

Applicability of the Financial Health Scores Index

Finansal Sağlık Skorları Endeksinin Uygulanabilirliği

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ABSTRACT

Financial decision-making is defined as the act of performing financial activities in the most appropriate way in order to evaluate the investments of individuals or companies. Individuals have begun to need a certain level of financial education to maintain their daily lives. With these needs, concepts such as financial awareness, financial literacy and financial health have emerged. The concept of financial health is a current concept. The importance of the concept of financial health has become more evident in the Covid-19 process. In this process, the financial health levels of individuals whose incomes decreased began to decline.

From this point of view, the aim of the study is; to reach information about their financial status by determining the financial health scores of individuals. In the study, Financial Health Index Model (FHIM) developed by the members of Gümüşhane University Accounting-Finance Department was used. Gümüşhane University employees were included in the scope of the study. The data used in the model were collected with the OECD/INFE Financial Literacy Scale. In the study, the data of a total of 283 employees were analyzed and adapted to the model. As a result of the study, the average financial health scores of individuals working at Gümüşhane University were determined as 64,1432. This score is in the high score range above the average score. The model used in the study can be used as an important index value, especially in determining the services that banks will offer to individual customers. In addition, the model of the study can be used to determine the level of financial education that individuals will receive. It is expected that FSEM will make an important contribution to the literature.

Keywords: Financial Awareness, Financial Literacy, Financial Health, Financial Health Index Model.

ÖZ

Finansal karar alma, kişilerin veya şirketlerin yatırımlarını değerlendirmek amacıyla en uygun şekilde finansal faaliyette bulunma eylemi olarak tanımlanmaktadır. Bireyler gündelik yaşamlarını sürdürmek için belirli seviyede finans eğitimi ihtiyacı duymaya başlamışlardır. Bu ihtiyaçlar ile beraber finansal farkındalık, finansal okuryazarlık ve finansal sağlık gibi kavramlar ortaya çıkmıştır. Finansal sağlık kavramı ise güncel bir kavramdır. Covid-19 sürecinde finansal sağlık kavramının önemi daha belirgin hale gelmiştir. Bu süreçte gelirleri azalan bireylerin finansal sağlık düzeyleri düşmeye başlamıştır.

Bu noktadan hareketle çalışmanın amacı; bireylerin finansal sağlık skorlarını tespit ederek finansal durumları hakkında bilgilere ulaşmaktır. Çalışmada, Gümüşhane Üniversitesi Muhasebe-Finansman Anabilim Dalı öğretim elamanları tarafından geliştirilen Finansal Sağlık Endeksi Modeli (FSEM) kullanılmıştır. Çalışma kapsamına, Gümüşhane Üniversitesi çalışanları dâhil edilmiştir. Modelde kullanılan veriler OECD/İNFE Finansal Okuryazarlık Ölçeği ile toplanmıştır. Çalışmada toplam 283 çalışanın verileri analiz edilmiş ve modele uygun hale getirilmiştir. Yapılan Çalışma sonucunda Gümüşhane Üniversitesinde çalışan bireylerin finansal sağlık skorları ortalaması 64,1432 olarak tespit edilmiştir. Bu skor ortalama skorun üstünde yüksek puan aralığındadır. Çalışmada kullanılan model özellikle bankaların, bireysel müşterilere sunacakları hizmetleri belirlemede önemli bir endeks değeri olarak kullanılabilir. Ayrıca çalışmanın modeli bireylerin alacakları finansal eğitimlerin düzeyini tespit etmede kullanılabilir. FSEM'in literatüre önemli bir katkı yapması beklenmektedir.

Anahtar Kelimeler: Finansal Farkındalık, Finansal Okuryazarlık, Finansal Sağlık, Finansal Sağlık Endeksi Modeli.

Bu çalışma, ikinci yazarın yüksek lisans tezinden üretilmiştir.

