

The role of cognitive-behavioral constructs in investors' wealth management: Freud's theory test

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(Communicated by Seyyed Mohammad Reza Hashemi)

Abstract

Wealth management and financial management behaviors often show emotional needs such as security, acceptance, and success. On the other hand, financial issues change people's knowledge, behavior, emotions, and social relationships. People's behavior differs in how they interact with the cognitive-behavioral factors affecting their wealth management level. In this regard, the present study seeks to explain the role of cognitive-behavioral factors in wealth management by predicting the causal relationships among the constructs of these factors on the wealth management of investors. The research population is active investors in the capital market, and a standardized questionnaire was used to collect data. After conducting the reliability and validity tests of the sample data, the structural modeling approach was used. The results of the structural modeling unraveled that the cognitive-behavioral constructs (financial collage, financial genogram, financial discipline, and financial self-efficacy) have a significant impact on investors' wealth management. In addition, financial knowledge and mental accounting through financial data mining significantly influence investors' wealth management.

Keywords: Cognitive-behavioral theory, Wealth management, Financial data mining
2020 MSC: 91G15, 91Cxx

1 Introduction

Generally, investors have limited information about the various features of financial services available in the market and their costs. Even in connection with the types of financial services associated with risk, this lack of information can be felt by investors. Despite these limitations, most investors prefer to rely only on their knowledge and abilities in decision-making regarding various types of financial services.

As the decision-makers' perception is essential in the investor's decision-making, wealth management is also involved. Decision-making is so intertwined with the psychological characteristics of the decision-maker that one cannot be studied without the other. The psychological view of people is not divided into groups with pleasing and lousy personalities. However, according to this science, all people have personalities that should be studied practically.

This perspective of personality and man has brought about the emergence of several theories, including classical psychoanalytic theory, modern psychoanalytic theory, humanistic theory, cognitive-behavioral theory, and social

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learning theory, in psychology [33]. Many internal factors can affect the process of investors' wealth management (the mental black box of investors), which include mental accounting, financial knowledge, financial collage, and financial genogram, the measurement of which can lead to the recognition of the correct behavior of investors in managing their wealth [8].

Investors may undergo changes as they gain wealth. Since they acquire more wealth, their vision becomes more limited, and their broader perspectives are removed. As they devote themselves to wealth building, they gradually lose other aspects of life, obsessive thoughts come to them, and they spend less time with family members at home.

Learning financial literacy is not difficult, but most investors do not try to learn it. Today, life is very different, and people have different attitudes. Due to the feelings surrounded by their material entitlement, they all consider themselves worthy of a luxurious life. However, as they often cannot afford such expenses, they spend all their assets on their desires to achieve what they think they deserve.

The current research analyzes how investors underpin these mental representations. The present study investigates the literature on mental structures of behavior related to wealth management inspired by the foundations of cognitive-behavioral theories, especially Freud's theory. Therefore, according to issues in the wealth management of active investors in the Iranian capital market, this research's problem is understanding wealth management constructs with an emphasis on more wealth and its preservation, planning, and budgeting. It is the use of wealth as a leverage tool and the promotion of awareness and financial intelligence concerning cognitive-behavioral constructs.

Therefore, the current research identifies and reveals the factors affecting investors' wealth management. Therefore, as mentioned above, this research seeks to answer the following question: What is the effect of cognitive-behavioral constructs on investors' wealth management? In order to answer this question, causal relationships between these constructs and wealth management are investigated. The present study introduces a new concept of wealth management. Therefore, it is expected that the results of this research could help shareholders, financial analysts, investors, and other stakeholders better understand the concept of wealth management concerning some cognitive-behavioral constructs, including financial knowledge, financial discipline, risk tolerance, financial collage, financial genogram, and Gram's mental and financial accounting and contribute them to make the right financial and investment decisions to achieve wealth management. In the following, this research continues with the literature review of the subject, the research method, the research hypotheses, the results of the hypothesis testing, and finally, the conclusions and suggestions for further study.

2 Literature review

This research follows cognitive-behavioral theory and Freud's theory to propose its theoretical foundations. One of the theories whose concepts were well integrated with the cognitive theory and led to the formation of the cognitive-behavioral approach is the behavioral theory. According to the cognitive-behavioral theory, the antecedents and consequences of an investment behavior can explain the frequency and form of that behavior. The antecedents are the stimuli that cause investment behavior; the consequences are the consequences or results of the behaviors.

