

# Joseph Wealth Counsel Journal

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## A Publication of Joseph Capital Management, LLC

A Fee-Only Registered Investment Advisory Firm  
Stewardship. Objective, Trusted Advice

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*Welcome to the Joseph Wealth Counsel Journal.* This publication is a supplement to Joseph Capital Management's Quarterly Capital Markets Commentary. Regular editions of the Joseph Wealth Counsel Journal contain one or more articles which explore investment theory, and its application, in some detail. Students of investment theory will like these articles. We hope that all of our clients will learn something from them. The Joseph Wealth Counsel Journal also contains various historical data, presented in several formats, which may be of interest to our clients. *This data is presented for educational purposes only.* If you have any questions regarding the content of this publication, please feel free to give me a call. Thank you.

- Ron A. Rhoades, Director of Research  
Joseph Capital Management, LLC

*Feature Article:  
Reduction of Market Risk Using A  
Value, Small-Cap Tilted Portfolio*

The best way to minimize stock market losses is to avoid investing in the stock market! However, for the vast majority of our clients, stock market investing is necessary for the accomplishment of their long-term financial goals. Why? Because the equity markets (i.e., stocks, stock mutual funds) generally deliver long-term (15 years or greater) returns which are significantly above that of inflation. Fixed income investing (i.e., CDs, bonds) does not generally generate long-term returns which are much greater than that of inflation, especially after taxes are taken into account. *(continued on page 2)*

*-cont.* Reduction of Market Risk Using A  
Value-Tilted, Small-Cap Tilted Portfolio

***The Fama-French 3-Factor Model, Generally.*** The question arises, then - how can we reduce the risk of being in the stock market - known as “market risk” - while still achieving the desired level of long-term expected returns. The answer might be discerned from academic research into the U.S. and foreign equity markets, which has uncovered three major factors affecting the *gross* returns of an investor’s portfolio. These three factors, now incorporated into a concept called the “Fama-French 3-Factor Theorem” (academics are not very creative in giving names to investment concepts) are as follows:

- Exposure to *market risk premium* (i.e., how much of the investor’s portfolio is in the stock market);
- Exposure to the *size risk premium* (i.e., how much of the stock portion of the investor’s portfolio is invested in small company stocks); and
- Exposure to the *value risk premium* (i.e., how much of the stock portion of the investor’s portfolio is invested in value stocks).

***The Market Risk Premium, Explained.*** What is the “market risk premium”? In simple terms, in most instances an investor can expect, over very long periods of time, that investments in a broadly diversified portfolio of stocks will outperform a broadly diversified portfolio of high-quality fixed income investments. However, such outperformance, even over a 15-year period, is not guaranteed. Moreover, an investor must be willing to tolerate periods of time, which may last several years or more, in which the value of the stock portion of an investor’s portfolio goes down significantly. Additionally, an investor must tolerate a wide degree of fluctuation in value (i.e., volatility) in the daily, weekly and monthly values of the stock portfolio. When an investor is able to endure these risks, *nearly always - over long periods of time*, the investor is rewarded. The reward is “higher investment returns” for enduring this “market risk premium.”

***The Size Risk Premium, Explained.*** Similarly, on the basis of historical evidence in both the U.S. markets and various foreign markets, we also know that, over long periods of time, a diversified basket of “small company stocks” has outperformed a diversified basket of “large company stocks.” What are “small company stocks”? Think of a company which is publicly traded and the total value of its outstanding shares ranges from \$20 million to about \$1 billion. Small companies are worth, both individually and collectively, far less than the “large company stocks” - GE, Microsoft, Citigroup, Pfizer, and so many others. Why do “small company stocks” outperform “large company stocks” over very long periods of time? That answer has been debated a great deal. Some academics believe it is because individual small companies are “riskier” than large companies. Other academics believe it is because people are more attracted to names they know - the larger companies - and are willing to pay higher prices for them (and to accept lower returns). There are other explanations. Suffice it to say, regardless of the reason, the “size risk premium” is known to exist, over very long periods of time, and there has been (and should) be a reward for taking on that risk (over very long periods of time). *See Column “F” in the table on page 4 for data on the “size risk premium.”*

***The Value Risk Premium, Explained.*** Similarly, we also know that, over large periods of time, a diversified basket of “value stocks” has outperformed a diversified basket of “growth stocks.” Why? Again, the explanations vary, with some academics arguing that “value stocks” are stocks of companies in some form of “distress” and hence investors must be rewarded for taking on the greater risk that the individual companies might go out of business. Other academics assert that “value companies” have been subject to “bad news” and that investors (including portfolio managers and stock analysts) tend to overreact to bad news (and overreact to good news, as well). Other explanations exist. Suffice it to say, the “value risk premium” has been shown to exist, and should (we believe) continue in the future. Investors should be rewarded for investing in “value stocks” (through diversified baskets) over long periods of time. *See columns “H” and “J” in the table on page 4 for data on the value risk premium.*

