



THE BOND MARKET

Bonds or Bond Funds?

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Two Questions

- Why Invest in Bonds in the First Place?
 - Portfolio Diversification across Asset Classes
 - Insurance – *But only Kind of*
- What are the Pros and Cons of Bonds vs. Bond Funds?
- First, some background

Some Assumptions & Background

- Assume we are restricted to 2 asset classes: Stocks and Bonds
- The essential difference between stocks and bonds is the relative certainty of expected future cash flows
- The Implicit trade-off is between Risk (Volatility) and Expected returns (Exp R)
- All Else Equal: Bond cash flows have greater certainty but at the price of reduced expected returns
- Inflation and inflation expectations should be factored in

Measuring Risk Across Asset Classes

Source: Yahoo Finance



Sources of Risk Within Bond Asset Classes

- Inflation, Inflation, Inflation
 - Affects all bonds
 - Some bonds are “inflation proofed”
 - TIPs and Floaters...
- Duration / Maturity
 - Price volatility rises with duration
 - Yield volatility falls with duration
 - Considering the DV01 of a bond
- Credit & Liquidity
 - Note: Credit can be expressed as insurance model: $PD \times LGD = Rating$
 - Treasuries & Agencies...Highly liquid (esp. Treasuries) and Top Credits
 - Corporates—Better quality credits are more liquid
 - Range from **Investment Quality** to **Junk**. **AAA...BBB** / **BB...CCC**
 - Tax Exempts—tend to be very illiquid
- Tax
 - Tax-exempts are highly sensitive to changes in marginal rates

Global Ratings Scale

Global Long-Term Rating Scale

Aaa Obligations rated Aaa are judged to be of the highest quality, subject to the lowest level of credit risk.

Aa Obligations rated Aa are judged to be of high quality and are subject to very low credit risk.

A Obligations rated A are judged to be upper-medium grade and are subject to low credit risk.

Baa Obligations rated Baa are judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics.

Investment Grade

Ba Obligations rated Ba are judged to be speculative and are subject to substantial credit risk.

Junk Bonds

B Obligations rated B are considered speculative and are subject to high credit risk.

Caa Obligations rated Caa are judged to be speculative of poor standing and are subject to very high credit risk.

Ca Obligations rated Ca are highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest.

C Obligations rated C are the lowest rated and are typically in default, with little prospect for recovery of principal or interest.

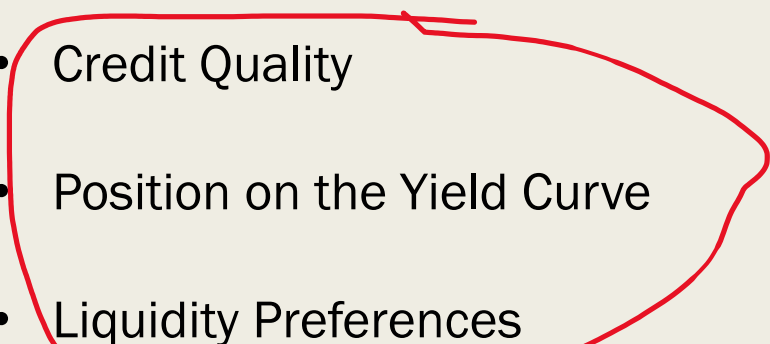
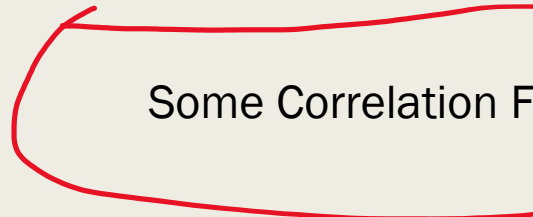
Data Source: Moody's

