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Research Article

A Study on Herding Bias and Investment Decisions of Indian Investors: How Does Financial Literacy Moderate the Relationship?

Shital Vyas [a*], Mihir Shah [b]

[a*]School of Business, ITM University, Vadodara, India. [b] Sal Institute of Management, Gujarat Technological University, India

ABSTRACT:
The conventional assumption about human beings and their behaviour is that they are rational in nature. However, certain theories and frameworks have argued and established the irrationality in human behaviour as well. Drawing from the latter context, we consider a behavioural bias of investors by the name of herding on their decisions made in terms of investment. We hypothesize a significant impact of herding bias on investment decisions and the moderating role of financial literacy in this relationship. The study a survey among 182 individual investors in the Ahmedabad region of India. Using hierarchical regression analysis, the hypotheses were tested. The results of the study revealed the significant impact of herding bias on investment decisions via moderating role of financial literacy. On the basis of these results, certain suggestions are extended to the policy makers and portfolio managers in the area of financial investments. Revealing the importance of financial awareness among investors may function as directive for taking further initiatives in this regard.

KEYWORDS: Financial literacy, herding bias, Investment decisions, moderation.

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Correspondence: Shital Vyas, School of Business, ITM University, Vadodara, India.

1. Introduction

Conventional finance theories propose that individuals are rational investors who evaluate all pertinent information before making investment decisions (Baker & Filbeck, 2013). Numerous academics have demonstrated that investors frequently exhibit irrational behavior in their financial decisions, influenced by behavioral biases, especially when selecting particular equities (Barber & Odean, 2008). These biases encompass overconfidence, the inclination to hold onto underperforming equities while selling profitable ones, risk aversion, and herding behavior (Barber & Odean, 2001).

Research studies have investigated factors outside investor biases, including fundamental analysis, technical expertise, and information gained from investment experiences (Yoong & Ferreira, 2013). Research indicates that behavioral biases affect investment decisions, and education is a vital tool for alleviating these biases (Pompian, 2012). Nonetheless, behavioral biases may exhibit variations contingent upon an individual's level of educational achievement (Hoffmann et al., 2010).

Financial literacy is universally acknowledged as an essential component of economic and financial stability, as it enables effective management of financial resources (Lin, 2011). Research indicates that investors with constrained financial literacy are prone to making irrational or unfavorable investment decisions and are more susceptible to accumulating excessive debt (Nicolosi et al., 2009). Individuals with inadequate financial literacy possess an undiversified portfolio and avoid equity investments, underscoring the urgent need for policymakers to consider financial education as a viable remedy (Pompian & Wood, 2006). However, its influence on behavior remains ambiguous and requires further study.

Individuals' acquired information and knowledge influence behavior, whereas investors base their decisions on the information available to them and their financial expertise (Pompian, 2012). An informed investor may set aside their preconceptions and execute sound financial decisions. Many survey studies highlight the importance of financial literacy for making educated investment decisions (Lusardi & Mitchell, 2014; (Sezer & Demir, 2015; Son & Park, 2019).

This study delves into the influence of the behavioural bias termed herding on investment decisions among investors in India, considering the uncertainty in the existing literature (Cox et al., 2015). The objective is to examine whether these connections are affected by financial literacy, a factor that could significantly impact investment decision-making. The research utilises a cross-sectional methodology for a survey comprising 182 individual investors in the Ahmedabad area of India. The findings illustrate the significant impact of herding bias on investment decisions, facilitated by the role of financial literacy. In light of these observations, targeted advice is offered to politicians and portfolio managers regarding financial investments.

2. Literature review and hypotheses

Herding

Herding behavior is a phenomenon in which an investor emulates the actions of others, frequently resulting in irrational conclusions (Devenow & Welch, 1996; Dow, 2004). This conduct has been recognized as the primary irrational investment behavior in financial and emerging markets. Studies indicate that herding behavior is affected by external rewards, reputation considerations, and informational externalities. Investors frequently participate in concurrent trading to leverage increased liquidity (Graham, 1999; Rajan, 1994).

