ASSESSING ACTIVE VS. PASSIVE STRATEGIES IN THE CURRENT ENVIRONMENT

CONSIDERING THE PAST TO LOOK FORWARD

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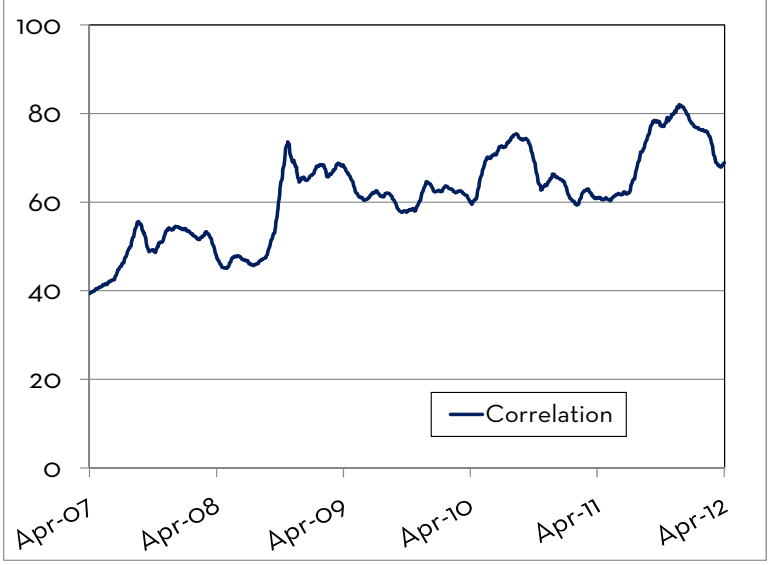
Introduction

The role of active investment strategies in long-term investment programs remains a hotly debated topic. The highly volatile markets of the last several years, often characterized as "risk on/risk off", have created unique headwinds for active managers. Beginning with the credit crisis in 2008 and followed by the Euro-Zone debt crisis, markets have been dominated by macro events with security price movements more influenced by policy-maker actions and news headlines than fundamentals. In this environment, correlations among securities have risen to record levels (as shown by the CBOE S&P Implied Correlation Index in Exhibit 1) and markets have not followed sustained trends. As a result, active strategies ranging from traditional long-only stock and bond managers to hedge funds have struggled to add value. In response, many practitioners have sought to mine historical data series to determine whether active management has any role in long-term investment programs.

Exhibit 1: Implied S & P 500 Stock Correlations



Source: CBOE

In this paper, we update our April 2010 piece addressing this topic, "Revisiting the Active Vs. Passive Decision – Moving Beyond the Data Driven Framework". Our analyses continue to suggest that backward-looking, data-driven attempts to resolve the argument can only go so far and in some cases are misleading. Instead, we reiterate that investors should consider some straightforward intuitive hypotheses for the assessment of active vs. passive strategies and then frame the decision on an asset-class by asset-class basis in the context of their overall investment program design. Most importantly, we recommend placing the active vs. passive decision in the context of optimal allocation of investors' scarce resources – capital, risk, fees, and time.

In laying out a basic framework for considering the active vs. passive decision, we outline the intuitive hypotheses for strategies by asset category. We take a look at historical data for traditional long-only strategies to test these hypotheses in general terms. Hedge funds are given special consideration, in light of their objective of delivering true "alpha", e.g. significant returns independent of market movements. We also highlight the example of fixed income after 2008, when retrospective analysis could have led investors to misidentify embedded market or sector exposure (beta) as active performance (alpha), and draw the wrong conclusion at the worst time. We conclude with a roadmap for assessing active vs. passive decisions across an investment program.

A Better Approach: Allocating Resources According to Impact

At NEPC, we believe there are opportunities to add value through active investment decision-making at each stage in the investment process. The three most commonly identified steps in this process include strategic asset allocation, dynamic portfolio allocation and structuring, and investment manager selection and monitoring. We believe that skilled investment managers can provide alpha - additional return in excess of the broad market - and that pursuit of this excess return can make a meaningful difference in an investment program over time.

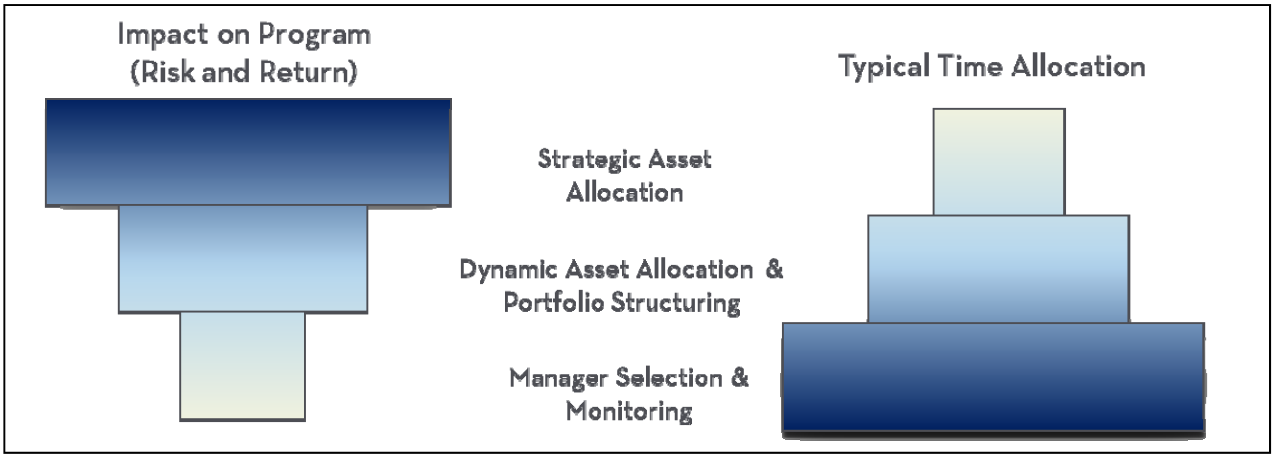
Our consulting process, however, focuses on developing client-driven investment solutions. As a result, we do not believe there is one "right" answer to the active vs. passive decision. We suggest that the answer to the decision depends on an assessment of: 1) the specific attributes of an investment program including governance structure and available resources; 2) individual asset classes; and, 3) the market environment.

The first step in this process is an assessment of an investor's appetite for taking risk relative to the least risky investment alternative. For a pension fund, this least risky position may be a bond portfolio matched to a liability stream. For an endowment or foundation this neutral-risk position may be a long-duration inflation-hedged instrument such as a Treasury Inflation Protected Security (TIPS). For other investors, the risk-free position may be cash. Most investors choose to take risk to seek a return above this risk-free rate, and as such, they must depart from their risk-free position. We believe the first and most important step in this process is to build a diversified portfolio of risky asset-classes. Over the long-term, the majority of the difference in return between the investment program's portfolio and the risk-free position will be driven by the strategic asset allocation (the so-called "beta" decision).

Once a strategic asset allocation is set, the investor can focus on additional decisions including dynamically adjusting exposures to take advantage of (or hedge against) macro-level opportunities (or risks), and whether to make opportunistic allocations in response to significant dislocations or imbalances in markets. (For more on this topic, please see the NEPC white paper "Investing in Volatile Times: A Dynamic Approach to Asset Allocation" available at www.nepc.com.) Finally, investment managers are selected to gain exposure to asset classes and, potentially, to seek excess return through active management. This series of decisions can be organized into a hierarchy according to impact on a total investment program as shown on the left side of Exhibit 2.

Many investors spend a great deal of time seeking, evaluating, and monitoring investment managers, while spending relatively little time and resource on the higher value-added decisions. As a result, we often see investors' time-commitment organized in a hierarchy more like that on the right side of the exhibit. Taken to an extreme, this can lead to an investment decision-making process where so much time is devoted to individual manager evaluation and monitoring that higher value-added decisions are neglected and overall program performance is affected. In extreme cases investors may get so bogged down in a cycle of hiring and firing traditional active managers, that they are not able to pursue attractive opportunities in less efficient (and, often, more

Exhibit 2: A Challenge of Investment Program Management



Source: NEPC

diversifying) strategies such as hedge funds, private equity, and real assets.

We recommend that investors align their decision-making process and, importantly, the allocation of their limited resources according to this value hierarchy.

In addressing the active vs. passive decision, we suggest a similar approach to resource allocation: that of focusing scarce time and resource on investment categories where the probabilities of active management success are highest and the rewards from active management are sufficient to warrant putting scarce resources at risk. For some investors, this may mean devoting time and effort to seeking active management in each component of their investment program. For others, this may mean passive investing in more efficient areas of the capital markets while committing active risk, active management fees, and oversight time to less efficient areas of the markets.

Active vs. Passive Assessment – Comparing Data Driven and Intuitive Approaches

There have been many analyses of active vs. passive strategies. These studies have typically evaluated databases of investment manager returns, comparing performance to market benchmarks to assess the probability and magnitude of out-or under-performance after consideration of fees and expenses.

We argue that all historical analyses—including the one we will present below—need to be taken with a grain (or more) of salt. Historical data-driven analyses of active vs. passive management are subject to shortcomings associated with universe selection, time-period (or end-point) sensitivity, and survivorship bias. These analyses tend to be constructed to prove the hypothesis of a particular interested party (whether a purveyor of active or passive management services, or an academic with a particular point of view). As a result, it can appear that either side of the argument can be proved depending on: 1) how the question is framed; 2) the data set chosen; and, 3) the time period used. We think that the effort to prove empirically, beyond a reasonable doubt, one side or the other of this argument is fruitless. Importantly, overly focusing on these types of analyses risks draining critical time and resources from more significant investment decisions.

We suggest instead that investors follow a series of basic hypotheses about active vs. passive management consistent with common understandings about relative market efficiency, and allocate their resources accordingly. Simply put, the intuitive hypotheses propose that active management has a higher probability of adding value and providing a larger margin of reward in investment categories characterized by less efficiency of information, more diverse and broader investment opportunity sets, fewer constraints, relatively less liquidity, and where there are not inexpensive index vehicles available to capture the underlying "beta" easily and efficiently. These hypotheses are summarized in Exhibit 3.

We also suggest (and the data appear to demonstrate) that there are trends in performance of active vs. passive management. This pattern is in-

Exhibit 3: Active vs. Passive — Intuitive Hypotheses

Characteristics of more efficient investment categories:	Characteristics of less efficient investment categories:
– Smaller, more homogeneous opportunity set – Well-researched – Highly liquid – Tightly constrained – Inexpensive index vehicles and derivatives readily available	– Larger, more heterogeneous opportunity set – Not well-researched – Poor/intermittent liquidity – Less constrained – Index vehicles and derivatives unavailable, expensive, and/or involve high tracking error
Examples: – U.S. Large Cap Stocks – U.S. Core Bonds (particularly Treasuries & Agencies)	**Examples:** – U.S. small company stocks – Non-US stocks, including Emerging Markets – High yield bonds/bank loans – Hedge funds – Private equity and real estate
Active management less likely to add value	*Active management more likely to add value*

Source: NEPC

dicative of consistent manager exposures representing embedded betas. These exposures can create the appearance that alpha is cyclical. This phenomenon can also lead to apparent performance persistence only to be followed by longer-term reversion of the trend. As an example, in a later section of this paper, we will consider the case of the recent performance of fixed income managers before, during, and after the Credit Crisis.

