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## ACTIVE VS. PASSIVE: TAKING AN ANALYTICAL APPROACH TO THIS KEY INVESTMENT DECISION

Passive strategies—namely, index funds and exchange-traded funds (ETFs)—have been rapidly gathering both assets and attention. Investors are seeking out these vehicles with the aim of obtaining low-cost exposure to specific asset classes with little performance drag relative to the respective benchmarks. However, the vehicles do not always deliver on such expectations. Some market segments lend themselves more easily to efficient, accurate, low-cost replication than others, and the overall success of passive vehicles in this regard depends on multiple factors. We suggest investors take an analytical approach to the active-versus-passive decision in their portfolio construction, going beyond mere cost considerations to also evaluate the potential to achieve value that only an active manager may be able to provide—through alpha generation, risk and momentum mitigation, and moderation of potentially undesirable biases and factor exposures inherent in index construction.

As with any investment decision, selecting the right mix of active and passive strategies—and the vehicles themselves—requires thorough due diligence and thoughtful evaluation of available options. The effectiveness of specific products must be evaluated in the broader context of a portfolio's goals and overall risk targets, diversification and active risk budget.

## INTRODUCTION: WITH THE GROWTH OF PASSIVE INVESTING COME IMPORTANT QUESTIONS

The roles of active and passive investment strategies are being debated heavily by many, from individual and institutional investors to the press.

Passive strategies have been gathering assets at a rapid pace, with the majority of flows going into “core” vehicles that offer exposure to broad asset classes and aim to replicate the capitalization-weighted benchmarks that track them.<sup>1</sup> Such core vehicles are often portrayed as attractive alternatives to actively managed portfolios, offering low-cost benchmark replication without the risk of significant benchmark underperformance. However, the reality is more complex. Some passive products do a better job of replicating underlying indices than others, and most exhibit some degree of underperformance relative to their indices over time. Costs vary dramatically, from a few basis points to almost 1%.

As with any investment product, it is important for investors to understand the nature and dynamics of specific passive vehicles they are considering, to ensure that their expectations match reality. An understanding of vehicle mechanics and design, choice of instruments and benchmark, and the specifics of the market segment and the index used to proxy exposure to it are all necessary to fully appreciate the potential behavior of a specific passive vehicle and the risks it carries. Guidance from experienced investment professionals can aid in minimizing some of the unexpected risks and avoiding surprises.

In this paper, we provide what we believe is a common-sense framework for the active-versus-passive decision, we address challenges faced by passive vehicles in mimicking index performance, and, finally, we discuss the unique benefits of active management across asset classes.

## A FRAMEWORK FOR THE ACTIVE VS. PASSIVE DECISION

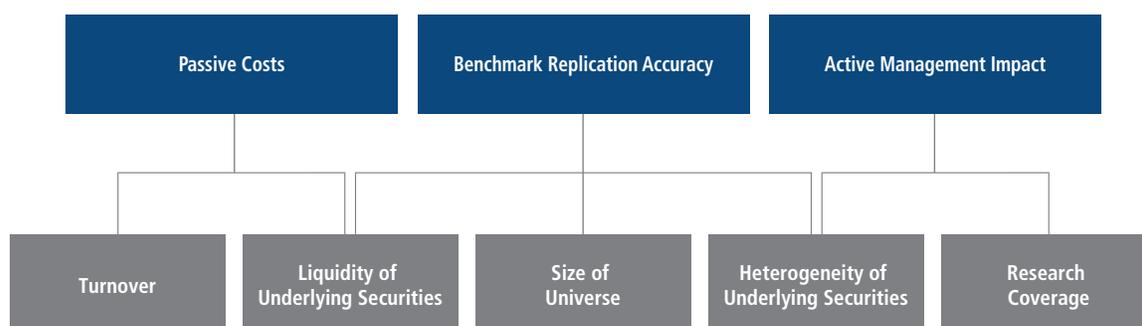
An investor can frame the active-versus-passive decision by considering what are the best areas of the capital markets in which to allocate the portfolio’s active risk budget. Some portions of a portfolio lend themselves better to active management, while others may include thoughtfully selected passive products. Figure 1 illustrates our suggested framework. The deciding factors are grouped around typical investor expectations for passive vehicles—low costs and effective benchmark replication—as well as the value that active management can add in a particular market segment.

Beyond these factors are benefits that only active managers, with the flexibility to deviate from their benchmark, are in a position to provide. These benefits include risk and momentum mitigation (with periodic market bubble bursts providing a particularly impactful example), as well as moderation of potentially undesirable biases and factor exposures inherent to index construction.

