CAIM | CROWN AGENTS INVESTMENT MANAGEMENT

BREAKEVEN CREDIT SPREADS

OCTOBER 2025

HOW ATTRACTIVE IS CREDIT?

In the search for yield, credit can offer an appealing source of additional basis points

- Government bonds such as US Treasuries offer very safe investments. They will be subject to interest rate risk, but there's little chance that you won't get your money back at maturity.

- Being so safe means their yields are often low – even occasionally turning negative in some markets, such as in the depths of covid.

- Credit bonds can offer higher yields in return for an increased risk that you may not get all your money back (plus risks of lower liquidity and spread volatility).

- This credit risk is graded by companies such as Moody's, S&P and Fitch who assign to bonds and their issuers ratings such as "AAA", "AA" and so on, down to the riskiest "C" categories.

How do you know if the extra yields are worth the extra risks?

TRANSITION MATRICES

Show past, or forecast, migration rates from one credit rating to another

- For example, below is an 8-state, average 1-year transition matrix from 1920-1996, recording rating changes that actually took place.

From \ *To*	AAA	AA	A	BBB	BB	B	CCC	D
AAA	92.18%	6.51%	1.04%	0.25%	0.02%	0%	0%	0%
AA	1.29%	91.62%	6.11%	0.70%	0.18%	0.03%	0.00%	0.07%
A	0.08%	2.50%	91.36%	5.11%	0.69%	0.11%	0.02%	0.13%
BBB	0.04%	0.27%	4.22%	89.16%	5.25%	0.68%	0.07%	0.31%
BB	0.02%	0.09%	0.44%	5.11%	87.08%	5.57%	0.46%	1.23%
B	0%	0.04%	0.14%	0.69%	6.52%	85.20%	3.54%	3.87%
CCC	0%	0.02%	0.04%	0.37%	1.45%	6.00%	78.30%	13.82%
D	0%	0%	0%	0%	0%	0%	0%	100%

Source: Moody's, adjusted for withdrawn ratings, and treating "default" as final.

If we hold a diverse portfolio of bonds, we therefore have an estimate of how those bonds' ratings will change over time

THE EFFECT OF MIGRATION ON RETURN

Source: ICE, CAIM, September 2025

Suppose you hold an “average”, vanilla, 5-year BBB-rated US corporate bond

A week ago that gave you a spread of 91 bp over a Treasury yield of 3.76%

One year from now, if government yields and spreads are unchanged, the bond will:

- narrow to 58 bp if it has been upgraded to A → a return of 5.94%
- narrow to 36 bp if it has been upgraded to AA → “ “ 6.77%
- stay at 91 bp if the rating is unchanged at BBB → “ “ 4.72%
- widen to 189 bp if the bond has been downgraded to BB → “ “ 1.17%
- have an assumed recovery value of 25% of par if the bond defaults,

and so on

(Assuming, for simplicity at this stage, a flat and unchanging yield curve and an unchanging spread curve.)

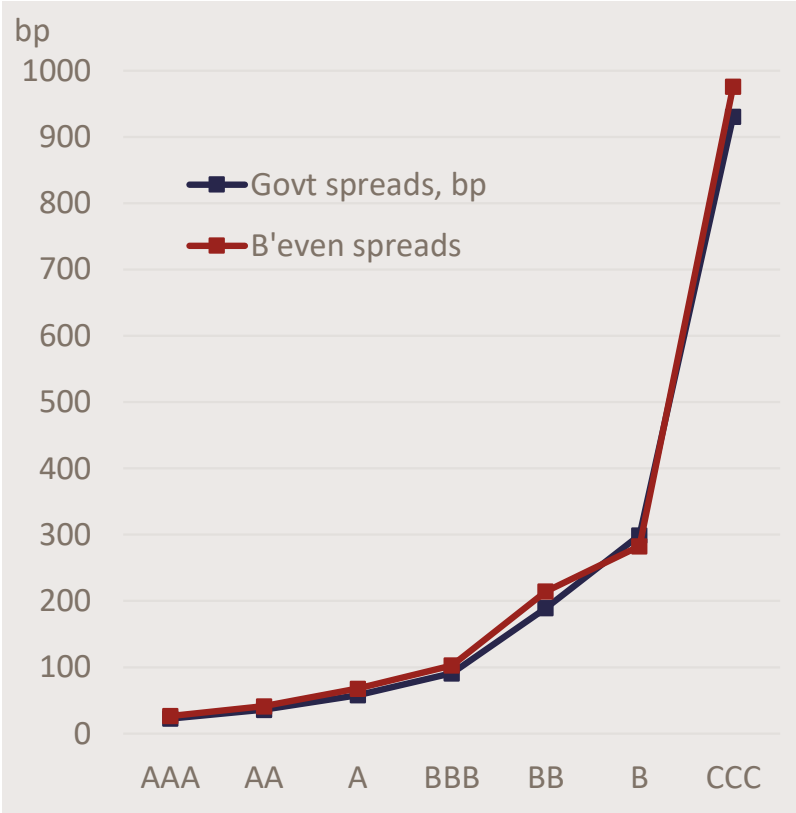
Hence if you know the probability of these changes, you can calculate the expected return of your bond

