fixed income and will extend to a variety of asset classes. The growing trend towards higher utilization of indexed products holds merit as a wealth-maximizing approach. Although the general argument persists that active management adds value among less mainstream asset classes and during various parts of the economic cycle (see Abbot Downing white paper: Active Versus Passive Investing), the migration toward higher levels of passive investment in all categories has grown dramatically.

To most proponents of index-based investing, the mere presence of active management (especially hedge funds) and broadly available securities research (that fuels many day traders) each provide a “free-ride” for passive investors looking to efficiently capture any benchmark performance. Their presumption is that index-based investing will always outperform active investing over longer periods of time.

The most recent SPIVA Report (S&P Indices Versus Active US Year-End 2016) demonstrates the soundness of the performance of passive investment options.

“Given that active managers’ performance can vary based on market cycles, the newly available 15-year data tells a more stable narrative. Over the 15-year period ending Dec. 2016, 92.15% of large-cap, 95.4% of mid-cap, and 93.21% of small-cap managers trailed their respective benchmarks.”

That is a stunningly dominant endorsement for passive investing. Over 90% of active managers trailed their benchmarks over a 15-year cycle, a time period long enough to include a variety of economic conditions.

In all evaluations of the active versus passive style, it is important to take survivorship bias into consideration.

“Funds disappear at a significant rate. Over the 15-year period, more than 58% of domestic equity funds were either merged or liquidated. Similarly, almost 52% of global/international equity funds and 49% of fixed income funds were merged or liquidated. This finding highlights the importance of addressing survivorship bias in mutual fund analysis.”

Survivorship bias is the consequence of the high number of fund closures and mergers. A large reason for fund closures is that a particular fund is no longer cost-effective to manage and is not attracting assets. This is most often the case in a situation of poor fund performance. So, the remaining funds in the evaluation pool are stronger by definition. And given the rates of closure noted by SPIVA, this effect is important.

Indeed, the use of indexing has grown as an investment option in terms of both assets invested and investment funds available. This growth can be seen in all asset classes, including domestic equity, global equity, and fixed income. There are many investment vehicles that can be used to garner index exposure, but the most commonly used are mutual funds and Exchange-Traded Funds (ETFs).
One of the largest areas of growth in passive investing can be seen in the ETF marketplace. Investments in ETFs are growing at a rate of 20% to 25% each year, and year after year, new ETF funds outpace ETF closures. Furthermore, Exchange-Traded Products (ETPs, a security that trades like a stock and is a derivative of an index, a commodity, a currency, etc.) are about to hit a major milestone. There are now over 3,000 ETPs with more than $5 trillion in assets under management. More recently, we have witnessed the advent of factor-enhanced or Smart Beta products, which attempt to modify one’s exposure to a passive index with some nuance for potentially better results. The growth in popularity of ETFs and smart products represents growth in passive or index investing. The growth has been accelerating as investors adopt ETPs as a vehicle for passive exposure. Chart 1 depicts the explosive growth of passively managed investments, delineating between traditional passive investments and the more recent addition of Smart Beta products.

The passive exposure in a portfolio should be viewed as a permanent allocation. Although the position can ebb and flow as a percentage of total assets, the core remains a fixed holding among all investments. The long-term nature of the core allows for the compounding of returns through market cycles, making time a key ally in the marathon event. In addition, the mental disposition and freedom that comes from creating a lifelong central commitment helps address the inherent limitations of an investor: not knowing the future, and second-guessing every decision. The long-term investor readily accepts that balances will rise and fall over time but steadily relies on the macro forces that drive global GDP and the pursuit of profits, backed by the human will to constantly innovate and become more productive to further those profits.

Investors that do not commit to long-term investing face the troublesome challenge of market timing for their allocations. Poor market timing can be very costly to the overall portfolio. It is highly likely that the desire to sell—and therefore miss days in the market—comes following a market correction and often preceding the best days of performance in a recovery. Not only does this have a significantly negative influence on performance, the investor will pay additional fees to make the adjustment. A study by Dalbar shows that an individual solely invested in the S&P 500 earned 7.74% (annualized) over the period from 1989 through 2016 (see Chart 3). Missing just the 10 best days in this 28-year period reduced the annualized earnings to 5.11%. If an investor missed the 50 best days (in 28 years), the return fell into negative territory at -0.86%. That is a substantial effect from altering a central investment position. Staying committed to a permanent allocation in a passive investment can avoid missing exposure on critical days (see Chart 2).
The average equity fund investor underperformed the passive benchmark significantly in the 20 years from 1997 through 2016. It is important to note this is for investors who invested in funds, not individual securities. The underperformance is considerable as these investors held somewhat diversified market exposure. The average investor in the S&P 500 earned a 4.79% annualized return, while the passive benchmark earned 7.68%. This is a material annual shortfall with a cumulative and substantial impact on total wealth. Again, this type of portfolio disruption can be avoided by those making a long-term buy and hold decision with a passive position (see Chart 3).

