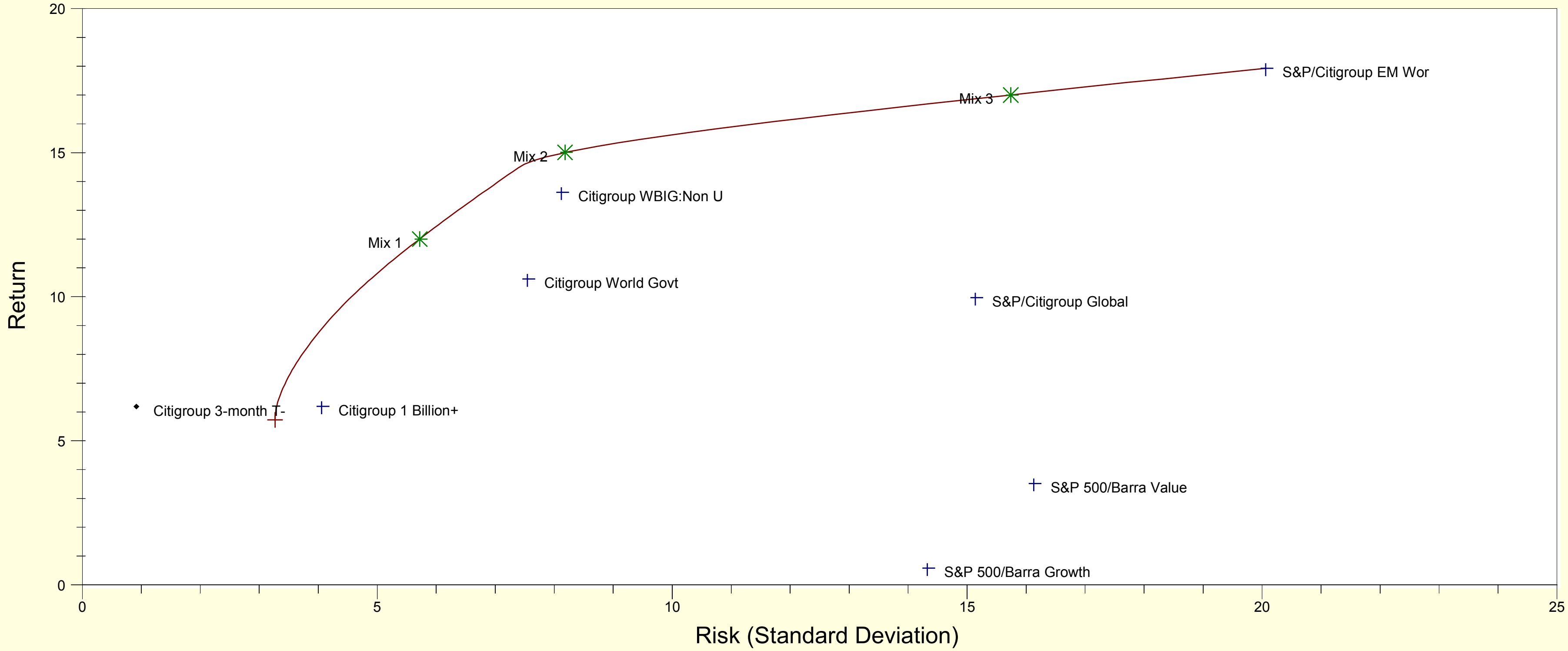
# Asset Allocation Analysis- Historical CAPM

**SMART Allocation Advisor**

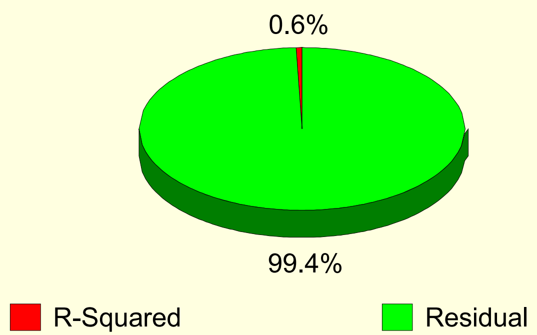
## Efficient Frontier

Case: Allocation Case     Return vs. Risk (Standard Deviation)




