



Bond ETF Research

Bond ETFs are a great way to get exposure to fixed income without needing to consistently overlook your holdings for rebalancing maturities, quality, diversification, etc. In today's financial markets though there are so many products out there so how do we find out what's best for us individually?

Considering that everyone reading this document is a retail investor, including ourselves, it is in our best interest to own ETFs when it comes to fixed income. It is far too complex and expensive to buy outright bonds in individual companies, especially when most of us are not planning on eyeing up the investment every single day.

Now what questions do we have to ask ourselves when looking at these ETFs? Similar to equity ETFs, bond ETFs come in so many different shapes and forms and there are literally thousands of them out there.

We believe the best way to do this is to use the three requests we've received from three different subscribers on where they should be looking with regard to fixed income and specifically bonds.

Let's walk through what we know about each example:

Subscriber #1 (Rich):

Rich has told us the following:

- Looking at a 1-2 year horizon
- 40% portfolio allocation
- Risk: 5/10
- Open to international exposure
- Lives in Mexico and needs more capital appreciation than he does income distribution (monthly/quarterly payouts)

Given the above, there are many different products that would fit this criteria and a ton that won't. What will remain constant for every subscriber is our recommendation that ETFs are the best way for you to play the space.

Now let's dive in. We know that Rich wants to get a little risky but not too much and we also know that this is going to make up about 40% of his portfolio which is quite a large allocation.

With this in mind, we need to make sure he is getting some solid diversification amongst not only different maturities of bonds but also different types of bonds including corporate debt with a wide range of sector/industry/market cap exposure, domestic and international government bonds, etc. The tough thing about what Rich is looking for is that his risk isn't too high and he wants capital appreciation. This is tough because the less risky bonds offer less volatility and are owned for their monthly and quarterly payouts so our goal is to find some investments that have a little more volatility than a straight total market bond fund. Another thing we are thinking about is that this ETF should also be tailored a little more towards long-term bonds because Rich wants the capital to appreciate and therefore needs something more sensitive to changes in interest rates.

We don't know what else Rich owns in his portfolio currently and there are still a lot of open variables but here are some products we believe will help him begin his search.

Vanguard Intermediate-Term Corporate Bond ETF: VCIT

- VCIT offers exposure to investment grade corporate bonds that fall in the middle of the maturity spectrum, thereby delivering a moderate amount of both interest rate and credit risk. Like most Vanguard ETFs, VCIT is among the most cost-efficient in its category. VCIT is useful for investors looking to enhance fixed income returns but hesitant to lengthen duration too much.
- Expense Fee: 0.07%
- Yield: 4.01%
- Standard Deviation: 3.54%
- Holdings: 1,731
- Average Maturity: 7.3 years

Holding	Weighting ▼
AMAZON.COM INC	1.87%
WELLS FARGO & CO	1.84%
HSBC HOLDINGS PLC	1.82%
GENERAL MILLS INC	1.80%
DOW CHEMICAL CO	1.77%
MORGAN STANLEY	1.74%
UNION PACIFIC CORP	1.71%
ENTERGY LOUISIANA LLC	1.65%
MANULIFE FINANCIAL CORP	1.54%
KINDER MORGAN ENERGY PARTNERS LP	1.53%
MASTERCARD INC	1.52%
U.S. BANCORP	1.52%
STARBUCKS CORP	1.51%
REINSURANCE GROUP OF AMERICA INC	1.49%
INTERNATIONAL PAPER CO	1.49%

Portfolio composition

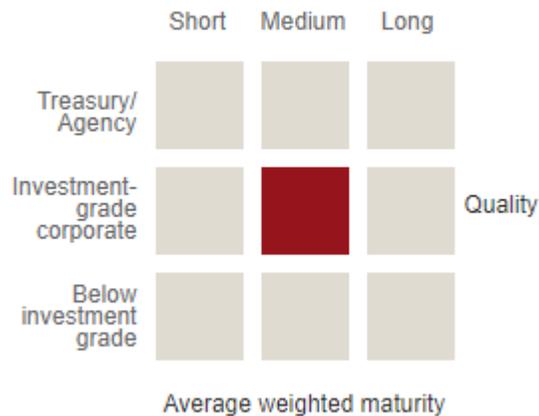
Distribution by credit quality† (% of fund)

as of 12/31/2018

	Inter-Term Corp Bond ETF
Aaa	1.4%
Aa	5.8%
A	37.3%
Baa	55.5%
Total	100.0%

VCIT isn't full-blown AAA/AA rated which means it is a bit riskier and this is what we'd assign to a 5/10 on risk rating especially when coupled with a longer duration (longer duration more risk).