Price / Quality Trade Off

Graph is for illustrative Purposes Only



Determinants of Bond Prices

- Treasury Securities are the Benchmark!
 - **All other bonds trade as a spread to Treasuries**
 - Spreads can (and do) vary with economic conditions
 - Inflation Expectations are extremely important
 - Credit Quality
 - Position on the Yield Curve
 - Liquidity Preferences
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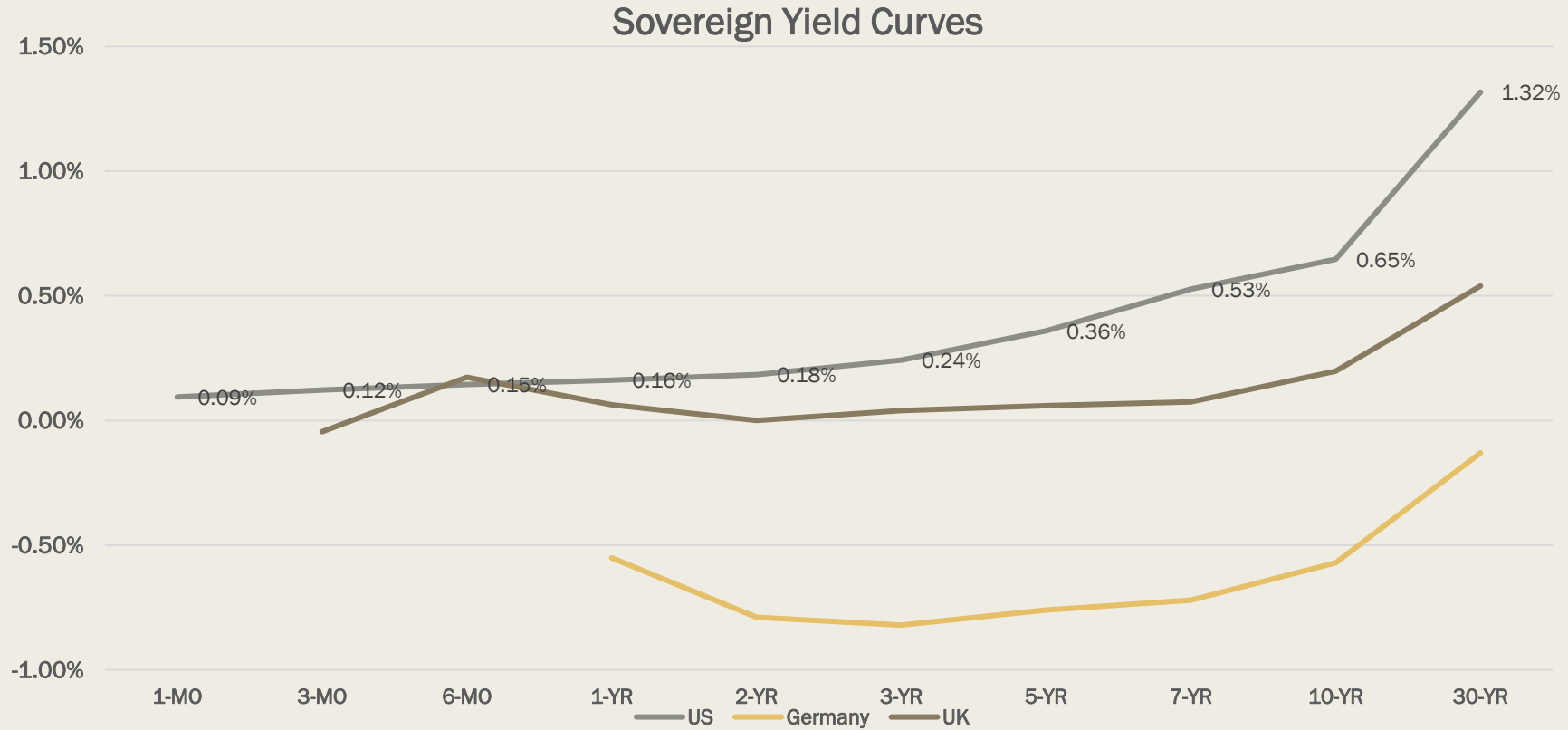
Understanding DV01s: The Tool that All Professional Bond Traders Use