## Tracking to Benchmark - Active Portfolio

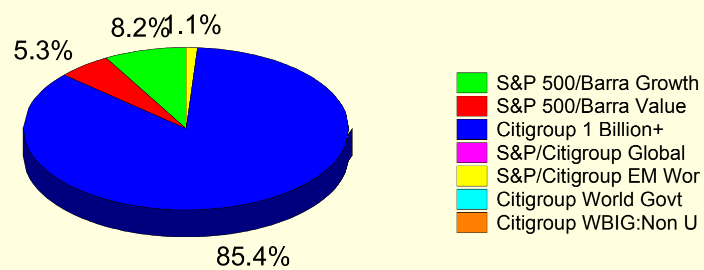
Case: Allocation Case     Citigroup 3-month T-




Tracking Error: 3.28%

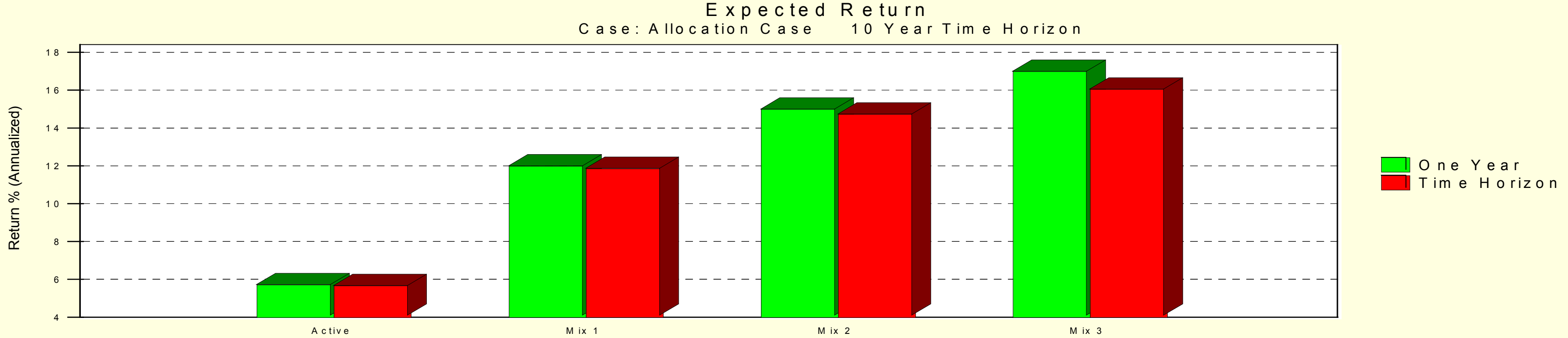
## Asset Allocations - Active Portfolio

Case: Allocation Case     Percent of Portfolio




Portfolio Return: 5.72%
Portfolio Standard Deviation: 3.27%

# Asset Allocation Analysis- Historical CAPM




## Portfolio Statistics

Case: Allocation Case     Target Return: 10.00% - 10 Year Time Horizon - 95% of Projected Return Distribution

