

# Building a Better “Core” Portfolio

**Craig L. Israelsen, Ph.D.**  
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## 41-Year Historical Asset Returns

| 41-Year Period from 1970-2010 | Annualized Return (%) | Std Dev of Annual Returns | Growth of \$10,000 |
|-------------------------------|-----------------------|---------------------------|--------------------|
| Real Estate                   | 11.43                 | 19.9                      | 845,118            |
| US Small Stock                | 11.01                 | 22.4                      | 724,083            |
| US Large Stock                | 9.99                  | 17.9                      | 496,878            |
| Commodities                   | 9.98                  | 24.9                      | 494,683            |
| International Stock           | 9.45                  | 22.7                      | 404,693            |
| Bonds (Aggregate)             | 8.29                  | 6.7                       | 261,475            |
| Cash                          | 5.87                  | 3.3                       | 103,547            |
| Inflation (CPI)               | 4.38                  | 3.1                       | 57,984             |

## Data

- **Large-cap US equity** represented by the S&P 500 Index.
- **Small-cap US equity** represented by the Ibbotson Small Companies Index from 1970-1978, and the Russell 2000 Index starting in 1979.
- **Non-US equity** represented by the MSCI EAFE Index.
- **Real estate** represented by the NAREIT Index from 1970-1977 and the Dow Jones US Select REIT Index starting in 1978.
- **Commodities** represented by the Goldman Sachs Commodities Index (GSCI). As of February 6, 2007, the GSCI became the S&P GSCI Commodity Index.
- **U.S. Aggregate Bonds** represented by the Ibbotson Intermediate Term Bond Index from 1970-75 and the Barclays Capital Aggregate Bond index starting in 1976.
- **Cash** represented by 3-month Treasury Bills.

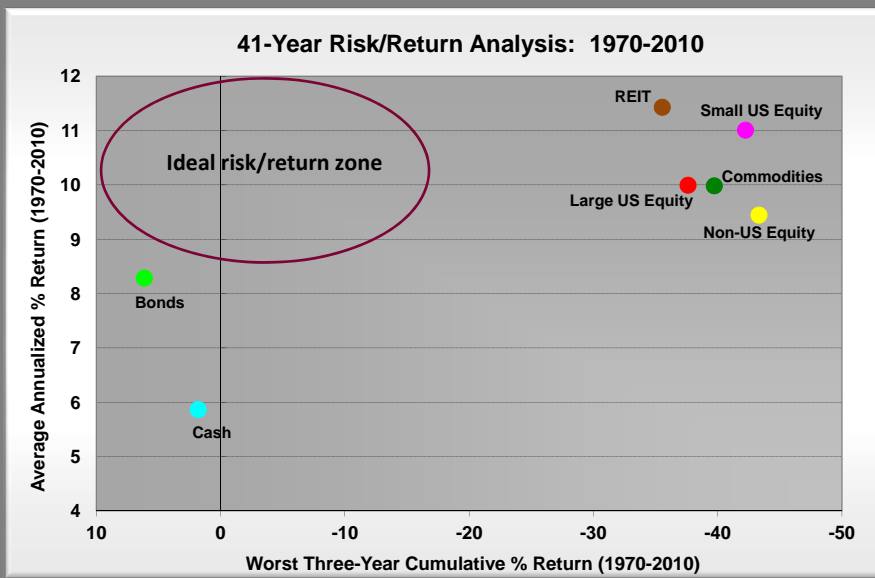
## 41-year Historical Upside and Downside

| 41-Year Period from 1970-2010 | Largest One-Year Gain (%) | Worst One-Year Loss (%) | Worst 3-Year Cum Loss (%) |
|-------------------------------|---------------------------|-------------------------|---------------------------|
| Bonds                         | 32.6                      | (2.9)                   | 6.15                      |
| Cash                          | 15.6                      | 0.14                    | 1.81                      |
| REIT                          | 49.0                      | (39.2)*                 | (35.5)                    |
| US Large Stock                | 37.6                      | (37.0)*                 | (37.6)                    |
| Commodities                   | 74.9                      | (46.5)*                 | (39.7)                    |
| US Small Stock                | 57.4                      | (33.8)*                 | (42.2)                    |
| International Stock           | 69.4                      | (43.4)*                 | (43.3)                    |

\* Worst One-Year Loss Occurred in 2008

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41-Year Risk/Return Analysis: 1970-2010



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To be diversified, a portfolio must combine multiple ingredients that have **low correlation with each other.**

### 41-Year Correlations of Major Asset Classes (1970-2010)

|                 | Large US Equity | Small US Equity | Non-US Equity | US Bonds | Cash | REIT   |
|-----------------|-----------------|-----------------|---------------|----------|------|--------|
| Small US Equity | 0.78            |                 |               |          |      |        |
| Non-US Equity   | 0.66            | 0.54            |               |          |      |        |
| US Bonds        | 0.26            | 0.11            | (0.01)        |          |      |        |
| Cash            | 0.09            | 0.03            | (0.04)        | 0.25     |      |        |
| REIT            | 0.51            | 0.76            | 0.37          | 0.05     | 0.06 |        |
| Commodities     | (0.07)          | (0.15)          | 0.03          | (0.14)   | 0.09 | (0.04) |

Aggregate (Average) Correlation in Equal-Weighted 7-Asset Portfolio = **0.20**

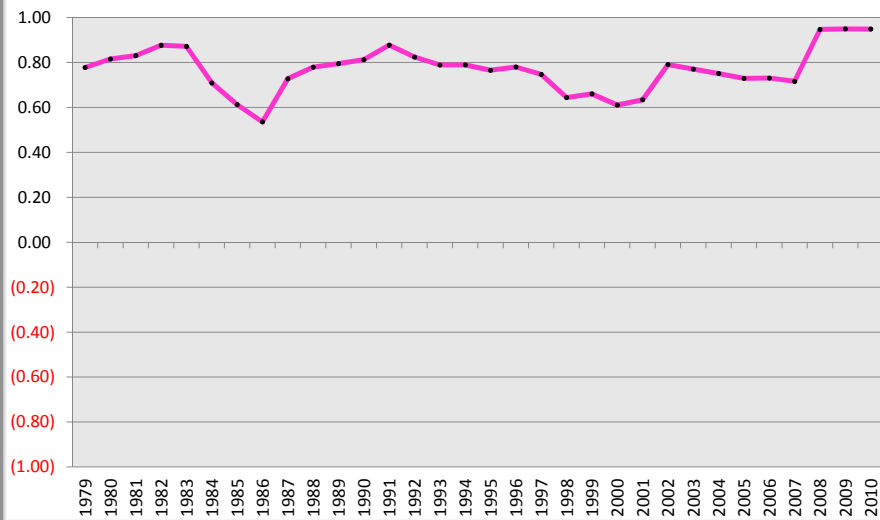
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# Rolling 10-Year Correlations

