THE INFLUENCE OF CORPORATE GOVERNANCE ON THE COST OF DEBT IN BRICS COUNTRIES

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Motivation

Agency and resource dependence theories predict….

Board composition and ownership structure influence intensity of agency conflicts & expertise underlying governance decisions

Risk premium on debt instrument is influenced by:

risk of managerial opportunism

risk of the distortion of corporate information

risk of wealth expropriation by majority shareholders

[Jensen and Meckling (1976), Salancik and Pfeffer (1978)]

[Bhojraj and Sengupta (2003)]

… Business case in BRICS reveals

In China the role of independent directors is mitigation of the risk of expropriation of minority wealth by block holders

The phenomenon of nominal directors

Power of informal relationships, corruption

Does board independence matter for debt holders?

Does effect of board independence on debt holder's risk in BRICS depend on ownership concentration?

[Jiang and Kim (2015), Clarke (2015), Estrin and Prevezer (2011)]

Practical significance

Corporate governance matters for debt holders, especially after the cases of severe accounting fraud *[Darrat et al. (2014)]:*

- **Applying for the analysis of credit quality of debt issuers**
- **Elaboration of best practices of corporate governance for the less costly debt raising (determination of the right signals to investors)**

Academic significance

- **The evidence from emerging markets *[Juniarti and The Lia Natalia (2012), Bliss and Gul (2012), Shailer and Wang (2015)]* is scarce, the results are ambiguous;**
- **Book indicators of the cost of debt are generally used due to poor availability of market data (which is employed in research on developed markets)**

Research question

What is the mechanism of influence of board independence on the cost of debt in BRICS countries?

Focus:

- market indicators of cost of debt
- emerging markets' specificity

Review of theoretical literature and empirical evidence

Determinant	Theory	Empirical evidence			Emerging markets' specificity
		Reference	Sample	Result (type of cost of debt proxy)	
Ownership concentration	***Barclay and Holderness (1989):*** Private benefits hypothesis, Shared benefits hypothesis	***Shailer and Wang (2015)***	China, financially distressed companies	+ (book)	***Sarkar and Sarkar (2012), Clarke (2015):*** high ownership concentration (except South Africa), dominance of private benefits hypothesis in Brazil
State control	***Shleifer and Vishny (1997):*** Private benefits hypothesis ***Borisova et al. (2015):*** state support, excess guarantees to debt holders	***Borisova et al. (2015)***	European countries	+ (market)	***Enikolopov and Stepanov (2013):*** widespread, contributes to non-independent decision-making process
		Shailer and Wang (2015)	China	+ (book)	
Independence of the board of directors	***Fama and Jensen (1983)***: decreases risk of managerial opportunism by **monitoring**; may be inefficient	***Bhojraj and Sengupta (2003)*** ***Anderson et al. (2004)***	USA	- (market)	***Jiang and Kim (2015):*** role of independent directors related to control of intervention by controlling shareholders (China)
		Shailer and Wang (2015)	China, provinces with low-developed institutions	- (book)	
Size of the board of directors	***Jensen (1993), Lipton and Lorsch (1992):*** contributes to inefficiency of the board ***Salancik and Pfeffer (1978):*** increases the availability of necessary resources	***Anderson et al. (2004)***	USA	- (market)	***Clarke (2015):*** nominal directors in Brazil
		Lorca et al. (2011)	Spain	**quadratic relationship** (book)	

Hypotheses

Independence of the board of directors	**-**	***Fama and Jensen (1983), Bhojraj and Sengupta (2003), Anderson et al. (2004), Shailer and Wang (2015)***
	*The impact is **stronger** for the companies with higher ownership concentration*	***Jiang and Kim (2015)***
	*The impact is **stronger** during the crisis*	***Lin et al. (2011)***
Ownership concentration	**+** **(private benefits hypothesis)**	***Barclay and Holderness (1989), Sarkar and Sarkar (2012) Clarke (2015), Shailer and Wang (2015)***
	*The impact is **weaker** during the crisis*	***Lin et al. (2011)***

Methodology (1/2)

1. Cost of debt measurement

- Market indicator to compare with results from developed markets
- Non-intermediated debt for clearer effect

[Aldamen and Duncan (2012)]

- The measure which captures micro-level factors only

Yield spread on corporate bonds

- Focus: at-issue risk of investors
- Upward-sloped yield curve (Z-spread and option-adjusted spread are the more adequate measures)
- Bonds have different embedded options

