

ASYMMETRIC INFORMATION AND HERDING BEHAVIOR: AN EMPIRICAL ANALYSIS FROM VIETNAM

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AGENDA

01 Rationale of Research

02 Literature Review

**03 Research Question
& Hypotheses**

04 Research Methodology

05 Results

06 Conclusions

07 Future Research

Rationale of Research

Situation

The Vietnamese stock market has become an important capital mobilization channel for the economy

Problem

Herding behavior is a significant phenomenon that affect the development of Vietnam stock market

Reason

The assymetry of information in the stock market

Factors

- Government regulations on the information disclosure
- Some specific firms' features

Impact of assymmetric information on herding behavior

Contribution of Research

1st research investigates the impact of information environment on herding behavior in Vietnam

- Circular 155/2015/TT-BTC
- Thorough analysis of different characteristics of herding behavior in Vietnam

Literature Review

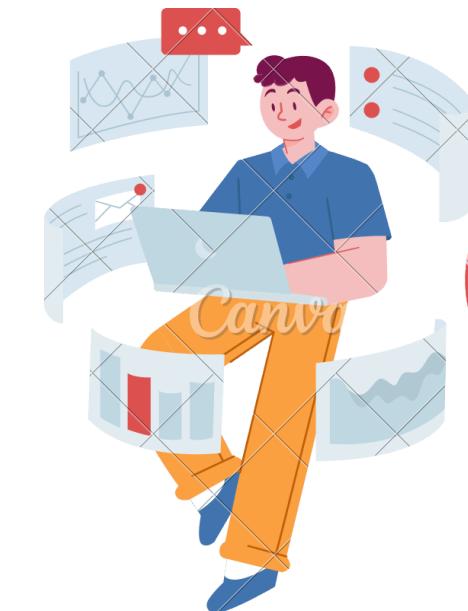
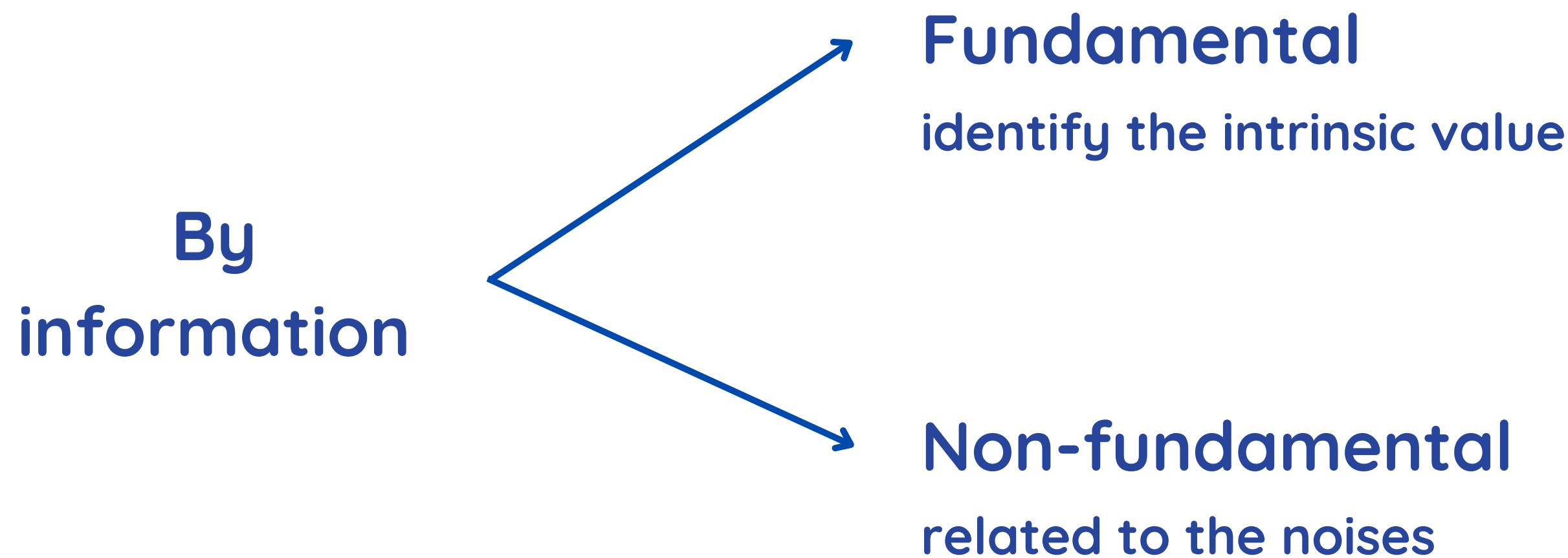
What is herding?



Herding behavior in financial markets is described as a behavioral tendency for an investor to follow the actions of others.

