

## Asset Returns

June 30, 2009	YTD	2008	2007	10 Year	20 Year
<b>Domestic stocks</b>					
Large	3.2	-36.7	5.2	-1.3	8.4
Large Value	-2.9	-36.5	-0.7	1.4	9.1
Large Growth	11.2	-38.2	11.5	-4.2	7.5
Small	4.1	-34.2	-1.8	3.0	7.8
Small Value	-4.8	-28.7	-10.2	6.1	10.0
Small Growth	11.6	-38.4	6.9	-0.7	5.2
Micro Cap	4.6	-36.7	-5.2	6.4	9.8
<b>International stocks</b>					
Large	4.2	-41.0	10.0	1.5	3.7
Large Value	6.2	-41.7	4.2	3.5	5.5
Large Growth	3.3	-40.2	15.0	-0.6	1.8
Small	17.4	-43.9	5.7	7.0	-
Small Value	14.4	-41.7	3.0	9.5	-
Emerg. Mkts.	30.1	-48.9	33.2	9.5	-
EM Value	41.4	-53.9	45.6	13.4	-
EM Small	44.9	-54.5	38.0	11.5	-
<b>Sectors</b>					
U.S. REITs	-13.3	-38.8	-17.8	7.7	7.5
Energy	1.7	-39.0	36.8	11.5	12.0
<b>Bonds</b>					
Short Term	1.3	4.0	4.7	4.0	5.3
Five Year	1.5	4.0	5.2	4.7	6.8
Long Bond	-11.2	22.5	9.2	7.8	9.6
Total Market	2.1	5.1	7.0	5.4	7.2
<b>Other</b>					
Inflation	-	3.8	4.1	2.9	3.0
Comm. RE	-	-6.5	15.9	10.5	7.9
Residential RE	-	-9.8	0.9	4.9	4.0
Hedge Funds	-	-18.3	14.1	6.0	-
Commodities	-	-36.0	16.7	1.7	1.8

**SOURCES:**

Large Cap data is based on S&P 500 returns.  
 Large Value and Growth returns are based on Russell 1000 Value and Growth data.  
 Small Cap, Small Value & Small Growth are based on Russell 2000, R2000 Value and R2000 Growth data.  
 Micro Cap returns are based on the CRSP 9-10 index of the smallest publicly traded stocks.  
 Int'l Large, Large Value and Large Growth are based on MSCI's EAFE Indexes.  
 International Small & Small Value returns are based on small company data in developed markets from DFA.  
 Emerging Markets data is from MSCI's Emerging Market.  
 Emerging Market Value and Small Cap data is based on Indexes maintained by DFA.  
 REITs are based on the Wilshire REIT index.  
 Energy data is from S&P's energy index.  
 Short term bonds are represented by Lehman's index.  
 Five year bonds are five year treasury returns and long term bonds are 20 year treasuries.  
 Total Bond market is the Barclays Aggregate Index.  
 Other data comes from the Federal Reserve, National Association of Realtors, HFRI & the CRB.

**PAST PERFORMANCE IS NOT A GUARANTEE OF FUTURE RESULTS. INVESTMENT OBJECTIVES, RISKS, CHARGES, EXPENSES AND OTHER IMPORTANT INFORMATION ABOUT A FUND ARE CONTAINED IN THE PROSPECTUS; READ AND CONSIDER IT CAREFULLY BEFORE INVESTING. PROSPECTUSES ARE AVAILABLE ON COMPANY WEBSITES OR FROM TSI.**

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## Correlation & Diversification

The last eighteen months have been one heck of a ride. The market has experienced more volatility than at any time since the 1930's, the economy fell into its worst recession in the Post WWII period, and financial turmoil spread throughout the world. Since March, stocks have roared back and many pundits are saying we're turning the corner on the recession. Although the gyrations have been wrenching (and probably exacerbated by the 24/7 news cycle), long term variables that drive market returns have remained within historic ranges. In my last newsletter, I reviewed interest rates, earnings yields and long term growth rates for stocks since the 1950's. While the current situation certainly feels extraordinary, the interest rates, market valuation, and economic trends are all within ranges we've seen in the past.