At-issue option-adjusted spread (modification of Z-spread)

Z-spread calculation

$$\sum_{i=1}^{n} \frac{Coupon}{(1 + \boldsymbol{Zspread} + spot\ rate\ (gov)_i)^i} + \frac{Par\ value}{(1 + \boldsymbol{Zspread} + spot\ rate\ (gov)_n)^n} = P_{at-issue}$$

BRICS issues regarding cost of debt data

- Vast amount of bank loans
- Dominance of short-term debt instruments
- Data on yields is limited

Methodology (2/2)

3. Model (panel data with individual and time effects)

$$Spread_{i,t} = \alpha + \beta \ln(BoardSize)_{i,t} + \gamma_0 \%Independent_{i,t} + \boldsymbol{\gamma_1 \%Independent_{i,t} \times \%OwnConcentration_{i,t}} + \\ + \delta CEOduality_{i,t} + \theta \%OwnConcentration_{i,t} + \vartheta StateControl_{i,t} + \\ + \mu \overline{BondCharacteristics_{i.t}} + \rho \overline{FirmCharacteristics_{i.t}} + \tau \overline{CountryCharacteristics_{i.t}} + \varphi \overline{YearDummies_t} + u_i + \varepsilon_{i.t}$$

2. Measurement of corporate governance factors

ln(Board Size)	Natural logarithm of the number of directors in the board **before the date of bonds' issue**
%Independent	Percentage of independent non-executive directors **before the date of bonds' issue**
%Independent×OwnConcentration	**Motivation: to reflect the specific role of independent directors in BRICS countries [Jiang and Kim (2015)]**
%Ownership Concentration	Percentage of shares held by block holders (>5% of shares outstanding) **before the date of bonds' issue**
State control	Percentage of shares controlled by state **before the date of bonds' issue**
CEO duality	Dummy variable

Information base, sample

1. Selection criteria

- **Bond issues available in Bloomberg Yield and Spread analysis, issues by non-financial firms from 2006 to 2016**
- **Bonds with fixed coupon rate: straight or with call/put option or sinking fund provision**
- **Companies with existed board of directors at the time of bonds issue, information regarding all control variables is available**
- **Final sample: 295 bond issues**

2. Summary statistics

Continious variables	**Mean**	**Median**	
Option-adjusted spread (basis points)	239.11	185.20	
BoardSize	10.41	10	
%Independent	0.46	0.5	
Own Concentration	0.66	0.64	
State control	0.24	0	
Dichotomous variable	**Mean**	**1**	**0**
CEO duality	0.02	7	288

3. Data distribution

	Number	%
Issues by country		
Brazil	42	14,24
Russia	34	11,53
India	141	47,80
China	42	14,24
South Africa	36	12,20
Total	**295**	**100,00**
Issues by currency denomination		
US dollars	46	15,59
Euro	8	2,71
Russian Ruble	34	11,53
Indian Rupee	137	46,44
Chinese Yuan	42	14,24
South African Rand	28	9,49
Total	**295**	**100,00**

Sources: Bloomberg Professional (bond data, firm-specific controls), annual reports, 20-F forms, bond issue prospectuses (corporate governance variables), World Bank (country-specific variables)

Empirical results

Dependent variable Modification	OAS at issue (basic)	OAS at issue (influence of crisis)[1]
Corporate governance variables		
ln(BoardSize)	282.4***	311.2***
ln(BoardSize)×crisis	-	-147.8
%Independent	982.3***	785.3**
%Independent×crisis	-	-56.6
%Independent× ×OwnConcentration	-2096.0***	-1789.6***
OwnConcentration	1934.0***	2370.8***
OwnConcentration× ×crisis	-	-568.6**
State Control	40.8	129.7
Observations	295	295
Number of companies	108	108
R^2	0.430	0.447

[1]The results regarding **influence of crisis** are not robust to alternative specifications;*** p<0.01, ** p<0.05, * p<0.1; **Yield spread in basis points**

Independence of the board of directors

Board's independence **decreases** the cost of debt only for the companies with block holders' ownership >46.9%:

$$\frac{\partial Spread}{\partial \%Independent} = 982.3 - 2096 \cdot \%OwnConcentration$$

⇨ the favorable impact of board's independence is stronger in the case of higher ownership concentration

