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March 17, 2017

THE SECOND MARSHMALLOW

For the next 15 years, every day that passes will see an estimated additional 11,000 Americans turn age 65. We believe the ageing of the baby-boomer generation will continue to show far-reaching economic, social, and political effects during this time span. For that matter, we believe it is already showing its effects on the capital markets.

We believe there is little question that would-be retirees face a difficult investment environment. For that matter these difficulties extend to any entity that must principally rely upon passive and investment income to fund their livelihood. This group includes underfunded pensions funds, 501c3s and endowments. The difficulty we see for this group relates to what we believe are stretched fixed income valuations creating uncontemplated risks for investors in search of safety and income. Moreover, at least some of this risk in fixed income is punctuated by a U.S. equity market that trades at noticeable premium valuation to historical averages.

The trouble we see stems from a widely adopted, well-conceived, and good intended piece of financial planning wisdom known as the 4% rule. The 4% rule was created by financial planner Bill Bengen during the early 1990s. In its simplest form the idea is that an investment portfolio split 50/50 between stocks and bonds can last for 30 years (or perhaps more) assuming an initial withdrawal rate of 4%, adjusted for inflation in the years that follow. If we apply the simple long-term average inflation of 3.2% (dating back to 1913), we can then calculate that an approximate 5.5% required return is needed to sustain a retirement portfolio for the next 35 years (adding cushion for longer-life expectancy). The problem is that we calculate an estimated return of 4.03% from a plain vanilla portfolio split evenly between 10-year Treasuries (currently yielding 2.58%) and the S&P 500 (current earnings yield of 5.49%). As many retirement age individuals (and pensions, 501c3s, endowments, etc.) have already discovered over the past several years, the markets today present challenging math to the 4% rule. Even so, there are possible solutions. First, people could work longer. Second, people could save more and spend less (i.e., lower than 4%). *Third, people could seek higher returns by assuming additional risks in today's market*. We believe there is good evidence that this third approach is the most widely adopted. We also believe that investors can meet their required return goals, but must pursue them through a nonlinear, patient approach. Investors today should insist on a second marshmallow.

When we refer to a "second marshmallow" we are alluding to the psychological tests first conducted at Stanford University in the late 1960s and early 1970s that examined young children's ability to delay gratification. As a brief reminder, each child was offered the choice between one immediate marshmallow placed directly in front of them, or the eventual reward of two marshmallows if they waited 15 minutes while left alone staring at the single marshmallow. The psychologists created the test to learn at what age children began to delay gratification (assuming they could). Of the 600 children that participated over time, approximately 1/3 were able to delay gratification long enough to obtain the

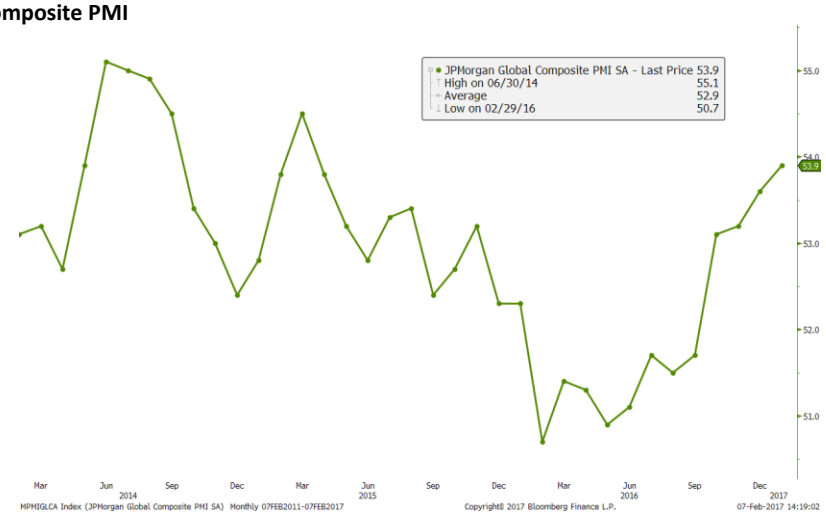
second marshmallow (i.e., greater reward). Of equal interest was the follow up study conducted as the children reached adulthood. The follow up revealed that the delayers recorded higher SAT scores, healthier body weights and a lower dependence on substances. We see a straight-forward, but difficult to execute link (for most) between long-term investing success and the delay of gratification. By comparison, we see investors in today's fixed income markets grabbing at marshmallows the moment they become available. Similarly, we believe investors who can resist, will be materially rewarded in the future. Lastly, we also believe as the original study suggests, that delayers represent a small group in today's market.

As you have gathered, we see no real distinction between children grabbing an instant marshmallow, and fixed income investors grabbing an instant yield to make the 4% rule work in today's market. With that said, let us now examine these various manifestations of instant gratification, and why we believe they pose significant trouble for some, but eventual opportunity for others.

