Payout Policy and Taxes: Conflicts between large shareholders and minority ones

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Agency Costs in Payout Policy

- In the US:
  - Chetty and Saez (2005): Without proper incentives, firms did not adjust to the 2003 dividend-tax cut.
  - Almeida, Fos, and Kronlund (2016): Executives sacrifice profitable investment opportunities to boost EPS
- Outside U.S.–U.K.: Lack of Dividends (La Porta et al (2000))
- Main difficulty: Measurement of Investment Opportunities
  - In the U.S.: Market forces matter for agency costs
  - Outside U.S.–U.K.: Law matters (Outcome Hypothesis), market forces don't (Against the Substitution Hypothesis)

Our paper: Bypass errors in Investment Opportunities

- Feature of Payout Policy in Brazil: Boulton et.al (2012)
  - Dividends and Interest on Equity (IOE)
  - Differ with respect to taxes only
- What do we show?
  - Conflict of Interests: Funds, Firms, Individuals
  - Agency costs of payout policy: Firms prevail
  - Value maximization: Selection at B3 (Substitution Hypothesis)
    - Traditional v. Novo Mercado
- Results: Traditional Segment (Outcome Hypothesis)
  - Jump in the Prob. of Dividend Payment: 22%
  - Average Agency Cost: 3.6% increase in taxes

Outline of the Presentation

Trend

Law 9249/Dec. 1995

- Instruments for paying cash: Dividends and Interest on Equity
- Taxes on Dividends:
  - Dividend Payments: Not deductible at firm level
  - Dividend Income: Not taxed
- Taxes on Interest on Equity: 15% withholding tax, 9.25% Pis/Cofins (IN RF 96)
  - IOE Payment: Deductible at firm level (tc)
  - IOE Earnings:
    - Firms (α): 22.86%
    - Funds (β): 9.25%
    - Individuals ($1-\alpha-\beta$): 15%
- Tax minimizing rule: *IOE* $\iff$

$$tc \geq \underline{t}_C(\alpha,\beta) \equiv \alpha(22.86\%) + \beta(9.25\%) + (1-\alpha-\beta)(15\%)$$

Data Sources

- Financial Statements: Economatica
- Dividends and Interest on Equity Payments: ComDinheiro
- Ownership Structure: Prospectus from CVM
  - IPO date or first available

Sample Selection

- Sample Period: 1996 to 2017
- Initial Sample: Unbalanced Panel of 765 public firms (includes financial institutions)
- Exclusions:
  - Firm-Years not eligible for IOE ($Net\ Inc. + Taxes < 0$) Rule
    - 3 non-eligible firm-years excluded, despite payment of IOE.
  - Firm-Years without distribution of profits to shareholders
- Final Sample: Panel of 335 public firms, 3057 firm years
  - Winsorized at Percentiles 0.5 and 99.5

Summary Statistics: Medians over all firm-years

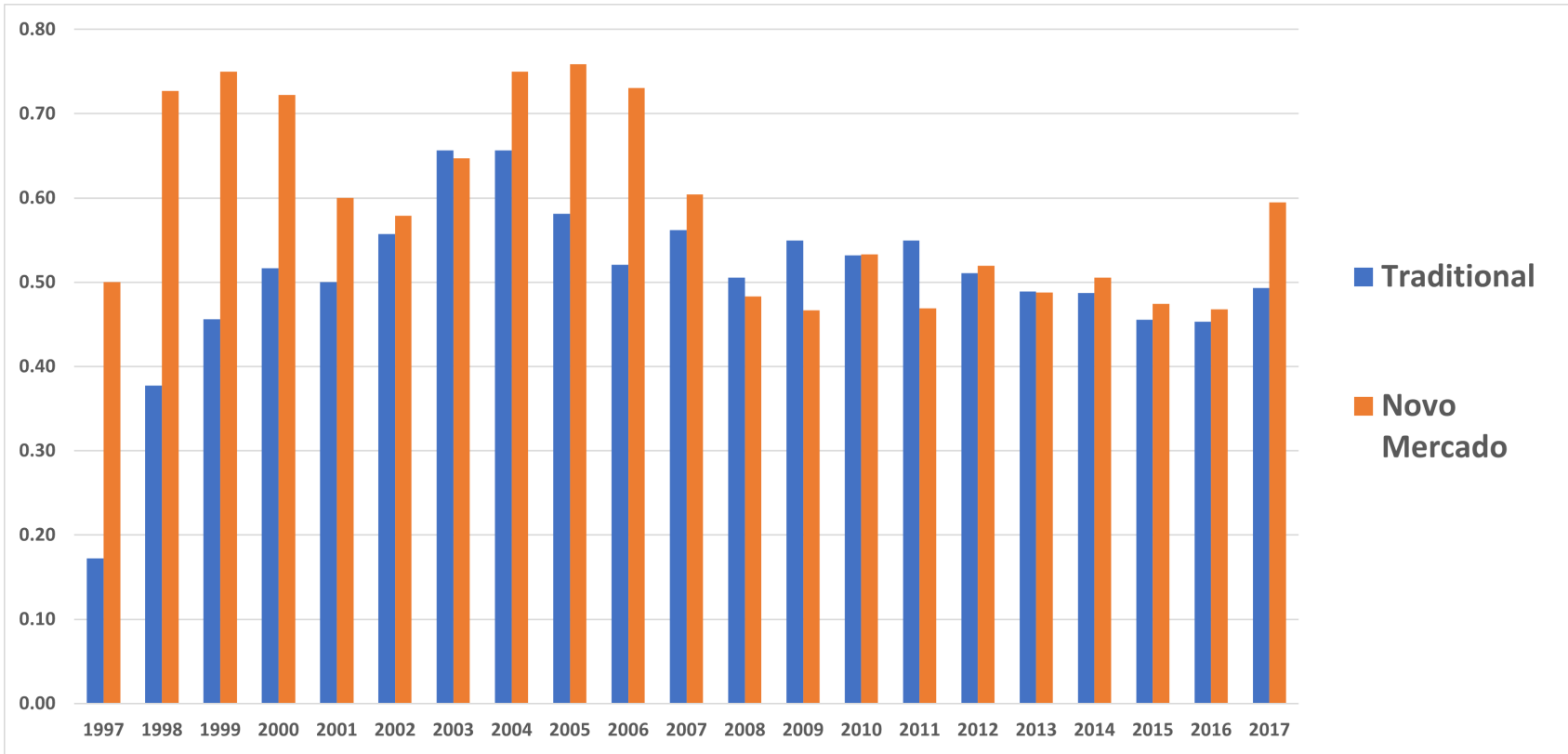
	Full Sample (I)		**Traditional** (II)		**Novo Mercado** (III)	
Variables	Median	Standard Deviation	Median	Standard Deviation	Median	Standard Deviation
Assets (BRL-Billions)	2.26	9.04	0.73	3.41	3.42	8.73
Book Equity/Assets	0.48	0.20	0.51	0.22	0.46	0.17
Tobin's Q	1.12	1.07	0.96	0.87	1.34	1.34
Total Debt/Assets	0.23	0.17	0.18	0.17	0.28	0.17
Capex/Assets	0.05	0.07	0.04	0.08	0.05	0.08
Ebit/Assets	0.09	0.15	0.08	0.18	0.10	0.12
$\frac{\text{Retained Earning}}{\text{Assets}}$	0.12	0.11	0.12	0.13	0.11	0.09
Depreciation/Assets	0.03	0.02	0.03	0.02	0.03	0.02
Corporate tax rate	0.25	0.15	0.26	0.16	0.25	0.14
Firm-years		3057		1550		958
Firms		335		174		117