Bond style



Things to note:

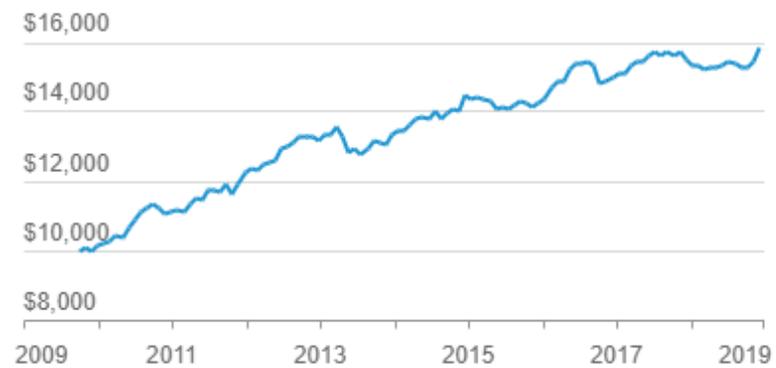
- A. Expense fee is extremely low
- B. Make sure you don't own too much stocks that are similar to the holdings of debt. For example, if the other 60% of Rich's holdings is made up of Amazon, Wells Fargo, HSBC, General Mills, and Morgan Stanley stock this might not be the best holding for you because it's not providing you with the amount of diversification you want or would like

to have. It's much wiser to spread the investments amongst different companies as opposed to holding the same companies' equity and debt.

C. Outperforming Peer - PFIG



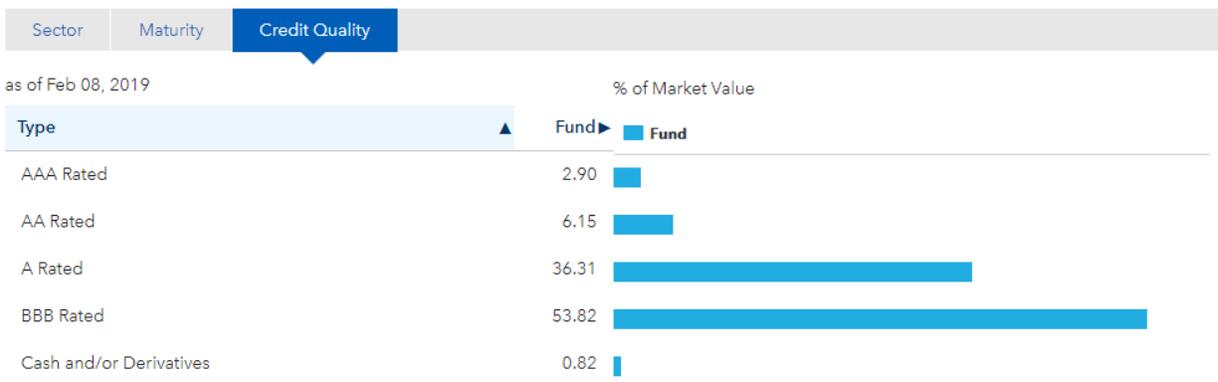
Hypothetical growth of \$10,000
as of 01/31/2019



iShares Long-Term Corporate Bond ETF – IGLB

- The iShares Long-Term Corporate Bond ETF seeks to track the investment results of an index composed of U.S. dollar-denominated investment-grade corporate bonds with remaining maturities greater than ten years.
- Expense Fee: 0.06%
- Yield: 4.5%
- Standard Deviation: 7.17%
- Holdings: 1,815
- Average Maturity: 23.2 years

So, IGLB is a really attractive product for a ton of reasons. One, it gives Rich a little more volatility and a little more yield than VCIT and it comes at a slightly lower and ultra-attractive expense ratio of 0.06%. The caveat is that the duration is kind of long at a 23-year average maturity but that's why there's more volatility in this product (longer duration = more sensitivity to changes in interest rates).

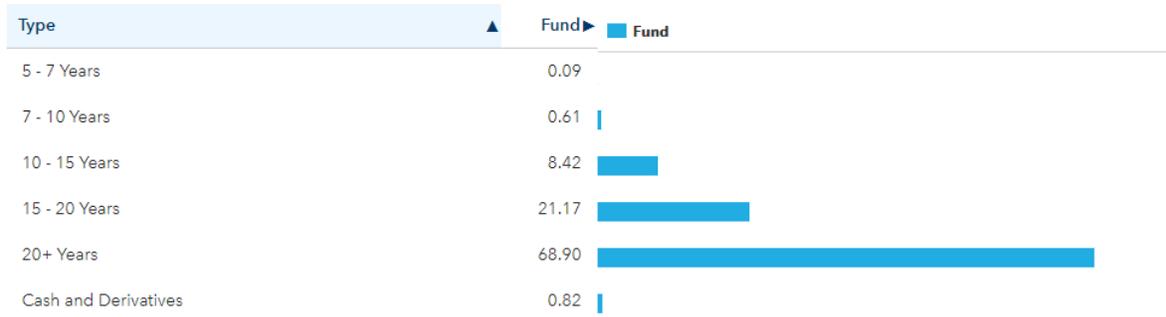


The holdings are still investment grade but with a larger portion on A/BBB to give you that risk you're looking for. If it was full of AAA/AA we'd say the risk would be closer to 2/3 but this gets you more towards 5/6 in our mind. What you're getting here is a pretty solid and diversified holding of long-term corporate debt from different sectors/countries/industries.

