How do Debt Market Reacts to Mandatory CSR? Evidence from the Indian Companies Act 2013

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OUTLINE

- Motivation
- Our Findings
- Data and Methodology
- Empirical Tests and Results
- Conclusions

Indian Company Act 2013

- Clause 135, The Indian Company Act of 2013 *mandates* a minimum level of CSR spending
- Firms meeting at least one of three criteria have to spend 2% of their profit on CSR
  - Net Profit > INR 50 Million
  - Sales > Sales of INR 10 Billion
  - Net Worth > INR 5 Billion

Identification issues

- Corporate Social Responsibility has been postulated to have both a negative and a positive impact
  - Shareholder/Bondholder Expense View (Friedman 1970)
  - Stakeholder Value Maximization View (Freeman 1984)
- Identification issue: Firms may optimally choose CSR Activity affecting the results of studies on the impact of CSR
- The 2013 Indian Company Act is an exogenous CSR spending requirement

Impact on Bond Yield Spreads

- Bond Markets offer an opportunity to examine the impact of Mandatory CSR
- Bonds are ahead of shareholders with respect to claim on future cash flow
- CSR has to have more than a marginal impact to affect Bond markets

Our Findings

- Yield spreads of firms that are affected by CSR activities are lower by 104 BP in the period following the passage of the 2013 company act
- Government ownership exacerbates the cost of CSR
- Group membership reduces yield spreads on bonds of AFFECTED firms
- Good governance reduces the increase in yield spreads on bonds

Relevant Literature

- Lys, Naughton, and Wang (2015) - CSR as a signaling mechanism
- Oikonomou, Brooks, and Pavelin (2014) and Cooper and Uzun (2015) - credit ratings increase and costs decrease
- Goss and Roberts(2011) CSR firms have a lower cost of bank loans
- Chen, Hung, and Wang (2017) – mandatory CSR has negative impact for Chinese firms
- Rajgopal and Manchiraju (2018) - mandatory CSR has a negative impact on shareholder value

Events Related to CSR Rule

Event # 1
Aug 3, 2009
Introduction of the Company's Bill 2009 in the Lok Sabha

Event # 2
Aug 31, 2010
For the first time, Standing Committee on Finance inserts the notion of Mandatory CSR in its report

Event # 3
Feb 28, 2011
Bowing to corporate pressure, the Ministry of Corporate Affairs announces that it is considering making CSR voluntary and not mandatory

Event # 4
Dec 14, 2011
Government eventually goes ahead with the mandatory CSR and introduces a revised Company's Bill in the Lok Sabha

Event # 5
Jun 26, 2012
Standing Committee on Finance endorses the bill with no new changes relating to mandatory CSR

Event # 6
Dec 18, 2012
The Companies Bill 2012, containing mandatory CSR clause, is passed in the Lok Sabha

Event # 7
Aug 8, 2013
The Companies Bill 2012 is passed in the Rajya Sabha

Event # 1
Aug 29, 2013
The President signs the bill and it is enacted

Data

- SDC Platinum Fixed Income Issues Database
- 2009 to 2017
- Exclude Preferred Stock Issues & bonds with option features. Yield data from SDC
- CMIE Prowess for firm level data
- Indian Treasury Rate data from Investing.com
- Auditor affiliations through Websites
- Final Sample 3,466 bonds

Panel A: Bond Issues by Year			
Year	#Bonds	Percent	Cumulative
2009	289	8.34%	8.34%
2010	367	10.59%	18.93%
2011	460	13.27%	32.20%
2012	615	17.74%	49.94%
2013	304	8.77%	58.71%
2014	326	9.41%	68.12%
2015	307	8.86%	76.98%
2016	421	12.15%	89.12%
2017	377	10.88%	100.00%
TOTAL	3,466	100%	

Treatment Period

- Clause 135 of the Indian Company Act came into effect in 2013

- PRECSR period: 2009-2012
- POSTCSR period: 2013-2017
  - Firms with M > 0 subject to mandatory CSR

Mandatory CSR Criteria - 1

- R1: Percentage difference between the firm's PRETAX INCOME and INR 50 million
- R3: Percentage difference between the firm's NET WORTH INCOME and INR 5 billion
- R3: Percentage difference between the firm's TOTAL REVENUE and INR 20 billion
- M: Minimum positive value of R1, R2, or R3, if at least one of the three is positive. If R1, R2, and R3 are all negative, the maximum of the three measures.

