Polluted IPOs

Meng MIAO (Renmin University of China), Wei WANG (Queen's University) and Zhengyu ZUO (Renmin University of China)

Firms going public for the first time in China must obtain approval from the Securities Regulatory Commission of China (CSRC) for initial public offerings (IPOs). The process of IPO approval through CSRC can take up to several years, and one of the most critical components is a review meeting during which the firm and its underwriters answer questions posed by a seven-member review committee appointed by the CSRC. The committee makes a final decision on whether to approve the listing shortly after the meeting.

The CSRC is located in Beijing, China's capital. Although the situation is much improved in recent years, Beijing has suffered from severe air pollution in the past. High densities of fine particulate matter (PM2.5) are hazardous to human health and can affect the quality of high-stakes decision-making, such as the review committee's decision on IPO approval, in two important ways.

First, short-term exposure to PM2.5 temporarily reduces human physical and cognitive capacity, negatively affecting workers' productivities. Such effects can lead to biases and errors in financial decision-making.

On the one hand, it is reasonable to expect air pollution to have a deleterious effect on the CSRC review committee's decision quality: low-quality firms successfully list their stocks due to lax regulatory oversight on polluted days.

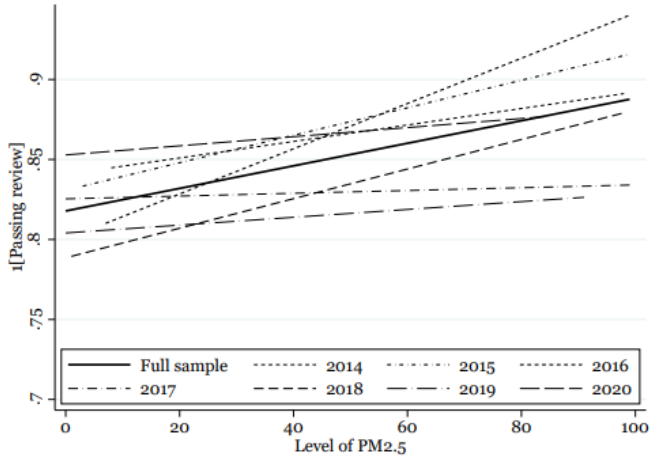
On the other hand, air pollution imposes psychological pressure and depresses an individual's mood. Such an effect have been manifested in higher crime rates, more aggressive behaviors, pessimism, and depression-like symptoms on polluted days. Hence, reviewing members' negative moods on polluted days may prompt them to reject IPO applications, possibly leading to a lower approval rate.

Against this backdrop, Meng Miao and Zhengyu Zuo of the Renmin University of China and Wei Wang of the Queen's University presented their paper titled *Polluted IPOs*, which addresses how transitory air pollution influences the quality of high-stakes decision-making – specifically, how air pollution affects the decision of financial regulators on IPO approval in China.

The authors studied a sample of 1,488 IPO applications filed between 2014 and 2020 and highlighted an important channel through which air pollution has a spillover effect on financial markets and investors.

The authors first performed their baseline analysis that relates the probability of IPO approval to the level of air pollution on the review day. Their analysis reveals that firms are more likely to pass the IPO review on polluted days than clear days, as shown below. The regression coefficient estimates suggest that for every 100-point increase in PM2.5 concentration, the probability of a firm passing IPO review increases by more than 4.5%.

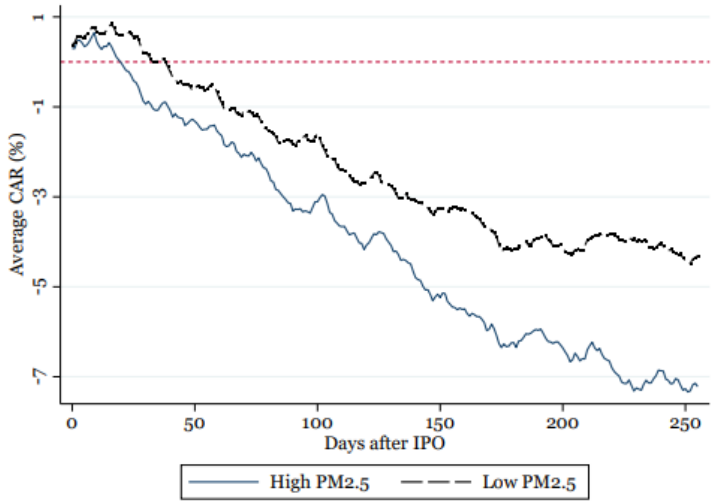
This figure shows the correlation of PM2.5 and pass rate from 2014 to 2020.



The authors next explored firm heterogeneity to investigate whether the effect of air pollution on the IPO passing rate is more pronounced for firms operating in polluting (or green) industries. Air pollution on the review day can intensify reviewers' feelings about the hazardous effects of air pollution on health, likely translating into a stringent (lenient) attitude toward firms in polluting (green) industries. The authors found that firms operating in polluting (green) industries have lower (higher) passing rates than non-polluting (non-green) industries when the PM2.5 level is high on the review day. Because the review dates were assigned randomly and the authors controlled for firm quality, the evidence suggests that air pollution results in biases in the committee's decision-making that likely lead to significant errors.

Furthermore, to shed light on the quality of firms that receive IPO approval on polluted days and the subsequent economic implications, the authors examined post-IPO performance. They showed that IPOs approved on polluted days have lower post-IPO abnormal stock returns and profitability – investors lost 28 billion RMB between 2014-2020.

The figure shows the average cumulative abnormal returns (adjusted by market return) by pollution groups.



The results are consistent with the interpretation that the review committee's decision-making quality worsens on polluted days because of the effect of air pollution on human health and cognitive capability. To further pin down the cognitive capability channel, the authors conducted two sets of tests: a textual analysis of questions raised during the review session and review member heterogeneity. These tests revealed that committee members ask fewer, shorter, and less complex questions that require less improvisation than preparation on hazy days. The effect was more pronounced among older and non-local reviewers.

The evidence thus suggests that air pollution indeed affects the productivity of high-stakes decision-makers.