

Online Appendix

Online Appendix A. Proofs of Theoretical Results

Proof of Proposition 1. When the condition in part (a) of the proposition holds, the right-hand side of Equation (3) in the main text is positive even for $\mu = 1$, so the optimal choice is $\mu = 1$, which means $\phi(\mu) = (1-\mu)B/\lambda f = 0$. When the condition in part (c) of the proposition holds, the right-hand side of Equation (3) in the main text is negative even for $\mu = 0$, so the optimal choice is $\mu = 0$, which means $\phi(\mu) = (1-\mu)B/\lambda f = B/\lambda f$.

Otherwise, when condition (b) of the proposition holds, Equation (3) holds with equality for a unique choice of μ between 0 and 1, so the results for an interior optimum apply. ■

Proof of Corollary 1. As noted in the text, these comparative statics follow from taking the derivative (or cross-derivative) of the expression for optimal μ in Equation (4) in the text, and from the fact that $\phi(\mu) = (1-\mu) B/\lambda f$ when the optimal choice of μ is interior. ■

Proof of Corollary 2. Parts (a) through (c) follow from the definition $\Phi = (1-\theta) (1-\beta)\phi(\mu)$ and the expressions for optimal μ and thus $\phi(\mu)$ from Proposition 1.

The results in part (d) of the corollary follow from using Equation (4) in the text to obtain optimal μ , substituting that into $\phi(\mu)$, multiplying by $(1-\theta) (1-\beta)$ to get Φ , and then taking the appropriate derivative or cross-derivative.

The results in part (e) follow from setting optimal μ to 0, which means $\phi = B/\lambda f$ and $\Phi = (1-\theta)(1-\beta)B/\lambda f$. The comparative statics results in the corollary follow immediately. ■

Online Appendix B. The legal framework for securities markets in China

China has three state laws that constitute the highest legal authority among security-related statutes: the Securities Law, which regulates issuing and trading securities, the Company Law, which regulates the organization and behavior of public and private companies, and the Securities Investment Fund Law, which regulates public and private securities investment fund activities. Article 7 of the Securities Law gives the CSRC the responsibility for exercising centralized and unified regulation over the nationwide securities markets.¹

Since civil litigation systems in China are relatively immature, CSRC enforcement actions are the main legal mechanism for disciplining Chinese listed firms and their management. The current CSRC enforcement system separates hearings from case investigations to enhance the efficiency and fairness of enforcement actions. The Enforcement Bureau (Chief Enforcement Office), Enforcement Contingent, and the enforcement departments of CSRC regional offices work together in case filing, investigation and implementation of administrative sanctions, while the Administrative Sanction Committee is mainly responsible for hearings and proposing administrative sanction opinions.

In relation to violations of securities laws, CSRC may impose administrative sanctions or ban market entry on the liable entity or individual. CSRC administrative sanctions include the following types of penalties: orders to rectify illegal conduct, warning, fine, and confiscation of illegal income. According to CSRC annual report, in 2013, CSRC received 611 case leads, and probed into 350 cases, among which 41 suspected criminal cases were referred to the judicial authority, and 86 cases were closed within the same year. These cases involve financial misreporting, tunneling, insider trading, and others. Based on investigation of these cases, the CSRC made 79 decisions on administrative sanctions, and made 21 decisions to bar market entries of 38 individuals, including permanent bars on 25 individuals. Because CSRC enforcement actions have significant negative impact on stock price and may even lead to the replacement of the CEO and board of directors and other executives (Chen, Firth, Gao, and Rui, 2005, 2006; Chen, Cumming, Hou, and Li, 2016), the CSRC has established its credibility as the main legal watchdog against corporate securities fraud in China.

¹ Article 179 of the Securities Law mandates that CSRC shall perform the following regulatory duties for the securities market: (1) to formulate regulations and rules for the regulation of the securities markets and exercise the authority of approval and authorization pursuant to applicable laws; (2) to regulate the issuance, listing, trading, registration, depository and clearance of securities; (3) to regulate securities-related business of issuers, listed companies, securities companies, securities investment fund management companies, securities service institutions, stock exchanges and securities registrar and clearance institutions; (5) to supervise and inspect information disclosure concerning the issuance, listing and trading of securities; (6) to investigate and penalize violations of laws or administrative regulations governing the securities markets; (7) other duties as applied by applicable laws and administrative regulations.

