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Credit ratings and the pricing of risk in the Indian corporate bond market

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Abstract: This paper examines the pricing of credit risk in the Indian corporate bond market, where credit ratings are highly concentrated in the highest categories. Using a comprehensive dataset of bond issuances from 2010 to 2019, we document substantial variation in spreads within the AAA category. The results show that spreads are systematically related to ownership structure, rating agency, firm fundamentals, and reputation. Public sector affiliation and firm age reduce borrowing costs, while agency identity and group structure remain important determinants. The findings suggest that ratings are not sufficient statistics for credit risk and that investors rely on additional signals, particularly in periods of stress.

Keywords: Corporate bonds; Credit Rating; Credit Spreads; India.

1. Introduction

Credit ratings play a central role in corporate bond markets by providing a summary measure of credit risk. In developed markets, ratings coexist with market-based measures such as credit default swap spreads, allowing investors to continuously assess credit risk. In contrast, the Indian corporate bond market lacks a deep and liquid credit default swap segment, placing greater reliance on credit ratings as a primary signal of credit quality.

A striking feature of the Indian market is the concentration of ratings at the upper end of the scale, with a large proportion of bonds rated AAA or in adjacent high-grade categories. Despite this apparent homogeneity, credit spreads exhibit substantial variation even within the AAA category. This raises an important question: how do markets differentiate credit risk when formal ratings provide limited dispersion?

The institutional structure of Indian corporations provides a useful lens through which to examine this issue. Corporate ownership is characterized by promoter-driven business groups, where founding entities—either private business houses or the state—retain significant control over affiliated firms. In such an environment, credit risk assessment may extend beyond firm-level characteristics to include ownership structure, group affiliation, and perceived implicit support in the event of financial distress.

This paper examines the pricing of credit risk in this setting using a dataset of Indian corporate bond issuances from 2010 to 2019. The sample period is deliberately restricted to avoid distortions associated with the COVID-19 pandemic. We document that spreads vary significantly within the AAA category and are systematically related to ownership structure, rating agency identity, firm fundamentals, and reputation. These relationships remain robust after controlling for issuer-level heterogeneity in repeated bond issuances.

Existing studies of the Indian corporate bond market primarily focus on the informational role of credit ratings, default prediction, or the determinants of bond yields across rating categories. However, relatively little attention has been paid to the substantial variation in spreads within highly concentrated rating categories, particularly among AAA-rated issuances. In addition, while the broader literature emphasizes rating incentives, agency heterogeneity, and rating shopping, limited evidence exists on how these institutional features interact with promoter-driven ownership structures and

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implicit support mechanisms in emerging-market bond pricing. This paper addresses these gaps by examining how ownership structure, rating agency identity, reputation, and group affiliation jointly influence the pricing of credit risk within narrowly defined rating categories.

Group affiliation provides an additional dimension through which credit risk is assessed. Corporate ownership is often organized around promoter-driven business groups, where affiliated entities share reputational and financial linkages. In this setting, investors may distinguish between firm-level reputation and the nature of group affiliation. While firm age captures aspects of accumulated credibility, group structure introduces an additional layer, particularly in differentiating between public and private subsidiaries. This distinction is important because affiliation with a public sector entity may convey perceived support in adverse states, whereas private group affiliation does not necessarily provide comparable assurance.

Overall, the findings suggest that in the Indian corporate bond market, credit ratings function as one component of a broader information set rather than a sufficient statistic for credit risk, even after controlling for persistent issuer-specific characteristics.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 describes data and methodology. Section 4 presents the results of empirical analysis and discusses the implications of the findings. Section 5 concludes.

2. Literature Review

Credit rating agencies (CRAs) play a central role in financial markets by providing standardized assessments of credit risk that facilitate investment decisions, pricing, and regulatory compliance. A large body of literature examines whether credit ratings convey new information or merely summarize publicly available data. Early studies suggest that ratings act as information intermediaries and that rating changes contain incremental information for financial markets (Hand et al., 1992; Cantor & Packer, 1995). However, subsequent work questions the informational content of ratings, arguing that they largely reflect publicly available data and adjust with a lag (Ederington et al., 1987). More recent studies highlight concerns regarding the timeliness, accuracy, and independence of ratings, particularly during periods of financial stress (Becker & Milbourn, 2011; Bongaerts et al., 2012).