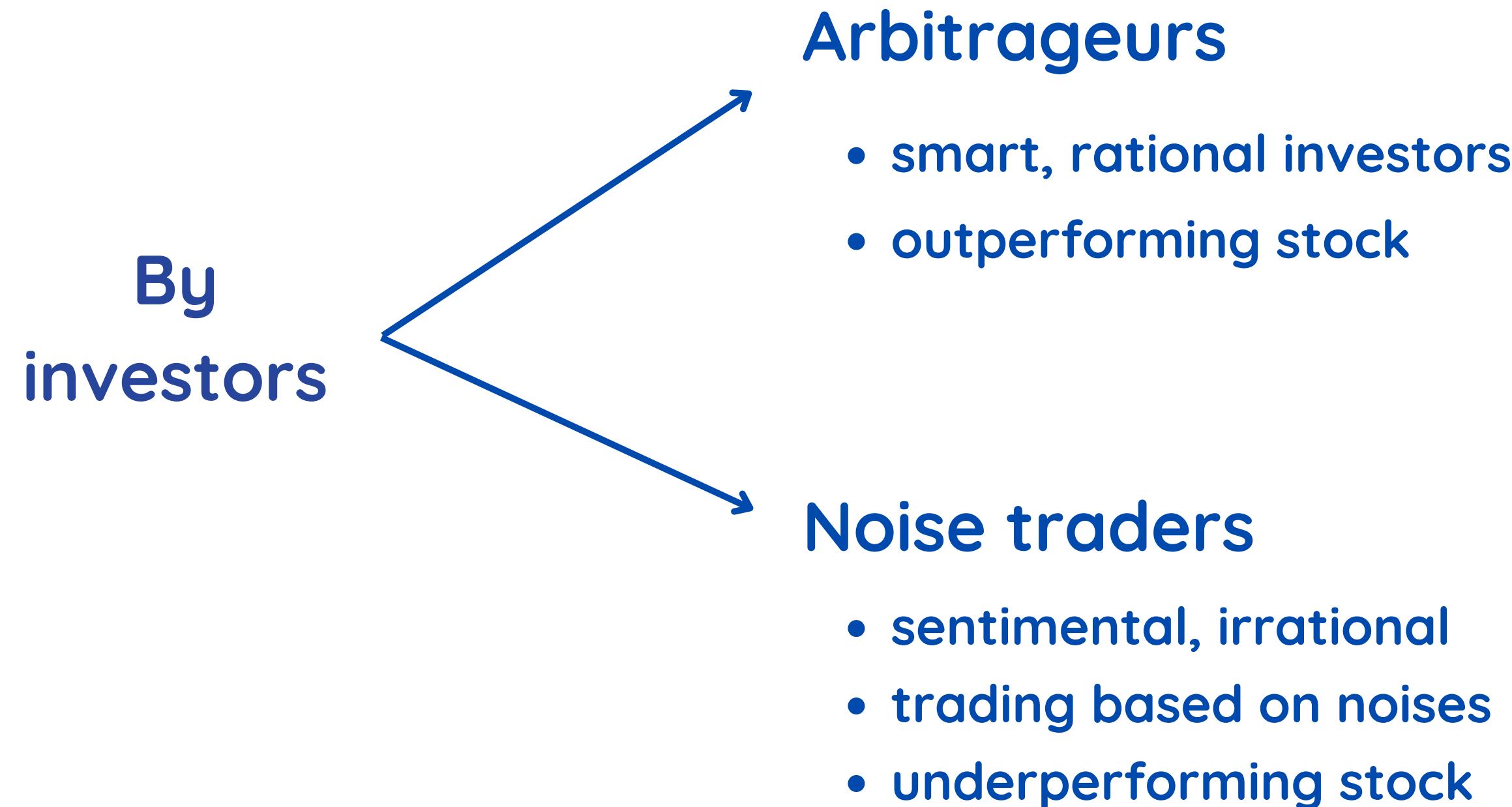
Literature Review

Types of herding

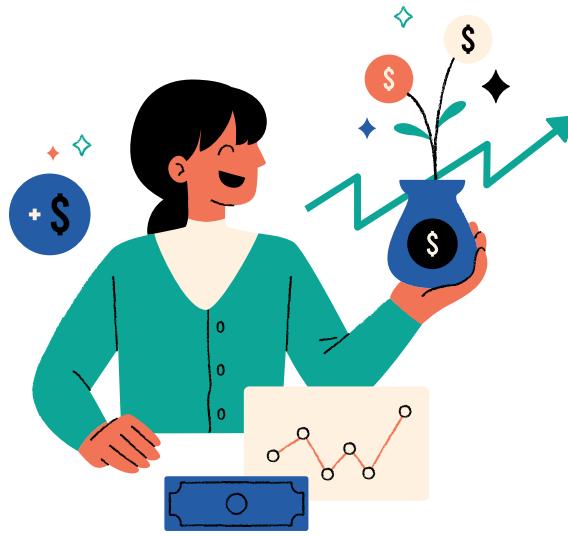


Literature Review

Types of herding

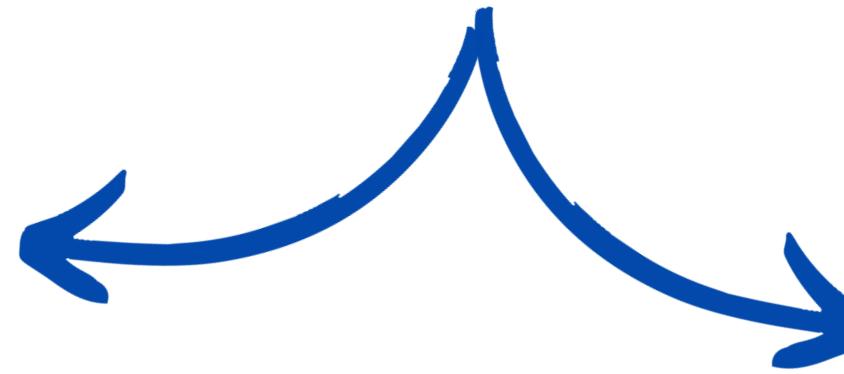


Literature Review

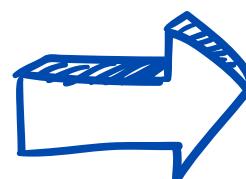


Investors can make investment decisions based on their own information

Asymmetric information



Investors lack information and seek for more signals from various sources or follow others



It is necessary to have a regulation on information disclosure in stock market:

Circular 155/2015/TT-BTC

Literature Review

Firms' characteristics and asymmetric information

Firms' features



Firm size



- negatively correlated with the degree of information asymmetry.

Idiosyncratic risk



- The higher the variance of the idiosyncratic risk, the higher the information asymmetry

Kurtosis of return distribution



- stocks with fat-tailed distributions may indicate higher asymmetric information

Research Question & Hypotheses

"Does Circular 155/2015/TT-BTC reduce herding behavior?"

Hypothesis 1
(H1)

Herding behavior is present among market participants in Vietnam.

Hypothesis 2
(H2)

The issuance of the Circular 155/2015/TT-BTC reduces the extent of herding among Vietnamese investors.

Hypothesis 4
(H4)

While the extent of herding due to non-fundamental information is alleviated, the extent of herding due to fundamental information remains unchanged following the issuance of the Circular 155/2015/TT-BTC.

Hypothesis 5
(H5)

The issuance of the Circular 155/2015/TT-BTC reduces herding intensity among arbitrageurs and among noise traders.

