

**Appendix to How Public Markets Foster Firm Standardization:
Evidence from Chinese IPOs
(for Online Publication)**

Table A.1: IPO Suspensions

Suspension start - end	Rationale	Details
1994/7/21-1994/12/7	Aggregate market condition	The stock market downturn continued for one and a half years with investors losing confidence in the market. By the end of July 1994, SSE Composite Index [-5.77%] fell to 325 points and saw a decline as high as 79.09% in the stock market only within 18 months.
1995/1/19-1995/6/9	Aggregate market condition	In the beginning of 1995, market funds were mostly concentrated in the bond futures. Due to lack of funds in the stock market, the closing stock market downturn in 1994 continued with daily transaction volume of several hundred thousand yuan and stock indexes fluctuating in a small range for a long time.
1995/7/5-1996/1/3	Aggregate market condition	From 1995 to the beginning of 1996, broad stocks once again headed back into the doldrums. After a continuous decline, stock indexes finally began to stabilize in January 1996 with the lowest point reaching 512 points.
2001/7/31-2001/11/2	Unloading of state-owned public shares	On July 26th, 2001, the reduction of state-owned shares was officially implemented in the IPOs. The stock market witnessed a decline until January 29th, 2002 with stock indexes falling to 1339 points.
Sept 9, 2004 to Feb 3, 2005	Changes in IPO book building process.	In December 2004, The China Securities Regulatory Commission issued the Notice on Several Issues on the Trial Implementation of the Inquiry System for Initial Public Offering of Stocks. Before the launching of this scheme, the IPOs were all suspended.
June 7, 2005 to June 19 2006	Shares reform	Influenced by the Split-Share Structure Reform, the IPOs were suspended for one year.
Dec 15, 2008 to July 10, 2009	Global Financial crisis and prolonged decline in market index.	The United States Subprime Mortgage Crisis triggered the international financial crisis, which resulted in a record low of 1802.33 points of A shares on September 18th, 2008. Under this context, the IPOs witnessed a suspension again.
Nov 2, 2012 to Jan 17, 2014	Bearish market conditions	Bearish market conditions despite the fact that indexes in Europe and in the US are performing well; CSRC started the biggest inspection of financial reporting for IPO firms.
July 4, 2015 to Dec 9, 2015	Stock market crash and extreme volatility.	The A-share market has experienced instable plunges since June 2015 and dropped to 3,800 points from 5,100 points in 20 days. To boost the market, the regulators launched several measures including reopening the IPO.

Note: Sourced from CSRC Officially Designated Media Outlet. Hou and Zhu, "A Review of China IPO Suspensions", Security Daily, June 19 2013,
Published: A3, retrieved from http://zqrb.ccstock.cn/html/2013-06/19/content_362206.htm. See also Finance Daily, <http://www.mrcjcn.com/n/49812.html>.

Table A.2: Correlation between VC and pre-IPO CEO Change

	Company had CEO change in year prior to IPO	CEO at IPO is company founder
Months between approval and listing (delay)	-.02	.06
Foreign VC-funded	.02	.09
State-backed VC-funded	-.08	.09
Private Chinese VC-funded	-.05	.16

Note: This table shows correlation between whether a company had a CEO change in the the year prior to IPO and its VC financing. N=418.

Table A.3: Effect of suspension-induced IPO delay on employees, firm earnings and return on sales

Dependent variable ¹ :	$\Delta\#$ employees from		Earnings		Return on sales	
	IPO year	Year after IPO	IPO year	Year after IPO	IPO yr	Year after IPO
Delay (months)	(1)	(2)	(3)	(4)	(6)	(7)
	-14	-16	-4.6*	-4.5*	-0.0086**	-0.009**
Delay (mo)·Foreign VC	(19)	(19)	(2.5)	(2.5)	(.00037)	(.00037)
	-7.2	-7.2	-	-	.0011	(.0077)
Delay (mo)·Govt VC	(14)	(14)	(2)	(2)	(.0012)	
	41*	41*	-69	-69	-0.0084	
Delay (mo)·Private Chinese VC	(24)	(24)	(2)	(2)	(.00076)	
	35**	35**	-2	-2	.00038	
	(15)	(15)	(2.5)	(2.5)	(.00066)	
Dep. var. in IPO year -1	-	-	1***	1***	.93***	.89***
Controls	Y	Y	(.00085)	(.00086)	(.018)	(.039)
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	Y
N	408	408	415	415	415	398
R ²	.5	.51	1	1	.92	.65

