



The Returns of the S&P 400: Implications for Active Mid Cap Managers

Executive Summary

Managers of medium capitalization stocks had a difficult time out performing the S&P 400 Index over the 5 year period ending December 31, 2001. Less than 30% of the 247 products included in the Plan Sponsor Network (PSN) database achieved that distinction. The poor performance of mid cap managers reflects, in part, an upward bias of the S&P 400's returns relative to the returns of the mid cap universe that the index is meant to measure. However, even after adjusting for biases specific to the period, there remains a persistent upward bias to S&P 400 returns that leaves the majority of the mid cap managers in the sample under performing the benchmark. It appears that investors might be well served by focusing on providers of index or enhanced index products as a means of gaining exposure to the mid cap segment of the market.

Introduction

Introduced in mid-1991, the S&P 400 Index is clearly the benchmark of choice for managers offering products in the medium capitalization segment of the market. An analysis of the final release of the Plan Sponsor Network (PSN) database for fourth quarter, 2001 found 247 series with five years or more of returns (ending December 31, 2001) that were identified as medium capitalization products. Of these 247, seven were index products with annualized tracking error of less than 1% relative to the S&P 400 Index. Eight additional series had annualized tracking errors less than 4.6% relative to the S&P 400. By contrast, there were no series that had annualized tracking error of less than 4.7% relative to the alternative mid cap benchmarks offered by the Frank Russell Company (Russell Midcap) and Wilshire Associates (Wilshire Mid Cap 500 and Wilshire Target Mid Cap 750).

While Russell and Wilshire indices have not attracted a broad following among providers of index investment vehicles, they are useful as a means of identifying potential biases in the returns of the S&P 400 because of their reliance on objective quantitative criteria to select index constituents. Each May 31, analysts at Russell and Wilshire rank all U.S. domiciled companies by their market capitalization, identifying those whose rankings falling within certain ranges as medium capitalization. In the case of the Russell MidCap Index, the stocks selected have market cap rankings ranging from 201st largest to the 1000th largest. The Wilshire Mid Cap 500 focuses on stocks with rankings from 501 through 1000, while the Wilshire Target Mid Cap 750 focuses on stocks with rankings from 501 through 1250. The stocks selected by these screens become the constituents of the Russell and Wilshire indices on June 30. The S&P 400 Index is composed of a representative sample of 400 stocks with medium capitalizations, as determined by the Standard & Poor's Index Committee using a combination of quantitative and qualitative criteria. The application of qualitative criteria in the construction of the S&P 400 may explain some of the differences that exist between the returns of the four indices displayed in Table 1.

Table 1

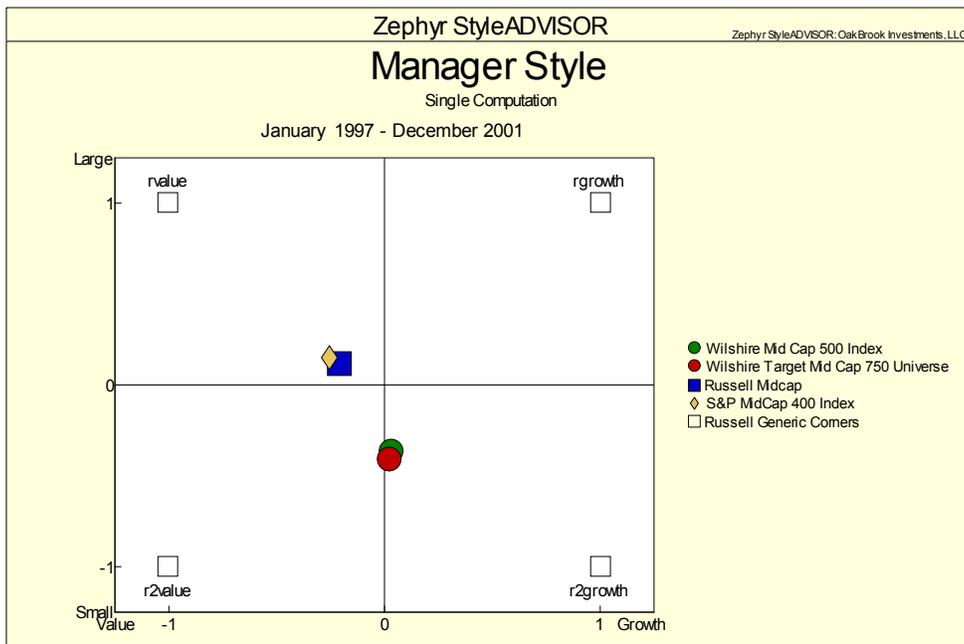
**Mid Cap Index Returns
1997 – 2001**

Index	1997	1998	1999	2000	2001	5 Years Annualized
S&P MidCap 400	32.25	19.10	14.72	17.51	-0.61	16.11
Russell Midcap	29.01	10.10	18.23	8.25	-5.63	11.40
Wilshire Mid Cap 500	25.20	3.61	32.78	6.62	-1.81	12.51
Wilshire Mid Cap 750	24.11	3.74	26.73	4.96	-2.48	10.80