Mandatory CSR Criteria - 2

$$
\begin{aligned}
R1 &= \frac{PRETAX\ INCOME - 50}{50} \\
R2 &= \frac{NET\ WORTH - 5,000}{5,000} \\
R3 &= \frac{TOTAL\ REVENUE - 10,000}{10,000}
\end{aligned}
$$

$$
M = \begin{cases}
min(R1, R2, R3) & if\ R1 \geq 0 \& R2 \geq 0 \& R3 \geq 0 \\
min(R1, R2) & if\ R1 \geq 0 \& R2 \geq 0 \& R3 < 0 \\
min(R2, R3) & if\ R1 < 0 \& R2 \geq 0 \& R3 \geq 0 \\
min(R1, R3) & if\ R1 \geq 0 \& R2 < 0 \& R3 \geq 0 \\
R1 & if\ R1 \geq 0 \& R2 < 0 \& R3 < 0 \\
R2 & if\ R1 < 0 \& R2 \geq 0 \& R3 < 0 \\
R3 & if\ R1 < 0 \& R2 < 0 \& R3 \geq 0 \\
max(R1, R2, R3) & if\ R1 < 0 \& R2 < 0 \& R3 < 0
\end{cases}
$$

Mandatory CSR Criteria - 3

AFFECTED Firms that have M > 0

Component Specific Criteria

- AFFECTED_R1 Firms that have R1 > 0
- AFFECTED_R2 Firms that have R2 > 0
- AFFECTED_R3 Firms that have R3 > 0

Hypotheses

- H1: Mandatory CSR has an impact on bond yield-spreads
- He: The negative (positive) impact of CSR is higher (lower) for Government owned firms
- H3: The negative (positive) impact of CSR is lower (higher) for well governed firms

Unaffected/Affected Firms

Panel B: Unaffected/Affected Distribution			
AFFECTED	PERIOD		TOTAL
	PRE	POST	
0	30	79	109
1	2,005	1,352	3,357
TOTAL	2,035	1,431	3,466

Variables

- Independent variable, YIELD SPREAD: Yield-to-maturity minus the matched Indian Treasury Rate
- Controls for firm characteristics
- Bond characteristics
- Industry fixed effects

Descriptive Statistics

Variable	#Obs	Mean	Median	Std. Dev.	Min	Max
YIELD SPREAD	3,466	2.174	1.485	1.985	0.111	8.200
SALES	3,466	2121.056	1,103.833	2443.321	0.364	8656.865
PROFIT	3,466	264.200	176.602	264.961	-109.483	774.837
NET WORTH	3,466	1835.733	1190.933	1736.816	-71.045	5188.324
TOTAL ASSETS	3,466	8.774	8.874	1.484	3.330	11.685
TOBIN_Q	3,466	2.303	2.004	1.382	0.409	6.018
LEVERAGE	3,428	0.509	0.554	0.252	0.022	0.899
MATURITY	3,466	7.879	3.000	16.706	0.000	100.000
CREDIT_RANK	3,037	7.479	7.615	0.641	2.000	8.000

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Methodology

- Diff-in-Diff regression
  - Regress yield-spreads on POST CSR, AFFECTED and the interaction term AFFECTEDXPOSTCSR
- Regression Discontinuity
  - Are yield-firms for firms that just meet CSR requirement thresholds different from that of firms that just miss the CSR threshold

Diff-in-diff specification

$$
\begin{aligned}
YieldSpread &= \alpha + \beta_1 AFFECTED + \beta_2 POSTCSR + \beta_3 AFFECTED\ X\ POSTCSR + \\
&\quad \gamma X + INDUSTRY\ FIXED\ EFFECTS + \epsilon
\end{aligned}
$$

