The Impact of Beliefs on Credit Markets

Evidence from Rating Agencies

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  - **Whose** beliefs matter for economic outcomes & asset prices?
  - Difficult to isolate **subjective** component of beliefs and their impact on credit markets

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❸ Rating agencies act on their beliefs through their rating decisions

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▶ Underlying drivers of rating agencies' subjective beliefs:
- Chief economists' personal housing returns affect rating agencies' subjective beliefs

Data and Measurement of Subjective Beliefs

Survey Expectations of Credit Spreads

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  • Credit spread = Aaa corporate bond yield − 10-year Treasury yield

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▶ Forecasters with known identities ⟨▸ Institution Names⟩

- Rating agencies: **Moody's Investors Service** (MR); **S&P Global Ratings** (SPR)
- Other market participants: banks (26), broker-dealers (15), insurance (5), asset managers (13), economic consulting (21); primary dealers of NYFed (17)

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    - Rating agency average forecasts: $AaaCRA_t = 0.5\left(\mathbb{E}_t^{MR}(Aaa_{t+1}) + \mathbb{E}_t^{SPR}(Aaa_{t+1})\right)$
  - Other market participants: banks (26), broker-dealers (15), insurance (5), asset managers (13), economic consulting (21); primary dealers of NYFed (17)
    - Consensus forecasts, excl. two CRAs: $AaaCon_t$

Corporate Bond and Firm Data

- Corporate bond characteristics (prices, ratings, etc.)
  - Mergent Fixed-Income Securities Database (FISD) bond data
  - WRDS Bond Returns data (sourced from TRACE)

- Firm-level financial data
  - CRSP, COMPUSTAT
  - Issuer-level ratings: Thomson Eikon and CapIQ

- Realized interest rates and macro variables are from FRED and BCFF (for Bank of America-Merrill Lynch indices)

▸ Time Series Plot   ▸ Summary Statistics

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- Final sample: 2002–2018

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Rating Agency Beliefs

Rating Agency Beliefs: Test of Rationality

Coibion and Gorodnichenko (2015) regressions

- ▶ Coibion and Gorodnichenko (CG, 2015) forecast error-on-revision regression:

$$\underbrace{Aaa_{t+1} - \mathbb{E}_t(Aaa_{t+1})}_{\text{Forecast Error}} = \alpha + \beta \times \underbrace{[\mathbb{E}_t(Aaa_{t+1}) - \mathbb{E}_{t-1}(Aaa_{t+1})]}_{\text{Forecast Revision}} + u_{t+1}$$

- ▶ How do forecasters' beliefs respond to new information?
  - $\beta = 0 \rightarrow$ Rational Expectations
  - $\beta > 0 \rightarrow$ Underreaction
  - $\beta < 0 \rightarrow$ Overreaction $\rightarrow$ Deviation from Rational Expectations (RE)

Rating Agency Beliefs: Test of Rationality

Coibion and Gorodnichenko (2015) regressions

	Forecast Error: $Aaa_{t+1} - \mathbb{E}_t(Aaa_{t+1})$	
	Rating Agencies	Consensus
Constant	-0.048	-0.173***
	(0.064)	(0.051)
$\mathbb{E}_t(Aaa_{t+1}) - \mathbb{E}_{t-1}(Aaa_{t+1})$	-0.446***	-0.183
	(0.117)	(0.186)
Observations	68	68
R^2	0.096	0.014

▶ Rating agency beliefs deviate from RE: **overreacting** to news about credit spreads
  • Consensus forecasts do not deviate significantly

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▶ We create a measure of rating agencies' **subjective** beliefs (relative to the consensus):

$$AaaDev_t = AaaCRA_t - AaaCon_t$$

Rating Agency Beliefs: Information Content

▶ Rating agencies' subjective beliefs do not contain additional information regarding future aggregate credit spreads

$$Aaa_{t+1} = \alpha + \beta_0 AaaCon_t + \beta_1 AaaDev_t + u_{t+1}$$

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	Aaa_{t+1}	
	(1)	(2)
$AaaDev_t$	-0.249	-0.248
	(0.380)	(0.244)
$AaaCon_t$		0.624***
		(0.190)
Constant	1.380***	0.398
	(0.114)	(0.309)
Observations	68	68
R^2	0.012	0.366

Credit Ratings

Why Would Measured Beliefs Matter for Ratings?