This discussion presents only an overview of the “size risk premium” and the “value risk premium.” For a greater understanding, we suggest *The Science of Investing* book, written by Ron Rhoades, Mike Tringali, and John Ceparano, available to the clients of Joseph Capital Management, LLC by calling our office. Additionally, a “lighter” explanation of these risk premia can be found in *The Seven Secrets of Investing*, a short booklet available on our web site, [www.josephpartners.com](http://www.josephpartners.com). If you desire to delve into some of the academic articles which explore these premia, please e-mail or call me. - Ron

***A Historical Perspective On the Market, Size and Value Risk Premia.*** Let’s examine the market, size, and value risk premia by decade. As our “baseline” we’ll use the return of 5-year U.S. Treasury Notes. For “all U.S. stocks” (an “asset class”) we’ll use an index of nearly all U.S. stocks known as the “Center for Research In Security Prices Universe” (CRSP Market). For small company U.S. stocks (another “asset class” we define) we’ll utilize the “Fama-French Small Neutral Index.” For “large value” and “small value” U.S. stocks we’ll utilize the “Fama-French Large Value Index” and the “Fama-French Small Value Index.” Let’s look at the data, by decade, to see whether the “risk premia” might have resulted in a reward for investors. (See chart on next page.) (Note: For purposes of simplification, the CRSP Market is utilized to compute the large cap value risk premia, in lieu of the FF large cap neutral index. Returns of these indices are very similar.)



This article was written by Ron A. Rhoades, B.S., J.D., Director of Research for Joseph Capital Management, LLC. Ron is a prolific writer and speaker. He was recently quoted by *Fortune* magazine, *On Wall Street*, *Investment News*, *BNA’s Daily Report for Executives*, and other publications. As Director of Research at Joseph Capital Management, LLC, Ron reviews the academic research relating to investment theory and portfolio construction and applies that research for the benefit of our clients. He also conducts preliminary research associated with our product due diligence process, for review and analysis by the firm’s entire Investment Committee.

**Table: Market, Size and Value Risk Premia By Decade**

(Annualized returns shown.)

A	B	C	D	E	F	G	H	I	J
Time Period	Baseline: 5-year U.S. Treasury Notes	Annualized Returns, CRSP Market (all size deciles)	Historical Market Risk Premium (C-B)	Annualized Returns, FF Small Neutral (Small Medium)	Historical Size Risk Premium (E-C)	Annualized Returns, FF U.S. Large Value Index (Big High)	Historical Value Risk Premium for U.S. Large Co. Value Stocks (G-C)	Annualized Returns, FF U.S. Small Value Index (Small High)	Historical Value Risk Premium for U.S. Small Co. Value Stocks (I-E)
1/2000 to 10/2004	8.07%	(3.48)%	(11.55)%	14.19%	17.67%	0.75%	4.23%	19.36%	5.17%
1990's	7.13%	18.04%	10.91%	14.32%	(3.72)%	13.95%	(4.09)%	14.48%	0.16%
1980's	11.91%	16.67%	4.76%	19.50%	2.83%	20.22%	3.55%	21.11%	1.61%
1970's	6.98%	6.07%	(0.91)%	10.17%	4.10%	12.23%	6.16%	14.97%	4.80%
1960's	3.48%	8.29%	4.81%	13.28%	4.99%	10.73%	2.44%	15.38%	2.10%
1950's	1.34%	18.22%	16.88%	18.73%	0.51%	22.20%	3.98%	19.99%	1.26%
1940's	1.83%	9.59%	7.76%	14.60%	5.01%	17.20%	7.61%	20.96%	6.36%
1930's	4.59%	(0.27)%	(4.86)%	5.37%	5.64%	(5.55)%	(5.28)%	(0.28)%	(5.65)%
7/1926 to 12/1929	4.01%	16.74%	12.73%	6.85%	(9.89)%	16.30%	(0.44)%	8.13%	1.28%
Past 54 Years: 1/1950 to 10/2004	6.28%	11.74%	5.46%	15.06%	3.32%	14.37%	2.63%	17.35%	2.29%
Past 77 Years: 7/1926 to 10/2004	5.38%	10.07%	4.69%	13.34%	3.27%	12.04%	1.97%	14.96%	1.62%

*See Appendices For Important Disclosures and Sources of Data.*

*Data is for educational purposes only, does not reflect any deduction for management or administrative fees, or investment advisory fees, and does not represent the results gained by any actual investor.*

*Past Performance Information Is Not A Guarantee of Future Results.*

**A Review of The Table At Left.** As seen, for most decades a size premium (column F) and value premium (columns H and J) existed. The value premium, especially for small cap stocks, is particularly persistent. Value and size risk premia are also seen in foreign stock markets according to academic research.

