SUBSIDIES IMPACT ON THE STEEL INDUSTRY: AN ANALYTICAL ASSESSMENT

95th meeting of the Steel Committee

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Why does it matter?

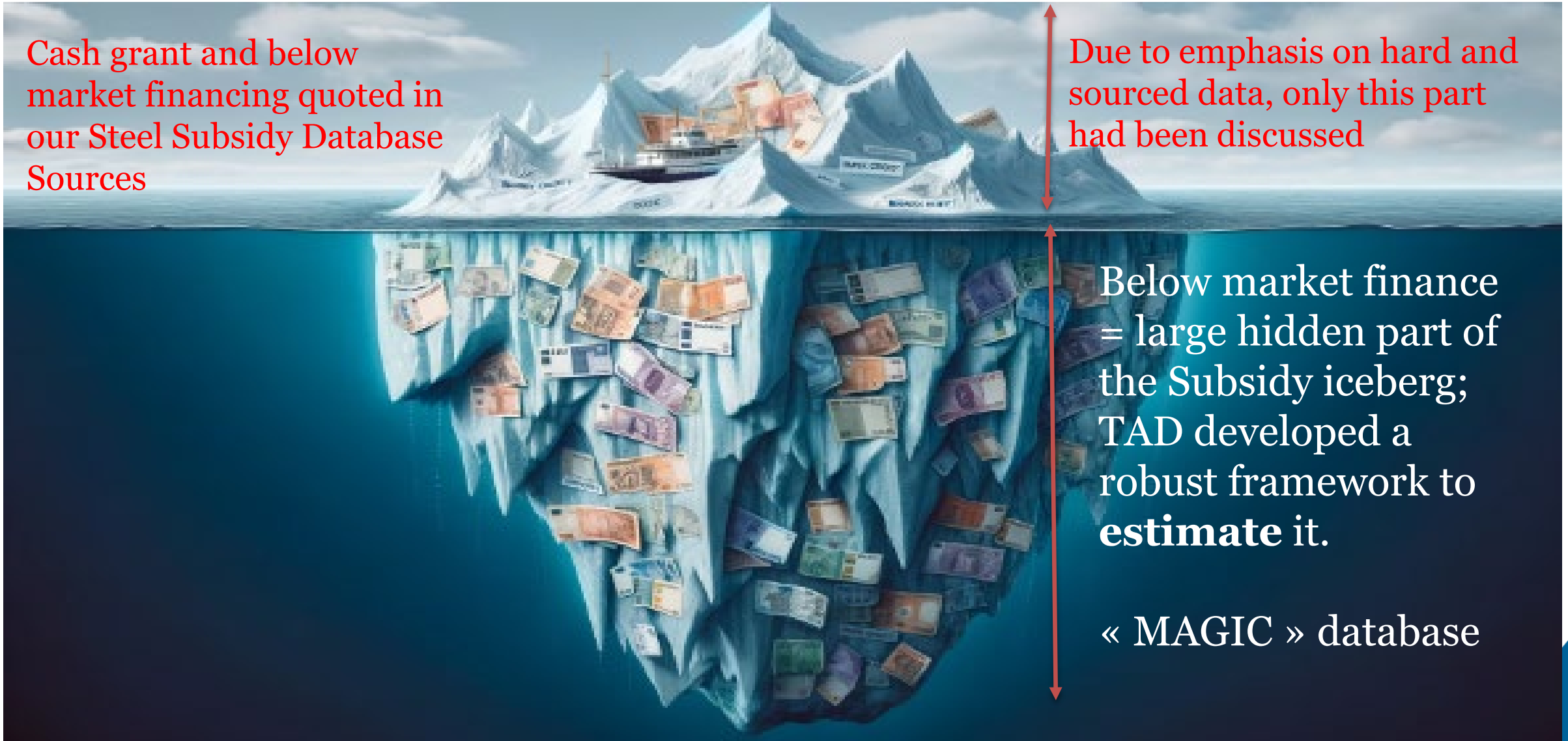
Providing evidence-based results on the effect of subsidies on capacity expansion and financial performance of steel firms to policy discussion is useful:

- **To enable a fact-based, data driven and dispassionate debate among policy makers and governments on the use and impact of subsidies**
- **And to ensure a "middle-ground of understanding" among different stakeholders**

