

## The Effect of Mind Wandering on Risk Tolerance and Money Management Behaviors

### Zihinsel Gezinmenin Risk Toleransı ve Para Yönetimi Davranışları Üzerindeki Etkisi

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*Abstract: Mind wandering is a state of mind which impairs concentration via vision and thought raids about past or future, and creates an erosion in the task performance. Results in recent mind wandering studies show; deterioration in reading speed and comprehension, poor driving experiences leading to accidents, disrupted performance of working memory, and negative mood swings resulting with lesser happiness. However, findings of recent research demonstrate that wandering mind can increase critical thinking and improve creative problem-solving abilities. Another area which demands focus, and requires critical thinking is surely financial decisions. Although some market agents classify themselves as the most risk averse, their risk appetites can be high in reality. The effect of the wandering mind should be noted in the formation of these behavioral inconsistencies among investors. Wandering mind studies make very rare appearances in the field of behavioral finance until recent years. Main motive of this study is to demonstrate the potential effect of wandering mind on risk taking and money management behaviors of investors. The prediction role of mind wandering on risk tolerance and money management behavior is investigated on 226 university students in Turkey, who are in the field of financial management and investment planning, thus can be seen as future investors. Structural Equation Modeling results show that wandering mind effected subjects both risk tolerance and money management behaviors negatively. These findings are in line with international literature. In addition, mind wandering explained the variance of risk tolerance and money management behavior by 31% and 2%, respectively.*

*Keywords: Behavioral Finance, Mind Wandering, Risk Tolerance, Investment Decisions*

*JEL Classification: D14, D81, G11, G41, G51*

*Özet: Zihinsel gezinme, geçmiş ya da gelecekle ilgili hayal ve düşünce atakları yoluyla konsantrasyonu bozan ve sonuç olarak da kişilerin o an yaptıkları işlerdeki performanslarını önemli ölçüde azaltan bir zihin halidir. Zihinsel gezinme ile ilgili yapılan çalışmalarda; okuma hızının azalması, kaza ile sonuçlanabilen kötü sürüş deneyimleri, çalışma belleği performansının düşmesi ve daha az mutlu hissetme gibi olumsuz sonuçlar bulunmuştur. Bununla birlikte, yakın zamanda yapılan çalışmaların sonuçları ise zihinsel gezinmenin eleştirel düşünceyi artırabileceği ve yaratıcı problem çözme yeteneklerini geliştirebileceğini göstermektedir. Odaklanmayı ve eleştirel düşünmeyi gerektiren bir başka alan ise şüphesiz finansal kararlardır. Bazı piyasa oyuncuları kendilerini riskten kaçınanlar olarak sınıflandırsalar da, risk iştahları gerçekte yüksek olabilir. Zihinsel gezinmenin, yatırımcılar arasında bu davranışsal tutarsızlıkları oluşturmasındaki rolü gözden kaçmamalıdır. Son yıllar haricinde davranışsal finans ile zihinsel gezinme arasındaki ilişkiyi inceleyen sınırlı sayıda çalışma vardır. Bu çalışmanın temel amacı, zihinsel gezinmenin yatırımcıların risk alma yetenekleri ve para yönetimi davranışları üzerindeki potansiyel etkisini tespit etmektir. Zihinsel gezinmenin risk toleransı ve para yönetimi davranışları üzerindeki yordama gücü, finansal yönetim ve yatırım planlaması alanında Türkiye'de eğitim alan ve geleceğin yatırımcıları olarak kabul edilen 226 üniversite öğrencisi üzerinde incelenmiştir. Yapısal Eşitlik Modellemesi sonuçları, zihinsel gezinmenin hem risk toleransı hem de para yönetimi davranışlarını olumsuz etkilediğini göstermektedir. Bu sonuçlar, uluslararası literatür ile uyumludur. Ayrıca zihinsel gezinme sendromu, risk toleransı ve para yönetimi davranışlarının varyanslarını sırasıyla %31 ve %2 düzeyinde açıklamaktadır.*

*Anahtar Kelimeler: Davranışsal Finans, Zihinsel Gezinme, Risk Toleransı, Yatırım Kararları*

*JEL Sınıflandırması: D14, D81, G11, G41, G51*

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## 1. Introduction

Mind-wandering is one of the most extensive and trending subjects among mental representations. Studies infer that people's mind jumps between thoughts for a rating up to 50% in a day, and this phenomenon decreases their focus related task performances whether the process involves driving, reading or using their working memory (Killingsworth and Gilbert, 2010). In most of the cases, human actions occur in an environment where other outer factors are in play, and these determinants can create a significant decrease in concentration for people, while they are executing focus demanding projects. This performance decreasing mental state is defined as mind wandering (Smallwood and Schooler, 2006; Schooler et al., 2011). As shown in Figure 1, people's mind travels to either past or future related thoughts when this phenomenon is in action.

