

Finance Leases and Capital Allocation Efficiency in China

中国的融资租赁与资本配置效率

Kai Li ¹ Yuan Wang ²

¹Peking University HSBC Business School

²University of Toronto

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Motivation

- **Explosive growth** in China's leasing industry since 2007
 - World's second-largest leasing market (after the U.S.)
 - 6.7 trillion RMB (~1 trillion USD) outstanding in 2018
 - Accounts for 20% of the global leasing market
- **Stark compositional contrast** with U.S. market:
 - **U.S.:** Operating lease (87%) vs. Finance lease (13%)
 - **China:** Operating lease (10%) vs. Finance lease (90%)
- Finance lease remains **understudied** in macro-finance:
 - Corporate finance view: equivalent to secured lending
 - Lacks separate theoretical and empirical attention

Introduction

- This paper identifies the **unique role of finance leases** in enhancing capital allocation efficiency in China.
 - as a **market mechanism circumventing SOE-POE banking sector frictions**
- **Context:** China's **dual economy** with SOE vs. POE structure
 - Entities with **privileged access** to cheap capital (mainly SOEs, banks)
 - Channel funds to **constrained firms** with higher growth potential (mainly POEs)
 - Enabled by the **repossession advantage** of finance lease, different from U.S.
- **General contribution** to leasing literature:
 - Finance leases deserve **special attention**
 - Extend beyond their equivalence to secured lending
 - Particularly important for **capital reallocation efficiency**
 - Especially in developing economies with high banking frictions

Two Types of Leases

- Finance Lease (融资租赁):
 - Lessee (borrower) makes payments covering the full asset cost plus interest
 - Lessor (owner) provides capital and retains legal ownership in the lease term
- Key Distinction: ownership rights
 - Finance Lease (融资租赁): e.g., *dealer financing a car purchase, and you pay by installments*
 - Ownership transfers to lessee after final payment
 - Economically equivalent to **secured lending** (capital purchase by installments)
 - Operating Lease (经营租赁): e.g., *directly rent a car for short-term*
 - Ownership remains with lessor
 - Short-term usage rights

Two Types of Leases

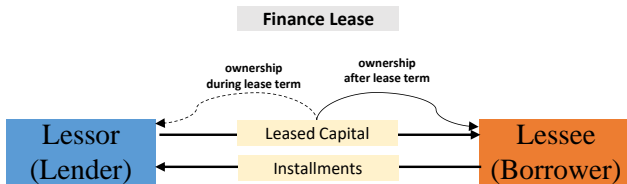


图: Finance Lease

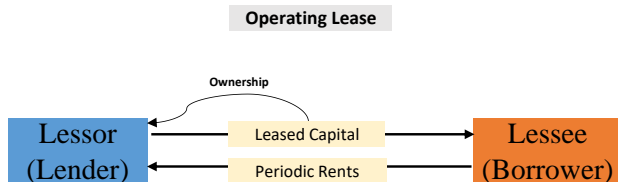


图: Operating Lease

Finance Lease Contract: Examples

山东益生种畜禽股份有限公司 关于开展融资租赁业务的公告

证券代码: 600963

证券简称: 岳阳林纸

公告编号: 2018-032

岳阳林纸股份有限公司 关于开展融资租赁业务的公告

四、融资租赁的主要内容

- 1、租赁物: 公司部分养殖设备设施
 - 2、融资金额: 人民币 5,000 万元
 - 3、租赁方式: 采取售后回租, 即: 公司将部分养殖设备设施的所有权转让给国裕租赁, 并回租使用, 租赁合同期内, 公司按约定向国裕租赁支付租金。
 - 4、租赁期限: 36 个月
 - 5、租金支付方式: 按月支付
 - 6、租赁物件所有权: 在租赁期间, 租赁物件所有权归国裕租赁, 租赁期届满, 合同履行完毕后租赁物所有权转移至公司。
- 以上交易内容以正式签署的协议为准。

二、交易对方基本情况

- 1、公司名称: 烟台国裕融资租赁有限公司
- 2、住所: 烟台市莱山区观海路观海大厦 A 座 13 层
- 3、企业类型: 有限责任公司(台港澳与境内合资)

