

Determination of Factors Affecting Individual Investor Behaviours: A Study on Bankers

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ABSTRACT

In this study, it was aimed to investigate the factors that influence individual investor behaviour. The data used in the study were obtained via survey method from bankers in Bartın. Descriptive analysis was conducted in order to summarize the empirical analysis results with numerical representation and factor analysis was done to measure the validity and reliability of the designed survey. Furthermore, the analysis regarding hypothesis tests was implemented by means of analysis of moment structure. As a result of the study, it was identified that six factors influenced individual investor behaviour. It was found that the highest correlation was between “conscious investor behaviour” and “banking and payment behaviour.” Also, it was confirmed that 11 of the research hypotheses were accepted and that four of the research hypotheses were refused. Within this framework, it was concluded that there was a statistically significant relationship between the factors affecting individual investors’ investment behaviours.

Keywords: Investment, Individual Investor Behaviour, Investment Tools, Socio-Economic Structure

JEL Classifications: G02, G11, G20

1. INTRODUCTION

The main purpose of investors engaged in investment is to both maximize their income and minimize their expenses. In the literature of finance, individuals are considered to behave rationally when pursuing their own benefits. In this context, individuals spare some of their income for expenditure and some for saving. Within this framework, individuals route their savings into investment. Probability of profit and loss in the investment process makes decision-making difficult for individuals. In this scope, the rational use of savings is determined by how quickly and efficiently information about investment reaches the investor, the income the individual will get and the level of risk. Likewise, proper pricing cannot be realized on the occasions that the information accuracy in the markets is not reflected to the investors completely and transparently.

The paper is organized as follows: In order to give a better understanding of investment activity Section 2 describes background of investment decision-making behaviour. In

Section 3, we have reviewed the relevant literature on factors influencing investment decisions. Section 4 introduces the dataset and the methodology. Section 5 presents the empirical results and our conclusion comes in Section 6.

2. BACKGROUND OF INVESTMENT DECISION-MAKING BEHAVIOUR

When the historical development of the theories on investment activities is examined, it is discovered that the traditional portfolio approach was the dominant approach in the market until the 1950s. Although this approach lacked a scientific base, it is seen that it was the dominant view in the market for a long time due to the fact that its feasibility was relatively easy (Civan, 2007). In the traditional investment conception, the investors think that they can decrease the risk just by increasing the number of investment instruments they have without considering the relations between the yields of investment instruments (Demirtaş and Güngör, 2004). In the traditional investment approach, the investors are recommended to invest in the instruments with a high yield possibility; however,

they are not informed about how the risk will be measured. The mean values of yields realised in the past are defined as expected return (Reilly and Ve Brown, 1999). What is assigned importance in the traditional investment conception is how investors should behave instead of studying how they behave (Sönmez, 2010).

The study carried out by Markowitz in 1952 named “portfolio selection” pioneered the development of new theories in this field (Cihangir et al., 2008). The mean-variance model and optimal portfolio selection model defined by Markowitz formed the basis of most of the studies done in the field of investment (Kardiyen, 2008). With the help of the theory developed by Markowitz, it was suggested that the risk cannot be reduced just by increasing the number of financial instruments and the decision for investment should be made by taking into consideration the direction and degree of the relations among the investment instruments. Thus, the traditional portfolio approach lost ground (Demirtaş and Güngör, 2004). According to the modern portfolio theory of Markowitz, it was predicted that the overall risk of portfolio could be lower than that of each of the financial assets and even in some cases, that the non-systematic risk of portfolio could be reduced to zero. Nevertheless, it was pointed out that investors could prefer some portfolios for being less risky although they produce the same amount of yield and again they could prefer others for higher yields even though they have the same level of risk (Markowitz, 1952). In Harry Markowitz’s opinion, the risk can be reduced considerably with reverse correlations among the investment instruments as well as by diversifying the investment instruments available in the investors’ portfolio (Çetin, 2007). According to this theory, Markowitz preferred the portfolios with lower risks instead of the ones with higher yields while forming a portfolio and diversifying it (Civan, 2007). Later on Fama developed the efficient market theory, firstly presented by Kendal (1953), and stated that stock quotation is formed randomly and will not change related to previous quotation. Trying to answer questions like “can an investor guess the future quotation considering the past price movements or statements of companies? (Karan, 2011)” Fama firstly in 1961 described the efficient market as “fast concord of the market into new information” and later described it broadly as “asset prices reflecting all the information in the current market” (Güngör, 2003).

As a result of the studies carried out in the following periods during which rational models failed to explain individual investor behaviours, it was found that the choices of individuals among various and risky choices conflicted with rational individual behaviours and as a result, a behavioural finance approach developed as a response to this approach. Behavioural finance developed rapidly as a result of the fact that the studies of psychologists were taken into consideration by economists and created an interest. Two studies by Kahneman and Tversky, who were interested in the subject, affected the area of finance deeply. Their first study, which was on shortcut-motive errors (Kahneman and Tversky, 1974), was published in 1974, whilst the second study, which was on frame dependency, was published in 1979 (Bayar, 2011), and these two people formed the basis for behavioural finance (Bayar, 2011). Unlike existing theories, Kahneman and Tversky (1979) mentioned irrational investors in their studies. In this sense, the expectation theory they suggested

aroused big interest. In this theory Kahneman and Tversky stated that investors concentrate on loss and gains at different levels. Also, Kahneman and Tversky argued that instead of expected risk, perceived risk must be taken into account. With his study entitled “integration of outcomes of psychological research into economy sciences and decision making against indecision” that he wrote with Tversky, Kahneman received the Nobel Prize for Economics in 2002. For Kahneman, this prize was an indicator that behavioural finance was widely and scientifically accepted.