Consistent: Fama and Jensen (1983); BRICS specificity

Inconsistent: evidence from developed market

Ownership Concentration

Block holders' ownership has an **adverse impact** on the cost of debt, which is mitigated by the increase in the board's independence:

$$\frac{\partial Spread}{\partial \%OwnConcentration} = 1934 - 2096 \cdot \%Independent$$

Consistent: Barclay and Holderness (1989), BRICS specificity

Robustness checks

Dependent variable	Option-adjusted spread				Z-spread	G-spread[3]
Modification	**basic**	**without insignificant controls**	**widened sample[1]**	**truncated sample[2]**	**basic**	**basic**
Corporate governance variables						
ln(BoardSize)	**282.4*** **	**207.2** **	**258.9*** **	**373.7*** **	**210.4** **	**186.2***
%Independent	**982.3*** **	**1048.0** **	**1045.0*** **	**1007.0*** **	**1053.0*** **	**2531.0*** **
%Independent× ×OwnConcentration	**-2096.0*** **	**-2126.0*** **	**-2194.0*** **	**-2005.0*** **	**-2032.0*** **	**-4054.0*** **
Own Concentration	**1934.0*** **	**2179.0*** **	**2222.0*** **	**1952.0*** **	**1140.0** **	**2688.0*** **
State Control	**40.8**	**-394.7**	**-263.6**	**-411.3**	**1502.0**	**-990.1**
Observations	295	297	321	280	295	295
R^2	0.430	0.387	0.412	0.426	0.419	0.436
Number of companies	108	110	118	105	108	108

*** p<0.01, ** p<0.05, * p<0.1; **Yield spread in basis points**

[1] the sample with the additional observations from India (promoter shareholding as ownership concentration)

[2] the sample with observations with the positive option-adjusted spread only

[3] G-spread is calculated as difference between YTM on corporate bond and YTM on government bond (assumption: flat spot rate curve)

Extension: country-specific analysis: work in progress

State control (proxied by percentage of shares held by government) is significant only on the level of country subsamples:

Subsample	Brazil	Russia	India	China	South Africa
Dependent variable			**OAS at issue**		
Corporate governance variables					
ln(BoardSize)	**-752.2*** **	**-101.6**	**-31.42**	**44.66**	**-42.48**
%Independent	**-907.1*** **	**92.91**	**37.71**	**-1213**	**-1762**
%Independent×OwnConcentration	**1070****	**-84.06**	**-5.279**	**2018**	**1874**
OwnConcentration	**-431.1**	**-218.8***	**-60.85**	**-650.5**	**-1283**
State Control	**511.6*** **	**170.5****	**-128.8*** **	**-197.7****	**373.4**
Observations	42	34	141	42	36
R^2	0.920	0.912	0.514	0.804	0.756

State control is characterized by differential influence

Consistent: Shleifer and Vishny (1997), Borisova and Megginson (2011), Rabotinskiy and Stepanova (2014)

Nevertheless: only **Indian subsample** is large enough for the validity of results

Conclusion

Novelty

1. The new approach to the investigation of the impact of the board's independence in emerging markets is proposed – model is aligned with BRICS countries' specificity;
2. Empirically proved that the major **role of independent directors** in BRICS countries **differs** from the one in developed markets (mitigation of the risk of managerial opportunism)

Main finding

Main source of debt holders' risk in BRICS countries – **potential wealth expropriation by block holders**
But: **board's independence** contributes to the mitigation of this risk

Policy implications on company level:

High ownership concentration, powerful majority shareholders ⇨

- Increase in board independence
- Guarantees regarding independent decision-making process

⇨

- Higher credit quality
- Less costly debt raising

Next steps:

Widening of the sample ⇨ country-specific analysis

Data on spreads after the date of bonds' issue ⇨ analysis in dynamics

Focus on ownership identity

Thank you for your attention!

