

(Cat) Bond ETF

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February 27, 2025

Context

Bond ETFs

Liquidity Creation

Concerns

Portfolio Trades

Cat Bonds

Reinsurance

ILS

Overview:

- ▶ Bond ETFs — Equitization of illiquid corporate bonds
- ▶ Cat Bonds — disintermediation of reinsurance activity

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Corporate bonds are notoriously illiquid.

- ▶ Traditionally bought by insurance companies and locked in a vault—coupons clipped and held to maturity.
- ▶ Very little trading once issue is 6 months old.
- ▶ Trading in a dealer (over-the-counter) market.

Why?

- ▶ Total US\$ amounts outstanding:

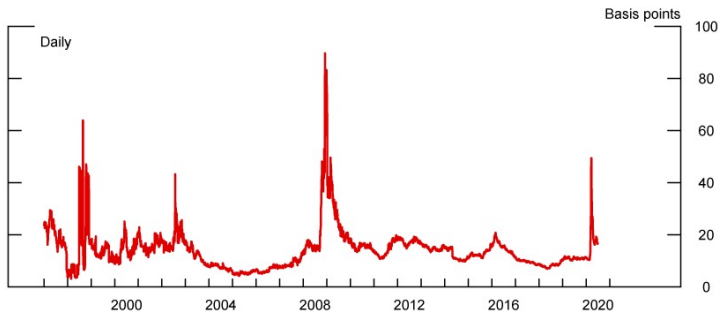
US Equities	\$45 T
US Treasuries	\$25 T
MBS	\$12 T
Corporate Bonds	\$11 T

But, there are less than 5,000 individual stocks, and close to 40,000 bonds.

- ▶ Bond issues tend to be “small” — \$2 billion would be a big corporate bond.
- ▶ Issues have many idiosyncratic features—contrast with 10-year US Treasury notes.
- ▶ Default risk and structure mean that corporate bonds are strongly left-skewed. Requires a large well-diversified portfolio to rationalize economically. (Contrast to both equities and Treasuries.)
- ▶ It is also difficult to short corporate bonds.
- ▶ We saw a spurt of popularity in individual name credit default swaps in the early years of this century.
- ▶ But now (post-Global Financial Crisis) CDS is almost entirely index-related.
- ▶ Furthermore regulations post-Global Financial Crisis make it less profitable to be a bond dealer.

Uncertainties about Covid's economic effects in March 2020, highlighted the fragility of liquidity supply in bonds.

Historical price of liquidity



A liquidity measure from a Fed Study by Falato and Goldstein: deviations of notes' yield discrepancies from other notes of same issuer.

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- ▶ Vanguard introduced its Total Bond Market Index Fund in 1986.
- ▶ Today close to \$1.5 T in corporate bond mutual funds.
- ▶ Vanguard's Intermediate-Term Corporate Bond Fund has an NAV of \$47 B and 3 basis point expense ratio.
- ▶ And roughly \$0.5 T in corporate bond ETFs.
- ▶ LQD was launched in 2002—the first, and one of the largest corporate bond ETFs with \$30 B NAV and 14 basis point expense ratio.

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- ▶ Note that both open-ended mutual funds and ETFs provide access to diversification and low transactions costs in the corporate bond world. Differences include:
 - ▶ Mutual funds only price once per day and all transactions on that day are at that price.
 - ▶ The only way to get buy in to the fund is to ask the fund to buy more assets. ETFs trade like stock.
 - ▶ ETFs have Authorized Participants who can create or redeem ETF shares in large blocks with the ETF provider.
 - ▶ ETFs afford better tax efficiency—if an AP redeems shares, NAV shrinks but the ETF does not sell anything.

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- ▶ Since bonds are illiquid but bond ETFs are liquid could this liquidity mismatch cause or extenuate a credit crisis?
 - ▶ The continuous market could create a “bank run” mentality.
 - ▶ APs could assign much lower values to very illiquid bonds in a crisis setting.

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- ▶ In March 2020 the Fed announced extraordinary liquidity measures to stabilize US bond markets
 - ▶ Fed became the liquidity supplier of last resort.
 - ▶ On March 23, 2020, the Federal Reserve announced a series of measures to stabilize corporate credit markets:
 - ▶ Primary Market Corporate Credit Facility (PMCCF)
 - ▶ Secondary Market Corporate Credit Facility (SMCCF) — Bonds and Corporate Bond ETFs.
 - ▶ The Fed bought ETFs starting in Mid-May. On June 18, 2020, the Fed owned \$1.8 B (13.3 million shares) of LQD.
 - ▶ All positions sold by August 2021 and the facilities shut down.