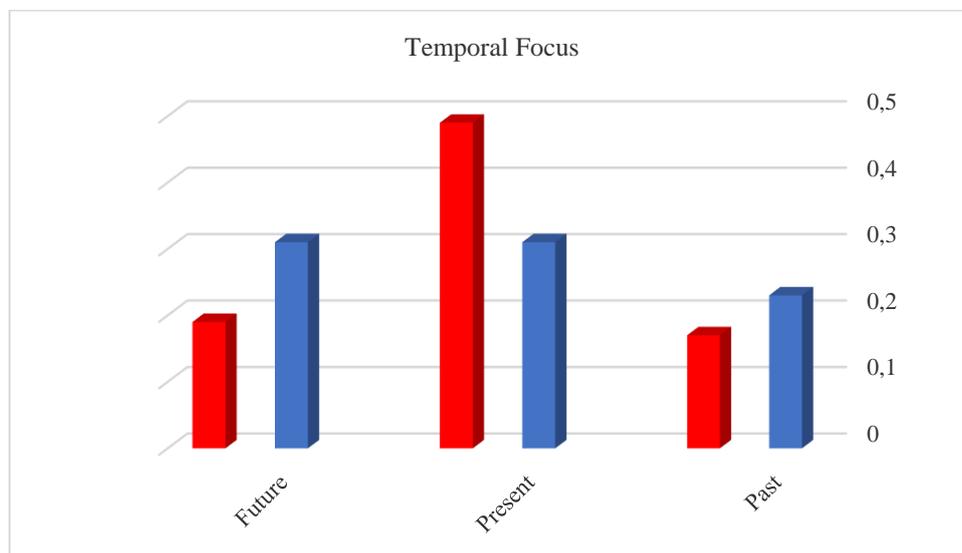


Figure 1. People's thoughts are spinning to past and future at the state of mind wandering. Blue bars represent stimulus independent thoughts which create mind wandering, while red bars indicate task related thoughts which generate mindfulness. As clearly seen on the figure, at the state of mind wandering, people tend to delve into past and future more, and eventually not living the present efficiently decreases their task performance.

*Source: Schooler et. al. 2011. Meta-Awareness, Perceptual Decoupling and the Wandering Mind, Trends in Cognitive Sciences 15, no. 7: 319-326.*

Previous studies analyzed the impact of mind wandering on focus related activities such as short-term memory, reading efficiency, mood, and road safety. However, another focus demanding action occurs during taking financial actions. Wandering mind triggers people to visualize past or future frequently, and as a result takes their concentration away from present time. Mind wandering stimulates negative mood on people, and when that happens, they can't concentrate enough on their focus demanding tasks, and eventually the efficiency of subjects

on their tasks decreases. This is analyzed on studies which associates the possible effect of mind wandering on mood changes (Smallwood et al., 2009).

Financial actions, risk taking ability and money management behaviors also make people think about their past experiences to build a healthy future where they can live in prosperity. However, it is difficult to say that today's financial markets operate in a fully efficient structure. Under these circumstances, investor psychology and perception affect investment decisions and market developments considerably. Looking from the perspective of behavioral finance there are two dimensions to uncover investor behavior; cognitive psychology and limits to the arbitrage (Ritter, 2003). While the decisions made by investors due to their past experiences, and the environment they live shape the market, on the other hand the limitations of arbitrage opportunities generate an obstacle in eliminating price differences among markets, at least in the short term (Taner and Akkaya, 2005).

Investors sometimes trade based on rumors rather than information, and sometimes react to market information more or less than they should be. When these emotional behaviors become systematic rather than random, they can actually become a source of risk in the financial markets. Hereby, cognitive biases arise from investor feelings, and as a result they affect investment decisions of potential agents. Cognitive and emotional factors play a vital role in financial markets. Understanding this role through behavioral finance and taking appropriate measures will contribute to the strength of not only overall markets but also investment decisions. Therefore, the training of investors on behavioral trends and tendencies; improvement, simplification, and dissemination of public disclosures and financial reporting rules in order to help investors will eventually give more positive results in their in-depth market choices (Tufan and Sariçiçek, 2013).

