

Bond Market Discussion



Ever since the high interest rates of the late 70's, investors have grown accustomed to receiving outsized returns on their bond portfolios as falling rates have boosted price appreciation of bond prices,

retirement needs. Indeed, most have accepted the assumptions that: a higher allocation to bonds versus stocks is appropriate; bonds have lower risk than stocks; bonds pay higher

"...the paper shows how investors can supplement and replace portions of their traditional bond portfolios to help boost sustainable retirement distribution rates..."

providing a significant boost to a bond's coupon income. With over 45 years of enjoying these outsized returns, boomers now are approaching and passing through the retirement age of 65 where conventional wisdom suggests they hold a high percentage of bonds within their portfolios in order to rely on the relative security of bond income to support their

income than stocks; the income from bonds is sufficient to support retirement distributions and mutual funds are a good way to diversify bond holdings. However, we believe intelligent investors should be cautious of these assumptions as:

- Recently bond yields hit all-time lows in



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mid-2016 and have increased since then-- how will retirement portfolios respond to typical 4% distribution rates when the 10 year treasury is only 2.5% and the capital appreciation from falling rates turns into capital depreciation of rising rates?

- How will investors react if interest rates move significantly higher, hurting returns of their largest and most conservative portfolio holdings? Will they sell?
- How will investors respond if bond volatility exceeds stock volatility as long term bonds have demonstrated over the past few years?
- How will mutual funds and ETF's handle potential liquidity constraints given the reductions in bond trading desks after the Great Recession of 2008?

These risks are explored more fully including the impact of a generation becoming accustomed to the tailwind of falling interest rates and the volatility from program trading as highlighted by the two historic "flash crashes" in 2010 and 2015. The paper

concludes with ways investors can try to reduce the risks of liquidity mismatches within portfolios and rising interest rates through holding individual portfolios of bond ladders. Finally, the paper shows how investors can supplement and replace portions of their traditional bond portfolios to help boost sustainable retirement distribution rates.

Troubles in the bond market

It is arguable whether an asset class such as fixed income, which has a stated guarantee by issuer of return of principal, can ever trade in a 'bubble'. However, throughout history, there are many consistent indicators of bubbles: they occur when the general public believes after sustained gains that you can't lose (think housing), few people are aware of or discussing these risks, and there is a high allocation to the asset class. We believe fixed income meets at least some of these characteristics and could eventually hurt those who are unprepared.

Fixed income, or bond portfolios, are typically viewed as one of the most conservative assets within a portfolio. Traditional advice is

that investors should slowly increase their allocation towards fixed income as they approach retirement. With baby boomers now nearing or past retirement, individual investors are thus expected to be holding higher than normal percentages of fixed income. At the same time, the fixed income market has enjoyed the longest bull run in history -- with interest rates (looking at the 10 year treasury) dropping from their highs of over 15% in 1982 to their lowest levels in recorded history (1.5% in July of 2016). This has resulted in price appreciation within fixed income during this timeframe rivaling that of the equity markets. It has also resulted in volatility in fixed income rivaling equity markets, a most unwelcome characteristic for those looking for relatively conservative returns. Certainly the actions of central bankers over the past few years have increased this trend, artificially reducing these rates even further through either actively purchasing bonds (adding demand and thus lowering yield) or reducing interest rates. This has led to 30% of the world's sovereign bond market to trade at NEGATIVE

yields (source: Raymond James Capital Markets Review - October 2016). Does this continue? The Great Recession of 2008 also had many consequences, one of which was the dramatic reduction of fixed income trading desks at large global banks. If prices head higher, how would baby boomers react to sustained losses within their portfolios? If there is a rush to sell fixed income assets, how will the more constrained trading desks handle unprecedented volume? Most importantly, how can a prudent investor maintain an allocation to fixed income while minimizing risks of rising rates and a potential lack of liquidity if retail investors panic?

Unprecedented Bull Run of Bonds/Current Bizarro world

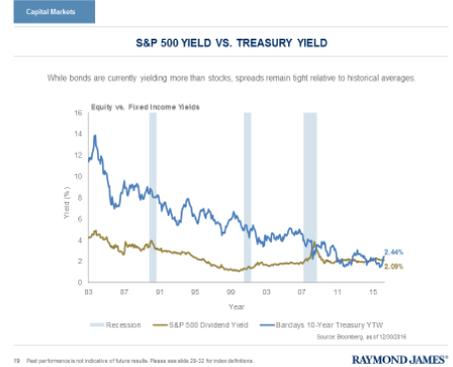
Over the past 15 years, which has performed better: stocks or bonds? It may be surprising to know the differences are minimal: S&P 500 was up 6.82% annually versus the long government bond 6.73% (source: Morningstar 15 years ending 12/31/2016). The volatility of bonds may also be surprising, especially in the past few years: S&P 500 standard

deviation was 10.74% versus long government bond 12.03% (source: Morningstar 3 years ending 12/31/2016). Bonds, the ‘conservative part of a portfolio’, were actually more volatile!