The reason why behavioural finance influenced the finance sector in such a short time was because of the fact that in the efficient market frame, utility-maximization was inefficient to explain many facts (Bayar, 2011). According to behavioural finance, people do not always behave rationally. By using cognitive shortcuts determined by themselves, they act under the influence of various psychological factors (Sönmez, 2010).

In his study, which was on behavioural finance, Statman (2014) summarized the difference between traditional and behavioural finance. According to traditional finance people are rational and markets are efficient. In spite of that, in behavioural finance people are normal and markets are not always efficient. In conclusion, in behavioural finance, as an alternative to rational decision-making model, irrationality or the limited rationality approach was adopted (Tufan and Sarıççek, 2013).

3. LITERATURE REVIEW

When we examined relevant literature, factors influencing individual investors’ attitude were classified into two groups, namely social and economic factors, in general. But recent literature put emphasis on social factors in general and behavioural factors (psychological biases and personality traits) in particular that affect investors’ decisions, as the fluctuations in financial markets could not be explained with the principal doctrines of finance literature. Psychological biases and personality traits affecting investment behaviour are over significance, risk tolerance, self-monitoring and social influence (Kourtidis et al., 2011).

Nagy and Obenberger (1994) conducted a survey on determining the underlying criteria that affect decisions of individual equity investors with substantial holdings in fortune 500 firms. According to empirical evidence, wealth-maximization criteria were found significant among respondents while the effect of recommendations of brokerage houses, individual stock brokers, family members and co-workers were identified as insignificant.

Kiran and Rao (2005) examined whether demographic and psychographic variables were effective on risk-bearing capacity of Indian investors by conducting a sampling survey. By analyzing the collected data through multinomial logistic regression and factor analysis (FA) of SPSS, they verified a strong relationship between risk taking attitude and demographic and psychographic variables.

Goodfellow et al. (2009) investigated institutional and individual investors’ trading behaviour by testing for the presence of

herding on the Polish stock market from July 1996 to November 2000. According to empirical evidence, contrary to institutional investors, individual investors exhibited herding during market downswings and to a lesser extent also in market upswings which implied that individual investment decisions were prone to sentiment during market stress, while they mostly trusted their beliefs and information when stock prices rose.

Bennet et al. (2011) sought to identify various factors that influence retail investors' attitude towards investing in equity stock markets. They applied a structured questionnaire to retail investors in Tamil Nadu, India. Collected data were analyzed through descriptive statistics and FA. According to the test results, out of the total 26 variables, it was found out that five factors (investors' tolerance for risk, strength of the Indian economy, media focus on the stock market, political stability and government policy towards business) had a very high influence over retail investors' attitude towards investing in equity stocks.

Shanmughama and Ramyab (2012) tried to explain underlying factors that affect individual investors' behaviour in context of the theory of reasoned action (Fishbein and Ajzen, 1975) and the theory of planned behaviour (Ajzen, 1985; Ajzen, 1991). They collected the data by applying a questionnaire to the respondents living in Coimbatore city of Tamil Nadu State, India. By performing regression analysis, they found that social factors, namely social interactions and media, influenced the trading behaviour (trading frequency) of individual investors.

Tabassum Sultana and Pardhasaradhi (2012) carried out a survey on factors influencing Indian individual equity investors' decision-making and behaviour. By performing FA, out of 40 attributes, they identified 10 factors which represent investors' decisions in common. Cronbach's-alpha test was used to test the reliability of the 40 items, which were categorized under five headings. According to first preference and weighted mean value of the ranks of multi-investor survey results, 42% of the investors' stock purchases were influenced by accounting information of the company while 37% of them were influenced by personal and financial needs. The rest of the investors who took part in the survey were primarily influenced by information related to recommendation of friends/peer group or broker advice (11%), information related to firm image of the company (4%) and natural or general information of the company (4%) relatively.

In his study, Obamuyi (2013) tried to reveal the socio-economic factors influencing investment decisions of investors in the Nigerian capital market through a modified questionnaire developed by Al-Tamimi (2005). By employing independent t-test, analysis of variance and *post-hoc* tests, past performance of the company's stock, expected stock split/capital increases/bonus, dividend policy, expected corporate earnings and get-rich-quick were found to be the most influential factors on investment decisions of investors in Nigeria. When taking investment decisions, non-economic factors such as religions, rumors, loyalty to the company's products/services, and opinions of members of the family were found to be insignificant among investors.

Lodhi (2014) examined the impact of financial literacy, high experience, use of accounting information, importance of analyzing financial statements and age on the investment decision of any individual by applying a survey in Karachi, Pakistan. By using SPSS, correlation analysis was performed in order to determine the relation between the aforementioned variables. According to empirical results, financial literacy and accounting information were considered to be significant in lowering information asymmetry and allowing investors to invest in risky instruments. Additionally it was verified that investors' preference for risky investments decreases, as age and experience increase.

Geetha and Vimala (2014) investigated the effect of demographic variables on the investment decisions by performing a sample survey method in Chennai, India. According to analysis results, from the investors' point of view, changes in demographic factors such as age, income, education, and occupation had an influence in the investment avenue preference.

4. DATA SET AND METHODOLOGY

Personal characteristics, attitudes towards risks, incomes and tendency of saving money differ among people. According to traditional finance considerations, individual investors who make their personal investments rationally usually cannot prevent behavioural and psychological factors from affecting their investment preference. Within this scope, in this study it was aimed to identify the factors that have an effect on attitudes of individual investors.

The survey was conducted to identify the individual investment preferences and their profiles. The survey was prepared by scanning the other studies in this field. Short and clear instructions were used in it in order to help the participants. A five-point Likert scale was used in the survey. This scale was preferred because of its being more reliable and easier than other scales in terms of reliability and scaling. In this scope the questions were numbered from 1 to 5 and the numbers of the answers were accumulated. As a result, weak statements were sorted and strong statements were interpreted (Aziz, 2011). In this context, the survey was a five-point Likert scale and it aimed to identify the factors that affect the attitudes of individual investors and it consisted of 22 statements ranging from "I totally agree" to "I totally disagree" (5=I totally agree ... 1=I totally disagree).

