BEHAVIOURAL FINANCE AND THE STUDY OF THE IRRATIONAL FINANCIAL CHOICES OF CREDIT CARD USERS

Murat Kıyılar[1]
Okan Acar[2]

ABSTRACT: Behavioral Finance researches the influence of psychology on those carrying out financial transactions as well as on the market behavior afterwards. Behavioral Finance is an interesting topic in that it helps explain why financial markets are less effective and how they are less effective. In this study, important issues such as behavior, Behavioral Finance, literature review related to the behavioral patterns of investors, behaviors of those carrying out financial transactions, over-confidence, financial conceptual incompatibility, theory of regret, and theory of expectations have been discussed. This study also aimed to determine the influence of color and shapes on the credit card choice of people. Data were collected via survey documents sent via e-mail to 130 people who are all credit card users.

Key words: Behavioral Finance, Human Behavior, Psychology, Behavior

JEL codes: A12, D01

Introduction

Finance concept has been in a process of rapid development during this last century. Particularly the Modern Portfolio Theory that was developed by mid 1950s and the subsequent financial models that emerged to play a big role in this rapid development. These theories aim to bring an objective perspective to finance in the traditional sense and express the investment preferences of the individual in mathematical terms.

The models and techniques covered by the traditional finance literature and sited above assist the individuals in their preferences and each individual is expected to make rational preferences as a standard. This principal of rationality that is one the assumptions required to be able to standardize investment preferences attracts attention as the most important assumption of modern finance.

This assumption of traditional finance has been under criticism by people since the first day and the issue of whether or not humans make rational preferences has been a matter of investigation. As we know, humans are social creatures that have unique values and that tend to make decisions in accordance with their emotions and behavior. One should not expect humans to make decisions solely based on objective factors. It is at this point that Behavioral Finance brings a novel perspective to analyze those areas that traditional finance failed to explain or had difficulty in explaining.

Behavioral Finance argues that behaviors and mood states of humans are determinant factors in shaping their investment preferences and has demonstrated great progress in the last 30 years and has been the main theme of numerous interdisciplinary studies. Thus, it is expected that this particular area of finance would be researched in more detail and that research would focus on this field.

[1] Finance Departmant, Faculty of Business Administration, Istanbul University,Istanbul, Turkey muratkiy@istanbul.edu.tr (Murat KIYILAR, PhD)
[2] Finance Departmant,Faculty of Business Administration, Istanbul University,Istanbul, Turkey okanacar78@yahoo.com (Okan ACAR, PhD Candidate)

In our study we have focused on the concept of behavior, the definition of behavioral finance and have emphasized the studies carried out in this field, later on moving to an analysis aimed at understanding the behavioral patterns of the investors in our country and coming up with an application geared towards assessing the financial preferences of these investors.

Behavior

Before moving on to behavioral finance, it would be helpful to give certain definitions related to behavior, in terms of understanding investor behavior in the financial context.

According to Skinner, human behavior is difficult to analyze due to its extremely complex nature. Human behavior is mainly based on a cause-result relation [1]. Human beings take action due to the complex influence of both internal and external stimulants (drive) and display certain actions (reaction). In psychology, this interaction is called behavior.