| Portfolio Allocations | Active Portfolio | Mix 1 | Mix 2 | Mix 3 |
|---|---|---|---|---|
| **Asset Allocations** | | | | |
| S&P 500/Barra Growth | 8.2% | 0.0% | 0.0% | 0.0% |
| S&P 500/Barra Value | 5.3% | 0.0% | 0.0% | 0.0% |
| Citigroup 1 Billion+ | 85.4% | 31.5% | 0.0% | 0.0% |
| S&P/Citigroup Global | 0.0% | 0.0% | 0.0% | 0.0% |
| S&P/Citigroup EM Wor | 1.1% | 16.7% | 32.1% | 78.6% |
| Citigroup World Govt | 0.0% | 0.0% | 0.0% | 0.0% |
| Citigroup WBIG:Non U | 0.0% | 51.9% | 67.9% | 21.4% |
| **Portfolio Statistics** | | | | |
| **Expected Return (Annualized)** | | | | |
| One Year | 5.7% | 12.0% | 15.0% | 17.0% |
| Time Horizon | 5.7% | 11.9% | 14.7% | 16.1% |
| **Expected Risk** | | | | |
| One Year | 3.3% | 5.7% | 8.2% | 15.7% |
| Time Horizon | 1.0% | 1.8% | 2.6% | 4.9% |
| **Best Case Return (Annualized)** | | | | |
| One Year | 12.3% | 23.6% | 31.9% | 50.8% |
| Time Horizon | 7.7% | 15.4% | 19.9% | 26.0% |
| **Worst Case Return (Annualized)** | | | | |
| One Year | -0.5% | 1.2% | -0.2% | -10.8% |
| Time Horizon | 3.7% | 8.4% | 9.8% | 6.7% |
| **Probability of Target Return** | | | | |
| One Year | 9.7% | 62.8% | 72.2% | 65.3% |
| Time Horizon | 0.0% | 85.0% | 96.9% | 89.3% |
| **Probability of Negative Return** | | | | |
| One Year | 3.7% | 1.4% | 2.7% | 13.5% |
| Time Horizon | 0.0% | 0.0% | 0.0% | 0.0% |
| **Tracking to Market Benchmark** | | | | |
| **Benchmark Tracking** | | | | |
| R-Squared | 1% | 1% | 4% | 7% |
| Tracking Error | 3.28% | 5.74% | 8.24% | 15.80% |

# Asset Allocation Analysis- Historical CAPM

## Analysis Inputs

Case: Allocation Case

### Analysis Inputs

| | Forecast | | Date | | Constraint | |
|---|---|---|---|---|---|---|
| | Return | Risk | Start | End | Min | Max |
| **Assets** | | | | | | |
| S&P 500/Barra Growth | 0.6% | 14.3% | Jul 2001 | Jun 2007 | 0% | 100% |
| S&P 500/Barra Value | 3.5% | 16.1% | Jul 2001 | Jun 2007 | 0% | 100% |
| Citigroup 1 Billion+ | 6.2% | 4.1% | Jul 2001 | Jun 2007 | 0% | 100% |
| S&P/Citigroup Global | 10.0% | 15.1% | Jul 2001 | Jun 2007 | 0% | 100% |
| S&P/Citigroup EM Wor | 17.9% | 20.1% | Jul 2001 | Jun 2007 | 0% | 100% |
| Citigroup World Govt | 10.6% | 7.5% | Jul 2001 | Jun 2007 | 0% | 100% |
| Citigroup WBIG:Non U | 13.6% | 8.1% | Jul 2001 | Jun 2007 | 0% | 100% |
| **Benchmark** | | | | | | |
| Citigroup 3-month T- | 6.2% | 0.9% | Jan 1978 | Jun 2007 | | |

**Projection Inputs**

| | |
|---|---|
| Target Return: | 10.0% |
| Time Horizon: | 10 Years |
| Initial Value: | $1,000,000 |