3 Cognitive-behavioral theory

Cognitive-behavioral techniques can improve people's financial management process with a cognitive-behavioral therapy approach. Cognitive-behavioral therapy promotes narrative financial therapy by providing therapeutic interventions that financial therapists can use to change and correct abnormal behaviors and thought processes that create financial challenges for people. This theory was developed by combining the principles of cognitive-behavioral conditioning of people with the integration of cognitive clinical issues such as obsessive thinking [9].

This combination was done to pay attention to some issues that consider both cognitive and behavioral patterns in behavioral financial issues, such as budgeting and managing spending habits, and cognitive financial issues, such as increased costs over benefits. Some studies have investigated the method of applying the cognitive-behavioral therapy model for specific financial issues and concluded that cognitive and behavioral interventions had built coping skills in improving stressful factors and financial behaviors such as compulsive shopping [17], gambling [30], as well as abnormal financial beliefs and behaviors [17].

Cognitive and behavioral interventions and procedures can exist in different ways in people, but they can be classified into three categories: cognitive restructuring, creating coping skills, and problem-solving [7]. The first category, in the form of cognitive restructuring theory, assumes that abnormal thoughts cause financial pressure. In effect, people try to challenge and correct their thinking processes to develop new positive thinking patterns.

The second category, in the form of developing coping skills, emphasizes helping people develop a set of skills to contribute them manage various stressful factors. On the other hand, problem-solving involves combining cognitive restructuring, building essay skills, and creating and developing fundamental active strategies to address and manage problems. In 1905, Freud described the structure of the human mind in three conscious, subconscious, and unconscious parts. In theory, he compared the human mind to a mountain of ice floating in the ocean. A small part of this iceberg is outside the water, and the more significant part is hidden under the water. According to this theory, the mental structure of people is like an iceberg, and they are unaware of a large part of their minds and thoughts. Therefore, it can be stated that experimental interventions increase people's understanding of feelings and emotions and allow them to have a deeper understanding of themselves. Freud's iceberg model of the mind is suitable for the therapeutic use of financial cognitive-behavioral issues and is a tool that can lead to a deeper understanding of people's financial feelings and emotions and ultimately wealth management [2].

