

## Introduction

- Traditional intermediation theory emphasizes diversification (Diamond, 1984), but specialization creates informational advantages in screening, monitoring, and economies of scale (Boot and Thakor, 2000; Levy and Livingston, 1995).
- Banks that specialize achieve lower defaults and better terms (Blickle et al., 2024).
- Private credit: \$1.7T post-GFC; Business Development Companies (BDC) manage \$438B (2024).

## What about nonbank lenders?

- Do nonbank lenders like BDC specialize? Document industry concentration patterns.
- Does specialization improve loan performance and terms?
- What drives specialization? Use bank credit shocks (SLOOS) as an instrument.
- Extend bank specialization theories to the rapidly growing nonbank sector.

## Preview of Results

**Specialization Patterns:** BDCs over-invest 15pp in preferred industries, also persistent over time

**Loan Performance:** Loans in favorite industry: **24% ↓ default rate** and effect stronger for risky Pay-in-Kind (PIK) loans

**Loan Terms:** Specialized BDCs ⇒ larger loans, longer maturity, lower rates

**Drivers:** Bank tightening (SLOOS) ⇒ BDC growth ⇒ *more* concentration

## Institutional Background & Data

### Business Development Companies (BDCs):

- Purpose:** Provide capital to middle-market firms (\$10M–\$1B revenue) under the 1980 Small Business Investment Incentive Act
- Requirements:** Maintain 70% assets in eligible investments; distribute 90% of income
- Funding:** Public equity, private placements, bonds, and bank credit lines
- Advantage:** No deposits, lighter regulation than banks for greater flexibility

### Data Sources:

- SEC EDGAR: 10-K, 10-Q filings (investment schedules)
- FactSet BDC Holdings; Orbis; FRED/SLOOS

- 2004Q1–2025Q1 → 207 BDCs → 137,780 loans → 480k loan-quarters
- Industry: 2-digit & 4-digit NAICS

