The impacts of state-imposed fiscal institutions and method of sale on borrowing costs for the school districts
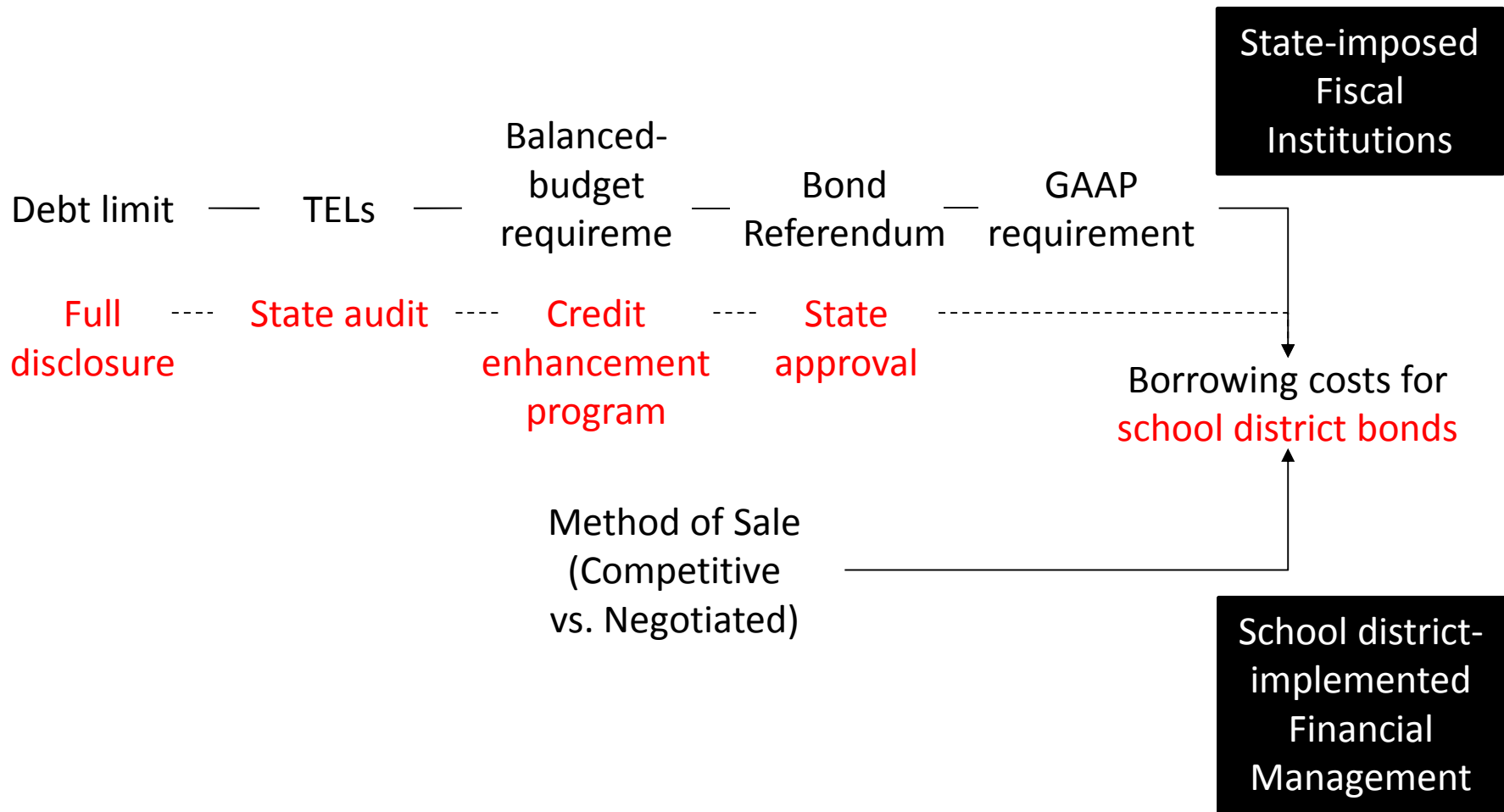
Junghack Kim

I. Research Motivation

- In the municipal bond market, there are variations in borrowing costs for municipal bonds
  - A government which pays extra money for municipal bonds are less efficient and perhaps less accountable