Sector **Maturity** Credit Quality

as of Feb 08, 2019

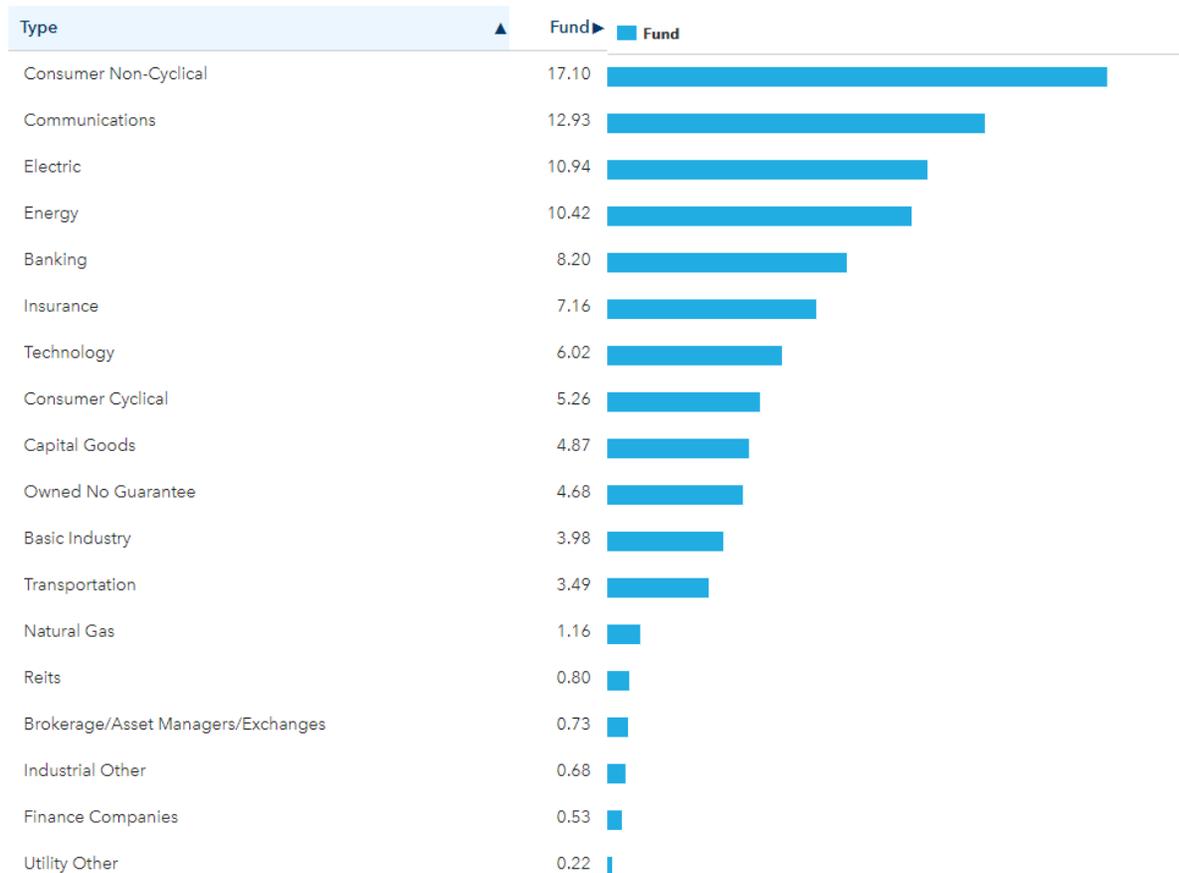
% of Market Value



Sector Maturity Credit Quality

as of Feb 08, 2019

% of Market Value



Name	Asset Class	Weight (%)	Market Value	Notional Value	Sector
BLK CSH FND TREASURY SL AGENCY	Money Market	0.83	\$5,162,330.25	5,162,330.25	Cash and/or Derivatives
GE CAPITAL INTERNATIONAL FUNDING C	Fixed Income	0.51	\$3,172,443.43	3,172,443.43	Finance Companies
ANHEUSER-BUSCH COMPANIES / ANHEUSE 144A	Fixed Income	0.45	\$2,832,899.59	2,832,899.59	Consumer Non-Cyclical
CVS HEALTH CORP	Fixed Income	0.42	\$2,616,698.50	2,616,698.50	Consumer Non-Cyclical
GOLDMAN SACHS GROUP INC	Fixed Income	0.40	\$2,472,787.38	2,472,787.38	Banking
ANHEUSER-BUSCH COMPANIES / ANHEUSE 144A	Fixed Income	0.31	\$1,954,347.76	1,954,347.76	Consumer Non-Cyclical
CVS HEALTH CORP	Fixed Income	0.31	\$1,899,858.75	1,899,858.75	Consumer Non-Cyclical
ANHEUSER-BUSCH INBEV WORLDWIDE INC	Fixed Income	0.30	\$1,851,906.93	1,851,906.93	Consumer Non-Cyclical
PETROLEOS MEXICANOS MTN	Fixed Income	0.30	\$1,839,791.21	1,839,791.21	Owned No Guarantee
VERIZON COMMUNICATIONS INC	Fixed Income	0.29	\$1,783,470.17	1,783,470.17	Communications

Notice: Petroleos Mexicanos is the 9th largest holding in IGLB.