Most are probably aware that as interest rates fall, the value of bonds rise... and conversely, as interest rates rise, the value of bonds fall. Importantly, these are the trading value of bonds—meaning the bond prices a seller is likely to receive if selling the bond at that moment. The redemption value of bonds is always at “par” when held to maturity... or \$1000 for 1 bond.

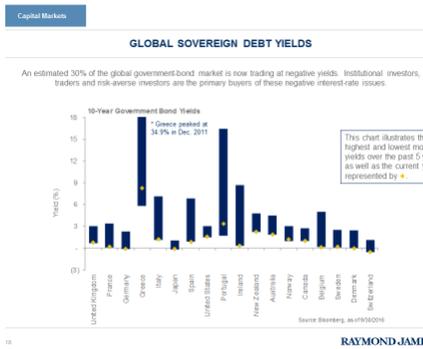
Overall bond rates have been dropping ever since the 1980’s when Paul Volcker famously raised rates in order to bring inflation expectations back in line. Since then, we have a generation of investors who are accustomed to falling rates, which has been a huge tailwind in the return of bonds. Indeed, yields have fallen in some cases below the yield on equities, actually incentivizing investors to purchase equities over bonds

in a search for yield.



Source: Raymond James, Capital Markets Review January 2017

Conventional wisdom up until a few years ago was that rates would never go below zero, creating a floor for this bull market. However, international central bankers, in continued efforts to support their respective economies, have been issuing bonds at negative rates. It is not within the scope of this paper to discuss whether this is effective (we have doubts), but at the end of September 2016, 30% of the world’s government paper is trading at these negative rates... further extending this bull market in bonds. Consider that a German 2 year bond today pays -0.7%. (Source: Thomson One - January 2017)



Source Raymond James
Capital Markets Review- October 2017

Thus we have what could be called a ‘Bizarro world’ (remember Superman’s mirror image character from an alternative world where everything is backwards?): bonds almost outperforming equities, bonds carrying more volatility than equities, bonds paying lower yields than equities, and some bonds actually paying negative rates. None of these are “normal”.

The natural question—when does this bond bull market end and rates return to more historical levels? What will happen to bonds when the tailwind of falling rates turns into the headwind of rising rates? Since writing this paper through the recent November election, rates have since jumped considerably. Inflation expectations have increased and long term bonds such as the 30 year Treasury have dropped as

much as 20% in value. (Thomson One: Price depreciation of 30 year Treasury from 7/8/16 to 11/11/16). This type of bond correction has been common the past few years—one of the most notable being the “taper tantrum” (when then Fed Chair Bernanke indicated the Fed would ‘taper’ or reduce their quantitative easing programs) in 2013 with a similar move on bond markets, after which long term bond yields continued their descent. It is way too early to tell whether we have already passed the end of this bull market or if this is another ‘head fake’ making way for even lower rates... or lower negative rates. Janet Yellen has even suggested that negative rates in the US aren’t off the table.

But regardless, sooner or later, rates will go back up. And when they do, how will an investor continue to make money from bonds as part of their portfolio in a rising rate environment?

As an aside, the talk of rising rates certainly is not new: ever since central banks aggressively embarked on quantitative easing (the Fed printing money to purchase

bonds), many prognosticators have warned about impending runaway inflation and rising rates... only to watch rates continue to fall. Being wrong on one’s timing but correct in one’s thesis can still be wrong from an investment standpoint. In fact, this trade in recent years of betting aggressively on rising rates has been called by traders the “widow maker.” Traders would use futures contracts to bet on rising rates, but to date, many have lost large sums buying such contracts.

So the second question: how can a portfolio then make money in both a rising rate environment and a continued falling environment? Is it possible to have an interest rate neutral bond portfolio?

