Optimum Ekonomi ve Yönetim Bilimleri Dergisi, 2025, 12(2), 269-289
Optimum Journal of Economics and Management Sciences, 2025, 12(2), 269-289

Debiasing the Investment Decision-making Through Positive Psychology

Tarana AZİMOVA*, Burcu AYDIN KÜÇÜK**

ABSTRACT

Numerous research papers have addressed the "human pathology" that negatively affects investment decisions. However, little emphasis has been dedicated to personality traits that positively influence investment choice criteria and outcomes. Using Harman's Single factor analysis, we examine the effect of psychological traits in an investment undertaking in an empirical task of 441 participants employed in different organizations in Istanbul, Türkiye between February 2021 and June 2021. Drawing on positive psychology, we introduce psychological capital and mindfulness as positive personality traits and assert that these attributes improve both decision-making processes and investment decision outcomes. This study has practical implication and will assist the investors in their decision-making.

Key words: investment decision criteria, positive psychology, mindfulness, factor analysis

JEL Codes: D2 D23, D91, G41, C1

Yatırım Kararı Verme Sürecinde Ön Yargı Hatasının Pozitif Psikoloji Yoluyla Azaltılması

ÖZ

Çok sayıda araştırma yatırım kararlarını olumsuz etkileyen "insan patolojisi" üzerine odaklanmaktadır. Ancak yatırım seçimi kriterlerini ve sonuçlarını olumlu yönde etkileyen kişilik özelliklerine çok az vurgu yapılmaktadır. Bu çalışmada, Harman's Single faktör analizi kullanarak, Şubat 2021 ile Haziran 2021 tarihleri arasında İstanbul, Türkiye'de farklı kuruluşlarda çalışan 441 katılımcının bir yatırım girişimi sürecinde psikolojik özelliklerin etkisini araştırılmaktadır. Pozitif psikoloji kavramından yararlanarak psikolojik sermayeye ve farkındalık gibi positif kişisel özelliklerin karar verme süreçleri üzerinde olumlu etki yaratcağını ortaya koymaktayız. Bu çalışmanın pratik çıkarımları bulunmaktadır ve yatırımcıların karar vermelerine yardımcı olacaktır.

Anahtar kelimeler: yatırım kararı kriterleri, pozitif psikoloji, farkındalık, faktör analizi

JEL Sınıflandırması: D2 D23, D91, G41, C1

Geliş Tarihi / Received: 17.09.2024 Kabul Tarihi / Accepted: 16.02.2025

* Assist. Prof. Dr, İstanbul Aydın University, Faculty of Social Sciences, Department of Business Administration, taranaazimova@aydin.edu.tr, ORCID:0000-0001-6951-5844.

** Assoc. Prof. Dr., İstanbul Aydın University, Faculty of Social Sciences, Department of Business Administration, burcukucuk@aydin.edu.tr, ORCID:0000-0001-9081-2536.

1. INTRODUCTION

The prevalent paradigm for investment decisions under uncertainty is called the expected utility theory. Conventional views of security pricing assume that market participants behave with a purpose of utility maximization (Friedman 1953). It is consistently assumed that investors act in accordance with Von Neumann and Morgenstern's (1944) axioms of rational selection. However, Tversky's (1979) experimental setting suggests that human beings do not always behave rationally as portrayed in ordinary finance. In fact, investors traditionally been less able to objectively evaluate psychological and emotional factors in their trading decisions. In light of some scraps of evidence from List's (2004) behavioral theory, market anomalies such as increased stock price volatility, price deviations, and price bubbles in investors decision are reffered to as behavioral biases. Behavioral biases are divided into emotional biases and cognitive errors. Cognitive biases that affect market movements include memory errors, information-processing mistakes, computational and statistical errors. Emotional bias, is the distortion in investment decision that is due to a person's personal feelings. Traditional psychology has been largely portrayed as a discipline based on disease ideology, such as disturbing emotions, distorted thinking patterns, and the behaviors associated with them (Maddux 2004). As the result, the finance is also focuses on psychological preconceptions such as overconfidence, herding, and loss aversion. Overconfidence refers to biased judgments and unwarranted confidence in their abilities and knowledge, as well as an investor's tendency to assume that he or she is better than average. Some of the fundamental studies conducted by Shiller (2000), Odean (1999) show that overconfidence bias has a fundamental impact on trading and leads to adverse investments and low quality acquisitions. Herding behavior refers to the propensity of market makers to imitate the actions of other traders. Three justifications for herding can be found in the literature (Devenow and Welch, 1996). Dow (2004) recognize the first one as the payoff externalities, which is defined as the situation of simultaneous trading to benefit from deeper liquidity. The second rationale is defined by Rajan (1994) and Graham, (1999) as a reputational mentality bias, which refers to the manager hedging himself against poor relative performance. Finally, the third reason is revealed by Bikhchandani (2001) as the informational externalities which are described as noisy but meaningful information that investors voluntarily choose to comply with.

Seligman (1999, 2000, and 2005) extends traditional psychological concepts to include a new movement in psychology, which the author calls positive psychology. It is undeniable that Seligman has been extremely successful in advocating the concept of positive psychology. However, the idea can be traced back to the works of William James' (1902) on the concept of psychology, which has been far more felicitous on the negative side than the positive side. Positive psychology, according to Seligman, emphasizes how to leverage people's assets, such as abilities, virtues, and qualities, to make their lives more productive and worthwhile. Behavioral finance adherents have identified a number of psychological factors that influence the decision-making. The results of the relevant studies for Türkiye from Aren (2015), Kesbiç (2016), Atasever (2017), Divanoğlu (2018) are quite promising so far. In contrast to the traditional framework in which investors form their preferences and beliefs based on psychological biases, this study observes investors' decision-making process based on positive psychology. Because the significance of positive psychology is less evident, the primary goal of this study is to investigate how positive psychological qualities, namely the psychological capital of mindfulness, may impact investing decisions.