Testing the Intuitive Hypotheses

Despite having indicated that investors should not take data-driven historical analyses at face value, we will go ahead and perform one in order to test our hypotheses. To do so we will use the Independent Consultants Cooperative (ICC) universe of manager investment performance. This is one of the largest and most robust comparative universes of investment manager performance in the industry. At the end of 2011, it encompasses data from 939 investment programs, with 18,120 portfolios from 1,029 different investment managers representing a total of $2.285 trillion in assets. Performance is calculated by independent consultants directly from custody statements (as opposed to manager-reported results).

ACTIVE MANAGEMENT HAS A HIGHER PROBABILITY OF ADDING VALUE IN LESS EFFICIENT INVESTMENT CATEGORIES

In an attempt to minimize survivorship bias and end-point sensitivity bias, we performed two analyses. The first compares the median active manager to benchmark performance for rolling one, three, and five-year periods beginning as early as 1991. The second analysis ranks the performance of the benchmark in universes of active managers on a calendar year basis for the most recent twelve years. The ICC universe is calculated gross of fees, so in order to make an appropriate comparison we netted the average fee for a $25 million mandate in the eVestment Alliance database from the median manager performance (in the first analysis) or added the fee to the benchmark performance (in the second analysis). This assumption sets a high hurdle for active management, as the actual fees that investors pay would likely be lower than this level given that average institutional portfolio sizes are often greater than $25 million. Furthermore, the analyses assume no cost associated with the index, whereas investors would have to pay some level of expenses to gain such exposures.

The analyses are framed to limit survivorship bias by using time periods of one, three, and five years. Over one year horizons, only a small percentage of managers will leave a typical sample through termination. Over three year horizons, the number will also be relatively small. Over a five year time period few, but some, managers may be terminated (the typical manager tenure in institutional investment programs is seven-plus years). The analyses also encompass multiple market environments including the bull markets of the 1990s and mid-2000s, and the sell-offs of 2000 - 2002 and 2007 - 2008, thereby minimizing end-point sensitivity.

We evaluated nine investment categories and styles including U.S. large cap and small cap, core, growth and value stocks, international stocks, emerging market stocks, and fixed income. The results of the analyses are shown in Exhibits 6 - 23, at the end of this paper. An overview of the results by broad investment category follows.

U.S. Large Company Stocks

To begin, we review the performance of U.S. large cap core equity managers over rolling one, three, and five-year periods since 1991 (Exhibit 6). Over this time period the median large cap core manager has outperformed the S&P 500, net of fees, in 33 of 79 rolling one year periods (42% of the time), 35 of 71 rolling three year periods (49% of the time) and 39 of 63 five-year periods (62% of the time). The margin of outperformance has varied, with a period of sizeable underperformance in the late 1990s associated with the momentum-driven and strongly directional bull market of that period, followed by significant outperformance in the ensuing crash when holding any cash and avoiding certain sectors led to a rebound for active management. On average, and during more "normal" periods, the margin of outperformance, to the extent it was observed, was relatively modest. Considering the rank of the benchmark (Exhibit 7), the S&P 500 placed below median in six of the last twelve years. We repeat the study for large cap growth and value stocks in Exhibits 8 - 11 where the data demonstrate similar patterns.

In aggregate, these analyses make a tepid, but

modestly supportive case for active management in the U.S. large company segment of the market. There also appears to be some pattern to the relative performance of active vs. passive management. This indicates to us that there are common factors or betas (e.g. capitalization-bias, momentum, etc.) that lead to performance trends, and we observe that these trends tend to mean-revert. Significantly, in recent years, the performance of large cap active managers has been poorer than more broadly across the historical time period.

In summary, we agree with the intuitive hypothesis (and common assertion) that the US large capitalization segment of the global capital markets is relatively efficient. While we believe there are managers who can add value in this space, it is a lower probability game – especially given the constraints placed on traditional long-only investment managers – and the expected rewards are modest. If a plan sponsor chooses to index one component of their program (or use derivatives to gain the exposure synthetically and "port" another, higher-probability alpha exposure onto it), U.S. large cap stocks are a good candidate.

THE SUCCESS OF ACTIVE MANAGEMENT IS EPISODIC AND CHARACTERIZED BY TRENDS AND REVERSALS

U.S. Small Company Stocks

Over most time periods median US small company stock managers appear to have added value relative to benchmarks, as shown in Exhibits 12-17. This investment segment is more diverse than US large company stocks, with a larger universe of companies and fewer analysts following the companies. In addition, small cap stock benchmarks can be harder and more costly to replicate. This category, therefore, appears relatively inefficient and a good candidate for active management. There also appears to be strong trends to the outperformance or under-performance cycles. For example, in 2008, most small cap growth and value managers struggled to outperform the Russell 2000 benchmark (or the styled benchmarks), yet over longer time periods the median small cap manager has been able to provide value net of fees.

Non-U.S. Stocks

Median non-US stock managers have been able to demonstrate value-added over most time periods, as shown in Exhibits 18 and 19. During the 1990s, this was largely driven by the popping of the Japanese bubble and the primarily underweight position held in this market by most managers. More recently, managers have been able, on average, to outperform the most common benchmarks by a meaningful margin. We believe that the diversity of the non-U.S. equity markets and the wide array of tools available to managers for adding value (country and currency, sector, and stock decisions across a universe of 1000+ companies) provide a strong basis for active management success. This highlights a key element of seeking active management results: *The wider the universe of securities and the broader the number of decisions available to managers increases the probability of active management adding value.* Exposure to higher-performing (and out-of-benchmark) emerging markets stocks has contributed to this outperformance, but the median manager in this category also tends to outperform benchmarks with a portion of emerging markets such as the MSCI All Country World Index ex-US.

In the dedicated emerging markets equity category, the data (shown in Exhibits 20 and 21) present something of a conundrum. The shorter-term "batting average" of managers has not been high, especially in more recent years, although historically, and over five-year rolling periods, managers have shown an ability to add value versus the benchmark. The emerging markets are not viewed as highly efficient and gaining passive exposure is not cheap, although it can be done. This is an area for further research, as we are not ready to recommend passive allocations to emerging markets equities. We do observe that country allocation decisions tend to outweigh security selection decisions in these markets. As a result, consistent manager country biases relative to the index may lead to trends in relative performance, an issue to be discussed further in the review of fixed income, below.

Fixed Income

For periods ending in 2007 most fixed income managers outperformed the benchmark, providing relatively modest outperformance (see Exhibits 22 and 23). This pattern changed dramatically

in 2008, when the credit crisis caused historic spread-widening across virtually all non-Treasury sectors of the bond markets. The associated "flight to quality", accompanied by the Fed lowering short rates to stimulate the economy, drove a remarkable rally (and decline in yields) of Treasury securities. As most active fixed income managers are consistently overweight "spread sectors" and underweight Treasuries, this predictably led to underperformance. The magnitude of the underperformance, and the degree to which one year's results damaged long-term track records, however, was unprecedented.

This experience reversed itself in 2009 with an equally impressive rally in credit markets. We view the results of the analysis of fixed income managers as being a particularly illustrative example of the danger of mistaking embedded beta for alpha. We consider this in greater detail in a later section of this paper.

General Observations

The data, overall, appear consistent with the intuitive hypotheses: 1) U.S. large cap stock managers exhibit the lowest probability of active management outperformance while outperformance margins, on average, are relatively tight; 2) Active managers in U.S. small cap and non-U.S. stocks exhibit higher probability of outperformance and larger margins of outperformance; and 3) Fixed income managers demonstrated modest and fairly consistent outperformance until a big fall-off in 2008, and subsequent recovery in 2009.

Importantly, the data indicate that lower active management success rates in one-year periods do not preclude success over longer-term periods. While this may indicate some modest survivorship bias creeping into the data set, it may also indicate that consistent application of investment process can compound results favorably over longer periods – an incentive for investors to avoid judging managers over shorter time horizons.

Another observation from the analyses is that active management has trending characteristics. This can be the result of consistent factor-biases of active managers versus indexes. Said another way, the trending nature of active management success indicates that some alpha may actually be disguised beta. Exhibit 4 summarizes the rankings of benchmark performance over the period 2000 - 2011, with a color coded "heat map" indicating when active managers underperformed (red) and when they outperformed (green). This exhibit shows that, on average, active management in these categories has provided some value over respective benchmarks, while also highlighting the struggles of active managers in 2011. The exhibit also illustrates that success (or lack thereof) of active management is episodic and characterized by trends and reversals.

Finally, it is important to observe that these analyses cover a significant portion of the liquid global

Exhibit 4: Annual Index Rankings by Investment Category

Active Underperforms — Active Outperforms

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Large Cap Core	77	76	83	54	58	63	44	47	41	49	34	23
Large Cap Growth	94	77	73	44	86	77	31	57	39	33	47	17
Large Cap Value	77	80	57	52	50	69	12	57	34	81	35	38
Small Cap Core	100	100	91	24	71	77	40	61	57	59	40	65
Small Cap Growth	94	67	67	34	41	80	33	47	31	54	33	63
Small Cap Value	49	32	71	15	33	83	9	86	24	87	63	43
International Equity	63	73	62	33	39	57	46	55	52	53	66	43
Emerging Equity	39	27	49	53	59	45	34	33	44	32	47	43
Fixed Income	39	56	57	61	47	50	50	27	12	86	76	23
Average	70	65	68	41	54	67	33	52	37	59	49	40

Source: Independent Consultants Cooperative; NEPC
Please see Footnotes on ICC performance exhibits at end of paper.

market portfolio. The balance of the global market portfolio includes high yield bonds, bank loans, and emerging markets bonds. These categories tend to be hard to replicate, fairly inefficient, and generally pursued through active management. Illiquid components of the global investment opportunity set such as private equity and direct real estate and real assets are harder to access, and not subject to indexation. Strategies investing in these markets, therefore, need to be pursued with active managers. We consider hedge funds as a special investment category in the sidebar, "Hedge Funds—A Special Case".

Alpha as Disguised Beta — Fixed Income Managers in 2008 - 2009

An example of the cyclicality of active performance, and a short-coming of retrospective analysis, is illustrated by the active fixed income manager universe. As described above, for the periods ending 2007, the median core fixed income manager provided a moderate probability and modest levels of excess returns. This changed dramatically in 2008 when the credit crisis led to unprecedented spread widening of virtually all non-Treasury securities and corresponding negative absolute and relative performance. The majority of active fixed income managers were overweight these spread sectors, many significantly so. This caused not just the median manager to under-perform by a wide margin in 2008 (Exhibits 22 and 23), but also drove most managers to under-perform the benchmark on a trailing three-year and five-year trailing basis. A histogram of active manager excess returns in 2008 from eVestment Alliance (Exhibit 24), as reported by investment managers, shows the magnitude of the "tail" of severe underperformance during 2008. Over this period, 72% of managers trailed the benchmark.

As a result, an historical analysis of fixed income manager performance at the end of 2008 would have revealed a very damaging case for active management. So what are we to make of this? If the vast majority of managers under-perform — and by a significant margin—then it appears obvious that fixed income benchmarks must represent the most efficient way to gain exposure to these markets and plan sponsors would be well-advised to index their bond portfolios.

A common-sense assessment of the fixed income markets and benchmarks, however, highlights the

Hedge Funds—A Special Case

Hedge funds are a unique investment category for consideration in the active vs. passive debate. At NEPC, we do not consider hedge funds an asset class, but rather a way to structure and package investment strategies. On a total return basis, despite experiencing surprisingly negative returns in 2008 and 2011, as a category hedge funds have provided positive absolute and risk-adjusted returns over most multi-year periods [1]. We acknowledge, however, that while many view hedge funds as providers of pure "alpha" or active returns, in reality hedge fund results can be broken down into a combination of "beta" , or results from market exposures, and a residual return representing manager skill. To the extent that hedge funds add value above any embedded market exposures, they serve as evidence of the ability of active managers to add value.

