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Usage of Behavioral Finance for the analysis of the current situation on the stock

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Abstract

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This research discusses the significance of behavioral finance to fill the gap that is left by modern portfolio theory which is popular among traders. Journals, number of books, articles have been used to answer research questions.

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INTRODUCTION

Behavioral Finance – as a subject of Finance which has an increasing significance.

Developed by academics including Amos Tversky, Daniel Kahneman, Richard Thayer and Meir Statman, in the 1970s and 1980s behavioral finance emphasize that emotion, psychology force investors to behave in inconsistent ways with rational choice in modern portfolio theory. In other words, financial markets imperfections are analyzed in the light of Psychological perspectives and theories.

In an International Scientific Conference, Birău, F. R. says that, "Investment choices are highly influenced by human emotions. Human emotional complexity consists of euphoria, fear, panic, anxiety, envy, greed, satisfaction, ambition or vanity. It's highly likely that these emotions interfere to financial investment decisions."

According to Fama (1998), known as the father of efficient market hypothesis: "market efficiency survives the challenge from the literature on long-term return anomalies. Consistent with the market efficiency hypothesis that the anomalies are chance results, apparent overreaction to information is about as common as underreaction, and post event continuation of pre-event abnormal returns is about as frequent as post-event reversal. Most important, consistent with the market efficiency prediction that apparent anomalies can be due to methodology, most long-term return anomalies tend to disappear with reasonable changes in technique".

CHAPTER I

THEORETICAL BASE

Brad M. Barber shows in his study “Do Day Traders Rationally Learn about Their Ability?” that 80% of all day traders exit market within 2 years after start trading. He also said that approximately 40% of traders involved in trade only for one month, after 3 years only 13 % remains while after 5 years that figures is only 7 %.

In other hand, M.D. Alicke and Govorun O. (2005) say that that around 75 % of traders rated themselves above average arising from the overconfidence which other psychological studies also proof. But in statistics only half of traders should rate them as above average without being overconfident.

But why such kind of paradox exists? Is it for lack of financial knowledge or behavioral biases is the reasons that make them fail?

Modern portfolio theory (Markowitz, 1952) says that all investors are independent and rational, so at the end, getting high return from the market becomes difficult i.e. efficient market hypothesis (Fama, 1970). Modern theory also indicates that only important decision that an investor has to make is to distribute investment between efficient market frontiers and low (risk free) interest rate.

In the implication of Fama’s hypothesis, it is reasonable that in the long term investment no one should get consistent and superior return. Nevertheless, there are a lot of investment giants such as Mr. George Soros (Soros and Volcker, 2003), Mr. Warren Buffett (Buffett and Clark, 2001), Sir John Mark Templeton

(Templeton and Scott, 2008), who have used investment methods mentioned in given books. But these investors are only some of investment sagas. So in the case that Modern portfolio theory is valid and the market is efficient, indeed, to avoid superior return on the stock market, what can be a reason that in market there are such kind of giant investors?

To find the answer, leading scholars such as Daniel, Amos Tversky and Kahneman developed a theory – behavioral finance in the researches on Decision under uncertainty (Tversky and Kahneman, 1974) and Prospect Theory (Kahneman and Tversky, 1979).

Within the behavioral finance there are numbers of theories such as prospect theory, loss aversion, disappointment, status quo bias, gambler's fallacy, self-serving bias, money illusion, cognitive framing, mental accounting, anchoring, disposition effect, endowment effect, inequity aversion, reciprocity, intertemporal consumption, present-biased preferences, momentum investing, greed and fear, herd behavior, and sunk-cost fallacy to explain investors decisions in certain circumstances.