Subscriber #2 (Tyler):

Tyler has told us the following:

- Looking at 5+ year hold
- Risk: 6.5/10
- Open to international exposure
- More focused on yield (payouts)
- Preference on low-fee investment products

Ok, so Tyler is in a different situation than Rich. He is looking for a longer hold, willing to take on more risk, and is more focused on the stream of income as opposed to the capital appreciation. Also, we've spoken with Tyler many times and can gauge his risk is around 7 because we also know he is younger than 21.

Here is where we think Tyler can begin his search:

- High yield bonds
- International with a focus on emerging markets
- Short-to-medium term bonds (5-7 years)

iShares J.P. Morgan USD Emerging Markets Bond ETF: EMB

- The iShares J.P. Morgan USD Emerging Markets Bond ETF seeks to track the investment results of an index composed of U.S. dollar-denominated, emerging market bonds.
 - Exposure to U.S. dollar-denominated government bonds issued by emerging market countries
 - Access the sovereign debt of 30+ emerging market countries in a single fund
 - Use to seek higher yield and customize your emerging markets allocation
- Expense Fee: 0.39%
- Yield: 5.57%
- Standard Deviation: 6.45%
- Holdings: 465
- Average Maturity: 11.78 years

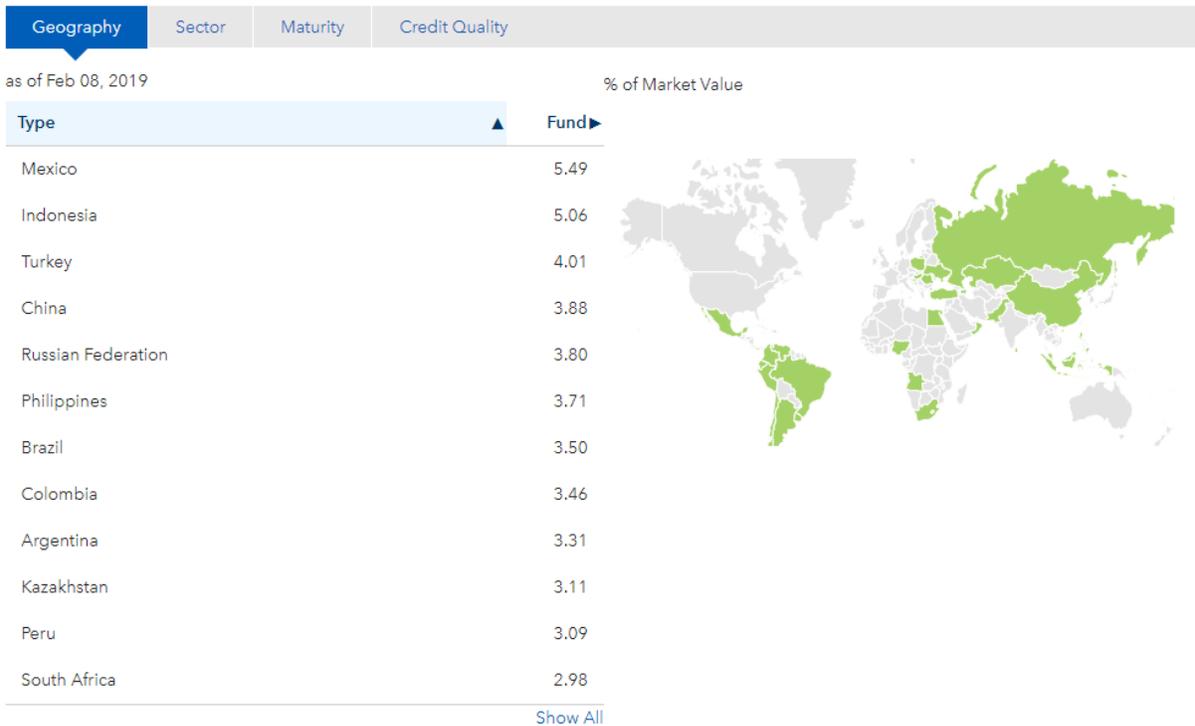
Let's walk through some of stats. EMB has a very attractive yield over 5.5% with less standard deviation than some of the names we mentioned and this is due in part to the bonds being shorter term and having less interest rate sensitivity.

The risk here comes from the fund owning over 30 emerging market government bonds. A riskier play would be to own emerging market companies but this is comprised of 465 holdings of sovereign debt.