Online Appendix C. Variable definition

Variable	Definition
Fraud Indicator	an indicator variable that equals one if a firm is detected committing financial misreporting by Chinese Securities Regulatory Commission (CSRC) in a specific year, and zero otherwise
Financial Liberalization	an indicator variable that equals one if a firm is located in a city that allow foreign banks to conduct local currency-related business in a specific year (i.e. foreign bank entry), and zero otherwise
Size	logged value of total assets
Total Assets	total assets in billion Yuan
Leverage	total liabilities/ total assets
ROA	earnings before interest and tax (EBIT)/total assets
Sales Growth	percentage change in net sales from last year
Largest Shareholder	number of shares held by the largest shareholder/total number of shares outstanding
State Ownership	number of shares held by the State/total number of shares outstanding
Indicator (t-3)	an indicator variable that equals one for three years before the year banking liberalization started in a specific city
Indicator (t-2)	an indicator variable that equals one for two years before the year banking liberalization started in a specific city
Indicator (t-1)	an indicator variable that equals one for one year before the year banking liberalization started in a specific city
Indicator (t+1)	an indicator variable that equals one for one year after the year banking liberalization started in a specific city
Indicator (t+2)	an indicator variable that equals one for two years after the year banking liberalization started in a specific city
Indicator (t+3)	an indicator variable that equals one for three years after the year banking liberalization started in a specific city
Indicator After (t+3)	an indicator variable that equals one for more than three years after the year banking liberalization started in a specific city

Online Appendix D. Additional Results

Appendix Table 1

Distribution of Fraud by Province.

This table summarizes the distribution of fraud by the province in which firms are headquartered. The sample consists of firms listed on mainland China's stock exchanges during the 2000 to 2010 period. Columns (1)– (5) report the provinces in which firms are headquartered, total number of firms, the number of fraud and non-fraud firms, and the percentage of fraud firms, respectively.

(1) Province	(2) Total Firms	(3) Fraud Firms	(4) Non-Fraud Firms	(5) % Fraud Firms
<i>Panel A Eastern and Coastal Provinces</i>				
Zhejiang	943	17	926	1.80%
Shanghai	1,223	33	1,190	2.70%
Guangdong	1,898	69	1,829	3.64%
Jiangsu	943	15	928	1.59%
Shandong	777	20	757	2.57%
Liaoning	545	22	523	4.04%
Beijing	864	21	843	2.43%
Fujian	476	18	458	3.87%
Hebei	312	11	301	3.53%
Tianjin	228	10	218	4.39%
Hainan	202	11	191	5.45%
Total	8,411	247	8,164	2.94%
<i>Panel B Central Provinces</i>				
Henan	344	10	334	2.91%
Anhui	441	15	426	3.40%
Shanxi	218	5	213	2.29%
Hunan	434	27	407	6.22%
Hubei	611	23	588	3.76%
Jiangxi	249	7	242	2.81%
Jilin	328	15	313	4.57%
Heilongjiang	263	21	242	7.98%
Total	2,888	123	2,765	4.26%
<i>Panel C Western Provinces</i>				
Chongqing	288	13	275	4.51%
Ningxia	108	5	103	4.63%
Shaanxi	261	10	251	3.83%
Yunnan	196	6	190	3.06%
Sichuan	603	36	567	5.97%
Guangxi	244	11	233	4.51%
Guizhou	147	6	141	4.08%
Neimenggu	160	6	154	3.75%
Gansu	197	17	180	8.63%
Xinjiang	285	15	270	5.26%
Qinghai	76	7	69	9.21%
Tibet	67	6	61	8.96%
Total	2,632	138	2,494	5.24%
Total	13,931	508	13,423	3.65%

Appendix Table 2

Timing of Banking Liberalization and Distribution of Firms that Enter the Treatment.

