

# Delay Your Rivals: Vertical Integration in Securitization and Lending Competition

Jose Diego Salas, Brandon Zborowski

Northwestern University - Economics Department, Kellogg School of Management - Finance Department

## Introduction

We study the effects of vertical integration (VI) in the securitization chain on lending competition

- VI lenders originate loans with 9bps lower rates and 7% shorter time to securitization.
- Partially explained by VI delaying rival loans in loan pool creation (“prioritization channel”)
- Prioritization reduces diversification of securities and therefore securitization profitability
- Estimating structural model to quantify welfare implications of prioritization (In progress)

## CMBS Institutional Details

CMBS market connects real estate borrowers to institutional investors through securitization

- Borrowers looking to purchase/ refinance stable commercial properties (e.g. hotels, offices) for long durations (10 years) seek financing in the conduit loan market
- Conduit loan originators issue mortgages with the intention to securitize
- Investment banks pool together loans that then becomes collateral backing securities (CMBS)
- Investors purchase securities at prices set by market conditions and ratings of these bonds

When the investment bank is affiliated with an originator, we denote this as vertically integrated (VI).

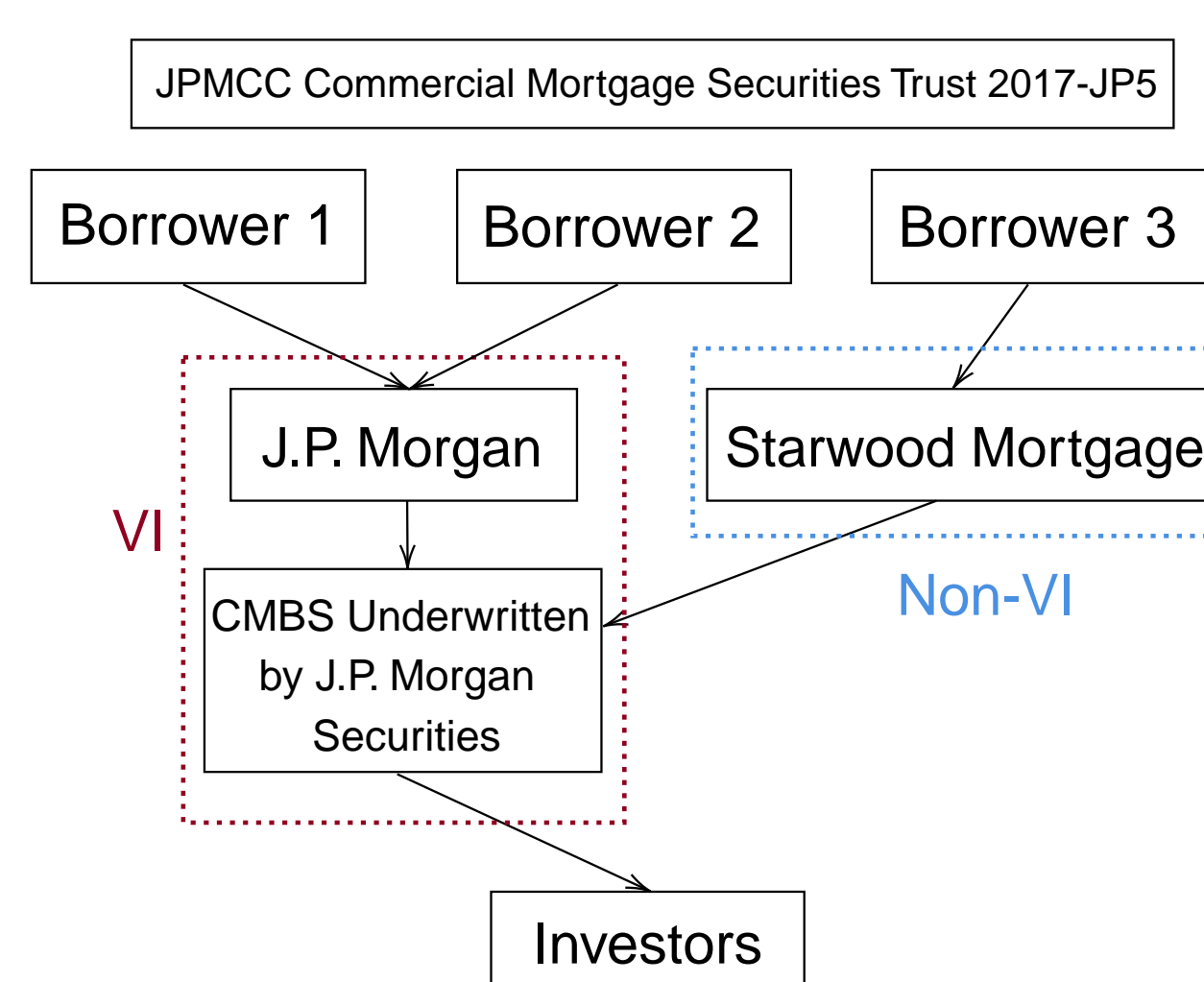


Figure 1: Market Diagram

## Loan Spreads

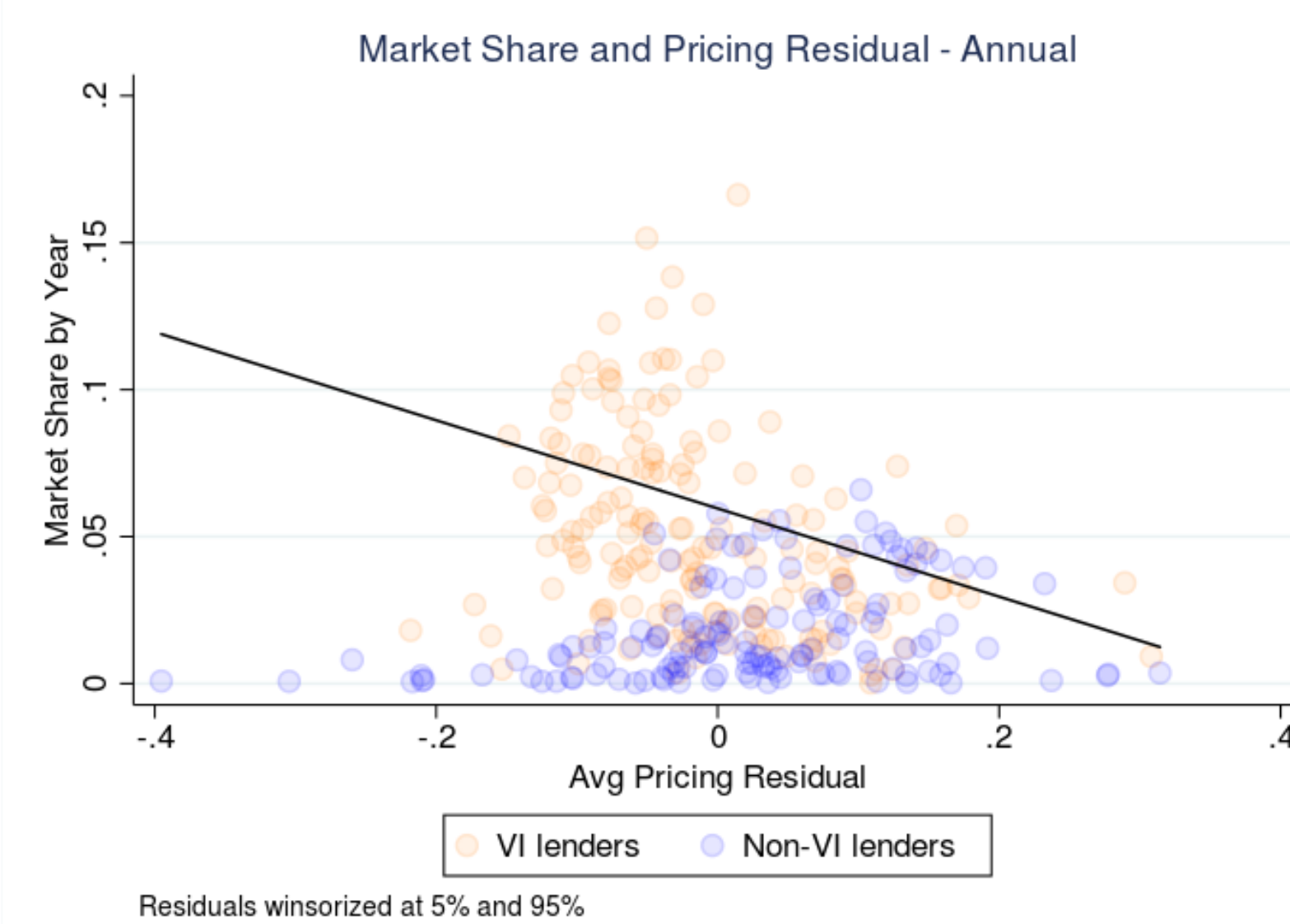


Figure 2: Loan Spreads and Market Shares

Above, we plot annual market share and average pricing residual (see Table 1, specification 1), separated by VI (orange) and non-VI (blue) lenders. VI lenders have lower prices and higher shares.

## Days to Securitization

Table 1: Spreads and Days to Securitization for VI and Non-VI

	(1)	(2)	(3)	(4)
	SPRD	SPRD	DTS	DTS
VI	-0.112*** (0.006)	-0.092*** (0.011)	-4.356*** (0.853)	-3.866** (1.671)
Observations	17013	7289	16989	7270
R <sup>2</sup>	0.718	0.864	0.245	0.544
Fixed Effects	PxT,G	PxT,G,B	PxT,G	PxT,G,B
Controls	Y	Y	Y	Y

Standard errors clustered at the MSA level

Fixed effects codes: P=Prop Type, T=Orig Month, G=Prop MSA, B=Borrower

Controls: LTV, DSCR, Log Size, Debt Yield, Log Price/Sq Ft, and Cap Rate

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Above, we show a regression table with spread or time from origination to securitization (DTS) as a LHS variable and VI as the RHS variable. VI loans have lower rates and have shorter DTS.

## Important Results

The prioritization of VI loans in constructing pools partially explains the difference in spreads charged by VI and non-VI lenders. This prioritization incentive reduces loan pool diversification in CMBS.

## Evidence of Prioritization

We show evidence of VI lenders prioritizing their loans by looking at which pool the loan ends up in. In results not shown, we find that VI loans are 6pp more likely to end up in the earliest pool (avg=58%) and the loan’s pool number is 0.2 smaller on average (avg=1.7). A back of the envelope finds the average DTS impact of this prioritization is 6 days. We also estimate a pass through of 24bps per 100 DTS (using IV), leading to the average effect of prioritization at 1.4bps, or 15% of the difference between VI and nVI.