Note: This table contains regression estimates using variants of: $Y_j = \alpha + \beta_1 MonthsDelay_j + \gamma_t + \delta'V_j$. The sample is restricted to firms approved within the year (365 days) prior to suspension announcement (2004-2015). [†]Buy-and-hold stock return less value-weighted market return for the first year after IPO. Sample limited to firms approved in the 12 months prior to an IPO suspension. Controls V_j are pre-listing year successful invention patent applications, investment (PPE) in listing year, age, market cap, IPO proceeds, and indicators for being state-owned, VC-backed, and the exchange (SH/SZ). γ_t are listing year fixed effects. Individual foreign, gov't and private Chinese VC backing effects are included in even numbered columns but not reported. Errors clustered by industry-quarter. *** indicates p-value<.01.

Table A.4: Effect of delay on the number of IPO co-managers, among firms listed in year after an IPO suspension

	Negative binomial	Delay indicators	IV for delay w/ approval date	Role of VC†
Delay (months)	(1) .045*** (.012)	(2) .019*** (.0035)	(3) .046*** (.013)	(4) .031* (.016)
Delay > 75 pctile		(5) .95*** (.28)		(6) .05*** (.014)
Delay (months)·VC-backed				(7) .6** (.3)
Delay > 75 pctile·VC-backed				-0.026* (.014)
VC-backed	-0.055 (.15)	-0.077 (.15)	-0.056 (.14)	-6 (.36) .24 (.29)
Delay (mo)·Foreign VC‡				-0.038* (.019)
Delay (mo)·Govt VC				-0.018 (.016)
Delay (mo)·Private Chinese VC				-0.02 (.017)
Controls	Y	Y	Y	Y
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
N	520	520	520	411
R ²	.66	.22	.66	.85
First stage f-test‡		(pseudo)		.66
				465

Note: This table contains regression estimates using variants of: $InvPatentApp_{jt} = \alpha + \beta_1 MonthsDelay_j + \gamma_t + \delta'V_j$. The model is OLS except in column 2. Sample limited to firms approved in the 12 months prior to an IPO suspension. †These regressions omit state-owned enterprises (SOEs); they show the relationship between delay and venture capital (VC) within private firms. *The 75th percentile of delay is 12.8 months. Controls V_j are pre-listing year successful invention patent applications, total investment that year, age, market cap, IPO proceeds, and indicators for being state-owned, VC-backed, and the exchange (SH/SZ). γ_t are listing year fixed effects. ‡Individual foreign, gov't and private Chinese VC backing effects are included in columns 6-7 but not reported. †The F-statistic for the excluded instrument (delay) being significantly different from zero. Errors clustered by industry-quarter. *** indicates p-value < .01.

Table A.5: Effect of IPO Suspensions on Contemporaneous VC Investment (Real RMB)

Panel 1: Early Stage VC Investment

Dependent variable: Weekly early stage VC investment (real 2010 RMB) in Chinese portfolio companies*

	(1)	(2)	(3)	(4) Excluding 2009 suspension
IPO suspension in effect	-228*** (62)	-51 (62)	-49 (56)	-44 (75)
Shenzhen index [†]		2*** (.28)		2*** (.29)
Shanghai index [†]		-.42*** (.11)		-.42*** (.11)
China index ^{††}			.62*** (.08)	
VC investment rest of world [‡]		.0078*** (.0025)	.0094*** (.003)	.0077*** (.0025)
N	935	859	914	819
R ²	.0064	.29	.17	.29

Panel 2: Later Stage VC Investment

Dependent variable: Weekly later stage VC investment (real 2010 RMB) in Chinese portfolio companies*

	(1)	(2)	(3)	(4) Excluding 2009 suspension
IPO suspension in effect	-647*** (120)	-259** (118)	-270** (108)	-291** (127)
Shenzhen index [†]		2*** (.54)		2*** (.55)
Shanghai index [†]		.12 (.19)		.11 (.19)
China index ^{††}			1.3*** (.16)	
VC investment rest of world [‡]		.0048 (.004)	.0038 (.0039)	.0048 (.004)
N	936	860	915	820
R ²	.011	.17	.16	.17

