Green Industrial Policy and the Geopolitics of Investment in Critical Minerals and Batteries

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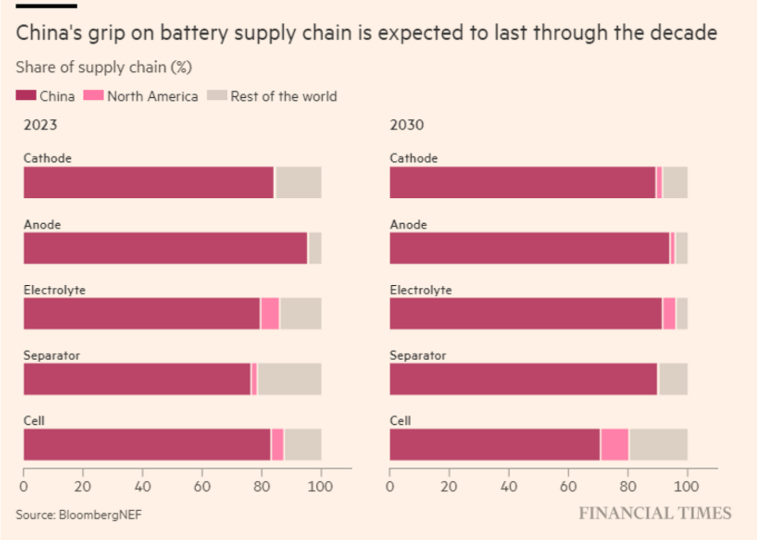
China has a Stranglehold on the Global EV Battery Supply Chain



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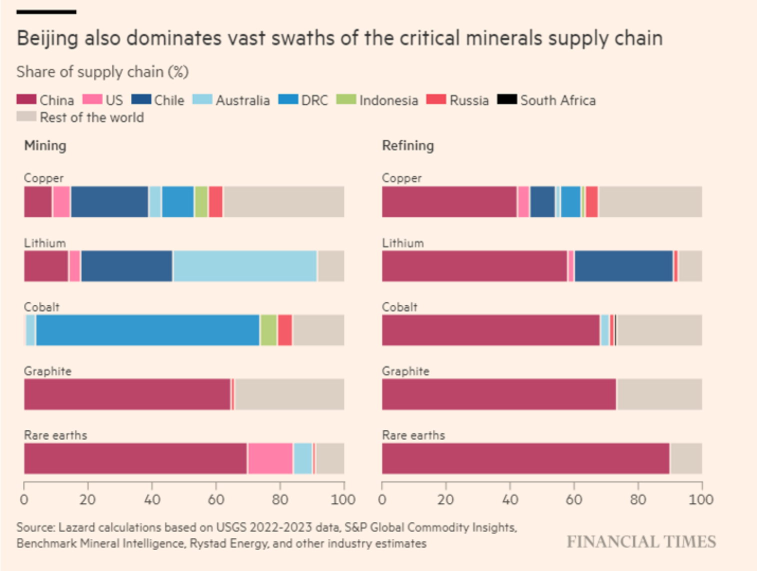

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Problem: *How can the U.S. incentivize extraction, processing, and production in specific countries outside of its borders?*

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- **Credibility challenge**: making foreign financial incentives robust to political change.
- **Distributional challenge**: which countries do and do not qualify for incentives?

The 2022 Inflation Reduction Act

New Clean Vehicle Credit (7500 $)

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- Annually rising % of battery manufacturing and assembly in North America (from 50% to 100 % in 2029)