LQD Holdings

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LQD US \$ 108.565 +0.315 P108.560 / 108.570T 144x63

At 12:24 d Vol 13,806,618 0 108.310P H 108.630D L 108.180C Val 1.498B

LQD US Equity Alert Settings

iShares iBoxx \$ Investment Grade C... Latest Available Portfolio Filing Portfolio Filing Look-Through Creation Unit

Type Fund: ETF Asset Class Fixed Income Create/Redeem Fee 587.5 USD Creation Unit Size 100000

Historical View Periodicity Quarterly 2024 Q2 2025 Q1 Field Position

Group By None Show Asset Type All Currency USD Total Curr Mkt Val 10.7M Num of Holdings 2,878

Security	Ticker	Source	Position	Pos Chg	Curr MV	Filing Da...
Spot	USD Currency	ETF-CU	101,982	-44,735	101,982	02/20/25
Anheuser-Busch Cos LLC / Anheuser-Busch InBev Worldwide Inc	ABIBB 4.9	ETF-CU	26	0	24,157	02/20/25
T-Mobile USA Inc	TMUS 3 7/8	ETF-CU	21	0	20,111	02/20/25
CVS Health Corp	CVS 5.05 0	ETF-CU	23	0	19,798	02/20/25
Goldman Sachs Group Inc/The	GS 6 3/4	ETF-CU	16	0	17,184	02/20/25
Pfizer Investment Enterprises Pte Ltd	PFE 5.3 05	ETF-CU	17	0	16,473	02/20/25
AbbVie Inc	ABBV 3.2	ETF-CU	17	-1	15,497	02/20/25
AT&T Inc	T 3 3/4 09	ETF-CU	22	0	15,385	02/20/25
AT&T Inc	T 3.55 09	ETF-CU	22	+1	15,113	02/20/25
Anheuser-Busch Cos LLC / Anheuser-Busch InBev Worldwide Inc	ABIBB 4.7	ETF-CU	16	0	15,095	02/20/25
Wells Fargo & Co	WFC 5.013	ETF-CU	16	0	14,841	02/20/25
Boeing Co/The	BA 5.805	ETF-CU	15	0	14,532	02/20/25
Pfizer Investment Enterprises Pte Ltd	PFE 4 3/4 0	ETF-CU	15	0	14,518	02/20/25
Bank of America Corp	BAC 5.288	ETF-CU	14	0	14,471	02/20/25
Warnermedia Holdings Inc	WBD 5.141	ETF-CU	18	0	14,084	02/20/25
AbbVie Inc	ABBV 4 1/2	ETF-CU	17	0	13,987	02/20/25
Bank of America Corp	BAC 5.468	ETF-CU	13	0	13,603	02/20/25
Bank of America Corp	BAC 4.083	ETF-CU	17	0	13,340	02/20/25
AT&T Inc	T 3.65 09	ETF-CU	20	0	13,216	02/20/25
Bank of America Corp	BAC 5.015	ETF-CU	13	0	13,127	02/20/25
Anheuser-Busch InBev Worldwide Inc	ABIBB 4	ETF-CU	13	0	12,999	02/20/25
Wells Fargo & Co	WFC 5.557	ETF-CU	13	0	12,974	02/20/25
Bank of America Corp	BAC 5.162	ETF-CU	13	0	12,694	02/20/25
Wells Fargo & Co	WFC 4.897	ETF-CU	13	0	12,298	02/20/25
Microsoft Corp	MSFT 2.92	ETF-CU	18	0	12,280	02/20/25
CVS Health Corp	CVS 4.78 0	ETF-CU	13	0	11,855	02/20/25
AT&T Inc	T 3.8 12/0	ETF-CU	17	0	11,825	02/20/25
Amgen Inc	AMGN 5.65	ETF-CU	12	0	11,812	02/20/25
Anheuser-Busch InBev Worldwide Inc	ABIBB 5.5	ETF-CU	12	0	11,794	02/20/25

What are the substantial changes on this fund?

No insights available.

LQD Holdings

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LQD US \$ ↓ 108.550 +0.300 P108.550 / 108.560P 93 x106
 At 12:26 d Vol 14,012,298 0 108.310P H 108.630D L 108.180C Val 1.52B

LQD US Equity Alert Settings

Shares iBoxx \$ Investment Grade C... Latest Available Portfolio Filing Portfolio Filing Look-Through Creation Unit

Type Fund: ETF Asset Class: Fixed Income Create/Redeem Fee: 587.5 USD Creation Unit Size: 100000

Historical View Periodicity: Quarterly 2024 Q2 2025 Q1 Field Position

Group By None Show Asset Type All Currency USD Total Curr Mkt Val 10.7M Num of Holdings 2,878

