Overinvestment by State-owned Enterprises and the Investment Scale of Local Private Enterprises: Containment or Promotion?

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MOTIVATION

Lots of studies have focused on the squeezing-out effect of state-owned enterprise (SOE) investment on private firms, **most of such studies are based on samples from developed economies** (Zhang, 2019; Huang, 2019).

Based on the evaluation criteria of private enterprise investment efficiency, studies have suggested that **SOEs have the problem of overinvestment** based on the difference between the actual and optimal investment amounts, and **most of them attribute it to the failure of SOE management's investment decisions**(Diallo et al., 2021; Russell & Russell, 2010; Wong & Dhanesh, 2017).

Based on the existing western investment efficiency evaluation system, **which ignores the social value of SOEs' overinvestment behavior, few studies have addressed the positive economic consequences of SOEs' "overinvestment" behavior**(Anido Freire & Loussaïef, 2018; Diallo et al., 2021).

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RESEARCH QUESTIONS

As the market economy is immature in developing countries,

SOEs play the role of industry leaders

the effect of SOE overinvestment on private enterprises, whether **squeeze-out or spill-over**, needs further empirical evaluation.

THEORY

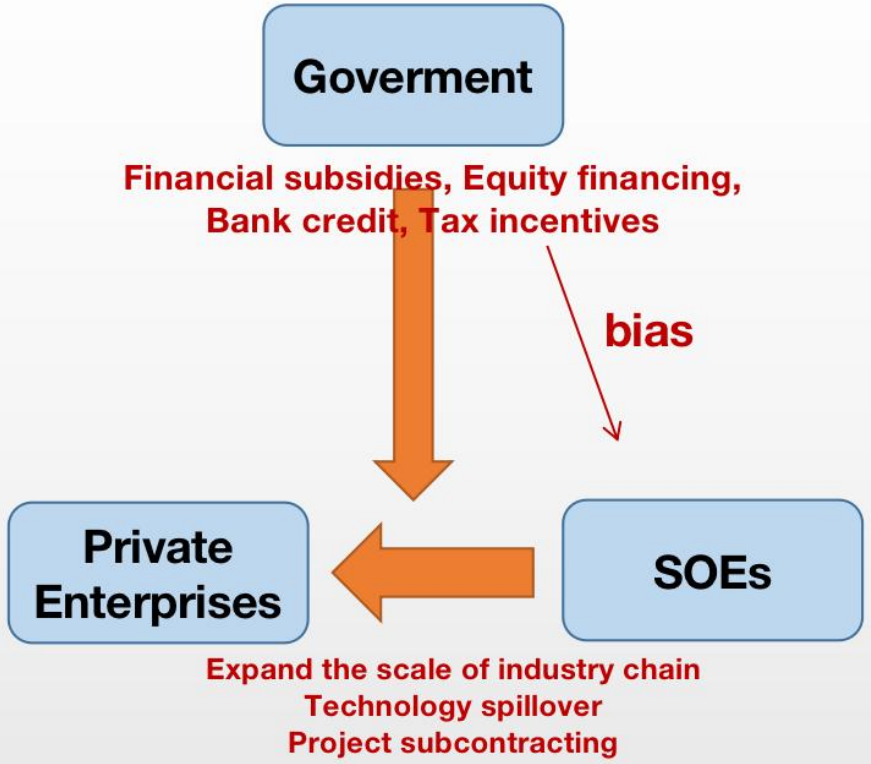
Overinvestment of SOEs will lead to the expansion of production capacity, production scale and product diversity, and thus expand the scale of the upstream and downstream industrial chain (Wakelin, 2001; O'Mahony, 2009).

Overinvestment by SOEs in R&D can lead to technological innovation, product renewal, and spillover of expertise and knowledge, which can also drive local private firms in the same industry to pursue product diversification as well as product upgrading (Yue, 2022).

Overinvestment by SOEs can bring more project subcontracting opportunities to private enterprises (Steinberg et al., 2021)

In developing economic entities, SOEs often receive the "bias" from the government in terms of financial subsidies, equity financing, bank credit, bond market financing, and tax incentives (Lin, 2004; Bai, 2000; Wang, 2008; Peng, 2016)

As the Chinese financial system is still dominated by bank credit (Allen, 2012)**, and the bias of bank credit toward SOEs frequently squeezes out private enterprises' credit resources**



HYPOTHESIS

Overinvestment by SOEs can promote the investment of local private enterprises through upstream and downstream industry chain cultivation, knowledge and technology spillover from the same industry, and project subcontracting(Yue, 2022; Yang and Qi, 2001; Steinberg et al., 2021)

As SOEs and private enterprises compete for loan funds and SOEs have a dominant position in the competition, overinvestment by SOEs may have a squeezing-out effect on the financing channels of private enterprises through the use of credit resources and government subsidies(Lin, 2004; Bai, 2000; Wang, 2008; Peng, 2016).