CHAPTER II

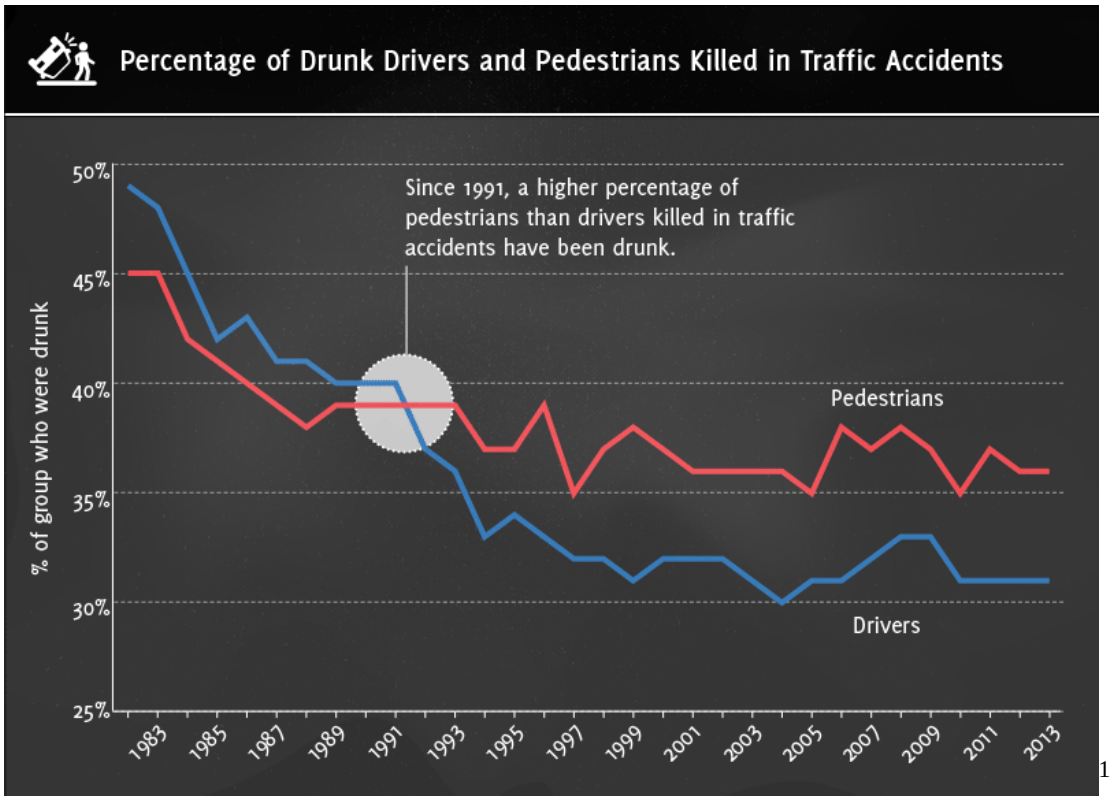
Key Concepts

As behavioral finance combine psychology and finance, it is reasonable to know psychology as much as finance to know how our brain works when we make an investment decision. So, heuristic is the first one to explain the way of brain‘s working.

Heuristic

Heuristic is the mental shortcut that helps brain to think and make decision in the quickest and efficient way. It is also important in problem solving. We need to make quick decisions because we are surrounded by huge amount information and we are required to analyze situation fast indeed. Maybe heuristic does not give people the best solution but if people try to analyze each aspect of the situation that will be so inefficient in the term of energy and time. So brain relies on mental strategies to make endless decisions in the short time period. What to eat, wear, should we take a bus or take a taxi? Help of heuristic is inevitable in such situations. For example, when we decide in which road we should go to work , suddenly our brain alarms that there is a traffic jam on the shortest road that lead us to be late for work we decide to go to work on another way to save our time . There are 2 common types of heuristic: the availability heuristic and the representativeness heuristic.

The availability heuristic helps make a decision based upon on bringing relevant events on mind. It helps a lot especially when we are in dilemmas but also can lead to bias, for example according to Tversky and Kahneman (1973) people who read more case studies of successful businesses may judge the probability of running a successful business to be greater or people are convinced that drunk driving is dangerous but according to the U.S. Department of Transportation's Fatality Analysis Reporting System killing of drunk pedestrians are more likely than drunk drivers.



[1]

The representative heuristic is second type, in which, an individual classify situation based on previous experiences or beliefs. For example:
John lives in a village that 35 percentage of population is farmer, 10 percent is musician (mostly plays at orchestra). He likes touring art museum on holidays and is a real opera fan. He also enjoys playing chess with his friends. Based on given information which situation is more likely?

[1] Source: https://www-fars.nhtsa.dot.gov/Main/index.aspx

A. John plays piano for a major orchestra.
B. John is a farmer.

Large part of people will choose option A, because John's descriptions resemble the stereotype that we hold about classical musicians rather than farmer. But in reality, probability of A is 10 percent while B is 35, which make option B more likely. And even prior probability (proportion of population – 10 percent, 35 percent) exist it, can be manipulated due to cognitive biases (Kahneman & Tversky, 1973).

To sum up, heuristic is significantly helpful to accelerate decision making but the same time it can lead some cognitive biases when it comes to the investment decisions.

CHAPTER III

Cognitive biases in an investment

It is proven that heuristic is great on problem solving and quick decision making, what about trading, investing in shares, operating at stock market? Should traders rely on mental shortcut? When and how investors behave irrational? To answer them it would be better to work on cognitive biases.

Anchoring

Anchoring is a cognitive bias and first documented in 1970s by psychologists. When making predictions or guess, we have to start somewhere, but initial value will have a great impact on result. In another word we anchor last estimation to the initial value.

For example, in an experiment hold by researchers, they asked participants to give a rough estimation on what percentage of United Nations' countries is African. Before estimation, participants drew a random number. Researchers found that as participants drew high number their estimation was higher as well – participant who drew number 20, guess that fraction of African countries as 30 percentage, while participant who drew number 50 estimate it as 60 percentage.

Anchoring can lead investors to make poor investment decisions. Most common anchoring in an investment happens when investors buy stocks that once traded at highest level, however now it's declining. They anchor on the high price of stocks on past and believe that it can be a good opportunity to buy this stocks on lower price. They believe that stocks are underrated and real price is much higher. While

sometimes market itself create chances to buy higher price stocks on lower prices, usually investors wrongly estimate the situation and fall in a pitfall of market.
The problem with anchoring is that the past is, well, the past!
There is neither assurance nor any real reason why the future will look like the past, especially when it comes to stocks. Just because stock A traded for 250 and now trades for 50 doesn't make it a good stock going forward.

Mental Accounting

Theory of mental accounting was established by Richard Thaler (Richard Thaler (1945 -) is a professor of economics at the University of Chicago Booth School of Business. Professor Thaler won the 2017 Nobel Prize in Economics for his work in identifying and explaining possible reasons for irrational behavior in economic decisions by individuals). According to R. Thaler definition should be like this: "that type of cognitive bias is the set of cognitive activities used by people and households to organize asses and track financial operations." R. Thaler stated that people should treat money as fully fungible on allocating budget (expenses). But mental accounting claims that people tend to treat their money differently, they tend to classify and allocate money in different “mental accounts” according origin and intended use of money, while they should think of money in terms of the “bottom line” as in formal accounting (Thaler, 1999).

Example of mental accounting can be seen in work of R. Thaler: A coffee drinker is willing to pay $8 at an expensive resort, while he probably will not pay $1 for the same coffee at grocery shop because he has “holiday” and “grocery shopping” mental accounts.

Mental accounting can be observed at certain situations:

Tax refund. Thaler said that sometimes people violate the fungibility principle. Many people think that we can spend freely unexpected money like tax refund. For some of us tax refund is expected but exact amount usually is unknown, so we tend to spend more money if we do not expect it. This irrationality supports the idea that people treat money differently for its origin.

