How to Control Behavioural Biases and Improve Investment Decisions

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***Abstract*—Individual investors often make irrational investment decisions, due to behavioural biases present in human nature. This flaw in individual investors has been widely studied in many finance and economics literature, which show that behavioural biases have negative implications on individual investors' decision-making and ultimately their financial gains. Thus, the objective of this research is to raise awareness on the importance of controlling behavioural biases in order to make more rational investment decisions. This paper analyses the common behavioural biases present in individual investors, such as overconfidence, loss aversion and herding. Moreover, the study evaluates the advice given by experts, such as Warren Buffett and Charlie Munger, to help individual investors identify and adopt more sustainable investment strategies, in order to make more informed investment decisions and avoid common pitfalls. By recognizing their behavioural biases and adopting strategies to mitigate them, individual investors will be able to improve their investment outcomes and achieve their financial goals.**

***Keywords*—behavioural bias, individual investors, investment decision-making**

I. Introduction

Individual investors face difficulty in making wise and profitable investment decisions due to their behavioural biases, which hinders their performance in the stock market, in the form of profit gains. Based on a study by United States Securities and Exchange Commission, "70% of foreign exchange traders lose money every quarter, and eToro, a multinational broker with 27 million users, reported that nearly 80% of retail investors lost money over 12 months". This pattern is observed in every market, regardless of country or generation, as retail traders seldom sustain profitable operations [1]. Additionally, there is a traditional saying describing China's capital market of "7 losses, 2 balanced and 1 gain" in retail investments. This implies that 70% of individual investors suffer investment losses, 20% neither make profit nor suffer losses, and only 10% successfully enjoy returns. These statistics present the primary issue faced by individual investors when engaging in investments.

However, Warren Buffett, dubbed the "Oracle of Omaha", the stock market's most successful general, and arguably the nation's most revered investor, is known for playing the long game in the stock market and gaining huge returns in the world. He is well-known as the Chairman and CEO of Berkshire Hathaway. Berkshire Hathaway's stock has generated a compound annual return of 19.8% from 1965 to 2022, while the S&P 500's compound annual return for the same period was 9.9% [2]. The S&P 500 Index, or Standard & Poor's 500 Index, is a market-capitalization-weighted index of 500 leading publicly traded companies in the U.S. [3]. Berkshire Hathaway has historically outperformed the S&P 500 9.9%. It is more than 100 times the gain of the S&P 500 over 57 years. This proves that Buffett's strategy truly beat the market, as shown in Fig. 1.

Berkshire's Performance vs. the S&P 500

	Annual Percentage Change	
Year	in Per-Share Market Value of Berkshire	in S&P 500 with Dividends Included
1965	49.5	10.0
1966	(3.4)	(11.7)
1967	13.3	30.9
1968	77.8	11.0
1969	19.4	(8.4)
1970	(4.6)	3.9
1971	80.5	14.6
1972	8.1	18.9
1973	(2.5)	(14.8)
1974	(48.7)	(26.4)
1975	2.5	37.2
1976	129.3	23.6
1977	46.8	(7.4)
1978	14.5	6.4
1979	102.5	18.2
1980	32.8	32.3
1981	31.8	(5.0)
1982	38.4	21.4
1983	69.0	22.4
1984	(2.7)	6.1
1985	93.7	31.6
1986	14.2	18.6
1987	4.6	5.1
1988	59.3	16.6
1989	84.6	31.7
1990	(23.1)	(3.1)
1991	35.6	30.5
1992	29.8	7.6
1993	38.9	10.1
1994	25.0	1.3
1995	57.4	37.6
1996	6.2	23.0
1997	34.9	33.4
1998	52.2	28.6
1999	(19.9)	21.0
2000	26.6	(9.1)
2001	6.5	(11.9)
2002	(3.8)	(22.1)
2003	15.8	28.7
2004	4.3	10.9
2005	0.8	4.9
2006	24.1	15.8
2007	28.7	5.5
2008	(31.8)	(37.0)
2009	2.7	26.5
2010	21.4	15.1
2011	(4.7)	2.1
2012	16.8	16.0
2013	32.7	32.4
2014	27.0	13.7
2015	(12.5)	1.4
2016	23.4	12.0
2017	21.9	21.8
2018	2.8	(4.4)
2019	11.0	31.5
2020	2.4	18.4
2021	29.6	28.7
2022	4.0	(18.1)
Compounded Annual Gain – 1965-2022	19.8%	9.9%
Overall Gain – 1964-2022	3,787,464%	24,708%

Fig. 1. Berkshire Hathaway VS S&P 500's annual returns.
Source: W. E. Buffett. (2022). *Annual & Interim Reports*. Berkshire Hathaway Inc. [Online]. Available: https://www.berkshirehathaway.com/2022ar/2022ar.pdf

II. Literature Review

In this section, the types of behavioural biases and their impacts on investment decisions will be identified. "Human-beings are not rational animals, they are easily induced by intuition and prejudice to make mistakes." Human beings tend to resort to irrational thinking and make unreasonable choices again and again due to deep-rooted prejudices [4].

The Greek Philosopher, Heraclitus, once said that "The only constant is change." The future is always uncertain. Likewise, there is also no 100% certainty in the investment world. Thus, individual investors' investment decisions are bound to be biased as they tend to make decisions that are primarily based on emotions, rather than facts and figures. This can be seen in how investors become very excited when the market is in a bullish state. On the other hand, they become more pessimistic when the market experiences a downward trend. This study is going to explore the root cause

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behind the irrationality and look for greater certainty in uncertainty.