- Under intergovernmental fiscal relations, the control of local borrowing varies across states
  - State governments impose diverse financial institutions on their sub-governments
  - Sub-governments do their business
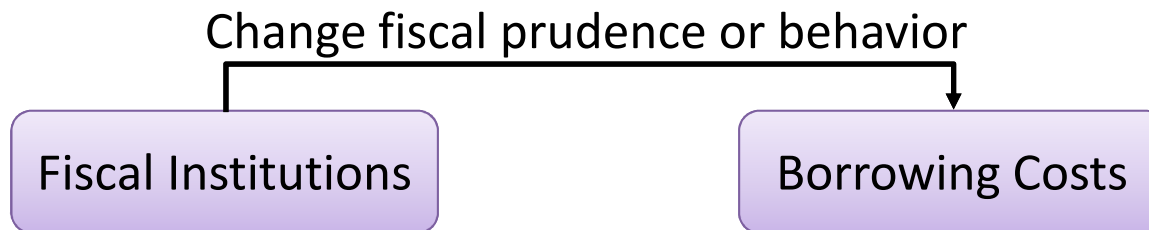
II. Research Question

- What are driving forces behind interest costs for municipal bonds?
  - Examining the impacts of state-imposed fiscal institutions and independent school district-implement financial management practices on borrowing costs
  - Learning the roles of states and independent school districts in lowering interest costs

III. Research Gap

Debt limit — TELs — Balanced-budget requireme — Bond Referendum — GAAP requirement

Full disclosure ---- State audit ---- Credit enhancement program ---- State approval ----

State-imposed Fiscal Institutions

Borrowing costs for school district bonds

Method of Sale (Competitive vs. Negotiated)
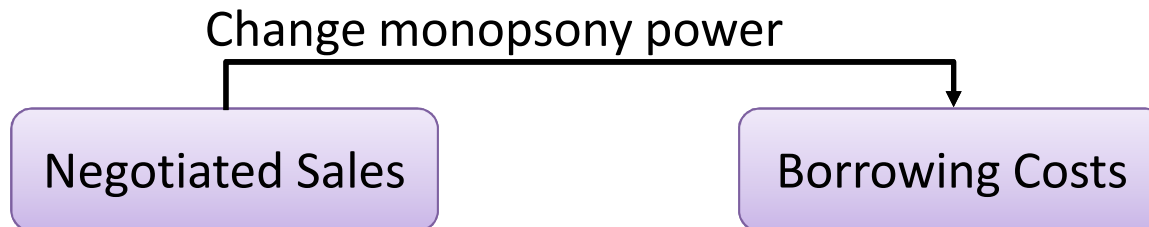
School district-implemented Financial Management

IV. Theoretical Framework

- Theoretical linkages between state-imposed financial institutions and borrowing costs (Yusuf et al., 2013)

Change fiscal prudence or behavior

| Fiscal Institutions | Borrowing Costs |

- Monopsony power theory

Change monopsony power

| Negotiated Sales | Borrowing Costs |

State-imposed fiscal institutions	Mechanism	Cost
Binding Revenue Limits	(−) Taxing capabilities	+
Binding Expenditure Limits	(−) Arbitrary fiscal behavior	−
Debt Limits	(+) Fiscal prudence	−
Balanced-budget Requirements	(−) Arbitrary fiscal behavior	−
Supermajority Referendum Requirements	(+) Fiscal prudence	−
Full Disclosure Requirements	(−) Taxing capabilities	+
GAAP requirements	(−) Arbitrary fiscal behavior	−
State Audit Requirements	(−) Arbitrary fiscal behavior	−
Credit Enhancement Program	(+) Credit ratings	−
State Approval Requirements	(+) Fiscal prudence	−

School district-implemented financial management	Mechanism	Cost
Competitive Sales	− Monopsony	−

V. Methodology

- Data
  - Unit of analysis: Fixed rate GO bonds issued by independent school districts in 18 states
    - Some states that have some unique regulations of municipal bonds (e.g. sinking fund, limits on maturity, and limits on purpose) were excluded
  - The analysis focuses on fiscal year 2013
  - The analysis also dropped no private placement
  - 9,812 serial bonds