**Are the “Size Risk Premium” and “Value Risk Premium” A “Free Lunch”?** A question that often gets tossed around on various investment discussion boards on the internet is whether the “size effect” and “value effect” result in a “free lunch” for the individual investor. In other words, by choosing to invest in these asset classes, is there any drawback? Yes, there is a drawback, and no, there is not any “free lunch.” We need only look at the great stock market downturn from September 1929 through May 1932, the beginning of the “Great Depression,” for our answer. During this period the *total return* for the asset classes was as follows:

Asset Class	Representative Index Used	Total Return For Asset Class, 9/1929 thru 5/1932	Growth of \$1.00, from 9/1929 thru 5/1932
U.S. large company balanced stocks	CRSP Market (a broad market-capitalization weighted index of all U.S. stocks)	-83.43%	17 cents
U.S. large company value stocks	Fama French Large Value (Big High) Index	-89.74%	10 cents
U.S. small company balanced	Fama French Small Balanced (Small Medium) Index	-84.09%	16 cents
U.S. small company value stocks	Fama French Small Value (Small High) Index	-88.55%	11 cents
Fixed income investments	5-Year (constant maturity) U.S. Treasury Bonds	11.25%	\$1.11

*See Appendices For Important Disclosures and Sources of Data.  
Past Performance Information Is Not A Guarantee of Future Results.*

As seen, the “size risk premium” and “value risk premium” are **real** risk premia. During periods like the Great Depression, it can be speculated that smaller companies, and companies already in distress (“value stocks”), are less likely to survive. While all of the downturns from late 1929 to 1932 were extreme, an investor who once had \$100,000 would much rather end up with \$17,000 in his pocket than \$10,000. Hence, there is no “free lunch” from the size risk premium and value risk premium.

Of course, there is no “free lunch” from stocks, either. An investor during the 1929-1932 period would have been much better off holding U.S. Treasury notes, a nearly “riskless” investment in terms of loss of principal (due to price changes or defaults), than investing in stocks. There is indeed a reason stocks should offer (over long periods of time) a greater return - they are “riskier”! And, in our capital markets system, there is an inevitable relationship between risk and reward. (Remember - there are many types of risk. The risks posed by inflation, over the long term, are as significant as the risks posed by stock market downturns, for most investors.)

**Now (Finally) Our Hypothesis.** With the foregoing educational foundation now established, let's unveil the hypothesis advanced in this article:

**Can we achieve the desired long-term expected return in an investor's portfolio by "tilting" the investor's portfolio toward value and small cap stocks, while reducing the exposure of the portfolio to the market risk premium (i.e., by reducing the percentage allocation to stocks, and increasing the percentage allocation to fixed income investments)?**

Will this strategy likely reduce the overall volatility of the portfolio and likely better preserve the value of a portfolio (i.e., lead to a larger terminal value of a portfolio) during periods of significant stock market downturns? Or, if the hypothesis is incorrect, are we just trading "market risk" for both "size" and "value" risk premia, with no potential benefit to an investor?

In examining this hypothesis our goal is to determine how to best structure an investment portfolio during periods of portfolio withdrawals, such as retirement. Evidence suggests that the effect of portfolio volatility upon the terminal value of a portfolio is very detrimental during periods when funds are withdrawn from the portfolio.

**Three Hypothetical Portfolios.** First, let's construct three hypothetical portfolios. For fixed income investments we will use 5-year U.S. Treasury Bond data. For the stock asset classes we again rely upon the CRSP Market index portfolio as a "broad U.S. stock market index" stock portfolio, and Fama-French indices for our U.S. large cap value, U.S. small cap balanced, and U.S. small cap value asset classes.

Portfolio A: 60/40 with no value or small cap tilt. Portfolio A consists of 40% fixed income investments and 60% U.S. large company (balanced) stocks. (We call this large company balanced asset class, since more than 80% of a U.S. market stock portfolio consists of large company stocks, with less than 20% representing "small company" stocks.) Note that prior to the application of academic research within the past 10-15 years many institutional pension funds consisted of portfolios with these characteristics. (Note that pension funds have very long time horizons, relative to many individual investors.)

Portfolio B: 50/50 with moderate small cap and value tilt. Portfolio B consists of 50% fixed income investments, which represents a reduction in exposure to "stock market risk". The remaining 50% of the portfolio consists of 20.86% U.S. large company (balanced) stocks, 12.50% U.S. large cap value stocks, 10.43% U.S. small cap (balanced) stocks, and 6.21% U.S. small cap value stocks.

Portfolio C: 40/60 with strong small cap and value tilts. Portfolio C has another reduction in market exposure, with fixed income investments now rising to 60% of the portfolio. U.S. large company stocks now represent 8% of the investment portfolio, U.S. large cap value stocks represent 12% of the portfolio, U.S. small company stocks represent 8% of the portfolio, and U.S. small cap value stocks represent 12% of the portfolio. While "market risk" has been substantially reduced in this portfolio, the "size" and "value" risk premia assumed by the investor are substantial.

**The Long Term Returns of Different Portfolios: The Effect of Lowering Market Risk While Increasing Size and Value Risk.**

First, let's examine how each of these portfolios, relative to each other, performed over various time periods.