### Correlations

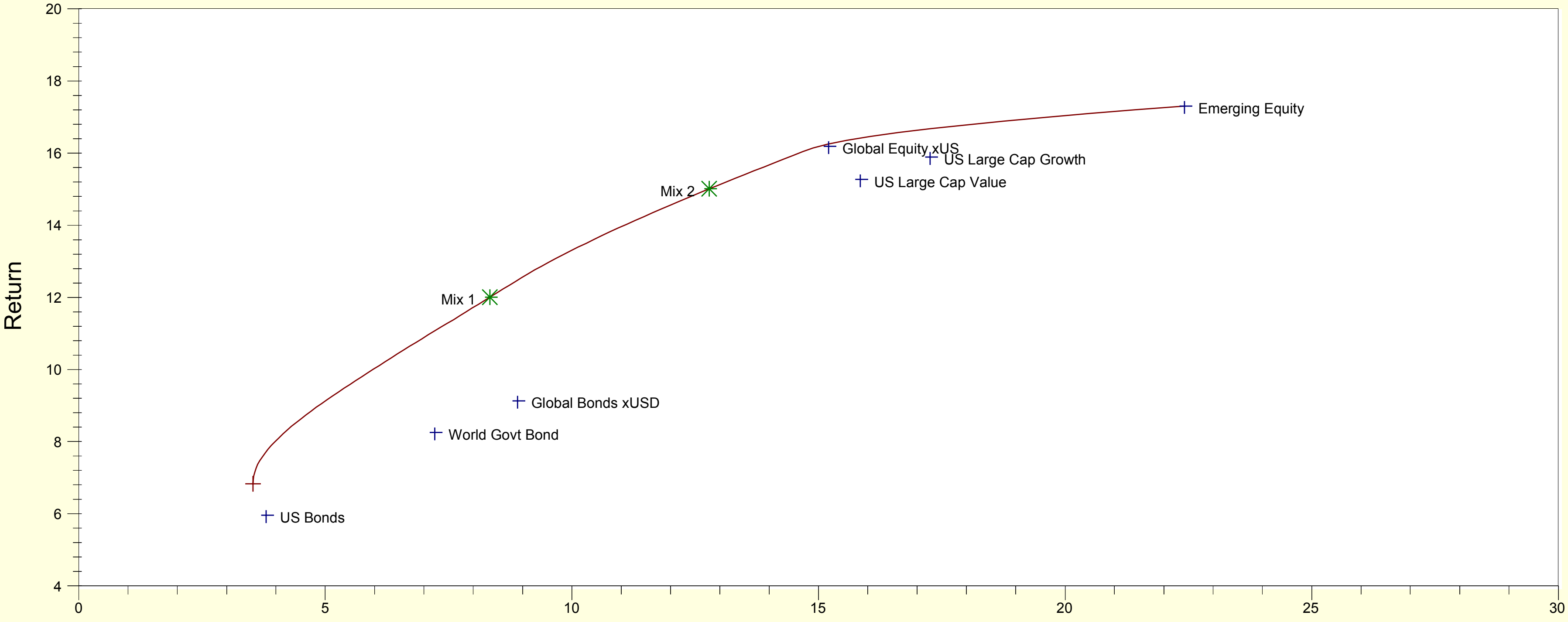
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. S&P 500/Barra Growth | 1.00 | | | | | | |
| 2. S&P 500/Barra Value | 0.85 | 1.00 | | | | | |
| 3. Citigroup 1 Billion+ | -0.37 | -0.39 | 1.00 | | | | |
| 4. S&P/Citigroup Global | 0.73 | 0.76 | -0.28 | 1.00 | | | |
| 5. S&P/Citigroup EM Wor | 0.61 | 0.65 | -0.28 | 0.78 | 1.00 | | |
| 6. Citigroup World Govt | 0.03 | 0.01 | 0.61 | 0.16 | -0.07 | 1.00 | |
| 7. Citigroup WBIG:Non U | -0.23 | -0.12 | 0.60 | 0.07 | -0.07 | 0.96 | 1.00 |

**SMART Allocation Advisor**

# Asset Allocation Analysis- Black-Litterman Model

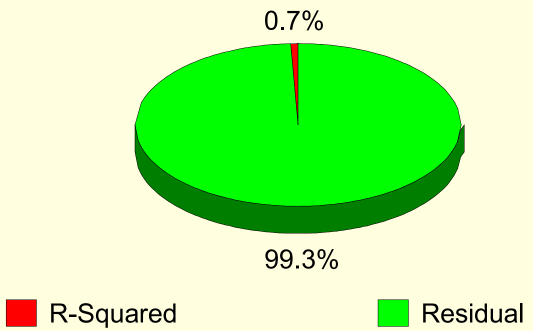
## Efficient Frontier

Case: Allocation Case     Return vs. Risk (Standard Deviation)