Security	Ticker	Source	Position	Pos Chg	Curr Mkt Val	Filing Da...
		All			All	
2844	Equinor ASA	EQNR 3 3/4 ... ETF-CU	1	0	495	02/20/25
2845	Eversource Energy	ES 5.45 03... ETF-CU	0	-1	493	02/20/25
2846	Equinor ASA	EQNR 3.95... ETF-CU	1	0	490	02/20/25
2847	Marsh & McLennan Cos Inc	MMC 2 3/4 ... ETF-CU	1	0	487	02/20/25
2848	Equinor ASA	EQNR 2 3/8 ... ETF-CU	1	0	458	02/20/25
2849	Equinor ASA	EQNR 3.7 ... ETF-CU	1	0	457	02/20/25
2850	Anheuser-Busch InBev Worldwide Inc	ABIBB 4 ... ETF-CU	1	0	457	02/20/25
2851	Nomura Holdings Inc	NOMURA 6...ETF-CU	0	0	437	02/20/25
2852	Sixth Street Lending Partners	SIXSLP 6 ... ETF-CU	0	0	353	02/20/25
2853	HF Sinclair Corp	DINO 6 3/4 ... ETF-CU	0	0	339	02/20/25
2854	Archer-Daniels-Midland Co	ADM 2.7 0... ETF-CU	1	0	330	02/20/25
2855	Phillips 66	PSX 3.9 0... ETF-CU	0	0	309	02/20/25
2856	T-Mobile USA Inc	TMUS 4.95...ETF-CU	0	0	286	02/20/25
2857	Florida Power & Light Co	NEE 5.05 0...ETF-CU	0	-1	258	02/20/25
2858	Mitsubishi UFJ Financial Group Inc	MUFJ 3.96...ETF-CU	0	0	239	02/20/25
2859	Banco Santander SA	SANTAN 3...ETF-CU	0	0	182	02/20/25
2860	Walmart Inc	WMT 3.9 0...ETF-CU	0	0	165	02/20/25
2861	Coca-Cola Co/The	KO 1 03/1...ETF-CU	0	0	129	02/20/25
2862	Blackstone Private Credit Fund	BCRED 6 0...ETF-CU	0	0	107	02/20/25
2863	JBS USA Holding Lux Sarl/ JBS USA Food Co/ JBS Lux Co Sarl	JBSSBZ 5 ...ETF-CU	0	0	92	02/20/25
2864	Banco Santander SA	SANTAN 4...ETF-CU	0	-2	91	02/20/25
2865	Oracle Corp	ORCL 2.3 ...ETF-CU	0	0	81	02/20/25
2866	Tapestry Inc	TPR 5 3/2 ...ETF-CU	0	0	71	02/20/25
2867	Blue Owl Capital Corp	OBDC 5.95...ETF-CU	0	0	36	02/20/25
2868	Fiserv Inc	FI 5.45 03...ETF-CU	0	0	33	02/20/25
2869	Medtronic Global Holdings SCA	MDT 4 3/4 ...ETF-CU	0	0	30	02/20/25
2870	Netflix Inc	NFLX 4 7/8 ...ETF-CU	0	-2	27	02/20/25
2871	Southern California Edison Co	EIX 5.3 03...ETF-CU	0	0	14	02/20/25
2872	T-Mobile USA Inc	TMUS 2.05...ETF-CU	0	0	13	02/20/25

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- ▶ Redemption and creation are of expanding importance as bond dealers use ETFs to manage their inventory risk, facilitate portfolio trading, and hedge fixed income derivatives.
- ▶ If redemption and creation required all 2,878 bonds changing hands it would be tedious, difficult, and costly.
- ▶ Blackrock has a 12 factor model with 11 key rates from the term structure and a credit factor for the issuer. The NAV is called at 4:00 pm (ET). APs seeking creation bring a basket. Ishares may accept or reject the basket. Ishares suspects that the APs have better models than it has.
- ▶ Baskets with as few as 600 bonds or so, usually around 2,000.

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Not surprisingly, and in conjunction with the primary market in ETFs (i.e., creation / redemption), portfolio trading in bonds.

- ▶ Recent Barclay's study shows that there was a portfolio trade every 7 minutes in 2024.
- ▶ Monthly volume in portfolio trades around \$100 billion.
- ▶ Average trade size: \$55 million.
- ▶ Average number of Cusips: 110.
- ▶ Mega trades at end-of-day (coincident with Blackrock's NAV call: over \$500 million in a single trade.
- ▶ The biggest impact is on the least liquid bonds: In 2012 3% of US investment-grade bonds did not trade once in an average month. This is now nil. post \$30,600,000 in *additional* cash (collateral).