The first and most obvious method by which yield seekers can improve their current day returns is to purchase bonds with longer maturities (and higher yields), whereby they take on duration risk (i.e., bigger move in bond price per 100 basis move in interest rates). The obvious problem with this approach is that investors stand to get whipsawed if economic growth and/or inflation accelerates from current levels. Importantly, with so much distortion in longer-term sovereign debt prices owed to widespread central bank purchases, we believe it is difficult to understand the downside risk to these bond prices in the event central banks reverse policy course.

To be sure, since the November elections economic activity as measured in the Purchasing Manager Indices and Consumer Price Indices have continued to accelerate, which led to at least some initial pain for bondholders in the election aftermath.

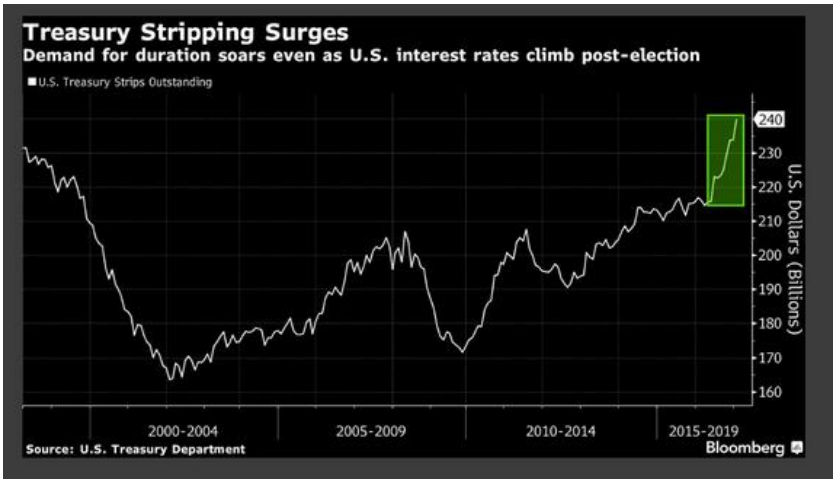
Figure 1.
JP Morgan Global Composite PMI



Source: JP Morgan, Markit

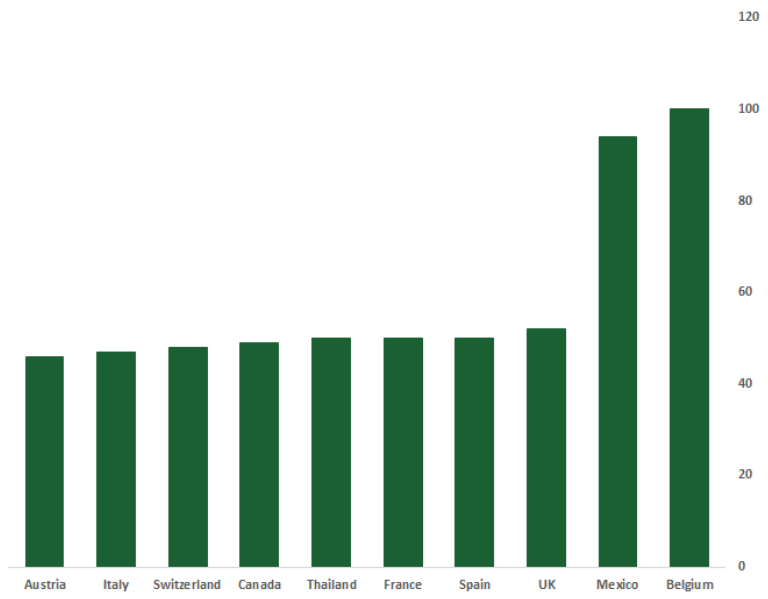
However, despite near-term developments investor demand for longer-term maturities remains significant, in our view. We find compelling evidence in the ample supply of bond offerings that have been issued during the past few years with 50-100 year maturities. To put this in perspective, Austria's recent 70-year issue carries a duration of 43 years, meaning that for every 100-basis point move in interest rates, these bond prices may swing 43%. From a risk-reward standpoint, and potential hedging tactics notwithstanding, a 70-year bond issue from Austria strikes us as the avant-garde of risk-taking in this market environment. Moreover, with many of these bonds paying coupons somewhere in the range of 2%, we cannot easily penetrate the mindset of a fundamental outlook this complacent on the geopolitical risk spectrum, particularly for such a prolonged period of time. Let us take the example of France, with its 50-year sovereign currently yielding 2.4%. From 1955-2005, a mere 50 years, France went through two republics and three currencies, and given everything witnessed in politics during the past twelve months (and elections across Europe looming in 2017), an outlook of political status quo now figures to be the contrarian view. Setting any fat-tailed risks aside, we possess similar awe that investors accept the risk we see in owning 30-year U.S. Treasuries yielding 3.1% with a duration of 19. Regardless of our views, investors have maintained a voracious appetite for additional yield through duration. For evidence, we share in Figure 2 below an illustration of the surge in demand for 30-year Treasury Strips which stand to react the most to changes in interest rates. Finally, we summarize the environment with an illustration of recent 50-100 year sovereign bond issues in Figure 3.