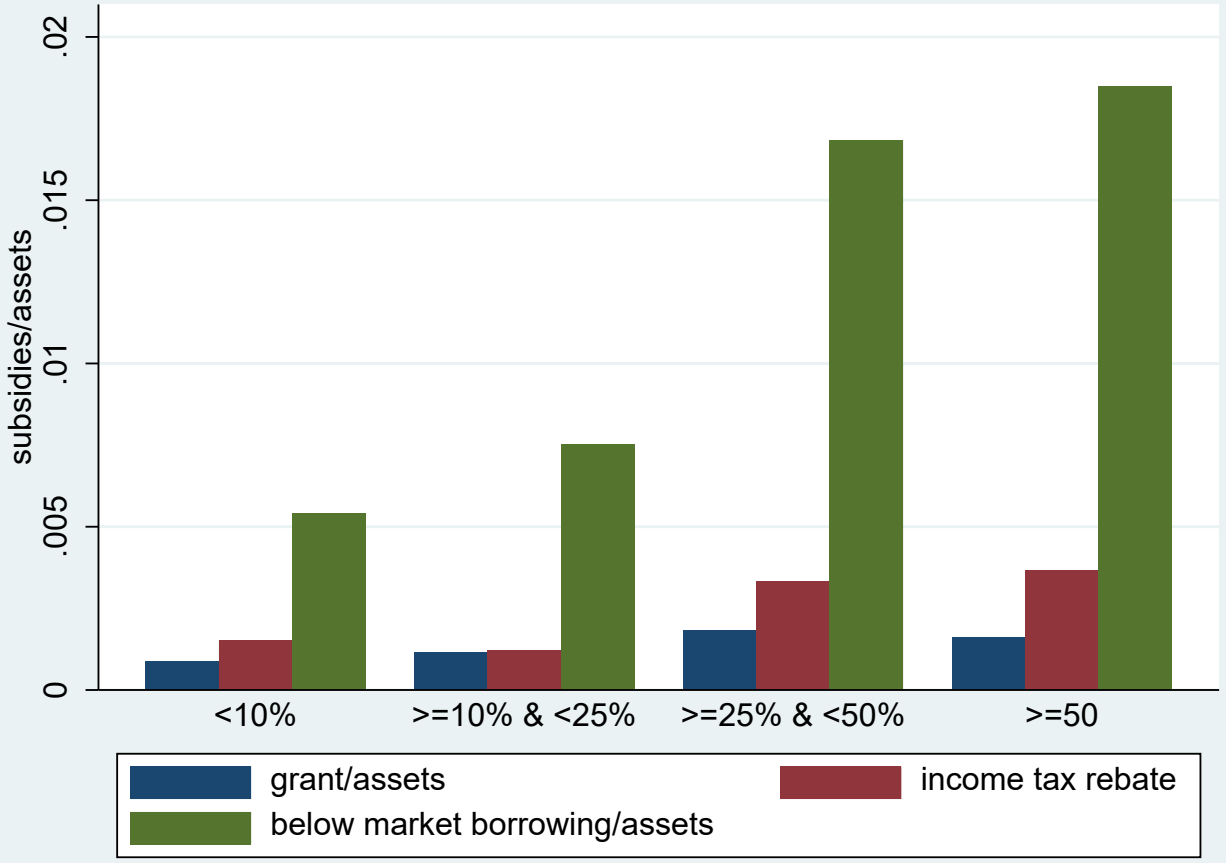
Outline

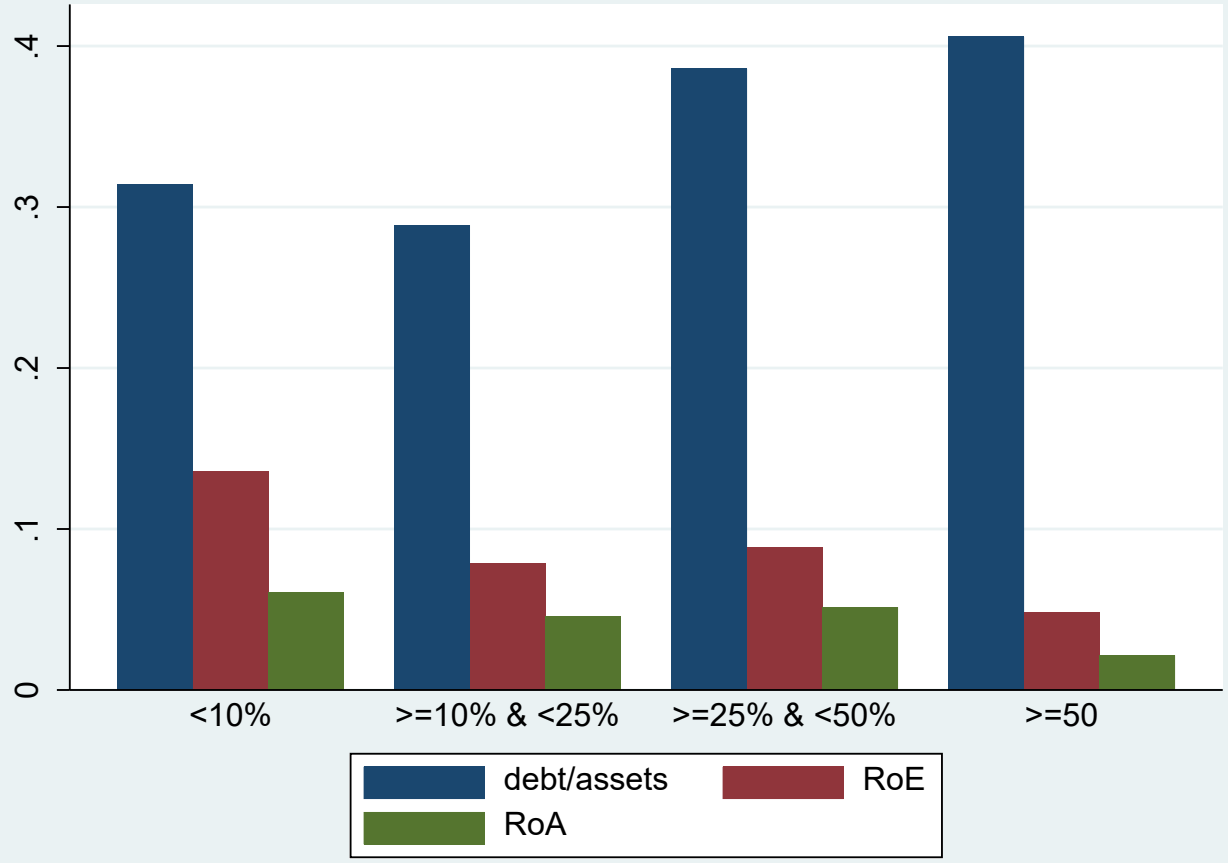
1. **The Subsidy Iceberg: hard data… and estimations.**
2. **The Elephant in the Room**
3. **A bird's eye view of subsidies from the data sample**
4. **Firm-level studies results: uncovering the impact of subsides on steel firms' financial results and on crude steel making capacity expansions**
5. **Proposed next steps**

Going on step deeper through horizontal collaboration to uncover the Subsidy Iceberg



The Elephant in the Room: SOEs get more subsidies per asset than POEs for higher indebtedness and lower profitability

