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FINANCIAL LITERACY

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Examining financial literacy and the financial aspects of Hofstede's four-factor culture model in Hungary

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Abstract

The paper examines the financial culture and the use of financial knowledge of the Hungarian population based on Hofstede's four-factor cultural dimension theory. Three research questions (financial application of Hofstede's cultural model, testing it among the Hungarian population, and examining the relationship between financial knowledge and application) were investigated using a questionnaire-based quantitative research method on a representative sample. To answer the research questions, variables were grouped using principal component analysis, cluster analysis was performed to typify the population, and correlation analysis was carried out for financial knowledge and application. Based on the study, we recommended that financial education is important. A limitation of the study is that it is not representative in terms of educational attainment, but it is suitable for describing the financial characteristics of the Hungarian population. The study found that the Hungarian population can be characterized by applying Hofstede's cultural model of finance. A significant part of the population holds collectivist views. It is also important to note that financial self-confidence and success orientation are not related to financial knowledge and its successful application.

JEL Classification: G50, G51, G52, G53, G59, A2.

Keywords: multivariate analysis, financial culture, knowledge, application.

Examinando la educación financiera y los aspectos financieros del modelo de cultura de cuatro factores de Hofstede en Hungría

Resumen

Este artículo examina la cultura financiera y el uso de los conocimientos financieros de la población húngara basándose en la teoría de la dimensión cultural de cuatro factores de Hofstede. Se investigaron tres cuestiones de investigación (la aplicación financiera del modelo cultural de Hofstede, su comprobación entre la población húngara y el examen de la relación entre los conocimientos financieros y su aplicación) utilizando un método de investigación cuantitativa basado en cuestionarios sobre una muestra representativa. Para responder a las preguntas de la investigación, se agruparon las variables mediante un análisis de componentes principales, se realizó un análisis de conglomerados para tipificar a la población y se llevó a cabo un análisis de correlación para los conocimientos financieros y la aplicación. Basándonos en el estudio, recomendamos que la educación financiera es importante. Una limitación del estudio es que no es representativo en términos de nivel educativo, pero es adecuado para describir las características financieras de la población húngara. El estudio reveló que la población húngara puede caracterizarse aplicando el modelo cultural de las finanzas de Hofstede. Una parte significativa de la población tiene opiniones colectivistas. También es importante señalar que la autoconfianza financiera y la orientación al éxito no están relacionadas con los conocimientos financieros y su aplicación con éxito.

Clasificación JEL: G50, G51, G52, G53, G59, A2.

Palabras clave: análisis multivariante, cultura financiera, conocimientos, aplicación.

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1. Introduction

The relation between financial knowledge and cultural markers is of paramount importance for economic decision-making and the functioning of financial markets.

Located in the Central European region, Hungary's financial culture is shaped by its history, notably its late industrialisation and transition to citizenship, two lost world wars, and 40 years of being part of the Soviet-type planned economy sphere of interest, Hungary joined the European Union in 2004, after nearly a decade and a half of market economy transition (Lentner, 2020).

This paper seeks to explore how cultural factors influence financial habits and financial decision-making among the Hungarian population. The findings presented in this study may contribute to the improvement of financial education and advice. They may also help individuals to better understand and successfully navigate the financial environment. What is novel about the study is that it is one of the first to measure the financial aspects of cultural dimensions among the Hungarian population using multivariate methods, and it did so in a country where financial awareness is still in its infancy.

2. Reference Literature

Culture is a set of values and value systems that develops in a society over generations and has intergenerational characteristics. Financial literacy is part of this culture, but there is no single definition. Financial literacy is defined by Atkinson and Messy (2012) as the set of knowledge, skills, abilities and attitudes that are necessary and essential for making informed financial decisions. In this dimension, Kholilah and Iramani (2013) highlight the individual's behaviour, while Amagir, Groot, Maassen van den Brink, & Wilschut (2018) identify it as a triad of knowledge, attitudes, and behaviours.

