



Revisiting Equity Hedges: Gold, Long Dated Treasuries and Utilities

Abstract

How well do Gold, Long Dated Treasuries
and Utilities ETFs hold up in times of crisis?

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Revisiting Equity Hedges

Having experienced one of the most rapid stock market declines in history during the first quarter of 2020 we want to evaluate how effective different hedging techniques performed over this period as well as in recent history. The idea of a portfolio of equity holdings paired or combined with gold, long dated US treasuries or utilities is not a new idea. In many financial circles this is thought of as the “risk parity” trade or portfolio that hedge fund managers like Ray Dalio (Bridgewater: All Weather Fund) have executed to great effect. The question is, how well do these portfolios hold up in times of crisis and over time?

To illustrate we will be combining exchange traded funds (“ETFs”) to build different portfolios and look back at how they performed during times of crisis and over time. The ETFs we are using are: S&P 500 ETF (ticker: SPY), long Treasury bond ETF (ticker: TLT), gold ETF (ticker: GLD), and utilities sector ETF (ticker: XLU).



We are limited in how far back in time we can examine these ETFs by the youngest among them—GLD which launched in late November 2004. The over 15 year period of data encompasses the business cycle of the Great Recession and the most recent recession of 2020. However, this period is characterized by a low interest rate environment that is certain to cast GLD and TLT in an overly favorable light—so results should be evaluated carefully factoring this into account and enthusiasm for these assets should be tempered accordingly.

The purpose of this article is to focus in on how these different ETFs in a portfolio help to mitigate drawdown during “bad” market events and what portfolio returns look like over time.

How we quantify Risk?

The primary measure of risk we are looking at is “drawdown” risk. This measures the percent drop in a portfolio from a 60 day rolling ‘look back’ at maximum portfolio value. So, if within the last 60 days the portfolio high was \$1MM and by today the portfolio declined to \$700,000 the drawdown would measure -30%.

The Equity only Portfolio

Over long holding periods we know equities are among the best performing asset class. We calculate the annual return for the SPY to be +9.8%. SPY has a Sharpe Ratio of .35 over the 15 year plus period ending mid-May 2020. The Sharpe Ratio measures the rate of excess return (i.e., return over the risk free rate of return) per unit of volatility as measured by standard deviation. A higher Sharpe Ratio indicates a better risk adjusted return.

Table 1: SPY Only

Month	SPY 60 Day Rolling Drawdown	Vs. Hedged Portfolio	Diff. From 100% SPY								
2008-11	-41.7%	-41.7%	0.0%			Allocation Percentages					
2008-10	-35.4%	-35.4%	0.0%			SPY	GLD	TLT	XLU		
2008-12	-35.0%	-35.0%	0.0%			100%	0%	0%	0%		
2020-3	-33.7%	-33.7%	0.0%	Dec '04 to May '20	Rates						
2009-3	-27.1%	-27.1%	0.0%		Annual Return	9.8%					
2020-4	-26.8%	-26.8%	0.0%		Annual Std Dev.	19.6%					
2009-2	-20.9%	-20.9%	0.0%		Sharpe Ratio	0.35					
2018-12	-19.2%	-19.2%	0.0%	Note: 1) Annual rates derived from daily returns measured from close to close=							
2009-1	-19.1%	-19.1%	0.0%	average daily rate*252 trading days							
2011-10	-17.9%	-17.9%	0.0%	2) The annual standard deviation =							
2011-8	-17.1%	-17.1%	0.0%	daily standard deviation*(252)^(1/2)							
2020-5	-16.3%	-16.3%	0.0%	3) Sharpe Ratio= (Annual Return- Risk Free Rate)/							
2011-9	-16.2%	-16.2%	0.0%	Annual Std Dev. Return							
2010-7	-15.7%	-15.7%	0.0%								
2008-1	-15.0%	-15.0%	0.0%								
2008-7	-15.0%	-15.0%	0.0%								
Average	-23.3%	-23.3%	0.0%								

The first column of the table shows in order the worst months of drawdown in the last 15 years. These are not monthly returns, but rather, allow for intra month lows (going from daily close to daily close). The baseline portfolio is 100% allocation to SPY. So the second column “Vs. Hedged Portfolio” will become more interesting as we look at different portfolio allocations. The far right shows the different asset classes in play—SPY, GLD, TLT, and XLU—and their respective allocations in a portfolio.