$$\text{Tax Rate} = \frac{\text{Taxes Paid}}{\text{Earnings before Taxes}} \quad \text{(negative values truncated at zero)}$$

Fraction of IOE Payers (per year)

Back

Fraction of IOE: Traditional v. Novo Mercado



Probit Full Sample, $tc < 0.34$: Boulton et.al (2012)

Dependent Variable: Probability of Paying IOE		
Assets	0.336**	0.349***
	(0.132)	(0.132)
Tobin's Q	0.218***	0.192***
	(0.0608)	(0.0598)
Leverage	-0.879***	-0.978***
	(0.335)	(0.332)
Capex	1.235*	1.675**
	(0.671)	(0.655)
Profitability	0.229	0.553
	(0.684)	(0.674)
Retained Earnings	1.941***	1.767***
	(0.457)	(0.450)
Equity	-0.272**	-0.292**
	(0.137)	(0.136)
Premium Segments	0.164*	0.178*
	(0.0972)	(0.0969)
Depreciation	1.22e-07**	1.19e-07**
	(5.84e-08)	(5.80e-08)
Corporate tax Rate	2.458***	2.481***
	(0.418)	(0.416)
Time fixed effects	Yes	No
Constant	-1.395**	-1.929***
	(0.572)	(0.538)
Pseudo R-squared	10.5%	9.9.%
Observations	1,121	1,121

Shifting the focus to the Conflicts of Interests

Cash flow and Voting Rights: Large shareholders

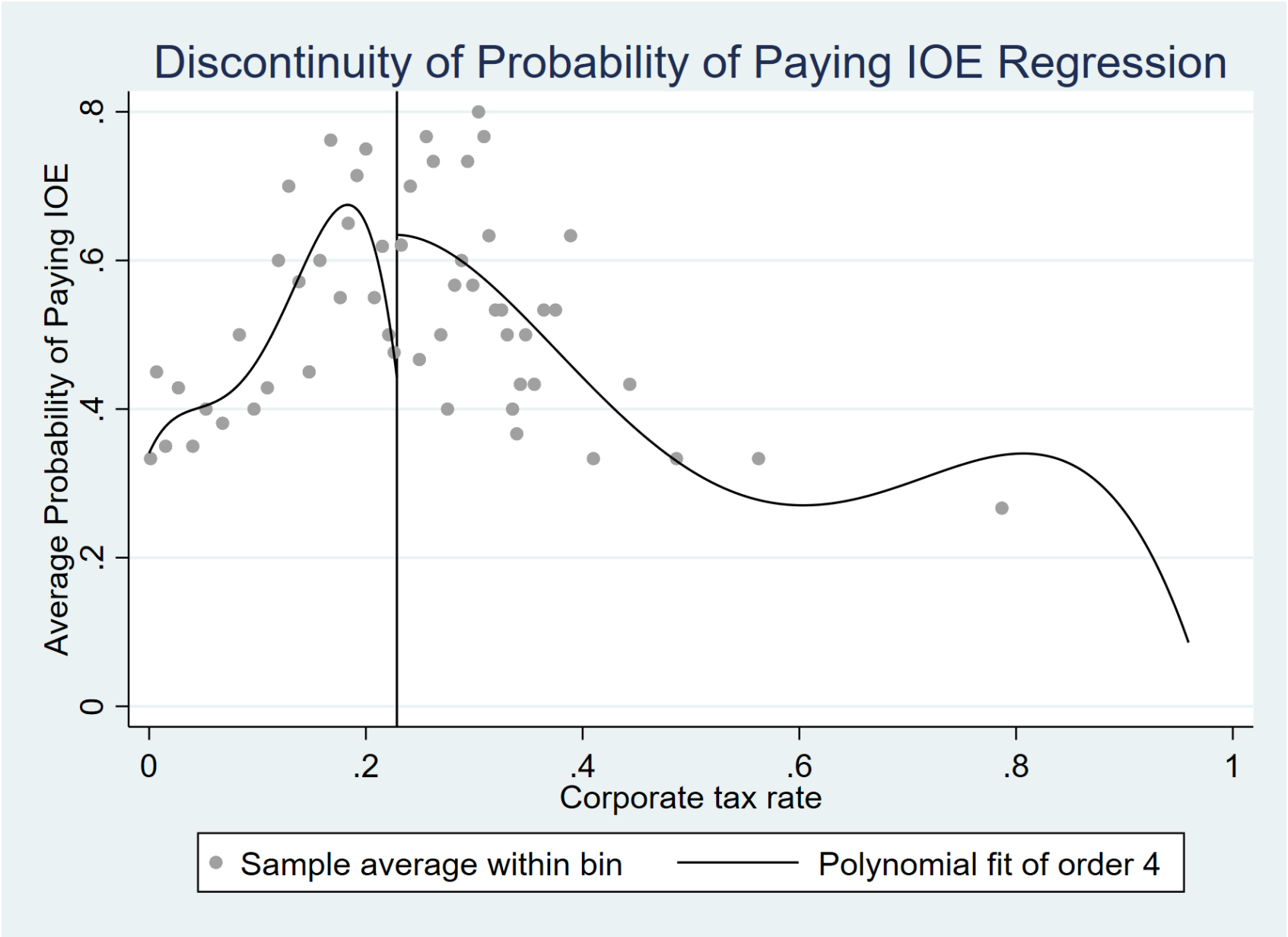
Panel A: Cash Flow Rights	**Traditional (I)**			**Novo Mercado (II)**			**All Firms (I) + (II)**		
Statistics	Firms	Funds	Individuals	Firms	Funds	Individuals	Firms	Funds	Individuals
p25	0.192	0.000	0.032	0.123	0.000	0.261	0.151	0.000	0.081
p50	0.673	0.000	0.166	0.504	0.052	0.407	0.542	0.000	0.299
p75	0.888	0.023	0.458	0.636	0.173	0.546	0.794	0.105	0.492
p95	1.000	0.599	1.000	0.910	0.471	0.820	1.000	0.578	1.000
mean	0.562	0.084	0.297	0.415	0.111	0.418	0.498	0.094	0.347
sd	0.368	0.217	0.319	0.295	0.154	0.248	0.347	0.196	0.298
Panel B: Votting RIghts	**Traditional (I)**			**Novo Mercado (I)**			**All Firms (I) + (II)**		
Statistics	Firms	Funds	Individuals	Firms	Funds	Individuals	Firms	Funds	Individuals
p25	0.299	0.000	0.013	0.123	0.000	0.261	0.158	0.000	0.032
p50	0.770	0.000	0.097	0.504	0.052	0.407	0.603	0.000	0.258
p75	0.959	0.000	0.400	0.636	0.173	0.546	0.894	0.083	0.488
p95	1.000	0.599	1.000	0.910	0.471	0.820	1.000	0.580	1.000
mean	0.617	0.073	0.254	0.415	0.111	0.418	0.540	0.088	0.317
sd	0.384	0.219	0.327	0.295	0.154	0.248	0.366	0.198	0.309