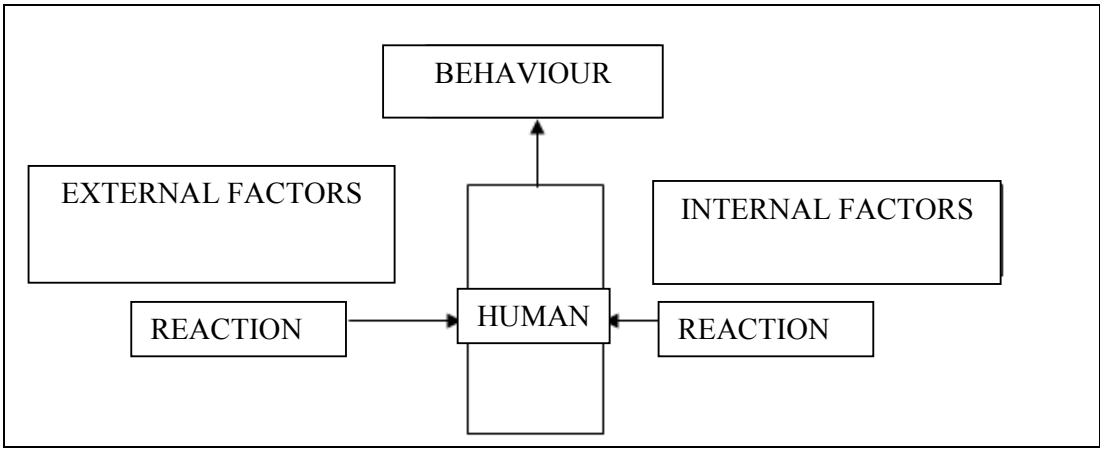

Figure no. 1 - Development of Behavior

The term Behavior is defined in the dictionaries and encyclopedias as "the mode of action, or the way humans react" while in the psychology literature it is defined as "all reactions of the organisms as a response to stimulants". Accordingly, behavior is both the internal psychic conditions and the actions reflected to the outside world. In the general psychology books on the other hand, it is defined as the mutual relations between the stimulant, organism and the reactions. A general definition we can make based on these definitions would be as follows [2].

"The collection of reactions that involve numerous actions which the organism carries out via its physical and mental skills, traits and emotional mechanisms as well as bodily motions that carry various verbal and non-verbal messages."

Behavior can also be defined as everything that an individual might do or try. In other words, behavior is every kind of action existing in and carried out by an organism. For example; all kinds of actions carried out by the organism such as speaking, walking, watching TV, eating, reading and dancing as well are considered to be behavior. In addition to visible actions of the organism such as walking and eating, the organism also has some internal experiences invisible to others such as thinking, feeling, rejoicing, frustration, remembering, forgetting, learning and dreaming. These as well are considered to be behavior [3].

We can categorize behavior under three groups. The first one is the directly observable behavior. Gestures, mimics and speech are examples of this. These behaviors can be observed and can be expressed numerically. The second one is indirectly observable behavior. Such behaviors cannot be observed directly buy can be felt or expected. For example; behaviors such as being loved, understanding and forgetting. The third one is the behaviors occurring by means of the nervous system. These occur at the sense organs by means of muscles.

It might not always be possible to predict behavior based on manners. There might be some other factors that affect the process. For example, while job satisfaction ratings might be high at a work place, turnover as well might be high. The reason of this is the fact that people take into consideration the possible consequences or effects of their acts before they act. Human behavior depends mostly on two determinants. These are individual influence and social influence. Individual influence means that the individual makes a positive or negative assessment of its behavior before displaying that behavior. Social influence on the other hand, might be defined as the perceived social pressure possibly faced by the individual in case he/she conducts or does not conduct that particular behavior. As a result of this assessment, the individual decides whether or not to display that certain behavior. As can be seen from here, there are belief patterns that lie behind the attitude of a person towards that certain behavior and these are behavioral beliefs. [3].

Concept of Behavioral Finance

Behavioral Finance is a concept that has become widely popular in recent years. Even though the concept has just recently found its place in the literature, it would not be wrong to say that Behavioral Finance has had its place in the subconscious of humans since the times humans started to be engaged in investment and consumption activities.

The principles of behavior used by Behavioral Finance in practice, are based on psychology and sociology [4]. These behavioral principles are; possibility theory, regretfullness and lack of comprehension, clinging on an idea, cognitive segmentation, over confidence, over reaction and lack of reaction, separation effect, gambling behavior and speculation, magical thinking, imaginary thinking, interest in anomalies, availability of things that facilitate discovery, socio-cultural influence and global culture.

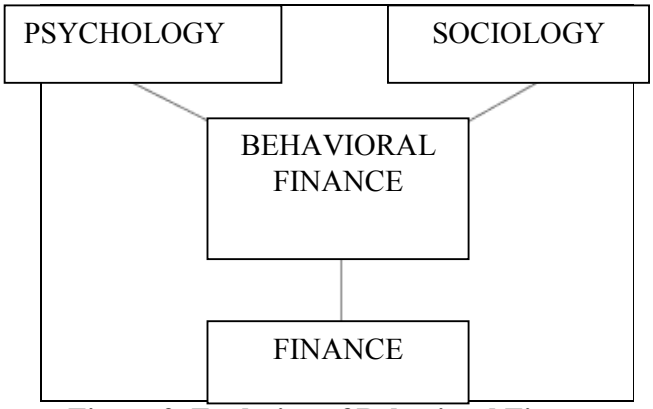

Figure 2. Evolution of Behavioral Finance

Behavioral Finance focuses on how investors interpret knowledge in order make investment decisions based on information and how they act with their investment decisions. Behavioral Finance has developed as a result of increasing interest of psychologists in economics.

