WORKING PAPER:

INVESTING FOR THE REBOUND

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ABSTRACT

Research shows that, on average, during periods of business cycle downturns, the expected equity risk premiums increase above the long-term average risk premiums.[1] This paper examines extreme equity market downturns and evaluates if they follow the historical average results. The question we seek to answer is whether the data provides any investment implication for the current market environment.

Our analysis found that risk premiums are above average in periods of extreme bear markets. Additionally, the research shows that the asset class risk premiums of value stocks and small cap stocks exceeded their average bear market expected returns by a magnitude much greater than anticipated. As such, our research implies that a healthy investment in large cap value, micro cap, and small cap value stocks is the ideal allocation for a period of market recovery.

TERMINOLOGY

- **Risk-Free Rate of Return:** Monthly, annualized returns of One-Month U.S. Treasury Bills.
- **Inflation:** Consumer Price Index (CPI)
- **Large Cap Stocks or "Market:"** Monthly annualized returns of the S&P 500 Index
- **Large Cap Value Stocks:** Market-capitalization-weighted index of securities in the top half of the U.S. market based on market cap and those whose book-to-market ratio falls in the top 20% of large cap securities.[2]
- **Micro Cap Stocks:** Market-capitalization-weighted index of securities of the smallest U.S. companies whose market capitalization falls in the lowest 4% of the total market.[2]
- **Small Cap Value Stocks:** Market-capitalization-weighted index of securities in the bottom half of the U.S. market based on market cap and those whose book-to-market ratio falls in the top 25% of small cap securities.[2]
- **Equity Risk Premium:** Monthly annualized returns of the S&P 500 Index less the risk-free rate of return.
- **Value Risk Premium:** Monthly annualized returns of large cap value stocks less the market rate of return.
- **Small Cap Risk Premium:** Monthly annualized returns of micro cap stocks less the market rate of return.
- **Major Bear Market:** A market loss of 30% or more lasting for at least 12 months.

METHODOLOGY AND RESULTS

Few doubt that the current equity market crisis is one of the worst in history. However, this time isn't the first bear market to have such a widespread impact. In fact, since the final bear market of the Great Depression, which ended in April 1938, there have only been three other bear markets where the S&P 500 Index declined more than 30%: the Oil Embargo Crash of 1973–1974, the Dot-Com Bust of 2000–2002, and our current market.

This report analyzes the returns of the four major U.S. equity asset classes during the 12-, 36-, and 60-month periods immediately after each major bear market. Based on this analysis, we can answer the question, "What equity asset class had the best returns after a major market crash?"

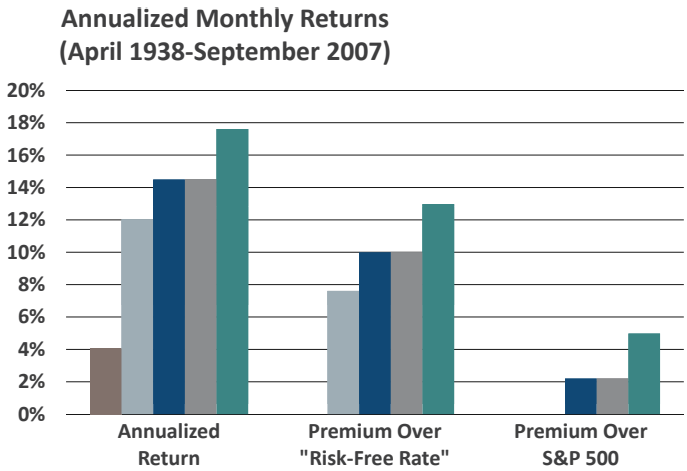
The four major U.S. equity asset classes analyzed are those defined by the Fama-French multi-factor research.[3] They are large cap stocks, large cap value stocks, micro cap stocks, and small cap value stocks.[3]

HISTORICAL RISK PREMIUMS

The equity risk premium is the reward for owning stocks over a "risk-free rate of return." This risk-free rate is usually represented by One-Month U.S. Treasury Bills. Equities are generally

represented by the S&P 500 Index. For this paper, the value risk premium is the reward for owning value companies over the market. The size risk premium is the reward for owning micro cap stocks over large cap stocks.