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INTRODUCTION

Financial awareness which is the subject of many researches, essentially refers to a process. In the literature, having financial awareness is also defined as being financially literate. The Organization for Economic Development and Cooperation (OECD) has made the most used definition in the literature about financial literacy. The OECD defines financial literacy as: "The ability to apply financial concepts to their daily lives in order to ensure the economic participation of the individuals who make up the society, to increase the quality of life of the society and the individual in financial terms, and to give individuals the ability to make correct and effective decisions on various financial issues"

Lusardi who aims to raise all young people, starting from pre-school children, to be healthy financial decision makers for life, has divided financial literacy into basic and advanced according to the content and structure of financial concepts. Basic financial literacy is defined as being able to comment on interest rates, perceiving the effects of inflation, understanding the concept of risk and distinguishing its types. Advanced financial literacy is expressed as understanding more complex concepts such as stock market, funds, bond prices and calculating interest rates.¹ When the definitions of financial literacy are examined, it is seen that there are basically five elements in the definitions.²

- Being aware of financial concepts,
- To have communication skills,
- Ability to manage individual financial situation,
- Ability to make favorable decisions in every situation,
- Ability to make decisions for future financial situations.

Financial literacy is a two-way process that affects individuals from a micro perspective and a country's market from a

macro perspective. Debtors can save enough with the right financial planning. However, incorrect financial planning does not only cause individual distress, but also indirectly affects the global economic system.³

While increasing financial products and services cause complexity in financial markets, it causes individuals to stay away from financial markets and negatively affects their confidence in the financial system. Individuals who have savings, have an investment plan, use loans or are involved in the banking system may display irrational behaviors in an environment of insecurity.⁴⁻⁵ As can be seen, the low level of financial literacy can also cause imbalances in the markets.

In case of having information about financial matters, safe and correct decisions can be taken, thus contributing to the increase of the welfare level of the family and to the economic development of the society at the same time.⁶ In terms of the stability of the economic and financial system, it is extremely important for individuals to make effective and efficient decisions on financial matters. Because the increase in financial literacy provides the emergence of macroeconomic benefits for the economy and financial system. As a result of the changes and developments in the social, economic, demographic and political structure in financial markets, financial literacy has begun to be seen as a basic skill for financial consumers. Financial literacy has far-reaching consequences for the long-term stability of the economy. Financial literacy helps improve the effectiveness and quality of financial services. It ensures participation in the financial system with correct and conscious investments. It contributes to the development and deepening of the financial system. Thus, it strengthens financial systems and facilitates more efficient allocation of resources. The development of individuals' financial literacy levels changes financial institutions and organizations behavior, thus making positive

contributions to the financial system. In addition, it has significant effects on the long-term potential growth of the economy by affecting the resource allocation in the real economy. Financial literacy strengthens the functioning and transparency of financial markets and increases the demand for financial products and services. The correct use of these products and services strengthens the foundation of financial stability.

One of the leading international organizations of financial literacy and education activities is the OECD. By developing the studies it started in 2003, the OECD established the International Network on Financial Education (INFE) and the "International Gateway for Financial Education" units in 2008. INFE has developed a questionnaire to measure the financial literacy of adults from various countries and every country can use it.⁷ The OECD later added the Program for International Student Assessment (PISA) to measure the financial literacy levels of 15-year-olds.

Turkey started to be involved in this process in 2014. A circular on "Financial Access, Financial Education, Financial Consumer Protection Strategy and Action Plans" was published in the Official Gazette No. 29021 on 05 June 2014. The following headings formed the basis of the Circular.⁸

- Financial education and consumer protection,
- Consumers' access to financial products and services,
- Efficient and conscious use of accessed products,
- Measures against malpractices in financial matters,
- The importance of development and sustainable stability in financial markets.

There are many public institutions and organizations that take responsibility in the field of financial education in order to improve financial literacy in Turkey. Financial Literacy and Access Association

(FODER) is the most important non-governmental organization working in this field. This organization works with many institutions and organizations from both the public and private sectors. The organization organizes trainings to increase financial literacy and financial access awareness of individuals throughout Turkey, conducts research and tries to produce appropriate policies. In addition, the Ministry of Development, the Banking Regulation and Supervision Agency, Borsa Istanbul, Turkish Capital Markets Association, The Central Bank of the Republic of Turkey, The Republic of Turkey Ministry of Treasury and Finance, the Ministry of National Education, the Capital Markets Board carries out important studies to increase financial literacy.

