Competitive Effects of IPOs: Evidence From Chinese Listing Suspensions

Discussant

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Contributions of the paper

- A well-written paper yielding useful insights on the competition effects of IPOs.
- This paper is especially timely in view of the **recent IPO suspension** of the Chinese fintech giant **Ant Group**. It was expected to launch its IPO in HK and Shanghai on Nov 3 at a valuation of nearly **US$37 billion** but was abruptly suspended.
- The innovative part of this paper is that it utilizes the **exogenous blanket suspensions** of IPO listing (which were unanticipated and with unknown duration) to study the **competitive effect of IPO on other listed firms in the industry**. This provides a nice platform to mitigate endogenous effect.
- This paper explores two propositions:

❖ **Proposition 1 (direct IPO competition effect):**

IPO **adversely** affect other listed firms by increasing intra-industry competition.

❖ **Proposition 2 (indirect asset-space competition effect):**

IPO **adversely** affect other listed firms by increasing asset-space competition.

– With IPO suspension, other firms in the industry are expected to benefit from a reduction in intra-industry competition and a restriction in the supply of assets by firms with similar asset return characteristics.

– Both competition effects are less impactful for firms that are more profitable.

Findings

- Based on the regression model in the paper

$$r_{i,j,t} = c + \beta_1 NPM_{i,j,t} + \beta_2 IPO_{j,t} + \beta_3 IPO_{j,t} \cdot NPM_{i,j,t}$$
$$+ \beta_4 COV_{i,j,t} + \beta_5 COV_{i,j,t} \cdot NPM_{i,j,t} + \gamma X_{i,j,t} + \alpha_{12} D_{12} + \alpha_{15} D_{15} + \varepsilon_{i,j,t},$$

the **direct competition effect (proposition 1)** can measured by the marginal effect of IPO on return:

$$\frac{\partial E[r_{i,j,t}|\boldsymbol{X}]}{\partial IPO_{j,t}} = \beta_2 + \beta_3 NPM_{i,j,t}, \qquad \text{Proposition 1 suggests } \frac{\partial E[r_{i,j,t}|\boldsymbol{X}]}{\partial IPO_{j,t}} < 0;$$

and **indirect asset-space competition effect (proposition 2)** can be measured by the marginal effect of COV on return:

$$\frac{\partial E[r_{i,j,t}|\boldsymbol{X}]}{\partial COV_{j,t}} = \beta_4 + \beta_5 NPM_{i,j,t}, \qquad \text{Proposition 2 suggests } \frac{\partial E[r_{i,j,t}|\boldsymbol{X}]}{\partial COV_{j,t}} < 0$$

- The general finding is that **IPO suspension significantly increases the 1-day return through both the direct competition channel and indirect asset-space competition channel** ($\hat{\beta}_2 > 0$ and $\hat{\beta}_4 > 0$) but the **effects generally decline for firms with higher net profit margin** ($\hat{\beta}_3 < 0$ and $\hat{\beta}_5 < 0$).

- However, **the result for the COV channel is less robust** and it shows up to be **insignificant under some specifications (Table 7).**
- This leads the authors to conclude (on p.26) that "*both of the variables [COV and its interactive term]* ***enter insignificantly with the wrong sign*** *for observations from firms listed on the Shanghai exchange. We conclude that the* ***relative lack of robustness*** *we find for our asset-space competition is attributable to firms listed on the Shanghai exchange, although* ***it is not clear why this would be the case***……"