Figure 2.
Recent Demand Increase for Treasury Strips and Duration Risk



Source: Bloomberg

Figure 3.
Recent 50 and 100 Year Sovereign Bond Issues (Ranked by Maturity)



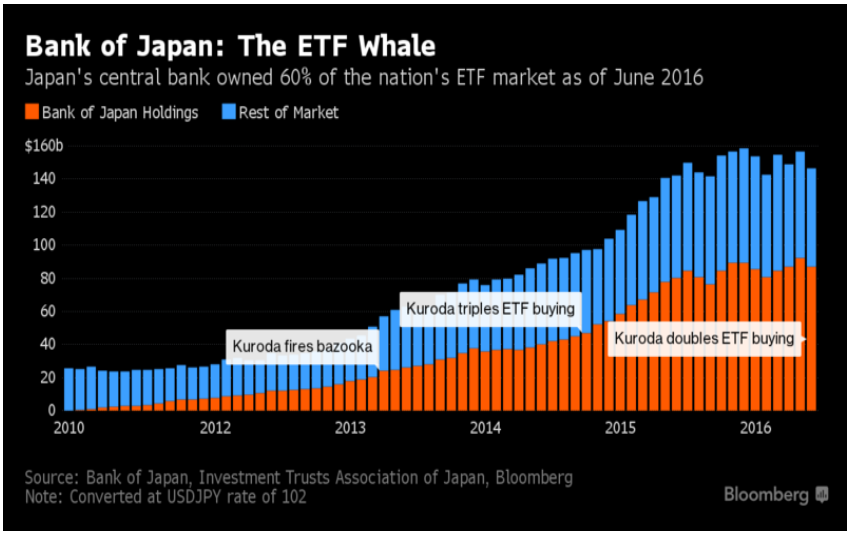
Source: Bloomberg

To maintain an objective analysis, it is worth reviewing the fundamental arguments for persistently low interest rates on longer-term debt (i.e., the bull-case). At the core of this argument is an abiding pessimism toward long-term economic growth, including the overwhelming human tendency to make observations on the recent past and extrapolate them forward through a linear perspective. We see lynchpin to the persistently low-growth perspective is the disappointing growth in economic productivity which has averaged approximately 0.5% during post-crisis recovery, compared with 2.5% in prior decades. We tend to view the productivity conundrum as a byproduct of Moore's Law and the exponential rate at which technology has disrupted incumbent industries and employment during the past 17 years, coupled with an elusive mismatch between worker's skillsets and the same rapidly advancing technology (i.e., structural unemployment). In our view, the shift has been no less profound than the industrial revolution where capital reaped the immediate benefits of industrialization, but labor took decades to successfully assimilate. During the interim void, wealth accumulated first in the coffers of the capital providers, highlighting income disparity between the two segments of the economy. This disparity is noticeable through a broad economic wealth to income ratio of 6.5:1 compared with a historical average of 5:1. We believe this environment has also led to significant political unrest. While we believe this wealth to income ratio is being affected by the economic fundamentals we mentioned above, we believe the more significant contributor is through central bank policy and inflated capital markets (including fixed income). In the years to come, it seems reasonable that productivity will regress towards more normal, historical levels, and economic growth should in turn also rise from its recent 2% and below levels. We believe that continuing advances in industrial automation, robotics, and artificial

intelligence can play a role in this process as labor skillsets also continue to advance and adopt to new technologies. In sum, the bondholder seeking additional yield in long-duration bonds is betting on little to no acceleration in economic growth over the decades to come. We believe that as long as there is some backdrop of a free-market system in place—which admittedly varies over time due to the ebb and flow of regulations and economic policy—that longer-term optimism is appropriate. Taking this thought a step further, we believe owning long-duration bonds represents a bet against the house, where the bondholder may win for a while, but we think eventually faces considerable losses.

While the elements described above represent a longer-term risk, long-duration bondholders may want to also consider a more tangible near-term risk, which could come in the form of policy changes during the next few years. These risk factors range from the surreal to a possible plain vanilla change in asset allocation preferences among investors. Let us begin with the surreal, where Japan's central bank policy is the focal point. To begin, the Bank of Japan's balance sheet has over the past seven-years grown in size from 22% of GDP to approximately 90% today. Through this strange—and we believe fruitless—journey the Bank of Japan has become a top five owner of 81 companies in the Nikkei 225 and is currently plowing headlong into the local ETF market where as of June 2016 it owned 60% of this asset class. We fail to see how this is an effective policy. Instead, we see what was an already insulated market (corporate governance in particular) becoming increasingly shielded from outside private shareholder interests, while possessing propped up valuations and declining liquidity. In sum, it is hard to argue that conditions in the Japanese stock market are not being distorted by these activities, and it is even harder to determine how it all ends (we suspect not well). Returning to practical implications for long-duration bond-holders though, the Bank of Japan is also responsible for driving its sovereign yield curve into negative territory, which we believe has created demand at the margin for higher yielding long-term U.S. Treasuries. Therefore, it seems to some extent owners in long-term Treasuries are exposed to the wildcard of BOJ policies.