A. Overconfidence

A prominent characteristic of human-beings is overconfidence, thinking that they are superior to others. Overconfidence is a cognitive bias that causes us to make miscalibrations of subjective probabilities [5]. In fact, overconfidence can be defined in two manners. The first is based on the belief that one knows more than they actually do, also referred to as "miscalibration", and the second is based on the belief that one is better than the ordinary person [6], also referred to as "over-placement". This is a common characteristic in human nature where one overestimates his/her actual ability.

Sibony (2020) [7] verifies this statement in saying that, "In general, we significantly overestimate ourselves relative to others" and "our theoretically 'objective' forecasts about events that are out of our control are often exaggeratedly bullish." Similarly, Munger believes that, "Bull markets go to people's heads. If you're a duck on a pond, and it's rising due to a downpour, you start going up in the world. But you think it's you, not the pond." [8]. This proves that overconfidence is commonly present in individual investors. According to Munger, overconfidence eventually leads to excessive trading, which often results in poor investment performance of individual investor. He also pointed out a trend showing that "investors who think that they are above average in terms of investment skills or past performance (but who did not have above average performance in the past) trade more." The central message conveyed is that, trading is hazardous to one's wealth. A study by Shiller (2015) [9] found that there is a natural tendency for investors to feel ambitious in exploring new opportunities and hone their skills to achieve further successes, based on past triumphs. They believe that they have completely mastered the skill-sets required for them to achieve profitable outcomes, after one or two successes. This demonstrates how overconfidence leads to the individual investors' downfall, as they underestimate the spectrum of learning and experience required, in order to be considered a true expert in the area of investment.

This can be seen in many instances. In the stock market, investors are overconfident in internal information and stock selection ability, and tend to automatically filter negative information, while over strengthening the positive information that supports their beliefs. Some investors think they can be Warren Buffett after reading a few books on value investing, others think they can be Jesse Lauriston Livermore after learning a little technical analysis, or taking their previous successful investment experience as capital. So, like "Don Quixote" written by Spanish writer Miguel de Cervantes's, individual investors who ignore reality and immerse themselves in false illusions that they can beat the markets, underestimate market risks and engage in frequent trading.

B. Loss Aversion Bias

The second type of behavioural bias is called loss aversion bias. This form of bias is categorized under cognitive bias and is defined as the tendency to avoid losses over achieving equivalent gains. In other words, the investor experiences losses more severely than the same amount of profits. For instance, the pain of losing $100 from investments is often perceived as far greater than the joy of earning the same amount. Furthermore, loss aversion bias can also be related to the disposition effect, which refers to investors' reluctance to sell assets that have lost value and greater likelihood of selling assets that have made gains [10].

However, holding assets of bad performance does not necessarily reflect the existence of loss aversion bias. Rather, it can indicate investors' contrarian strategies. To be specific, Odean (2002) argues that "Investors might choose to hold their losers and sell their winners not because they are reluctant to realize losses but because they believe that today's losers will soon outperform today's winners." There is a possibility that the future expected returns for the individual investors who hold on to losing stocks could be greater than those who choose winning stocks. In this case, the investors' belief would be justified and rational. In fact, Buffett and Munger are two of the most well-known contrarian investors [11]. This shows how despite individual investors ability to adopt the same strategies as that of experts, they are unable to yield the same outcome. This is due to the fact that more often than not, individual investors fall for the limitations of contrarian investment. This means that individual investors hold on to losing stocks and choose to remain ignorant, despite persistent evidence that they will only continue to yield losses. In this scenario, their belief would be irrational as, "It will not be enough to rely on simply doing the opposite of the prevailing market sentiment. It's important for contrarians to develop their skills in fundamental analysis to accurately measure a security's intrinsic value." [11].

Thus, individual investors also demonstrate the common issue of not knowing how to stop losses. As a result, they may hold on to stocks that will continue to yield losses in the long run, which causes them to lose the opportunity of purchasing more profitable securities using the proceeds of stock selling.

C. Herding

The third type of behavioural bias is known as herding. Individual investors tend to follow stock analysts or those who process "inside information", causing them to blindly follow what others say, instead of relying on their own independent analysis to make judgements. Shiller (2015) [9] explains the reason individual investors behave in this way, from "Their logic is apparently investors with the free-rider argument." In short, individual investors seek convenience when making investment decisions, as they recognize that there are millions of researchers and diligent investors who have investigated the stock prices and already concluded a credible value of the stock. Thus, they find it unnecessary to evaluate the prices of the stocks on their own, when they could simply free ride on readily available analysis made by others.

In addition, investors with herd mentality are confused and have no clear thinking, as Shiller describes in his book:

> "In 2000, I thought that most people I met, from all walks of life, were puzzled over the apparently high levels of the stock market. It seemed that they were unsure whether the market levels made any sense, or whether they were indeed the result of some human tendency that might be called *irrational exuberance*. They wondered whether the

optimism that might have pervaded our thinking and affected many of our life decisions. They seemed unsure what to make of any small market downturn, wondering whether the previous market psychology could ever return." (p. 12)

This is an undesirable investment mentality that individual investors choose to adopt, as their frantic buying and panic selling caused by this large-scale herding effect will inevitably lead to asset bubbles or market crashes, which puts themselves at a disadvantage.