TABLE 7. Changes in sample

	(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)
(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***
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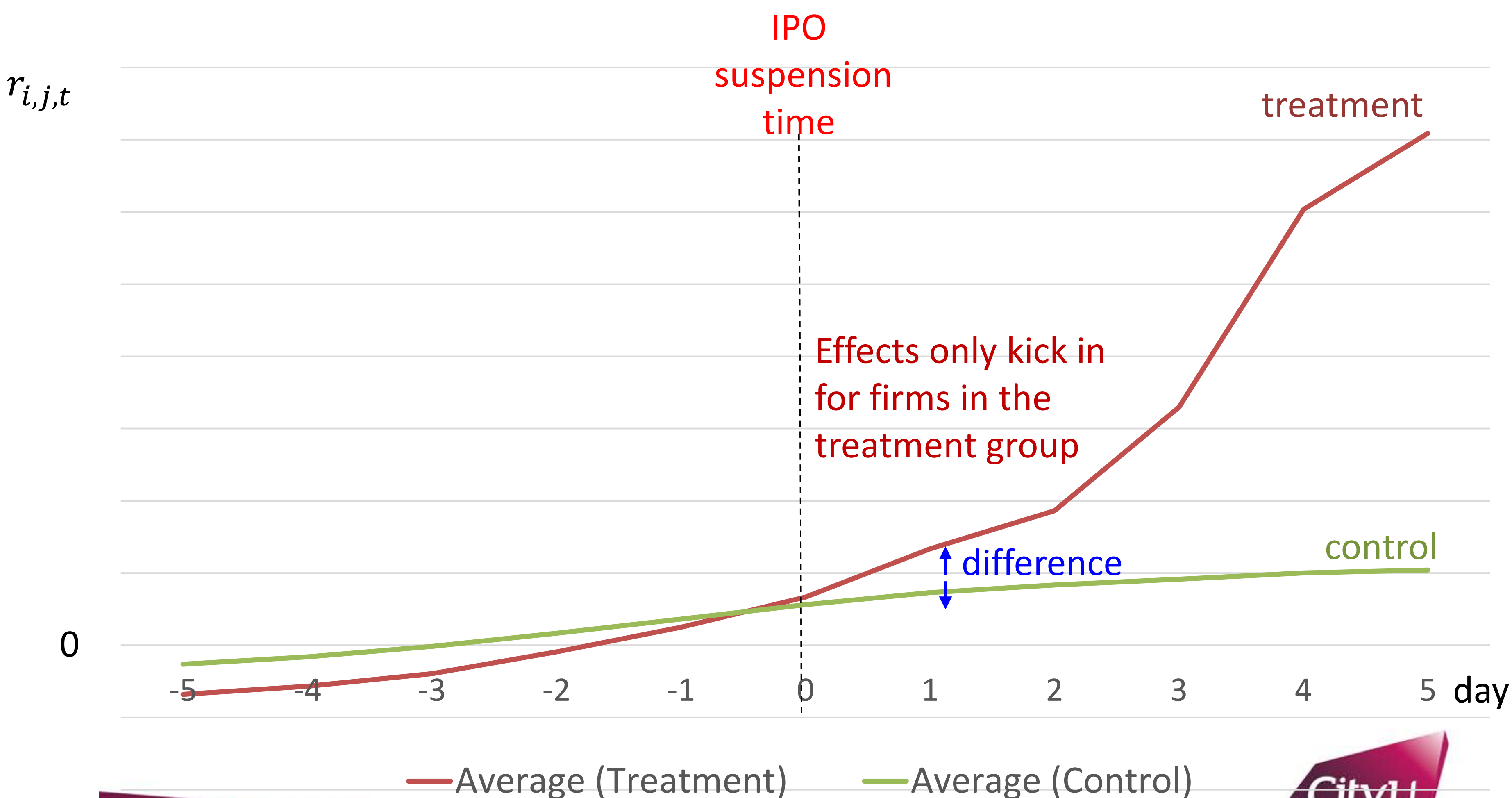
Comments (1): Puzzle on the insignificance of COV terms

- To understand the puzzle, it is useful to scrutinize the setting of the model and infer the meaning of the coefficients.
- As this paper aims at gauging the competition effects by examining the equity response surrounding the event of IPO suspension, it is natural to compare it with the setting of a **typical event study.**
- **Event study** is often used to analyse the impact of a certain policy/event on a behavioural variable through the application of **difference-in-differences (DID)**.
- DID involves the measure of the **difference between the treatment group** (firms in the industries that are affected by the IPO suspension) and **control group** (firms in the industries NOT affected by the IPO suspension).
- Regarding the **control group**, as the 3 IPO suspension episodes in the sample are blanket suspension which applied to all firms in the queue, technically we do not have any queuing firms exempted from the suspension. Instead, we can set the control group to be the **firms in the industries that have no firms in the IPO queue and hence not affected by the IPO suspension**.