As we will discuss in this paper, the premiums change over time. From April 1938 to September 2007, the period analyzed in this paper, the equity risk premium was 7.61% per year. The value premium was 2.20% per year. Combined, the equity risk-value premium was 9.98%, meaning the reward for owning large cap value stocks over the risk-free rate of return was 9.98%. All premiums are provided in Chart 1. These premiums are determined month-by-month and then annualized, which creates a more accurate result than using just the annualized returns.



	Annualized Return	Premium Over "Risk-Free Rate"	Premium Over S&P 500
One-month US Treasury Bills (Risk Free Rate of Return)	4.10%		
S&P 500 Index	12.03%	7.61%	
US Large Value Stocks	14.49%	9.98%	2.20%
US Micro Cap Stocks	14.50%	9.99%	2.21%
US Small Value Companies	17.61%	12.97%	4.98%

Chart 1: Historical Risk Premiums, April 1938–September 2007

PREVIOUS RESEARCH

Previous research has shown that the expected risk premiums change in relation to our position in the current market cycle.[1] In times when the market cycle is positive, the expected risk premium decreases. In times of market downturns, the expected risk premium increases. The findings are consistent with efficient market theory. In good times, there is less perceived risk in owning equities, and, as a result, the risk premium should be lower. In bad times, there would need to be an increased expected return, a risk premium, to justify purchasing equities in a period of declining prices.

The past research dealt with the average results over many different periods. There are periods in time when the averages do

not apply. A goal of this paper is to evaluate the returns of the different asset classes after a major market crash to see if these periods of intense stress follow the historical experiences.

As expected, all four asset classes exceeded their average respective risk premiums. What was not expected was the magnitude by which large cap value, micro cap, and small cap value exceeded their risk premiums and the actual returns earned by large cap stocks. With only one exception, the 12-month period following the Great Depression Bear Market, large cap stocks drastically underperformed the other three asset classes.

PERIOD SELECTION PROCESS

Part of this paper's methodology included reviewing extreme historical periods similar to the current economic conditions. It is these outlying periods that the conventional wisdom says are not part of the average, and as a result, require special considerations.

Using the S&P 500 Index, and going back to January 1926, there have been 23 separate bear and bull markets. The average bear market lasted 11 months while the average bull market lasted 32 months. Bull and bear markets are defined in hindsight using cumulative monthly returns. A bear market begins with a negative monthly return, must achieve a cumulative return less than or equal to -10%, and end at the most negative cumulative return prior to achieving a positive cumulative return. All data points which are not considered part of a bear market are designated as a bull market. (See Appendix A, Chart 11.)

The period of the Great Depression (1929–1938) was one of massive volatility. During this period, the markets were also very different than they are today from a regulatory standpoint, to the types of investors and the social programs dealing with recessions, including a lack of fiscal and monetary policy from government agencies. As a result of these factors, the last bear market of the Great Depression is where we started the analysis.

Data selection was focused on extreme periods of equity market losses for the purpose of analyzing how the four major equity asset classes recovered. For the purpose of this paper, we define "extreme loss" as a loss of 30% or more on the S&P 500 Index for at least 12 months. All of these numbers are subjective. We selected 12 months due to the associated psychological factors that affect investors during a sustained bear market. Once investors look at a trailing 12 month return of -30% or worse, there's great pressure to sell due to panic and fear.

Counting the final bear market of the Great Depression period, there are only four periods that qualify as an extreme bear market, including our current market. The other periods that qualify are:

- Oil Embargo Bear Market, ended December 1974
- Dot-Com Bear Market, ended September 2002

FINAL BEAR OF THE GREAT DEPRESSION

Starting in September 1934 and lasting for 31 months, the final bear market of the Great Depression showed losses for this period of 30%. The following twelve months, from April 1938 to March 1939, was the only period of all the bear market recoveries when large cap stocks performed better than the other asset classes. As a result, it does not follow the historical average observation of increased risk premiums in a downturn. Chart 2 shows the total return for the 12, 36, and 60 months starting April 1938.