Note: This table contains OLS regression estimates of the relationship between VC investment and whether the government has suspended IPOs. Data is monthly. We use variants of: $VC_m = \alpha + \beta_1 (1 | IPO\ Suspension_m) + X_m + \varepsilon_m$. *Data from PCRI; value of early stage VC investment in portfolio companies that are located in mainland China; this variable is converted to nominal RMB by month, then converted into real terms using the WEO China consumer price index. Early stage = seed, early stage, VC not otherwise specified; Later stage = growth equity. [†]Monthly average of daily closing price for the Shenzhen/Shanghai composite index. ^{††}Monthly overall China market index, based on Shanghai and Shenzhen indices. [‡]Monthly VC investment in all portfolio companies located outside of China (source: PCRI). Errors robust. *** indicates p-value<.01.

Table A.6: Effect of IPO Suspensions on Contemporaneous Monthly VC Investment, Newey-West Standard Errors

Panel 1: Early Stage VC Investment

Dependent variable: Monthly early stage VC investment in Chinese portfolio companies*

	Excluding 2009 suspension				
	(1)	(2)	(3)	(4)	(5)
IPO suspension in effect	-435*** (128)	-173 (120)	-157 (105)	-62 (109)	-164 (141)
Shenzhen index [†]		2.2*** (.4)			2.2*** (.4)
Shanghai index [†]		-.4*** (.12)			-.4*** (.12)
China index ^{††}			.82*** (.16)	.85*** (.16)	
VC investment rest of world [‡]		-.0011 (.0089)	-.023* (.012)	-.026** (.012)	-.0015 (.0091)
N	240	222	234	224	212
R ²	.02	.42	.29	.29	.43

Panel 2: Later Stage VC Investment

Dependent variable: Monthly later stage VC investment in Chinese portfolio companies*

	Excluding 2009 suspension				
	(1)	(2)	(3)	(4)	(5)
IPO suspension in effect	-436*** (110)	-202* (109)	-198** (91)	-168* (98)	-221* (129)
Shenzhen index [†]		1.7*** (.38)			1.7*** (.38)
Shanghai index [†]		-.11 (.11)			-.11 (.11)
China index ^{††}			.86*** (.13)	.86*** (.13)	
VC investment rest of world [‡]		.0079 (.012)	-.0073 (.0093)		.0082 (.012)
N	240	222	234	224	212
R ²	.028	.47	.4	.4	.48

Note: This table contains OLS regression estimates of the relationship between VC investment and whether the government has suspended IPOs. Data is monthly. We use variants of: $VC_m = \alpha + \beta_1 (1 | IPO\ Suspension_m) + X_m + \varepsilon_m$. *Data from PCRI; this variable is the value in nominal USD of early stage VC investment in portfolio companies that are located in mainland China. Early stage = seed, early stage, VC not otherwise specified; Later stage = growth equity. [†]Monthly average of daily closing price for the Shenzhen/Shanghai composite index. ^{††}Monthly overall China market index, based on Shanghai and Shenzhen indices. [‡]Monthly VC investment in all portfolio companies located outside of China (source: PCRI). Newey-West standard errors, with optimal lag of 4 (identified using lag order selection statistics via Stata's varsoc command). *** indicates p-value < .01.

Table A.7: Effect of IPO Suspensions on Contemporaneous Investment by China-located VCs and top US VCs

Panel 1: China-Located VCs; all models use Newey-West standard errors

Dependent variable:	Monthly # VC deals by mainland China GPs ^{††}	Monthly VC investment (USD) by mainland China GPs ^{††}		
		Early stage	Later stage	All Excluding 2009 suspension
	(1)	(2)	(3)	(4)
IPO suspension in effect	-1.4* (.76)	-81 (52)	-146*** (53)	-37* (19)
Shenzhen index [†]	.0053 (.0043)	1.3*** (.22)	1.2*** (.2)	.18* (.092)
Shanghai index [†]	.00026 (.0013)	-.27*** (.067)	-.19*** (.064)	-.017 (.028)
N	222	222	222	212
R ²	.08	.52	.56	.11