The study offers several potential contributions to the academic literature. Firstly, Most research on investment behavior focuses on behavioral biases (for example, overconfidence and herding) and their adverse effects. Few studies have examined positive psychological traits and their potential to improve decision-making outcomes. The study identifies psychological capital (hope, optimism, resilience, and self-efficacy) and mindfulness as factors influencing better investment decisions. It provides empirical evidence that these positive characteristics can reduce poor decision-making and improve investment performance. Secondly, Limited research exists on the role of mindfulness in financial decision-making. The study determined that mindfulness partially mediates the relationship between psychological capital and investment decisions, offering a new perspective on how present-centered awareness may impact the way people invest. Finally, by collecting data during the COVID-19 period, the study sheds light on how positive psychological traits and mindfulness helped individuals navigate financial uncertainty during a global crisis. Section 2 communicates some technical points about positive psychological factors and investment decision criteria in the next section. Section 3 then reports the sample and the models. The last section offers results and presents conclusions.

2. THEORETICAL AND EMPIRICAL DISCUSSIONS

This study presents an alternative model for investment selection that characterizes investors with an orientation toward positive psychology. In particular, we investigate whether psychological capital and mindfulness affect investment decisions. We employ the scale of investment decision criteria developed by Pasewark and Riley (2010). Employing logistic regression analysis to the sample of 235 graduate and undergraduate business students at two government universities, Pasewark and Riley (2010) suggest that investors consider society, health effects, repay, risk, and corporate data while making investment decisions. The authors emphasize that social awareness, as well as personal values, affect investment decision. By using the Investment Criteria Scale in his study, Ahmad (2018) reveals the collaboration of neurology, psychology, and investor behavior. In particular, the author evidenced a significant correlation between investment behavior, emotional intelligence, personality, and the neurotransmitters namely dopamine and epinephrine. According to Chhapra (2018), overconfidence, cognitive bias, and overthinking all have a substantial influence on investing decisions. In the study by Lubis et al. (2015) criteria for investment decisions are argued from the perspective of behavioral finance. In particular, the authors find that personality traits and psychological factors influence investment decisions. More importantly, personality traits, and defenses are correlated with the risk criterion, while financial literacy and defenses are related to repaying criterion of the Pasewark and Riley scale. Rehan and Umer (2017) investigate the effects of cognitive and emotional biases on financial decisions. The cognitive and emotional biases included in the study are disposition effect, herding, overconfidence, and overreaction. The regression analysis results show that risk aversion, anchoring, overconfidence, regret aversion, and representativeness all have a substantial and favorable influence on investment decisions. The study, on the other hand, does not reach the conclusion that mental accounting prejudice and availability bias have a major influence on investor decision.

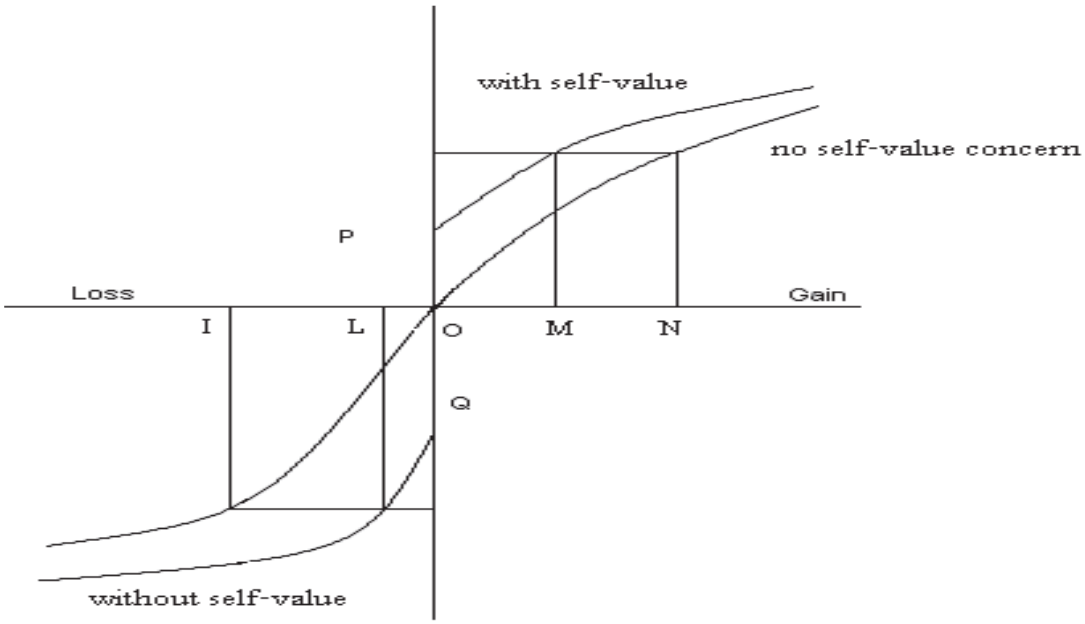
We want to look at the impact of mindfulness on financial decisions. Mindfulness is defined by Segal et al. (2002) as a nonjudgmental, non-elaborative, present-centered perception in which each sensation and idea that comes in the attentional field is accepted and recognized just as it appears. Mindfulness helps to reduce negative emotions, especially after a stressful situation,