Research Question & Hypotheses

"What is the impact of each firms' feature on herding?"

Hypothesis 6
(H6)

Firm size has a negative impact on herding behavior.

Hypothesis 7
(H7)

The extent of herding behavior among shares having fat-kurtosis return distributions is larger, compared with that of shares having thin-tailed return distributions.

Hypothesis 8
(H8)

The herding behavior between high idiosyncratic risk shares is more intense than that among the low ones.

Research Methodology

Hypothesis 1
(H1)

Herding behavior is present among market participants in Vietnam.

Measure:

$$CSAD_t = \frac{1}{N} \sum_{i=1}^N |R_{i,t} - R_{m,t}|$$

Model:

$$CSAD_t = \alpha + \beta_1 |R_{m,t}| + \beta_2 R_{m,t}^2 + \varepsilon_t$$

β_2

Negative & Significant



The CONFIRMATION of herding behavior in the market

Research Methodology

Hypothesis 2
(H2)

The issuance of the Circular 155/2015/TT-BTC reduces the extent of herding among Vietnamese investors.

Model:

$$CSAD_t = \gamma_0 + \gamma_1 D_u R_{m,t} + \gamma_2 (1 - D_u) R_{m,t} + \gamma_3 D_u (1 - D_a) R_{m,t}^2 + \gamma_4 (1 - D_u)(1 - D_a) R_{m,t}^2 \\ + \gamma_5 D_u D_a R_{m,t}^2 + \gamma_6 (1 - D_u) D_a R_{m,t}^2 + \gamma_7 CSAD_{t-1} + \varepsilon_t$$

γ_3
 γ_4
 γ_5
 γ_6

} Negative & Significant

CONFIRM herding behavior before and after the issuance of the Circular

Research Methodology

Hypothesis 3
(H3)

While the extent of herding due to non-fundamental information is alleviated, the extent of herding due to fundamental information remains unchanged following the issuance of the Circular 155/2015/TT-BTC.