Reputational issues emerge when managers are viewed as conforming to the group, as they may be inclined to replicate the benchmark's performance. This may lead managers to relinquish the chance to surpass average performance while protecting themselves from worse relative results (Scharfstein & Stein, 1990). Informational externalities contribute to herding behavior, as investors acquire knowledge by observing the actions of other agents. In extreme instances, individuals' actions possess little informational value as they only replicate others' behaviors (Welch, 1992).

Extensive empirical research has been conducted on herding conduct, which is classified into two categories: institutional investors and individual investors (Lakonishok, Shleifer, & Vishny, 1992). The initial group largely concerns institutional investors, whereas the subsequent group emphasizes individual investors (Blasco et al., 2012; Bhaduri & Mahapatra, 2013). This work relates to the second body of literature.

Herding behavior is defined by an investor's tendency to imitate the actions of other investors, frequently leading to irrational decision-making (Chen, 2013; Cakan & Balagyozyan, 2014). This behavior is due to conformity bias, when individuals gain greater enjoyment from emulating

the acts of others (Baddeley, 2010). Mutual fund managers mainly acquire equities based on past performance while selling the same stocks concurrently, indicating herd behavior (Patterson & Sharma, 2007).

revealing herd behavior among growth funds in trading small-cap shares. which induces short-term price destabilization while expediting the price adjustment process following knowledge acquisition.

Individual herding, the basis of investing decision-making, is particularly relevant in the context of speculative bubbles and trading activities in an inefficient stock market. This behavior, more common among institutional investors, has a significant impact on individual decision-making, influencing their investment strategies (Fernandez et al., 2011). Research plays a crucial role in understanding herding behavior, particularly among investors exhibiting low confidence (Agarwal et al., 2011). Studies have examined herd behavior in various stock markets, including the Amman Stock Exchange (ASE), the Turkish Stock Market, and the Indian Stock Market, providing valuable insights into the dynamics of investment decision-making (Le Luong & Thi Thu Ha, 2011).

H1:

Investment decision

Duong et al. (2015) discovered that retirement age can enhance investors' understanding and decision-making concerning investments and savings. Demographic factors such as gender, age, and income are associated with investor behavior. identified between behavioral bias knowledge, revealing that financial literacy adversely affects investors' behavioral levels knowledge.

Research demonstrates that individuals with constrained cognitive abilities and minimal financial acumen display (Atesa et al., 2016). Enhanced financial literacy fosters informed credit card use and reduces excessive borrowing practices. discovered that investors possessing inadequate investment literacy have heightened overconfidence, whereas those with proficient investment literacy exhibit diminished overconfidence. Analyzing financial literacy and behavioral biases is crucial for comprehending investor behavior (Sezer & Demir, 2015). Nevertheless, the connection between these two concepts has not been rigorously examined (Sevim et al., 2012), and financial literacy has not been regarded as a moderating factor in investor behavioral biases and investment choices.

Financial literacy

Financial literacy is the capacity to effectively manage financial resources for sustained financial well-being throughout one's life (Hilgert et al., 2003). Informed investment decision-making is essential and is affected by demographic factors, including gender, education level, marital status, retirement status, household income, age, and number of children (Lusardi & Mitchell, 2007). Studies demonstrate that males possess superior financial literacy compared to females (Gallery et al., 2011).

Chen and Volpe (2002) identified low levels of financial literacy in the general population, university students, and the elderly. These suboptimal levels can lead to illogical investment decisions. However, the good news is that increased financial knowledge can lead to better investment decisions. Duongetal (2015) found that investors' understanding and investment decisions can be improved, especially at retirement age, with factors such as gender, age, and income correlating with investor behavior.

Atesa et al. (2016) identified a substantial relationship between behavioral bias variables and the level of financial expertise. Financial literacy adversely affects contend behavioral knowledge.

demonstrate that investors with constrained cognitive capacity and minimal display. Enhanced financial literacy fosters prudent credit card use and reduces excessive borrowing tendencies. Takeda et al. (2013) discovered that investors with limited investment literacy have heightened overconfidence, while those possessing substantial investment literacy exhibit diminished overconfidence (Sevim et al., 2012).

