



WILSHIRE

C O M P A S S

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Setting New Standards in Fund Sponsor Information Systems and Investment Technology

News:

Wilshire has just created its own Internet index which will soon be available in real-time. It is also now available within Compass.

Topics Inside:

New Mutual Fund Optimization and Simulation Tools

Mutual Fund Attribution Enhancements

Building Skill Graphs

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Wilshire Warns Investors: Dow Record Not Reflective of Most Investors' Holdings

Wilshire Associates has warned investors to "avoid overreacting to the Dow" as it hits new records, saying that it is not reflective of the market's real performance. Although the broad-based Wilshire 5000 Index has also reached all-time highs, it is up year-to-date only about one-half that of the Dow Jones Industrial Average. "Don't start popping the champagne yet," said Stephen Nesbitt, Senior Vice President at Wilshire Associates. "Take a closer look at reality and you'll find that the market is up only about half that of the Dow. This means that most investors are not reaping the benefits suggested by the Dow's performance. The Dow is flawed," Nesbitt continued. "It is biased towards the very large companies, measures only about 20 percent of the market, and fails to appropriately weight stocks in the index. As a result, investors get a distorted view of the market when using the Dow or, for that matter, even the S&P 500."

As an example of the problems of a price-weighted index, Nesbitt pointed out that in the Dow, J.P. Morgan & Co. ranks as the third largest company. In the capitalization weighted Wilshire 5000 index, J.P. Morgan ranks number 116.

"In the Dow, companies with the largest stock prices carry the most weight, pulling up the entire index and creating illusions about the market," Nesbitt added. The Dow also fails to account for 80 percent of the market, including many small and mid-sized technology companies.

MUTUAL FUND MODULE ENHANCEMENTS

The April 15, 1999 *Compass* update included several new features and enhancements to the *Mutual Fund* module. Additions include new optimization and simulation tools and enhancements to the existing attribution and style analytics.

New Optimization Tools

Many of the tools available in the main *Asset Allocation* module are now available in the *Mutual Fund* module, including:

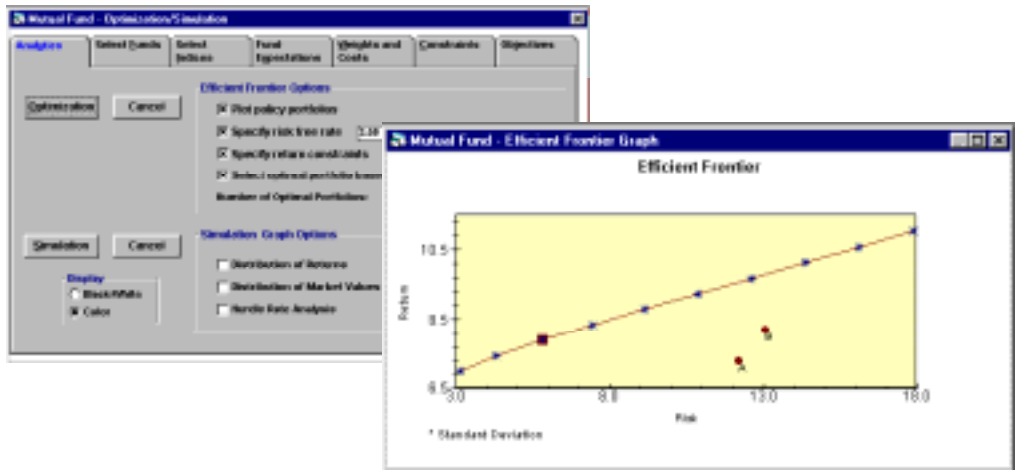
- Plot Policy Portfolios – Users can input up to six different asset mixes and plot them relative to the efficient frontier.
- Specify Risk-Free Rate – Users can select the risk-free rate and *Compass* calculates Sharpe ratios for each efficient frontier portfolio and each policy portfolio.
- Specify Return Constraints – Users can set upper and lower return boundaries for the efficient frontier.
- Select Optimal Portfolio Based on Investor Objectives – Based on the users' specific time horizon and return objectives, *Compass* selects the portfolio on the efficient frontier that maximizes investor utility.
- Number of Optimal Portfolios – Users can specify the number of portfolios comprising the efficient frontier up to a maximum of 100.

New Simulation Tools

Many of the portfolio simulation tools within the main *Asset Allocation* module are now available within the *Mutual Fund* module including:

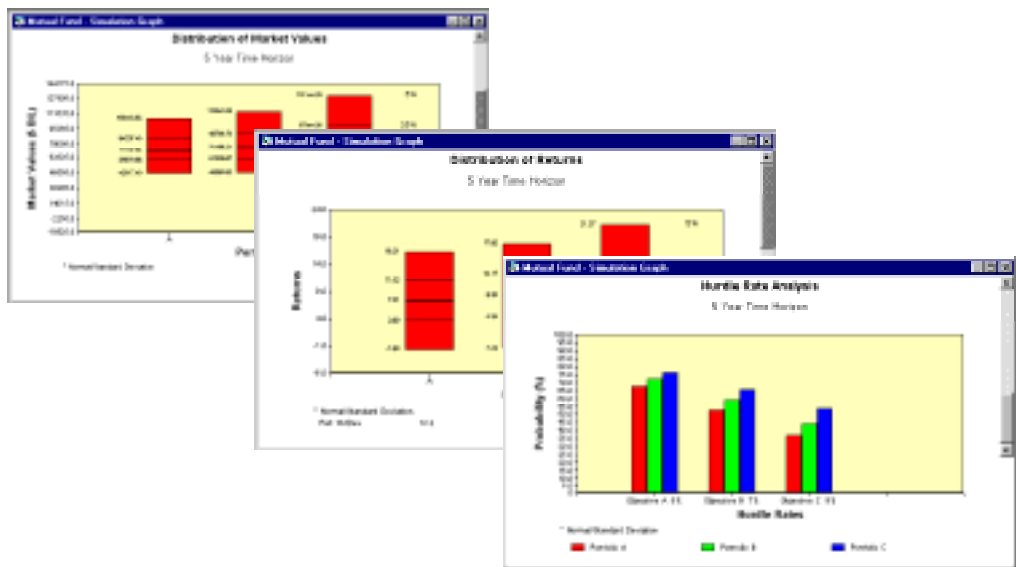
- Distribution of Returns – Users can view distributions of portfolio returns for up to six different policy portfolios over varying time periods.
- Distribution of Market Values – By specifying a beginning portfolio market value, the user can view the distributions of portfolio

FIGURE 1



Plot points A and B in the “Efficient Frontier” graph above represent two policy portfolios. The oversized square symbol covering the third portfolio from the left indicates that it is the optimal asset mix based on the investor’s pre-specified time horizon and return objective. Notice too that all of the efficient portfolios lie within the return constraints shown on the set-up page above.

FIGURE 2



market values for up to six different policy portfolios over varying time periods.

- Hurdle Rate Analysis - Users can calculate the probability that different asset mixes achieve specific return hurdles.

Attribution Analysis Enhancements

The *Fund Summary* chart found within the *Attribution* module has now been added to the *Mutual Fund* module. The *Fund Summary* please see **ENHANCEMENTS, p.4**

SKILL GRAPHS

Manager Skill Graphs

The manager skill graphs on Compass provide us with three pieces of important information on the ability of managers to add value above their benchmark.

- How much value has a manager added above their benchmark?
- How much active management risk has the manager taken to achieve their return?
- Have we been rewarded with an adequate level of excess return for the risk incurred?

The cumulative skill graph plots the manager's annualized level of "value-added" above their benchmark. The red confidence bands on the graph provide us with the required level of confidence for validating a manager's ability to add value. If the manager's excess return (the blue line) is above the top red line, we can say that we are confident, at the designated confidence level, that the manager's return is attributable to the process, not just luck. Conversely, for a manager's return which falls beneath the bottom red line, we can say with stated confidence that the manager's performance is due to a lack of skill and not bad luck.

The information ratio provides us with the ratio of a manager's active return to active risk. Active return is the level of value a manager adds above their benchmark, and active risk is simply the risk the manager takes in deviating from the benchmark. Active risk is calculated by measuring the volatility of a manager's excess return.

The T-Statistic (t-stat) provides information to measure confidence in a manager's return for any time horizon. A t-stat of 1.28 or higher says that a manager's return is significant at the 80% confidence level. A t-stat of 1.15 says that a manager's return is significant at the 75% level.

Create a Cumulative Skill Graph in 3 Steps

1. From the *Performance Analysis* module, select the *Cumulative Skill Graph* option and click on the OK button. If managers and indices have not yet been selected, click on the

Select Managers tab and/or *Select Indices* tab and select or load managers and/or indices before proceeding.

2. Choose the manager, the appropriate benchmark, select the risk measure to be used, and impose the date range to be analyzed.

3. Once all performance options have been established, click once on the OK button to produce the graph. (please see Graph 1)

Compass has two manager skill graphs, cumulative and rolling. While the cumulative graph provides a traditional view of measuring skill, the results are extremely time period sensitive. This is because the level of active return is typically unstable over time. The rolling skill graph resolves this problem by looking at many different time periods in

a single graph. Here the confidence bands are determined by the risk incurred for the total period, while the return represents multiple rolling period excess returns. With the rolling skill graph we assume that the manager's level of active risk is stable but that the active return changes over time.