BREAKEVEN SPREADS

The points at which the returns of credit and government bonds match

- Calculating the returns of government bonds is straightforward, if I assume no chance of default
- If we adjust the final spread curve we can find the breakeven points at which government bonds and credit bonds, of each rating, give the same returns
- So if my transition matrix is accurate, and if I hold a diverse portfolio of credit, I know how far credit spreads would have to back up before I would have been better off investing in government bonds of the same maturity

Spot and breakeven 5y spreads



	AAA	AA	A	BBB	BB	B	CCC
Govt spreads, bp	23	36	58	91	189	299	930
B'even spreads	27	41	68	103	214	283	976
B'even cushion	**4**	**5**	**10**	**12**	**25**	**-17**	**45**

Source: ICE, CAIM, September 2025

SENSITIVITY TO DIFFERENT TRANSITION MATRICES

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Pre-GFC Average 1920-1996

	AAA	AA	A	BBB	BB	B	CCC	D
AAA	92.18%	6.51%	1.04%	0.25%	0.02%	0%	0%	0%
AA	1.29%	91.62%	6.11%	0.70%	0.18%	0.03%	0.00%	0.07%
A	0.08%	2.50%	91.36%	5.11%	0.69%	0.11%	0.02%	0.13%
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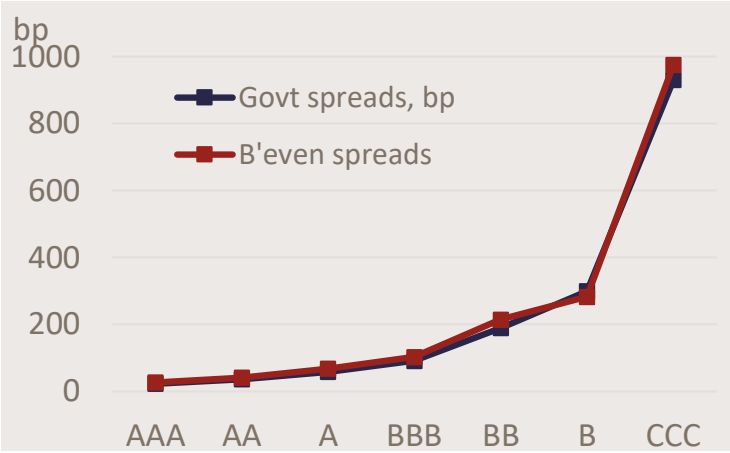
CCC	0%	0.02%	0.04%	0.37%	1.45%	6.00%	78.30%	13.82%
D	0%	0%	0%	0%	0%	0%	0%	100%

2008

	AAA	AA	A	BBB	BB	B	CCC	D
AAA	91.40%	7.87%	0.67%	0.03%	0.03%	0.00%	0.00%	0.00%
AA	1.10%	91.09%	7.43%	0.30%	0.04%	0.02%	0.01%	0.02%
A	0.07%	2.96%	91.15%	5.18%	0.49%	0.09%	0.03%	0.03%
BBB	0.05%	0.20%	5.05%	89.07%	4.40%	0.82%	0.24%	0.17%
BB	0.01%	0.06%	0.43%	6.24%	83.62%	7.77%	0.67%	1.19%
B	0.01%	0.04%	0.15%	0.39%	5.63%	82.73%	6.39%	4.66%
CCC	0.00%	0.02%	0.02%	0.13%	0.48%	6.92%	66.93%	25.49%
D	0%	0%	0%	0%	0%	0%	0%	100%



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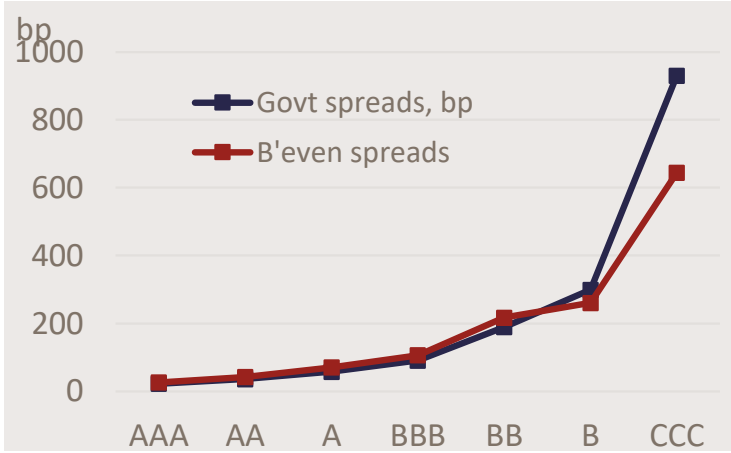