- **Treatment group (158 firms)**: Firms in the industries that have **IPOs value >0** (i.e. there were firms in the queue that were affected by the IPO suspension)

- **Control group (5887 firms)**: Firms in the industries that have **IPOs value = 0** (i.e. there were no firms in the industry in the queue for IPO and hence NOT affected by the IPO suspension).

- The impact of the event (IPO suspension) is measured by the **difference between the k-day return of the treatment group and control group**.
- An illustration of a typical event study graph is as follows:



- Putting this in a regression setting, we can define the **treatment group dummy** as

$$D_{i,j,t} \quad = 1 \text{ if } IPO_{j,t} > 0 \text{ (there are firms queuing up for IPO in the industry)}$$
$$= 0 \text{ otherwise (no firms queueing up for IPO in the industry)}$$

- The augmented regression with the treatment group dummy is:

$$r_{i,j,t} = \text{c} + \alpha_D\, D_{i,j,t} + \beta_1\, NPM_{i,j,t} + \beta_2\, D_{i,j,t}\, IPO_{j,t} + \beta_3\, D_{i,j,t}\, IPO_{j,t}\, NPM_{i,j,t}$$
$$+ \beta_4\, D_{i,j,t}\, COV_{i,j,t} + \beta_5\, D_{i,j,t}\, COV_{i,j,t}\, NPM_{i,j,t} + \gamma\, X_{i,j,t} + \alpha_{12} D_{12} + \alpha_{15} D_{15} + \varepsilon_{i,j,t},$$

- Since mathematically

$$D_{i,j,t}\, IPO_{j,t} = IPO_{j,t} \qquad \text{and} \qquad D_{i,j,t}\, IPO_{j,t}\, NPM_{i,j,t} = IPO_{j,t}\, NPM_{i,j,t}$$

the regression is reduced to

$$r_{i,j,t} = \text{c} + \alpha_D\, D_{i,j,t} + \beta_1\, NPM_{i,j,t} + \beta_2\, IPO_{j,t} + \beta_3\, IPO_{j,t}\, NPM_{i,j,t}$$
$$+ \beta_4\, D_{i,j,t}\, COV_{i,j,t} + \beta_5\, D_{i,j,t}\, COV_{i,j,t}\, NPM_{i,j,t} + \gamma\, X_{i,j,t} + \alpha_{12} D_{12} + \alpha_{15} D_{15} + \varepsilon_{i,j,t},$$

- The **difference between treatment and control group** is thus:

$$[(r_{i,j,t} | D_{i,j,t} = 1) - (r_{i,j,t} | D_{i,j,t} = 0)] = \boxed{\alpha_D} + \beta_2\, IPO_{i,j,t} + \beta_3\, IPO_{i,j,t}\, NPM_{i,j,t}$$
$$\boxed{+ \beta_4\, COV_{i,j,t} + \beta_5\, COV_{i,j,t}\, NPM_{i,j,t}}$$

- Compared with the **specification in the paper without the treatment dummy:**

$$[(r_{i,j,t} | D_{i,j,t} = 1) - (r_{i,j,t} | D_{i,j,t} = 0)] = \beta_2\, IPO_{i,j,t} + \beta_3\, IPO_{i,j,t}\, NPM_{i,j,t}$$

- With the inclusion of the treatment group dummy, the distinction between the treatment group and the control group can be more clearly captured by the coefficients of the 4 terms:

$$IPO_{i,j,t}\ ,\ IPO_{i,j,t}\,NPM_{i,j,t}\ ,COV_{i,j,t},\ COV_{i,j,t}\,NPM_{i,j,t}$$

