# Sample Reports for The Expert Allocator

**by Investment Technologies**

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# Introduction

Power.  Flexibility.  Ease-of-use.  That's what you get with The Expert Allocator.

Power with dual-frontier optimization, your choice of risk measures, and state-of-the-art modeling of skewed return distributions.

Flexibility with the Analysis Window's flexible layout and point-and-click design, customizable charts, surplus optimization, after-tax capabilities, wealth projections, and built-in forecasting tools to help you develop asset assumptions.

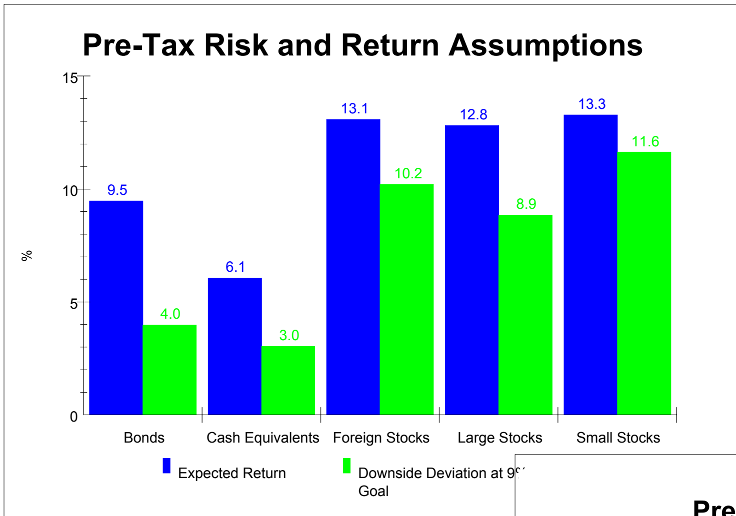
Ease-of-use with The Expert Allocator's intuitive Desktop that guides you through the three steps in an asset allocation worksession.

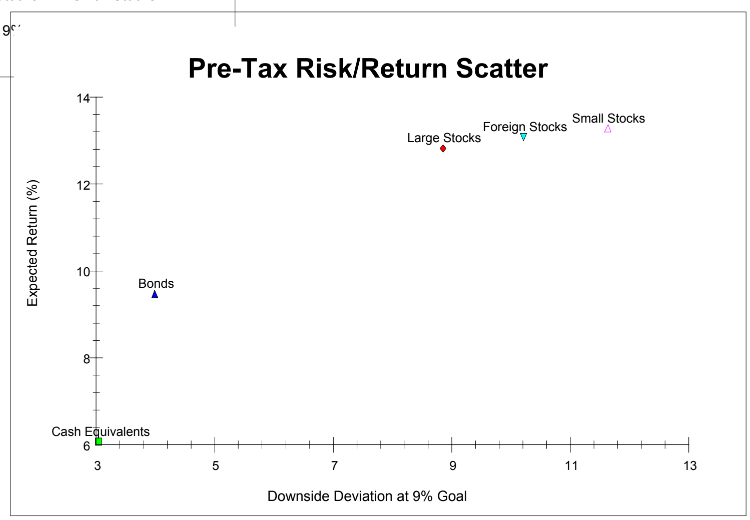
Just to name a few.

This booklet contains a sampling of the many charts and tables available in The Expert Allocator.  Use The Allocator's ready-made charts or create your own.  Charts can be customized in the Allocator or exported to other Windows applications such as Word, Freelance, PowerPoint, and Harvard Graphics. Worksheet tables can be printed or exported to Excel or a text file.

# Asset Assumptions

# Risk and Return Assumptions




Use The Expert Allocator's forecasting tools to develop risk, return, and correlations assumptions from historical returns or economic scenario forecasting. Or enter your own assumptions directly into the Risk and Return worksheet and Correlation worksheet. Then present your assumptions in chart or table form. Show returns as pre-tax or after-tax, and risk as standard deviation or downside deviation.

*To evaluate the effect of risk measure on portfolio selection, optimize two efficient frontiers--one using downside deviation and the other using standard deviation.*