So the SPY only portfolio generates a +9.8% return over the period but is subject to periods of high drawdown.

Adding Gold to the Portfolio

The question is what benefit there is to adding GLD to the portfolio in order to reduce or mitigate the drawdown risk. As the table shows below a 10% allocation to gold does reduce the drawdown during major events and produces a better risk adjusted return with a .38 Sharpe ratio. The period under evaluation is favorable to gold due to the unusually low interest rate environment (largely a consequence of the monetary environment globally over the last decade plus).

The drawdown during major events is on average 2.5% lower for this portfolio vs. the SPY only.

Table 2: SPY, GLD

Month	SPY 60 Day Rolling Drawdown	Vs. Hedged Portfolio	Diff. From 100% SPY								
2008-11	-41.7%	-38.9%	2.8%			Allocation Percentages					
2008-10	-35.4%	-33.2%	2.2%			SPY	GLD	TLT	XLU		
2008-12	-35.0%	-32.2%	2.8%			90%	10%	0%	0%		
2020-3	-33.7%	-30.9%	2.8%	Dec '04 to May '20	Rates						
2009-3	-27.1%	-24.2%	2.9%		Annual Return	9.7%					
2020-4	-26.8%	-24.5%	2.3%		Annual Std Dev.	17.7%					
2009-2	-20.9%	-18.2%	2.7%		Sharpe Ratio	0.38					
2018-12	-19.2%	-16.8%	2.4%	Note: 1) Annual rates derived from daily returns measured from close to close=							
2009-1	-19.1%	-16.2%	2.9%	average daily rate*252 trading days							
2011-10	-17.9%	-15.8%	2.1%	2) The annual standard deviation =							
2011-8	-17.1%	-14.3%	2.7%	daily standard deviation*(252)^(1/2)							
2020-5	-16.3%	-14.1%	2.1%	3) Sharpe Ratio= (Annual Return- Risk Free Rate)/							
2011-9	-16.2%	-13.8%	2.4%	Annual Std Dev. Return							
2010-7	-15.7%	-13.8%	1.9%								
2008-1	-15.0%	-12.5%	2.5%								
2008-7	-15.0%	-12.9%	2.1%								
Average	-23.3%	-20.8%	2.5%								

Adding TLT to the Portfolio

TLT is also a beneficiary of the low interest environment so returns for this mix may be overly optimistic for the period. However, by adding a 10% allocation to TLT we see a further improvement in the risk adjusted return to a Sharpe Ratio of .43. There is a cost to this in absolute returns declining to 9.4% per year.

On average drawdown declines by +5.6% for this portfolio mix. There is also an improvement in the drawdown risk especially outside of the most extreme events. In the bottom half of the table the standalone SPY drawdowns of -15% to -19% drop substantially to the -14% to -10% levels.

