A Dynamic Asset Allocation Approach to Investing II

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September 2020

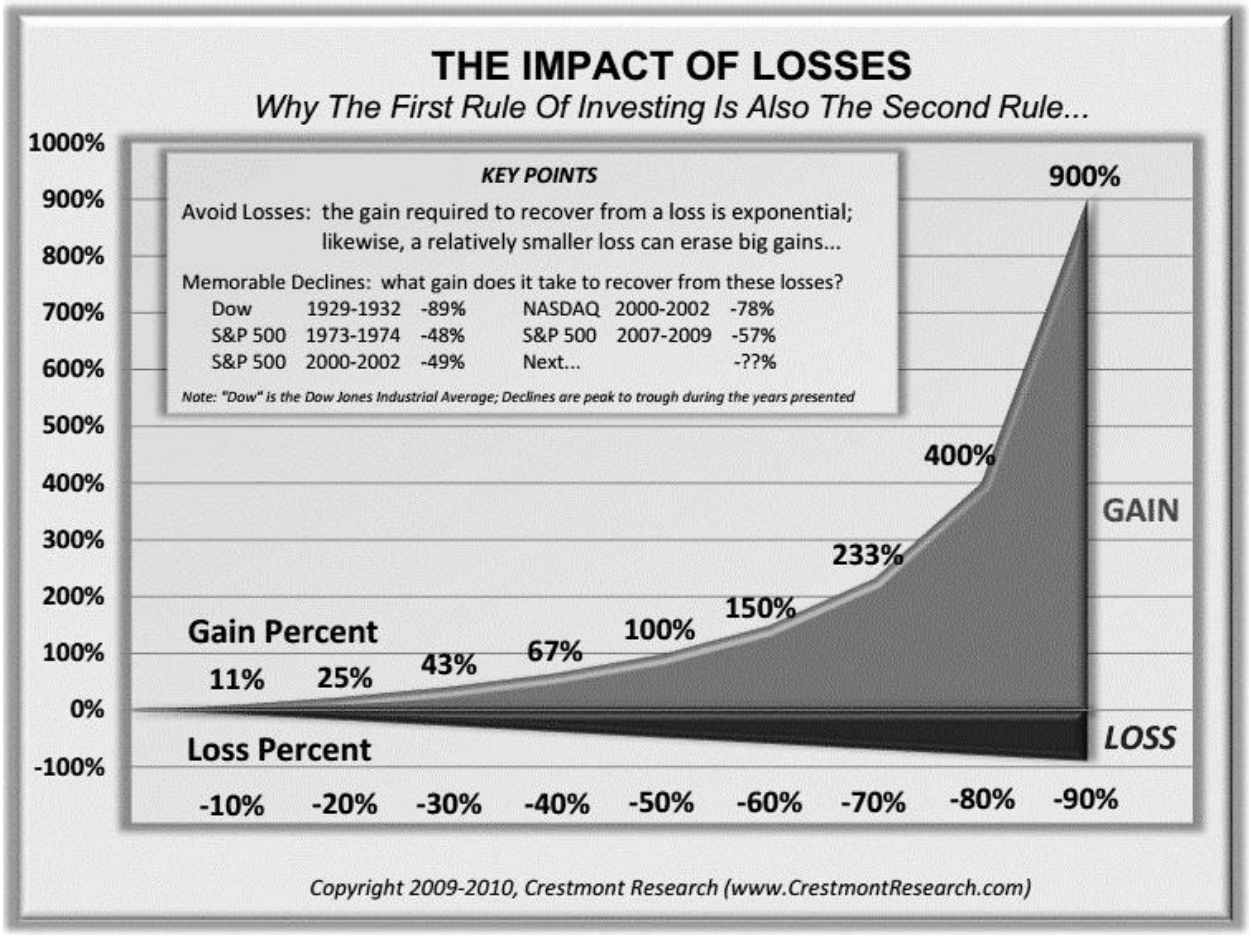
Abstract

In this paper we build on the 2016 paper. In addition to the use of fundamental asset class inputs, we added technical inputs to make the asset allocation changes more robust. For a short-term trend indicator, we used the Elliott Wave Oscillator. For an intermediate-term indicator we used the golden cross. We find a cumulative asset growth advantage of 58% vs. a 100% stocks allocation and 70% vs. a strategic asset allocation approach (60% stocks, 40% bonds) from October 1992 through September 2020.

Why are stock return assumptions in Strategic Asset Allocation unrealistic?