That being said, the market landscape changes over time and part of our process is to look for those changes and their implications for our investment strategies. Examples include the widespread availability of index funds and ETFs, the rise of emerging markets, and the increasing supply of alternative investment vehicles. This month's newsletter looks at the changing correlations across equity markets and implications for diversified portfolios.

### Diversification & Correlation

The goal of a diversified portfolio is to reduce volatility and increase returns, relative to a single asset class portfolio. For this to be possible, the various asset classes must behave differently. Ideally, you'd like for some assets to increase in value when others are down, while still maintaining strong long term returns. Assets that move together are said to be correlated. An example would be large cap growth stocks and the S&P 500. In the Callahan Periodic Table of Returns below, you can see the two usually have very similar returns. They are said to be highly correlated. The table ranks various asset classes in order of performance each year from 1988 to 2008. It makes the case for diversification by demonstrating the dramatic variability in ranking from

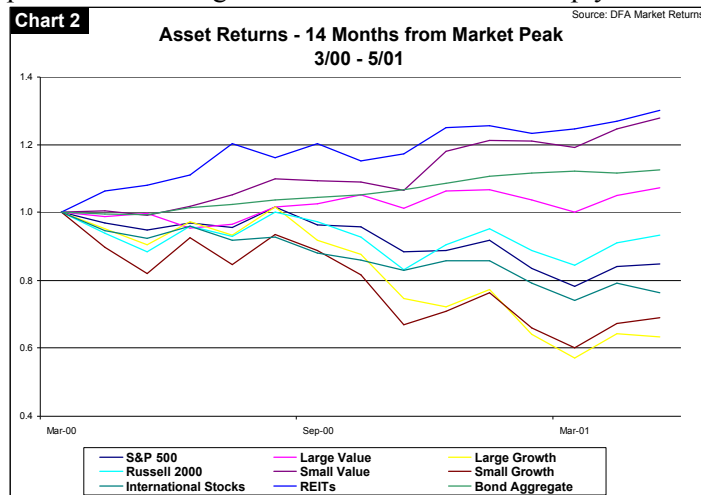
## The Callan Periodic Table of Investment Returns (including REITs)

