# Examining the Determinants of Infrastructure Financing Structure: Evidence from China's Overseas Investments of Power Projects

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Using a comprehensive dataset of overseas investment in power generation projects by China, we study the factors influencing financing structures of power generation project investments. We find that equity financing is likely to be deployed in renewable energy projects because their investment returns are often more uncertain or involve greater risks. Second, large banks tend to finance projects with large capacity. Last, national development banks help to mitigate the negative impact of political uncertainty on power generation projects, and are more likely to lead the way to finance green power projects to make the demonstration effects. The policy implication is that financers needs to tailor their financing arrangements to better meet the needs of distinct power projects to fill the financing gap.

## The Objectives and research questions

Electricity shortage has been a critical bottleneck that constrains economic development. Since the early 2000s, China has become an increasingly important finance provider in supporting power projects abroad. We observe diverse financing arrangements and involve a wide range of financers including loans from development banks, state-owned commercial banks, private commercial banks, as well as equity investments from public investment funds and power companies. Yet little is known about what determines the different financing structures of China's overseas power projects. Drawing on a comprehensive project-level dataset, our paper aims to examine the determinants of this infrastructure financing structure.

## The Methods

From the perspective of New Structural Financial Economics, different power projects have distinct financing needs owing to differences in technology maturity, project size, and political risks of their host countries. Furthermore, different financial arrangements, such as equity financing versus debt financing, large banks versus small- and medium-sized banks, and national development banks versus commercial banks, have distinct comparative advantages in meeting the financing needs of power projects on the ground.

Using a comprehensive dataset of overseas investment in power generation projects by China complemented with in-depth interviews with key financiers, we test the hypotheses on the determinants of different financing structures.

## The main results

Our main findings are as follows: first, equity financing is likely to be deployed in renewable energy projects because their investment returns are often more uncertain or involve greater risks; second, if the power generation projects are large in scale, they would probably receive debt financing from large banks; third, the participation of national development banks can mitigate the negative impact of political uncertainty on power generation project financing in the case of high political risks in host countries and national development banks are more likely to lead the way to finance green energy projects.

## The main political recommendations

Our study systematically examines the determinants of financing structures of China's overseas power projects. We find that there are vast variations in financing needs across different power projects, which are matched with different financing arrangements. The policy implication is that financiers need to tailor their financing arrangements to better meet the needs of distinct power projects to fill the financing gap.


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