Two recent studies have explored the performance of hedge funds, attributing results, net of fees, to market movements (or beta) and a residual (manager skill or alpha). Ibbotson, et al, evaluated data over the 1995-2009 period and identified manager alpha of 3.00% per year [2]. Over the time period 1994-2011, The Centre For Hedge Fund Research, London, identified annual manager alpha of 4.19% [3]. Although some hedge fund investors may be disappointed by the magnitude of the alpha that these studies identify, we think that they represent meaningful evidence that alpha exists, particularly in less constrained investment mandates, for those able to allocate the time and resources to pursue it.

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[1] As discussed in our white paper, *Hedge Funds, Broken or Damaged?* available at www.nepc.com.

[2] Ibbotson, Roger G., Chen, Peng, and Zhu, Kevin, "The ABCs of Hedge Funds: Alphas, Betas, and Costs", *Financial Analysts Journal,* January/February 2011.

[3] Centre for Hedge Fund Research, "The Value of the Hedge Fund Industry to Investors, Markets, and the Broader Economy", Imperial College, London, 2012.

potential problems with this argument. The most common broad US fixed income benchmark, the Barclays Capital Aggregate Bond Index (the "Aggregate") is a capitalization-weighted index comprised of an extremely broad sample of investment grade dollar-denominated bond issues across Treasury, agency, mortgage-backed, asset-backed, and corporate sectors. As of December 31, 2008, most market observers agreed that Treasury bonds were at a secular extreme in over-valuation, just as most spread sectors were significantly under-valued relative to historical levels. Furthermore, the implications of U.S. monetary and fiscal authorities' policy responses to the credit crisis included a significant expansion of the national debt in order to finance an array of stimulus programs. As a result, the government increased the issuance of Treasury bonds, notes, and bills. Likely outcomes of this activity included: 1) Treasuries increasing as a percentage of the benchmark; and 2) Treasury yields rising in order to attract buyers of the greatly increased issuance. Therefore, moving from an actively managed portfolio to an indexed strategy at the end of 2008 would have entailed selling corporate bonds and other spread sectors and buying Treasuries—a significant reallocation from undervalued to overvalued sectors.

Of course, most investors and investment managers did not make a wholesale move to indexed fixed income strategies, and Exhibit 25 shows the subsequent results. Again using the eVestment Alliance manager-reported returns for 2009, 80% of active fixed income managers outperformed the benchmark, most by a wide margin.

This example illustrates how an embedded beta – consistent overweight to higher-yielding spread sectors relative to the benchmark – masqueraded as alpha for years of modestly positive performance. In 2008, this bet relative to the benchmark led to disastrously negative results, followed in 2009 by a rebound that was nearly as dramatic. This experience also highlights how the active vs. passive decision should be evaluated not purely through a retrospective data-driven process, but must be considered in the overall context of underlying manager exposures and market dynamics.

As an aside, we suggest that the 2008 - 2009 fixed income results highlight the shortcomings of the BarCap Aggregate index as a benchmark for the fixed income portion of a portfolio of risky assets. The Aggregate represents a combination of interest rate exposure, corporate credit, and other potential "betas" including convexity and

Exhibit 5: Active vs. Passive – A Road Map by Asset Category

Asset Class	Market Efficiency	Diversity of Opportunity Set	Active Constraints	Excess Return Expectation	Ease of Indexing	Comments/Recommendation
US Large Cap Stocks	High	Low	High	Low	High	Most obvious choice for indexing (and /or portable alpha)
US Small Cap Stocks	Moderate	Moderate	Moderate	Moderate	Moderate	In general seek active; can index core exposure
Non-US Developed Market Stocks	Moderate	Moderate	High	Moderate	Moderate	In general seek active; can index core exposure
Emerging Market Stocks	Moderate	Moderate	Moderate	Moderate	Moderate	In general seek active; can index core exposure
Core Bonds (Gov't/Credit)	High/Moderate	Low/Moderate	High	Low / Moderate	Moderate	Evaluate index components; potentially seek active in less efficient sectors
Emerging Market Bonds	Moderate	Moderate	Moderate	Moderate	Low	Seek active
High Yield/Bank Loans	Low	High	Moderate	Moderate	Low	Seek active
Hedge Funds	Low	High	Low	High	Low	Hedge funds are active investment strategies
Private Equity	Low	High	Low	High	N/A	Must use active
Real Estate	Low	High	Low	High	N/A	Must use active

Source: NEPC

liquidity. We recommend that investors consider dis-aggregating (as it were) their fixed income exposures into representative factors and build their portfolio according to the bond asset allocation process we described in our recent white paper, "The Case for Dis-Aggregating Core Fixed Income", available at www.nepc.com.

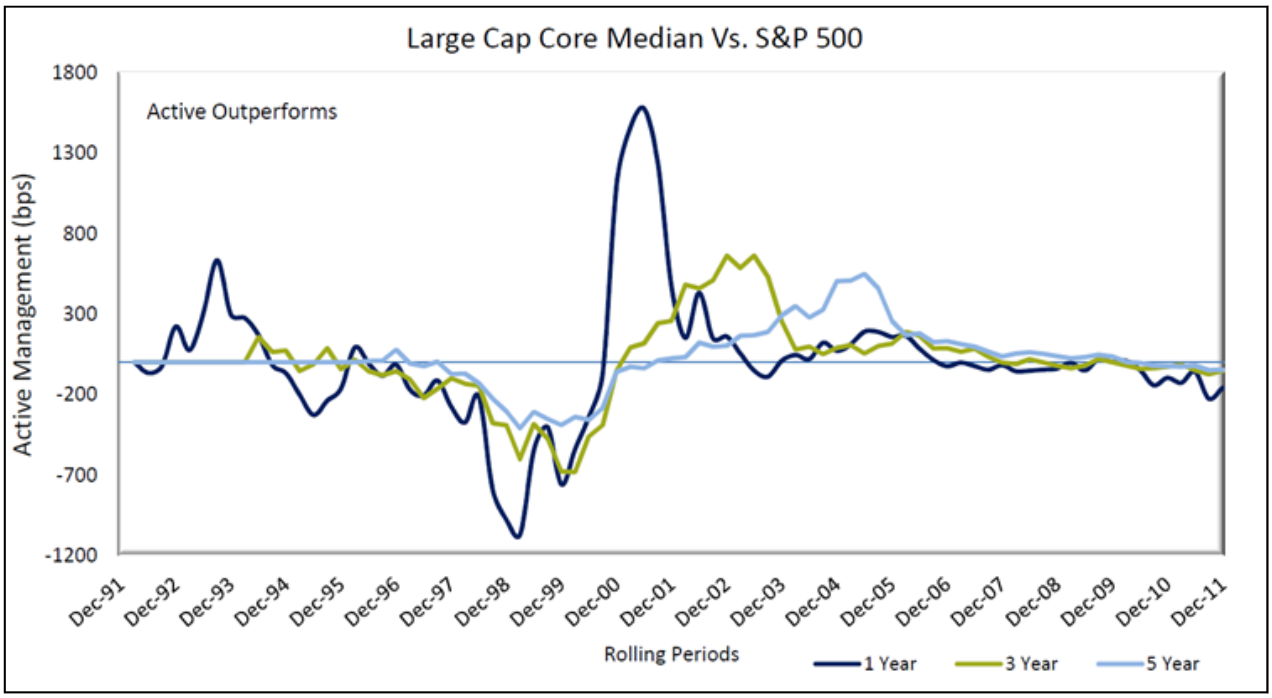
Conclusion — A Roadmap for Investors

As we work with investors to assess the active vs. passive decision for their investment programs, we apply the basic intuitive hypotheses described above to each of the investment categories in their program. This can provide a roadmap for how best to apply scarce resources to build and oversee an investment program, and is summarized in Exhibit 5. We include recommendations and comments for investment categories ranging from traditional to alternatives. How each investor chooses to apply this roadmap depends on: 1) their governance structure and ability to apply limited resources of capital, risk budget, fees, and time to seeking active strategies; 2) the characteristics of individual asset classes; and, 3) the market environment.

We agree with, and the data appear to support, the generalized hypotheses that active management is more likely to add value in less efficient and less liquid markets, and that exposures to more efficient areas of the market may be better suited for passive management or financially-engineered exposures such as portable alpha. Finally, the cyclicality of active vs. passive management reminds us that oversight of investment programs is a dynamic process involving assessments that transcend narrow data-driven historic analyses. We believe investors need to apply patience to the pursuit of active strategies when they incorporate them into their programs. As active managers have struggled in recent years due to the "risk on/risk off" nature of markets, it is likely that the cycle will turn and active management will be rewarded once again. We also observe that the alphas of different active strategies often are relatively uncorrelated, indicating that a diversified portfolio of alpha sources can provide higher return per unit of active risk taken than individual sources of alpha. (For more on this topic, please see NEPC's white paper "Applying a Risk Budgeting Approach to Active Portfolio Construction" available at www.nepc.com.)

As markets become increasingly complex, placing growing demands on investor's limited resources, it is critical to ensure alignment of those resources with the decisions that will have the greatest impact on overall investment outcomes. Finally, in the current environment of low expected returns for the major investment categories, for those investors with appropriate resources and governance structure. We believe that active management can represent an important source of additional returns for long-term investment programs.

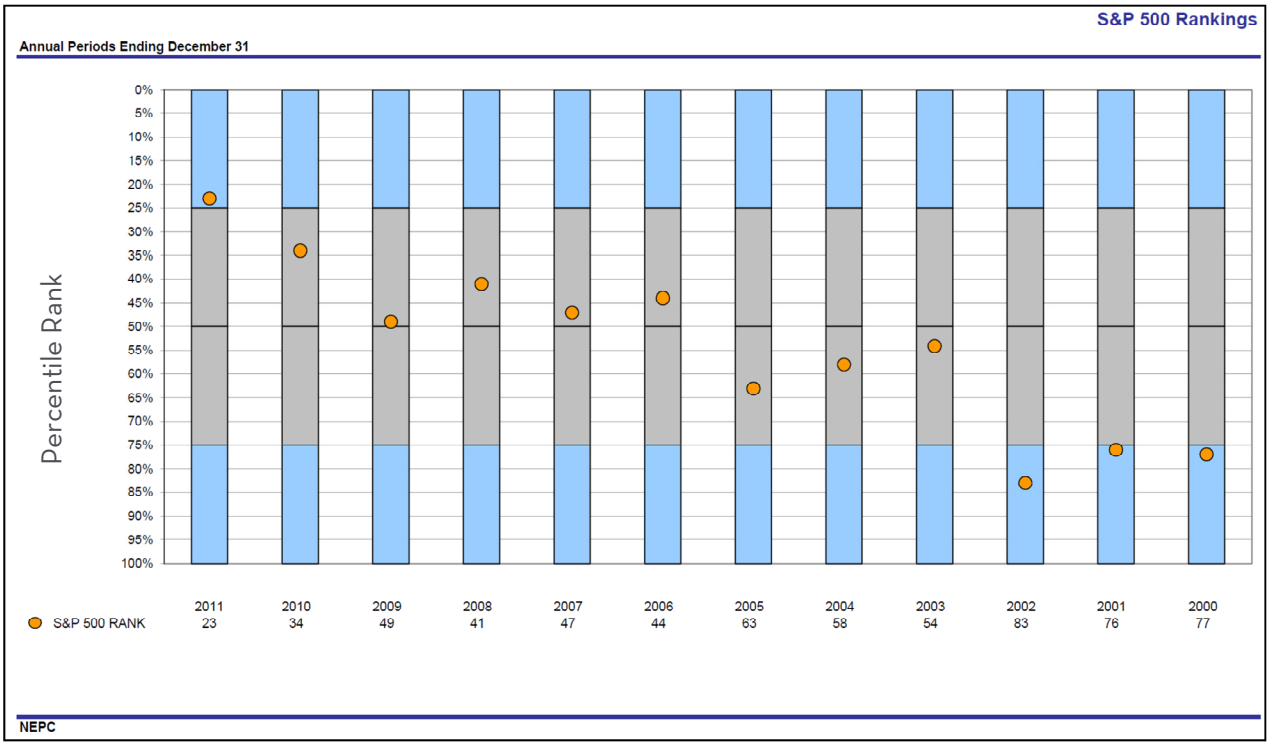
Exhibit 6: U.S. Large Cap Core Equity – Rolling Periods