Additionally, by introducing an enduring allocation, an investor receives the full benefit of compounded returns. While the effect of compounding is often glossed over, it is the key factor contributing to the highest potential cumulative investment returns. In a nutshell, if you invest $100 today in an asset class that yields an average annualized rate of 6%, you will earn $6 in the first year. But in the second year, you won’t earn just the 6% return on the base investment of $100, but on the new capital plus the base investment (in this case $106). Thus, the following year, you will have $112.36. In the third year, you won’t earn just $6, but will earn 6% on the entire base amount, resulting in earnings of $6.74. This year-after-year impact is material, and it creates a growth rate that cannot be matched in a portfolio that retreats and re-starts every year. It is the effect of compounding that provides you with the essential growth in the investment.

Source: Morningstar Direct, Wells Fargo Investment Institute. 12/31/2016. For illustrative purposes only. Past performance is no guarantee of future results. An index is unmanaged and not available for direct investment.
Chart 4 illustrates the effect of compounding on an investment of $1 made in 1926. The compounding effect is seen most strongly with a buy and hold strategy that is highly diversified and able to capture the underlying index or passive returns in a cost-efficient approach.

The nature and benefit of the “buy and hold” ideology is in accord with the permanent core beta position. Those aspiring to replicate the genius of the Oracle of Omaha (Warren Buffett) will strive to pick a few stock positions they can build and retain for a multi-decade period. Unfortunately, a good deal of skill, access and inevitably some luck is required to successfully duplicate those results. A casual review of the top 10 holdings of the S&P 500 over time (see Table 1) demonstrates the dramatic change occurring among the great companies. Another way to evaluate these phenomena is to consider the experience of the original Nifty Fifty stocks in the early 1970s. These were 50 popular large-cap stocks that were widely regarded as stable buy and hold growth opportunities. Although nearly 20% of those stocks have survived (and even thrived), the vast majority failed to keep pace with the broader market over the ensuing 40 years and several have become defunct. Consequently, maintaining a broad indexed position that can evolve over time remains a more effective approach.

<table>
<thead>
<tr>
<th>Year</th>
<th>Top 10 Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>IBM, AT&amp;T, Exxon, GE, Standard Oil, ID, Schlumberger, Shell, Mobil, ARCO, GE, Royal Dutch, Bristol-Myers, Merck, Walmart</td>
</tr>
<tr>
<td>1990</td>
<td>IBM, Exxon, GE, Phillip Morris, Royal Dutch, Bristol-Myers, Merck, Walmart, AT&amp;T, Coca-Cola</td>
</tr>
<tr>
<td>2000</td>
<td>GE, Exxon, Pfizer, Citigroup, Cisco Systems, Walmart, Microsoft, AIG, Merck, Intel</td>
</tr>
<tr>
<td>2010</td>
<td>Exxon, Apple, Microsoft, Berkshire Hathaway, GE, Walmart, Google, IBM, Procter &amp; Gamble</td>
</tr>
<tr>
<td>2015</td>
<td>Apple, Google, Microsoft, Berkshire Hathaway, Facebook, Exxon, Amazon, GE, Johnson &amp; Johnson, Wells Fargo</td>
</tr>
</tbody>
</table>

Source: S&P Dow Jones Indices.
### Table 2: Global Representation Across Multiple Asset Classes in One Consolidated Core

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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<tr>
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<td>Russell 1000 Value TR USD</td>
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<td>5</td>
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</tr>
<tr>
<td>8</td>
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<td>0.84</td>
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<tr>
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<td>0.88</td>
<td>0.86</td>
<td>0.83</td>
<td>0.86</td>
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<td>0.76</td>
<td>0.99</td>
<td>0.95</td>
</tr>
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<td>13</td>
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<td>0.68</td>
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</tbody>
</table>


### Ubiquitous

A ubiquitous core should have broad representation across multiple global asset classes. This will include the central stock/bond allocation for the portfolio and include domestic and global investments. The prevailing retail approach of cordoning off various portions of the capital markets becomes a counter-intuitive method for the core investor. As an example, equity investments carefully allocated between domestic and international holdings, or those that target exposure to growth versus value stocks reduce the effectiveness of a complete global equity position that encompasses all of those allocations simultaneously. That is because many such investors with multiple discrete allocations to varying market segments (domestic/foreign, large/small, growth/value, etc.) often discover they essentially own the global market already.

The complexity and duplication of such holdings that essentially respond in unison to macro forces reveals the lack of any true diversification benefit over the long term. In fact, a closer examination of correlations among these asset classes over multiple market cycles shows that the covariance between them is often more than 0.85 (or 85% positive correlation) as seen in Table 2. When correlations across these asset classes are as high as 0.85, creating an asset allocation around those asset classes is essentially allocating within the same pool of potential returns. A more efficient core portfolio should be broad and not narrow; this offers several benefits to the investor. First, the broad exposure gives the investor more diversification, a better ability to withstand market drawdowns, and exposure to all aspects of market opportunities. Second, the core exposure provides the investor a robust base upon which to add satellite investments. It allows the investor to use satellite investments that may be very focused, with high specific risk. When implemented in a total portfolio structure, we expect the core to provide “all-weather” protection and satellite investments to add additional value.