A key strand of the literature focuses on incentive problems inherent in the credit rating industry. Under the issuer-pay model, CRAs are compensated by issuers, creating potential conflicts of interest and incentives to provide favorable ratings. Theoretical and empirical studies document the prevalence of rating shopping, whereby issuers solicit ratings from multiple agencies and select the most favorable outcome (Bolton et al., 2012; Skreta & Veldkamp, 2009). Evidence from emerging markets suggests that such behavior can lead to upward-biased ratings and reduced informational content. In the Indian context, recent work finds that observed ratings are often higher than those predicted by market-based models, indicating the presence of rating inflation and raising concerns about the reliability of ratings as measures of underlying credit risk (Kumari & Jessica, 2022; Kallapur et al., 2025).

A related body of work examines differences across rating agencies and the role of competition in shaping rating quality. While competition can, in principle, improve information production, several studies argue that increased competition may weaken reputational incentives and lead to more lenient ratings (Becker & Milbourn, 2011; Xia, 2014). At the same time, differences in methodology, client base, and market positioning may lead to systematic variation in rating outcomes across agencies. Even when rating symbols are standardized, ratings are ordinal rather than cardinal measures, and their interpretation may differ across agencies, particularly in markets where regulatory reliance on ratings is high (Charumathi & Mangaiyarkarasi, 2019).

Building on this, recent research emphasizes the role of regulation in shaping rating behavior. Credit ratings are embedded in regulatory frameworks governing capital

requirements, investment mandates, and risk management practices, which can create strong incentives for both issuers and rating agencies. While regulatory reliance can enhance the importance of ratings, it may also distort their informational content. Evidence suggests that regulatory interventions can have unintended consequences. For example, stricter enforcement actions, such as the forced exit of a rating agency, may lead to more conservative or pessimistic ratings, reducing missed defaults but increasing false warnings and borrowing costs (Mahapatro, 2024). These findings highlight that rating outcomes are influenced not only by underlying credit risk but also by regulatory pressures and the perceived costs of misrating.

Finally, the literature on emerging markets highlights the importance of institutional context in credit risk assessment. In markets characterized by concentrated ownership, business group affiliation, and varying degrees of state involvement, credit risk may depend on factors beyond firm-level financial characteristics (Khanna & Palepu, 2000; Gopalan, Nanda, and Seru, 2007). In India, the prominence of promoter-driven firms and public sector undertakings introduces additional dimensions of implicit support, reputation, and governance that may not be fully captured by formal ratings.

This paper contributes to the literature by examining how credit risk is priced in an environment where ratings are highly concentrated and shaped by institutional and regulatory factors. Using a comprehensive dataset of Indian corporate bond issuances, we document substantial variation in spreads within the AAA category and show that investors rely on a broader set of signals—including ownership structure, rating agency identity, firm fundamentals, and reputation—to differentiate risk. By integrating insights from the literature on rating incentives, agency heterogeneity, and regulatory effects, the paper highlights that credit ratings in the Indian corporate bond market function not as sufficient statistics for credit risk but as equilibrium outcomes shaped by regulatory dependence, issuer behavior, and market discipline.

3. Data and Methods

3.1. Institutional features of the Indian corporate bond market

Corporate bond issuance in India takes place through two primary channels: public issues and private placements. Public issues are subject to disclosure and regulatory requirements set by the Securities and Exchange Board of India (SEBI), while private placements are governed by provisions under the Companies Act and are typically subscribed to by institutional investors. In practice, private placements dominate the market, accounting for the majority of corporate bond issuances.

The investor base is largely institutional, consisting of mutual funds, insurance companies, commercial banks, and foreign portfolio investors. Secondary market liquidity is uneven, with many bonds held to maturity. As a result, issuance characteristics—such as issue size, listing status, and contractual features—play an important role in pricing.

Importantly, the structure of the corporate bond market during the sample period (2010–2019) differs from more recent developments. Secondary market trading during this period was relatively limited and largely institution-driven, with most bonds held to maturity. Consequently, issuance spreads primarily reflect placement conditions, investor demand, and expected tradability at the time of issuance rather than realized secondary market liquidity. While more recent regulatory reforms and digital trading platforms have expanded secondary market activity, these developments fall outside the sample period of this study (NITI Aayog, 2025).

Credit ratings are mandatory for corporate bond issuance and are provided by agencies such as CRISIL, ICRA, and CARE Ratings. A defining feature of the Indian market is the concentration of ratings at the upper end, with a large proportion of issuances falling within the AAA and AA categories.

Another important feature is the prevalence of promoter-driven business groups. Firms are often established, listed, and controlled by founding entities—either private business houses or the state—that retain significant ownership stakes. Consequently, investors may evaluate credit risk not only at the level of the issuing firm but also in relation to the broader group to which it belongs.