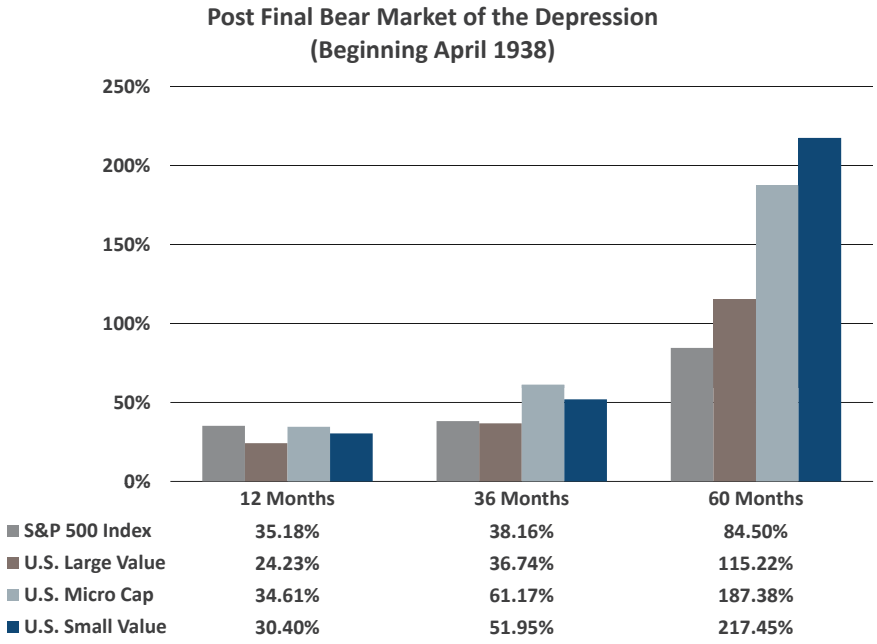
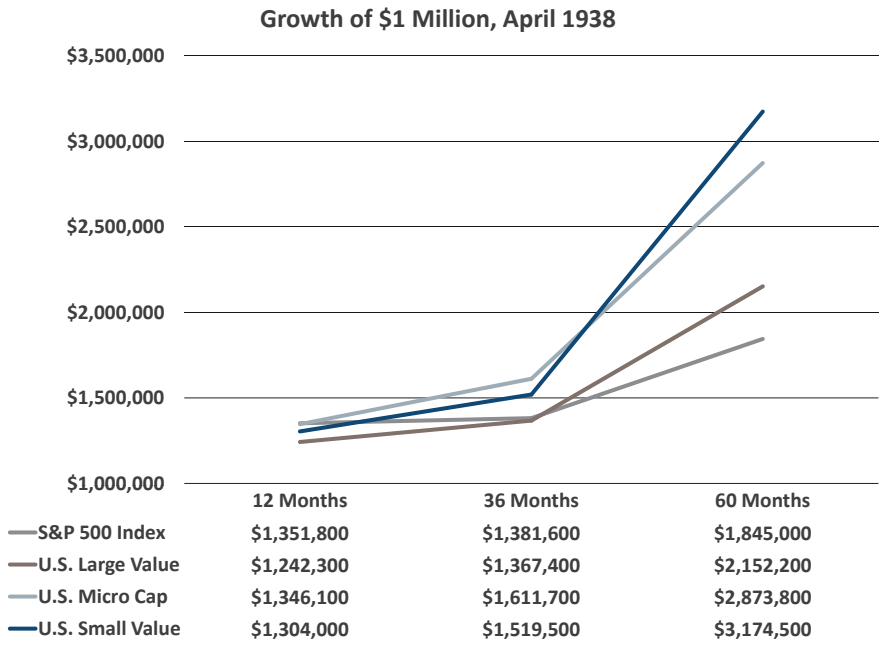


Chart 2: Total Returns (1938), 12, 36, & 60 Months

GROWTH OF $1 MILLION BEGINNING APRIL 1938

A 43% return is needed to recover from a 30% loss. While none of the asset classes were back even after 12 months, half had recovered the S&P 500 loss in 36 months, and all but the S&P 500 doubled one's money within five years (see Chart 3).