In the 10-year period from 2000 to 2009, now known as the “lost decade,” the S&P 500 posted a negative total return. This unusual outcome is nonetheless a possible result with a narrowly defined set of holdings. Many investors used the S&P 500 as a proxy for the equity market during that period, and the negative result would possibly have been improved by including almost any other asset group, the broader the inclusion the better. Despite the high correlation of returns on average, the inclusion of diversifying assets is positive for the stability of the overall investment portfolio.
As previously mentioned, the core does not operate in a vacuum but in concert with satellite exposures. The relative size of the core position and the ubiquity of its presence are dependent on the overall approach and the risk appetite desired for the whole portfolio. Further, the intended purpose of the satellite holdings will directly impact the extent to which the core serves to balance those interests. For example, a more aggressive investor profile with a high conviction about alpha generating satellite strategies might revert to a smaller central position distributed across a narrow range of asset classes. Conversely, the less active or conservative investor profile may be better suited to a larger central position across multiple asset classes and rely less on the satellite counterpart. Also, it is important to note that an investor that is able to and prefers to bear more risk may also choose either a narrower position or a smaller core. Conversely, a risk averse approach will use a larger central position as a percentage of the total portfolio. The basic assumption of total risk, among other variables, and the method of how the budget for that risk is allocated helps dictate the proportion allocated to each category (alpha/satellite or beta/core) and the range of economic exposures they each serve.

A diversified portfolio can smooth out interim investment results and thus increase aggregate returns by reducing the standard deviation of the overall pool of assets. If a long-term position has an allocation that is narrowly defined, that position will tend to have a higher variance. For instance, a core defined as solely large cap U.S. stocks will exhibit a higher standard deviation than a portfolio that includes a blend of asset classes. If the allocation to the core includes a blend of asset classes, including broad global equity and global fixed-income exposure, the standard deviation of the long-lasting allocation will be reduced. This reduction in the standard deviation is noteworthy as it reduces valuation volatility and creates a more stable base for the inclusion of satellite or specialty investments. And, if the approach is derived from a global passive benchmark, then much of the rebalancing should occur with ease from the capitalization weights across the index. The capitalization weighting of the position and the benchmark create a portfolio that is largely self-rebalancing, thus lowering the cost of management. This type of investment creates significant value through the lower standard deviation of the broad base, increasing long-term wealth for the investor relative to other structures.

**Limber**

“Flexibility is the key to stability.”
— John Wooden, Legendary UCLA basketball coach

In making such a sizable commitment to the core position, the investor needs to be able to restructure the portfolio to meet their particular investment requirements over time and to adapt to macro market conditions and anticipated economic cycles. A rigid investment can trap investors with unintended consequences. Investors and their advisors need an approach that is limber and offers flexibility. In this way, it is easier to keep a substantial portion of the assets in the main portfolio and achieve the results associated with the approach described in the Passive and Ubiquitous discussions above.

Capturing beta, and the movement of a broad market, can be akin to grabbing a tiger by the tail. At times, markets will demonstrate extreme volatility; therefore, the long-term investor requires both a firm grasp of the objectives and yet a flexible approach. A limber position will allow enhancements to the return or risk profile of the portfolio such as:

- Tilts that reflect preferences to exposures or market factors
- Screens that can shield away unwanted elements whether they be an investor preference or a specific holding need or restriction
- Overlays that can adjust the distribution of outcomes to capture upside while protecting against downside events

Whether an investor employs all, some, or none of these adjustments is a matter of unique circumstance and overall strategy that is best determined by working with a knowledgeable investment advisor. Having the ability to employ these adjustments at any time is paramount to the long-term success of the investment and its net
contribution to the whole portfolio. The limber nature of incorporating factors, tilts, screens, and overlays from time to time will allow the investor to define and implement an adaptable, stable core.

**Factor-Based Investments**

Factor-based investments, or Smart Beta products, have quickly risen in prominence as the leading method to enhance returns and minimize risks associated with basic index investing. Recognizing the limitations of beta as a statistical measure, there are unexplained variances of return among portfolios of similar characteristics. Since the advent of the Arbitrage Pricing Theory, researchers have continued to pursue the measurement and definition of those non-market factors and rationales that explain the divergence of these returns, which somewhat refutes the efficacy of beta as an accurate statistic. As discrete factors have been identified, further research has demonstrated that multiple factors can be combined, and that their contributions can be accretive.

In today’s parlance, established and well-researched factors can be lumped into two categories: risk factors (structurally or systematically enabled) and return factors (specific characteristics of the securities or companies). Risk factor enhanced strategies have led the way in terms of marketplace acceptance as most investors intuitively consider the source of their excess return or risk enhancement to be structural or systematic in nature and enduring over time. Return factor strategies continue to broaden their research to find those dynamic, attractive characteristics of companies (i.e., high ROE, high ROIC, etc.) that lead to persistent outperformance, although this endeavor can be somewhat elusive over time. Some of the most commonplace risk factors used to enhance any general equity market include: value, size, momentum, volatility (or low beta), and quality.