- ## Variations in state-imposed financial institutions

	BRL	BEL	DLMT	BBR	MAJ	DIS	GAAP	AUD	CEP	APP
AZ	×	×	×				×			
CO	×	×	×			×	×		×	
FL	×		×	×		×	×	×		
GA			×	×		×	×	×	×	
IL	×		×			×				
IN	×		×					×	×	
MI	×		×			×			×	×
MN		×	×			×	×	×	×	×
MO	×		×	×	×				×	
MT			×			×	×			
NE	×	×	×							
NM	×		×		×		×	×	×	×
OH	×		×	×			×	×	×	×
OK	×		×	×	×				×	
PA			×	×			×	×	×	
SD			×		×		×	×	×	
WA	×		×	×	×	×		×	×	×
WY			×				×	×	×	

- ## Model estimation

- $Yield_i =$

$$f \begin{pmatrix} Ten\ state - imposed\ financial\ institutions_i, \\ Method\ of\ sale_i, \\ Credit\ Rating_i, Three\ credit\ ratings_i, Split\ ratings_i, \\ Par\ value_i, Maturity_i, Call\ option_i, Insurance_i, Issuing\ month_i \\ Financial\ Advisor_i \\ State\ Dummies_i \end{pmatrix}$$

- This function was estimated by endogenous switching regression which involves a two-stage estimation

- The data were gathered from multiple sources
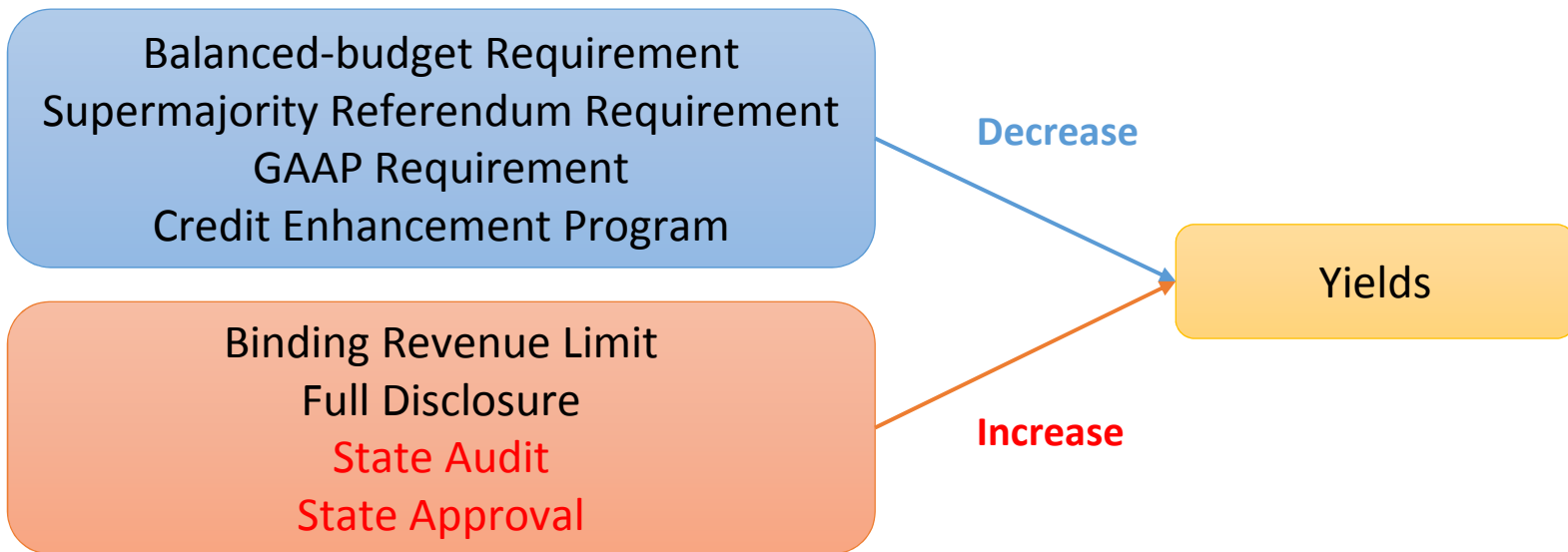
VII. Discussions

- States need to understand the impact of each financial institution on borrowing costs for school districts and wisely impose several financial institutions that could reduce the concern about the default risk of bonds

- School districts need to recognize the value of competitive sales and have a capacity to utilize competitive sales when issuing bonds

THANK YOU ALL!

Any Questions and Comments?