Table 3: SPY, GLD and TLT

Month	SPY 60 Day Rolling Drawdown	Vs. Hedged Portfolio	Diff. From 100% SPY								
2008-11	-41.7%	-34.3%	7.4%			Allocation Percentages					
2008-10	-35.4%	-29.4%	6.0%			SPY	GLD	TLT	XLU		
2008-12	-35.0%	-27.9%	7.0%			80%	10%	10%	0%		
2020-3	-33.7%	-26.7%	7.0%	Dec '04 to May '20	Rates						
2009-3	-27.1%	-22.3%	4.8%		Annual Return	9.4%					
2020-4	-26.8%	-20.8%	6.0%		Annual Std Dev.	15.1%					
2009-2	-20.9%	-17.1%	3.8%		Sharpe Ratio	0.43					
2018-12	-19.2%	-14.5%	4.7%	Note: 1) Annual rates derived from daily returns measured from close to close=							
2009-1	-19.1%	-12.5%	6.6%	average daily rate*252 trading days							
2011-10	-17.9%	-11.6%	6.3%	2) The annual standard deviation =							
2011-8	-17.1%	-11.7%	5.4%	daily standard deviation*(252)^(1/2)							
2020-5	-16.3%	-11.2%	5.1%	3) Sharpe Ratio= (Annual Return- Risk Free Rate)/							
2011-9	-16.2%	-10.0%	6.2%	Annual Std Dev. Return							
2010-7	-15.7%	-11.1%	4.6%								
2008-1	-15.0%	-10.2%	4.8%								
2008-7	-15.0%	-11.2%	3.8%								
Average	-23.3%	-17.7%	5.6%								

Adding XLU to the Portfolio

Adding Utilities we see a further improvement in the risk adjusted return with a Sharpe Ratio of .45, but a decline in the overall absolute annual return to 9.5%. The improvement in drawdown risk persists and especially at the lower half of the table. On average drawdown is reduced by 6.4% for the most extreme drawdown events over the period.

Table 4: SPY, GLD, TLT, XLU

Month	SPY 60 Day Rolling Drawdown	Vs. Hedged Portfolio	Diff. From 100% SPY								
2008-11	-41.7%	-33.2%	8.6%			Allocation Percentages					
2008-10	-35.4%	-28.9%	6.5%			SPY	GLD	TLT	XLU		
2008-12	-35.0%	-26.6%	8.4%			70%	10%	10%	10%		
2020-3	-33.7%	-26.8%	6.9%	Dec '04 to May '20	Rates						
2009-3	-27.1%	-21.9%	5.2%		Annual Return	9.5%					
2020-4	-26.8%	-20.7%	6.2%		Annual Std Dev.	14.6%					
2009-2	-20.9%	-16.4%	4.5%		Sharpe Ratio	0.45					
2018-12	-19.2%	-12.8%	6.4%	Note: 1) Annual rates derived from daily returns measured from close to close=							
2009-1	-19.1%	-10.9%	8.2%	average daily rate*252 trading days							
2011-10	-17.9%	-10.0%	7.9%	2) The annual standard deviation =							
2011-8	-17.1%	-11.1%	6.0%	daily standard deviation*(252)^(1/2)							
2020-5	-16.3%	-11.7%	4.6%	3) Sharpe Ratio= (Annual Return- Risk Free Rate)/							
2011-9	-16.2%	-8.4%	7.8%	Annual Std Dev. Return							
2010-7	-15.7%	-10.2%	5.5%								
2008-1	-15.0%	-9.5%	5.5%								
2008-7	-15.0%	-10.0%	5.0%								
Average	-23.3%	-16.8%	6.4%								

Optimizing the Sharpe Ratio

Using the Excel Solver tool we let the computer pick the optimal allocation to maximize the Sharpe Ratio subject to reasonable constraints on the allocation percentages. There is a substantial improvement in the risk adjusted return to .71 Sharpe Ratio with a drop in absolute annual return to 8.9%. There is also a substantial improvement in drawdown risk. On average drawdown is reduced by an extraordinary 16.1%!

The question is whether this benign inflationary environment and unusual monetary policy will persist consistently in the future. Retrospectively, this was a clearly superior portfolio to hold from a risk adjusted return perspective.