On a short-term basis, any one or any combination of these factors can materially produce tracking error from its underlying market, but over the long term appear to add value.

In Chart 5, the annualized risk (as measured by standard deviation) and annualized return are shown for the market as well as for factor portfolios over the long-term time horizon from 1967 through 2016. The chart shows that the market return and risk characteristics are dominated by higher return factor portfolios. The value and low beta factors offer a higher return with lower risk, while the quality, momentum, and small size factors involve more risk for the improved return. While an investor should still seek to maintain broad market exposure (as described in the tactic labeled Ubiquitous), it is clear that adding factor tilts can improve an investment’s attractiveness should it be appropriate for a given investor situation.

**Chart 5: Emphasizing Each Factor on the U.S. Equity Market Could Enhance Results Over Time (1967-2016)**

While these are common tilts, other investor preferences may also create specific tilts or higher weightings in certain investments (whether stocks or bonds) with certain characteristics such as yield. Thus, the ideal factor tilt enhancement is unique to each investor and should mirror their preference for risk, return (given that risk), and specific exposure (yield) to produce an optimal long-term result.

When there is a long-term allocation to a broadly diversified core, an investor can focus on macro forces and their influence on the market environment and returns. These macro influences are often overlooked, but can drive 75% or more of market returns. The agile investor with forecasting prowess who applies factor analysis to the main holding may attempt to rotate factor exposure based on the economic cycle. Such analysis may be applied to both equity and fixed-income holdings. Table 3, below, highlights the economic conditions where each factor is currently best served for popular equity indices:

### Table 3: Different Factors Respond Better in Varying Market Conditions

<table>
<thead>
<tr>
<th>Economic Phase</th>
<th>Early Cycle/Recovery</th>
<th>Mid Cycle/Expansion</th>
<th>Late Cycle/Peak</th>
<th>Recession/Downturn</th>
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</thead>
<tbody>
<tr>
<td>Market</td>
<td>√</td>
<td>√</td>
<td>/</td>
<td>X</td>
</tr>
<tr>
<td>Momentum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>X</td>
<td></td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Small Size</td>
<td>√</td>
<td>√</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Value</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Beta</td>
<td>X</td>
<td></td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

In favor: √  Out of favor: X


A limber core may require something less complex than factor-based enhancements. For many investors, simply tilting the position in favor of a particular modification can provide enough dexterity. Using yield tilts (i.e., tilting the portfolio by allowing for higher weight in stocks that offer higher dividends or fixed income investments with a premium coupon) is a top request among those looking for above-market average cash flow while still matching the underlying index in terms of total performance. In a similar vein, many global investors may desire to reduce the influence from currency movements on the central position or limit currency exposure. Exerting a “home country bias” on globally allocated funds is another simple tilt the core position may need to accommodate, or the tilt could limit exposure to a specific geographic region.

### Portfolio Screens

An effective core position is one that can employ screens that help impart the investor’s preferences or values to the heart of their assets. Often times the ability to restrict exposure to certain portions of the general marketplace is paramount to meeting the regulatory and compliance matters frequently associated with ultra-high-net-worth investors.

Whether negatively screening companies for socially responsible investment (SRI) standards or positively screening for environment, social and governance (ESG) issues, portfolio screening is a must-have capability to reflect the investor’s values. The ideal approach is to construct screens that specifically reflect a client’s primary beliefs and priorities. This requires a highly proficient investment manager with access to data that will allow customized screens, rather than creating pools blindly from a central list in a one-size-fits-all approach. If an investor is able to hold a collection of securities, they may establish a proxy-voting framework consistent with their beliefs. And indeed, people have very specific and long-standing preferences regarding screens that are meaningful to them.

Another application of negatively screening potential investments is to allow an investor to avoid exposure to certain characteristics due to a pre-existing holding or economic exposure. This approach may include the ability to exclude accumulating additional positions in a corporate stock position or industry where the owner may already have substantial stock options or concentrated holdings. In this case, the investor may have restrictions on an entire category, and a flexible method can meet these needs and even help offset or complete the desired economic exposure.


Table 4: Portfolio Overlay Strategies

<table>
<thead>
<tr>
<th>Hedging</th>
<th>Income Enhancement</th>
<th>Tactical Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Protective Puts</td>
<td>• Covered Calls</td>
<td>• Long Calls</td>
</tr>
<tr>
<td>• Collars</td>
<td>• Bear Call Spreads</td>
<td>• Short Puts</td>
</tr>
<tr>
<td>• Portfolio Hedging</td>
<td></td>
<td>• Bull Put Spreads</td>
</tr>
</tbody>
</table>

Implementing option strategies to remove or reduce market risk from either a portion of the portfolio, or the portfolio as a whole.

Employing option strategies to enhance cash flow generated from the investments in exchange for either absorbing additional market risk or reducing anticipated upside.

Seeking to effectively rebalance the portfolio or express an economic or market view through the derivative market versus disrupting the underlying assets.