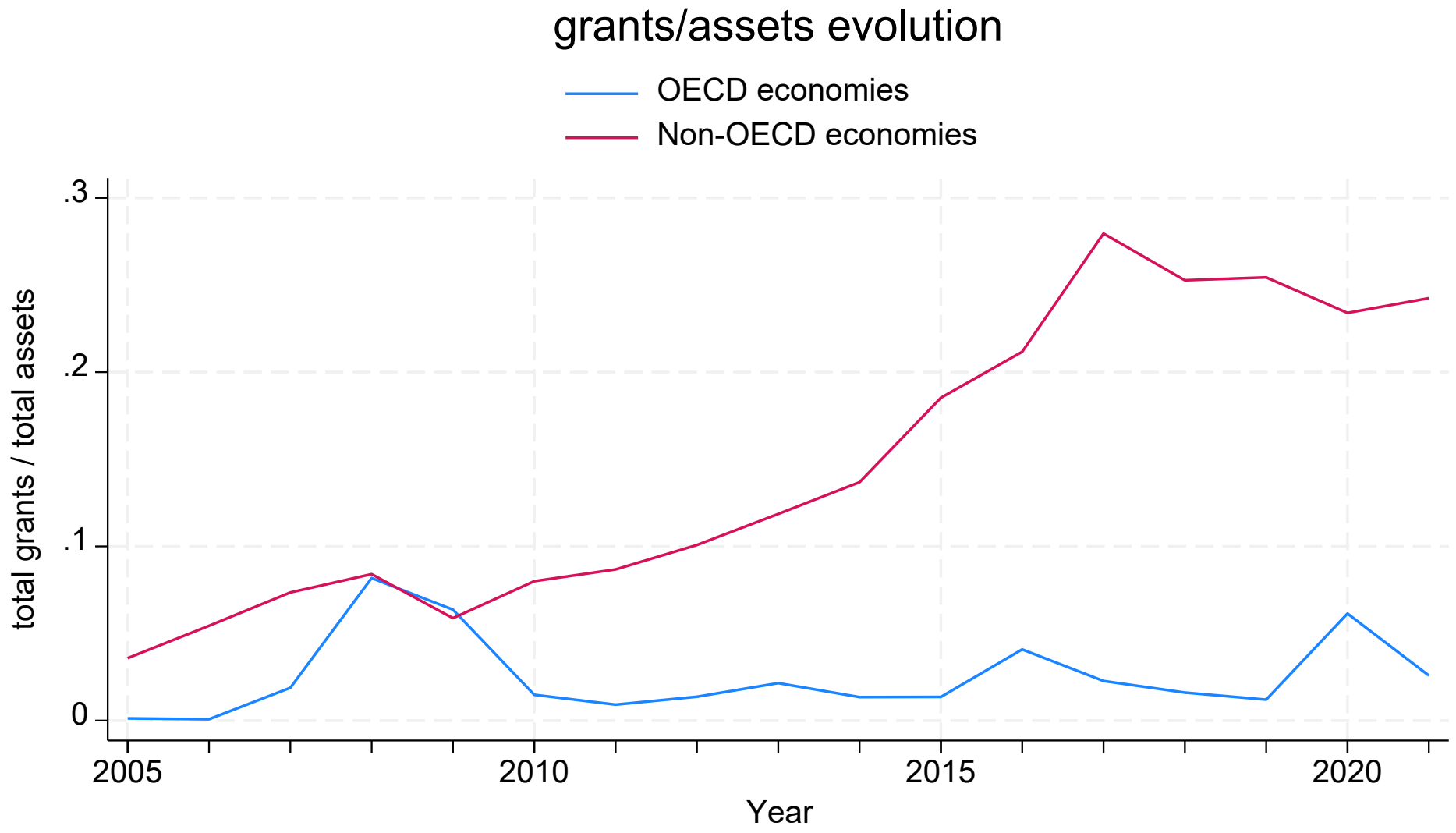




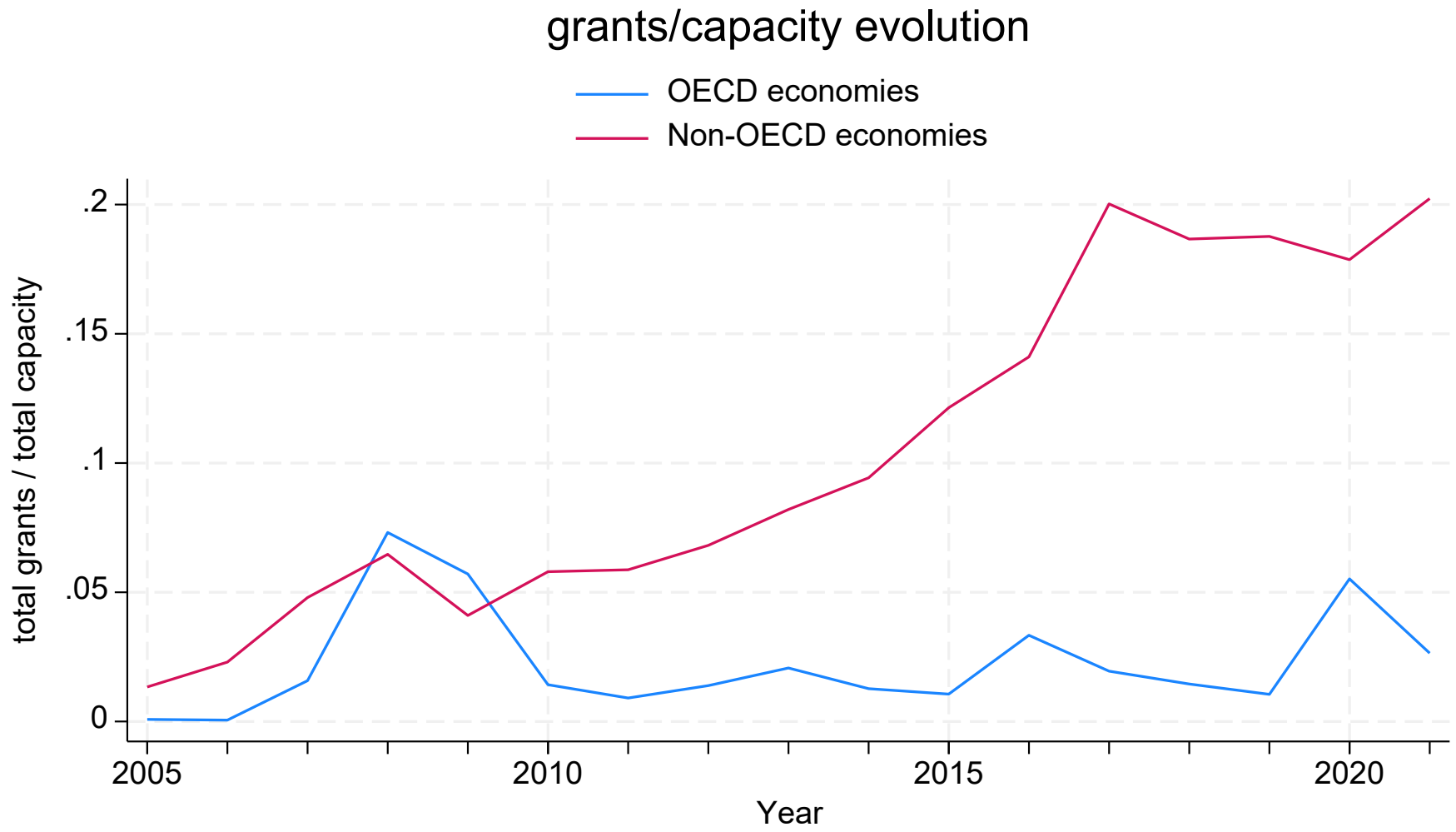
Split-off by share of government ownership of:

1) subsidies per asset (left side)
2) debt per asset, return on assets (RoA) and return on equity (RoE) (right side).

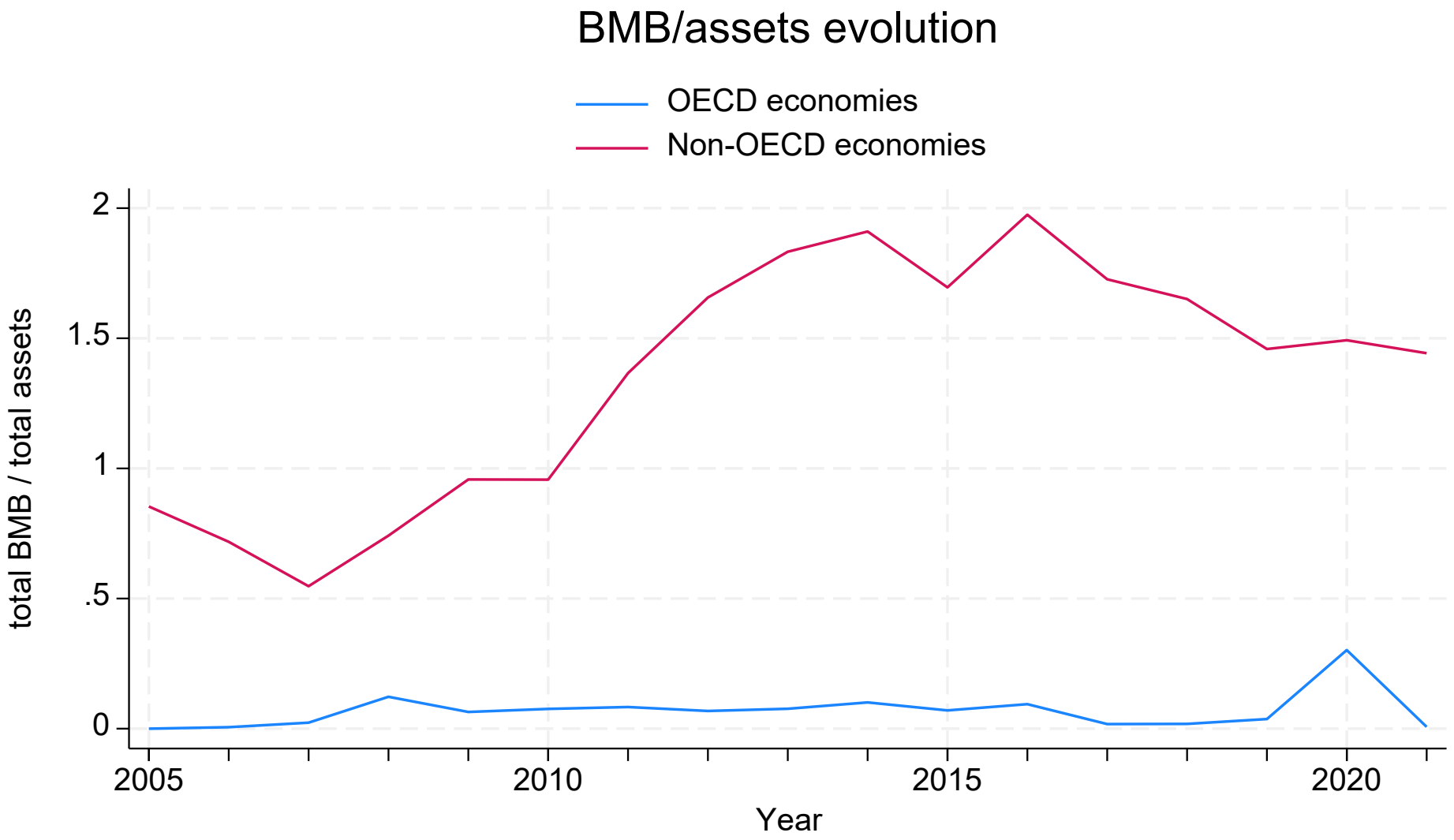
A bird's eye view of different subsidies tales : grants/assets