Conflicts of Interest: Large Shareholders in control through pyramids

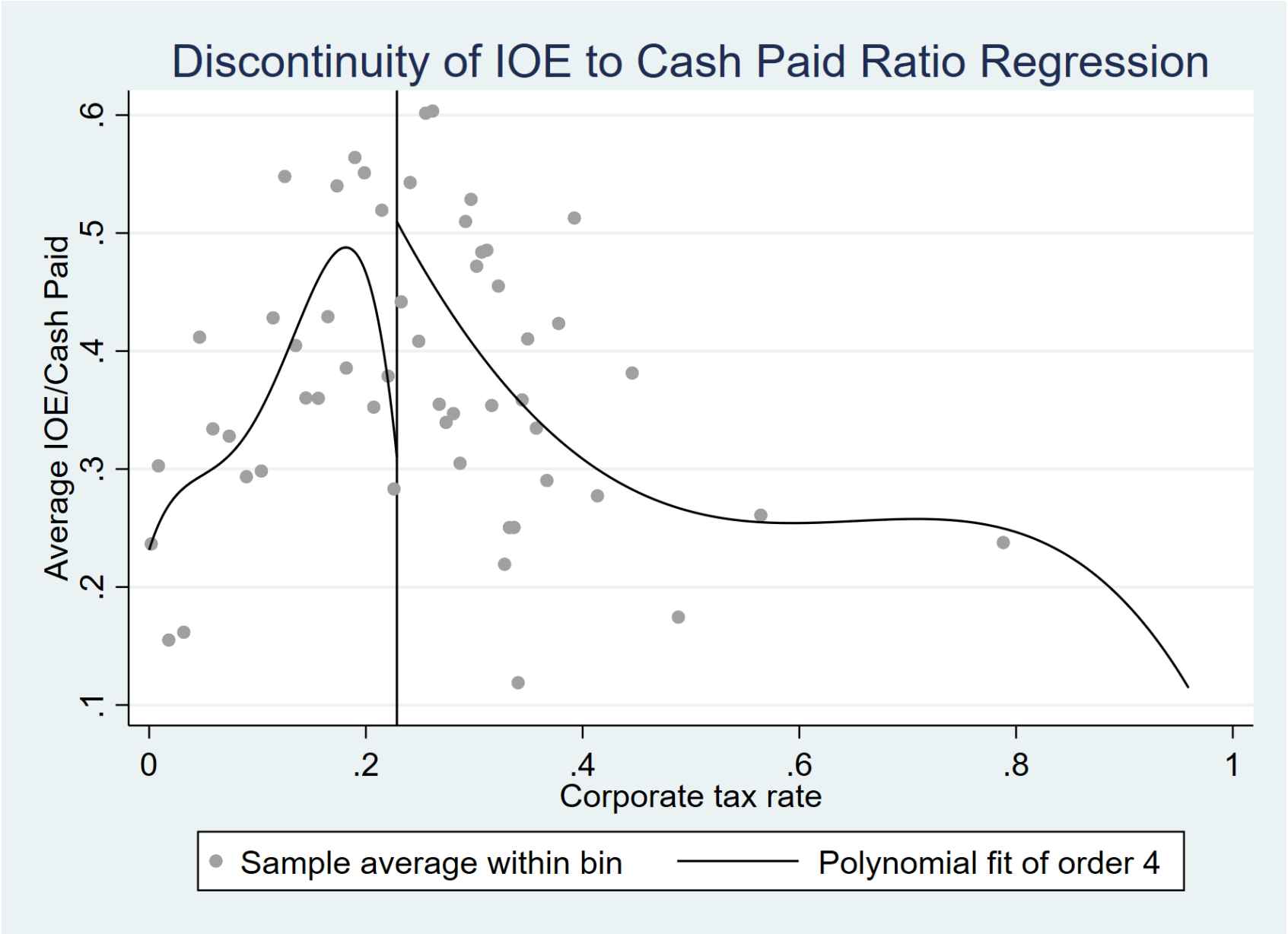
Panel A: Firm's tax minimizing threshold rate ($\underline{t}_C(\alpha,\beta)$)			
Statistics	**Traditional (I)**	**Novo Mercado (II)**	**All Firms (I) + (II)**
p25	0.156	0.150	0.155
p50	0.202	0.176	0.190
p75	0.220	0.198	0.212
p95	0.229	0.212	0.229
mean	0.189	0.175	0.184
sd	0.036	0.027	0.033
Panel B: Distribution of firm-year observations – Interval of the corporate tax rate			
I $tc < \underline{t}_C(\alpha,\beta)$	548 (35.3%)	297 (31%)	845 (33.7%)
II $\underline{t}_C(\alpha,\beta) \leq tc < 0.2286$	103 (6.6%)	113 (11.8%)	216 (8.6%)
III $0.2286 \leq tc \leq 0.50$	834 (53.8%)	518 (54.1%)	1352 (53.9%)
IV $tc > 0.5$	65 (4.2%)	30 (3.1%)	95 (3.8%)
Total	1550	958	2508