- Hypothesis: Firms affected by CSR will have a significant coefficient for the interaction term AFFECTED X POSTCSR
  - Positive => CSR activity has a negative impact
  - Negative => CSR has a positive impact

Impact of CSR

- Eight models
  - Models 1-4 AFFECTED, POSTCSR and interactions
  - Models 5-8 Includes controls
  - Models 1 & 5, use M to determine AFFECTED
  - Models 2-4, 6-9 use component specific cut-offs
- Coefficient on interaction term of AFFECTED firms and POSTCSR is positive and significant in seven of eight models.

Table 3: Baseline Diff-in-Diff

VARIABLES	(1) Yield Spread	(2) Yield Spread	(3) Yield Spread	(4) Yield Spread	(5) Yield Spread	(6) Yield Spread	(7) Yield Spread	(8) Yield Spread
POSTCSR	-1.592***	0.293	-0.249*	0.032	-0.825	-0.676	-0.405**	0.030
	(0.307)	(0.350)	(0.150)	(0.102)	(0.565)	(0.433)	(0.164)	(0.108)
AFFECTED	-0.449*				-0.652			
	(0.267)				(0.498)			
AFFECTED_R1		-0.450				-0.578		
		(0.303)				(0.359)		
AFFECTED_R2			-0.511***				-0.009	
			(0.098)				(0.126)	
AFFECTED_R3				-0.486***				-0.044
				(0.089)				(0.127)
AFFECTED	0.635**				1.046*			
xPOSTCSR	(0.311)				(0.570)			
AFFECTED_R1		-0.207				0.904**		
xPOSTCSR		(0.357)				(0.440)		
AFFECTED_R2			0.524***				0.733***	
xPOSTCSR			(0.168)				(0.182)	
AFFECTED_R3				0.248*				0.301**
xPOSTCSR				(0.137)				(0.143)

Economic Significance

Model 5: Combined criteria, regression with controls

- Yield spreads increase by 104 BP for AFFECTED firms in the POSTCSR period (in Model 5)
- POSTCSR coefficient is -0.825%
- Mandatory CSR increased cost of capital by 22BP

Table 3: Baseline Diff-in-Diff Controls

VARIABLES	(1) Yield Spread	(2) Yield Spread	(3) Yield Spread	(4) Yield Spread	(5) Yield Spread	(6) Yield Spread	(7) Yield Spread	(8) Yield Spread
SIZE					-0.111**	-0.107**	-0.168***	-0.124**
					(0.046)	(0.044)	(0.050)	(0.049)
TOBINQ					0.00213	-0.000	0.005	0.009
					(0.027)	(0.027)	(0.027)	(0.028)
LEVERAGE					-0.378*	-0.389**	-0.401**	-0.302
					(0.195)	(0.192)	(0.190)	(0.203)
MATURITY					0.003	0.004	0.004	0.003
					(0.002)	(0.002)	(0.002)	(0.002)
CREDITRANK					-0.399***	-0.412***	-0.391***	-0.408***
					(0.0658)	(0.0662)	(0.066)	(0.0665)
CONSTANT	10.05***	2.536***	2.458***	2.331***	6.760***	6.755***	6.567***	6.260***
	(0.265)	(0.299)	(0.0813)	(0.0608)	(0.717)	(0.672)	(0.579)	(0.589)
Observations	3407	3407	3407	3407	2978	2978	2978	2978
R-squared	0.102	0.005	0.009	0.011	0.026	0.026	0.031	0.026