## PASSIVE COSTS ARE NOT INSIGNIFICANT

The perception that all passive vehicles are uniformly low cost does not bear out in reality. While some passive vehicles cost

FIGURE 1: FACTORS THAT MAY AFFECT THE ACTIVE VS. PASSIVE DECISION

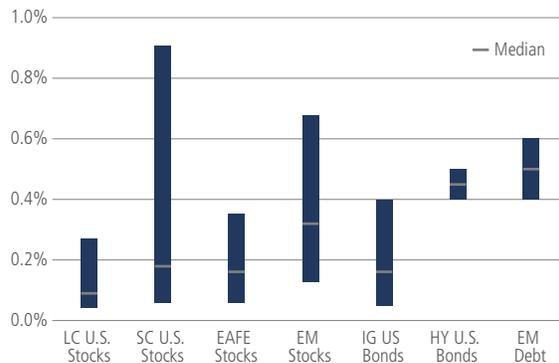


Source: Neuberger Berman.

<sup>1</sup> Beyond core products are a multitude of niche vehicles aimed at capturing specific themes (such as companies with rising dividends or superior environmental, social and governance practices) or products designed to deliver exposure to specific narrowly-focused market segments (such as specific sectors or countries) or risk premia (such as value, momentum or low volatility), or to facilitate shorting or increasing portfolio leverage. Another recent trend has been the emergence of “smart beta” products, which weight the underlying securities not by their market capitalization but by alternate schemes—equally or by fundamental factors like earnings. Such products blur the lines between active and passive management. They are outside the scope of this paper, since they make up only a small portion of the overall passive market (in the ETF space, for example, smart beta products account for just over 10% market share) and, in some cases, are designed for professional investors to implement short-term trading strategies, rather than as a substitute for actively managed core portfolio holdings.

notably less than active funds, others may incur cost levels similar to those of active funds. Figure 2 shows high, low and median passive vehicle expense ratios for the largest passive vehicles across a variety of market segments.

**FIGURE 2: PASSIVE VEHICLE EXPENSE RATIOS VARY ACROSS ASSET CLASSES<sup>2</sup>**



Source: Morningstar, ETFdb. As of June 2016. For a detailed description of the methodology for selecting the vehicles included in the calculation, please see footnote 2.

Trading costs required to maintain index replication accuracy are a major determinant in the ultimate expense levels passive vehicles incur. Trading costs, in turn, are a function of the liquidity of the underlying securities (the more liquid the security, the lower the costs to trade it in normal market environments) and the frequency of benchmark rebalancing.

Any time the underlying index rebalances its constituents, the passive vehicle must do the same, to maintain effective replication. Fixed income indices tend to rebalance more frequently than equity indices—bonds are upgraded or downgraded into or out of indices more frequently than are stocks, and bonds have finite lives, leading to old securities being retired and new ones being issued at a faster pace than is the case for equities, which are generally infinite-life securities. Within equities, turnover in smaller-capitalization segments of the market tends to be higher than in larger-capitalization stocks, as smaller companies are more likely to see their fortunes change more rapidly than do their large, blue-chip counterparts.

Of course, turnover and trading costs are a concern for active funds too. But active managers have more discretion as to when and what to trade, as their trading patterns do not

depend on index movements. High-conviction, long-horizon active managers often hold positions for several years, mitigating turnover—comparing favorably on this metric to passive vehicles in higher-turnover asset classes.

### BENCHMARK REPLICATION ACCURACY VARIES

The ability to replicate the performance of a desired benchmark eliminates one investment risk—namely, the difference between the performance of the underlying market segment and that of the product chosen to gain exposure to that segment. However, not all markets can be replicated with equal precision and ease. More efficient markets, characterized by fewer and larger-capitalization—and thus typically more liquid—securities, are easier to replicate. Less efficient areas, composed of more numerous, smaller and less liquid securities, are more challenging to replicate accurately.

Why does market efficiency matter? Often, passive funds do not hold every security in their underlying benchmark. Rather, they hold a representative subset of the benchmark’s securities, aiming to mirror its characteristics but not its outright composition. The more securities within a benchmark, the smaller fraction of the investment universe that subset is likely to be. And the less liquid these securities are, the greater the potential for variance between the fund and the benchmark in terms of portfolio characteristics and, ultimately, performance.

High yield fixed income is a prime example of an asset class that does not lend itself well to efficient replication. Fixed income indices tend to have more constituents than equity indices by orders of magnitude. The Barclays U.S. Corporate High Yield Index has almost 2,200 names, compared to around 500 for the S&P 500. An entity can issue numerous bonds of varied types, credit quality and maturities, but a corporation can issue only one (occasionally two) share class(es) of common stock. As a result, many individual bond issues may be liquidity-constrained—either too small or even unavailable for purchase. Further pressuring bond market liquidity in recent years has been the reduction of inventories held by traditional liquidity providers in response to rules and regulations introduced in the wake of the global financial crisis.

