



“Checkmate”

Chess is an interesting game. Two players, sixteen pieces each, and in the end, a very simple objective – capture your opponent’s king.

It’s hard to imagine, but not that long ago chess in America was a huge spectator sport. This was due solely to the emergence in the 1960’s of the U.S.’s first chess superstar -- Bobby Fischer.

Bobby Fischer is considered to be the greatest chess player who ever lived. Born in 1943, Fischer was a child prodigy, becoming the youngest Grandmaster ever at the age of fifteen. By the time he was twenty-one, he’d already won eight consecutive national championships.

However, it’s his 1972 match against the great Russian Champion Boris Spassky for which he became a household name. Spassky, the reigning world champion, was previously undefeated against Fischer. The match took place in Iceland over three summer months at the height of the Cold War; citizens in the both countries followed each and every move.

Fischer routed Spassky, a product of the legendary Soviet chess machine. Upon arriving home in New York, Fischer was thrown a ticker tape parade. He appeared on the cover of *Sports Illustrated* multiple times as well as *Life* and *Time*. Today, it is impossible to imagine such fanfare and celebrity being associated with a chess player.

One element I’ve always appreciated about chess is the finality of a victory. In most cases a game of chess ends with one player cornering another player’s king. The phrase that’s uttered is beautiful – *Checkmate* it’s called and it generally happens after a series of moves is exhausted by the eventual loser and the winner has completely taken away any option of escape.

Recently, I couldn’t help but think of chess as I was reflecting on the current investment environment.

Dating from the end of the Financial Crisis, U.S. equity investors have had an epic run. From April 1, 2009 through September 30, 2016, the S&P 500 has produced annual returns of 16.7%: almost 7% greater than the S&P’s long-term annual return of 10.0%.

While markets have almost always rebounded strongly after significant bear markets such as the Financial Crisis, this move upward has caught many by surprise. After all, U.S. stocks declined more than 55% from peak to trough during the Financial Crisis, and this downdraft happened in a little over six months.

Early in the recovery, there were legitimate fundamental reasons for stocks to appreciate. Earnings growth, the single greatest contributor over the long-term to equity returns, was very strong from 2009-2014. Additionally, the dollar was in the early stages of a long-term strengthening, which always tends to boost U.S. asset prices.

However, during the past three years, central bank policy has had an unduly strong influence on asset class returns, ultimately leading investors to an environment that is unique to say the least.

Quantitative easing has been the key central bank policy deployed during the past eight years. The theory behind quantitative easing is that a central bank makes large open-market purchases of securities, primarily bonds, forcing down interest rates. Once this happens, investors are forced to move out on the risk-curve and purchase riskier assets because fixed income returns are no longer competitive. By inflating asset prices, central bankers are hoping that investors will funnel their gains from higher securities prices back into the economy through personal and corporate expenditure. The end goal is to affect the demand curve, ultimately assisting the economy through greater overall growth.

Quantitative easing had never really been put into practice as a primary policy until Ben Bernanke, the Chairman of the Board of Governors of the U.S. Federal Reserve, put the initial program in place between November 2008 and March 2009. Bernanke, an acknowledged expert on the Great Depression, felt that the

Depression was elongated by policy experts not focusing on increasing the end-demand for consumption. Quantitative easing (QE1) was his answer.

QE1 began in November of 2008 and, by March of 2009, \$1.35 billion of Treasuries and mortgage-backed securities had been purchased, raising the Federal Reserve's balance sheet from \$700 billion to over \$2 trillion.

It is my opinion that QE1 worked brilliantly. It's easy to forget, but during this period there were absolutely no bids for many investment grade fixed income securities. When the government stepped in and began to purchase government agency bonds, it was a critical step forward to recovery as a floor was established under the bond market.

Asset prices responded by staging a heroic rally from April 1 through year-end 2009. The S&P 500 rose 42%; high yield bonds soared almost 46%; and mortgage-backed securities appreciated over 30%. Additionally, residential real estate prices reflat, the overall cost of borrowing plunged, and the United States officially left recession status within a year. I think it's pretty clear QE1 provided great assistance to the U.S. economy and capital markets.