Finding the Best Fit For the S&P 400 Index

Before assessing the potential biases of the S&P 400, we must first determine which of the capitalization ranges used in the index alternatives provided by Russell and Wilshire most closely approximates that used by the S&P Index Committee to construct the S&P 400. This was accomplished using a returns-based style analysis in which the Russell Style Indices were used as proxies for the performance of large and small cap stocks, as well as growth and value. The Russell 1000 Growth and Value were used as proxies for large cap performance, while the Russell 2000 Growth and Value were used as proxies for small cap performance. In figure 1, the vertical axis measures capitalization emphasis, with capitalization declining as one moves from top to bottom. The horizontal axis measures exposure to growth and value, with growth exposure increasing and value exposure decreasing as one moves from left to right. As figure 1 illustrates, the Russell Midcap Index provides the best fit to the S&P 400 Index in terms of both capitalization and growth/value exposure. The Wilshire indices appear to provide exposure to smaller stocks and also appear somewhat more growth-like in their behavior.

Figure 1



Additional style analysis was conducted using OakBrook’s MidCap style indices to assess potential biases toward stocks with either stable or volatile returns and also to provide a more accurate assessment of any growth or value biases present in the indices. As past research has demonstrated, returns-based analyses that rely solely on Russell Indices as style benchmarks can be distorted by the Russell Indices’ failure to distinguish between the stable and variable variants of the growth and value styles. In a Russell-based analysis, value indices serve as proxies for stability while growth indices end up as proxies for variability due to the generally lower standard deviation of return of value indices when compared with growth indices. The end result is that the assessment of a return series’ growth\value characteristics can be biased toward value in a Russell-based style analysis if that return series exhibits a higher degree of stability than the Russell growth indices.

In the analysis displayed in figure 2, the vertical axis measures the degree of return stability, with return stability declining as one moves from top to bottom. The horizontal axis represents the degree of growth/value behavior, with growth emphasis increasing as one moves from left to right as in figure 1. OakBrook’s MidCap Stable Value and MidCap Stable Growth Indices serve as proxies for stability, while OakBrook’s MidCap Variable Value and MidCap Variable Growth Indices serve as proxies for variability. Figure 2 demonstrates that the Russell Midcap Index provides a better approximation for the level of return stability of the S&P 400. The figure also demonstrates that all four indices have a slight growth bias when the greater stability of the Russell and S&P indices is taken into account.