The survey was conducted on 277 bank employers in 24 branches of 14 banks (Ziraat Bank, Is Bank, Vakıf Bank, Finans Bank, Akbank, Halk Bank, Deniz Bank, Yapi Kredi Bank, Kuveyt Turk Bank, Bank Asya, Turkish Economy Bank, Garanti Bank, ING Bank, and HSBC Bank) in Bartın province including the central branches and the branches in districts of Amasra, Ulus and Kurucuşile, and towns of Kozcağız and Kumluca. 13 banks out of 14 (except for Garanti Bank) participated in the survey and it was found out that the participation rate was 93%. Also, 22 branches out of 24 were included in the survey with a participation rate of 92%. 215 banks employers out of 277 participated in the study and thus, it corresponded to a 78% participation rate. The survey

was conducted between June, 16 2014 and July 05, 2014. Survey results of 215 bank employers were checked and 4 of them were eliminated due to missing information. Thus, 211 surveys were analyzed through SPSS and Analysis of Moment Structure (AMOS) programs.

FA was implemented by using 211 surveys which included full information. During the analysis first of all the anti-image correlation values below 0.5 were eliminated and rotated. For each rotation the statements with a value below 0.5 were eliminated and the rotation process was repeated. Also, after every rotation a statement was eliminated. On the other hand, as the difference between factor loads which were explained under more than one factor was more than 10% the strongest factor load is used in the analysis.

Tests of hypothesis in the framework of covariation results from AMOS were limited by main factors such as effect of income on investment decisions (EIID), conscious investor behaviour, (CIB) tracking investment information, banking and payment, effect of religion and society on investment, traditional investor attitude.

5. RESEARCH HYPOTHESIS

A hypothesis is a proposed explanation about certain behaviours, facts or events that occur or will occur. In other words, it is directed towards explaining the expectations of the results of the study (Aziz, 2011). The hypotheses for the current study were;

H1=There is correlation between income effect on investment decision and CIB at $\alpha=0.05$ significance level.

H2=There is correlation between income effect on investment decision and investment information tracking at $\alpha=0.05$ significance level.

H3=There is correlation between income effect on investment decision and banking and payment behaviour (BPB) at $\alpha=0.05$ significance level.

H4=There is correlation between income effect on investment decision and impact of religion and society on investment decision (IRSID) at $\alpha=0.05$ significance level.

H5=There is correlation between income effect on investment decision and traditional investor behaviour (TIB) at $\alpha=0.05$ significance level.

H6=There is correlation between CIB and investment information tracking at $\alpha=0.05$ significance level.

H7=There is correlation between CIB and BPB at $\alpha=0.05$ significance level.

H8=There is correlation between CIB and IRSID at $\alpha=0.05$ significance level.

H9=There is correlation between CIB and TIB at $\alpha=0.05$ significance level.

H10=There is correlation between investment information tracking and BPB at $\alpha=0.05$ significance level.

H11=There is correlation between investment information tracking and IRSID at $\alpha=0.05$ significance level.

H12=There is correlation between investment information tracking and TIB at $\alpha=0.05$ significance level.

H13=There is correlation between BPB and IRSID at $\alpha=0.05$ significance level.

H14=There is correlation between BPB and TIB at $\alpha=0.05$ significance level.

H15=There is correlation between IRSID and TIB at $\alpha=0.05$ significance level.

6. EMPIRICAL ANALYSIS RESULTS

6.1. Demographic Data and Distribution of Participants

Demographical information of the participants and their distribution by banks are given in Table 1.

According to figures in Table 1, 26.5% of the participants were employees at Ziraat Bank, 14.9% were employees at İş Bank, 8.8% were employees at Vakıfbank, 7.4% were employees at Finansbank, 6.5% were employees at Akbank, 6.0% were employees at Halk Bank, 6.0% were employees at Denizbank, 5.6% were employees at Yapı ve Kredi Bank, 4.2% were employees at Kuveyttürk, 4.2% were employees at Bank Asya, 3.7% were employees at Türk Ekonomi Bank, 3.3% were employees at ING Bank and 2.8% were employees at HSBC Bank. This reveals that there were more state bank employees participating in the study.

6.2. FA Results

The common use of the FA developed by Spearman in the early 20th century was made possible with the rapid development of computer technology by the year 1970 (Eroğlu, 2003).

FA can be defined as a multivariate statistical method aiming at discovering and finding a few conceptually meaningful variables (factors, dimensions) by gathering plenty of related variables together (Büyüköztürk, 2002). FA is a method for dimension reduction and dependence elimination with its feature of obtaining few factors from plenty of factors (Polat, 2012). FA enable data to be minimized and seek to produce new structures with the help of the relationship between the variables (Polat, 2012).

FA has two types as explanatory and confirmatory (Altunışık et al., 2005). The explanatory FA aim to present the possible relationship between variables on the occasion that the researcher does not have an idea or proposal about the relationship between variables in the study (Altunışık et al., 2005).

These are the conditions for implementing FA:

- FA is based on the hypothesis that the relationship between the variables is linear

- The ideal number for samples should be five times more than the number of questions
- Whatever the number of variables is, the number of observations should not be under fifty
- Before the implementation, the validity should be tested by using Bartlett's test of sphericity
- The test value for Kaiser-Meyer-Olkin (KMO) measure, which will be applied for sampling sufficiency, should be bigger than 60% (İslamoğlu, 2011).