Table 5: Allocation to Maximize Risk Adjusted Returns

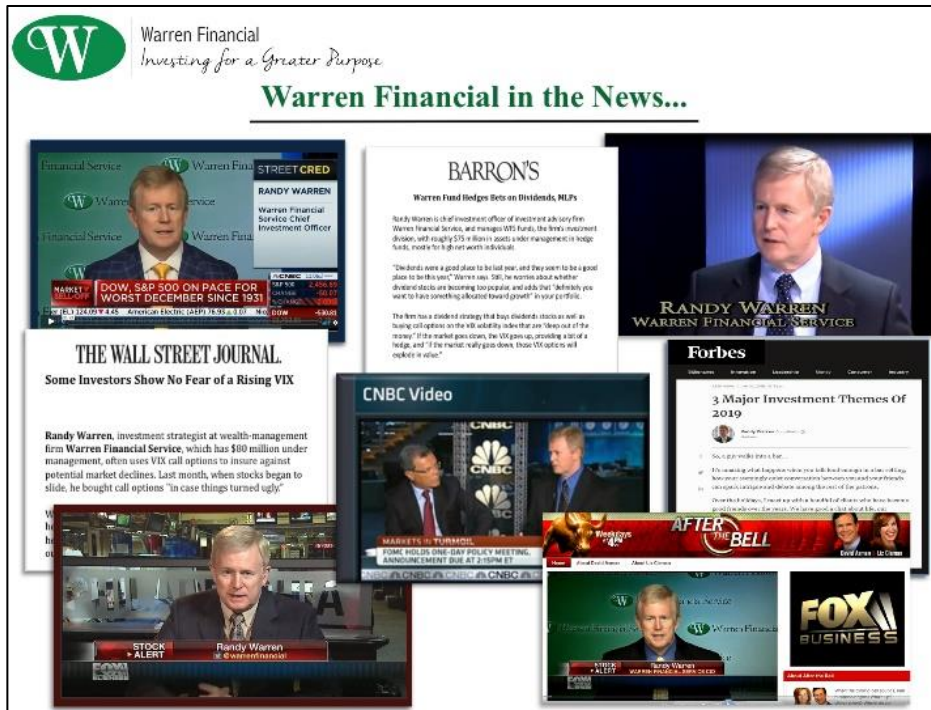
Month	SPY 60 Day Rolling Drawdown	Vs. Hedged Portfolio	Diff. From 100% SPY								
2008-11	-41.7%	-14.3%	27.4%			Allocation Percentages					
2008-10	-35.4%	-13.8%	21.6%			SPY	GLD	TLT	XLU		
2008-12	-35.0%	-7.6%	27.4%			32%	18%	46%	4%		
2020-3	-33.7%	-14.9%	18.8%	Dec '04 to May '20	Rates						
2009-3	-27.1%	-14.3%	12.9%		Annual Return	8.9%					
2020-4	-26.8%	-7.1%	19.8%		Annual Std Dev.	8.3%					
2009-2	-20.9%	-12.2%	8.7%		Sharpe Ratio	0.71					
2018-12	-19.2%	-3.4%	15.8%	Note: 1) Annual rates derived from daily returns measured from close to close=							
2009-1	-19.1%	-8.1%	11.0%	average daily rate*252 trading days							
2011-10	-17.9%	-1.9%	16.0%	2) The annual standard deviation =							
2011-8	-17.1%	-2.0%	15.0%	daily standard deviation*(252)^(1/2)							
2020-5	-16.3%	-2.9%	13.3%	3) Sharpe Ratio= (Annual Return- Risk Free Rate)/							
2011-9	-16.2%	-3.1%	13.1%	Annual Std Dev. Return							
2010-7	-15.7%	-2.0%	13.6%								
2008-1	-15.0%	-2.3%	12.7%								
2008-7	-15.0%	-4.6%	10.4%								
Average	-23.3%	-7.2%	16.1%								

Summary




We do find that GLD, TLT and XLU provide some benefit to reducing the drawdown risk as compared to a standalone equity portfolio.

However, there is no “one size fits all” approach to portfolio allocation and we recommend you discuss this matter with your Investment Advisor.

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