WILSHIRE
COMPASS

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Setting New Standards in Fund Sponsor Information Systems and Investment Technology

Is the U.S. Equity Market "Top Heavy"?

The profile of the U.S. equity market has changed considerably over the last five years. Today, technology stocks comprise one-third of the market and a few very large capitalization stocks appear to claim an out-sized fraction of the weighting in index funds. These facts are made even more troubling by the high price-earnings ratios of these same companies.

How should investors respond? Some argue that the discipline and judgement of active management is needed more than ever now. Moreover, advocates of active management maintain that index funds will falter because they blindly follow market trends.

Wilshire recommends that investors not overreact to recent market developments. History demonstrates that other economic sectors have from time-to-time come to dominate the investment landscape and the increased market weighting of the largest companies is a worldwide trend that will likely lead to greater global diversification than alternative weighting schemes.

A Top Heavy Stock Market?

Market observers have correctly pointed out that the bull market has been driven by large capitalization stocks in recent years. This performance has, in turn, driven the large cap stocks to gain even greater weighting in the market indexes. A recent examination of the composition of the S&P 500 Index reveals that the largest ***ten*** companies account for 25% of the index's total market capitalization while the largest ***thirty-five*** companies account for 50% of the index's total market capitalization.

How unusual is this high concentration in the largest S&P 500 stocks? Exhibit 1 compares the number of stocks comprising the top 25% and 50% of the S&P 500 Index at different points in time.

Exhibit 1

S&P 500 Index Weighting Profile
 # Of Companies Comprising:

	25%	***50%***
March 1990	16	55
March 1995	17	58
April 2000	10	35

Exhibit 1 demonstrates that while the S&P 500 Index is clearly more concentrated today than in recent years, historically, it has been an index that gives a great deal of weight to its largest constituents.

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Client Service:

Santa Monica:

Mark Williams
310-260-6659
mwilliams@wilshire.com

Felix Lin
310-260-7331
flin@wilshire.com

Pittsburgh:

Charles Stunkard, CFA
412-434-1580
cstunkard@wilshire.com

Michael Finnegan, CFA
412-434-1580
mfinnegan@wilshire.com

Cathy Trzeciak
412-434-1580
ctrzeciak@wilshire.com

Marketing:

Pittsburgh:
John Lauer, CFA
412-434-1580
jlauer@wilshire.com

Is the U.S. Equity Market "Top Heavy"? - cont'd

In Exhibit 2 below, we compare the weighting profiles of several major country stock markets together with the MSCI EAFE Index.

Exhibit 2 reveals that the U.S. is not alone in its concentrated weighting toward a more limited number of companies. All of the major stock markets have demonstrated an increased concentration in market capitalization over the past five years, in most cases more so than the U.S. This concentration of market capitalization could very well increase future index volatility, though probably to a modest degree.

A Tech Heavy Stock Market?

Critics of index funds point out that not only is the index weight concentrated in the biggest cap stocks, it is also increasingly concentrated in a single sector, technology. Indeed, the technology sector weighting in the Wilshire 5000 Index has tripled since 1993 from 11% to 33% at the end of the first quarter of 2000. Should investors be concerned?

Exhibit 3 compares the average index weightings of the nine economic sectors within the Wilshire 5000 Index to each sector's highest weighting over the past twenty-four years. The results indicate that other economic sectors have experienced sharp increases in weighting over the past twenty-four years. For instance, energy stocks climbed to a 29% market cap during the early 1980s and consumer non-durable stocks peaked at a 36% allocation in 1991. Finance stocks then became favored and topped out at a 20% weighting in 1997.

Market rotation among economic sectors appears to be a cyclical phenomenon. The current 33% weighting to technology stocks, while large, is not unprecedented. More to the point, does the high technology weighting imply that index funds might suffer poor future performance? History suggests otherwise. Only in 1981, coming off a 29% weighting in energy stocks, did index funds perform poorly relative to active equity strategies.

Conclusions

Investors are concerned that the market has reached the top of a speculative, high tech bubble. In particular, the popularity of market-weighted indexes and index funds has perhaps led to an over-weighting in a few large, high tech companies at just the wrong time.

Exhibit 2

Non-U.S. Equity Market Profiles
 # Of Companies Comprising

		25%	50%
EAFE	1995	32	111
	2000	10	59
Japan	1995	11	38
	2000	5	21
UK	1995	7	20
	2000	3	9
Germany	1995	3	7
	2000	1	4

Exhibit 3

Wilshire 5000 Sector Weightings: 1977-2000

Sector	High (Year)	Average*
Capital Goods	7% (1977)	5.3%
Consumer-Durables	5% (1977)	3.3%
Consumer-Non-Dur.	36% (1991)	26.8%
Energy	29% (1980)	11.7%
Finance	20% (1997)	12.8%
Mat. & Services	13% (1987)	11/3%
Technology	33% (2000)	14.0%
Transportation	3% (1981)	2.3%
Utilities	16% (1990)	12.5%

* Annual Observations

Should something be done or should investors "stay the course". Wilshire counsels clients to consider the latter. There are strong theoretical and practical reasons for capitalization weighting. The technology sector is unusually large today, but other sectors, including energy, consumer non-durables, and finance, have alternately led the market over the past twenty-five years. Wilshire believes that the changes the U.S equity market has undergone may indeed render the market more volatile. This increased volatility, in turn, heightens the need to improve equity diversification by increasing allocations to either non-U.S. or private equity.

