Credit Market Equivalents and the Valuation of Private Firms

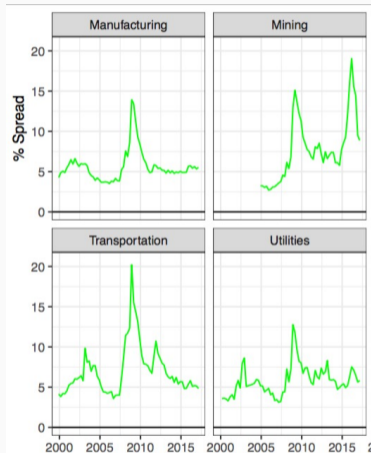**Niklas Hüther, Lukas Schmid, Roberto Steri**

Discussant: Arpit Gupta (NYU Stern)

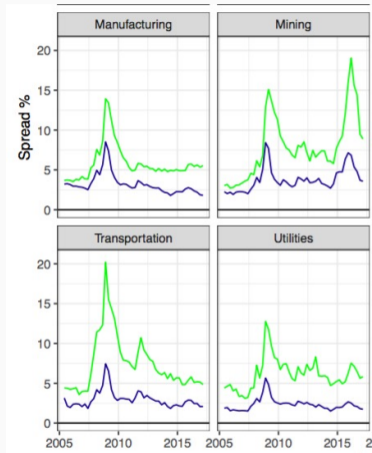March 6, 2020

Industry loan spreads from Saunders et al. 2019. Addoum and Murfin (2017): loan returns predict equity returns.

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2

New Valuation of Private Firms Based on Secondary Loan Pricing

1. Credit and equity markets not entirely segmented: loan performance predicts exit multiples

2. Form portfolios of these loan prices, regress against factor model
   - Portfolio loan returns have unique factor structure

3. Use to form SDF and price PE Funds
   - GPME, PME measures have $\alpha < 0$; CME has $\alpha > 0$.

| | All PE deals | | |
	Exit uc	log(VM)	Holding R_E
	(1)	(2)	(3)
Distress loan	0.514***		
	(0.078)		
Log average bid price		3.824***	
		(0.614)	
Holding loan return (in %)			1.182*
(holding time as equity)			(0.632)

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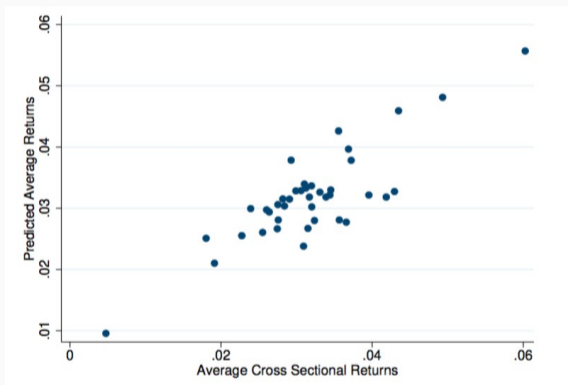
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		All Deals
CME		0.335
		(0.357)
	$H_0 : CME = 0$	$t = 0.830$
		(0.400)
GPME		-0.105
		(0.029)
	$H_0 : GPME = 0$	$t = -3.610$
		(0.001)
PME		-0.115
		(0.025)
	$H_0 : PME = 0$	$t = -4.590$
		(0.000)

This Discussion

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- We have accurate market prices for public firms. Nothing in model is specific to PE: public firms also have combination of equity and debt claims which can be used for valuation.

- Does the CME approach lead to accurate estimates of market equity prices?

1. Form Loan Portfolios

- Merge LPC loan data from 2003–2008 to Compustat firms. Substantial overlap, especially in lower end of firm quality.

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- Merge LPC loan data from 2003–2008 to Compustat firms. Substantial overlap, especially in lower end of firm quality.

- Sort loan data on loan price into five quintile portfolios, rebalanced semi-annually.