Panel 2: Elite US VCs active in China; all models use Newey-West standard errors

Dependent variable: Monthly # VC deals in mainland Chinese companies by elite US VCs [‡]	Excluding 2009 suspension			
	(1)	(2)	(3)	(4)
IPO suspension in effect	-3.3* (1.9)	-3.8* (2.2)	-3.4 (2.3)	-2.2 (2.1)
Shenzhen index [†]	.015*** (.0041)			.015*** (.0042)
Shanghai index [†]	-.0042*** (.0014)			-.0039*** (.0014)
China index ^{††}		.002 (.0012)	.0023 (.0015)	.002* (.001)
Monthly # VC deals by top US VCs in US companies			.039 (.047)	
N	127	127	124	117
R ²	.27	.092	.1	.125

Note: This table contains OLS regression estimates of the relationship between VC investment and whether the government has suspended IPOs. Data is monthly. We use variants of: $VC_m = \alpha + \beta_1 (1 | IPO\ Suspension_m) + X_m + \varepsilon_m$. [†]Monthly average of daily closing price for the Shenzhen/Shanghai composite index. ^{††}Data from PCRI. [‡]Data from pedata.cn (sample smaller as data starts in 2005). Newey-West standard errors, with optimal lag of 4 (identified using lag order selection statistics via Stata's varsoc command). *** indicates p-value < .01.

Table A.8: Robustness Tests of Effect of IPO Suspensions on Contemporaneous VC Investment, Newey-West Standard Errors

Dependent variable:	Placebo test		Alternative data source: Monthly number of VC deals in China*			
	VC investment rest of world [†]	VC investment rest of world [†]	Total	By mainland GPs	Early stage	Later stage
IPO suspension in effect	(1) -1119 (1426)	(2) -1147 (1408)	(3) -29* (15)	(4) -31* (18)	(5) -2.7 (8.3)	(6) -26** (11)
Shenzhen index	-2.1 (3.1)		.18*** (.034)	.29*** (.043)	.11*** (.021)	.082*** (.021)
Shanghai index	3.1 (2.1)		-.051*** (.009)	-.094*** (.011)	-.035*** (.0061)	-.019*** (.0065)
China index		2.7** (1.2)				
N	222	234	127	127	127	127
R ²	.043	.037	.42	.49	.4	.29

Note: This table contains OLS regression estimates of the relationship between VC investment and whether the government has suspended IPOs. Data is monthly. We use variants of: $VC_m = \alpha + \beta_1(1 | IPO\ Suspension_m) + X_m + \varepsilon_m$. *Data from pedata.cn. This variable is the monthly number of VC deals in mainland Chinese portfolio companies. †Monthly VC investment (nominal USD) in all portfolio companies located outside of China (source: PCRI). Newey-West standard errors, with optimal lag of 4 (identified using lag order selection statistics via Stata's `varsoc` command). *** indicates p-value < .01.

Table A.9: Effect of IPO Suspensions on Contemporaneous Monthly Aggregate Bank Lending to Non-Financial Firms, Newey-West Standard Errors

Dependent variable: Monthly aggregate bank lending to non-financial firms in China*

	(1)	(2)
IPO suspension in effect	1358.68 (825.68)	1234.41 (822.80)
Shenzhen index [†]	2.166*** (.602)	
Shanghai index [†]	-1.216*** (.265)	
China index ^{††}		-0.544. (.467)
N	108	108
R ²	.16	.07