As we know, one of the most important factors in investment decisions is the emotions. Behavioral Finance approach investigates the influence of emotions on investment decisions.

In the traditional financial research, first a model is proposed. Then the validity of this model is assessed via experimental methods; with Behavioral Finance approach, first the behavioral patterns in the market are analyzed; and then, based on the results of these observations, a model that aims to explain the behavioral patterns is developed. The models developed in Behavioral Finance, aims to understand not how people should act in financial markets, but how they actually act in such setting [5].

Economy and finance literature is full of theories that assume that investors make rational decisions (for example high risk high return or low risk low return) and that they strive to maximize

the expected returns. [6]. We come across a significant portion of these theories with the effective market hypothesis. However most studies conducted, revealed that investors don't act in a rational fashion in some of their investment decisions and thus most financial models fail to explain the real investor behavior. At this point, Behavioral Finance has emerged and filled this important gap and tried to understand and explain how emotions and comprehension errors affect investors and decision making processes [7]. Meit Statman from Santa Clara University has said the following for standard finance "individuals are rational however, for Behavioral Finance, individuals are considered to be normal", and has criticized the notion of "rational individual behavior" as covered by traditional finance [8].

Contrary to the hypothesis of effective markets sited above, Behavioral Finance is based on the investor behavior in the market. And while doing this it makes use of the psychology discipline to a great extent. In short, theories of Behavioral Finance are structured upon the experimentally supported knowledge from social psychology. According to Behavioral Finance, markets are not effective and the biggest proof of this fact reveals itself to us, in the form of overreaction or lack of reaction [9].

Even today, there is a great deal of suspicion about the validity of effective markets hypothesis and it has been criticized by many authors and philosophers. These criticisms can be summarized as follows [9]:

- The hypothesis of effective markets assumes that the investors make forecasts based on the rational expectations hypothesis and thus, all of them have similar expectations. However, if all investors had the same expectations, it would not be possible for security markets and security trading to emerge. Because while one side assumes a sales position based on the expectation that prices would drop, the other party assumes a buyer position thinking that the prices would further increase and the trade takes place.
- According to the hypothesis of effective markets, it is assumed that all participants have equal access to information. However it is quite controversial.
- Hypothesis of Effective markets gives the impression that security markets have no connection with real life. However, one shouldn't forget that the investments made in these markets are used in the operations of companies in the real world.

Studies conducted in the field of Behavioral Finance revealed many irrational behaviors of investors. Some of them are as follows [7]:

- Prospect theory: It can be seen as feeling more stress in the case of loss than the happiness in the case of a possible return. According to this theory which is explained as the level of happiness in the case of a return being less than the absolute level of the frustration in the case of a loss; individuals tend to give a bigger weight to their losses than they do their gains and thus try to avoid risks. However, when a loss is incurred, they tend to become risk takers [10].
- Fear of grief: The tendency to avoid selling an investment that incurs losses in order not to feel any grief or pain.
- Tendency to place more emphasis on recent experiences and tendencies.
- To have extreme self-confidence regarding an area for which one has a certain degree of knowledge.

According to an example given by Richard Thaler who carried out significant deal of research in the field of Behavioral Finance; a group of students at Cornell University were given as gift coffee mugs with school's logo on them. And another group of students were told that they can buy the mugs from their friends if they wanted to do so. But none of the students were willing to sell his/her mug for less than USD 5.25. And the highest price offered for the mugs was USD 2.75 which is the average market value. In other words, keeping a mug has a USD 2.5 of psychological value in addition to its original price. Such "emotional bonds" with personal items, expressed via phrases like "I can't sell my first car for nothing", "I can't sell the house I was born in", or "I can't

transfer my company to someone else", start to influence the financial decisions of people to a great extent [11].

Based on the above descriptions and examples, it is possible to define Behavioral Finance as follows [8]:

"Behavioral Finance is, in general, the application of psychology to the field of finance."

Even though this is a short definition, it can explain Behavioral Finance very well. In case we need a broader explanation, we can divide the branch of finance in question into two branches. These would be [8]:

- Macro-behavioral finance and
- Micro-behavioral finance.

While the Macro-behavioral finance covers the investment behaviors that strive to explain the anomalies on the effective market hypothesis, Micro-behavioral finance strives to explain the individual investors who differentiate themselves from the rational investors indicated by the classical economical theory.

Even though it has been understood that behavioral finance has an important role in the investment decisions of individuals, tradition finance should not be disregarded. Thus, an individual's investment decisions would basically be in the form of two types of reasoning. This type of reasoning will be related to the risk perceptions of the individuals and would cover the concepts of behavioral finance (subjective risk criteria) and traditional finance (objective risk criteria)[12].