The Federal Reserve did not stop its monetary policy stimulation with QE1. QE2, QE3 and Operation Twist were all eventually put into place in an attempt to further stimulate GDP growth through accelerating end-demand. It's highly debatable whether these additional policies had any stimulative effect on the overall economy, but they did result in the Federal Reserve increasing its balance sheet from \$2 trillion to \$4.5 trillion.

Quantitative easing has had dramatic effects on the overall capital markets, but it's the market for government securities that's demonstrated the greatest disruption. The Federal Reserve's balance sheet grew from just under \$800 billion to over \$4.5 trillion during the program. The size and scale of the Federal Reserve's purchasing efforts were so monumental that in 2011 the Fed purchased almost 80% of the net issued Treasuries. Today, the Fed owns roughly 30% of total outstanding Treasuries.

The end-result of the Fed's massive and unprecedented bond purchase program has been that interest rates have plunged. As you can see in the following graph, the ten-year Treasury, the U.S. benchmark security, reached an epic low earlier this summer when it touched a yield of 1.37%. Importantly, this is the lowest recorded interest rate in American financial history, dating all the way back to when records were first kept in 1789.



As of 9/20/16
Source: Monticello Associates

The Federal Reserve terminated its Quantitative Easing program in 2014. This was a partial termination as it merely discontinued the expansion of the program – the Fed is still re-investing the proceeds from interest income and maturing bonds. The annual aggregate level of the continuing program is in excess of \$200 billion per annum. Thus, the Fed's outstanding balance sheet is remaining at \$4.5 trillion for the foreseeable future and the U.S. Government, via the Fed, continues to be the largest aggregate purchaser of U.S. Government bonds.

The Europeans and the Japanese were extremely slow to respond in the aftermath of the Financial Crisis. In each case, the European Central Bank (ECB) and Bank of Japan (BOJ) waited until 2013/2014 to begin aggressive monetary policy. Consequently, they were behind the eight-ball when they started and were forced to develop more aggressive strategies. In each case, the ECB and BOJ implemented strategies that were larger and much broader relative to the U.S. For instance, the Bank of Japan has purchased equity ETFs, corporate bonds and REITs, in addition to government fixed income securities. The European Central Bank has been hyper-aggressive in pursuit of negative interest rates as an economic stimulant. Additionally, as a result of the ECB and BOJ joining the Fed in pursuit of quantitative easing strategies, all three of the world's largest central banks are now actively engaged in the outright purchase of fixed income securities for their balance sheet. The immediate end-results of these policies are displayed in the table below:

Government Yields by Maturity									
	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	10 Yrs	30 Yrs
Switzerland	-0.87%	-0.87%	-0.90%	-0.79%	-0.74%	-0.66%	-0.59%	-0.39%	0.07%
Germany	-0.60%	-0.65%	-0.65%	-0.61%	-0.50%	-0.47%	-0.39%	0.01%	0.64%
Finland	-0.49%	-0.55%	-0.57%	-0.46%	-0.43%	-0.34%	-0.26%	0.14%	0.72%
Netherlands	n/a	-0.59%	-0.58%	-0.55%	-0.40%	-0.39%	-0.29%	0.12%	0.71%
Austria	-0.21%	-0.48%	-0.50%	-0.49%	-0.40%	-0.36%	-0.31%	0.20%	0.94%
Belgium	-0.60%	-0.58%	-0.52%	-0.50%	-0.42%	-0.36%	-0.26%	0.24%	1.24%
France	n/a	-0.59%	-0.54%	-0.48%	-0.37%	-0.28%	-0.19%	0.31%	1.15%
Ireland	-0.41%	-0.38%	-0.37%	-0.31%	n/a	-0.16%	-0.03%	0.47%	1.34%
Spain	-0.21%	-0.18%	-0.07%	0.02%	0.15%	0.23%	0.42%	1.08%	2.27%
Italy	n/a	-0.07%	0.06%	0.13%	0.34%	0.53%	0.72%	1.34%	2.46%
Portugal	0.01%	0.56%	1.10%	1.83%	2.15%	n/a	2.66%	3.42%	4.26%
U.S.	0.60%	0.76%	0.90%	n/a	1.20%	n/a	1.50%	1.69%	2.45%
Japan	-0.29%	-0.26%	-0.25%	-0.22%	-0.20%	-0.20%	-0.18%	-0.04%	0.56%
U.K.	0.13%	0.15%	0.15%	0.23%	0.29%	0.41%	0.53%	0.87%	1.57%

As of 9/16/16
Source: Monticello Associates

As you'll note, the effects are dramatic – almost \$12 trillion in sovereign debt recently traded at negative interest rates – almost 40% of the globe's supply of developed world sovereign debt.