As mentioned above, FA is divided into two distinctive methods as explanatory and confirmatory. The explanatory FA is a procedure for finding factors and producing theories based on the relationships between variables (Büyüköztürk, 2002). In the study, since the variables were high in number, the explanatory FA was first applied through SPSS program. Principal components analysis and varimax rotation were applied in the FA with the aim of determining the factor structure of the items and the validity of the measure in terms of structure. In each rotation, the items which were required to be excluded from the analysis were taken out, and the rotation procedures were repeated. There were four repetitions of rotation in total.

Confirmatory FA (CFA), which is commonly used for scale development and validity analyses, aims to confirm a structure which has been determined or built before (Bayram, 2010). CFA can be applied through SPSS program or various statistics programs. The relationships between model conformity and latent variables can be examined by using Structural equation model (SEM) together with FA and regression analysis (Kurtuluş and Okumuş, 2006). SEM can be considered as the combination of CFA and path analysis as it includes both observable and latent variables (Meydan and Şeşen, 2011).

First, CFA results of the questions in the scope of factors, which were obtained by applying explanatory FA, were obtained through the AMOS program, and the correlation and regression values between variables were found. Moreover, the hypotheses developed in accordance with the objective of the study were tested through the AMOS program, and the results were shown in a Table 2.

FA was applied on the results by inputting data into the SPSS and AMOS programs. As a result of the FA and reliability-validity analyses, factor loads of 17 questions under six factors were calculated.

KMO is a test to measure the sampling sufficiency of a study, the correlation between the variables and the conformity of the FA (Cengiz and Kılınç, 2007). The value of this test changes between 0 and 1, and it should be above 0.60 for FA. Furthermore, when Chi-squared statistics is found out to be significant, it means that the data in the study are suitable.

There should be a pro-rata correlation between the variables as a pre-condition for applying FA. Bartlett's test for sphericity shows if there is an adequate relationship between the variables. When the p value of this test is below the level of significance 0.05, it means that there is an adequate relationship for FA. Otherwise,

Table 1: Demographics and distribution of bank of participants

Bank name	Frequency	Rate (%)
Ziraat Bank	57	26.5
İş Bank	32	14.9
Vakıfbank	19	8.8
Finansbank	16	7.4
Akbank	14	6.5
Halk Bank	13	6.0
Denizbank	13	6.0
Yapı Kredi Bank	12	5.6
Kuveyttürk	9	4.2
Bank Asya	9	4.2
Türk Ekonomi Bank	8	3.7
ING Bank	7	3.3
HSBC Bank	6	2.8
Total	215	100
Sex		
Male	121	56.3
Female	94	43.7
Total	215	100
Marital status		
Married	139	64.7
Single	74	34.4
Unanswered	2	0.9
Total	215	100
Age groups		
20 and below	2	0.9
21-30	85	39.5
31-40	94	43.7
41-50	31	14.4
51-60	2	0.9
Unanswered	1	0.5
Total	215	100
Educational background		
Primary -secondary	3	1.4
High school	30	14.0
Associate degree	41	19.1
Undergraduate	131	60.9
Master-Phd.	9	4.2
Unanswered	1	0.5
Total	215	100
Work experience		
5 years and below	77	35.8
6-10 years	63	29.3
11-15 years	20	9.3
16-20 years	38	17.7
21 years and over	17	7.9
Total	215	100

Table 2: Expressions excluded from FA

Question contents
Investors tend to prefer low-risk investments as they get older
Investors usually dwell in the countryside
Investors prefer less risky investment tools (bank deposit, bond, etc.) to risky investment tools (stock certificate, etc.)
Government policies (contributions, tax reductions etc.) affect investor behaviour in a positive way
Investors attach importance to innovations in banking and financial services

FA: Factor analysis

when the test result is not significant, the variables are not suitable for FA (Büyüköztürk, 2002).

As the *P* (significant) value of the data was 0.000, and the KMO value was 0.704, the variables were exactly suitable for FA (Table 3).

The factor loads, the Eigen-values and the variance percentages obtained through validity and reliability analyses which were applied on the scales in the study are presented in the Table 4.

The findings were obtained by examining the dimensions and the questions which were raised as a result of the explanatory FA.

EIID (Factor 1): This factor consists of five variables explaining 19.021% of the total variance. Variables composing the factor contain the effect of income on investors' decision making. Highest contribution to the factor is made by the C4 (factor weight: 0.823) variable stating that "increase in income level raises investor interest in financial instruments." Variables contributing to the factor are as follows: C6 (factor weight 0.722) "investors consider their past investment experiences while taking investment

decisions," C7 (factor weight: 0.597) "investors are influenced by experts' (consumer or investment representatives) and other investors' decisions while taking investment decisions," C5 (factor weight: 0.596) "investors' income levels affect the maturity date of the investments they make," C2 (factor weight: 0.540). "Economic stability is a key element affecting investment decisions for investors." In addition, core value of the factor is found as 3.234.

CIB - (Factor 2): This factor consists of four variables explaining 10.864% of the total variance. Variables composing the factor contain CIB impact on investor propensities. Highest contribution to the factor is made by B3 (factor weight: 0.680) "investors prefer long-term investments rather than short-term investments." Variables contributing to the factor are as follows: B1 (factor weight: 0.662). "investors have sufficient information regarding investment tools," A5 (factor weight: 0.596) "investors have a high level of self-confidence in their investment decisions," B6 (factor weight: 0.530) "investors tend to reduce risk through portfolio diversification." Moreover, core value of the factor is found as 1.847.