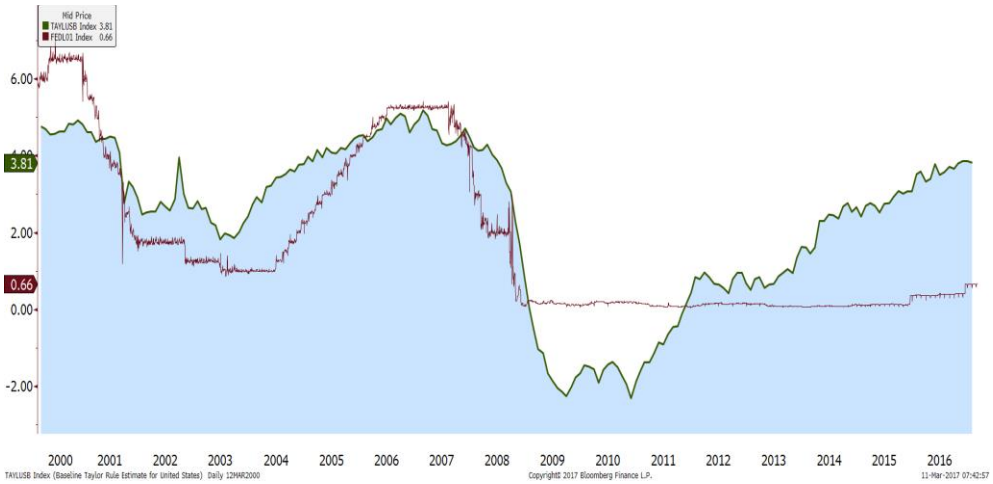
Figure 4.
Bank of Japan ETF Purchases



Source: Bloomberg

As unpredictable as the Japan factor may be, we find more conventional, and discernible risks for long-term bondholders present in the U.S. markets. It strikes us as interesting that despite President Trump's free-market oriented appointments across the Federal government (not to mention planned deficits) that there has not been more significant discussion surrounding the eventual, and in our view probable, change in leadership at the Federal Reserve over the coming year. At the moment, President Trump can make two appointments to the Federal Reserve (vacant seats) and one more seat will come available in April. Importantly, in the first half of 2018, he will have the ability to replace both the Chairman (Janet Yellen) and Vice Chairman with new recommendations, which he is largely expected to do. In turn, it stands to reason that the former Chair and Vice Chair may resign, paving the way for two new appointments. In sum, over the next twelve to eighteen months, it is possible, and perhaps rather probable that 5 of the 7 Fed Governors will be Trump appointments. We base this view on Trump's repeated rhetoric that interest rates are too low, and are damaging the economy. With that said, there is speculation in the press that Trump may seek to appoint Stanford Professor John B. Taylor to a leading role at the Federal Reserve. Such a move would be in keeping with Trump's hawkish tone towards interest rates, as Mr. Taylor is most widely known for a rules-based approach towards managing the Fed Funds Rate. This dates back to the early 1990s when he created a simple algorithm to guide interest rate policy now known as 'The Taylor Rule." Without getting too academic, the Taylor Rule forecasts the correct Fed Funds rate by making comparisons between actual and targeted inflation as well as actual and targeted full employment levels. Applying current inflation and employment metrics to the Taylor Rule suggest that materially higher rates today are appropriate. To illustrate the disparity between the rate suggested by the Taylor Rule and the current Fed Funds Target Rate, we can view the two variables in a side-by-side comparison below.