Impact of control variables

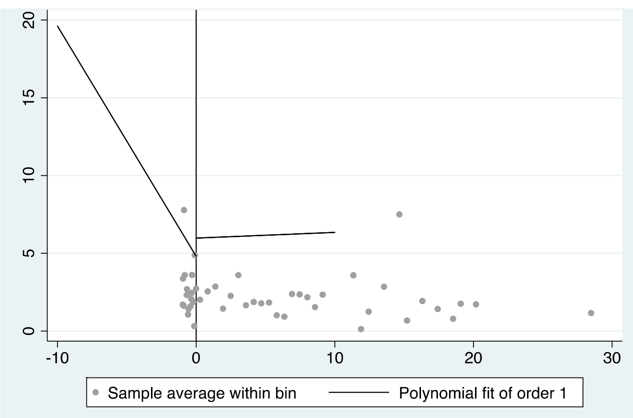
- Bonds issued by larger firms have lower credit spreads
- Bonds issued by firms with higher leverage have lower credit spreads
- Higher rated spreads have lower spreads

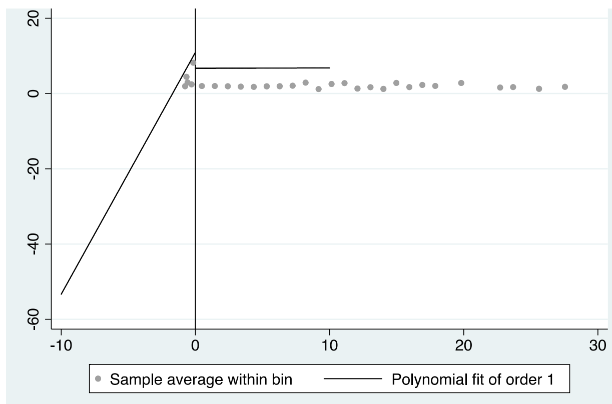
Regression Discontinuity Model

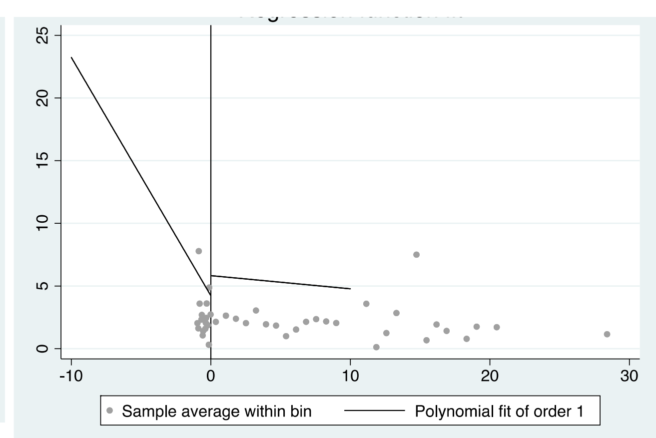
- Specific threshold for determining when a firm is subject to Mandatory CSR
- Firms that just meet the threshold are treated differently from firms that just miss
  - Multiple metrics determine M, so run Multivariate RDD
- Does the discontinuity impact yield spreads?

Regression Discontinuity Test

Sample Period	Method	Coef.	Std. Err.	z	P >z	[95% Conf.	Interval]
Full Sample	Conventional	1.172**	0.555	2.111	0.035	0.084	2.260
PRECSR	Conventional	-4.219**	1.974	-2.137	0.033	-8.089	-.3495
POSTCSR	Conventional	1.60***	0.543	2.948	0.003	0.536	2.665







Regression Discontinuity Result

- Coefficient on POSTCSR is positive and significant for the full sample, indicating that yield-spreads jump around M=0
- Coefficient on the subsample PRECSR (POSTCSR) show that there is a decrease (increase) in yield-spreads around M=0
- The treatment matters

Ownership Structure Features

- Indian firms are unique in their ownership structure along several dimensions
  - CONC_HLDG: Dummy variable equal to 1 if shareholding of the firm's promoters is greater than that of the median of sample firms
  - GOVT_OWNED: Dummy variable equal to 1 if either the central or state governments hold shares in the firm
  - BG: Dummy variable equal to 1 if the firm is a member of a business group
- Two specifications
  - Full sample with triple interaction effects (AffectedXPeriodXGov)
  - Only affected firms with period and governance interaction

