Creating a Fixed-Income Safety Net for Your Portfolio

INSIGHT WEALTH MANAGEMENT

Presentation by
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to the

American Association of Individual Investors
Research Triangle Chapter

June 10, 2017

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Creating a Fixed-Income Safety Net for Your Portfolio

Bob Pugh, CFA, CFP® Brief Biography

- President, Insight Wealth Management. Inc., an independent Registered Investment Adviser in Gainesville, VA, providing fee-only wealth and investment management, and financial planning services to individuals, families, businesses and non-profit organizations since 2005. Member of the Schwab Advisor Services network of select independent advisors for custody and brokerage of client assets.
- National Association of Personal Financial Advisors (NAPFA) – member and Registered Financial Advisor (www.napfa.org), member of the Financial Planning Association (www.fpanet.org), CFA Institute (www.cfainstitute.org) and the National Association for Business Economics (www.nabe.com). Member of American Mensa, and former Testing Coordinator and Public Relations Officer for the Metropolitan Washington Mensa chapter (www.mwm.org).
- President of the CFA Society of Washington, DC, 2005 to 2007, and Eastern Region Presidents Council Representative, CFA Institute, 2009 to 2011.
- Over twenty-five years of experience as an economist, financial educator and analyst, portfolio manager, and personal financial planner in the private and public sectors. Experience includes serving as an economic analyst with the Central Intelligence Agency, director of investment research at another firm, and senior financial analyst in municipal government.
- Graduate degrees in global political economy from The Johns Hopkins University, School of Advanced International Studies, and in financial economics from the University of North Carolina at Greensboro
- Full-time and adjunct faculty member experience with numerous colleges and universities, including nine years as a member of the Practitioner Faculty in Finance with The Johns Hopkins University's (JHU) Carey School of Business, and with the JHU School of Medicine, teaching graduate-level courses in investment analysis, portfolio management, and corporate finance, and continuing education in the Business of Medicine program. Currently teach Level III CFA Exam review courses for the CFA Society of Washington, DC and the World Bank. Have taught CFA Exam review for Fidelity, Merrill Lynch and other organizations.
- Community Volunteer, including serving as President of the Prince William Symphony Orchestra for four years, Lay Speaking Minister in the Virginia United Methodist Conference, and over twelve years of service with the Virginia Cooperative Extension's Personal Finance Program in Prince William County. Currently a board member appointed by the Prince William County, Virginia Board of Supervisors of the Health Systems Agency of Northern Virginia.
- Contact information available at www.insightwealth.com

Selected Data Sources

S&P Dow Jones Indices

https://us.spindices.com/indices/equity/sp-500

Federal Reserve Bank of St. Louis, Federal Reserve Economic Data (FRED)

https://research.stlouisfed.org/fred2/

Charts in this presentation were generated using FRED

Overview

- Introduction
- Assessing Risk Tolerance and Determining an Appropriate Allocation to Fixed-Income in Your Portfolio
- Managing Risk in Your Portfolio with a focus on fixed-income
- Structuring the Fixed-Income Allocation in Your Portfolio Using Individual Bonds and ETFs
- Questions and Answers

Introduction

Investing (as opposed to speculation and gambling) is first and foremost about managing risk. Determine your tolerance for investment risk, then structure a portfolio to generate as much return as possible without exceeding that risk threshold.

Risk tolerance is composed of both an investor's ability (objectively measured) and willingness (psychological and emotional) to accept risk in their portfolio.

Assessing Your Risk Tolerance

- **Questionnaires** – Can be useful but are inadequate for a complete risk assessment.
- **Traditional Finance** – Mean-variance optimization is an important part of professional portfolio management but fails to reflect the financial planning needs of individuals. Mostly a theoretical tool.
- **Probability of Losing Money** – Some measures exist for this, such as Value at Risk, Monte Carlo simulations, the Safety First Criterion, etc. These measures are useful as part of a broader assessment of risk tolerance but have theoretical limitations that reduce their value for practical applications.
- All of the above three approaches to assessing risk provide useful information and can enhance an investor's understanding of risk.

Assessing Your Risk Tolerance

Financial Planning Approach

- **Project Income Needed from Your Portfolio** – How much will you need to withdraw from your portfolio in one, five, ten, twenty years? Consider other sources of income such as pensions, Social Security, etc. How much total income from all sources will you need for retirement, children's education, etc? Investment portfolio income fills the gap.