Hung A., Parker M. andYoong K. (2009) identified nine different approaches from the studies they processed. These are:

1) financial knowledge;
2) understanding the financial processes;
3) the ability to apply financial knowledge, and experience gained;
4) knowledge of financial contexts and their definitions;
5) the ability to make informed financial decisions;
6) knowledge of the most basic financial concepts;
7) the ability to make simple (fundamental) financial decisions;
8) the ability to make informed and conscious decisions; and
9) knowledge of the impact of simple financial concepts.

Research has found that accelerated innovation in the financial sector seen in recent decades has led to a need for more knowledge in households (Lusardi & Mitchell, 2011). Knowledge alone is not enough, as Borden M., Lee A., Serido, and Collins (2008) and Johnson and Sherraden S. (2007)

found that an adequate financial knowledge base in itself does not guarantee good financial decisions without the right mindset along with it. However, lack of literacy is guaranteed to result in to poor financial decision making, which affects not only individual prosperity (Braunstein & Welch, 2002), but also the welfare and quality of life of society as a whole (Henager & Cude J., 2016). Low financial literacy increases financial risks (Klapper & Lusardi, 2019). Villagómez Amezcua and Hidalgo Everardo (2017) identified mathematical knowledge as a crucial factor of financial literacy. Financial knowledge also affects the performance of individual sectors. García-Santillán (2023) found financial literacy in the Mexican food industry to be adequate and suggested extending the educational programmes to other sectors.

Geert Hofstede (1982), one of the most prominent figures in comparative cultural studies illustrates the differences between national cultures with the following determinants:

1. Power distance, which here represents one way of dealing with inequality (inequality in income/social status, and the resulting inequality in the assertion of interests);
2. Individualism versus collectivism, i.e. the relationship between the individual and the community;
3. Masculinity versus feminism, which refers to social values and dominant behaviours;
4. Uncertainty avoidance, i.e. dealing with uncertainty and unexpected situations.

In terms of empirical research on this topic, it is vital to highlight the study by Muzaffarjon and Van Hove (2020). In their sample of 92 countries, their study support the fact that financial literacy is positively related to individualism and that financial literacy is negatively related to uncertainty avoidance and power distance. Based on their study of 12 countries, De Beckker, De Witte, and Van Campenhout (2020) concluded that uncertainty avoidance has a positive effect on financial literacy, while individualism has a negative effect, and that national culture has a significant effect on financial literacy, which was also supported by Cupák, Fessler, Silgoner, and Ulbrich (2018). Goso (2022) used qualitative research to show that in case of individualistic backgrounds for both parties, the spouses tend to make decisions together, while having collectivistic backgrounds will produce the reverse outcome.

A key milestone in research into financial culture in Hungary has been the study of the socio-demographic, attitudinal, knowledge and behavioural factors of financial success and vulnerability. The findings reveal that while an increase in income reduces financial vulnerability, more disposable capital does not increase financial awareness. Besides external control attitudes, financially vulnerable groups also struggle with prolonging their current desires and controlling their spending (Luksander, Béres, Huzdik, and Németh, 2014); Németh, Béres, Huzdik, and Zsótér, 2016). Research in Hungary aimed at financial literacy initiatives has highlighted that while public school students are overrepresented, financially vulnerable adult groups are underrepresented among participants. Furthermore, training courses tend to be rather short, lasting only a matter of hours, and back-testing their effectiveness, or, in the absence of this, adequate quality assurance, was often non-existent (Németh, Jakovác, Mészáros, Kollár and Várpalotai, 2016).

There have been several studies and research on financial literacy in Hungary. One notable study (Lusardi & Mitchell, 2014; Lusardi & Mitchell, 2013) assesses the economic importance of financial literacy. The study highlights theoretical research that views financial literacy as an

investment in human capital and emphasizes the impact of financial literacy on welfare and policy interventions. The authors also examine the level of financial literacy of different population subgroups and its impact on economic decision-making.
Daragmeh, Lentner and Sági (2021) discuss the findings of the OECD Financial Literacy Report study including Hungary. The study shows that respondents who were able to use digital tools had significant financial knowledge, attitudes, education and well-being.

