



WILSHIRE

COMPASS

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Setting New Standards in Fund Sponsor Information Systems and Investment Technology

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Wilshire's 2001 Capital Market Assumptions

At the beginning of every year, Wilshire reviews its return and risk assumptions for the major asset classes. Generally, these assumptions change very little, but the last few years have been an exception as the stock and bond markets have shown sizable swings in direction. Consequently, we have been altering our return assumptions up or down by one-half to one percent each year to better fit changing market levels. This year is no exception.

Wilshire benchmarks its U.S. stock and bond forecasts against two references, one historical and the other prospective. Our historical references are the 11.0% and 5.6% annualized returns on the U.S. stock and bond markets, respectively, going back to 1926. Our prospective references are the yield-to-maturity on the bond market and the "dividend discount return" on the stock market. Our rationale for using these references is that discounted cash flow models using market consensus inputs have proven to be the most reliable forecasts of long-term stock and bond returns. As of December 31, 2000, the yield-to-maturity on the Lehman Aggregate Bond Index was 6.43%, down from 7.10% one year ago. The dividend discount return on the S&P 500 Index was 9.72%, up from 9.17% one year ago. Combining the historical and prospective references, Wilshire arrived at our final long-term stock and bond forecasts of 9.50% and 6.25%, respectively.

Risk and correlation forecasts can also have a significant impact on the overall optimal asset allocation. Fortunately, statistical measures of risk (e.g., standard deviation) and correlation from historical returns are generally good predictors of future risk and correlation. Thus, Wilshire's current risk forecasts rely, with some modification, on the historical measurements through December 31, 2000.

For additional information regarding Wilshire's capital market assumptions, please see the complete paper in the Compass Research Module.

Wilshire's Year 2001 Expected Return and Risk Forecasts

	<u>Return</u>	<u>Risk</u>
U.S. Equity	9.50%	17.00%
U.S. Fixed Income	6.25%	7.00%
Non-U.S. Equity	9.50%	20.00%
Non-U.S. Fixed Income	6.00%	13.00%
Cash	4.25%	3.00%
Emerging Markets	9.50%	27.00%
REITS/Real Estate	8.25%	16.00%
Private Markets	12.50%	32.00%
High Yield	7.75%	10.00%
Inflation	2.50%	n/a

Up/Down Performance Analytic

The February 14th Compass update included a new performance analytic called *Up/Down Performance*. This new tool is available in all three manager modules, as well as the mutual fund module. The *Up/Down Performance* analytic allows funds to compare and contrast a manager’s ability to add value when markets, or subsets of markets, are rising or falling. This analytic can be especially useful in evaluating the “defensiveness” of a manager’s investment strategy and the common claim offered by many firms that they tend to add more value in down markets.

A necessary pre-requisite for any discussion of up/down market performance is the selection of a time interval to observe the market’s positive and negative behavior. The *Up/Down Performance* analytic in Compass has selected calendar quarters as the time interval to evaluate market index performance. In addition, users are given the option of specifying the return threshold by which market indexes are deemed to be “up” or “down.” For instance, users can distinguish “up” markets from “down” markets based on whether quarterly index returns are above or below a cash return of 5.0%, rather than above or below the standard threshold of 0.0%.