• Appendix: Definition of variables

YIELD	Yield of each serial bond
SMT	Indicator variable for the use of competitive sales (competitive = 1; negotiated = 0)
BRL	Indicator variable for the state that imposes binding revenue limit on independent school districts (yes = 1; no = 0)
BEL	Indicator variable for the state that imposes binding expenditure limit on independent school districts (yes = 1; no = 0)
DLMT	Indicator variable for the state that imposes constitutional debt limit on independent school districts (yes = 1; no = 0)
BBR	Indicator variable for the state that imposes balanced-budget on independent school districts (yes = 1; no = 0)
MAJ	Indicator variable for the state that imposes supermajority referendum on independent school districts (yes = 1; no = 0)
DIS	Indicator variable for the state that imposes full disclosure (truth in taxation) on independent school districts (yes = 1; no = 0)
GAAP	Indicator variable for the state that imposes GAAP-based financial reports on independent school districts (yes = 1; no = 0)
AUD	Indicator variable for the state that audits independent school districts (yes = 1; no = 0)
CEP	Indicator variable for the state that offers credit enhancement program to independent school districts (yes = 1; no = 0)
APP	Indicator variable for the state that gives prior approval for bonds to independent school districts (yes = 1; no = 0)
CRATE	Ordinal variable for credit ratings from Moody's, S&P, or Fitch (AAA = 8; Baa1 = 1; non-rated = 0)
THRATE	Indicator variable for the use of three credit ratings (yes = 1; no = 0)
SPLIT	Indicator variable for split credit rating (at least one rating different from others, yes = 1; no = 0)
MSIZELN	Log of PAR (Maturity size)
MATLN	Log of Final maturity in 365-day years
CALL	Indicator variable for callable bond (yes = 1; no = 0)
INS	Indicator variable for the use of bond insurance (yes = 1; no = 0)
FA	Indicator variable for the use of financial advisor (yes = 1; no = 0)
MONTH	Indicator variable for each month of issuing bonds
STATE	Indicator variable for each state government

• Appendix: Findings(1)

Result of probit estimation of the decision on using competitive sales					
SMT	Coefficient	Robust Std. Error	z	p	Marginal Effect
BRL	-1.034	0.156	-6.620	0.000	-0.059
BEL	0.603	0.105	5.740	0.000	0.036
DLMT		(omitted)			
BBR	-1.430	0.085	-16.870	0.000	-0.094
MAJ	1.800	0.082	22.010	0.000	0.222
DIS	0.316	0.158	2.000	0.046	0.014
GAAP	-0.336	0.135	-2.480	0.013	-0.015
AUD	0.592	0.094	6.330	0.000	0.021
CEP	0.070	0.194	0.360	0.719	0.003
APP	-0.923	0.139	-6.650	0.000	-0.034
CRATE	-0.245	0.014	-17.330	0.000	-0.010
THRATE	0.955	0.121	7.870	0.000	0.098
SPLIT	-0.025	0.072	-0.340	0.731	-0.001
MSIZELN	-0.080	0.017	-4.790	0.000	-0.003
MATLN	-0.048	0.045	-1.070	0.286	-0.002
CALL	0.160	0.069	2.320	0.020	0.006
INS	0.274	0.074	3.720	0.000	0.013
FA	4.951	0.330	15.020	0.000	0.580

N=9,805

McFadden = 0.616

- ## Appendix: Findings(2)

Result of OLS estimation of yields of serial bonds				
Yield	Coefficient	Robust Std. Error	t	p
SMT	-0.097	0.011	-8.870	0.000
BRL	0.258	0.023	11.320	0.000
BEL	0.025	0.017	1.500	0.133
DLMT		(omitted)		
BBR	-0.129	0.024	-5.460	0.000
MAJ	-0.250	0.027	-9.140	0.000
DIS	0.086	0.021	4.160	0.000
GAAP	-0.228	0.022	-10.410	0.000
AUD	0.307	0.021	14.770	0.000
CEP	-0.208	0.025	-8.240	0.000
APP	0.057	0.021	2.720	0.006
CRATE	-0.035	0.004	-9.600	0.000
THRATE	0.007	0.033	0.220	0.824
SPLIT	-0.004	0.011	-0.360	0.718
MSIZELN	-0.003	0.003	-1.010	0.313
MATLN	1.043	0.010	109.240	0.000
CALL	0.103	0.011	9.060	0.000
INS	0.117	0.011	10.260	0.000
FA	0.173	0.071	2.440	0.015
LAMBDA	0.053	0.017	3.150	0.002

N = 8,843

= 0.887