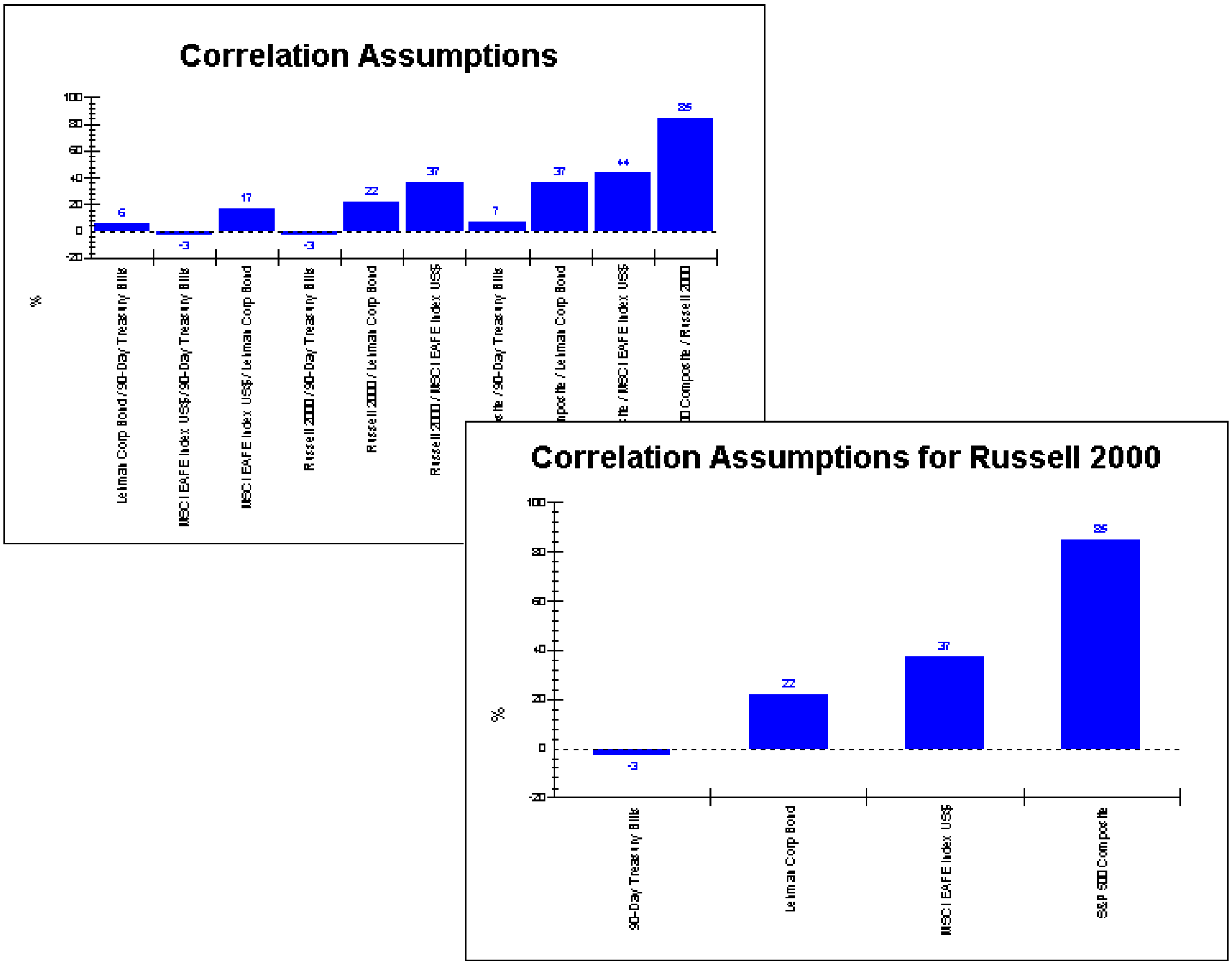
# Risk and Return Assumptions

| Asset Class | Expected Return | Downside Dev@ 9.00% | Std Dev | 90%ile Return | 10%ile Return | Vol Skew | Ret Distribution Shape | Asset Proxy |
|---|---|---|---|---|---|---|---|---|
| Bonds | 9.47 | 3.99 | 5.86 | 1.86 | 16.85 | 0.95 | True | Fixed Income |
| Cash Equivalents | 6.07 | 3.04 | 0.81 | 5.14 | 7.14 | 1.26 | True | All Income |
| Foreign Stocks | 13.08 | 10.21 | 17.19 | -9.16 | 34.87 | 0.97 | True | Large-Cap Equity |
| Large Stocks | 12.82 | 8.85 | 14.82 | -6.50 | 31.37 | 0.94 | True | Large-Cap Equity |
| Small Stocks | 13.28 | 11.63 | 20.93 | -12.53 | 40.74 | 1.10 | True | Small-Cap Equity |

You can show each asset's risk and return statistics based on (1) its true underlying distribution (which may be skewed) and normal distribution and (2) pre-tax or after-tax basis. All forecasts can be edited directly in the Risk and Return worksheet. Add a liability or benchmark to do surplus optimization.

*To evaluate the effect of return distribution shape on portfolio selection, optimize two efficient frontiers--one using true distributions and the other using normal distributions.*

# Correlation Assumptions




Show correlations graphically for all assets (below left) or for one asset at a time (below right).

# Correlation Assumptions

| | Bonds | Cash Equivalents | Foreign Stocks | Large Stocks | Small Stocks |
|---|---|---|---|---|---|
| **Bonds** | 100 | | | | |
| **Cash Equivalents** | -5 | 100 | | | |
| **Foreign Stocks** | 23 | -15 | 100 | | |
| **Large Stocks** | 38 | -9 | 47 | 100 | |
| **Small Stocks** | 27 | -8 | 41 | 81 | 100 |

Correlations can be edited directly in the Correlation worksheet. All values are automatically checked for consistency.