One of the things to be very wary of is that individuals often find it emotionally or psychologically painful to go against the crowd. Think about a circumstance where you stifled your desire to do something because everyone else in your group voted to do something else. Psychologists have found that it may actually cause physical pain for people to be contrarian investors [12]. In other words, the investors feel more secure when they copy and follow other investors. These investors have a common trait of impulse and irrational exuberance, and are emotionally-driven by fear or greed.

D. Asymmetric Information

Financial markets exhibit asymmetric information in any transaction in which one of the two parties involved has more information than the other and thus has the ability to make a more informed decision [13].

Those who have sufficient information are often in a favourable position, while those who have poor information are in a disadvantageous position. However, there is a fundamental lack of information on the part of both the buyer and the seller about the company. Most individual investors do not have the ability and channels to collect all data and information. Even if some individual investors have the ability and channels, they are too lazy to think and act. They do not seriously study policy information, industry information and company changes, nor do they want to seriously learn technical theories of stock investment. They tend to follow the comments of stock analysts, and listen to the explanations of financial experts. it is fragmented information. The information they get is distorted information after multiple layers of communication, and it is fragmented information.

According to a survey conducted by the Asset Management Association of China (AMAC) in 2018 [14], Internet and bank financial managers are the main ways for individual fund investors to obtain financial investment information. With 36.3% and 25.1% of investors respectively, take Internet and bank financial managers as the primary channels for obtaining investment information. Other major sources of information include newspapers and magazines (12.6%), mobile media (10.1%), television (8.1%), and friends and colleagues (4.7%). The data in Fig. 2 displays that most investors get processed second-hand information, which will naturally affect the accuracy of decision-making.

In addition, the 2018 AMAC report [14] shows that, 27.8% of investors do not read the prospectus before buying funds, 6.5% of them do not read it because they do not understand it, and 21.3% of investors do not read it because there is too much content and they do not know what to read. 58.8% of investors read the prospectus to some extent before buying funds, 12.5% of them read it under the guidance of sales staff, and another 46.3% read it sometimes, but do not know what to read. This is presented in the data in Fig. 3.

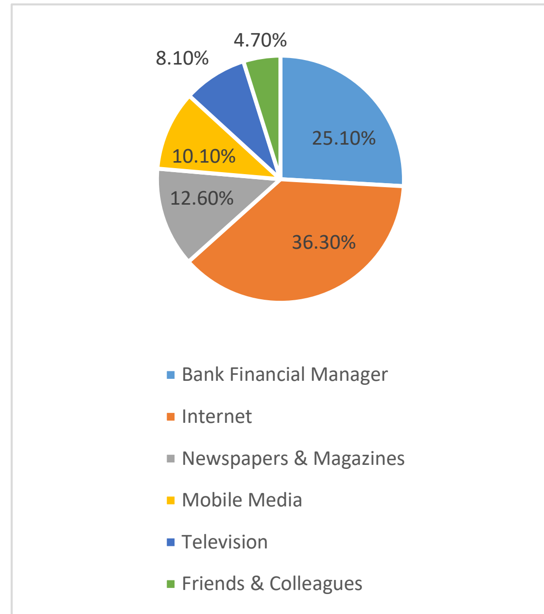

Fig. 2. The way in which individual investors of funds gain access to financial information.

Source: Asset Management Association of China. (January 2, 2020). *2018 Annual Fund Individual Investor Investment Survey Questionnaire Analysis Report (IV): Investment Behaviour and Fund Cognition*. [Online]. Available: https://www.amac.org.cn/researchstatistics/report/tzzbg/202001/t20200102_5423.html

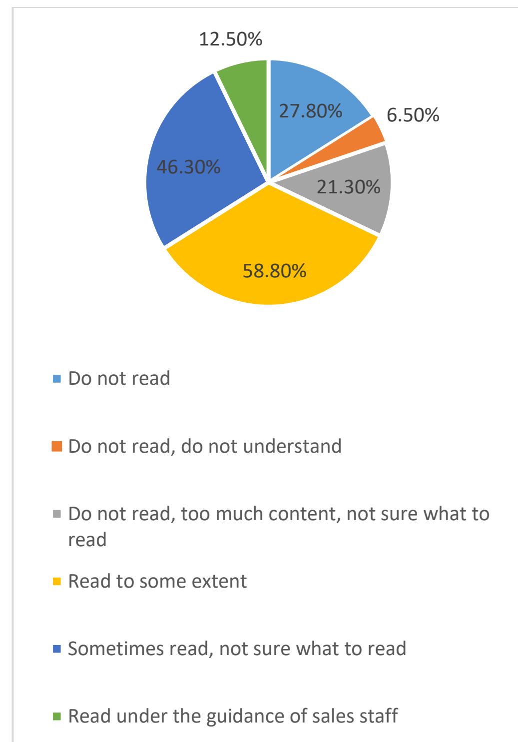

Fig. 3. Whether individual investors read the prospectus before purchasing the fund.

Source: Asset Management Association of China. (January 2, 2020). *2018 Annual Fund Individual Investor Investment Survey Questionnaire Analysis Report (IV): Investment Behaviour and Fund Cognition*. [Online]. Available: https://www.amac.org.cn/researchstatistics/report/tzzbg/202001/t20200102_5423.html

Hence, how should one make intellectual investment decisions without reading the prospectus and annual report? As the saying goes, "buyers are not as smart as sellers."