Liquidity of bonds

Lawmakers and regulatory agencies responded to the Great Recession of 2008 with many new rules designed to avoid future crises (Dodd Frank, mark to market accounting, elimination of Volcker Rule, etc), most of which are beyond the scope of this paper. However, one of the key consequences relevant to this discussion is the dramatic reduction in bond

trading desks at the major banks.

As was highlighted in a speech by then Fed Governor Jeremy Stein in 2014 when regulators began studying this issue more fully, “As mutual funds and ETF’s may appear to offer greater liquidity than the markets in which they transact, their growth heightens the potential for a forced sale in the underlying markets if some event were to trigger large volumes of redemptions.” (2/28/2014) Forced sales are usually not good to the sellers. This is a critically important point: the liquidity of mutual funds or ETF’s may be higher than the bonds held by these vehicles. This could create a liquidity mismatch resulting in large losses.

Bonds do not trade on centralized markets like stock exchanges; they trade on the OTC (over the counter market)—simply meaning trade is decentralized between buyers and sellers. Until the financial crisis, many banks/financial institutions built up their bond trading desks to help provide a market for bonds and make extra money for banks

through their trading activities.

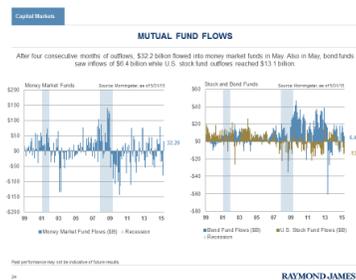
One of the culprits leading to the financial crisis was the proliferation of Collateralized Debt Obligations (CDO’s) throughout the financial system. In brief summary, these were subprime mortgage bonds sliced into multiple “tranches”. In the event of a default, the lower tranches would default first, the higher tranches last, and thus the credit rating agencies actually rated these higher tranches as AA+ investment grade or higher. This allowed many banks and other financial institutions to hold this “high quality” paper that paid above average yields. Obviously, it didn’t work out as planned as the lower tranches didn’t protect the higher tranches and many institutions had their “high quality” portfolios default resulting in our financial crisis. Bond trading desks around the world were very active trading in these CDO’s and thus took some of the blame from regulators. After the crisis, regulations forced banks to dramatically reduce these trading desks. In some cases, banks exited bond trading altogether. This had the effect of not only limiting

financial institutions from purchasing and holding such dangerous bonds, it importantly also reduced the liquidity of the bond market. This creates a potential choke point: if there are fewer potential buyers of a bond when many investors look to sell, the sellers could be forced to sell their bonds at a much lower price. It could create a negative feedback loop as lower prices create more sellers. What could this mean to the individual investor looking to preserve their retirement nest egg?

Bond Mutual Funds

Much has been written in recent years about the liquidity of bond mutual funds in the event of another financial crisis, especially after the ‘taper tantrum’ of 2013. A mutual fund is a pool of money from individual investors managed by an individual or team. As new investors add money, the manager buys securities for the portfolio... when investors leave, the manager needs to liquidate positions to accommodate those redemptions. Thus, the problem lies in the potential for investors to want to leave in large quantities, creating a

huge selling requirement for the manager. Unfortunately, individual investors are notoriously impatient and prone to emotion—most typically buying when they should be selling and selling when they should be buying. Notice the constant buying of bonds and selling of stocks during and since the financial crisis.



Source: Raymond James Capital Markets Review October 2015

If/when rising interest rates hurt the value of bond portfolios (or any other investment for that matter), they have a tendency to run for the exits—a herd mentality. Given we have had a 30 year bond bull market, the modern mutual fund industry has really not seen a bond bear market aside from the financial crisis of 2008-2009. While government bonds performed well in this rapidly falling rate environment (up double digits), corporate bonds and especially mortgage bonds

performed poorly resulting in the average multi-sector bond fund losing around 15% (Source: Morningstar Multi Sector Bond Category). Corporate bonds dropped because of deteriorating credit conditions while government bonds benefitted from falling rates. In a rising rate environment, both corporate and government bonds are negatively impacted. The timing is unknown, but it's likely the industry will be tested again when all bonds drop in value.

Thus, what could happen is that the bond manager would be forced to sell a large number of bonds into a market with limited buyers—invariably resulting in much lower bond prices. Supply and demand. The unfortunate investors following the wiser investment philosophy of holding would also lose money as the manager would have to raise cash to accommodate an unknown and likely ever increasing number of redemptions instead of remaining invested in the bonds and waiting for more reasonable prices at a later time. Thus the panicked investors hurt the long term investors. Simply holding

onto the fund would not protect an investor from this result as the manager may have been forced to raise a large amount of cash.