Research aimed at identifying how investors' inner world affects the money markets support the hypothesis that wandering mind syndrome should be evaluated in the financial context, by building bridges between behavioral finance and cognitive psychology. To illustrate, the effect of experience on risk-taking behaviors was examined at a study (Menkhoff et al., 2006). Whether inexperienced fund managers take more risks in order to get a bigger share in the fierce competition was explored in that research. Results show that financial agents who are in the first years of their investment lives are more confident and take risks, but risk-taking behavior of participants follows a downward trend as long as they gain more experience. Another study showed that long-term investors have lower confidence in the markets and follow the risk aversion policy because they have accomplished excessive analysis of the market, while short-term investors have the confidence and risk-loving

characteristic which make their time spent on financial decisions even lesser (Lakshmi et al., 2013). Results of another research demonstrated that participants can achieve positive results in their trades and investments, with effective wandering mind management and mindfulness (Dayton, 2014).

The main purpose of the study is to determine the existence of a strong and significant association among mind wandering, risk tolerance and money management behavior of the participants. Wandering mind studies mostly focus on reading performance, malpractices in medical science, working memory productivity and driving performance, in fact only recent years seldom research can be found about behavioral finance dimension of this trending phenomenon. For this purpose, this study is aimed to explore the potential impact of wandering mind in financial decisions which requires tremendous thinking and planning ahead. Wandering mind's predictor role on risk tolerance and money management behavior is investigated with Structured Equation Model on 226 university students in Turkey, who have the basic knowledge of financial management and investment analysis. Results demonstrate that wandering mind effected subjects both risk tolerance and money management behaviors negatively.

At this study the possible effect of mind wandering on risk tolerance and money management behavior is investigated. At the second section, the paradigm of wandering mind and its effect on human psychology will be explained. Third section will demonstrate the methodology that is used in this study to explore the predictor role of mind wandering on risk tolerance decisions and money management behaviors with Structural Equation Modeling. Finally, conclusion section will draw attention to the importance of mindfulness while taking financial decisions, and possible benefits of creating a mind atlas of different countries to have an even more understanding about distinctive capital market agents.

## **2. Wandering Mind and its Effect on Human Psychology**

The term of mind wandering has been getting the attention of the scientists in the recent years. At focus related activities, people tend to loss their concentration and think about other events, mostly past or future actions, and eventually their task performance decrease profoundly. Some of the activities, which are analyzed in the wandering mind studies are reading (Smallwood et al., 2008; Reichle et al., 2010; Franklin et al., 2011; Randall et al., 2019), working memory productivity (Smallwood et al., 2003; Riby et al., 2008; Mrazek et al., 2012; Risko et al., 2012), mood swings (Smallwood and Schooler, 2006; Smallwood et

al., 2009; Killingsworth and Gilbert, 2010), and driving performances (Feldman et al., 2011; Berthie et al., 2015; Terry and Terry, 2015).

A significant portion of wandering mind studies focused on reading performance in an effort to improve learning quality and efficiency (Smallwood et al., 2008; Reichle et al., 2010; Franklin et al., 2011). At this type of research, subjects are given reading materials and tested whether there is an occurrence of wandering mind state at any point during the session. Results demonstrate that those who have wandering mind syndrome in the session couldn't remember a significant part of what they had read. Besides, at another study, subjects were given a crime novel and asked to read it. According to results, participants who have excessive wandering minds, experienced difficulties in identifying the real criminal at the novel (Smallwood, et al., 2008).

The potential increase in the activity of wandering mind with an escalation in the difficulty of reading material is explored in the literature. At a study, wandering mind activity of the subjects are monitored while they are solving three groups of mathematics questions, which are easy, intermediate and difficult (Randall et al., 2019). Results showed that, wandering mind activity of the students are at their highest, while they are dealing with the most difficult questions. Wandering mind has also been found effective in reducing participants test performances significantly.

For some scientists, the association between the state of wandering mind and the productivity of working memory is more noteworthy (Smallwood et al., 2003; Riby et al., 2008; Risko et al., 2012). In an effort to shed some light on the matter, at a recent study operation, reading and symmetry tests were performed on subjects to monitor the state of wandering mind's possible effect on working memory (Mrazek et al., 2012). The results of all three tests are inversely related to wandering mind activities, so it was stated that wandering mind affected the performance of working memory negatively. The same study found that participants who experienced excessive wandering mind states performed poorly in their intelligence tests due to focus related problems. Results showed that, mind wandering played a critical role in the failures of participants' both educational backgrounds and business lives. Another study expressed that, analyzing the easiest tasks are also as important as the most difficult ones, in order to answer the question of why mind wanders (Randall et al., 2019). Although wandering mind state can be triggered during the easiest tasks, the performance loss is comparatively less. However, when it comes to difficult tests, wandering mind activity becomes more harmful and leads to further performance losses.

