Competitive effects of IPOs
Evidence from Chinese Listing Suspensions[1]

Frank Packer[1] Mark M. Spiegel[2]

[1]Bank for International Settlements

[2]Federal Reserve Bank of San Francisco

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IPO effects on listed firms

- Two channels stressed in literature:
  - Direct competition for firms in same industry (Akhigbe, et al 2003; Hsu, et al 2010)
  - Competition in asset space with firms whose equities have common risk characteristics (Braun and Larrain 2009)
- Studies of competitive IPO effects challenged by endogeneity of IPO listings
- Examine blanket suspensions of IPO activity by the China Securities Regulatory Commission (CSRC)
- Panel spans three suspensions, allowing controls for macroeconomic conditions

Results indicate IPO competition from both channels

- Direct competition:
  - Suspensions disproportionately benefit listed firms in industries heavily represented in the queue of firms approved to go public
- Asset space competition:
  - Firms with greater covariance in historic returns with synthetic portfolio replicating industry composition of suspended IPOs earn higher returns on suspension announcement dates
- Heterogeneity in sensitivity to announcements:
  - Equity responses to the suspension announcements dampened for more profitable and productive firms – measured through a variety of alternative metrics

Relation to literature

- Impact of IPOs on existing firms: (Akhigbe et al. 2003, Hsu et al. 2010), Spiegel and Tookes 2020)
- Asset space competition: (Hong et al. 2008, Baschieri et al. 2015, Braun and Larrain 2009, Li et al. 2018)
- Endogeneity of IPOS: (Ritter 1991, Pagano et al. 1998, Boeh and Dunbar 2014, Baker and Wurgler 2000)
- Impact of China suspensions on firms in queue: (Cong and Howell 2019, Shi, et al 2018)

Suspensions motivated by desire for market stability

- Fear that new IPOs might lower liquidity, or depress market prices
  - Suspension duration indeterminate at launch, and has been variable
  - Three most recent suspensions in 2008-09, 2012-14, and 2015 were214, 438 and 156 days, respectively
  - Costly to firms in queue (Cong and Howell 2019)
- Suspensions had mixed success in lifting overall market
  - Three suspensions examined in this study quite mixed:
  - 2008-2009: Market rebounded during suspension period
  - 2012-2014 suspension: market remained fairly constant
  - 2015 suspension: Share prices continued to decline, with partial reversal later

3 suspension episodes in panel

Shanghai Stock exchange composite index, 2008-2015 Graph 1

The lines indicate the three suspensions starting from 6 December 2008, 3 November 2012 and 4 July 2015.

Source: CEIC.

IPO Process in China for individual firms

- Series of steps
  - Preliminary review of CSRC application that may take years.
  - Formal assessment by the Stock Issuance Examination and Verification Committee of the CSRC
  - Application at a domestic exchange within six months (more a formality)
  - Firm and underwriters builds a book, conducts a road show and decides on a share subscription day
  - After subscription, average of 4 weeks for the shares to list
- In total, time between approval and listing averages around 3 months, but intervals from 2 to 5 months are common in normal periods

IPO approval process facilitates identification

- Ahead of the 2008-09, 2012-14 and 2015 suspensions, 30, 66 and 62 firms had been approved for an IPO
  - 158 total
- Considerable variation across suspensions in IPO size
  - More than 3 billion RMB in 2008
  - 0.4 and 0.6 billion RMB in 2012 and 2015, respectively
  - Time dummies control for differences in impact of suspensions as well as market and economic conditions at time of suspension announcements
- Industry affiliation of delayed firms is public knowledge, allowing for calculation of expected IPO-queue share of industry market capitalisation

Summary statistics for IPO Suspensions

		Mean	Median	Std. Dev.	Min	Max
2008 Suspension (30 firms)						
Size of postponed IPO	RMB bn	3.037	0.670	9.284	0.266	50.160
Length of Suspension	Days	214				
Days from Approval to IPO	Days	409.100	386	73.573	367	726
2012 Suspension (66 firms)						
Size of postponed IPO	RMB bn	0.444	0.290	0.529	0.129	4.000
Length of Suspension	Days	438				
Days from Approval to IPO	Days	698.955	616.5	184.035	546	1500
2015 Suspension (62 firms)						
Size of postponed IPO	RMB bn	0.565	0.366	0.909	0.115	7.238
Length of Suspension	Days	156				
Days from Approval to IPO	Days	242.984	236	55.127	175	417

Source: Wind and authors' calculations.