Some institutional details

Rating Agency Economists $\overset{?}{\rightarrow}$ Credit Analysts

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Rating Agency Economists → Credit Analysts

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  Moody's "Guidance for the Credit Rating Process":

  > *Moody's Macroeconomic Board **provides a consistent set of macroeconomic forecasts for use in the rating process**; facilitating analyst access to these forecasts; and encouraging the development of macroeconomic sensitivity analysis within each sector.*

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  S&P has similar guidance

Measured Beliefs and Actions: Credit Ratings

► We investigate the link between rating agency forecasts and their bond-level ratings

$$Rating_{b,t}^{j} = \boxed{\beta} \times \left[\mathbb{E}_t^j(Aaa_{t+1}) - \mathbb{E}_t^{Con}(Aaa_{t+1}) \right] + \Gamma Z_b + \delta_b + u_{b,t}^j,$$

and

$$AverageRating_{b,t} = \boxed{\beta} \times AaaDev_t + \Gamma Z_b + \delta_b + u_{b,t}.$$

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▶ Corporate bond ratings: letter ratings → **descending** numerical ratings
  • e.g., Aaa → 28; C → 4

Prediction : $\beta < 0$
Rating agency optimism → higher ratings

Rating Agency Beliefs and Credit Ratings

	$Rating^j, j \in \{MR, SPR\}$				$AverageRating$
	(1)	(2)	(3)	(4)	
$\mathbb{E}_t^j(Aaa_{t+1}) - \mathbb{E}_t^{Con}(Aaa_{t+1})$	-0.193***	-0.191***	-0.092*	-0.089*	
	(0.059)	(0.059)	(0.053)	(0.053)	
$AaaDev$					
$AaaCon$		-0.016		-0.031	
		(0.041)		(0.040)	
Maturity	-0.038***	-0.038***	-0.040***	-0.041***	
	(0.009)	(0.010)	(0.019)	(0.010)	
Bid-Ask Spread	-4.055***	-4.009***	-4.059***	-3.97***	
	(0.953)	(0.894)	(0.957)	(0.888)	
Duration	0.1915***	0.192***	0.190***	0.190***	
	(0.014)	(0.014)	(0.014)	(0.014)	
Bond FE	✓	✓	✓	✓	
CRA FE			✓	✓	
Observations	610,045	610,045	610,045	610,045	
R^2	0.913	0.913	0.913	0.913	

Rating Agency Beliefs and Credit Ratings

	$Rating^j, j \in \{MR, SPR\}$				$AverageRating$	
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{E}_t^j(Aaa_{t+1}) - \mathbb{E}_t^{Con}(Aaa_{t+1})$	-0.193***	-0.191***	-0.092*	-0.089*		
	(0.059)	(0.059)	(0.053)	(0.053)		
$AaaDev$					-0.338***	-0.343***
					(0.117)	(0.116)
$AaaCon$		-0.016		-0.031		0.019
		(0.041)		(0.040)		(0.040)
Maturity	-0.038***	-0.038***	-0.040***	-0.041***	-0.029***	-0.029***
	(0.009)	(0.010)	(0.019)	(0.010)	(0.010)	(0.0100)
Bid-Ask Spread	-4.055***	-4.009***	-4.059***	-3.97***	-4.130***	-4.186***
	(0.953)	(0.894)	(0.957)	(0.888)	(0.944)	(0.919)
Duration	0.1915***	0.192***	0.190***	0.190***	0.174***	0.174***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.015)
Bond FE	✓	✓	✓	✓	✓	✓
CRA FE			✓	✓		
Observations	610,045	610,045	610,045	610,045	292,452	292,452
R^2	0.913	0.913	0.913	0.913	0.922	0.922

Rating Agency Beliefs and Credit Ratings: A Placebo Test

Can other forecasters' beliefs generate similar results? No

- ▶ **A placebo test**: randomly sampling forecasts from two random economists each quarter and re-estimate the same regression 1000 times