	Portfolio A: 60% equity markets exposure, with no value or small cap tilt (large cap balanced for all equities)	Portfolio A: Standard Deviation	Portfolio B: 50% equity market exposure, with moderate value and small cap tilt	Portfolio B: Standard Deviation	The Advantage of A Moderate Value/ Small CapTilt With 10% Less Equity Market Exposure: (B-A)	Portfolio C: 40% equity market exposure, with moderate value and small cap tilt	Portfolio C: Standard Deviation	The Advantage of A Strong Value/Small Cap Tilt With 20% Less Equity Market Exposure: (C-A)
(Progressively Longer Periods to Present) Time Period Surveyed:	Average Annualized Returns	Standard Deviation	Average Annualized Returns	Standard Deviation	Performance Advantage or (Disadvantage) (B-A)	Average Annualized Returns	Standard Deviation	Performance Advantage or (Disadvantage) (C-A)
Longest period surveyed: 7/1926-10/2004	8.64%	11.67	9.34%	11.55	0.70%	9.12%	10.30	0.48%
Past 50 years: 11/1954-10/2004	9.62%	9.50	10.34%	8.41	0.72%	10.15%	7.43	0.53%
Past 40 years: 11/1964-10/2004	9.61%	10.01	10.62%	8.88	1.01%	10.63%	7.89	1.02%
Past 30 years: 11/1974-10/2004	11.83%	10.04	12.67%	8.78	0.84%	12.48%	7.81	0.65%
Past 20 years: 11/1984-10/2004	11.29%	9.72	11.39%	8.09	0.10%	11.13%	6.95	(0.16)%
Past 10 years: 11/1994-10/2004	9.81%	9.53	10.21%	7.75	0.40%	10.09%	6.62	0.28%
(By Decades) Time Period Surveyed:	Average Annualized Returns	Standard Deviation	Average Annualized Returns	Standard Deviation	Performance Advantage or (Disadvantage) (B-A)	Average Annualized Returns	Standard Deviation	Performance Advantage or (Disadvantage) (C-A)
This decade: 1/2000-10/2004	1.46%	9.63	6.64%	8.32	5.18%	8.77%	7.22	7.31%
1990's: 1/1990-12/1999	13.80%	8.88	11.69%	7.39	-2.11%	10.51%	6.42	-3.29%
1980's: 1/1980-12/1989	15.13%	11.17	15.70%	9.68	0.57%	15.36%	8.71	0.23%
1970's: 1/1970-12/1979	6.77%	10.75	8.75%	10.02	1.98%	9.25%	8.93	2.48%
1960's: 1/1960-12/1969	6.54%	7.80	7.39%	7.30	0.85%	7.18%	6.40	0.64%
1950's: 1/1950-12/1959	11.36%	6.54	10.36%	6.00	-1.00%	8.75%	5.18	-2.61%
1940's: 1/1940-12/1949	6.72%	9.41	8.22%	9.38	1.50%	7.96%	8.40	1.24%
1930's: 1/1930-12/1939	3.12%	21.53	4.97%	23.67	1.85%	5.74%	21.34	2.62%
Late 1920's: 7/1926-12/1929	12.05%	11.62	9.20%	9.03	-2.85%	7.68%	7.29	-4.37%

Summary information for the periods is presented for purposes of **education and comparison only**. Investment advisory fees are not deducted from these hypothetical investment portfolios, which are constructed of indices (not funds). Past performance is not a guarantee of future results. Annualized Standard Deviation is presented as an approximation by multiplying the monthly number by the square root of the number of periods in a year. Please note that the number computed from annual data may differ materially from this estimate. Each portfolio is rebalanced on a monthly basis. Returns do not reflect deductions for the costs of rebalancing, mutual fund management, administrative and transaction fees and costs, nor investment advisory fees.

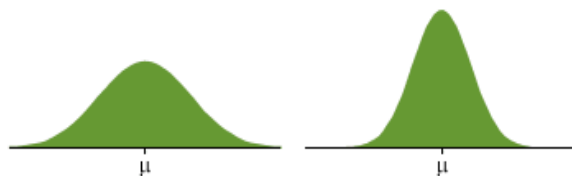
As seen above, in all of the periods, except the past 20-year period, and the decades of the 1990's, 1950's, and late 1920's, the value and small cap tilted portfolios had a performance advantage, even though the allocation to equities was 10% or even 20% less.

Why did the past 20-year period, and the 1990's, not see such an advantage for Portfolios B and C? During the past 20-year period (11/1984 to 10/2004) the effect of moderately or severely tilting a portfolio toward value and small cap stocks while lowering the allocation to equities resulted in a slight performance disadvantage. Much of this can be attributed to the substantial increase in valuation levels of U.S. large cap stocks during this period, which valuation increase persists (despite the substantial correction from 2000-2002) through October of 2004. The increase in the p/b ratio of the Russell 1000 index was from 1.43 at the end of 1984 to 2.84 at the end of October of 2004, a nearly 100% increase. By contrast, the relative increase in valuation levels of U.S. small cap stocks during the same period, as measured by the p/b ratio of Russell 2000 index, was from 1.45 to 2.25, an increase of only 55%.