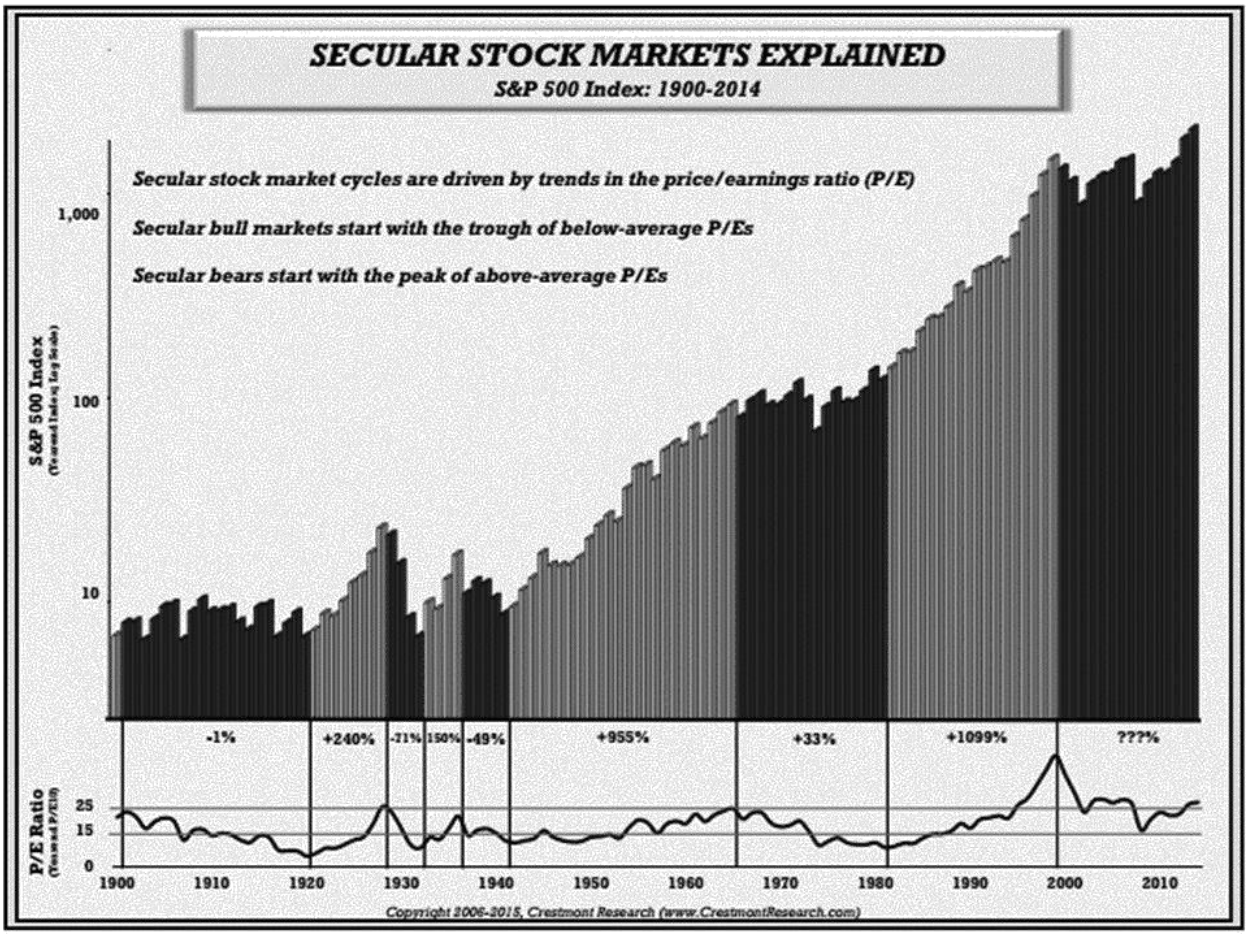
Assumption #1: *It is unimportant to protect against overvaluation and major stock market meltdowns.*

As the following chart illustrates: If you suffer losses greater than 20% then the gains required to make-up the loss can grow exponentially.



Assumption #2: *Stocks always go up over the long-term.*

As the following chart illustrates: Stocks can go sideways (periods in black) for very long periods of time of 10 or more years in which annual returns are below average or even negative.