3.2. Data sources and construction

The dataset used in this study is constructed from multiple sources and covers the period from January 2010 to December 2019. Information on bond issuances—including coupon rates, issue size, maturity, and contractual features—is obtained from Central Depository Services (India) Limited (CDSL). Yield spreads are calculated relative to government securities using the rupee yield curve published by the Clearing Corporation of India Limited (CCIL).

Firm-level financial data are compiled from publicly available disclosures, including stock exchange filings and company reports. Additional information on issuer characteristics—such as ownership structure, listing status, and group affiliation—is assembled from regulatory filings and corporate sources. The dataset includes both public issues and private placements, thereby providing broader coverage of the corporate bond market than datasets limited to publicly issued securities.

The sample is intentionally restricted to the period ending in 2019 in order to avoid distortions associated with the COVID-19 pandemic. The pandemic and subsequent policy interventions significantly altered liquidity conditions, risk perceptions, and credit market behavior. Excluding this period ensures that the analysis reflects underlying market mechanisms under relatively stable conditions.

3.3. Variable construction

The dependent variable is the yield spread at issuance, defined as the difference between the bond's yield to maturity and the yield on a government security of comparable maturity. Yield spreads are computed using the government securities yield curve published by the Clearing Corporation of India Limited (CCIL). The CCIL constructs a daily zero-coupon yield curve using spline-based interpolation methods. For each bond, the corresponding government yield is matched to the closest maturity. While this introduces a minor approximation since corporate bonds are coupon-bearing instruments, this approach is standard and provides a consistent benchmark across maturities.

Explanatory variables are grouped into three categories. First, bond characteristics include maturity, issue size, listing status, and contractual features such as call and put options. Second, issuer characteristics include ownership structure (with an indicator for public sector undertakings), group affiliation, and financial variables such as leverage, long-term debt share, and interest coverage. Third, informational variables include credit rating categories and rating agency indicators. The public sector undertaking (PSU) category includes both central and state government entities. While underlying fiscal conditions may vary across state-level issuers, the PSU indicator captures the average effect of public sector affiliation in the pricing of credit risk.

To capture the role of reputation, firm age is constructed based on the year of incorporation. For subsidiary issuers, firm age is defined using the incorporation year of the parent firm, reflecting the importance of group-level reputation in shaping investor perceptions. In addition, separate indicators are constructed for subsidiaries of public sector entities and subsidiaries of private firms to capture differences in perceived support within business groups.

3.4. Empirical specification

To examine the determinants of credit spreads, we estimate the following regression:

$$Spread_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 Z_{i,t} + \beta_3 A_{i,t} + \gamma_t + \varepsilon_{i,t}, \quad (1)$$

where $Spread_{i,t}$ denotes the yield spread for bond i at time t. The vector $X_{i,t}$ includes bond characteristics such as maturity, issue size, listing status, and contractual features. The vector $Z_{i,t}$ includes issuer characteristics such as ownership structure, financial variables, firm age, and group affiliation. $A_{i,t}$ represents credit rating agency indicators, and γ_t denotes time fixed effects.

The regressions are estimated using ordinary least squares (OLS) with heteroskedasticity-robust standard errors. Time fixed effects control for changes in macroeconomic conditions, market liquidity, and overall risk sentiment over the sample period. To further account for persistent issuer-level heterogeneity, additional robustness specifications incorporate issuer fixed effects alongside year fixed effects as follows:

$$Spread_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 Z_{i,t} + \beta_3 A_{i,t} + \gamma_t + \alpha_i + \varepsilon_{i,t} \quad (2)$$

where γ_t denotes time fixed effects and αi denotes issuer fixed effects.

These specifications exploit within-issuer variation across repeated bond issuances and help control for unobserved issuer characteristics such as reputation, business model, implicit guarantees, and persistent differences in credit quality. Standard errors in these specifications are clustered at the issuer level.

The baseline specification is sequentially augmented to examine the role of financial characteristics, reputation, and group structure. Additional specifications incorporate firm-level financial variables, measures of reputation, and indicators for subsidiaries of public and private firms. To capture changes in pricing behavior following major credit events, interaction terms are introduced for the period after the IL&FS crisis.

The results are therefore interpreted as conditional associations rather than causal effects, as certain issuer characteristics and rating agency choices may themselves reflect underlying differences in credit quality and informational asymmetries.