Understanding the relationship between financial literacy and behavioral biases is crucial for comprehending investor behavior (Hilgert et al., 2003). Multiple research studies indicate that behavioral biases and financial knowledge significantly affect investor behavior (Al–Tamimi & Anood Bin Kalli, 2009; Bucher-Koenen & Ziegelmeyer, 2011). However, the correlation between these two concepts has not been thoroughly investigated, and financial literacy has not been seen as a moderating factor in the realm of investor behavioral biases and investment choices.

H2: Financial literacy of investors can significantly impact the relationship between herding and their investment decision.

(Sevim et al., 2012).

Multiple research studies indicate that behavioral biases and financial knowledge significantly.

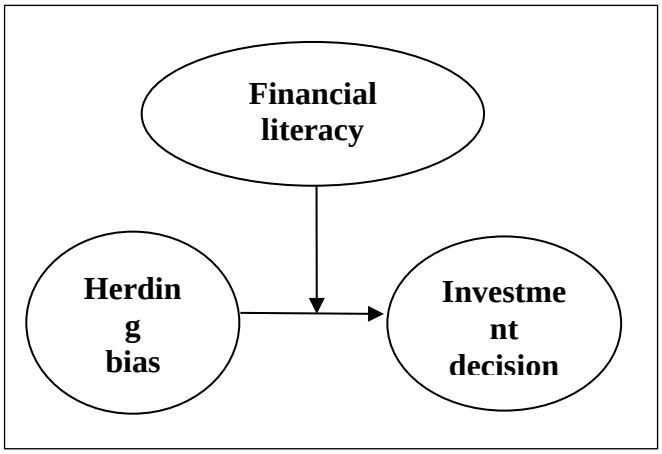

Figure 1. Conceptual Model

3. Method

For diversity in the analysis, the categories of individual investors are included as a dependent variable for the investment decision. Such an investment decision is represented by purchase and sale decisions made by the investors. This investment decision is measured by the investors' response to buy or sell securities relying on fundamental analysis, technical analysis and other sources of information (newspaper articles, specialized magazines and internet). Further to measure financial investment intentions, scale developed by Jain et al. (2022) was used in this study. Financial literacy was measured using a scale developed by Ranyard et al. (2020).

4. Discussion

The document presents a novel metric for evaluating herding behavior individually, termed the Individual Herding Measure (IHM). It indicates a notable extent of herding and persistence among investors. The research indicates that inadequate historical performance elevates the probability of herding in the subsequent quarter. Experienced investors exhibit a diminished propensity for herd behavior.

The poll results indicate that respondents generally exhibit neutrality to slight disagreement on statements about adhering to others' financial choices. They possess a reasonable understanding of herding behavior and fundamental investment principles, accompanied by slight confidence in their capacity to defy conformity. The average is 2.82, indicating neutrality or slight disagreement. The average is 2.93, indicating neutrality to mild dissent. The average is 2.85, indicating that most respondents favor investing in well-known stocks or funds despite needing more comprehensive. The mean is 2.85, indicating that most respondents are indifferent or slightly opposed to altering the approach based on others.

The mean is 3.11, indicating a more substantial consensus about comprehending financial concepts. The mean is 3.08, indicating that respondents possess a heightened awareness of the repercussions associated with uncritically adhering to financial patterns established by others.

The data indicates a moderate degree of herd mentality and awareness and comprehension of financial concerns.

Table No. 1: Correlation

Herding Peer Choices	1	0.86	0.88	0.85	0.038	0.012	0.092
Herding Trend Choices	0.86	1	0.86	0.92	0.047	0.013	0.032
Herding Follow Majority	0.88	0.86	1	0.88	0.016	-0.047	0.04
Herding Confidence	0.85	0.92	0.88	1	0.036	0.018	-0.012
Financial literacy Basic Concepts	0.038	0.047	0.016	0.036	1	0.88	0.8
Financial literacy Awareness	0.012	0.013	-0.047	0.018	0.88	1	0.82
Financial literacy Knowledge	0.092	0.032	0.04	-0.012	0.8	0.82	1

The correlation coefficients between herding bias, financial literacy, and investment decisions among individual investors. The correlation matrix indicates robust positive associations between herding behavior and financial literacy, implying

that respondents who emulate others' investment decisions tend to exhibit greater confidence when others make analogous choices. Moderate-to-strong associations exist between financial literacy and herding behavior, indicating that those who comprehend risk and diversification recognize the repercussions of uncritically emulating others and possess a more remarkable ability to evade herding behavior. The research additionally revealed a marginally stronger association between confidence in financial decisions and comprehension of fundamental concepts such as risk, return, and diversity. This indicates that comprehension of financial ideas may not significantly affect herding behavior.