Assumption #3: *You'll earn 10% per year on stocks over long holding periods.*

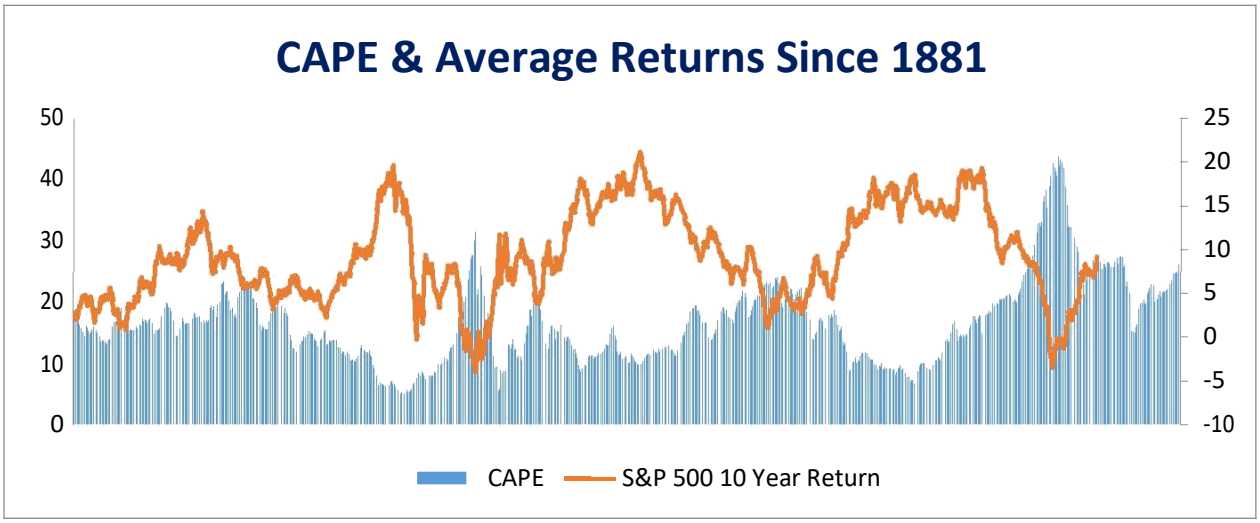
As you can see below average returns over 10 year holding periods can vary considerably.

Return Period: 1881 – 2014

How can we approach making more realistic return assumptions?

Yale Professor Robert Shiller developed the cyclically adjusted price to earnings ratio (CAPE) and detailed it in his 2000 book “Irrational Exuberance” this valuation measure of stocks using the real (inflation adjusted) per-share earnings over a 10-year period of the S&P 500. CAPE or what is also called the P/E 10 ratio uses smoothed real earnings. The Shiller P/E 10 is based on Graham and Dodd’s work in “Security Analysis” in which the smoothing process of using multi-year average earnings per share was recommended.

We can see the inverse relationship of valuation and subsequent returns.



For forecasting, we can derive expected returns on stocks from historical S&P 500 index CAPE 10 ranks and corresponding 10-year average smoothed % returns.

CAPE Rank	% Return
0 to 5	15
6 to 10	14
11 to 15	13
16 to 20	12
21 to 25	11
26 to 30	10
31 to 35	10
36 to 40	9
41 to 45	9
46 to 50	9
51 to 55	9
56 to 60	8
61 to 65	7
66 to 70	6
71 to 75	6
76 to 80	5
81 to 85	4
86 to 90	3
91 to 95	2
96 to 100	1

The Shiller CAPE 10 as of January 1, 2016 was 23.93 placing it in the 92nd percent rank and translating into a 2% return expectation on stocks over the next 10 years.

Now we'll build out our asset class return (and risk) assumptions to include Bonds and show how these expectations can be used to identify the most efficient, prudent and effective asset allocation positioning.

The yield on the 10 Treasury as of January 1, 2016 was 2.09%, therefore our asset class return assumptions are Stocks: 2%, Bonds: 2%.

If we use these return expectations with the long-term standard deviations of the S&P 500, 10 Year Treasury, our overall asset class assumptions are …

Asset Class	Return	Risk
Stocks	2.0%	15.0%
Bonds	2.0%	6.5%

Next we develop the efficiency for each asset allocation mix in our strategy set.

Efficiency = Strategy Return / Strategy Risk

Across our long-term allocations, we can see in the following table, position #1 has the highest efficiency, 29%, and therefore it becomes our strategy allocation on January 1.

Position	Allocation		Return & Risk			Efficiency
	Stocks	Bonds	Return	Risk	Increase in Risk	Return/ Risk
1	5%	95%	2.00%	6.93%	-	29%
2	15%	85%	2.00%	7.78%	1.0%	26%
3	25%	75%	2.00%	8.63%	1.0%	23%
4	35%	65%	2.00%	9.48%	1.0%	21%
5	45%	55%	2.00%	10.33%	1.0%	19%
6	55%	45%	2.00%	11.18%	0.8%	18%
7	65%	35%	2.00%	12.03%	0.8%	17%
8	75%	25%	2.00%	12.88%	0.8%	16%
9	85%	15%	2.00%	13.73%	0.9%	15%

Obviously, we are at extreme valuations in stocks currently, what about a period in which valuations were lower, to illustrate further the benefits of the dynamic asset class assumptions.