and improve positive personal qualities such as insight or wisdom. To the best of our knowledge, there are no scholarly research that investigate the relationship between mindfulness and financial decisions. However, there is a growing number of studies suggesting that mindfulness improves decision-making in general. According to Hafenbrack et al. (2014), mindfulness improves the precision of business judgments, reduces the negative underlying impacts of impulsive decision-making, and protects organizations from investment failures. According to Panno et al. (2013), employees may actively apply mindfulness to improve their decision-making quality in the workplace. Tversky et al. (2016) discover that short-term mindfulness training reduces'sunk cost bias,' or the proclivity to continue failing initiatives after putting in effort, time, and money. Russo et al. (2002) suggest that mindfulness assists humans at every stage of decision making, reduces decision procrastination or avoidance, and abates post-decision regret. Mindful decision-makers are less prone to overestimate their knowledge and skills because they are more conscious of their limitations. In particular, Karelaia et.al. (2015) note that mindfulness increases an individual's awareness during the decision framing phase, helps people objectively assess uncertainty, and minimizes irrational escalation of commitment or sunk cost bias. An important aspect of investment decision making is is the assessment of relevant uncertainty, which involves a significant amount of systematic and unsystematic risk. According to Kahneman, Slovic, and Tversky (1982), investors frequently underestimate the uncertainty directly related with the consequences of their actions. Another part of investment choices is information gathering and processing. Brown and Ryan (2003) suggest that aware people analyze information neutrally rather than filtering it via "lenses" that may be prejudiced owing to cognitive limits, prior experiences, and motivational biases. Kiken and Shook (2011) provide more evidence that mindfulness lessens the propensity to give greater weight to negative information than positive information.

Psychological capital (PsyCap), rooted in positive psychology, represents a shift from traditional measures like economic, social, or human capital. Unlike "what you know" or "who you know," psychological capital emphasizes "who you are"—focusing on the individual traits of confidence, hope, optimism, and resilience (Stajkovic, 2003; Luthans, 2004). Since its introduction, PsyCap has been widely studied, particularly in the field of organizational behavior, where it has been shown to enhance employee creativity, attitudes, job satisfaction, and performance (Nolzen, 2018; Peterson et al., 2011). Beyond the workplace, these traits positively influence athletic and academic performance (Peterson & Luthans, 2003). However, its impact on investment decisions remains largely unexplored. Although there is limited direct research linking PsyCap to investment decisions, existing evidence suggests it may play a critical role. PsyCap fosters key internal qualities—like systematic analytical thinking, focused problem-solving, and efficient information processing—that are crucial for financial decision-making (Wood, 1990). For example, individuals with high PsyCap can filter relevant information, reduce stress during information searches, and increase decision-making quality (Papenhausen, 2010; Shin, 2015).

PsyCap also influences risk-taking behavior, a vital aspect of investing. Research indicates that individuals with greater psychological resources are more likely to view risks as manageable opportunities, enabling them to take calculated risks with confidence (Lakey et al., 2007; Dulebohn, 2002). This mindset increases their tolerance for uncertain outcomes, even in challenging situations (Whyte, 1997). However, the relationship is nuanced. Kiegler et al. (2021) found that while PsyCap enhances strategic decision-making, its benefits diminish beyond a certain point, reflecting a curvilinear effect. This highlights the need for balanced psychological traits to optimize decision-making.

The role of PsyCap is further clarified by Gao (2005), who demonstrates that an investor's psychological satisfaction and self-worth shape their value function. Investors without self-worth experience steeper losses (convex value function), while those with strong PsyCap show greater gains and resilience (concave value function). These traits can shift the investor's value function from being excessively risk-averse to a more balanced and opportunity-focused perspective. That is PsyCap improves decision-making by promoting resilience, optimism, and systematic thinking and Gao's model supports this by demonstrating how these characteristics reduce overreaction to losses while increasing gain perception, resulting in better investment outcomes.



Graph 1: Investors' Value Function

Source: Gao, L. and U. Schmidt: (2005), "Self Is Never Neutral"

The role of positive psychology and mindfulness in investor performance is still poorly explained, available data are scarce, and our best knowledge, there is no evidence of a relationship between positive psychology and investment decision criteria and bottom line evaluation in Türkiye. In this study, therefore, we venture to fill this gap and answer the question of whether hope, optimism, resilience, self-value, mindfulness, and self-efficacy can improve investor performance and increase the profits as suggested by Gao (2005). Specifically, in today's turbulent business environment, these vital characteristics of investors can serve as key parameters for their investment decisions in financial markets. We expect, on the other hand, that mindfulness will act as a moderator in the link between organizational psychological capital and investment decisions. Based on the research, the following hypothesis have been developed:

Hypothesis 1: Organizational psychological capital is related to employee investment decisions in a positive way.

Hypothesis 2: Organizational psychological capital is related to workers' level of mindfulness.

Hypothesis 3: Mindfulness mediates the relationship between organizational psychological capital and individual investment decisions.

3. MATERIALS AND METHODS

3.1 Data

According to Babin et al. (1998), at least 100 respondents should be evaluated in quantitative research using questionnaires in order to fulfill the empirical techniques of data analysis. Therefore, this study used the sufficiently large target population of 441 respondents as larger samples more closely approximate the population and decrease the sampling error. The data used in this research was collected from questionnaires of respondents including employees who work in various public and private companies in Istanbul, Türkiye. It is worth mentioning that the data for this study were gathered during the COVID-19 epidemic. The COVID-19 has compelled enterprises to restructure their working environments and use new methods of operation. This study, therefore, employs a convenience-sampling method with an online survey. This study ensures the principles of harmlessness, voluntary participation, and anonymity. The sample for this analysis consists of data collected between February 2021 and June 2021. Although a total of 543 responses were collected, missing and problematic responses were eliminated, reducing the original target population to 441 participants. To perform empirical tests, the paper utilizes Statistical Package for the Social Sciences (version 22).

