

The impact of behavioral bias on individual investors and corporation capital structure

Yidan Xing

School of Business, University of Sydney, Australia

ABSTRACT. An increasing number of professional studies are being published about the new field of behavioral finance. This paper offers an overview of behavioral finance and reviews literatures about its origin, content and rationale of this developing study. Some evidence has been given that behavioral finance exists in both developed financial markets and emerging markets. This paper focuses on how behavioral bias influences individual investment decisions and corporation's capital structure.

KEYWORDS: behavioral finance, behavioral bias, capital structure, investor sentiment, merger and acquisition

1. Introduction

1.1 Traditional Finance vs. Behavioral Finance

Traditional finance, assuming rational investors and efficient market, has been widely accepted for years. An increasing number of behavioral researchers and analysts explore the new field of behavioral finance, which may explain the puzzle of market anomalies, such as severe stock price volatility or huge trade volume fluctuations. Barberis and Thale demonstrate that the whole stock market, cross-section of average return and investors' behavior are not easily understood by traditional finance framework [1]. Behavioral finance focuses on the influence of investors emotions, information cognitive ability, and expected return on investment behaviors. The financial economist, Schwartz, appears to agree the idea that security-price volatility and trading volume (market illiquidity) should vary directly with investor sentiment and opinions. Behavioral finance also has applications in analysis of corporate finance decisions in terms of CEO's M&A decision and firm's capital structure.

One previous research, conducted by Oprean and Tanasescu, presents the experimental statistic in two emerging markets (Romania and Brazil) and find out that trading volume is influenced by irrational behaviors [2]. The research design

applies the elements of “animal spirits” developed by Keynes in 1936, such as investor confidence leading to over-reaction, optimism, pessimism, are taken into account to explain the connection with trading volume. Debata et al. demonstrate that there is a positive relationship between investor sentiment and market liquidity [3]. Hu, Zhong and Cai also conclude that investor emotions have a positive impact on market liquidity by empirically analyzing weekly transaction data in China’s A-share market [4].

1.2 Common Behavioral Biases

The behavioral bias means that investors decision can be less fully rational. Chira et al. describe the investor biases as the systematic errors in cognitive reasoning and perception, and what these errors reveal about the individual’s underlying thought processes [5].

In the psychology field, there is a wide range of behavioral biases. Generally, some common behavioral biases in the finance field can be concluded as following and a brief introduction will be provided:

- Overconfidence—investors overestimate their ability and the accuracy of the information they have.
- Representativeness—investors assess situations based on superficial characteristics rather than underlying probabilities.
- Mental accounting—individuals allocate wealth to separate mental compartments and ignore fungibility and correlation effects.

Some empirical works have been done by researchers in order to test whether the overconfidence hypothesis contains valuable implications to observed market anomalies. For example, Daniel et al. observe the evidence that if the investors are overconfident, they will overreact to private information and underreact to public information [6]. In terms of the excessive trade volume, overconfidence has been regarded as one reasonable explanation. Gervais and Odean develop the model predicting that overconfident investors mistakenly attribute market gains to their ability to pick winning stocks, which makes them trade more aggressively [7]. Another empirical evaluation of the overconfidence hypothesis conducted by Chuang and Lee draws the conclusion that keep consistent with Gervais and Odean’s previous findings [8]. They examine that if investors are overconfident, gains make them trade more aggressively in subsequent time period and their excessive trading in securities market contributes to the observed excessive volatility.

Representativeness refers to the degree of similarity that an event has with its parent population or the degree to which an event resembles its population. Considering the difficulty of searching among thousands of stocks, investors usually tend to invest in the stock that attract their attentions, in other words, with good historical returns. Barber and Odean find out that investors buy attention-grabbing

stocks which approved the significant impact of representative bias on the investment decisions [9]. Another two previous papers show the opposite conclusions about effect of representativeness bias. The representative bias has a positive impact on investment performance by studying New York stock exchange [10]. However, Faconer in University of Bath concludes that investing on the basis of hot stocks, recent price fluctuations always result in accumulation of losses [11].

Kahneman and Tversky developed the Prospect Account, which is also called 'loss-aversion' theory. Mental Accounting is one of the key concepts that can be explained by this theory [12]. Mental accounting as one tendency for people where they separate their accounts and classify them on the basis of variety of subjective criteria, showing the source of money and the intention of each account, and this determines their purchasing decision. It provides the way for decision makers to set the points of references for the accounts that determine losses and gains. A growing number of literatures show that the prospect theory and mental accounting frameworks can be used to explain some market anomalies. Grinblatt and Han also state that some investors hold their losing stocks driven by prospect theory and mental accounting, which create a spread between a stock's fundamental value and its equilibrium price [13].