While some screens are exclusionary in nature, some positive screening favors certain corporate characteristics, such as specific business practices or strong corporate governance. Some investors may wish to favor investments with firms that work with low-income communities or who employ diverse labor forces.

As always is the case with portfolio construction, establishing a program with constraints is only part of the issue. Investors need to measure the effect of such screens and their cumulative impact on performance and evaluate the net results and portfolio characteristics. Consequently, access to good analytical tools and reporting are a crucial part of the portfolio construction choices.

Portfolio Overlays

Active risk management is the final category associated with a limber core. Said differently, investors should be able to affect the market or economic exposure of the central portfolio using an option overlay or other synthetic position that can change the risk and return distributions of the assets and essentially change the asset allocation exposure at any time. Unlike traditional multi-manager portfolios with active solutions, the passive solution is a prime candidate to partner with derivative holdings because the parity of exposure can be more closely aligned.

Whether seeking to reduce or hedge out risk, enhance return, or capture certain spreads associated with underlying positions, an overlay position can be an effective tool for a sophisticated investor. Typically, the mismatch between the main investment and the available derivative tools associated with more active portfolios limits the suitability for any true overlay or dynamic hedging program. But those with a clearly articulated, globally allocated, passive position can better afford to engage in such tactics as they are able to peg similar underlying indices, specific time frames, and market exposures. Table 4 shows a few examples of overlay strategies, which can be customized beyond such basic offerings to reflect the specific needs and preferences of the investor.

Tactical overlay strategies can be added to the central position to capture return or protect the assets from market movements. These can be customized to capture macro opinions about the market direction while keeping the underlying portfolio intact. These strategies can be highly customized around macro market and economic beliefs.

The flexibility to implement such overlay strategies based on an individual investor’s risk preferences, coupled with macro viewpoints of the market opportunities and risks, is critical and requires an approach that meets all the requirements summarized by the implementation tactics. This requires an investment advisor that has advanced analytical tools and implementation choices available.

Separate

The ease of using packaged products, especially Exchange-Traded Products, is quick and attractive for most investors; however, when developing a long-term core position, utilizing a separate account is the superior approach. Having your own separate account filled with individual securities that replicate the targeted index or broad custom benchmark offers many quantifiable rewards over the long term.
Individual Securities

Using a separate account helps to avoid the risks associated with the products themselves. Far too often, investors suffer from the shortcomings of unforeseen events that cause many product creators difficulty and leave shareholders feeling remorse. Managers whose products malfunction have often employed leverage to enhance return or derivatives to replicate indices, or hold thinly traded securities that are exposed to illiquid underlying markets. Such trouble spots have all demonstrated a high degree of difficulty to perform well during times of duress.

Pooled products have their place and can be an effective tool for smaller amounts to gain access to otherwise hard-to-reach opportunities. However, investors can be affected by the behavior of other investors within those pools which can create unintended consequences. Other investors may have very different reasons and patterns for trading, contributing to poor performance in the vehicle itself. Beyond the pricing impact on the vehicle, investors in mutual funds may create a higher taxable gain to the portfolio through sales activities that all fund holders will bear. Further, the fund itself may be closed or trading may be suspended at an inopportune time. A fund or exchange may impose trading suspensions in markets that are illiquid when the vehicle experiences large variations in the premium between the product and the underlying holdings. And as described in the Passive section, a vehicle may be closed due to performance, low activity (profitability), or few holders. These are unwelcome disruptions for the investor and represent additional implementation costs to the investment.

On the positive side, creating a central portfolio with individual securities provides greater transparency, control, and detail for the long-term investor. Having direct constituent holdings of an index allows for in-depth analysis of the assets, including performance attribution, forecasting cash flow, assessing risk exposure, and managing tax implications. For those core managers who apply any measure of factor enhancements, tilts, or overlay, the use of individual securities over funds is a key component contributing to their effectiveness.

Multi-factor portfolios are a prime example where avoiding the constraints of pooled single-factor portfolios is benefited by using individual securities.21

Much like the problems with generally labeling any group, the characteristics and factors associated with any one security are multiple, making parsing difficult. Said differently, every security can represent some portion of multiple factors and demonstrate sensitivity to a range of inputs and not just one. Consequently, combining single funds (which attempt to, but do not truly, isolate one factor) into a larger group tends to create an unwanted overlap that requires “netting out.” This impact can be seen in an efficient portfolio as shown in Chart 6 and labeled “Multi-factor Portfolios Built From Factor Sub-Portfolios.” This is a portfolio created by combining single-factor funds to create aggregate exposure. The problem can be mostly avoided with the use of individual securities to build out the framework and achieve an optimal blend of factors, as shown by the efficient frontier labeled “Multi-factor Portfolios Built From Individual Securities.” An investor with a reasonably sized asset pool would choose the risk and return characteristics of Multi-factor Portfolios Built From Individual Securities over Multi-factor Portfolios Built From Factor Sub-Portfolios (see Chart 6).