Dividing CSAD into Fundamental and Non-fundamental:

$$CSAD_t = \delta_0 + \delta_1|R_{m,t} - R_F| + \delta_2|HML_t| + \delta_3|SMB_t| + \delta_4|MOM_t| + \varepsilon_t$$

$$CSAD_{NONFUND,t} = \varepsilon_t$$

$$CSAD_{FUND,t} = \widehat{\delta}_0 + \widehat{\delta}_1|R_{m,t} - R_F| + \widehat{\delta}_2|HML_t| + \widehat{\delta}_3|SMB_t| + \widehat{\delta}_4|MOM_t|$$

Research Methodology

Hypothesis 3
(H3)

While the extent of herding due to non-fundamental information is alleviated, the extent of herding due to fundamental information remains unchanged following the issuance of the Circular 155/2015/TT-BTC.

Model:

$$CSAD_{FUND,t} = \gamma_0 + \gamma_1 D_u R_{m,t} + \gamma_2 (1 - D_u) R_{m,t} + \gamma_3 D_u (1 - D_a) R_{m,t}^2 + \gamma_4 (1 - D_u) (1 - D_a) R_{m,t}^2 \\ + \gamma_5 D_u D_a R_{m,t}^2 + \gamma_6 (1 - D_u) D_a R_{m,t}^2 + \gamma_7 CSAD_{FUND,t-1} + \varepsilon_t$$

$$CSAD_{NONFUND,t} = \gamma_0 + \gamma_1 D_u R_{m,t} + \gamma_2 (1 - D_u) R_{m,t} + \gamma_3 D_u (1 - D_a) R_{m,t}^2 + \gamma_4 (1 - D_u) (1 - D_a) R_{m,t}^2 \\ + \gamma_5 D_u D_a R_{m,t}^2 + \gamma_6 (1 - D_u) D_a R_{m,t}^2 + \gamma_7 CSAD_{NONFUND,t-1} + \varepsilon_t$$

γ_3
 γ_4
 γ_5
 γ_6

} Negative & Significant

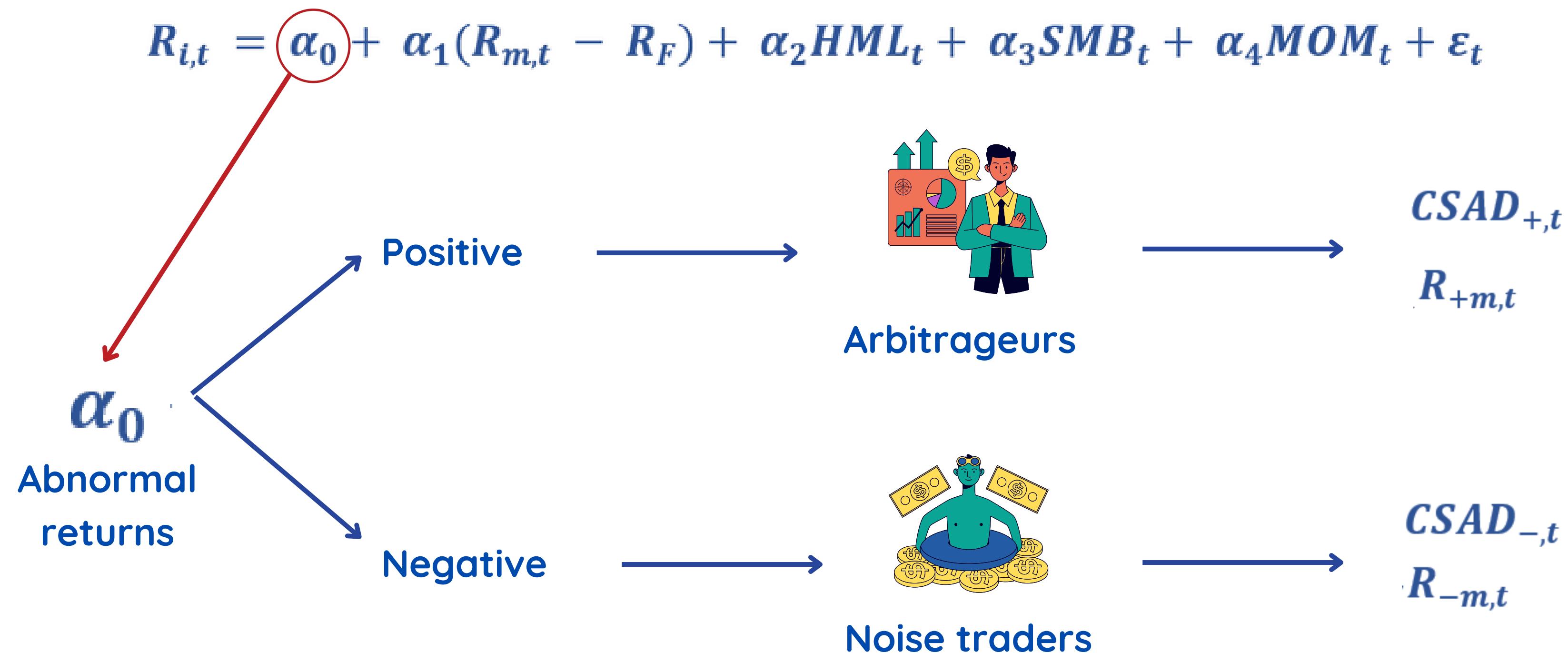


CONFIRM herding behavior before and after the issuance of the Circular

Research Methodology

Hypothesis 4
(H4)