In addition, studies that will contribute to financial literacy have been started by many academicians. One of these studies is FHİM, which was developed by Gümüşhane University Accounting-Finance Department members. The purpose of this model is to determine which subgroups individuals fall into by calculating the financial health scores of individuals within the scope of financial literacy.⁹ The basis of this method is the scale applied by the OECD and developed to determine the financial literacy level of individuals. This scale is simplified and FHİM is formed within the scope of certain variables. The model focused on individuals' financial knowledge, financial behavior and attitude, financial access, debt level, income, savings levels and budget practices.

In the Covid-19 process, the importance of financial literacy has become more evident. Individuals with high savings levels during the pandemic process had a more comfortable financial experience. Individuals with low savings and low financial literacy were adversely affected by this process. In this process, both the mental and financial health of many individuals have deteriorated. Financial health is a new concept that has emerged recently. There is no accepted definition of this concept. However, researches show that individuals make an

effort to protect their financial health, especially as a result of increasing consumption expenditures. Before defining financial health as a concept, some variables of this concept should be revealed. First of all, financial health is not just about having or not having money. In other words, an individual with a lot of money may be financially unhealthy, and an individual with little money may be financially healthy. Financial health is more of a concept related to the proper management of money. We can define financial health as “the mood of individuals within the framework of income levels, debt management level, savings tendencies, investment decisions and financial planning”. Based on this definition, individuals; If they say that they earn more than their compulsory living expenses, if they are moving towards their financial planning, if they can save, if they can turn their savings into the right investment and if they can manage this process, they are in a financially healthy state. Conversely, their financial health is in poor condition. In order for individuals to have good financial health, they must have financial knowledge at a level to manage their personal finances. Otherwise, even if the income level is very high, if the savings are used in the wrong areas, negative consequences may arise in terms of financial health.

Financial literacy, which has become a subject of interest for all segments of society, is the use of credit cards in daily life, paying bills, saving, borrowing, etc. It is important for the individual to reach financial welfare by making the right decisions in many financial transactions. With the increase in the importance of financial literacy, the number of studies on the determination of financial literacy levels in developed/developing countries has also increased. The only study directly related to the FHIM used in this study was made by Çam et al. in 2018. This study was carried out both for the first presentation of the model and to determine the financial health score of individuals in the TR90 Region. Within the framework of the model applied in the study, a survey was conducted on 283

individuals. The scale used in the study was gathered under 8 main headings. In the study, by determining the financial savings, financial behavior, financial information, budget, financial information and attitude, financial access and income status of individuals, the coefficient on the percentage values was determined and the financial health score index model was created.

Studies related to financial literacy in the literature focus on households and university students. In the studies conducted on students, in general, significant relationships has been determined between the students' knowledge levels about individual cash management, borrowing, savings and investment, and their behaviors.¹⁰⁻¹⁸

In most of the studies conducted on households, it has been determined that individuals have basic knowledge, but their level of advanced financial knowledge which is more complex is low.¹⁸⁻²⁰

In studies on whether there is a relationship between individuals' financial literacy levels and their demographic characteristics, it has been determined that individuals' educational status and income levels are effective on financial literacy levels.²¹⁻²⁶

In studies examining the relationship between financial literacy and retirement plans, it has been determined that individuals with high financial literacy have sufficient information for retirement planning.²⁷⁻²⁹

In addition, studies conducted on universities and public personnel, it has been determined that as the education level of the employees increases, the level of financial knowledge also increases.³⁰⁻³⁵ The primary aim of this study is to determine the financial health scores of individuals within the scope of financial inclusion and financial literacy. Determining the financial health scores of individuals is important in terms of increasing the level of financial literacy and training to be given to individuals. In addition, the method used in the study is expected to fill an important gap since it has just started to be used in the literature.