Investment information tracking (IIT) (Factor 3): This factor consists of two variables explaining 7.699% of the total variance. Variables establishing the factor contain investment information tracking impact on investor propensities. The highest contribution to the factor is made by A4 (factor weight: 0.752) "investors closely follow investment tools' performance of return." The other variable contributing to the factor is as follows: A2 (factor weight:

Table 3: Bartlett's test of sphericity and KMO test results

KMO and Bartlett's test	0.704
KMO measure of sampling adequacy	
Approximately Chi-square	875.504
Bartlett's test of sphericity	
df	231
Significant	0.0

KMO: Kaiser-Meyer-Olkin

Table 4: The factor loads affecting individual investor behaviour

Factors variance	Factor loads	Eigen-value (%)
Factor 1: Effect of income on investment decisions	3.234	19.021
Increase in income level raises investor interest in financial instruments	0.823	
Investors consider their past investment experiences while taking investment decisions	0.722	
Investors are influenced by experts' (consumer or investment representatives) and other investors' decisions while taking investment decisions	0.597	
Investors' income levels affect the maturity date of the investments they make	0.596	
Economic stability is a key element affecting investment decisions for investors	0.540	
Factor 2: Conscious Investor Behaviour	1.847	10.864
Investors prefer long-term investments rather than short-term investments	0.680	
Investors have sufficient information regarding investment tools	0.662	
Investors have high level of self-confidence in their investment decisions	0.596	
Investors tend to reduce risk through portfolio diversification	0.530	
Factor 3: Investment information tracking	1.309	7.699
Investors closely follow investment tools' performance of return	0.752	
Publications with financial content presented with means of communication like internet and media positively influence investor behaviour	0.713	
Factor 4: Banking and payment behaviour	1.276	7.508
Investors discriminate between domestic and foreign banks in their bank preference	0.681	
Investors make their payments (individual loan, credit card etc.) in time	0.553	
Factor 5: Impact of religion and society on investment decision	1.131	6.656
Investors' family structure and social environment affect their investment decisions	0.711	
Investors' religious and political views affect their investment decisions	0.696	
Factor 6: Traditional investor behaviour	1.016	5.976
Investors prefer traditional investment tools (real estate, gold etc.)	0.815	
Gold accounts presented by the banks attract the attention of investors	0.552	
Announced total variance		57.725
KMO sampling adequacy (KMO measure of sampling adequacy)		0.689
Bartlett's test of sphericity; Chi-square value (approximately Chi-square)		563.145
Degree of freedom		136
Significance		0.000

KMO: Kaiser-Meyer-Olkin

0.713). “Publications with financial content presented with means of communication like internet and media positively influence investor behaviour.” The core value of the factor is found as 1.309.

BPB (Factor 4): This factor consists of two variables explaining 7.508% of the total variance. Variables establishing the factor contain BPB affecting investor propensities. Highest contribution to the factor is made by B2 (factor weight: 0.681) “Investors discriminate between domestic and foreign banks in their bank preference.” The other variable contributing to the factor is A7 (factor weight: 0.533). “Investors make their payments (individual loan, credit card etc.) in time.” Moreover, the core value of that factor is found as 1.276.

IRSID (Factor 5): This factor consists of two variables explaining 6.656% of the total variance. Variables establishing the factor contain IRSID that affects investors’ propensities. Highest contribution to the factor is made by A1 (factor weight: 0.711) “Investors’ family structure and social environment affect their investment decisions.” The other variable contributing to the factor is A6 (factor weight: 0.696). “Investors’ religious and political views affect their investment decisions.” Moreover, core value of the factor is found as 1.131.

TIB (Factor 6): This factor consists of two variables explaining 5.976% of the total variance. Variables establishing the factor contain TIB impact on investment decision that affects investors’ propensities. Highest contribution to the factor is made by B4 (factor weight: 0.815). “Investors prefer traditional investment tools (real estate, gold etc.)” The other variable contributing to the factor is B7 (factor weight: 0.552). “Gold accounts presented by the banks attract the attention of investors.” Moreover, core value of the factor is found as 1.016.

6.3. AMOS-CFA Results

In CFA, a hypothesis identified earlier regarding the correlation between variables is tested (Büyüköztürk, 2002). In short, CFA is carried out in order to test the accuracy of a related correlation found earlier by the researcher (Altunışık et al., 2005). While described FA is used to test which variable groups are highly associated with which factor, CFA is used to determine whether variable groups that contribute to a certain number of factors are adequately represented by these factors (Büyüköztürk, 2002).

Both SPSS and AMOS statistical programs are used in order to test the basic hypotheses of the research. There are six latent variables in the research model. Latent variables in the model are shown in ellipses whilst indicator variables used to measure these latent variables are shown in rectangles.

In the model that we created to test our hypotheses within the scope of CFA, the indicators, latent variables and the relationships between the indicators and latent variables are shown. Variables in the model are demonstrated in the following Table 5.

The number of the variables in the AMOS model is 40. Among them, 17 are observed variables (between VAR0007 to VAR00028) whilst another 17 are external variables (unexplained part of indicator variables from e1 to e17). Also, six variables are latent

variables (from EIID to TIB) entitled as “EIID,” “CIB,” “IIT,” “BPB,” “IRSID” and “TIB” making up a total of 23 external variables. On the other hand, the number of unobserved variables is 23, which is the total of variables which is represented by “e” and six latent variables.

Indicator variables are represented by 17 rectangles, and latent variables are represented by six ellipses in the model. The unidirectional arrows from latent variables to indicator variables display regression weights or indicator weights that associate the variables with latent structures. Failure rate on each variable is also shown with unidirectional arrows. These variables are indicated with letter “e” in a circle. These failures reflect the errors in indicator variables. The measurement model has been used in order to assess the correlation between indicator variables and latent variables and indicate the organic correlation among latent variables. Moreover, organic correlation among latent variables is displayed with bidirectional arrows (Figure 1).

The measurement model displayed in 5.1 has been formed to test the hypotheses, and the model-data coherence has been examined. Results indicate meaningful correspondence for the model with regard to the correspondence statistical criteria. From this point, these results reveal that the model is valid.

AMOS provides several correspondence statistics based on separate criteria. Some of these are displayed in the Table 6 titled “results of the structural equation analysis of the measurement model.”