Although Buffett and individual investors are not direct buyers and sellers, Buffett and Munger, who have sufficient information, are of course, in a relatively favourable market position in the huge securities market. And individual investors with insufficient information are in a disadvantageous trading position. While Buffett, the expert himself, is not completely immune to human behavioural biases either, the difference between him and individual investors is that he has actively sought ways to conquer these flaws in human nature.

III. Discussion

A. *Individual Investors' Investment Strategies in Comparison to Warren Buffett*

As Buffett's right-hand man, Munger once said, "All I want to know is where I'm going to die, so I'll never go there." In relation to this thought, he also mentioned that "Early on, write your desired obituary – and then behave accordingly." [15]. Such logics also apply to investment. The behavioural biases of individual investors come in many forms. These behavioural biases ultimately lead to the failure of their investments. Hence, there is a need to recognize them, in order to avoid undesirable investment decisions.

1) Momentum trading

All individual investors fall for the temptation of buying stocks that are rising and selling them once it seems like it has reached its peak [16]. An extremely popular investment anecdote relates how Isaac Newton, after cashing in large early gains, staked his fortune on the success of the South Sea Company of 1720 and lost heavily in the ensuing crash. The South Sea Bubble of 1720 is one of the earliest, largest, and most studied instances of investment manias and crashes. It is frequently cited as the prototypical case of irrational exuberance. Isaac Newton's role in it is especially fascinating to the public. Tales abound of how he invested early, and cashed out with 100% profits as market valuations went to what seemed to him unjustified levels. However, as prices continued to advance, he supposedly invested again at the peak and lost most of his fortune in the crash that followed [17].

Another notable case study is regarding Michael Jeffrey Jordan, the American ex-Chicago Bull. While he galloped across the basketball court and was invincible, he had suffered disastrous defeats in the stock market with few successes. Divine Inter Ventures, in which Jordan invested about $1 million, was worth about $37,000 two years later. He once laughed at himself and said "I am a superstar on the basketball court, but I am a first-grader in the stock market," he joked [18].

It is a common characteristic of individual investors to make use of this investment strategy as they "buy low and sell high." From the case studies given above, it is observed that this behaviour has nothing to do with IQ or fame. Shiller (2015) [9], expressed his observation of individual investors lacking answers from the wisest experts, thus resulting in many being inclined to rely on the "wisdom" of the market, in answering their questions, and using the turns of the stock market in the same way that fortune tellers use tea leaves.

Unlike individual investors, Buffett doesn't pay any attention to the fluctuation of stocks at all. There is no computer or stock market machine in his office. His daily job is to read books, newspapers, the annual reports of companies, make phone calls to understand the company's situation, looking for bargains, picking up gold when the crowd is panicking, and selling overvalued stocks when the crowd is crazy. This difference in perception towards changes in the market is what allows Buffett to evaluate and weigh his investment decisions in a composed and stable state of mind.

As per the words of Buffett, in the 1987 Letters to Berkshire Shareholders [19], there are times where the market overestimates the value of a business, leading to higher valuation than its intrinsic worth. In such circumstances, it is vital to promptly sell the holding to prevent further losses. Moreover, it is also necessary to turnover a security that may be fairly valued or even undervalued, in order to acquire funds to invest in a more undervalued investment or one that the investor has greater understanding in. This approach aligns with the investment principle that prioritizes seeking out undervalued prospects and making informed decisions to maximize profits. Buffett demonstrates his rational thinking in his ability to evaluate the businesses based on their worth, instead of determining the value of the stock based on the crowd's opinion and reaction.

2) Frequent short-term trading

The turnover rate of China's A-shares securities market has historically been unusually high. According to the 2018 Individual Investor Status Survey Report of Shenzhen Stock Exchange [20], "Irrational investment behaviour is still relatively common, especially in the following aspects: the frequency of trading is too high, with 46.4% of investors trading several times in a week; 31.9% traded once or twice within a month; 21.7% traded more than once in more than a quarter," shown in Fig. 4.

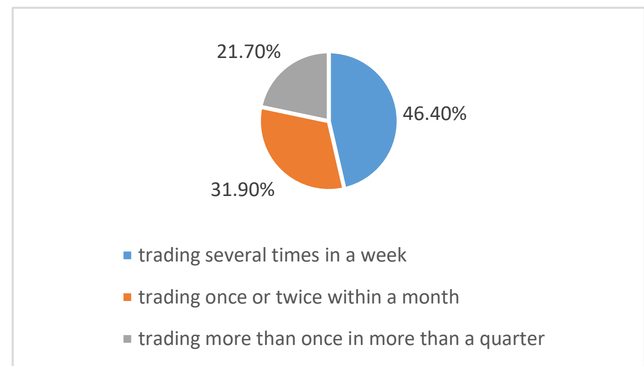

Fig. 4. Individual Investors' frequency of trading.

Source: Asset Management Association of China. (January 2, 2020). *2018 Annual Fund Individual Investor Investment Survey Questionnaire Analysis Report (IV): Investment Behaviour and Fund Cognition*. [Online]. Available: https://www.amac.org.cn/researchstatistics/report/tzzbg/202001/t20200102_5423.html

According to Asset Management Association of China *Analysis Report of 2018 Annual Fund Individual Investor Investment Survey* [14], 16.0% individual fund investors held funds for less than six months on average. 31.9% of individual fund investors held funds for six months to one year. 32.5% individual fund investors held 1–3 years. 11.6%

for three to five years and 8.0% for more than five years, as shown in Fig. 5.

