

SOCIAL TRANSMISSION BIAS AND INVESTOR BEHAVIOR

BING HAN
DAVID HIRSHLEIFER
JOHAN WALDEN



Why our group choose this paper



Our group chooses this paper because we want to understand how community and social interaction affect investment behavior. Moreover, transmission bias how much effect the conduct of the sender and receivers in process.



WHAT THE PAPER BRIEFLY ABOUT





INTRODUCTION

Shiller (1989) said

"Investing in speculative assets is a social activity"

- Shiller and Pound (1989): the majority of investors have deep talk conversations about financial topics
 - Social interaction affects investment decision
 - Explore how biases in conversation promote superficially-appealing personal investing strategies
-



- lottery stock is overpriced when there is greater intensity of personal interaction
- Active VS Passive investor
- Investors like to show their successful investments more than failed investment
 - Self-enhancing transmission bias
- How representativeness heuristic relative to investment behavior



INTRODUCTION

- High volatility rises the fraction of investors who follow the active strategy because senders tend to report high returns more often than low returns.

- Initial Public Offering (IPO).

- Key implication

- increasing in amount of communities effected to intensity of huge social interaction.
 - The prediction about how communication affect the spread of the active investor.



ECONOMIC SETTING

Discussing about the psychological and social norm

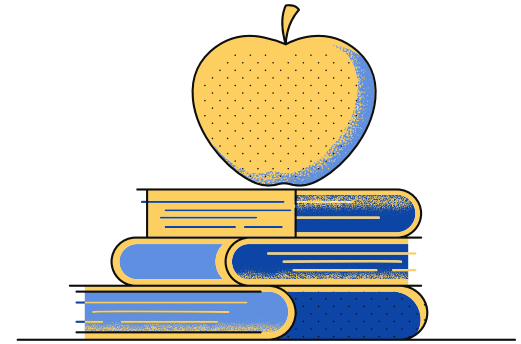
- ***Underpinning of Approach***

"To put the best parts of oneself into public view"

- Most people want to know true facts and would like to avoid lying. All the investors from social media platforms already provide investment information for others to learn about their mistakes and advantage
 - Facebook-style social network for individual investors
- Ammann and Schaub (2016) : online social



- Lim, Ng, and Uzzi (2020)
 - Experienced investors report their high returns more than their low returns to others because it can show the wealth of investors' portfolios.



- Representativeness heuristic of (Tversky and Kahneman 1974)
 - the receiver obsesses with the past return. They will have some mistakes because they don't see the overview of investing that means they focus on each point and spend much more time for its



ECONOMIC SETTING

SENDING AND RECEIVING FUNCTION

$$s(\tilde{R}) = \beta \tilde{R} + \gamma, \quad \beta, \gamma > 0,$$

s denotes sending function

$\tilde{R}$ denotes investment returns

β denotes SET parameter

γ denotes the convertibility
of the investment choice

In the equation is a sending probability function of return. Sending and receiving function relates to the idea that people reported their high return more than low return

ECONOMIC SETTING



$$r(\tilde{R}) = a\tilde{R}^2 + b\tilde{R} + c, \quad a, b, c > 0.$$

a denotes the convexity of the
receiving schedule

b denotes the degree that receivers
naively extrapolate past strategy
returns

c denote return independent
susceptibility of receivers to influence
of the sender's report

This equation is the probability that investors
listen to the message and adopt their strategy

SOCIAL INTERACTION AND INVESTMENT STRATEGIES



- Active investing means choosing strategies that have high volatility and high possibly

$$\bar{T}_i = E[s(\tilde{R}_i)r(\tilde{R}_i)], \quad i \in \{A, P\},$$

- The transformation probability

$$0 = (1 - \lambda)\bar{f}(1 - \bar{f})\kappa\bar{T} + \lambda(q - \bar{f}).$$

- The expected transformation probability

$$0 = (1 - \lambda)\bar{f}(1 - \bar{f})\kappa\bar{T} + \lambda(q - \bar{f}).$$

- The steady-state fraction of active investor

ECONOMIC SETTING

- Active investment strategy dominates that relates to the frequency. In case dominance equal to Active more prevalent than Passive



WHICH GAP OF LITERATURE THE PAPER IS FITTED INTO

Bisin and Verdier (2000, 2001)

differ due to our examining how social transmission biases such as SET affect the social evolutionary outcome.