Another example can be seen in following situations given by Kahneman, D., & Tversky. Let us assume that an ordinary person is waiting in line at the box office to buy theater ticket. When he is about to pay, suddenly he sees that he has lost $10 (ticket is worth $10). On the second situation he has already bought ticket but when he is about to enter theatre he realize that he has forgot it at home and it is too late for bringing it back. In particular, most people would not spend another $10 for ticket that is forgotten at home. While they are willing to pay $10 to buy a ticket in first situation. In the first situation, people perceive lost $10 as a "money loss" account. But for the second situation people are not willing to pay another $10 for "going cinema account".

However these examples also related with money, other examples in an investing can be found.

"Money You Can Afford to Lose" variant of mental accounting is highly likely for some investors. Under this concept, investors perceive some arbitrary amount of investment capital as "play money" and they feel comfortable to play with that money. At some point it is sensible to separate some amount of money to invest in highly risky stocks, but true financial rationality dictates never putting money somewhere that is highly likely to be lost.

Lottery winnings are the most obvious example on how mental accounting works. Indeed, countless lottery winners have managed to go bankrupt after spending their

millions on dubious purchases that “seemed” to be justified by the unexpected prize they had won.

All these example show us negative side of mental accounting, but there is still positive side of it, as traders manage to escape big losses in one stock by limiting investment in that stock.

Confirmation bias

Theory stands behind confirmation bias claims that, when information is given our brain approaches selectively to that information and filter it. People try to search some positive things in given information which also supports our idea. At the same time we also tend to ignore information which is against our idea. Hence, we are easily biased to find information that confirms our beliefs. Confirmation bias can be closely attached to unintended processes, which includes primacy effects and anchoring, obvious in a trust on information that is come across previous in a process (Nickerson, 1998).

It works in the following way: first, we get information then reach the conclusion (without analyzing facts) then try gather and interpret facts in the way that confirm this conclusion. But in order to conclude information properly analyzing should come before conclusion.

In an investing, confirmation bias mostly appears, when an investor has already invested in certain stock. When investor read an article about this stock he tends to find facts (which do not have ground reason) which support his decision. But if he analyzed information properly, maybe he would change his decision.

As a result of confirmation bias, investor becomes overoptimistic and less critical which can lead him to make faulty decisions.

Hindsight Bias

Hindsight bias occurs in the situation when investor thinks that (after the fact) particular events can be predictable before it happened. In that situation when we think that event was predictable, often we use more information than was actually available before event happened. It repeats when being given new information changes our recollection from a first motif to something unusual (Mazzoni & Vannucci, 2007).

In hindsight so many events seem to be predictable. Psychologists say that hindsight bias occurs because of human brain's needs as it always tries to understand events. And when we try to find explanations of events we begin with searching for roots and causes of events, at the end when we find causes it seems predictable. While this way of working of brain can be considered as curiosity and is very helpful for scientific explanations, sometimes it is just oversimplification.

Hindsight bias makes the past events look more predictable than it actually was. As investor finds reasons (false reasons) of past events
He begins to think that he can predict future events by this way which leads him to be overconfident and give predictions that are groundless.

Gambler's fallacy

'The name gambler's fallacy concern to the misguided outlook owned by some group of people that unrelated events are interconnected. For instance, a gambling game or lottery player would not select to gamble on a number that came up in the

former phase. Even if people are commonly aware that sequential take out of numbers are unconnected, their instinct may tell them differently' (Rogers, 1998). In other words, in the gambler's fallacy people erroneously believes that random events are interrelated.

For example, assume that we flip coin 20 times and it landed "tails' side up on previous 19 times, what is the probability of landing "tails" side up? Under the gambler's fallacy, people might think that as coin landed on "tails" side up, it is highly likely that coin will land "tails' side up. In that situation people think that previous results have an impact on next try, however accurate understanding of probability states that fair coin turning up tails is always 50 percent, regardless of the previous tries' results, because each event is independent event.

Another example can be seen in gambling (especially in slot machines) and in lottery games. While much attention has been given on gambling (Walker, 1992), however little has focused on lottery games. Lotteries have enjoyed world-wide appeal for many years (Brenner & Brenner, 1990) just because of irrational decisions made by people. Both in slot machines and in lottery, people think that every loss brings them nearer to the victory; however slot machines and lotteries are programmed in the way that proportion of jackpot is the same in every pull, ticket. In his book "The Cognitive Psychology of Lottery Gambling: A Theoretical Review "Paul Rogers states "With the help of gambler's fallacy people make irrational choices. These includes the misinterpretation of lottery likelihood, a susceptibility to the gambler's logical fallacy and cognitive entrapment, a outlook in hot and cold numbers, impractical hope, a hope in individual luck, irrational intellection, the illusion of controlling, the incorrect mental representation of near loses, a susceptibility to award magnitude and rollover effects, the framing of chance results and finally, the impact of social factors on lottery game.".

It is easy to think that under certain situations, investors or traders easily fall as a prey to the gambler's fallacy. For instance, some investors believe that if stock has risen up in a chain of consequent trading periods they should sell this stock after it, because they do not accept that the situation is possible to continue rising up. In other example, opposite investors might not change a share that has gone down in several sessions because they accept next declines as "unlikely". Just because a share has risen up during seven sequential trading sessions does not stand for that it is not likeliness to rise up on the next session.

Herd behavior

Herd effect or “follow the trend” bias is evident when people choose to do others’ (herd’s) decisions rather than making independent choices by using given information. Herding idea has a long history in philosophy, crowd psychology, and psychology. It is especially applicable in the area of finance, in which it has been debated in relation to the collective irrationality of traders, including stock market crashes (Banerjee, 1992).