*To evaluate the benefits of diversification in portfolio selection, optimize two efficient frontiers--one using your correlation assumptions and the other using perfect positive correlation for all assets.*

# Investor Information

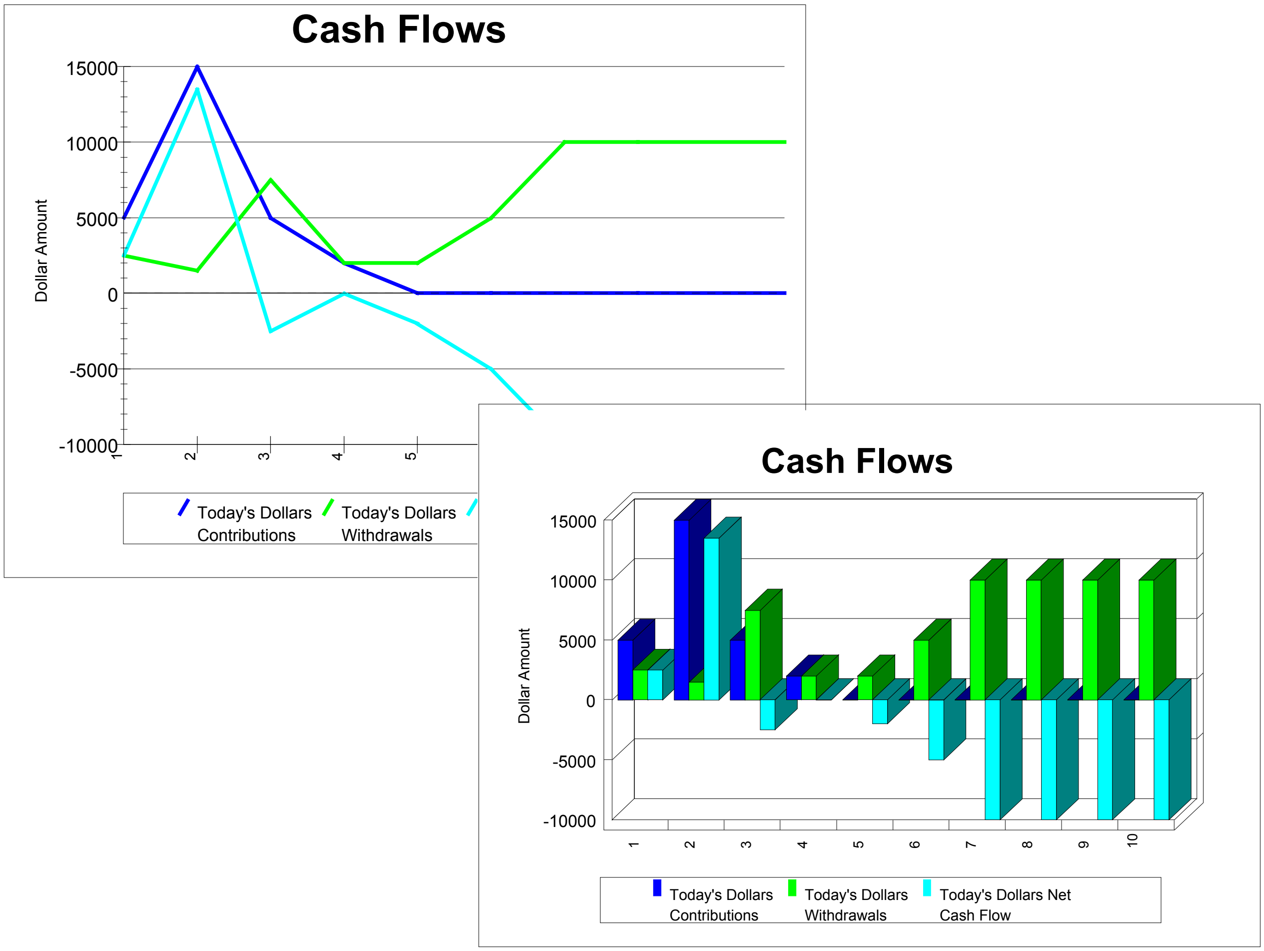
# Asset Mix Constraints

| Asset Class | Min | Max | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7 |
|---|---|---|---|---|---|---|---|---|---|
| Bonds | 0 | 100 | | | | | | | |
| Cash Equivalents | 0 | 100 | | | | | | | |
| Foreign Stocks | 0 | 25 | x | | | | | | |
| Large Stocks | 0 | 80 | x | | | | | | |
| Small Stocks | 0 | 80 | x | | | | | | |
| | | Group Min | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Group Max | 80 | 100 | 100 | 100 | 100 | 100 | 100 |

Because investors usually have requirements and limitations on exposure to certain assets, The Expert Allocator provides the flexibility to impose minimum and maximum asset mix constraints for individual assets and groups of assets. Constraints can be edited directly in the Constraints worksheet. All values are checked for consistency.

*To evaluate the effect of constraints on portfolio selection, optimize two efficient frontiers--one with constraints and one without.*

# Wealth and Cash Flows




With The Expert Allocator, you can analyze optimization results in projected wealth values. In your analysis, you can specify the investor's beginning wealth and incorporate annual contributions to and withdrawals from the portfolio for up to 20 years. For each year, select a "best month" for more accurate weighting of annual cash flows.

