

**Portfolio Stochastic Design Scans:
3D Portfolio Scan Diagnostics – updated 3/6**

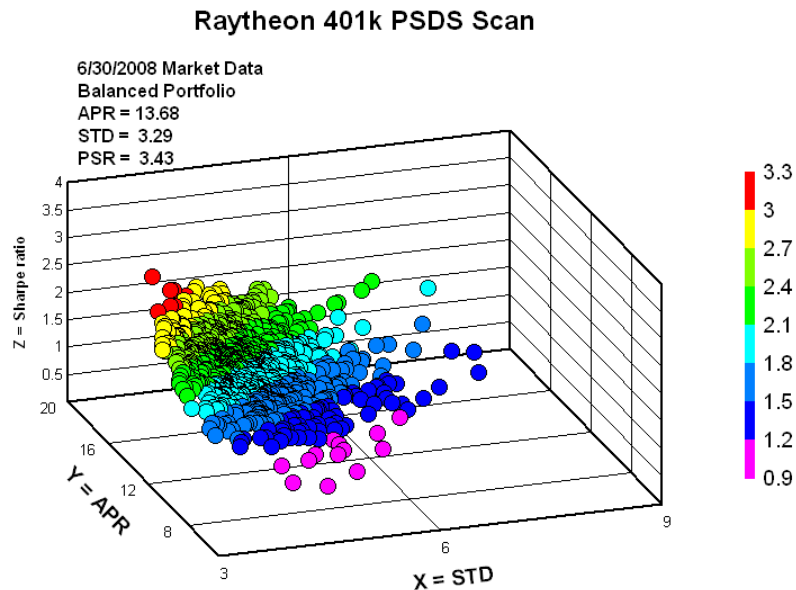
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“ In the end, how your investments behave is much less important than how you behave. ”

**Benjamin Graham
The Intelligent Investor**

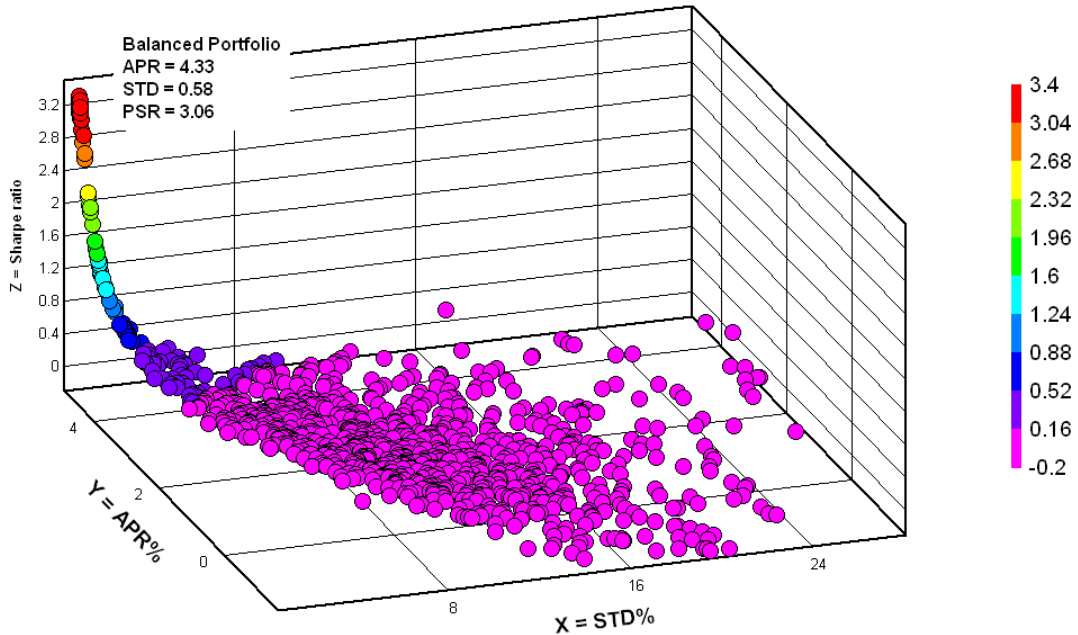
Inverted 3D Efficient Frontiers

The 3D efficient frontier in healthy markets is a smooth surface when the third dimension is Sharpe ratio. As you can see by looking at the 401k scans posted recently at psdscanner.blogspot.com, the Black Swan market scans are very different. I first began to notice the change with the U.S. Government 401k plan scan posted in November 2008. Up until the November market data arrived the 3D scans had looked like the first one posted for Raytheon in July 2008.