Another factor affecting replication accuracy is heterogeneity of underlying securities—the degree to which returns of

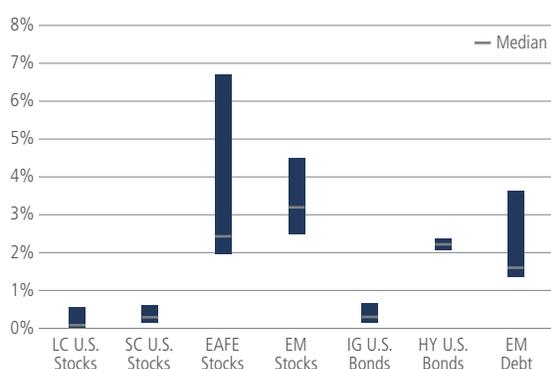
<sup>2</sup> Based on the 10 largest-AUM passive vehicles (index funds and ETFs) with at least one year of return data in each market segment, as identified by Morningstar (index funds) and ETFdb.com (ETFs). These vehicles represent a large portion of the AUM in the respective strategies. In order to have broad representation, each universe’s 10 vehicles have to include at least two ETFs and two index funds, unless two vehicles in a category are not available. For the most accurate comparison, we only included “core” strategies for each market segment (e.g., value-, growth- or dividend-oriented equity vehicles were excluded, as were fixed income vehicles focusing on specific credit or maturity sub-segments of their respective indices). Only the oldest share class of each index fund was included. In cases where one strategy has an index fund and an ETF, only the index fund was included, in order to avoid double-counting the same strategy. The decision to focus on just the largest vehicles was due to the concentrated nature of passive fund assets—the largest funds account for a significantly greater share of total strategy AUM in the passive space than is the case in the active space. Furthermore, scale and liquidity offer a significant competitive advantage in the passive space, favoring a concentrated investment landscape. On the other hand, performance is a key product differentiator in active management, and smaller funds can take market share from larger funds over time.

individual securities are driven by idiosyncratic versus common factors. The returns of an investment-grade bond benchmark, for example, may be easier to replicate than a high yield benchmark, despite the larger number of constituent securities. (The Barclays Aggregate U.S. investment grade index has around 9,800 constituents.) This is because the performance of individual investment-grade bonds is driven more by factors such as the securities' duration and sector (e.g., Treasuries, corporates, securitized) characteristics and less by idiosyncratic considerations than is the case for high yield.

The volatility of the dispersion between the returns of the passive product and the underlying index is called tracking error. Tracking errors for passive vehicles across a variety of asset classes are shown in Figure 3. (Note that these tracking errors are computed based on monthly returns, smoothing out day-to-day fluctuations; tracking errors based on daily returns would be higher.) As you can see, passive vehicles in a number of market segments have experienced annualized tracking errors in excess of 2%. Therefore, passive investors expecting near-perfect benchmark replication may be surprised that their chosen products exhibit tracking error levels typically associated with active funds.

**FIGURE 3: TRACKING ERROR CAN BE SIGNIFICANT IN SOME ASSET CLASSES**

5-Year Tracking Errors of Largest Passive Vehicles across Asset Classes



Source: FactSet, Bloomberg, Morningstar, ETFdb. 5-year tracking errors, calculated on monthly data through June 2016, computed against each product's benchmark. For a description of which index funds and ETFs were included in the calculation, please see footnote 2.

Investors looking for general exposure to a broad benchmark must also understand the specific index being replicated by a passive vehicle. In some cases, a passive product may choose to replicate a sub-segment of the standard index—constrained, for example, by float, minimum security size or credit quality. In other cases, a passive manager may create a proprietary custom index. This is not necessarily a poor decision on the part of the investment manager, but it does mean that further research is needed to understand

the construction of the index being tracked. The difference between the broad benchmark and the custom index introduces another source of tracking error. In fact, the tracking errors shown in Figure 3 would have been higher if, rather than comparing each fund to its own benchmark, all funds in a particular asset class had been compared to a single, commonly used benchmark for that asset class.

The difference in trading hours between the vehicle and the underlying assets, such as an ETF tracking securities based in other time zones, may introduce a further source of tracking error. The impact can be meaningful if a major news event happens between the end of the home-market and ETF-market trading days. For example, a July 2013 Bloomberg report<sup>3</sup> found that ETFs that tracked emerging market stocks were on average 31.6% more volatile than the benchmark in the 12 months leading up to the report's publication, and that this excess volatility tended to increase during major market downturns. It is easy to appreciate an ETF's ability to trade while the underlying markets cannot, and these price dispersions are often temporary and may not have much impact on long-term investors. However, investors who may be tempted to trade by and into market turmoil may suffer extra losses.