**Loan Variables:** Amount, rate, maturity, collateral, PIK, non-accrual

Figure 1. BDC Total AUM

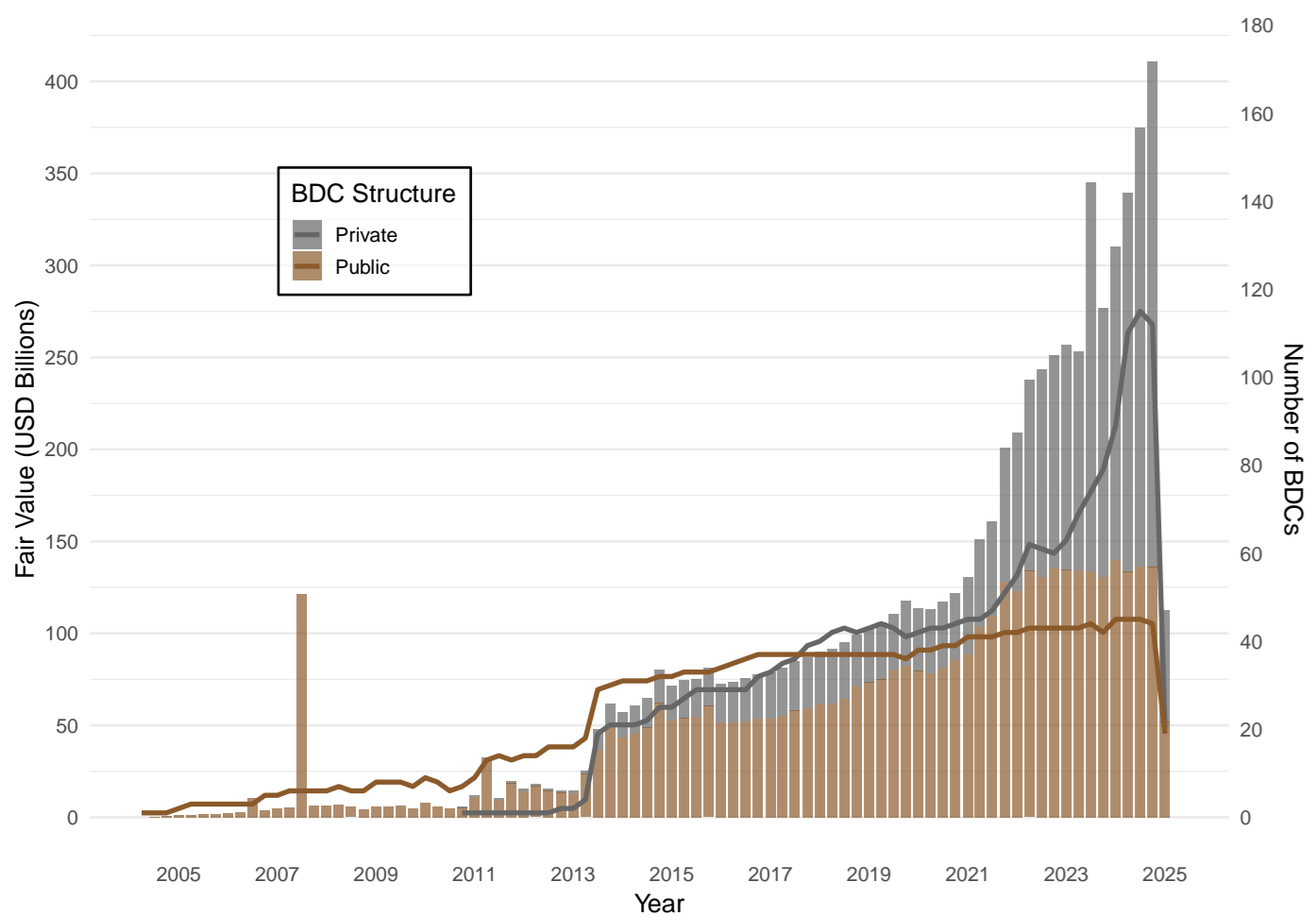
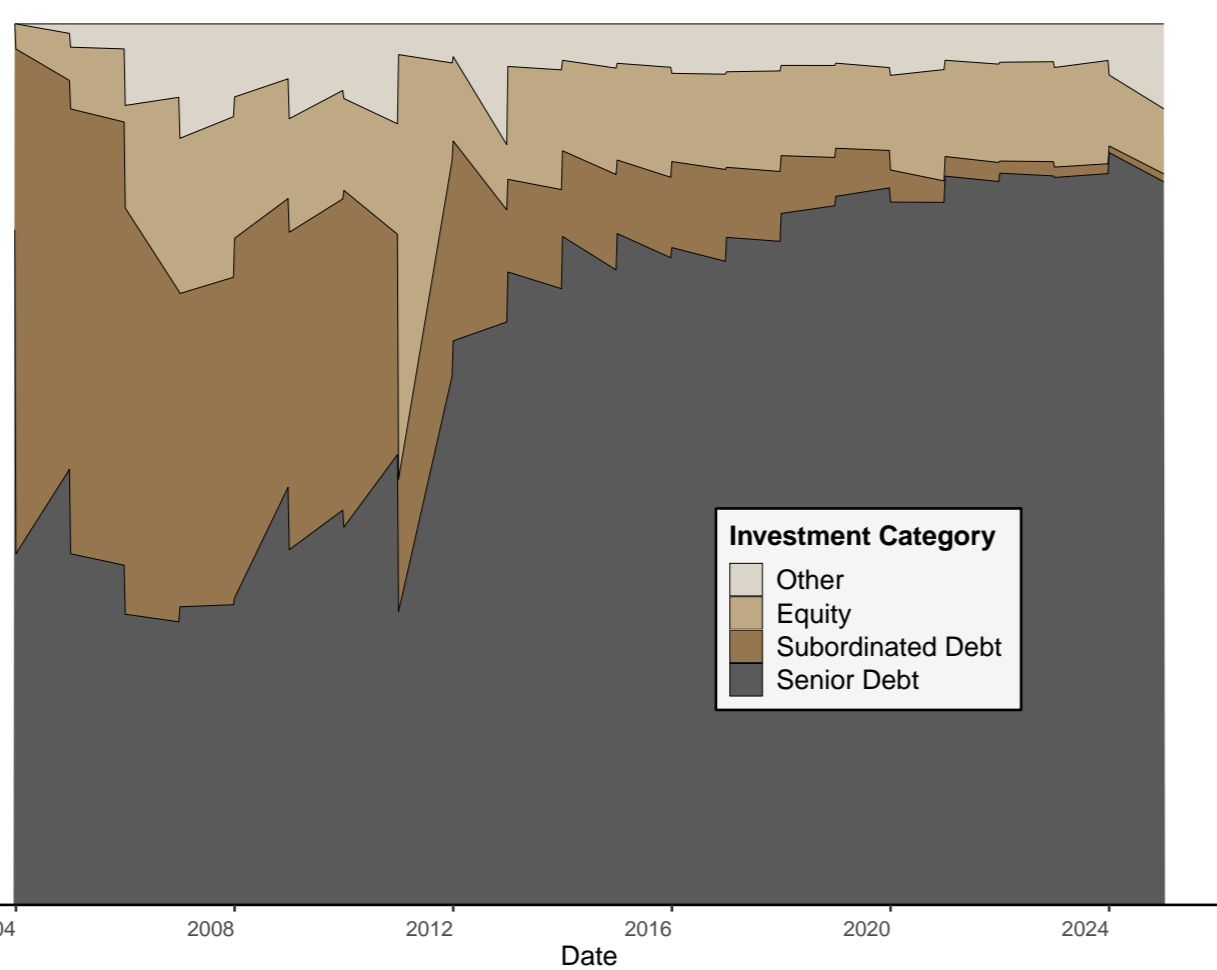