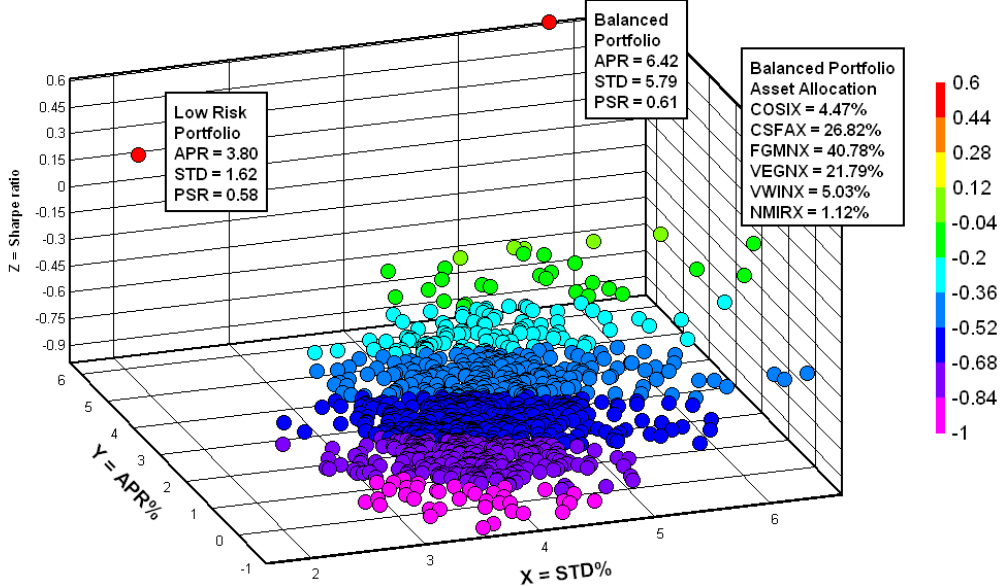
The capital market line sloped up and the Balanced portfolio was diversified but not the highest APR portfolio. In Q3 2008 the market began to decline and by Q4 2008 the market was in sharp decline. The capital market line inverted and the Balanced portfolio retreated to the stable value fund if one was available in the 401k plan. Diversification was suddenly a negative when the capital market line inverted. The Balanced portfolio became isolated in 3D scans. It looked like a frying pan.