Wilshire Style Metrics

In the early 1980s, Wilshire Associates developed a methodology for quantifying equity style known as Style Metrics. Style Metrics was an outgrowth of the Wilshire Style Indexes and quantifies equity style for individual securities and portfolios based on their resemblance to these style indexes.

Under the Style Metrics methodology, each stock in the Wilshire 2500 Index receives two scores: a Size score and a Style (or "Growth/Value") score. The Size score reflects the relative market capitalization of a particular security, while the Style score indicates a stock's orientation towards value or growth investment strategies on the basis of certain financial characteristics. Style Metrics scores are calculated for portfolios of stocks by weighting individual security scores by their appropriate portfolio weights.

Size Score

The conventional measure of size for a security or portfolio is market capitalization. Unfortunately, the weighted average market capitalization statistic is problematic for a portfolio of stocks because it weights the effect of larger capitalization more strongly than is the actual effect on portfolio performance. This effect occurs because the capitalization of large stocks is many times larger than that of most stocks, but the performance differences are almost never in the same proportion.

To best adjust for these problems Wilshire has determined that a rank order methodology based on market capitalization best captures the linear relationship between size and performance. To determine the Size score, the Top 2500 stocks are first sorted by market capitalization and then assigned a corresponding size score using a scale of 750 (largest stock) to –1749 (smallest stock). Finally, the scores are scaled such that the weighted average score of the Top 750 and Next 1750 indices are 100 and –100, respectively. This provides final Size scores that range from a high of approximately 150 to low of -300.

Wilshire does not calculate Size scores for stocks beyond the Top 2500; all stocks outside the Top 2500 receive the lowest Size score of -300. Fortunately, this does not impair the accuracy of the overall analysis because only two percent of the total market capitalization in the U.S. equity market lies below the 2500th stock.

Style Score

The Style score measures the strength of style orientation in individual securities. Style orientation is observed by calculating the probability that a stock is either growth or value on the basis of six key financial characteristics: Price/Earnings Ratio, Price-to-Book Ratio, Dividend Yield, Five-year Sales Growth, Five-year Earnings Growth and Five-year Average Return on Equity.

Calculating the Style score requires two steps. In step one, the distributions of each of the six financial characteristics for the Wilshire Large Growth and Large Value Indexes are compared to the six financial characteristics of each individual stock. Next, a statistical technique known as discriminant analysis is used to solve for a set of coefficients or weights that predict, with the highest degree of accuracy, the probability of a stock having its characteristics given that it is a growth or value stock.

In step two, Bayes' Theorem is used to calculate the converse: the probability that a stock is growth or value given its financial characteristics. It is this probability that forms the basis of the Style score calculation. To obtain the final Style score, the probabilities are scaled such that the distribution of Style scores for stocks within the Top 750 Index ranges from -150 to 150. This same method is performed using the Small Company Growth and Small Company Value Indices to develop a Style score for small company stocks.

Holdings-Based Style

Holdings-Based Normal Style Map

The *Holdings-Based Normal Style* graph produces a scatter plot displaying the ***average*** quarterly Style Metrics scores for all selected managers, composites and indexes over the date range entered. Averaging the scores demonstrates a portfolio's average or "normal" style and size exposures over time, and thereby acts as a useful tool for performance and risk analysis. In Exhibit 4, we see that Composite 1 has a small cap and growth bias relative to the overall market, as represented by the Wilshire 5000 Index.

<u>How to Create the Holdings-Based Normal Style Map:</u>

1. From the main U.S. Equity screen, click the Style Analysis button. Next, choose the *Normal Style* option under the *Holdings Based* heading and press the OK button.
2. From the *Style Analysis Setup* screen, highlight the manager(s) and index(es) to be analyzed within the *Select Managers* and *Select Indices* list boxes.
3. Set the *Date Range.*
4. Select a symbol *Option.* The *Draw Ellipse* option can be used to view the range of quarterly style observations over the date range
5. Press the OK button to display the *Normal Style* map.

<u>Common Applications of the Holdings-Based Normal Style Map</u>

- Monitor manager's adherence to style-specific investment strategies over single or multiple time periods.
- Monitor and measure portfolio risk due to style and size biases.
- Use the style and size scores as rebalancing inputs for manager structure analysis.
- Build "style pure" peer groups for manager universe comparisons.
- Determine the impact of search candidates on equity composite style.