Net of Taxes

“In an industry guilty of many crimes against investors, ignoring the tax consequences of portfolio transactions ranks among the most grievous.”
— David Swensen, Unconventional Success: A Fundamental Approach to Personal Investing

A separate account provides material benefits for the taxable investor. Taxes can have a material consequence on the total return accrued to the portfolio. For ultra-high-net-worth investors, taxes can consume up to half of the pre-tax return on high income assets taxed at the highest federal and state income rates. This consequence is often overlooked. To maximize each individual’s after-tax return and long-term wealth, a solution specific to the investor’s situation is needed.
To implement tax loss harvesting and realize the accrued benefits of the approach, a separate account is required.

An approach that pursues “tax-alpha” through the discipline of regimented tax-loss harvesting (TLH) can demonstrate outperformance across a broad range of asset classes over time. From an empirical study of TLH over a 43-year period (January 1973–December 2015), historical simulations tracking the S&P 500 generated positive tax alpha at a 10-year horizon for all rolling iterations. Although the result of TLH as a tool seems to dissipate over time and during strong bull markets, the relative outperformance grows during sideways and volatile markets as well as when initiated during fully valued markets. This level of tax benefit can only be garnered by an implementation strategy comprised of individual securities in a separate account.

As an investor adds assets to the account and takes withdrawals for donations, the opportunities for TLH continue to improve. An investor that makes systematic donations from the portfolio improves both the TLH profile and opportunity offered by donating high-tax-basis securities. An investor that continues to contribute to the pool improves the TLH opportunities. In the study represented in Chart 7, a contribution rate of 6% per annum to the existing portfolio improved tax alpha over the 5-, 10-, and 20-year time horizons.

As investors gain access to more robust analytics, the true impact to wealth of a structured, consistent program of TLH can be understood and captured. The performance of tax inefficient investments such as hedge funds and structured products receives greater scrutiny, since the after-tax performance is underwhelming versus more efficient forms of return that either defer tax liabilities or realize them at lower rates. A casual review of many active management strategies highlights the amount of portfolio turnover (buying and selling of positions) experienced during one year, and allows one to derive an estimate of the tax bill the investor will receive. Although high active share can be an enviable characteristic for any equity manager, Table 5 on the next page highlights the relative outperformance required to offset modest tax consequences.

High-turnover managers in a high-tax, high-unrealized gains environment face a high hurdle rate.

• For example, in a market that is up 8% over a 12-month period, a manager who turns over 50% of their portfolio must beat the benchmark by more than 3.6% in order to add value on an after-tax basis (see Table 5, on next page).
• Furthermore, for a given level of turnover, required alpha increases as market returns increase, due to larger average gains being realized per trade.
Chart 7: The Financial Benefit of TLH Depends on Market Conditions.

Looking at Periods from 1973 to 2016, Aperio Calculated the Financial Benefit (Tax Alpha) for Multiple Horizons

<table>
<thead>
<tr>
<th>Years</th>
<th>5</th>
<th>10</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>2.09</td>
<td>1.50</td>
<td>1.05</td>
</tr>
</tbody>
</table>

Additionally, TLH can be improved with systematic donation & cash replenishment*

<table>
<thead>
<tr>
<th>Years</th>
<th>5</th>
<th>10</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>2.34</td>
<td>2.10</td>
<td>1.68</td>
</tr>
</tbody>
</table>

*6% donation per annum of highest appreciated stocks with cash replenishment (strategic gifting).

Note: Tax alpha excludes any fee differential between a tax-loss harvesting strategy and a simple index strategy. A difference could lower tax alpha.

Ranges of annualized tax alpha of historically simulated US Large Cap tax-loss harvesting strategies at 5-, 10- and 20-year horizons over the period from January 1973 to February 2016. The estate/donation disposition is shown in the left panel; the liquidation disposition is shown in the right panel. Simulated returns are gross of fees. Round-trip trading costs of 0.12% are assumed.

Sources: Barra USE3 Risk Model and the Barra After-Tax Mean-Variance Optimizer, Aperio Group LLC.

Table 5: Annual Pre-Tax Required to Offset Effects of Capital Gains Generated by Portfolio Turnover

<table>
<thead>
<tr>
<th>Market Growth</th>
<th>4%</th>
<th>6%</th>
<th>8%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover: 5%</td>
<td>0.51%</td>
<td>0.70%</td>
<td>0.85%</td>
<td>0.99%</td>
</tr>
<tr>
<td>Turnover: 10%</td>
<td>0.89%</td>
<td>1.22%</td>
<td>1.51%</td>
<td>1.77%</td>
</tr>
<tr>
<td>Turnover: 25%</td>
<td>1.51%</td>
<td>2.15%</td>
<td>2.73%</td>
<td>3.26%</td>
</tr>
<tr>
<td>Turnover: 50%</td>
<td>1.90%</td>
<td>2.78%</td>
<td>3.63%</td>
<td>4.44%</td>
</tr>
<tr>
<td>Turnover: 75%</td>
<td>2.06%</td>
<td>3.07%</td>
<td>4.06%</td>
<td>5.03%</td>
</tr>
</tbody>
</table>