## Tracking to Benchmark - Active Portfolio

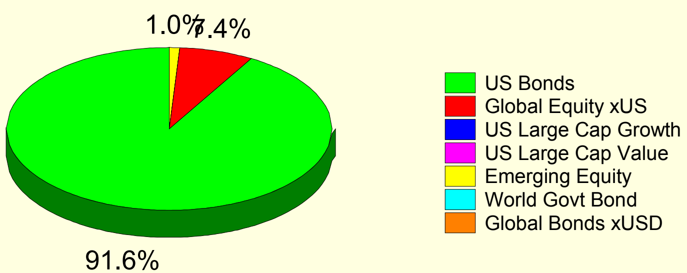
Case: Allocation Case     S&P/Citigroup World




Tracking Error: 14.67%

## Asset Allocations - Active Portfolio

Case: Allocation Case     Percent of Portfolio




Portfolio Return: 6.83%
Portfolio Standard Deviation: 3.53%

# Asset Allocation Analysis- Black-Litterman Model

## Portfolio Statistics

Case: Allocation Case Target Return: 10.00% - 10 Year Time Horizon - 95% of Projected Return Distribution

### Portfolio Allocations

| | Active Portfolio | Mix 1 | Mix 2 |
|---|---|---|---|
| **Asset Allocations** | | | |
| US Bonds | 91.6% | 9.3% | 0.0% |
| Global Equity xUS | 7.4% | 19.0% | 59.6% |
| US Large Cap Growth | 0.0% | 13.6% | 18.1% |
| US Large Cap Value | 0.0% | 12.5% | 7.3% |
| Emerging Equity | 1.0% | 1.7% | 0.0% |
| World Govt Bond | 0.0% | 0.0% | 0.0% |
| Global Bonds xUSD | 0.0% | 43.9% | 15.1% |
| **Portfolio Statistics** | | | |
| **Expected Return (Annualized)** | | | |
| One Year | 6.8% | 12.0% | 15.0% |
| Time Horizon | 6.8% | 11.7% | 14.4% |
| **Expected Risk** | | | |
| One Year | 3.5% | 8.3% | 12.8% |
| Time Horizon | 1.1% | 2.6% | 4.0% |
| **Best Case Return (Annualized)** | | | |
| One Year | 13.9% | 29.2% | 42.0% |
| Time Horizon | 9.0% | 17.0% | 22.4% |
| **Worst Case Return (Annualized)** | | | |
| One Year | 0.1% | -3.5% | -8.0% |
| Time Horizon | 4.6% | 6.7% | 6.7% |
| **Probability of Target Return** | | | |
| One Year | 18.4% | 58.1% | 63.5% |
| Time Horizon | 0.2% | 74.2% | 86.3% |
| **Probability of Negative Return** | | | |
| One Year | 2.4% | 6.9% | 11.4% |
| Time Horizon | 0.0% | 0.0% | 0.0% |
| **Tracking to Market Benchmark** | | | |
| **Benchmark Tracking** | | | |
| R-Squared | 1% | 57% | 85% |
| Tracking Error | 14.67% | 9.89% | 5.71% |

# Asset Allocation Analysis- Black-Litterman Model

## Analysis Inputs

Case: Allocation Case

### Analysis Inputs

| | Forecast Return | Forecast Risk | Date Start | Date End | Constraint Min | Constraint Max |
|---|---|---|---|---|---|---|
| **Assets** | | | | | | |
| US Bonds | 6.0% | 3.8% | Jan 1999 | Jun 2007 | 0% | 100% |
| Global Equity xUS | 16.2% | 15.2% | Jan 1999 | Jun 2007 | 0% | 100% |
| US Large Cap Growth | 15.9% | 17.3% | Jan 1999 | Jun 2007 | 0% | 100% |
| US Large Cap Value | 15.3% | 15.8% | Jan 1999 | Jun 2007 | 0% | 100% |
| Emerging Equity | 17.3% | 22.4% | Jan 1999 | Jun 2007 | 0% | 100% |
| World Govt Bond | 8.2% | 7.2% | Jan 1999 | Jun 2007 | 0% | 100% |
| Global Bonds xUSD | 9.1% | 8.9% | Jan 1999 | Jun 2007 | 0% | 100% |
| **Benchmark** | | | | | | |
| S&P/Citigroup World | 13.9% | 13.9% | Aug 1989 | Jun 2007 | | |