DV01s

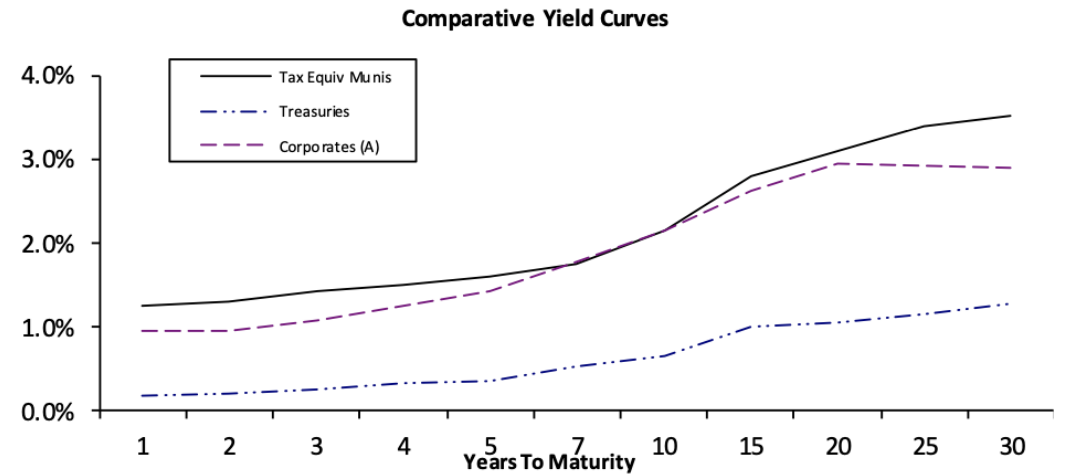
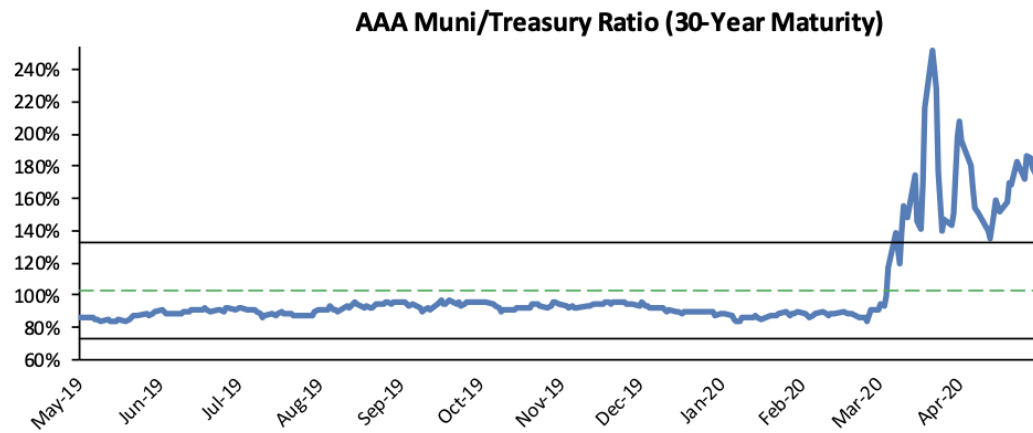
Coupon	Maturity	YTM	Price
2.000%	2/15/25	0.360%	107.7653
2.000%	2/15/25	0.370%	107.7160
		DV01	0.0494
		Per 1 MM	\$493.86
1.500%	2/15/30	0.640%	108.1403
1.500%	2/15/30	0.650%	108.0415
		DV01	0.0987
		Per 1 MM	\$987.42

10 TR Vol /5 YR Vol ~ 2

The Yield Curve as an Expression of Risk Preferences



Credit Curves



Source: Raymond James

Buying Individual Bonds: **Pros** & **Cons**

Pros

1. You know what you own
2. Specific Coupon & Maturity (or call)
3. Riding down the curve
4. Absence of ongoing fees
5. Transaction costs are small
FOR TREASURIES

Cons

Except for Treasuries:

1. Liquidity can be problematic for small sizes (under \$100,000 par value)
2. Lack of diversification
3. Lack of transparency
4. High Transaction costs
5. Liquidity and Transparency tend to be issuer dependent

Bond ETFs and Mutual Funds: **Pros** & **Cons**

Pros

1. Ease of execution
2. (Some) Diversification
3. Liquidity
4. Transaction costs generally low

Cons

1. You don't really know what you own—especially with actively managed funds
2. Understanding fund credit quality can be difficult—credit rating relationships are non-linear
3. Fund pricing can be problematic
4. There may be a liquidity illusion—particularly with tax exempts
5. Fee structures can be onerous

An Example: LQD

INVESTMENT OBJECTIVE

The iShares iBoxx \$ Investment Grade Corporate Bond ETF seeks to track the investment results of an index composed of U.S. dollar-denominated, investment grade corporate bonds.