4. Results and Discussion

4.1. Rating concentration and within-rating dispersion

We begin by examining the distribution of credit ratings across corporate bond issuances. A striking feature of the Indian corporate bond market is the high concentration of bonds at the upper end of the rating spectrum. Over the sample period, a substantial proportion of issuances are rated AAA, with high-grade categories (AA and above) accounting for the majority of the market. This concentration suggests that credit ratings provide only a coarse classification of credit risk.

Table 1. Distribution of Credit Ratings and Yield Spreads

Rating	Total Number	% Share	Mean Spr.	Std. dev.	10th Pctl.	Median	90th Pctl.
AAA	2916	45.63	120	54	53.5	113	196
AA+	1206	18.87	164	68.9	99	149	251
AA	875	13.69	238	90.8	131	234	358
AA-	387	6.06	288	197	146	247	446
A+	298	4.66	341	138	179	331	517
A	197	3.08	367	157	133	392	563
A-	120	1.88	424	186	212	420	623
BBB	128	2.00	534	223	234	561	792
BBB-	150	2.35	561	223	286	560	839
BB+	113	1.77	627	210	376	636	879

Note: Spread is measured as the difference between the bond yield at issuance and the yield on a government security of comparable maturity, expressed in basis points.

Despite this concentration, pricing within the highest rating category exhibits considerable heterogeneity. Within AAA-rated bonds, credit spreads vary widely, with a difference of more than 100 basis points between the lower and upper deciles.

Table 2. Summary Statistics of Regressors

Variable	Mean	Std. dev.	Median	Min	Max
Spread (bps)	120.32	53.97	113.11	3.61	368.86
Maturity (years)	8.06	4.28	8.01	1.00	30.00
Issue Size (₹ million)	6,730.18	11,032.00	2,250.00	0.60	85,000.00
PSU (dummy)	0.2976	0.4573	0	0	1
Unlisted (dummy)	0.3597	0.4800	0	0	1
Call Option (dummy)	0.1094	0.3122	0	0	1
Put Option(dummy)	0.0291	0.1683	0	0	1
Debt Ratio	0.7873	0.1570	0.8447	0.0007	1.6133
Coverage Ratio	2.0490	2.6785	1.4353	-21.9853	26.6894
Firm Age	25.19	21.20	26.00	1.00	180.00
Subsidiary of Public Firm	0.1176	0.3222	0	0	1
Subsidiary of Private Firm	0.0016	0.0399	0	0	1
Financial Sector (dummy)	0.5584	0.4930	1	0	1

This dispersion indicates that bonds with identical ratings are not treated as homogeneous by the market. Instead, investors appear to rely on additional information beyond formal ratings when pricing risk. An alternative explanation for within-rating dispersion is timing effects in issuance, where firms with different risk profiles access the market under varying conditions. However, the inclusion of time fixed effects mitigates this concern by controlling for common market conditions at the time of issuance. The share of AAA-rated bonds in the sample exceeds that typically observed in developed markets, highlighting the extent of rating compression.

4.2. Ownership structure and pricing differences

We next examine differences across issuer types, focusing on the distinction between public sector undertakings (PSUs) and private firms. The results reveal a substantial and economically meaningful difference in borrowing costs between these groups. AAA-rated bonds issued by PSUs carry significantly lower spreads than those issued by private firms, with a discount of 40–50 basis points.

This difference persists after controlling for bond characteristics, issuer fundamentals, and time effects. The magnitude and robustness of the PSU effect suggest that investors attach significant value to perceived government support in the event of financial distress associated with public sector issuers. Importantly, this effect is not fully captured by credit ratings, indicating that ratings do not completely internalize differences in ownership structure.

4.3. Role of bond characteristics and liquidity

Bond-specific features also play an important role in explaining spread variation. Larger issues are associated with lower spreads, which may reflect not only secondary market liquidity but also expected tradability and placement efficiency at the time of issuance. In a market dominated by private placements and limited secondary trading, issuance spreads may incorporate compensation for search costs and the ease of investor participation at issuance. Similarly, unlisted bonds carry higher spreads, reflecting lower transparency and reduced investor participation.