Bond ETPs

Exchange Traded Products (exchange traded funds-ETFs and exchange traded notes-ETNs) are a relatively new development, with popularity growing exponentially in the past few years. As ETPs are primarily passively managed with low fees, they thus have ridden the wave of passive management's popularity. ETPs can be very useful investment vehicles for gaining exposure to a particular asset class with minimal cost and trade intraday versus mutual funds that trade once at the end of every trading day, allowing traders more versatility in their buying and selling. When discussing risks, however, ETPs can carry some that are unique.

ETFs, on the other hand, usually invest into securities underlying the index in a somewhat similar manner as a mutual fund. (The important exception being ETFs that invest into futures contracts in another attempt to replicate an index. Tangentially, we

also suggest avoiding such ETFs as these have a notoriously difficult time accurately replicating the performance of the intended index.) There are two main ways ETFs are different than mutual funds: individual investors can trade them between each other and the sponsoring institution can create or redeem new shares by buying or selling the underlying securities of the index. This can be a little confusing, but it's easier to grasp if one considers that the total number of investors in an ETF will change and it is up to the sponsoring institution to keep the number of shares equal to the number of outstanding investors. The details of this process are beyond the scope of this paper, but the important point to note is that, in the event there are many more sellers than buyers, it would be up to the sponsoring institution to redeem the shares and sell the underlying securities. There is some debate over how bond ETFs would react in a market crisis as they remain somewhat untested in this area. Unfortunately, the heavily publicized flash crash of May 2010 and a similar much less publicized flash crash of August 2015 show

that mismatches have occurred resulting in dramatic intraday swings of ETFs. In both instances, some ETFs dropped more than 50% in value within a matter of minutes, then quickly regaining the underlying values of their index. Consider that, among other funds on 8/24/15, a conservative allocation fund dropped over 50% and then recovered within a matter of minutes. Most would not expect a conservative fund to drop 50% in a day. This mismatch only exists if the sponsoring institution for whatever reason is unable to keep up with redemptive demands creating the supply/demand mismatch resulting in significant if temporary losses. Our opinion is that equity ETFs can be useful investing tools with the important caveat that intraday trades during such periods of volatility be avoided. Investors who had stop losses on ETFs during the flash crash could have sold their shares at a significant loss without enjoying the immediate recovery. Such losses could torpedo long term returns.

Regarding bond ETFs, ultimately the same problem

exists with funds—the sponsoring institution having difficulty selling bonds at good prices, with the added risk that existing shareholders settle for much lower prices and therefore creating large price fluctuations of the ETF. The good news is that a patient ETF holder (even while watching 50%+ swings) would likely recover from these fluctuations and would not be hurt as much as a mutual fund since they would not have technically sold any of their underlying bonds. However, our experience is that few clients tolerate 50% swings, especially conservative investors seeking the relative safety of bonds.

Reducing these risks: The Bond Ladder

So how does a long term bond investor minimize the risk of these potential liquidity mismatches and avoid getting hurt by the herd mentality? Simply: take advantage of the unique characteristic of bonds—hold a portfolio of individual bonds directly in an account through redemption through bond laddering. Bond laddering is a passive bond strategy that has been utilized since the 50's, initially designed by

insurance companies to protect portfolios from rising rates. This strategy helps “immunize” a portfolio from rising rates, allow investors to have a longer portfolio duration (that would benefit from falling rates), and gives investors (not fund managers) control over selling in a period of market stress. In so doing, the panicked investor cannot force the long term investor to liquidate through a fund manager. It also avoids some of the inherent risks of mutual funds and ETPs as the positions are held directly without an intermediary and completely controlled by the investor.

What is a bond ladder? Quite simply: purchase a series of bonds such that one bond matures each year. For instance, a 5 year ladder would purchase a bond maturing in 2018, 2019, 2020, 2021 and 2022. As the first bond matures in 2018, you simply then purchase a bond that matures in 2023, extending the ladder. As interest rates increase, the repurchase of a new bond each year also helps to increase the yield on the portfolio with rising interest rates. It’s extraordinarily simple.