In Hungary, financial literacy programmes have been developed to target different population groups, including the poor and young adults (Győri, 2021; Sági, 2020; Zsótér and Németh, 2017). The aim of these programmes is to increase financial inclusion and provide individuals with the knowledge and skills to make informed financial decisions. The effectiveness of these programmes and their relationship with financial inclusion is an area of ongoing research (Győri, 2021; Németh – Zsótér, 2022; Németh Béres, Huzdik, Zsótér and Mészáros, 2022).

The level of financial literacy among Hungarian university students has also been investigated Studies have shown that a significant proportion of students lack basic financial knowledge and concepts. This highlights the need for financial education initiatives targeting young adults (Kálmám, Bárczi and Zéman., 2021; Ergün, 2017).

Another notable mention among the Hungarian empirical studies is the study of Sági (2020), who measured the financial literacy of students, along with the research of Baranyi, Csernák, and Csiszárik-Kocsir (2022), who analysed the effects of covid on students' financial culture. Széles (2018), Sági, Vasa, and Lentner, (2020), and Csiszárik-Kocsir, Garai-Fodor, and Varga (2022) interpreted savings habits and resilience among the Hungarian population. Csorba (2020) investigated the key factors of financial culture, while Pollák and Jáki (2023) examined the volume of lending in the Hungarian market. Molnár, Hegedűs, Baranyai, and Kovácsné-Sipos (2019) had found innovative methods to investigate the tax and public finance awareness among students. The research unanimously confirmed the relevance, as well as the weak foothold of financial literacy. We argue that under-represented financial literacy can potentially slow down the pace of socio-economic development.

3. Materials and Methodology

The Materials and Methodology section describes the aim of our research, the research methodology used, along with the main research questions.

3.1 Aim of the study, research questions

The aim of the paper is to test the application of Hofstede's (1982) cultural model of financial decisions and knowledge among the population of a Central European country. We have developed a quantitative research methodology pertaining to this. The paper seeks to answer the following research questions:

RQ1. Is Hofstede’s (1982) Cultural Dimensions Theory applicable in the financial context?
RQ2. How can the Hungarian population be typified using the cultural model?

RQ3. Potential correlations between financial cultural dimensions and financial knowledge and its application?

3.2 Data Collection Method

The questionnaire was compiled using a total of 30 questions, all but three of which were used during the implementations of this research. The survey was carried out in part via an online platform using snowball sampling for the questionnaire, and a telephone survey during the first quarter of 2023. The time period concerned in the study falls within Hungary's three decades of market economy transition, the post-Covid-19 crisis and the economic difficulties caused by the Russian-Ukrainian war, and will also serve as a baseline for future research, but may well be suitable for comparative analyses by researchers in other countries, as well.

The questionnaire breaks down into three sections: the first features demographic questions, the second features questions focusing on financial literacy and its application, while the third one lists questions related to Hofstede's 4 cultural dimensions. The cultural dimensions and the financial knowledge and application variables were measured using a 6-point Likert scale, where 1 represented a complete disagreement with the statement and 6 was a complete agreement. The remaining questions were in multiple-choice format.

3.3 Methodology

The paper involves a descriptive statistical analysis of the variables from the questionnaire survey for a given period, looking at the mean, mode and standard deviation. Then, principal component analysis was performed on the culture variables using varimax rotation. The methodology was used to cluster the variables. Correlation analysis was used to explore the internal relationships between the factors, and the same methodology was used to test the relationships between financial knowledge and application and the factors. A two-step cluster analysis of the factors was then performed to cluster the Hungarian population, followed by a cross-tabulation analysis with the representative demographic variables. The research methodology is summarised in the first figure (Figure 1).

3.4 Presentation of the study sample

The presentation of the results of the questionnaire starts with a description of the relevant demographic variables. The sample was representative of a country with a population of ca. 10 million people, which is representative in terms of gender, age composition, place of residence and level of educational attainment. Therefore, we consider the results to be suitable for drawing broader conclusions.