- **Rules of Thumb** (vary with each individual)

  - Income from portfolio needed within five years should be invested very safely – Federally insured bank accounts, Certificates of Deposit, short-term government and investment-grade corporate bonds.

  - Income from portfolio needed within six to ten years should be invested with only moderate risk – longer maturity or somewhat lower credit bonds, large-cap U.S. stocks.

  - Once these income needs are satisfied, the remaining assets in the portfolio can be invested more aggressively.

Managing Risk in Your Portfolio

- **Market Timing –** Doesn't work. Manage your portfolio this way and you might be living in your kids' basement in retirement.
- **Derivatives –** Good tools to manage risk but should be used only by professionals who know what they are doing. Do not try this at home without adult supervision. Risk management strategies using derivatives can be very expensive for individual portfolios as well.
- **Annuities –** See next slide.
- **Asset Allocation and Diversification–** This is the best approach.

Managing Risk in Your Portfolio

Annuities

- **Variable and Index Annuities** – Most people should avoid these products like the Ebola virus. From a consumer's perspective, they are among the worst products ever conceived. From a salesman's perspective, they are pots of gold.

- **Standard Fixed Immediate and Deferred Annuities** – Have a place in portfolio management but usually not the best choice.
  - Can lock in a fixed stream of income, however,
  - Excessive default risk because entire investment is with a single company.
  - Liquidity risk.
  - Fees.
  - Payout based on current yields, which now are historically relatively low.
  - No inflation adjustment.
  - No residual value upon annuitant's death.

Managing Risk in Your Portfolio

Asset Allocation and Diversification

- **Determine Appropriate Allocation Targets** – Based on assessment of risk tolerance allocate to various asset classes. Analytical techniques such as mean-variance optimization are useful but start with the financial planning and cash flow projection approach.
- **Implement** – Invest diversified exposure to each asset class targeted.
- **Monitor** – Regularly measure actual exposure to asset classes relative to your targets.
- **Rebalance** – Sell from asset classes with exposure above targeted level and buy to bring underexposed asset classes up to targeted level.
- **Update** – Periodically review your asset class targets for changes in market expectations and your personal situation.
- **Effect** – This is a buy low and sell high strategy.

Managing Risk in Your Portfolio

(note: asset class correlations are needed for mean-variance analysis but are not provided in the table below)

Asset Classes as Defined by Morningstar		
	Morningstar/Ibbotson Associates Market Expectations, January 2017	
	Return	Std. Dev.
US Large-Cap Growth Stocks	6.03	17.05
US Large-Cap Value Stocks	7.89	15.44
US Mid-Cap Growth Stocks	7.93	21.65
US Mid-Cap Value Stocks	10.09	16.60
US Small-Cap Growth Stocks	6.81	23.29
US Small-Cap Value Stocks	10.86	18.90
Non-US Developed Market Stocks	8.67	17.43
Non-US Emerging Market Stocks	11.87	28.73
US Taxable Long-Term Bonds (greater than 10 years)	4.63	15.27
US Taxable Intermediate-Term Bonds (5 to 10 years)	3.50	5.31
US Taxable Short-Term Bonds (0 to 5 years)	2.84	2.32
US Inflation Protected Bonds	3.94	9.79
US Tax-Exempt Bonds	2.64	6.15
US High Yield Bonds	6.58	9.61
Non-US Developed Market Bonds	3.44	9.40
Non-US Emerging Market Bonds	6.00	10.78
Cash	1.94	1.89
Real Estate	7.60	23.12
Commodities	4.47	27.25

Two Primary Risks of Fixed-Income Investing

- **Interest Rate Risk** – Yield and bond market value are inversely related. As yields rise, the market value of a bond falls, and vice-versa. The longer the bond's maturity (or duration) the greater the interest rate risk.

- **Default Risk** – Risk that the bond will not make interest and/or principal payments as promised to the investor.

Interest rate risk

- Risk of changes in the market value of bonds because of fluctuations in interest rates.
- Bonds held to maturity (assuming no default) have no interest rate risk to their capital value because they will be redeemed at par value.
- All coupon bonds, even those held to maturity, are subject to coupon reinvestment risk.