The median large cap core equity manager has outperformed the S&P 500, net of fees·, in:

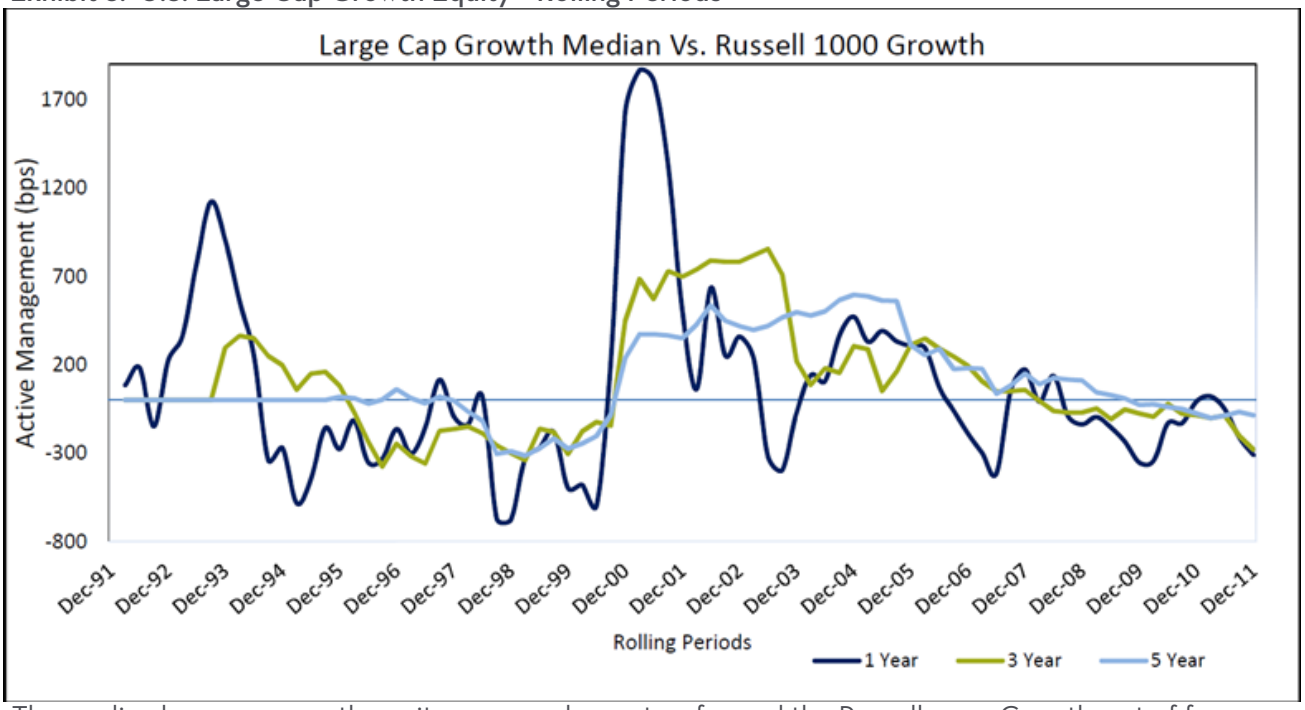
- 33 of 79 rolling one-year periods (or, 42% of the time)
- 35 of 71 rolling three-year periods (or, 49% of the time)
- 39 of 63 rolling five-year periods (or, 62% of the time)

Exhibit 7: U.S. Large Cap Core Equity – Benchmark Rank



The S&P 500 ranked below median 6 out of the last 12 years

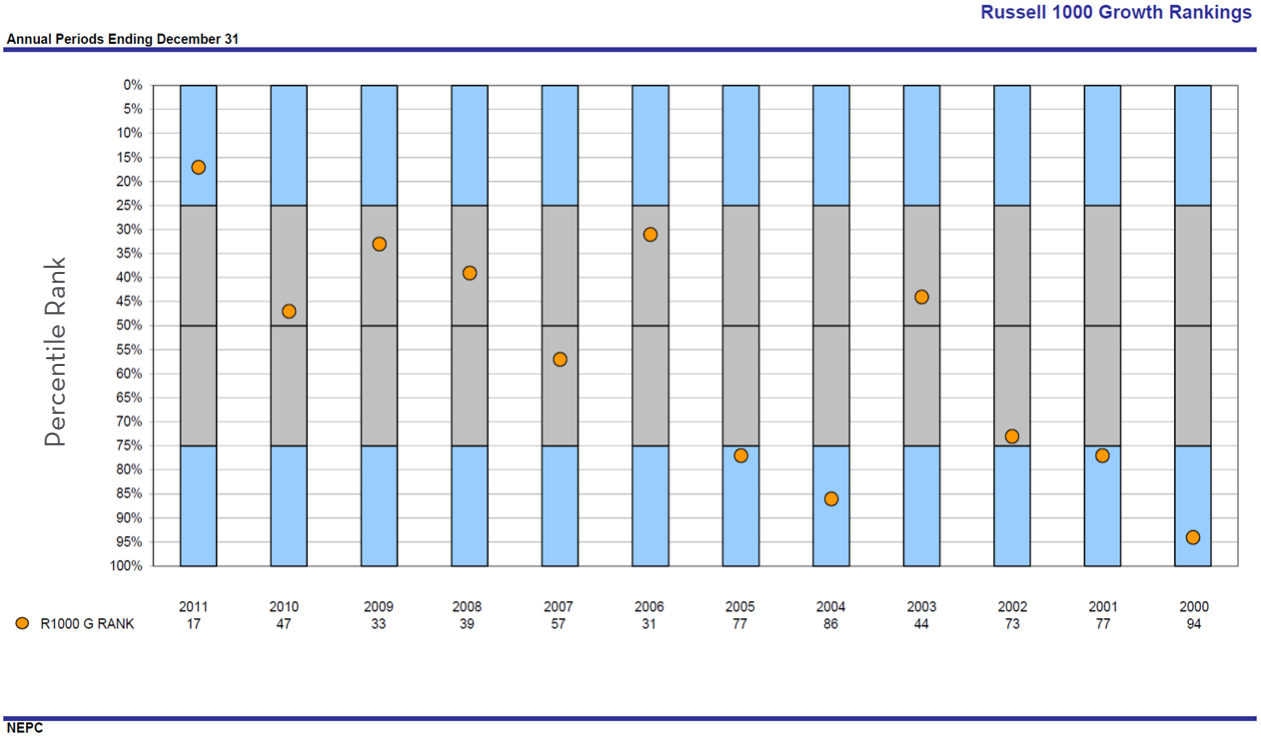
Exhibit 8: U.S. Large Cap Growth Equity – Rolling Periods



The median large cap growth equity manager has outperformed the Russell 1000 Growth, net of fees·, in:

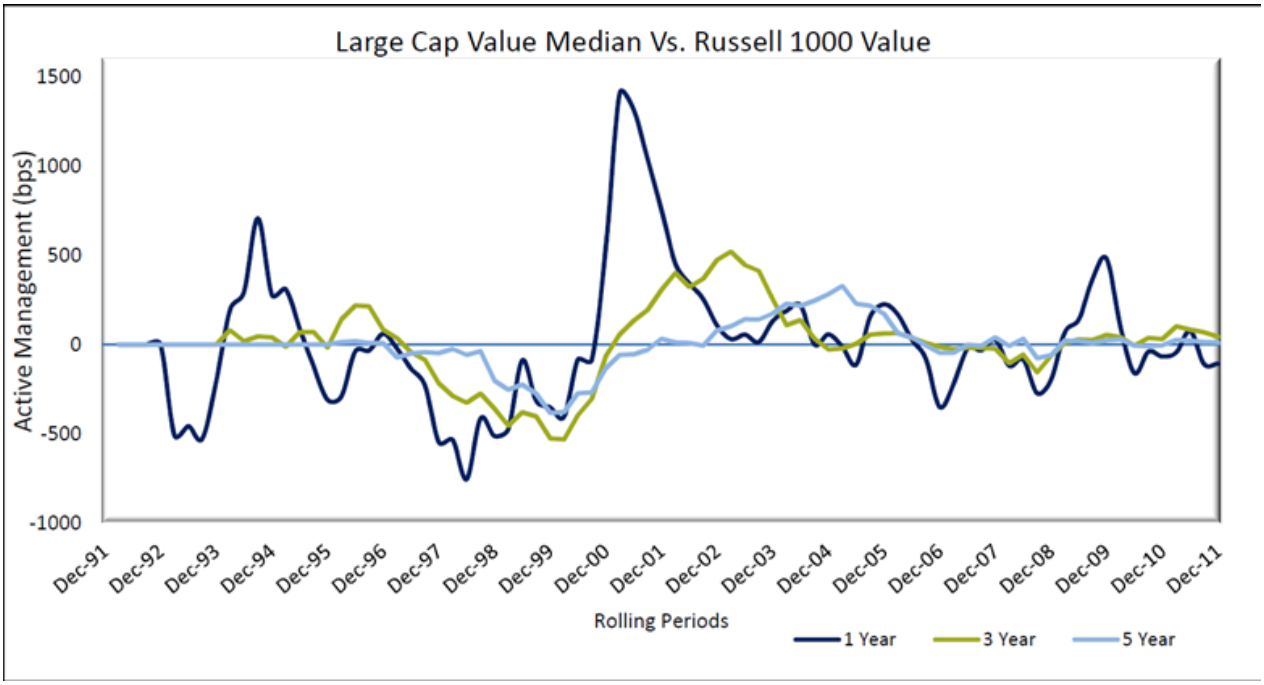
- 36 of 80 rolling one-year periods (or, 43% of the time)
- 38 of 73 rolling three-year periods (or, 52% of the time)
- 42 of 65 rolling five-year periods (or, 65% of the time)