The issuance of the Circular 155/2015/TT-BTC reduces herding intensity among arbitrageurs and among noise traders.



Research Methodology

$$CSAD_{+,t} = \gamma_0 + \gamma_1 R_{+m,t} + \gamma_2 |R_{+m,t}| + \gamma_3 R_{+m,t}^2 + \gamma_4 R_{-m,t}^2 + \gamma_5 CSAD_{-,t-1} + \varepsilon_t$$

$$CSAD_{-,t} = \gamma_6 + \gamma_7 R_{-m,t} + \gamma_8 |R_{-m,t}| + \gamma_9 R_{-m,t}^2 + \gamma_{10} R_{+m,t}^2 + \gamma_{11} CSAD_{+,t-1} + \varepsilon_t$$

The existence of herding behavior among:

Arbitrageurs

$$\gamma_3$$

Negative
Significant



CONFIRMED!

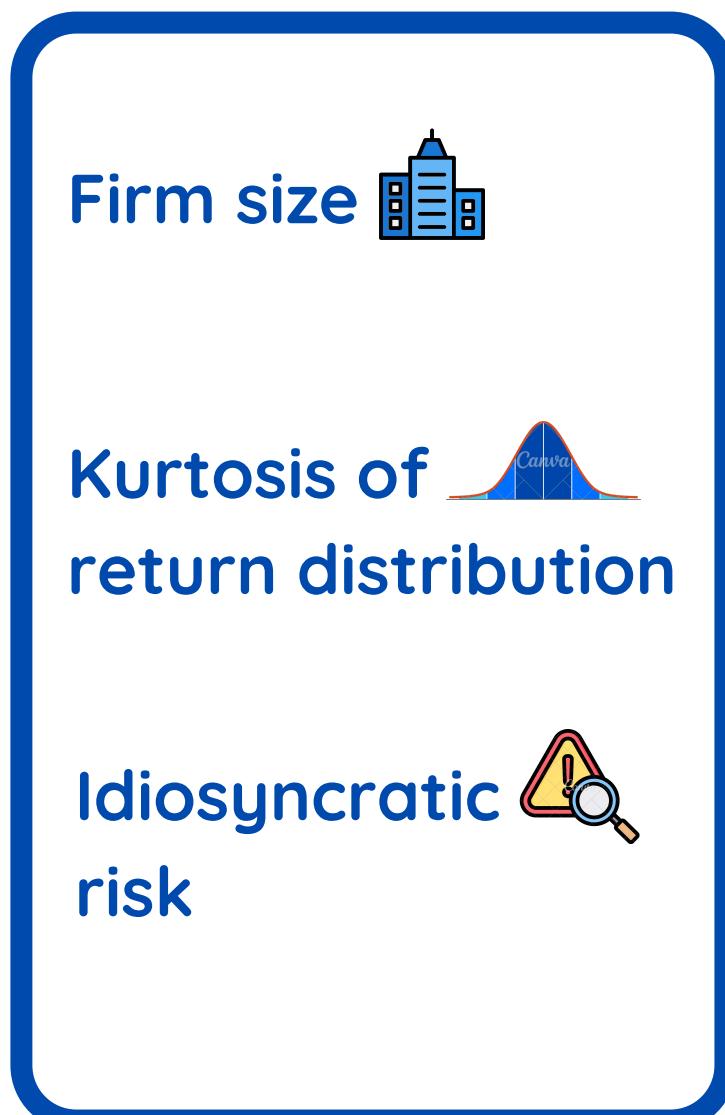
Noise traders

$$\gamma_9$$

Research Methodology



Categorizing stocks into equal-sized portfolios based on levels of information asymmetry



Portfolios' level of asymmetric information

Highest



$CSAD_{high,t}$



$R_{m,t}^{high}$

Lowest



$CSAD_{low,t}$

$R_{m,t}^{low}$

Research Methodology

$$CSAD_{high,t} = \beta_0^{high} + \beta_1^{high}|R_{m,t}^{high}| + \beta_2^{high}(R_{m,t}^{high})^2 + \varepsilon_t^{high}$$

$$CSAD_{low,t} = \beta_0^{low} + \beta_1^{low}|R_{m,t}^{low}| + \beta_2^{low}(R_{m,t}^{low})^2 + \varepsilon_t^{low}$$

The existence of herding behavior among portfolios with level of information asymmetry:

Higher level

$$\beta_2^{high}$$

Negative & Significant



CONFIRMED!