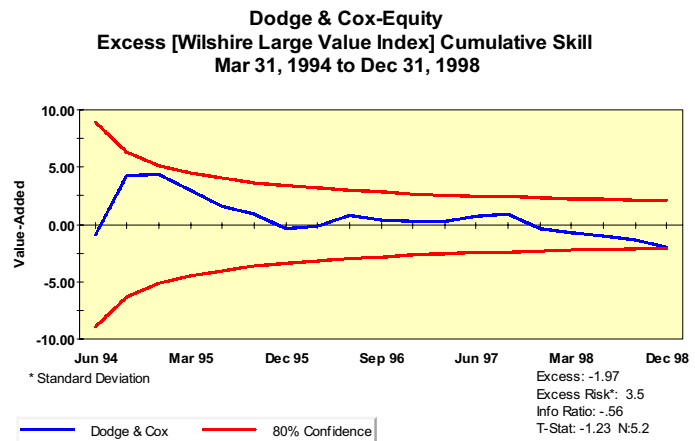
Produce a Rolling Skill Graph in 3 Steps

1. From the *Performance Analysis* module, select the *Rolling Skill* graph option and click on the OK button.

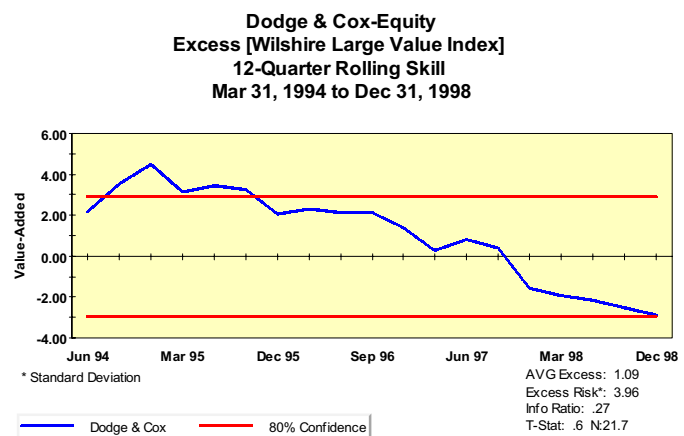
2. Choose the manager, the appropriate benchmark, select the risk measure to be used and impose the date range to be analyzed.

3. Once all performance options have been established, click once on the OK button to produce the graph (please see Graph 2).

GRAPH 1



GRAPH 2



ENHANCEMENTS, continued

chart displays four traditional style and manager skill graphs on a single page using the multi-factor attribution model in *Compass*. The style graphs represent the fund's average style exposures over a single time period and rolling three or five year periods. The cumulative and rolling skill graphs use the normal style benchmark shown in the top style graph to analyze the level and consistency of a fund's excess returns (please see Figure 3).

criteria on a previously screened list of managers. This option is especially useful when imposing multiple levels of criteria at different points in the manager or mutual fund search process. The *Current Screen* option can be applied to any group of managers or mutual funds that have been previously saved under the *Selected Managers/Funds* tab.

for accessing the set-up screens for individual screening criteria has been changed. Once a specific screening criteria has been selected under the *Returns/Characteristics, Product Information, or Business Data* criteria categories, simply click on the category heading such as **Product Information** to access the set-up screen (please see Figure 4).

New Screening Set-Up Process - The process

Style Map Enhancements

The *Style Map* analytics in the *Mutual Fund* module have also been upgraded. All three *Style Analysis Options* give users the ability to use default or custom index settings. The default setting automatically selects Wilshire's standard style indexes for use in the attribution analysis. By choosing the custom option, the user can designate a different set of style indexes to use as the attribution factors. Custom style indexes can be selected using the *Select Index* tab in the main *Mutual Fund* screen.

Other New Features

Add Index as Mutual Fund - Users now have the ability to add or select an index as a mutual fund within the *Mutual Fund* module. This feature allows users to perform portfolio optimizations and simulations using a combination of both mutual funds and indexes. To select an index as a mutual fund, click the

Select Funds tab on the main *Mutual Fund* screen and select the *Asset Classes* menu. Next, click on the drop-down list box and select the *Indices* option. Specific indexes can be located using the scroll bar or by clicking once in the *Select Funds* box to activate it and typing the first few letters of the index name. Once located, double click on each index to add them to the *Fund(s) Selected* box at the bottom of the page.

Current Screen Tool - Additional enhancements have been made to the manager and mutual fund *Screen Database* utilities. The *Current Screen* option on the main *Screen Database* allows users to impose screening

FIGURE 3

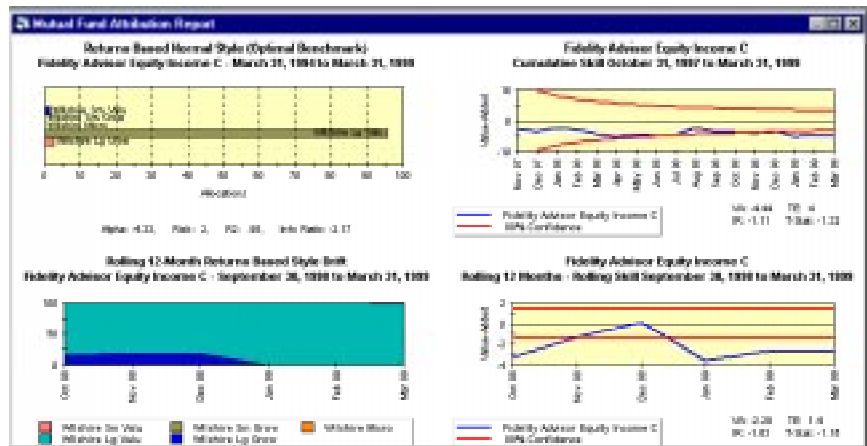


FIGURE 4