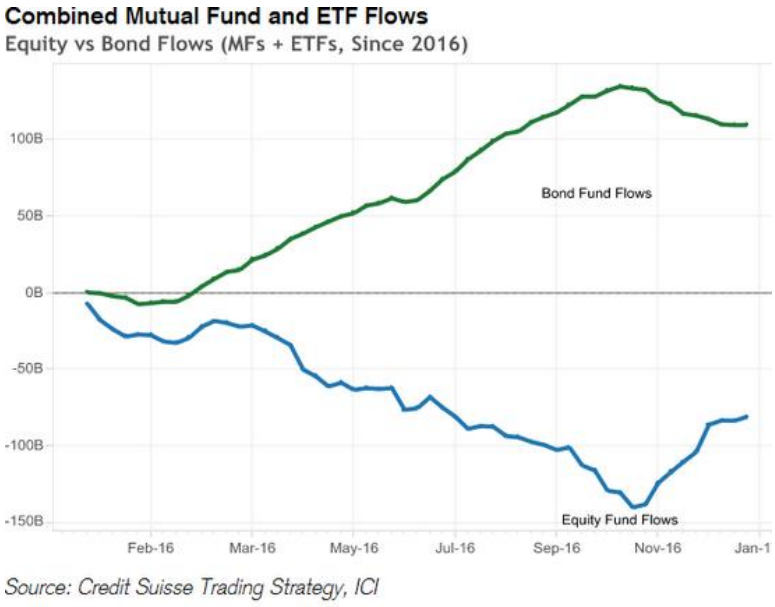
Figure 5.
The Taylor Rule Implied Fed Funds Rate versus the Target Fed Funds Rate



Source: Bloomberg

In sum, the Taylor Rule is widely acknowledged and followed by policymakers, and given a change in leadership could be used as a tangible argument to accelerate interest rate increases over the course of 2018. If economic growth improves in-line with market expectations over the course of the coming year (and beyond) a more aggressive shift in rate policy could be readily digested by the equity markets (much like today). Again, growth expectations will be the key ingredient. We believe if this scenario materializes, the two potential winners and losers will be financial equities (banks, insurers), and longer maturity (duration) bonds, respectively. Moreover, while equity investors traditionally become worrisome in rising rate environments, we believe if interest rate increases continue to appear to be "behind the curve" equity markets may still attract fresh money from the bond markets. One of the clear reasons that bond yields remain low by historical standards is that there is still a larger than normal amount of capital being stored in these securities. We believe that pro-growth sentiment since November has led an apparent retreat from bonds into equities, helping propel what has been a rather sudden jump in share prices since November 2016. One simple way to view this relationship is a side-by-side comparison of equity and bond flows in ETFs during recent months.

Figure 6.
Annual High Yield Bond Issuance



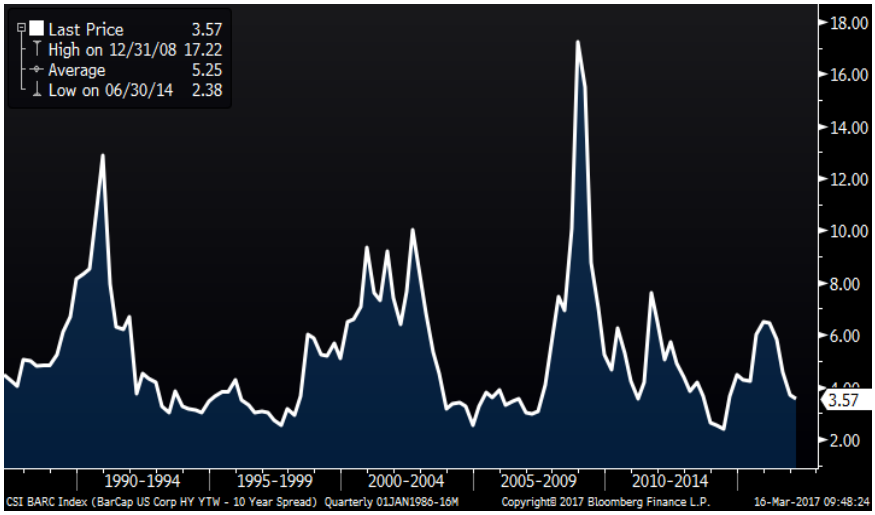
Source: WSJ

In spite of the lengthy discussion thus far, we have still only addressed one-half of the risks (and eventual opportunities) we see in the fixed income markets. This returns us to the 4% rule, and the second method we see investors today compensating for low yields, which is through an unflinching appetite for higher yields through additional credit risk.

Somewhere over the course of time, junk bonds became known more politely as "high yield" bonds, but despite Wall Street's best sales efforts, Shakespeare told us a long ago that "a rose by any other name

would smell as sweet." Whatever they are called, common sense tells us these bonds are risky and should be priced in accordance with the considerable probability that some of these issues and their coupons will not materialize. As we all know however, common sense does not consistently rule the day when it comes to the financial markets. As we can see in the illustration that follows continued demand for junk bonds since the financial crisis has driven their spread over Treasuries to persistently low levels, but with a few hiccups along the way. For perspective, today's spread is 357 basis points compared with a long-term average of 525 basis points and an all-time low of 238 basis points in June 2014.