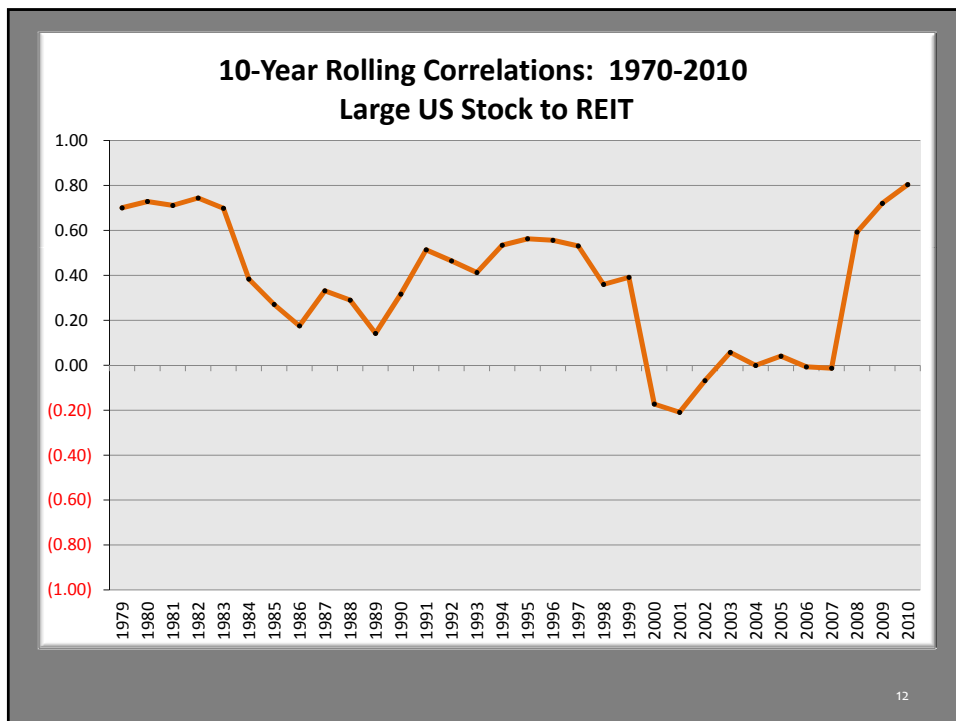
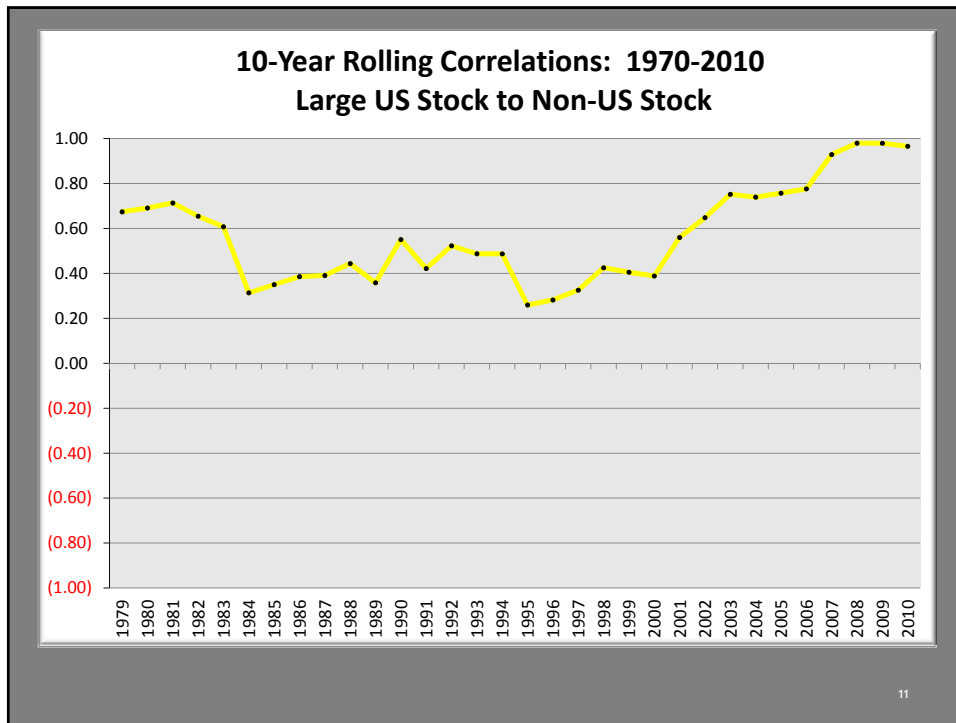
Using S&P 500 as comparison baseline index

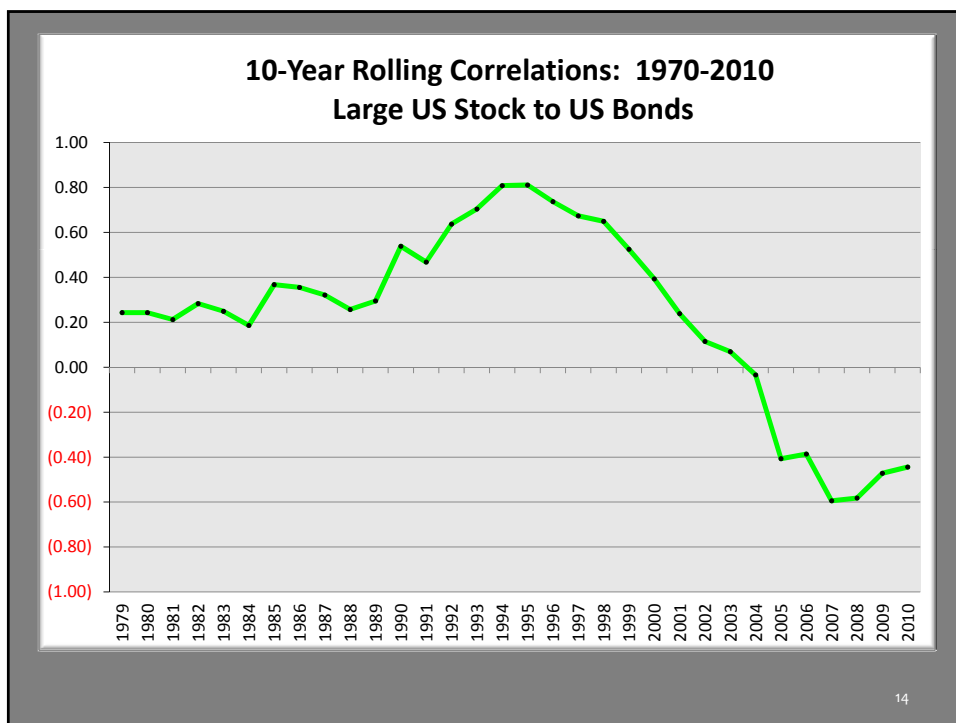
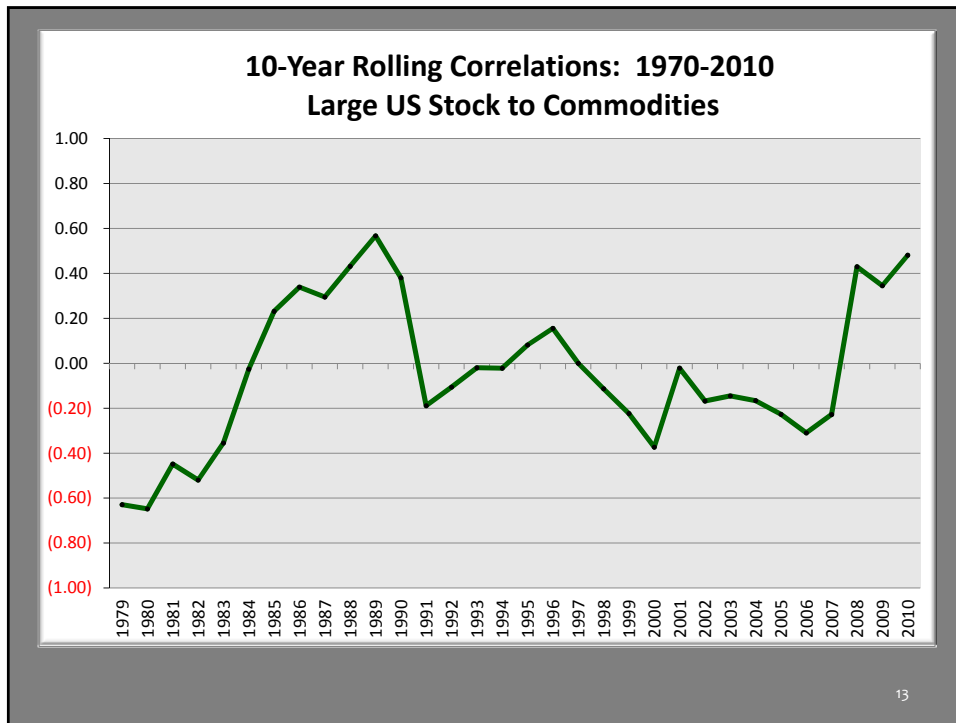
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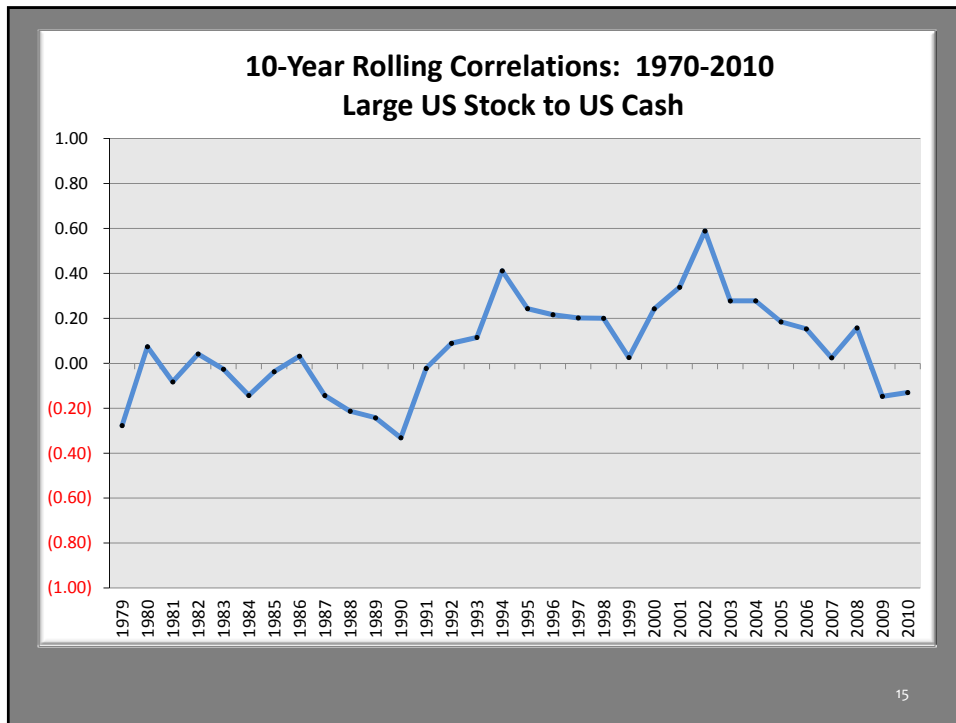
### 10-Year Rolling Correlations: 1970-2010 Large US Stock to Small US Stock