Exhibit 9: U.S. Large Cap Growth Equity – Benchmark Rank



The Russell 1000 Growth ranked below median 6 out of the last 12 years

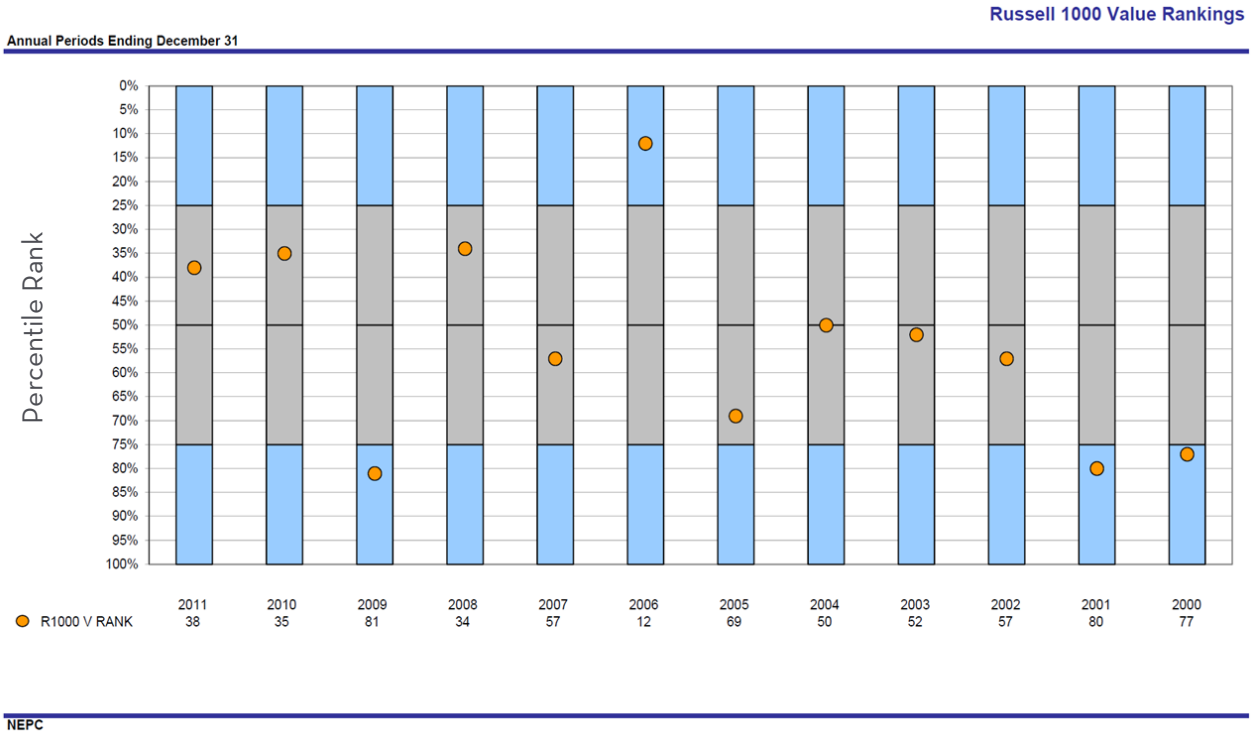
Exhibit 10: U.S. Large Cap Value Equity – Rolling Periods



The median large cap value equity manager has outperformed the Russell 1000 Value, net of fees·, in:

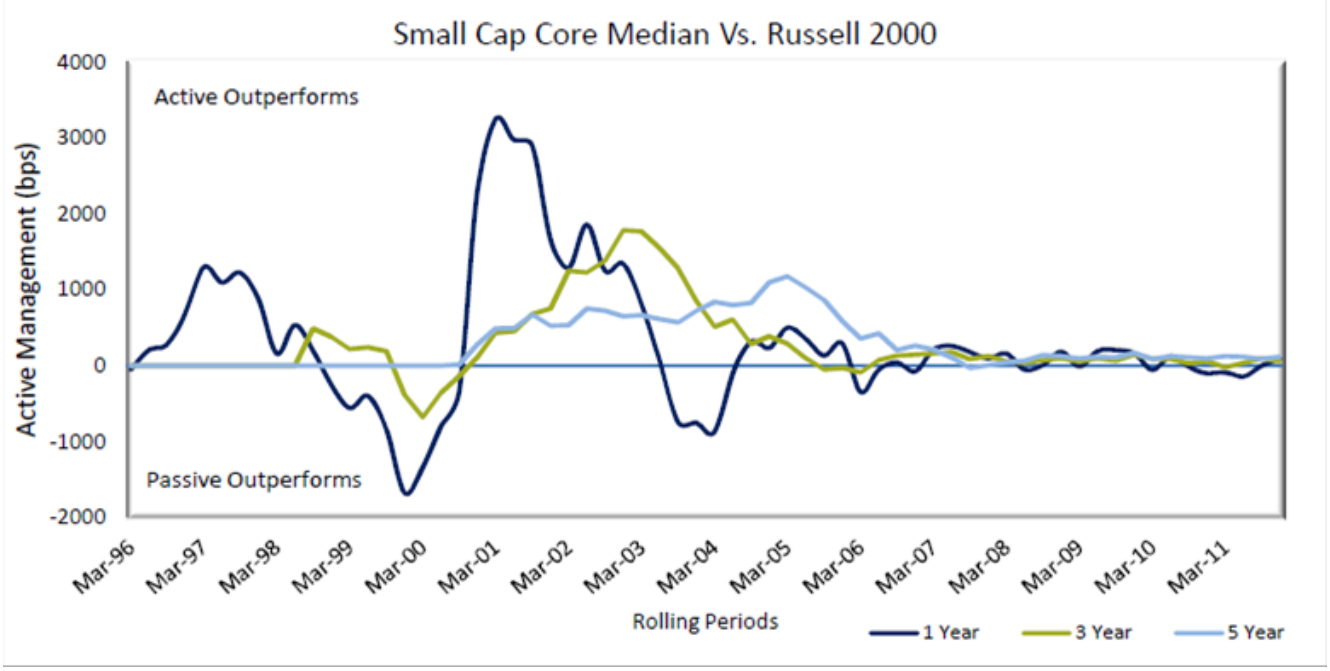
- 34 of 76 rolling one-year periods (or, 45% of the time)
- 43 of 72 rolling three-year periods (or, 60% of the time)
- 33 of 64 rolling five-year periods (or, 52% of the time)

Exhibit 11: U.S. Large Cap Value Equity – Benchmark Rank



The Russell 1000 Value ranked at or below median 8 out of the last 12 years

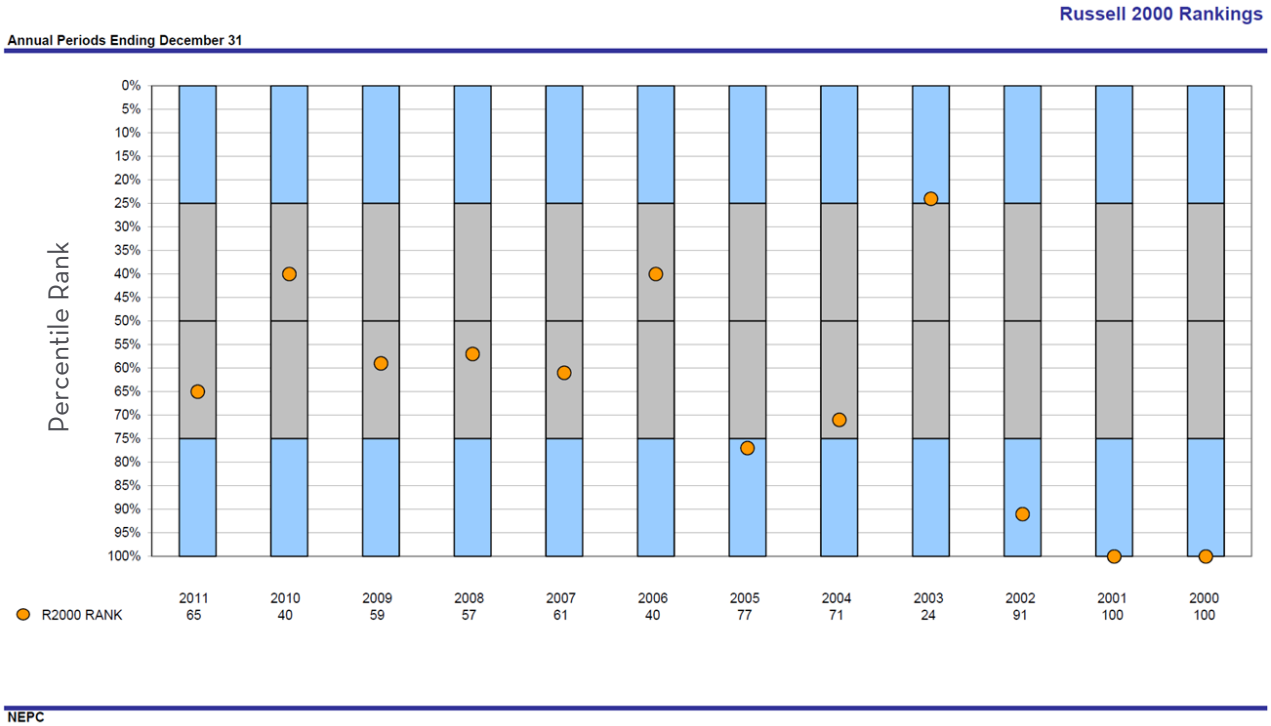
Exhibit 12: U.S. Small Cap Core Equity – Rolling Periods



The median small cap core equity manager has outperformed the Russell 2000, net of fees·, in:

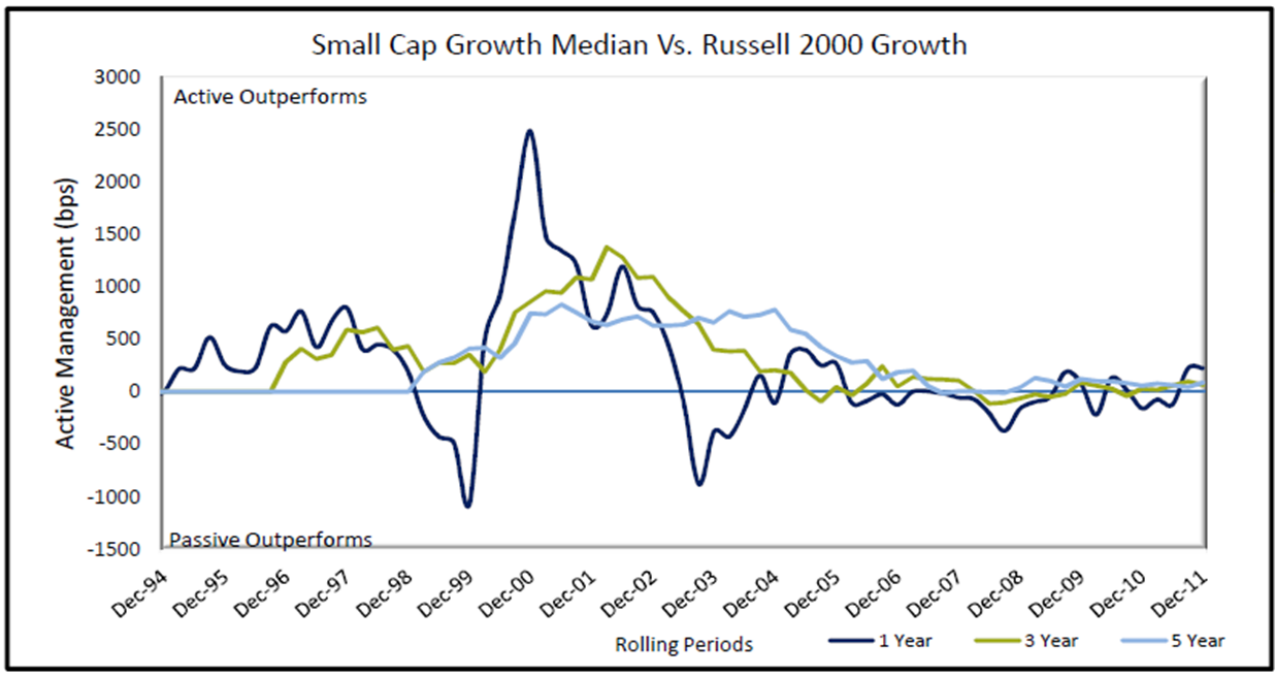
- 41 of 64 rolling one-year periods (or, 64% of the time)
- 46 of 54 rolling three-year periods (or, 85% of the time)
- 45 of 46 rolling five-year periods (or, 98% of the time)