**U.S. Government 401k (TSP) Scan
11/30/2008 Market Data**

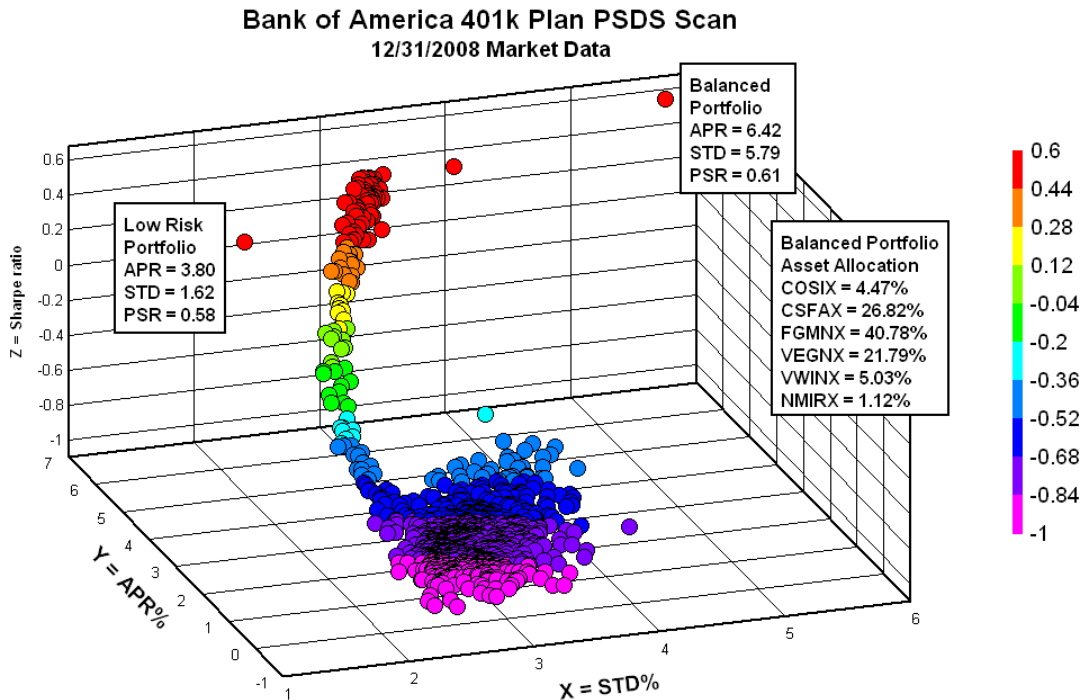


I began to worry about the stability of stable value funds and started reading the Stable Value Investment Association newsletters. The scanner option I used most often became bipolar at times when the Balanced and the Low Risk portfolios were isolated.

**Bank of America 401k Plan PSDS Scan 12/31/2008
12/31/2008 Market Data**



I had to recalibrate my Sharpe ratio scanner algorithm to connect the high Sharpe ratio portfolios to the diversified portfolios in the scan. They all had very low Sharpe ratios because most of the 401k funds had negative 5yr APR's as well as negative 5yr Sharpe ratios.



This is what a Black Swan market looks like in 3D, an ugly frying pan. My goal in all this was to be able to use the scanner as a tool to design positive Sharpe ratio portfolios in a recession. Imaging the design space is important in this context as a diagnostic tool. My primary interest is in 401k rollover plans for retirees and that includes me. I think the same tool can be useful for working employees who are years from retirement. That requires using age-appropriate risk tolerance in the design criteria and the portfolios should be different. The scanner is merely a tool that helps portfolio designers create healthy portfolios for individuals and

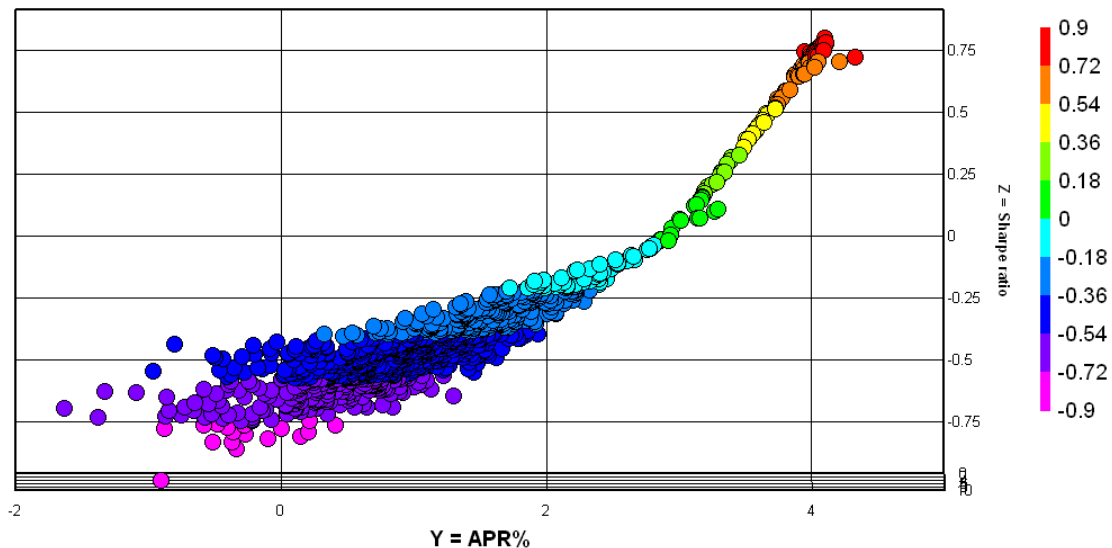
groups. This White Paper is about how it worked in my case and how it could work for a few 401k plans selected from those that I have scanned in recent years.