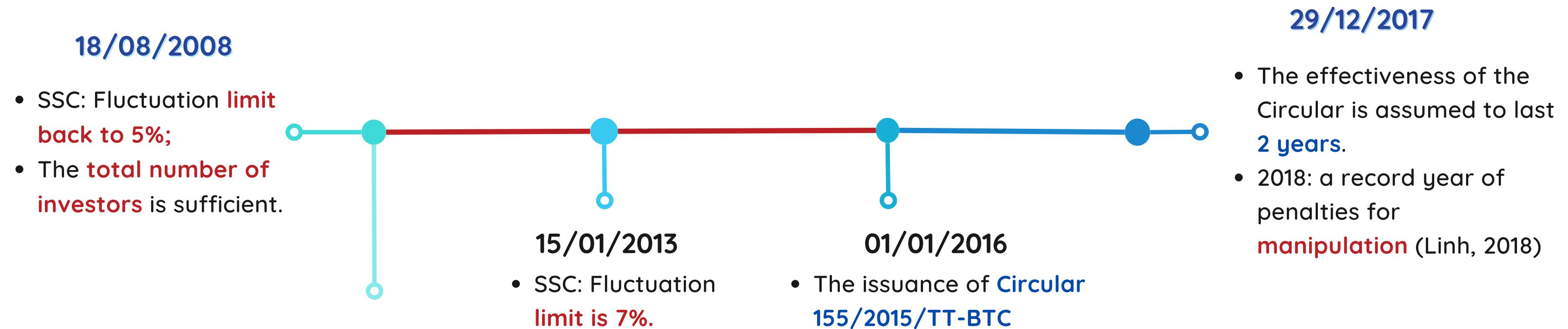
Lower level

$$\beta_2^{low}$$



Wald test to confirm which portfolio has higher herding level

Data



501,375 Firm-day observations

Number of observations of daily trading on HoSE after
and exclude all days with zero or missing:

2,341

Results

Hypothesis 1
(H1)

Herding behavior is present among market participants in Vietnam.

$$CSAD_t = \alpha + \beta_1 |R_{m,t}| + \beta_2 R_{m,t}^2 + \varepsilon_t$$

β_2
-13.0403***

Negative
&
Significant

Hypothesis 1
(H1)

CONFIRMED



Results

Hypothesis 2
(H2)

The issuance of the Circular 155/2015/TT-BTC reduces the extent of herding among Vietnamese investors.

$$CSAD_t = \gamma_0 + \gamma_1 D_u R_{m,t} + \gamma_2 (1 - D_u) R_{m,t} + \gamma_3 D_u (1 - D_a) R_{m,t}^2 + \gamma_4 (1 - D_u) (1 - D_a) R_{m,t}^2 \\ + \gamma_5 D_u D_a R_{m,t}^2 + \gamma_6 (1 - D_u) D_a R_{m,t}^2 + \gamma_7 CSAD_{t-1} + \varepsilon_t$$

	Before the Circular	After the Circular	Wald tests
Up markets	γ_3 -13.633***	γ_5 -6.872***	42.58***
Down markets	γ_4 -11.197***	γ_6 -7.985***	6.37**
		<p>Hypothesis 2 (H2)</p> <p>CONFIRMED</p> 	

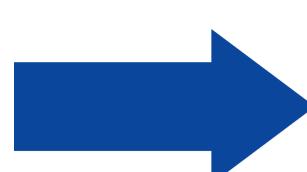
Results

Hypothesis 3
(H3)

While the extent of herding due to non-fundamental information is alleviated, the extent of herding due to fundamental information remains unchanged following the issuance of the Circular 155/2015/TT-BTC.

Non-fundamental herding behavior

$$CSAD_{NONFUND,t} = \gamma_0 + \gamma_1 D_u R_{m,t} + \gamma_2 (1 - D_u) R_{m,t} + \gamma_3 D_u (1 - D_a) R_{m,t}^2 + \gamma_4 (1 - D_u) (1 - D_a) R_{m,t}^2 \\ + \gamma_5 D_u D_a R_{m,t}^2 + \gamma_6 (1 - D_u) D_a R_{m,t}^2 + \gamma_7 CSAD_{NONFUND,t-1} + \varepsilon_t$$

	Before the Circular	After the Circular	Wald-test
Up markets	-10.747***	-3.616***	62.857***
Down markets	-9.059***	-5.367***	12.612***
			
	<p>Hypothesis 3 (H3)</p>	<p>CONFIRMED</p>	

Results

Hypothesis 3
(H3)

While the extent of herding due to non-fundamental information is alleviated, the extent of herding due to fundamental information remains unchanged following the issuance of the Circular 155/2015/TT-BTC.