Structuring the Fixed-Income Allocation in Your Portfolio

Bond Duration

- Weighted average of the times until the investor receives each payment (coupons and principal).
- Measures interest rate risk, or a bond's sensitivity to changes in market yields.
- A coupon bond's duration is less than its maturity because of coupon payments received prior to maturity. The duration of a zero-coupon bond is equal to its maturity.
- Similar function (but calculated differently) to how beta measures a stock's sensitivity to equity market risk.
- Example: A ten-year maturity coupon bond with a duration of eight will lose an estimated eight percentage points of market value given a one percentage point increase in the ten-year yield (and vice-versa for a yield decline).

Default (Credit Risk)

- Corporate bonds carry a risk of default that Treasuries do not.
- They therefore must offer a default premium, which is the difference between the promised yield and the yield on a Treasury of comparable maturity.
- This default premium compensates the investor for taking on the extra risk.

Bond Ratings

- **Investment grade bond** - A bond rated BBB and above by S&P or Baa and above by Moody's.

- **Speculative grade or junk bond** - A bond rated BB or lower by S&P, Ba or lower by Moody's, or an unrated bond.

Bonds versus Bond Funds

- Investments in individual bonds rather than bond funds are:
  - Cheaper (avoid recurring fund expenses).
  - Offer more control.
  - Provide better protection from interest rate risk – hold the bond until maturity and investors get par value regardless of yield changes.

Bonds versus Bond Funds

- Investments in bond funds rather than individual bonds are:
  - Better diversified.
  - Usually more liquid.
  - Carry more interest rate risk because funds do not mature.

Structuring the Fixed-Income Allocation in Your Portfolio

Bond Characteristics

- **Face value, par value** - The payment to the bondholder at the maturity of the bond.
- **Coupon rate** - A bond's annual interest payment per dollar of par value.
- **Zero-coupon bond** - A bond paying no coupons that sells at a discount and provides only a payment of par value at maturity.
- **Callable bonds** - Bonds that may be repurchased by the issuer at a specified call price during the call period.
- **Convertible bond** - A bond with an option allowing the bondholder to exchange the bond for a specified number of shares of common stock in the firm.
- **Puttable bond** - A bond that the holder may choose to exchange for par value at some date.
- **Floating-rate bonds** - Bonds with coupon rates periodically reset according to a specified market rate.
- **Reverse-floaters** - Bonds with coupon rates periodically reset inversely according to a specified market rate.
- **International bonds** – foreign bonds (government and private) and Eurobonds.

Bond Valuation

- Straight, bullet bonds are priced as the present value of the coupon payments plus the present value of the bond's par value.
- Most bonds are straight, bullet bonds with no added features, meaning that the investor receives periodic coupon payments and the entire principal payment in a lump sum when the bond matures.
- Bonds with embedded options, such as call provisions and convertibility features, are more difficult to value – the embedded options must be valued as well as the underlying straight bond.