Since stock market investing is a long-term endeavor, and the size and risk premia appear to be relatively persistent over 20-year periods or longer and are evidenced historically in multiple capital markets, ***it can be concluded that a tilt in an investment portfolio toward small cap and value, while at the same time reducing overall exposure to stocks, is likely to yield similar long-term portfolio returns.***

But does this mean that Portfolios B and C will perform *better* during periods of stock market downturns? Also, does this mean that the Portfolios B and C are *less volatile* relative to Portfolio A (as measured by standard deviation)?

***Examining The Standard Deviation of Portfolios A, B and C.*** “Standard deviation” is a measure of the volatility of the portfolio. Technically, standard deviation is the positive square root of variance. Variance is a parameter that measures how dispersed a random variable’s probability distribution is. In the figures below, probability density functions are indicated for two random variables. The one on the left is more dispersed than the one on the right. It has a higher variance, and hence will have a higher standard deviation.



Standard deviation therefore measures the degree of variation of returns around the mean (average) return. The higher the volatility of the investment returns, the higher the standard deviation will be. For this reason, standard deviation is often used as a measure of investment risk.

The late Professor Harry Markowitz, the father of “Modern Portfolio Theory,” defined investment risk in terms of the standard deviation (variability) of expected future returns. For example, the Standard and Poor's (S&P) 500, generally considered representative of the overall U.S. stock market, has delivered annual returns averaging 10.4 percent between January 1926 and November 2004. The S&P standard deviation during the same period has been 19.4 percent. This means that approximately two-thirds of the time the annual return of the S&P 500 Index will be plus or minus one standard deviation from the mean, or between -9.0% and 29.8%. About 95 percent of the time, the annual return of the S&P 500 Index will be plus or minus two standard deviations from the mean, or between -28.4% and 49.2% percent.

Every asset class has a measurable standard deviation and mean expected return based on historical data. The higher the standard deviation of an asset class relative to its mean return, the higher its perceived risk. (Volatility is used as a convenient, broad gauge of risk, but it is not the only measure of risk.) According to Modern Portfolio Theory, asset classes also have a measurable correlation coefficient relative to other asset classes, which is also based on historical data. The correlation coefficient measures the degree to which the returns of different asset classes move together. If two asset classes are highly correlated, such as U.S. large company (balanced) stocks and U.S. large company value stocks, they will tend to perform similarly in a given environment. Conversely, if two asset classes have low or negative correlations, they will act differently (or even in opposite ways) from each other in response to a given environment.

Following is a correlation matrix for the asset classes utilized in our analyses:

*Correlation Matrix: January 1950 - October 2004*

Asset Class	CRSP Market Index	FF Large Value Index	FF Small Neutral Index	FF Small Value Index	5-Year U.S. Treasury Notes
CRSP Market Index	1.00				
FF Large Value Index	0.861	1.000			
FF Small Neutral Index	0.873	0.823	1.000		
FF Small Value Index	0.820	0.858	0.957	1.000	
5-Year U.S. Treasury Notes	0.125	0.204	0.068	0.049	1.000

As seen, the various U.S. stock asset classes are closely correlated. However, 5-Year U.S. Treasury Notes are not closely correlated with U.S. stocks (although the correlation is still positive).

The risk within an investment portfolio is therefore a function of both the risk of the individual assets that make up the portfolio and the degree to which the returns among the various asset classes in the portfolio are correlated. By combining asset classes that are not perfectly correlated (i.e., the asset classes don't react the same way in a given economic or market environment), the portfolio's risk (as measured by standard deviation) will be less than the weighted average of the risk of the individual assets that make up the portfolio, even while the portfolio's return will be equal to their weighted-average return. Thus, one goal of strategic asset allocation is to combine assets whose returns are not closely correlated with each other so as to produce the minimum amount of risk for a given return objective.

The result we see from the table which set forth the returns of Portfolios A, B and C (see page 7) confirms this goal. In every period surveyed except one (the 1930's, as to Portfolio B vs. A), the standard deviation of the portfolio was reduced when the allocation to equities was lowered (from 60% for Portfolio A, to either 50% for Portfolio B or 40% for Portfolio C). In fact, the lowering of standard deviation was very significant for Portfolio C relative to Portfolio A. This much less volatile portfolio would have the effect of pleasing the individual investor.

***The Performance of Different Portfolios With Varied Market, Size and Value Premia During Periods of Stock Market Downturns.*** The table below examines the effect of the moderate and strong value and small cap equity tilts when the allocation to equities is lowered by 10% and 20%, respectively. This table examines these effects during periods of significant stock market downturns only. This analysis is designed to test the central hypothesis of this article - i.e., that a small cap and value tilt in an investment portfolio (with a lower allocation to equities) may be advantageous to individual investors. Total returns (not annualized returns) are shown for each period. The data is inclusive of the first trading day of the first month shown and inclusive of the last trading day of the last month shown.