**Projection Inputs**

| | |
|---|---|
| Target Return: | 10.0% |
| Time Horizon: | 10 Years |
| Initial Value: | $1,000,000 |

### Correlations

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. US Bonds | 1.00 | | | | | | |
| 2. Global Equity xUS | -0.14 | 1.00 | | | | | |
| 3. US Large Cap Growth | 0.18 | 0.73 | 1.00 | | | | |
| 4. US Large Cap Value | 0.17 | 0.76 | 0.85 | 1.00 | | | |
| 5. Emerging Equity | -0.16 | 0.78 | 0.61 | 0.65 | 1.00 | | |
| 6. World Govt Bond | 0.57 | 0.16 | 0.03 | 0.01 | -0.07 | 1.00 | |
| 7. Global Bonds xUSD | 0.50 | 0.24 | -0.05 | -0.02 | 0.03 | 0.99 | 1.00 |

### Black-Litterman Model Inputs

| | |
|---|---|
| Palette Risk Premium | 6.50% |
| Risk-free Rate | 5.00% |

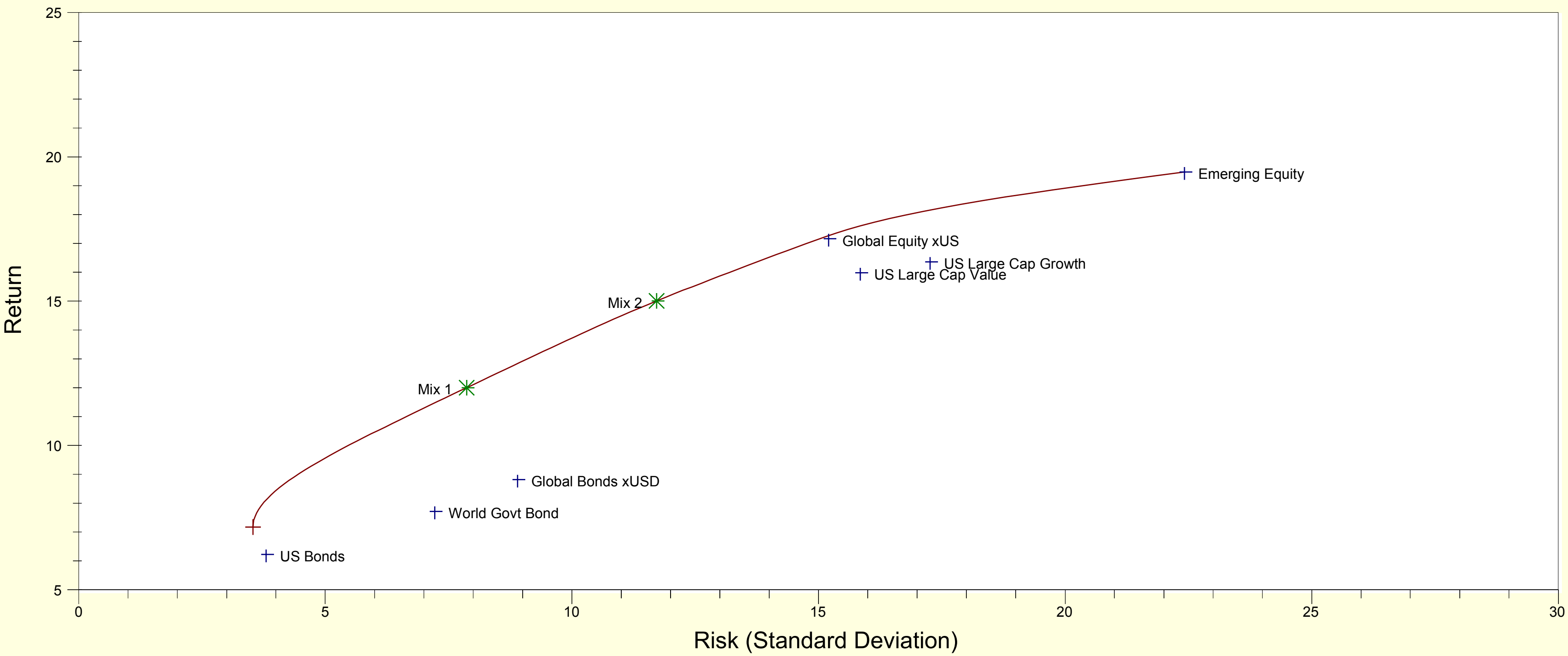
| | Market Cap (millions) | Date | Weight |
|---|---|---|---|
| US Bonds | $8,723,389 | Jun 2007 | 15.34% |
| Global Equity xUS | $12,759,152 | Jun 2007 | 22.44% |
| US Large Cap Growth | $5,478,398 | Jun 2007 | 9.64% |
| US Large Cap Value | $5,615,561 | Jun 2007 | 9.88% |
| Emerging Equity | $1,264,540 | Jun 2007 | 2.22% |
| World Govt Bond | $10,492,306 | Jun 2007 | 18.46% |
| Global Bonds xUSD | $12,518,948 | Jun 2007 | 22.02% |