3.2 Participants

The frequency and percentage distribution of socio-demographic variables for the sample of 441 are displayed in Table 1:

Table 1: Frequency of socio-demographic items

Variable		**Number (N)**	**Percentage (%)**
Gender Identity	Women	196	44.5
	Men	206	46.8
	Non-binary	39	8.6
	Cumulative %	**441**	**100%**
Marital Status	Married	129	29.3
	Single	312	70.7
	Cumulative %	**441**	**100%**
Age	18-25	99	22.4
	26-35	187	42.5
	36-45	79	18.1
	46-55	41	9.2
	>56	34	7.8
	Cumulative %	**441**	**100%**
The Graduation Degree	Associate	122	27.7
	Bachelor	259	58.7
	Master	54	12.2
	PhD	6	1.4
	Cumulative %	**441**	**100%**
Total Work Experience	<1	88	20

	1- 5	140	31.7
	6- 10	99	22.4
	11- 15	41	9.3
	16- 20	21	4.8
	21-25	12	2.7
	>25	40	9.1
	Cumulative %	**441**	**100%**
Spouse's Employment Status	**Working**	85	65.9
	Not Working	44	34.1
	Cumulative %	**129**	**100%**
Number of Children	**1**	57	41.9
	2	58	42.6
	3	14	10.3
	>4	7	5.1
	Cumulative %	**136**	**100%**
Business in terms of Capital	**Private**	317	71.9
	Public	95	21.5
	Public & Private Ownership	29	6.3
	Cumulative %	**441**	**100%**
Investment Preference	**Gold**	193	43.8
	Foreign currency	112	25.4
	Deposit	31	7
	Mutual Funds (Pension Funds)	19	4.3
	Securities (bonds, stocks, repo)	86	19.5
	Cumulative %	**441**	**100%**

3.3 Methodology, measures and scales

The self-completion questionnaires consist of three sections, the first of which relates to behavioral or psychological factors, the second to investment decision criteria, and the third to the demographic variables. This study employs Likert scales such that: investment decisions scale, organizational psychological capital scale, and mindfulness scale.

3.3.1 Investment decision scale

This study employs the scale of investment decision criteria developed by Pasewark and Riley (2010). The original scale developed by the authors has 14 items and a five-dimensional factor structure such as corp. data (α= .779), health (α= .693), risk (α= 644), society (α= .787) and repay (α= .609). Researchers have maintained linguistic compliance with the scale. In the adapted version of the scale, the factor loadings of all items ranged from .55 to .81, and the internal consistency coefficient of the scale is .90. Pasewark and Riley (2010) assert that human considers the corporate data, repay, risk, society, and health effects of an investment alternative while carrying out investment decisions. Yet, in this paper, we will consider corporate data

repay, risk, society, and corporate data criteria. Every item on the 5-point Likert scale, which goes from "very important" to "not very important," had to be rated by the participants.

3.3.2 Capital Scale for Organizational Psychology

Capital Scale for Organizational Psychology is a self-report measure introduced by Luthans et al. (2007) to evaluate the satisfaction of an individual with life as a whole. There are sub-dimensions for "optimism," "resilience," "hope," and "self-efficacy" on the Psychological Capital Questionnaire (PCQ). The original scale overall consists of 24 items with 6 items in each component. We compute the Cronbach alpha values of the each subscale including resilience, self-efficacy, hope, optimism. Çetin and Basım (2012) have performed the translation of the scale from English to the Turkish language. The authors shows that the adapted scale with indexes of $\chi 2/df= 2.07$); RMSEA=0.058; TLI=0.88; CFI=0.87 fits well the sample data. Furthermore, in the adapted scale, the reliability coefficients for the sub-dimensions and the test-retest values range from 0.67 to 0.85 and from 0.70 to 0.77 respectively. The modified scale uses the same 6-point Likert scale as the original, with 1 denoting strongly disagree and 6 strongly agree.

3.3.3 Mindfullness

The Mindfullness scale is a self-report tool used to assess employees' level of present-centered perception. The original scale, which measures uni-dimensional structure with 15 components, was created by Brown and Ryan in 2003. In a general adult sample, the predicted Cronbach alpha value is.87. The scale has been translated from English into Turkish by Catak (2011). The Cronbach alpha coefficient for the whole scale has been assessed to be.86, while the internal structure (KMO) has been reported to be 0.78.

4. RESULTS

4.1. Factor Analysis and Reliability of the Scales

A self-report survey serves as the exclusive source for the dependent and independent variables in this study. A popular technique for introducing sample bias is the use of a single survey respondent. Common-method bias creates measurement error with a random and systematic component that jeopardizes the validity and reliability of the results. We use Harman's Single-Factor detective methodology to mitigate the impacts of common procedures and estimate their size. In accordance with Harman's protocol, we load all survey observations into an exploratory factor analysis and subsequently examine the unrotated factor solution to determine the number of factors needed to account for the majority of the variation seen in the gathered statistics. According to Podsakoff et al. (2003), if one factor explains most of the variation in the parameters, then there is common method variance in the sample. Furthermore, a single general factor will account for the bulk of the covariance between the variables if the sample exhibits a common technique bias. To identify common characteristics found in employees' replies to scale items, we conduct an exploratory and confirmatory factor analysis. We incorporate items from the organizational psychological capital survey, investment decision survey, and mindfulness survey into our factor analysis. By analyzing the unrotated factor solution findings, we find that the extracted factor accounts for less than half of the variation, suggesting that the sample is not biased by typical methods. To confirm the validity and plausibility of statistical data, we conduct validity and reliability assessments. We employ the Cronbach alpha construct validity analysis

and the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy analysis. Table 2 reports the findings of the factor reliability and validity assessments.

Table 2: The summary statistics of survey (N=441)

Items	Item Loading	Cronbach's α	Explained Variance (%)
Mindfulness		**.928**	**16.009**
I rush through activities without being really attentive to them.	.838		
I do jobs or tasks automatically, without being aware of what I'm doing.	.828		
It seems I am "running on automatic" without much awareness of what I'm doing.	.797		
I find myself doing things without paying attention	.779		
I drive places on "automatic pilot" and then wonder why I went there.	.734		
I break or spill things because of carelessness, not paying attention, or thinking of something else.	.716		
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	.705		
I snack without being aware that I'm eating.	.701		
I could be experiencing some emotion and not be conscious of it until sometime later.	.692		
I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.	.661		
I find myself preoccupied with the future or the past.	.658		
I find it difficult to stay focused on what's happening in the present.	.653		
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	.607		
I find myself listening to someone with one ear, doing something else at the same time.	.582		
I forget a person's name almost as soon as I've been told it for the first time.	.520		
Organizational Psychological Capital		**.843**	**18.087**
I feel confident analyzing a long-term problem to find a solution.	.808		
I usually take stressful flight situations in stride	.778		
I feel confident helping to set targets/goals for myself.	.766		
I approach pilot training as if "every cloud has a silver lining.	.752		
If I have to, I can be "on my own," so to speak, when flying	.752		
As a trainee, things never work out the way I want them to.	.736		
When things are uncertain for me in class/in flight simulator/in the air, I usually expect the best.	.726		
I can get through difficult times in training because I've experienced difficulty before.	.704		
I'm optimistic about what will happen to me in the future as it pertains to flying.	.701		
I can think of many ways to reach my current aviation training goals.	.698		
Right now I see myself as being pretty successful in training.	.693		
I feel confident contacting people outside the organization to discuss problems.	.684		
If something can go wrong for me training-wise, it will	.684		