Holdings-Based Style Drift Map

The *Holdings-Based Style Drift* map displays each quarterly size and style score over a specific measurement period. The symbols for each manager, composite or index will vary in size with the larger symbols representing the more recent data.

Exhibit 4

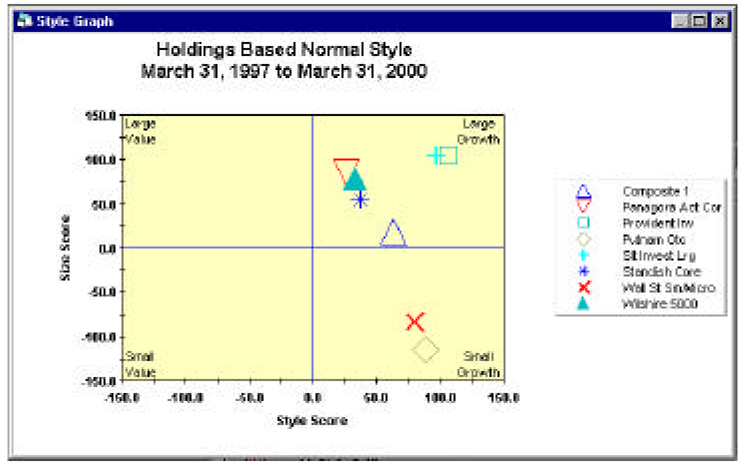
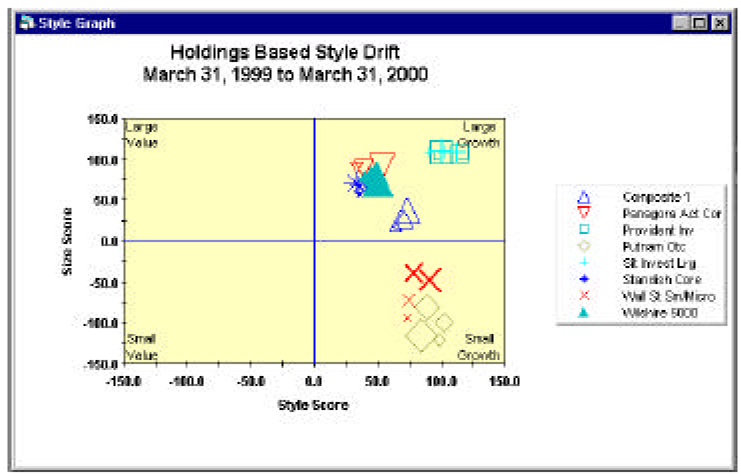


Exhibit 5



<u>How to Create a Holdings-Based Style Drift Map</u>

1. From the main U.S. Equity screen, click the Style Analysis button. Next, choose the *Style Drift* option under the *Holdings Based* heading and press the OK button.
2. From the *Style Analysis Setup* screen, highlight the manager(s) and index(es) to be analyzed within the *Select Managers* and *Indices* list boxes.
3. Select the date range for the analysis.
4. Press the OK button to display the *Style Drift* map.

<u>Common Applications of the Holdings-Based Style Drift Map</u>

- Analyze the consistency of the style and size scores for a manager, composite or index over a selected time period.
- Monitor trends in manager, composite or index style over time.
- Compare actual portfolio results to the manager's representative composite (note: your system must include "Client Data" processed by Wilshire)

Compass Investment Technology 2000 Conference – Kiawah Island

The Wilshire Compass Technology 2000 Conference held in early May at Kiawah Island Resort, SC, was a great success. Fifty Compass users arrived with their laptops, golf clubs, and sunscreen in tow. The 2½-day conference consisted of both general sessions and hands-on training. In addition, the conference served as an excellent forum for participants to share ideas with fellow fund sponsors and consultants.

Conference attendees also participated in various recreational activities including golf, deep-sea fishing, and a tour of Charleston. Thanks again to the deep-sea fishermen (and women) who were kind enough to deliver their catch to the resorts chefs who, in turn, prepared a lively dish of blackened sea bass for the conference participants!

We are presently making extra copies of the Compass Investment Technology 2000 Conference presentation booklet. Booklets will be mailed to each user as soon as they become available. As always, please do not hesitate to call any of the Compass client service team if you have any questions or comments regarding the conference. We look forward to seeing you at our next conference in 2001!

Wilshire Compass People

We are very pleased to announce that Mark Williams has accepted Wilshire's offer to become a principal of the firm. Mark joined Wilshire in 1991 and is responsible for client service and system development for the Wilshire Compass.

We are also pleased to announce that John Lauer, CFA has recently joined the Wilshire Compass team. John joined us in our Pittsburgh office on April 10, 2000 where he will head-up the Compass marketing efforts. Prior to joining Wilshire, John served as Director of Investments at Anthem, Inc. John can be reached at (412) 434-1580.

Please join us in welcoming Cathy Trzeciak to our client service team in Pittsburgh. Cathy joined us on April 24, 2000 and will be assisting Mike and Charley in providing client service to Compass clients.