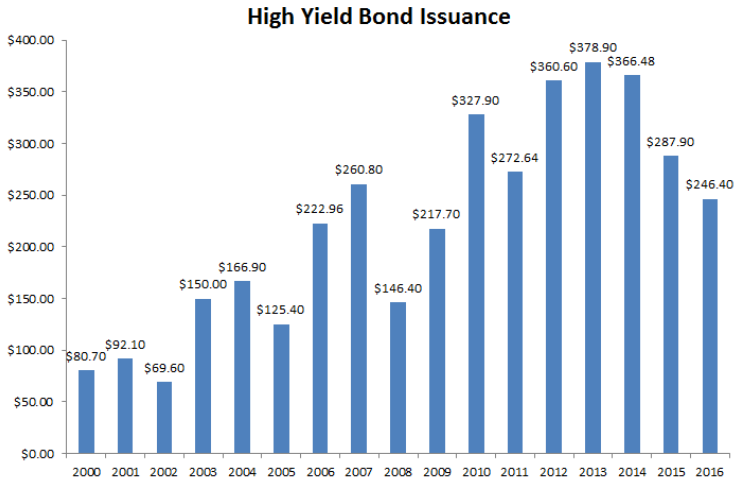
Figure 7.
BarCap U.S. Corporate High Yield YTW – 10 Year Treasury Spread



Source: Bloomberg

In keeping with these high prices and low yields in the junk bond market, we can see that since the Financial Crisis investor demand for junk bond issuance has been an all you can eat affair.

Figure 8.
Annual High Yield Bond Issuance



Source: Bloomberg

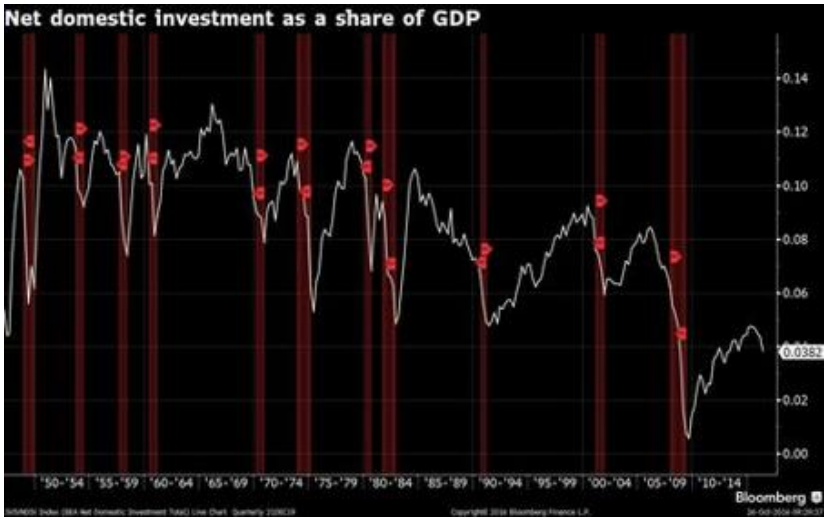
We believe that at least part of this investor demand relates to time-honored flaws in asset allocation models where the heaviest focus, and emphasis is placed upon standard deviation as the most important measure of risk. This contrasts with value investors who consider the primary risk an investor takes as overpaying for an asset, and the ultimate risk comes from the permanent impairment of capital. From our perspective, junk bonds priced at today's levels possess these last two risks in spades. However, an asset allocation model run on today's broader capital markets, that optimizes a portfolio of assets based on the Sharpe Ratio recommends a 20% allocation to high-yield bonds. We recommend a zero allocation. Nevertheless, it is interesting to see why asset allocation models, and therefore many asset allocators, favor these bonds and it appears to be based on comparisons between these bonds assumed yields and historical standard deviations. For instance, the forecasted yield of 6.1% in the U.S. junk bond market coupled with an 8.8% standard deviation compares nicely to global equity index forecasted returns ranging from 2.8%-5.6% and standard deviations of 14.4%-20.5%. For investors still scarred from memories of share price volatility during 2008-2009, these risk-return frameworks must look like a free lunch, but these bonds are neither free, nor lunch. The risk-return data belies the observation that from May 2008 through November 2008 the same U.S. junk bond index lost 32.5%, only slightly better than the S&P 500's loss of 35.2%. The index return also masks the possibility of default for bondholders in individual issues during that time period. Our only point here is that standard deviation is an incomplete, and potentially misleading measure of risk, and yet despite the periodic panics, crises, corrections, and bear-markets, its use persists today.

Our primary fear for junk bond investors is that the ultra-low interest rate environment promulgated by the central banks has created a toxic union of issuers that would be unusually risky by historical standards, coupled with a set of investors blind to those risks. We maintain that one of the most predictable effects of artificially low interest rates is mal-investment drawn into a potentially wide range of assets that will not generate an adequate return once interest rates normalize. The clearest example from the financial crisis came when Adjustable Rate Mortgages began resetting in masse during 2006, and borrowers defaulted on their second, third, and fourth homes once they could no longer service the debt in a rising rate environment. Returning to junk bonds, and for that matter even investment grade bonds, we find two interesting observations that beg additional questions. First, U.S. corporations have since the financial crisis re-leveraged their balance sheets back to pre-crisis levels.