In other sphere of decision making, such as political relations, science, and popular culture, herd behavior is sometimes cross-referred to as ‘information cascades’ (Bikhchandi, Hirschleifer, & Welch, 1992)

There are some factors behind this herd behavior.

Firstly, asymmetric information is the one reason why investors copying others. As in market there are factors that impact stock prices and it is almost impossible to know all news related to the stock that we trade. So when market trend exist, investor thinks there still can be information that other investors know but he does not. That way of thinking leads him to change his mind and buy or sell this stock.

He begins to ask this question “All these other investors buying / selling cannot be wrong, right?” So he decides to buy / sell as well and his decision also might inspire others.

Another factor can be social pressure of conformity. This is because important part of individuals is really sociable and has a natural desire to be recognized by a group, rather than be branded as an outcast. Hence, following the group is a perfect tool of becoming a member.

When it comes to the reason why herd behavior is wrong strategy (yes, follow the trend is strategy) timing can be answer. It is extremely hard to choose the time for trades to ensure that an investor is entering his position right when the trend is beginning. By the time a herd trader is aware of the newest trend, leader investors of the trend have already reap the benefit of this news, and the trend’s wealth-maximizing potential has probably peaked and already start to decline.. Hence, many herd-following traders tend to be entering into the game too late which makes them highly likely to lose money as those at the front of the pack move on to other strategies. And by this way herd investor always catches the trend later than profitable period. Therefore, when herd investor realizes that trend is already beginning to decline he reverses his position and probably loses some money.

Herd behavior also force traders (herd traders) trade more, because period of trend is not so long and herd investor should react it at least to minimize loss and by changing strategy he increase his transaction cost.

Overconfidence

Overconfidence is overestimating or exaggerating one's ability and underestimating risk to successfully perform a particular task. There are so many researches, studies on overconfidence in stock market.

In 2006, significant research was done by James Montier on overconfidence of traders with the presence of 300 professional fund managers. He asked respondents to estimate their job performance with comparing others' performance. In his study "Behaving Badly", he found that 74% of them believed that they are above-average performer at their job. Of the remaining 26% of the sample, the majority accepted themselves as average. Clearly, almost 100% of the participants believed that their job performance was at least average and none of them estimate his performance as below average. But in reality, only 50 percent of them can be above average, suggesting the illogically high level of overconfidence these fund managers showed.

Overconfidence is a cognitive bias that is really dangerous for traders and a tricky thing of overconfidence is that when most investors think that it does not affect them, but actually they become more overconfident. And there is a thin border between being confident and overconfident on trading skills.

There are certain contributors to overconfidence. Firstly, people overestimate their own abilities, that bias is called illusory superiority or above average effect. In their studies, M.D. Alicke and O. Govorun and James Montier showed how investors can be irrationally confident on their performance in their studies entitled "The better-than-average effect" and "Behaving Badly" respectively. Despite the fact that 2 studies experimented in different years, results of them were almost the same.

Second factor is self-serving bias, which indicates the situation when an investor attributes success to his skills but contribute past failures to bad luck.

Another factor that increases overconfidence is illusion of control, which refers to people's beliefs that they have a control or at least impact on the outcome of things that in reality are uncontrollable events.

In a 1998 study named "Volume, Volatility, Price, and Profit When All Traders Are Above Average", researcher Terrence Odean says that "Overconfident investors are more likely to be involved in more trades than their less-confident counterparts".

Overconfidence is similar to optimism bias when people are more optimist or confident about a thing that almost independent or slightly depends on person himself. In that case we tend to judge events irrationally relative to other people. For example, we may think that probability of being cancer or involving in car accident, failing in stock market is less likely for us comparing to others. Representativeness heuristic seems to be the main cognitive factor on optimism bias. (Shepperd, Carroll, Grace & Terry, 2002). Optimism and overconfidence shows itself in a stock market when high rates of entrepreneurs enter a market, however most of them have low chances of success (Moore & Healy, 2008). Another example of overconfidence is the planning fallacy where people underestimate the length of time to complete a task, often ignoring past experience (Buehler, Griffin, & Ross, 1994).

Prospect Theory

Prospect theory is a theory states that people react differently against losses and gains. Theory first established by Kahneman and Tversky at the end of the 1970s.

Under the prospect theory researchers found that losses have more emotional impact relative to the same amount of gains. For example, in a rational way of thinking impact of gaining $50 and gaining $100 then losing 50$ should have the same emotional impact on a person. But in reality, people react differently. Experiments show that people would choose gaining single $50 over gaining $100 then losing $50 of it. It shows that people accept utility in terms of current wealth rather than absolute outcomes.

Researchers found that there 2 main biases behind Prospect theory: Loss aversion and endowment effect.

Loss aversion is a bias when people perceive pain of losing approximately 2 powerful than pleasure of gaining same amount. The primary rule of loss aversion is sometimes applied in behavior change strategies, and it can interpret why punishment frames are usually more effective than reward frames in encouraging people e (Gächter, Orzen, Renner, & Starmer, 2009).

Endowment effect

This bias arise when we overestimate goods that we possess, no matter of its intrinsic market value (Kahneman, Knetsch, & Thaler, 1991).

Kahneman and Tversky organized a series of survey in which respondents respond inquiry that included making decision between 2 monetary choices that included potential losses and gains. For instance, the following enquirers were in use in their survey:

1. Individual owns $2,000 and he has to choose one of the following options:

Option A: He has a 50% chance of acquiring $2,000, and a 50% chance of acquiring $0.

Choice B: He has a 100% chance of acquiring $1,000.