I always look on the bright side of things regarding my training process.	.679		
I feel confident contributing to discussions during class instruction.	.672		
When I have a setback in class/in the flight simulator/flying, I have trouble recovering from it, moving on.	.641		
At the present time, I am energetically pursuing my training goals.	.631		
I feel I can handle many things at a time during flight situations.	.608		
I feel confident in representing my performance in meetings with instructors/faculty.	.602		
If I should find myself in a jam, I could think of many ways to get out of it.	.599		
At this time, I am meeting the goals that I have set for myself.	.558		
I feel confident presenting information to a group of colleagues.	.526		
Investment Decision		**.902**	**27.989**
Has demonstrated high rates of earnings growth in the past 5-10 years	.818		
Has higher than average cash flow projections for the next several years	.809		
Has higher than average revenue projections for the next several years	.805		
Has higher than average earnings projections for the next several years	.795		
Has demonstrated high rates of cash flow growth in the past 5-10 years	.785		
Proceeds will be used in a way that benefits society	.749		
Has recently reported results that were significantly better than expected	.675		
Is likely to repay the principal at maturity	.640		
Has demonstrated increased revenue growth in the past 5-10 years	.649		
Has lower risk compared to the market in general	.636		
Proceeds will be used in a way that I find productive	.591		
Has a high degree of safety	.557		
Is suitable for conservative investors	.551		
		Total Variance (%)	**62.085**
		KMO	**.909**
		Chi-Square Bartlett's Test	**11397,839**
		P value	**.000**

Goodness-of-fit measures					
ΔX^2 =194.45; df =77.78 **$\Delta\chi$2/df= 2.50**	CFI .92	NNFI .91	IFI .92	RMSEA .052	RMR .063

Explanatory factor analysis reveals logical factor constructs based on participants' responses to items from each scale. We exclude factor loadings with absolute values less than 0.50. Every factor loading has a Cronbach alpha statistic greater than 0.80, revealing sensible reliability among items within individual factors. The findings indicate that the KMO value of the scale is .955. This value exceeds the least recommended KMO value of .600 accepted in the statistic literature. Quantitative analyses reveal that Bartlett's test of sphericity of the scales at p-value = .000 is statistically significant. The results of empirical estimations show that statistical data are replicable, sound and the outcomes are accurate. Estimations are shown in Table 2.

In our analysis three of the four factors state the financial perspective of investment decisions (see Appendix 1). The determinants that load on factor 1, show respondents' answers to question about the significance they attribute to a firm financial performance while making investment analysis. High values for factor 1 show the importance of financial statistics in investment

analysis. Determinants loading on factor 2 and factor 4, represent individuals' responses to questions about the significance they assign to financial safety and financial gain in the investment decision process. An individual with a high value on factor 3 contemplates whether the proceeds from this investment will be used in a way that is beneficial to society.

We also perform a general statistical analysis to estimate skewness and kurtosis. The parameters are compatible with the benchmark values. The distribution of the data is accepted to be normal because the values do not exceed the limits of +1.5 and -1.5 (Tabachnick et al. 2007). These values are used to examine the statistical data for multicollinearity. The data used in this research pass the multicollinearity test because the values for skewness and kurtosis values are below 5 (Thompson et al. 2017). Results from the skewness, kurtosis, VIF, tolerance values of the scales are reported in Table 3.

Table 3: Normality and multicollinearity results

Scales	Kurtosis	Skewness	VIF	Tolerance
Organizational Psychological Capital	-.853	1.398	.984	1.017
Mindfulness	.409	-.467	.984	1.017
Investment Decisions	-.005	1.126		

4.2. Descriptive Statistics for Research Variables and Correlations between Psychological Capital, Mindfulness and Investment Decision Criteria.

We use Pearson correlation analysis and provide descriptive statistics by estimating the means and standard deviations of the variables. Means between 3.01 and 4.65 indicate that all components have a moderate mean range. Importantly, correlation values of $r=.327$; $p<.005$ indicate a moderately positive, significant, linear relationship between investment decision criteria organizational psychological capital. Furthermore, correlation values of $r=.100$; $p<.005$ indicate a weak positive significant linear relationship between the investment decision criteria and mindfulness. In addition, correlation values of $r=.128$; $p<.005$ indicate a weak, positive significant linear relationship between organizational psychological capital and mindfulness. Estimations on correlation coefficients together with descriptive statistics of the variables are presented in Table 4.