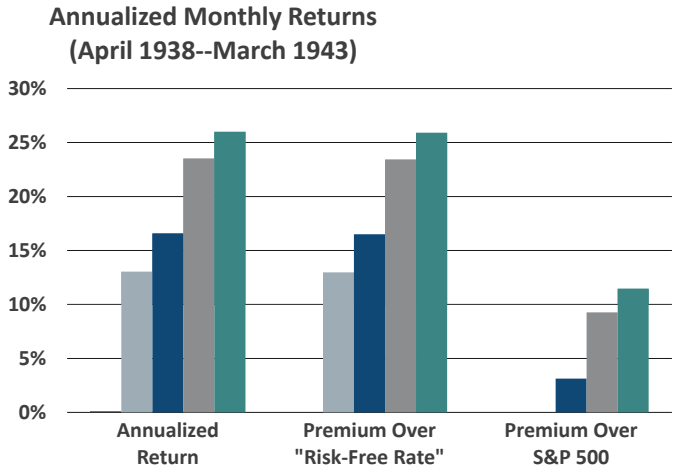


	12 Months	36 Months	60 Months
S&P 500 Index	$1,351,800	$1,381,600	$1,845,000
U.S. Large Value	$1,242,300	$1,367,400	$2,152,200
U.S. Micro Cap	$1,346,100	$1,611,700	$2,873,800
U.S. Small Value	$1,304,000	$1,519,500	$3,174,500

Chart 3: Growth of $1 Million, April 1938

RISK PREMIUMS BEGINNING APRIL 1938

At the end of the five-year period, the distribution of the results is what one would expect based on the expected risk premiums, with large cap stocks having the lowest returns and small cap value stocks having the highest returns (see Chart 4). The surprise was the magnitude of the value and size risk premiums over large cap stocks.



	Annualized Return	Premium Over "Risk-Free Rate"	Premium Over S&P 500
One-Month U.S. Treasury Bills (Risk-Free Rate of Return)	0.07%		
S&P 500 Index	13.03%	12.95%	
U.S. Large Value	16.57%	16.48%	3.13%
U.S. Micro Cap	23.51%	23.42%	9.27%
U.S. Small Value	25.99%	25.90%	11.46%

Chart 4: Risk Premiums, April 1938

For the 60-month period beginning in April 1938, the equity risk premium was an annualized 12.95%, 5.34 percentage points above the long-term average equity risk premium. Most impressive was the annualized, small cap value risk premium (11.46%) for a total premium over the risk-free rate of 25.90%.

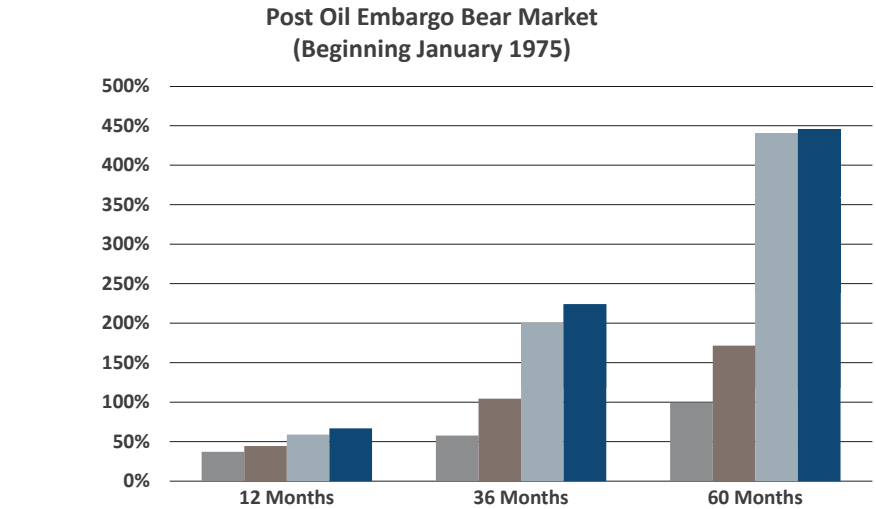
While beyond the scope of this paper, the poor performance of the risk free rate (0.07%) is still worth noting. When adjusting for inflation, One-Month Treasury Bills lost 17.16% for the period, delivering an annualized return of -3.84%. It causes one to question if it is truly a risk-free rate of return.

OIL EMBARGO BEAR MARKET

The period in the early 1970s was one of high inflation, an oil crisis, and the ending of the Vietnam conflict. An interesting note is that in real terms, net of inflation, this market crash was worse than the one experienced during the Great Depression. In the late 1960s, a 19-month-long bear market saw the S&P 500 Index lose 29%. Immediately before the Oil Embargo Bear Market, the S&P 500 experienced a 30-month-long bull market where the index was up 76%.

The Oil Embargo Bear Market lasted 21 months, ending in December 1974. During this period, the S&P 500 Index lost 43%, which required a 75% return to reach its value at the beginning of the bear market.

Within 36 months, all of the major asset classes, other than the S&P 500 Index, were above the starting point, and the U.S. small value asset class was up an eye-popping 223.9% (see Chart 5).