Let's break these figures down:

	Average Annual	Cumulative	Calendar Year		
as of	Dec 31, 2018				
	1y	3y	5y	10y	Incept.
Total Return (%) ⓘ	-2.83	5.16	3.48	-	3.41
Market Price (%) ⓘ	-2.76	5.17	3.77	-	3.44
Benchmark (%) ⓘ	-2.06	5.69	4.10	-	4.00
After Tax Pre-Liq. (%) ⓘ	-4.62	3.25	1.58	-	1.61
After Tax Post-Liq. (%) ⓘ	-1.67	3.12	1.80	-	1.81





Roughly 50% of the fund is in investment grade quality while the rest is high yield but not deep into high-yield territory as 98% of the holdings are above B rating.

SPDR® Portfolio Long Term Corporate Bond ETF: SPLB

- A low-cost ETF that seeks to offer precise, comprehensive exposure to US corporate bonds that have a maturity greater than or equal to 10 years comprised of investment grade, US dollar denominated debt
- Expense Fee: 0.07%
- Yield: 4.84%
- Standard Deviation: N/A
- Holdings: 1,687
- Average Maturity: 23.7 years

Fund Maturity Ladder

As of 02/08/2019	
0 - 1 Year	0.07%
5 - 7 Years	0.00%
7 - 10 Years	0.41%
10 - 15 Years	6.82%
15 - 20 Years	23.66%
20 - 30 Years	63.35%
> 30 Years	5.68%

Even though SPLB is corporate debt its a bit less risky than EMB because EMB is sovereign emerging market debt. SPBL has a longer maturity which makes it more risky but doesn't have any junk bonds. Everything in the portfolio is investment grade. The reason we are presenting this ETF is because the expense ratio is very low at 0.07% and the yield of 4.84% is pretty attractive.

Fund Quality Breakdown ?

As of 02/08/2019	
Aaa	3.25%
Aa	6.12%
A	38.03%
Baa	52.60%

	AS OF	ANNUALIZED							SINCE INCEPTION 03/10/2009
		1 MONTH	QTD	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR	
MONTH END									
NAV	01/31/2019	3.43%	3.43%	3.43%	-2.99%	6.04%	4.95%	N/A	8.07%
Market Value	01/31/2019	3.84%	3.84%	3.84%	-2.68%	6.14%	5.04%	N/A	8.14%
Bloomberg Barclays U.S. Long Term Corporate Bond Index	01/31/2019	3.59%	3.59%	3.59%	-2.64%	6.16%	4.99%	8.32%	8.90%
QUARTER END									
NAV	12/31/2018	2.35%	-1.85%	-7.42%	-7.42%	4.86%	4.94%	N/A	7.77%
Market Value	12/31/2018	2.68%	-1.58%	-7.41%	-7.41%	4.88%	5.02%	N/A	7.80%
Bloomberg Barclays U.S. Long Term Corporate Bond Index	12/31/2018	2.42%	-1.80%	-7.24%	-7.24%	4.88%	4.96%	7.59%	8.59%

Top Sectors	Weight (%)
Corporate - Industrial	70.36
Corporate - Finance	16.61
Corporate - Utility	12.79
Cash	0.24

Quality Breakdown	Weight (%)
Aaa	3.42
Aa	6.05
A	37.06
Baa	53.47

Fund Top Holdings ? !

As of 02/08/2019			
NAME	WEIGHT	MARKET VALUE	ISIN
ANHEUSER-BUSCH CO/INBEV 4.9 02/01/2046	0.54 %	2,425,177.63	US03522AAF75
CVS HEALTH CORP 5.05 03/25/2048	0.48 %	2,168,896.78	US126650CZ11
ANHEUSER-BUSCH INBEV WOR 5.55 01/23/2049	0.47 %	2,105,890.97	US03523TBV98
GOLDMAN SACHS GROUP INC 4.8 07/08/2044	0.36 %	1,614,001.52	US38141EC311
DEUTSCHE TELEKOM INT FIN 8.75 06/15/2030	0.35 %	1,586,779.49	US25156PAC77
AT&T INC 5.7 03/01/2057	0.34 %	1,537,907.92	US00206RDT68
VERIZON COMMUNICATIONS 5.012 08/21/2054	0.34 %	1,525,994.67	US92343VCM46
GENERAL ELECTRIC CO 6.75 03/15/2032	0.32 %	1,445,247.86	US36962GXZ26
GOLDMAN SACHS GROUP INC 6.75 10/01/2037	0.30 %	1,359,373.05	US38141GFD16
BRITISH TELECOMMUNICATIO 9.625 12/15/2030	0.30 %	1,351,642.33	US111021AE12

Subscriber #3 (Dan):

Dan has told us the following:

- Less than 5 year hold
- Risk: 10/10
- Open to international exposure

In this case, Dan is a full-blown risk taker. So we are going to bring to light some product he can look at to feed his appetite. Please keep in mind these investments are not for everyone!