Table 4: Descriptive statistic for research variables (means and standard deviations) and correlations among study variables

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.Gender	1.62	.640	-											
2.Marital Status	1.43	.644	. 497**	-										
3.Age	2.15	.788	.565	.167*	-									
4.Graduation Degree	.51	.913	.021	-.063	.177*	-								
5.Total Work Experince	1.94	.798	-.089	.361**	.231**	-.031	-							
6.Spouse's Employment Status	2.13	1.518	-.476**	-.107	.077	-.131	.102	-						
7.Number of Children	1.34	.474	-.130**	.321**	.200**	-.132**	.542**	.003	-					
8.Business in terms of Capital	1.80	.477	.078	-.087	.334	-.040	-.010	-.018	-.003	-				
9.Investment Preference	.51	.913	.034	.011	.886	-.005	.083	.045	.123*	.133**	-			
10.Investment Decision	3.51	.629	-.051	.007	.121*	.009	.006	.052	.056	-.125*	-.058	-		
11.Organizational Psychological Capital	4.65	1.573	-.048	.122*	.211**	-.064	.162**	.034	.091	-.051	-.033	**.327****	-	
12.Mindfulness	3.01	1.159	-.073	-.082	.198*	.132**	.126**	.015	.053	.034	.032	**.100***	**.128****	-

N=441; *p<0.05; **p<0.01*** p<.001 level (two-tailed). SD = standard deviation. Age: ranging from 19 to 59. Marital status: 1 = married, 2 = single. Gender Identity: 1 = male, 2 = female, 3= others. Graduation Degree: 1 = associate degree, 2 = bachelor's degree, 3 = master's degree, 4= PhD degree. Total work experience: ranging from 1 to 27. Spouse's employment status: 1= working, 2= not working. Number of children: ranging from 1 to 5; Business in terms of capital: 1= private, 2= public, 3= public & private.
Note. Reliabilities (Cronbach's α) are on the diagonal in parentheses**.**

4.3 Hypothesis Testing

The hypotheses proposed in the study were tested with Hayes' methodology of the mediation analysis macro PROCESS Model 4, which is available for SPSS 22.0 (Hayes 2017), as well as the accompanying textbook (Hayes 2013). In particular, by developing a simplified regression-based mediation analysis, the same level of reliability can be maintained in estimating the relationship between independent and dependent variables. Therefore, to determine the direct, indirect, and conditional indirect effects of a mediator on the relationship between variables three different hypotheses were tested using Model 4 regression-based mediation analysis.

Two different models were used in our primary analysis. The purpose of the first model is to provide a tentative answer to our first research question (H1). To answer the research question, of whether organizational psychological capital interacts positively with an individual's investment decision, we investigated the interaction effects between these variables. The second hypothesis is "Organizational psychological capital is positively associated with employee's mindfulness" (H2). It is well accepted that the positive tendencies of the employees towards their jobs will positively affect their general psychological well-being (Singh 2009). We, therefore, expect that the employees' financial commitments and outcomes change in line with their ability to undertake challenging tasks and continue to make the necessary efforts in the organization. These positive psychological tendencies direct one attention to the present and foster positive feelings such as hope and optimism. With this in mind, we, hypothesize that positive organizational capital will also have a positive impact on mindfulness. First, we perform the Bootstrap method, which considers the interactions of each of each factor that was significant in the factor analysis. Four factors, namely Corporate Data, Risk, Repay and Society are significant in forecasting investment decision criteria.

The results of the first model support the proposed hypothesis and Table 5 shows that the interactions between variables are statistically significant. The LLCI and ULCI statistics are positive with values of 0.2618 and 0.4564, respectively, and are within an acceptable range. The coefficient of an independent variable for the original model is statistically significant and positive with a value of 0.379. Thus, the explanatory variable is positively related to the dependent variable in the sample of 441 participants. Particularly a one standard deviation increase in organizational psychology is associated with a 0.379 increase in the investment decision variable. We conclude that organizational psychological capital has a moderate positive impact on the investment decision. This result is consistent with previous research. For example, Gao (2005) suggests that a positive attitude is crutical to investment decisions. According to Gao (2005), self-value improves investors performance and increases investment returns.

We further analyze the empirical outcomes from the relationship between organizational psychological capital and mindfulness. The LLCI and ULCI statistics are positive with the values of .4469 and .0706 and are within an acceptable range. The coefficient of an independent variable for the initial model is statistically significant and positive with a β-statistic of 0.258. Particularly a one standard deviation increase to organizational psychological capital is associated with a 0.258 increase in the investment decision variable. Based on the empirical outcomes we conclude a positive and statistically significant interaction between organizational psychological capital and mindfulness. This result is clearly important because we provide evidence that increasing the psychological capital of the organization increases employees' attention to experiencing the moment and their awareness of present reality. Employees who use psychological capital resources that demonstrate their psychological developmental status can evaluate potential opportunities and threats by focusing on the present moment. An inner awareness characterized by a non-judgmental orientation and an awareness of one's strengths

and weaknesses can help employees make the right decisions. At the same time, psychological capital creates important psychological conditions such as building self-confidence, persuasion and revitalization, risk avoidance, or a sense of achievement, which are considered necessary for psychological well-being. Workers who have these psychological resources at work are expected to develop a better awareness of their internal and external environment.

Mediation results: We introduce an exogenous variable, mindfulness, and test whether the relationship between organizational psychological capital and the investment decision is mediated by the value of this variable. We employ the PROCESS v3.3 method developed by Hayes (2015). The trajectory circle describing the causal path between variables fully mediated by mindfulness is depicted in Figure 2.

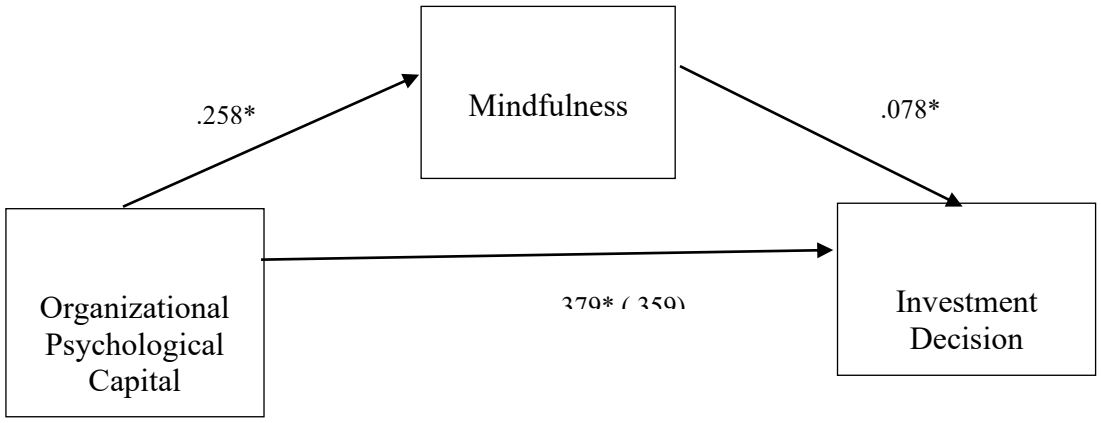


Figure 2: The Mediator role of mindfulness in the relationship between organizational psychological capital on investment decision