Other common sources of tracking error are discussed in the sidebar on the next page.

Tracking error may be a valuable tool in the hands of the right manager—after all, a portfolio can only outperform its benchmark if it deviates from it in some way. However, not all tracking error is equally beneficial. An active manager may be able to take advantage of tracking error, outperforming the benchmark over the long term by thoughtfully deviating from the index in terms of sector or geographic exposure, duration, credit quality and security selection. (Decisions to deviate from the index can also result in underperformance, making manager selection a critical piece of the portfolio construction process.) Passive investing, however, does not present the opportunity for meaningful outperformance in the long term, since it aims to mirror the benchmark's characteristics. Price deviations from the benchmark would be random. Any tracking error experienced by a passive vehicle, therefore, is likely to be symmetrical—episodes of outperformance would be offset by episodes of underperformance. And as illustrated in Figure 4, once trading costs and fees are factored in, passive vehicles are almost certain to underperform their benchmarks over the long run. For example, in high yield, the largest ETF, the iShares iBoxx \$ High Yield Corporate Bond ETF (HYG), underperformed its benchmark (the Markit iBoxx USD Liquid High Yield Index) by 46 basis points annualized over the past five years, while the second-largest, the SPDR Barclays

<sup>3</sup> Alexis Leondis and Christopher Condon, "ETF Simplicity Betrayed by Volatility in Market Selloff," Bloomberg, July 12, 2013.

## OTHER SOURCES OF TRACKING ERROR

**TRADING MECHANICS.** Index rebalancing assumes no impact on the prices of the underlying securities being traded. Trading by actual investment vehicles, however, may have an impact on pricing, especially if the transaction is large (if the vehicle is large) and the underlying security is small and less liquid. Even if the trading activity of the passive vehicle itself is not enough to move the market in the underlying security (as would be the case with large, highly liquid U.S. stocks), market prices move constantly. These moves during the time it takes to buy and sell the underlying securities within a vehicle can create tracking differences between the index and the vehicle.

**DISTRIBUTIONS.** Funds may receive interest or dividend distributions from underlying securities. Benchmarks assume real-time distribution; actual investment vehicles make periodic distributions. The period between income receipt and distribution will have a cash drag that adds to tracking error. Reinvesting these distributions also incurs transaction costs, as the fund is essentially buying more securities.

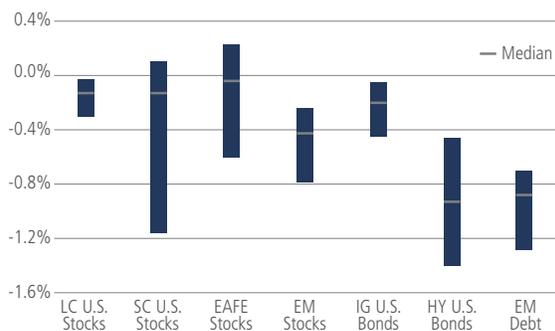
**SHORT SELLING.** Funds can lend their securities in short selling, which can generate additional income compared to the benchmark. This can boost returns, although in practice these proceeds are most often outweighed by the costs discussed in this paper.

**ROLL COSTS.** This pertains to ETFs that bet on movements in volatility, commodities or specific factors, sometimes with leverage, and use futures contracts to replicate movements in underlying security (spot) prices. In addition to the daily return mismatch between spot prices and futures prices, futures contracts are periodically rolled from one contract to the next as they approach their delivery date. Rolling a futures contract means that the current contract will be closed and the position reestablished using the next-term contract, which could be trading at a significantly different price. These roll costs can be quite steep. Levered ETFs, which typically use the same futures contracts but with magnified exposures as compared to their unlevered counterparts, magnify the impact of roll costs.

High Yield Bond ETF (JNK), underperformed its benchmark, the Barclays High Yield Very Liquid Index, by an annualized 1.40%. Compared to the Barclays U.S. High Yield Index, which many investors use to proxy their high yield exposure, HYG and JNK underperformed by an annualized 1.15% and 1.69%, respectively, over the last five years.<sup>4</sup>

### FIGURE 4: PASSIVE INVESTMENT VEHICLES HAVE TENDED TO UNDERPERFORM ON A NET BASIS

5-Year Annualized Excess Returns of Largest Passive Vehicles across Asset Classes



Source: FactSet, Bloomberg, Morningstar, ETFdb. 5-year annualized excess returns through June 2016, computed against each product's benchmark. For a description of which index funds and ETFs were included in the calculation, please see footnote 2.