Bond Yields

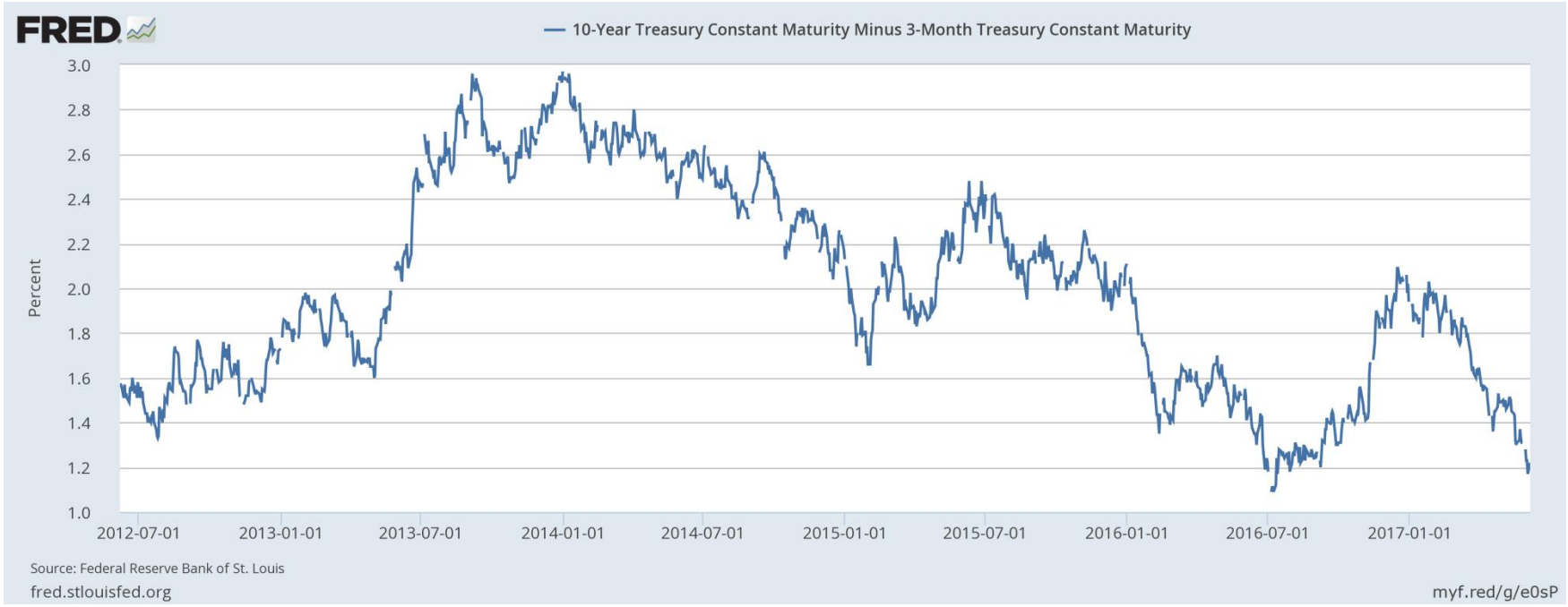
- **Yield to maturity (YTM) -** The discount rate that makes the present value of a bond's payments equal to its price. Use a spreadsheet or calculator to solve for YTM.
- **Current yield -** Annual coupon payment divided by the bond's market price (not par value).
- **Yield to call -** Actual call is never known. The risk to the holder is that interest rates will drop and the bond will be called. Usually calculate "yield to first call," which assumes the bond will be called on the first possible date.
- **Yield to worst** – Worst possible yield given various call scenarios.

Yield Curve

- The term structure of interest rates (graphed as the yield curve) is the relationship between yields to maturity and terms to maturity across bonds
  - Flat
  - Rising (Normal)
  - Inverted
  - Humped

Structuring the Fixed-Income Allocation in Your Portfolio

Yield Curve



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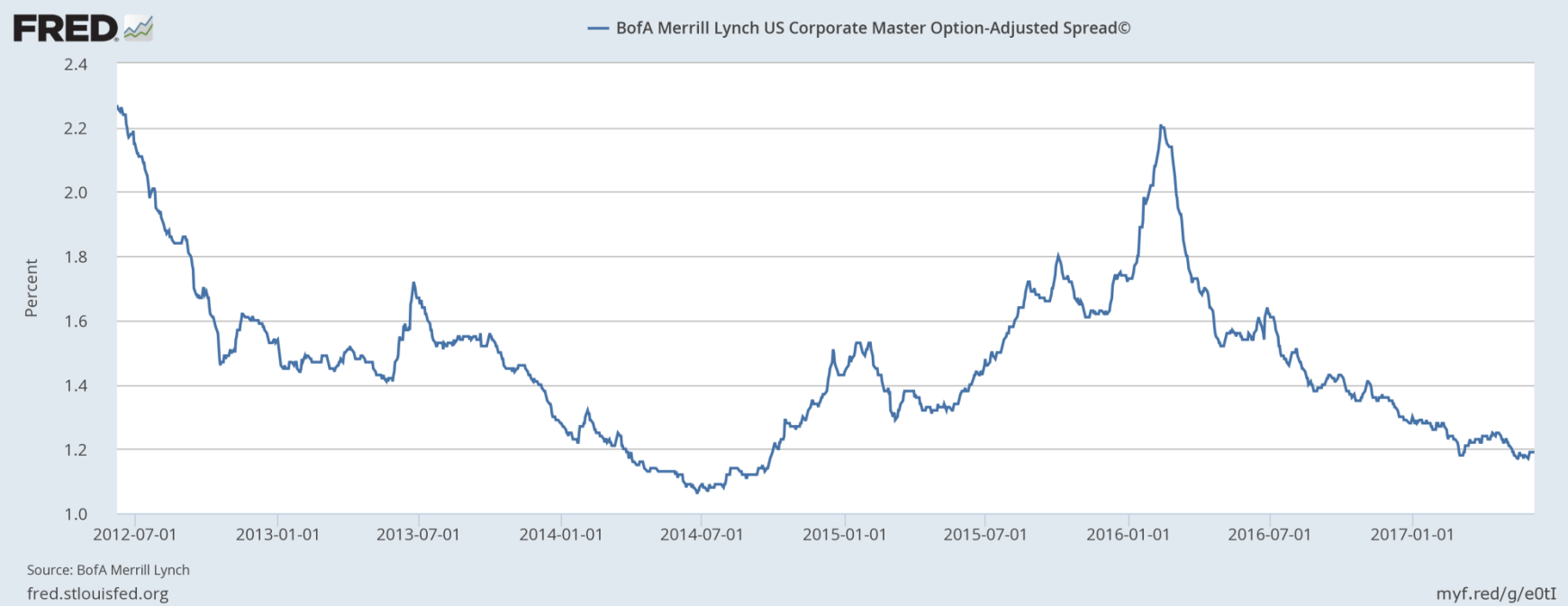
Spreads