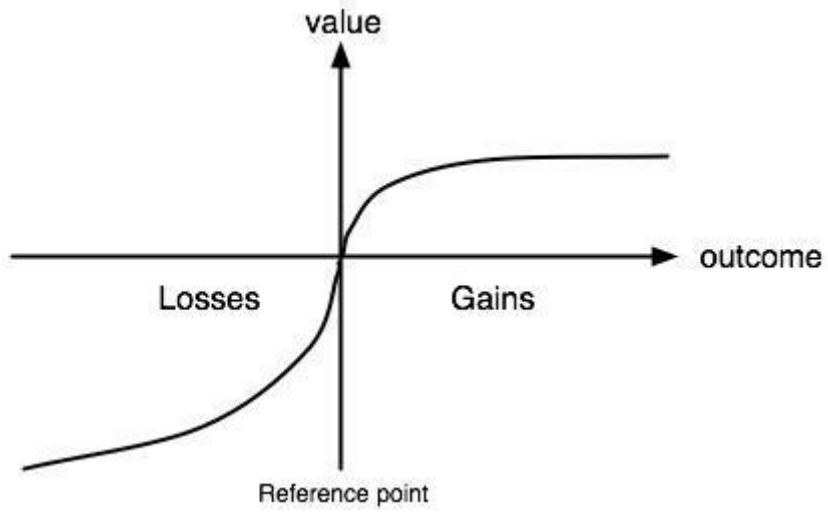
2. Individual owns $4,000 and he has to choose one of the following options:

Option A: He has a 50% chance of dropping $2,000, and 50% of losing $0.

Option B: He has a 100% chance of losing $100.

In a logical way, risk lover people would choose option A in 2 questions, while risk adverse people would choose option B. But research showed that big majority of people chose option B in 1st question and option A in 2nd question. It is because people are more likely to take risk when faced with risk of loss rather than when they have a chance to gain. They are willing to ignore the chance of gaining more when are warranted for certain amount of gain. However, people tend to take more risk when they know that there is a chance for smaller loss or zero loss. Due to the biased weighting of probabilities (certainty/possibility effects) and loss aversion, the theory leads to the given pattern in relation to risk (Kahneman & Tversky, 1979; Kahneman, 2011).

To explain the why people make emotional decisions, Kahneman and Tversky gave Prospect theory curve:



[2]

Framing

Framing is deeply related with Loss aversion and help to understand Prospect Theory.

“The term frame dependence refers to that the way individuals behave depends on the way that their decision problems are framed” (Shefrin, 2000). Framing is a cognitive heuristic in which people tend to reach conclusions based on the 'framework' within which a situation was presented. "The rational theory of deciding assumes description invariance: equivalent formulations of a choice problem should give rise to the same preference order (Arrow, 1982).

Different to this assumption, there is much evidence that variations in the framing of options (e.g., in terms of gains or losses) yield systematically different preferences” (Tversky and Kahneman, 1986).

[2] Source: Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. Econometrica, 47, 263-291

Chapter IV

Financial Anomalies

As people's thoughts are biased, it will affect to market. Biased decisions made by investors create market anomalies over the time. The term anomaly can be traced to Kuhn (1970). These anomalies directly violate financial and economic theories, but can be explained in Behavioral Finance. Disposition effect, January Effect, The Winner's Curse, Equity Premium Puzzle are the most kwon anomalies in financial markets.

Disposition Effect

One of the strongest facts about the investment of individual traders is the "disposition effect": when an individual investor sells off a hot stock in his portfolio, he has a larger tendency to sell a stock that has risen up in value since buy than one that has fall down. Under the concept of disposition effect traders are unwilling to sell off stocks that have lost value and larger probability of selling assets that have made increases (Shefrin & Statman, 1985). In a detailed research of the disposition effect, Odean (1998) exhibits that the most demonstrable possible definitions —definitions based on informed investment, rebalancing, or transaction costs—fail to seize important characteristic of the data. This concept can be interpreted by prospect theory (loss aversion), regret avoidance and mental accounting.

If a trader possesses an asset that has gone up in value since buying, he may consider that the stock was trading at a profit. If he is risk-averse over profit, he may then be willing to sell the stock. Likewise, if he is risk-seeking over losses, he may be inclined to continue on to a stock that has gone downward in value.

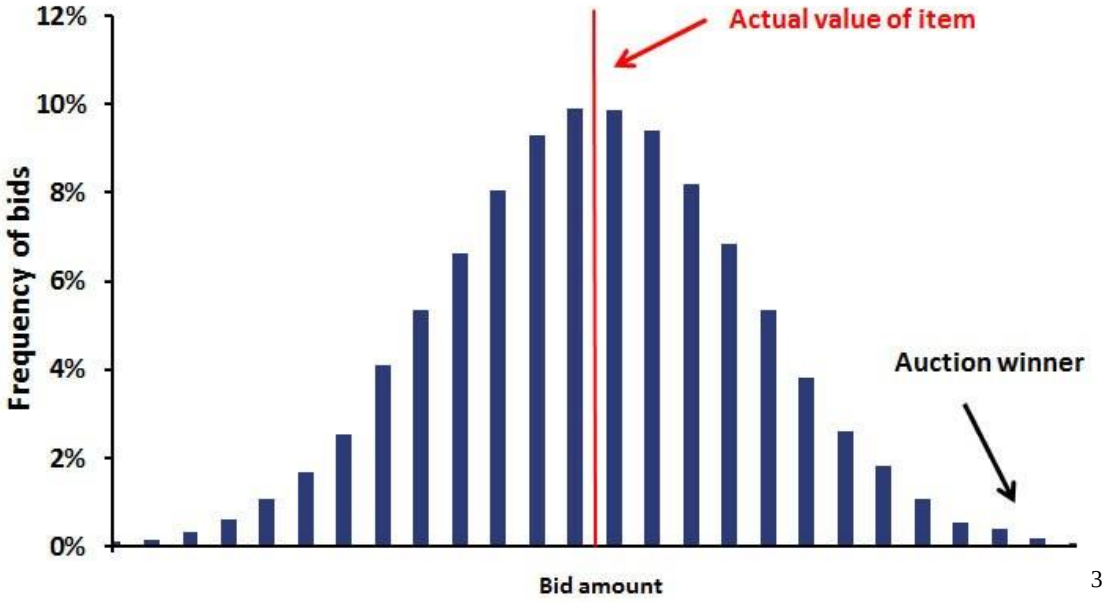
The Winner's Curse

Winner’s curse happens at auctions when winner side overpay for the item. Winner’s curse was first discussed in literature of 3 Atlantic Richfield engineers - Capen, Clapp and Campbell.