本公司董事会及全体董事保证本公告内容不存在任何虚假记载、误导性陈述或者重大遗漏, 并对其内容的真实性、准确性和完整性承担个别及连带责任。

三、融资租赁主要内容

- 1、承租人: 岳阳林纸股份有限公司
 - 2、出租人: 中航国际租赁有限公司
 - 3、租赁本金: 不超过 5 亿元 (含 5 亿元)。
 - 4、租赁标的: 在公司账面净值合计为 6.25 亿元的八号纸机设备、脱墨浆生产线设备范围内, 根据实际融资额确定。
 - 5、租赁期限: 4 年, 起租日为中航国际租赁有限公司按照合同的约定向公司支付第一笔转让价款之当日。
 - 6、租赁年利率: 4.75%(同期基准贷款利率, 随人行利率浮动调整)。
 - 7、租金偿还方式: 按季等额还本付息。
 - 8、保证金、手续费及财务顾问费根据协议约定支付。
- 融资租赁后, 与实际融资金额相关的售后回租设备所有权归中航国际租赁有限公司, 公司对该设备享有使用、收益权利。在公司付清租金等款项后, 上述设备由公司按名义价格 100 元人民币购回所有权。

 SDYS Finance Lease Announcement

 YYLZ Finance Lease Announcement

Finance Lease Contract: Examples

SDYS Finance Lease Announcement

Lessee	Shandong YiSheng Breeding Ltd. Co.
Lessor	YanTai Guoyu Financial Leasing Co.
Asset Type	Breeding equipment and facilities
Lease Type	Sales-and-Lease Back
Financing Amount	50 million yuan
Lease Term	36 months
Details	During the lease term, the ownership of the leased property belongs to YanTai Guoyu Financial Leasing Company.[Repossession advantage] After the lease expires, the ownership of the leased property is transferred to the Yisheng.

YYLZ Finance Lease Announcement

Lessee	Yueyang Linzhi Ltd. Co.
Lessor	Zhonghang International Leasing Co.
Asset Type	machines for making paper; equipment of production line
Lease Type	Sales-and-Lease Back
Financing Amount	500 million yuan
Lease Term	4 years
Book Value	625 million yuan
Interest rate	4.75%
Details	During the lease term, the ownership of the leased property belongs to leasing company. After the lease expires, Yueyang Linzhi would pay 100 yuan to buy the ownership of the leased properties back.

Repossession Advantages of Finance Lease in China

- Lessors in China enjoy a significant **repossession advantage**:
 - **China**:
 - Legal ownership of the asset remains with the lessor.
 - Upon lessee default, lessors can **repossess directly**, bypassing bankruptcy procedures.
 - This right is enshrined in **Chinese Contract Law**.
 - **United States**:
 - Finance leases are often recharacterized as **secured loans** in bankruptcy.
 - Assets become part of the bankruptcy estate, subject to an **automatic stay**.
 - Lessors become secured creditors, facing delays and potential losses.
- **Summary**:
 - **U.S.**: Finance Lease \approx Secured Lending
 - **China**: Finance Lease \approx Secured Lending + **Repossession Advantage**

Macro Evidence: from Blue Book of China's Lease

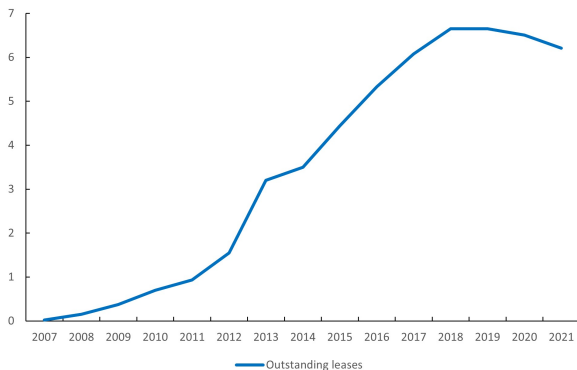


图: China's outstanding finance leases (in Trillion RMB) from 2007-2021

- In 2018, outstanding leases 6.7 trillion RMB (1 trillion USD).
- A major shadow banking component: Comparable to entrusted loans (12.4 trillion RMB)
- Amounts to 20% the size of POE sector's bank loan (~32.8 trillions RMB, 2018).