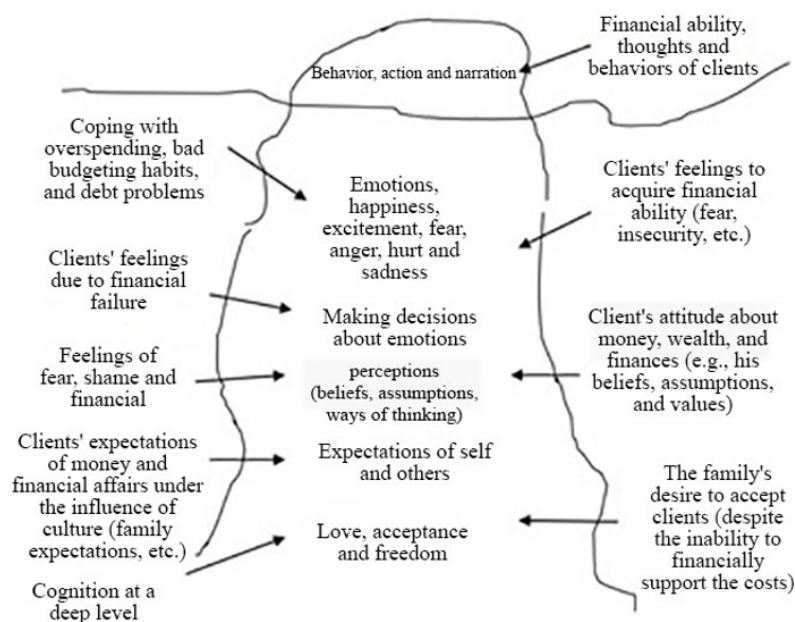


Figure 1: Iceberg model based on Freud's theory

Cognitive-behavioral constructs are classified into different constructs. Seven constructs of a financial genogram, financial mirror, risk tolerance, financial discipline, financial self-efficacy, mental accounting, financial knowledge, and financial data mining, will be defined below. A financial genogram (family systems theory): Generally, a genogram is a family diagram and a visual representation of influential members to summarize complex relationships [32]. Hence, the financial genogram is used to identify root problems that may affect people's financial behaviors. One of the factors that direct adults' reactions to financial success are how their families deal with such problems [3]. The financial behavior of parents, family members, and even friends influence how people react to their financial problems. A genogram is a visual image of a family unit or influential members of a person's life and is used to summarize advanced relationships [32]. A genogram includes interactions among at least three generations of a family [22]. The behaviors and events identified in the genogram explain the context of people's problems. Financial Collage (financial mirror) is a type of art therapy known as a financial mirror. This phenomenon is used to encourage and generate insight and foster decision-making confidence. Financial Collage allows people to have a personal financial review to manage their finances and wealth.

This process allows people to cover financial gaps or problematic financial behaviors in their finances [25]. Risk tolerance as a phenomenon refers to the conditions attributed to the unknown winners of the subjective probability distribution. On the other hand, risk is defined as the potential difference between the real rate of return and the expected rate of return. Therefore, any phenomenon that can deviate the result from what the investor expects is called a risk. Some investors are risk-takers and bear the uncertainty caused by risks to achieve their expected returns. They take action and make financial decisions despite uncertainty [29]. The financial self-efficacy construct can be expressed as evidence of people's financial management ability and the ability to distinguish between their real needs and desires [23]. Financial discipline is defined as children's participation in financial affairs and family decisions and the ability to reject people's financial requests continuously [23].

According to the mental accounting model, people code, classify and evaluate economic consequences in their minds. Humans manipulate losses and profits in their minds and do mental editing on financial events uniquely to classify, evaluate, and track their financial activities.

The phenomenon of financial knowledge and understanding its concepts is of particular importance for individuals and investors because the financial decisions they make significantly impact their financial status and wealth. In addition, the financial situation can affect their performance [13]. Financial data mining is a critical component of financial planning and collection and analysis of financial documents such as water bills, bank statements, and even store receipts [25].

4 Wealth management

From the perspective of process architecture, wealth management is viewed as a framework that increases investment efficiency, integrates financial processes, and, ultimately, the decision-making process in various financial aspects. To put it more simply, wealth management is the process of maintaining and increasing the profitability of an investor by intelligently using the available data in the decision-making process [4]. Wealth management is created through the five stages of acquiring more wealth, protecting wealth, budgeting and planning for wealth, using wealth as a tool for leverage and promotion, and financial awareness and vigilance. During the first and second stages, the acquired wealth is preserved. However, the budgeting and planning process and promoting financial awareness and vigilance are implemented in the following stage. Financial planning has a relatively small theory that guides this profession [31]. For an investor to benefit from financial planning, he or she must use the theories and methods of behavioral finance and wealth management financial psychology [12]. Lim et al. [19] in a study stated that in the financial planning process, an investor always focuses on economic dimensions and financial health for wealth management and often has no desire to deal with his behavioral, emotional, and cognitive dimensions. In addition, these people do not act rationally when making financial and monetary decisions.

Eberhart [10] investigated the effect of individual differences on financial decisions and used them and cost management as a criterion for financial decision-making. This research showed that individual characteristics are influential in financial decisions; adults with more knowledge and less negative emotions usually make more effective financial decisions.

Petit et al. [27] sought to understand the effect of behavioral bias factors on the investment performance of investors. Finally, they identified six behavioral bias factors (mood, emotions, innovative methods, framework, personality, and gambling) to understand their effect on investors' performance. Their findings unraveled that all the selected factors of this research have a significant effect on the investment performance of investors. Nelson et al. [25], in a study entitled "Three Interventions for Financial Therapy: Supporting the Examination of Financial Behaviors and Beliefs," suggested three interventions that affect the emotional components of handling financial affairs. These factors include financial collage, financial genogram, and Moneygram. Canale and Klontz [5], in research entitled "wealth accumulation disorder more than just an obsession," concluded that obsessive wealth accumulators feel an emotional attachment to their money and possessions, which makes it difficult for them to spend or give up their accumulated assets and wealth. Finally, wealth accumulation is considered a sign of scientific-intellectual disorder (obsessive-compulsive disorder) or scientific-intellectual personality disorder (obsessive-compulsive personality disorder).