Restructuring a Portfolio for 2009

The easy part was “recalibrating” the scanner algorithm for inverted capital market surfaces. The not so easy part was understanding what the images meant in terms that led to specific changes. Sage advice is always welcome but I needed more than that to rebalance and restructure for 2009. One of the first issues was what to do when all the 5yr Sharpe ratios were negative. It could be simply a signal that the plan had no money market or stable value fund. If the plan had a money market fund and or income funds with positive 5yr APRs I took it to mean invest in them as if they had zero Sharpe ratios. That was the diagnosis and the algorithm now allocates assets based on a zero Sharpe ratio if the return is positive and that’s what the scanner does today. The Low Risk portfolio in the Bank of America 401k scan on the previous page illustrates the recalibrated algorithm performance for a specific 401k plan.

To continue the medical metaphor reading 3D design scans often requires looking at scans from different points of view. I do not post these images mostly because it is just too much work. The White Paper is a good way to illustrate this relatively new dimension in portfolio design. Consider the SAIC 401k scan posted this year when viewed in the yz plane or APR-PSR plane.

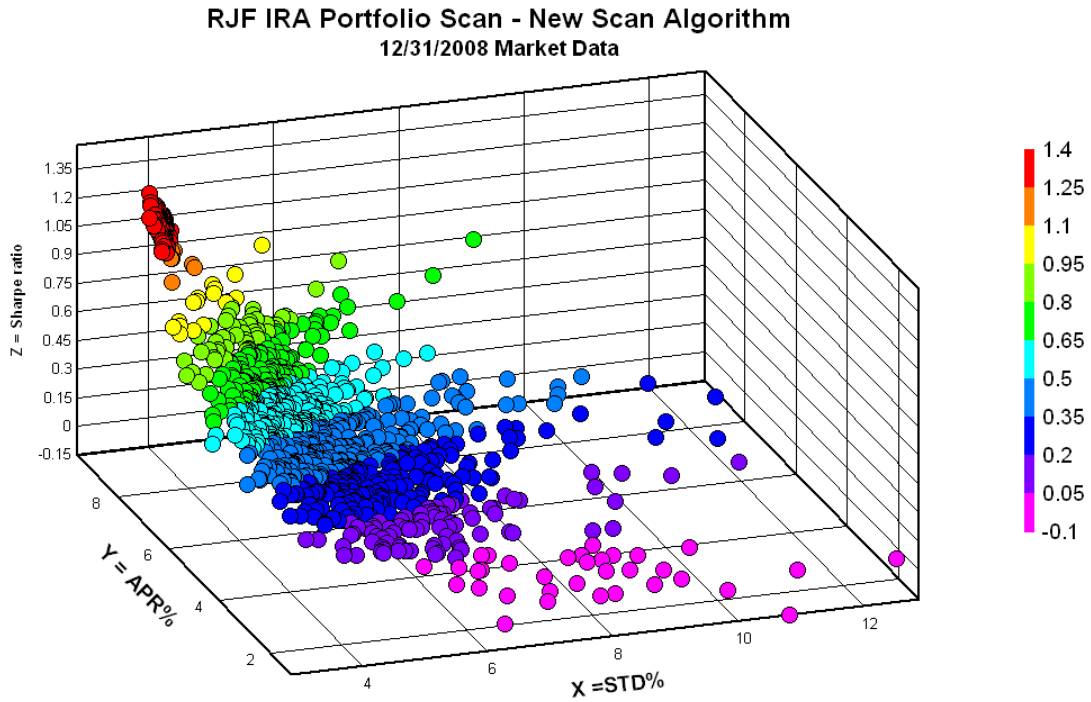
SAIC 401k Plan PSDS Scan
12/31/2008 Market Data