### ACTIVE MANAGEMENT IMPACT: ONLY ACTIVE MANAGEMENT OFFERS POTENTIAL FOR ALPHA

The total benefit of a product—active or passive—is its net-of-fee alpha relative to the benchmark, and it is essential

to consider both components of that formula. It is therefore important to understand what underlies the fees charged by a specific fund. "Closet indexers" and/or funds incapable of generating outperformance over market cycles do not justify active-level fees. On the other hand, higher fees that are a byproduct of greater emphasis on research and sound portfolio management practices and that translate into actual opportunities for alpha should be rewarded, particularly when factoring in the impact of compounding alpha over time.

The outperformance potential of an active manager is partly a function of the efficiency of its market segment. The less efficient the market, the greater the potential performance dispersion among its constituents and the greater the impact of active management decisions. Market efficiency, in turn, is a function of the heterogeneity of the underlying securities and of the amount of research coverage the market segment receives.

The more varied the underlying securities, and the more the differences in their fundamentals drive returns, the greater the impact of security selection. In a theoretical, perfectly homogeneous market, all securities are driven solely by the market factor, with no idiosyncratic considerations. In such a market, security selection is an unrewarded task. On the other hand, in a market in which fundamentals matter and the dispersion in fundamentals among constituent companies is large, security selection would matter greatly.

<sup>4</sup> Source: Bloomberg, through June 2016.

By this measure, the small-cap equity market, for example, is more heterogeneous than the large-cap market. The average correlation of returns (a measure of the impact of market movements on individual stock returns) between the constituents of the Russell 2000 Index and the index itself in 2015 was 0.43, while the equivalent figure for the S&P 500 index was 0.54.<sup>5</sup> In other words, idiosyncratic considerations explained more than half of small-cap stock returns but less than half of large-cap stock returns. Even in the large-cap universe, however, common stock factors explained just over half the individual stock returns.

One of the reasons that many active equity managers have underperformed in the past few years has been a decrease in the differentiation among the performance of individual securities. This has been driven by a combination of the risk-on/risk-off environment of the post-crisis recovery, with macroeconomic and policy factors exerting significant influence on markets, and robust flows into passive vehicles, which, by virtue of tracking capitalization-weighted benchmarks and therefore investing in securities without regard to their relative attractiveness, have served to commoditize a diverse group of companies. (For a detailed discussion, please see our March 2015 publication, "Can Active Management Make a Comeback?").<sup>6</sup>

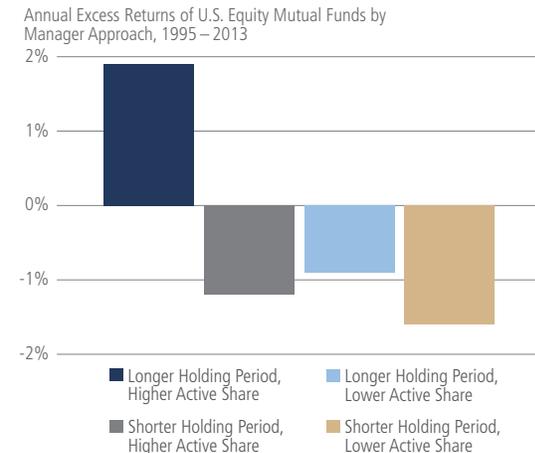
Another part of the heterogeneity metric is the breadth of decision variables inherent in selecting underlying securities in the market segment. The greater the number of decisions that can be made in constructing a portfolio, the more opportunities to tilt the portfolio away from the benchmark. While this does create new risk exposures, it also creates the potential to add value. For example, in multinational markets, an active manager has the ability to express views not only on specific companies and sectors but also on countries and currencies.

Research coverage is another aspect of market efficiency. The more research coverage a benchmark's constituents receive, the more likely it is that all pertinent information will be discovered, disseminated and reflected in security prices—the definition of efficient markets. Conversely, markets that are less followed by the analyst community or where coverage is spread thinly among individual names tend to be less efficient. Such markets provide more opportunities for active managers to uncover alpha.

Active management has come under criticism for the average manager's difficulty in generating alpha, even in less efficient markets. However, a focus on the "average" active manager fails to differentiate among individual manager investment processes, as well as between truly active managers and closet

indexers. Academic research, meanwhile, has shown that high-conviction active managers (as determined by their active share)<sup>7</sup> with a long-term focus and disciplined investment process have outperformed their benchmarks net of fees, while lower-conviction, shorter-term focused managers have underperformed (see Figure 5).