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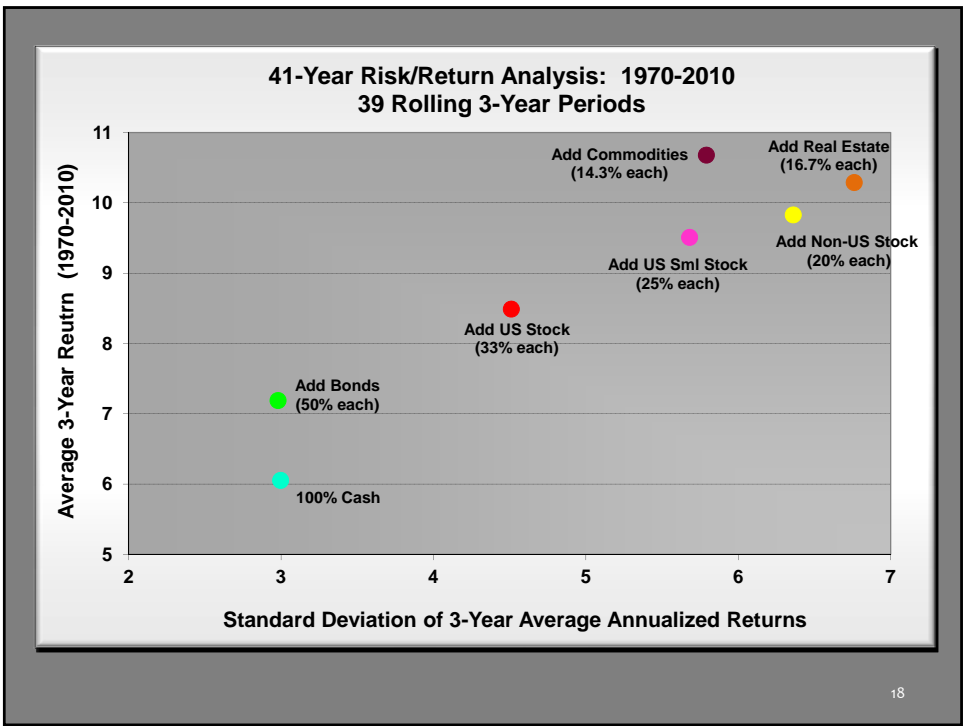
**Meaningful portfolio diversification  
requires**

**Depth and Breadth**

**Mutual Funds/ETFs = Depth**  
**Wide variety of funds = Breadth**

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**The following slides demonstrate  
portfolio performance as  
diversity (or **breadth**)  
increases.**



# Annual Performance

## Individual Assets

vs.

## Multi-Asset Portfolio

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| Year | Large US Equity | Small US Equity | Non-US Equity | Aggregate US Bonds | Cash  | Real Estate | Commodities | Equally Weighted Multi-Asset Portfolio |
|------|-----------------|-----------------|---------------|--------------------|-------|-------------|-------------|--|
| 1970 | 3.92            | (17.43)         | (11.66)       | 16.86              | 6.80  | (4.00)      | 15.17       | 1.38                                   |
| 1971 | 14.30           | 16.50           | 29.59         | 8.72               | 4.53  | 15.52       | 21.08       | 15.75                                  |
| 1972 | 19.00           | 4.43            | 36.35         | 5.16               | 4.24  | 8.01        | 42.43       | 17.09                                  |
| 1973 | (14.69)         | (30.90)         | (14.92)       | 4.61               | 7.46  | (15.52)     | 74.96       | 1.57                                   |
| 1974 | (26.47)         | (19.95)         | (23.16)       | 5.69               | 8.35  | (21.40)     | 39.51       | (5.35)                                 |
| 1975 | 37.23           | 52.82           | 35.39         | 7.83               | 6.08  | 19.30       | (17.22)     | 20.20                                  |
| 1976 | 23.93           | 57.38           | 2.54          | 15.60              | 5.23  | 47.59       | (11.92)     | 20.05                                  |
| 1977 | (7.16)          | 25.38           | 18.06         | 3.04               | 5.52  | 22.42       | 10.37       | 11.09                                  |
| 1978 | 6.57            | 23.46           | 32.62         | 1.39               | 7.67  | 10.98       | 31.61       | 16.33                                  |
| 1979 | 18.61           | 43.07           | 4.75          | 1.93               | 10.86 | 48.99       | 33.81       | 23.15                                  |
| 1980 | 32.50           | 38.60           | 22.58         | 2.71               | 12.71 | 33.12       | 11.08       | 21.90                                  |
| 1981 | (4.92)          | 2.03            | (2.28)        | 6.25               | 15.58 | 17.88       | (23.01)     | 1.65                                   |
| 1982 | 21.55           | 24.95           | (1.86)        | 32.62              | 11.66 | 20.91       | 11.56       | 17.34                                  |
| 1983 | 22.56           | 29.13           | 23.69         | 8.36               | 9.24  | 32.17       | 16.26       | 20.20                                  |
| 1984 | 6.27            | (7.30)          | 7.38          | 15.15              | 10.33 | 21.89       | 1.05        | 7.82                                   |
| 1985 | 31.73           | 31.05           | 56.16         | 22.10              | 7.97  | 6.50        | 10.01       | 23.65                                  |
| 1986 | 18.67           | 5.68            | 69.44         | 15.27              | 6.29  | 19.75       | 2.05        | 19.59                                  |
| 1987 | 5.25            | (8.80)          | 24.63         | 2.76               | 6.13  | (6.59)      | 23.77       | 6.74                                   |
| 1988 | 16.61           | 25.02           | 28.27         | 7.89               | 7.06  | 17.48       | 27.94       | 18.61                                  |
| 1989 | 31.69           | 16.26           | 10.54         | 14.53              | 8.67  | 2.72        | 38.28       | 17.53                                  |
| 1990 | (3.10)          | (19.48)         | (23.45)       | 8.96               | 7.99  | (23.44)     | 29.08       | (3.35)                                 |