DeMarzo, Vayanos, and Zwiebel (2003)

differs in focusing on other types of transmission biases—biases in what messages are sent, and in how they are interpreted; and in exploring the spread of active investing.

Hong, Kubik, and Stein (2004)

examines explicitly whether it is favorable or unfavorable information that is transmitted and used by others, and more generally whether active or passive investing strategies spread



**WHAT ARE THE BRIEF
FINDINGS OF THE PAPER.**



RESULT

CONVEX FUND FLOWS

The transformation rate from the passive to the active strategy is conditioned on realized returns. Equivalently, this can be interpreted as the net flow of capital into A.

Proposition 1

1. Conditional upon strategy return outcomes, the transformation rate from P to A is increasing and strictly convex in the realized active return, R_A .
2. The sensitivity of the transformation rate from P to A as a function of R_A , $\frac{\partial E[f_{t+1}-f_t]}{\partial R_A}$, and the convexity of this relationship, $\frac{\partial^2 E[f_{t+1}-f_t]}{\partial^2 R_A}$, are increasing with SET as reflected in β , conversability as reflected in γ , attention of receivers to extremes as reflected in a , and the extrapolativeness of receivers b .
3. The sensitivity of the expected transformation rate from P to A as a function R_A , $\frac{\partial E[f_{t+1}-f_t]}{\partial R_A}$, is increasing with the susceptibility of receivers c .
4. Each of the sensitivities and convex relationships in the first two parts are strengthened by increasing intensity of social interaction, κ . In other words, $\frac{\partial^2 E[f_{t+1}-f_t]}{\partial R_A \partial \kappa}$, and $\frac{\partial^3 E[f_{t+1}-f_t]}{\partial^2 R_A \partial \kappa} > 0$.

The convexity of fund flows as a function of realized past returns, along with further implications for flow convexity. Higher realized active returns make active investors more eager to communicate their performance and make passive investors more willing to listen and reevaluate their own strategy.

Parts 2-3 , Test whether greater sociability is associated with greater slope and convexity of the transformation of investors to active investing as a function of past returns on A .

Part 4, there is evidence that convexity of investmentflows derive from social interaction

PREDOMINANCE OF THE ACTIVE STRATEGY

Proposition 2 *In an economy with $\sigma_A > \sigma_P > 0$, $\gamma_A \geq \gamma_P = 0$, there exists a $\bar{D} > 0$ such that for all $D < \bar{D}$, the active strategy dominates, $\bar{f} > \frac{1}{2}$.*



Higher variance and skewness promote the spread of investment strategies, and the active strategy can dominate even if it bears a positive return penalty. Furthermore, owing to greater attention to extremes ($\alpha > 0$), the greater skewness of A ($\gamma_A \geq \gamma_P$) also promotes the spread of A. The effect is strong enough that A can dominate even if it (in contrast with our model assumption) A had lower expected returns ($D > 0$).

Proposition 3 *The steady state fraction of A, $\bar{f}$:*

- 1. Decreases with the return penalty to active trading, D ;*
- 2. Increases with active volatility, σ_A ;*
- 3. Increases with active skewness, γ_A .*

If the average return penalty D to active trading is larger, A will be less successful in spreading through the population.

Part 2 implies that there is greater investor demand for more volatile stocks.

Part 3 implies that conversation especially encourages demand for securities with high skewness.

THE ROLE OF COMMUNICABILITY AND INTENSITY OF SOCIAL INTERACTION

Proposition 4 *In an economy with $\sigma_A > \sigma_P > 0$, $\gamma_A \geq \gamma_P = 0$, there exists a $\bar{D} > 0$ of the return penalty D such that if $D < \bar{D}$, the steady state fraction, $\bar{f}$, of investors following the active strategy, increases with:*

1. SET, β ;
2. The conversability, γ ;
3. Attention of receivers to extremes, a ;
4. The extrapolativeness of receivers, b .
5. The intensity of social interaction, κ .



This model provide link between the dominance investment strategies and communicability. Defining the social transmission process are conveyed the other investor and make those invested adopt it.

-Active investment always generate extreme return for SET to operate to higher factor loading and idiosyncratic volatility.