VanEck Vectors Fallen Angel High Yield Bond ETF: ANGL

- This ETF offers exposure to high yield or junk bonds, a corner of the domestic fixed income market that has appeal to risk tolerant investors interested in boosting the current returns derived from their bond portfolios. As such, ANGL can have appeal both to investors building a long-term portfolio or to those looking to make a tactical allocation to this corner of the market. Because junk bonds are generally excluded from broad-based fixed income ETFs such as AGG or BND, this product can be a tool for rounding out the fixed income side of a portfolio. ANGL is unique from many other products in the High Yield Bonds in that it focuses *exclusively on debt that was rated as investment grade at time of issuance but has since been downgraded to junk status*
- Expense Fee: 0.35%
- Yield: 6.44%
- Standard Deviation: N/A
- Holdings: 223
- Average Maturity: 11.0 years

Credit Composition of High Yield Indices (%) as of 12/31/2018

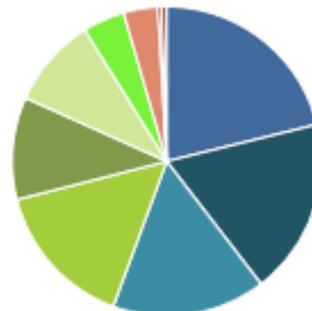
	ICE BofAML US Fallen Angel	ICE BofAML US High Yield	ICE BofAML US Original Issue High Yield
BB	74.8	48.0	45.1
B	18.7	40.3	42.7
CCC	6.5	11.0	11.5
CC	0.0	0.5	0.5
C	0.0	0.2	0.2

Fallen Angels Historically Outperformed Broad High Yield Bond Strategies



Sector Weightings

Sector	% of Net Assets
Energy	21.2
Basic Materials	18.4
Communications	16.1
Financial	15.4
Technology	10.7
Consumer, Cyclical	9.4
Consumer, Non-cyclical	4.4
Industrial	3.6
Utilities	0.4
Other/Cash	0.5



Top 10 Countries

Country	% of Net Assets
UNITED STATES	77.12
ITALY	5.06
UNITED KINGDOM	4.71
JAPAN	4.10
GERMANY	3.40
CANADA	2.77
SWEDEN	0.87
CHINA	0.69
FINLAND	0.45
IRELAND	0.29
Top 10 Total	99.46

Performance History: Average Annual Total Returns* (%)

Month End as of 01/31/19	1 MO	3 MO	YTD	1 YR	3 YR	5 YR	10 YR	04/10/12	LIFE
ANGL (NAV)	5.28	0.69	5.28	-1.72	11.73	6.70	--	--	7.85
ANGL (Share Price)	6.34	1.63	6.34	-0.93	11.79	6.84	--	--	7.89
H0FA (Index)	4.67	0.59	4.67	-1.60	12.26	7.32	14.12	--	8.92
Performance Differential (NAV - Index)	0.61	0.10	0.61	-0.12	-0.53	-0.62	--	--	-1.07
LBUSTRUU (Broad-based Index)	1.06	3.53	1.06	2.25	1.95	2.44	--	--	2.15

Quarter End as of 12/31/18	1 MO	3 MO	YTD	1 YR	3 YR	5 YR	10 YR	04/10/12	LIFE
ANGL (NAV)	-2.47	-6.32	-4.75	-4.75	9.40	5.93	--	--	7.13
ANGL (Share Price)	-2.37	-6.91	-5.66	-5.66	9.17	5.66	--	--	7.01
H0FA (Index)	-2.01	-5.83	-4.76	-4.76	9.82	6.54	13.88	--	8.30
Performance Differential (NAV - Index)	-0.46	-0.49	0.01	0.01	-0.42	-0.61	--	--	-1.17
LBUSTRUU (Broad-based Index)	1.84	1.64	0.01	0.01	2.06	2.52	--	--	2.02

Top 10 Holdings

Holding Name	Coupon	Maturity	% of Net Assets
Sprint Capital Corp	6.875	11/15/2028	2.15
Sprint Capital Corp	8.750	03/15/2032	1.95
Emc Corp	2.650	06/01/2020	1.71
Freeport-Mcmoran Inc	3.875	03/15/2023	1.62
Freeport-Mcmoran Inc	3.550	03/01/2022	1.61
Intesa Sanpaolo Spa	5.017	06/26/2024	1.58
Freeport-Mcmoran Inc	5.450	03/15/2043	1.41
Navient Corp	8.000	03/25/2020	1.39
Embarq Corp	7.995	06/01/2036	1.23
Goldman Sachs Capital I	6.345	02/15/2034	1.23