Figure 8.
U.S. Corporate Debt as a Percentage of GDP

Second, despite the increased borrowing, the overall level of net domestic investment into the U.S. economy remains materially below historical levels.

Figure 9.
Net Domestic Investment as a Percentage of GDP



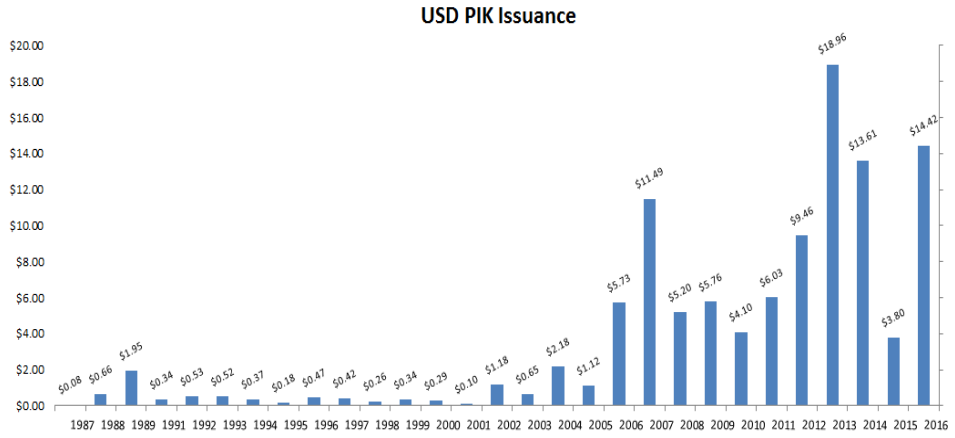
Source: Bloomberg

This suggests to us that despite the surge in corporate borrowing stimulated by low rates and significant investor demand for yield in all shapes and sizes, that some meaningful portion of these proceeds has not been invested into new factors of production, but instead has been used to issue dividends, repurchase shares, refinance preexisting debt or make acquisitions. Investors can argue over the efficacy of these corporate strategies, but it is difficult to assert that any of them will lead to new sources of long-term growth in earnings (the source of long-term shareholder wealth). In effect, corporations too are issuing debt in order to grab at instant marshmallows that provide gratification today at the expense of future returns tomorrow. To be sure, it would be an exaggeration to say that some—perhaps even many—firms are not taking advantage of low rates to fund future growth. Here again though, our

discussion is focused on the junk bond market where we would expect to find the worst abuses. With that said, let us look at a recent example where a corporate borrower issued a PIK toggle bond. You might ask, what is a PIK toggle bond (the borrower has the option to pay-in-kind, with more bonds)? Creditors to the apparel retailer J. Crew could explain it firsthand.

In October of 2013 the private equity controlled parent holding company of J. Crew issued $500 million in PIK toggle bonds with a semiannual cash coupon of 7.75%. The proceeds were to be explicitly used for the payment of a dividend to its private equity stakeholders TPG Capital and Leonard Green and Partners. Fast forward to November of 2015 and J. Crew activates the toggle feature on this bond issue as its same-store sales growth continues to falter, and by February of 2016 these bonds were trading 75% less than face value (but have since rallied to a 57% discount). The general consensus is that the equity has been wiped out, but not before the dividend was paid. Still, it takes two to tango, and the dance floor is full yield-starved, complacent creditors funding PIK toggle issuers in this low rate environment. Much like in 2008, creditors in this market and other exotic high-yield categories (i.e., covenant-lite, second lien) should be wary of being on the dance floor when the music finally stops. Aside from a brief respite in 2015, USD PIK bond issuance has been robust over the past several years.

Figure 10.
Annual PIK-Toggle High Yield Bond Issuance



Source: Bloomberg

Regardless of the clear risks in both duration and credit, timing their realization is at best elusive, if not a frustrating fool's errand. On the one hand, duration-risk could emerge with increased growth and inflation. On the other hand, high-yield risk should unfold with a default cycle, most likely owed to slowing growth or a rise in interest rates unaccompanied by better growth. In either case, patience for these catalysts will be in our view.

Patience should be rewarded though as a large correction or bear-market in either duration or credit could present the 4% club with fresh investment opportunities and a clearer path towards the returns necessary to make the 4% rule work through more conventional and less risky investments. In order to

accomplish this though, these investors must remain flexible and opportunistic, as there will certainly be psychological inertia to bargain hunt under these circumstances.