The schematic diagram with a three-variable system shows: 1. direct path from organizational psychological capital to mindfulness with a β value of .258; 2. direct path from organizational psychological capital to investment decision with a β value of .379; 3. indirect path from mindfulness to investment decision with a β value of 0.078. Furthermore, the model includes the overall effect of organizational psychological capital on investment decision with a β value of .359. The bootstrap method was used to test the significance level of the model. The significance values for the basic mediator model are presented in Table 5.

Table 5: Results of mediation analysis (bootstrap values)

	β	**LLCI**	**ULCI**
Direct Effect			
OPC→ Mindfulness	.258	-.4469	-.0706
Mindfulness→ Investment Decision	.078	.0301	.1262
OPC→ Investment Decision	.379	.2822	.4764
Indirect Effect			
OPC→ Mindfulness→ Investment Decision	.020	-.0408	-.0036
Total Effect			
OPC→ Investment Decision	.359	.2618	.4564

We determine the confidence interval (CI), lower limit (LLCI), and upper limit (ULCI) at a 95% confidence level. Hayes (2015) defines the hypothesized relationships between variables as significant as long as the estimated values do not contain zero (0) and negative intervals. We examine the significance of the mediator variable by examining the confidence interval values of the indirect effect measured at the lower (LLCI: .016) and upper (ULCI: .052) bounds. Both values are positive, indicating that the mediator relationship of the hypothesized model is significant.

Empirical estimates show that the causal path from organizational psychological capital to the investment decision is reduced; however, the residual path is different from zero. According to Hayes (2015), a significant reduction in the overall effect of the independent variable on the outcome variable indicates partial mediation rather than full mediation. That is the significant reduction in the total effect does not cancel out the impact of organizational psychological capital on investment decisions. Mindfulness on the other hand has the role of a partial mediator, as this variable does not completely cancel out the relationship between organizational psychological capital and investment decisions. Therefore, we conclude that increasing the psychological capital of the organization increases the level of mindfulness among employees and has a positive effect on investment decisions. The results of this study show that developing mindfulness practices can improve investment decisions and minimize the probability of investing in failed projects that result in substantial losses.

5. ADDITIONAL ANALYSIS

We conduct a second analysis to investigate the investment preferences of the sample group. The complementary survey consists of a single item asking participants about their investment preferences for various assets such as gold, foreign exchange, deposits, securities, and mutual funds. We fist conducted T-tests and Anova analyses to investigate whether the investment preferences of the employee sample differed as a function of their sociodemographic characteristics. However, we did not find significant differences among sociodemographic indicators of investment preferences. We conduct additional analyses to test for differences in the investment preferences of employees. The results are displayed in Tables 6-8. While the estimates show that investment strategies vary across the group, gold is the traditional investment haven preferred by employees in Türkiye to protect their savings against inflation. Half of the participants preferred to invest in gold, followed by 28 percent and 21 percent in foreign currency respectively. Employees' investment preferences were observed more frequently for the three assets. We estimate differences between groups in organizational psychological capital. The mean values of group 1 (gold), group 2 (securities), and group 3 (foreign currency) are within an acceptable range, 4.66, 4.65, and 4.71 ($p < .001$), respectively. Furthermore, the mean values of organizational psychological capital between groups are statistically significant and are within an acceptable range with a value of 16.001.

Table 6: Investment preference and organizational psychological capital summary

	Investment Preference	N	Mean	**Std. Deviation**	**Std. Error Mean**
Organizational Psychological Capital	Gold	193	4.6630	.54341	.03912
	Securities	86	4.6500	.66657	.07188
	Foreign Currency	112	4.7146	.50001	.04704

Table 7: Anova test of investment preference and organizational psychological capital

		Sum of Squares	**df**	**Mean Scores**	**F**	**Significant**
Organizational Psychological Capital	Between Groups	48.004	3	16.001	5.989	.001
	Within Groups	1165.23	436	2.6720		
	Total	1213.234	439			

Table 8: Post hoc test of investment preference organizational psychological capital & multiple comparisons

	Investment Preference (I)	Investment Preference (J)	Mean Differ. (I-J)	**Stand. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
Organizational Psychological Capital	Gold	Securities & Foreign Currency	-.16563	.344	.882	-.4532	.5552
			.23882*	.431	.021	.0432	2.877
	Securities	Gold & Foreign Currency	.16563	.344	.882	-.3445	.9884
			.86632*	.222	.001	.2767	2.4325
	Foreign Currency	Gold & Securities	-.23882	.431	.021	-2.2557	-.0234
			-.86632	.222	.001	-4.5367	-.6538

We further perform an investment choice experiment based on mediating role of mindfulness. We present our empirical findings in Tables 9-11. We estimate the differences between groups on the organizational psychological capital. [1] The mean values of group 1 (gold), group 2 (securities), and group 3 (foreign currency) are within an acceptable range, with mean values of 2.95, 3.08, and 2.96 ($p < .001$), respectively. In addition, the mean values of mindfulness between the groups with a value of 6.002 are statistically significant and are within an acceptable range.

Table 9: Investment preference and mindfulness summary

	Investment Preference	N	Mean	**Std. Deviation**	**Std. Error Mean**
Mindfulness	Gold	193	2.9554	1.21629	.08755
	Securities	86	3.0814	1.16185	.12529
	Foreign Currency	112	2.9676	1.08141	.10173

[1] Participants preferring investment in the deposit account and mutual funds account for insignificant numbers of 29 and 21, respectively. The observation numbers of the compared groups should not be less than 30, so these two groups are not included in the analyses.