This is extraordinary. In fact, so extraordinary that the economic world has never seen this set of circumstances. Moreover, not once in the history of global finance have we seen negative interest rates. This spans a period of over 5,000 years and involves examining interest rate data back to not only the ancient Greeks and Romans but the Babylonians and Assyrians as well.

The size and scope of these programs is unprecedented. Since inception, the three central banks have increased the aggregate size of their balance sheets by over 350%. Today, the Fed, ECB and BOJ average roughly \$4 trillion each in assets and collectively have almost \$13 trillion in total assets.

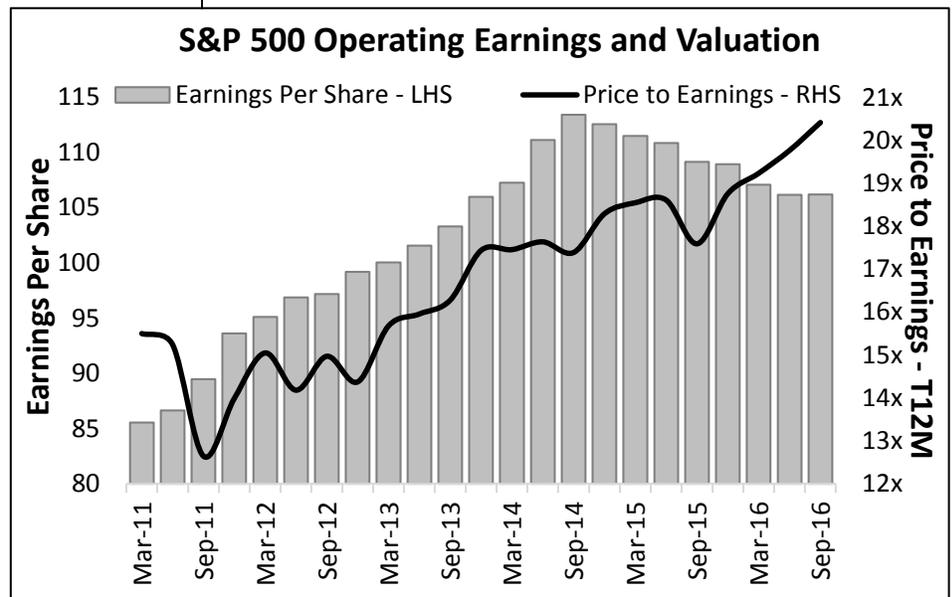
Due to the sheer volume of quantitative easing, global interest rates have plunged to the lowest recorded levels in economic history. This is important to understand for many reasons – not the least of which is the effect of interest rates within the overall global calculus of finance.

The cost of money is defined as the opportunity cost of holding cash instead of investing it. In the world of finance it is measured by the prevailing level of interest rates. Therefore,

current levels of interest rates play a critical role in the overall valuation of assets. Thus, not only are bonds impacted by the levels of interest rates, but also every other asset class that generates a stream of cash flows. This includes high yield debt, equities, real estate and private equity.

Open any securities valuation textbook and you will find a description of the Dividend Discount Model as the foundation for equity pricing. The basic premise of this model is that a stock's price is derived from the present value of future dividends using an interest rate, or discount rate, that is based upon the current level of interest rates. In other words, a lower cost of money will lead to a higher valuation, and vice versa. While stocks are not always valued according to textbook theories, it is difficult to underestimate the effect that persistently low interest rates, driven by central bank policy, have had on the valuation of equities and nearly all other asset classes.