We see the potential rewards as substantial however, which is owed to a mixture of currently high valuations, poor underlying liquidity, and a large preference among investors to access these securities through ETFs. While we have already reviewed valuations, we have not discussed the potential impacts of liquidity and ETFs in a market correction for these securities. Starting with liquidity, post-financial crisis regulations have led to U.S., bond dealer inventory that is currently at the same level that it was in 2001, based on Federal Reserve data. According to Bloomberg data, bond sales desks, as well as research and trading personnel have shrunk to 2008 levels, despite a large increase in the bond market itself since that time period. Much of the growth in the bond market has been promulgated through a simultaneous rapid growth in ETFs as a product, which according to Bloomberg have grown five-fold since early 2010, now representing $600 billion in assets. The potential problem created through this market structure is that popularity in ETFs has translated into ETF trading volumes that far exceed the trading volumes in the bonds they represent. Based on data from Blackrock, the trading volume in bond ETFs exceeds the trading volume in the bonds they represent by 4.3x. Under normal market circumstances these volume discrepancies are not noticeable. However, under stressed market conditions we believe these imbalances could lead to panicked circumstances. For instance, when trading in an ETF becomes too one-sided, the ETF's NAV is maintained through the activities of "authorized participants" that interact directly with the ETF company through arbitrage opportunities in the open market. For instance, when the price to NAV becomes discounted an authorized participant has an incentive to purchase the ETF shares and present them in-kind to the ETF company for the pro-rata underlying securities. The authorized participant can then sell these assets in the market at a higher price for profit. These activities based upon when either premiums or discounts appear help maintain a stable NAV in ETFs. However, there is some potential evidence that these mechanisms do not always go according to plan.

A good example of this was seen on August 24, 2015, when the Dow Jones opened down 1,000 points and several large cap stocks experienced trading halts. An ETF of high quality dividend paying stocks called the iShares Select Dividend ETF (DVY) fell approximately 35% within the first 12 minutes of trading that day due to the trading halts in the Dow components we mentioned. Bear in mind that the underlying portfolio shares traded down much less, by approximately 2-3%. By 10AM EST, the ETF shares catapulted back upward to the portfolio NAV, erasing the 35% decline. What happened? We believe that when the underlying stocks in the portfolio ceased trading, the arbitrage mechanism that the ETF relied upon for an orderly market quickly broke down. In sum, the Authorized Participants would not step into the ETF market and accept stocks from the ETF company that were not trading, meaning there was no ready market, and the NAV could not be known. In the graph that follows we can see the rapid decline in the DVY ETF shares at the open of trading on August 24, 2015.

Figure 11.
Daily Price Graph for iShares Select Dividend ETF on August 24, 2015

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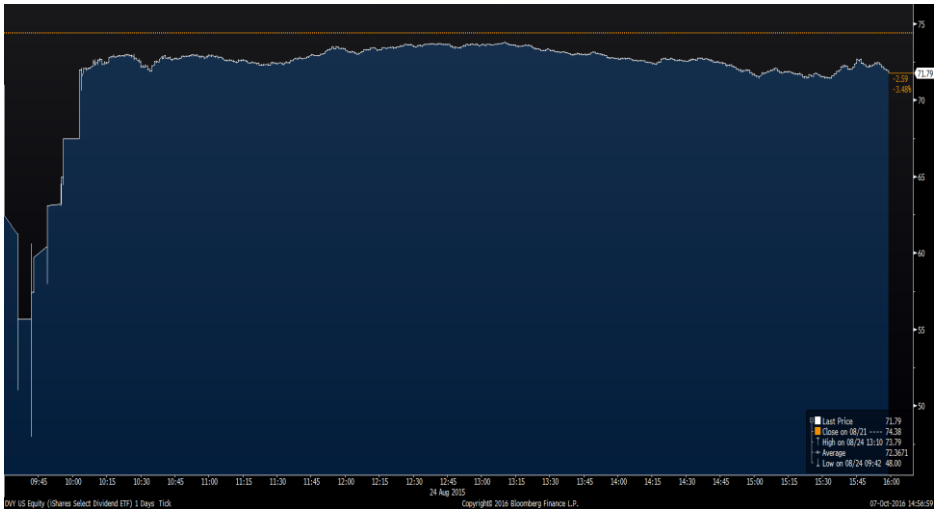

Source: Bloomberg

From our perspective, if a sudden ETF share price decline can occur due to a trading halt in Dow component stocks, then it seems likely in our view, that similar circumstances could arise in bond ETFs where the underlying corporate bonds may not trade for several days under normal market circumstances. Undoubtedly, liquidity problems in the high-yield market upended several open-end funds in late 2015, including one managed by the accomplished and respected value shop, Third Avenue. We view those events much like canaries in the coalmine, only heightened by 2016 reports in Bloomberg that *30% of the entire high yield market was not being traded that year.* Irrespective of any possible hiccups in the ETF markets for fixed income, we believe that stretched valuations and liquidity challenges alone will provide a healthy environment for bargains if and when these markets eventually correct.

To sum it all up, we believe that there are numerous signs of potential trouble in these markets, and that investors seeking better than average returns over the long-term should exercise patience and wait for the second marshmallow.

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Portfolio Manager

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