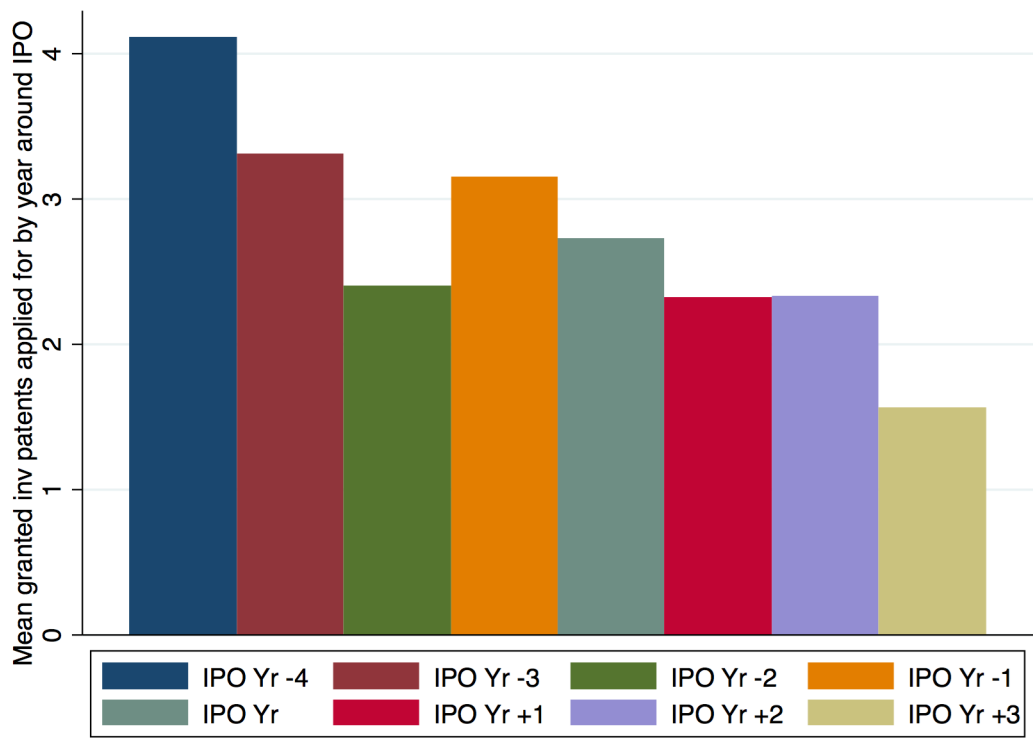
Note: This table contains OLS regression estimates of the relationship between bank lending and whether the government has suspended IPOs. Data is monthly. We use variants of: $VC_m = \alpha + \beta_1 (1 | IPO\ Suspension_m) + X_m + \varepsilon_m$. *Data from WIND; this variable is the value in nominal USD [†]Monthly average of daily closing price for the Shenzhen/Shanghai composite index. ^{††}Monthly overall China market index, based on Shanghai and Shenzhen indices. Newey-West standard errors, with optimal lag of 4 (identified using lag order selection statistics via Stata's varsoc command). *** indicates p-value<.01.

Table A.10: Effect of delay on contemporaneous invention patent applications, among firms approved to IPO in year prior to an IPO suspension

Dependent variable:	# invention patent apps in approval year			Role of VC [†]
	Negative binomial	High delay	IV for delay w/ approval date	
Delay (months)	(1) -.68*** (.23)	(3) -3.7*** (1.7)	(4) -.78*** (.38)	(6) -3* (.17)
Delay ∈ 25-75 pctile*	(2) -.11*** (.031)	(5) -28*** (1.2)	(7) -.7*** (.23)	
Delay > 75 pctile				
Delay (months)·VC-backed				
VC-backed	.34 (1.2)	.28 (1.3)	.32 (1.2)	-27* (.14) 2.7*** (1.2)
Delay (mo)·Foreign VC [†]				.23* (.13)
Delay (mo)·Govt VC				-.089 (.19)
Delay (mo)·Private VC				.0066 (.11)
Controls	Y	Y	Y	Y
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
N	341	341	341	281
R ²	.18	.18	.18	.18
First stage F-test [‡]			67.5	67.5