Figure 2. BDC investment instruments



## Measuring Specialization

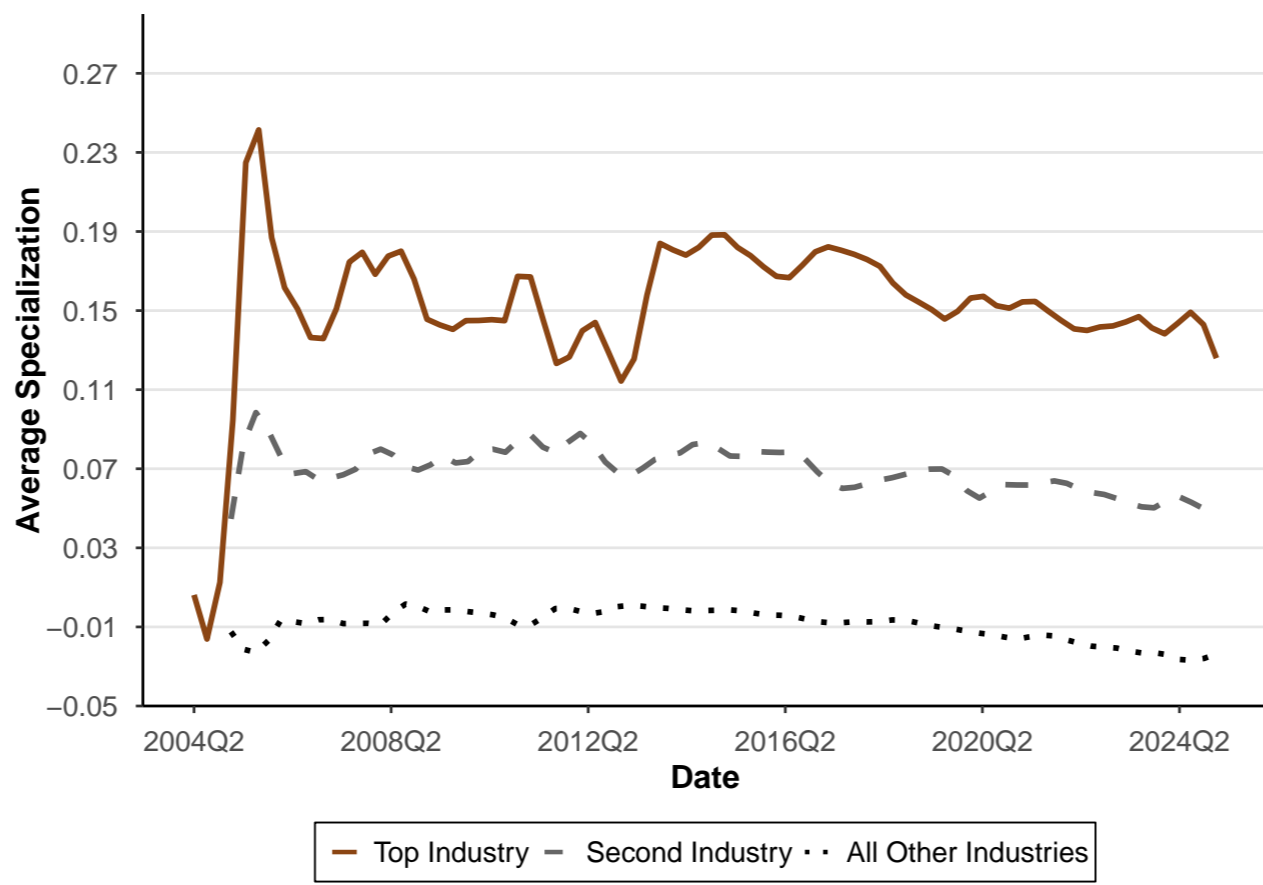
**Excess Specialization** (loan-level):

$$\text{ExcessSpec}_{b,s,t} = \frac{\text{LoanAmt}_{b,s,t}}{\sum_{s'} \text{LoanAmt}_{b,s',t}} - \frac{\text{LoanAmt}_{s,t}}{\sum_{s'} \text{LoanAmt}_{s',t}}$$

- Positive ⇒ BDC overweights industry  $s$  vs. market
- Negative ⇒ BDC underweights industry  $s$

**Portfolio Concentration (HHI):**  $= \sum_s \left( \frac{\text{LoanAmt}_{b,s,t}}{\sum_{s'} \text{LoanAmt}_{b,s',t}} \right)^2$

- Higher HHI ⇒ more concentrated portfolio



- Many BDCs consistently focus on a "favorite" industry.
- There is heterogeneity in the degree of excess specialization.