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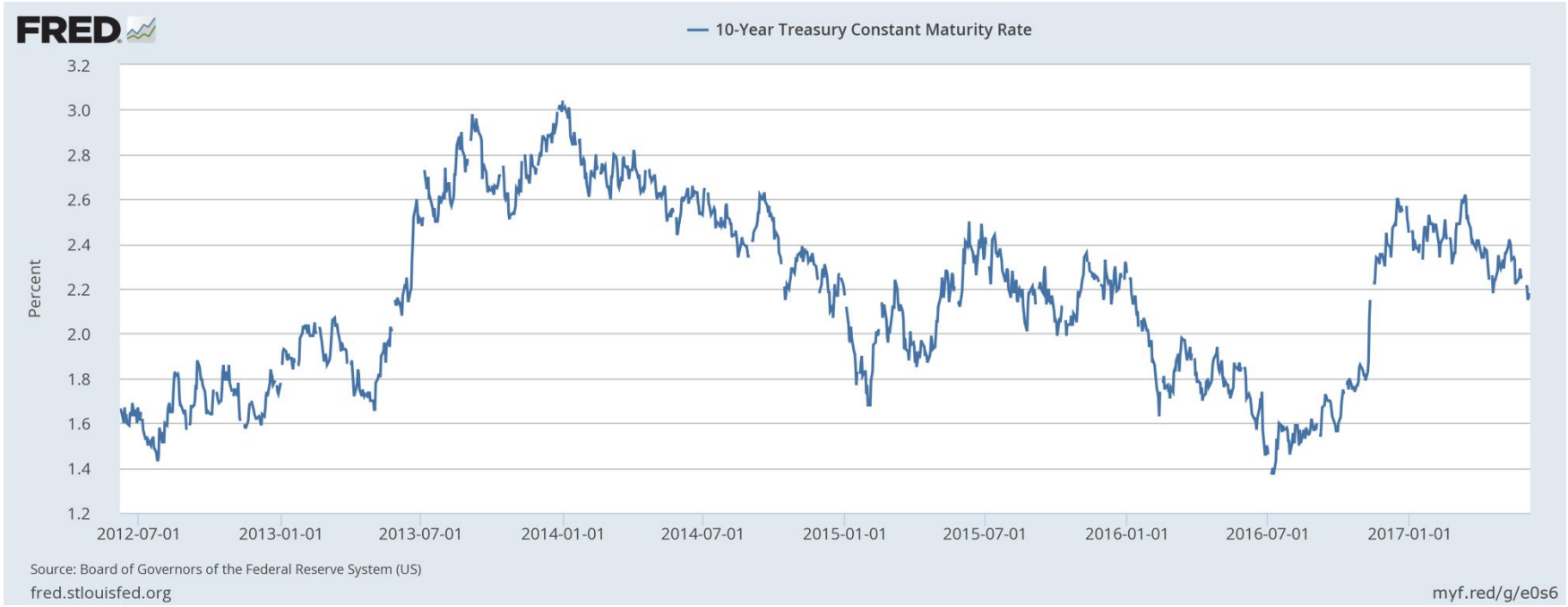
Current Yields