| Year | Large US Equity | Small US Equity | Non-US Equity | Aggregate US Bonds | Cash | Real Estate | Commodities | Equally Weighted Multi-Asset Portfolio |
|------|-----------------|-----------------|---------------|--------------------|------|-------------|-------------|--|
| 1991 | 30.47           | 46.04           | 12.13         | 16.00              | 5.68 | 23.84       | (6.13)      | 18.29                                  |
| 1992 | 7.62            | 18.41           | (12.17)       | 7.40               | 3.59 | 15.13       | 4.42        | 6.34                                   |
| 1993 | 10.08           | 18.88           | 32.56         | 9.75               | 3.12 | 15.14       | (12.33)     | 11.03                                  |
| 1994 | 1.32            | (1.82)          | 7.78          | (2.92)             | 4.45 | 2.66        | 5.29        | 2.39                                   |
| 1995 | 37.58           | 28.45           | 11.21         | 18.48              | 5.79 | 12.24       | 20.33       | 19.15                                  |
| 1996 | 22.96           | 16.49           | 6.05          | 3.63               | 5.26 | 37.05       | 33.92       | 17.91                                  |
| 1997 | 33.36           | 22.36           | 1.78          | 9.66               | 5.31 | 19.66       | (14.07)     | 11.15                                  |
| 1998 | 28.58           | (2.55)          | 20.00         | 8.69               | 5.02 | (17.01)     | (35.75)     | 1.00                                   |
| 1999 | 21.04           | 21.26           | 26.97         | (0.82)             | 4.87 | (2.58)      | 40.92       | 15.95                                  |
| 2000 | (9.10)          | (3.02)          | (14.17)       | 11.63              | 6.32 | 31.04       | 49.74       | 10.35                                  |
| 2001 | (11.89)         | 2.49            | (21.44)       | 8.44               | 3.67 | 12.35       | (31.93)     | (5.47)                                 |
| 2002 | (22.10)         | (20.48)         | (15.94)       | 10.26              | 1.68 | 3.58        | 32.07       | (1.56)                                 |
| 2003 | 28.69           | 47.25           | 38.59         | 4.10               | 1.05 | 36.18       | 20.72       | 25.23                                  |
| 2004 | 10.88           | 18.33           | 20.25         | 4.34               | 1.43 | 33.16       | 17.28       | 15.10                                  |
| 2005 | 4.91            | 4.55            | 13.54         | 2.43               | 3.34 | 13.82       | 25.55       | 9.73                                   |
| 2006 | 15.79           | 18.37           | 26.34         | 4.33               | 5.07 | 35.97       | (15.09)     | 12.97                                  |
| 2007 | 5.49            | (1.57)          | 11.17         | 6.97               | 4.77 | (17.56)     | 32.67       | 5.99                                   |
| 2008 | (37.00)         | (33.79)         | (43.38)       | 5.24               | 1.51 | (39.20)     | (46.49)     | (27.59)                                |
| 2009 | 26.46           | 27.17           | 31.78         | 5.93               | 0.16 | 28.46       | 13.49       | 19.06                                  |
| 2010 | 15.06           | 26.86           | 7.75          | 6.54               | 0.14 | 28.07       | 9.03        | 13.35                                  |

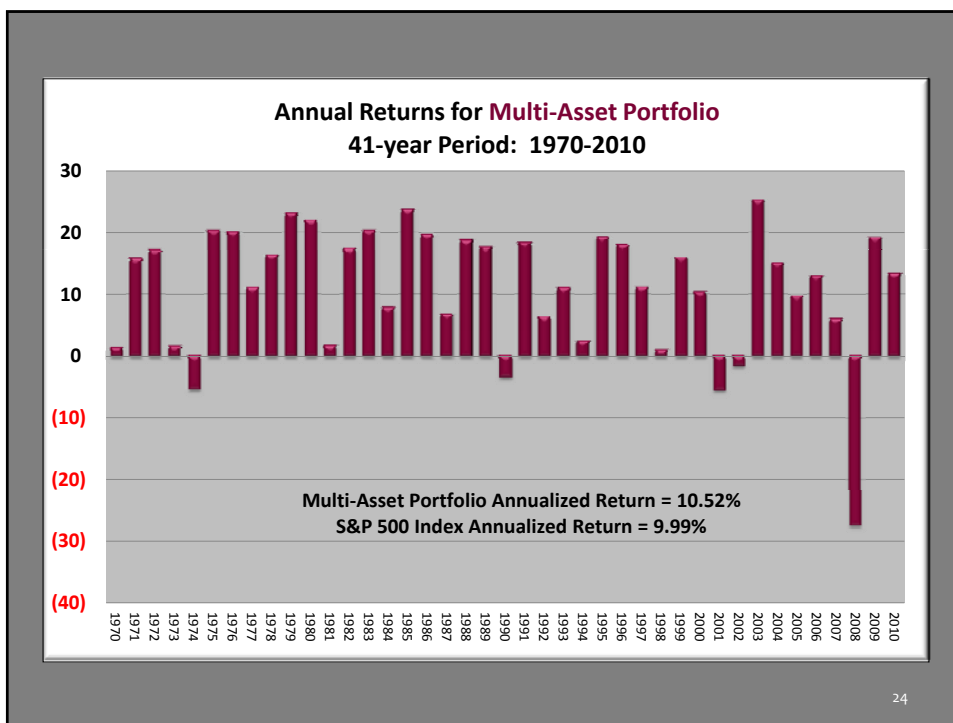
**When built correctly,  
a multi-asset portfolio achieves  
equity-like returns  
with  
bond-like risk.**

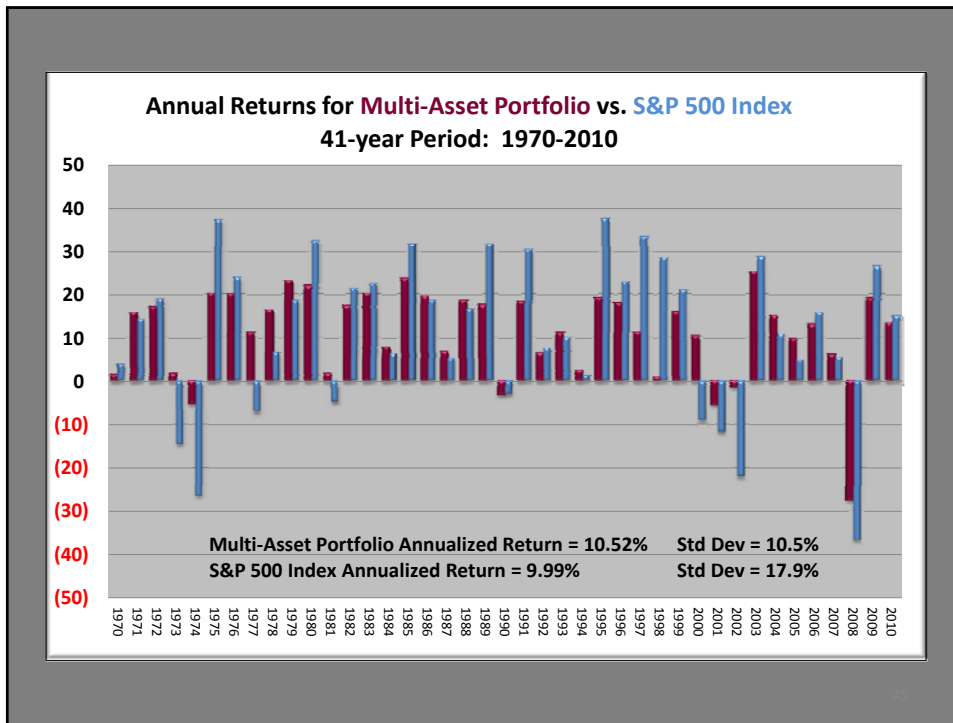
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### Single Assets vs. Multi-Asset Portfolio

| 1970-2010                                    | Large US Equity | Small US Equity | Non-US Equity | US Bonds | Cash    | Real Estate | Commodities | Equally Weighted 7-Asset Portfolio |
|--|-----------------|-----------------|---------------|----------|---------|-------------|-------------|------------------------------------|
| 41-Year Average Annualized % Return          | 9.99            | 11.01           | 9.45          | 8.29     | 5.87    | 11.43       | 9.98        | 10.52                              |
| 41-Year Standard Deviation of Annual Returns | 17.91           | 22.36           | 22.73         | 6.66     | 3.33    | 19.88       | 24.92       | 10.46                              |
| Growth of \$10,000                           | 496,878         | 724,083         | 404,693       | 261,475  | 103,547 | 845,118     | 494,683     | 604,248                            |
| Number of Years with Negative Returns        | 9               | 12              | 11            | 2        | 0       | 9           | 10          | 5                                  |
| Worst One-Year % Return                      | (37.0)          | (33.8)          | (43.4)        | (2.9)    | 0.14    | (39.2)      | (46.5)      | (27.6)                             |
| Worst Three-Year Cumulative % Return         | (37.6)          | (42.2)          | (43.3)        | 6.2      | 1.8     | (35.6)      | (39.7)      | (13.3)                             |