Fundamental herding behavior

$$CSAD_{FUND,t} = \gamma_0 + \gamma_1 D_u R_{m,t} + \gamma_2 (1 - D_u) R_{m,t} + \gamma_3 D_u (1 - D_a) R_{m,t}^2 + \gamma_4 (1 - D_u) (1 - D_a) R_{m,t}^2 + \gamma_5 D_u D_a R_{m,t}^2 + \gamma_6 (1 - D_u) D_a R_{m,t}^2 + \gamma_7 CSAD_{FUND,t-1} + \varepsilon_t$$

	Before the Circular	After the Circular	
Up markets	$\gamma_3 -3.119^{***}$	$\gamma_5 -3.676^{**}$	
Down markets	$\gamma_4 -2.345^{***}$	$\gamma_6 -3.134^{**}$	

UNCHANGED!!!

Results

Hypothesis 4
(H4)

The issuance of the Circular 155/2015/TT-BTC reduces herding intensity among arbitrageurs and among noise traders.

$$CSAD_{+,t} = \gamma_0 + \gamma_1 R_{+m,t} + \gamma_2 |R_{+m,t}| + \gamma_3 R_{+m,t}^2 + \gamma_4 R_{-m,t}^2 + \gamma_5 CSAD_{-,t-1} + \varepsilon_t$$

$$CSAD_{-,t} = \gamma_6 + \gamma_7 R_{-m,t} + \gamma_8 |R_{-m,t}| + \gamma_9 R_{-m,t}^2 + \gamma_{10} R_{+m,t}^2 + \gamma_{11} CSAD_{+,t-1} + \varepsilon_t$$

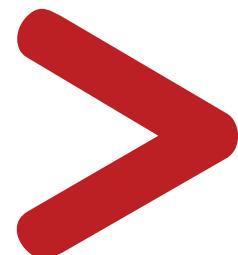
	Before the Circular	After the Circular
Noise traders γ_9	-9.577***	-0.655
Arbitrageurs γ_3	-17.951***	-8.987**
	<p>Hypothesis 4 (H4)</p>	<p>CONFIRMED</p> 

Results



Irrespective of the information environment,

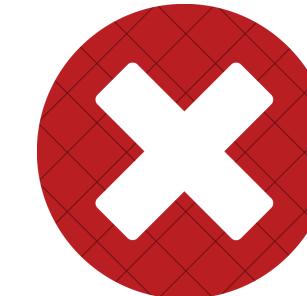
Previous study



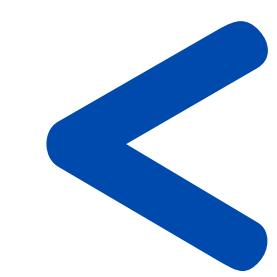
Noise traders



Arbitrageurs



Noise traders



Our findings



Arbitrageurs



Results



Hypothesis 3
(H3)

While the extent of herding due to non-fundamental information is alleviated, the extent of herding due to fundamental information remains unchanged following the issuance of the Circular 155/2015/TT-BTC.



Arbitrageurs

Non-fundamental
herding

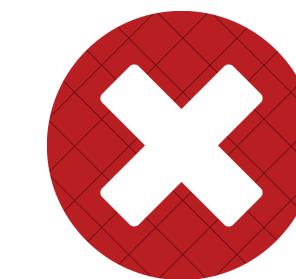
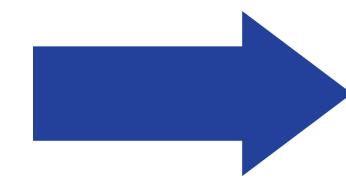


Fundamental
herding



Noise traders

Non-fundamental
herding



Results

$$CSAD_{high,t} = \beta_0^{high} + \beta_1^{high}|R_{m,t}^{high}| + \beta_2^{high}(R_{m,t}^{high})^2 + \varepsilon_t^{high}$$

$$CSAD_{low,t} = \beta_0^{low} + \beta_1^{low}|R_{m,t}^{low}| + \beta_2^{low}(R_{m,t}^{low})^2 + \varepsilon_t^{low}$$

	β_2^{low}	β_2^{high}	Wald tests
Firm size	-12.49***	-15.37***	5.53**
Kurtosis of return distribution	-8.54***	-17.82***	16.04***
Idiosyncratic risk	-10.11***	-16.19***	15.37***



Hypothesis 5
(H5)

Hypothesis 6
(H6)

Hypothesis 7
(H7)