This table describes the timing of banking liberalization. The sample consists of firms listed on mainland China's stock exchanges during the 2000 to 2010 period. Columns (1)– (3) report year, list of liberalized cities in that year, and total number of firms in liberalized cities, respectively.

(1) Year	(2) List of Liberalized Cities	(3) No. of Firms
2001	Shanghai, Shenzhen, Tianjin, and Dalian	199
2002	Guangzhou, Zhuhai, Qingdao, Nanjing, and Wuhan	74
2003	Jinan, Fuzhou, Chengdu, and Chongqing	74
2004	Kunming, Beijing, Xiamen, Xian, and Shenyang	131
2005	Shantou, Ningbo, Harbin, Changchun, Lanzhou, Yinchuan, and Nanning	71
2006	Remaining Cities in China	641

Appendix Table 3

Propensity Score Matching Results.

This table examines the impact of banking liberalization using propensity score matching method to adjust for pre-treatment observable differences (i.e., *Size, Leverage, ROA, Sales Growth, Largest Shareholder, State Ownership*) between treated and untreated firms. The sample consists of firms listed on mainland China's stock exchanges during the period 2000 to 2010. Baseline probit regression results in model (1) of Table 2 are reported in Column (1). Baseline results with additional controls for estimated self-selection parameters (inverse Mills ratios) are reported in Column (2). Weighted probit regression results using estimated self-selection parameters are reported in Column (3). Firm controls include *Size, Leverage, ROA, Sales Growth, Largest Shareholder, State Ownership*. Robust standard errors are clustered at the industry levels with *t*-statistics reported in parentheses. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively.

Explanatory Variables	Dependent Variable: Whether a Firm is Detected Committing Fraud		
	Baseline	Propensity Score Matching Methods	
	(1)	(2)	(3)
Financial Liberalization	-0.263*** (-3.04)	-0.279*** (-2.78)	-0.242*** (-2.97)
Year Dummies	Y	Y	Y
Industry Dummies	Y	Y	Y
Province Dummies	Y	Y	Y
Firm Controls	Y	Y	Y
No. of Obs.	8,435	7,718	8,435
No. of Fraud Obs.	369	334	369
% of Fraud Obs.	4.37%	4.33%	4.37%
Pseudo R-sq	0.153	0.162	0.156

Appendix Table 4

Robustness to Treatment Heterogeneity.

This table presents estimations from staggered difference-in-difference regressions, robust to treatment heterogeneity. Panel A presents our base staggered difference-in-difference estimators while keeping firms only for five years, four years, and three years after the treatment, respectively. Panel B presents results based on the stacked regression estimator of Cengiz et al. (2019). In Panel A, the full sample consists of firms listed on mainland China's stock exchanges during the period 2000 to 2010. In Panel B, the sample consists of firms listed on mainland China's stock exchanges during the period 2000 to 2010 in Column (1) and 2002 to 2006 in Column (2). Baseline probit regression results in model (1) of Table 2 are reported in Column (1) of Panel A. Panel A also reports our base staggered difference-in-difference estimators while keeping firms only for five years (Column 2), four years (Column 3), and three years after the treatment (Column 4), respectively. In Panel B, Column (1) presents our base staggered difference-in-difference estimator while keeping firms only for four years after the treatment. Column (2) presents results based on the stacked regression estimator of Cengiz et al. (2019), year time windows centered around each stacked-sample event. In Panels A and B, firm controls include *Size*, *Leverage*, *ROA*, *Sales Growth*, *Largest Shareholder*, *State Ownership*. Robust standard errors are clustered at the industry levels with *t*-statistics reported in parentheses. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A: Staggered Difference-in-Difference Estimators