In other hand, R. Thaler explains how Winner’s curse happens in his study: “Assume that many oil companies are interested in buying the drilling rights to particular parcel of land. Rights are worth the same amount to all bidders, that is, the auction is what is called common value auction. And each bidding firm obtains an estimate of the value of the rights form its experts. Each estimate is unbiased so that an estimate is equal to the common value of the tract. Given the difficulty of estimating amount of oil in a given area, estimates of experts will vary. It means that firm that wins the auction will be the one whose experts provided highest estimation. If this happens winner of the auction will be loser. In this auction Winner’s curse can happen in 2 ways:

(1) The winning bid exceeds the value of the tract so that the winner side loses money,

(2) The value of the tract is less than the expert’s estimate so the winning firm is disappointed” We can see the winner’s curse as a graph:



[3]

Besides auctions winner's curse happens during IPOs. When company becomes stock listed no price is assigned to the stock, investors should estimate stock price themselves, so uninformed investors tends to give higher prices for low value stock.

Unfortunately, most of winners realize the winner's curse phenomenon after the fact.

The Winner's Curse is a concept of Game Theory. Researcher Ross Don explains Game Theory in his study in this way: "Game theory is the study of the ways in which interacting choices of economic agents produce outcomes with respect to the preferences (or utilities) of those agents, where the outcomes in question might have been intended by none of the agents"

[3] The Winner's Curse. Richard H. Thaler. The Journal of Economic Perspectives, Vol. 2, No. 1. (Winter 1988), pages 191-202

Calendar anomalies are anomalies which related with the particular days, weeks, months of the calendar. There are January effect, Turn-of-the-year effect , Summer effect , Month-of-the quarter effect, Week-of-the month effect, Day-of-the-week effect or Weekend effect, Monday effect , Hour-of-the-day effect or the End of-the-day effect, Holiday effect, Political-cycle effect.

January Effect

January effect refers to the investors' belief that during the period of January small companies' shares outperform big companies. Stock prices are usually higher in the first two weeks in January than in the end of December (Keim (1983), Ariel (1987) & Haugen and Jorion (1996)). But researchers found that while January effect exists, impact of this phenomenon is small indeed. In their study entitled "Capital Market Seasonality: The Case of Stock Returns", Michael S. Rozeff and William R. Kinney found that from 1904-74 the average amount of January returns for small firms was around 3.5%, whereas returns for all other months was closer to 0.5%.

But besides proven January effect, there is similar January Barometer effect which is practically, myth. Some investors believe that "As January goes, year goes" which means that a positive increase in January would impact whole following year.

Turn-of-the-year effect

The turn-of-the-year effect refers to a pattern of increased trading volume and higher share prices in the last week of December and the first two weeks of January. Trading volume is usually larger for example losing stocks in December

(Dyl (1977) & Givoly and Ovadia (1983)).This have to do with tax-related issues, selling in December and buying in January (Guin (2005)).

Years	Turn of the Year	Rest of Days
1950-2004	0.145%	0.038%

Source: *Fundamentals of Investments*, McGraw Hill, 2006

Summer effect

He found evidence of a rising stock prices in the summer (Wachtel (1942)).

Month-of-the quarter effect

Firm's usually have higher rate of returns in the first month of the quarter (Penman (1987)).

Week-of-the month effect

Stocks usually have higher returns during the first week of the month than the last thee (Linn & Lockwood (1988) and Hensel and Ziemba (1996)).

Years	Turn of the Month	Rest of Days
1962-2004	0.139%	0.025%

Source: *Fundamentals of Investments*, McGraw Hill, 2006

Day-of-the-week effect or Weekend effect

On average, closing prices on Monday evening are lower than previous Friday's closing prices (Cross (1973) and French (1980)). “The weekend effect can be related to that companies and governments tend to realize bad news over the weekends” (Guin (2005)). “Trading volumes are increasing on Fridays due to information symmetry and decreasing on 8 Mondays due to information asymmetry” (Foster and Wiswanathan (1990)).

Years	Monday	Tuesday	Wednesday	Thursday	Friday
1950 - 2004	- 0.073%	0.031%	0.09%	0.042%	0.081%

Source: *Fundamentals of Investments*, McGraw Hill, 2006

Monday effect

Average returns on Mondays are lower than any other days of the week. They also found that the largest decrease in stock prices takes place during the first two days of the week (French (1980), Barone (1990) and Gibbons & Hess (1981)).

Hour-of-the-day effect or the End of-the-day effect

Trading volumes and prices tend to increases during the last 16 minutes of a day (Guin (2005)). Noticed higher interest rates volatility during Thursdays and Fridays first trading hours (Harvey and Huang (1991)).

Holiday effect

Stock markets usually tend to have higher abnormal returns before public holidays (Lakonishok & Smidt (1988) and Pettengill (1989)).

Political-cycle effect

The first and last year of a presidential administration period have higher abnormal returns than the other years (Santa & Valkanov (2003)).