Table 3. Baseline Determinants of Credit Spreads (AAA-rated Bonds)

Dependent variable: Credit spread (basis points)		
Variables	(1) Baseline	(2) + Time Fixed Effect
Maturity (Years)	-3.0517***	-3.0133***
	(0.2058)	(0.1838)
Log(Issue Size)	-6.4969***	-6.9962***
	(0.4555)	(0.4454)
PSU (Public Sector)	-39.2285***	-48.8976***
	(2.0777)	(1.9609)
Unsecured (dummy)	2.0632	2.5588
	(1.9158)	(1.7083)
Private Placement	2.5665	-1.2751
	(4.4082)	(3.8932)
Unlisted (dummy)	8.8368***	10.5608***
	(1.8040)	(1.5985)
Put Option	-28.8876***	-25.8470***
	(4.7810)	(3.9237)
Call Option	33.6150***	35.6229***
	(2.9015)	(2.7074)
Time Fixed Effects	Not included	Included
Intercept	288.5085***	293.2473***
	(10.0064)	(25.7320)
Observations	2,875	2,875
Adj. R2	0.3770	0.6121

Notes: The dependent variable is the yield spread at issuance, measured in basis points relative to a government security of comparable maturity. Heteroskedasticity-robust standard errors reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Sample restricted to AAA-rated bonds.

Contractual features exhibit expected effects. Bonds with embedded put options are associated with lower spreads, as these options provide protection to investors. In contrast, call options are associated with higher spreads, reflecting the additional risk borne by investors. These results indicate that, even within a highly rated segment, standard pricing relationships based on liquidity and contract design remain operative.

4.4. Credit rating agency differences

We next examine whether pricing differs across credit rating agencies within the same rating category. CARE is used as the omitted category as it represents a large and representative segment of rated issuances, providing a natural benchmark. The results show that bonds rated AAA by different agencies carry systematically different spreads. Relative to bonds rated by CARE (the omitted category), those rated by CRISIL and ICRA are associated with significantly lower spreads, while bonds rated by other agencies also exhibit smaller but significant differences.

These findings indicate that the market does not treat identical ratings from different agencies as equivalent. The persistence of several agency-specific effects in specifications incorporating issuer fixed effects further suggests that these differences are not driven solely by persistent issuer-level heterogeneity. Agency identity appears to convey additional information beyond the rating label, reflecting either differences in rating standards or variation in market perceptions of agency credibility.

One potential explanation for this pattern is the presence of "rating shopping," whereby issuers may seek ratings from multiple agencies and select the most favorable outcome. If such behavior is present, the pool of issuers associated with each agency may differ systematically in underlying risk characteristics, even within the same rating category. In addition, the incentive structure of the rating industry—where agencies are

compensated by issuers—may generate variation in rating standards across agencies. In this setting, ratings function less as a uniform measure of credit risk and more as one component of a broader information set.

Table 4. Agency Effects (AAA-rated Bonds)

Dependent variable: Credit spread (basis points)	
Variables	(3) + Agency Effects
Maturity (Years)	-2.9673***
	(0.1800)
Log(Issue Size)	-6.5803***
	(0.4378)
PSU (Public Sector)	-44.7432***
	(1.9538)
Unsecured (dummy)	2.2997
	(1.6772)
Private Placement	6.2596
	(3.8901)
Unlisted (dummy)	11.3885***
	(1.5799)
Put Option	-22.2973***
	(3.8627)
Call Option	31.7106***
	(2.6944)
CRISIL	-20.1925***
	(1.8528)
ICRA	-15.3497***
	(2.1198)
Other	-8.7513***
	(2.2513)
Time Fixed Effects	Included
Intercept	304.1646***
	(25.2041)
Observations	2755
Adj. R2	0.6288

Notes: Dependent variable is the yield spread at issuance measured in basis points relative to a government security of comparable maturity. Heteroskedasticity-robust standard errors reported in parentheses. Sample restricted to AAA-rated bonds. CARE is the omitted rating agency category. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

4.5. Firm fundamentals and financial characteristics

To assess whether within-rating dispersion reflects underlying firm fundamentals, we augment the baseline specification with issuer-level financial variables. Measures of leverage and debt structure are positively associated with spreads, while interest coverage is negatively associated, consistent with standard credit risk considerations.

However, the inclusion of financial variables does not eliminate the effects of ownership, liquidity, or rating agency differences. PSU issuers continue to enjoy a substantial spread advantage, and agency-specific effects remain significant. This suggests that, while fundamentals are important, they do not fully account for observed pricing differences within the AAA category.