Table 1. Sample distribution

What is your gender?				
Variable	**Frequency**	**Percent**	**Hungary, 2022**	**Difference**
Male	651	47.94%	47.94%	0.00%
Female	707	52.06%	52.06%	0.00%
What age group are you?				
Variable	**Frequency**	**Percent**	**Hungary, 2022**	**Difference**
between 18-25 years	140	10.31%	9.74%	0.57%
between 26-35 years	224	16.49%	15.80%	0.69%
Between 36-60 years	574	42.27%	43.90%	-1.63%
Over 60 years	420	30.93%	30.56%	0.37%
Where do you live?				
Variable	**Frequency**	**Percent**	**Hungary, 2022**	**Difference**
Budapest	245	18.10%	17.52%	0.52%
City	420	30.90%	32.22%	0.26%
City with country rank	406	29.90%	29.88%	0.02%
Village	287	21.10%	20.38%	-0.79%
Your Highest level of education				
Variable	**Frequency**	**Percent**	**Hungary, 2022**	**Difference**
Primary school	224	16.49%	20.19%	-3.70%
Secondary school	574	42.27%	56.70%	-14.43%
Lower education	560	41.24%	23.11%	18.13%

Source: Own research and Hungarian Statistical Office, 2022

The first table highlights four demographic variables from the study. These were gender, age group, type of residence and highest level of education. As for the variables under study, a national comparison is also available, given the last results of the census conducted in Hungary in 2022. The figures were published by the Hungarian Central Statistical Office (2022). The age distribution can also be considered representative, as the data has a deviation of less than 2%, when set against the national figures. Furthermore, the sample can also be considered representative in terms of place of residence, but there is a significant difference when it comes to educational attainment. Regardless of this fact, the last factor is also examined.

A summary of the methodology is presented in the first figure.

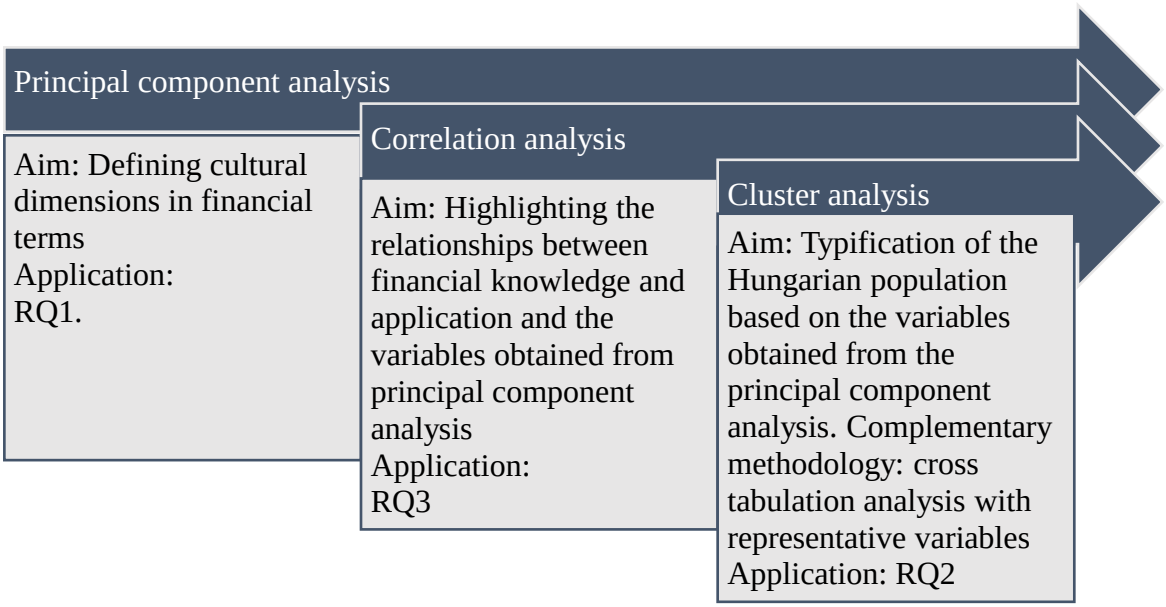

Figure 1. Research methodology and its correlation with the research questions
Source: own research

4. Findings

The results of the research are presented using factor analyses with a structure following Hofstede's (1982) model. For the first factor, we examined the financial aspects of uncertainty avoidance.