Sample Data

- Base sample is pooled data
  - Listed firms on Shenzhen and Shanghai stock exchanges at time of suspension announcements
  - 6,045 obs, 1,484 from 2008, 2,390 from 2012, and 2,171 from 2015
  - Dependent variable is $r_{i,t}$, the one-day return on equity of firm i on date t, closing price over previous trading day
- Two variables of interest:
- Industry-level measure of potential delay in direct competition
  - *Expected* share of firms from listed firm's industry in queue
  - Use realized values of IPOs
  - Measure implicitly assumes unbiased expectations
- Proxy for potential competition in asset space
  - Based on covariance of securities with synthetic portfolio of firms with industry composition matching delayed IPO queue
  - Calculated as weighted sum of covariances between monthly return of prior 3 years and monthly return in each industry

Sample Data (continued)

- Interact measures of IPO competition with indicators of profitability
  - Five profitability indicators:
  - Net profit margin (NPM), return on assets (ROA), Return on equity (ROE), Return on invested capital (ROI), and Operating profitability (OROC)
- Other conditioning variables
  - Market capitalization (MKTCAP), leverage (LEV), price to book ratio (PBOOK), earnings volatility (SDEBIT), State-owned enterprizes (SOE), Trading exchange (SHANGHAI)
- Also include time dummies to control for differences in macroeconomic and overall financial conditions

Specification

- Base specification
  - Indicator of firm performance on its own, and interacted with the two channels of potential competition from IPO activity:
    - $IPO_{j;t}$: value of IPOs in the queue in industry j at time t
    - $COV_{i;j;t}$: average covariance of returns over the previous three years of firm i in industry j at time t with weighted portfolio of industries in queue.
- Base specification with net profit margin ($NPM_{i,j,t}$) indicator satisfies

$$r_{i,j,t} = c + \beta_1 NPM_{i,j,t} + \beta_2 IPO_{j,t} + \beta_3 IPO_{j,t} \cdot NPM_{i,j,t} + \beta_4 COV_{i,j,t} \quad (1)$$
$$+ \beta_5 COV_{i,j,t} \cdot NPM_{i,j,t} + \gamma X_{i,j,t} + D_{12} + D_{15} + \epsilon_{i,j,t}$$

- Estimate with OLS and standard errors clustered by industry

Base specification results

Perf. ind. (PI)	(1) NPM	(2) ROA	(3) ROE	(4) ROI	(5) OROC
PI	0.055***	0.134***	0.082***	0.090***	0.036***
	(0.010)	(0.015)	(0.011)	(0.012)	(0.004)
IPO	0.209***	0.290**	0.257**	0.243*	1.863***
	(0.063)	(0.127)	(0.124)	(0.140)	(0.628)
IPOxPI	-0.018***	-0.049***	-0.019***	-0.028**	-0.018***
	(0.003)	(0.018)	(0.008)	(0.008)	(0.006)
COV	0.002**	0.002**	0.004***	0.003***	0.006**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
COVxPI	-0.000	-0.000**	-0.000***	-0.000***	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	6,045	6,048	5,984	5,916	5,937
R-squared	0.513	0.515	0.514	0.531	0.530

Baseline results summary

- Point estimates indicate 1 s.d. $\uparrow$ in IPO $\uparrow$ returns by 24.4 bp
- Point estimates on interactive suggests 1 s.d. $\uparrow$ in NPM $\downarrow$ those returns by 5.9 bp
  - Stronger firms less sensitive to suspension news, all else equal
- COV also enters at statistically significant levels with expected positive sign
  - 1 s.d. $\uparrow$ in COV $\uparrow$ those returns by 42.8 bp
- Results are robust to use of other performance proxies
- Also robust to adjusting for period of time firms were in IPO queue at time of announcement

Consider a number of changes in specification

- Drop conditioning variables
- Drop interactive terms
- Drop *IPO* and *IPOxNPM*
- Drop *COV* and *COVxNPM*
- Excess, instead of raw, returns
- 2-day windows
- Use NPM as default performance indicator

Changes in specification

	(1)	(2)	(3)	(4)	(5)	(6)
NPM	0.055***	0.046***		0.054***	0.044***	0.061***
	(0.012)	(0.009)		(0.010)	(0.010)	(0.013)
IPO	0.251***	-0.045**	-0.046***	0.228***	0.467***	0.226**
	(0.056)	(0.022)	(0.017)	(0.064)	(0.097)	(0.086)
IPOxNPM	-0.021***			-0.019***	-0.030***	-0.025***
	(0.004)			(0.004)	(0.007)	(0.006)
COV	0.002**	0.001*	-0.001		0.001**	0.002**
	(0.001)	(0.000)	(0.001)		(0.001)	(0.001)
COVxNPM	-0.000		0.000		-0.000	-0.000**
	(0.000)		(0.000)		(0.000)	(0.000)
Observations	6,058	6,045	6,045	6,106	6,060	6,045
R-squared	0.495	0.512	0.505	0.492	0.543	0.638

- Robust, except for models 2 and 3 which drop interactive term.
- Demonstrates need for allowing heterogeneous responses across firms

