



Effects of Marketization on Audit Quality and Earnings Management: Evidence from Listed Company of China

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Outline

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Prior Studies

- Schipper, 1989; Healy and Wahlen, 1999; Fields et al., 2001; Dechow et al., 2003; Kothari et al., 2005; Dechow et al., 2012.
- Graham et al., 2005; Roychowdhury, 2006; Cohen and Zarowin, 2010; Zang, 2012.
- Chen et al. (2010) indicate the effect of audit quality in reducing earnings management will be greater for Non-SOEs than SOEs.
- Hung (2001) finds that shareholder protection improves the effectiveness of accrual accounting.

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Motivation

- Earnings Management
Accrual-based ← **Big Audit Firm**
Real Activities Manipulation(RM)
- The disparity of regional development
Marketization Index
- Domination of shareholder — common in China
- Private vs. State-Owned Enterprise (SOE)

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Chinese Audit Market

- 1980s—Local audit firms were established
- Early 1990s—Shanghai & Shenzhen Stock Exchanges were opened
- 1992—Big 4 were approved to practice
(By the end of 2010, Big 4's market share in China by number of clients—around 15%)
- Big 8—the eight largest audit firms including Big 4 & four largest Chinese audit firms

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Marketization Index

- Common used (Fan Gang et al., released annually)
- Five aspects, including 23 indicators
 - 1. the relationship between government and market
 - 2. the development of Non-SOE economics
 - 3. the developmental phase of product market
 - 4. the developmental phase of factor market
 - 5. the development of marketing intermediaries & legal environment

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Marketization Index

Province	Score in 2010	Province	Score in 2010	Province	Score in 2010
Qinghai	3.16	Shaanxi	6.49	Chongqing	8.61
Gansu	5.04	Inner Mongolia	6.51	Liaoning	9.1
Xinjiang	5.31	Sichuan	7.49	Fujian	9.21
Guizhou	5.72	Hebei	7.49	Shandong	9.23
Yunnan	6.28	Jilin	7.53	Tianjin	10.03
Ningxia	6.28	Hunan	7.71	Beijing	10.43
Shanxi	6.38	Hubei	7.93	Guangdong	10.57
Heilongjiang	6.42	Jiangxi	8.03	Shanghai	11.11
Guangxi	6.47	Anhui	8.04	Jiangsu	11.98
Hainan	6.48	Henan	8.44	Zhejiang	12.04

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Hypothesis

- H1: The province with high marketization index has inhibiting effect on earnings management.
- H2: Big 8 with high audit quality constrains the accrual-based earnings management, rather than the real earnings management.

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Empirical Methodology

- Data and Sample Description
- Listed company in CSMAR database from 2008—2013 (nonfinancial firms with available data to calculate the models; at least 15 observations for each industry-year; exclude singular values)
- The sample consists of 9,068 firm-year observations.

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- Modified Jones Model

- Total Accruals_t/A_{t-1} = $\alpha + \beta_1 1/A_{t-1} + \beta_2 (\Delta REV_t - \Delta REC_t)/A_{t-1} + \beta_3 PPE_t/A_{t-1} + \varepsilon_t$ (1)

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- Real Activities Manipulation Models
- Cross-sectional regression for each industry and year following Roychowdhury (2006)
 - (1) Abnormal CFO

$$\text{CFO}_t/A_{t-1} = \alpha + \beta_1 1/A_{t-1} + \beta_2 \text{Sales}_t/A_{t-1} + \beta_3 \Delta \text{Sales}_t/A_{t-1} + \varepsilon_t \quad (2)$$
 - (2) Abnormal production cost

$$\text{PROD}_t/A_{t-1} = \alpha + \beta_1 1/A_{t-1} + \beta_2 \text{Sales}_t/A_{t-1} + \beta_3 \Delta \text{Sales}_t/A_{t-1} + \beta_4 \Delta \text{Sales}_{t-1}/A_{t-1} + \varepsilon_t \quad (3)$$
 - (3) Abnormal discretionary expenses

$$\text{DISX}_t/A_{t-1} = \alpha + \beta_1 1/A_{t-1} + \beta_2 \text{Sales}_{t-1}/A_{t-1} + \varepsilon_t \quad (4)$$
 - (4) RM—the sum of the standardized variables above

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- Testing Methodology

The regression equations are as follows:

$$\text{Abs}(\text{Accrual})_{it} = \text{Scorein2010}_i + \text{Big8}_{it} + \text{Owner}_{it} + \text{SOE}_{it} + \text{debt}_{it} + \text{roa}_{it} + \text{size}_{it} + \varepsilon_{it} \quad (5)$$

$$\text{RM}_{it} = \text{Scorein2010}_i + \text{Big8}_{it} + \text{Owner}_{it} + \text{SOE}_{it} + \text{debt}_{it} + \text{roa}_{it} + \text{size}_{it} + \varepsilon_{it} \quad (6)$$

Abs(Accrual)—the absolute value of discretionary accruals.

RM—the sum of the standardized variables of equation 2, 3, 4.

Scorein2010—the index of marketization proxy, following Gang Fan (NERI index of China's Province 2010 report).

Big8—dummy variable set to 1 if the audit is conducted by Big 8.