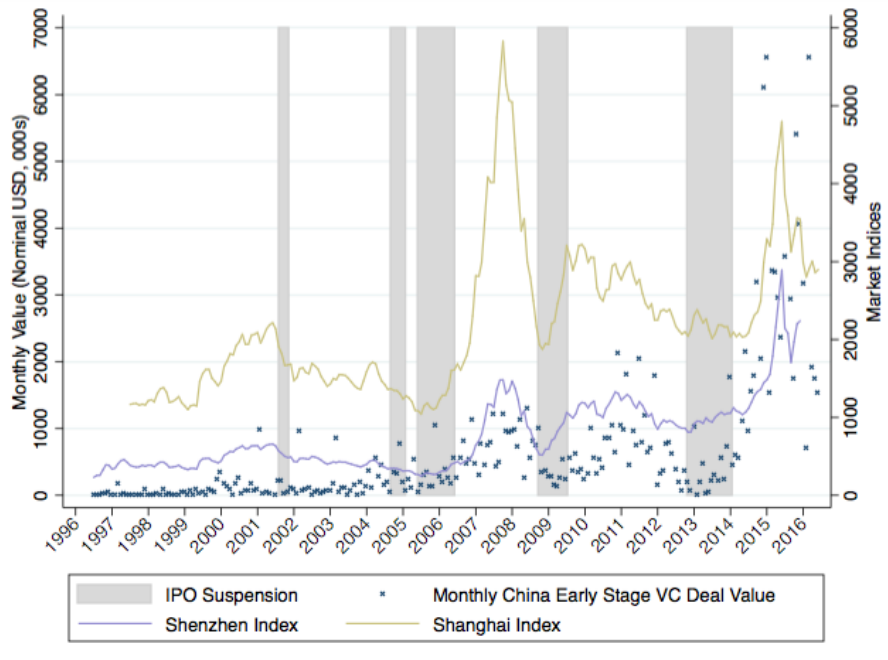
Note: This table contains regression estimates using variants of: $InvPatentApps_{jt} = \alpha + \beta_1 MonthsDelay_j + \gamma_t + \delta'V_j$. OLS except columns 2 and 5. Sample limited to firms approved in the 12 months prior to an IPO suspension. [†]State-owned enterprises (SOEs) omitted. ^{*}The 75th percentile of delay is 12.8 months. Controls V_j are total investment that year, age, market cap, IPO proceeds, pre-listing granted inv. patents, and indicators for being state-owned, VC-backed, and the exchange (SH/SZ). [‡]Individual foreign, gov't and private VC f.e. included but not reported. [‡] F-statistic for the excluded instrument (delay) being significantly different from zero. Errors clustered by industry-quarter. ^{**} The exponential conditional mean model with endogenous variables, implemented in Stata with ivpoisson. No direct weak instrument test, but as reduced from for the endogenous explanatory variable is linear, we use the F-statistic from the first stage. ^{***} indicates p-value < .01.

Figure A.1: Ultimately successful patent applications by year around listing (IPO year)



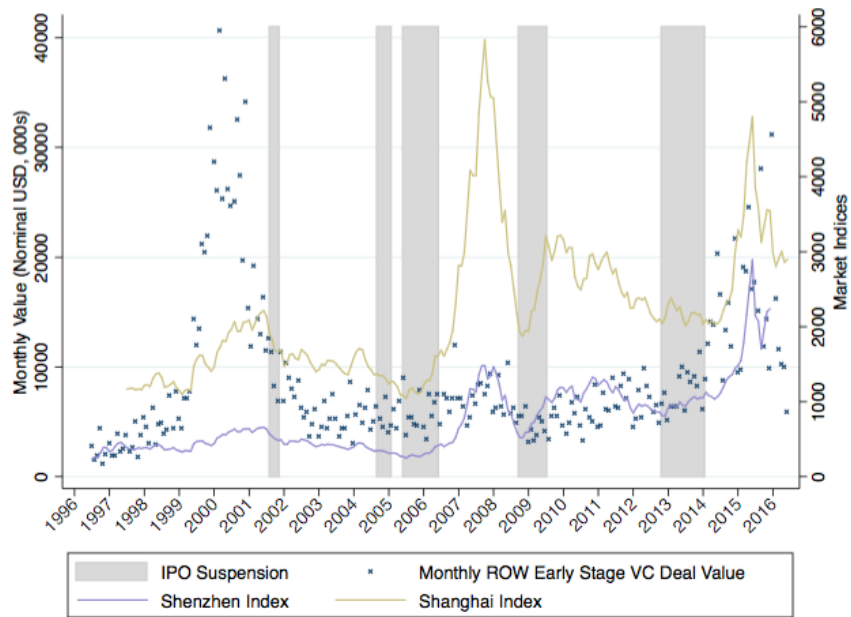
Note: This figure shows the raw means of patenting application behavior by year around the listing (IPO) year for firms in the estimation sample (approved a year before an IPO suspension). Only invention patents are used, and only granted (successful) patents are included. The first bar, for example, shows that in the 4th year prior to the IPO, firms on average apply for 4 ultimately granted invention patents. The final bar shows that in the 3rd year after the IPO, firms on average apply for 1.5 ultimately granted invention patents.