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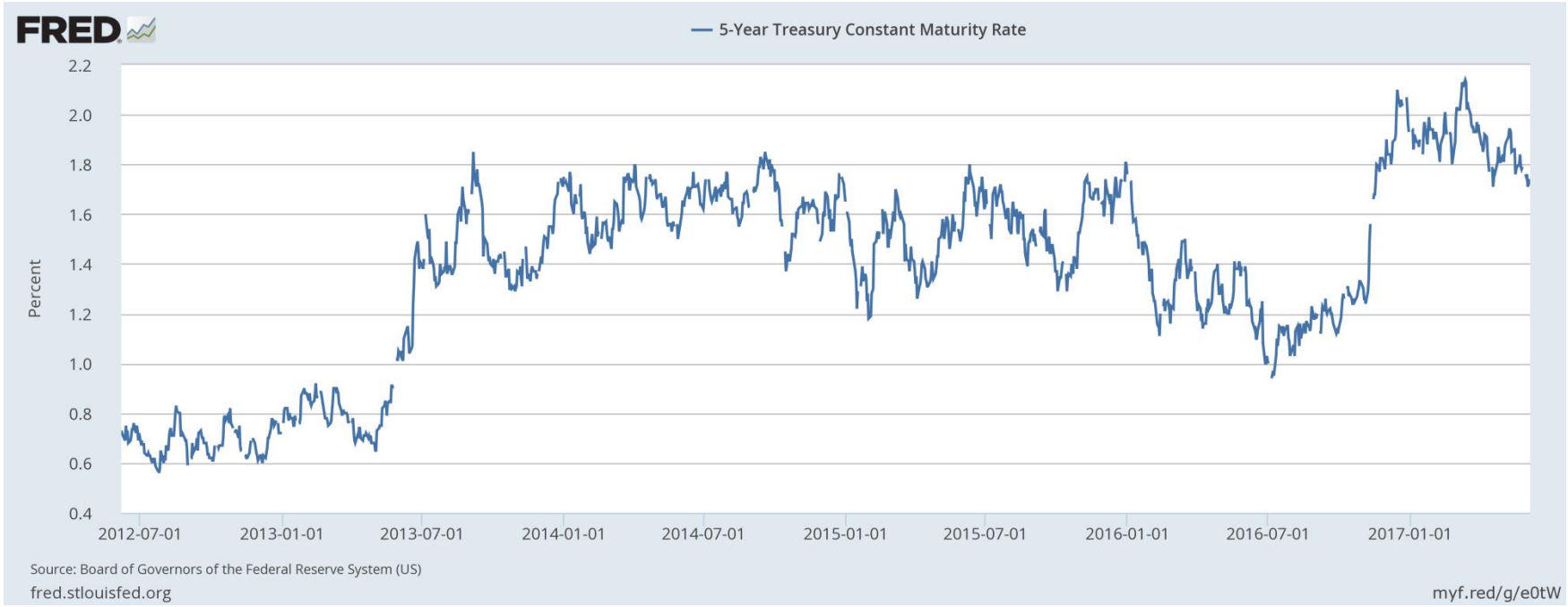
Current Yields



Current Yields

(from Schwab Advisor Services Trading , June 7, 2017)

Instruments	3MO	6MO	9MO	1YR	2YR	3YR	5YR	10YR	20YR	30YR+
CDs										
Fixed Rate New-Issue Non-Callable	1.155	1.204	1.252	1.400	1.700	1.900	2.350	2.750	----	----
Fixed Rate New-Issue Callable	----	----	----	----	----	1.800	2.100	2.850	3.150	3.200
Stepped-Rate Coupon	----	----	----	----	1.625	----	2.450	----	3.690	----
BONDS										
U.S. Treasuries	1.000	1.149	1.181	1.251	1.355	1.480	1.760	2.159	2.567	2.831
U.S. Treasury Zeros	0.693	1.010	1.086	1.208	1.343	1.418	1.829	2.324	2.782	2.916
Government Agencies	0.873	1.163	1.235	1.374	1.591	1.686	2.071	3.103	3.559	3.644
Corporates (AAA)	----	----	----	1.272	1.517	1.463	----	2.771	3.525	4.160
Corporates (AA)	----	0.890	1.133	1.311	1.744	1.789	2.156	2.828	3.812	4.712
Corporates (A)	----	1.155	1.368	1.693	2.109	2.205	2.654	3.724	4.345	5.149
Municipals (AAA)	----	0.570	0.827	1.287	1.971	1.817	2.393	3.197	3.435	3.701
Municipals (AA)	0.357	0.867	1.078	1.877	2.603	2.966	3.330	4.139	4.074	4.741
Municipals (A)	0.594	1.050	1.078	1.877	2.702	2.966	3.330	4.139	4.267	4.741
*Tax Equiv. Muni AAA	----	0.877	1.272	1.980	3.032	2.795	3.682	4.918	5.285	5.694