- Potential for Agency Conflicts (Firm): Region **II**
- Measurement Errors in tc: Region **IV**

Prob. *IOE* > 0: Discontinuity at 0.2286



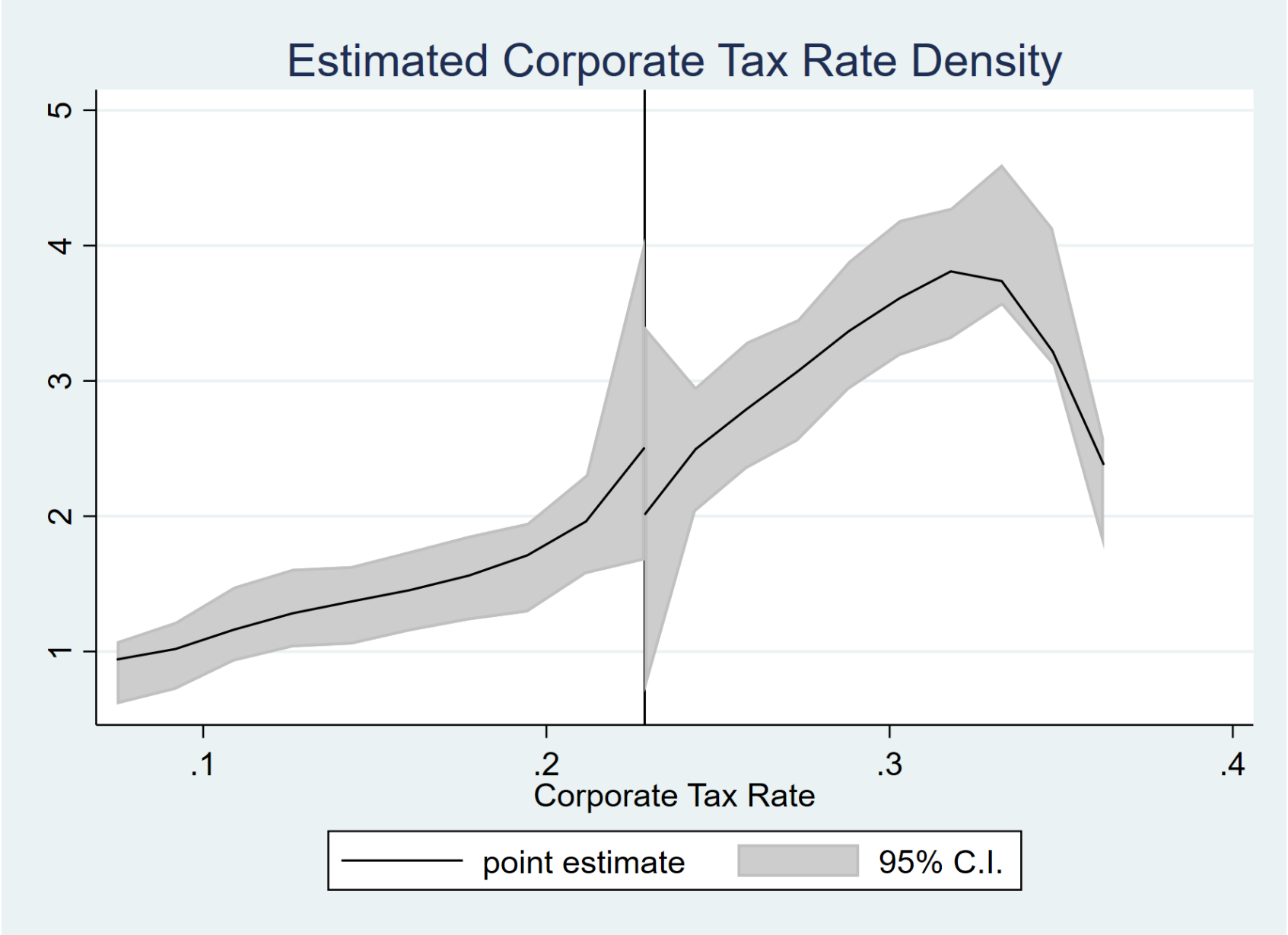
$\frac{IOE}{IOE+Dividends}$: Discontinuity at 0.2286