Table 5. Financial Characteristics and Reputation Effects (AAA-rated Bonds)

Dependent variable: Credit spread (basis points)		
Variables	(1) + Financial Characteristics	(2) + Reputation (Age)
Maturity (Years)	-2.6967***	-2.7898***
	(0.1925)	(0.1916)
Log(Issue Size)	-5.6523***	-5.4025***
	(0.4462)	(0.4447)
PSU (Public Sector)	-44.3704***	-40.3677***
	(2.0538)	(2.1412)
Unsecured (dummy)	7.7692***	9.1905***
	(1.8292)	(1.8302)
Private Placement	24.9786***	18.6682***
	(5.3942)	(5.4522)
Unlisted (dummy)	11.6476***	6.9394***
	(1.7549)	(1.9050)
Put Option	-22.4909***	-21.9762***
	(4.0739)	(4.0436)
Call Option	46.3629***	43.8018***
	(3.2659)	(3.2680)
CRISIL	-18.3319***	-19.1361***
	(1.9536)	(1.9432)
ICRA	-17.7004***	-19.7839***
	(2.1264)	(2.1376)
Other Agencies	-9.3266***	-8.0519***
	(2.2321)	(2.2249)
Debt Ratio	37.1477***	36.5711***
	(6.7023)	(6.6518)
Long-term Debt Ratio	16.4558***	11.8444***
	(4.4014)	(4.4328)
Interest Coverage	-1.4566***	-1.1394***
	(0.3993)	(0.3996)
EBIT	3.2907	3.9703*
	(2.1624)	(2.1487)
Profit Margin	-2.3981	-3.0745
	(2.5332)	(2.5163)
Firm Age		-0.4326***
		(0.0710)
Time Fixed Effects	Included	Included
Intercept	273.6151***	297.5062***
	(24.3820)	(24.5109)
Observations	2339	2338
Adj. R2	0.6779	0.6828

Notes: Standard errors in parentheses.
*** p < 0.01, ** p < 0.05, * p < 0.10. Sample restricted to AAA-rated bonds. CARE is the omitted category.

4.6. Reputation effects: the role of firm age

We further examine whether firm reputation influences borrowing costs by introducing firm age as a proxy for historical credibility and market recognition. For subsidiary issuers, firm age is measured using the incorporation year of the parent firm.

The results indicate that older firms are associated with lower spreads, even after controlling for financial characteristics and other factors. This suggests that investors

incorporate reputational considerations into pricing decisions. The effect captures not only the standalone track record of issuers but also the credibility associated with established business groups. The persistence of this relationship highlights the role of informal and relational information in markets characterized by rating concentration. While firm age captures aspects of group reputation, the results indicate that group structure—particularly the distinction between public and private subsidiaries—has an independent effect on pricing.

4.7. Group structure and implicit support

We next examine the role of group structure by distinguishing between subsidiaries of public sector entities and subsidiaries of private firms. The results reveal a sharp asymmetry. Subsidiaries of public sector entities are not priced differently from their parent firms, suggesting that markets perceive implicit government support to extend across group entities.

Table 6. Group Structure Effects (AAA-rated Bonds)

Dependent variable: Credit spread (basis points)	
Variables	Full Model + Group Structure
Maturity (Years)	-2.7699*** (0.1915)
Log(Issue Size)	-5.3356*** (0.4453)
PSU (Public Sector)	-40.6007*** (2.1612)
Unsecured (dummy)	9.0682*** (1.8338)
Private Placement	19.1032*** (5.5728)
Unlisted (dummy)	7.1876*** (2.1167)
Put Option	-24.6684*** (4.1542)
Call Option	44.2716*** (3.2704)
CRISIL	-18.7738*** (1.9588)
ICRA	-19.4348*** (2.1509)
Other Agencies	-7.9132*** (2.2226)
Debt Ratio	35.3572*** (6.7170)
Long-term Debt Ratio	12.5021*** (4.4556)
Interest Coverage	-1.1947*** (0.4019)
EBIT	4.1735* (2.1472)
Profit Margin	-3.2047 (2.5135)
Firm Age	-0.4119*** (0.0756)
Subsidiary (PSU)	0.1415 (2.3583)
Subsidiary (Private)	46.9077*** (16.4782)
Time Fixed Effects	Included
Intercept	294.9343 (24.6630)
Observations	2336
Adj. R2	0.6836

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Sample restricted to AAA-rated bonds. CARE is the omitted category. The number of private subsidiaries is relatively small; interpret with caution.

In contrast, subsidiaries of private firms carry significantly higher spreads, even within the AAA category. This indicates that private group affiliation does not provide the same level of credibility or perceived support. It is important to note that the number of private subsidiaries in the sample is relatively small; however, the magnitude and statistical significance of the estimated effect suggest that the result captures a meaningful difference in market perception.

4.8. Market response to the IL&FS crisis

Finally, we examine how the pricing of risk within AAA changed following the IL&FS crisis of 2018. While time fixed effects capture the overall increase in spreads, interaction terms reveal that the relative pricing of certain characteristics shifted after the crisis.