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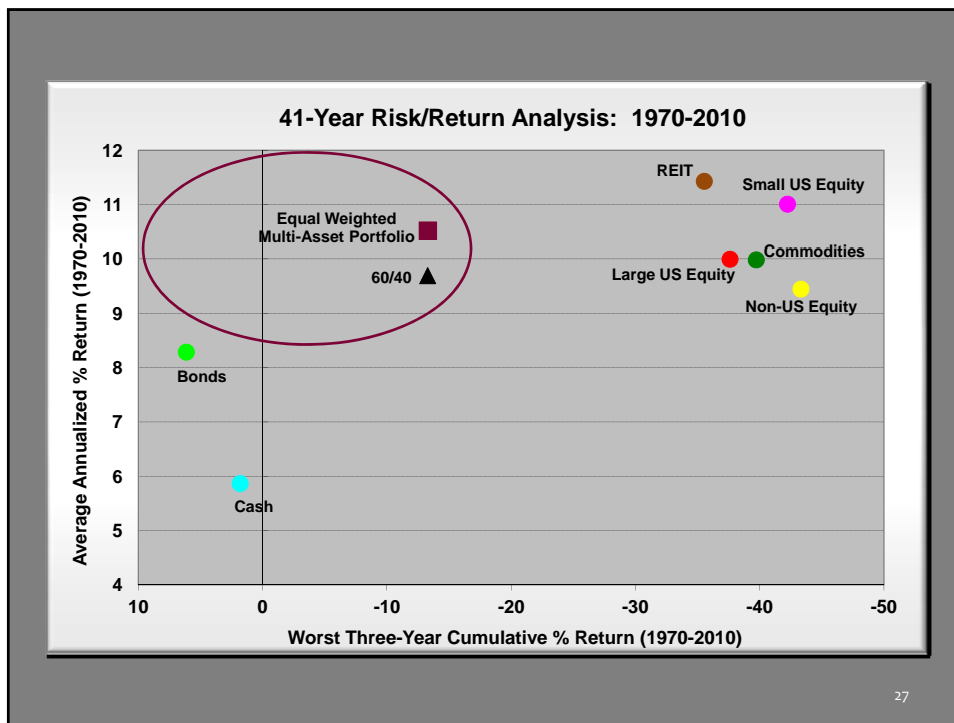




**Comparison of Portfolios During Accumulation Phase**

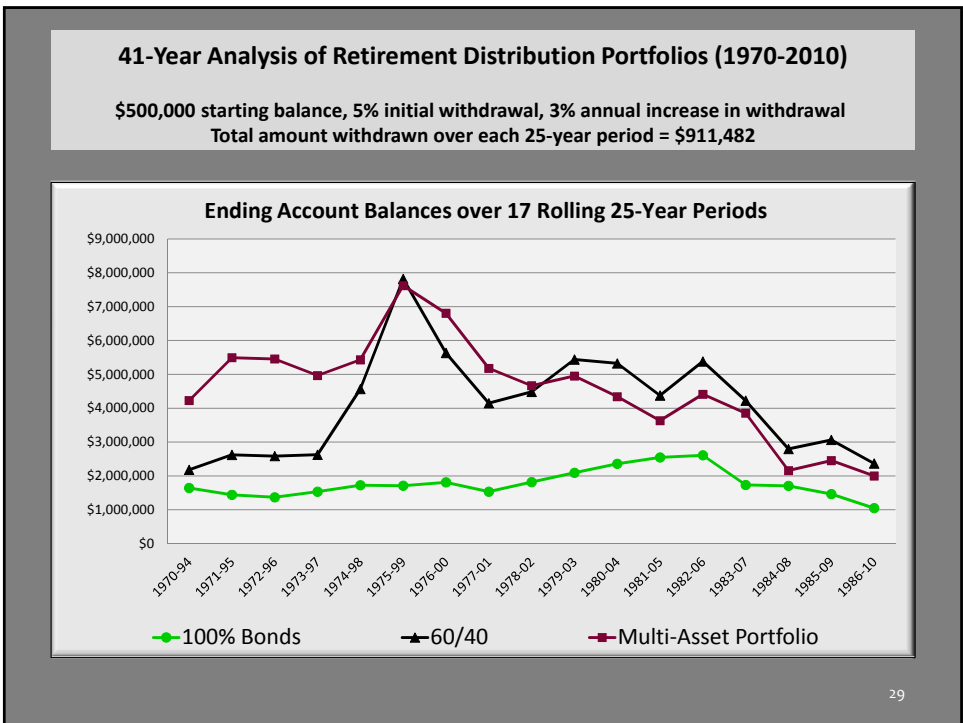
**Typical 60/40 Balanced Fund**  
**vs.**  
**Multi-Asset Portfolio**

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**Performance of**  
**Multi-Asset Portfolio**  
**During Post-Retirement**  
**Distribution Phase**

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**Building a Multi-Asset  
 Low Correlation Portfolio**

**The 7Twelve™ Portfolio**

- 7 Core Asset Classes
- 12 Underlying Funds

"7Twelve" is a trademarked term developed by Craig Israelsen to represent a diversified portfolio

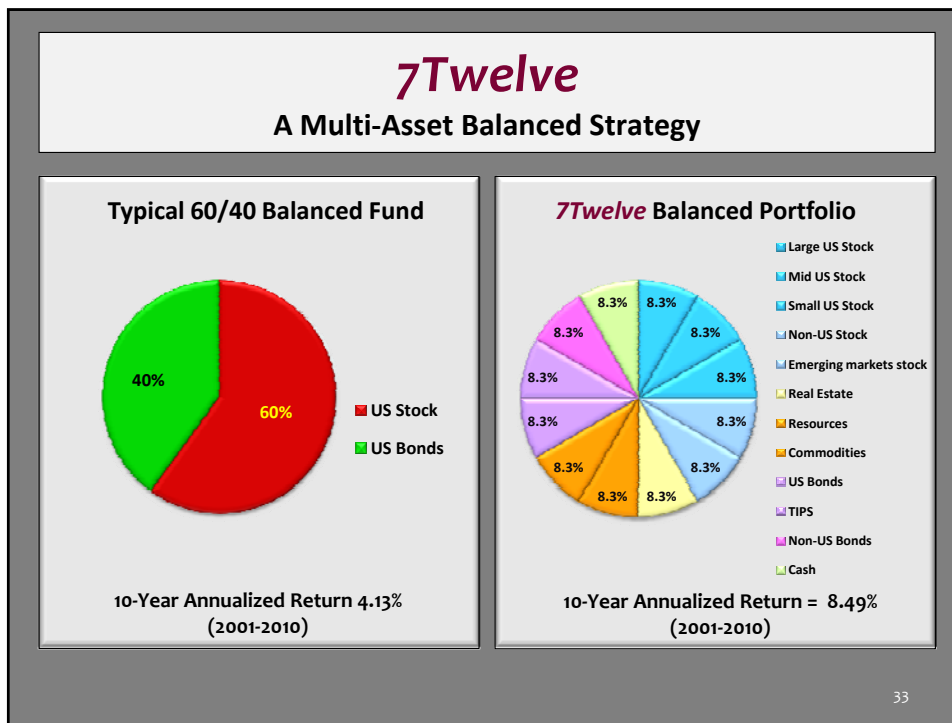
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| <h2 style="text-align: center;">7Twelve</h2> <h3 style="text-align: center;">A Multi-Asset Balanced Investment Strategy</h3> |                   |                    |                   |   |                     |                 |
|--|-------------------|--------------------|-------------------|---|---------------------|-----------------|
| Approximately 65% of the Portfolio Allocation in Equity and Diversifying Assets  |                   |                    |                   | Approximately 35% of the Portfolio Allocation in Bonds and Cash |                     |                 |
| US Equity  | Non-US Equity     | Real Estate        | Resources         | US Bonds  | Non-US Bonds        | Cash            |
| Large Companies  | Developed Markets | Global Real Estate | Natural Resources | US Aggregate Bonds  | International Bonds | US Money Market |
| Medium-sized Companies   | Emerging Markets  |                    | Commodities       | Inflation Protected Bonds                                       |                     |                 |
| Small Companies  |                   |                    |                   |   |                     |                 |