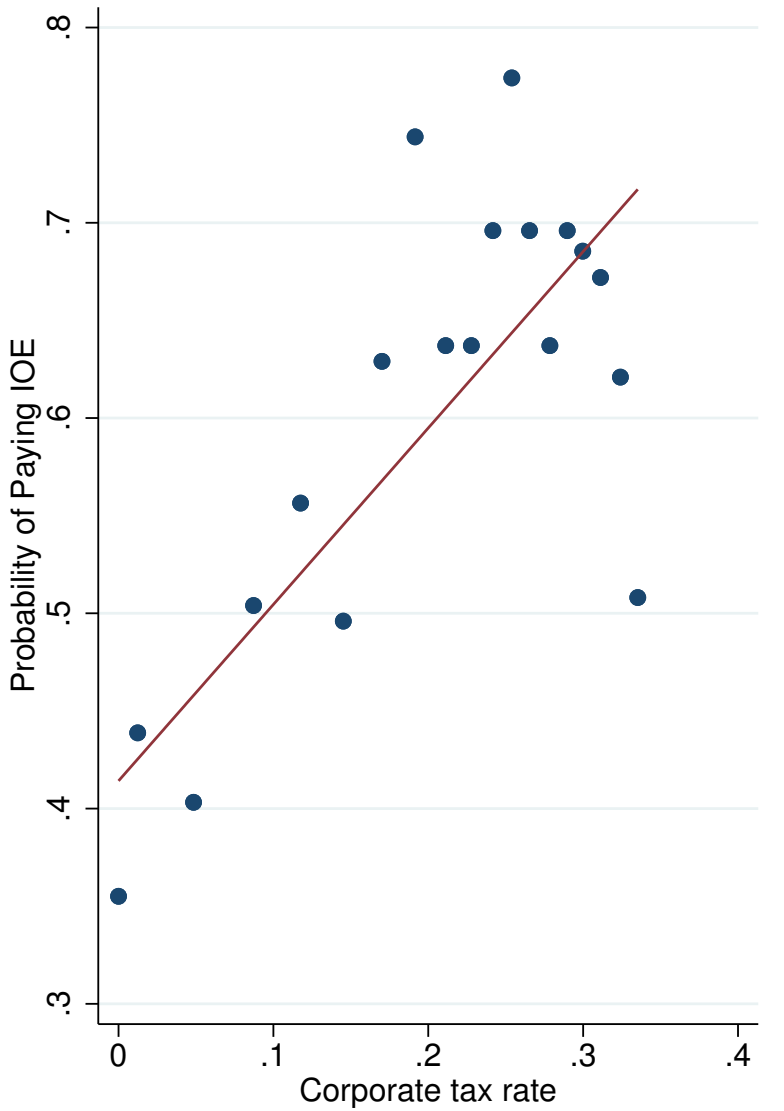
McCrary Test and Measurement Errors: $tc^+ - tc^-$

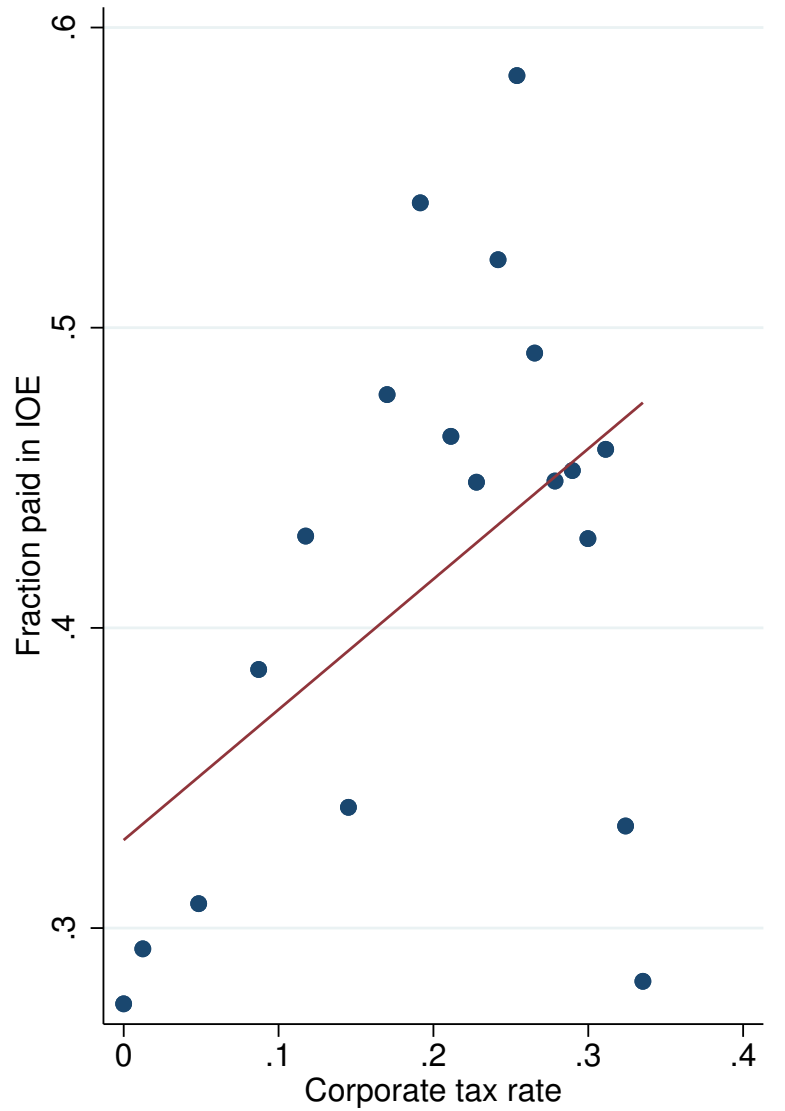
Corporate Tax Rate Density Discontinuity		
Discontinuity at 0.2286	-0.879	-0.315
P-Value	38.1%	75.26%
Kernel Type	Triangular	Triangular
Order Local Poly	2	1
Left Observations	651	651
Right Observations	899	899
Eff Left Observations	150	75
Eff Right Observations	182	110