Annual Returns for Key Indices (1989-2008) Ranked in Order of Performance

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
S&P 500 Growth	BC Agg	Russell 2000 Growth	Russell 2000 Value	MSCI EAFE	MSCI EAFE	S&P 500 Growth	NAREIT Equity	S&P 500 Value	S&P 500 Growth	Russell 2000 Value	NAREIT Equity	Russell 2000 Value	BC Agg	Russell 2000 Growth	NAREIT Equity	MSCI EAFE	NAREIT Equity	MSCI EAFE	BC Agg	
36.40%	8.96%	51.18%	29.15%	32.57%	7.78%	38.13%	35.27%	36.52%	42.16%	43.09%	26.37%	14.02%	10.26%	48.54%	31.58%	13.54%	35.98%	11.17%	5.24%	
S&P 500 Value	S&P 500 Growth	Russell 2000 Value	NAREIT Equity	Russell 2000 Value	NAREIT Equity	S&P 500 Value	S&P 500 Growth	S&P 500 Value	MSCI EAFE	MSCI EAFE	Russell 2000 Value	Russell 2000 Value	NAREIT Equity	Russell 2000 Value	Russell 2000 Value	MSCI EAFE	S&P 500 Value	Russell 2000 Value	S&P 500 Value	
31.69%	0.20%	46.05%	18.42%	23.86%	3.17%	37.58%	23.97%	33.36%	28.58%	28.25%	22.83%	13.93%	3.82%	47.25%	22.25%	12.15%	26.34%	9.13%	-28.92%	
S&P 500 Value	S&P 500 Value	NAREIT Equity	NAREIT Equity	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	MSCI EAFE	MSCI EAFE	BC Agg	BC Agg	BC Agg	BC Agg	Russell 2000 Value	MSCI EAFE	S&P 500 Value	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	
26.13%	-3.11%	41.70%	14.59%	19.85%	3.14%	36.99%	22.96%	31.78%	20.00%	26.96%	11.63%	8.43%	-11.43%	48.03%	20.25%	4.81%	23.48%	7.05%	-33.79%	
Russell 2000 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	Russell 2000 Value	S&P 500 Value	Russell 2000 Value	S&P 500 Value	S&P 500 Value	Russell 2000 Value	S&P 500 Value	Russell 2000 Value	Russell 2000 Value	MSCI EAFE	MSCI EAFE	Russell 2000 Value	S&P 500 Value	S&P 500 Value	BC Agg	S&P 500 Value	
20.16%	-6.85%	38.37%	10.52%	18.89%	1.32%	31.04%	22.00%	29.98%	14.69%	21.26%	6.08%	2.49%	-15.94%	38.59%	18.33%	4.91%	20.81%	6.97%	-34.92%	
Russell 2000 Value	NAREIT Equity	NAREIT Equity	Russell 2000 Value	NAREIT Equity	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	BC Agg	S&P 500 Value	Russell 2000 Value	Russell 2000 Value	MSCI EAFE	Russell 2000 Value	NAREIT Equity	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	S&P 500 Value	
16.25%	-15.35%	35.70%	7.77%	18.61%	-0.64%	21.37%	22.36%	22.00%	8.70%	21.04%	-3.02%	-9.23%	-20.48%	37.13%	15.71%	4.71%	18.37%	5.49%	-37.00%	
BC Agg	Russell 2000 Value	S&P 500 Value	S&P 500 Value	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	NAREIT Equity	Russell 2000 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	Russell 2000 Value	S&P 500 Value	S&P 500 Value	NAREIT Equity	
14.53%	-17.42%	30.47%	7.62%	13.37%	-1.55%	25.75%	16.53%	20.26%	1.23%	12.73%	-9.11%	-11.71%	-20.85%	31.79%	14.31%	4.55%	15.79%	1.99%	-37.70%	
Russell 2000 Value	Russell 2000 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	BC Agg	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	Russell 2000 Value	BC Agg	Russell 2000 Value	Russell 2000 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	Russell 2000 Value	Russell 2000 Value	S&P 500 Value	
12.43%	-19.50%	22.56%	7.40%	10.08%	-1.81%	18.46%	11.32%	12.93%	-2.55%	-0.82%	-14.17%	-11.89%	-22.10%	28.68%	10.88%	4.15%	13.35%	-1.57%	-38.54%	
MSCI EAFE	Russell 2000 Value	BC Agg	S&P 500 Value	BC Agg	Russell 2000 Value	NAREIT Equity	MSCI EAFE	BC Agg	Russell 2000 Value	Russell 2000 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	S&P 500 Value	Russell 2000 Value	S&P 500 Value	
10.53%	-21.77%	16.00%	5.06%	9.75%	-2.44%	15.27%	6.05%	9.64%	-6.45%	-1.49%	-22.08%	-12.73%	-23.55%	25.66%	6.13%	4.00%	11.01%	-9.78%	-38.22%	
NAREIT Equity	MSCI EAFE	MSCI EAFE	MSCI EAFE	S&P 500 Value	BC Agg	MSCI EAFE	BC Agg	BC Agg	MSCI EAFE	NAREIT Equity	Russell 2000 Value	MSCI EAFE	BC Agg	BC Agg	BC Agg	BC Agg	BC Agg	BC Agg	NAREIT Equity	MSCI EAFE
8.84%	-23.45%	12.14%	-12.18%	1.68%	-2.92%	11.21%	3.64%	1.78%	-17.50%	-4.62%	-22.43%	-21.44%	-30.26%	4.10%	4.34%	2.43%	4.33%	-15.69%	-43.38%	

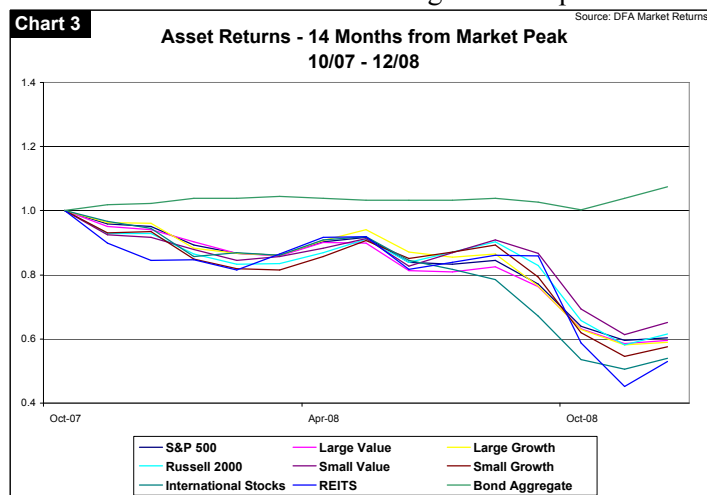
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year to year for each asset. By comparing long term returns and correlations across various asset classes, we can construct portfolios with attractive risk and return characteristics. Chart 2 shows asset returns for the indexes in the Callahan table for the 14 months following the market peak in March 2000. This chart is what you'd hope for when using different asset classes in a diversified portfolio. Although some indexes declined sharply