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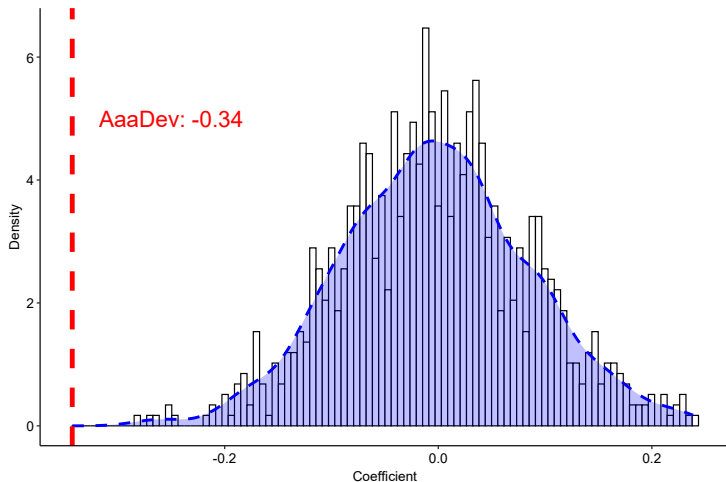
Corporate Bond Prices

Rating Agency Beliefs and Bond Prices

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▶ If investors are fully rational, they should de-bias the distorted ratings
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▶ Bond price dynamics:
  ❶ Initial bond yields and credit spreads
  ❷ Subsequent performance of newly issued bonds

Rating Agency Beliefs and Initial Offering Credit Spread

	Credit Spread at Issuance		
	(1)	(2)	(3)
AaaDev	1.290***	1.000***	1.026***
	(0.3534)	(0.2255)	(0.2258)
AaaCon		1.373***	1.384***
		(0.2738)	(0.2726)
Maturity			0.0538
			(0.0405)
Size			0.0639*
			(0.0380)
Covenants			-0.1484**
			(0.0706)
Firm FE	✓	✓	✓
Observations	9,794	9,794	9,794
R^2	0.798	0.821	0.822

Rating Agency Beliefs and Subsequent Bond Returns

	Next Quarter Return			
	(1)	(2)	(3)	(4)
AaaDev	2.006	1.403		
	(1.694)	(1.578)		
AaaDev × New			4.248***	2.870**
			(1.520)	(1.422)
AaaDev × Old			1.822	1.292
			(1.733)	(1.616)
AaaCon		2.281***		2.267***
		(0.838)		(0.844)
Maturity		-0.044**		-0.045**
		(0.018)		(0.018)
Bid-Ask Spread		-21.310*		-21.440*
		(11.960)		(11.960)
Coupon		0.209***		0.207***
		(0.046)		(0.045)
Duration		0.179***		0.180***
		(0.067)		(0.067)
Firm FE	✓	✓	✓	✓
Observations	261,813	253,880	261,813	253,880
R^2	0.049	0.082	0.050	0.082

Corporate Behavior

How Do Firms Respond to Mispricing?

▶ We test firms' financing and investment responses to rating agencies' distorted beliefs:

$$z_{i,t} = \beta \;\boxed{AaaDev_t}\; + \gamma X_{i,t} + \alpha_i + u_{i,t}$$

How Do Firms Respond to Mispricing?

▶ We test firms' financing and investment responses to rating agencies' distorted beliefs:

$$z_{i,t} = \beta \; \boxed{AaaDev_t} \; + \gamma X_{i,t} + \alpha_i + u_{i,t}$$

▶ If the effect is through credit ratings, it should be concentrated among rated firms

$$z_{i,t} = \beta_0 AaaDev_t + \beta_1 Rated_{i,t} + \beta_2 \; \boxed{(AaaDev_t \times Rated_{i,t})} \; + \gamma X_{i,t} + \alpha_i + u_{i,t}$$

Debt and Leverage

	Total Debt		Leverage	
	(1)	(2)	(3)	(4)
AaaDev	-0.502***	-0.393***	-0.059***	-0.039***
	(0.121)	(0.098)	(0.013)	(0.010)
AaaCon	0.084**	0.049	0.015***	0.009**
	(0.037)	(0.031)	(0.004)	(0.004)
Rated		1.396***		0.113***
		(0.093)		(0.013)
AaaDev × Rated		-0.245***		-0.063***
		(0.092)		(0.015)
AaaCon × Rated		0.128***		0.026***
		(0.045)		(0.006)
Profitability	-0.055***	-0.046***	0.032***	0.033***
	(0.006)	(0.006)	(0.002)	(0.002)
Tangibility	0.684***	0.682***	0.198***	0.198***
	(0.063)	(0.059)	(0.015)	(0.014)
Sales	0.736***	0.654***	0.035***	0.027***
	(0.024)	(0.021)	(0.003)	(0.003)
Market-to-Book	-0.001***	-0.001***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm FE	✓	✓	✓	✓
Observations	297,763	297,763	297,764	297,764
R^2	0.147	0.205	0.032	0.049