As all bonds are held to maturity, fluctuations in interest rates affecting bond prices do not affect long term portfolio returns (this is why textbooks call this “immunization”). Additionally, as the issuer redeems the bond and not a trading desk, liquidity issues as discussed previously are not a factor. There is no intermediary to create a choke point. Credit downgrades or upgrades also won’t affect long term portfolio performance either as these do not affect redemption value. Finally, as the holder of the bond ladder controls when/if bonds are sold, the behavior of other investors will have no impact on the ladder holder’s portfolio—as long as the ladder continues to be held. Thus, the ladder has effectively reduced: risk of rising rates, liquidity risk, and the risk of a bond fund manager selling into a challenged market. It is, however, important to note that the intraday pricing of the portfolio may still fluctuate.

One risk that remains is that of credit risk—an issuer defaulting on a bond, meaning they don’t pay back all of borrowed funds at

maturity. While certainly a risk, bond shareholders are ahead of stockholders in the capital structure. This means that during a typical bankruptcy, while stockholders would normally lose all their capital, bond holders normally receive some portion of their capital returned.

Many articles discuss using short term bonds to help protect against rising rates. While there is certainly a place for these holdings for many, the problem with these bonds is simply the interest rates are very low. The two year treasury currently pays around 1.2%. A ladder allows the investor to receive a more competitive yield while still protecting against rising rates. Plus, if interest rates actually drop even further during a deflationary environment, the portfolio retains the potential for capital appreciation. It is this characteristic that makes bonds a good complement to stocks, which typically don’t do well in such environments.

Diversifying a traditional bond portfolio to help long term returns and sustainable distribution rates

The math is very simple: if interest rates and credit

conditions do not change, a bond portfolio with a 2.5% yield will provide a 2.5% rate of return. If rates increase, these numbers are lower. If a retiree is distributing 4% or higher, they will run out of money—accelerated by rising rate environments. Of course, many hope that stock returns can help make up the difference of this shortfall and certainly stocks should be part of most retiree’s portfolios. The question begs: are there other assets with characteristics similar to fixed income that could replace or supplement traditional bonds?

Certainly it might be a reasonable question to ask: why have any bonds in a portfolio? The most important reason to have them, in our opinion, is that we don’t know what the future holds and bonds have historically acted as a good diversification tool in some periods of market stress. If we have another deflationary time frame and interest rates drop in the US to levels like in Japan, bonds will continue to perform extraordinarily well. However, we believe any investment in someone’s portfolio should have two main ‘core characteristics’: a

competitive long term rate of return and some non-correlation to the other holdings in a portfolio (going up in some markets when other assets go down). We believe the first criteria for bonds is somewhat challenged: why hold a German bond discussed earlier that guarantees a loss of 0.7% year for 10 years? Thus we believe a reasonable solution is simply to underweight bonds—meaning holding a smaller percent of traditional bonds in the past in favor of other assets that might have better ‘core characteristics’.

Depending on income goals and risk tolerance, the following asset classes might be appropriate as replacements for a portion of someone’s portfolio: Structured CD’s, collared equities (limiting upside and downside while receiving dividends), annuities, and managed futures. Aside from collared equities which simply limit equity risk while focusing on dividend income and limited capital appreciation, each of the other holdings either guarantee some form of downside protection or have usually gained in value when equity markets drop—while having

competitive positive returns. For instance, managed futures on average gained 30% in 2008, benefitting from volatility. Structured CD’s are also interesting in that they can focus on either income or capital appreciation, carry FDIC insurance, and can generate returns up to 9%. All make interesting replacements for a traditional bond portfolio.



Chart reflects a hypothetical investment in managed futures, stocks and bonds. Stocks are represented by the S&P 500 (TR) Index, managed futures are represented by the Barclay CTA Index, and bonds are represented by the Barclays Aggregate Bond Index. Chart is for illustration purposes only. It is not possible to invest directly in an index and past performance is no guarantee of future results. Source: PwC Financial Solutions.

Source: Raymond James White Paper: “Exploring Managed Futures-2015”

In rapidly rising interest rate environments, while capital will be preserved in a bond ladder due to holding bonds to maturity, it’s certainly likely the portfolio’s yield will lag behind prevailing yields. It is for this reason that we believe a well-constructed bond portfolio will supplement a bond ladder with floating rate bonds like Treasury Inflation Protected Securities and corporate

floating rate bonds. Unlike traditional bonds, these bonds simply pay an interest rate that changes each year based upon changes in interest rates. Floating rate bonds pay a lower yield compared to their fixed rate peers at issue, but they can help a portfolio's yield keep better pace with yields in that rising rate environment.