(growth stocks and international), others did relatively well (REITs, bonds, and value stocks). A diversified portfolio that included these assets would have fared reasonably well following the tech bust, during a time the tech-heavy NASDAQ dropped over 70%.

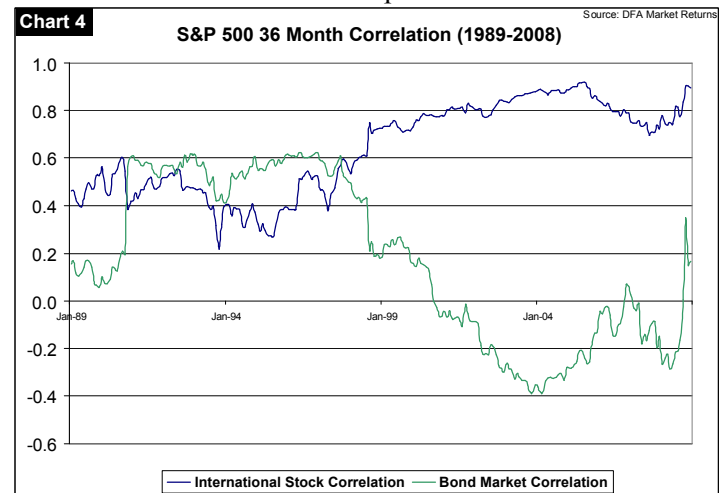
Fast forward to October 2007, the most recent market peak. Chart 3 shows the cumulative returns for the same indexes over the 14 months ending in December 2008. This time things were very different than in 2000. Equities moved as a group and experienced losses approaching 40%. Only bonds retained their value, and their appreciation was concentrated in the closing months of 2008. Unlike 2000, no other index showed positive returns over the 14 months following a market peak.



While correlations for all equities have been climbing in the last 10 years, and the market decline over the last 18 months has brought that change front and center. When I worked on a hedge fund in Houston, we had a saying that "All correlations go to one in a market crash." I don't know if I'd call this a crash, but correlations certainly approached one for equities and other assets tied to

equities, such as junk bonds and preferred stocks. Correlations increased as the prospect of a market meltdown drove investors into the safest assets.

Chart 4 shows the correlation between the S&P 500 and two other indexes over the same 20 years in the Callahan table. From 1988 to 2008 the correlation between the S&P 500 and international stocks (MSCI) changed from 0.4 to 0.9. Domestic and international stocks are now much more likely to move together than in the past. Over the same period, bond performance has diverged from stocks to the point of showing a negative correlation for much of the period. When stocks go up, bonds are now more likely to decline than in the past.



### Implications and Analysis

Imagine if someone told you in 1988 that a recovery in China's consumer sentiment could help drive our economy out of recession or that home price declines in California would bankrupt financial institutions in Iceland. U.S. investors have increasingly committed investments to overseas assets. At the same time, foreign investors are a key source of capital for U.S. markets. Additionally, there has been a historic shift to free markets around the world, making the global economy much "flatter."

These macro trends and the severe market decline in the last half of 2008 increased correlations above their historic levels. The correlations will likely fall as some markets fare better than others coming out of this meltdown. Additionally, although the indexes may move together directionally, their ultimate returns can be very different. For example, most equities are up year-to-date, but emerging markets have risen over 30%. Despite the higher correlations, various markets will continue to have widely different returns over extended periods and will ultimately reflect the underlying performance of their individual components.

### Conclusion

As equity-linked assets become more correlated, bonds are an important source of diversification and volatility reduction. Next month, I'll talk about different types of bond portfolios and the impact of bonds on portfolio performance and volatility.

Gabe Thornhill