The association between wandering mind and mood is examined at several studies. It is not surprising that, a syndrome that can affect participants' half of their days, can also affect their moods. In order to increase the efficiency and quality of life, psychologists are embarked upon scientific experiments and analyzed if there were any patterns in the mechanism of wandering mind state (Smallwood and Schooler, 2006). To illustrate, a study indicates that people were less happy when the state of wandering mind was active (Killingsworth and Gilbert, 2010). Figure 2 shows the day-to-day activities of participants according to their wandering mind activity rates and happiness levels. Wandering mind generally excels while working at the office, talking to someone, doing work on the home computer, traveling, watching television and resting. On the other hand, participants seem to become almost wandering mind free during their meditations. The average level of happiness during the day was 65% for that study, but when there is an active negative wandering mind in the process, happiness level could decrease down to 43%.

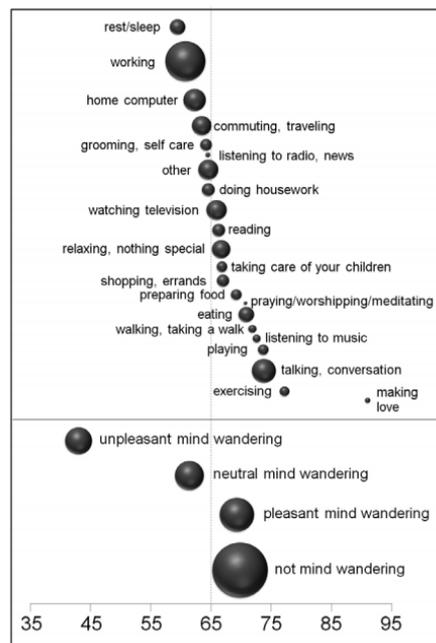


Figure 2. Happiness levels reported during day-to-day activities (top), and mind wandering sequences (down). Circle sizes indicate the frequency of occurrences. Within wandering mind sequences, unpleasant mind wandering accounts for 15% of the samples. Within activities, wandering mind happens while working at the most (22%) and meditating (0.1%) or making love (1%) at the least. The scale on x axis shows the happiness levels of the subjects while doing these activities. As the above line suggests, mean happiness is around 65%.

Source: Killingsworth and Gilbert, 2010, *Wandering Mind is an Unhappy Mind*, *Science* 330: 932.

The critical outcomes of wandering mind draw attention when the studies about its associations with road safety and driving performance are analyzed (Yanko and Spalek, 2014). Studies on road safety indicate that there is a decrease in accident rates when the mindfulness, which is considered as the opposite of wandering mind, increases. Being judgmental of inner experience and distraction push people towards messaging while driving, and the consequences are often severe (Feldman et al., 2011; Terry and Terry, 2015). International literature shows that drivers experience wandering mind frequently. In a study, it was explored that approximately 85% of the drivers experienced wandering mind and this phenomenon affected almost one-third of their driving experiences (Berthie et al., 2015). In another scientific work, the focus was shifted towards the association between having a wandering mind and being responsible for a traffic accident, and the results were intriguing. A statistically strong relationship was detected between wandering mind and accidents (Gil-Jardine et al., 2017).

Age is also a factor in driving performance research. Some studies express that young people experience the state of wandering mind while driving, more frequently than any other age group (Burdett, et al., 2016). Results also showed that the state of wandering mind prolongs reaction times and deteriorates attention by escalating aggression while driving (Geden and Feng, 2015).

Remarkable results have emerged at the studies examining the interviews between angel investors and entrepreneurs who are in the process of establishing a new business. Entrepreneurs who have the ability to sell their ideas with a clear message became successful in finding capital to their promising projects, on the other hand without regard to the potential of the project, entrepreneurs who could not seize the moment were almost always failed. The interviews of unsuccessful entrepreneurs expressed that the investors experienced wandering mind states during the sessions where entrepreneurs failed to get enough attention (Shane et al., 2019). The results also showed that entrepreneurs who were successful in increasing their effective interactions with investors, had 8% more chance in getting the funds they need. This outcome explains how investors who make individual financing decisions can be affected by environmental factors and advertisements which have direct and clear messages for target groups.

In addition, some of the studies indicate that advanced stages of the wandering mind can lead to depression in the short term, although negative effects of the wandering mind can't be detected in the long run (Ottaviani and Couyoumdjian, 2013). Still, some cases of wandering mind result in medical malpractices (Smallwood et al., 2011). Individuals taking accurate

investment decisions for their financial health in future is just as important as doctors trying to find the best treatment method for their critically ill patients, so the possible outcomes of wandering mind activity can be severe in both of these situations. With the boosting of meditation, regular sleep and mindfulness, the negative effects brought by wandering mind can be reduced significantly, so people can feel more positive (Tang et al., 2007).