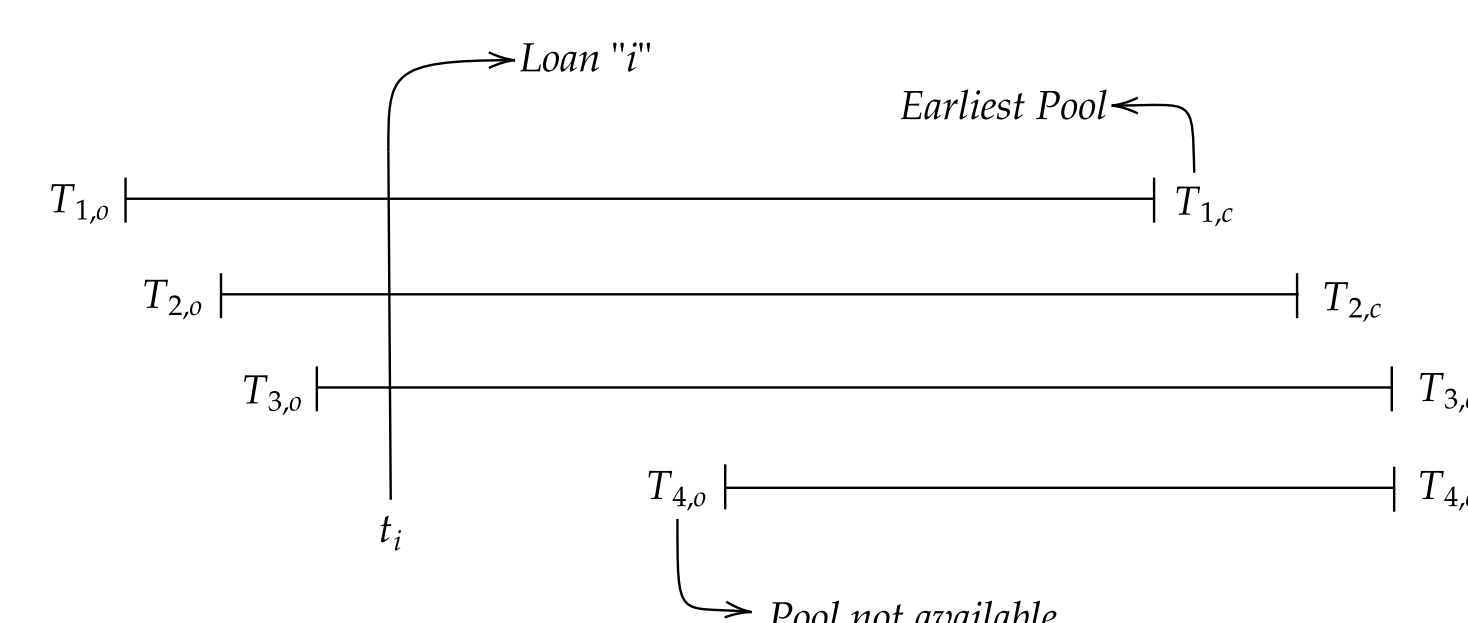


Figure 3: Pool Number Diagram

## Securitization Profitability

Non-VI share is positively associated with multiple measures of diversification at the pool level (property, geography, and loan HHI). In results not shown, we find it is also positively and economically associated with profitability of the securitization, where we measure profitability as the weighted avg loan rate minus weighted avg YTM on the CMBS bonds.