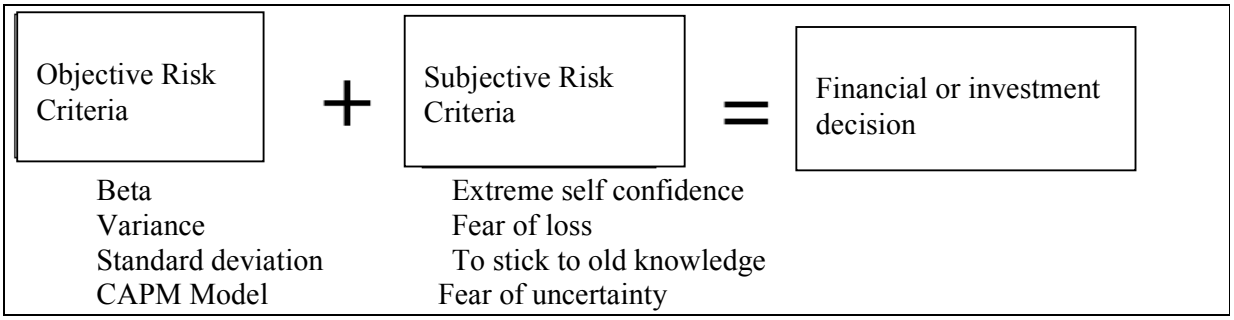

Figure 3. Evolution of an investment decision

Literature Review

Particularly in recently, various, books, articles and thesis projects were written in the field of behavioral finance and the issue gained increasing popularity. When the works related to behavioral finance are analyzed, it is possible to have an idea about the background of this field of finance as well.

As indicated at the beginning of the article, it is known that humans have certain modes of behaviors for finance and economy since they have investment and consumption preferences. However, it wasn't before a certain period of time that these issues were handled from a scientific perspective. Even though behavioral finance became popular during the last 10-20 years, most of the works written in the last few centuries emphasize the fact that individuals' behaviors influence their financial investments.

For example in his work titled The Theory of Moral Sentiments, Economist Adam Smith assessed the psychology of individual behavior. The following works have been important milestones for behavioral finance in the 20th century; Gabriel Tarde's (1902) "Psychologie Économique" (Psychology of Economy) [13], G.C. Selden's (1912) "Psychology of the Stock Market" [14], George Kantona's (1960) "The Powerful Consumer: Psychological Studies of the American Economy", John W.Pratt's (1964) "Risk Aversion in the Small and in the Large" [15].

Even though the above mentioned works have laid the ground work for behavioral finance, particularly the works of Kahneman and Tversky between 1973 and 1979, played an important role in the development of behavioral finance theory. During this period, the following works of these authors made significant contributions to behavioral finance and these authors have continued to make contributions to the field of behavioral finance in the subsequent years as well; On the Psychology of Prediction-1973 [16], Availability: A heuristic for judging frequency and probability-1973 [17], Judgment Under Uncertainty: Heuristics and Biases-1974 [18] and Prospect Theory: An Analysis of Decisions Under Risk-1979).

Daniel Kahneman and Vemon L.Smith who made a great deal of contribution to behavioral finance with their works, won the Nobel Economy Award in 2002. These authors were given the award due to the "scientific methods they developed for use with research and laboratory experiments to be applied for economic analysis". [20].

Another author who made a great deal of contribution is Tahler. In his work titled "Toward a Positive Theory of Consumer Choice he wrote in 1980, Thaler indicated that consumer behavior can have discrepancies with the economic theories. He also indicated that, in such a situation, Kahneman and Tversky's "Prospect Theory" provided more consistent results [21]. And then in his work titled "Does the Stock Market Overreact?" which he co-wrote with DeBondt and Werner in 1985, [22] he investigated whether or not individuals overreact to unexpected developments and proved this hypothesis. For many authors, this work is one of the most important works in the area of Behavioral Finance.

The article by Robert Olsen titled Behavioral Finance and Its Implication for Stock-Price Volatility-1998, was published in the Financial Analysts Journal and became one of the miles stones in the field of Behavioral Finance. In 2000, the same author's article titled The Instinctive Mind on Wall Street: Evolution and Investment Decision-Making where he described the relation between Behavioral Finance and evolutional psychology was published in The Journal of Investing.