## Specialization → Loan Performance

	Loan ever becomes non-performing		
	(1)	(2)	(3)
Excess Specialization	−0.045*** (0.010)	−0.046*** (0.010)	−0.033*** (0.009)
Excess Spec. × PIK			−0.148*** (0.040)
PIK option			0.081*** (0.006)
Controls	No	Size,	Interest
Loan Type FE	Yes	Yes	Yes
BDC×Time FE	Yes	Yes	Yes
Industry×Time FE	Yes	Yes	Yes
$R^2$	0.040	0.086	0.089
$N$	137,780	137,780	137,780

- 0.54pp ↓ in non-accrual = 24% reduction vs. 2.23% avg
- Effect stronger for risky PIK loans

## Specialization → Loan Terms

	Log Amt	Rate	Maturity	PIK	Unsecured
Excess Spec.	1.353*** (0.029)	−0.58*** (0.046)	0.178*** (0.044)	0.015** (0.007)	−0.011*** (0.003)
FEs	Yes	Yes	Yes	Yes	Yes
$R^2$	0.39	0.52	0.27	0.16	0.14
$N$	137,780	137,780	137,780	137,780	137,780

- Larger loans, longer maturities in preferred industries
- Lower rates, better collateral ⇒ borrower-friendly terms

## What Drives BDC Specialization?

### Theory & Mechanism:

- Fixed Information Costs:** Information acquisition requires significant upfront investment. Winton (1999) shows that lenders minimize these costs by concentrating in sectors where they already possess expertise.
- Diversification Costs:** Acharya et al. (2006) argue that diversification can reduce monitoring effectiveness and returns when lenders lack specific sector knowledge.

### Identification Strategy:

- I use changes in bank credit standards (Senior loan officer opinion survey) to identify the impact of bank lending shocks on BDCs.
- When banks tighten lending (SLOOS goes up), firms turn to BDCs, increasing BDC lending and allowing me to examine whether this leads to increased specialization (concentration) in the industries where BDCs lend.

### First Stage:

$$\underbrace{\ln(\text{Outstanding Loans})_{b,t}}_{\text{BDC Lending}} = \alpha_0 + \alpha_1 \underbrace{\text{SLOOS}_t}_{\text{Credit Supply Shock}} + \delta_b + u_{b,t} \quad (1)$$

### Second Stage:

$$\underbrace{Y_{b,t}}_{\text{BDC Specialization}} = \beta_0 + \beta_1 \widehat{\ln(\text{Outstanding Loans})_{b,t}} + \delta_b + \epsilon_{b,t} \quad (2)$$

	First Stage	Second Stage	
	log(Loans)	HHI	Fav. Ind. Other Ind.
SLOOS Tightening	0.448*** (0.105)		
log(Loans)		0.061* (0.026)	0.096** (0.035) −0.011** (0.005)
BDC FE	Yes	Yes	Yes
First Stage F		58.4	58.5
$R^2$	0.74	0.40	0.55
$N$	4,060	4,060	4,060

**Result:** Bank tightening ⇒ BDCs expand lending ⇒ *increase* concentration in preferred sectors (consistent with Winton, 1999).

## Ongoing Work: BDC Funding & Specialization

**How does endogenous funding (leverage) drive the portfolio choice (specialization vs. diversification) for non-bank lenders?**

- Leverage & Agency Costs:** Higher leverage increases the conflict between equity holders and debt holders (risk-shifting).
- Monitoring Incentives:** Diversification dilutes monitoring effort per loan.
- Prediction:** To mitigate agency costs and protect downside risk, high-leverage BDCs must commit to *higher quality monitoring* via **specialization**.

## References

- Acharya, V., Hasan, I., & Saunders, A. (2006). Should Banks Be Diversified? *Journal of Business*.
- Blickle, K., Parlatore, C., & Saunders, A. (2024). Specialization in Banking. *Journal of Finance*.
- Davydiuk, T., Marchuk, T., & Rosen, S. (2024). Direct Lenders in the US Middle Market. *JFE*.
- Winton, A. (1999). Don't Put All Your Eggs in One Basket? Diversification and Specialization in Lending.