	12 Months	36 Months	60 Months
S&P 500 Index	37.21%	57.74%	99.08%
U.S. Large Value	44.43%	104.43%	171.55%
U.S. Micro Cap	58.95%	200.27%	440.21%
U.S. Small Value	66.83%	223.90%	445.07%

Chart 5: Total Returns (1975) 12, 36, & 60 Months

GROWTH OF $1 MILLION BEGINNING JANUARY 1975

The subsequent bull market was so strong in the second half of the 1970s that $1 million invested in either the small cap value or the micro cap asset classes would have grown to over $5.4 million in five years (see Chart 6).

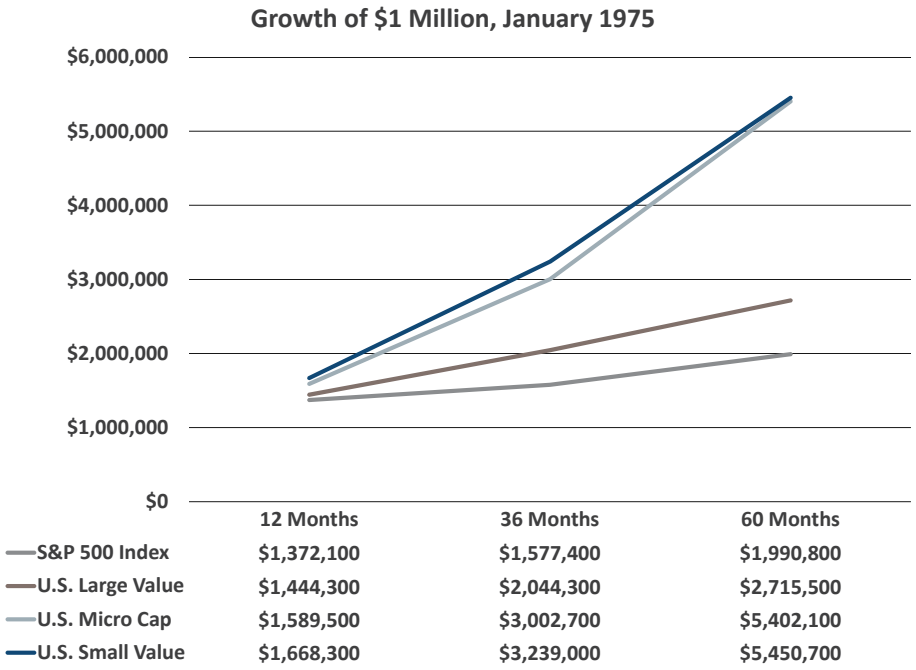


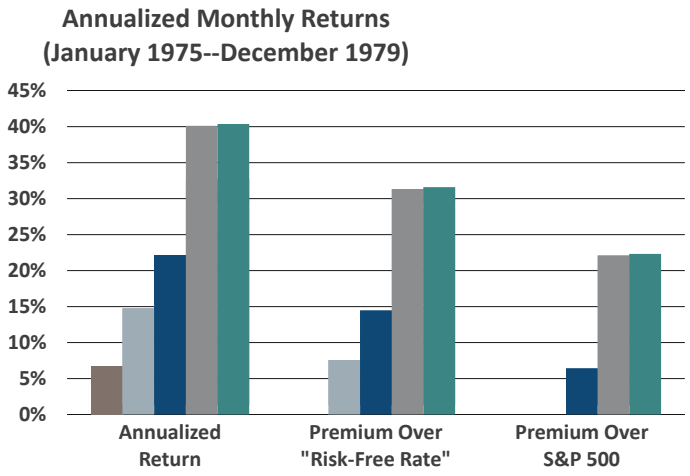
Chart 6: Growth of $1 Million, January 1975

The difference in the amount of wealth created in this recovery period for those investors with a properly diversified portfolio versus those that maintained the standard, large cap bias was life changing.

RISK PREMIUMS BEGINNING JANUARY 1975

Of all three periods examined, the 60 month equity risk premium was the lowest for this period, at 7.56%. That premium is actually less than the 7.61% long-term average equity risk premium. Also during this period, the equity risk value premium (large value stocks less the risk-free rate of return) was the lowest of all three periods at only 14.45% a year.

However, since the equity risk premium was so low, the large value premium (large cap value stocks less the market) was the highest of all three periods at 6.41%. Both the micro cap stocks and the small cap value stocks had the highest risk premiums of all three periods (see Chart 7).