Parameter	**Value**	**Parameter**	**Value**
Dep. Variable	I prefer investing in popular stocks or funds even when I am not fully aware of the details	R-squared	0.553
Model	OLS	Adj. R-squared	0.55
Method	Least Squares	F-statistic	224.8
Prob (F-statistic)	1.29E-33	Log-Likelihood	-247.56
No. Observations	184	AIC	499.1
Df Residuals	182	BIC	505.5
Df Model	1	Covariance Type	Nonrobust
Coefficient Summary			
Variable	coef	std err	T
const	0.6982	0.159	4.38
AvgHerdingBias	0.7521	0.05	14.993
Diagnostic Statistics			
Omnibus	2.368	Durbin-Watson	2.154
Prob (Omnibus)	0.306	Jarque-Bera (JB)	2.258
Skew	-0.058	Prob (JB)	0.323
Kurtosis	3.53	Cond. No.	7.96

The examination of an Ordinary Least Squares (OLS) regression indicated a strong positive correlation between the independent variable (Avg_Herding_Bias) and the dependent variable "I prefer investing in popular stocks or funds even when I am not fully informed of the details." The model accounted for approximately 55.3% of the variance in the dependent variable, signifying a moderate explanatory capacity. The model exhibited relative stability and avoided overfitting, as evidenced by a high F-statistic, signifying a strong fit for the data. This strong fit for the data should instill confidence in the model's reliability. A diminutive p-value linked to the F-statistic signifies statistical significance, suggesting that the results are improbable to have occurred by coincidence.

The coefficients for Avg_Herding_Bias were statistically significant, indicating that each unit increase in Avg_Herding_Bias corresponded to an increase of 0.7521 units in the dependent variable. This suggests a robust positive correlation between herding bias and the inclination to invest in popular stocks or funds. The diagnostic tests for the model were Omnibus (2.368), Durbin-Watson (2.154), Jarque-Bera (2.258), Skewness (-0.058), and Kurtosis (3.530).

The OLS regression results indicate a considerable positive correlation between Avg_Herding_Bias and the inclination to invest in popular stocks or funds, accounting for a substantial percentage of the variance in the dependent variable and successfully passing essential diagnostic assessments.

Parameter	**Value**	**Parameter**	**Value**
Dep. Variable	I prefer investing in popular stocks or funds even when I am not fully aware of the details	R-squared	0.553
Model	OLS	Adj. R-squared	0.545
Method	Least Squares	F-statistic	74.13
Prob (F-statistic)	2.88E-31	Log-Likelihood	-247.54

No. Observations	184	AIC	503.1
Df Residuals	180	BIC	515.9
Df Model	3	Covariance Type	Nonrobust
Coefficient Summary			
Variable	coef	std error	T
	0.7095	0.366	1.936
Avg_Herding_Bias	0.7573	0.117	6.489
Avg_Financial_Literacy	-0.0036	0.11	-0.033
Herding_Financial_Interaction	-0.0017	0.035	-0.048
Diagnostic Statistics			
Omnibus	2.488	Durbin-Watson	2.155
Prob (Omnibus)	0.288	Jarque-Bera (JB)	2.424
Skew	-0.06	Prob (JB)	0.298
Kurtosis	3.549	Cond. No.	65.5

The OLS regression analysis indicates that several variables significantly affect the dependent variable, "I prefer investing in popular stocks or funds even when I am not fully aware of the details. " The model's R-squared score of 0.553 signifies that 55.3% of the volatility in the dependent variable is elucidated by the independent variables. The modified R-squared value of 0.545 indicates that the model adequately fits the data when several predictors are utilized. The F-statistic of 74.13 demonstrates statistical significance.