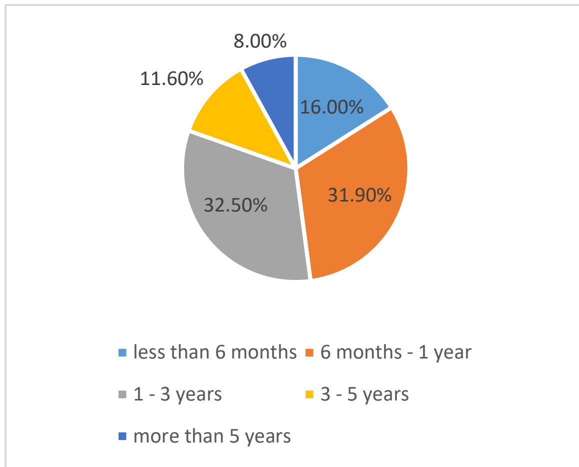

Fig. 5. Average amount of time that a single fund has been held by an individual investor.
Source: Asset Management Association of China. (January 2, 2020). *2018 Annual Fund Individual Investor Investment Survey Questionnaire Analysis Report (IV): Investment Behaviour and Fund Cognition*. [Online]. Available: https://www.amac.org.cn/researchstatistics/report/tzzbg/202001/t20200102_5423.html

In contrast, Buffett is a long-term value investor, buying high-quality companies like a treasure collector. As he once put it, "Our favourite holding period is forever." He doesn't buy anything with the intention of making a quick profit. Instead, he chooses investments that he is comfortable holding for decades. "If you don't want to own a stock for 10 years, don't own it for 10 minutes." is one of Buffett's most famous statements. Buffett's holdings directly verify the above statement. As of the end of 2022, Berkshire owned 7 stocks that have been held for more than 20 years, namely the Washington Post (1973), Coca-Cola (1988), Wells Fargo (1989), Procter & Gamble (1989), American Express (1964), Moody's (2001), and GEICO Insurance (1996). Additionally, Buffett stated in the 2022 Berkshire Hathaway Annual Report [15], that:

> "Whatever our form of ownership, our goal is to have meaningful investments in businesses with both durable economic advantages and a first-class CEO. Please note particularly that we own stocks based upon our expectations about their long-term business performance and not because we view them as vehicles for timely market moves. That point is crucial: Charlie and I are not stock-pickers; we are business-pickers." (p. 4)

3) Holding losers and selling winners

Shenzhen Stock Exchange 2018 *"Individual Investor Status Survey Report"* [20] shows that investors are not paying attention to stopping losses. 45.3% of investors hardly use stop loss strategy. In addition, the incidence of familiarity bias ("It is easier to make money investing in the stocks I have bought than other stocks"), overconfidence and disposition effect ("I always can't hold the winning stocks and hold the losing stocks for a long time") were 57.6%, 43.8%, and 39.0%, respectively. This is presented in the data in Fig. 6.

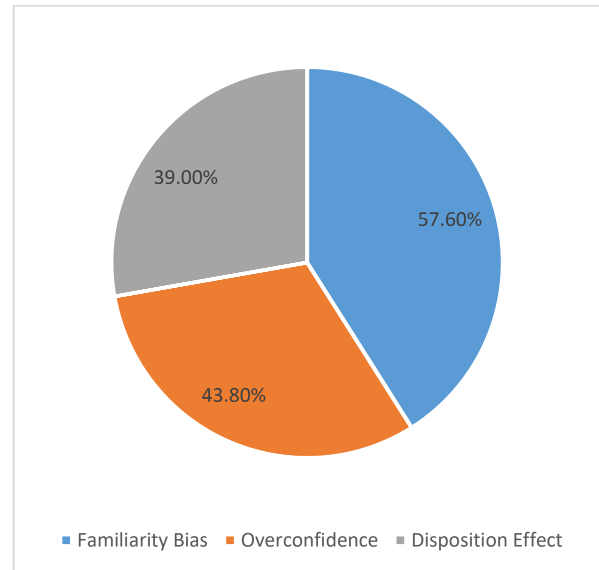

Fig. 6. Reasons for not paying attention to trading stop losses.
Source: Asset Management Association of China. (January 2, 2020). *2018 Annual Fund Individual Investor Investment Survey Questionnaire Analysis Report (IV): Investment Behaviour and Fund Cognition*. [Online]. Available: https://www.amac.org.cn/researchstatistics/report/tzzbg/202001/t20200102_5423.html

According to the Investor report by the Asset Management Association of China, 40.5% of individual fund investors did not set up stop loss/profit. 29.8% of individual fund investors set up stop loss/profit but did not strictly enforce them. Only 29.7% of individual fund investors both established and adhered to stop loss/profit standards. The data are presented in Fig. 7.