	Annualized Return	Premium Over "Risk-Free Rate"	Premium Over S&P 500
One-month US Treasury Bills (Risk Free Rate of Return)	6.70%		
S&P 500 Index	14.76%	7.56%	
US Large Value Stocks	22.12%	14.45%	6.41%
US Micro Cap Stocks	40.12%	31.33%	22.10%
US Small Value Companies	40.38%	31.56%	22.32%

Chart 7: Risk Premiums, 1975

DOT-COM BEAR MARKET

Many believe that the Dot-Com Bear Market was a "correction" to the hype around technology and the world-changing impact of the Internet. However, this belief is interesting since one would not expect a major positive "correction" after the bear market if the bear market was just properly adjusting prices due to a bubble.

This bear market ended in September 2002. It lasted for 25 months, and the S&P 500 Index lost 45%. That loss would require an 82% return to get back to the peak of the bull market. One of the unique aspects of this bear market is that it was not a true market-wide crash, unlike the other three. It was focused on the large cap and technology stocks. A diversified portfolio of large cap value, micro cap, and small cap value stocks would have lost less than 10% during the Dot-Com Bear Market. Granted, these asset classes did not see the huge run-up in valuations in the last half of the 1990s like the large cap stocks.

Since our focus is on the recovery, we're concentrating on the loss of a large cap portfolio, which represents how most portfolios are allocated. Within 36 months, both small cap asset classes showed returns in excess of the break-even target of 82%. Within 60 months, all the asset classes returned over the targeted 82%, and the small cap value asset class more than tripled in value (see Chart 8).

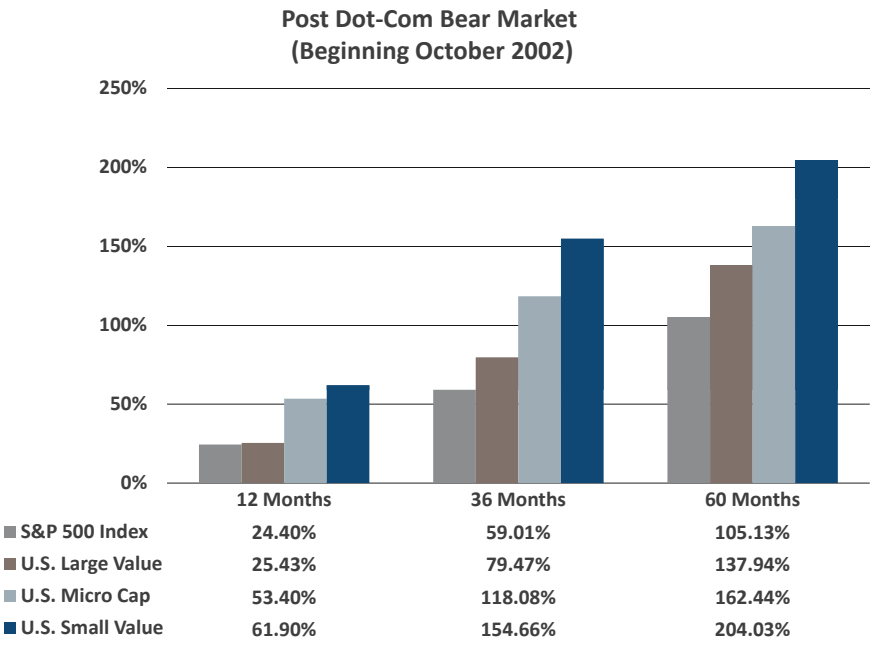


Chart 8: Total Returns (2002) 12, 36, & 60 Months

GROWTH OF $1 MILLION BEGINNING OCTOBER 2002

Unique to this bear market is the 60-month period ending in September 2007, which goes into the beginning of the current Toxic Debt Bear Market. After only 36 months, the two small cap asset classes doubled in value, turning a hypothetical $1 million into $2.2 million and $2.5 million for the asset classes of micro cap and small cap value, respectively (see Chart 9). After five years, the small cap value assets class turned $1 million into a little over $3 million.