In our country as well, various studies have been carried out in the field of behavioral finance and efforts have been made to use this field o finance for assessing the situation in the security markets in our country. Below is a list of PhD and Master's thesis covering behavioral finance as well as psychology and finance at the same time [23]:

- Investor Psychology: An empirical study on ISE (2002)
- Influence of Investor Sensitivity on stock returns in Turkey (2006)
- Anomalies in the securities markets and the behavioral finance models developed for explaining them: An application at ISE (2006)
- Effect of investor behavior on Financial Decisions (behavioral finance) and Testing of behavioral finance theories at ISE (2008).

Behavior Patterns of Investors

As can be understood from its name, behavioral finance investigates the behavior patterns of investors and tries to understand how these patterns guide investment decisions. Some studies have shown that investors can adopt irrational behavior modes. These are summarized below [24]:

- **Over-confidence:** Investors are asked their guess about the yearend value of Dow Jones Industrial Index and they are told to set such an upper and lower limit so that the values obtained would be between these limits with 90% probability. Normally 90% of them are expected to make a correct guess about these limits based on the assumption that investors are rational and that they have equal access to information. However, it does not turn out to be the case. Almost all of the investor forecasts the lowest value higher than it should be and forecast the highest value lower than it should be. One explanation for it is that, investors have over-confidence in themselves (and thus in their forecasts) and that they have to make their guesses in between limits that are narrower than they are supposed to be.

Another example for this is an experiment that was conducted previously. Participants are asked to rate their driving skills and to position themselves in comparison to all other drivers (above average, average and below average). Most of the drivers position themselves above the average. This is seen as another sign of over-confidence.

- **Anchoring and Sticking (Conservatism):** This trait is explained by referring to a problem developed by psychologist Ward Edwards in 1964. According to the problem, there are 100 bags and 1,000 poker coins in each of them. The content of the bags are not visible from outside. 45 of them have 700 black and 300 red and the remaining 55 has 300 black and 700 red. Bags are selected randomly by tossing coins. At this point we have two questions facing us:
  - What is the possibility that the number of black coins is more than the others in the selected bag?
  - Let's assume that 12 of the coins (after putting them back to the bags one by one) are drawn from the selected bag and that we have drawn 8 black and 4 red coins. In this case, do you want to revise your answer to the above question with this new information? Then what is the possibility of having more black coins in the selected bag?

This question actually shows us the following. Let's think of a business and assume that black coins represent that a successful financial picture and the red ones represent the opposite. In this case, when we bring together the two questions above, we would see that a business that has been getting bad results for many years has stated to get good results recently. This is exactly where the problem is. Are the investors stuck with their past performances? Or are they able to make use of new information?

The first question is much easier than the second one. And the answer is 45%. However, when a survey is carried out among the respondents of the second question, it was seen that great majority insisted on 45%. These people do not use the new information and react much less then they are supposed to and display a conservative mindset and anchor on the old information. Another group of respondents gave 67% as the answer. Their answer is not correct either. The correct answer is 96.04% which no respondent gave.

- **Protection against uncertainty:** Humans have a tendency to choose the certainties in the face of uncertainties. Let's try to explain it with an example. If a group of people are told that a bag contains 80 black and 20 red coins and are also told that they can receive 1,000 dollars without betting or 2,000 dollars with betting and drawing black, most of them would prefer to bet. However, when the same groups of people are asked if they would bet for a bag where no information as to the number of black and red coins is available, most of them would prefer not to bet and opt for receiving 1,000 dollars. Humans always tend to prefer certainty over uncertainty.
- **Protection against loss:** Studies have demonstrated that most individuals place more emphasis on the expected loss than they do on the expected return. For example, from among an investment option which would bring a loss of USD 10,000 with 50% probability and return of USD 10,000 with a probability of 50% and another investment option which would bring a loss of USD 2,000 and a return of USD 2,000 with a probability of 50%, the second is preferred.

Other than that, if we are to expand this example a little more, from among the following options; USD 10,000 loss with a probability of 10%, USD 2,000 return with a probability of 50% and neither loss nor return with a probability of 40%; USD 2,000 loss with a probability of 50% and USD 2,000 return with a probability of 50%, it is seen that people tend to choose the second one. However in both cases, the expected value would be zero.