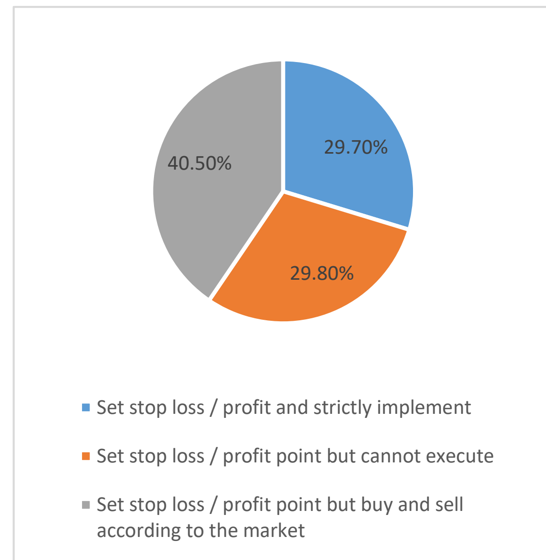

Fig. 7. Whether the individual investor uses stop loss strategy.
Source: Asset Management Association of China. (January 2, 2020). *2018 Annual Fund Individual Investor Investment Survey Questionnaire Analysis Report (IV): Investment Behaviour and Fund Cognition*. [Online]. Available: https://www.amac.org.cn/researchstatistics/report/tzzbg/202001/t20200102_5423.html

In comparison, Buffett cuts his losses as soon as he sees a bad investment. "Rule number one: Never lose money. Rule number two: Never forget rule number one. And that's all the rules there are." This is the most important rule of investment for Buffett.

After the outbreak of COVID-19 in 2020, the global aviation industry suffered an unprecedented blow. The airline stock also attracted Buffett's attention after the sharp decline. At the end of February 2020, Buffett bought nearly 1 million shares of Delta Air Lines at the bottom and said that he would not sell his airline stock in the face of market turbulence. However, after "bottom fishing", the stock price dropped by half. Given such a huge decline in the stock price, Buffett sold the entirety of its position in the U.S. airline industry. The prior stake, worth $4 billion, included positions in United, American, Southwest and Delta Air Lines. Buffet said: "The world has changed for the airlines. And I don't know how it's changed, and I hope it corrects itself in a reasonably prompt way." Buffett said he admires the airlines, but that sometimes there are events like the coronavirus "on the lower levels of probabilities" that necessitate a quick change [21].[1]

4) Over-diversification

Over-diversification of investment is a common trading bias prevalent among individual investors, who believe that the more stocks they hold, the more likely they are to make profits. After all, there's more than one way to skin a cat. A certain stock might go up today, and another may go up tomorrow. It is always more likely to see an increase when holding multiple stocks, compared to holding just one or two stocks. It is seemingly a strategy to control risks, by not putting all the eggs in the same basket. However, when a large number of individual stocks are held, it will not only cause excessive diversification of funds, but also increase the operational burden. To a certain extent, the investment is too scattered, which means that investors do not have enough understanding of individual stocks, do not have full confidence in the company's prospects, and dare not place heavy orders [22].

In comparison to individual investors' strategy above, Buffett's shareholding is highly concentrated. There are less than 100 stocks disclosed in the annual report since 1976. Berkshire Hathaway Portfolio and holdings market value (as of December 31, 2022) [23] showed that Buffett's secret portfolio is highly concentrated, with 88.98% of invested assets tied up in only 10 stocks. Top five stocks' proportion is 75.87%. This is presented in the data in Table 1.

Table 1. Berkshire Hathaway Portfolio and holdings market value (as of December 31, 2022)

Stocks	Company Name	Value ($mil)	% of Portfolio
APPL	Apple Inc.	116305	0.389
BAC	Bank of America Corporation	33454.5	0.1119
CVX	Chevron Corporation	29252.5	0.0978
KO	The Coca-Cola Company	25444	0.0951
AXP	American Express Company	22400.5	0.0749
KHC	The Kraft Heinz Company	13256.6	0.0443
OXY	Occidental Petroleum Corporation	12242.2	0.0409
MCO	Moody's Corporation	6873.5	0.023
ATVI	Activision Blizzard, Inc.	4035.5	0.0135
HPQ	HP Inc.	2807.3	0.0094

Source: Dataroma. *DATAROMA Superinvestors Portfolio Holdings: Warren Buffett – Berkshire Hathaway*. DATAROMA. [Online]. Available: https://www.dataroma.com/m/holdings.php?m=BRK

[1] See details at https://www.cnbc.com/2020/05/02/warren-buffett-says-berkshire-sold-its-entire-position-in-airlines-because-of-the-coronavirus.html

B. Controlling Behavioural Biases and Improving Investment Decision-Making

It remains a fact that behavioural biases are always going to be a part of human nature and are going to be a challenge to overcome. The assumption that individual investors can only achieve investment success by overcoming investment bias and market noise interference, is commonly made by analysts and even individual investors themselves. However, I believe that the goal of investing should not be to eliminate the behavioural biases completely. Instead, it is to recognize and lessen the impact of these biases on the decision-making process, by staying logical and rational.

I believe that it is important for individual investors to seek out a set of principles to abide by, in critically analyzing the market and making their decisions. There are certain approaches and principles that can be applied to help investors combat their own human judgment and create positive outcomes. First, investors should reconcile with the self, to gain a better understanding of one's values and beliefs, in determining the areas of improvement that need to be made. Second, they should adopt professional methods in evaluating business prospects. Third, individual investors need to constantly update their knowledge through being keen on lifelong learning. Fourth, the habits of lifelong learning will allow them to build up their unique set of principles to abide by. Finally, individual investors can turn to collaboration to avoid pitfalls in investment decision.

1) Know yourself to build rationality

The first, and most important, step in modifying one's investment strategy, is to identify their own strengths and weaknesses, and find the investment method that suits them best, in order to reduce behavioural biases when making investments. This is just as what the old saying "Knowing yourself and the enemy in a hundred battles you will never be in peril." (Sun Tzu, The Art of War) implies.

