

# Institutional Herding and Corporate Debt Issuance

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# Outline

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# Motivation

- Institutional Herding in various settings
  - Equity markets (Lakonishok et al., 1992; Wermers, 1999)
  - Corporate bond markets (Cai et al., 2019)
  - International stocks markets (Choi and Skiba, 2015)
- Herding has impact on the information
  - Fundamental: price discovery
  - Imitation: excess price volatility
- Information plays significant role in determining debt structure
- Lack of evidence on how herding affects corporate debt decisions

# Research Question

- Does institutional herding affect the firm's information environment?
  - Positive: fundamental herding  $\implies$  facilitate the price discovery
  - Negative: imitational herding  $\implies$  disincentivize information collection or less price efficiency
- If so, does herding driven change in information efficiency influence the firm's debt decision?

# Channel and Intuitions

- If herding brings about enhanced (or deteriorated) information efficiency of firms' securities,
- Bond financing gains an advantage (disadvantage) and becomes cheaper (more expensive): lower (higher) information premium
- Effect on the firm's choice of the timing and the means (bonds or loans) to raise new debt capital
- We conjecture if herding improves (deteriorates) information efficiency,
- **(H1a)** firms are more (less) likely to issue new bonds at the time of high mutual funds herding
- **(H1b)** Upon issuance, firms tend to opt for bonds (bank loans) over bank loans (bonds)

# Channel and Intuitions

- **(H2)** The impact of herding is concentrated on buy-herding rather than sell-herding
  - Short sale constraints limit information processing (Diamond and Verrecchia, 1987)
  - Sell herding is more likely to be non-informationally driven (Sias, 2009; Cai et al. 2019)  $\implies$  incorporate more noisy information
- **(H3)** The impact is more pronounced for firms with greater information asymmetry and for times when the bond market is opaque

# Literature and contribution

- Feedback effects of financial markets on corporates
  - Bond, Edmans, and Goldstein (2012)
  - Firm value: Roll, Schwartz, and Subrahmanyam (2009); Wang and Zhang (2015)
  - Debt structure: Chen et al. (2018); Cao et al.(2019)
- Institutional herding: Bikhchandani et al. (1992); Froot et al. (1992); Lakonishok et al. (1992); Sias (2004); Choi and Sias (2009)
- Information environment and financing decision: Li, Lin, and Zhan (2018)
- The role of capital supplier in firms raising debt capital: Massa, Yasuda, and Zhang (2013); Zhu (2019)

# Data

- Thomson Reuters Lipper eMAXX
  - Select US bond mutual funds: fund class “MUT” and country code “USA”.
  - Obtain holdings of corporate bonds
- FISD: corporate bond issuance information
- Thomson Reuters DealScan
  - Bank loan information: we only select all term loans and line of credit.
- Compustat and CRSP dataset: firm’s accounting data & stock return
- Our sample contains 47,267 firm-quarter observations from 1998Q2 to 2018Q1



## Herding Measure (HM): Lakonishok et al. (1992)

$$HM_{i,t} = \underbrace{|p_{i,t} - E[p_{i,t}]|}_{\text{Trading Imbalance}} - E|p_{i,t} - E[p_{i,t}]| \quad (1)$$

- where

$$p_{i,t} = \frac{\text{Num.ofBuy}_{i,t}}{\text{Num.ofBuy}_{i,t} + \text{Num.ofSell}_{i,t}} \quad (2)$$

- $E[p_{i,t}]$  is the cross-sectional average of  $p_{i,t}$  in quarter  $t$
- A disproportionate number of institutions buying (selling) certain security in excess of the market-wide buying (selling) intensity in a given period

## Herding Measure (HM): Lakonishok et al. (1992)

- Buy herding measure (BHM)

$$BHM_{i,t} = HM_{i,t} | p_{i,t} > E[p_{i,t}] \quad (3)$$

- Sell herding measure (SHM)

$$SHM_{i,t} = HM_{i,t} | p_{i,t} < E[p_{i,t}] \quad (4)$$

- We define herd firms  $D(Herd_{i,t-1})$  if firms have non-zero HM in a quarter

# Empirical Specification

- Logit regression with firm-quarter fixed effects

$$D(\text{BondIssuance}_{i,t}) = \alpha + \beta_1 D(\text{Herd}_{i,t-1}) + \gamma X_{i,t-1}^{\text{Firm}} + \varepsilon_{i,t-1} \quad (5)$$

$$D(\text{BankLoan/BondChoice}_{i,t}) = \alpha + \beta_2 D(\text{Herd}_{i,t-1}) + \gamma X_{i,t-1}^{\text{Firm}} + \varepsilon_{i,t-1} \quad (6)$$

- If hypothesis 1 holds: a significantly positive  $\beta_1$  and a significantly negative  $\beta_2$
- Furthermore, we replace  $D(\text{Herd}_{i,t-1})$  with  $D(\text{BuyHerd}_{i,t-1})$  and  $D(\text{SellHerd}_{i,t-1})$
- If Hypothesis 2 holds:  $\beta_1$  and  $\beta_2$  are only significant for  $D(\text{BuyHerd}_{i,t-1})$
- Firm controls includes: market cap, Tobin's q, leverage, profitability, tangibility and etc..