Option 1: -10,000 x 10% + 0 x 40% + 2,000 x 50% = 0
Option 2: -2,000 x 50% + 2,000 x 50% = 0

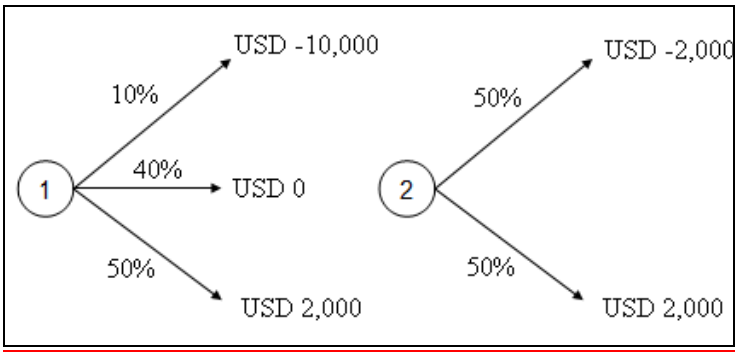

Figure 4. Calculation of Expected Value

One study has shown that investors believe that the effect of a possible loss on them would be 2.5 times more the effect of a possible return [24].

The way that the investors view return and loss has been described by Kahneman and Tversky as shown below. Accordingly, individuals strive to incur the minimum amount of loss in a given unit of time and to make the maximum return during that same unit of time [19].

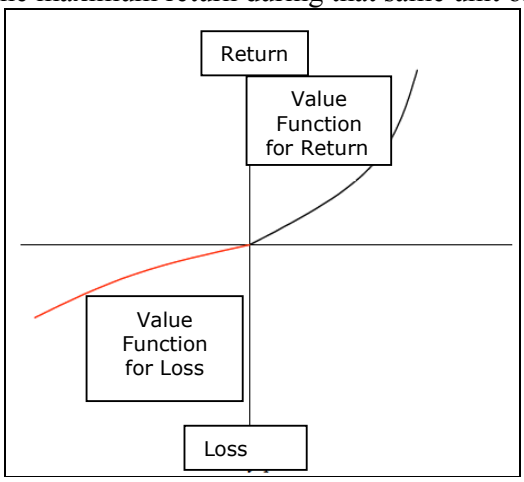

Figure 5. Value function of return and loss

• **Preventing Loss: "**In order to prevent loss" investors engage in irrational behavior. For example, after realizing that they have followed a wrong strategy, they apply stop-loss in order not to "realize their losses"; however this behavior can start a chain of mistakes that might cause them to make one mistake after the other.

• **Regret**: Individuals wouldn't want to have regrets in the future and try to make decisions to minimize their regrets. It has been observed that the investors, with a motivation to avoid regret, have not sold the stocks with decreasing prices and incurred greater losses.

• **Monetary Illusion:** The fact that most of the time, individuals do not take into account the inflation factor in their estimations even in our country where high inflation levels are considered to be normal, is quite interesting. Investors usually disregard this factor while calculating the return and loss from their investments [25].

In addition to the behavior patterns that the investors display as indicated above, they might tend to act in a different way due various factors. Some of these factors are given below [12]:

• Gender: Males are more risk-takers compared to women.

• Marital Status: Singles are more risk-takers compared to married people.

• Age: Young people tend to take more risks compared to elderly.

• Education Level: More educated people tend to take more risks compared to those with less education.

• Financial information: those with more financial information take more risks compared to those with less financial information.

Based on the information provided up to this point, the following section will summarize a study whereby how different individuals with certain traits approach a certain financial tool are assessed.

An Empirical Study on the Financial Product Preferences of Individuals

The study conducted to assess the extent to which behavior influences financial preferences of individuals as well as the results of the study are summarized below.

1. Purpose of the Study

The goal is to reveal the qualities of behavior observed in choice of credit card which is one of the financial products that the participants who joined the study used and to determine whether or not these behaviors differ on the basis of demographic features.

2. Significance of the Study

While this study makes no generalizations, it is an important study in that it provides recommendations to those banks to sell and market credit cards, in shaping their future marketing strategies.

3. Variables of the study, data and information collection method

The variables of the study include; demographical qualities (such as gender, age, marital status, employment status and public-private sector distinction) of the participants and the shapes and the colors of the credit cards that the banks will market to consumers.

In this study a survey with 3 sections consisting of demographical features as well as color and shape options was used. Data obtained from the survey were entered in the SPSS 13.0 software and chi-square test for independence was used as the data were not parametrical and efforts were made to determine whether or not there was covariance between demographical features and color or shape preferences. In addition to that, frequency distribution tables as well were analyzed.