Micro Evidence: Data Source

- **Novel contract-level dataset** manually collected from financial statements and leasing announcements.¹
 - Public firms (lessee) are required to disclose finance lease transactions.
 - Keywords searching and use LLM to extract contract information.
 - Information: lessee, lessor, leasing subjects, lease rates, lease amounts, and leasing fee and so on.
- Public lessee firms in China's A-share market, from 2007 to 2022

Year	2007-2009	2010-2012	2013-2015	2016-2018	2019-2021	2022	Total
Unique Firms	95	188	475	724	568	176	2226
Unique Observations	121	252	866	1,613	1,216	417	4,485
Finance Lease Amount (billion)	18.84	57.02	183.20	268.77	191.49	59.41	778.73

- **Caveat:** It's just the tip of the iceberg. (管中窥豹)
- Finance leasing is even more critical for funding non-public POEs.

¹According to Article 39 of "China's Accounting Standards for Enterprises-No.21 Leasing" implemented from 2006, public firms are required to disclose key contract terms of SLB, which accounts for 84% of the disclosures in their financial statements.

Stylized Fact 1 — Market Participants

- SOEs dominate as lessors.
 - Account for 79% of contracts and 78% of total lease volume.
- POEs are the primary lessees among public firms.
 - Represent 61% of contracts and 43% of lease volume.
 - We conjecture that POEs represent an even larger share among non-public lessees.

Stylized Fact 2 — Lessor characteristics

- Lower growth and investment opportunities
- Access to cheaper and more reliable funding
- Profit from interest rate spreads
 - Average spread: 1.4% for SOE lessors

Table: Summary Statistics of Lessor

Variable	Other SOE (1)	SOE Lessor (2)	(2)-(1)	Other POE (4)	POE Lessor (5)	(5)-(4)
Ln(Assets)	3.61	3.96	0.35	1.90	2.48	0.58
Sales growth	14.74	9.33	-5.41*	23.36	14.10	-9.26***
Revenue growth	18.34	18.07	-0.28	27.65	14.78	-12.88
IK	8.63	2.83	-5.80***	16.00	13.12	-2.89
Fixed asset growth	13.75	3.74	-10.01***	27.31	20.24	-7.07
Cash / Assets	19.41	12.92	-6.49***	20.69	14.66	-6.02***
Debt / Assets	48.91	61.67	12.76	39.90	48.03	8.13
Bond issue rate	4.64	4.47	-0.17**	5.92	5.70	-0.21
Bond spread	-0.49	-0.66	-0.17**	0.92	0.70	-0.23
Lease rate		5.74			5.26	
Lease spread		1.40			0.44	
Observations	10,482	254		17,763	75	
Unique firms	1,181	78		2,753	36	

Note: Bond spread: bond issue rate minus PBOC benchmark rate. Lease spread: lease rate minus bond issue rate.

Stylized Fact 3 — Lessee characteristics

- Higher investment and growth opportunities
- Tighter debt capacity relative to financing needs
- Cost savings through leasing
 - POE lessees save **0.47%** in funding costs compared to bond issue rate.

Table: Summary Statistics of Lessee

Variable	Other SOE (1)	SOE Lessee (2)	OC SOE Lessee (3)	(2)-(1)	Other POE (4)	POE Lessee (5)	(5)-(4)
Ln(Assets)	3.30	2.89	4.13	-0.41	1.54	1.88	0.34***
Sales growth	12.91	19.52	12.79	6.61***	18.76	22.79	4.02*
Revenue growth	12.94	26.41	10.79	13.47**	15.58	19.31	3.72
IK	9.22	13.71	8.85	4.49**	18.14	22.35	4.21***
Fixed asset growth	10.59	16.79	15.96	6.20**	20.59	26.72	6.13**
Cash / Assets	18.66	14.11	10.20	-4.56	21.91	13.80	-8.11
Debt / Assets	48.95	57.09	66.77	8.14***	39.71	55.43	15.72***
Bond issue rate	4.83	5.34	5.19	0.51***	6.07	6.25	0.18**
Bond spread	-0.70	-0.22	-0.39	0.48***	0.68	0.89	0.20**
Lease rate		5.63	5.74			5.23	
Lease spread		-0.10	0.52			-0.47	
Observations	10,055	640	64		17,071	1,051	
Unique firms	1,171	291	21		2,746	481	

Note: Sample includes lessees borrowing from nonbank-affiliated lessors. Bond spread: bond rate minus PBOC benchmark rate. Lease spread: lease rate minus bond rate.