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| <h2 style="text-align: center;">Correlation of 7Twelve Ingredients</h2> <p style="text-align: center;"><b>10-year Aggregate Correlation = 0.35</b><br/>Using monthly returns from 2001-2010</p> |        |          |                  |                 |                    |                   |             |                    |                           |              |        |
|---|--------|----------|------------------|-----------------|--------------------|-------------------|-------------|--------------------|---------------------------|--------------|--------|
|   | Mid US | Small US | Non-US Developed | Non-US Emerging | Global Real Estate | Natural Resources | Commodities | US Aggregate Bonds | Inflation Protected Bonds | Non-US Bonds | Cash   |
| Large US  | 0.93   | 0.88     | 0.89             | 0.84            | 0.66               | 0.68              | 0.39        | (0.15)             | 0.03                      | 0.21         | (0.12) |
| Mid US  |        | 0.94     | 0.86             | 0.85            | 0.72               | 0.72              | 0.43        | (0.17)             | 0.06                      | 0.16         | (0.15) |
| Small US  |        |          | 0.82             | 0.79            | 0.79               | 0.62              | 0.34        | (0.13)             | 0.04                      | 0.19         | (0.14) |
| Non-US Developed  |        |          |                  | 0.88            | 0.67               | 0.75              | 0.50        | (0.01)             | 0.17                      | 0.47         | (0.11) |
| Non-US Emerging   |        |          |                  |                 | 0.58               | 0.76              | 0.52        | (0.08)             | 0.12                      | 0.31         | (0.07) |
| Global Real Estate  |        |          |                  |                 |                    | 0.42              | 0.30        | 0.05               | 0.21                      | 0.33         | (0.14) |
| Natural Resources   |        |          |                  |                 |                    |                   | 0.73        | (0.10)             | 0.18                      | 0.26         | (0.08) |
| Commodities   |        |          |                  |                 |                    |                   |             | (0.09)             | 0.31                      | 0.34         | (0.04) |
| US Aggregate Bonds  |        |          |                  |                 |                    |                   |             |                    | 0.74                      | 0.54         | 0.07   |
| Inflation Protected Bonds   |        |          |                  |                 |                    |                   |             |                    |                           | 0.58         | 0.00   |
| Non-US Bonds  |        |          |                  |                 |                    |                   |             |                    |                           |              | (0.07) |

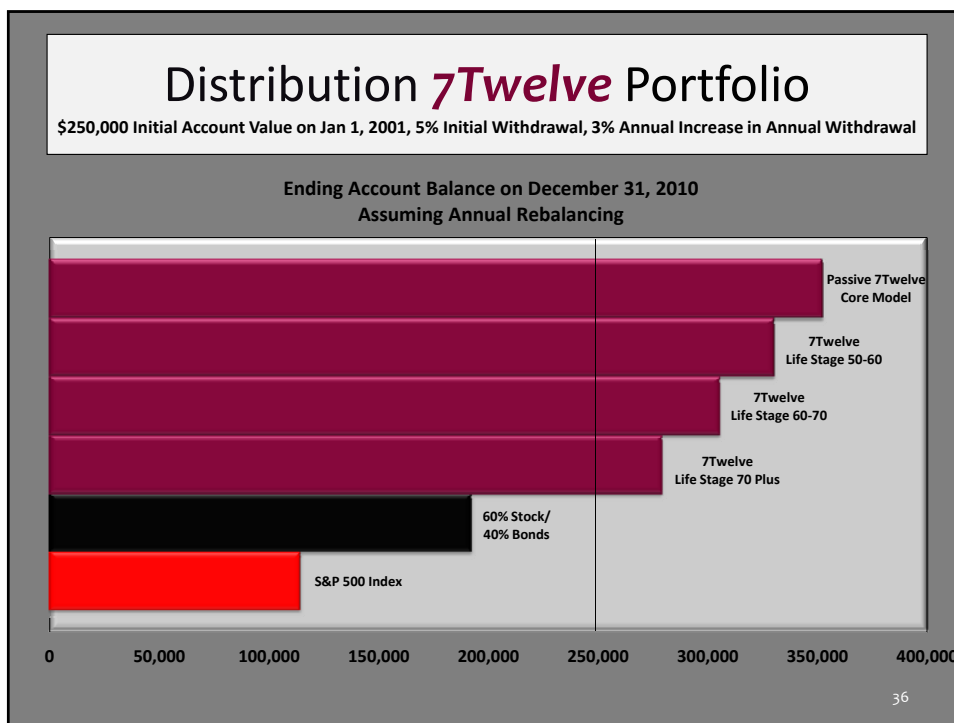
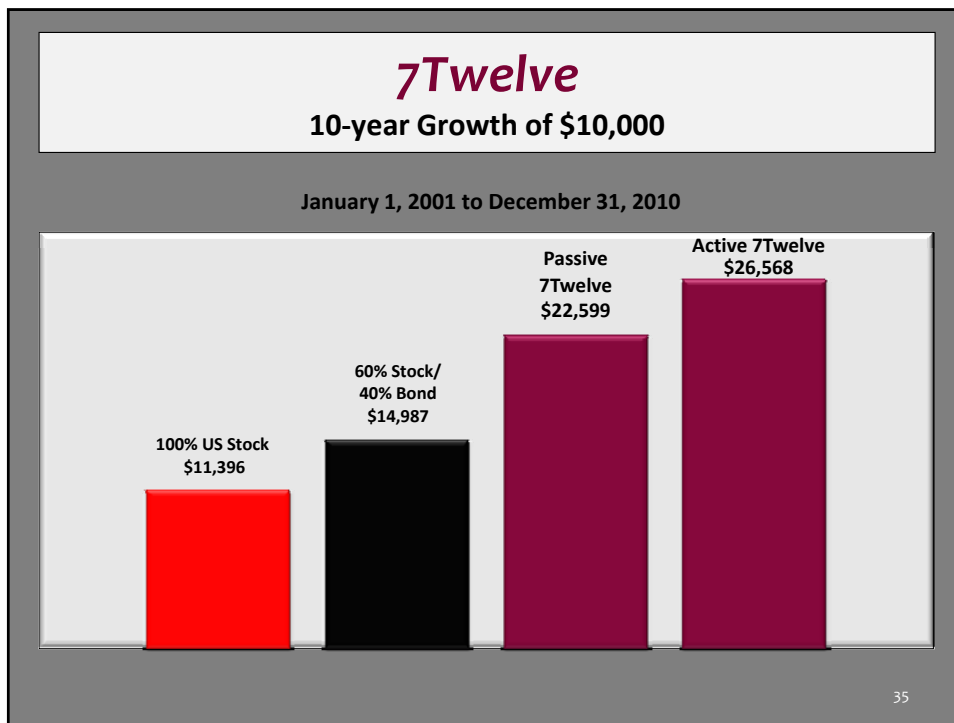
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## 7Twelve

### Annual Returns

| Total % Return<br><small>(Assuming annual rebalancing)</small> | Active 7Twelve<br>Portfolio | Passive 7Twelve<br>Portfolio | Vanguard<br>Balanced Index | Vanguard<br>500 Index |
|--|-----------------------------|------------------------------|----------------------------|-----------------------|
| 2001   | 3.13                        | (1.66)                       | (3.02)                     | (12.02)               |
| 2002   | 2.26                        | (0.72)                       | (9.52)                     | (22.15)               |
| 2003   | 28.84                       | 26.99                        | 19.87                      | 28.50                 |
| 2004   | 19.86                       | 17.74                        | 9.33                       | 10.74                 |
| 2005   | 13.16                       | 12.21                        | 4.65                       | 4.77                  |
| 2006   | 16.36                       | 15.19                        | 11.02                      | 15.64                 |
| 2007   | 13.79                       | 11.28                        | 6.16                       | 5.39                  |
| 2008   | (28.22)                     | (24.65)                      | (22.21)                    | (37.02)               |
| 2009   | 32.45                       | 24.99                        | 20.06                      | 26.49                 |
| 2010   | 14.52                       | 14.28                        | 13.12                      | 14.91                 |
| 3-Year Ave Annualized % Return<br><small>(2008-2010)</small>   | 2.88                        | 2.48                         | 1.85                       | (2.90)                |
| 5-Year Ave Annualized % Return<br><small>(2006-2010)</small>   | 7.59                        | 6.65                         | 4.48                       | 2.22                  |
| 10-Year Ave Annualized % Return<br><small>(2001-2010)</small>  | 10.26                       | 8.49                         | 4.13                       | 1.32                  |
| 10-Year Standard Deviation                                     | 12.58                       | 12.29                        | 10.01                      | 16.38                 |
| Annual % Expense Ratio   | 0.71                        | 0.31                         | 0.25                       | 0.18                  |