In another research entitled "mental accounting and consumer choice," Thaler [30] found that all organizations and individuals have an explicit or implicit accounting system. Accounting systems often influence decisions in unexpected ways. This study has investigated some aspects of the implicit mental accounting system used by individuals and families. Finally, the main goal of this study is to develop a richer theory of consumer behavior than the standard economic theory.

Fattahi [11], in research entitled "monetary and financial disorders of money anxiety attitude: Components affecting the monetary and economic culture of society," concluded that people's psychological characteristics significantly impact their economic behavior. Attitudes toward money, personal economic beliefs, and prejudices and perceptions are the incentives for many people's financial decisions. As a result, most of them make decisions that conflict with their financial wishes and goals.

When people are involved in unbridled and chronic behavioral patterns, they may suffer from money disorders that cause anxiety, stress, severe tensions, and problems in the main areas of their lives. Akafian and Malekiha [1] investigated money disorders and their role in mental health. They concluded that the economic problem affects various aspects of mental health and quality of life and causes the occurrence and spread of money disorders.

5 Research hypotheses and conceptual model

Based on the theoretical foundations and previous studies, the research hypotheses have been developed as follows:

H1: Financial collage has an effect on investors' wealth management.

H2: Financial genogram has an effect on investors' wealth management.

H3: Risk tolerance has an effect on investors' wealth management.

H4: Financial discipline has an effect on investors' wealth management.

H5: Financial self-efficacy has an effect on investors' wealth management.

H6: Financial knowledge increases the tendency to wealth management through improving financial data mining.

H7: Mental accounting increases the tendency to wealth management through improving financial data mining.

The model is the relationship between the theoretical level and the information collection and analysis. Models include signs and symptoms; that is, the characteristics of some experimental phenomena (including their components and their relationships) are logically expressed through concepts related to each other. Therefore, the model reflects reality, integrates certain aspects of the natural world related to the problem under investigation, clarifies the significant relationships among the mentioned aspects, and finally provides the possibility of empirical testing of the theory according to the nature of these relationships.

After testing the model, a better understanding of some parts of the natural world is obtained. In summary, a model consists of concepts, hypotheses, and indicators that facilitate selecting and collecting information required for hypothesis testing [16]. Therefore, according to the above argument, formulated hypotheses, and theoretical foundations in tracing the wealth management model, the conceptual model of the research has been formulated in Figure 2:

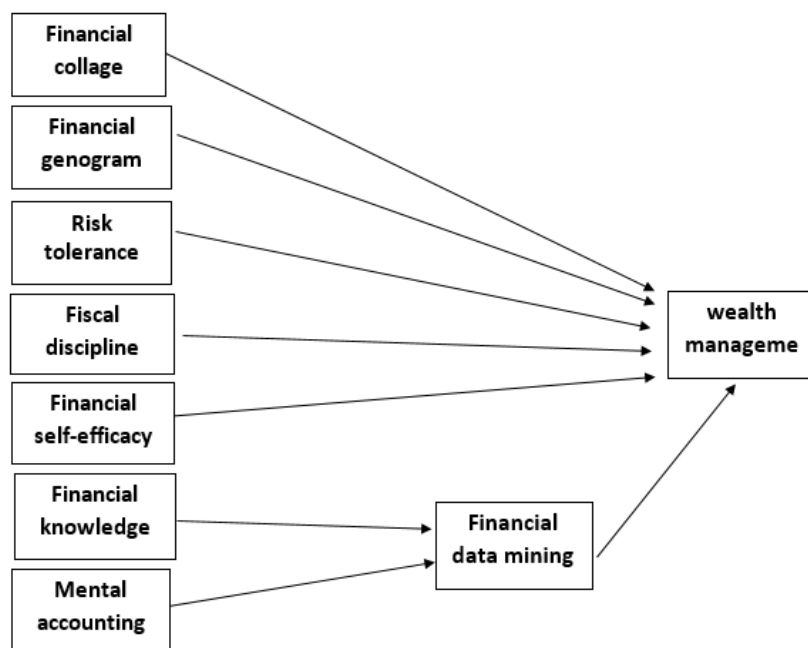


Figure 2: The conceptual framework of the research

6 Methodology

The current research aims to explain the role of cognitive-behavioral constructs in wealth management by predicting causal relationships between cognitive-behavioral constructs and investors' wealth management. This research is applied in terms of purpose and descriptive-analytical survey type in data collection methods based on the structural modeling approach. To test the hypotheses by structural equation modeling method, version 3.2.7 of SmartPLS statistical software was used. When the observations are small or do not have a normal distribution, it is preferable to use software such as SmartPLS.