Scientists have embarked on a quest to identify possible positive effects of this syndrome on human psychology, since the wandering mind has clearly intense negative effects, as stated earlier. Some studies have explored that wandering mind, consisting of especially future-centric thoughts, enables people to make future planning more effectively and efficiently (McVay and Kane, 2010; Smallwood et al., 2004). As seen previously in Figure 1, in the state of wandering mind, people's thoughts shift more towards future-centric visions rather than past-centric (Schooler et al., 2011). Another research has documented that wandering mind in people with higher working memory focuses on the future rather than past or present thoughts (Smallwood et al., 2009). Wandering mind can deliver creative solutions to unfinished issues that already took tremendous time and energy but not accomplished yet. Science discoveries are classified as the byproducts of wandering mind, according to this perspective. (Smallwood and Schooler, 2006).

### **3. Methodology**

This study was performed on 226 university students in Turkey, who are trained in both personal finance and investment analysis. Prior to the study, the importance and theme of the research was explained to the subjects who will participate in the work, and each scale was scored in accordance with its answer key. In order to determine the relationship among students' wandering mind states, risk tolerance levels and money management behaviors, a questionnaire consisting of 34 items was conducted, and packaged software of SPSS 22 for Windows was used to evaluate obtained data. Finally, Structural Equation Modeling was applied to display the effect of wandering mind on risk tolerance and money management behaviors of the participants.

The scale developed by Philip Asherson in 2016 is widely preferred in studies to determine the wandering mind state of the subjects. The structure of the scale is Likert style, and used in studies to measure the extent of off-task thinking activity levels of people with higher mental health, as well as subjects with psychological disorders. This scale consists of questions on; how quickly and rapidly the subjects' thoughts change, whether they think of several irrelevant thoughts at the same time, and to what extent their focus deteriorates. The

Cronbach's alpha value, which shows the reliability of the study, in the original research of the developer was found to be 0.78 (Mowlem et al., 2019). First Turkish version of the scale with 11 questions, which have passed linguistic equivalence test, was adopted in a study and have a Cronbach alpha of 0.826 (Günay-Aksoy, 2019). Last version was also used in this study and the Cronbach alpha value of this research is found to be at 0.89.

In order to observe how the wandering mind syndrome affects students' money management behaviors, a scale developed by Hülya Güvenç to observe the financial behavior of the students was implemented (Güvenç, 2016). This 10-question scale also has a Likert structure, and aims to address participants' money saving habits, day-to-day money spending principles, and their money movement plans for the future. While Cronbach alpha value of the developer's original research is 0.81, it is found to be 0.87 in this study.

At scientific studies aimed to uncover financial risk tolerance levels of participants, the scale developed by John Grable and Ruth Lytton is frequently used. This scale consists of 13 questions, which are intended to demonstrate the level of risk investors take in their investments, participants' comfort and experience in taking risks, and the extent of speculative risk-taking ability of subjects (Grable and Lytton, 1999). The Cronbach alpha value of the developer's first use of this scale is 0.75. Turkish version of the scale, which passed the linguistic equivalence test, is preferred at a study which has a Cronbach alpha of 0.726 (Kübilay, 2015). Five questions (3, 7, 9, 10, 11) were excluded from the Kübilay's scale because they lacked adequate loadings to support the internal consistency of the model for this study. Thus, at this research, Cronbach alpha, which shows the reliability of the risk tolerance scale has reached to 0.65.

In an effort to understand the sociodemographic characteristics of the participants, gender statistics of the subjects are shown in Table 1, and their parents' educational statistics are shown in Table 2. As seen on Table 1, 41.6% of the students are men while 58.4% of them are women.

Table 1. Genders of the Participants

	<i>n</i>	%
<i>Man</i>	94	41.6
<i>Woman</i>	132	58.4
<i>Total</i>	226	100.0

In the risk tolerance studies conducted on the subjects who are still continuing their education, the potential effect of the education level of the parents is examined frequently, to

further analyze subjects' risk contexts (Brown et al., 2006). In this regard, when Table 2 is assessed, statistics show that students' mothers are mostly graduated from primary school by 54%, while the least graduated school among them is university by 2.2%. On the other hand, when subjects' fathers are analyzed, statistics indicate that the most graduated school type is primary school among them too, just like mothers. However, the rate of having a university degree among fathers increases slightly to 12.8%.