Issuance Decisions

	LT Debt Issuance		Equity Issuance	
	(1)	(2)	(3)	(4)
AaaDev	-0.270***	-0.170***	0.033	-0.013
	(0.063)	(0.048)	(0.076)	(0.051)
AaaCon	0.005	-0.026	-0.188***	-0.142***
	(0.025)	(0.018)	(0.032)	(0.023)
Rated		0.301***		0.385***
		(0.096)		(0.085)
AaaDev × Rated		-0.346***		0.201*
		(0.105)		(0.117)
AaaCon × Rated		0.127**		-0.201***
		(0.049)		(0.052)
Profitability	-0.031***	-0.028***	0.029***	0.030***
	(0.003)	(0.002)	(0.004)	(0.004)
Tangibility	0.091**	0.091**	-0.352***	-0.354***
	(0.045)	(0.044)	(0.034)	(0.034)
Sales	0.326***	0.299***	0.061***	0.059***
	(0.017)	(0.016)	(0.012)	(0.012)
Market-to-Book	-0.000***	-0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm FE	✓	✓	✓	✓
Observations	297,764	297,764	296,193	296,193
R^2	0.017	0.021	0.010	0.012

Investment Decisions

	Assets		PPE	
	(1)	(2)	(3)	(4)
$AaaDev$	-0.123**	-0.084*	-0.144***	-0.118***
	(0.052)	(0.045)	(0.036)	(0.024)
$AaaCon$	-0.019	-0.047**	0.048***	0.035***
	(0.020)	(0.022)	(0.013)	(0.011)
Rated		0.126***		0.269***
		(0.040)		(0.039)
$AaaDev$ × Rated		-0.122**		-0.062
		(0.054)		(0.052)
$AaaCon$ × Rated		0.118***		0.050***
		(0.023)		(0.018)
Profitability	0.465***	0.467***	0.013***	0.015***
	(0.013)	(0.013)	(0.005)	(0.005)
Tangibility	0.144**	0.145**	2.335***	2.334***
	(0.062)	(0.062)	(0.057)	(0.056)
Sales	0.737***	0.720***	0.617***	0.599***
	(0.018)	(0.018)	(0.013)	(0.013)
Market-to-Book	-0.009***	-0.008***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm FE	✓	✓	✓	✓
Observations	297,759	297,759	297,764	297,764
R^2	0.537	0.542	0.514	0.524

For rated firms, $1\sigma \downarrow$ in $AaaDev$ (rating agency optimism $\uparrow$)

- ► 3.5% increase in firm leverage

Investment Decisions

	Assets		PPE	
	(1)	(2)	(3)	(4)
$AaaDev$	-0.123**	-0.084*	-0.144***	-0.118***
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- ▶ Evidence consistent with a "rational manager–irrational market" framework

Drivers of Rating Agency Subjective Beliefs

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Individual Economists' behavioral biases could also explain subjective beliefs

	$\mathbb{E}_t^f(Aaa_{t+1}) - \mathbb{E}^{Con}(Aaa_{t+1})$				
Economist FE				✓	✓
Year-Quarter FE	✓		✓		✓
CRA FE		✓	✓		
Observations	130	139	130	139	130
R^2	0.488	0.032	0.536	0.162	0.602
F-stat	.	.	.	5.04	5.57
p-value	.	.	.	0.003	0.002

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  - Data: LexisNexis Public Records on all housing transactions of rating agency economists
  - Home price index: Zillow Home Value Index (ZHVI) for single-family homes at zip code level
  - Personal housing return: average one-year change in ZHVI for all zip codes where economist f owns a property