Comments (2): Placebo effect vs. real treatment effect

- This paper uses the **1-day return after the announcement of the suspension** to gauge the competition effects, and **any significance in the coefficients of the IPO and COV variables are attributed to the competition effects.**
- If the response of the 1-day return is mainly caused by the IPO suspension, **such response should not be observed in other (tranquil) periods outside the suspension window during which other policies were adopted which did not directly affect the degree of competition in the industry**. We can use this to set up a **placebo test**. The coefficients of IPO, IPO$\times \boldsymbol{NPM}$, COV and COV$\times \boldsymbol{NPM}$ variables should not be significant in this placebo test.
- Also, we can set up a **test on the withdrawal of treatment** by examining if opposite response in the return can be observed upon the withdrawal of the IPO suspension.

Test setting	Time points
Treatment test	1-day after the **announcement** of the IPO suspension
Placebo test	(Tranquil) periods outside the suspension window in which other policies were adopted which did not directly affect competitions in the industry
Test on the withdrawal of treatment	1-day after the announcement of the **removal** of the IPO suspension

Comments (3): Expected vs ex post measure of $IPO_{j,t}$

- The key variable for testing proposition 1 is ***$IPO_{j,t}$*** which is defined as

$$\frac{MCQ_{j,t}}{MCL_{j,t}}$$

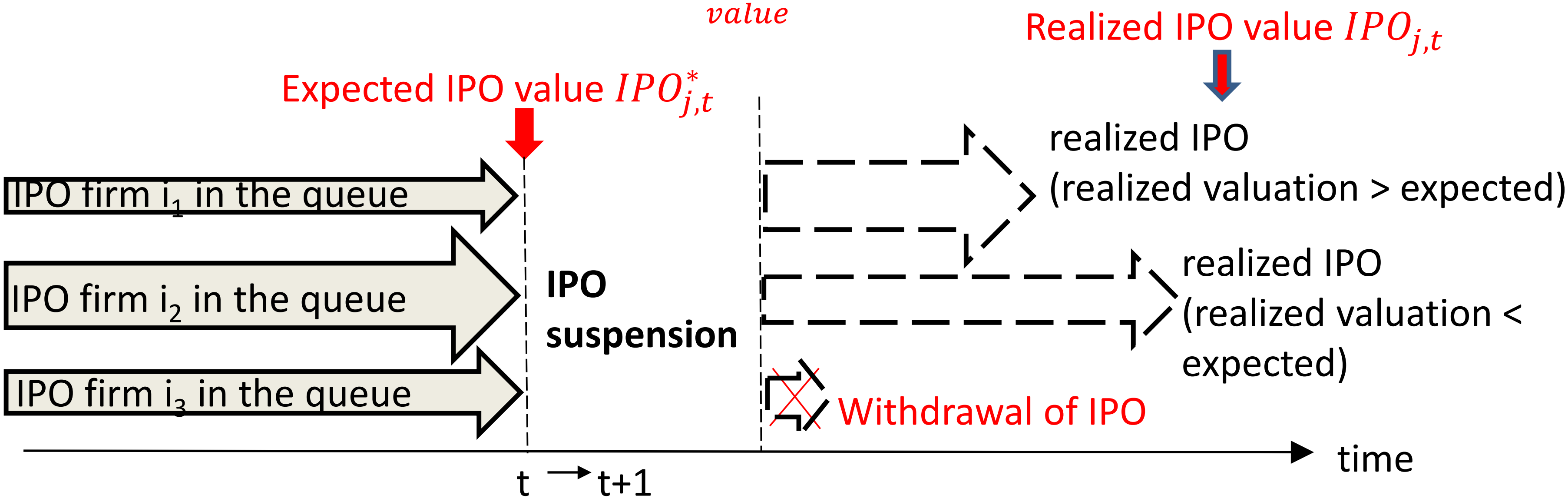
where

$MCQ_{j,t}$ is a proxy of the ***expected*** total potential market cap of queue firms in industry j at the suspension time t;

$MCL_{j,t}$ is the total market cap of all listed firms within industry j at the suspension time t.