	TOTAL RETURN FOR PERIODS OF STOCK MARKET DOWNTURNS: PORTFOLIOS A, B, C				
	60% Large U.S. stocks, 40% fixed income	50% stocks with moderate value and small cap tilt, 50% fixed income		40% stocks with very strong value and small cap tilt, 60% fixed income	
(Stock Market Downturns) Time Period Surveyed:	Portfolio A Total Return for the period shown	Portfolio B Total Return for the period shown	Advantage or (Disadvantage) of Portfolio B vs. A	Portfolio C Total Return for the period shown	Advantage or (Disadvantage) of Portfolio C vs. A
4/2000-2/2003 (Recent Growth Stock Bust)	(17.84)%	2.57%	<b>20.41%</b>	14.69%	<b>32.53%</b>
7/1998-9/1998 ("Asian Contagion")	(4.46)%	(3.91)%	<b>0.55%</b>	(2.53)%	<b>1.93%</b>
6/1990-10/1990	(8.53)%	(8.31)%	<b>0.22%</b>	(6.56)%	<b>1.97%</b>
9/1987-11/1987 (around Crash of '87)	(17.44)%	(13.97)%	<b>3.47%</b>	(10.80)%	<b>6.64%</b>
12/1980-7/1982	(2.36)%	9.75%	<b>12.11%</b>	15.53%	<b>17.89%</b>
1/1977-2/1978	(5.80)%	1.29%	<b>7.09%</b>	3.91%	<b>9.71%</b>
1/1973-9/1974 ('73-'74 downturn)	(28.34)%	(20.52)%	<b>7.82%</b>	(14.48)%	<b>13.86%</b>
12/1968-6/1970 (all of late '60's downturn)	(20.53)%	(18.98)%	<b>1.55%</b>	(15.62)%	<b>4.91%</b>
2/1966-9/1966	(8.97)%	(7.74)%	<b>1.23%</b>	(6.03)%	<b>2.94%</b>
1/1962-6/1962	(13.47)%	(9.87)%	<b>3.60%</b>	(7.01)%	<b>6.46%</b>
1/1960-10/1960	(0.78)%	(0.33)%	<b>0.45%</b>	1.38%	<b>2.16%</b>
6/1957-12/1957	(6.52)%	(6.43)%	<b>0.09%</b>	(4.58)%	<b>1.94%</b>
1/1953-9/1953	(3.38)%	(3.16)%	<b>0.22%</b>	(3.20)%	<b>0.18%</b>
7/1948-6/1949	(5.36)%	(7.03)%	<b>(1.67)%</b>	(6.24)%	<b>(0.88)%</b>
5/1946-2/1948 (post-war recession)	(10.71)%	(9.48)%	<b>1.23%</b>	(7.21)%	<b>3.50%</b>
8/1941-4/1942 (entry into WW II)	(18.41)%	(12.88)%	<b>5.53%</b>	(9.88)%	<b>8.53%</b>
AVERAGE OF ABOVE DOWNTURNS (excluding 4/00-2/03 period)	(11.08)%	(7.97)%	<b>3.11%</b>	(5.24)%	<b>5.84%</b>
Pre-World War II Periods:					
9/1929-3/1938 (entire period of stock market downturn during the Great Depression)	(21.38)%	0.09%	<b>21.47%</b>	1.83%	<b>23.21%</b>
3/1937-3/1938	(31.45)%	(30.77)%	<b>0.68%</b>	(27.17)%	<b>4.28%</b>
2/1934-7/1934	(9.02)%	(12.07)%	<b>(3.05)%</b>	(10.27)%	<b>(1.25)%</b>
9/1933-10/1933	(11.00)%	(13.16)%	<b>(2.16)%</b>	(12.00)%	<b>(1.00)%</b>
Sept. 1929 - May 1932 (Crash of '29-'32) (worst 3-year period ever)	(62.32)%	(57.43)%	<b>4.89%</b>	(49.30)%	<b>13.02%</b>

Summary information for the periods is presented for purposes of education and comparison only. Investment advisory fees are not deducted from these hypothetical investment portfolios. Past performance is not a guarantee of future results.

In the chart on the preceding page, I set forth the periods with the most striking stock market downturns. (Sub-periods within the longer periods are generally not shown, due to space limits for this article.) As seen, the number of post-WW II significant stock market downturns is fifteen. Hence, one conclusion we can draw is that ***significant stock market downturns occur frequently. Future stock market downturns will occur, and they should not be unanticipated by investors.***

***The 2000-2002 Stock Market Downturn - Extraordinary Results.*** The period from April 2000 to February 2003 was truly extraordinary. It should be noted that large cap growth stocks were enormously overvalued at the beginning of the period. By contrast, small cap value stocks appeared either appropriately valued or slightly overvalued at the beginning of the period relative to historic norms. In addition, bond returns were greatly enhanced as interest rates fell sharply during the period. As a consequence, the performance differentials between Portfolio A (large cap balanced stocks 60%, fixed income 40%) and the value/small cap tilted portfolios were quite large during this period. A value / small cap tilted portfolio which had less market exposure performed exceptionally well compared to an investment portfolio dominated by large company (balanced) stocks. However, examining data from only this most recent period does not, by any measure of statistical sampling, prove the hypothesis. Much deeper examination of the hypothesis is required.