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▶ We regress economists' subjective beliefs on their experienced housing returns

$$\mathbb{E}_t^f(Aaa_{t+1}) - \mathbb{E}_t^{Con}(Aaa_{t+1}) = \alpha_t + \alpha_j + \beta \, \Delta ZHVI_t^f + \varepsilon_{i,f,t}$$

- Year-quarter fixed effects: absorb aggregate market conditions

Drivers of Rating Agency Subjective Beliefs: Idiosyncratic

Personally experienced returns

	$\mathbb{E}_t^f(Aaa_{t+1}) - \mathbb{E}_t^{Con}(Aaa_{t+1})$				$AaaDev_t$
	(1)	(2)	(3)	(4)	(5)
$\Delta ZHVI_t^f$		-0.022**		-0.020**	
		(0.005)		(0.005)	
$\overline{\Delta ZHVI}_t$					-0.006**
					(0.003)
Constant					-0.076**
					(0.035)
Year-Quarter FE	✓	✓	✓	✓	
CRA FE			✓	✓	
Standard Errors	Clustered by Economist & Date				NW(4)
R^2	0.496	0.611	0.537	0.615	0.073
Observations	122	122	122	122	68
F-stat	.	15.79	.	10.54	5.25
p-value	.	0.000	.	0.002	0.025

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Economists' idiosyncratic, subjective beliefs are important drivers of agency distorted beliefs

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	(1)	(2)	(3)	(4)	(5)
$\Delta ZHVI_t^f$		-0.022**		-0.020**	
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> Changes in subjective beliefs can have a large impact on
> **corporate bond pricing**, **firm behavior** and **macroeconomic activity**

The Impact of Beliefs on Credit Markets

Evidence from Rating Agencies

Chen Wang

University of Notre Dame

Gregory Weitzner

McGill University

BoC-ECB-NY Fed Conference
"Expectations Surveys, Central Banks and the Economy"
October 1, 2024

BCFF Sample Survey Questions

US Quarterly Forecasts
October 2019

	1 Effective Federal Funds Rate[1]	2 Prime Rate[2]	3 LIBOR 3 Mo Rate[3]	4 Commercial Paper 1-Mo Rate[4]	5 Treasury Bill 3-Mo Yield[5]	6 Treasury Bill 6-Mo Yield[5]	7 Treasury Bill 1-Yr Yield[5]	8 Treasury Note 2-Yr Yield[5]	9 Treasury Note 5-Yr Yield[5]	10 Treasury Note 10-Yr Yield[5]	11 Treasury Bond 30-Yr Yield[5]	12 Corporate Aaa Bond Yield[6]	13 Corporate Baa Bond Yield[7]	14 State & Local Bond Yield[8]	15 Mortgage Rate 30-Yr Fixed[9]	16 Fed's Advanced Foreign Economies (AFE) Index[10]	17 Real GDP (Q/Q %Chg, SAAR)[11]	18 GDP Price Index (Q/Q %Chg, SAAR)[12]	19 Consumer Price Index (Q/Q % Chg, SAAR)[13]
Q4 2019																			
Q1 2020																			
Q2 2020																			
Q3 2020																			
Q4 2020																			
Q1 2021																			