- Generates portfolio returns over sample period

2. Run Factor Model

$$Q_i Price = \alpha + \beta_1 Mkt_t + \beta_2 HML_t + \beta_3 SMB_t, \quad i = 1, \ldots, 5 \tag{1}$$

$$Q_i Price = \alpha + \beta_1 Q5mQ1Price, \quad i = 1, \ldots, 5 \tag{2}$$

- Try both standard Fama-French regression (1), as well as loan factor specific model (2) on portfolio returns

- Confirm, as in paper, that loan factor model outperforms

- Generates excess returns and model fit

3. Calculate Market Price of Risk

$$E[Q_iPrice] = R_f + \beta_j\lambda$$

$$\lambda_{FF} = \begin{pmatrix} SMB = -0.001 \\ HML = 0.007 \\ Mkt = -0.006 \end{pmatrix}, \quad \lambda_{Q5m1} = \begin{pmatrix} Q5m1 = 0.048 \end{pmatrix}$$
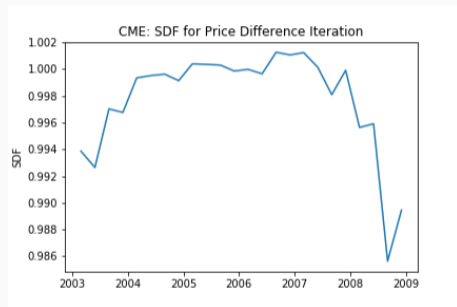
$$\gamma = \frac{1}{T} \sum_{t=1}^{T} r_t^f$$

$$a = \frac{1}{\gamma} - b' E[f]$$

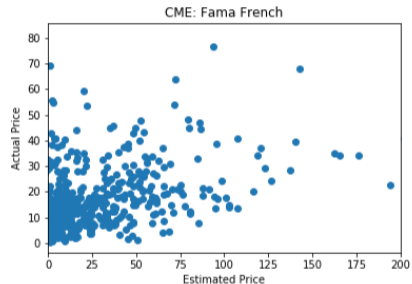$$b = = -\frac{1}{\gamma} \cdot \Sigma_f^{-1} \cdot \lambda$$

$$M_t^{CME} = a + b' f_t$$

CME: SDF for Price Difference Iteration

5. Compare Model Implied and Market Price
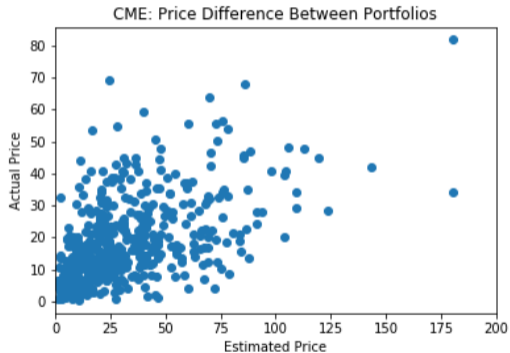
CME: Price Difference Between Portfolios

CME: Fama French

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    - For instance, because equity is junior and hence riskier than loans
    - LP stakes in PE funds may also be biased when valued through underlying loans
    - I wonder whether the risk-free component of long-term discounting is really being included here? Monthly approach abstracts from term structure by using short-term T-bills. Tried incorporating risk-free term structure directly but didn't change results.

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    - Or different investor clienteles.
    - Does LP really want to give GP credit for superior performance with respect to a risk factor that's not as relevant for their own equity claim?

Suggestions to the Authors

- Given the natural difficulty in extrapolating across capital structure, it would be helpful if you could do this public equity exercise better and figure out pricing (using loans, or bonds at different credit ratings levels) in a more transparent context first before moving to PE.

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- More fund-level correlations with existing valuation, performance measures.

Takeaways

- Secondary loan market is surprisingly liquid and offers unique asset pricing perspective into otherwise opaque private markets.

- Valuing non-traded assets by using a portion of their payoff stream that is publicly traded seems like a very promising idea in general.

- Further validation of this paper's method in contexts where we already understand the price would help make more explicit the underlying assumptions and limitations.