Source: Parametric, based on the model proposed in Jeffrey and Arnott (1993).
The result of an effective TLH program is magnified over the years, as the cost basis of the assets is reduced. If a portfolio experiences growth of 7%, the investment vehicle can have a big impact on the current and future after-tax wealth due to the cost basis. Traditional mutual funds re-investing annual capital gain distributions (usually an automatic election) can increase the cost basis. (This assumes a 3.5% annual capital gain distribution that is reinvested while dividend distributions are not reinvested.) Similarly, if that position is implemented with ETFs, the cost basis is flat, if the ETF is managed well. In that case, capital gain distributions can be avoided. Again, dividend distributions are not reinvested. Significantly, if an investor instead uses a separate account with TLH, the cost basis can trend lower over time. This again assumes a growth rate of 7%, with Federal tax levels only. This provides a weighty influence to the overall level of retained wealth and to the approaches in constructing and managing a portfolio using the core/satellite approach. In this way, the core also adds value to the retained wealth in the overall portfolio.26

The taxable investor wants solutions that provide the best opportunity to preserve and grow their long-term wealth, net of taxes. TLH is a critical contribution that further enables the investor to spend their tax dollars wisely. Here, at the intersection of the core portfolio and the satellite positions, thoughtful coordination is required. As the core is able to generate tax alpha (or tax savings), satellite positions poised to produce excess alpha can utilize such savings. As an investor, it matters most what you keep (great returns that are highly taxed may not improve wealth as expected) and therefore taxes can have a material effect on the portfolio. In order to gain access to a consistent program of tax-loss harvesting, the main portfolio must be implemented as a broad portfolio of individual securities, held as a separate account for the investor. In this way, the investor maintains greater control over outcomes and better access to opportunities to add value.

While capturing tax alpha is likely the most important consideration, a separate account also allows an investor many specific benefits that cannot be replicated using generic products.

The separate account is flexible, which allows the investment to be customized for the specific needs and goals of the investor. A separate account may employ specific factors to capture additional return. It also allows for very specific screening on companies selected or omitted. Detailed knowledge of the core position in the separate account allows for the inclusion of overlays to adjust the risk profile of the portfolio for the investor. A separate account also provides access to specific analytics of the portfolio. This can provide timely information about current risk factors and market exposure. Additionally, such analytics can support better forecasts of cash flow, guide rebalancing efforts, permit raising or deploying cash with greater accuracy, and avoid unwanted pitfalls.

Efficient

A well-structured investment strategy will include operational ease, efficiency, coordination, and confidence in the process. Typically, an efficient core will be reflected in low costs associated with implementation and maintenance, but it is also reflected in the availability and ease of reporting, analysis, and work flow. With these in place, the investment operates as designed by providing broad exposure that is easily tracked, analyzed, and repositioned. Without these controls, it becomes unwieldy and difficult to navigate.

The first consideration for the efficient core portfolio is to achieve low cost, as all fees paid will have a direct impact on retained wealth over long time horizons. Having a large passive position (typically associated with low fee levels) will in turn drive down costs for the entire portfolio. The expense savings can create a budget for well-chosen satellite portfolios which may tolerate a higher level of expense. The secondary objective is the safekeeping of assets, or custody, with a strong financial institution. Maintaining direct ownership of securities and avoiding “street name” registration (the name of a brokerage firm, bank, or dealer in which stock is held on behalf of a purchaser) provides an added layer of protection. Finally, real-time reporting of all activity, position level detail (including cost basis), and transaction-level detail are must-haves for efficient management. Such detail is critical for in-depth analysis and reports to provide the necessary insight to enhance decision making.
Performance reporting should provide timely return information relative to benchmarks and include risk data to better consider those returns commensurately earned. Performance attribution is particularly important to evaluate the effectiveness of the structure relative to the market and to verify compliance with the investment policy governing the position. Attribution should begin with a benchmark comparison, assessing the return and risk characteristics of both the policy benchmark and the portfolio. It should include a decomposition of the risk factors, so that the investor understands what is driving the current return of their investments, in a particular time period or in response to the macro environment or economic cycle. Additionally, attribution should review regional exposure, sector exposure, industry exposure, and currency positions relative to the benchmark in terms of risk and reward. Ultimately, a close review of the current position is necessary to watch for any drift from the previously determined targets and the amount of tracking error the core is demonstrating.

Scenario analysis, or stress testing, is another important aspect of efficiently managing the core. Whether you employ returns-based analysis or constituent-based analysis, having some idea of how the position will react to changes in the economic cycle or market environment is critical to successfully achieving investment goals. Anticipating market events can be difficult, but calculating the potential drawdown of assets within a framework of risk tolerance can provide insight. Further, allowing this analysis to effect changes within the holding in a well-coordinated fashion can enhance returns while mitigating risks.

One of the final analysis requirements is to provide a cash flow forecast. This is critical in managing the overall financial plan and can reduce unnecessary trading by knowing when cash will be available in the portfolio to meet client needs or to invest and rebalance the core. Ideally, a large portion of this type of information should be available in real time. Often, real-time analytics have been reserved for institutional investors, but this type of information is also important to the ultra-high-net-worth investor.

