

# The Real Effects of Rating Inflation: Evidence from China

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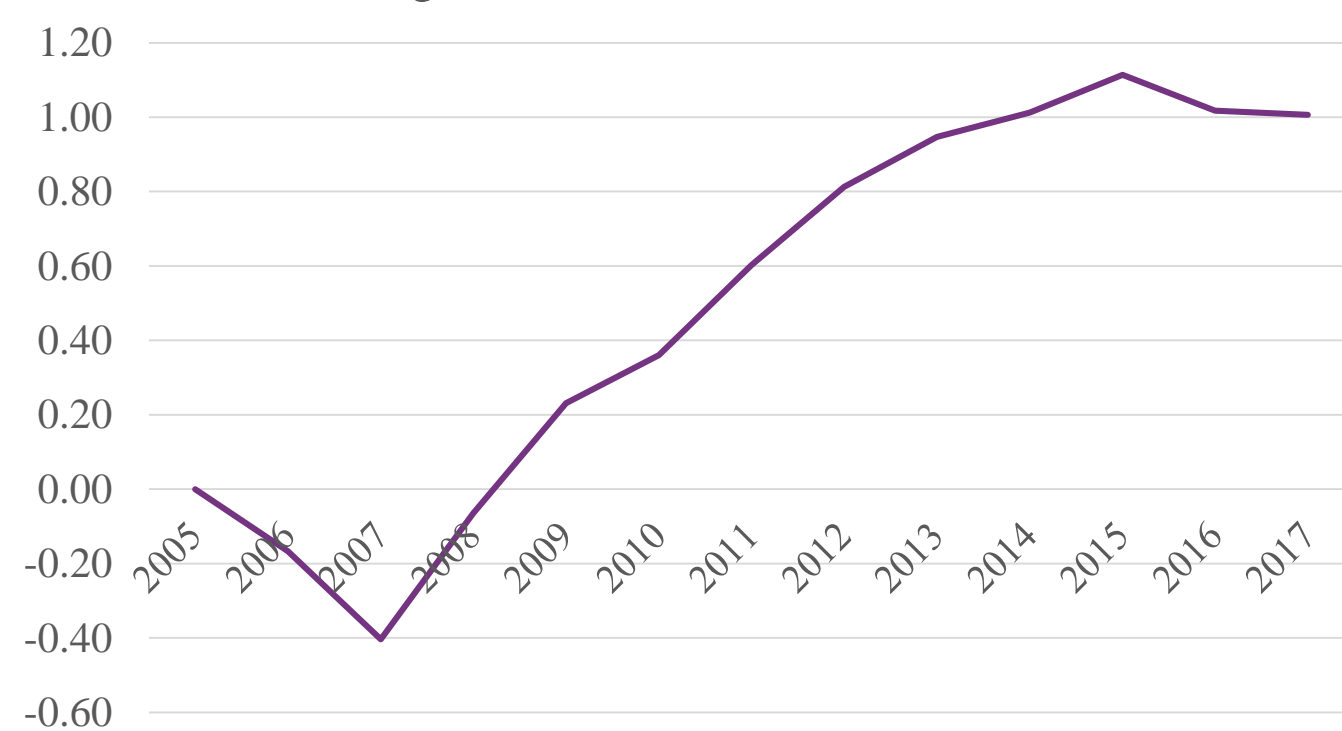
## Abstract

Credit ratings in the Chinese corporate sector were inflated by one notch on average during the period of 2005-2017. Inflated ratings lead to partial reductions in bond issuance spreads by 23 bps on average. Firms with inflated ratings tend to increase leverage ratios; hold less cash; and invest more in capital assets. On average, rating inflation associates with faster sales growth, greater profitability and higher market-to-book ratios; but for firms with relatively weak fundamentals, rating inflation negatively correlates with operation efficiency. Rating-contingent regulations and the agency conflicts rooted in the issuer-paid rating business model jointly explain around 40% of rating inflation.