Fees

as of current prospectus

Management Fee	0.15%
+Acquired Fund Fees and Expenses ⓘ	0.00%
+Foreign Taxes and Other Expenses	0.00%
=Expense Ratio ⓘ	0.15%

Portfolio Characteristics

Equity Beta (3y) ⓘ as of Mar 31, 2020	0.18	Standard Deviation (3y) ⓘ as of Mar 31, 2020	6.40%
12m Trailing Yield ⓘ as of May 07, 2020	3.22%	30 Day SEC Yield ⓘ as of May 07, 2020	2.76%
Weighted Avg Coupon ⓘ as of May 07, 2020	4.08%	Effective Duration ⓘ as of May 07, 2020	9.27 yrs
Weighted Avg Maturity ⓘ as of May 07, 2020	13.41 yrs	Convexity ⓘ as of May 07, 2020	1.44
Option Adjusted Spread ⓘ as of May 07, 2020	207	Average Yield to Maturity ⓘ as of May 07, 2020	2.80%

5%

LQD: Key Facts

Key Facts

Net Assets as of May 07, 2020	\$45,566,046,709	Inception Date	Jul 22, 2002
Exchange	NYSE Arca	Asset Class	Fixed Income
Benchmark Index	Markit iBoxx USD Liquid Investment Grade Index	Bloomberg Index Ticker	IBOXIG
Shares Outstanding as of May 07, 2020	357,400,000	Number of Holdings ⓘ as of May 07, 2020	2,136
Premium/Discount ⓘ as of May 07, 2020	-0.23%	CUSIP	464287242
Closing Price as of May 08, 2020	126.66	Mid-Point Price ⓘ as of May 08, 2020	126.75
Options Available	Yes	20 Day Avg. Volume ⓘ as of May 08, 2020	12,558,067.55
Daily Volume ⓘ as of May 08, 2020	12,287,236.00		

LQD: How Diversified is it Really?