Exhibit 13: U.S. Small Cap Core Equity – Benchmark Rank



The Russell 2000 ranked below median 9 out of the last 12 years

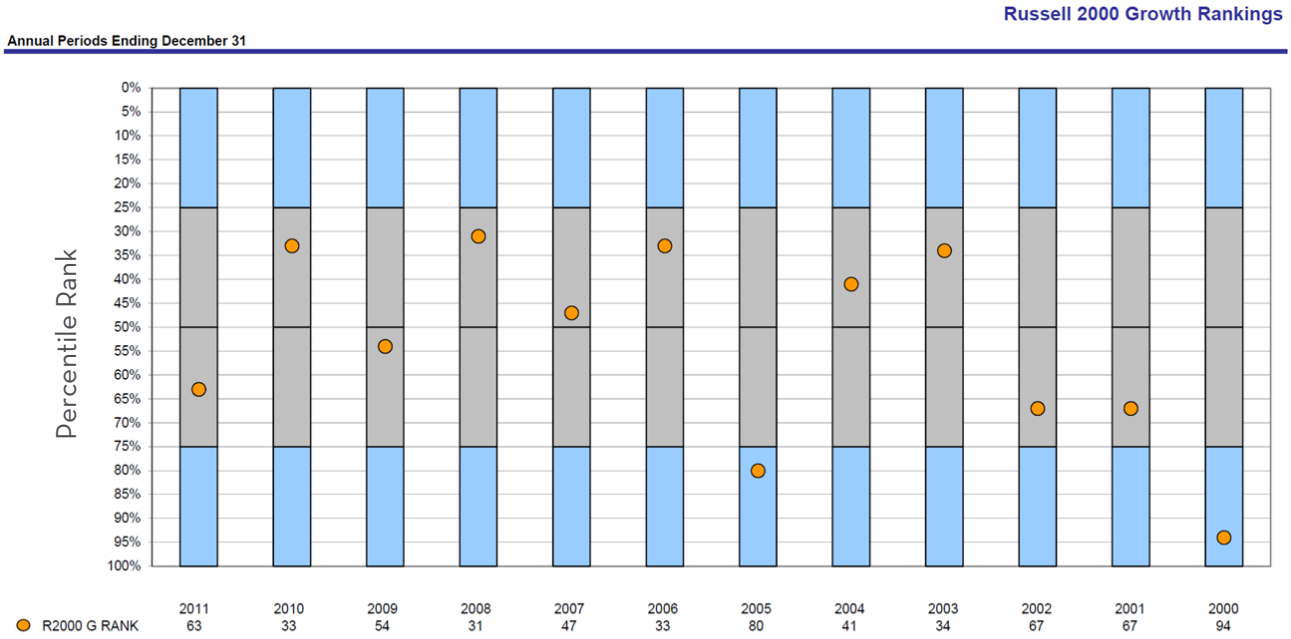
Exhibit 14: U.S. Small Cap Growth Equity – Rolling Periods



The median small cap growth equity manager has outperformed the Russell 2000 Growth, net of fees·, in:

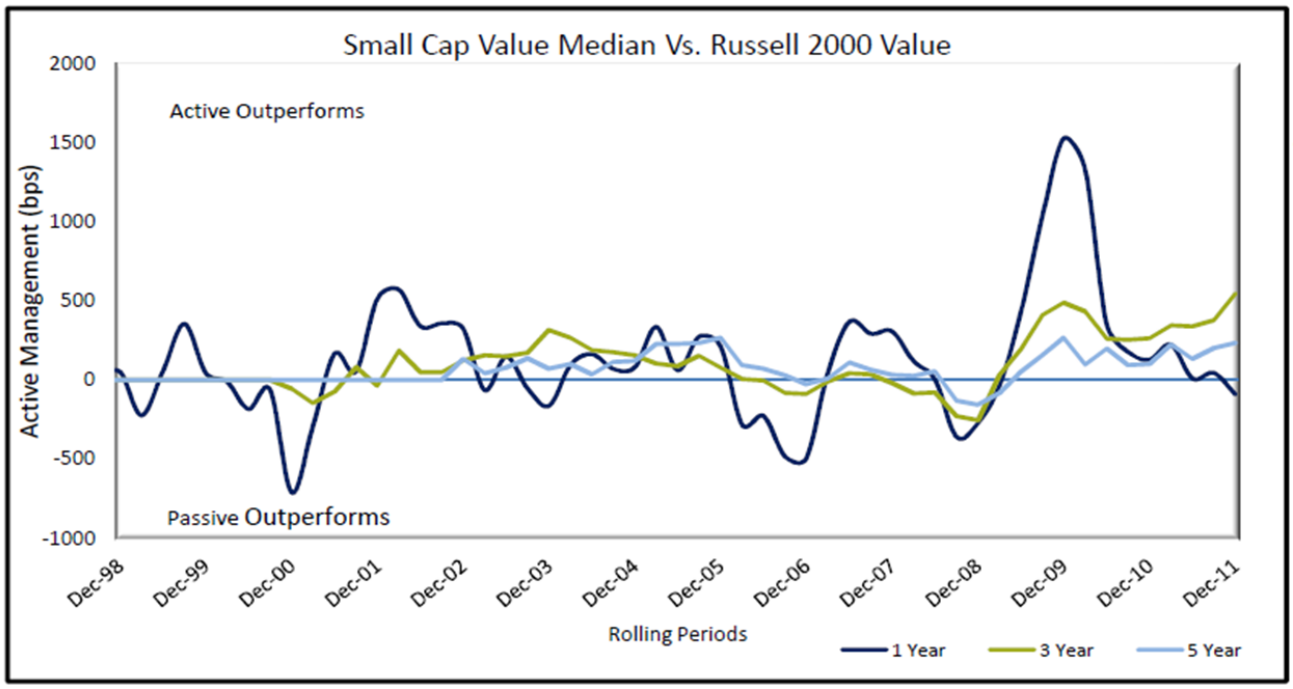
- 43 of 69 rolling one-year periods (or, 62% of the time)
- 52 of 61 rolling three-year periods (or, 85% of the time)
- 49 of 52 rolling five-year periods (or, 94% of the time)

Exhibit 15: U.S. Small Cap Growth Equity – Benchmark Rank



The Russell 2000 Growth ranked below median 6 out of the last 12 years

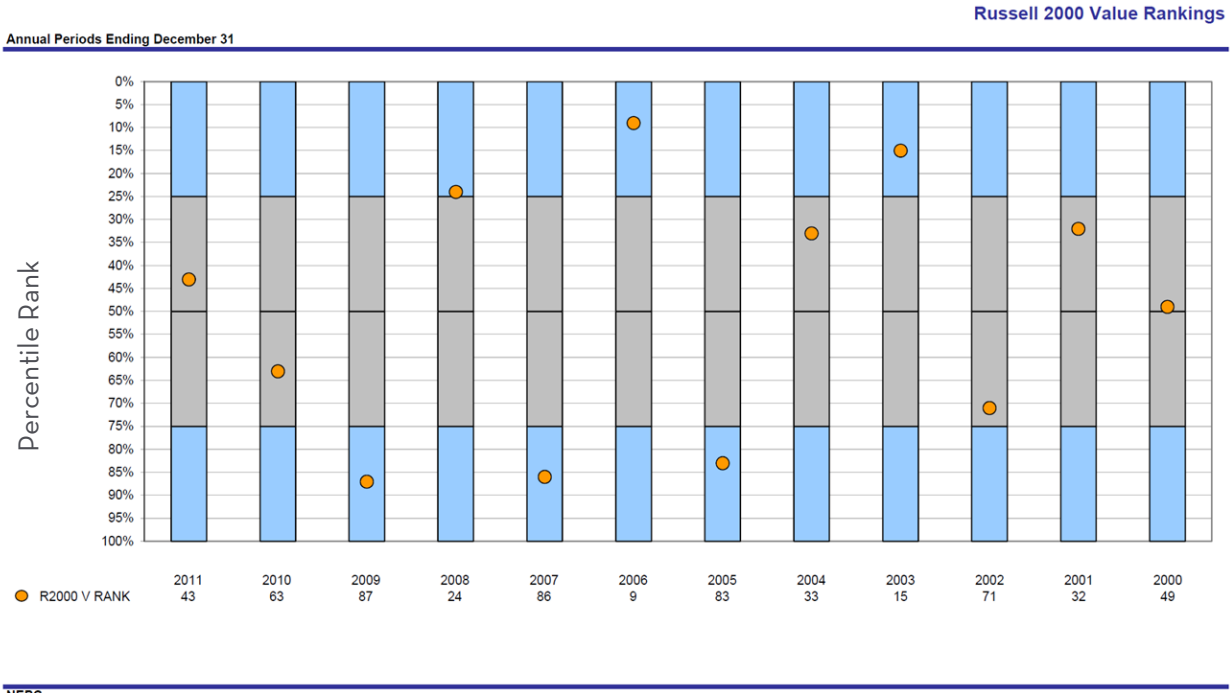
Exhibit 16: U.S. Small Cap Value Equity – Rolling Periods



The median small cap value equity manager has outperformed the Russell 2000 Value, net of fees·, in:

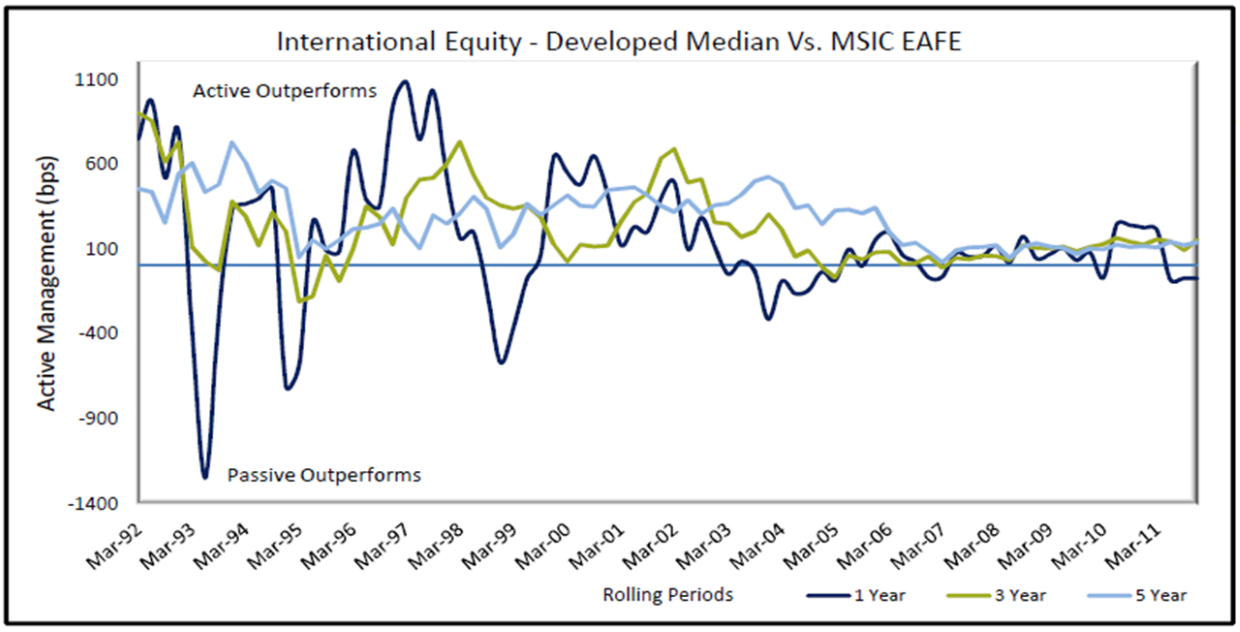
- 36 of 53 rolling one-year periods (or, 68% of the time)
- 32 of 45 rolling three-year periods (or, 71% of the time)
- 33 of 37 rolling five-year periods (or, 89% of the time)