Creating the Up/Down Performance Graph – 4 Steps







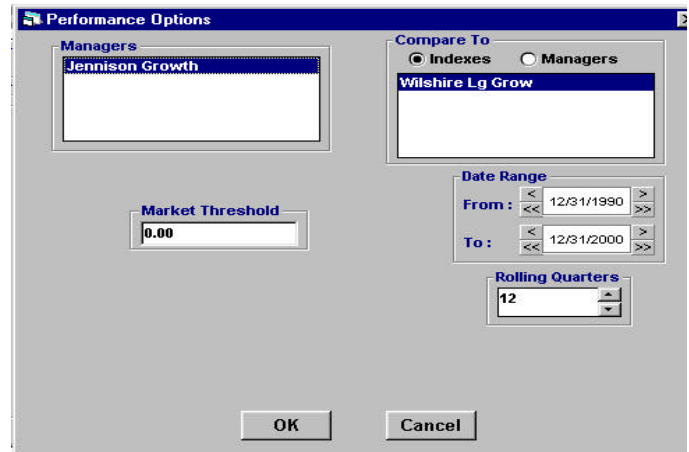

1. Select a manager module from the main *Compass* menu. (For the purpose of this example we will select the  module.)
2. Select a manager to analyze from within the  tab. Next, select an index from within the  tab to represent the market or a subset of the market.
3. Select the  tab and click on the  button. Next, select the  option under the *Skill Analysis* heading (see Exhibit 1).

Exhibit 1



Exhibit 2



4. From the setup screen (see Exhibit 2), highlight the manager and index to be analyzed. Next, select the time interval for the rolling analysis and set the date range to the desired time period. Finally, the user may select a market threshold other than 0.0% to distinguish “up” from “down” markets. Click  to create the graph.

Up/Down Performance Graph – Con’t

The output for the *Up/Down Performance* analytic is composed of four graphs (see Figures 1-4). The graph in the top left-hand corner of the output (Figure 1) depicts the **average** excess return of Jennison’s Large Growth product during all “up” and “down” quarters over each discrete time interval. By selecting *Report* and *Default* from the command menu, we can see that, for the three-year period ending December 31, 2000, the return for the market (i.e., the Wilshire Large Growth Index) was positive in seven quarters and negative in five quarters. Jennison’s average excess return for the seven positive quarters was 2.33%, while their average excess return for the five negative quarters was -.26%. The results in Figure 1 indicate that, over recent years, Jennison has been much more successful in adding-value during “up” markets than during “down” markets.

In the top right-hand graph (Figure 2), we extend the analysis in Figure 1 to incorporate rolling periods. Each symbol in Figure 2 represents Jennison’s average excess return in all “up” and “down” quarters over a series of three-year rolling periods. The results in Figure 2 convey a similar story to Figure 1. Namely, that Jennison has consistently been able to add-value during rising markets, but they have struggled during periods when markets are falling. Note that the larger symbols represent the more recent time periods.

The graph in the bottom left-hand corner (Figure 3), entitled *Manager Market Capture*, offers a different perspective on Jennison’s performance. Each bar in the graph represents the **percentage** of up or down quarters that the manager outperformed the index during each discrete time interval. For example, we know from the *Report* data, that the market experienced seven positive quarters and five negative quarters during the three-year time period ending December 31, 2000. Over this time period, Jennison beat the index in six of the seven positive quarters, and in two of the five negative quarters. These “market capture” percentages (i.e., 6/7 or 85.71% and 2/5 or 40%) are displayed above the “3 Year” label in Figure 3. Again, we observe that Jennison’s “capture” percentage has been consistently above 50% in up markets, and consistently below 50% in down markets.

The graph in the bottom right-hand quarter (Figure 4) depicts the manager’s and index’s annualized performance over standard time periods.