# Wealth and Cash Flows

| | |
|---|---|
| Beginning Wealth: | $1,000,000.00 |
| Years to Project: | 5 |
| Enter Cash Flows in: | Today's Dollars |
| Project Wealth with Cash Flows in: | Future Dollars |
| Annual Inflation Rate: | 5.00% |

| | Today's Dollars | | | Future Dollars | | | |
|---|---|---|---|---|---|---|---|
| **Year** | **Contributions** | **Withdrawals** | **Net Cash Flow** | **Contributions** | **Withdrawals** | **Net Cash Flow** | **Timing** |
| 1 | $10,000.00 | $2,500.00 | $7,500.00 | $10,500.00 | $2,625.00 | $7,875.00 | Jul |
| 2 | 2,500.00 | 5,000.00 | -2,500.00 | 2,756.25 | 5,512.50 | -2,756.25 | Jul |
| 3 | 5,000.00 | 3,500.00 | 1,500.00 | 5,788.13 | 4,051.69 | 1,736.44 | Jul |
| 4 | 1,000.00 | 2,000.00 | -1,000.00 | 1,215.51 | 2,431.01 | -1,215.51 | Jul |
| 5 | 10,000.00 | 1,000.00 | 9,000.00 | 12,762.82 | 1,276.28 | 11,486.53 | Jul |
| 6 | 10,000.00 | 1,000.00 | 9,000.00 | 13,400.96 | 1,340.10 | 12,060.86 | Jul |
| 7 | 0.00 | 5,000.00 | -5,000.00 | 0.00 | 7,035.50 | -7,035.50 | Jul |
| 8 | 0.00 | 5,000.00 | -5,000.00 | 0.00 | 7,387.28 | -7,387.28 | Jul |
| 9 | 0.00 | 5,000.00 | -5,000.00 | 0.00 | 7,756.64 | -7,756.64 | Jul |
| 10 | 0.00 | 5,000.00 | -5,000.00 | 0.00 | 8,144.47 | -8,144.47 | Jul |

# Tax Details

The Expert Allocator offers the capability to calculate and optimize with after-tax returns. Specify Federal, State, and Local tax rates for capital gains and ordinary income in the Tax Rates worksheet.

For each Asset Proxy, specify the proportion of total (pre-tax) return from taxable capital gains, from taxable dividend and interest, and free of taxes in the Asset Proxy worksheet. Each asset in your analysis is assigned an Asset Proxy in order to calculate after-tax returns.

**Tax Rates:**

| | Marginal Long-Term Capital-Gains Rates | Marginal Short-Term Capital-Gains and Ordinary-Income Rates |
|---|---|---|
| Federal | 28.0 | 39.0 |
| State | 6.0 | 6.0 |
| Local | 2.0 | 2.0 |
| Total | 36.0 | 47.0 |