McCrary Density

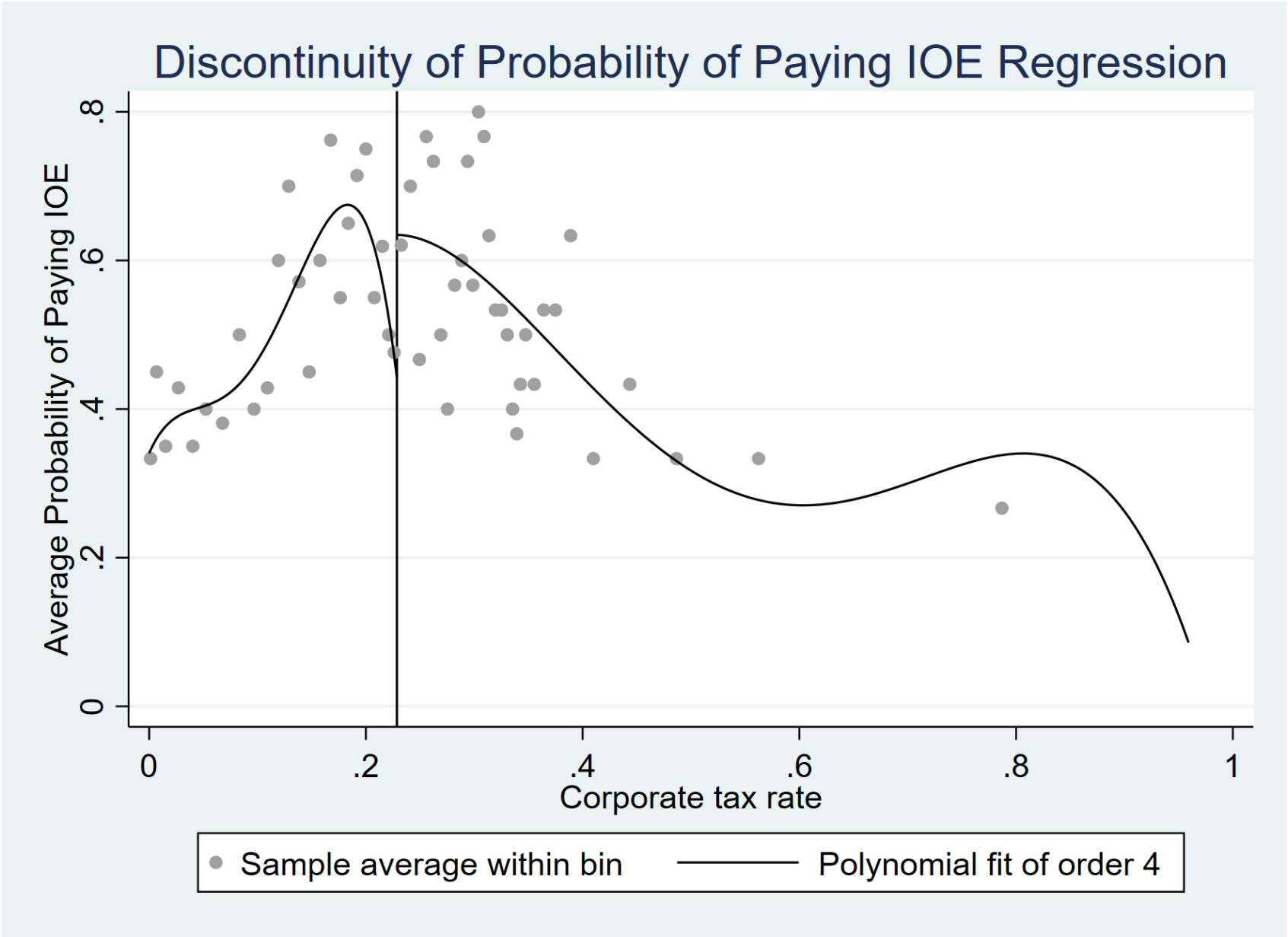


IOE increases with tc

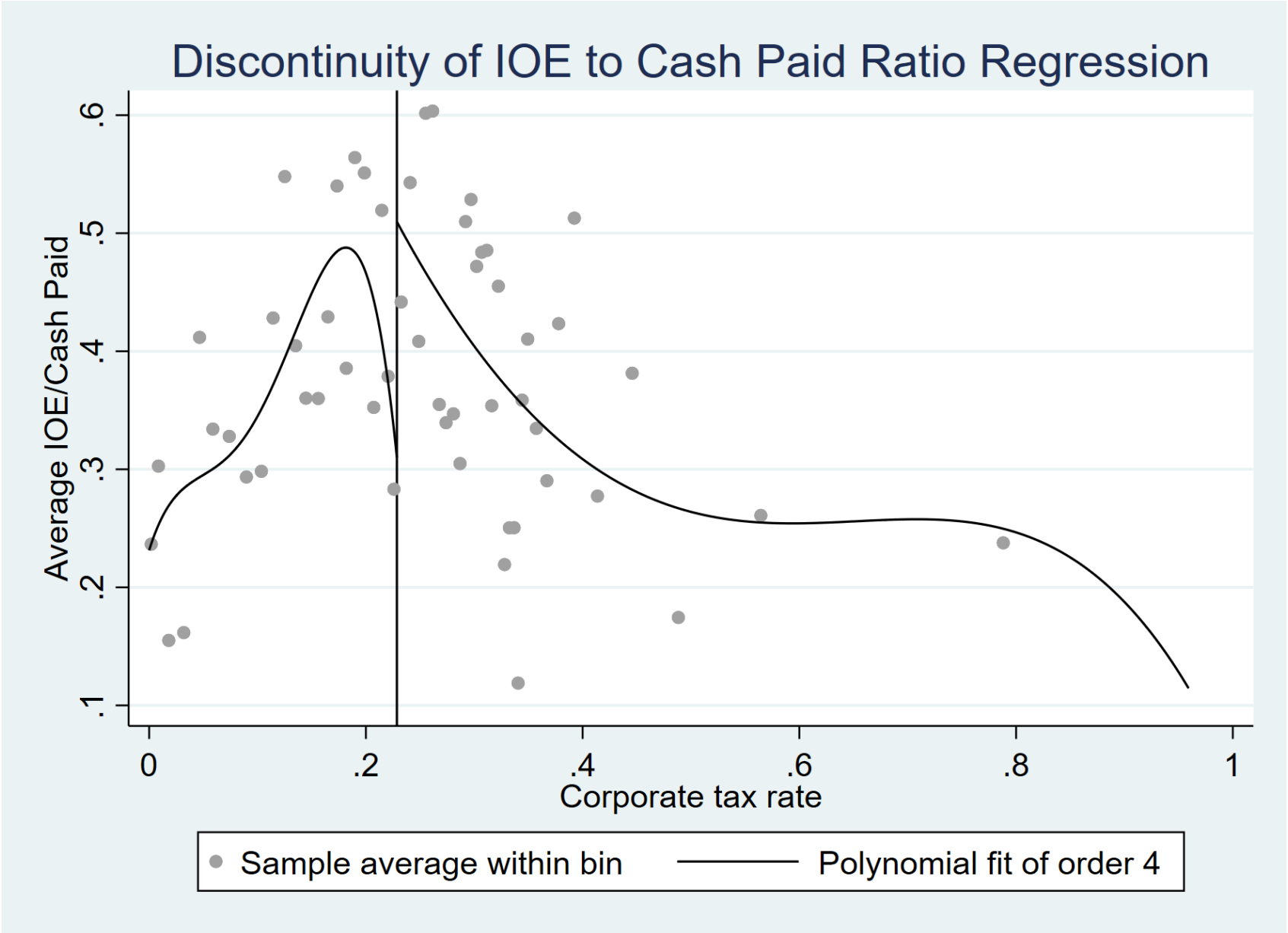




Coming back – Prob. $IOE > 0$: Discontinuity at 0.2286



Coming back – $\frac{IOE}{IOE+Dividends}$: Discontinuity at 0.2286



Empirical Strategy: Regression Discontinuity Design

- Discontinuous Regression: $IOE_{it} = \delta + \beta T_{Cit} + \rho D_{it} + \epsilon_{it}$
  - $D_{it} = \mathbb{1}(T_{Cit} \geq 0.228625)$
  - Coefficient of Interest: $\rho = \rho^{+} - \rho^{-}$
- Identification Hypothesis: Random variation around 0.2286
- Bandwidth: $t_C \in [0.2286 - h; 0.2286 + h]$
  - h: Minimizes MSE of $\hat{\rho}$
- Local Regression is a Weighted least squares
  - Weights are Kernel functions
  - Non-parametric weighing: No functional form

Results: $Pr[IOE_{it} > 0] = \delta + \beta T_{Cit} + \rho D_{it} + \epsilon_{it}$

$$D_{it} = \mathbb{1}(T_{Cit} \geq 0.228625)$$

Dependent Variable: Dummy equal to 1 if paid IOE and 0 if just paid Dividends			
Listing Segment	**Traditional (I)**	**Novo Mercado (II)**	**All Firms (I) + (II)**
Discontinuity Estimate	0.2315*	-0.18	0.074
Standard Error	0.122	0.12	0.097
P-Value	5.80%	15.80%	44.5%
95% CI	[-0.0076; 0.47]	[-0.43; 0.07]	[-0.12; 0.26]
Kernel Type	Triangular	Triangular	Triangular
Bandwidth Type	MSE	MSE	MSE
Bandwidth Value	0.056	0.062	0.055
Order Local Poly	1	1	1
Left Obs	651	410	1061
Right Obs	899	548	1447
Eff Left Obs	161	132	277
Eff Right Obs	235	222	419

Results: $\frac{IOE_{it}}{TotalCash_{it}} = \delta + \beta T_{Cit} + \rho D_{it} + \epsilon_{it}$

$$D_{it} = \mathbb{1}(T_{Cit} \geq 0.228625)$$

Dependent Variable: IOE to Total Cash Distributed Ratio