Explanatory Variables	Dependent Variable: Whether a Firm is Detected Committing Fraud			
	Base Staggered Estimator	Base Staggered Estimator with Only 5 Years After Event in the Sample	Base Staggered Estimator with Only 4 Years After Event in the Sample	Base Staggered Estimator with Only 3 Years After Event in the Sample
	(1)	(2)	(3)	(4)
Financial Liberalization	-0.263*** (-3.04)	-0.363*** (-3.37)	-0.391*** (-3.25)	-0.343*** (-2.80)
Year Dummies	Y	Y	Y	Y
Industry Dummies	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y
Firm Controls	Y	Y	Y	Y
No. of Obs.	8,435	6,822	6,235	4,950
No. of Fraud Obs.	369	310	289	241
% of Fraud Obs.	4.37%	4.54%	4.64%	4.87%
Pseudo R-sq	0.153	0.157	0.159	0.175

Panel B: Cengiz et al.'s (2019) Estimator

Explanatory Variables	Dependent Variable: Whether a Firm is Detected Committing Fraud	
	Base Staggered Estimator	Cengiz et al.'s (2019) Estimator
Financial Liberalization	-0.391*** (-3.25)	
Indicator (t-3)		-0.001 (-0.13)
Indicator (t-2)		0.002 (0.23)
Indicator (t-1)		-0.009 (-1.52)
Indicator (t+1)		-0.019** (-2.59)
Indicator (t+2)		-0.027*** (-4.05)
Indicator (t+3)		-0.028*** (-3.46)
Indicator After (t+3)		-0.032*** (-4.18)
Year Dummies	Y	Y
Industry Dummies	Y	Y
Province Dummies	Y	Y
Firm Controls	Y	Y
No. of Obs.	6,235	34,886
Pseudo R-sq/R-sq	0.159	0.068

Appendix Table 5

Robustness Test Results Related to Parallel Trend Assumptions.

This table reports robustness test results related to parallel trend assumptions. Panel A reports robustness placebo test results concerning Column (2) of Table 6, whereby we pretend that bank liberalization occurred three years before (Column (2)), two years before (Column (3)), one year before (Column (4)), one year after (Column (5)), two years after (Column (6)), and three years after (Column (7)) the actual year (Column (1)). Panel B reports robustness results concerning Column (1) of Table 2 after controlling for separated linear time trends between pilot and non-pilot cities. *Pilot City Indicator* equals one if a firm is in one of the top three, five and ten pilot cities in Columns (1), (2), (3), respectively and zero otherwise. Firm controls in Panel B include *Size*, *Leverage*, *ROA*, *Sales Growth*, *Largest Shareholder*, *State Ownership*. The sample consists of firms listed on mainland China's stock exchanges during the period 2002 to 2006 in Column (1) and 2000 to 2010 in Columns (2). Robust standard errors are clustered at the industry levels with t-statistics reported in parentheses. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A: Placebo Test Results

Explanatory Variables	Dependent Variable: Whether a Firm is Detected Committing Fraud						
	Actual Year (t)	Placebo 3 Yrs Before (t-3)	Placebo 2 Yrs Before (t-2)	Placebo 1 Yr Before (t-1)	Placebo 1 Yr After (t+1)	Placebo 2 Yrs After (t+2)	Placebo 3 Yrs After (t+3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial Liberalization	-0.344*** (-3.58)	-0.118 (-1.17)	-0.217** (-2.41)	-0.291*** (-3.73)	-0.416*** (-5.46)	-0.346*** (-2.92)	-0.153* (-1.68)
Year Dummies	Y	Y	Y	Y	Y	Y	Y
Industry Dummies	Y	Y	Y	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y	Y
No. of Obs.	5,504	5,504	5,504	5,504	5,504	5,504	5,504
No. of Fraud Obs.	231	231	231	231	231	231	231
% of Fraud Obs.	4.20%	4.20%	4.20%	4.20%	4.20%	4.20%	4.20%
Pseudo R-sq	0.085	0.080	0.082	0.084	0.086	0.082	0.080

Panel B: Controlling for Separated Linear Time Trends

Explanatory Variables	Dependent Variable: Whether a Firm is Detected Committing Fraud		
	Top 3 Pilot City	Top 5 Pilot City	Top 10 Pilot City
	(1)	(2)	(3)
Financial Liberalization	-0.172*** (-4.40)	-0.173*** (-4.54)	-0.142*** (-3.89)
Linear Trend * Pilot City Indicator	Y	Y	Y
Year Dummies	Y	Y	Y
Industry Dummies	Y	Y	Y
Province Dummies	Y	N	N
Firm Controls	Y	Y	Y
No. of Obs.	8,435	8,435	8,435
No. of Fraud Obs.	369	369	369
% of Fraud Obs.	4.37%	4.37%	4.37%
Pseudo R-sq	0.148	0.148	0.147

Appendix Table 6

Foreign Bank Presence following Banking Liberalization.