Operational efficiency is often overlooked in making an implementation decision regarding an investment advisor. But the costs that you pay to manage the assets (including fees, custody, and trading) will have a significant result on portfolio value. Access to data is crucial for an investor to understand the true exposure and robustness or vulnerability of the portfolio. Operational efficiency will undoubtedly contribute to long-term wealth.

**Conclusion**

For an individual investor, it seems like the myriad of product offerings should help facilitate the investment process and long-term results. However, it turns out that in pursuing the construction of a core beta portfolio, there are many detailed implementation decisions that have an impact on long-term, after-tax wealth. Therefore, merely responding with a quick off-the-shelf set of products may not meet the basic portfolio construction needs or maximize the investor’s long-term wealth. This shortfall can be consequential over time.

The details of investment implementation, which is often presented in academic research for institutional investors, can benefit individual investors as well. However, there is also a critical need to consider the tax implications for the individual investor in ongoing portfolio management. Combining the research in these areas along with client constraints and preferences can produce an implementation method that balances out considerations while maximizing after-tax wealth.

Abbot Downing constructs portfolios to provide clients with a real, net return after taxes, fees, and inflation. There is a trade-off between the pursuit of alpha, taxes, and fees, which for taxable investors should drive all key portfolio construction decisions. There are also specific client preferences to incorporate. These decisions include:

- Choosing an optimal mix of core and satellite investments
• Implementing tactical allocation and risk factor shifts in response to preferences and macro factors

• Allocating capital to active and passive strategies efficiently

The core/satellite approach synchronizes these asset allocation, manager selection, and risk management decisions to maximize the after-tax, after-fee return, which will in turn maximize wealth that will compound over time.

While there are solutions that appear to be easy for constructing the overall portfolio, it turns out they can be deficient in their ability to provide a robust PULSE solution for the core and COILS solution for the satellite investments. Constructing a separate passive position for the core will provide a solution that can respond to market and risk dynamics. Having the ability to adapt to market conditions, apply client preferences, harvest tax losses where necessary, and apply efficient means of management all unite to maximize after-tax wealth.

Adding in wealth management tools and analytics makes the final solution more robust as more information can be incorporated into the asset management process. These tools include financial planning as well as analytics, scenario analysis, and the real-time reporting of holdings and factor exposures. Overall, such an approach is a world-class solution to maximizing investment return and therefore wealth. It is supported in the academic research and literature and has been implemented by institutional investors since the research was first published. For individual investors, having access to this full-range solution provides the best opportunity for success.
Endnotes


8 Morningstar Direct, US ETF (and ETP) population data as of December 31, 2016.


14 S&P Dow Jones Indices.


26 Aperio Group, LLC. Cost Basis of $10 Million Investments over Time. Loss harvesting from Monte Carlo simulations.
Indices

Global Equity Representative Indices

S&P 500 Index is a capitalization-weighted index calculated on a total return basis with dividends reinvested. The index includes 500 widely held U.S. market industrial, utility, transportation, and financial companies.

Russell 1000® Growth Index measures the performance of those Russell 1000® companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000® Value Index measures the performance of those Russell 1000® companies with lower price-to-book ratios and lower forecasted growth values.

Russell Midcap® Index measures the performance of the 800 smallest companies in the Russell 1000® Index, which represent approximately 25% of the total market capitalization of the Russell 1000® Index.

Russell Midcap® Growth Index measures the performance of the mid-capitalization growth sector of the U.S. equity market.

Russell Midcap® Value Index measures the performance of the mid-capitalization value sector of the U.S. equity market.

Russell 2000® Index measures the performance of the 2,000 smallest companies in the Russell 3000® Index, which represents approximately 8% of the total market capitalization of the Russell 3000® Index.

Russell 2000® Growth Index measures the performance of the 2,000 smallest growth sector companies in the Russell 3000® Index

Russell 2000® Value Index measures the performance of the 2,000 smallest value sector companies in the Russell 3000® Index

MSCI EAFE Index (Europe, Australasia, Far East) is a free float-adjusted market capitalization index that is designed to measure equity market performance of developed markets, excluding the U.S. and Canada. The index consists of the following 21 developed market country indexes: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates.

MSCI EAFE Growth Index (Europe, Australasia, Far East) measures the growth sector equity market performance of developed markets, excluding the U.S. and Canada.

MSCI EAFE Value Index (Europe, Australasia, Far East) measures the value sector equity market performance of developed markets, excluding the U.S. and Canada.

MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. The MSCI Emerging Markets Index consists of the following 23 emerging market country indexes: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates.

MSCI EAFE Growth Index (Europe, Australasia, Far East) measures the growth sector equity market performance of developed markets, excluding the U.S. and Canada.

MSCI EAFE Value Index (Europe, Australasia, Far East) measures the value sector equity market performance of developed markets, excluding the U.S. and Canada.

MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. The MSCI Emerging Markets Index consists of the following 23 emerging market country indexes: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates.
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