[1] Federal Funds Rate: Charged on loans of uncommitted reserve funds among banks; Federal Reserve Statistical Release (FRSR) H.15
[2] Prime Rate: One of several base rates used by banks to price short term business loans; FRSR H.15.
[3] London Interbank Offered Rate (LIBOR): The interbank offered rate for 3-month dollar deposits in the London market. The Wall Street Journal publishes a LIBOR quote on a daily basis, The Economist on a weekly basis.
[4] Commercial Paper: Financial; 1-month bank discount basis; Interest rates interpolated from data on certain commercial paper trades settled by The Depository Trust Company; The trades represent sales of commercial paper by dealers or direct issuers to investors; FRSR H.15
[5] Treasury Bills, Notes, and Bonds: 3-month, 6-month, 1-year bills, 2-year, 5-year, 10-year notes and 30-year bond; Yields on actively traded issues, adjusted to constant maturities; U.S. Treasury; FRSR H.15
[6] Aaa Corporate Bonds: BofA Merrill Lynch Corporate Bonds: AAA-AA: 15+ Years; Yield to Maturity (%)
[7] Baa Corporate Bond: BofA Merrill Lynch Corporate Bonds: A-BBB: 15+ Years; Yield to Maturity (%)
[8] State & Local Bonds: BofA Merrill Lynch Municipals: A Rated: 20-year; Yield to Maturity (%)
[9] Conventional Mortgages: Contract interest rates on commitments on 30-year fixed rate first mortgages; FreddieMac
[10] Federal Reserve Board's Advanced Foreign Economies (AFE) Nominal Dollar Index. FRB H.10
[11] Real Gross Domestic Product (Chain-type): Percent change (SAAR) Economic Indicators; BEA
[12] Chained Gross Domestic Product Price Index: Percent change (SAAR) Economic Indicators; BEA
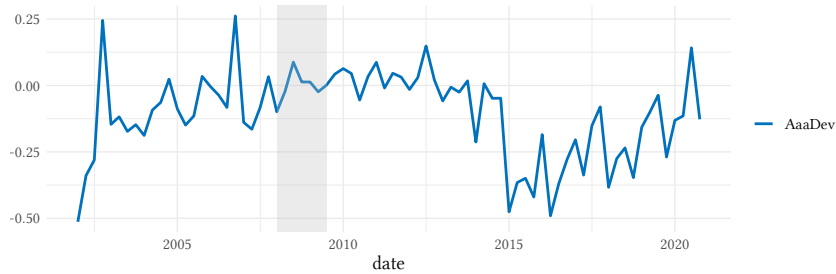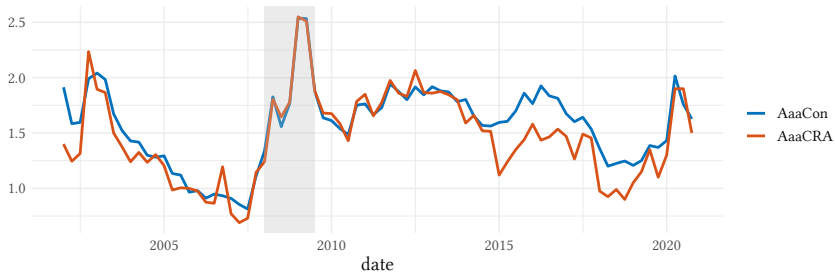[13] Consumer Price Index (All Urban Consumers): Percent change (SAAR); Economic Indicators; BLS

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BCFF Forecasters

Type	#	Institution Names
Asset Manager	13	ASB Capital Management, Sanford C. Bernstein, J.W. Coons, ING Aeltus, JPMorgan Chase Wealth Management, Loomis Sayles, Mesirow, Northern Trust, RidgeWorth, Stone Harbor, US Trust Company, Wayne Hummer, Wells Capital
Bank	26	Banc One Corp, Bankers Trust, First National Bank of Chicago/Bank One (Chicago), Barnett Banks, Bank of America, Comerica Bank, CoreStates Financial, First Fidelity Bancorp, First Interstate Bank, Fleet Financial Group, Huntington National Bank, JPMorgan, LaSalle National Bank, MUFG Bank, National City Bank of Cleveland, PNC Financial Corp, Bank of Nova Scotia, SunTrust, Tokai Bank, Valley National Bank, Wachovia, Wells Fargo
Broker/Dealer	15	Amherst Pierpont, Barclays, Bear Stearns, BMO, Chicago Capital, Daiwa, Deutsche Bank, Goldman Sachs, Lanston, Merrill Lynch, Nomura Securities, Prudential Securities, RBS, Societe Generale, UBS
Mortgage	2	Fannie Mae, Mortgage Bankers Association
Insurance	5	Kemper, Metropolitan Insurance Companies, New York Life, Prudential Insurance, Swiss Re
Rating	2	Moody's, Standard & Poor's
Research	21	...
Others	3	...