Appendix 1: summary statistics

Continious variables	**Mean**	**Std Dev**	**10th Pct**	**25th Pct**	**50th Pct**	**75th Pct**	**90th Pct**
OAS at issue	**239.11**	234.79	26.25	76.68	**185.20**	312.61	565.85
Z-spread at issue	**248.58**	205.05	53.27	116.92	**208.79**	319.93	451.84
G-spread at issue	**257.26**	227.63	62.12	120.50	**217.97**	322.69	540.51
BoardSize	**10.41**	3.15	6	8	**10**	13	14
%Independent	**0.46**	0.22	0.18	0.33	**0.5**	0.57	0.78
Own Concentration	**0.66**	0.25	0.34	0.43	**0.64**	0.89	1.00
State Control	**0.24**	0.39	0	0	**0**	0.56	1
Maturity to call	**5.89**	4.94	0.74	2.99	**5.00**	7.17	10.00
IssueSize (USD mln)	**313.00**	461.00	6.80	20.40	**80.90**	439	994
Performance (ROE)	**0.10**	0.18	0.003	0.03	**0.07**	0.16	0.21
Volatility	**0.52**	0.41	0.15	0.27	**0.44**	0.67	0.88
Leverage	**1.39**	1.50	0.28	0.49	**0.79**	1.71	2.99
FirmSize (ln(Sales))	**10.61**	1.93	8.21	9.40	**10.51**	11.76	13.08
GDP per capita	**3280**	2338	1010	1164	**2215**	5820	6584
Corruption	**-0.42**	0.27	-0.87	-0.56	**-0.46**	-0.33	-0.07
Dichotomous variables	**Mean**		**1**			**0**	
CEO duality	**0.02**		7			288	
sink	**0.03**		8			287	
call	**0.30**		88			207	
put	**0.24**		71			224	
crisis	**0.06**		17			278	

Appendix 3: results of panel data analysis

Dependent variable	Option-adjusted spread				Z-spread	G-spread
Modification	basic	without insignificant controls	widened sample	truncated sample	basic	basic
Corporate governance variables						
ln(BoardSize)	282.4***	207.2**	258.9***	373.7***	210.4**	186.2*
%Independent	982.3***	1048.0**	1045.0***	1007.0***	1053.0***	2531.0***
%Independent× ×OwnConcentration	-2096.0***	-2126.0***	-2194.0***	-2005.0***	-2032.0***	-4054.0***
Own Concentration	1934.0***	2179.0***	2222.0***	1952.0***	1140.0**	2688.0***
State Control	40.8	-394.7	-263.6	-411.3	1502.0	-990.1
Bond-specific variables						
Maturity to call	-5.2	-	-4.7	0.5	1.2	0.5
ln(IssueSize)	5.2	-	0.6	-1.6	13.3	-22.9***
Sinkable	-206.1***	-239.5***	-219.3***	-259.7***	-308.7***	-190.8***
Callable	-	-	-	-	-25.7	67.8***
Putable	-	-	-	-	3.9	-73.7**
Firm-specific variables						
Performance	-135.1	-	-142.8	-150.6	-126.8	-165.0
Volatility	132.3*	125.5	132.5*	103.5	26.7	97.9
Leverage	61.9	-	50.8	73.6*	146.8***	56.3
ln(FirmSize)	82.2***	78.0***	73.9***	56.3***	-22.5	93.3***
Country-specific variables						
GDP per capita	-0.02**	-0.02**	-0.02**	0.002	-0.02***	-0.03***
Corruption	-207.1	-362.2***	-207.4*	-239.7*	-228.3**	67.7
Constant	-2385.0***	-2238.0***	-2260.0***	-2334.0***	-1627.0***	-1874.0***
Observations	295	297	321	280	295	295
R^2	0.439	0.387	0.412	0.436	0.419	0.436

Appendix 4: choice of control variables

Variable	Measurement	Explanatory power	Reference
Bond-specific variables			
Maturity to call	Number of years to the first call	Liquidity risk	***Anderson et al. (2004), Wang and Zhang (2009), Boubakri and Ghouma (2010), Bradley and Chen (2015)***
ln(IssueSize)	Natural logarithm of the issue amount in US dollars		
Sink	Dummy variable: 1 if the bond with sinking fund provision, 0 otherwise	Mitigation of default risk	
Firm-specific variables (measurement: before the date of bonds' issue)			
Performance	$\frac{NI}{Assets}$	Default risk	***Bhojraj and Sengupta (2003), Bradley and Chen (2015), Borisova et al. (2015)***
Volatility	$\frac{st.dev.(EBITDA)}{mean\ EBITDA}$, 6 preceding years		
Leverage	$\frac{LT\ Liabilities}{Equity}$		
ln(FirmSize)	$\ln(Sales)$		
Country-specific, macroeconomic variables			
GDP per capita	The value of corresponding indicator for the year of bonds' issue	Business cycle of the country in which an issuer operates	***Boubakri and Ghouma (2010***)
Corruption	The value of indicator "Control of corruption"		
crisis	Dummy variable: 1 for the years 2008 and 2009, 0 otherwise		