The CAPE in March 2009 (bottom of the market) was 13.32, a 36th percent rank historically. This rank translates into an expected return on stocks of 9%.

In March 2009 the yield on a 10 Year Treasury Bond was 2.8%.

Therefore, our assumptions were…

Asset Class	Return	Risk
Stocks	9.0%	15.0%

Bonds	2.8%	6.5%

Across our allocations, we can see position #9 has the greatest efficiency.

Position	Allocation		Return & Risk			Efficiency
	Stocks	Bonds	Return	Risk	Increase in Risk	Return/ Risk
1	5%	95%	3.11%	6.93%	-	45%
2	15%	85%	3.73%	7.78%	1.0%	48%
3	25%	75%	4.35%	8.63%	1.0%	50%
4	35%	65%	4.97%	9.48%	1.0%	52%
5	45%	55%	5.59%	10.33%	1.0%	54%
6	55%	45%	6.21%	11.18%	0.8%	56%
7	65%	35%	6.83%	12.03%	0.8%	57%
8	75%	25%	7.45%	12.88%	0.8%	58%
9	85%	15%	8.07%	13.73%	0.9%	59%

So, our strategy allocation at the time would be 85% stocks, 15% bonds.

Technical Inputs

Utilizing the Elliott Wave Oscillator, the Golden Cross, and volume, this asset allocation approach may be used to dynamically allocate in and out of stocks when:

- Wave & Volume properties indicate a primary wave trend down (or up) in stocks is occurring.

Elliott Wave Oscillator

Elliott Wave Oscillator (EWO) is simply the difference between a five-period and thirty-five-period simple moving average.

The EWO indicator is used to determine where an Elliott wave ends and another begins. When the oscillator begins to put in a series of lower highs while price puts in higher highs a trend change is occurring.

The basis of the Elliott principle, which quantifies market crowd behavior, works best in equities that (1) have lots of volume (liquidity) and (2) move according to key forces of fear and greed on the part of many participants.

The Golden Cross

The Golden Cross is a longer-term trend measure that utilizes the 200-day moving average. It sometimes is coupled with a shorter 50 day moving average. In the Meb Faber's paper, A Quantitative Approach to Tactical Asset Allocation, a 1% move of the one-day change in price above or below the 200-day moving average.

Faber in his paper cites Jeremy Siegel with the 1% specification:

"The most often cited long-term measure of trend in the technical analysis community is the 200-day simple moving average. In his 2008 book Stocks for the Long Run: The Definitive Guide to Financial Market Returns & Long-Term Investment Strategies,

Jeremy Siegel investigates the use of the 200-day SMA in timing the Dow Jones Industrial Average (DJIA) from 1886 to 2006. His test bought the DJIA when it closed at least 1 percent above the 200-day moving average, and sold the DJIA and invested in Treasury bills when it closed at least 1 percent below the 200-day moving average.

He concludes that market timing improves the absolute and risk-adjusted returns over buying and holding the DJIA. Likewise, when all transaction costs are included (taxes, bid-ask spreads, commissions), the risk-adjusted returns are still higher when employing market timing, though timing falls short on an absolute return measure."

What about performance?

We find a cumulative asset growth advantage of 58% vs. a 100% stocks allocation and 70% vs. a strategic asset allocation approach (60% stocks, 40% bonds) from October 1992 through September 2020 with the new strategy that combines fundamental and technical inputs.

Here is the difference between the dynamic asset allocation strategy and the 60/40 and 100% stocks strategies.

To see the mechanics of the approach and how it works, go to:

https://www.terrygrennon.com/ to request the xlxs

Conclusion

Using the dynamic asset allocation approach with a robust approach including fundamental and technical inputs enables the investor to weigh their long-term strategy against current market conditions to evaluate whether a shift in strategy would be prudent and advantageous. While extreme stock market valuations are rare, they are inevitable and can result in major losses. Using the dynamic asset allocation approach means investors can avoid having to face the less prudent and emotional losses associated with buying high and selling low.

References

Graham, Benjamin and David Dodd (1934). Security Analysis: Principles and Technique, 1E. New York and London: McGraw-Hill Book Company, Inc.

Shiller, Robert (2005). Irrational Exuberance (2d ed.). Princeton University Press.