Stylized Fact 4 — Collateralizability Patterns

- POEs have lower collateralizability than SOEs in traditional banking:
 - Loan-to-Value (LTV) ratios: $\theta^s = 0.48$ vs. $\theta^p = 0.22$
 - in which, s denotes SOE; p denotes POE
- Finance leases show higher collateralizability for both firm types:
 - Average LTV in leasing: $\eta^s = \eta^p = 0.6$
- Repossession advantage creates two effects:
 - Level effect: $\eta > \theta$ — relaxes constraints for both SOEs and POEs
 - Slope effect: $\eta^s = \eta^p$ — eliminates SOE-POE asymmetry in credit access

Note: Collateralizability (LTV) measures the ability to pledge assets for secured borrowing.

Key Narrative: Finance Leases in China

- **Key players**
 - **Lessors (lenders):** SOEs (cheap funding, low growth opportunities)
 - **Lessees (borrowers):** Firms with growth potential but funding constraints; predominantly POEs
- **Lessor motivation:** Deploy excess capital to earn interest rate spreads
- **Lessee motivation:** Access critical growth funding unavailable through traditional bank loan channels
- **Mechanism:** Repossession advantage mitigates banking frictions
 - **Level effect:** Relaxes financial constraints for all firms
 - **Slope effect:** Circumvents SOE-POE asymmetry in bank loan access
- **Outcome:** Efficient capital reallocation from low-growth SOEs to high-growth firms (primarily POEs)

GE Model with Two-track System and Finance Lease

- GE model with heterogeneous firms
 - Representative household sector
 - Heterogeneous firm sector: Dual track economy
 - SOE: low sector-specific productivity; advantage in bank loan
 - POE: high sector-specific productivity; disadvantage in bank loan
 - Financial lease activities between firms
 - Being lessor or lessee is **an endogenous choice of firms**.
- The model captures the above stylized facts.

GE Model with Two-track System and Finance Lease

- Representative household:
 - consume and lend to firms, own firm equity
- Firms:
 - SOE sector ($j = s$) and POE sector ($j = p$);
 - Production function: $y^j(\varepsilon) = z^j \varepsilon k^j(\varepsilon)$;
 - Sector-level productivity: z^s for SOE; z^p for POE;
 - Idiosyncratic productivity: $\varepsilon \sim F(\varepsilon)$, where $F(\varepsilon) = 1 - \varepsilon^{-\xi}$.
- Two key differences: SOE v.s. POE
 - Sector productivity: $z^p > z^s$
 - SOE has privilege in traditional loan market.
 - Denote the collateral constraint: $b_i^j(\varepsilon) \leq \theta^j k_o^j(\varepsilon)$
 - SOE has higher collateralizability, $\theta^s > \theta^p$

Finance Lease: Repossession Advantage

- Firms' lease loan $\mu^j(\varepsilon) \leq \eta^j K_l^j(\varepsilon)$:
 - μ^j : lease loan amount; K_l^j : leased capital;
 - η^j denotes the collateralizability of lease loan.

- Repossession advantage:** lease loan enjoys **higher collateralizability**:

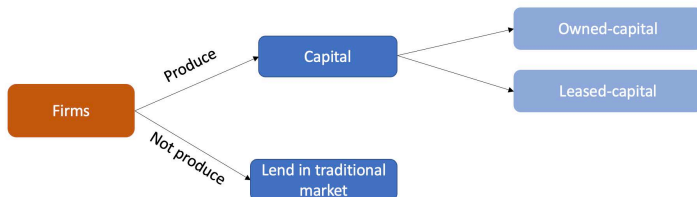
- In China, finance lease = secured lending + **repossession advantage**

$$\eta^s = \eta^p > \theta^s > \theta^p \quad (1)$$

- Repossession advantage has **two effects**:
 - Level effect:** $\eta^j > \theta^j$, relax financial constraint for both $j = s, p$
 - Slope effect:** $\eta^s = \eta^p$, circumvent the SOE-POE asymmetry in obtaining traditional bank loan.
- Such assumption consistent with data.