**FIGURE 5: A LONG-TERM ACTIVE APPROACH HAS DEMONSTRATED SUCCESS IN GENERATING ALPHA**



Source: Martijn Cremers and Ankur Pareek, 2014, "Patient Capital Outperformance: The Investment Skill of High Active Share Managers Who Trade Infrequently," Working Paper. Annualized returns relative to the fund's self-declared benchmark where available, otherwise benchmark that minimizes active share selected. U.S. equity mutual funds 1995–2013. Returns holdings-based, net of all fees (including 12b-1) but excluding sales charges. Active share calculated by summing the absolute difference in weight of each holding in the portfolio versus the index and dividing by 2.

### OTHER BENEFITS OF ACTIVE MANAGEMENT: RISK MITIGATION AND INDEX FACTOR EXPOSURE MODERATION

Even in the most efficient, cheapest and easiest-to-replicate market segments, active managers have the opportunity to mitigate portfolio risk and moderate portfolio biases and factor exposures in a way that index-tracking passive vehicles cannot. Investors must consider the biases and factor exposures inherent in the benchmarks that proxy their desired market segments and determine whether they wish their portfolio to maintain or moderate these exposures.

#### Mitigating Portfolio Risk

Passive vehicles are designed to have the same risk profile as their benchmarks. In contrast, active funds may be able to achieve lower volatility than the market while generating superior return/risk ratios. They can do so by focusing on lower-volatility securities within the given market and/or

<sup>5</sup> Source: Bloomberg. Correlations of weekly return data.

<sup>6</sup> [http://www.nb.com/\\_layouts/www/transfer.aspx?URL=/insights/can-active-management-make-a-comeback.aspx](http://www.nb.com/_layouts/www/transfer.aspx?URL=/insights/can-active-management-make-a-comeback.aspx)

<sup>7</sup> Active share, a term coined by Professors Martijn Cremers and Antti Petajisto in their 2006 paper, "How Active Is Your Fund Manager? A New Measure That Predicts Performance," is a measure of the percentage of holdings in a manager's portfolio that differ from the benchmark index.

**FIGURE 6: BUBBLES ARE INFREQUENT BUT COSTLY**

Crisis	Bubble Sector	Peak Date	Bubble Sector % of Index on Peak Date	Subsequent Sector Performance (Peak to Trough)
Dot-com Crash	IT	3/27/2000	34.5% of S&P 500	-82.4%
Global Financial Crisis	Financials	2/20/2007	36.5% of Russell 1000 Value	-80.1%
Oil Prices Plummet	Energy	6/23/2014	15.7% of Russell 1000 Value	-49.2%

Source: Bloomberg, Neuberger Berman.

by holding a fraction of their portfolio in cash and tactically adjusting it based on underlying market conditions. (This approach is equivalent to an investor delegating some allocation decisions to the manager, while passive investing entrusts the entire allocation decision to the individual investor.) An examination of the U.S. small-cap active manager universe, for instance, shows that, over the last 10 years, the least-volatile quintile of funds generated on average 17.1% annualized volatility relative to the Russell 2000's 19.8%, with a net return/risk ratio of 0.44 compared to the index's 0.34.<sup>8</sup>

One important aspect of risk in capitalization-weighted indices is momentum. Such indices are, by definition, momentum strategies—they over-emphasize winners from the recent past, which may have become overvalued, and under-emphasize securities that may have become undervalued. Once momentum inevitably reverses, the resulting correction may be significant. This reversal could be triggered by a return to a market environment in which fundamentals matter more—one in which macro factors would become less significant or the curtailing of cheap leverage would once again illuminate the difference between higher-quality companies (those generating strong cash flows and employing less debt in their capitalization structures) and lower-quality companies. Momentum could also reverse if flows into passive vehicles slow down (since passive strategies perpetuate the momentum dynamic by allocating to all companies in the tracked benchmark without regard to fundamentals).

Although bubbles and bursts may not be a regularly occurring phenomenon, their impact on a portfolio can be significant and long lasting. Figure 6 shows the effects of three major equity market bubbles since 2000—in Information Technology (1999–2000), Financials (2007–2008) and Energy (2014–2015).

An investor looking to switch from active to passive management must consider the cyclical nature of momentum in

their timing decision. Momentum-driven market environments tend to favor passive management, while momentum reversals tend to favor active management. Investment decisions, meanwhile, are often made with a backward-looking view, extrapolating recent history to the future. An investor tempted to switch based on performance in a momentum-driven market may make the switch at precisely the wrong time, just as momentum is about to reverse.