IRA Raised Geopolitical Tensions, Including among U.S. Allies

Research Design and Data

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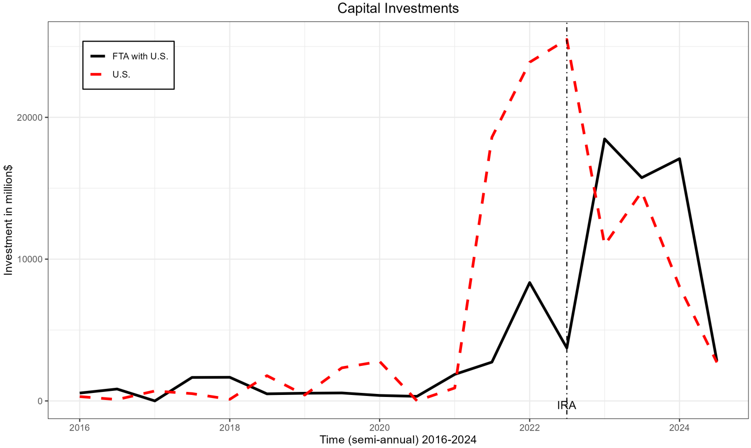
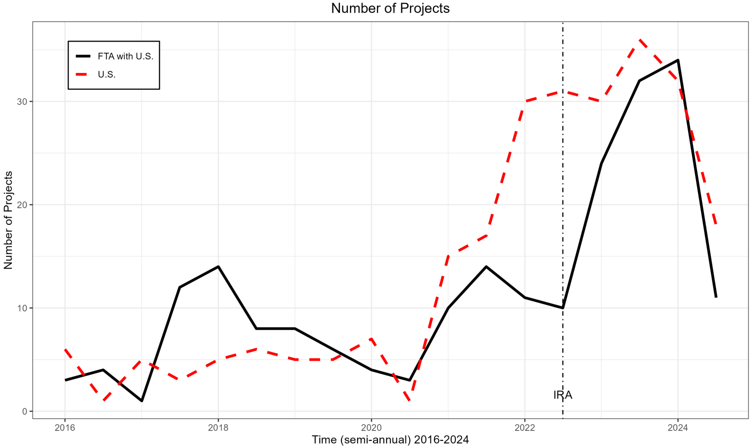
Data

- 1459 Greenfield FDI project announcements from fDi Markets
- 1439 "Placebo" projects on non-battery electronic components
- 736 Cross-border M&A projects from LSEG

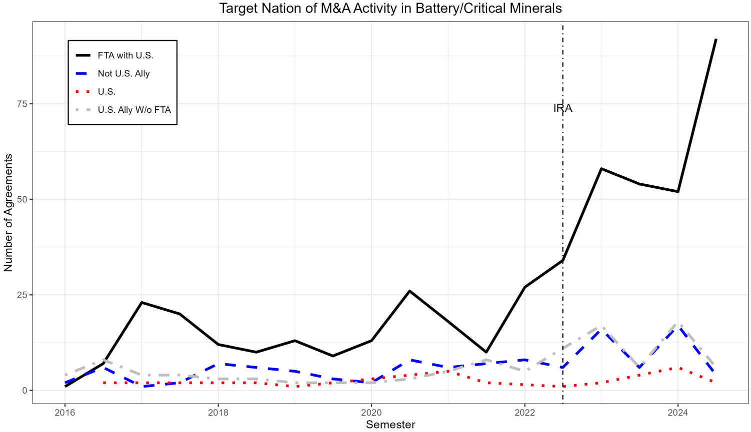
Capital Investment in Battery Supply Chain and Critical Minerals 2016-2024, 6-month periods.



New FDI Projects in Battery Supply Chain and Critical Minerals 2016-2024, 6-month periods.



M&A Agreements in Battery Supply Chain and Critical Minerals 2016-2024, 6-month periods.



Note: Counts of M&A activity in automotive batteries, lithium, cobalt, graphite, manganese, and nickel. Data from LSEG. Entries are based on 6-month periods

Effect of FTAs after IRA (Poisson Regressions)

Dependent Variables:	Capital Investment		Nr of FDI Projects		M&A Activity	
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
FTAxIRA	1.263***	1.148***	0.4606**	0.4428**	0.5299**	0.4620*
	(0.3361)	(0.3392)	(0.2332)	(0.2192)	(0.2421)	(0.2490)
UN Idealpoint		0.7584		0.3393		0.3404
		(0.8067)		(0.3807)		(0.5306)
FDI (% of GDP)		0.0089***		0.0030**		0.0029
		(0.0023)		(0.0013)		(0.0060)
Trade (% of GDP)		0.0089		0.0124		-0.0111
		(0.0143)		(0.0087)		(0.0138)
GDP Growth		-0.0817**		0.0122		0.0162
		(0.0389)		(0.0205)		(0.0298)
Fixed-effects						
Country	Yes	Yes	Yes	Yes	Yes	Yes
Semester	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	1,564	1,488	1,564	1,488	1,060	1,042
Squared Correlation	0.45971	0.49909	0.62165	0.63861	0.93221	0.92960
Pseudo R^2	0.67068	0.67596	0.47542	0.47329	0.68459	0.68668
BIC	540,058.8	521,073.2	3,329.5	3,269.6	1,871.0	1,873.7

Other findings

- No evidence of clear pre-trend but effect wanes in second half of 2024
- Effect applies when control group is non-FTA military allies
- Effect entirely driven by increases in non-Chinese investments
- No evidence that Chinese investment has declined in response to IRA

Conclusions

- The IRA did affect the location of FDI in critical minerals and battery supply chain
- Affected de jure beneficiaries of IRA (FTA countries) rather than all allies
- Effect disappeared as doubts over credibility of IRA mounted
- IRA had no effect on location of Chinese investments