1.3 Cultural influence on behavior bias

Cultural factors do have a significant effect on financial decision. Cultural is neither conceptually nor empirically easy to measure. The most common dimensions of national cultural are individualism, power distance, uncertainty and masculinity. A society's degree of individualism refers to the extent that its members tend to be loosely connected and responsible for their wellbeing. The emerging market, due to the background of collectivist cultural, will display a greater influence from social dynamics when making investment decisions. Asia cultures tend to be based on a socially collectivism. The literature from psychology and finance on the behavior of Asian people argued that Asians are more likely to suffer from behavioral biases more than people from Western cultures. For example, Chen et al. find out that individual investors in China suffer more from both an overconfidence bias and the disposition effect than U.S individual investors [14].

2. Literature Review on Behavioral Finance

2.1 The impact of behavioral bias on individual investors

2.1.1 Overconfident

As we discussed in the previous part, Asian cultures tend to more socially collective paradigm than the Western countries. Some evidences from previous search state that people raised in Asian cultural exhibit more behavioral biases than

people who are from U.S [15]. It has been argued that collective-oriented society can cause people overconfident. Hofstede shows that Turkish people are more collectivist, which is also a more evident characteristics in eastern countries [16]. Chen also argued that Chinese investors appear just as prone to the disposition effect as U.S individuals, but Chinese individuals seem to be more overconfident than U.S individuals. These assessments keep consistent with existing research from psychology. After reviewing the literatures about overconfident bias, we can easily understand this bias has some impacts on investor's risk perception and investment performance. Weber and Hsee find that Chinese individuals are less risk averse than American individuals [17]. There are studies which show that individuals in collectivist cultures exhibit higher degree of confidence, are less risk averse. Since individuals in collectivist societies feel more secure within a group, they will be more inclined to take risker decisions and exhibit higher overconfidence.

Some researchers have examined the relationship between Chinese New Year and risk-taking willingness. Thaler and Johnson suggested that individuals appear to increase their risk tolerance as their wealth exceeds a reference point [18]. As the Chinese New Year is an auspicious holiday that people generally have more optimistic prospects for the future, and underestimate risks, the cultural-driven bonus will increase the investors' risk-taking willingness.

2.1.2 Representativeness bias

The representativeness bias has some implications during the process of investment decision-making. Some investors believe that a good company generating high expected revenue growth or producing good quality products as the characteristics of good investment. They are more likely to consider the past positive return as a representativeness of future's expected return. This heuristic simplification is called the extrapolation bias, which is one form of representativeness bias. Jegadeesh and Titman find out that buying stocks with high returns from the past 3 to 12 months (past winners) and selling stocks with lower return during the same past period [19]. This finding is known as momentum effect. Bange and Odean examined the buying of past winners by U.S investors might be viewed as rational if momentum profit exists [20-21]. However, momentum profits are very weak-most of the time the returns are not statistically different from zero in Chinese stock market. Obviously, buying stocks based on past stock return in China cannot be regarded as a rational trading strategy. Chinese investors tent to buy past-winner stocks but not perform well in general, and this behavior can be described as an irrational extrapolation bias. The similar conclusion also concluded by Chen et.al that Chinese investors suffer from representativeness bias after a series of empirical tests.

2.2 Behavioral Corporation Finance

Behavioral finance also has applications in analysis of corporate finance decisions. Baker, Ruback and Wurgler identify two distinguish paths of behavioral

corporate finance [22]. The first one is how the rational managers respond to less rational investors. Another one holds the idea that managers can be subject to behavioral biases. Additionally, some researchers find out that behavioral biases also have impact on CEO's decision-making process.

As for the first path, they argue that the company issue more equity and debts before periods of low equity market returns, implying that companies time their equity issues to take advantage of positive investor sentiment. In terms of dividend policy, managers rationally cater to investor demand by paying dividends when investors put higher prices in payers and not paying when investors prefer nonpayers.