#### Moderating Undesirable Biases and Factor Exposures

Active managers have the flexibility to tilt their portfolios away from factors inherent in their benchmarks that they view as undesired. Passive vehicles, on the other hand, are subject to the same factor biases as their underlying indices. Currently embedded in small-cap U.S. stock passive exposure, for example, are negative factor tilts away from both earnings quality and management quality.<sup>9</sup> These tilts have been driven, at least in part, by the Federal Reserve's prolonged zero or near-zero interest rate policy, which has muted the impact of company fundamentals on stock performance and may have incentivized companies to go public too early. In fact, the share of unprofitable companies in the Russell 2000 Index is near historical highs (lower only than during the last two recessions),<sup>10</sup> and the percentage of loss-making IPOs resembles the 1999–2000 period.<sup>11</sup>

Embedded in emerging markets equity exposure are geographic bets that an investor may not currently find attractive. China, which is in the midst of a significant economic slowdown, accounts for 26% of the weight of the MSCI Emerging Markets Index (a figure that could go as high as 40% were the country's A-shares to be included in the index). Among the index's Latin American constituents, the largest weight (6.6%) is to Brazil, which is mired in economic and political crises. That's three times the combined weight of its more politically stable neighbors, Chile, Colombia and Peru, due in part to the size of Petrobras, Brazil's state-run oil company.<sup>12</sup>

<sup>8</sup> Source: Lipper. Includes all funds classified as U.S. Small-Cap Core with 10 years of data available over the years 2006–2015 with a tracking error to the Russell 2000 of 2.0% or more; primary share class used for each fund. Data is for the median manager among the lowest-volatility quintile of funds; compared to the Russell 2000 Index.

<sup>9</sup> Based on a Barra analysis of the Russell 2000 Index to the U.S. Total Equity Market as of March 31, 2016.

<sup>10</sup> Source: Furey Research Partners and FactSet. Data through March 31, 2016. Trailing Earnings non-GAAP data through December 31, 2015.

<sup>11</sup> Source: Jay R. Ritter (University of Florida), Furey Research Partners. Annual data through December 31, 2015.

<sup>12</sup> Source: MSCI factsheet, as of June 30, 2016; AGF Investments, as of March 31, 2016.

In fixed income, benchmarks created by aggregating publicly issued debt favor larger borrowers: companies, sovereign entities or municipalities that have issued the most debt become the biggest weights in the index. However, the more debt an entity issues, the greater the chance that it may become over-levered, and favoring these entities in a portfolio may be counterproductive.

A particularly stark example in high yield was the technology, telecom and media bubble of the late 1990s. At its peak, in June 2000, the telecom sector accounted for 41% of the Barclays High Yield Index. Over the subsequent six months, however, the bubble burst, default rates for the sector peaked at more than 40%,<sup>13</sup> led by the bankruptcy of WorldCom, and the sector lost 12%.

A more recent example involves the energy sector in the earlier part of the current decade. When oil prices were high, many energy companies borrowed heavily, undertaking capital-intensive projects whose viability depended largely on continued high oil prices. The sector's weight in the Barclays High Yield Index rose to over 15% in the summer of 2014.<sup>14</sup> But then oil prices began to fall, and many of these projects became unprofitable. The default rate in the energy and commodity sectors has reached 16% in this cycle so far, while the rest of the high yield universe (ex-commodities) has been experiencing default rates closer to 2%.<sup>15</sup>

Investment-grade bonds do not have the same default considerations, but they are also subject to issuer-related inefficiencies. For example, the current low interest rate environment means that broader fixed income indices (and the index funds and ETFs that seek to copy them) carry extremely low yields. Although active managers are also affected by this issue, they have the ability to exert more flexibility in terms of duration, credit selection and in some cases choice of market, to seek enhanced yield and total return potential for investors.

## CONCLUSION

When considering portfolio implementation options, a thorough understanding of the nature of passive products is no less important than a thorough understanding of active products. Not all passive vehicles are created equal, and not all market segments lend themselves equally well to efficient, accurate, low-cost replication. Furthermore, even in the easier-to-replicate market segments, the benefits of active management—namely, the ability to add alpha and mitigate market risk and undesired factor exposures—should be balanced against the cost difference between active and passive products to truly capture the total value each provides. In general, we believe the higher the value-add potential in a specific asset class or strategy, the greater the allocation of an investor's active risk budget it should receive, within the context of the broader portfolio construction and optimization process.

<sup>13</sup> Source: Matthew C. Klein, "Lessons from the TMT bust for today's high-yield investors?", FT Alphaville, October 16, 2016.