## BaseLine Results

Dependent Var:	D(BondIssuance)				D(Bank Loan/Bond Choice)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D(Herd)	1.711*** (3.96)				-4.094*** (-2.78)			
D(Buy Herd)		1.348*** (4.61)		2.194*** (4.76)		-3.946*** (-3.34)		-5.489*** (-3.44)
D(Sell Herd)			-0.464 (-1.61)	1.174*** (2.60)			1.406 (1.17)	-2.389 (-1.47)
Observations	46,105	46,105	46,105	46,105	7,676	7,676	7,676	7,676
Pseudo R-square	.147	.147	.146	.147	.203	.203	.202	.203
Quarter-Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

- Herd group has 1.71% higher probability to issue new bonds next quarter (about 20% increase to the mean of issuance probability)
- Strongly concentrated in buy herding

## Information uncertainty

Dependent Var:	D(Bond Issuance)				D(Bank Loan/Bond Choice)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D(Buy Herd)	1.449*** (4.92)	4.021*** (6.74)	.903*** (2.77)	.502* (1.64)	-4.251*** (-3.58)	-10.448*** (-4.60)	-1.740 (-1.39)	-1.506 (-1.19)
D(Buy Herd)#Excess_RetVol	1.212*** (4.08)				-3.089** (-2.16)			
Excess_RetVol	-.568** (-2.24)				1.495 (1.60)			
D(Buy Herd)#NumAnalyst		-.228*** (-6.23)				.674*** (4.68)		
NumAnalyst		.169*** (4.23)				-.602*** (-3.78)		
D(Buy Herd)#AFError			1.025*** (3.26)				-4.216*** (-3.26)	
AFError			-.717*** (-2.90)				2.674*** (2.76)	
D(Buy Herd)#BeforeTRACE				5.624*** (7.23)				-16.812*** (-4.83)
BeforeTRACE				-3.382* (-1.84)				75.683*** (4.71)
Observations	46,105	40,168	39,024	46,105	7,676	6,996	6,836	7,676
Pseudo R-square	.148	.143	.142	.149	.204	.198	.197	.206
Quarter-Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

- The impact of buy herding on debt issuance is more pronounced
  - for firms with greater information asymmetry
  - when bond market is less transparency before the TRACE

## Bond Price Informativeness

Dependent Var: Drift	(1)	(2)	(3)
D(Herd)	-0.060 (-.51)		
D(Buy Herd)		<b>-0.119** (-2.12)</b>	
D(Sell Herd)			.091 (1.61)
Observations	22,078	22,078	22,078
Adj R-square	0.352	0.352	0.352
Firm-Quarter FEs	Yes	Yes	Yes

- Informativeness of bond price (Lewis and Schwert, 2018):  
 $Drift_{k,t}$  for bond  $k$  in quarter  $t$  is defined by

$$Drift_{k,t} = \left| \prod_{j=1}^N (1 + r_{k,j}) - 1 \right| \quad (7)$$

- Buy herd group: lower drift  $\implies$  more bond price informativeness

## Offering Yield Spread

Panel A			
Dependent Var: yieldspread (%)	(1)	(2)	(3)
D(Herd)	-.250*** (-3.34)		
D(Buy Herd)		-.108** (-2.27)	
D(Sell Herd)			-.030 (-.80)
Observations	4,022	4,022	4,022
Adj R-square	0.774	0.773	0.771
Firm Controls	Yes	Yes	Yes
Bond Controls	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes
Rating FEs	Yes	Yes	Yes

# Identification: IV

- Repetitional herding: Fund managers imitate others  $\implies$  avoid the performance deviations
  - Trueman, 1994; Zwiebel, 1995; Graham, 1999; Dasgupta, Prat and Verardo, 2011b
- Jiang and Verardo (2018): inexperienced mutual funds (younger) managers are more likely to herd
- IV for  $D(\text{Herd}_{i,t})$ :  $\text{NumInexperience}_{i,t}$ 
  - The number of inexperienced managers of mutual funds that holds the firm's existing bonds
  - Exclusion restriction: Career concern-based IV seems not much related to our dependent variable
- $\text{NumInexperience}$  as the number of mutual funds owners whose managers are in the lowest experience group
  - Sort managers experience into high-, median-, and low group quarterly



## Identification: IV

Dependent Variables	FirstStage	SecondStage	FirstStage	SecondStage
	D(Herd)	D(BondIssuance)	D(Herd)	D(Bank/Bond Choice)
	(1)	(2)	(3)	(4)
<i>NumInexperiene</i>	.006*** (6.73)		.004*** (5.43)	
$D(\widehat{Herd})$		.353*** (3.774)		-.448** (-2.091)
Industry-Quarter FEs	Yes	Yes	Yes	Yes
R-square		0.035		0.086
Observations	30,859	30,859	6,512	6,512
First Stage F-Test	45.350		29.480	
Under Identification		23.643		20.568
Week Identification		336.759		51.238

- Firms owned by more inexperienced managers  $\implies$  D(Herd) higher
- Second Stage: herd group  $\implies$  higher bond issuance probability/switch from bank to bond

# Summary

- Mutual fund herding affect both bond issuance timing and the choice of bonds over loans
- The impact of herding is concentrated on buy-herding rather than sell-herding,
- Pronounced for firms with greater information asymmetry and for times when the bond market is opaque.
- Buy herding improves bond informativeness and firms enjoy lower offering yield spread
- Positive view of institutional herding: enhances information environment

Thank you for attending!  
Stay safe and take care