If managers are subjective to behavioral biases, it will have impact on firm's capital structure. A similar conclusion drawn by Kaplan, Klebanov and Sorensen that specific trait of managers will influence the financial development of the firm [23]. Heaton examines that bias managers may reject positive net present value project (if it needs more external funds), and they may invest in negative net present value projects because of the biased cash flow forecasting [24]. Heaton also states that excessive optimism leads managers to assume that their companies are undervalued. Hackbart applies the quantity estimate for the impact of optimism and overconfidence on financial policy. In this case, they are less likely to issue more securities to fund new project [25]. Bias managers tend to use debt financing, which reduces manager-shareholder conflicts which resulting from internal finance. Traditional corporate finance makes the general assumption that rational corporate managers operate in an efficient market in order to maximize the shareholder's wealth. Within a corporation, conflict of interests always raises from managers and shareholders. Interests of managers should be brought in line with interests of shareholders. Gervais, Heaton, and Odean in their papers explained why managers are more likely to be overconfident and study their related traits within the capital budgeting process of an all-equity firm. They find out that the conflicts between shareholders and managers resulting from sub-optimal risk-taking of risk-averse managers.

Despite of the roles of managers and shareholders in the financial-policy decision making process, CEO's personality traits will also influence the firm's financial structure. The recent research conducted by Malmendier, Tate and Yan find that overconfident CEOs are more likely to issue debts instead of equity when seeking for external financing as they believe equity is more undervalued than debt [26]. Huang, Kelvin and Robert extend the research on the impact of overconfidence on debt maturity structure. They argue that firms with overconfident CEOs have a higher proportion of short-term debt because they believe the favourable news will arrive in the future [27].

CEO's behavioral biases will mislead their M&A decisions and valuation of acquired companies as well. Roll is the first person who recognize the that individual CEO decision making might have impact on the company's merger activity by testing his hubris hypothesis [28]. Overconfident CEOs are likely to underestimate the risks associated with a merger and overestimate the expected return from a business combination. Malemendier and Tate also demonstrate that

overconfident CEOs tend to seek for acquisitions when their corporations have abundant resources [29]. Moreover, they demonstrate that the overconfident CEOs are more likely to use cash to finance their mergers compared with those rational CEOs. Lin et.al study the issue of hubris in the Japanese mergers and acquisitions market [30]. Their findings suggest that hubris has a significant presence in Japanese market. Also, their findings results are largely consistent with the hubris hypothesis that overconfident managers may engage in value-destroying mergers M&A. Recently, some professionals examine whether the distribution of overconfident CEOs have country group patterns, which considers the national cultural and different business practice standards in international mergers. Ferris et.al conclude that overconfidence is a factor is a factor in the global market for corporate acquisitions [31]. And it is not only a U.S or European phenomenon.

3. Conclusion

After reviewing some empirical literature, the behavioral biases have some impact on individual's investment decisions. Overconfidence has been referred many times in this paper, which makes individual investors overestimate their ability. Few papers examine that investors always pick past-winner stock on emerging market, which is considered as representative bias in behavioral finance. If managers and CEO within one company have behavioral bias when they make critical decision, the company's capital structure will be affected. Additionally, CEO's behavioral bias will mislead the valuation of mergers and acquisition. More researchers are studying behavioral finance on emerging market and taking account of cultural difference on behavioral bias. Behavioral finance is still one interesting field to keep exploring.

References

- [1] Barberis, N., & Thaler, R., 2003, A survey of behavioral finance, *Handbook of the Economics of Finance*, pp.1053-1128.
- [2] Oprean, C. and Tanasescu, C., 2014, Effects of behavioural finance on emerging capital markets, *Procedia Economics and Finance*, vol.15, no.4, pp.1710-1716.
- [3] Debata, B., Dash, S.R, and Mahakud, J., 2018, Investor sentiment and emerging stock market liquidity, *Finance Research Letter*, vol.26, pp.15–31.
- [4] Hu, S., Zhong, M. and Cai, Y., 2019, Impact of Investor Behavior and Stock Market Liquidity: Evidence from China, *Entropy*, vol.21.no.11, pp.1111.
- [5] Chira, I., Adams, M. and Thornton, B., 2008, Behavioral bias within the decision-making process. *Journal of Business and Economics Research*, Vol. 6, No. 8
- [6] Daniel, K., Hirshleifer, D., Subrahmanyam, A., 1998, Investor psychology and security market under- and overreactions. *Journal of Finance*, vol.53, pp.1839–1886.
- [7] Gervais, S., Odean, T., 2001, Learning to be overconfident. *Review of Financial Studies* vol.14, pp.1–27.