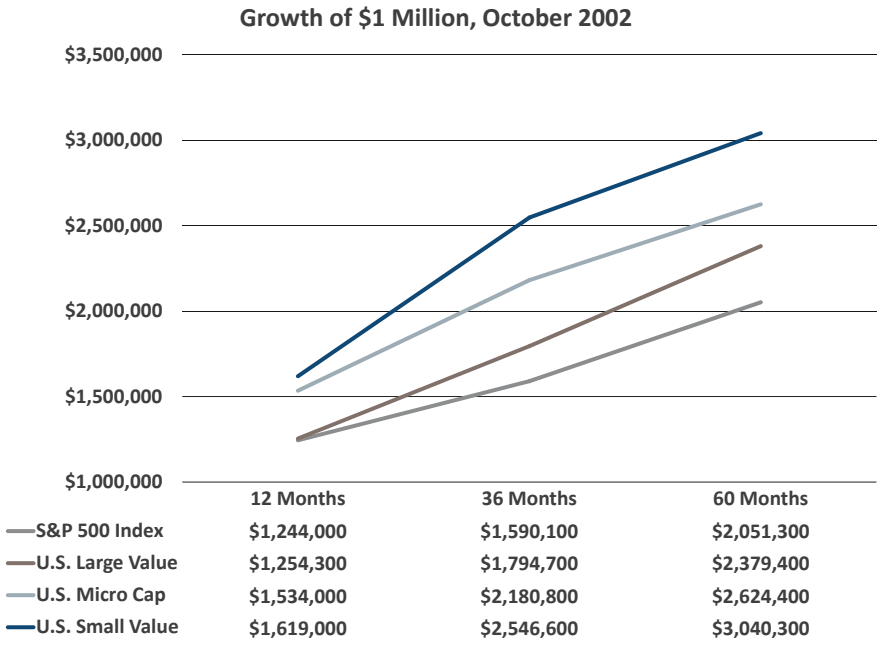
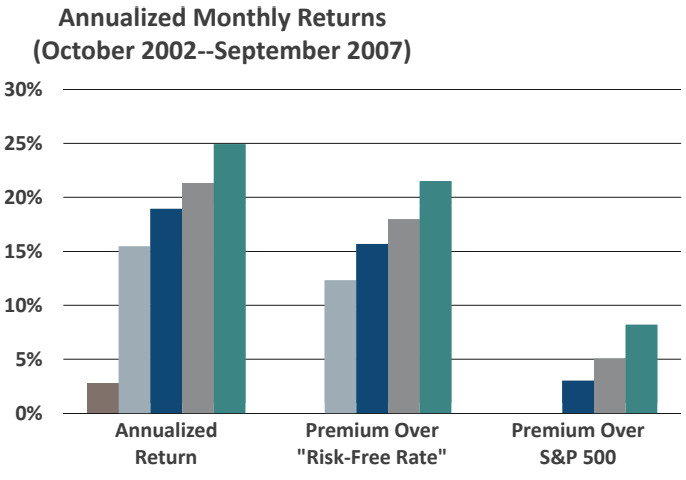


Chart 9: Growth of $1 Million, October 2002

RISK PREMIUMS BEGINNING OCTOBER 2002

Of all three periods examined, the different asset classes' risk premiums over the market were the lowest in this recovery. That should be of no surprise, since the Dot-Com Bear Market was primarily limited to large cap stocks. Since value and small cap stocks did not come close to the 45% drop like large cap stocks, one would not expect them to have as much room for recovery. Regardless of this point, the risk premiums of all the asset classes were well above their respected long term averages.



	Annualized Return	Premium Over "Risk-Free Rate"	Premium Over S&P 500
One-month US Treasury Bills (Risk Free Rate of Return)	2.81%		
S&P 500 Index	15.45%	12.30%	
US Large Value Stocks	18.93%	15.68%	3.01%
US Micro Cap Stocks	21.28%	17.97%	5.05%
US Small Value Companies	24.91%	21.50%	8.19%

Chart 10: Risk Premiums, October 2002

IMPLICATIONS

The results from analyzing three bear markets and their recoveries over 80 years do not guarantee that the outcomes will be repeated. Despite this caveat, over all the recovery periods observed, on average, all of the asset classes did experience an increase in their average risk premium. In the three periods studied, the risk premium paid for size risk and value risk far exceeded the historical average in a recovery.

What one can take from this research is that the risk-to-reward benefit of taking a substantial allocation to value and small asset classes is excellent. This conclusion fits with the economic theories and the historical research. While there is no guarantee that history will repeat itself, there appears to be little chance of additional loss in moving the large cap asset class into large cap value, micro cap, and small cap value in a well diversified manner.