Changes in specification

- Only SOE firms
- Only Non-SOE firms
- Drop *IPO* and *IPOxNPM*
- Drop *COV* and *COVxNPM*
- Excess, instead of raw, returns
- 2-day windows
- Use NPM as default performance indicator

Changes in sample (1)

	(1) IPO	(2) IPOxNPM	(3) NPM	(4) COV	(5) COVxNPM	(6) Constant
(1) SOE sample	0.203***	-0.017***	0.070***	0.006*	-0.000**	2.144***
	(-0.0651)	(-0.004)	(-0.019)	(-0.003)	(-0.000)	(-0.739)
(2) Non-SOE sample	0.211*	-0.017***	0.050***	0.001	0.000	2.480***
	(-0.112)	(-0.005)	(-0.009)	(-0.001)	(0.000)	(-0.404)
(3) Shanghai listed	0.249***	-0.021***	0.051***	-0.000	0.000	3.494***
	(-0.081)	(-0.006)	(-0.014)	(-0.002)	(-0.000)	(-0.510)
(4) Shenzhen listed	0.219***	-0.018***	0.036***	0.002**	-0.000*	3.251***
	(-0.077)	(-0.004)	(-0.007)	(-0.001)	(0.000)	(-0.269)
(5) Balanced panel	0.118	-0.010**	0.070***	-0.001	-0.000***	3.5307***
	(-0.073)	(-0.005)	(-0.013)	(-0.002)	(-0.000)	(-0.567)
(6) Drop profitable	0.209***	-0.018***	0.055***	0.002**	0.000	2.602***
	(-0.063)	(-0.003)	(-0.010)	(-0.001)	(0.000)	(-0.330)
(7) Drop unprofitable	0.209***	-0.018***	0.055***	0.002**	0.000	2.602***
	(-0.063)	(-0.003)	(-0.010)	(-0.001)	(0.000)	(-0.330)

Changes in sample (2)

	(1) IPO	(2) IPOxNPM	(3) NPM	(4) COV	(5) COVxNPM	(6) Constant
(8) Drop productive	0.189*	-0.017**	0.045***	0.002**	0.000	2.950***
	-0.096	(-0.007)	(-0.006)	(-0.001)	(0.000)	(-0.225)
(9) Drop unproductive	0.209***	-0.018***	0.055***	0.002**	0.000	2.602***
	(-0.063)	(-0.003)	(-0.010)	(-0.001)	(0.000)	(-0.330)
(10) Drop big	0.215***	-0.019***	0.055***	0.002**	0.000	2.658***
	(-0.062)	(-0.003)	(-0.010)	(-0.001)	(0.000)	(-0.330)
(11) Drop small	0.209***	-0.018***	0.055***	0.002**	0.000	2.602***
	(-0.063)	(-0.003)	(-0.010)	(-0.001)	(0.000)	(-0.330)
(12) Drop high IPO	0.781***	-0.051***	0.077***	0.003***	-0.000**	2.098***
	(-0.261)	(-0.015)	(-0.016)	(-0.001)	(0.000)	(-0.588)
(13) Drop large ImpactM	0.810***	-0.045***	0.060***	0.002**	0.000	2.448***
	(-0.250)	(-0.013)	(-0.011)	(-0.001)	(0.000)	(-0.375)

- Overall robust, except for interactive COV term, which remains negative and is close to 10% significance

Changes in estimation method

- Estimate based and delay-adjusted models with robust standard errors
- Estimate base with weighted least squares, weighting by firm assets
- Winsorize outliers at 1% instead of 5% level
- Trim, instead of winsorize at 5% level
- Continue to use NPM as default performance indicator

Changes in estimation method

	(1)	(2)	(3)	(4)	(5)
	Robust SE	Regular SE	Weighted LS	1% Winsor	5% Trim
NPM	0.055***	0.055***	0.023**	0.051***	0.063***
	(0.007)	(0.006)	(0.010)	(0.010)	(0.009)
IPO	0.209***	0.209**	0.070***	0.204***	0.228***
	(0.053)	(0.087)	(0.019)	(0.058)	(0.062)
IPOxNPM	-0.018***	-0.018***	-0.009***	-0.017***	-0.019***
	(0.003)	(0.005)	(0.002)	(0.003)	(0.003)
COV	0.002*	0.002***	0.003**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
COVxNPM	-0.000	-0.000*	-0.001*	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	6,045	6,045	3,803	6,045	4,899
R-squared	0.513	0.513	0.591	0.512	0.516

- Robust, except for interactive COV term.

Evaluate impact of IPOs on listed firms through Chinese suspensions

- Unanticipated and applied to entire market
- Find positive evidence for both direct and asset-space competitive effects
  - Robust to wide variety of sensitivity tests
- Also find evidence of heterogeneity in sensitivity to suspension news
  - Better-performing firms benefit less from suspension, suggesting less exposure to IPOs
  - Also robust to wide variety of sensitivity tests
  - Less robustness for interactive COV (asset-space) term