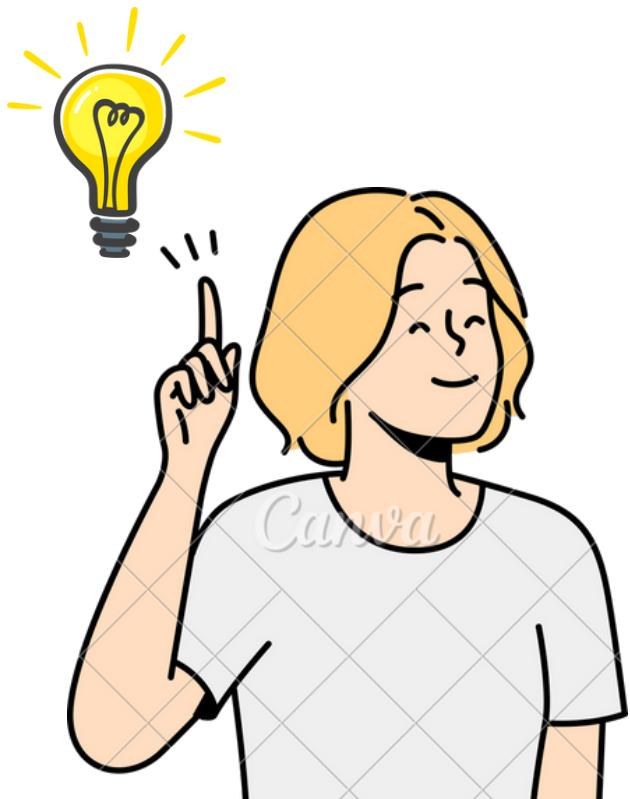
CONFIRMED



Conclusions



**Circular
155/2015/TT-BTC**

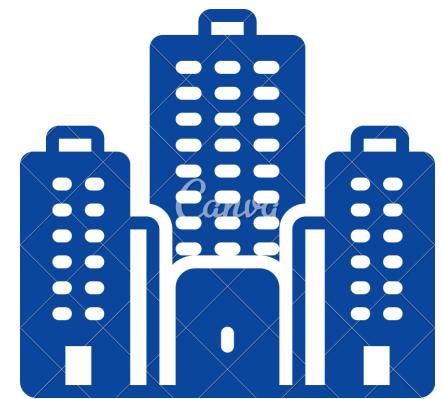


Herding mentality exists in the market, however, with the issuance of Circular 155/2015/TT-BTC, the significant reduction of herding behavior is witnessed.

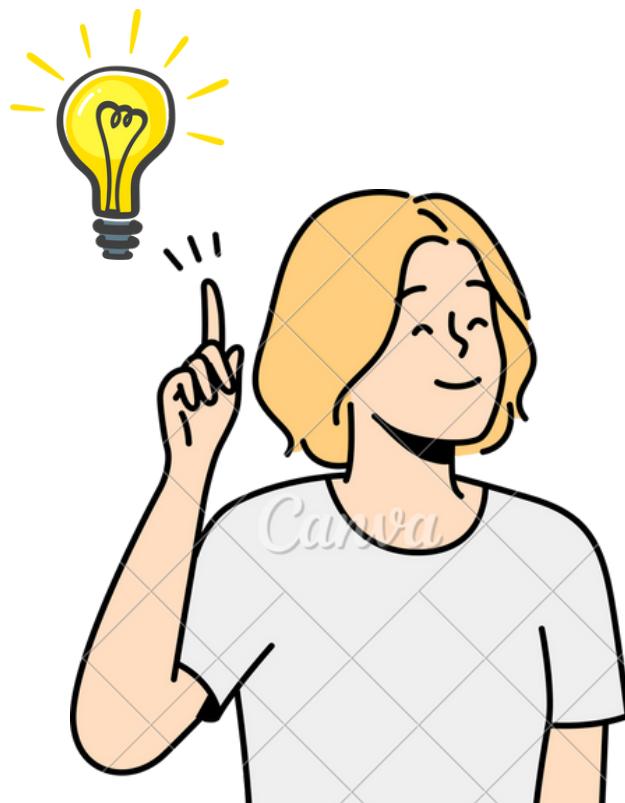
The decline in overall herding mentality is due solely to the decrease of non-fundamental information based herding, while the fundamental information based herding is unchanged.

Herding mentality among arbitrageurs and noise traders reduces significantly after the Circular 155/2015/TT-BTC.

Conclusions



Firms' features



Stocks with higher levels of information asymmetry, such as those with:

- Smaller market capitalization (smaller size)
- Heavier tails in return's distribution (high kurtosis)
- Higher idiosyncratic risk variance ratios

tend to exhibit more pronounced herding behavior.

Suggestions

1



Government

2



Fund managers

3



Individual investors

Future Research

The newly issued Circular
96/2020/TT-BTC

Fama-French five-factor model



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Thank You