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Property and casualty insurance has historically been a relatively stable and profitable business. An important component of the industry is reinsurance. Largest players:

- ▶ Munich Re \$48.6 B in net premiums retained in 2024
- ▶ Swiss Re \$37.3 B in net premiums retained in 2024
- ▶ Berkshire Hathaway is #5 with \$22.1 B in net premiums retained in 2024
- ▶ Lloyd's is #7 with \$14.1 B in net premiums retained in 2024

These guys are pros: increasing profitability in face of rising disaster risks.

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How is it these gnomes have increased profitability in the face of higher losses due to natural disasters?

- ▶ Increased attachment points: which is the loss *before* the reinsurer's policy kicks in.
 - ▶ Most claims are small.
 - ▶ Shifts risk to primary insurers.
 - ▶ Inflation is generally bad for insurers.
- ▶ ILS (Cream skimming?)

\$107 B Insurance-Linked Securities Market

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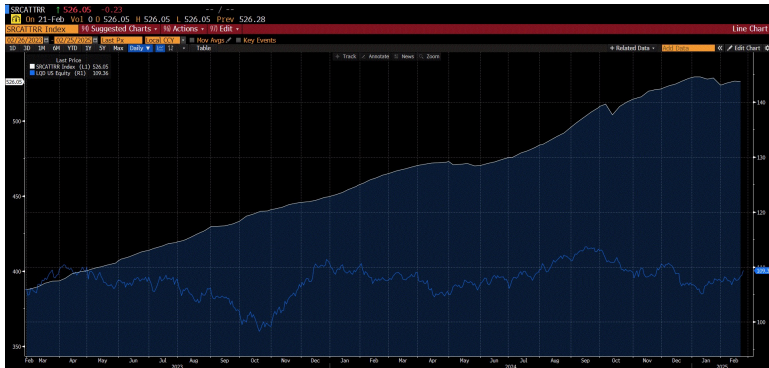
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Over the past 2 years \$100 in the Swiss Re Cat bond index grew to \$138 whereas \$100 in LQD grew to \$102.

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- ▶ Most Recent example: \$300 M Allstate multi-peril and per-occurrence reinsurance, across all US states except for Florida.
- ▶ All four tranches would attach their coverage above \$4.25 billion of losses to Allstate, but occupying shares of different slices of its reinsurance tower.

Reinsurance Tower

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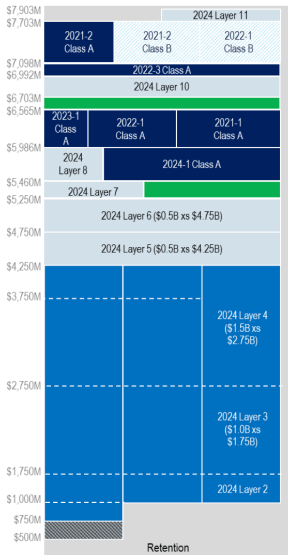
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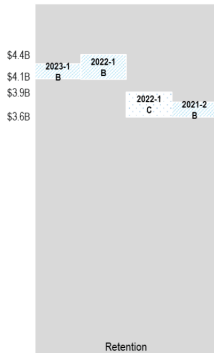
ILS

PER OCCURRENCE



- Sanders Re Aggregate Only Bond
- Sanders Re Per Occurrence & Aggregate Bonds
- Sanders Re Per Occurrence Bonds
- Single-Year Term Contracts, traditional market
- Eight-Year Term Contract, traditional market
- Multi-Year Term Contracts, traditional market

AGGREGATE, \$50M Event Deductible



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Tranche A-1 3-year notes; participate in \$1 B layer atop \$4.25 B attachment. Spread guidance: 4 - 4.25%.

Tranche A-2 5-year notes; participate in \$1 B layer atop \$4.25 B attachment. Spread guidance: 4.25 - 4.5%.

Tranche B-1 3-year notes; participate in \$2 B layer atop \$4.25 B attachment. Spread guidance: 4.5 - 4.75%.

Tranche B-2 5-year notes; participate in \$2 B layer atop \$4.25 B attachment. Spread guidance: 4.5 - 4.75%.

Attachment probabilities The B tranches have higher attachment probabilities and must absorb some loss before the A tranches get hit.

Are Cat Bonds a good investment?

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- ▶ Cat bonds pay quarterly floating coupons of the 90-Day Treasury rate plus spread.
- ▶ The funds raised from the offering are placed in T-Bills (collateral).
- ▶ Interest is paid from return on collateral plus premiums.
- ▶ Natural disaster Cat bonds have 0 beta, and therefore any risk premium is gravy provided full diversification.
- ▶ High returns in the past may compensate for lack of marketability (unregistered) and liquidity.
- ▶ But if included in ETFs trading in the US, demand may become broader and more competitive.
- ▶ And I worry about classical adverse selection.
 - ▶ Am I getting risk that the pros turned down?
 - ▶ I'm relying on insurer's underwriting.