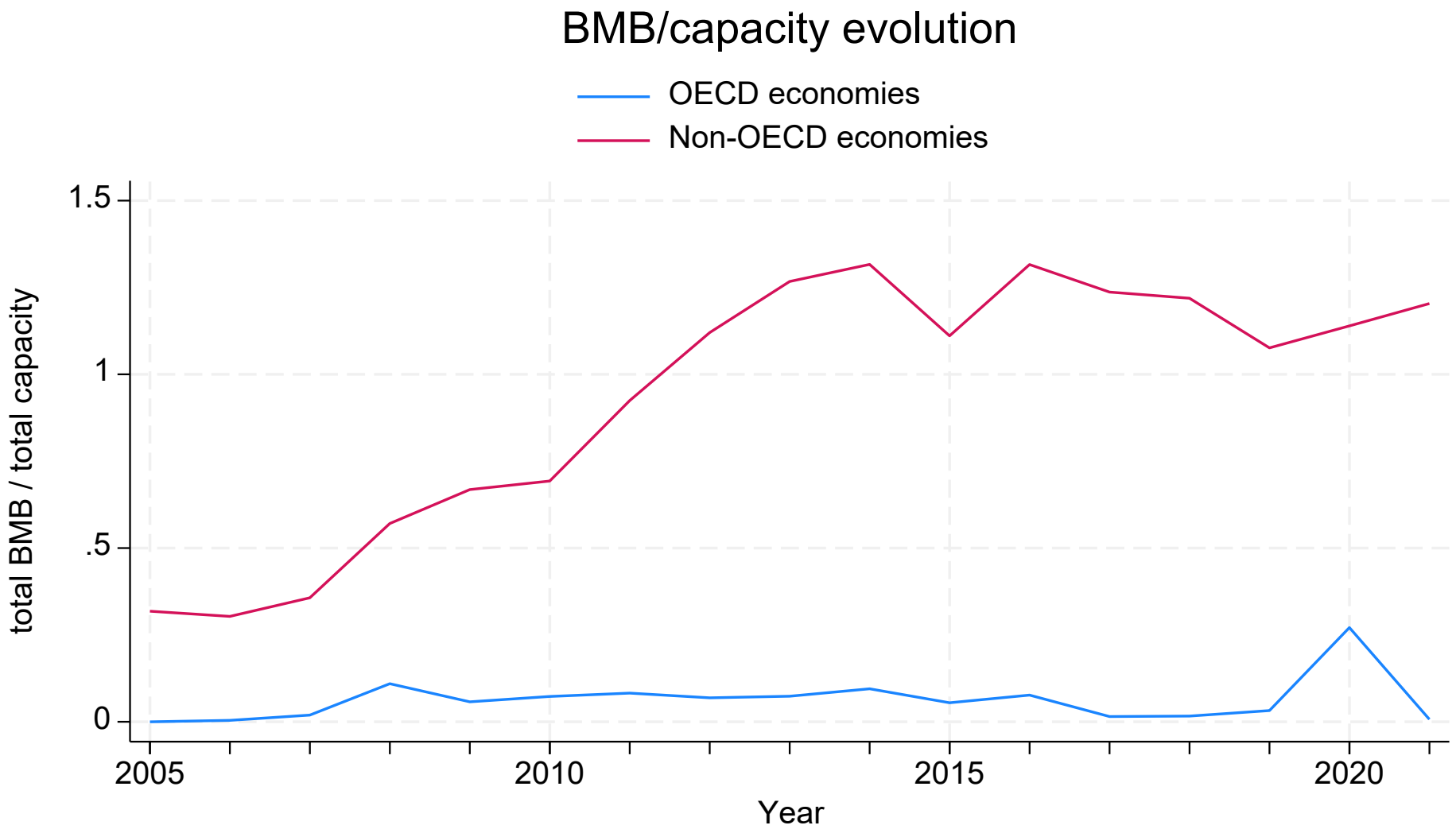
A bird's eye view of different subsidies tales : grants/capacity