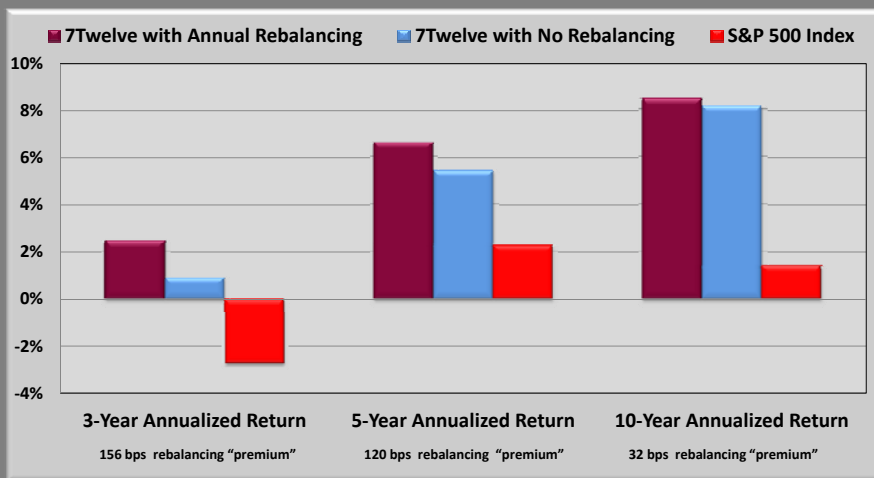


## Chronological Age vs. Allocation Age

| Chronological Age of Investor | Risk Assessment Based on Life Situation | Estimated Allocation Age of Investor | "Allocation-Age" Portfolio       | Portfolio Performance in 2008 (%) | 10-Year Average Annualized Return (12/31/10) |
|-------------------------------|---|--------------------------------------|----------------------------------|-----------------------------------|--|
| 55                            | Must take very little risk              | 70                                   | <i>7Twelve</i> Life Stage 70Plus | (9.2)                             | 6.45   |
| 55                            | Can accept higher risk                  | 40                                   | <i>7Twelve</i> Core Model        | (24.6)                            | 8.49   |
| 55                            | None                                    | 55                                   | S&P 500 Index                    | (37.0)                            | 1.32   |

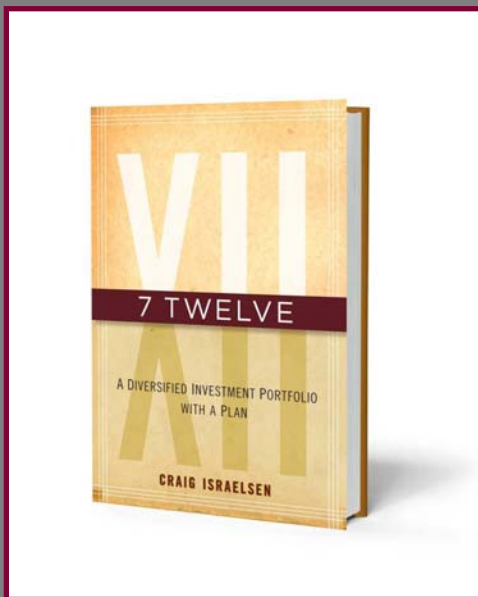
## Rebalancing the *7Twelve* Portfolio

as of December 31, 2010



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Available at Amazon.com



## The **7Twelve**<sup>™</sup> Portfolio

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### Technical notes:

Raw data utilized in this research report were obtained from **Morningstar Principia** and other sources. The returns reported in this presentation and on the **7Twelve** website may differ slightly from the returns of the **7Twelve** portfolio published in my book “7Twelve: A Diversified Investment Portfolio with a Plan” (John Wiley & Sons, 2010).

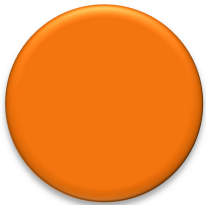




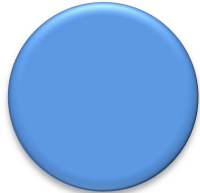
The slight differences are due to two issues: (1) different rebalancing assumptions, and (2) corrected historical returns. From time to time, Morningstar will modify and correct historical performance data. Occasionally such corrections affect the historical performance of the underlying funds and ETFs utilized in the various **7Twelve** portfolios. In every case, the resulting changes in the historical returns of the **7Twelve** portfolio are so small as to be immaterial.

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## Asset Allocation Risk & Return Spectrum

13-Year Period from 1998-2010

[www.7TwelvePortfolio.com](http://www.7TwelvePortfolio.com)

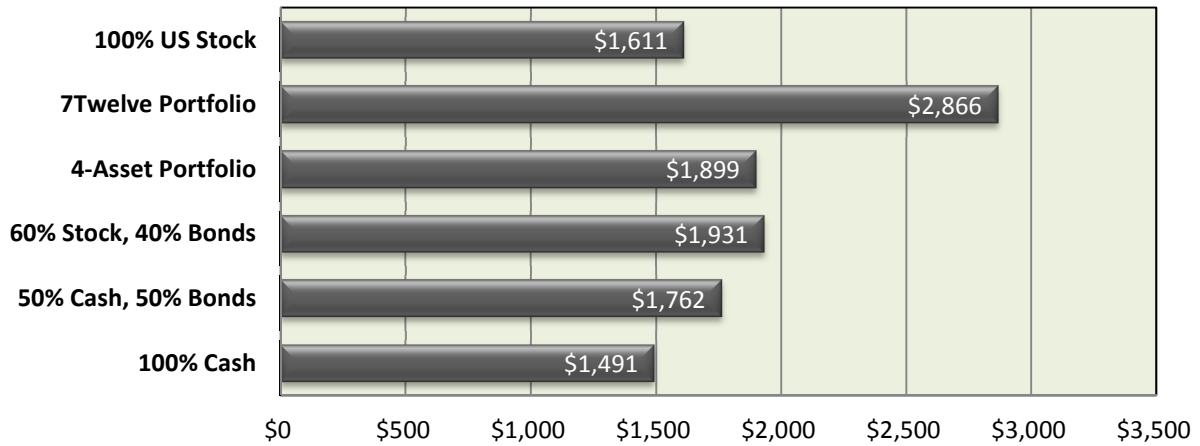
| Risk Level            | Various Asset Allocation Models<br>(Best Performance Highlighted in <b>Yellow</b> )      |   | Lump Sum Return (1) | Annual Investing Return (2) | Retirement Portfolio Return (3) |
|-----------------------|--|---|---------------------|-----------------------------|---------------------------------|
| Very Conservative     | 100% Cash  |    | <b>3.12%</b>        | <b>2.54%</b>                | <b>2.30%</b>                    |
| Conservative          | 50% Cash<br>50% Bonds  |    | <b>4.45%</b>        | <b>4.02%</b>                | <b>3.73%</b>                    |
| Moderate              | 25% Cash<br>25% Bonds<br>25% US Stock<br>25% Non-US Stock                                |   | <b>5.06%</b>        | <b>4.59%</b>                | <b>4.40%</b>                    |
| Moderately Aggressive | 60% US Stock<br>40% Bonds<br><br>Traditional<br>"Balanced" Fund                          |  | <b>5.19%</b>        | <b>4.61%</b>                | <b>4.58%</b>                    |
| Moderately Aggressive | 8.33% in<br>12 different<br>asset classes<br><br>Diversified<br><i>7Twelve</i> Portfolio |  | <b>8.44%</b>        | <b>8.75%</b>                | <b>7.75%</b>                    |
| Very Aggressive       | 100% US Stock  |  | <b>3.74%</b>        | <b>3.02%</b>                | <b>3.00%</b>                    |

(1) 13-Year annualized % return for a lump sum investment of \$1,000 on January 1, 1998.