Exhibit 17: U.S. Small Cap Value Equity – Benchmark Rank



The Russell 2000 Value ranked below median 5 out of the last 12 years

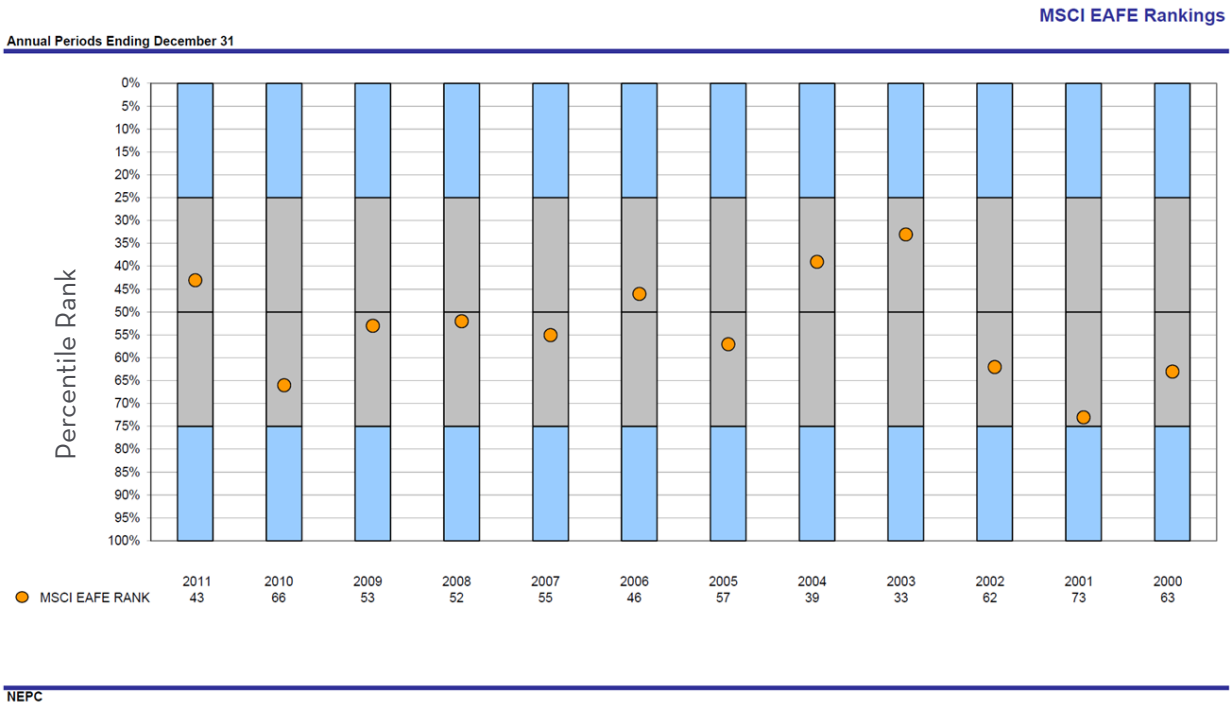
Exhibit 18: International Equity – Rolling Periods



The median international equity developed manager has outperformed the MSCI EAFE, net of fees·, in:

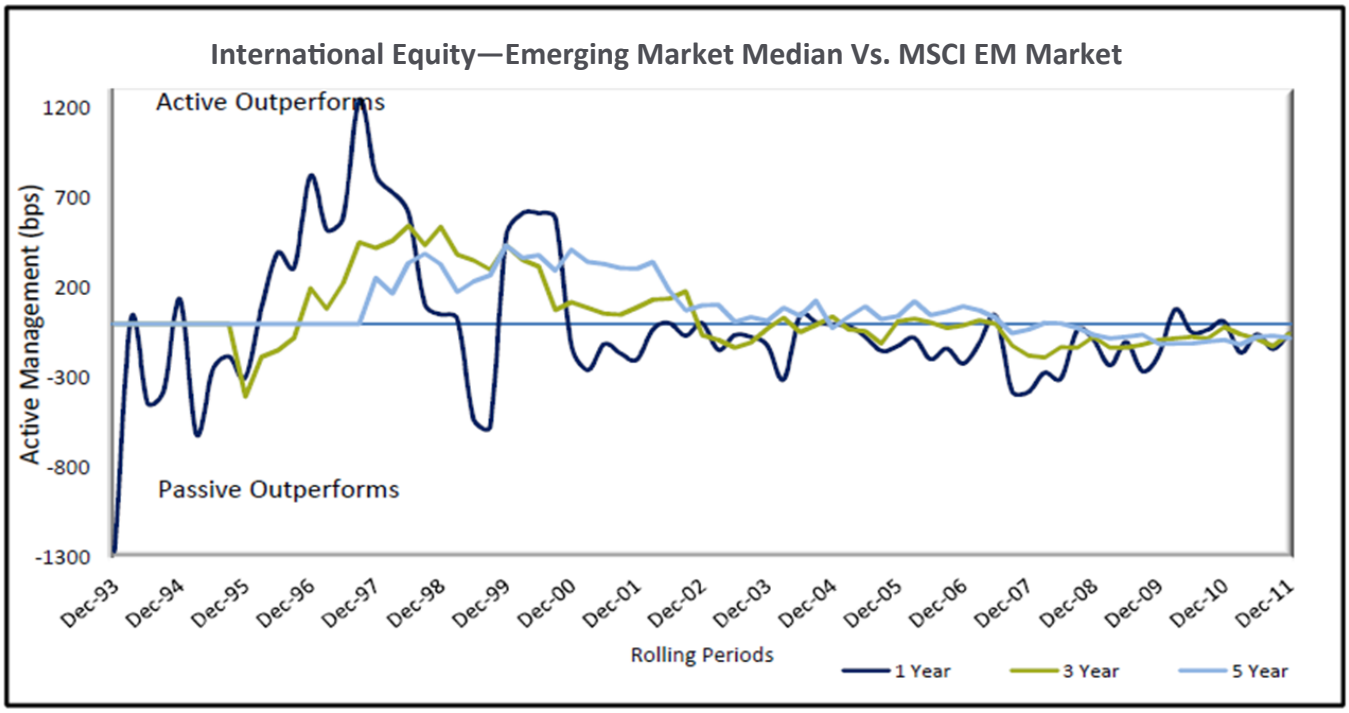
- 56 of 80 rolling one-year periods (or, 70% of the time)
- 73 of 80 rolling three-year periods (or, 91% of the time)
- 80 of 80 rolling five-year periods (or, 100% of the time)

Exhibit 19: International Equity – Benchmark Rank



MSCI EAFE ranked below median 8 out of the last 12 years

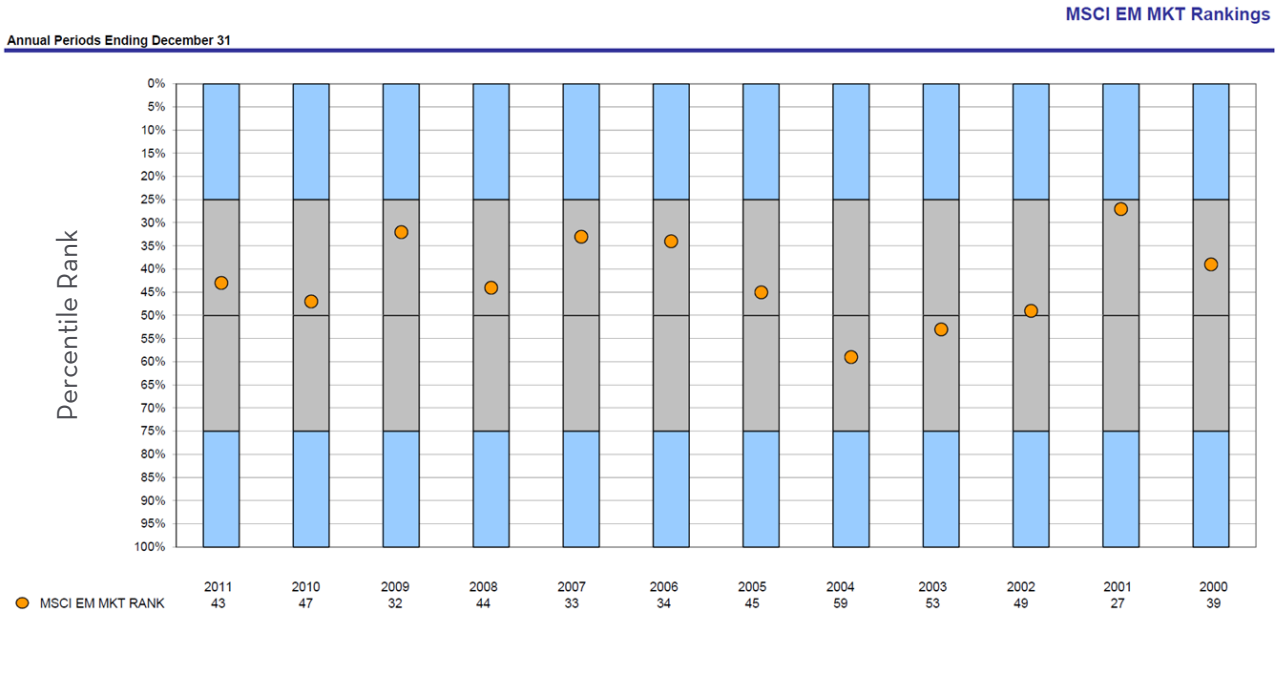
Exhibit 20: Emerging Markets - Rolling Periods



The median international equity emerging manager has outperformed the MSCI EM Market, net of fees·, in:

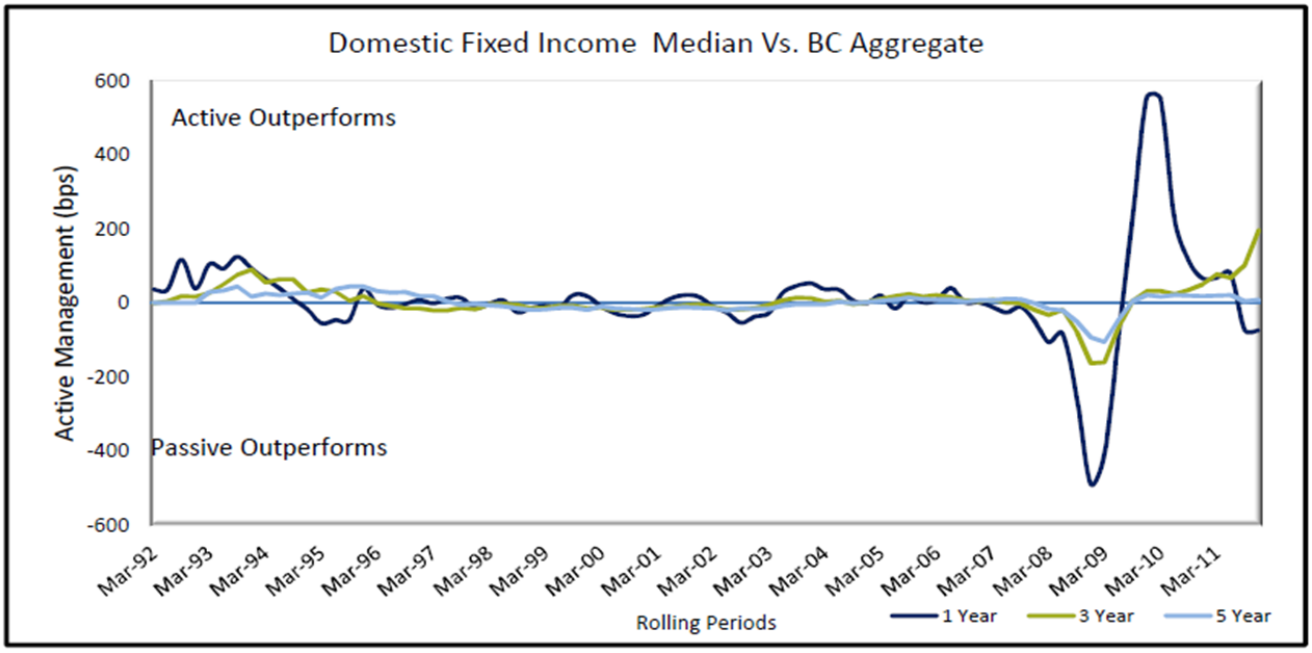
- 26 of 73 rolling one-year periods (or, 34% of the time)
- 30 of 65 rolling three-year periods (or, 46% of the time)
- 40 of 57 rolling five-year periods (or, 70% of the time)