The partial least squares path model is defined by two sets of linear structural equations (internal or structural model and external or measurement model). The structural model determines the relationship between the latent variables and the measurement model and the relationship between the latent variables and the observed indicators. Furthermore, the online (<https://survey.porsline.ir>) and in-person questionnaire methods were used in the data collection stage, and the structural equation modeling approach based on partial least squares (PLS) was used in the inference stage.

In order to distribute the questionnaire among active investors in the capital market, the data were collected online and in person through social networks. In order to distribute the questionnaire among the statistical sample, 98 questionnaires were collected in-person and remotely through social networks online. As 17 questionnaires were rejected due to insufficient or incorrect data, the correct observations were 81. Regarding the adequacy of the sample size in the structural equation modeling method, in order to obtain valid and generalizable results, according to the theory of Chen and his colleagues [6], the sample size should be a ratio of 10 cases for each parameter. Therefore, according to the structural model of this research, the existing observations (questionnaire) (81 items) are statistically sufficient. In 2006, Bentler and Cho also suggested 5 items for each parameter.

In the current study, the endogenous latent variable of wealth management, the independent variables of financial collage, financial genogram, risk tolerance, financial discipline, financial self-efficacy, financial knowledge, and mental accounting, and the mediating variable of financial data mining have been measured using a standardized questionnaire. The questions of this questionnaire were taken from the standardized questionnaire. In addition, university professors' and experts' opinions in the research field were used to develop and localize the research instrument for the country's environment and confirm its validity. Table 1 demonstrates the information on the research variables.

Table 1: Variables of the research model

Variable	Type	Structure	Number of items	Measurement tool
Financial Collage	Perceptive	Reflective	3	[25]
Financial genogram			3	[25]
Risk tolerance			3	[2]
Financial discipline			3	[26]
Financial self-efficacy			3	[26]
Financial knowledge			3	[21]
Mental accounting			3	[26]
Financial data mining			3	[26]
Wealth management			3	[20]

7 Model analysis and testing items

The research model modeled the variables as higher-level reflective constructs. The stages and the methods used are according to Table 2.

In order to evaluate the measurement model (external model), the reliability and validity of constructs and indicators are evaluated. Cronbach's alpha and composite reliability were obtained for each model construct greater than 0.7. In addition, all indicators had the necessary reliability. In order to evaluate the validity of the model constructs, convergent validity and diagnostic validity were used.

To evaluate the convergent validity of all model structures, the average criterion of the extracted variance is more than 0.5. Since the root means of the extracted variance in matrix diameter is greater than the correlation of the construct with other constructs, the mentioned criterion is acceptable. Therefore, the quality of the model constructs has good validity.

Finally, divergent validity is the third criterion to examine the measurement model fit in the PLS method. The divergent validity in this method is measured in two ways: a) the Reciprocal factor loadings method; (b) Fornell and Larcker method. The present study used the second method to measure the divergent validity. According to Fornell and Larcker, divergent validity is acceptable when the average variance extracted for each construct is greater than the shared variance between that construct and other constructs in the model. If the root mean of the variance extracted for a variable is greater than the correlation of that variable with other variables, there is divergent validity for the variable. In the following Table, the numbers on the main diagonal are the root mean of the extracted variance. According to Table 4, it is found that the divergent validity is acceptable.

Table 2: Summary of data analysis stages

measurement model Evaluation (external validity)	Reliability	Reliability of indicators	
		Study of one dimensionality	Cronbach's alpha Composite reliability
	Validity	Convergent (AVE) and diagnostic validity	
		Differential validity	Fresnel & Locker criteria
		Construct correlation and multi-collinearity (VIF)	Evaluating subscription validity
Structural model evaluation (internal validity)	Estimation of path coefficient		
	coefficient of determination (R^2)		
	Predictive communication		
Examining model quality indicators	Evaluating subscription validity		
	Evaluating Validity of redundancy		
	goodness of fit criterion (GOF) and standardized root mean squared residual (SRMR)		