Listing Segment	**Traditional (I)**	**Novo Mercado (II)**	**All Firms (I) + (II)**
Discontinuity Estimate	0.2279**	-0.17	0.066
Standard Error	0.106	0.11	0.08
P-Value	3.3%	13%	41.1%
95% CI	[0.018; 0.437]	[-0.30; 0.05]	[-0.092; 0.22]
Kernel Type	Triangular	Triangular	Triangular
Bandwidth Type	MSE	MSE	MSE
Bandwidth Value	0.049	0.057	0.056
Order Local Poly	1	1	1
Left Obs	651	410	1061
Right Obs	899	548	1447
Eff Left Obs	146	121	278
Eff Right Obs	206	201	430

Agency cost with and without constraint

- Potential for Agency Cost: $t_C \in [\underline{t}_C(\alpha, \beta); 0.2286]$

  $\underline{t}_C(\alpha, \beta) \equiv \alpha(22.86\%) + \beta(9.25\%) + (1 - \alpha - \beta)(15\%)$

- Traditional Segment: Firms pay dividends to shift taxes from large shareholders to minority shareholders
  - Agency Cost $= (1 - \underline{t}_C(\alpha, \beta)) - (1 - t_C)$
    - Minimum: 0.0086%
    - Median: 2.93%
    - Mean: 3.6%
    - Maximum: 13.3%

- Novo Mercado: No agency costs
  - Firms commit to value maximization (Substitution Hypothesis)

Validation of RDD: $Y_{it} = \delta + \beta T_{Cit} + \rho D_{it} + \epsilon_{it}$

$$D_{it} = \mathbb{1}(T_{Cit} \geq 0.228625)$$

Variables	Point Estimate	Bandwidth	95% CI	P-Value	Observations
Assets	0.875	0.049	[-0.659; 2.41]	26.4%	235
Capex/Assets	-0.0132	0.06	[-0.055; 0.028]	53.6%	186
Tobin's Q	-0.253	0.068	[-0.687; 0.18]	25.2%	302
Total Debt/Assets	0.032	0.077	[-0.0518; 0.11]	45.3%	457
Retained Earnings/Assets	0.021	0.068	[-0.039; 0.08]	49.7%	393
Equity	-0.5	0.088	[-1.29; 0.288]	21.4%	534
Ebit/Assets	0.048	0.085	[-0.051; 0.147]	34.3%	518
Depreciation	0.526	0.049	[-1.55; 2.60]	62%	149