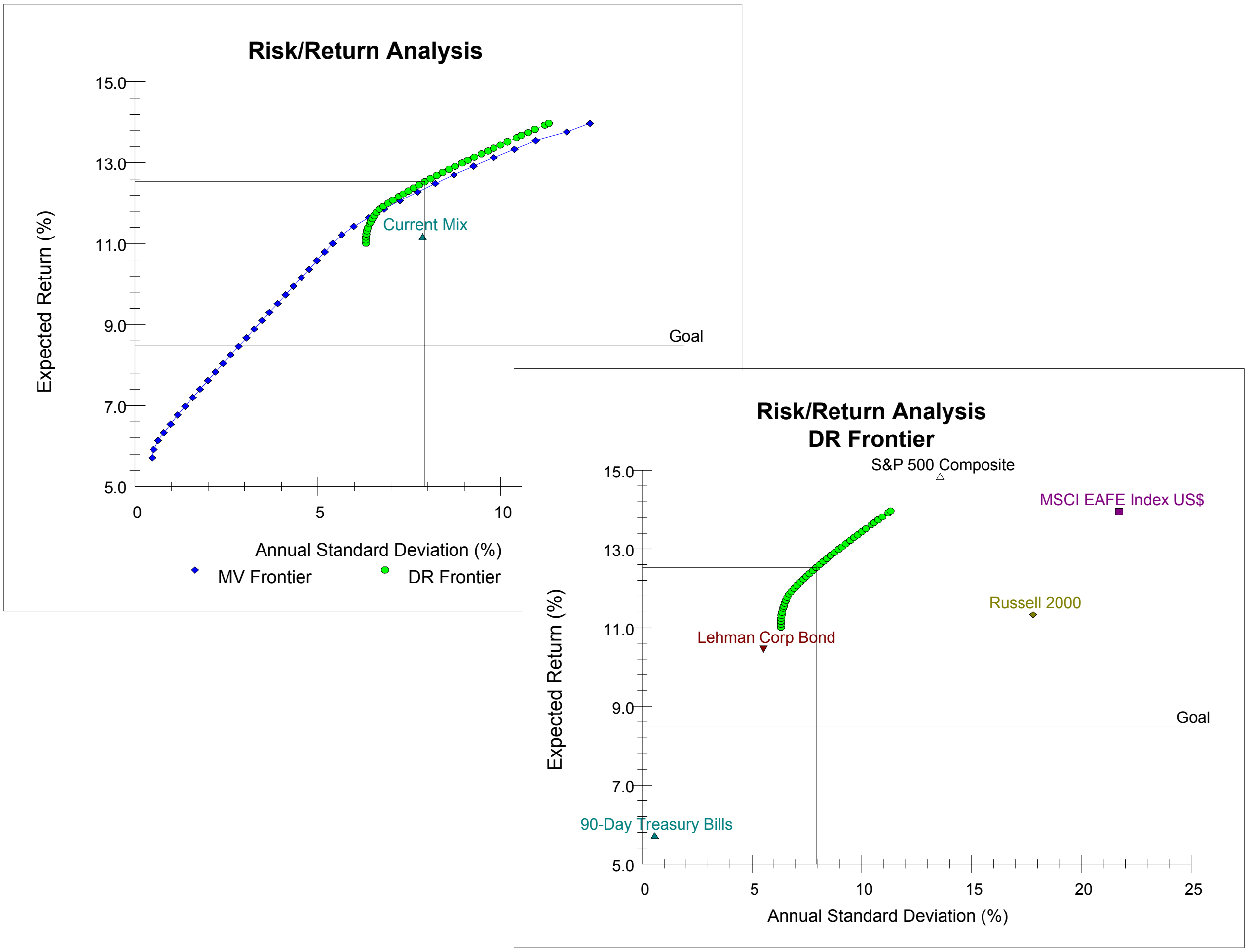
**Asset Proxies:**

| Asset Proxy | Portion of Pre-Tax Return from Taxable Capital Gains | Portion of Pre-Tax Return from Taxable Dividends and Interest | Portion of Total Return Free of Taxes | Total | Annual Turnover |
|---|---|---|---|---|---|
| Tax Free | 0.0 | 0.0 | 100.0 | 100.0 | 0.0 |
| All Capital Gains | 100.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| All Income | 0.0 | 100.0 | 0.0 | 100.0 | 0.0 |
| Large-Cap Equity | 80.0 | 20.0 | 0.0 | 100.0 | 0.0 |
| Small-Cap Equity | 90.0 | 10.0 | 0.0 | 100.0 | 0.0 |
| Fixed Income | 30.0 | 70.0 | 0.0 | 100.0 | 0.0 |

*To evaluate the effect of taxes on portfolio selection, optimize two efficient frontiers--one using pre-tax returns and the other using after-tax returns.*

# Evaluating Optimization Results

# Risk/Return Analysis

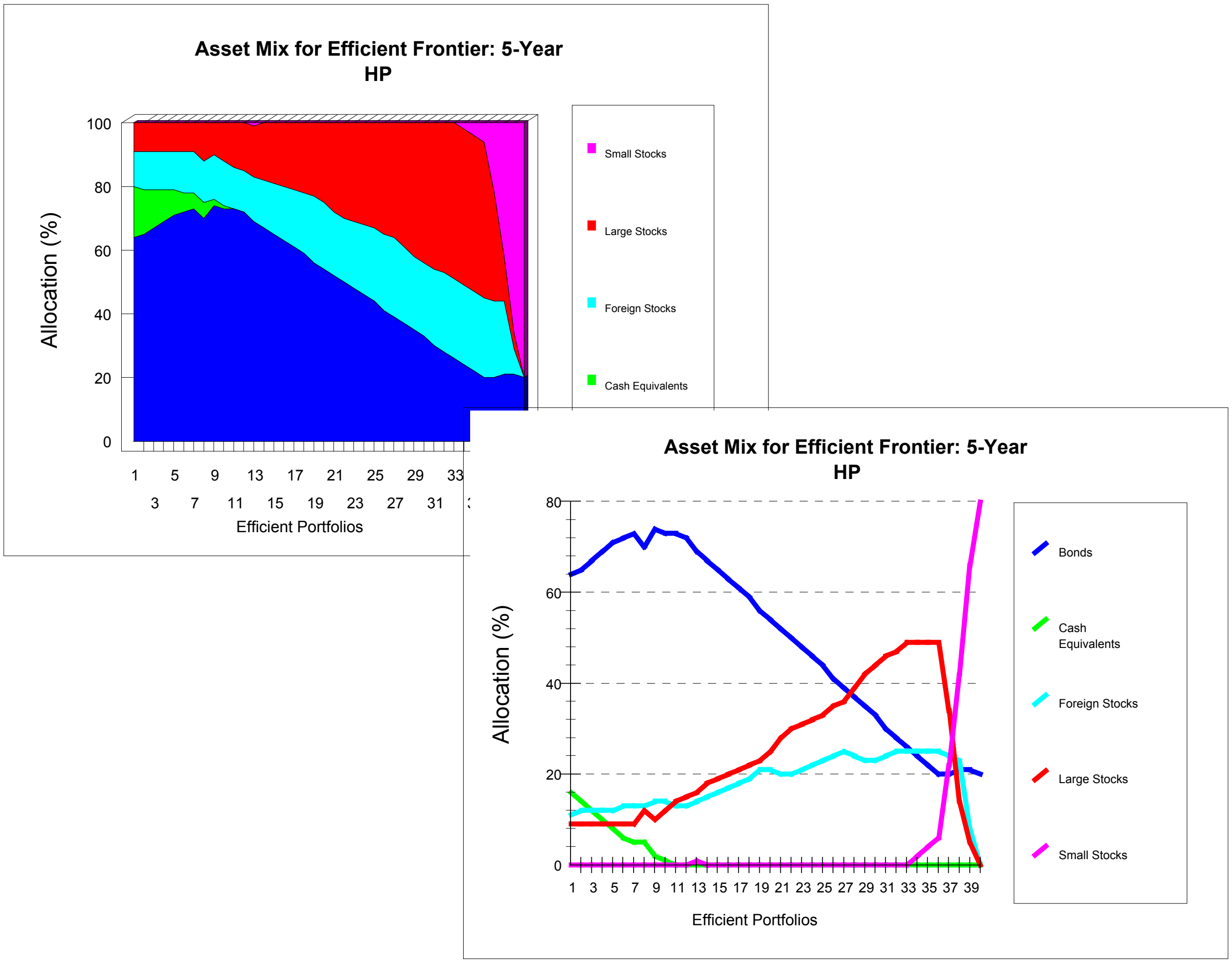



Only The Expert Allocator lets you display and analyze two frontiers simultaneously…or just one at a time. With two frontiers, you can easily and immediately evaluate the impact from:

- imposing constraints on asset holdings
- gaining benefits from diversification
- having different investment horizons
- having different investment goals
- using two different risk measures
- taxes
- skewness in forecasted asset returns

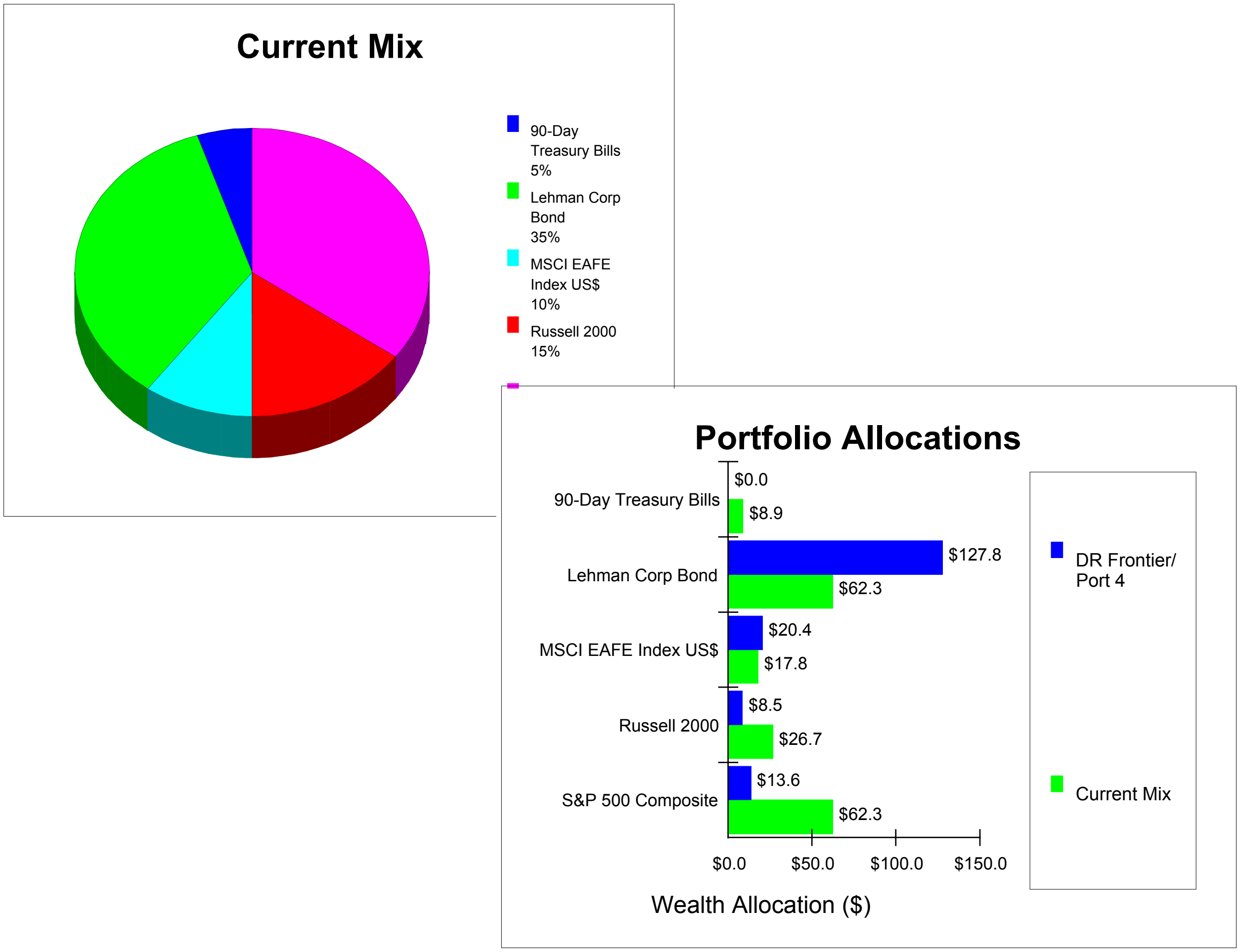
With the click of your mouse, you can plot returns or wealth values on the vertical axis and choose among ten different risk measures to plot on the horizontal axis.