This table describes foreign bank presence following the shock. The sample consists of loans granted to firms listed on Mainland China's stock exchanges during the period 2001 to 2016 (i.e., the period between the initial shock and ten years after the final shock). Panel A presents total number and value of foreign loans issued by the top 15 foreign banks, ranked by total value of foreign loans issued during the sample period. Panel B presents total number of foreign banks and number of foreign loans issued to firms located in each pilot city, ranked by number of foreign banks in a city. Panel C presents number of firms with new loans and among them, percentage of firms with new foreign loans during each year after banking liberalization.

Panel A: Top 15 Foreign Banks

(1)	(2)	(3)	(3)	(5)
Rank	Bank	Country (Region)	Value of Foreign Loans (in <i>billion</i> RMB)	No. of Foreign Loans
1	HSBC	U.K.	110.0	518
2	The Bank of East Asia	Hong Kong, China	30.0	131
3	OCBC Bank	Singapore	24.0	136
4	Standard Chartered Bank	U.K.	24.0	89
5	Citibank	United States	14.0	237
6	Nanyang Commercial Bank	Hong Kong, China	8.8	93
7	ABN AMRO Bank	Netherlands	8.3	18
8	Chinese Mercantile Bank	Hong Kong, China	7.8	41
9	Development Bank of Singapore	Singapore	6.4	53
10	Hang Seng Bank	Hong Kong, China	4.7	72
11	ANZ Bank	Australia	4.5	42
12	Hana Bank	South Korea	4.2	35
13	United Overseas Bank	Singapore	3.6	52
14	BNP PARIBAS	France	3.1	33
15	J.P. Morgan	United States	2.5	15

Panel B: Distribution of Foreign Banks and Foreign Loans by Pilot Cities

(1) City	(2) Liberalization Year	(3) No. of Foreign Banks	(4) No. of Foreign Loans
Shenzhen	2001	33	475
Shanghai	2001	33	144
Beijing	2004	22	103
Tianjin	2001	16	64
Guangzhou	2002	16	44
Zhuhai	2002	11	31
Fuzhou	2003	11	31
Xiamen	2004	8	21
Nanjing	2002	5	17
Wuhan	2002	5	12
Kunming	2004	5	6
Qingdao	2002	4	7
Chengdu	2003	4	7
Shantou	2005	4	6
Shenyang	2004	4	5
Dalian	2001	3	18
Harbin	2005	3	7
Ningbo	2005	3	4
Nanning	2005	3	3
Chongqing	2003	2	4
Jinan	2003	2	3
Changchun	2005	1	7
Xian	2004	1	1
Lanzhou	2005	1	1
Yinchuan	2005	0	0

Panel C: Change in Percentage of Firms with New Foreign Loans

(1) Year after Liberalization	(2) No. of Firms with New Loans	(3) % of Firms with New Foreign Loans
0	110	0.91%
1	237	3.38%
2	376	2.66%
3	435	2.30%
4	445	3.15%
5	518	5.60%
6	867	5.42%
7	1,012	9.29%
8	1,327	9.87%
9	1,557	11.69%

Appendix Table 7

Client of Foreign versus Domestic Banks.

This table compares the characteristics of foreign versus domestic bank clients. The sample consists of firms listed on mainland China's stock exchanges during the period 2000 to 2010 in Column (1), and a subsample of these firms located in liberalized cities in Column (2). Probit estimation results based on the full sample and the subsample are presented in Columns (1)-(3), and (4)-(6), respectively. The dependent variable is an indicator variable that equals one if a firm is a foreign bank client, and zero otherwise. Robust standard errors are clustered at the industry levels with *t*-statistics reported in parentheses. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively.