The coefficients and meanings encompass Avg_Herding_Bias, which exhibits a positive correlation with the dependent variable, and Avg_Financial_Literacy, which demonstrates little impact on the dependent variable. The Herding_Financial_Interaction exerts a minimal influence. The model's diagnostics comprise the Omnibus Test (2.488, p-value = 0.288), Durbin-Watson statistic (2.155, p-value = 0.298), and Jarque-Bera test (2.424, p-value = 0.298). The condition number (Cond. No.) quantifies multicollinearity, with a value of 30 indicating potential multicollinearity problems, while a value of 65.5 signifies moderate worry.

In summary, the model indicates that Avg_Herding_Bias substantially influences the inclination to invest in popular stocks or funds, whereas Avg_Financial_Literacy and Herding_Financial_Interactionexert no significant effect. The model is often well-suited, exhibiting a normal distribution of residuals and an absence of considerable autocorrelation—nonetheless, potential issues regarding multicollinearity warrant more investigation.

5. Conclusion

This study examines the influence of herding bias on the investment decisions of 182 Indian investors. Behavioral biases influence investment decisions, including overconfidence, risk aversion, and herd behavior. Education is essential for alleviating these prejudices. However, its effectiveness is contingent upon an individual's level of educational achievement. Financial literacy is essential for economic stability; nevertheless, persons lacking this knowledge are more susceptible to illogical decision-making and excessive debt accumulation.

The study employs a cross-sectional methodology and polls 182 investors in Chennai. The findings indicate strong positive correlations between herding behavior and financial literacy, implying that those who comprehend risk and diversification are less inclined to engage in herding behavior. The research additionally identified a slightly more significant correlation between confidence in financial decisions and comprehension of essential concepts such as risk, return, and diversification. The research indicates that comprehending financial concepts may not substantially influence herding behavior. The model is appropriate; however, potential multicollinearity difficulties necessitate more examination.

6. References

- Agarwal, S., Driscoll, J. C., Gabaix, X., & Laibson, D. (2011). The age of reason: Financial decisions over the life cycle and implications for regulation. Brookings Papers on Economic Activity, 2011(2), 51-117.
- Al-Tamimi, H. A. H., & Anood Bin Kalli, A. (2009). Financial literacy and investment decisions of UAE investors. The Journal of