# Asset Mix Analysis



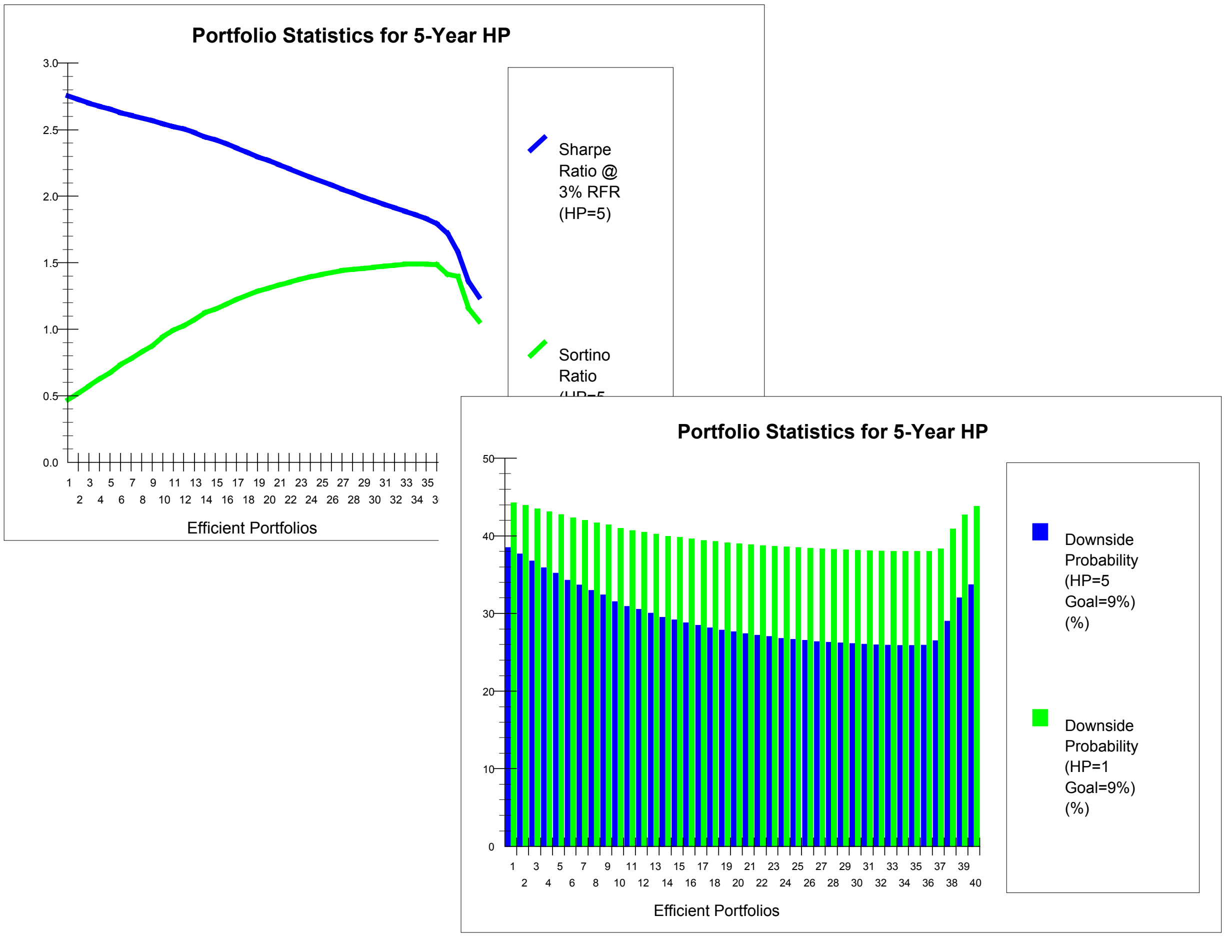

You can see asset allocation for the entire efficient frontier in a single chart. At a glance you can see which assets are included (and which are not) and whether any constraints have been hit.

# Asset Mix Analysis




Show asset mix for a single portfolio in a pie chart or compare allocations of two portfolios in a bar chart using percentages or wealth values.