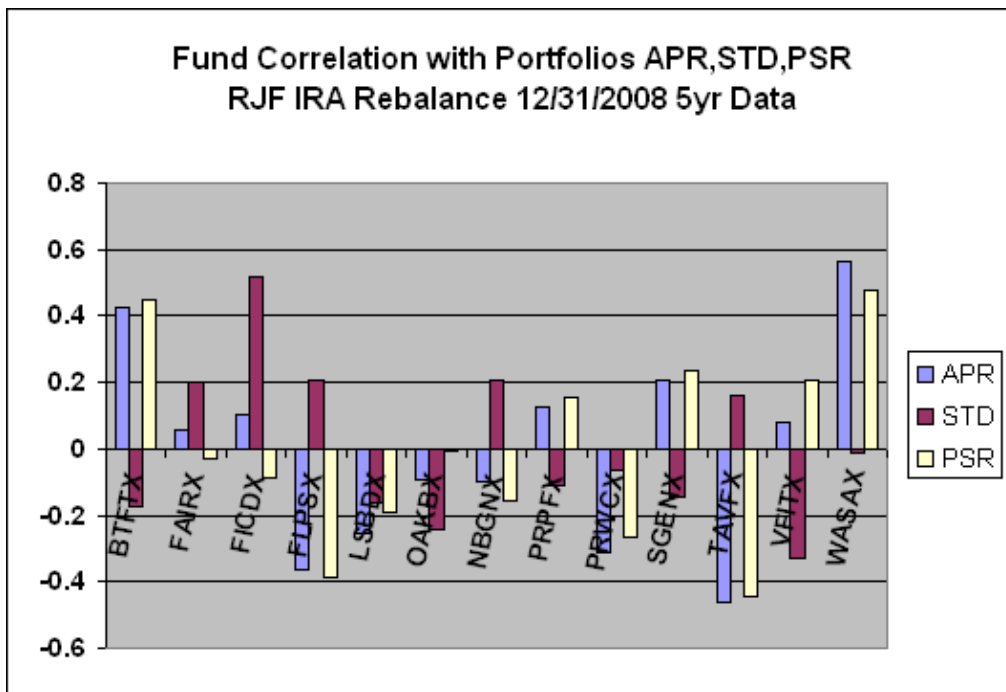
In this view it is very clear that almost all diversified portfolios have negative Sharpe ratios. Diversification is a powerful magnet and reduces standard deviation by regression to the mean. When most of the market is underwater so is the 5yr Sharpe ratio of most funds.

What I did starting last year was restructure the portfolio to produce more positive income and less negative growth. I added a few funds that were more conservative as they became available, OAKBX for example and reduced my investments in TAVFX and DODFX to fund these changes. I left my investment in LSBDX intact even though the mark to market value fell sharply its monthly dividend payment did not. That meant I was getting about 10% in yield, which I could not match, and without much risk. Something I could not say for my BRK investment, which I kept of course. I also added PRPFX, BTFTX and VFITX to my portfolio as the bear later turned into a Black Swan. The money came from funds like FLPSX and FICDX that I still own.

The result of all these changes was posted in 2/09 and the portfolio design scan images are shown here.