- Several assumptions are made in the calculation of $MCQ_{j,t}$ (the expected market cap of queue firms). It is assumed that **investors have perfect foresight** of
  a) the ultimate realized size of IPO;
  b) which IPO will (or will not) ultimately take place

$$\underbrace{IPO_{j,t}}_{\textit{realized value}} = \underbrace{IPO^*_{j,t}}_{\textit{true expected value}} + \underbrace{\eta_t}_{\textit{measurement error}}$$



- **Measurement errors** can arise from various sources:

1) The **overestimation/underestimation of the expected IPO value** when using the ultimate realized IPO value as a proxy (η_t >0 or η_t <0 respectively);
2) **Unexpected withdrawal of IPO** (η_t <0).

Since it is more likely that η_t >0 when the market condition at the suspension time t is **poor** (as in 2008 and 2015 when $\varepsilon_{i,j,t}$ <0), η_t and ε_t tend to be negatively correlated.

- **Measurement errors** that could result in
  - **(1) large standard errors and insignificant coefficients** (if the measurement errors and the regression errors are uncorrelated)**; or, more seriously,**
  - **(2) endogeneity of the variable** (if the measurement errors are correlated with the regression error).

- In view of the possible measurement errors caused by the perfect foresight assumption, is it possible to conduct a **robustness check** by finding a **more direct measure of the expected IPO value at suspension time t**, say, by
  - taking the average **estimates from news reports**;
  - taking the **mean value of the IPO price range stated in the prospectus** at the time of the IPO suspension?

Comments (4): Other comments

1. Better use **consistent notations** across the paper:
   - On p. 11, COV is defined as $COV_{f,t} = \frac{\sum_i (COV(R_f, R_i) MCQ_{i,t})}{MCQ_t}$

     which has only 2 subscripts, with f indicating the firm and t the time, with no subscript for industry i.
   - On p. 16, COV shows up as $COV_{i,j,t}$ where i is now used to indicate firm i (instead of industry i).

2. The standard errors reported in Table 7 are negative, are they typos?

Table 7. Changes in sample

	(1) IPO	(2) IPOxNPM	(3) NPM	(4) COV	(5) COVxNPM	(6) Constant
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	(-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)

Note: Dependent variable is one-day return on equity. Ordinary least squares estimation, with $\boxed{\text{standard errors clustered by industry in parentheses.}}$ See text for variable definitions. *** p<0.01, ** p<0.05, * p<0.1.

3. In the regression model in eqt.(4) on p.16, **coefficients and subscripts are missing for $\boldsymbol{D_{12}}$ and $\boldsymbol{D_{15}}$:**

– **In eqt.(4),** the regression is specified as:

$$r_{i,j,t} = \mathrm{c} + \beta_1 \, NPM_{i,j,t} + \beta_2 \, IPO_{j,t} + \beta_3 \, IPO_{j,t} \cdot NPM_{i,j,t}$$
$$+ \beta_4 \, COV_{i,j,t} + \beta_5 \, COV_{i,j,t} \cdot NPM_{i,j,t} + \gamma \, X_{i,j,t} + D_{12} + D_{15} + \varepsilon_{i,j,t}$$

where

D_{12} and D_{15} are time dummies indicating observations from the 2012 and 2015 suspensions respectively.

– The **correct specification** should be:

$$r_{i,j,t} = \mathrm{c} + \beta_1 \, NPM_{i,j,t} + \beta_2 \, IPO_{j,t} + \beta_3 \, IPO_{j,t} \cdot NPM_{i,j,t}$$
$$+ \beta_4 \, COV_{i,j,t} + \beta_5 \, COV_{i,j,t} \cdot NPM_{i,j,t} + \gamma \, X_{i,j,t} + \alpha_{12} D_{12,t} + \alpha_{15} D_{15,t} + \varepsilon_{i,j,t}$$

Conclusions

- This paper yields useful insights and generates important policy implications especially for China which has rising number of IPOs in recent years.
- I look forward to seeing more works from the authors along this line of the literature.

Thank you