MATERIAL AND METHOD

Study Design and Data Collection

In the study, “Financial Health Score Index” developed by the members of Gümüşhane University Accounting-Finance Department was used. In this method, individuals' scores are calculated by scoring individuals' health scores within the framework of predetermined variables. In this direction, the following parameters were examined separately by using the data of the individuals for the year 2021.

- Financial information of individuals
- Financial attitudes of individuals
- Financial behavior of individuals
- Debt level of individuals
- Income of individuals
- Budget practices of individuals
- Level of Financial Access of individuals
- Level of savings of individuals

In the study, financial literacy questionnaire developed by OECD and INFE was used. The information needed for the research was obtained by the survey method in online environments due to the pandemic conditions. A total of 300 questionnaires were collected. All of the questionnaires were analyzed in the scope of 283 questionnaires, all of which were correctly coded. In line with the determined targets, the data of the people who participated in the survey were used in the analysis. In addition to this, various demographic characteristics of individuals have been determined, and parameters that determine the financial health score index have been found to determine the financial health score index. The ways to be followed in order to determine the index are shown in Figure 1.

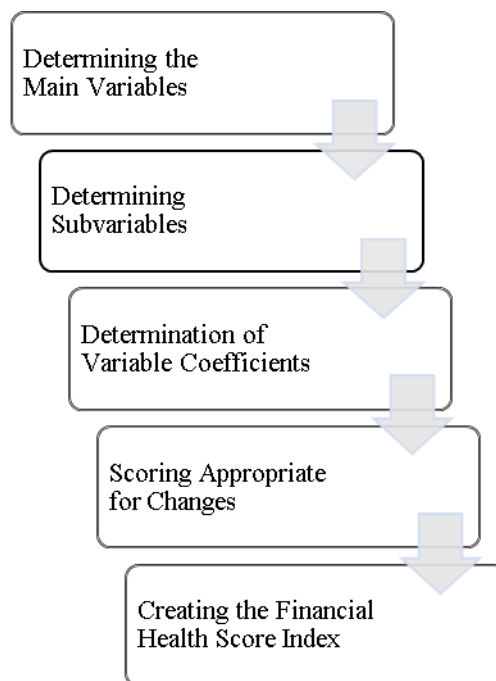


Figure 1. Financial Health Score Index Creation Process

Statistical Analysis

In order to determine the financial health scores of individuals and to determine the index, individuals' financial information, individuals' budget practices, individuals' income status, indebtedness level, financial behaviors, savings, financial attitudes and financial access levels were evaluated and scored separately. FHIM was created with the obtained data. The generated FHIM is formulated as shown below.

$$\text{FHIM} = \beta_1 \text{ Income Level} + \beta_2 \text{ Budget Practices} + \beta_3 \text{ Financial Knowledge Level} + \beta_4 \text{ Financial Behavior Level} + \beta_5 \text{ Financial Attitude Level} + \beta_6 \text{ Financial Access Level} + \beta_7 \text{ Debt Level} + \beta_8 \text{ Savings Level} \quad (1)$$

In the model formulated above, it was created in such a way that individuals could get a total of 100 points, and the financial health scores of the individuals were in the range of 0 to 100 points. The resulting scores were examined and the index values of the individuals were measured. In order to create the scoring in the model, the sub-variables of the index were determined and placed in the formula. The minimum and maximum scores

of the determined index are shown in Table 1.

Table 1. The Lowest and Highest Scores in The Determined Index

Main Variables	Minimum Score	Maximum Score
Income Level	1	5
Budget Practices Level	0	5
Financial Knowledge Level	0	15
Financial Behavior Level	7	35
Financial Attitude Level	3	15
Financial Inclusion Level	0	5
Savings Level	0	10
Debt Level	2	10
TOTAL SCORE	13	100

Limitations of the Study

The limitations of the study are the presence of university personnel on leave at the time of the research, the presence of personnel who did not tick all the questions, and the application of the research scale only in Gümüşhane University (Pilot Application). For this reason, the results of the study cannot be generalized to Turkey.