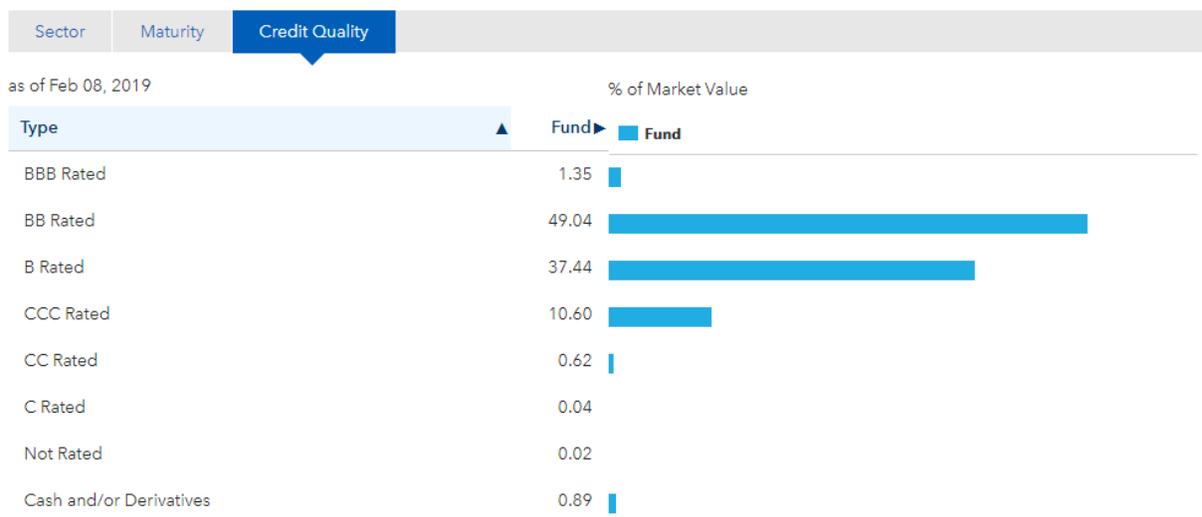
ANGL is a very interesting and risky ETF. It holds companies that were once rated investment grade that fell to junk. It has a heavy weight in Energy companies and an average credit quality of BB and lower.

You asked for risk, you got it!

iShares iBoxx High Yield Corporate Bond ETF: HYG

- The ETF seeks to track the investment results of an index composed of U.S. dollar-denominated, high yield corporate bonds.
- Expense Fee: 0.49%
- Yield: 6.16%
- Standard Deviation: N/A
- Holdings: 973
- Average Maturity: 4.66 years

This ETF isn't as risky as ANGL but is still risky as it's made up of junk bond U.S corporate debt.



Sector **Maturity** Credit Quality

as of Feb 08, 2019

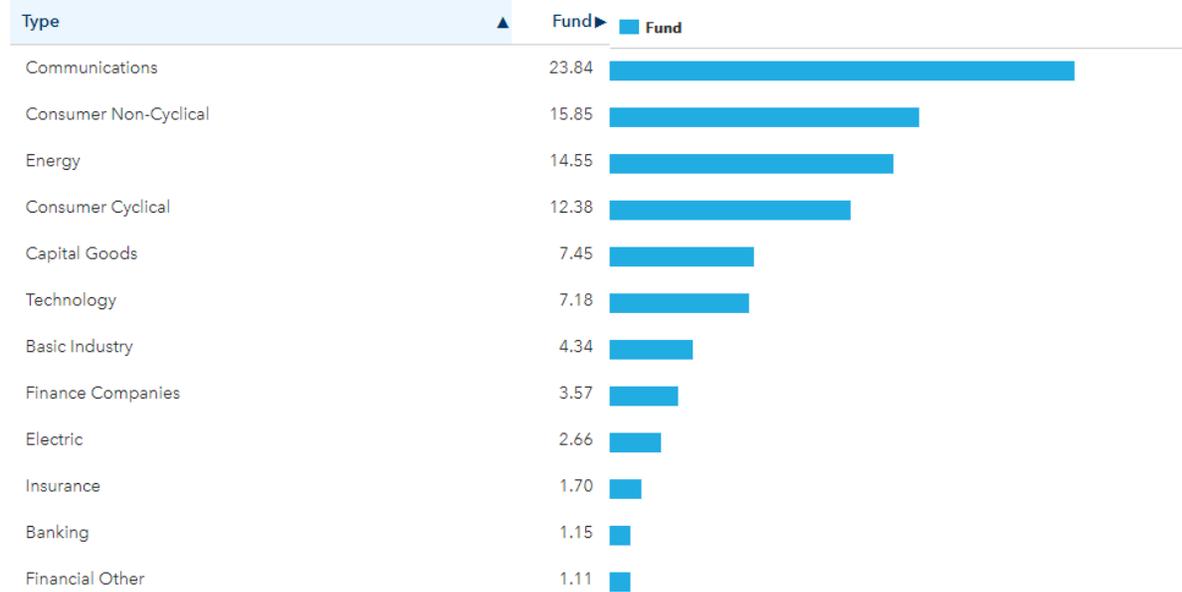
% of Market Value



Sector **Maturity** Credit Quality

as of Feb 08, 2019

% of Market Value



[Show All](#)