Owner—the ratio of shares holding by the biggest shareholders.

SOE—dummy variable set to 1 if the firm is a state-owned enterprise.

debt—debt asset ratio

roa—return on asset

size—the logarithm of asset

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- Table 1: Data summary

Variable	Obs	Mean	Std. Dev.	Min	Max
Scorein2010	9068	9.32	2.00	3.16	12.04
Abs(accrual)	9068	.08800	.11125	.00001	.96353
Big 8	9068	.29367	.45547	0	1
Owner	9068	36.33	15.31	3.62	89.41
SOE	9068	.09	.29	0	1
debt	9068	3.75	5.71	.07	141.25
roa	9068	.04	.55	-51.30	2.64
size	9068	21.69	1.21	14.11	27.96

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- Table 2: Correlation Table

	Scorein 2010	Big 8	Owner	SOE	debt	roa	size
Scorein 2010	1.0000						
Big 8	0.0379	1.0000					
Owner	0.0671	0.0399	1.0000				
SOE	-0.0983	0.0749	0.0718	1.0000			
debt	0.0758	0.0096	-0.0394	-0.0616	1.0000		
roa	-0.0008	0.0050	0.0132	-0.0055	0.0235	1.0000	
size	-0.0353	0.1533	0.2192	0.0781	-0.2410	0.0542	1.0000

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- Table 3: Main estimates on Discretionary Accruals

	(1) Abs(Accrual)	(2) Abs(Accrual)	(3) Accrual>0	(4) Accrual<0
Scorein2010	-0.002*** (0.001)	-0.002*** (0.001)	-0.004** (0.002)	0.003* (0.001)
Scorein2010*SOE	0.002 (0.002)	0.001 (0.002)	0.000 (0.006)	-0.003 (0.005)
Big 8	-0.005* (0.003)	-0.011 (0.013)	-0.015** (0.007)	0.001 (0.006)
Scorein2010*Big8		0.001 (0.001)		
Owner	0.0002*** (0.0000)	0.0002*** (0.0000)	0.0002 (0.0002)	-0.0006*** (0.0002)
SOE	-0.021 (0.020)	-0.012 (0.020)	-0.002 (0.053)	0.026 (0.046)
Debt	-0.001*** (0.000)	-0.001*** (0.000)	-0.002*** (0.001)	0.001 (0.000)
ROA	-0.005** (0.002)	-0.005** (0.002)	0.897*** (0.035)	0.020*** (0.004)
Size	-0.012*** (0.001)	-0.012*** (0.001)	-0.008** (0.003)	0.017*** (0.003)
_cons	0.357*** (0.027)	0.357*** (0.027)	0.235*** (0.074)	-0.447*** (0.056)
N	9068	9068	4376	4692
adj. R ²	0.0313	0.0313	0.112	0.0226

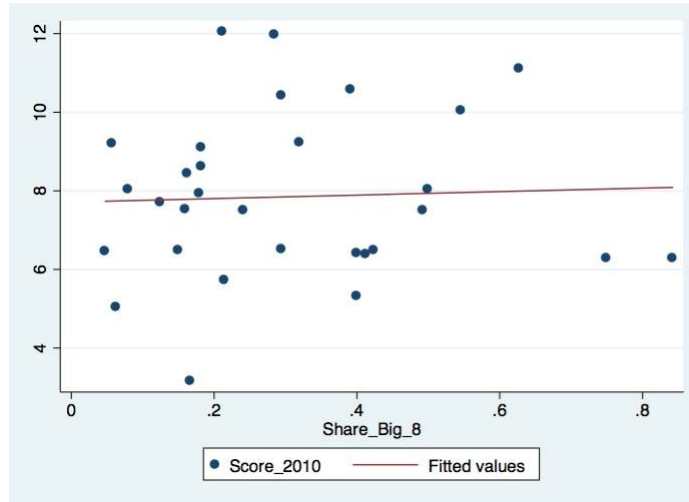
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- An endogenous concern:

Do the provinces with high marketization degree tend to have higher share of Big 8? If so, the impact of marketization index is confounded by the effect of Big 8.

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- Figure 1: Correlation between Marketization Index and Big 8 Share



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- Table 4: Estimates on Real Earnings Management

	(1) RM	(2) RM
Scorein2010	-0.011*** (0.004)	-0.010** (0.004)
Scorein2010*SOE		-0.006 (0.009)
Big 8	-0.011 (0.013)	-0.011 (0.013)
Owner	0.002*** (0.000)	0.002*** (0.000)
SOE	-0.018 (0.018)	0.038 (0.084)
debt	-0.001 (0.001)	-0.001 (0.001)
roa	0.428*** (0.062)	0.429*** (0.062)
size	0.010 (0.007)	0.010 (0.007)
_cons	0.110 (0.152)	0.104 (0.152)
N	6116	6116
adj. R ²	0.016	0.016

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Findings

- Firms in provinces with high marketization degree tend to be constrained on earning management (H1).
- Big 8 matters to the quality of auditing in terms of accrual-based, but not real earnings management (H2).
- The endogenous factor (Big 8) does not affect the role of marketization degree to reduce earning management.