Firms' Optimization Problem

- Two decisions:
 - Produce or not?
 - If produce, which type of capital:



Firms' Optimization Problem

- Firms maximize the profit:

$$\pi^j(\varepsilon) = z^j \varepsilon k^j(\varepsilon) + (1 - \delta)k^j(\varepsilon) - (1 + r)b^j(\varepsilon) - (1 + r_l)\mu^j(\varepsilon) \quad (2)$$

- k_o^j : owned capital; k_l^j : leased capital; and $k^j = k_o^j + k_l^j$;
 - h^j : firm net worth; b^j : bank loan; μ^j : lease loan.
 - r : traditional loan rate; r_l : lease loan rate.
- Subject to:

- Flow-of-funds constraint:

$$k^j = h^j + b^j + \mu^j \quad (3)$$

- Traditional bank loan constraint:

$$-h^j \leq b^j \leq \theta^j k_o^j \quad (4)$$

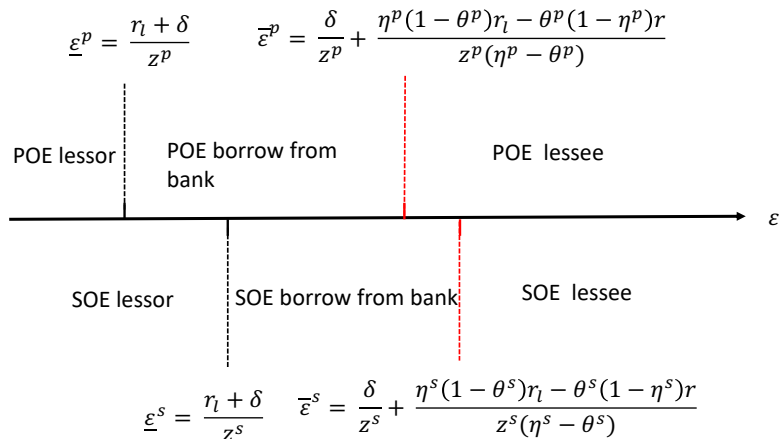
- Lease loan constraint

$$-(h^j + b^j) \leq \mu^j \leq \eta^j k_l^j \quad (5)$$

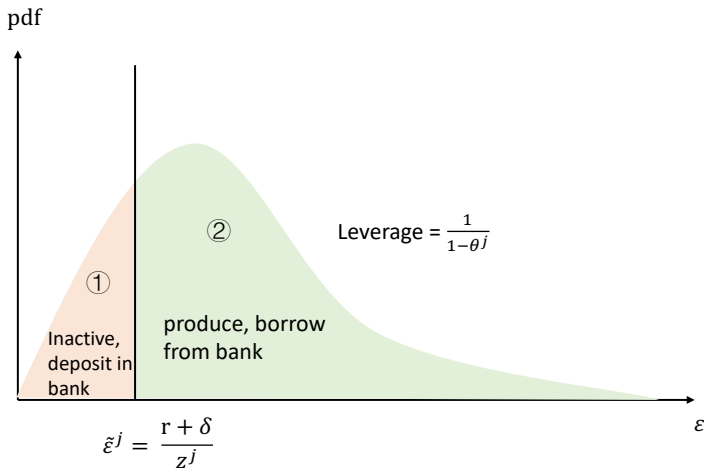
Property of Firms' Decisions

- **Corollary 1:** $r_l \geq r$
 - Otherwise, no firms would lend in the leasing market
- **Corollary 2:** Within sector firms' decisions: [▶▶ Proof](#)
 - Low-productivity firms: become lessors
 - Medium-productivity firms: bank borrowers
 - High-productivity firms: lease borrowers
- **Corollary 3:** Cross-sector decisions: [▶▶ Proof](#)
 - Low productivity SOE firms are more likely to become lessors.
 - High productivity POE firms are more likely to become lessees.
 - Net capital inflow from SOE sector to POE sector, improving cross-sector capital reallocation.