Ownership Structure Tests

VARIABLES	Yield Spread	Yield Spread	Yield Spread	Yield Spread	Yield Spread	Yield Spread
POSTCSR	-0.829	-0.846	-0.844	0.311***	0.109	0.450***
	(0.565)	(0.562)	(0.564)	(0.115)	(0.0796)	(0.153)
AFFECTED	-0.645	-0.674	-0.737			
	(0.498)	(0.495)	(0.497)			
AFFECTED	1.149**	0.959*	1.291**			
xPOSTCSR	(0.578)	(0.567)	(0.580)			
Conc_Holdg	0.00879			-0.00915		
	(0.0996)			(0.101)		
GOVT_OWNED		0.292**			0.297**	
		(0.133)			(0.133)	
BG			-0.237*			-0.254**
			(0.124)			(0.126)
AFFECTED	-0.171					
POSTCSRxCONC_HLDG	(0.146)					
AFFECTEDx		0.689***				
POSTCSRxGOVT_OWNED		(0.186)				
AFFECTED			-0.302*			
xPOSTCSRxBG			(0.173)			
POSTCSRxCONC_HLDG				-0.158		
				(0.147)		
POSTCSRxGOVT_OWNED					0.699***	
					(0.186)	
POSTCSRxBG						-0.310*
						(0.174)

Impact of Ownership Structure

- Coefficient on Triple interaction effects are mixed for ownership variables
  - Yield spreads for Affected firms in POSTCSR period does not depend on promoter holdings
  - Yield spreads higher by 0.689% for affected firms in POSTCSE period if they are government owned
  - Yield spreads lower by 0.302% for affected firms in POSTCSE period if they belong to a business group
- Base results hold.
  - Coefficient of interaction term AFFECTEDxPOSTCSR is significant and positive in Models 1-3
  - Coefficient on POSTCSR is positive and significant in Models 4-6

Governance Structure

Corporate Governance can potentially mitigate wasteful CSR spending and enhance efficacy.

- Two measures that capture good governance:
  - BI: Fraction of the board that is classified as independent by Prowess
  - BIG4: BIG4 is one for bonds issued by firms audited by Affiliates of Deloitte & Touche, KPMG, PWC, & E&Y
- Two specifications
  - Full sample with triple interaction effects (AffectedXPeriodXGov)
  - Only affected firms with period and governance interaction

Corporate Governance Test

VARIABLES	Yield Spread	Yield Spread	Yield Spread	Yield Spread
POSTCSR	-0.811	-0.934*	0.698***	0.371***
	(0.561)	(0.564)	(0.107)	(0.0901)
AFFECTED	-0.651	-0.702		
	(0.494)	(0.496)		
AFFECTED xPOSTCSR	1.516***	1.306**		
	(0.570)	(0.570)		
BI	0.00279		-0.0142	
	(0.0934)		(0.0952)	
BIG4		-0.115		-0.110
		(0.0978)		(0.0992)
AFFECTED xPOSTCSRxBI	-0.785***			
	(0.146)			
AFFECTED xPOSTCSRxBIG4		-0.456***		
		(0.149)		
POSTCSR xBI			-0.769***	
			(0.147)	
POSTCSR xBIG4				-0.458***
				(0.150)

Impact of Governance

- Coefficient on Triple interaction effects are negative and statistically significant.
  - Yield spreads lower by 0.785% for Affected firms in POSTCSR period for 1% increase in Board Independence
  - Yield spreads lower by 0.456% for affected firms in POSTCSE period if they use BIG4 auditor
- Base results hold.
  - Coefficient of interaction term AFFECTEDxPOSTCSR is significant and positive in Models 1-2
  - Coefficient on POSTCSR is positive and significant in Models 3-4

Conclusions

- Yield spreads higher on bonds issued by firms affected by Mandatory CSR
- Government ownership exacerbates the negative impact of CSR – perhaps reflecting political interference
- Good governance mitigates impact of mandatory CSR – perhaps because of efficient use of CSR spending