A bird's eye view of different subsidies tales : BMB/assets

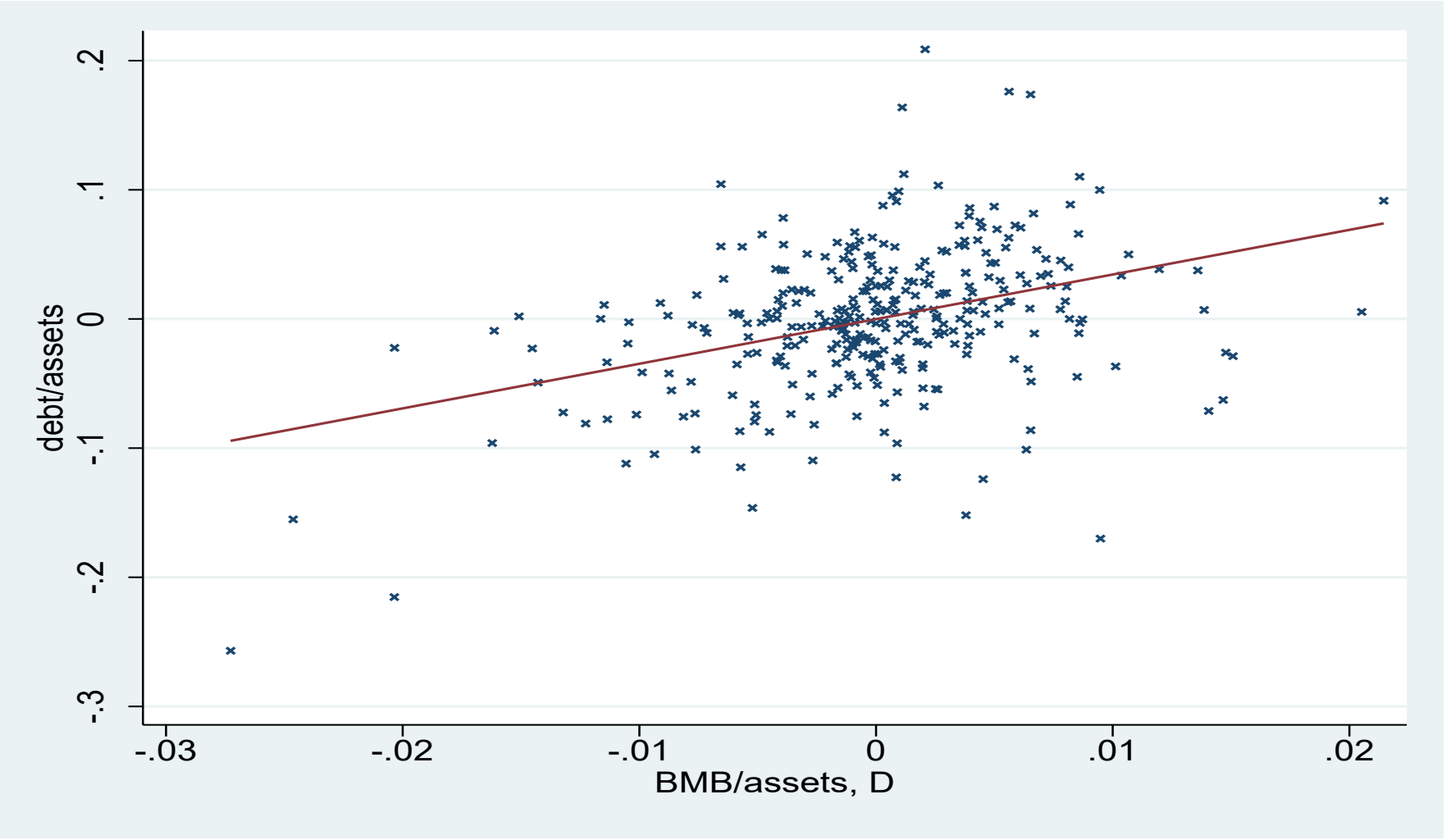


A bird's eye view of different subsidies tales : BMB/capacity



Firm level study: impact of subsidies on steel firms' financial results

Changes in debt to asset ratio and changes in BMB to asset ratio are correlated



Firm level study: impact of subsidies on steel firms' financial results

We estimate the following equation in first difference (changes):

$$D.\left(\frac{debt}{asset}\right) = a.D.\left(\frac{revenue}{asset}\right) + b.D.\left(\frac{\mathrm{GDP}_{\mathrm{steel}}}{asset}\right) + \alpha.D.\left(\frac{grants}{asset}\right) + \beta.D.\left(\frac{BMB}{asset}\right) + \gamma.D\left(\frac{tax\ rebates}{asset}\right) + trend + \varepsilon$$

Separating OECD and non-OECD observations yields clearer results:

For non-OECD economies, an (absolute) +1 pp increase of the BMB to asset ratio translates into an (absolute) +3.5 pp increase of the debt to asset ratio.