Figure 2

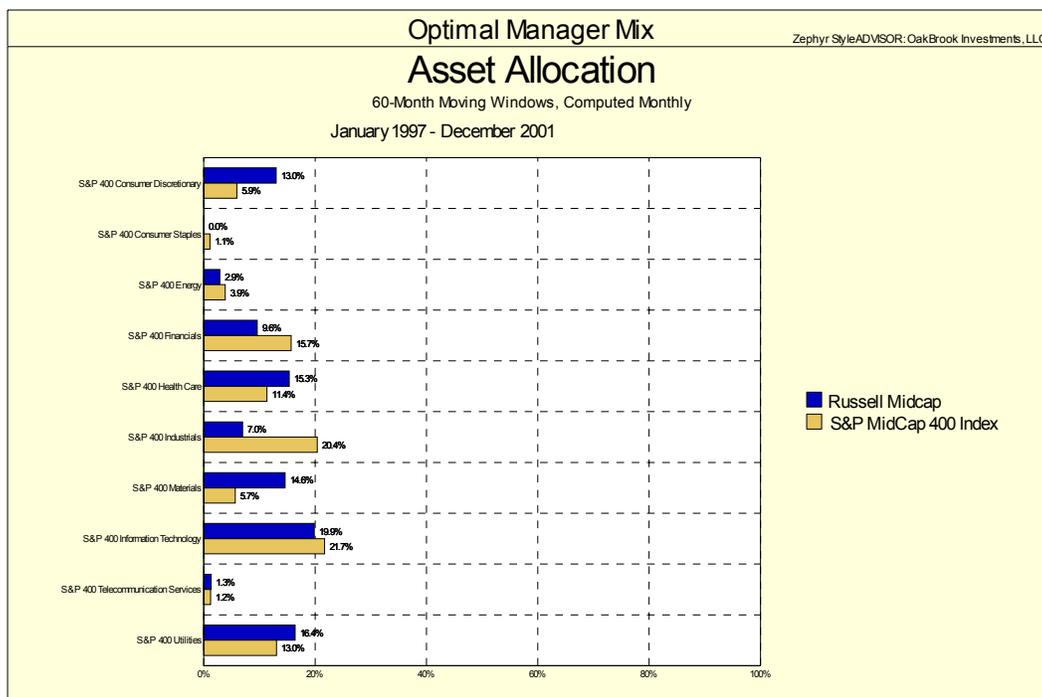


Analysis of Potential S&P 400 Biases Relative to the Mid Cap Universe

Relying on the Russell Mid Cap Index as a proxy for the broad mid-cap universe, it appears that the returns of the S&P 400 might have been unusually high in 1998 and year 2000. In both years, the S&P 400's return was at least 9% higher than that of the Russell Mid Cap (see Table 1). Given the results of the return-based style analyses, it appears unlikely that these return differences result from persistent style biases in terms of capitalization, growth/value exposure or return stability/variability. However, biases may exist when specific economic sector weights are examined or when the timing of index additions and deletions specified by the S&P Index Committee is examined. Both possibilities are mentioned, on page 7, of the 1998 directory for the S&P 400 Index published by Standard & Poor's.

To examine the role of sector biases during this period, we once again call on returns-based style analysis. Figure 3 reports the results of an analysis conducted using the monthly returns of 10 economic sectors within the S&P 400 as compiled by Standard & Poor's. The figure shows substantially higher weights for the Industrial and Financial sectors in the S&P 400 than in the Russell Midcap. These are offset by weights for the Materials and Consumer Discretionary sectors that are substantially lower than those in the Russell Midcap Index. These sector weight differences would suggest that the total return of the S&P 400 should be approximately 0.88% higher than that of the Russell Midcap on an annualized basis, substantially less than the 4.71% annualized return difference actually observed. While the analysis here is crude compared to one based on actual holdings, it does suggest that differences in sector weightings likely played a minor role in explaining the strong performance of the S&P 400 during this period.

Figure 3



While differences in sector weights appear to play a minor role, the same cannot be said of the timing of additions and deletions of individual stocks. Table 2 lists 11 stocks deleted from the S&P 400 Index during the period. All eleven had market capitalizations of \$13.5 billion or more at the time of their deletion. The figure of \$13.5 billion is slightly greater than the largest value used by Russell as the upper limit on market capitalization for a stock to be included in their mid-cap index during this period. The timing of two of these deletions (America Online and Compuware) had a substantial impact on the return of the S&P 400 relative to the Russell Midcap Index. Combined, these two decisions added approximately 6.8% to the total return of the S&P 400 Index over this period, 1.52% on an annualized basis.

Table 2
S&P 400 Deletions With Largest Market Capitalization
1997-2001

Firm	Marketcap at Time of Deletion (Billions of dollars)	S&P 400 Deletion Date	Estimated Russell Midcap Deletion Date	Approximate Return Advantage Due to Deletion Timing
AMERICA ONLINE	68.1	12/31/98	6/30/98	+5.2%
VERITAS SOFTWARE	51.2	3/31/00	6/30/00	+0.5%
SIEBEL SYSTEMS	25.4	5/4/00	6/30/00	-0.6%
QUALCOMM	22.1	7/21/99	6/30/99	+0.2%
MAXIM INTEGRATED PRODUCTS	17.3	5/9/00	6/30/00	N.M.
LINEAR TECHNOLOGY	17.0	3/31/00	6/30/00	-0.3%
ALTERA	16.8	4/17/00	6/30/00	-0.2%
DYNEGY	16.2	10/2/00	6/30/01	+0.3%
COMPUWARE	14.1	12/31/98	6/30/00	+1.6%
AFLAC	13.8	5/27/99	6/30/99	+0.2%
BIOGEN	13.6	1/28/00	T.B.D.	+0.6%

The results listed in Table 2 are specific to the period and may not be repeated going forward. However, there is also a persistent upward bias to performance due to the fact that many large stocks leaving the S&P 400 immediately move to the S&P 500. Of the 330 stocks deleted from the S&P 400 Index between January 1, 1997 and December 31, 2001, 121 were immediately added to the S&P 500 Index. Stocks typically experience strong gains prior to their addition to the S&P 500 and these gains, of course, are captured in the return of the S&P 400. The results in Table 3 indicate that the gains due to this effect were both consistent and substantial, particularly when one considers that the average market capitalization of the stocks involved in these index changes was \$8.1 billion, approximately 1% of the total capitalization of the S&P 400 Index. The equally weighted average excess return to these stocks is positive in each individual year and averages 6.19% across the entire sample of 121 deletions.