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Rating Agency Beliefs: Time Series

Rating Agency Beliefs: Summary Statistics

	N	Mean	Median	SD	P5	P95
$AaaCon$	68	1.58	1.62	0.37	0.92	1.99
$AaaCRA$	68	1.47	1.47	0.40	0.87	2.03
$AaaDev$	68	-0.11	-0.07	0.17	-0.41	0.09
Aaa^{MR}	68	1.53	1.58	0.42	0.76	2.05
Aaa^{SPR}	59	1.44	1.42	0.45	0.77	2.05

CRA Forecast Accuracy: Econometric Test

Diebold-Mariano-West (DMW) predictive ability tests

- ▶ DMW test evaluates if CRA and consensus have equal predictive ability
  - Positive statistic → CRAs have higher forecast errors than the consensus

- ▶ CRAs do not have an edge over the consensus forecasts
  - significantly less accurate than consensus at 1Q horizon

	Aaa
DMW statistic	2.290
	(0.020)

Bank Debt Issuance

	BD Issuance		BD Issuance Dummy	
	(1)	(2)	(3)	(4)
AaaDev	0.087	0.045	0.004	0.001
	(0.2031)	(0.0953)	(0.0106)	(0.0054)
Rated		0.483***		0.022***
		(0.1056)		(0.0053)
AaaDev × Rated		0.234		0.013
		(0.5110)		(0.0251)
Profitability	0.013**	0.015***	0.001***	0.001***
	(0.0051)	(0.0049)	(0.0003)	(0.0003)
Tangibility	-0.008	-0.009	0.002	0.002
	(0.0669)	(0.0667)	(0.0034)	(0.0034)
Sales	0.018	-0.005	-0.000	-0.002
	(0.0436)	(0.0421)	(0.0022)	(0.0021)
Market-to-Book	0.000	0.000	0.000	0.000
	(0.0001)	(0.0001)	(0.0000)	(0.0000)
Firm FE	✓	✓	✓	✓
Firm Quarters	303564	303564	303564	303564
R^2	0.000	0.000	0.000	0.000

CRA Beliefs: Test of Rationality

Coibion and Gorodnichenko (2015) regressions

	aaa	baa	ffr	$tb1y$	$tn10y$
	Dependent variable: $FE_{i,t}(x_{t+h})$				
Panel A: Consensus forecasts excluding CRAs					
$FR_{i,t}(x_{t+h})$	0.1313	0.0726	0.4946***	0.4862***	-0.0585
	(0.1396)	(0.1720)	(0.1121)	(0.1344)	(0.1571)
R^2	0.00575	0.00145	0.08897	0.07265	0.00119
N	504	316	509	456	464
Panel B: CRA forecasts					
$FR_{i,t}(x_{t+h})$	-0.2816***	-0.2573*	0.1846	0.2681**	-0.1717
	(0.0806)	(0.1536)	(0.1129)	(0.1187)	(0.1245)
R^2	0.05458	0.02697	0.01777	0.02905	0.01538
N	486	280	491	438	446

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CRA Subjective Beliefs and Credit Market Sentiments

	AaaDev	*AaaCon*	HYS	Credit Growth	Easy Credit	$-EBP$	BW Sentiment
AaaDev	1.00						
AaaCon	-0.13	1.00					
HYS	-0.10	-0.06	1.00				
Credit Growth	0.20*	0.07	-0.06	1.00			
Easy Credit	0.07	0.53***	-0.09	-0.04	1.00		
$-EBP$	-0.06	-0.28***	0.43***	-0.14	-0.31***	1.00	
BW Sentiment	0.32***	-0.14	-0.09	0.36***	-0.08	-0.10	1.00

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CRA Subjective Beliefs and Average Credit Ratings

IG vs. HY

	AverageRating			
	HY		IG	
	(1)	(2)	(3)	(4)
AaaDev	-0.1982	-0.2260	-0.2219***	-0.2253***
	(0.1525)	(0.1463)	(0.0755)	(0.0744)
AaaCon		0.1029*		0.0154
		(0.0544)		(0.0384)
Maturity	-0.0742***	-0.0746***	-0.0022	-0.0018
	(0.0241)	(0.0236)	(0.0072)	(0.0074)
Bid-Ask Spread	-2.901***	-3.055***	-1.704***	-1.778***
	(0.9343)	(0.9584)	(0.4839)	(0.4120)
Duration	0.3727***	0.3800***	0.0355***	0.0353***
	(0.0397)	(0.0379)	(0.0107)	(0.0108)
Issue FE	✓	✓	✓	✓
Observations	80,435	80,435	196,909	196,909
R^2	0.78479	0.78496	0.89139	0.89140

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Geographic Distribution of BCFF Economist Properties

Sample
- All Economists
- CRA Economists

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