Figure A.2: Monthly Early Stage VC to China Companies



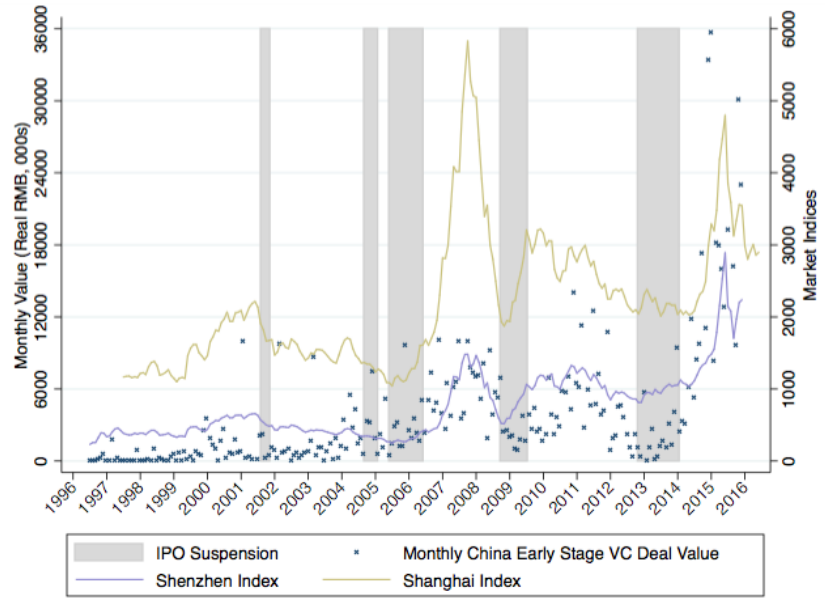
Note: Each point is the monthly value of VC investments in mainland China-based portfolio companies in nominal USD. Only seed and early stage VC investment included.

Figure A.3: Monthly Early Stage VC to Non-China (Rest of World) Companies



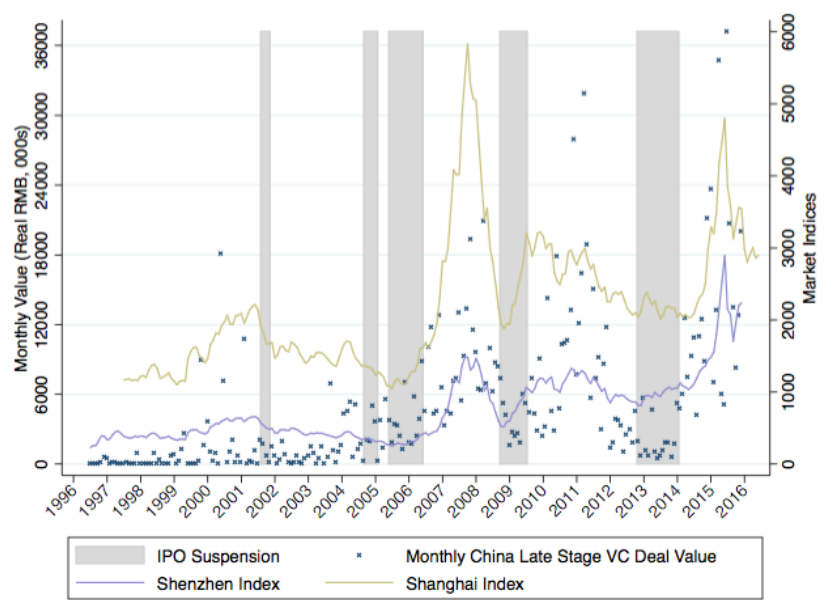
Note: Each point is the monthly value of VC investments in non-China-based portfolio companies in nominal USD. Only seed and early stage VC investment included.

Figure A.4: Monthly Early Stage VC Investment in China Companies (Real 2010 RMB)



Note: Each point in this figure is the total value of VC investments in China-based portfolio companies in a given month in real 2010 RMB. Only seed and early stage VC investment included.

Figure A.5: Monthly Later Stage VC Investment in China Companies (Real 2010 RMB)



Note: Each point in this figure is the total value of VC investments in China-based portfolio companies in a given month in real 2010 RMB. Only growth/expansion stage VC investment included.