Table 5: Variables in the model AMOS analysis

Variables in the model	n
Number of variables	40
Number of observed variables	17
Number of unobserved variables	23
Number of exogenous variables	23
Number of endogenous variables	17

AMOS: Analysis of moment structure

Figure 1: Analysis of moment structure measurement model

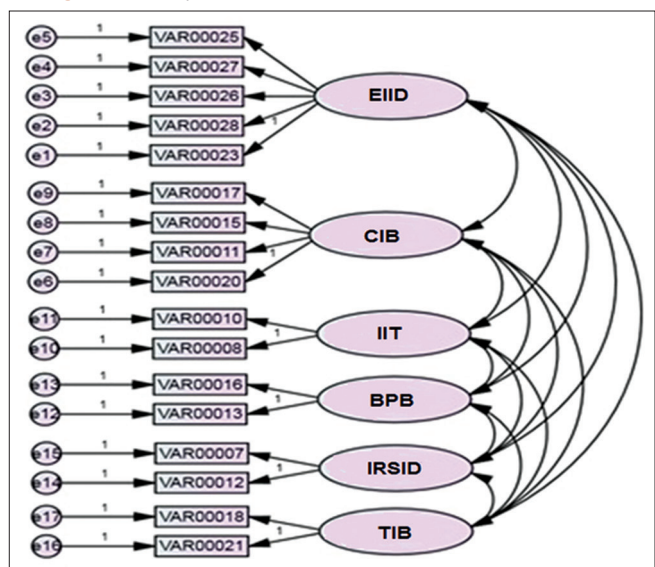


Table 6: Results of the structural equation analysis of the measurement model

Valuation criteria	Search model	Ideal model	Unaffiliated model	Abbreviations
Discrepancy	188.900	0.000	581.1330	CMIN
Degrees of freedom	104.000	0.000	136.0000	DF
Discrepancy/df	1.816		4.2730	CMINDF
RMR	0.055	0.000	0.1290	RMR
GFI	0.912	1.000	0.6900	GFI
Adjust GFI	0.870		0.6130	AGI
Normed fit index	0.675	1.000	0.0000	NFI
Relative fit index	0.575		0.0000	RFI
Tucker-Lewis index	0.751		0.0000	TLI
Comparative fit index	0.809	1.000	0.0000	CFI
RMSEA	0.062		0.1250	RMSEA
Holter 0.05 index	144.000		60.0000	HFIVE
Holter 0.01 index	157.000		65.0000	HONE

Values related to model-data correspondence are displayed in the research model column; optimum values are displayed in the ideal model column, and potential values for the worst data model are displayed in the independent model column. Discrepancy, meanwhile is (χ^2) value. This value gets closer to the optimum as it gets closer to “0.” However, degree of freedom is important on the condition that sample size is large. The Chi-square (χ^2) value of the model is 188.900. Degree of freedom is an important measurement in Chi-square (χ^2) test when sample size is large. Chi-square value tends to expose meaningful results with high degrees of freedom. Thus, model-data correspondence can be defined as meaningful on condition that (χ^2/df) ratio is 5 or lower than 5 (Kurtuluş and Okumuş, 2006).

When 188,900 Chi-square value (χ^2/df) in the research is divided by degree of freedom which is 104, the resulting 1.816 value shows that the model-data correspondence is significant.

Goodness-of-fit (GFI) is a measurement criterion. This value provides an optimum coherence as it gets close to 1. GFI value of the study is 0.912. This value indicates a high correspondence. Also, root mean square residual value is found as 0.052 in the study.

Normed fit index (NFI) and relative fit index (RFI) values are between 0 and 1. These values provide optimum coherence as they get close to 1. From this aspect, it can be pointed out that NFI, RFI, Tucker-Lewis index and CFI values apt to 1 in this study prove a high correspondence between model and data.

Moreover, Hoelter 0.05 index and Hoelter 0.01 index values define the sample size of the study in accordance with the significance interval at which the hypothesis is tested. When the hypotheses are tested at significance interval 95%, sample size is 144. For 99%, the sample size is 157. Sample size of the study is highly over Hoelter index size. From this point, investment tendency of individuals and variables of this study can be carried out for further studies.

Results for the hypotheses of this study are shown in Table 7 (results of SEM analysis results of measurement model, and the standardized regression coefficients of latent variables with indicator variable in measurement model) in detail.

Table 7: The standardized regression coefficients of latent variables with indicator variable in measurement model

AMOS question code	AMOS code	Calculated value
VAR00021	← TIB	0.726
VAR00025	← EIID	0.688
VAR00023	← EIID	0.643
VAR00008	← IIT	0.631
VAR00011	← CIB	0.617
VAR00027	← EIID	0.566
VAR00016	← BPB	0.530
VAR00026	← EIID	0.524
VAR00028	← EIID	0.517
VAR00017	← CIB	0.491
VAR00010	← IIT	0.474
VAR00015	← CIB	0.463
VAR00020	← CIB	0.418
VAR00007	← IRSID	0.414
VAR00013	← BPB	0.399
VAR00012	← IRSID	0.374
VAR00018	← TIB	0.253

BPB: Banking and payment behaviour, IRSID: Impact of religion and society on investment decision, TIB: Traditional investor behaviour, IIT: Investment information tracking, EIID: Effect of income on investment decisions, CIB: Conscious investor behaviour

When the standardized regression coefficients are considered, it is observed that regression, namely indicator coefficients are in between 0.726 and 0.253. Indicator loadings of all indicator variables, in other words, the values related with regression coefficients, are quite significant. In “Table 7,” the regression coefficients which signify the relations between latent variables and indicator variables are shown. The relations between the dimensions regarding variables belonging to investors’ tendencies involved in the model are evaluated at alpha (α)=0.05 significance level.