Ethical Aspect of Research

Before starting to collect research data, 2020/06 numbered "Ethics Committee Approval" was received from Gümüşhane University Scientific Research and Publication Ethics Committee on 11.06.2020. In addition, written and verbal approval was obtained from Gümüşhane University in order to conduct the research.

RESULTS AND DISCUSSION

The demographic distributions of the individuals examined within the scope of the study are presented in Table 2.

Table 2. Demographic Data of Participants

Gender	Frequency	Percent (%)
Male	195	68,9
Famale	88	31,1
Marital Status	Frequency	Percent (%)
The married	183	64,7
Single	100	35,3
Educational Status	Frequency	Percent (%)
Doctorate	58	20,5
graduate	66	23,3
Undergraduate or Associate Degree	149	52,7
Secondary School	10	3,5
Income Status	Frequency	Percent (%)
2000-3000	27	9,5
3001-5000	102	36,0
5001-7000	77	27,2
7001-9000	46	16,3
9001 and above	31	10,8
Age Groups	Frequency	Percent (%)
20-29	71	25,1
30-39	165	58,3
40-49	40	14,1
50-59	6	2,1
60 and above	1	0,4

Tablo 2. (Devamı)

Job Groups	Frequency	Percent (%)
Occupational Groups	121	42,8
Academical personal	123	43,5
Administrative Staff	39	13,8
TOTAL	283	100,0

68.9% of the individuals participating in the study were male and 31.1% were female. 64.7% of the participants in the study are married and 35.3% are single. 20.5% of the employees are doctoral graduates, 23.3% graduate, 52.7% undergraduate and 3.5% secondary education graduates. While 25.1% of the participants were aged 20-29, 58.3% were 30-39 years old, 14.1% were 40-49 years old, 2.1% were 50-59 years old. 0.4 of them are people aged 60 and over. 42.8% of individuals work as academic staff, 43.8% as administrative staff and 13.8% as permanent workers. 9.5% of the participants in the study have a monthly income between 2000-3000 TL, 36.0% have a monthly income between 3001-5000 TL, 27.2% have a monthly income between 5001-7000 TL, 16.3% have a monthly income is between 7001-9000 TL, and 16.3% of them have an income of 9001 TL and above.

Financial Health Index Calculations

In order to determine the financial health score and create the index, the coefficient calculations were made for the main variables. The purpose of calculating the coefficient is to want the weight of each

variable in the total to be equal. In this case, although the score level of each variable is different, the effect of these variables on the total score will be equal. The distribution of the determined coefficients is shown in Table 3.

Table 3. Distribution of Variable Coefficients

Main Variables	Minimum Score	Maximum Score	Share of Total Score(%)	Desired Score Weight (%)	Coefficient
Income Level	1	5	5	12,5	2,5
Budget Practices Level	0	5	5	12,5	2,5
Financial Knowledge Level	0	15	15	12,5	0,833
Financial Behavior Level	7	35	35	12,5	0,3571
Financial Attitude Level	3	15	15	12,5	0,833
Financial Inclusion Level	0	5	5	12,5	2,5
Savings Level	0	10	10	12,5	1,25
Debt Level	2	10	10	12,5	1,25
TOTAL	13	100	100	100	

It was determined by dividing the total weight value by the percentage of the arithmetic mean so that the shares of 8 variables in the total are equal. The distribution of 8 variables in the total indicator score was 12.5 points by performing the "100/8" operation. Then, the coefficient was calculated by dividing the expected score weight of the variable by the weight score found.