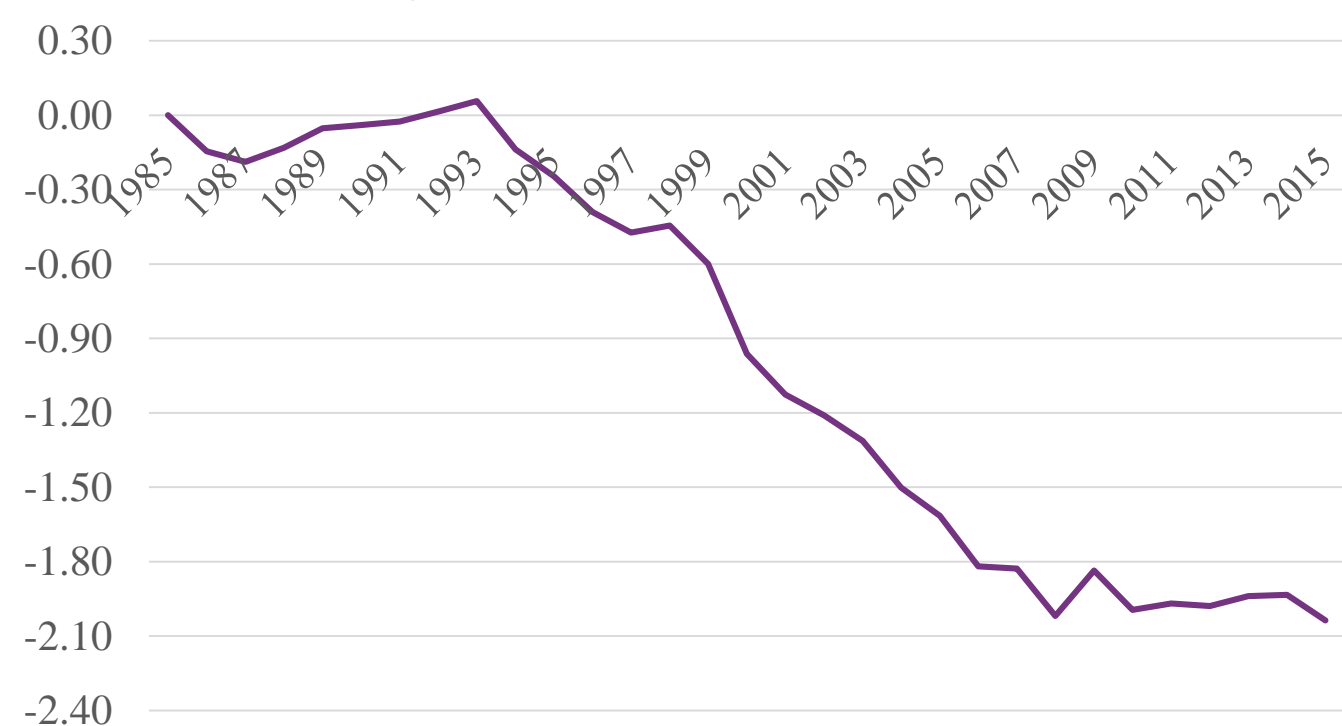
## Introduction

- Credit ratings play an important role in affecting corporate financial decision-making (Graham and Harvey, 2001; Kisgen, 2006). Rating inflation distorts the applications of credit ratings in information discovery, regulation and monitoring, and could subsequently affect corporate operations and performance (Bolton et al., 2012; Opp et al., 2013; Goldstein and Huang, 2019).
- However, there exists almost no direct empirical about the real of rating inflation as rating tightened two notches in U.S. corporate sector ever since 1985 (Blume et al., 1998; Alp, 2013; Baghai et al., 2014). In contrast, the rating standards in China have been relaxed by one notch in just a decade. The sharp contrasts provides us the chance to investigate the real and financial effects of rating inflation.

Rating Standards in China: 2005-2017



Rating Standards in U.S.A.: 1985-2015



## Data & Rating Inflation Measure

- Chinese Credit Bonds and Listed Firm data from Wind (2005-2017)
  - 3,649 firm-year observations from 904 A-share listed firms
  - Results hold similar if we consider the unlisted firms

- Definition of Credit Rating Inflation:

$$Inflation_{i,t}^{YbY} = Nominal Ratings_{i,t} - Implied Ratings_{i,t}^{YbY}$$

$$Inflation_{i,t}^{2017} = Nominal Ratings_{i,t} - Implied Ratings_{i,t}^{2017}$$

( $Implied Ratings_{i,t}^{YbY}$  is obtained as a function of firm fundamentals for each firm  $i$  in year  $t$ , the coefficients of the function are the average coefficients of baseline Ordered Probit Model estimated year by year from 2009;  $Implied Ratings_{i,t}^{2017}$  is obtained similarly from a function with coefficients estimated using 2017 sample only)