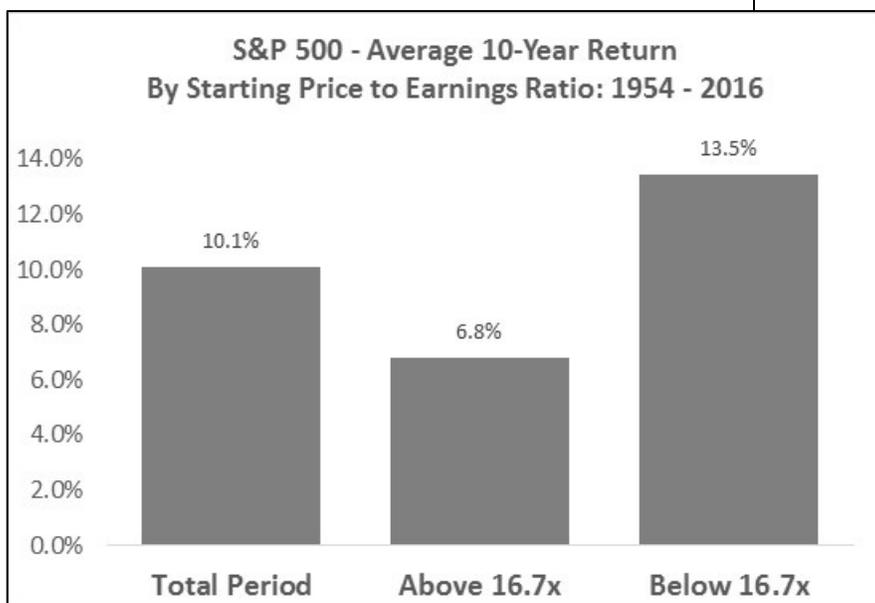
The graph below outlines the valuation level of the S&P 500 over the past five years. As previously indicated, cheaper money, via lower interest rates, tends to influence overall asset prices. In this graph, which displays the trailing 12-month price-to-earnings multiple of the S&P 500 combined with the earnings per share of the index, several notable conclusions jump-out. The first is that the valuation level of the S&P 500 has increased 50% during the past five years. The second is that during most of the past two years, valuation levels for the stock market have continued to increase while the market's overall earnings per share has sequentially declined. This is a clear example of fundamentals weakening while prices accelerate, all likely the consequence of global central banks and their loose monetary policy.



Source: Monticello Associates

The crucial issue for all investors regarding the current pricing of the U.S. stock market is that near-term valuation levels affect the future returns investors can expect.

In the graph below, you'll see the average future ten-year annualized return for equity investors based upon starting valuations. The average 10-year return for the S&P 500 has been 10.1% for the period from 1954 to 2016. Also, the median trailing price-to-earnings multiple has been 16.7x. However, when investors get the chance to buy low by purchasing securities with a below average valuation level, future returns soar from 10.1% to 13.5% annually. On the other hand, when investors are forced to pay higher prices by purchasing stocks at a valuation level above the long-term median of 16.7x, returns are substantially reduced, averaging 6.8% per annum – a level much lower than the long-term return of 10.1%.



Source: Monticello Associates

Thus, today's starting valuation level for fixed income and equities offer the distinct possibility, perhaps high probability, of much lower returns than average over the next five to ten years. If we assume approximately 5-7% returns from stocks and 1-3% returns from intermediate/long-term bonds, then an investor holding a traditional 60% equity/40% fixed income portfolio would realize a return of only 3.5% to 5.5% over the next ten years. This compares against an average rolling 10-year return of 10.7% for a 60/40 portfolio since 1980. For the sake of simplicity I'm going to use a projected return of 5%.

If the lower return environment does unfold then it's going to take mental adjustments and grit for investors to forge their way through it. One major issue with lower returns is going to be volatility.

Equity returns over the past seven years have been almost 17% annually, so it's going to take an adjustment to be satisfied with 5%. But, the 5% return is likely to be a tough 5%. Not only has the stock market earned 17% but it's done it with very low levels of volatility. In fact, in August of this year, the Dow Jones had its least volatile month in over three decades. For much of the past five years the VIX, an option traded on the CBOE which tracks market volatility expectations, has continually bounced around all-time lows. Much of this low volatility has been based upon central banks continually propping up the equity markets by driving interest rates down, effectively establishing a central bank floor. Remove that floor, however, or perhaps even reduce it just a bit, and we're likely to see volatility soar.

Beginning with the recovery from the Financial Crisis, equity investors have recently won on two levels. First, returns have been considerably higher than the long-term median of 10% – they've been an annualized 16.7%. Secondly, overall volatility has been over 30% lower than normal.