According to the determined coefficients, the model was created as follows.

$$\begin{aligned}
 FHIM = & \text{"2,5 Income Level} + \text{2,5 Budget Practices} + \text{0,833 Financial Knowledge Level} \\
 & + \text{0,3571 Financial Behavior Level} + \text{0,833 Financial Attitude Level} + \text{2,5 Financial Access Level} \\
 & + \text{1,25 Debt Level} + \text{1,25 Savings Level} \quad (2)
 \end{aligned}$$

Table 4. Financial Health Index Model Results

Observation	283
Minimum Score	34,59
Maximum Score	87,782
Average Score	64,1432
Standard Deviation	10,21919

As seen in Table 4, the average index score of the individuals participating in the study was calculated as 64,1432. 34.59 is the

lowest score among the participants, and 87.782 is the highest score among the participants. When evaluated in general, the financial health scores of individuals working at Gümüşhane University are at an average level. The classification created according to the calculated index scores of the participants in the study is shown in Table 5.

Table 5. Financial Health Index Range Table

	Frequency	Percent (%)
Very Low	0	0
Low	7	2,5
Moderate	86	30
High	178	63
Very High	12	4,5

The index scores resulting from the application of the variables shown in Table 5 were distributed according to the specified ranges. Accordingly, the score ranges of the individuals are predominantly high. There is no individual with a very low financial health score. While the rate of individuals with a low level of financial health score was 2.5%, the rate of individuals with a moderate financial health score was found to be 0.30. The ratio of individuals with a high level of financial health score was the range with the highest ratio with 0.63. The rate of individuals with very high financial health scores was found to be 4.5%. Individuals in

the low and medium range in the index are required to receive basic financial literacy training. Individuals in the high and very high level range need to take advanced financial literacy training. Individuals can

take these trainings voluntarily. There are many free training programs available on the Internet. In addition, the trainings can be given by the relevant institutions as compulsory.

CONCLUSION AND RECOMMENDATIONS

In the study, Financial Health Index Model (FSEM) developed by the members of Gümüşhane University Accounting-Finance Department was used. In the study, data were collected from individuals in line with the scale developed by the OECD, one of the leading institutions in financial literacy. The data were collected from the personnel working at Gümüşhane University within the framework of financial awareness. Data of a total of 283 individuals were analyzed. 78.8% of the individuals participating in the study set a financial goal for themselves. Individuals primarily save money in line with their financial goals and turn these savings into investments. Among the financial instruments used by the individuals examined within the scope of the study, credit card was the most preferred with 86.9%. The number of people who use advanced financial instruments such as stocks and bonds is quite low.

In the study, 8 main variables were determined and a financial health index model was created within the framework of these variables. These variables are; financial knowledge, financial attitude, financial behavior, debt level, income level, savings level, budget practices and financial access level. In order to ensure that the shares of these variables in the index are equal, the weight value in the total amount is proportional to the arithmetic mean of the percentage and the coefficients are determined. The weight of 8 variables in the total indicator score was determined as 12.5 points. Then, the expected score weight of the variable was divided by the current weight score and the coefficient of the variable was calculated. An indicator consisting of 8 main variables and 20 sub-variables was obtained. In this index model, a

person can get a minimum of 13 points and a maximum of 100 points.

The average score of the individuals participating in the study with the financial health index model was calculated as 64,1432. This score is in the high level score range according to the financial health index range table. All individuals participating in the study were classified according to their score ranges. The absence of individuals with very low scores in the classification framework may be associated with the high education level of university staff. In addition, the reasons for the high general average can be related to the income status of the individuals, their education level and being a staff member of a higher education institution. According to the index range classification, individuals with very low, low and medium score ranges definitely need an education that includes financial information. Individuals who fall into the high-level score range can receive high-level financial education.

The newly introduced financial health index is very important, especially in terms of determining the current financial situation of the individual and the precautions to be taken. With this index, individuals will be able to access the most up-to-date information about their financial status. Individuals will develop financial awareness and will begin to give more importance to their financial education. Developing personal financial awareness is very important for the country's economy. Because individuals with increased financial awareness are expected to increase their savings, make informed investment decisions, and find effective ways to achieve financial goals. In addition, provincial data can be analyzed according to financial health

index scores as an indicator for the planning of financial education infrastructure. The index can be used as a common measurement tool in current or ongoing scientific research

and publications. It is thought that this model will also be a reference for new studies and projects.

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