Structuring the Fixed-Income Allocation in Your Portfolio

Calculating Bond Yield and Price in Excel

YIELD(settlement date, maturity date, annual coupon rate, bond price, redemption value, frequency)

PRICE(settlement date, maturity date, annual coupon rate, yield, redemption value, frequency)

- **Settlement Date** is the security's settlement date. The security settlement date is the date after the issue date when the security is traded to the buyer.
- **Maturity Date** is the security's maturity date. The maturity date is the date when the security expires.
- **Annual Coupon Rate** is the security's annual coupon rate.
- **Bond Price** is the security's price per $100 face value.
- **Yield** is the security's annual yield.
- **Redemption Value** is the security's redemption value per $100 face value.
- **Frequency** is the number of coupon payments per year. For annual payments, frequency = 1; for semiannual, frequency = 2; for quarterly, frequency = 4.

Structuring the Fixed-Income Allocation in Your Portfolio

Buying Bonds

- See the accompanying PDF files with the sample security descriptions and trading histories

Structuring the Fixed-Income Allocation in Your Portfolio

Invoice price

- Price the buyer actually pays, which equals the stated price plus accrued interest (days elapsed since last payment/182 times semiannual coupon)

Structuring the Fixed-Income Allocation in Your Portfolio

Passive Bond Portfolio Strategies

Indexing – similar to indexing stock portfolios but bond indexes contain many more securities than do most stock indexes, which makes replication much more difficult. Also, as bonds mature, they are dropped from index, and new bonds added (unlike stocks).

Immunization – Classical immunization is a strategy to shield fixed-income assets from interest rate risk. It is done by setting the duration of a bond portfolio equal to its time horizon. In an immunized bond portfolio the effects of rising rates reducing the capital value of the bonds, and increasing the return on reinvestment of coupon payments, exactly offset each other, and vice-versa.

Rebalancing - The problem with duration-based strategies is that the duration of assets changes as interest rates change and time progresses toward maturity of the fixed-income assets. Therefore, in theory, portfolios would need to be rebalanced constantly for the strategies to be effective.

Cash flow matching - Matching cash flows from a fixed-income portfolio with a future liability. Since fixed-income assets mature at par value this strategy does not depend on duration and is not subject to interest rate risk.

Laddering - Multiperiod cash flow matching, sometimes called, “laddering.”

Structuring the Fixed-Income Allocation in Your Portfolio

Active Bond Portfolio Strategies

Substitution swap - Exchange of one bond for a bond with similar attributes but more attractively priced. Based on the assumption that the yield relationship between the bonds is only temporarily out of alignment.

Intermarket spread swap - Switching from one segment of the bond market to another. Based on the assumption that the yield relationship between the segments is only temporarily out of alignment.

Rate anticipation swap - A switch made in response to forecasts of interest rate changes.

Pure yield pickup swap - Moving to higher yield bonds, usually with longer maturities, "riding the yield curve."

Tax swap - Swapping two similar bonds to receive a tax benefit.

Horizon analysis - Forecast of bond returns based largely on a prediction of the yield curve at the end of the investment horizon.

Contingent immunization - A strategy that immunizes a fixed-income portfolio if necessary to guarantee a minimum acceptable return but otherwise allows active management.

Structuring the Fixed-Income Allocation in Your Portfolio

Summary

- Assess your tolerance for market risk based largely on your future cash flow needs, but consideration of other techniques provides useful information for your decision-making also.

- Allocate your portfolio to ensure that you have safe investments to provide income when needed, and to allow you time to recover from equity market declines without needing to sell at a loss.

- Keep it simple and inexpensive. We've surveyed some complicated bond strategies but most individual investors will not use those. A combination of low-cost, index bond funds and individual bonds laddered to mature when the investor needs cash is the best approach for most people. High-expense mutual funds and annuities will hinder your ability to achieve the long-term returns you need.

Questions?

INSIGHT WEALTH MANAGEMENT

Bob is available for a free, no-obligation initial consultation and portfolio review.

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