Clearly, above-average returns coupled with reduced risk levels has provided the stock market with an ideal environment. The current bull market, which began in March 2009, is now more than 92 months old. This is the second longest period without a sustained drawdown going all the way back to the Great Depression. Again, it's not hard to argue that the world's three largest central banks are at least partially responsible for this historic market run.

Unfortunately, in a low-return environment, uninterrupted positive results may no longer be the norm. Assuming the stock market delivers a 5% return, and volatility increases to normal levels, equity investors will be forced to face a much higher likelihood of negative returns just given the fact that the median return of a projected 5% is much lower than the long-term average of 10%.

Intuitively this is simple as 5% is much closer to zero than 10%.

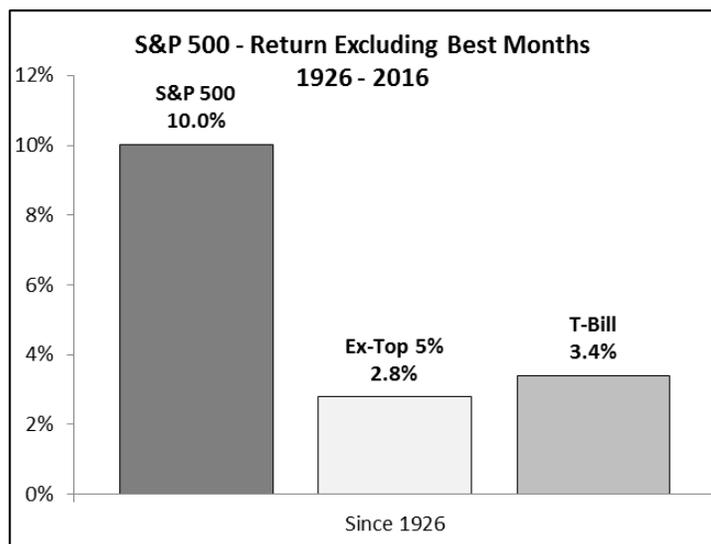
How investors deal with this volatility is likely going to determine their success. Unfortunately, to earn the 5%-7% returns that may be available, investors are going to have to stay invested and suffer through the potential increase in volatility – resulting in near-term paper losses.

Looking at this year provides a great lesson on this subject. The year began by equity markets plunging. The S&P 500 started the year by immediately falling 12% during the first six weeks of 2016. Every single global stock market responded by dropping even more than the S&P. Panic was dense – the financial news, always the leader in inciting fear, was loaded with stories about China's structural weaknesses and capital flight out of the country.

Suddenly, when the vice-grips were tightening, the equity markets turned on a dime. Beginning on February 11th, the S&P 500 reversed course and has appreciated almost 20% through September 30th, leaving stock investors with an 8% total return for the first nine months of the year. Other markets suffered even greater losses and gains during this period. Russia fell almost 15% the first six weeks and then rebounded 60%. Brazil dropped 17% and has now appreciated almost 98% off of its low.

So, after starting in a free-fall, 2016 has pivoted and provided comparatively strong returns. The lesson contained within this end-result is important and features one of the least known facets of equity investing. Equity returns happen in a very concentrated time period.

The graph below illustrates this point. This graph starts with the S&P 500's long-term return of 10.2% over a period of ninety years. The next bar removes the top 5% of the very best stock market returns by month. The ninety-year period contains 1,080 months and removing the very best performing 5% of the months, just 54 months out of 90 years, results in the stock market's return dropping from 10.0% to 2.8%. Stunning but true – if you missed just the 54 best performing months you lost over 7% per year of annualized return.



Source: Monticello Associates

I love this example because it builds a strong case against attempting to time the market. Historically, the entire difference in return between T-bills and equities has been contained in less than 5% of the total time period. As I noted in the example above, these concentrated stock market returns often happen when sentiment is most negative and it's outright scary to remain invested.

Thus, the second principle investors should focus on over the next five to ten years is to develop an ideal asset allocation for their portfolios and then stick with it by staying invested. This always sounds easier in theory than it is in actuality. I'm telling you now that in the future if returns are low and volatility is higher, then staying invested is going to be tough – very tough. But, to even qualify for the lower returns that will be generated you're going to have to stay in the game – after all, you can't produce returns by staying on the sideline, all you can do is reduce risk, likely missing an aggressive bounce-back at some point.