Numerous experts in the investment field have justified this point. Value investment pioneer Benjamin Graham once said, "For indeed, the investor's chief problem — and even his worst enemy — is likely to be himself." [24]. This implies that, greed and fear are the most common weaknesses of human nature, tempting investors to make frequent irrational judgements and decisions that cost them plenty of money. Therefore, while knowledge, intelligence and patience are important skills that one needs to possess when engaging in investment, rationality is still the most important quality. Similarly, Munger once said that "If you don't care whether you are rational or not, you won't work on it. Then you will stay irrational and get lousy results." [15]. If one refuses to identify and face up to their flaws, it will never occur to them that the only obstacle standing in their way of making intellectual investment decisions is their irrationality.

Individual investors should evaluate the behavioural biases that they tend to fall for most easily and make a mental "note-to-self" to take extra caution when making decisions that could potentially involve these traps. For instance, individual investors who tend to be overconfident should stay humble. Just like Buffet once said, "Be fearful when others are greedy,

and be greedy when others are fearful." [25]. If one tends to be impatient, they should recognize and learn to restrain themselves, in order to harvest the profits of business growth. This is justified by Munger's saying that "the world is full of foolish gamblers, and they will not do as well as the patient investor." [15].

Ultimately, the only way to kick-start a change in one's investment strategies is by understanding the mentality behind the decisions and control any irrational elements involved, according to Buffett's thoughts that "It's an easy game, if you can control your emotions." [26]. In other words, self-control is the key to rationality.

2) Focus on companies' fundamental information

Stock price reflects a company's value. An investor is buying a piece of business when they buy the stock. Thus, one needs to fully understand what they are buying before they make the trading decision. It is crucial for individual investors to spend time on company research, rather than chasing market price fluctuations. This requires them to read the company's annual reports, especially 10-K reports [27], learn and analyze all the information about a company, in order to determine its intrinsic worth and find under-priced value.

The rationale behind this strategy is related to "Mr. Market" [28], who is a hypothetical investor devised by Benjamin Graham. Mr. Market is driven by panic, euphoria, apathy, and approaches his investing as a reaction to his mood, rather than through fundamental or technical analysis, similar to that of characteristics presented in individual investors. Graham believed that investors are better off assessing the value of stocks through fundamental analysis, and then deciding whether the prospects of a company warrant a purchase or sale of the security. Most importantly, the Mr. Market theory warns investors to make rational decisions on their investment activities instead of emotional decision-making. It also teaches investors that it is important to research the fundamental information rather than reacting to changing information and fluctuating prices. In fact, Buffett is the most successful student of Graham. He researches the companies' fundamental information and focuses on companies' strong growth before buying them at a reasonable stock price.

Buffet believes in the approach of a company's fundamental analysis to evaluate the prospects of a company. He spends a lot of time reading stacks of companies' information. He totally understands the companies' sector, their supply chain, their competitive environment, and the future trends, etc. That is how he can make smart decisions on investment and enjoy the benefits of the company growth. This is mentioned in Buffett's 1987 letter to Berkshire Shareholders [19], where it stated that the investment strategy adopted when purchasing common stocks for Berkshire's insurance companies, is akin to investing in a private business. The fundamental factors that are considered in this process include the economic prospects of the business, the quality of management, and the price at which the purchase is being made. The investment horizon is not fixed, and the intention is to hold the stock for as long as the business is expected to generate satisfactory returns in terms of intrinsic value. Buffett emphasizes that it is important to note that this approach is not based on market analysis, macroeconomic analysis, or even security analysis. Rather, it is viewed as a business analysis, whereby the investor seeks to identify and invest in companies with strong potential for long-term growth and profitability.

While reading the annual reports of businesses is the best way to understand and assess them, many investors may find it rather time-consuming to collect various companies' information using this method[2]. Fortunately, there are other methods that can help investors to collect information efficiently in the digital age today, such as the conventional search engines (e.g., Google, Baidu, Bing etc.). At the same time, with the rise of new Artificial Intelligence (AI) Assistants, such as ChatGPT, it will likely be able to assist individual investors in information collection and data analysis in the near future, which will reduce cognitive bias significantly. AI is developed from a combination of computer science, mathematics, and cognitive psychology, it is designed to operate autonomously or with human input and can use various techniques, such as machine learning, natural language processing, computer vision, and robotics. These systems can analyze large amounts of data, identify patterns and relationships, and make predictions or recommendations based on that analysis [29]. Thus, if individual investors combine the practice of Buffett's iron law of investment and make use of ChatGPT as an investment analysis assistant, it could potentially enable them to obtain higher returns than the average of the market.

3) Systematic and lifelong learning

Although reading annual reports will definitely equip individual investors with more professional insights on business prospects, they need to ensure that reading evolves into a habit. Reading annual reports once in a while, with the belief that they possess full understanding of the market, will not allow individual investors to see remarkable changes. In today's context, where technology is constantly improving and enterprises are constantly changing, individual investors must continue to learn to keep up with the times. Hence, systematic and lifelong learning is a must for individual investors. This is aligned with Munger's belief that, "You have to keep learning if you want to become a great investor. When the world changes, you must change." [15].

Therefore, not only should individual investors learn economic theory, read company financial reports, and understand the development of technology. Beyond that, they should make a point to read Buffett's letters to shareholders. This is because the content of each of Buffett's letters to shareholders, fully demonstrates Buffett's investment thinking in the past year and will become an investment classic. Perhaps it is difficult for individual investors to copy Buffett's road to investment success exactly, but they can definitely gain some insights into the methods and concepts used by Buffett over the years. This will allow individual investors to avoid detours when investing and managing money.