Daylight Saving Anomaly

Kamstra, Kramer and Levi (2000) found a daylight saving anomaly. Daylight-saving weekends are typically followed by large negative returns on financial market indices (roughly 200 to 500 percent of the regular weekend effect), and they argue that the effect could be a direct result of changes in sleep patterns.

Halloween

Bouman and Jacobsen (2002) revealed that a trading strategy of tactical asset allocation based on the old saying “Sell in May and go away” generated abnormal returns in comparison with stock market indices in most countries in their study.

Other anomalies

Market overreaction effect

Stock market tends to overreact to news about future dividends Shiller (1981). Yulong, Tang & Tanweer (2005) found evidence of the overreaction and reversal effects on the NASDAQ stocks market. The authors also explain that "stock price usually reverses itself after the stock experiences a sharp increase or decrease in price".

Market underreaction effect

Abarbanell and Bernard (1992) revealed that market underreaction effect is not only specific for investors; both analysts and the market tend to under react to earnings announcements.

Post-Earnings announcement drift effect

"Share values appear to respond to income for around a year after they are proclaimed" Ball & Brand (1968) in Fama (1997)

Country specific effect

Gultekin (1983) found that market reaction can be various country by country. For example, the degree of the month-of-the-year effect in different countries varies; the effect in USA is smaller.

IPO effect 1

Jong-Hwan (2003) explains this effect in his study as: "There exists evidence of an underpricing phenomenon of IPOs which results in positive average abnormal return found over a short period of time after the issue".

IPO effect 2

In the long run, after 3 years of going public, these firms significantly underperformed market performance (Ritter (1991)).

IPO effect 3

Raghuram & Servaes (1996) and McNichols and O'Brien (1996) say that "Analysts are over optimistic about the earnings and growth performance of IPO's. This over optimism may be a result of selection bias; "analysts typically start following stock they are optimistic about".

Index effect

Harris & Gurel (1986) "Stocks prices seem to rise immediately after a company's stock has been added to for example the S&P 500 Index. An investor should buy the stocks that will be added to the S&P 500 index, after the announcement but before the stock is added". (Investor, 2004)

Chapter V

Behavioral Finance in Historical Events

There exist a ton of stock market anomalies. The list above is far from complete and perfectly representable.

Bubbles

As well as anomalies which happen periodically and have small impact on market, there were The Bubbles or Market Crashes which shaped the modern stock market. A market phenomenon characterized by surges in asset prices to levels significantly above the fundamental value of that asset. Bubbles are often hard to detect in real time because there is disagreement over the fundamental value of the asset.

Peter Kugis from Stanford University determine bubbles plainly,
“A bubble is where traders purchase a stock, not for its intrinsic value, but for the reason that they schedule to resell, at a better price, to the next trader.”
Of course, Bubbles were caused by human mind’s biases. In his book entitled "Devil Take the Hindmost: A History of Financial Speculation", Edward Chancellor talks on how the herd following attitude takes form during history’s big financial bubbles: “In financial markets, one might say they are prepared to disregard negative information because they still hunger after the quick gains of speculation. An explanation of the speculators in William Fowler’s circle during the 1860s exemplifies this behavior. They were occupied, wrote Fowler, ‘in bolstering each other up, not for money, for we considered ourselves secure in that

side, but my argument in favor of another rise. We recognize we were not true but tried to convince ourselves that we were right.'"

What is really at the center of financial bubbles is biases human behavior. There are four different psychological stages of financial bubbles.

Stealth Stage

The stealth phase is the very earlier days of an stock when only comparatively few traders are aware of it and can find out the value. It's like that one irritating fellow everybody has who just listens to the most vague, underground bands from unpopular nations. The true believers.

Awareness Stage

Now big amount of money comes up calling. Institutional traders take an involvement. There is some selloff during the awareness stage by the initial true believers but not enough for others to catch. The true believers are starting to think the band is changing, trying to go mainstream to sell out.

Mania Phase

The media catches up on what is happening and take it far and wide. Average traders find out wind that something big is happening and they want to be in. The price starts to rise up, and amateur traders think it will keep rising up evermore. Your parents are now listening to the band.

Blow Off Phase

The blow off phase is the worst bubble part. The selloff is encouraged driven by panic. The fire sale decreases the price of the asset. There are no greater fools anymore. The band is currently doing a weekly show in Branson, Missouri.

However it is always hard to spot bubble beforehand, William Bernstein has revealed his criteria to find out bubbles, and it has more to do with sociological and psychological factors than economic signals:

-Everybody around you is talking on share (or real estate or whatever the hot asset of the day is). And you need to get to worrying when the individuals talking on being rich in particular spheres of the market don't have a background in finance.

-When people start quitting their jobs to involved in day trading or become a mortgage agent.

-When someone shows skepticism about the growth of stocks and and others, do not just contradict with them, but they behave so emotionally and tell them they are so stupid for not grasping events.

-When you begin to see uttermost predictions. The instance Bernstein shows is how the best-selling trading book in 1999 was Dow 36,000.

The Tulip and Bulb Craze or Tulip Mania (1630s)

Tulip Mania started in Dutch and collapsed in 1637 February. At the maximum of the market, an individual could trade a single tulip for an entire property, and, at the bottom, one tulip was the value of a common onion.
During the height of the Dutch tulip craze, the price of a bulb could run as high as 5,500 guilders, the equivalent of a nice canal house in Amsterdam. The collapse

probably had little impact on the overall economy, but it damaged trust and financial markets would never be the same.

Unneeded to mention, the prices were not an precise reflection of the value of a tulip bulb. As it occurs in many speculative bubbles, some wise people decided to sell off and take their profits. A domino effect of increasingly lower and lower prices took place as everyone tried to sell while not many were purchasing. The price start to plunge, trigger people to panic and sell irrespective of financial loss.