Robustness Checks I: Uniform Kernel $Pr[IOE > 0]$

Dependent Variable: Dummy equal to 1 if paid IOE and 0 if just paid Dividends			
Listing Segment	**Traditional (I)**	**Novo Mercado (II)**	**All Firms (I) + (II)**
Discontinuity Estimate	0.234*	-0.1794	0.11
Standard Error	0.124	0.12	0.09
P-Value	6.10%	13.50%	23.6%
95% CI	[-0.0104; 0.478]	[-0.41; 0.055]	[-0.07;0.28]
Kernel Type	Uniform	Uniform	Uniform
Bandwidth Type	MSE	MSE	MSE
Bandwidth Value	0.043	0.054	0.048
Order Local Poly	1	1	1
Left Obs	651	410	1061
Right Obs	899	548	1447
Eff Left Obs	126	120	249
Eff Right Obs	179	189	364

Robustness Checks II: Epanechnikov Kernel $Pr[IOE > 0]$

Dependent Variable: Dummy equal to 1 if paid IOE and 0 if just paid Dividends			
Listing Segment	**Traditional (I)**	**Novo Mercado (II)**	**All Firms (I) + (II)**
Discontinuity Estimate	0.223*	-0.15	0.09
Standard Error	0.118	0.13	0.096
P-Value	5.9%	24.4%	33.9%
95% CI	[-0.008; 0.45]	[-0.40; 0.11]	[-0.09; 0.27]
Kernel Type	Epanechnikov	Epanechnikov	Epanechnikov
Bandwidth Type	MSE	MSE	MSE
Bandwidth Value	0.056	0.059	0.05
Order Local Poly	1	1	1
Left Obs	651	410	1061
Right Obs	899	548	1447
Eff Left Obs	162	124	257
Eff Right Obs	237	207	383

Robustness Checks III: Uniform Kernel $\frac{IOE}{IOE+Dividends}$

Dependent Variable: IOE to Total Cash Distributed Ratio

Listing Segment	**Traditional (I)**	**Novo Mercado (II)**	**All firms (I) + (II)**
Discontinuity Estimate	0.246**	-0.12	0.085
Standard Error	0.104	0.1	0.074
P-Value	1.8%	24.5%	24.5%
95% CI	[0.041; 0.45]	[-0.32; 0.08]	[-0.06; 0.23]
Kernel Type	Uniform	Uniform	Uniform
Bandwidth Type	MSE	MSE	MSE
Bandwidth Value	0.044	0.05	0.052
Order Local Poly	1	1	1
Left Obs	651	410	1061
Right Obs	899	548	1447
Eff Left Obs	132	112	266
Eff Right Obs	182	174	398

Robustness Checks IV: Epanechnikov Kernel $\frac{IOE}{IOE+Dividends}$

Dependent Variable: IOE to Total Cash Distributed Ratio

Listing Segment	**Traditional (I)**	**Novo Mercado (II)**	**All firms (I) + (II)**
Discontinuity Estimate	0.224**	-0.14	0.08
Standard Error	0.106	0.11	0.08
P-Value	3.35%	21.5%	32.2%
95% CI	[0.016; 0.43]	[-0.36; 0.08]	[-0.078; 0.23]
Kernel Type	Epanechnikov	Epanechnikov	Epanechnikov
Bandwidth Type	MSE	MSE	MSE
Bandwidth Value	0.046	0.055	0.051
Order Local Poly	1	1	1
Left Obs	651	410	1061
Right Obs	899	548	1447
Eff Left Obs	135	120	261
Eff Right Obs	186	191	384

Robustness Checks V: $Pr[IOE > 0]$ and $tc < 0.5$

Probability of Paying IOE ($tc < 0.5$)			
Discontinuity Estimate	0.242*	0.2	0.237*
Standard Error	0.128	0.13	0.129
P-Value	5.7%	13.2%	6.6%
95% CI	[-0.00175; 0.492]	[-0.06; 0.45]	[-0.015;0.489]
Kernel Type	Triangular	Uniform	Epanechnikov
Bandwidth Type	MSE	MSE	MSE
Bandwidth Value	0.051	0.038	0.046
Order Local Poly	1	1	1
Left Obs	651	651	651
Right Obs	834	834	834
Eff Left Obs	149	114	135
Eff Right Obs	210	150	186

Robustness Checks VI: $\frac{IOE}{IOE+Dividends}$ and $tc < 0.5$

Dependent Variable: IOE to Total Cash Distributed Ratio ($tc < 0.5$)			
Discontinuity Estimate	0.218**	0.191*	0.21*
Standard Error	0.11	0.1	0.11
P-Value	4.8%	7.5%	5.9%
95% CI	[0.002; 0.43]	[-0.019; 0.40]	[-0.0077; 0.43]
Kernel Type	Triangular	Uniform	Epanechnikov
Bandwidth Type	mserd	mserd	mserd
Bandwidth Value	0.049	0.038	0.045
Order Local Poly	1	1	1
Left Obs	651	651	651
Right Obs	834	834	834
Eff Left Obs	144	114	133
Eff Right Obs	199	150	183

Conclusions: Payout Policies around the world

- U.S: Identification assumptions to deal with investment opportunities
  - Evidence for agency cost in payout policy
  - Agency cost in firms with poor incentives

- Brazil:
  - Dividends and Interest on Equity bypass investment opportunities
  - Average agency cost of 3.6% at B3's Traditional Segment: Outcome Hypothesis
  - No agency cost at Novo Mercado: Substitution Hypothesis
    - Firms can commit to stricter governance standards

Requirement for tax-deductible IOE

- Maximum between
  - 50% of Earnings before IOE
  - 50% of Retained Earnings + Earnings Reserves before current Net Profits
- IOE bounded by
  - TLP $\times$ Book value of equity

Back