Buffet and Munger value learning and the correct application of knowledge. They read books, newspapers, and

[2] The importance of reading annual reports is well recognized, just as what Munger said, "What I find is that it takes a long time to read the annual report even if it's a comparatively simple business, because if you really are trying to understand it, it's not a bit easy."

annual reports every day, communicate with the management of enterprises on the phone, or visit enterprises directly. That is how they are able to track and fully understand the changes of enterprises for a long time and grasp the real first-hand materials of enterprises. A piece of advice from Buffett, is for individual investors to spend a lot of time to just sit and think. In fact, he insists that one should do so everyday [30]. Although it appears to be an overly simplified or insignificant suggestion, Buffett explains that it is the extensive amount of reading and thinking that he has engaged in over the years, that has allowed him to make more rational and intellectual decisions than most people in business [31].

Reading and thinking is a valuable growth process. A small investment of an individual's time reading every day can compound over time and return impressive results. In a few years, one will accumulate so much knowledge that can guide their decision-making process. With time, everything they choose to learn will improve their expertise. Munger also strongly believes that a life properly lived is just learn, learn, learn all the time. That is how Berkshire has gained enormously over the years, by learning through a long, long period.

4) Strictly abide by investment discipline and isolate market sentiment

This brings us to the final and most crucial step in constructing a sustainable set of principles that will guide individual investors in their decision-making process and minimize impulsive investments.

Individual investors should learn from Buffett in practicing patience and discipline when it comes to managing their portfolio. Buffett's set of principles in his letter to Berkshire Shareholders in 2009 [32] allows individual investors insights into how he succeeded in his investments. According to Buffett, he avoids businesses whose futures can't be evaluated, no matter how exciting their products may be. He claims that, "At Berkshire we will stick with businesses whose profit picture for decades to come seems reasonably predictable." Buffett also has the habit of letting Berkshire's many subsidiaries operate on their own, without supervision and monitoring them to any degree. Buffett holds on to his belief in long-term partnership stating that "we want partners who join us at Berkshire because they wish to make a long-term investment in a business they themselves understand and because it's one that follows policies with which they concur."

Hence, these are valuable lessons that can be concluded from the experience of experts. Their principles allow individual investors to realize that, to be a better investor is not to beat your opponents or become smarter than others, but to stick to one's own set of investment principles and practice self-control. This highlights Buffett's rule once again, that one should be cautious when others are greedy, and step in boldly when others are fearful [33].

5) Establish a mechanism of supervision, and checks and balances through cooperation

An alternative method for individual investors to consider, in an attempt to overcome the adverse impact of behavioural biases, is to collaborate with larger organizations to make up for these shortcomings in human nature, as advised by Sibony (2020) [7]. He states that "Collaboration is needed because many people are more likely to detect biases than a lonely decision maker is." In other words, since behavioural bias is extremely challenging to eliminate through personal efforts, individual investors can consider working with external forces to establish a check and balance mechanism to prevent their personal biases. To be more specific, individual investors can rely on partners, consult experts, and industry analysts etc. as a form of supervision of themselves, in order to ensure rationality and avoid mistakes.

Individual investors can look to Buffett and Munger as the role models of partnership. They have cooperated for 60 years. Buffett once said, "Find a very smart high-grade partner – preferably slightly older than you – and then listen very carefully to what he says," in reference to Munger. Their fairy-like friendship has naturally created a check and balance mechanism to avoid selection errors caused by cognitive bias in human nature. At the end of the day, this is what individual investors should aim to achieve. A partner who can complement their personality and act as a supervisor, who looks out for pitfalls that would otherwise be overlooked by an individual.

IV. Conclusion

Ultimately, it is possible for individual investors to make better investment choices, through controlling their behavioural biases, not eliminating them. Although the various types of behavioural biases hinder individual investors in their process of investment decision-making, the frustration and challenges they face can be minimized through the adoption of a different perspective towards bias. Instead of allowing their behavioural biases to continue misleading them into making irrational investment decisions, individual investors should start increasing their awareness of the biases they possess and experimenting with the methods that will allow them to be in control of their investment decisions. It is important to note that controlling behavioural biases is an ongoing process that requires conscious effort and self-reflection from individual investors. Investors should practice logical decision-making, staying ahead of the trends and using data-driven methods to support their decisions. Investors should also take time to understand the economic and financial theories that drive the decisions of the market. Finally, investors should practice discipline and patience in their decisions, as this will make it easier for them to adhere to the principles over time and perhaps even find a new meaning in engaging in investments. At the end of the day, I believe that individual investors should engage in investments with enjoyment. The original intention when entering this field is to yield profits and improve one's quality of life. Hence, the adoption of the correct strategies is of utmost importance for individual investors, in achieving their goal of making intellectual investment decisions. The outlook for future research of this paper would be the development of more effective strategies, such as the incorporation of technology as an assistant, to mitigate the behavioural biases of individual investors. With the rise of technology in the investment field, such as robo-advisors, it could potentially minimize the effect that behavioural biases have on individual investors' investment decisions. The unique characteristic of technology is that it presents facts and data that are not influenced by emotional factors. Hence, the issue of irrationality can be solved for individual investors, by

incorporating technology as a financial assistant in their investment decisions.

Conflict of Interest

The author declares no conflict of interest.

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