Table 3: Evaluating the quality of the measurement model

Construct	Cronbach's alpha	composite reliability	convergent validity
Financial Collage	0.881	0.911	0.663
Financial genogram	0.752	0.858	0.768
Risk tolerance	0.755	0.859	0.670
Financial discipline	0.863	0.906	0.763
Financial self-efficacy	0.736	0.836	0.731
Financial knowledge	0.821	0.873	0.792
Mental accounting	0.649	0.784	0.653
Financial data mining	0.731	0.836	0.731
Wealth management	0.892	0.905	0.693

Table 4: Divergent validity of research variables

Variables	1	2	3	4	5	6	7	8	9
Financial discipline	0.87								
Risk tolerance	0.67	0.82							
Mental accounting	0.43	0.78	0.74						
Financial self-efficacy	0.46	0.74	0.65	0.79					
Financial data mining	0.54	0.79	0.80	0.79	0.79				
Financial knowledge	0.62	0.74	0.66	0.82	0.63	0.83			
wealth management	0.64	0.68	0.69	0.72	0.89	0.65	0.70		
Financial genogram	0.77	0.68	0.63	0.64	0.72	0.66	0.78	0.82	
Financial collage	0.76	0.78	0.64	0.64	0.69	0.66	0.69	0.67	0.68

Multivariate analysis is one of the most potent and appropriate methods of analysis in behavioral science research. Such problems are multivariable, and they cannot be solved with a two-variable method (where only one independent variable and one dependent variable are considered at a time). Therefore, the structural equation model and especially the path analysis have been used in this research to confirm or reject the hypotheses.

Path analysis evaluates hypothesized relationships. In this analysis, the value of the path coefficient represents the standardized beta (β) in the regression, the critical value represents the t coefficient of each path, and the significance level also indicates the confidence level in the obtained values. The results of this analysis can be expressed in the form of direct effects that investigate the relationship between two variables.

Research path analysis shows the relationships between the research variables simultaneously. Path analysis aims to identify the causal relationships between the variables of the conceptual research model. The model's results in the standard estimation mode show the model in the mode of significant coefficients. This structural model presents the causal relationships between explanatory variables and wealth management.

Table 5: Factor load and significant coefficient of the questionnaire items

Components	Indicators	Factor loading	Significant coefficient	Result
Financial collage	1	0.71	79.96	Confirmed
	2	0.52	2.51	Confirmed
Financial genogram	1	0.66	41.87	Confirmed
	2	0.68	39.61	Confirmed
	3	0.77	32.77	Confirmed
Risk tolerance	1	0.68	25.65	Confirmed
	2	0.72	42.33	Confirmed
	3	0.73	41.92	Confirmed
Financial discipline	1	0.89	58.46	Confirmed
	2	0.85	68.87	Confirmed
	3	0.65	34.01	Confirmed
Financial self-efficacy	1	0.73	37.61	Confirmed
	2	0.50	17.08	Confirmed
	3	0.76	45.26	Confirmed
Financial knowledge	1	0.56	18.26	Confirmed
	2	0.80	69.49	Confirmed
	3	0.87	78.43	Confirmed
Mental accounting	1	0.67	39.37	Confirmed
	2	0.46	10.51	Confirmed
	3	0.69	42.99	Confirmed
Financial data mining	1	0.77	37.84	Confirmed
	2	0.70	53.54	Confirmed
	3	0.53	20.19	Confirmed
wealth management	1	0.51	10.89	Confirmed
	2	0.61	15.86	Confirmed
	3	0.57	12.87	Confirmed
	4	0.77	32.52	Confirmed
	5	0.69	23.60	Confirmed
	6	0.53	14.51	Confirmed
	7	0.71	35.25	Confirmed
	8	0.64	21.47	Confirmed
	9	0.73	25.79	Confirmed
	10	0.78	30.97	Confirmed

In order to evaluate the structural model (internal model), after calculating the path coefficients, the factor loadings and the explained variance of the variables are explained by the PLS algorithm command, and the significance of the paths and factor loadings are also evaluated using the bootstrapping method to obtain t-values. The significant results of the paths can be observed in the table below.

As seen in Table 6, the path analysis shows that the value of the t statistic is greater than 1.96 for nine paths; therefore, it is not significant for one path. This means that the path of financial collage and investors' wealth management (first hypothesis), the path of financial genogram and investors' wealth management (second hypothesis), the path of financial discipline and investors' wealth management (fourth hypothesis), and the path of financial self-efficacy and investors' wealth management (fifth hypothesis) are significant at the 95% confidence level.