Table 2. Education Level of the Participants' Parents

	<i>Mothers'</i>		<i>Fathers'</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
<i>No Education</i>	16	7.1	7	3.1
<i>Primary School</i>	122	54.0	81	35.8
<i>Secondary School</i>	51	22.6	52	23.0
<i>High School</i>	32	14.2	57	25.2
<i>University</i>	5	2.2	29	12.8
<i>Total</i>	226	100.0	226	100.0

Studies express that gender factor affects individuals' financial behaviors differently, especially when evaluated in terms of risk tolerance (Lin, 2011). In this regard, another study displayed that women should have used more risky financial instruments because they live longer than men on average, but their real-life financial practices were found to be exact opposite (Ho et al., 1994). In another study, results indicate that men take more risks than women, but women can effectively make more profit than men (Barber and Odean, 2001). In order to examine the effects of gender on study variables, a MANOVA test was conducted at this study, as seen on Table 3. No significant gender differences are observed between men and women when examined in terms of money management behaviors and wandering mind activities. However, when risk tolerance of the subjects analyzed, results expressed significant gender differences, Pillai's Trace = .08  $F(3, 222) = 6.19, p < .001, \eta^2 = .08$ . Univariate tests revealed that men had higher risk tolerance than women,  $F(1, 2.78) = 14.85, p < .001, \eta^2 = .06$ . These findings are in line with the international literature.

Table 3. MANOVA Test Showing Gender Effects on Study Variables

	<i>Gender</i>	<i>n</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>F</i>
<i>Wandering Mind</i>	Man	94	2.33	.58	.181
	Woman	132	2.36	.53	
	Total	226	2.35	.55	
<i>Money Management</i>	Man	94	2.34	.67	1.244
	Woman	132	2.24	.63	

	Total	226	2.28	.65	
<i>Risk Tolerance</i>	Man	94	2.28	.50	14.851***
	Woman	132	2.05	.38	
	Total	226	2.14	.45	

The average education level in the environment where the person is raised is an important parameter that can signalize both the income level of the households, and risk-taking behaviors of the participants, which can be seen on Table 4. To exemplify, results of a study showed that an increase in the education level of parents have increased the risk-taking ability of their children. Same study specifies that children were more hesitant about taking risks and spending money because their parents' education level decreased, but the main determining factor about the decrease in risk tolerance was their low-income level (Hryshko et al., 2010). According to another research, despite an increase in the education level of children enhanced their risk appetite and earnings from the stock market, an increase in the education level of their parents did not have a significant impact on subjects' financial gains (Black et al., 2015).

Table 4. MANOVA Test Showing Effects of Parents' Education Level on Study Variables

		<i>Mothers'</i>				<i>Fathers'</i>			
	<i>Education Level</i>	<i>n</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>F</i>	<i>n</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>F</i>
<i>Wandering Mind</i>	Primary S.	122	2.37	.57	.45	81	2.31	.56	1.21
	Secondary S.	51	2.40	.53		52	2.29	.47	
	High School	32	2.28	.55		57	2.39	.55	
	University	-	-	-		29	2.50	.66	
	Total	205	2.36	.56		219	2.35	.55	
<i>Money Management</i>	Primary S.	122	2.28	.68	.42	81	2.26	.68	.81
	Secondary S.	51	2.35	.63		52	2.38	.70	
	High School	32	2.21	.62		57	2.19	.57	
	University	-	-	-		29	2.23	.62	
	Total	205	2.29	.66		219	2.27	.65	
<i>Risk Tolerance</i>	Primary S.	122	2.10	.45	1.95	81	2.07	.45	1.46
	Secondary S.	51	2.20	.42		52	2.12	.47	
	High S.	32	2.25	.46		57	2.16	.40	
	University	-	-	-		29	2.27	.45	
	Total	205	2.15	.44		219	2.13	.44	

Whether the education level of the parents of the participants drive students to a potentially more frugal and risk averse state or more extravagant and risk-taking condition is analyzed with a MANOVA test. Being uneducated for mothers and fathers, and having a university degree for mothers were not included in the test, because of their low weights in the

group. As in Black et al.'s (2015) study, it was found that the educational status of the parents did not have a statistically significant effect on participants' wandering mind, money management and risk tolerance mechanisms,  $p > .05$ .

In line with the international literature, a simple and basic model has been created in order to demonstrate the prediction role of wandering mind on both risk tolerance and money management behaviors, considering the fact that mind wandering causes underperformance in situations that require focus. Structural Equation Model demonstrating the relationship between wandering mind and the latent variables which are risk tolerance and money management behaviors can be seen at the Figure 3.

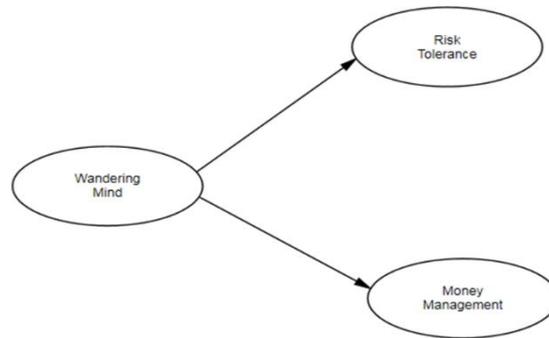


Figure 3. The Proposed Model of Wandering Mind on Personal Finance

For each latent factor, there are boxes that represent their sub-group observed variables on Figure 4. The direction of the pathway between variables are shown with arrows. For the sub-group observed variables of wandering mind; WMP1 indicates the quality of thought control, WMP2 shows the extent of thought continuity or otherwise known as thought attacks, and WMP3 expresses the degree of thought range and variety of thoughts in a given period.