Hypothesis 1a: SOE overinvestment has a **spillover effect** on the investment scale of local private enterprises.

Hypothesis 1b: SOE overinvestment has a **squeezing-out effect** on the investment scale of local private enterprises.

HYPOTHESIS

Overinvestment by SOEs under government intervention may focus more on project investment that is conducive to driving the development of local industrial clusters and further encouraging the expansion of local private enterprises' investment scale through industrial chain extension and knowledge and technology spillover, project subcontracting, and so on.

Once the SOEs take up the economic, social, and other policy functions expected by the government and incur losses, the government will compensate for such losses through financial subsidies, bank loans, and tax incentives(Kornai, 1986)

Hypothesis 2a: The higher the degree of government intervention in SOEs, **the more pronounced the spillover effect of overinvestment in SOEs on the investment scale of local private enterprises.**

Hypothesis 2b: The higher the degree of government intervention in SOEs, **the more pronounced the squeezing-out effect of overinvestment in SOEs on the investment scale of local private enterprises.**

HYPOTHESIS

The higher the level of private economic development,

The growth opportunities brought to private enterprises by SOE's overinvestment can be more easily received(Li and Wu, 2022).

The more importance the government attaches to the private economy, which will also narrow the gap between the government's "bias" toward private enterprises and SOEs(Xiaojing, 2004; Xia and Fang, 2005; Zhang, 2021).

Hypothesis 3a: The higher the level of private economic development, **the more pronounced the spillover effect of SOE overinvestment on the investment scale of local private enterprises.**

Hypothesis 3b: The higher the level of private economic development, **the less pronounced the squeezing-out effect of SOE overinvestment on the investment scale of local private enterprises.**

METHOD

Taking reference from the sample processing methods used in existing studies (Li and Lv, 2021; Bai, 2009; Brandt, 2012)**, this study first obtained the panel data.**

Generally, there are two models for processing panel data, one is random model and the other is fixed effect model.

According to the most cutting-edge research, we choose the

Fixed effect model

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\begin{aligned}
I_{NEW,t} = \alpha &+ \beta_1 Overinv\_SOE_{t-1-t-3} + \beta_2 Growth_{t-1} + \beta_3 LEV_{t-1} \\
&+ \beta_4 Size_{t-1} + \beta_5 Age_{t-1} + \beta_6 Currentratio_{t-1} \\
&+ \beta_7 I_{NEW,t-1} + \beta_8 Subsidyratio_{t-1} + \beta_9 \triangle Longdebt_{t-1} \\
&+ \beta_{10} GDP_{t-1} + \beta_{11} Open_{t-1} + \beta_{12} Transport_{t-1} \\
&+ \sum Firm\,indicators + \sum Year\,indicators
\end{aligned}
$$

METHOD

Sample and Data: The relevant data at the individual enterprise level utilized in this study are obtained from the **China Industry Database**, and the regional data are obtained from the statistics of each region published by the official website of the **National Bureau of Statistics.**

Model and Variable Design:

Based on Richardson's (2006) predictive model of investment efficiency and the treatment of related Chinese studies (Chen, 2021; Liu, 2017)

METHOD

Variable names and measurements.

Variable Meaning	Variable	Measurements
New Investment	$I_{\_NEW}$	(Current year's net fixed assets - last year's net fixed assets + current year's depreciation)/total assets
Over-investment by SOEs	Overinv_SOE	Mean value of residuals between actual and predicted investment in SOEs with overinvestment in the region
Growth Opportunities	Growth	Sales revenue growth rate
Financial leverage	LEV	Total liabilities / total assets
Enterprise size	Size	Log(Total assets)
Business Age	Age	Log(Number of years of establishment + 1)
Current assets ratio	Currentratio	Current assets/total assets
Government Subsidies	Subsidy	Government subsidies/total assets
Increase rate of long-term borrowings	ΔLongdebt	(Current year long-term liabilities - Last year long-term liabilities)/Last year long-term liabilities
Regional GDP	GDP	Log(Regional GDP)
Degree of regional openness	Open	Total imports and exports / Regional GDP
Transport Convenience	Transport	Total railroad mileage/area
Government intervention	ΔState_capratio	Regional average growth rate of state capital to paid-in capital ratio for all SOEs in the region (SOEs whose state capital ratio increased during the survival period were removed)
Policy pressure	Policy pressure	Absolute deviation of the actual capital intensity CI (net fixed assets/total employees) from the optimal capital intensity
Market order	Market order	The higher the ranking number, the higher the degree of non-State economic development.
Industrial Policy	Policy_dum	The value is 1 for enterprises belonging to the key industries supported by the national "five-year plan", otherwise the value is 0
Policy-burdened over-investment	Overinv_SOE_Policy	The product of its own policy burden and the estimated coefficient in the prediction equation for over-investment by SOEs
Non-Policy Burdened Over-investment	Overinv_SOE_Non-policy	Actual Incidence of Over-investment in SOEs - Policy-Burdened Over-investment