In testing the hypotheses using the structural equation model, the software's output shows the appropriateness of the adjusted structural model for the hypothesis testing. The obtained coefficients are significant when their significance test value is greater than 1.96 and smaller than -1.96. The significant coefficients show the significance of all model paths except the third path. Therefore, the structural model shows that the research's first, second, fourth, and fifth hypotheses are confirmed.

The Bootstrapping approach is a suitable method to create standard errors or t-values. When the sample size is small, and the accuracy of the estimators is essential, this method can calculate the errors using the resampling method and provide the appropriate and robust confidence interval or standard deviation. This method is also used to estimate the variance of the estimators when the probability distribution function of the estimators is uncertain or complex.

Table 6: Factor loadings, significance, and coefficient of determination of total effects (direct and indirect)

The first to fifth hypotheses	Path coefficient	t	Sig.	Result
Financial collage→ wealth management	0.153	3.091	0.002	Effective
Financial genogram→ wealth management	0.270	4.725	0.000	Effective
Risk tolerance → wealth management	0.086	1.646	0.100	Not Effective
Financial discipline→ wealth management	0.093	2.052	0.041	Effective
Financial self-efficacy→ wealth management	0.088	2.433	0.015	Effective
Financial knowledge→ financial data mining	0.251	6.295	0.000	Effective
Mental accounting→ financial data mining	0.660	18.171	0.000	Effective
Financial data mining→ wealth management	0.360	7.517	0.000	Effective
Mental accounting→ wealth management	0.237	6.610	0.000	Effective
Financial knowledge→ wealth management	0.090	5.101	0.000	Effective

Table 7: PLS results of path coefficient - special indirect effect

The sixth and seventh hypotheses	Path coefficient	t	Sig.	Result
Financial knowledge→ financial data mining →wealth management	0.090	5.101	0.000	Effective
Mental accounting → financial data mining →wealth management	0.237	6.610	0.000	Effective

The results show that after financial data mining, the tested financial knowledge concerning the investor wealth management index has a positive indirect effect (0.090) on investors' wealth management through financial data mining; This effect was investigated through the Sobel test. It is worth mentioning that this effect is statistically significant because the t-statistic is equal to (5.101), which is higher than (1.96). Therefore, the sixth hypothesis (H6: Financial knowledge increases the tendency to wealth management through improving financial data mining) cannot be rejected. Furthermore, the results show that after financial data mining, the tested mental accounting concerning the investor wealth management index has a positive indirect effect (0.237) on investors' wealth management through financial data mining; This effect was investigated through the Sobel test. It is noteworthy that this effect is statistically significant because the t-statistic is equal to (6.610), which is higher than (1.96). Therefore, the seventh hypothesis (H7: Mental accounting increases the tendency to wealth management through improving financial data mining) cannot be rejected. In the measurement and structural models under investigation, the mean of sharing is used to measure the fit of the external model, and the coefficient of determination R^2 is used for the fit of the structural model. The average value of sharing indicates the percentage of changes in indicators justified by the corresponding structure, and researchers have mentioned an acceptable level for statistical sharing greater than 0.5. According to the R^2 values that indicate the ability of the model to describe the construct, the presented model is a good fit.

Table 8: Evaluating the quality of the structural model and goodness of fit

Model/construct	SRMR	R^2	R^{2adj}	F^2
wealth management	0.101	0.762	0.758	0.140
Financial data mining	0.112	0.686	0.684	0.136

Formula(1) : Goodness of Fit Index (GFI)

$$GFI = 1 - \frac{F_M}{F_{IND}}$$

Formula(2) : Adjusted Goodness of Fit Index (AGFI)

$$AGFI = 1 - (1 - GFI) \frac{dl_{IND}}{dl_M}$$

Formula(3) : Comparative Fit Index (CFI)

$$GFI = 1 - \frac{F(S, \sum \theta)}{F(S, \sum (\cdot))}$$

Formula(4) :Normalized $\chi - square$ Index (CMIN)

$$X^2 = \sum \frac{(Fo - Fe)^2}{Fe}$$

Formula(5) :The Root Mean Squared Error Approximation (RMSEA)

$$RMSEA = \sqrt{\frac{X^2 - df_{model}}{(N - 1) * df_{model}}} \tag{5}$$

In the following, the modified model will be as follows:

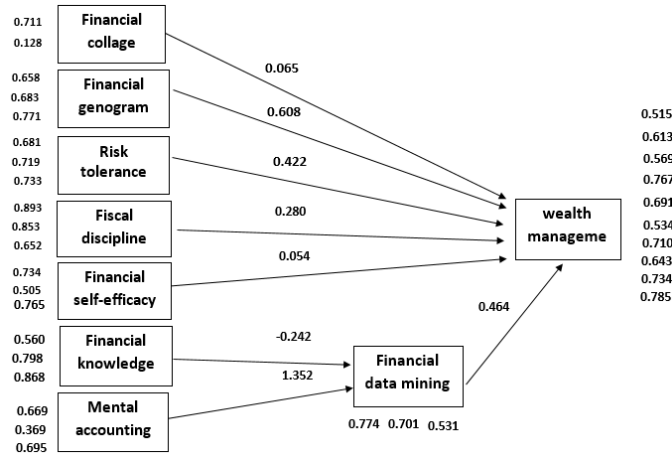


Figure 3: Modified research model

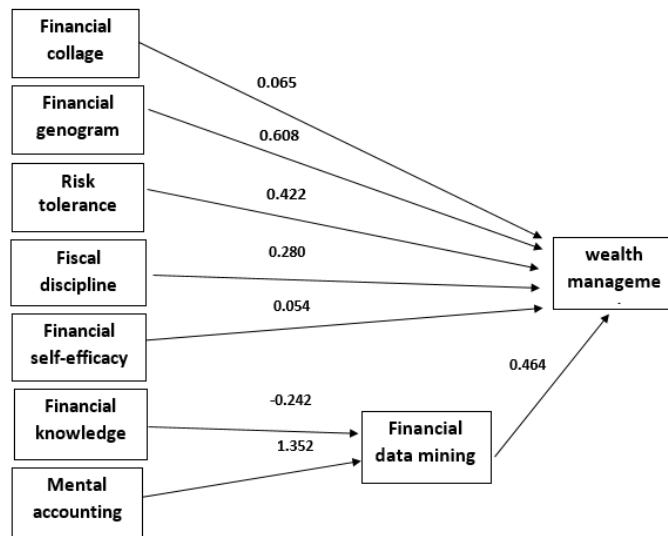


Figure 4: Significant coefficients of the structural model

8 Discussion and conclusion

The current research explains the role of cognitive-behavioral constructs on wealth management by predicting causal relationships among the constructs of financial collage, financial genogram, risk tolerance, financial discipline, financial self-efficacy, financial knowledge, mental accounting, and investors' wealth management with the mediation of financial data mining. The diagrams show the significance of the coefficient and parameters of the structural model. As observed, except for one path, the significant coefficients of all paths are significant at the 95% confidence

level. Therefore, the structural model shows that cognitive-behavioral constructs (financial collage, financial genogram, financial discipline, and financial self-efficacy) significantly impact investors' wealth management.

Therefore, the first, second, fourth, and fifth paths are confirmed. The results of testing the first, second, fourth, and fifth hypotheses are in line with the results of the studies by Glenn and Hackman [14], [18], Hill et al. [15], Mao et al. [24], Ross et al. [28], and Farnham et al. These studies have mentioned some of the components and indicators obtained in the present study. In addition, the results of the third hypothesis (H3: Risk tolerance affects investors' wealth management.) contradict the results of the studies by Hill et al. [15], Mao et al. [24], and Ross et al. [28]. These studies have confirmed the impact of risk tolerance on money and wealth management.

On the other hand, the structural model shows that cognitive-behavioral constructs (financial knowledge and mental accounting) significantly impact investors' wealth management through financial data mining. Therefore, the two above paths in the form of the sixth and seventh hypotheses are significant and confirmed. The results of these hypotheses are aligned with the results of the studies in [18, 15, 24]. These studies have mentioned some of the components and indicators obtained in the present study.

Therefore, the findings of the research show that cognitive-behavioral constructs have an impact on investors' wealth management. In other words, these constructs can be considered a strengthening factor for investors' wealth management. Therefore, it is suggested to the actual and potential investors and other stakeholders to pay more attention to the mentioned cognitive-behavioral constructs encompassing financial collage, financial genogram, financial discipline, and financial self-efficacy and include them in their decision-making models because these constructs can be the basis for their decision in managing their wealth.

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