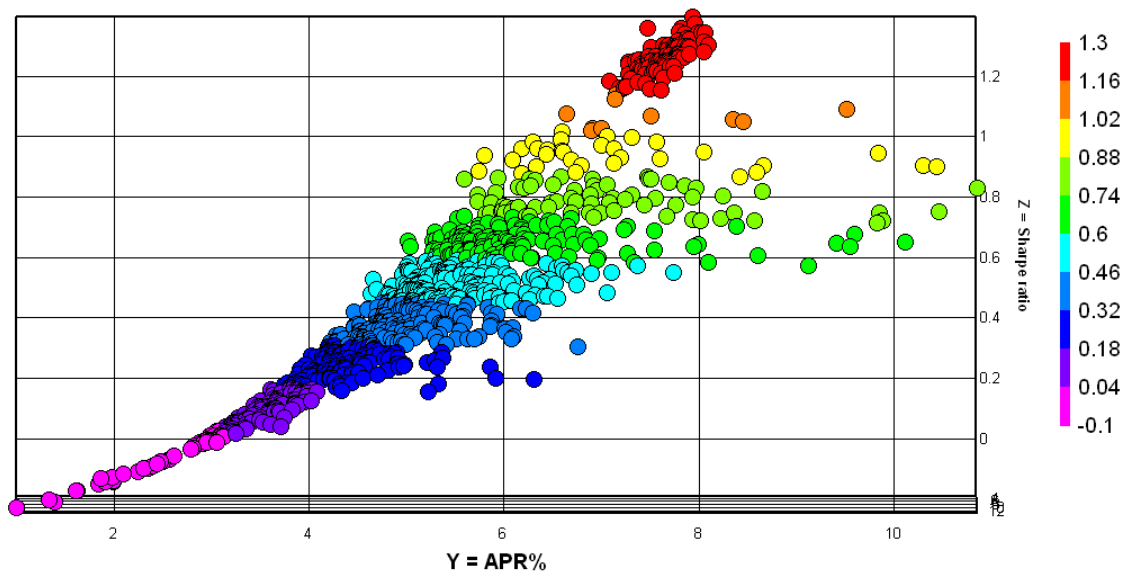


As you can see after much thought I sold DODFX and added WASAX a conservative asset allocation fund.



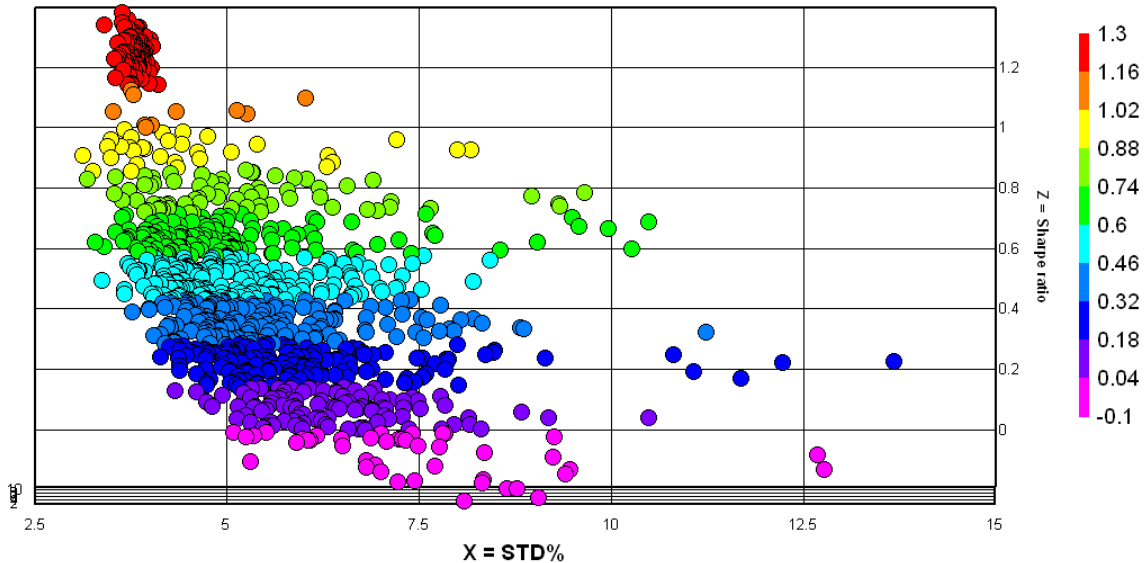
That was the restructuring change I mentioned earlier. SGENX is a global fund I own and several other funds in the plan have international investments. The WASAX change reduced portfolio standard deviation risk to a more age appropriate level and the portfolio risk grade is now less than 100. It is illustrative of 3D scanner use and not an investment recommendation. Here is what my restructured portfolio 3D scan looks in the YZ plane.