Exhibit 21: Emerging Markets - Benchmark Rank



MSCI EM Index ranked below median 2 out of the last 12 years

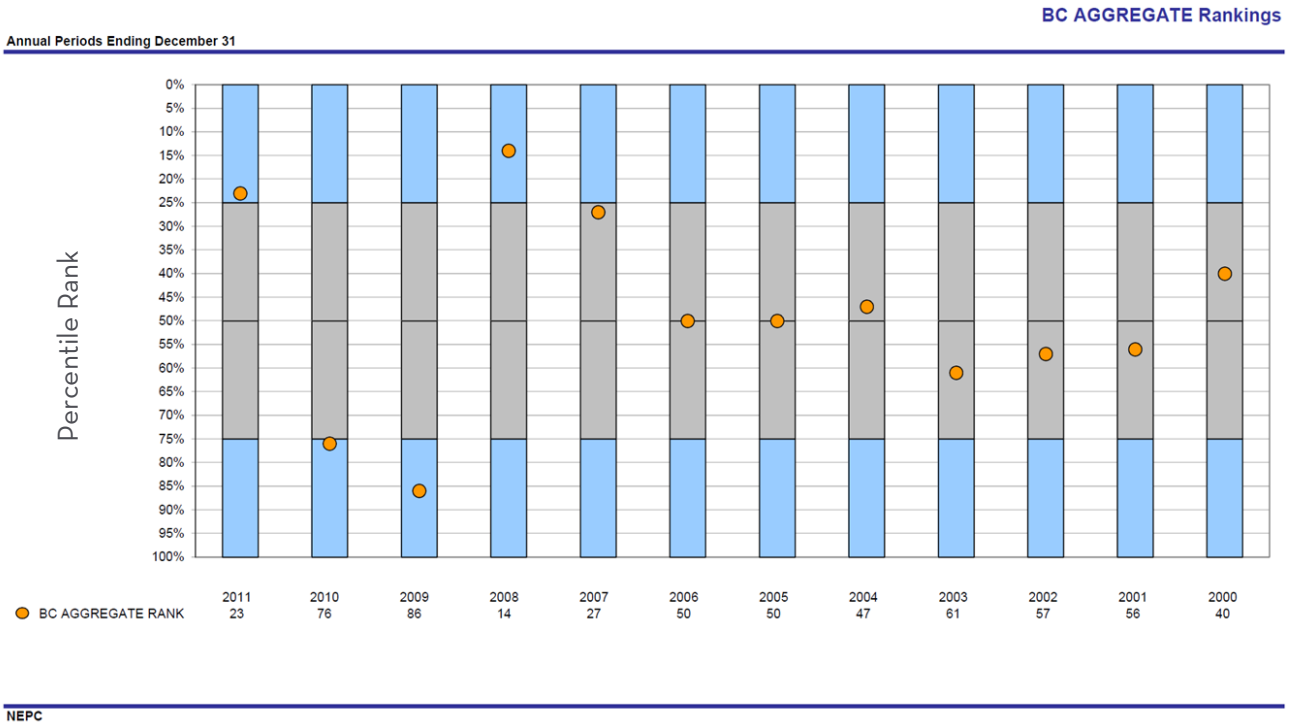
Exhibit 22: Domestic Fixed Income – Rolling Periods



The median domestic fixed income manager has outperformed the BC Aggregate, net of fees·, in:

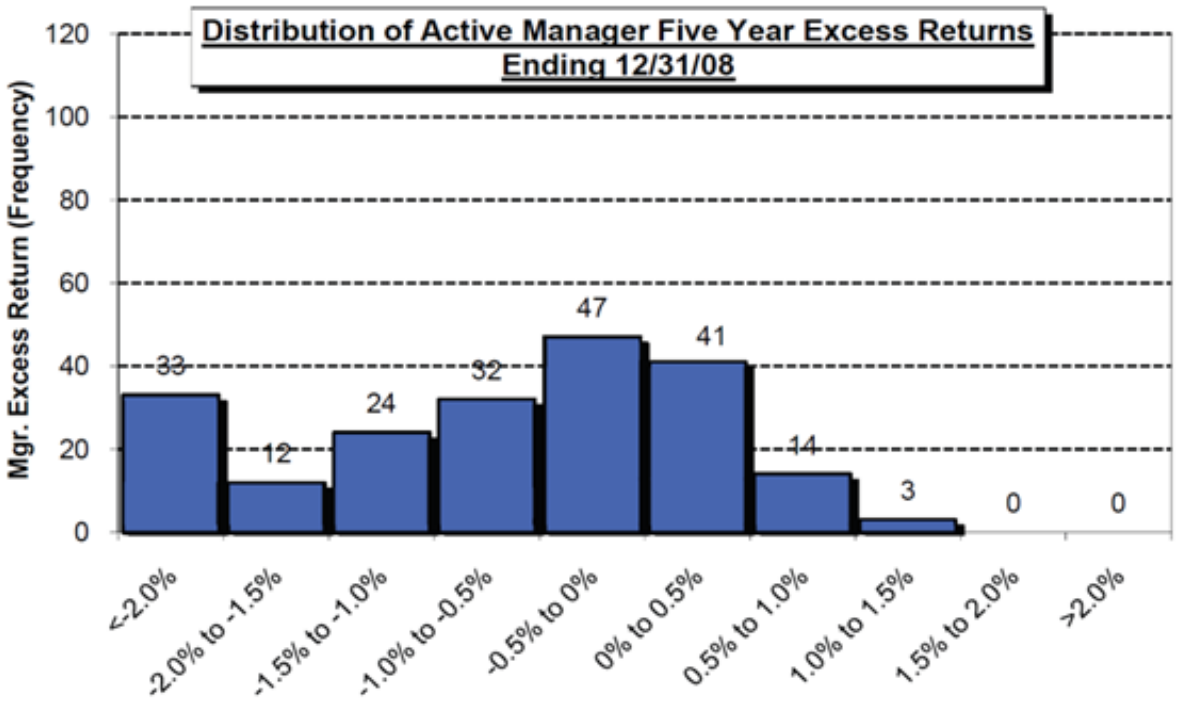
- 42 of 80 rolling one-year periods (or, 53% of the time)
- 41 of 80 rolling three-year periods (or, 51% of the time)
- 41 of 76 rolling five-year periods (or, 54% of the time)

Exhibit 23: Domestic Fixed Income – Benchmark Rank



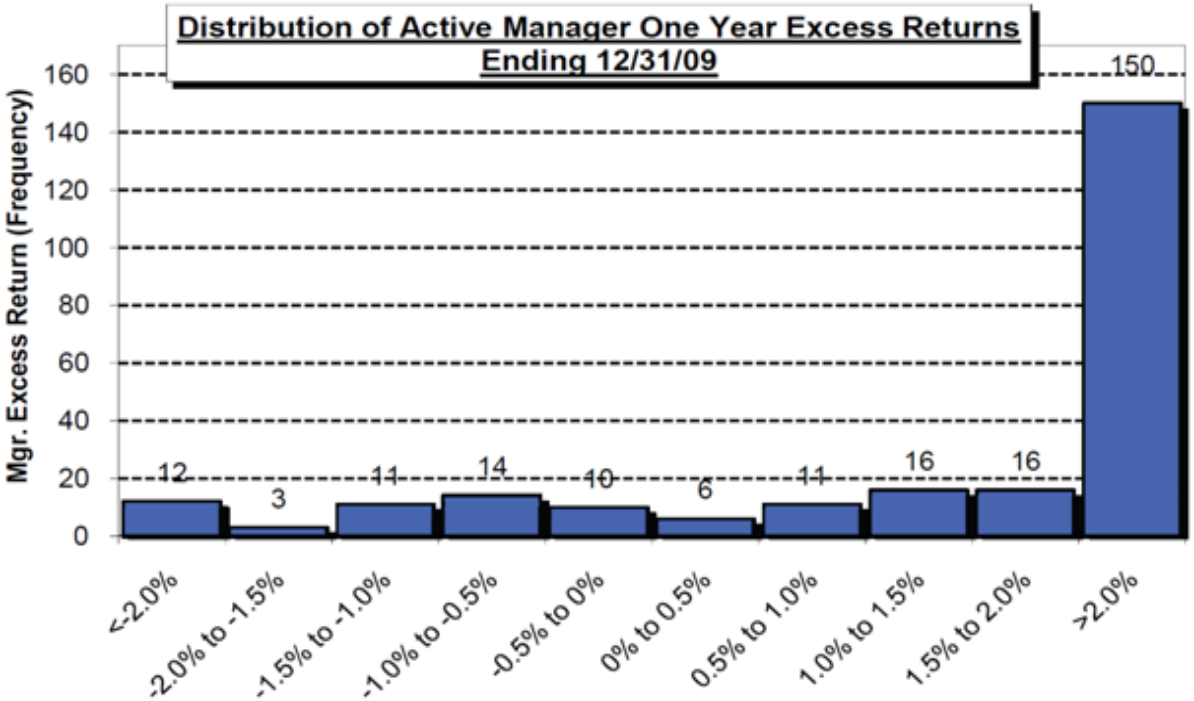
BC Aggregate ranked at or below median 7 out of the last 12 years

Exhibit 24: Domestic Fixed Income Active Manager Returns - 5 Years Ending 12/31/2008



Source : eVestment Alliance

Exhibit 25: Domestic Fixed Income Active Manager Returns - 1 Year Endings 12/31/2009



Source : eVestment Alliance

...only to be followed by strong excess returns in 2009.

Notes on ICC Performance Exhibits

· Annualized net-of-fee results are calculated by subtracting the average manager fee, respective of asset class and style, from the ICC gross-of-fee performance. The average manager fees used prior to 2009 were obtained from the 2008 eVestment Alliance manager fee study. For periods after 2008, the 2009 eVestment Alliance manager fee study was used.

· The ICC universe data shown includes only actively managed portfolios. The minimum sample size used for each time period is 20 portfolios.

· Benchmark rankings are relative to the respective ICC actively managed gross-of-fee universe. Rankings reflect the gross-of-fee results of the benchmark. For periods prior to 2009 results were calculated by adding the respective asset class and style annual fee as obtained from the 2008 eVestment Alliance manager fee study to the annual benchmark return. For periods after 2008, the 2009 eVestment Alliance manager fee study was used.