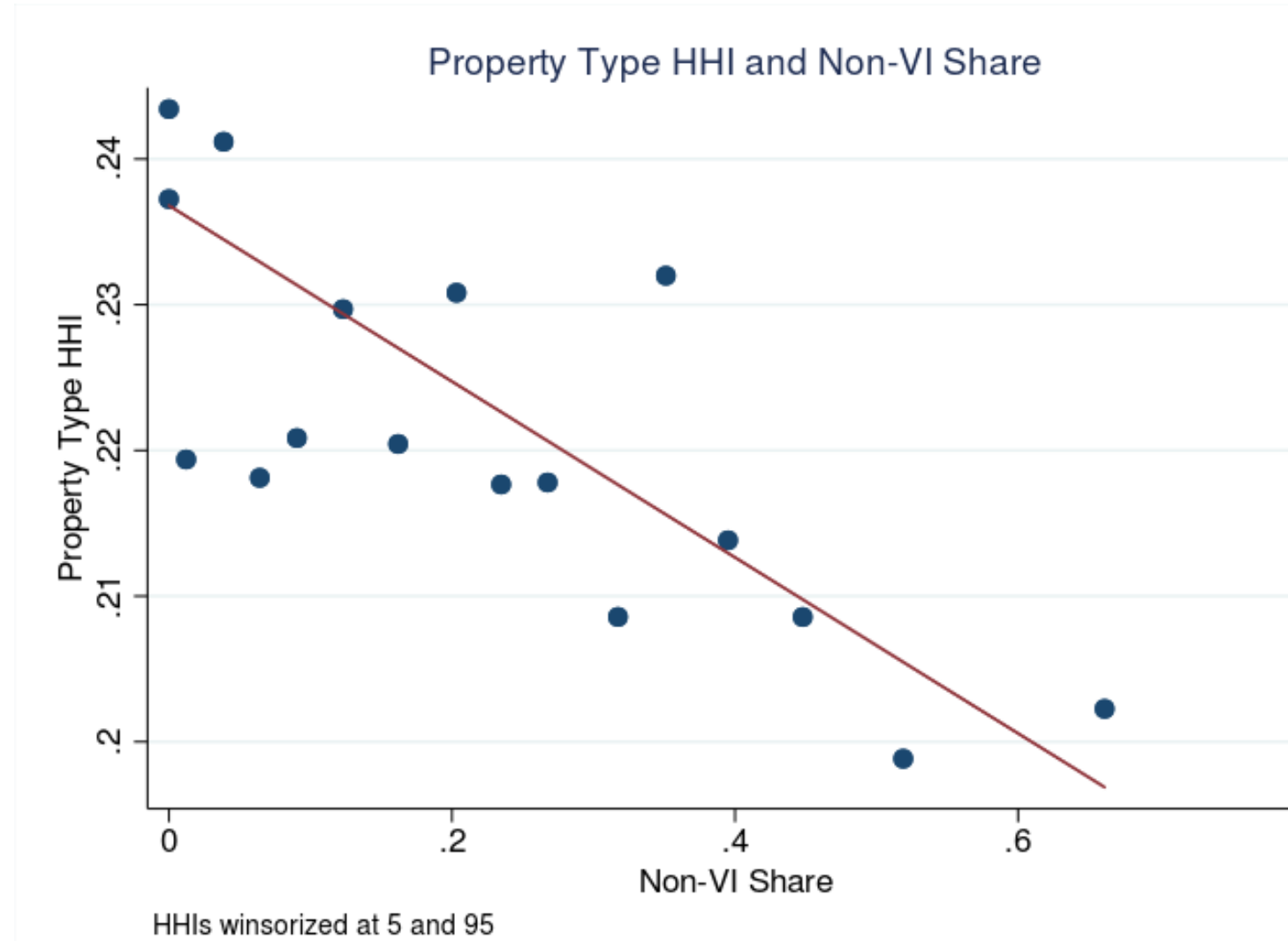


Figure 4: Non-VI Share and Diversification

## BLP Style Model

We use a discrete choice demand framework where

$$u_{ijm} = -r_{ijm} + \xi_{jm} + \epsilon_i^A + Z_i + \epsilon_{ijm} \quad (1)$$

We follow Crawford et. al (2018) to estimate prices of loans that we do not observe and then follow BLP to back out price elasticity.

For the supply side, the VI lender faces the following dynamic problem

$$V_j(\mathbf{X}_t) = \max_{\{\chi_j, \chi_{N_{nVI}^S}\}} \mathbb{E} \left\{ \sum_{t=\tau}^{\infty} \tau^{-t} \left[ (1 - \chi_{jt}) \pi_j^b(r_{\tau,j} \mathbf{X}_\tau) + \chi_{jt} \pi_j^S(\mathbf{X}_t) \right] \mid \mathbf{X}_t \right\} \quad (2)$$

$\chi_{jt}$  is the decision to securitize,  $N_{nVI}^S$  is the set of non-VI loans to include. Balance sheet profits  $\pi_b$  and securitization profits  $\pi_s$  are

$$\pi_j^b(\mathbf{X}_t) = \sum_{k \in N_j} n_k (r_{k,j} - c_{j,m}(B_{j,t})) \quad (3)$$

$$\pi_j^S(y(N_{nVI}^S), \mathbf{X}_t) = \sum_{k \in N_j} n_k (r_{k,j} - y(N_{nVI}^S, \mathbf{X}_t)) \Phi \quad (4)$$

$\mathbf{X}_t$  = state,  $n_k$  = loan size,  $r_k$  = rate,  $c(\cdot)$  = cost,  $y(\cdot)$  = securitization cost of funds (YTM), and  $\Phi$  = PV factor. The evolution of the balance sheet is:

$$B_{j,t} = B_{j,t-1} + N_{j,t} - \chi_{j,t}(B_{j,t-1} + N_{j,t}) \quad (5)$$

## Conclusion

We find that vertical integration in the CMBS market impacts lending competition, because VI lenders delay their rivals loans when constructing pools. This delay leads to higher time to securitization and therefore higher costs, which are passed on due to higher rates. Additionally, the prioritization incentive reduces diversification of pools constructed and therefore reduces the overall profitability of securitization.

## Acknowledgements

We thank our advisors, Gregor Matvos, Mitchell Petersen, Vikrant Vig, Robert Porter, Gaston Illanes, and Vivek Bhattacharya for their crucial guidance.