- [8] Chuang, W.I. and Lee, B.S., 2006, An empirical evaluation of the overconfidence hypothesis. *Journal of Banking & Finance*, vol.30, no.9, pp.2489-2515.
- [9] Barber B, Odean T., 1999, The courage of misguided convictions. *Financial Analysts Journal*, pp. 41-55.
- [10] Bracha A, Donald JB., 2012, Affective Decision Making: A Theory of Optimism Bias, *Games and Economic Behavior*, vol.75, pp.67-80.
- [11] Falconer L., 2002, The influences of risk perception. *University of Bath*.
- [12] Kahneman, D and Tversky, A., 1992. Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and uncertainty*, 5(4), pp.297-323.
- [13] Grinblatt, M. and Han, B., 2005, Prospect theory, mental accounting, and momentum. *Journal of financial economics*, vol.78, no.2, pp.311-339.
- [14] Chen, G., Kim, K.A., Nofsinger, J.R. and Rui, O.M., 2007, Trading performance, disposition effect, overconfidence, representativeness bias, and experience of emerging market investors, *Journal of Behavioral Decision Making*, vol.20, no.4, pp.425-451.
- [15] Yates, J. F., Lee, J., & Shinotsuka, H., 1996, Beliefs about overconfidence, including its cross-national variation, *Organizational Behavior and Human Decision Processes*, vol.65, pp.138–147.
- [16] Hofstede, G., 2001. *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications.
- [17] Weber, E.U., Hsee, C.K., 1998, Cross-cultural differences in risk perception, but cross-cultural similarities in attitudes towards perceived risk, *Management Science*, vol.44, no.9, pp.1205–1217.
- [18] Thaler, R.H., Johnson, E.J., 1990, Gambling with the house money and trying to break even: the effects of prior outcomes on risky choice. *Management Science*, vol.36, pp.643–660.
- [19] Jegadeesh, N., & Titman, S., 2001, Profitability of momentum strategies: An evaluation of alternative explanations. *Journal of Finance*, vol.56, no.2, pp.699-720.
- [20] Bange, M., 2000, Do the portfolios of small investors reflect positive feedback trading? *Journal of Financial and Quantitative Analysis*, vol.35, pp.239–255.
- [21] Odean, T., 1998, Are investors reluctant to realize their losses? *Journal of Finance*, vol.53, pp.1775–1798.
- [22] Baker, M., Ruback, R.S. and Wurgler, J., 2007, Behavioral corporate finance. *Handbook of empirical corporate finance*. pp. 145-186. Elsevier.
- [23] Kaplan, S.N., Klebanov, M.M. and Sorensen, M., 2012, Which CEO characteristics and abilities matter?, *The Journal of Finance*, vol.67,no.3, pp.973-1007.
- [24] Heaton, J.B., 2002, Managerial optimism and corporate finance. *Financial Management*, vol. 31, no.2, pp.33–45.
- [25] Hackbarth, D., 2008, Managerial traits and capital structure decisions. *Journal of Financial and Quantitative Analysis*, vol.4, no.4, pp.843–882.
- [26] Malmendier, U., Tate, G. and Yan, J., 2011, Overconfidence and early-life experiences: the effect of managerial traits on corporate financial policies. *The Journal of finance*, vol.66, no.5, pp.1687-1733.

- [27] Huang, R., Tan, K.J.K. and Faff, R.W., 2016. CEO overconfidence and corporate debt maturity. *Journal of Corporate Finance*, 36, pp.93-110.
- [28] Roll, R., 1986, The Hubris Hypothesis of Corporate Takeovers, *Journal of Business*, vol.59, pp.197–216.
- [29] Malmendier, U. and Tate, G., 2015, Behavioral CEOs: The role of managerial overconfidence. *Journal of Economic Perspectives*, vol.29, no.4, pp.37-60.
- [30] Lin, B.X., Michayluk, D., Oppenheimer, H.R. and Reid, S.F., 2008. Hubris amongst Japanese bidders. *Pacific-Basin Finance Journal*, vol.16, no.1, pp.121-159.
- [31] Ferris, S.P., Jayaraman, N. and Sabherwal, S., 2013, CEO overconfidence and international merger and acquisition activity, *Journal of Financial and Quantitative Analysis*, vol.48, no.1, pp.137-164.