Table 3

**Excess Return During 10 Days Preceding S&P 400 Deletion
For Stocks Entering the S&P 500
1997-2001**

Period	# of Stocks	Maximum	Minimum	Median	Average
1997	13	11.62%	-13.36%	5.97%	4.16%
1998	29	48.50%	-9.64%	6.48%	8.98%
1999	31	26.72%	-1.38%	8.93%	9.26%
2000	32	22.29%	-22.93%	5.37%	4.21%
2001	16	15.24%	-17.28%	-0.52%	0.77%
Overall	121	48.50%	-22.93%	5.97%	6.19%

The strong excess returns of stocks leaving the S&P 400 for the S&P 500 provide a sharp contrast to the performance of stocks leaving the S&P 400 for the S&P 600 small cap index or those removed from the S&P 400 and not added immediately to another Standard & Poor's index. The 30 stocks that left the S&P 400 and were immediately added to the S&P 600 underperformed the S&P 400 by an average of -6.15% over the 10 days immediately prior to their deletion. The 38 stocks that left the S&P 400 and continued to trade but were not immediately added to another index fared considerably worse. They underperformed the S&P 400 by an average of -23.13% during the 10 days prior to deletion.¹ While the under performance of these two groups was dramatic, it had little impact on the performance of the S&P 400 Index due to the extremely small market capitalizations of the stocks involved.

A key factor contributing to the price surge of stocks moving from the S&P 400 to the S&P 500 is investors' anticipation of increased demand for shares of the migrating stock among index managers. During this period, a move from the S&P 400 to the S&P 500 would have resulted in an increase of at least 200% in the number of shares held by index managers. This estimate assumes a total market capitalization of the S&P 400 Index that is a minimum of 7.5% of the total market capitalization of the S&P 500 and that total assets under management in S&P 500 Index products is a minimum of 40 times the amount under management in S&P 400 Index products. Both assumptions appear to be conservative. A higher value for either figure would raise our estimate of the increase in shares held.

¹ The remaining 141 stocks removed from the S&P 400 during this period left the index due to pending acquisition or corporate action. Not surprisingly, the performance of these stocks was largely unaffected by deletion from the S&P 400. On average, they out performed the S&P 400 by an average of 0.57% during the 10 days immediately prior to deletion.

Impact of Adjusting Performance Benchmark for Upward Bias of S&P 400 Return

Adjusting the return of the S&P 400 Index downward for the period specific factors identified in the previous section results in an annualized benchmark return of 13.71%. Unfortunately, the majority of managers also under perform the adjusted benchmark, with only 43.7% of active mid cap managers able to out perform the lower standard. The median annualized return for managers during this period was 12.62%, only slightly above the return of the Wilshire MidCap 500 Index, the best performing mid cap index after the S&P 400.

Given the poor performance of traditional active management, plan sponsors wishing to gain exposure to the mid cap segment of the market should consider doing so with either an index or enhanced index product. As is demonstrated in Table 4, all managers with tracking error of less than 2% were able to out perform the S&P 400 Index even *before* adjusting for the biases that inflated that index's return during the period.

Table 4

**Annualized Returns of Managers With S&P 400 Tracking Error of Less Than 2%
1997-2001**

Product	Annualized Return	Tracking Error
BARCLAYS GLOBAL: MID-CAP INDEX FUND	16.21%	0.08%
AMALGAMATED BANK: LONGVIEW 400 MID	16.19%	0.09%
STATE ST. GLOBAL: S&P 400 MIDCAP	16.20%	0.12%
NORTHERN GL INVT: S&P400 MIDCAP EQUITY	16.18%	0.12%
BNY ASSET MGMT: MID CAP INDEX FUND	16.24%	0.26%
BANC OF AMERICA: MID CAP INDEX	16.20%	0.51%
RHUMBLINE ADV.: S&P 400 MIDCAP INDEX	16.32%	0.71%
FRANKLIN PORTF.: MID CAP CORE	17.46%	1.90%

Conclusions

Returns of the S&P 400 Index had a substantial upward bias during the 1997 to 2001 period due to favorable sector weightings and the timing of index additions and deletions. A portion of the timing bias may be persistent and unavoidable, due to the surge in demand that accompanies movement of stocks from the S&P 400 into the S&P 500. The poor performance of traditional active management, even after adjusting for the period specific upward bias of S&P 400 returns, argues for the use of index or tightly risk controlled enhanced index managers in the mid cap space.