Stanton & Castleton IRA PSDS Scan
12/31/08 5yr Market Data



It looks pretty good to me all things considered. I am trying to negotiate a soft landing in this market crash while keeping a positive cash flow and most of my assets invested. The portfolio standard deviation is really what I focused on in the restructuring and that is on display in the XZ view of the 3D scan shown on the next page. The 5yr market data in the scan means these forecasts are just that 5yr year forecasts.

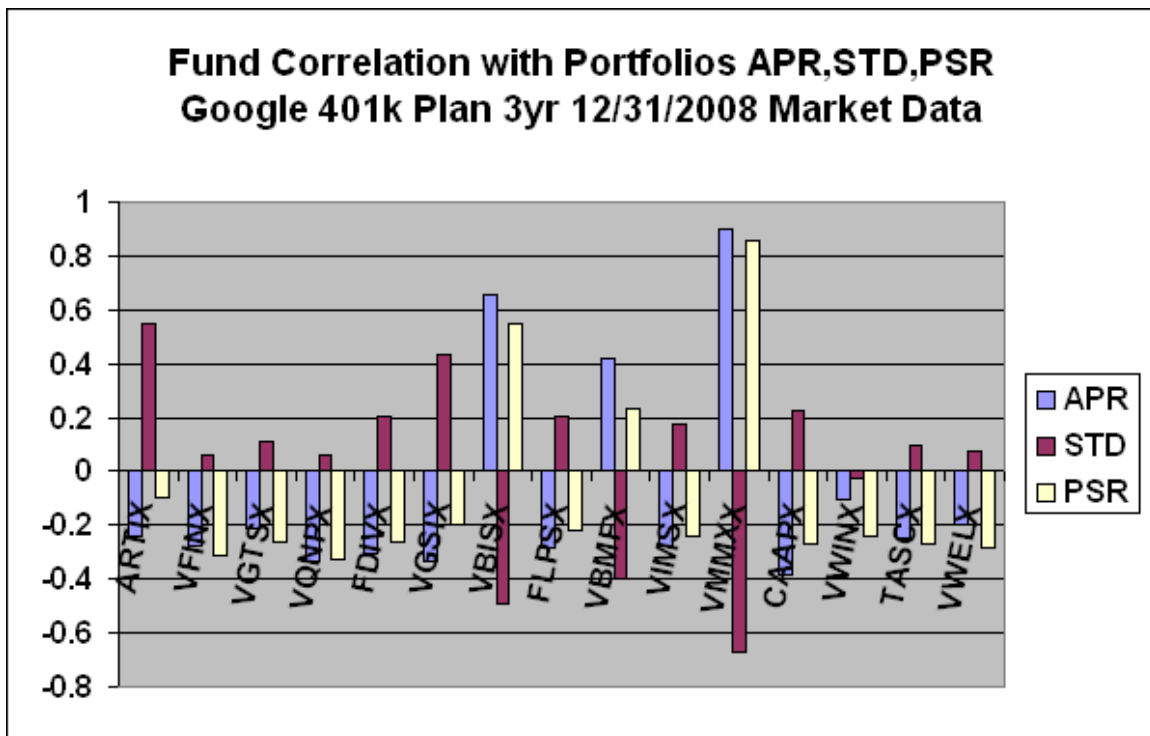
Stanton & Castleton IRA PSDS Scan
12/31/2008 5yr Market Data



I am most pleased with this XZ view because it says the chance of getting a good compound return is high because volatility is low for all the high return (red) portfolios. As we all know volatility kills compounding and reducing volatility was the primary goal I set for the portfolio changes. The 3D design scans are a valuable diagnostic tool but at the end of the day you have to design the changes that are going to keep the portfolio healthy and these views of the 3D scans helped me do that.

A Closing Comment

The scans in the White Paper all use 5yr market data. As someone a bit over seventy I also look at 3yr data on occasion. I close with a Google 401k scan correlation chart using recent 3yr market data. I doubt there are many Google retirees or elderly employees but if there are VBISX, VBMFX and VMMXX look pretty good.



When Mr. Market gets over his nervous breakdown we will know just how well the model and I did. To date performance is better than the 2008 portfolio that I restructured to form the 2009 portfolio. I will post portfolio performance again at the end of Q3.