Table 7. Impact of IL&FS Crisis on Credit Spreads (AAA-rated Bonds)

Dependent variable: Credit spread (basis points)	
Variables	Full Model + IL&FS Interaction
Maturity (Years)	-2.9328***
	(0.1804)
Log(Issue Size)	-6.5128***
	(0.4383)
PSU (Public Sector)	-42.6309***
	(2.1422)
Unsecured (dummy)	2.4061***
	(1.6764)
Private Placement	6.5208*
	(3.8883)
Unlisted (dummy)	11.4813
	(1.5790)
Put Option	-22.4202***
	(3.8597)
Call Option	31.9568***
	(2.6940)
CRISIL	-20.4931***
	(1.8554)
ICRA	-16.3766***
	(2.1610)
Other Agencies	-8.4398***
	(2.2531)
PSU × Post IL&FS	-9.2962**
	(3.8823)
Time Fixed Effects	Included
Intercept	302.5409***
	(25.1916)
Observations	2754
Adj. R2	0.6294

Notes: Standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Sample restricted to AAA-rated bonds. CARE is the omitted category. Post IL&FS is defined as the period after September 2018.

In particular, the spread advantage associated with PSU issuers increases in the post-crisis period. This suggests that investors place greater emphasis on implicit government support during periods of heightened uncertainty. The result is consistent with a reassessment of risk and a reduced reliance on ratings as sufficient indicators of creditworthiness in stressed market conditions. This pattern reinforces the role of non-rating signals in credit risk assessment when formal ratings lose informational content.

4.9. Robustness tests

To examine whether the baseline findings are driven by persistent issuer-specific characteristics, additional specifications incorporate issuer fixed effects alongside year fixed effects. These models exploit within-issuer variation across repeated bond issuances

and therefore control for unobserved issuer attributes such as reputation, business model, and implicit guarantees.

Table 8. Robustness Tests with Issuer Fixed Effects and Rating Agency Controls

Dependent variable: Credit spread					
Variables	(1) Baseline	(2) + Agency Effects	(3) + Issuer FE	(4) AAA + Agency	(5) AAA + Issuer FE
AAA	−0.020***	−0.019***	−0.012***		
	(0.003)	(0.003)	(0.003)		
AA+	−0.016***	−0.016***	−0.012***		
	(0.003)	(0.003)	(0.002)		
AA	−0.010***	−0.010***	−0.010***		
	(0.003)	(0.003)	(0.002)		
BBB	0.011*	0.010*	0.012***		
	(0.006)	(0.006)	(0.004)		
Maturity (Years)	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log(Issue Size)	−0.001***	−0.001***	0.000	−0.001***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unsecured	0.000	0.000	0.004***	−0.001	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Private Issue	0.007***	0.008***	0.002	0.003***	0.005***
	(0.002)	(0.002)	(0.005)	(0.001)	(0.000)
Unlisted	0.001*	0.002*	0.000	0.001*	
	(0.001)	(0.001)	(0.004)	(0.001)	
Put Option	−0.002	−0.002	−0.002*	−0.003**	−0.002**
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Call Option	0.002*	0.002	0.000	0.004***	0.001***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
CRISIL		−0.005	−0.005*	−0.001	−0.000
		(0.004)	(0.003)	(0.001)	(0.001)
ICRA		−0.002	−0.005*	0.000	0.000
		(0.003)	(0.003)	(0.001)	(0.001)
Other Agencies		−0.004	−0.006*	0.002**	0.000
		(0.004)	(0.003)	(0.002)	(0.001)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Issuer Fixed Effects	No	No	Yes	No	Yes
Observations	6,046	6,046	6,044	2,842	2,839
Adj. R^2	0.700	0.708	0.859	0.491	0.784

Notes: The table reports robustness specifications incorporating rating agency controls and issuer fixed effects. Standard errors clustered at the issuer level are reported in parentheses. CARE is the omitted rating agency category, and A-rated bonds are the omitted rating category. Year fixed effects are included in all specifications. Columns (4) and (5) restrict the sample to AAA-rated bonds. $*** p < 0.01$, $** p < 0.05$, $* p < 0.10$

The robustness specifications indicate that the primary findings remain qualitatively unchanged. Credit ratings continue to exhibit economically and statistically significant relationships with yield spreads, while agency-specific differences remain significant in several specifications. Within the AAA segment, substantial spread dispersion persists even after controlling for issuer-level heterogeneity, reinforcing the conclusion that investors rely on a broader set of informational signals beyond formal credit ratings when pricing corporate debt.