Mutual Funds/ETF's

The bulk of a fixed income portfolio can be diversified into a bond ladder consisting of investment quality government, corporate and/or municipal bonds. However, a prudent fixed income investor will include other fixed income asset classes: high yield, international, floating rate, and TIPS (treasury inflation protected securities). Most portfolios wouldn't have the size to diversify positions into each of these asset classes, making it difficult to enjoy the normal benefits of such diversification (historically lower volatility with higher returns). If an account has adequate size, a multi sector separately managed account can allow an investor to partner with a manager that actually places the underlying bonds within

the client's account. This has the benefit of institutionally purchased positions versus sharing positions with other investors in a mutual fund.

If an account doesn't quite have that size, then an investor will need to choose funds or ETF's to diversify—with the important understanding not to sell during a period of volatility. In order to reduce the risks discussed in this paper of bonds, follow these guidelines for funds: meaningful cash position, highly experienced bond manager, good relationships with multiple institutional trading desks, and limited number of highly illiquid positions. Follow these guidelines for ETPs: avoid any leverage within ETFs, avoid any futures contracts within ETFs, choose fund highly traded with limited bid/ask spreads, and choose funds sponsored by large well established institutions with bond desks. It is especially important as discussed previously that both mutual funds and ETF's are held—not sold in times of limited liquidity in spite of likely large value fluctuations.

Conclusion

While it is certainly arguable whether or not fixed income currently trades in a bubble, clearly there are more risks to fixed income today than previous years due to historically low rates, increased volatility, and limited liquidity. Investors are not likely to have the tailwind of falling interest rates, and will be more dependent than ever on yield alone to fund their retirement goals—unfortunately, in a low yield environment. Given the importance of fixed income to retiree's portfolios, we believe it is more important than ever to implement strategies to counteract these risks should a crisis again hit the bond market. Investing strategies such as bond ladders and other forms of fixed income diversification like floating rate bonds and nontraditional holdings could materially reduce these risks while maintaining overall investment objectives for conservative minded investors. Additionally, we would argue such diversification likely will improve investor returns and sustainable distribution rates, especially in rising rate environments. Risks include,

but are not limited to, changes in interest rates, liquidity, credit quality, volatility, and duration.

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loss of principal. Prior to transacting in any security, please discuss the suitability, potential returns, and associated risks of the transactions(s) with your Financial Advisor. There is an inverse relationship between interest rate movements and bond prices. Generally, when interest rates rise, bond prices fall and when interest rates fall, bond prices rise. Therefore, bonds and bond funds will decrease in value as interest rates rise.

Treasury Inflation-Protected Securities (TIPS) provide protection against inflation. The principal increases with inflation and decreases with deflation, as measured by the Consumer Price Index. At maturity you are paid the adjusted principal or original principal, whichever is greater. Increases in TIPS principal value as a result of inflation adjustments are taxed as capital gains in the year they occur, even though these increases are not realized until the TIPS are sold or mature. Conversely, decreases in the principal amount due to deflation can be used to offset taxable interest income. High-yield bonds are not suitable for all investors. The risk of default may increase due to changes in the issuer's credit quality. Price changes may occur due to changes in interest rates and the liquidity of the bond. When appropriate, these bonds should only comprise a modest portion of your portfolio. While interest on municipal bonds is generally exempt from federal income tax, it may be subject to the federal alternative minimum tax, or state or local taxes. In addition, certain municipal bonds (such as Build America Bonds) are issued without a federal tax exemption, which subjects the related interest income to federal income tax. Municipal bond investments may involve market risk if sold prior to maturity, credit risk and interest rate risk. US government bonds and treasury bills are guaranteed by the US government

and, if held to maturity, offer a fixed rate of return and guaranteed principal value. US government bonds are issued and guaranteed as to the timely payment of principal and interest by the federal government. Treasury bills are certificates reflecting short-term (less than one year) obligations of the US government. You should consider the special risks with alternative investments including limited liquidity, tax considerations, incentive fee structures, potentially speculative investment strategies, and different regulatory and reporting requirements. You should only invest in hedge funds, managed futures or other similar strategies if you do not require a liquid investment and can bear the risk of substantial losses. There can be no assurance that any investment will meet its performance objectives or that substantial losses will be avoided. It is not possible to invest directly in an index. The S&P 500 is an unmanaged index of 500 widely held stocks.

Investors should consider the investment objectives, risks, and charges and expenses of mutual funds & ETFs carefully before investing. The prospectus contains this and other information about this investment. The prospectus is available from your advisor and should be read carefully before investing.