Please note: ***The individual investor should NOT anticipate that these results of 2000-2002 will be duplicated if stock market prices should again fall, and that a "value" or "small cap" tilt (by themselves) will protect the investor.*** Why? At the time of writing of this article (January 2005), all U.S. stock market asset classes are somewhat overvalued relative to recent historic norms, and bond prices are quite high (i.e., bond yields are quite low) relative to recent historic norms. Hence, it is extremely unlikely that a small cap / value tilted portfolio with a substantially lower allocation to equities (and greater allocation to fixed income investments) would *overwhelm* the more traditional portfolio in terms of relative performance.

***Other Post-WW II Stock Market Downturns.*** Let's examine the remaining fourteen post-WW II periods in which significant stock market downturns occurred. In all cases but one (the July 1948 to June 1949 stock market downturn) Portfolios B and C had a performance advantage. The average performance advantage of these fourteen periods (we exclude the extraordinary results of 4/2000-2/2003) was 3.11% for Portfolio B (vs. Portfolio A) and 5.84% for Portfolio C (vs. Portfolio A). Moreover, although not illustrated in the table, during every post-1940 period surveyed (except 8/1941-4/1942) the standard deviation of Portfolios B and C were lower during the periods of stock market downturns.

***Pre-WW II Stock Market Downturns & The Great Depression.*** The period from 1929 through 1938 was one of enormous market swings, with a high degree of volatility. For the entire period Portfolios B and C had a huge performance advantage, generating slightly positive total returns during the same time that Portfolio A had a -21.38% total return. For the huge stock market downturn which occurred from Sept. 1929 to May 1932, the worst 3-year period ever in the post-1926 era of the U.S. stock market, Portfolios B and C tempered, to a small degree, the phenomenally bad returns, but still suffered substantial losses. However, as shown in the tables on page 10, during some of the shorter period downturns during the Great Depression, such as Feb.-July of 1934 and Sept.-Oct. 1933, Portfolios B and C did not perform as well as Portfolio A.

***Drum Roll, Please ... (Preliminary) Conclusions.*** The following *preliminary* conclusions can be drawn from this analyses:

- ❑ A decision to “tilt” a portfolio toward small cap and value ordinarily involves a decision to seek higher expected returns for the portfolio, but at the cost of a higher degree of risk (both in terms of standard deviation, usually, and in terms of terminal value should a very major downturn occur in which large, solidly financed companies are likely to survive while smaller, in distress companies are less likely to survive). However, if a small cap and value tilt is added to the equity portion of an investor’s portfolio, and ***at the same time*** market risk is reduced by reducing the overall allocation to equities and increasing the allocation to fixed income investments, this will generally have the effect of reducing the volatility of the portfolio (as measured by standard deviation) and will generally have the effect of enhancing terminal values (the ending value of the portfolios) during most periods of stock market downturns.
- ❑ An individual investor may not possess the patience to stick with a small cap and value tilt in the portfolio during periods, such as 1995-1999, when large cap and growth stock returns are substantially higher. Hence, any tilt in an investment portfolio toward small cap and value stocks should be undertaken only if the individual investor understands, to a reasonable degree, these effects, and then only if the individual investor is likely to be patient enough to reap the rewards.
- ❑ A “plunge” to small cap and value stocks should only be undertaken by sophisticated, knowledgeable investors, and even then only if the overall allocation to equities is substantially reduced. It may be viewed as permissible to accept a higher degree of size and value risk premia, but only if the market risk premium is reduced concurrently.

***Some Further Speculations:***

- ❑ In a period of overvalued equity markets (as now), it may be speculated that it is better to more heavily tilt toward small cap and value with a concurrent reduction in the equity allocation is reduced. However, this assumes that fixed income portion of the portfolio is invested in short-term, high-quality instruments.

***A Lot of Cautions: More Data Needed, More Testing Needed, and Unanswered Questions.*** There are several caveats to the analysis presented so far, and some additional observations. In addition to the important information set forth in the Appendices, I emphasize the following:

- Fama-French indices data were used for determining the “size” and “value” effect. These indices are constructed with extremely strong “value” and “size” tilts, similar to the corresponding mutual funds of Dimensional Funds Advisors. The results set forth in this paper would not likely be obtained by the use of other style indices (such as Russell or S&P/Barra or by using other mutual fund data (such as index funds which track those indices), as such indices and funds do not possess such strong value and size tilts. Moreover, Dimensional Funds Advisors’ portfolios, and the trading strategies employed, have been engineered to keep transaction costs (bid-asked spreads, market impact, and commissions when buying and selling securities within the fund) and opportunity costs (resulting from cash holdings within a fund) to a minimum, an advantage that most index-driven mutual funds do not possess. Hence, replication

of the results of this analysis with Russell, BARRA, MSCI, or Morningstar style-based indices, or with traditional index funds based upon such indices, is very unlikely.