VAR00025 (increase in income level raises investor interest on financial instruments) is the variable that explains highest the factor concerning the effect of income on investment decision. VAR00011 (investors have true self-significance on deciding their investments) is the variable that explains highest the behaviour of the conscious investor. VAR00008 (publications about finance presented through communication instruments such as internet and media affects investors’ acts positively) is the variable that explains highest the factor of IIT. VAR00016 (investors discriminate between local and foreign banks in their preferences) is the variable that explains highest the factor of banking and payment manner.

VAR0007 (investors’ family structure and social environment affect their investment decisions.) is the variable that explains highest the factor of religion and society’s effects on investment decisions. Finally, VAR00021 (gold accounts presented by the banks attract the attention of investors) is the variable that explains highest the factor of conventional investor behaviour.

Considering the table of the standardized regression coefficients of the relation between latent variables and indicator variables, the values of variables which are under the factor of the effects of society and religion on investment decisions are seen to be low. As a result, it can be said that investors are affected a little in deciding their investments. However, this situation can be explained as that the questionnaire was not applied to the investors one by one, and that bank employees are mainly in the conventional banking sector and they were not objective.

The direction of relation of factors forming investors’ tendency and their significance level are shown in Tables 8 and 9.

Correlation shows the relationship between two or more variables. Correlation coefficient provides information on the direction of variables and how the interactions happen.

It is possible to see whether there is an interaction between the variables, and if there is, it is possible to see whether it is strong and whether observation values of a group decrease while observation values of another group increase or whether they move in the same direction (Arslantürk and Arslantürk, 2010). When the covariance values between latent variables table was analyzed, it was found that the H1, H8, H10 and H11 hypotheses which were not statistically significant were “rejected.”

No statistically significant relationship was found between the impact of income on the investment decisions of investors and CIB ($P=0.059$) whilst there was a statistically significant and positive relationship between the impact of income on the investment decisions and investment information follow-up ($P=0.007$). This means that as the income of the investors increases, so will their information follow-up about investments.

There was also a statistically significant and positive relationship between the impact of income on the investment decisions and BPBs ($P=0.009$). As the income of the investors increases, their BPBs will be affected positively. There was a statistically significant and positive relationship between the impact of income on investment decisions and the IRSIDs ($P=0.011$). As the income of the investors increases, so will the effect of religion and society on the investment decisions. There was a statistically significant and positive relationship between the impact of income on investment decisions and TIBs ($P=0.004$).

There was a statistically significant and positive relationship between CIBs and investment information follow-up ($P=0.002$). This means that as the CIBs increase, so will the investment information follow-up. There was also a statistically significant and positive relationship between CIBs and BPBs ($P=0.002$). This means as the CIBs increase, so will the BPBs of investors. There was no statistically significant relationship between CIBs and the IRSIDs ($P=0.072$). There was a statistically significant and positive relationship between CIB and TIBs ($P=0.028$). There was no statistically significant relationship between investment information follow-up and BPBs ($P=0.377$). Also there was no statistically significant relationship between investment information follow-up and the IRSIDs ($P=0.053$). There was a statistically significant and positive relationship between investment information follow-up and TIBs ($P=0.045$). This means that as the investment information follow-up increases, so will the TIBs.

There was a statistically significant and positive relationship between BPBs and the impact of religion and society on investment behaviours ($P=0.031$). This means that as the BPBs of investors increase, so will the impact of religion and society on investment behaviours. There was a statistically significant and positive relationship between BPBs of investors and TIBs ($P=0.003$). This means that as the BPBs of investors increase so will the TIBs.

There was a statistically significant and positive relationship between the IRSIDs and TIBs ($P=0.041$). This means that as the IRSIDs increases so will the TIBs.

Table 8: Covariance values between latent values and hypothesis tests

Hypothesis no.				Calculated value	Standard error	t-value	Significance (P)	Result
H1	EIID	↔	CIB	0.045	0.024	1.890	0.059	Rejected
H2	EIID	↔	IIT	0.085	0.031	2.708	0.007	Accepted
H3	EIID	↔	BPB	0.082	0.031	2.611	0.009	Accepted
H4	EIID	↔	IRSID	0.110	0.043	2.557	0.011	Accepted
H5	EIID	↔	TIB	0.098	0.034	2.848	0.004	Accepted
H6	CIB	↔	IIT	0.110	0.036	3.064	0.002	Accepted
H7	CIB	↔	BPB	0.129	0.042	3.079	0.002	Accepted
H8	CIB	↔	IRSID	0.066	0.037	1.801	0.072	Rejected
H9	CIB	↔	TIB	0.075	0.034	2.203	0.028	Accepted
H10	IIT	↔	BPB	0.029	0.033	0.884	0.377	Rejected
H11	IIT	↔	IRSID	0.091	0.047	1.934	0.053	Rejected
H12	IIT	↔	TIB	0.083	0.041	2.002	0.045	Accepted
H13	BPB	↔	IRSID	0.104	0.048	2.162	0.031	Accepted
H14	BPB	↔	TIB	0.135	0.045	3.010	0.003	Accepted
H15	IRSID	↔	TIB	0.108	0.053	2.041	0.041	Accepted

BPB: Banking and payment behaviour, IRSID: Impact of religion and society on investment decision, TIB: Traditional investor behaviour, IIT: Investment information tracking, EIID: Effect of income on investment decisions, CIB: Conscious investor behaviour

Table 9: Correlation values between latent variables

AMOS code		AMOS code	Calculated value
CIB	↔	BPB	0.774
BPB	↔	IRSID	0.608
BPB	↔	TIB	0.571
CIB	↔	IIT	0.526
EIID	↔	IRSID	0.511
IIT	↔	IRSID	0.419
IRSID	↔	TIB	0.419
EIID	↔	BPB	0.414
CIB	↔	IRSID	0.368
EIID	↔	IIT	0.339
EIID	↔	TIB	0.330
CIB	↔	TIB	0.300
IIT	↔	TIB	0.277
EIID	↔	CIB	0.217
IIT	↔	BPB	0.147

BPB: Banking and payment behaviour, IRSID: Impact of religion and society on investment decision, TIB: Traditional investor behaviour, IIT: Investment information tracking, EIID: Effect of income on investment decisions, AMOS: Analysis of moment structure measurement, CIB: Conscious investor behaviour

7. CONCLUSION

Individuals need money to continue their lives or incentive processing. While they put a certain amount of their income aside to meet their needs, they make saving to guarantee their future with the other part. They direct economic costs that they made, saving at financial instruments with different purposes (capital maintenance, having perpetual income generation, providing capital gain). Individual investors are affected by several factors while they direct their savings at investments. Recent researches showed that individual investors who are evaluated within the scope of behavioural finance did not behave rationally during the decision phase because of demographic and psychographic characteristics.