Explanatory Variables	Dependent Variable: Foreign Bank Client Indicator					
	Full Sample			Subsample After Liberalization		
	(1)	(2)	(3)	(4)	(5)	(6)
Asset Tangibility	0.864** (2.23)	0.303 (0.69)	0.177 (0.38)	0.864** (2.34)	0.277 (0.60)	0.083 (0.16)
Size	0.170*** (4.77)	0.186*** (6.47)	0.182*** (6.30)	0.294*** (2.76)	0.257** (2.08)	0.296** (2.48)
Leverage	0.318*** (3.06)	0.282** (2.35)	0.330*** (2.93)	1.498*** (2.64)	1.744*** (3.52)	1.683*** (3.70)
ROA	1.430*** (3.02)	1.659*** (4.23)	1.549*** (4.37)	0.105** (2.41)	0.100** (2.41)	0.116** (2.33)
Sales Growth	0.0691* (1.83)	0.0668* (1.88)	0.0836** (2.05)	0.176*** (4.85)	0.198*** (7.35)	0.200*** (7.69)
Largest Shareholder	0.513* (1.77)	0.501* (1.75)	0.609** (2.34)	0.680*** (2.64)	0.669*** (2.59)	0.765*** (3.41)
State Ownership	-0.587*** (-4.83)	-0.488*** (-4.66)	-0.415*** (-3.71)	-0.667*** (-4.61)	-0.563*** (-4.05)	-0.503*** (-3.50)
Year Dummies	Y	Y	Y	Y	Y	Y
Industry Dummies	N	Y	Y	N	Y	Y
Province Dummies	N	N	Y	N	N	Y
No. of Obs.	7,706	7,706	7,553	5,977	5,977	5,882
No. of Fraud Obs.	334	334	320	241	241	233
% of Fraud Obs.	4.33%	4.33%	4.24%	4.03%	4.03%	3.96%
Pseudo R-sq	0.035	0.049	0.088	0.043	0.060	0.104

Appendix Table 8

Subsample Analysis for Firms with and without Increasing Long-Term Loans.

This table analyzes the impact of banking liberalization and long-term loans. The dependent variable is one if a firm is detected committing financial misreporting in a specific year by CSRC, and zero otherwise. The sample consists of firms listed on mainland China's stock exchanges during the period 2000 to 2010. Columns (1)– (3) present probit regression results based on the full sample and the subsamples of firms with and without increasing long-term loan ratios after banking liberalization, respectively. *Long-Term (Short-Term) Loan Ratio* is defined as long-term (short-term) loans divided by total assets. Robust standard errors are clustered at the industry levels with *t*-statistics reported in parentheses. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively. *Chi-square* statistics and *P*-values associated with the test of whether the coefficient estimates of *Financial Liberalization* differ between subsamples are presented below the subsample regression results.

Explanatory Variables	Dependent Variable: Whether a Firm is Detected Committing Fraud		
	Subsample Analysis		
	Full Sample	Firms with Increasing Long-Term Loan Ratio	Firms without Increasing Long-Term Loan Ratio
	(1)	(2)	(3)
Financial Liberalization	-0.289*** (-3.73)	-0.380*** (-3.39)	-0.0913 (-0.52)
Long-Term Loan Ratio	-0.579* (-1.91)	-0.687* (-1.79)	-0.328 (-0.62)
Short-Term Loan Ratio	0.980*** (5.18)	1.221*** (6.08)	0.581 (1.57)
Year Dummies	Y	Y	Y
Industry Dummies	Y	Y	Y
Province Dummies	Y	Y	Y
Firm Controls	Y	Y	Y
No. of Obs.	8,341	5,190	2,791
No. of Fraud Obs.	367	257	110
% of Fraud Obs.	4.40%	4.95%	3.94%
Pseudo R-sq	0.161	0.157	0.215
Tests for <i>Differences in Financial Liberalization</i> Coefficient Estimates			(2)-(3)
<i>Chi</i> -square			14.290***
<i>P</i> -Value			0.001