-Active trading become more popular when people come to talk about their investment performance

-Greater attention by receive extreme outcome promote the spread of A over P. When attention of recover to extreme is high are more likely to persuade receivers

-Active investment will be more popular when extrapolation belief are stronger

-The theory pridicted to be stronger in time and place with greater intensity of social interaction.



INVESTOR BEHAVIOR IN A SOCIAL NETWORK

The model of this paper is to predict how the social connect how social connection between investors and investing behavior.

Reality sender and receiver are not random

Proposition 5 *In the model with a social network*

1. *For an investor n with a given number of connections, the probability that investor n switches strategy is increasing in the number of n 's connections to investors of the opposite type, and in the performance of n 's connections that are of the opposite type.*
2. *The probability that investor n switches strategy is strictly convex in each of the returns of the opposite-type investors that n is connected to.*
3. *The probability that investor n of a given type switches to the type of a neighbor is increasing in the skewnesses of the portfolio returns of each of n 's network neighbors. If the return penalty to A is sufficiently small, then the probability that investor n of type P converts is also increasing in the return volatilities of each of n 's neighbors.*

Survey from many countries

Active > Passive for social interaction

INDIVIDUAL ARE MORE INFLUENCE THAN THE PROFESSOR



Proposition 6 *In the model with a social network, there exists a $\bar{D} > 0$ such that*

- 1. If $D < \bar{D}$, the probability that a passive investor n switches to A in the next period increases with that investor's attention to extremes, a_n , and extrapolativeness, b_n .*
- 2. If $D < \bar{D}$, the probability that a passive investor n switches to A in the next period increases with each of that investor's neighbors' SET, β_m , and conversability, γ_m , $m \in \mathcal{D}_n$.*



People with the same type of investor will less conversation with each other

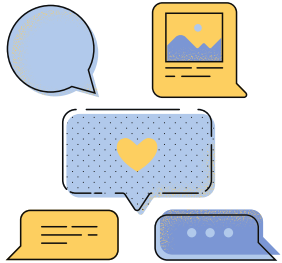
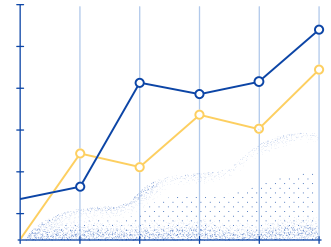


The strongly represent to something will lead to change

CONCLUDING REMARKS

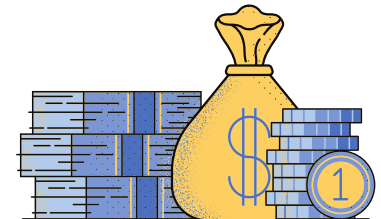


Active strategies with high volatility, skewness, and personal engagement spread after they experience high returns, and this relationship is convex. As returns are realized, and as investors communicate with and persuade each other over time, the system evolves to a dynamically stable outcome with a high frequency of active investing.



A shift in the social acceptability of talking about one's successes, or of discussing personal investments more generally, can have large effects on risk-taking and active investing. This suggests a possible explanation for both secular and higher-frequency shifts in investor behavior.

This paper's approach suggests that it is valuable to understand how biases in the transmission process affect decision making and economic outcomes.





HOW THE PAPER CAN LINKED TO THE CLASS DISCUSSED

Heuristic and Bias which we learn in the class by Tversky and Kahneman 1974

Law of the small number:
people use the information
from a small group

Representativeness heuristic
a mental shortcut that we use
to estimate probability

SELF-EXPERIENCE RELATES TO THE PAPER

IFEC

BCH



Search 22:09 Sat 29 Oct

SET1,606.07+3.74(+0.23%)

55,160.19 M

SET: Closed

Push

Portfolio

Order

Deal Summary

All Portfolios

Sort by Symbol

Symbol	Avail Volume	Actual Volume	Avg. Cost	Market Price	Amount (Price)	Market Value	Unrealized P/L	%Unreal. P/L	Realized P/L
BCH	2,500	2,500	23.36	18.40	58,397.94	46,000.00	-12,397.94	-21.23%	0.00
								+51.88%	0.00
IFEC (NP,NC,SP)	17,000	17,000	9.68	0.35	164,502.54	5,950.00	-158,552.54	-96.38%	0.00
								-70.59%	0.00
								-18.13%	0.00
								+9.54%	0.00