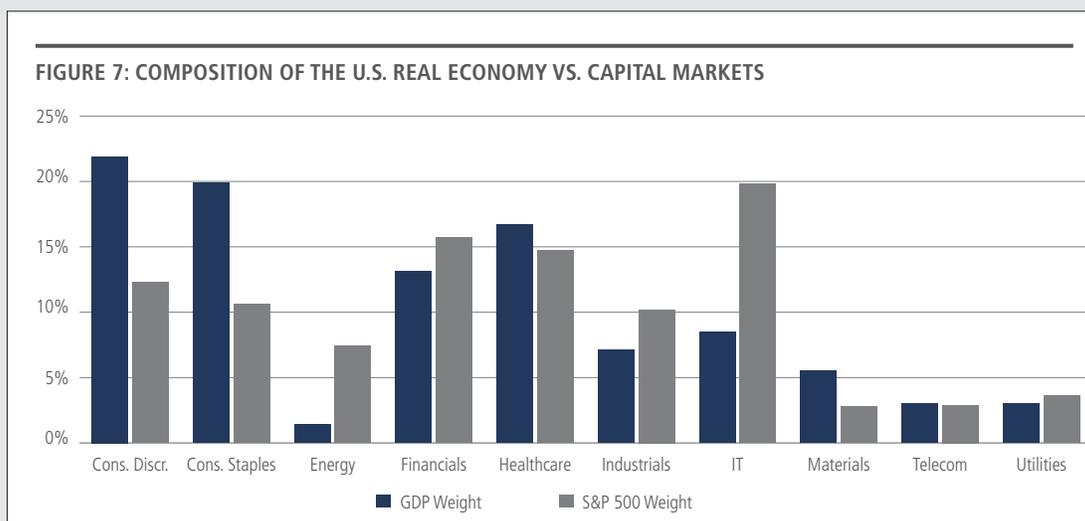
<sup>14</sup> Source: Barclays. Weight is for the Barclays U.S. High Yield Index.

<sup>15</sup> Source: Deutsche Bank.

## PASSIVE QUANDARY: EXPOSURE TO REAL ECONOMY VS. EXPOSURE TO CAPITAL MARKETS *VERSION* OF THE ECONOMY

Passive vehicles offer exposure to specific sectors of the capital markets. However, even if a passive vehicle closely replicates this *capital market* exposure, it may not offer the actual underlying *economic* exposure that the investor is ultimately seeking. The reason is that the underlying composition of a region's capital market may not mirror its underlying economy. For an investor looking for exposure to a specific economic theme, a similar level of due diligence is required when choosing a passive vehicle as when choosing an active one, in order to select the product that best expresses the underlying investment thesis.

As an example, consider the difference between the breakdown of U.S. GDP by sector to the breakdown of the U.S. capital markets by sector, as depicted in Figure 7. Precise categorization of GDP components by capital markets sector is challenging, so the display makes some simplifying assumptions and should be viewed as just directional. We note the under-representation of the consumer-oriented sectors in the capital markets compared to the real economy, and the over-representation of energy and information technology sectors. One effect of these differences is that stock markets may not always reflect the health of the underlying economy.



Source: Bureau of Economic Analysis, Standard & Poor's, Neuberger Berman. Capital markets weight is the GICS sector breakdown of the S&P 500 Index as of June 30, 2016; GDP data is based on the 2015 full-year GDP figures supplied by the BEA.

As another illustration, consider an investor seeking exposure to the emerging market consumer. A commonly used benchmark for emerging markets is the MSCI Emerging Markets Index. However, this index may offer less consumer exposure and more commodity exposure than the investor may realize. Over the past 10 years, the correlation of the MSCI EM Index to the Bloomberg Commodity Index has been 0.66.<sup>16</sup>

In fact, the weight of the two consumer sectors in this index—staples and discretionary—is smaller than the weight to three globally and commodity-oriented sectors: energy, materials and industrials. Of the 50 largest constituents in the index, accounting for 39% of the total index market capitalization, only 32 derive the majority of their revenues from emerging markets. Of those, six are in the energy and chemical businesses, which tend to be more sensitive to global, rather than local, economic forces. Of the rest, almost half are banks and insurance companies. Less than one-third of the overall 50 provide broader exposure to consumer spending patterns (companies in the consumer staples, media, e-commerce and property investment/finance sectors).<sup>17</sup>

Most emerging markets passive vehicles, therefore, may offer the investor more commodity exposure and less consumer exposure than the investor desires. An active manager, with the flexibility to deviate from the index, may employ a strategy that focuses explicitly on stocks that better reflect the emerging consumer theme.

Some passive vehicles take thematic bets, rather than offering core market segment exposure. For example, one ETF sponsor offers an emerging markets consumer ETF. However, that ETF is not dissimilar from actively managed products—it has 30 holdings and an expense ratio of 0.83% as of June 30, 2016—comparable with many actively managed mutual funds.

<sup>16</sup> Based on 10 years of monthly data through June 2016; MSCI Emerging Markets Index in U.S. dollars vs. the Bloomberg Commodity Index.

<sup>17</sup> Source: MSCI, Lipper.

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