For OECD economies, the BMB to asset ratio has no impact on the debt to asset ratio.

For OECD economies, an (absolute) +1 pp point increase in the tax rebate to asset ratio translates into an (absolute) 9 pp reduction of the firm's debt to asset ratio.

For non-OECD economies it has no impact.

Firm level study: impact of subsidies on steel firms' financial results and capacity expansions

Impact on, or correlation with:	*Grants, cash awards, and any type of cash transfers*	*Below market borrowings, as estimated by comparing firms' borrowing costs to benchmarks*	*Income tax subsidies: tax rebates, deduction, etc.*
OECD economies (12 firms, 189 observations,72% of total crude steel capacity in 2021)			
Indebtedness (as captured by debt to asset ratio of the firm)	No direct effect	No direct effect	Decreases indebtedness: an (absolute) +1 pp point increase in the tax rebate to asset ratio translates into an (absolute) 9 pp reduction of the firm's debt to asset ratio
Financial performance (as captured by return on assets (RoA) or return on equity)	Yes: an (absolute) 0.1 pp increase in the grant to asset ratio yields an (absolute) 1.3 pp increase of the firm's RoA	No direct effect	Yes: an (absolute) 0.1 pp increase in the tax rebates to asset ratio would result in an (absolute) ~~0.8~~ 1.3 pp increase of the firm's RoA[23]
Capacity changes	No direct effect	No direct effect	No direct effect

Firm level study: impact of subsidies on steel firms' financial results and capacity expansions

Impact on, or correlation with:	*Grants, cash awards, and any type of cash transfers*	*Below market borrowings, as estimated by comparing firms' borrowing costs to benchmarks*	*Income tax subsidies: tax rebates, deduction, etc.*
Non-OECD economies (34 firms, 526 observations, 55% of total crude steel capacity in 2021)			
Indebtedness (as captured by debt to asset ratio of the firm)	No direct effect	Increases indebtedness: an (absolute) +1 pp increase in the BMB to asset ratio translates into an (absolute) 3.5 pp increase of the firm's debt to asset ratio, and conversely more debt seems to attract more below market borrowing	No direct effect
Financial performance (as captured by return on assets or return on equity)	No direct effect	No direct effect	No direct effect ~~Yes: an (absolute) 0.1 pp increase in the tax rebates to asset ratio would result in an (absolute) 0.4 pp increase of RoA~~.[24]
Capacity changes	Increases capacity: any USD 1 million of additional grants increases capacity by 7000 to 11000 metric tonnes of capacity[25]	No direct effect	No direct effect

Contemplating the next steps for the work on the impact of subsidies

Next steps for the work would include:

- **Improving the data quality on recent Chinese M&A and re-assessing the impact of subsidies on capacity expansions**
- **Properly answering the question "Do weakly performing steel firms benefit from more subsidies (independent of government ownership)?"**
- **If time and resource allow, investigating the link between subsidies and CO2 emissions, using CRU data. Are subsidies achieving emission reduction goals?**

For discussion

Delegates are invited:

- **To discuss and comment on the results of the study**
- **To agree about the next steps of the analytical work on subsidies**
- **To agree to declassify this document, subject to written comments they may have after the meeting (to be provided before 16th April 2024 through the OECD Steel Community O.N.E. Community website)**

Thank you for your attention

Annex: model specifications

$$D.\left(\frac{debt}{asset}\right) = a.D.\left(\frac{revenue}{asset}\right) + b.D.\left(\frac{\mathrm{GDP}_{\mathrm{steel}}}{asset}\right) + \alpha.D.\left(\frac{grants}{asset}\right) + \beta.D.\left(\frac{BMB}{asset}\right) + \gamma.D\left(\frac{tax\ rebates}{asset}\right) + trend + \varepsilon$$

$$D.\mathrm{RoA} = a.\mathrm{D}.\mathrm{GDP}_{\mathrm{steel}} + bD.\left(\frac{debt}{asset}\right) + \alpha.D.\left(\frac{grants}{asset}\right) + \beta.D.\left(\frac{BMB}{asset}\right) + \gamma.D\left(\frac{tax\ rebates}{asset}\right) + trend + \varepsilon$$

$$D.Capacity = \alpha.D.grants + \beta.D.BMB + \gamma.D.tax\_rebate + a.GDP_{steel} + b.D.revenue + c.D.debt + trend + \varepsilon$$