Figure 1

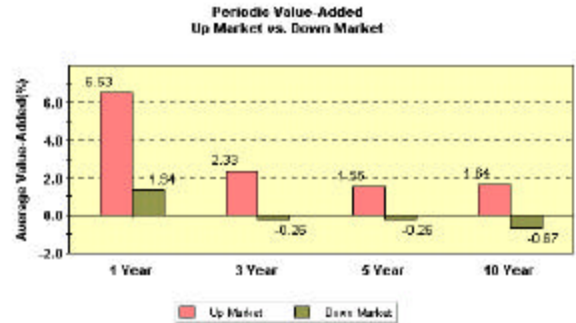


Figure 2

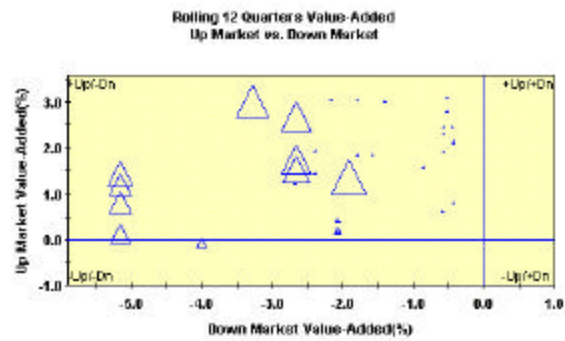


Figure 3

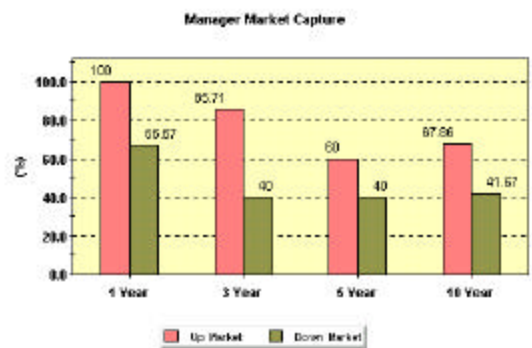


Figure 4



Rolling Skill Analysis

The January 15th Compass update included an important change to the way we calculate the confidence bands within the *Rolling Skill* analytic.

Historically, the confidence bands were calculated using the *standard deviation of the series of annualized three-year excess returns* over the selected time period. For example, a five-year time interval would provide twenty, separate rolling three-year excess return observations. The confidence bands were then based on the standard deviation of this twenty-observation sample. Because the traditional calculation approach assessed manager skill using a constant interval over a distinct period of time, the confidence bands were flat.

In response to several client requests, we have modified the confidence band calculation to reflect the excess risk experienced during *each distinct three-year rolling period*. As expected, this change results in confidence bands that fluctuate through time depending on the unique level of excess risk experienced during the rolling observation. Each point along the fluctuating upper confidence band reflects the annualized return the manager would have had to achieve, over the coinciding three-year period, in order to have been deemed skillful for that particular period.

This type of skill analysis can help users identify trends in a manager's excess returns as well as changes in the manager's level of active management risk.

Compass 2001 Technology Conference

The Compass team has finalized arrangements for the Compass 2001 Technology Conference. The conference will be held from October 3-5, 2001 at the Westin La Paloma resort in Tucson, Arizona.

The Westin La Paloma is a world class resort and spa located in the Sonora desert of the Santa Catalina Mountains. The conference will include general sessions dedicated to broader investment topics as well as hands-on training sessions using the Wilshire Compass. Mark your calendar today!

Taken together, users can then draw accurate conclusions about a specific manager's level of skill.

Figure 5

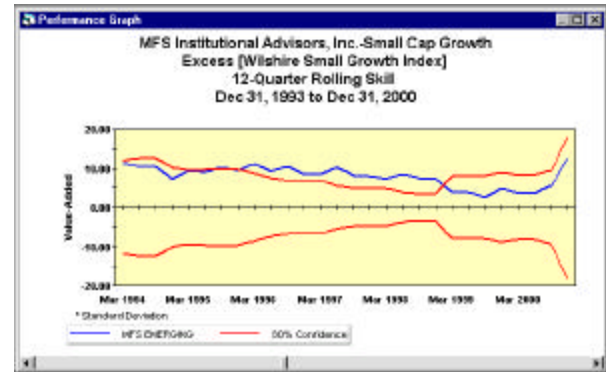


Figure 5 provides an example of the new rolling skill analytic in *Compass*. The fluctuating width of the red confidence bands in the rolling skill graph indicate that MFS Institutional Advisors has exhibited various levels of active management risk over the years. The blue line in the graph above represents the annualized three-year excess return. MFS' results indicate skillful performance throughout the mid-1990's (i.e., the blue excess return line exceeds the upper red confidence band). Over more recent three-year periods, however, MFS has incurred a higher level of active management risk while failing to provide higher excess returns (i.e., the blue excess return line falls below the upper red confidence band). Therefore, we cannot assert, with a high level of confidence, that MFS' recent performance represents skillful management.