4. Study Universe and Sample

The customers of various banks in Istanbul who use credit cards are taken as the study universe. The researchers wanted to use simple random sampling method, however, due to the limitations sited under the title "Limitations of the Study", sampling was made on a voluntary basis. 68 surveys out of 130 sent to those for whom information was available via e-mail and regular mail, were filled out and returned by the respondents.

5. Limitations of the Study

The limitations and challenges observed during the study include; information about credit card users not being publicly available as a requirement of law and high cost and amount of time required to access such information taking into account the size of the universe. Such limitations caused the researchers to study those bank customers for whom personal information was easy to access.

6. Findings of the Study

In the study, the participants were asked to choose among credit cards with 6 different color and 4 different shape alternatives and their attitude towards the shapes and colors of credit cards were assessed the shapes and colors used include the following:

Colors:

- Blue
- Green
- Black
- Red
- White
- Yellow

Shapes:

- Rectangle
- Oval
- Parallelogram
- Trapezoid

With the chi-square test of independence, whether or not a covariance between gender and color existed was assessed. In other words, whether or not the credit card preferences of the participants differed based on gender was measured. Accordingly, because in the literature, it has been accepted that the number of observations per cell in the contingency table has to be higher than 5 as a prerequisite for chi-square analysis, the table below was prepared and was observed to see whether or not it satisfies the required condition. From among the 6 color preferences; green, white and yellow were selected by an insignificant number of participants. Thus, these colors as well as those selecting these colors were excluded from the study. Because the sample size could not be increased due to certain limitations as mentioned in the section titled "Limitations of the Study", the researchers found it appropriate to exclude limit values.

When the contingency table below, obtained after the corrections due to reasons cited above were made, is analyzed, no cell where the number of observations per cell is less than five was found. Thus, these data are suitable for chi-square analysis. Looking from the sampling perspective, it is seen that the most preferred color is black with a total number of observations of 26. When this table is analyzed from the perspective of gender, it is seen that women mostly prefer red while men mostly prefer blue.

Table no.1.

Gender and Color Matching

		Color			Total
		blue	black	red	
gender	Male	18	17	5	40
	Female	5	9	14	28
Total		23	26	19	68

Table no. 2.

Findings of chi-square test

	Value	Degree independence	Sig. Value (double tail)
Pearson Chi-Square	12.339(a)	2	.002
Likelihood Ratio	12.612	2	.002
Linear-by-Linear Association	9.271	1	.002
N of Valid Cases	68		

The hypothesis set is given below:

- **H_0: There is no dependency between gender and color.**
- **H_1: There is dependency between gender and color.**

Because at a significance level of 0.05, the chi-square table value of 5.99 at the independence level of 2 determined from the table is less than the value of 12.339 calculated from this study, Hypothesis H_0 was rejected. The alpha value of 0.002 calculated by the SPSS package program shows that, the results of this study would reject Hypothesis H_0 up to the statistical

significance level of 0.002. Thus, when the significance level of 0.05 of the results obtained is taken into account, it is possible to say that they are quite significant. In short, there is a significant dependency between gender and color preferences. Men's color preferences differ from those of women and the opposite is also true.

In this study, when chi-square test for independence is carried out between each of the demographical qualities and the color or shape preferences, it is seen that the only relation that demonstrates dependency is the one between gender and color preferences. No dependency relation was observed between any other demographical quality and color or shape choice. Thus, there is no dependency between other demographical qualities and color or shape preferences.

Conclusion

In this study which provided general information about and analyzed the concept of behavioral finance, the aim was to explain that individuals do not always act rationally in their financial decisions and that their behaviors cause them to make different choices about their financial decisions. As mentioned at the beginning of the study, behavior is the action taken by an individual as a response to the complex influence of the external stimulants. Individual, who, at this point analyses the situation and reaches a rational outcome; can easily move away from these rational decision due to reasons such as past experiences, life standards and anxiety related to future and can make a mathematically incorrect decision. Further analysis of these decisions was made possible not by the approach that was initiated by Markowitz who assumed that individuals would make rational decisions regarding their financial options, but rather by the concept of "behavioral finance" that traced its origins to Adam Smith but evolved with the works of researchers like Kahneman and Tversky between 1973 and 1979.

As mentioned in the study, individual traits can guide one's behavior and financial decisions. With the study that aimed to research this phenomenon, the aim was to reveal the behavior patterns of the study participants regarding their choices of credit card and to find out whether or not this behavior differed on the basis of various demographical qualities. In this study, a chi-square test for independence between each of the demographical qualities and color or shape preferences demonstrated that, there is a dependency relation only between gender and color preference. Results indicate that women mostly prefer red while men mostly prefer blue. No dependency relation was observed between any other demographical quality and color or shape choice.