Holdings

23.7% of Holdings

Top Issuers

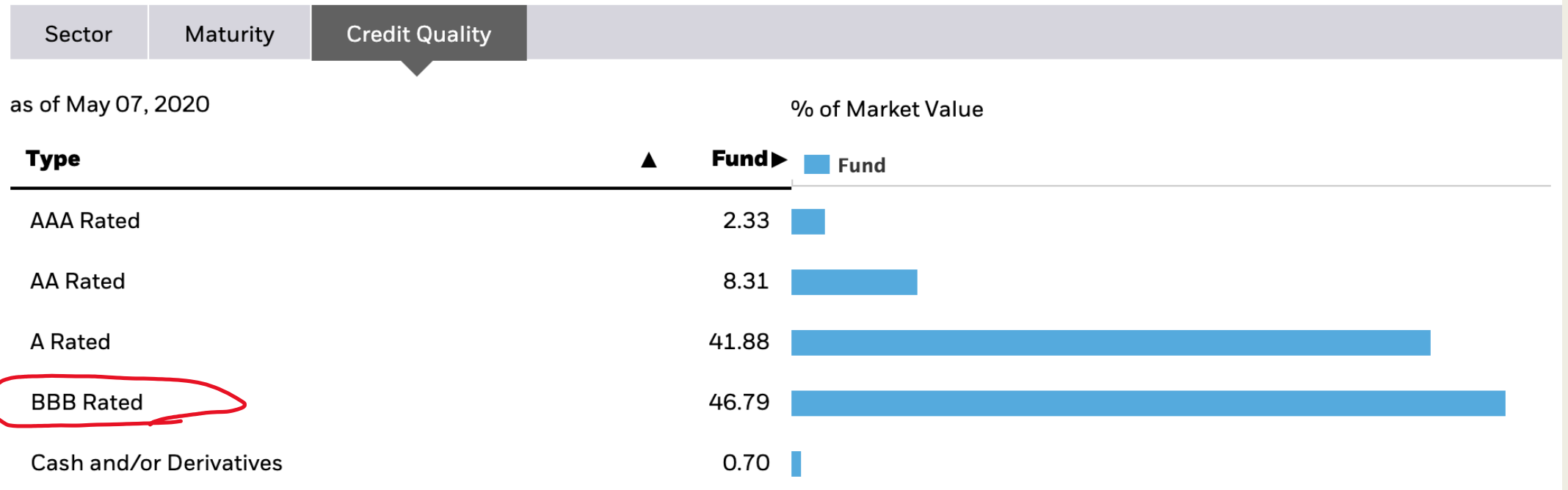
Top 10

All

as of May 07, 2020

Issuer	Weight (%)	Issuer	Weight (%)
BANK OF AMERICA CORP	2.99	CITIGROUP INC	2.20
JPMORGAN CHASE & CO	2.78	VERIZON COMMUNICATIONS INC	2.01
WELLS FARGO & COMPANY	2.35	GOLDMAN SACHS GROUP INC/THE	1.96
AT&T INC	2.31	MORGAN STANLEY	1.94
COMCAST CORPORATION	2.23	APPLE INC	1.90

LQD Credit Quality



Credit quality ratings on underlying securities of the fund are received from S&P, Moody's and Fitch and converted to the equivalent S&P major rating category. This breakdown is provided by BlackRock and takes the median rating of the three agencies when all three agencies rate a security, the lower of the two ratings if only two agencies rate a security, and one rating if that is all that is provided. Unrated securities do not necessarily indicate low quality. Below investment-grade is represented by a rating of BB and below. Ratings and portfolio credit quality may change over time.

Note: Credit Agencies Rate Some Bond Funds

Bond Fund Ratings

Bond Fund Ratings are opinions of the maturity-adjusted credit quality of investments within mutual funds and similar investment vehicles that principally invest in fixed income obligations. As such, these ratings primarily reflect Moody's assessment of the creditworthiness of the assets held by the fund, adjusted for maturity. Other risks, such as liquidity, operational, interest rate, currency and any other market risk, are excluded from the rating. Bond fund ratings specifically do not consider the historic, current, or prospective performance of a fund with respect to appreciation, volatility of net asset value, or yield.

Bond Fund Rating Scale

Aaa-bf Bond Funds rated Aaa-bf generally hold assets judged to be of the highest credit quality.

Aa-bf Bond Funds rated Aa-bf generally hold assets judged to be of high credit quality.

A-bf Bond Funds rated A-bf generally hold assets considered upper-medium credit quality.

Baa-bf Bond Funds rated Baa-bf generally hold assets considered medium credit quality.

Ba-bf Bond Funds rated Ba-bf generally hold assets judged to have speculative elements.

B-bf Bond Funds rated B-bf generally hold assets considered to be speculative.

Caa-bf Bond Funds rated Caa-bf generally hold assets judged to be of poor standing.

Ca-bf Bond Funds rated Ca-bf generally hold assets that are highly speculative and that are likely in, or very near, default, with some prospect of recovery of principal and interest.

C-bf Bond Funds rated C-bf generally hold assets that are in default, with little prospect for recovery of principal or interest.

Summary & Conclusion

1. For Treasury Security Investments it's probably best to buy individual bonds at auction. Most brokers will do that for free.
2. For corporate and municipal bonds it's probably best to buy a large mutual fund that replicates a major bond Index.
3. There are several potential pitfalls that should be monitored—particularly the distribution of credit quality, distribution of maturities, Fee structure & especially Leverage
4. For municipals, national funds are probably safer than state specific funds.
5. In general would stick to passive index funds and avoid actively managed funds
6. I am skeptical of funds that employ leverage

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