Table 10: Anova test of investment preference and mindfulness

		Sum of Squares	**df**	**Mean Scores**	**F**	**Significant**
Mindfulness	Between Groups	17.983	3	6.002	2.983	.001
	Within Groups	877.434	436	2.012		
	Total	895.417	439			

Table 11: Post hoc test of investment preference mindfulness & multiple comparisons

Mindfulness	Investment Preference (I)	Investment Preference (J)	Mean Differ. (I-J)	**Stand. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
	Gold	Securities & Foreign Currency	-.10974	.544	.359	-.6322	.9766
			.65461*	.277	.042	.0543	2.4321
	Securities	Gold & Foreign Currency	.10974	.544	.359	-.2463	.5443
			.79650*	.376	.001	.5664	6.2394
	Foreign Currency	Gold & Securities	-.65461	.544	.042	-4.9884	1.6455
			-.79650	.376	.001	-2.2111	-.0383

6. RESULTS AND DISCUSSIONS

The present study investigates the interdependence between organizational psychological capital and investment decision criteria. We also examine whether mindfulness mediates this relationship. In addition, we examine whether there are significant differences in employees' investment preferences with respect to their sociodemographic characteristics. Finally, we run additional tests to investigate whether organizational psychological capital and mindfulness exhibit differences in investment preferences. The results of the study confirm that employees choose investments that are consistent with their psychological values.

Our results show that psychological capital has a moderately positive impact on investment decisions and that this relationship is mediated by mindfulness. This result has several important practical and theoretical implications. First, mindfulness and psychological capital enable investors to perceive investment opportunities that present themselves and actually make an investment choice, rather than simply continuing with the habitual portfolio, which may not reflect the most beneficial option going forward. Investors who have positive psychology are more likely to recognize their personal "attachment" and ego commitment to their past investment behavior. Most importantly they have more opportunities to revert a failing course of behavior by abandoning the previously chosen course of financial commitments. This, in turn, can potentially reduce the proneness to honor irrational escalation of commitment and reduce sunk cost.

Moreover, the development of psychological capital such as hope, optimism, resilience, and self-efficacy implies, a deeper engagement with the decision-making situation and greater clarity, heightened awareness, and attention to the present. This can improve investors' ability to obtain, collect, and process high-quality financial information needed for the complex investment decision-making processes. High-quality financial information about repayment, risk, and transaction fees has a strong influence on investment decision outcomes. This indirect effect of

positive psychology is of considerable practical importance, as it could help investors recognize when to abandon a previously chosen investment course, thus preventing later post-decision regrets and avoiding costly investment mistakes. Inasmuch as positive psychology is linked with innovation, (Kiegler et al. 2021) it will lead to generating more creative investment options and better portfolio diversification. In addition, investors with psychological capital have appropriate skills, competencies, and experience that enhance their ability to navigate challenging circumstances. Psychological capital reduces perceived stress in the face of market threats and strengthens investors' resilience to unexpected market failures.

In view of the fact that individuals with high levels of positive psychology are willing to take higher risks, our findings show that positive psychology may also increase the risk appetite of potential investors. The personal characteristics of an investor determine the degree of his risk aversion. Moreover, an investor's tolerance for risk determines his investment position on the capital market line, which shows the relationship between risk and return. That is, the investor can invest part of his funds in the risky asset and part in the risk-free asset, and thus obtaining a portfolio with a moderate return on the capital market line. Alternatively, investors can borrow at the risk-free rate and also put in some of their own funds, resulting in a riskier portfolio, but one that is located at a higher point on the capital market and is expected to have a higher return.

We did not find empirical evidence on the interrelationship between socio-demographic indicators and investment preferences. We conduct additional analyzes to test for differences in organizational psychological capital and employee mindfulness levels as a function of investment preferences. While investment preferences vary across the group, gold remains the priority. Half of the participants prefer to accumulate funds in the form of gold. Foreign currency investments follow gold with a 30 percent share.

While these results illustrate that psychological capital and mindfulness are relevant psychological drivers of individuals' investment decision-making, knowing that employees are more likely to look for investment choices compatible with their psychological traits has practical importance in several areas. Traditional mutual funds are concerned with the financial aspects of the investment. Evidence that people possess intrinsic qualities such as confidence, hope, optimism, and resilience should encourage mutual funds to formulate investment strategies accordingly. Furthermore, this study provides additional evidence that investors possessing positive psychology and mindfulness should potentially take into account social aspect of investment. This finding should motivate corporate executives to issue socially responsible financial assets and invest in socially desirable projects.

Ethic Statement Acknowledgement

This study has been prepared in accordance with scientific research and publication ethics rules.

Authors' Contribution

Authors have equal contribution.

Declaration of Interest

There is no conflict of interest arising from the study on the part of the authors or third parties.

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Appendix 1: Investment decision criteria

Investment Decision				
Description	Factor 1 (Corporate Data)	Factor 3 (Risk)	Factor 4 (Society)	Factor 5 (Repay)
The investment has demonstrated high rates of earnings growth in the past 5-10 years	.818			
Has higher than average cash flow projections for the next several years	.809			
The investment has higher than average revenue projections for the next several years	.805			
The investment has higher than average earnings projections for the next several years	.795			
The investment has demonstrated has demonstrated high rates of cash flow growth in the past 5-10 years	.785			
Proceeds will be used in a way that benefits society			.749	
Has recently reported results that were significantly better than expected	.675			
Is likely to repay the principal at maturity				.640
Has demonstrated increased revenue growth in the past 5-10 years	.649			
Has lower risk compared to the market in general		.636		
Proceeds will be used in a way that I find productive			.591	
Has a high degree of safety		.557		
Is suitable for conservative investors		.551		