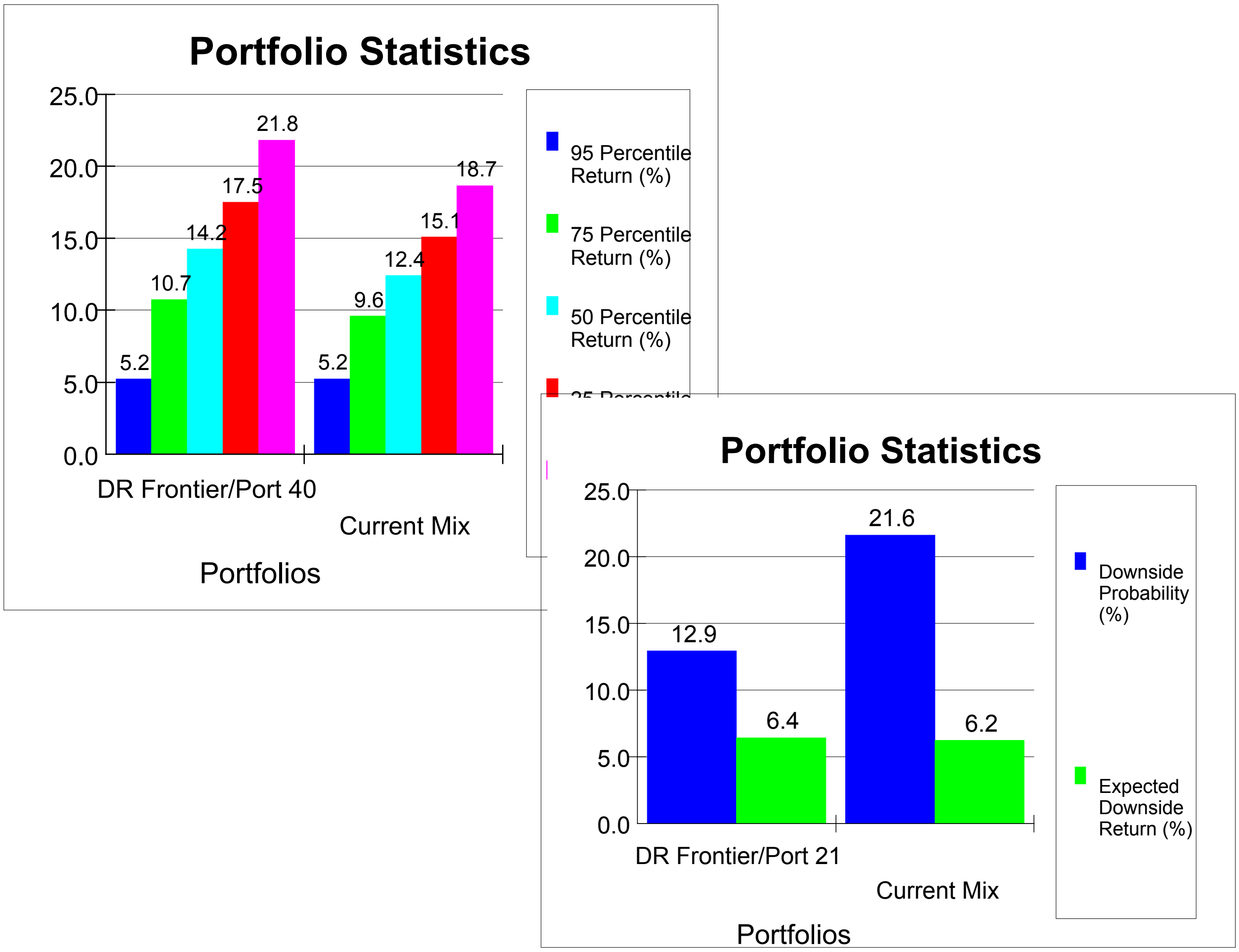
# Portfolio Statistics




The Expert Allocator's most versatile chart, the Portfolio Statistics chart, is defined by *you*. Display just the information you want to show. Select from over 30 different portfolio statistics, three different holding periods, and four different goals.

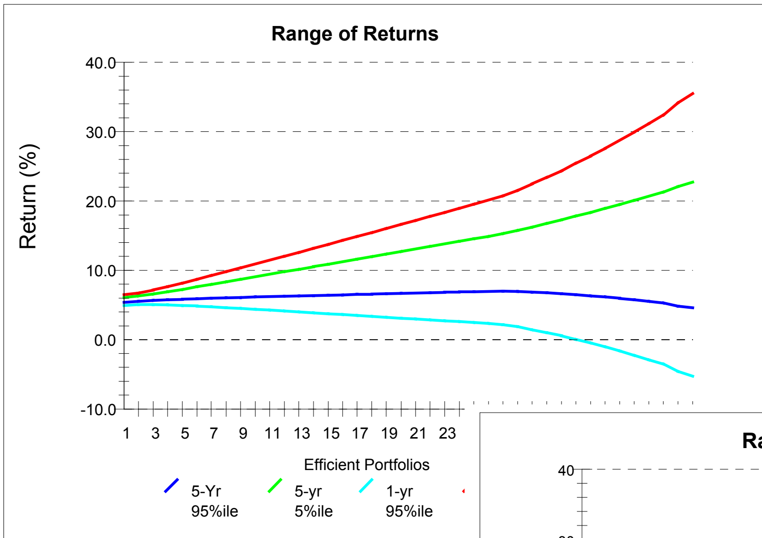
Display portfolio statistics for a single frontier, for two frontiers on the same chart, for assets, or for portfolios you specify.

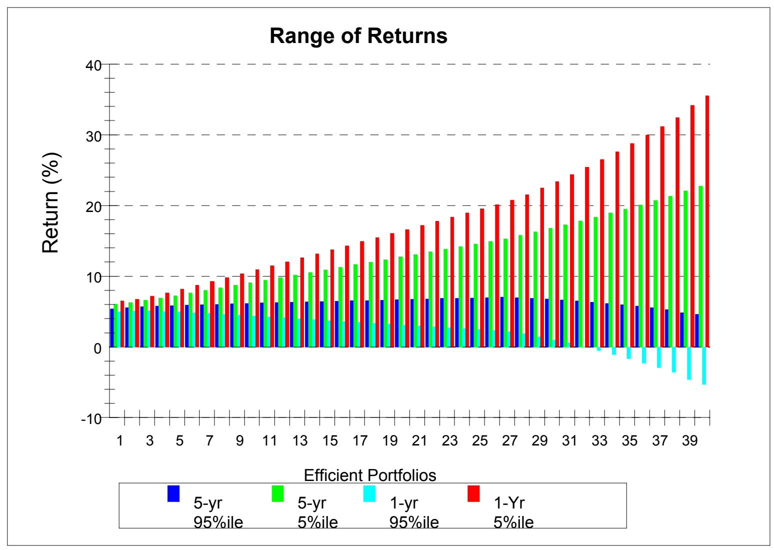
# Portfolio Statistics




Compare your choice of portfolio statistics for any two portfolios.

# Confidence Analysis




Illustrate uncertainty with The Expert Allocator's Confidence charts. Show how the range of possible returns varies across the frontier and over time.

# The Shape of Uncertainty


Now you can accurately assess the true risk for an asset, portfolio, or manager. The Expert Allocator is the only optimizer that handles both symmetrical and skewed returns.

At a glance, you can see the dispersion of possible returns for each portfolio, whether they are normally distributed or skewed, and how they compare with other portfolios.