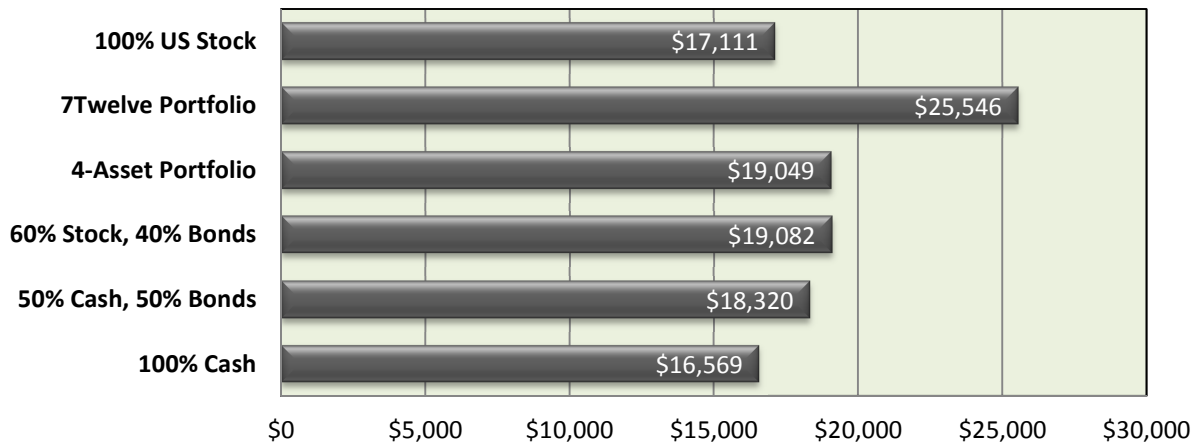
(2) 13-year annualized % return for a lump sum investment of \$1,000 on January 1, 1998 followed by \$1,000 annual investment at each of each year (total investment of \$14,000).

(3) 13-year internal rate of return (IRR) for a retirement portfolio with a starting balance of \$250,000, 5% initial withdraw rate, 3% cost of living increase in the annual withdrawal.

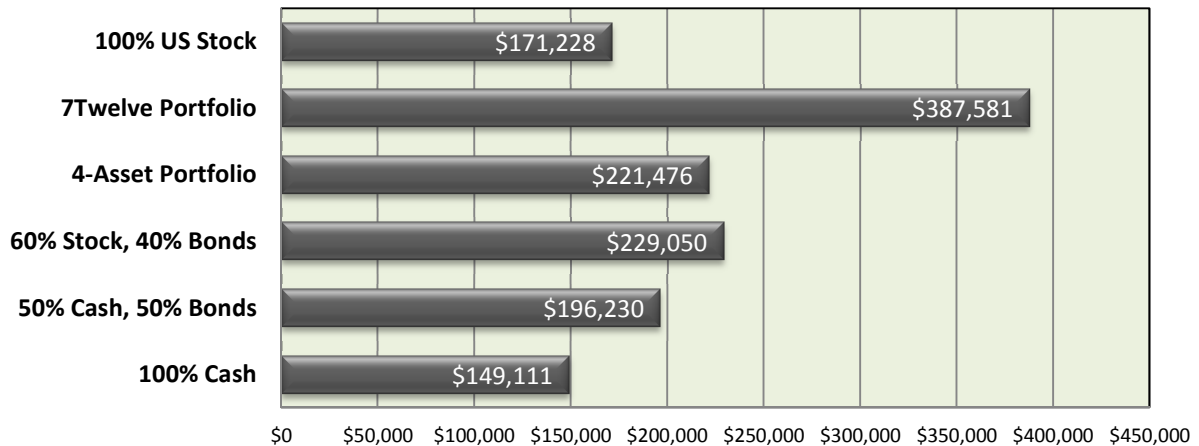
**Growth of \$1,000  
1998-2010**



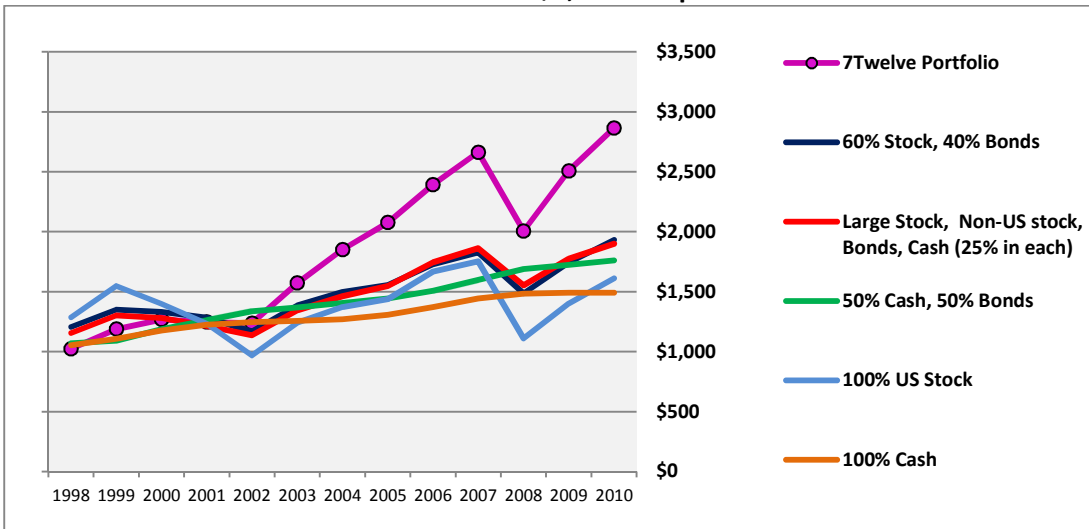
**Growth of \$1,000 Initial Investment plus \$1,000 Invested Annually  
1998-2010**



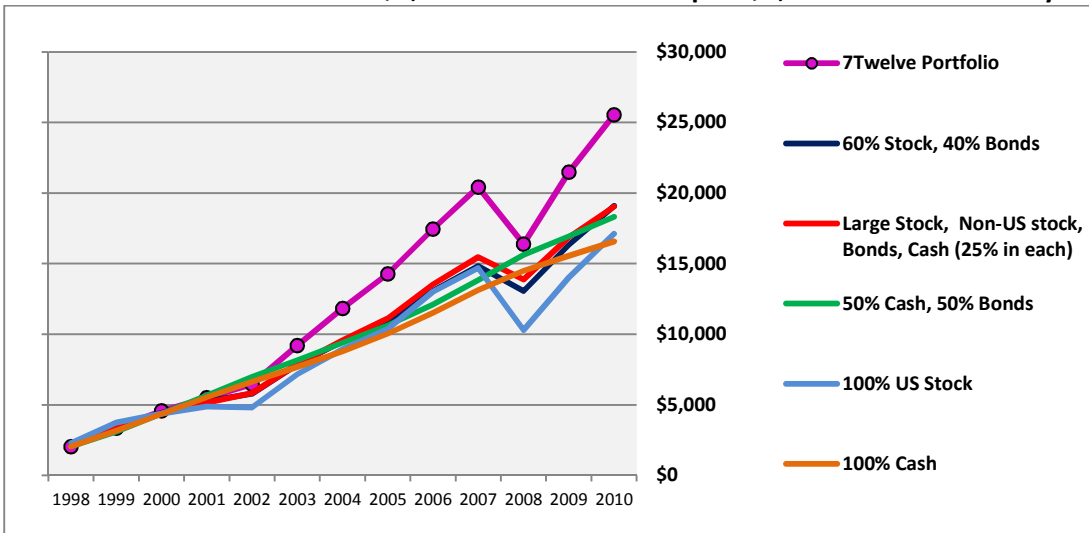
**Ending Account Balance of Retirement Portfolio  
\$250,000 Starting Balance, 5% Initial Withdrawal with 3% Annual Increase  
1998-2010**



### Annual Account Balance of \$1,000 Lump Sum Investment



### Annual Account Balance of \$1,000 Initial Investment plus \$1,000 Invested Annually



### Annual Account Balance of Retirement Portfolio

\$250,000 starting balance, 5% initial withdrawal rate, 3% annual increase in withdrawal