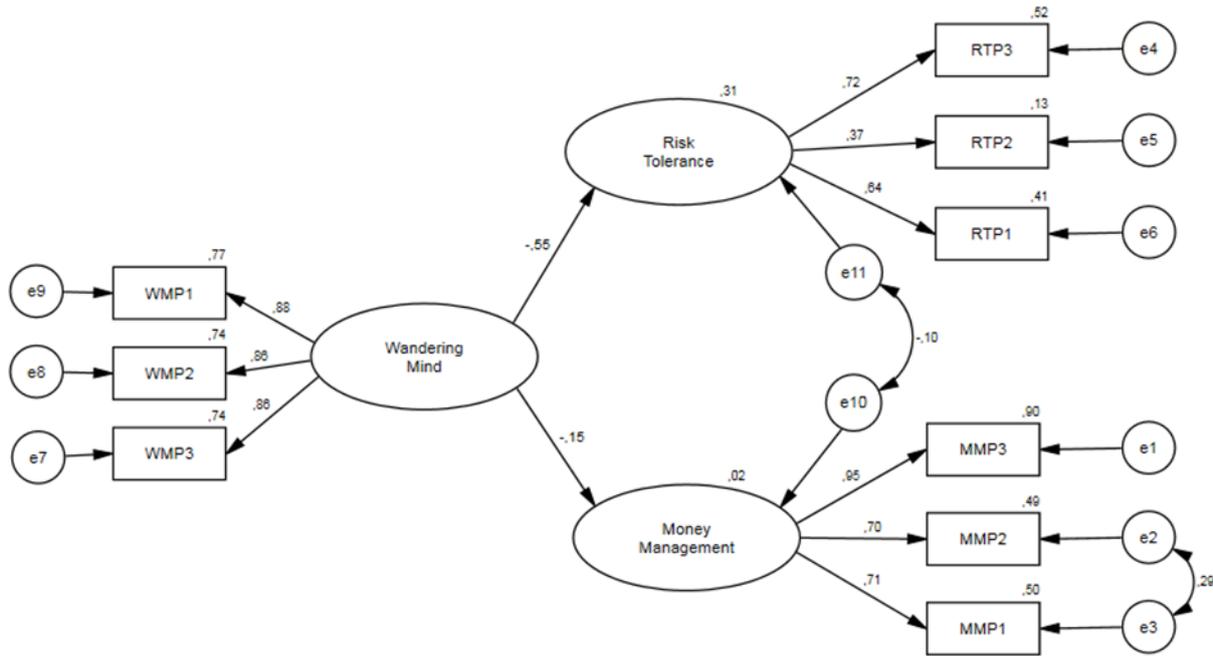


Figure 4. Structured Equation Modeling on Wandering Mind, Risk Tolerance and Money Management

When the sub-group observed variables of risk tolerance are examined, it can be seen that; RTP1 displays the extent of the risk-taking ability, RTP2 infers the ability of making on-point investments, and RTP3 signals the rating of risk perception. And finally, for the sub-group observed variables of money management; MMP1 expresses the degree of future planning for monetary tasks, MMP2 indicates the quality of daily management of money movements, and MMP3 displays the frequency of noting down monetarily transactions.

The most important explanatory sub-group for risk tolerance is risk perception. Risk perception section of the model explained 52% of the variance of the whole risk tolerance. On the other hand, the supreme explanatory sub-group for money management is taking record of monetarily movements. Noting down money transactions section of the model explained 90% of the variance of the entire money management variable. As seen on Table 5, the estimation of the structural equation modeling yielded a very good fit with the data of the proposed model.

Table 5. Goodness of Fit Index for the Proposed Model

	Normal Value (Good Fit)	Acceptable Value	Observed Value	Fit
X2	-	-	40,07	
Df	-	-	23	
X2/df	<2	<5	1,74	Good Fit
RMSEA	<0,05	<0,08	0,06	Acceptable Fit
CFI	>0,95	>0,90	0,98	Good Fit
GFI	>0,95	>0,90	0,96	Good Fit
AGFI	>0,95	>0,90	0,93	Acceptable Fit
NFI	>0,95	>0,90	0,96	Good Fit

Wandering mind also predicted risk tolerance and money management behaviors negatively  $\beta = -.55, p <.001$ ;  $\beta = -.15, p <.05$ , respectively. Consistent with the previous research, at this study wandering mind explained the 31% of the variance of risk tolerance, in addition, it also explained the 2% of the variance of money management behaviors.