4.10. Discussion and implications

Taken together, the results demonstrate that credit ratings—particularly at the highest level—provide an incomplete characterization of credit risk in the Indian corporate bond market. Even within the AAA category, spreads vary systematically with ownership structure, liquidity, contractual features, agency identity, firm fundamentals, reputation, and group affiliation.

These findings suggest that when ratings are highly concentrated, markets rely on a broader set of signals to differentiate risk. In this context, credit ratings function as one component of a broader informational framework rather than a sufficient statistic for credit quality. The strengthening of these effects following a major credit event further indicates that investor sensitivity to underlying characteristics increases during periods of heightened uncertainty.

Credit rating agencies incorporate both quantitative and qualitative factors in their assessment of credit risk. However, the results of this study suggest that in the Indian corporate bond market, qualitative and institutional factors—such as ownership structure, promoter reputation, and group affiliation—play a central role in pricing. The absence of a deep credit default swap market further reinforces the importance of ratings while simultaneously increasing reliance on alternative informational signals. Investors appear to supplement ratings with information about ownership, agency identity, and reputation in order to differentiate risk within rating categories.

The robustness tests incorporating issuer fixed effects further strengthen this interpretation. Even after controlling for persistent issuer-specific characteristics, significant variation in spreads remains within identical rating categories, and agency-specific pricing differences continue to persist. These findings suggest that market participants evaluate credit risk using a broader informational framework that extends beyond formal ratings alone.

The findings also have important implications for investors and policymakers. Portfolios constructed solely on the basis of rating categories may still contain substantial variation in underlying risk, particularly in environments where ratings are highly concentrated. More broadly, the results highlight the importance of transparency, institutional credibility, and supplementary information in improving the informational efficiency of emerging-market corporate bond markets.

5. Conclusion

This paper examines how credit risk is priced in a corporate bond market where formal credit ratings are highly concentrated at the upper end of the scale. Using a uniquely constructed dataset of Indian corporate bond issuances from 2010 to 2019, we document substantial variation in credit spreads even within the AAA category and identify the factors that explain this dispersion.

The empirical results show that credit ratings alone provide an incomplete characterization of risk. Even among bonds with identical ratings, spreads vary systematically with ownership structure, bond characteristics, rating agency identity, firm fundamentals, and measures of reputation. In particular, bonds issued by public sector undertakings carry significantly lower spreads, reflecting the perceived value of implicit government support in the event of financial distress. Differences across credit rating agencies persist within the same rating category, indicating that markets do not treat identical ratings as fully comparable. These relationships remain robust in specifications incorporating issuer fixed effects, suggesting that the observed pricing differences are not driven solely by persistent issuer-level heterogeneity. Firm age, which captures aspects of reputation and historical credibility, is associated with lower borrowing costs, while financial variables such as leverage and interest coverage explain part—but not all—of the observed variation.

A central contribution of the paper is to highlight the role of promoter-driven corporate structures in shaping bond pricing. The analysis shows that subsidiaries of public sector entities are priced similarly to their parent firms, consistent with the perception that state backing extends across group entities. In contrast, subsidiaries of private firms carry significantly higher spreads, suggesting that private group affiliation does not fully mitigate perceived risk. These findings indicate that investors evaluate credit risk not only at the level of the issuing firm but also in relation to the broader business group and the nature of promoter control.

The results also demonstrate that the importance of these factors increases following a major credit event. In the aftermath of the IL&FS crisis, the spread advantage associated with public sector issuers becomes more pronounced, indicating that investors place greater weight on implicit guarantees and underlying characteristics when uncertainty rises. This suggests that reliance on ratings alone may decline in periods of stress, with markets turning to alternative signals to differentiate risk.

The findings have important implications for issuers, investors, and policymakers. In markets characterized by rating concentration, credit ratings alone may not provide a sufficient basis for risk assessment. Investors appear to supplement ratings with information about ownership structure, reputation, group affiliation, and rating agency identity when evaluating credit risk. The results also highlight the importance of transparency and institutional credibility in improving the informational efficiency of emerging-market corporate bond markets. These findings also suggest that regulatory frameworks relying heavily on rating classifications may overlook meaningful variation in underlying credit risk.

Overall, the paper shows that in a promoter-driven corporate system with highly concentrated ratings, credit risk is priced using a broader set of signals than those captured by formal ratings. Understanding these mechanisms is essential for interpreting bond market behavior and for designing policies that enhance the informational efficiency of credit markets in emerging economies.

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