## Rating Inflation: Financial Impact

### 1. Bond Pricing

	Issuance Spread	Issuance Spread	Issuance Spread	Issuance Spread
(a) Issuer Rating	-46.99*** (6.41)		-46.24*** (7.88)	
(b) Inflation <sup>YbY</sup>	23.91*** (6.35)	23.19*** (6.31)		
(b) Inflation <sup>2017</sup>			21.65*** (8.25)	21.30*** (8.16)
Controls	√	√	√	√
Firm FE	√	√	√	√
CRA FE	√	√	√	√
Year FE	√	√	√	√
Rating FE	×	√	×	√
N	2660	2660	2660	2660
Adj. R-sq	0.752	0.754	0.750	0.752
F-test: (a) - (b)	-23.08***		-24.59***	

### 2. Financial Effects

	Long Term Debt/ Total Asset	Total liability/ Total Asset	Cash and Equivalents/ Total Asset
L.Inflation <sup>YbY</sup>	0.008* (0.004)	0.013*** (0.004)	-0.011** (0.004)
L.Inflation <sup>2017</sup>	0.010** (0.004)	0.016*** (0.005)	-0.014*** (0.005)
Controls	√	√	√
Firm FE	√	√	√
Year FE	√	√	√
Rating FE	√	√	√
N	2589	2589	1805
Adj. R-sq	0.744	0.857	0.759

## Rating Inflation: Real Impact

Follow the theoretical prediction of Goldstein and Huang (2019), we split the Sample based on fundamentals (implied ratings).

### 1. Investment

Fundamentals	Capex		Other Investment		R&D	
	High	Low	High	Low	High	Low
L.Inflation <sup>YbY</sup>	0.191*** (0.045)	0.106** (0.050)	-0.015 (0.055)	-0.039 (0.048)	0.001 (0.000)	-0.000 (0.001)
Controls & FE	√	√	√	√	√	√
N	1306	1044	1306	1044	826	684
Adj. R-sq	0.170	0.190	0.510	0.341	0.923	0.885

### 2. Performance

Fundamentals	Sales Growth		EBIT to Total Asset		ROE	
	High	Low	High	Low	High	Low
L.Inflation <sup>YbY</sup>	0.042* (0.022)	-0.008 (0.029)	0.000 (0.002)	-0.004 (0.004)	0.002 (0.005)	-0.002 (0.013)
Controls & FE	√	√	√	√	√	√
N	1306	1044	1306	1306	1044	1306
Adj. R-sq	0.222	0.273	0.684	0.222	0.273	0.684

### 3. Efficiency

Fundamentals	MB Ratio		Inventory Turnover		Asset Turnover	
	High	Low	High	Low	High	Low
L.Inflation <sup>YbY</sup>	0.043* (0.025)	-0.049 (0.044)	4.008 (2.476)	-0.338 (1.015)	0.020 (0.014)	-0.032** (0.015)
Controls & FE	√	√	√	√	√	√
N	1306	1044	1287	1306	1044	1287
Adj. R-sq	0.795	0.737	0.835	0.795	0.737	0.835

## Rating Inflation: An Explanation

Under the CSRC 2015 No.[113], AAA-rated firms are provided with many more regulatory benefits, see Liu and Wang (2019) for details.

**Control Group:** existing AAA firms; **Treat Group:** new AAA firms.

Inflation <sup>YbY</sup>		Regulation Affected Subsample	
		High Conflict	Low Conflict
Regulation	0.28*** (0.10)	0.42*** (0.11)	0.27** (0.12)
Regulation * High Conflict			0.30** (0.15)
Conflict	0.06* (0.03)	0.07 (0.05)	0.04 (0.05)
CRA	-0.62* (0.37)	-0.63 (0.71)	-1.18 (1.06)
Competition	-0.29 (0.31)	0.51 (0.52)	2.54*** (0.83)
GDP Growth		-0.32 (0.47)	0.53 (0.50)
Firm FE	√	√	√
Year FE	√	√	√
N	3649	833	435
Adj. R-sq	0.672	0.614	0.600

## Conclusion

We contributes to the literature by providing direct evidence on the real effects of rating inflations. Higher ratings, though potentially inflated, do provide positive signals and lead to lower financial costs. Firms with inflated ratings raise more long-term debts, increase total liability, hold less cash and invest more in fixed asset. Firms with higher rating inflation associate with higher sales growth, higher profitability and better growth opportunity. However, for firms with worse fundamentals, rating inflations do bring lower operation efficiency.