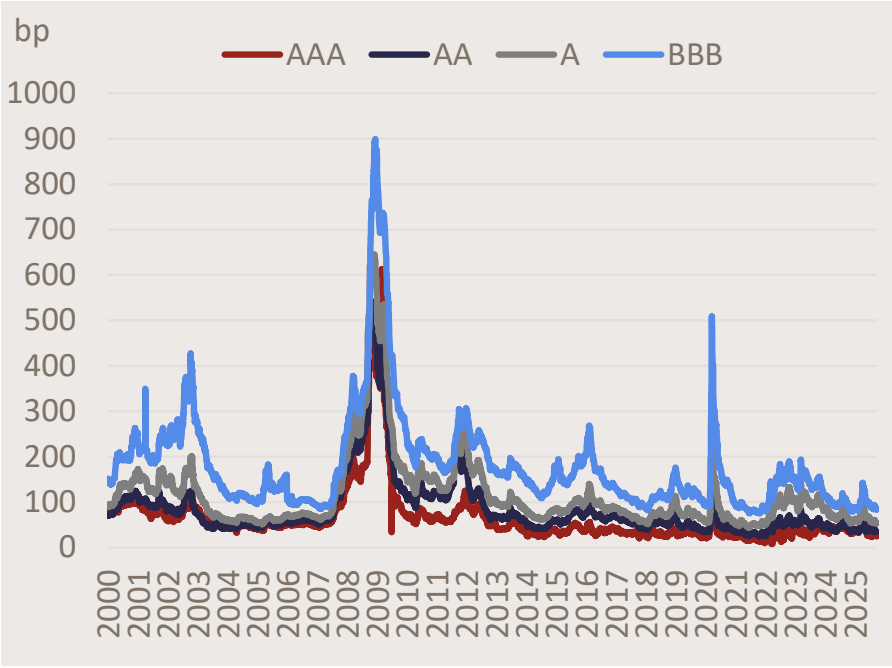
	AAA	AA	A	BBB	BB	B	CCC
	23	36	58	91	189	299	930
	27	42	70	106	217	261	644
	4	**6**	**12**	**15**	**28**	**-38**	**-286**

Source: ICE, Moody's, CAIM, September 2025

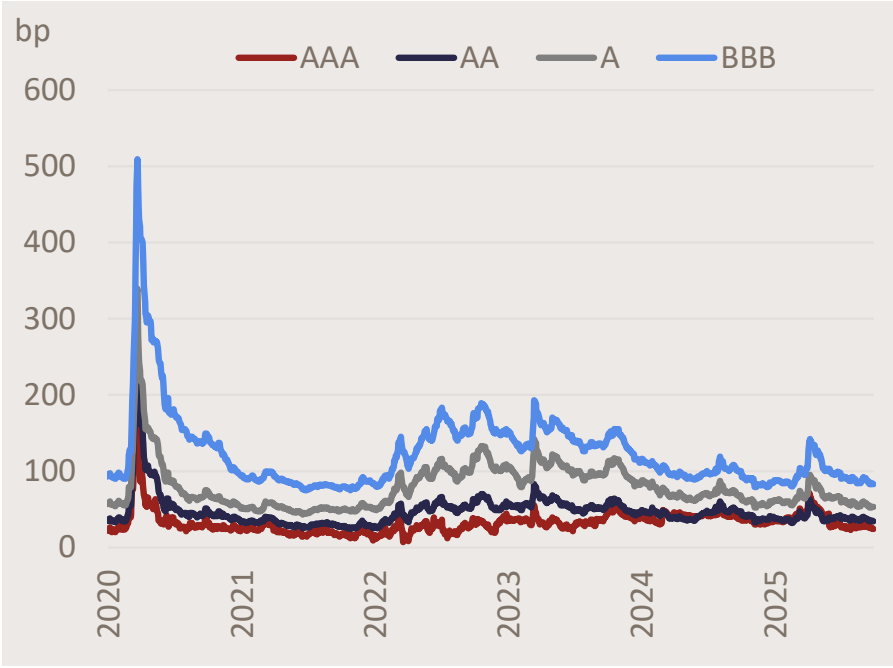
HISTORICAL SPREADS

Current spreads are narrow compared to history

3-5y US corporate bond spreads by rating, since 2000



Zooming in on the period since the start of 2000



Source: ICE, September 2025

- Lower spreads obviously make credit less attractive
- But do mean that any given basis point back-up would need to be proportionately larger

EVALUATING CREDIT RISK

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A little mathematics can be useful for checking that the market makes sense

- Stresses in the credit market have little impact on the cushions for high-quality bonds.
- High-yield spreads may not adequately compensate for the risks of default.
- Reserves managers choosing to invest in high-yield bonds may be unlikely, nevertheless the aim here is to show that a simple model can be a powerful tool in providing a sense-check of markets and a wider context than just picking individual bonds.
- In 2020, at the start of the covid pandemic, although some commentators were predicting a higher rate of defaults than in the crisis of 2008-9, high yield spreads did not widen in line with those predictions.
- High-yield spreads of energy companies and airlines widened more than other industries. Should that then require the use of transition matrices based only on these industries?

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