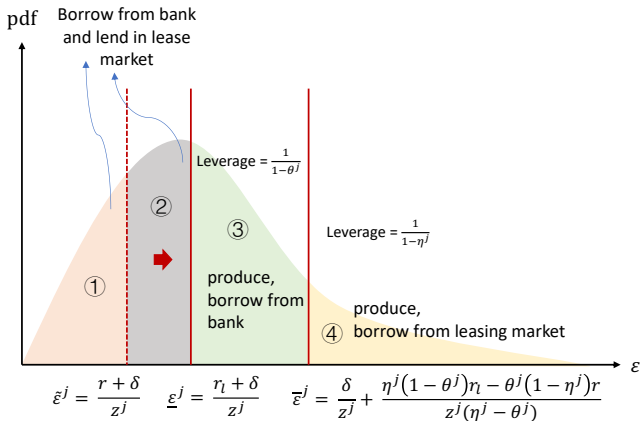
Relative Magnitude of Cutoffs



Distribution without Finance Leasing



Distribution with Finance Leasing



- Trade-off of using lease v.s. bank loan:

$$\underbrace{[z^j \varepsilon - (r_l + \delta)]}_{\text{high cost}} \underbrace{\frac{\eta^j}{1 - \eta^j}}_{\text{high leverage}} \geq \underbrace{[z^j \varepsilon - (r + \delta)]}_{\text{low cost}} \underbrace{\frac{\theta^j}{1 - \theta^j}}_{\text{low leverage}} \quad (6)$$

Summary of Model Implications

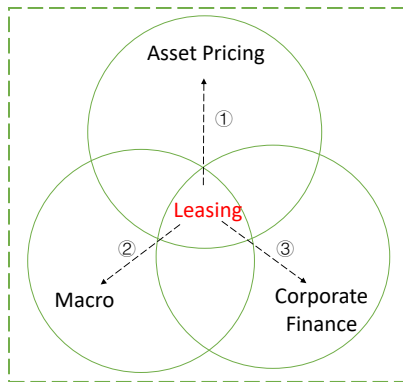
- Integrated finance leases into a general equilibrium model with firm heterogeneity
- SOE Sector TFP Gains:
 - Low-productivity firms become lessors (capital suppliers)
 - High-productivity firms access additional leverage
- POE Sector TFP Gains:
 - High-productivity firms overcome financing constraints
- Overall Efficiency Improvement:
 - Net capital reallocation: SOE \rightarrow POE sector
 - Enhanced cross-sector capital allocation efficiency

Dynamic Model and Quantitative Analysis: A Summary

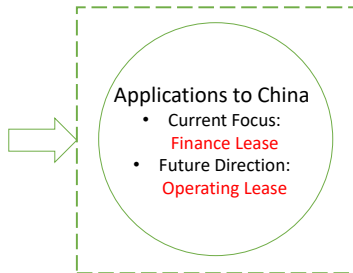
- 1 Extend two period model into a fully but tractable dynamic model.
- 2 Calibrate the model to fit important dual-track features of China's economy.
- 3 Conduct careful quantitative analysis to quantify the role of finance lease market.

New Perspective 1: Research Theme on Lease

General Theory and Empirics
Focus on **Operating Lease**



Application



New Perspective 2: U.S.–China Comparison

- **Striking divergence** in lease market composition:
 - **U.S.:** Operating Lease (87%) vs. Finance Lease (13%)
 - **China:** Operating Lease (10%) vs. Finance Lease (90%)
- **Why finance lease dominance in China?**
 - China's dual-track financial system
 - U.S.: Developed banking sector with broad credit access
 - China: POEs face constraints in secured lending \Rightarrow finance leases fill credit gap
- **Why limited operating leases in China?**
 - High asset risk for lessors:
 - Underdeveloped secondary capital markets
 - Low redeployability of state-owned assets

Conclusion

- **Primary Contribution:** Identified the **unique role** of finance leases
 - **Market mechanism** addressing SOE-POE banking frictions
 - Driven by **repossession advantage** over traditional banking
- **Theoretical Contribution:** Advances leasing literature
 - Crucial for capital reallocation in developing economies
 - Addresses high banking frictions under institutional constraints
- **Policy Implications:** Informs shadow banking regulation
 - “Productive” shadow banking with lower systemic risk
 - Finance leases as more collateralizable firm-to-firm “entrusted loan”.
 - Merits distinct regulatory treatment