OBSERVATIONS

As a believer in market efficiency, whenever there is an observation of a "free lunch," one should be skeptical. One should always ask if there is a market efficient explanation to what has been observed in the past. If there is, then a greater likelihood exists that the historical observations will repeat in the future.

One possible explanation for the large added returns of value stocks and small stocks over the large cap stocks could be a flight to quality. During major market downturns like the ones highlighted in this paper, much of the security sell-off comes from panic rather than any fundamental analysis. In fact, panic selling and other forced selling, such as the unwinding of leverage, are efficient market explanations of how the markets can become fundamentally mis-priced in a moment of time. It is the same concept as the irrational buying that leads to a market bubble.

In times of irrational panic, if one were to stay invested in equities, most would seek out the highest quality, most stable companies—large cap companies. So, an explanation could be that the added return of value and small cap companies is a reward for owning securities others are not willing to own. The wholesale selling of securities is driven more by fear than by any true fundamental analysis of a company's proper value. The added premium may be for accepting a psychological risk factor, which is not illustrated in the numbers, providing the illusion of a free lunch.

From a pure numbers analysis, the conventional wisdom of owning only large cap, high quality companies in a major bear market is the least prudent course of action. There does not appear to be any added likelihood of added loss from owning the small and value asset classes in the bottom of a major bear market. One could argue that large cap stocks seriously underperform in a market recovery.

Another point worth noting is that in two of the three periods observed, all the asset classes, other than large cap, had returned enough to be back at peak value within 36 months. This result is excellent news for those who may be expecting the markets to take five to ten years to recover from the current bear market. A significant move to value and small cap equities has historically shortened the recovery time to three years or less.

CONCLUSION

This paper analyzed the 12-, 36-, and 60-month recovery periods after the three major bear markets experienced since the start of the Great Depression. The goal was to determine if the average results of higher than average expected returns were experienced in the few, major market downturns.

Not only were the average results consistent after the major bear markets, but the magnitude of the over performance, especially with the value and small asset classes, far exceeded the historical averages. This result leads to a suggestion that in a major market downturn, a substantial weighting to large cap value, micro cap, and small cap value asset classes could provide a substantial return with little to no increased risk to the portfolio.

ABOUT THE AUTHOR

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In addition to running Trovena and OnCubic, Mr. Leonard is an instructor at UCLA Extension, teaching courses in the financial planning certificate program. He is also an instructor and Dean of the School of Investments for NAPFA University. He is a national speaker on investment and wealth management issues.

Mr. Leonard, a published author, specializes in advanced investment theory. He's been the featured financial planner for the *Los Angeles Times* weekly column "Money Make-Over." His television and radio appearances include: *NBC Nightly News*, *Extra*, *NPR*'s "Market Watch," and *KCAL 9 News*.

Mr. Leonard is widely recognized among the business media as an industry expert. His analysis and opinions on advanced wealth management issues are frequently featured in national publications including *The Wall Street Journal*, *USA Today*, *Money Magazine*, and *Kiplinger's Personal Finance*.

Scott assumes a leadership role within the financial planning and wealth management profession, holding numerous board positions with esteemed associations, including: current President of NAPFA, West Region; past President and Chair of the Financial Planning Association, Los Angeles Chapter; and multiple positions on national committees dealing with ethics and professionalism in the financial services industry.

Mr. Leonard graduated from the University of California, Los Angeles (UCLA) in 1990 with a Bachelor of Science degree in Economics. He earned his CFP™ credential in 1994 and his CEA™ certificate in 2002.

ABOUT THE FIRMS

Trovena is one of Southern California's premier multifamily offices, working exclusively with high-net-worth business owners, executives, and their families. OnCubic, a sister company of Trovena, is a money management firm providing diversified portfolio solutions for investors across the country.

FOOTNOTES

1. Fama and French, 1989, *Journal of Financial Economics*; Campbell and Cochrane, 1999, *Journal of Political Economy*; Lettau and Ladvigson, 2001, *Journal of Political Economy*; Petkova and Zhang, 2005, *Journal of Financial Economics*
2. Data provided by Dimensional Fund Advisors. Source: CRSP and Compustat.
3. French, 1993, "Common risk factors in the returns of stocks and bonds EF Fama, KR French." *Journal of Financial Economics*.

APPENDIX A

CHART 11