Investors tend to think that there will always be buyers whom they can sell at a higher price than their cost. It looks true because many have been doing it, but this is obviously incorrect. When the prices appreciate beyond the affordability of investors, there will be no buyers and prices come crashing down.

The Great Depression (1929)

During most of the 1920s, the United States economy grew. Many people invested their money. They bought stocks in companies. A stock is a small part of a company. The value of stock goes up when a company does well. The value of stock goes down when a company does poorly. Then stockowners lose money. By the end of the 1920s, the economy had started to slow down. In 1929, the value of many stocks quickly dropped. The American stock market crashed. Stockowners were frightened. Many stocks became worthless. Thousands of people lost all of their money

Behavioral finance shows that the less an investor knows, the easier it is for him or her to be swept up in popular opinion (herd mentality). This behavior is a double-edged sword because the ignorant investors are also easily spooked into panic. Both actions, joining and fleeing, have very little basis in the quality of the news or the quality of the market. Instead, the herd follows

Nevertheless, other biases can be seen in this crash, Herd Behavior served as the main driver.

The Dotcom Crash (2000-2002)

The Dot-com Bubble or the Tech Bubble was a speculative bubble in the shares of early internet companies called “Dot-coms”. It started in Silicon Valley on March 11, 2000 end on October 9, 2002

In less than two decades time, the Internet has changed our lives immeasurably. Among altering nearly every other aspect of our lives, from shopping, to communication, to receiving news, the Internet has affected the way business has evolved. Many established businesses and start-ups have made millions off of the Internet, and many more hope to do the same.

However, entrepreneurs’ overly optimistic expectations of the potential of the Internet created the infamous “dot-com bubble” (also known as the “Internet bubble”) of the latter half of the 1990s. Another bubble may be on the way if we are not careful.

As a result of Dot-com crash The NASDAQ Composite lost 78% of its value as it fell from 5046.86 to 1114.11.

New technology almost invariably creates a bubble. Even though it is easy to get caught up in trends such as social media, blogging, and e-commerce, it is important to not be caught up in the hype when making any investment. Instead, remember past mistakes, and realize that the potential to lose money by investing in a potential bubble still exists.

There is nothing wrong with investing in Internet companies. But approach them the way you would any other potential investment – with.

Overoptimism seems to be first cognitive bias that can be spotted in Internet Bubble.

Housing Bubble and Credit Crisis (2007-2009)

Bubble started in U.S. and British housing markets then spread over the world. An economic condition started in 2007, December. The common consensus is that the main origin of the recession was the credit crisis resulting from the exploiting of the housing bubble.

The one essential cause and bias of the housing bubble was irrational exuberance. The housing bubble would not have happened without the general public opinion that house prices would go on to move up.

As a result of Housing Bubble and Credit Crisis the S&P 500 declined 57.8% from its intraday high of 1,576.1 on October 11, 2007 to its low of 666.8 on March 6, 2009. Indicators of credit risk such as the "Ted Spread" and the option-adjusted spread (OAS) on corporate bonds hit record highs.

Chapter VI

Conclusion

Unneeded to verbalize, the New Economy theory was proven wrong and classic economic basic principle still carry on. What is sadly exciting is how bubbles will go on to happen in the future. In the time they do happen, unwise traders will run on to persuade themselves that “this case is different!” Investors’ behavior is an intriguing subject. A whole school of behavioral finance has come up to study precisely this. After all, didn’t Einstein say long ago that he can measure the expanse of the universe but not of human stupidity?

New financial economic theory is settled on the hypothesis that the “representative agent” in the economy is logical in two ways:
A representative agent:

(1) Makes choice according to the proposition of expected utility theory and

(2) Makes rational predictions about the future.

Uttermost versions of this theory expect that every agent acts in accordance with given assumptions. Most economists accept this extreme version as impractical; they admit that many of their acquaintances and relatives — partners, students, deans, leaders, and so on—are hopeless judgment makers. Still, protectors of the traditional model debate that it is not a difficulty for some players in the economy

to make sub optimal judgments s as long as the “marginal trader,” that is, the trader who is making the particular trading decision at hand, is logical.

So far, I have been debating whether behavioral finance is a worthy task on deductive grounds. My assumption, expected given the point, is that we can improve our understanding of financial markets by adding a human point. Some research workers have been at this assign for quite a while, nevertheless, so it is sensible to request whether any realistic progression has been achieved.

Possibly the most outstanding contribution of behavioral finance on the theory side is the detailed research of the function of markets in aggregating a collection of behaviors. The second phase of this type of theorizing has recently started. Three teams of researchers (Barberis, Shleifer, and Vishny 1998; Daniel, Hirshleifer, and Subrahmanyam 1998; Hong and Stein 1999) have undertaken the task of obtaining asset-pricing models to clarify the puzzling pattern of empirical results from the last decade — particularly, returns that show under-reaction in the short term and overreaction in the long term. All three researches draw on results from psychology to impress the behavior of the agents in their models. At the very least, these studies serve as “presence proofs” for behavioral finance theorizing. That is, they exhibit that it is realistic to invoke a rational theoretical model, one reasoned in sound psychology and economics that can illustrate a complicated pattern of empirical results. At the moment, no rival non behavioral model can say the equal.

As some progress has been achieved, what is next? What can be done to enhance understanding of Behavioral Finance?

First, I would like more data to be available for investors to analyze the market. It makes them more flexible and able to go deeper when it is needed rather than making foolish investment decisions while more data is required.

Second, of course it is not possible to learn insights when further researches will not be done. That is why Behavioral Finance should be studied in the field of corporate finance in order to extend the knowledge on this research field.

Finally, it would be better if companies encourage investors to learn behavioral side of trading as well as technical side, because they need to be patient and have a strong knowledge of psychology, finance and sociology to be rational investors.

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