Top Issuers **Top 10** All

as of Feb 08, 2019

Custom Columns

ISIN	Name	Sector	Market Value	Weight (%)	Maturity	C
US0669224778	BLK CSH FND TREASURY SL AGENCY	Cash and/or Derivatives	\$183,964,260.81	1.24	-	
US67054KAA79	ALTICE FRANCE SA (FRANCE) 144A	Communications	\$90,781,137.96	0.61	May 01, 2026	
US85207UAF21	SPRINT CORP	Communications	\$79,999,236.97	0.54	Sep 15, 2023	
US1248EPBT92	CCO HOLDINGS LLC 144A	Communications	\$57,332,344.19	0.39	May 01, 2027	
US45824TBA25	INTELSAT JACKSON HOLDINGS SA 144A	Communications	\$55,915,605.63	0.38	Oct 15, 2024	
US91831AAC53	BAUSCH HEALTH COMPANIES INC 144A	Consumer Non-Cyclical	\$55,041,054.29	0.37	Apr 15, 2025	
US12543DAY67	CHS/COMMUNITY HEALTH SYSTEMS INC	Consumer Non-Cyclical	\$55,039,442.50	0.37	Mar 31, 2023	
US88167AAE10	TEVA PHARMACEUTICAL FINANCE NETHER	Consumer Non-Cyclical	\$53,994,710.14	0.36	Oct 01, 2026	
US02154VAA98	ALTICE LUXEMBOURG SA 144A	Communications	\$52,518,282.44	0.35	May 15, 2022	
US91831AAB70	BAUSCH HEALTH COMPANIES INC 144A	Consumer Non-Cyclical	\$52,107,231.82	0.35	May 15, 2023	

Average Annual

Cumulative

Calendar Year

as of Dec 31, 2018

	1y	3y	5y	10y	Incept.
Total Return (%) ⓘ	-1.93	5.83	2.69	8.68	4.95
Market Price (%) ⓘ	-1.99	5.62	2.67	7.55	4.91
Benchmark (%) ⓘ	-1.48	6.50	3.22	9.33	5.41
After Tax Pre-Liq. (%) ⓘ	-4.02	3.48	0.36	5.90	2.22
After Tax Post-Liq. (%) ⓘ	-1.11	3.43	1.00	5.70	2.62

NOTABLE ETFs NOT COVERED:

Risk 1-3:

- iShares Core U.S. Aggregate Bond ETF: AGG
- Vanguard Total Bond Market ETF: BND

Risk 4-7

- iShares iBoxx Investment Grade Corporate Bond ETF: LQD
- Vanguard Short-Term Corporate Bond ETF: VCSH
- SPDR Barclays International Treasury Bond: BWX
- iShares International Treasury Bond ETF: IGOV

Risk 8-10

- Xtrackers USD High Yield Corporate Bond ETF: HYLB
- Invesco Fundamental High Yield[®] Corporate Bond ETF: PHB
- SPDR Barclays High Yield Bond ETF: JNK
- Invesco Emerging Markets Sovereign Debt ETF: PCY

You might be reading this document and saying that you still don't understand how bonds work. Do not worry, bonds can be very complex and we will be sure to do a lesson guide on them in the near future.

Put simply, bond prices rise when yields fall and vice versa. Why? Let's say you own a bond that you bought for \$100. It pays you 5% every year AKA \$5/year. Let's say the economy is looking shaky now and as a result the Fed lowers interest rates. Now the new bonds being issued by companies trying to raise money are giving out 4%. What is the value of your bond? More than \$100 now because it's paying 1% more than the going rate hence the price will rise until it's paying a somewhat similar yield.

In real life, rates have come up quite a bit but what we're noticing is that rates in the future are looking pretty weak (Refer to our yearly outlook on the flattening yield curve). Why are rates not looking good in the future? People's view of the economy are a bit shaky and many are awaiting a recession.

Let me put this another way to make it easier to understand because, once again, we know how difficult this can be.

If you're expecting a recession in 2022 and need fixed income in your portfolio for its payouts what are you going to do? You can buy those bonds that mature way out in the future today to lock in the interest rates because you think they are going to be super low so growth can get going again. Ok, so now you just bought these longer-term bonds to lock in the higher interest rate. Now let's say others are getting worried about the same thing so they all start buying longer-term bonds today to lock in the higher rates. What this is doing now is forcing the price of the bonds up because so many people are running to buy them. That's what's been happening as of late. People are nervous about the future of the economy and have been buying up longer-term bonds which has pushed the price up and therefore pushed the return down causing the yield curve to flatten out. Note: In normal growing economies the returns for longer-term bonds are usually higher because they bare more risk and therefore investors want to be compensated for it. Also, in better economies inflation is higher and therefore you need to be compensated with a higher interest rate otherwise you're losing money on the investment.

As always, do your research! This was made to give you all a sense of direction as to what's out there and what to keep an eye on. There are literally thousands of products out there, find which one fits your needs the best and make sure to keep the following in mind:

1. Fees
2. Current portfolio composition (holdings, allocation, etc)
3. Risk
4. Goals