# SMART Allocation Advisor

## Asset Allocation Analysis- Strategic View Approach

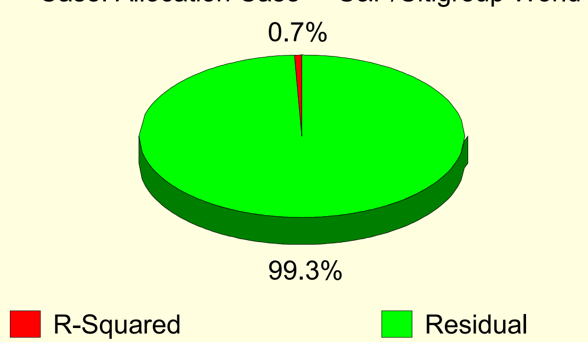
### Efficient Frontier

Case: Allocation Case     Return vs. Risk (Standard Deviation)




### Tracking to Benchmark - Active Portfolio

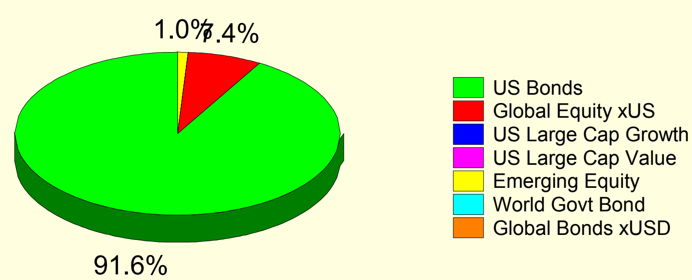
Case: Allocation Case     S&P/Citigroup World




Tracking Error: 14.67%

### Asset Allocations - Active Portfolio

Case: Allocation Case     Percent of Portfolio




Portfolio Return: 7.16%
Portfolio Standard Deviation: 3.53%

# Asset Allocation Analysis- Strategic View Approach

## Portfolio Statistics

Case: Allocation Case     Target Return: 10.00% - 10 Year Time Horizon - 95% of Projected Return Distribution

### Portfolio Allocations

| | Active Portfolio | Mix 1 | Mix 2 |
|---|---|---|---|
| **Asset Allocations** | | | |
| US Bonds | 91.6% | 32.2% | 0.0% |
| Global Equity xUS | 7.4% | 31.3% | 43.7% |
| US Large Cap Growth | 0.0% | 4.3% | 9.6% |
| US Large Cap Value | 0.0% | 6.9% | 12.9% |
| Emerging Equity | 1.0% | 5.6% | 8.4% |
| World Govt Bond | 0.0% | 0.0% | 0.0% |
| Global Bonds xUSD | 0.0% | 19.7% | 25.4% |