METHOD

	Variable	Mean	Median	Standard deviation	Minimum value	Maximum value	Sample amount
New Investment	$I_{\_NEW}$	0.057	0.027	0.197	-0.744	0.719	849324
Over-investment by SOEs	Overinv_SOE	0.115	0.115	0.024	0.069	0.209	849324
Growth Opportunities	Growth	0.421	0.188	0.938	-0.699	5.641	849324
Financial leverage	LEV	0.573	0.594	0.271	0.016	1.561	849324
Enterprise size	Size	9.956	9.808	1.320	7.447	14.290	849324
Business Age	Age	2.273	2.197	0.596	1.099	3.970	849324
Current assets ratio	Currentratio	0.556	0.584	0.253	0.001	0.977	849324
Government Subsidies	Subsidy	0.003	0.000	0.011	0.000	0.076	849324
Increase rate of long-term borrowings	ΔLongdebt	0.008	0.000	0.110	-0.376	0.628	849324
Regional GDP	GDP	9.650	9.663	0.710	7.855	10.950	849324
Degree of regional openness	Open	0.618	0.569	0.455	0.047	1.716	849324
Transport Convenience	Transport	0.020	0.016	0.012	0.006	0.076	849324
Government intervention	ΔState_capratio	0.077	-0.014	0.230	-0.500	1.294	754802
Policy Burden	Policy pressure	0.010	0.008	0.004	0.002	0.030	849324
Private economic Market order	Market order	26.020	28.000	5.751	1.000	31.000	849324
Industrial Policy	Policy_dum	0.159	0.000	0.366	0.000	1.000	849324
Policy-burdened over-investment	Overinv_SOE_Policy	0.003	0.003	0.001	0.000	0.007	849324
Non-Policy Burdened over-investment	Overinv_SOE_Non-policy	0.086	0.092	0.039	0.000	0.191	849324

Descriptive statistics of the main variables.

RESULT

H1a---

H2a---

H3a---

	Model 1 $I\_{NEW,t}$	Model 2 $I\_{NEW,t}$	Model 3 $I\_{NEW,t}$
$Overinv\_SOE_{t-1-t-3}$	0.463***	0.002***	0.013***
	(0.026)	(0.001)	(0.001)
$Policy\ pressure_{t-1-t-3} \times Overinv\_SOE_{t-1-t-3}$		0.006***	
		(0.000)	
$Policy\ pressure_{t-1-t-3}$		0.017***	
		(0.001)	
$Market\ order_{t-1} \times Overinv\_SOE_{t-1-t-3}$			0.004***
			(0.000)
$Market\ order_{t-1}$			0.017***
			(0.001)
$Growth_{t-1}$	0.010***	0.010***	0.010***
	(0.000)	(0.000)	(0.000)
LEV_{t-1}	0.009***	0.011***	0.011***
	(0.002)	(0.002)	(0.002)
$Size_{t-1}$	-0.070***	-0.070***	-0.070***
	(0.001)	(0.001)	(0.001)
Age_{t-1}	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)
$Currentratio_{t-1}$	0.095***	0.095***	0.096***
	(0.002)	(0.002)	(0.002)
Annual Effect	Control	Control	Control
Firm Individual Effect	Control	Control	Control
Observations	849324	849324	849324
R^2	0.350	0.350	0.350
F	4391	3666	3644

Conclusion

For emerging economic entity,

Overinvestment by SOEs has a spillover effect on the investment scale of local private enterprises.

In areas where government intervention in SOEs is higher and the level of private economic development is higher, the overinvestment of SOES has a more pronounced leading effect on the investment of private enterprises.