As a result, in order to carry out the study in a healthier setting and to carry out certain analyses, it would be appropriate to include in the study, the colors and shapes excluded from the study as mentioned in section six.

References

1. B. F. Skinner, 2005. Science and Human Behavior, Sinner Foundation, Cambridge, 35

2. D. Karacoşkun, Dinî İnanç-Dinî Davranış İlişkisine Sosyo-Psikolojik Yaklaşımlar, Dinbilimleri Akademik Araştırma Dergisi, V: 4, No: 2, 23-36, 2004.

3. Ö. Tütüncü, D. Küçükusta, 2006. Organizasyonlarda Bireyler: Tutum, Davranış ve Motivasyon**,** The Relationship Between Job Satisfaction and Burnout: An Analysis in Hospitality Industry, International Conference of Business, Economics and Management Disciplines, China,

4. M. Schindler, 2007. Rumours in Financial Markets: Insights into Behavioural Finance. John Wiley and Sons, ABD, p. 18.

5. A. Ceylan, T. Korkmaz, 2006. Sermaye Piyasası ve Menkul Değer Analizi. Ekin Kitapevi, Bursa, p. 609-610.

6. J. Siegel, 2007. Stocks for the Long Run: The Definitive Guide to Financial Market Returns and Long-Term Investment Strategies. McGraw-Hill Professional, ABD, p.322.

7. M. Özçam, Yatırımcı Eğitimi: Dünya Uygulamaları ve Türkiye İçin Öneriler, Sermaye Piyasası Kurulu Araştırma Raporu, 4, 2006.

8. M. Pompian, 2006. Behavioral Finance and Wealth Management: How to Build Optimal Portfolios That Account for Investor Biases, John Wiley and Sons, ABD, p.3.

9. Bahadır Ergün, Piyasa Anomalileri ve Aşırı Tepki Hipotezinin İMKB'de Araştırılması, Yayınlanmamış Yüksek Lisans Tezi, Çukurova SBE, 2009, p. 9.

10. N. Geva, A. Mintz, 1997. Decisionmaking on War and Peace: The Cognitive-Rational Debate, Lynne Rienner Publishers, p. 33-38.

11. A. Özen, Yürekten Bağlılık: Nereye Kadar?, Pivolka, V: 14, 15-17, 2003 .

12. V. Racciardi, 2007. A Literature Review of Risk Perception Studies in Behavioral Finance: The Emerging Issues, Society for the Advancement of Behavioral Economics (SABE Conference, New York University, 11-14

13. Universite De Quebec, "Psychologie Économique", (Çevrimiçi) http://classiques.uqac.ca/classiques/tarde_gabriel/psycho_economique_t1/psycho_eco_t1.html,

14. Fraser Publishing, "Psychology of the Stock Market", (Çevrimiçi) http://www.fraserpublishing.com/psstma.html

15. J. W.Pratt, 1964. Risk Aversion in the Small and in the Large, Econometrica, V:32, No:1, 122-136

16. D. Kahneman ve A. Tversky, 1973. On the Psychology of Prediction, Psychological Review, No: 80, 237-251

17. D. Kahneman ve A. Tversky, 1973. Availability: A Heuristic for Judging Frequency and Probability", Cognitive Psychology, No:5, 207-232

18. D. Kahneman ve A. Tversky, 1973. Judgment Under Uncertainty: Heuristics and Biases, Science, No: 185, 1124-1131

19. D. Kahneman ve A. Tversky, 1973. Prospect Theory: An Analysis of Decisions Under Risk", Econometrica, No: 47, 263-291

20. Radikal Gazetesi, "Nobel, Smith ve Kahneman'ın", (Çevrimiçi) http://www.radikal.com.tr/haber.php?haberno=52738

21. Richard, Thaler, 1980 . "Toward a Positive Theory of Consumer Choice", Journal of Economic Behavior and Organization, V:1, No:1, 39–60

22. D. Bondt, F. M.Werner, ve R. Thaler, 1985 . "Does the Stock Market Overreact?" The Journal of Finance, V:40, No:3, 793–805

23. YÖK, Ulusal Tez Merkezi, (Çevrimiçi) http://tez2.yok.gov.tr/

24. H. Shefrin, 2002. Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing**,** , Oxford University Press, ABD, p.18.

25 Ekonomi Portalı, Davranışsal Finans Üzerine, (Çevrimiçi) http://www.ekonomiportali.com/6.htm