Findings of this study show that, when participants' wandering mind activity rises, they already feel themselves in a hazardous situation, so they don't prefer to embrace more risks and chose to be more risk averse in any given alternative. In a similar manner, when subjects have excessive mind wandering, they choose to spend more money, in a way to live the present and boost their moods, but ultimately, they couldn't manage their money effectively. In terms of financial health, it has been confirmed that the likelihood of making an efficient investment decision increases with lesser mind wandering activity in participants (Lucarelli and Brighetti, 2011). In the same study, when the financial decisions made by subjects with high wandering mind activity were analyzed with multivariate analysis, results showed that emotional risk was inversely associated with the real risk that participants actually took. Emotional risk increases wandering mind activity, which causes people to avoid risks. In addition, same study determined that risk is related to the character, experience and age of the participants rather than their past and family ties. Finally, it was observed that investors' unsecured debts increased by 2% on average, every time they make financial decisions without thinking thoroughly. Thus, the results in this study are in accordance with the work of Lucarelli and Brighetti (2011).

#### 4. Conclusion

At the end of 20th century, studies related to behavioral finance has glowed after the works of Kahneman and Tversky (1979) and their research about prospect theory. People don't react the same way in risky situations, and their behavior is not as rational as what traditional

finance advocates suggest. This indecisive situation and the deep puzzle of human psychology attracted more scientists to analyze whether there are trackable patterns in major financial markets (Ritter, 2003).

It is vital for investors to know their financial risk tolerance levels in order to take the right position in the capital markets arena where there are endless buying and selling rounds, which was created by the different price waves via speculators. Investors who know themselves can earn more wealth or preserve their existing fortune (Zweig, 2007). Investors, who can manage their own investment impulses and analyze other investors behaviors in the market, can identify trend changes especially in advance, and ultimately divert their investments to the most optimal financial instruments.

Latest studies indicate that, in the resting periods after an extended effort for a difficult task, the wandering mind can produce out-of-the-box solutions. Just like the eureka moment of Archimedes and the apple incident of Isaac Newton, some of the discoveries of famous scientists show the mysterious workings of wandering mind at resting periods after a long exhaustive work. Nonetheless, effective money management and higher risk tolerance demands mindfulness. Wandering mind has some potential benefits, but when looked into the overall picture it clearly generates some deteriorating effects for more people in their focus demanding activities.

Research that were aimed to reveal the direct relationship between wandering mind and behavioral finance, are still hard to come by in both national and international literature. Wandering mind studies mostly concentrated on reading performance, driving experience, working memory productivity, and medical malpractice, however behavioral finance related studies are taking the stage recently. Identifying the possible effect of investor behavior and psychology on financial decisions has become more important, particularly in the last years (Lin, 2011; Demir et al., 2011). This study demonstrates the predictor role of wandering mind in changing the money spending and risk avoidance behaviors of young investors in Turkey. Results show that individuals who have excessive wandering mind activity prefer to avoid risks in their financial plans, spend more money impulsively, and ultimately fail to manage their money efficiently. On the other hand, wandering mind studies are also related to the youngest field of the behavioral finance, which is neurofinance. This new research area is focused on identifying the secret role of the brain in investor behaviors by analyzing biological and psychological patterns of the market agents when they are making financial decisions. A recent study about neurofinance revealed that investors who are aware of the psychological changes in an economy can survive more in the financial markets (Kandasamy

et al., 2016). Therefore, it becomes more important to develop mindfulness, which can be regarded as the antidote to mind wandering.

In the modern world, where average citizen follows hundreds of news every day, it is surely an expected development that financial decisions that require meticulous and focused thinking can be affected by wandering mind syndrome. In order to have a healthier financial future, current and potential investors should be informed on how to achieve mindfulness to minimize the negative effects of mind wandering. In case of mindfulness, investors make realistic investment decisions and react to market conditions on time, by effectively managing the state of their minds with minimal emotional exposure. In a market consisting of agents with complex feelings and open to manipulation, investors who have improved their mindfulness skills have more potential in increasing their earnings performances (Dayton, 2014).

At future studies, wandering mind activity and risk-taking ability of different nations can be compared with their economic and developmental growth rates, in order to see if there is a pattern. Cross-country analysis can also be done on international investors and other study groups to comprehend the effect of wandering mind on financial decisions. In addition, behavioral finance research should focus on this trending phenomenon profoundly in order to create a global mind atlas which can shed some light on the complexity of human psychology, investment decisions and the role that our minds play in different backgrounds, markets, cultures and countries.

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