CFA was applied to 17 variance and six factors acquired with explanatory FA in AMOS program. H2, H3, H4, H5, H6, H7, H9, H12, H13, H14 and H15 hypotheses formed according to the purpose of the research were accepted. H1, H8, H10 and H11 hypotheses which did not have enough significance level and were non-relational were not accepted.

When standardized regression coefficients were taken into account, it was found that VAR00021 (Gold account presented by the banks attract the attention of investors) variance has the highest correlation and explains TIBs. Income effect factor was the most extensive one that explains the study on investment decision. There was a significant relation positively between CIB and investment information follow-up, BPB and TIB. However, it was stated that there was not such a kind of relation between religion and society during the investment decision. Those having conscious investment behaviour do researches on their investments and make their payments on time.

It was revealed that there was a significant relation between investment information follow-up and TIB, yet there was not such a kind of relation between religion and society during the investment decision. It was discovered that individuals asking for information follow-up display traditional investment behaviour. It

was uncovered that there was not positively a significant relation between religion and society during investment decisions. It was monitored that individuals engaging in investing activities and affected by religious and social factors display TIB considering analysis results. It was found that investors' interests in investment instruments in Bartın city change in parallel with level of income and their level of income was influential to decide on investment maturity. Furthermore, investors decided by taking into account their past experiences and expert opinion. In terms of displaying CIB, they were self-confident and had enough knowledge about investment. They also had alternative plans to reduce the risks and gave importance to innovation financially. On the other hand, it was revealed that they showed interest in financial information presented by means of communication instruments such as media and the internet and kept pace with progress of investment instruments.

The results of the analysis showed that while investors in Bartın city decide on investment, they are affected by several factors such as level of income, past investment experiences, expert and other investors' opinions and financial stability; they take steps to reduce risks by having alternative plans for their investment and they have high self-esteem.

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APPENDIX 1: QUESTIONNAIRE SAMPLE

Questionnaire

Dear Prospective Participant

The following questionnaire is designed to define the profiles of individual investors and their financial preferences in Bartın. The information gathered here will constitute a source for a master degree thesis. Therefore, you are asked to fill out the following questionnaire as precisely and accurately as you can. The results will be used for a general assessment and your answers will be used only for this study confidentially.

Thank you very much for your participation.

Adem Ayvalı

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A. Demographic Information:

1. Gender?

Male () Female ()

2. Age?

20 and under () 21-30 () 31-40 ()
41-50 () 51-60 () 61 and over ()

3. Marital status?

Married () Single ()

4. Educational status?

Primary-Secondary () High School () Associate ()
Undergraduate () Master or PHD ()

5. Work experience?

0-5 years () 6-10 years () 11-15 years () 15-20 years () 21 years and over ()

B. Write your opinions about the statements below

Please read each statement carefully and rate each statement according to the scale below to indicate how much you agree with them.

A. Personal and social status of investors					
1. Investors' family structure and social environment affect their investment decisions	1	2	3	4	5
2. Publications with financial content presented with means of communication like internet and media positively influence investor behaviour	1	2	3	4	5
3. Investors tend to prefer low-risk investments as they get older	1	2	3	4	5
4. Investors closely follow investment tools' performance of return	1	2	3	4	5
5. Investors have high level of self-confidence in their investment decisions	1	2	3	4	5
6. Investors' religious and political views affect their investment decisions	1	2	3	4	5
7. Investors make their payments (individual loan, credit card etc.) in time	1	2	3	4	5
8. Investors mostly reside in countryside	1	2	3	4	5
B. Investment preferences and knowledge level of investors					
1. Investors have sufficient information regarding investment tools	1	2	3	4	5
2. Investors discriminate between domestic and foreign banks in their bank preference	1	2	3	4	5
3. Investors prefer long-term investments rather than short-term investments	1	2	3	4	5
4. Investors prefer traditional investment tools (real estate, gold etc.)	1	2	3	4	5
5. Investors prefer less risky investment tools (bank deposit, bond, etc.) to risky investment tools (stock certificate, etc.)	1	2	3	4	5
6. Investors tend to reduce risk through portfolio diversification	1	2	3	4	5
7. Gold account presented by the banks attract the attention of investors	1	2	3	4	5

(Contd...)

C. General factors affecting investment decisions

1. Government policies (contributions, tax reductions etc.) affect investor behaviour in a positive way	1	2	3	4	5
2. Economic stability is a key element effecting investment decisions for investors	1	2	3	4	5
3. Investors attach importance to innovations in banking and financial services	1	2	3	4	5
4. Increase in income level raises investor interest on financial instruments	1	2	3	4	5
5. Investors income levels effect the maturity date of the investments they make	1	2	3	4	5
6. Investors consider their past investment experiences while taking investment decisions	1	2	3	4	5
7. Investors are influenced by expert (consumer or investment representatives) and other investors' decisions while taking investment decisions	1	2	3	4	5

1=I strongly agree, 2=I agree, 3=Undecided, 4=I disagree, 5=I definitely disagree