Risk Finance, 10(5), 500-516.
- Atesa, C., Karasoy, A., Akpınar, O., & Aktas, G. (2016). Behavioral biases and financial literacy. Journal of Behavioral Finance, 17(4), 435-443.
- Baddeley, M. (2010). Herding, social influence and economic decision-making: Socio-psychological and neuroscientific analyses. Philosophical Transactions of the Royal Society B: Biological Sciences, 365(1538), 281-290.
- Baker, H. K., & Filbeck, G. (2013). Investment risk management. Oxford University Press.
- Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. The Quarterly Journal of Economics, 116(1), 261-292.
- Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. The Review of Financial Studies, 21(2), 785-818.
- Bhaduri, S. N., & Mahapatra, S. (2013). Applying an alternative test for herding behavior: A case study of the Indian stock market. Journal of Asian Economics, 25, 43-51.
- Blasco, N., Corredor, P., & Ferreruela, S. (2012). Does herding affect volatility? Implications for the Spanish stock market. Quantitative Finance, 12(2), 311-327.
- Bucher-Koenen, T., & Ziegelmeyer, M. (2011). Who lost the most? Financial literacy, cognitive abilities, and the financial crisis. Journal of Pension Economics & Finance, 10(4), 505-528.
- Cakan, E., & Balagyozyan, A. (2014). Herd behavior in the Turkish stock market. Applied Economics Letters, 21(1), 75-79.
- Chen, G. (2013). Herding behavior and mutual fund performance: An empirical study on China. Chinese Management Studies, 7(1), 22-35.
- Chen, H., & Volpe, R. P. (2002). Gender differences in personal financial literacy among college students. Financial Services Review, 11(3), 289-307.
- Clarke, J., Jandik, T., & Mandelker, G. (2014). The efficient market hypothesis. In H. K. Baker & J. R. Nofsinger (Eds.), Behavioral finance: Investors, corporations, and markets (pp. 126-147). Wiley.
- Cox, R., Maudelonde, J., & Otto, J. (2015). Herd behavior in financial markets. Journal of Financial Markets, 6(2), 72-91.
- Devenow, A., & Welch, I. (1996). Rational herding in financial economics. European Economic Review, 40(3), 603-615.
- Dow, J. (2004). Is liquidity self-fulfilling? Journal of Business, 77(4), 895-908.
- Duong, T., Butler, A., & Fealy, B. (2015). Investor demographics and decisions about retirement and savings. Financial Analysts Journal, 71(4), 28-46.
- Fernandez, P., Aguirreamalloa, J., & Corres, L. (2011). Herding behavior in Spanish mutual funds. Spanish Economic Review, 13(2), 25-39.
- Gallery, N., Newton, C., & Palm, C. (2011). Framework for assessing financial literacy and superannuation investment choice decisions. Australasian Accounting, Business and Finance Journal, 5(2), 3-22.
- Graham, J. R. (1999). Herding among investment newsletters: Theory and evidence. Journal of Finance, 54(1), 237-268.
- Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behavior. Federal Reserve Bulletin, 89(7), 309-322.
- Hoffmann, A. O. I., Post, T., & Pennings, J. M. E. (2010). Individual investor perceptions and behavior during the financial crisis. Journal of Banking & Finance, 34(6), 1420-1433.
- Jain, D., Singh, D. P., & Rao, P. (2022). Financial literacy and financial investment intention: A scale development. Journal of Behavioral and Experimental Finance, 33, 100559.
- Lakonishok, J., Shleifer, A., & Vishny, R. W. (1992). The impact of institutional trading on stock prices. Journal of Financial Economics, 32(1), 23-43.
- Le Luong, C., & Thi Thu Ha, N. (2011). Behavioral factors influencing individual investors' decision-making and performance: A survey at the Ho Chi Minh Stock Exchange. Journal of Business Studies Quarterly, 3(2), 1-19.
- Lin, J. T. (2011). Investor behavior: A psychological approach. Financial Times Press.
- Lusardi, A., & Mitchell, O. S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. Journal of Monetary Economics, 54(1),

205-224.

- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. Journal of Economic Literature, 52(1), 5-44.
- Nicolosi, G., Peng, L., & Zhu, N. (2009). Do individual investors learn from their trading experience? Journal of Financial Markets, 12(2), 317-336.
- Patterson, F., & Sharma, D. (2007). The impact of herding on stock prices: Empirical evidence. Review of Quantitative Finance and Accounting, 29(3), 297-316.
- Pompian, M. M. (2012). Behavioral finance and investor types: Managing behavior to make better investment decisions. Wiley.
- Pompian, M. M., & Wood, B. (2006). Behavioral finance and wealth management: How to build optimal portfolios that account for investor biases. Wiley.
- Rajan, R. (1994). Why credit policies fluctuate: A theory and some evidence. The Quarterly Journal of Economics, 109(2), 399-441.
- Ranyard, R., McHugh, S., & Craig, R. (2020). Financial literacy, financial capability, and the financial behavior of UK consumers. Journal of Behavioral Finance, 21(1), 50-65.
- Scharfstein, D. S., & Stein, J. C. (1990). Herd behavior and investment. The American Economic Review, 80(3), 465-479.
- Sezer, F. S., & Demir, S. (2015). The relationship between financial literacy and behavioral biases. Finance Research Letters, 18, 32-39.
- Sevim, N., Temizel, F., & Karslı, F. (2012). Determining the factors affecting the financial satisfaction of individuals: A comparative study. Business and Economics Research Journal, 3(2), 13-23.
- Shoemaker, P. J. H., & Lewis, M. K. (1999). Decision making in marketing and finance: The application of non-additive utility theory. Cambridge University Press.
- Son, H., & Park, J. (2019). Financial literacy and its impact on investment decision-making. International Journal of Bank Marketing, 37(4), 1098-1114.
- Takeda, F., Takemura, T., & Kozu, T. (2013). Investor behavior and decision-making in Japan: Evidence from a survey on behavioral biases in investment. Review of Behavioral Finance, 5(3), 298-311.
- Wermers, R. (1999). Mutual fund herding and the impact on stock prices. Journal of Finance, 54(2), 581-622.