Finally, another issue for investors to consider in this increasingly difficult environment is the use of cash. Historically, having any sort of cash allocation in a portfolio has been a large drag on performance. However, in a lower return environment, the opportunity cost of holding cash has never been lower – therefore, it's worth considering utilizing cash a little more aggressively.

For instance, given that volatility is sure to increase, placing one to two years of spending needs in cash, in advance of actual needs, may take some of the pressure off a portfolio and allow investors to display less anxiety over their longer-term pool of capital. Also, if an immediate and large dislocation took place due to interest rates dramatically increasing, capital could be available for immediate investment. While it may seem counterintuitive to argue for raising cash needs in advance when we just discussed staying invested in a tough environment, I believe that having several years of spending safely tucked away may very well allow many investors to develop the patience they'll need for the difficult markets ahead.

Conclusion

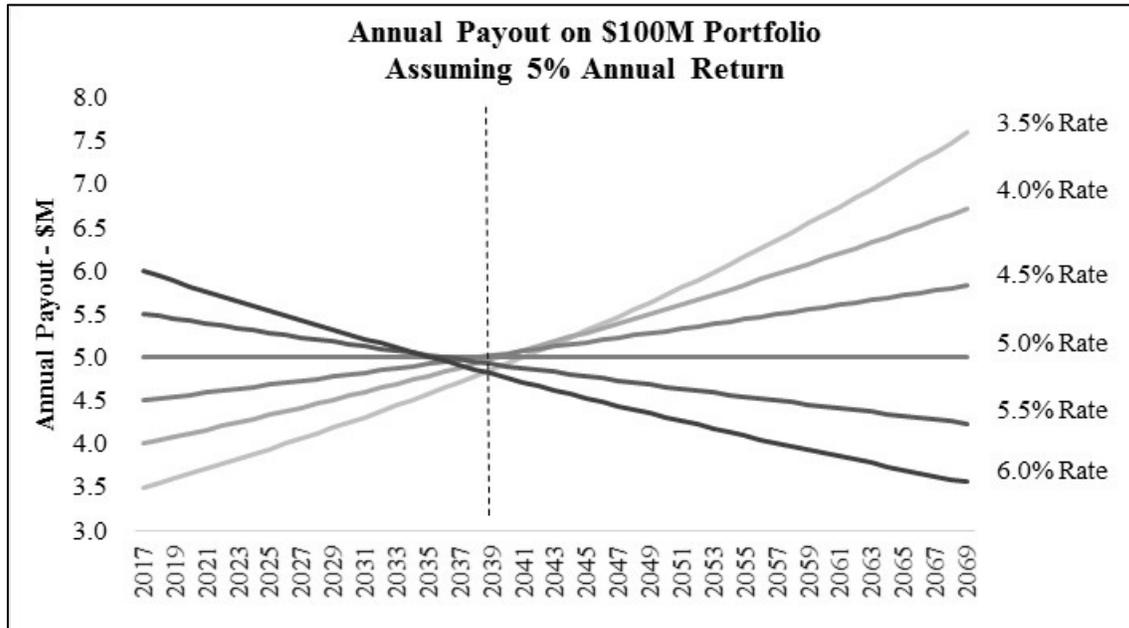
In conclusion, we're in uncharted territory and the next five to ten years will probably prove to be unique.

Returning to the game of chess, it's appropriate to feel the potential for a terminal checkmate is very real. However, this environment will not last forever and, at some point, the capital markets will normalize and this period shall become a footnote in history. The science-fiction writer, Isaac Asimov, himself a great chess player, summarized the situation best: "In life, unlike chess, the game continues after checkmate."

B. Grady

Appendix: Impact of Spending Policy on Portfolio Payouts

The following graph illustrates the tradeoff between current portfolio spending and future spending. Maintaining a spending rate that exceeds the portfolio return will degrade the real value of the portfolio and thereby lead to lower spending in the future. Assuming a 5% annual return for the portfolio, the annual payout at various spending rates converges in about 20 years. In a low return environment, clients should closely consider the impact of spending policies on the long-term purchasing power of the portfolio.



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