- We might assume that the analysis works only in a period when the small cap and value asset classes are not substantially "more overvalued" than the "large cap balanced" asset class. This assumes there would be a reversion to the mean, eventually. If so, would the application of this analyses result in a form of "market timing," in that the *initial* strategic asset allocation targets might be established differently depending upon market levels of valuation. Or is this merely an extension of the "starting points" theory of portfolio construction - that strategic asset allocation should take into account the relative starting points of various asset classes, without further adjustment? We continue to adhere to our view that there is **no** conclusive academic evidence that market timing strategies work. Most academic evidence agrees.
- While the results shown in the tables on the preceding pages appear to be very compelling, and the hypothesis thereby "confirmed," much more analyses, with better data, is required to more fully test this hypothesis. For example, further analyses could include:
  - Better data as to the returns of the various asset classes, both over longer periods of time (pre-1926), and by using daily or weekly (not monthly) data.
  - Analyses could be undertaken in which the relative small cap tilt and value tilts are varied. Is it better to tilt a portfolio more to small cap, and less to value, or vice versa?
  - The utilization of other types of fixed income investments could affect the outcome of our analyses. For example, the use of very short term duration notes (such as 1-month U.S. Treasury notes) would tend to remove from the results the performance boost a fixed income portfolio may possess during periods of falling interest rates. However, as most investors have an average duration for their fixed income portfolio of several years, perhaps the utilization of 5-year U.S. Treasury note data was appropriate.
  - The analyses should be undertaken with other asset classes being added to the mix, as other risk premia may affect the portfolio results. For example, international (developed markets) large cap balanced, large cap value, small cap, and small cap value portfolios could be employed. In addition, emerging markets data could be employed. However, given the lack of data extending prior to the 1970's (for developed markets) and prior to around 1990 (for emerging markets), any analysis using such data would be hampered.
  - Consideration could be given to the addition of other asset classes, such as REITs, commodities, and absolute return strategies (i.e., some hedge funds, or use of puts / options in a portfolio). How would the addition of such asset classes or certain hedging strategies affect our results?
  - One of the "next frontiers" of portfolio construction analyses will likely result when better databases are constructed, with p/e, p/s, p/b, and p/d data available going back many years for many different asset classes.

Even with all these caveats, and questions, it appears that the philosophy of value and small cap tilting an investment portfolio, while reducing the overall equity allocation at the same time, will yield a more satisfying combination of risk (volatility) and return for the individual investor, especially during an individual investor's retirement years.

*An Aside - What Keeps Ron Rhoades Awake At Night?* A client recently asked what keeps me awake at night. Is it running all these analyses? Not at all. (Though, at times, my wife would prefer me to turn off the laptop and come to bed earlier, but that's another matter.) Rather, there are restless nights when I am concerned about several of our firm's clients, and others who are not (yet) clients.

- ❑ I'm concerned about the widower who is, by necessity, aggressively invested, given his low amount of social security retirement income, the modest size of his investment portfolio, and relatively long term time horizon over which the investment funds are likely to be utilized. He lives a very modest lifestyle, but still his investment portfolio must be somewhat aggressive to try to obtain for him a lifetime of financial security. I wish the portfolio could be more conservative.
- ❑ At the other end of the spectrum, I'm concerned about a wealthy client who has more than 3/4 of her portfolio invested in equities. This investor has no need to take on this amount of risk during retirement, but I can't talk her out of it. (Maybe, if I can get her to read this article, she'll understand that market risk is a very real risk.) Although we've taken some gains off the table in her portfolio in the past couple of years, I would still recommend a much more moderate portfolio during retirement - no more than 60% devoted to stock mutual funds, with the rest in various fixed income investments.
- ❑ Lastly, I worry about so many people we have not yet helped, and who possess inappropriate asset allocations, poor tax planning, or high-cost products. Our financial planning and investment advisory firm can often significantly reduce the total costs and fees associated with investing (relative to the fees associated with investment products sold by "full service" brokerage firms). Just as importantly, we can often substantially reduce the tax drag upon investment returns and reduce many of the risks to which our clients are exposed. Perhaps most important, through our educational efforts (such as this article), we seek to educate our clients on the risks and rewards of the capital markets - so that the next time the stock market suffers a major downturn (and it will) our clients won't "flee" the market at an inopportune time. Through our imposition of the discipline of long-term investment strategy, and a "buy low" and "sell high" type of methodology, and by avoiding the "chasing" of investment returns, we enable our clients to capture a great deal of the returns the capital markets have to offer over the long term. I'm worried about the many investors I know, not yet clients of our firm, who are sold inappropriate, high-cost products (such as variable annuities) and who have "financial consultants" with no real training or education in investment theory (although they, or their firms, often profess to have "crystal balls"). I hope through our web site and our writings we can reach some of them (whether or not they become clients of our firm), and help them to achieve their long-term financial goals through a disciplined, rational investment process. I hope they will "see the light" *before* the next major stock market downturn, instead of turning to our firm (or other good investment advisory firms like ours) only after the damage is already done.

Here's wishing you a prosperous and rewarding 2005. - Ron A. Rhoades