### Portfolio Statistics

| | Active Portfolio | Mix 1 | Mix 2 |
|---|---|---|---|
| **Expected Return (Annualized)** | | | |
| One Year | 7.2% | 12.0% | 15.0% |
| Time Horizon | 7.1% | 11.8% | 14.5% |
| **Expected Risk** | | | |
| One Year | 3.5% | 7.9% | 11.7% |
| Time Horizon | 1.1% | 2.5% | 3.7% |
| **Best Case Return (Annualized)** | | | |
| One Year | 14.3% | 28.2% | 39.6% |
| Time Horizon | 9.3% | 16.7% | 21.8% |
| **Worst Case Return (Annualized)** | | | |
| One Year | 0.4% | -2.6% | -6.3% |
| Time Horizon | 4.9% | 7.0% | 7.4% |
| **Probability of Target Return** | | | |
| One Year | 20.9% | 58.8% | 65.0% |
| Time Horizon | 0.5% | 75.8% | 88.9% |
| **Probability of Negative Return** | | | |
| One Year | 1.9% | 5.7% | 9.3% |
| Time Horizon | 0.0% | 0.0% | 0.0% |

### Tracking to Market Benchmark

| | Active Portfolio | Mix 1 | Mix 2 |
|---|---|---|---|
| **Benchmark Tracking** | | | |
| R-Squared | 1% | 67% | 79% |
| Tracking Error | 14.67% | 9.32% | 6.76% |

# Asset Allocation Analysis- Strategic View Approach

**SMART Allocation Advisor**

## Analysis Inputs

Case: Allocation Case

### Analysis Inputs

| Assets | Forecast Return | Forecast Risk | Date Start | Date End | Constraint Min | Constraint Max |
|---|---|---|---|---|---|---|
| US Bonds | 6.2% | 3.8% | Jan 1999 | Jun 2007 | 0% | 100% |
| Global Equity xUS | 17.2% | 15.2% | Jan 1999 | Jun 2007 | 0% | 100% |
| US Large Cap Growth | 16.4% | 17.3% | Jan 1999 | Jun 2007 | 0% | 100% |
| US Large Cap Value | 16.0% | 15.8% | Jan 1999 | Jun 2007 | 0% | 100% |
| Emerging Equity | 19.5% | 22.4% | Jan 1999 | Jun 2007 | 0% | 100% |
| World Govt Bond | 7.7% | 7.2% | Jan 1999 | Jun 2007 | 0% | 100% |
| Global Bonds xUSD | 8.8% | 8.9% | Jan 1999 | Jun 2007 | 0% | 100% |
| **Benchmark** | | | | | | |
| S&P/Citigroup World | 13.9% | 13.9% | Aug 1989 | Jun 2007 | | |

**Projection Inputs**

| | |
|---|---|
| Target Return: | 10.0% |
| Time Horizon: | 10 Years |
| Initial Value: | $1,000,000 |

### Correlations

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. US Bonds | 1.00 | | | | | | |
| 2. Global Equity xUS | -0.14 | 1.00 | | | | | |
| 3. US Large Cap Growth | 0.18 | 0.73 | 1.00 | | | | |
| 4. US Large Cap Value | 0.17 | 0.76 | 0.85 | 1.00 | | | |
| 5. Emerging Equity | -0.16 | 0.78 | 0.61 | 0.65 | 1.00 | | |
| 6. World Govt Bond | 0.57 | 0.16 | 0.03 | 0.01 | -0.07 | 1.00 | |
| 7. Global Bonds xUSD | 0.50 | 0.24 | -0.05 | -0.02 | 0.03 | 0.99 | 1.00 |

### Black-Litterman Model Inputs

| | |
|---|---|
| Palette Risk Premium | 6.50% |
| Risk-free Rate | 5.00% |

| | Market Cap (millions) | Date | Weight |
|---|---|---|---|
| US Bonds | $8,723,389 | Jun 2007 | 15.34% |
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### Black-Litterman Views

| Absolute Views | Implied Return | View Return | Confidence |
|---|---|---|---|
| US Bonds | 5.96% | 6.30% | 95% |
| Global Equity xUS | 16.19% | 17.50% | 95% |
| US Large Cap Growth | 15.88% | 16.20% | 95% |
| US Large Cap Value | 15.26% | 15.80% | 95% |
| Emerging Equity | 17.30% | 19.50% | 95% |
| World Govt Bond | 8.25% | 7.50% | 95% |
| Global Bonds xUSD | 9.13% | 8.90% | 95% |