Table 2. Factor analysis of financial cultural determinants of uncertainty avoidance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.58**
Bartlett's Test of Sphericity	Approx. Chi-Square	562.32
	df	6
	Sig.	**0.00**
Total variance explained	**68.779%**	
Component		
Rotated component matrix (varimax rotation)	Low level of uncertainty /Self confidence /Asserrtiveness	Compliance and long-term decisions
To what extent do you find it problematic to deal with uncertain and unexpected situations when making financial decisions? (Q15)	**0.873**	0.016
To what extent do you feel stressed or strained in making financial decisions? (Q16)	**0.828**	-0.011
To what extent do you consider the existence of rules important in your financial decisions (e.g. legal regulations and guarantees)? (Q17)	0.292	**0.751**
To what extent do you plan for the long term (5-10 years) in your financial matters? (Q18)	-0.281	**0.759**

Source: Own research, 2023

The conditions for principal component analysis were met, the **Kaiser-Meyer-Olkin (KMO)** value was above the acceptable range, and the Bartlett test produced a statistically significant result. The four variables under study were reduced to 2 variables by principal component analysis, with an explained variance of 68.79%, exceeding the expected 60%. The first two variables, measuring stressors related to financial decisions, were named low level of uncertainty and self-confidence/assertiveness; it is important to stress that self-confidence here is understood in financial terms. From the analysis of the background variables (Q15 and Q16) it was found that the mean value of the two background variables on a six-point Likert scale was 3.30 with a mode of 3. It was therefore concluded that a significant proportion of respondents do not experience significant uncertainty and stress in financial decision making. The other financial dimension of uncertainty avoidance was considered to be compliance with rules and a longer-term orientation in financial matters. In the descriptive statistics, the variable compliance (Q17) had a mean value of 5.06 and a mode of 6. The average values of the financial planning variable (Q18) are slightly below those of the compliance variable. Hence, the two variables are named rule-following and long-term orientation, which denote a high degree of uncertainty avoidance. Thus, for the two variables, it can be concluded that low stress is associated with confidence, while compliance with rules and long-term financial planning are a means of uncertainty avoidance (Table 2).

Table 3. Factor analysis of financial cultural factors of individualism and collectivism

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		**0.55**
Bartlett's Test of Sphericity	Approx. Chi-Square	1 069
	df	6
	Sig.	**0.00**
Total variance explained	**70.84%**	
Component		
Rotated component matrix (Varimax rotation)	Individualist	Collectivism
To what extent do you take your own interests into account when making financial decisions? (Q19)	**0.492**	- 0.129
To what extent do you make financial decisions independently, without involving others? (Q20)	**0.887**	0.07
How often do you make financial decisions based on your own opinions and experiences? (Q21)	**0.871**	0.253
How likely are you to make financial decisions for the benefit of the wider community (e.g. charitable giving)? (Q22)	0.05	**0.982**

Source: Own research, 2023

Principal component analysis was performed to assess the degree of individualism and collectivism, and the application conditions were fulfilled, as the KMO value was above the adequate range, and the Bartlett's test conducted proved significant (Table 3). The explained variance was 70.84%. The descriptive statistics showed high values for the self-interest variable importance (Q19), while the value obtained for decision autonomy (Q20) and personal experience (Q21) were lower than those obtained for the variable Q19. Hence, the importance of the three self-interest variables was confirmed. One variable (Q22) directly examined community attitudes. However, this variable

had a very low average value based on the findings of the descriptive statistical tests. Therefore, the names of two factors fit the cultural dimensions defined by the Hofstede model (1982).

Table 4. Factor analysis of financial cultural factors for masculine-feminine traits

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		**0.622**
Bartlett's Test of Sphericity	Approx. Chi-Square	691.96
	df	6
	Sig.	**0.00**
Total variance explained	**71.952%**	
Component		
Rotated component matrix (varimax rotation)	Feminine	Masculine
How important do you feel it is that your financial decisions lead to financial success? (Q23)	0.22	**0.924**
How important do you feel it is that your financial decisions have a positive impact on other people? (Q24)	**0.658**	0.465
How much do your emotions influence your financial decisions? (Q25)	**0.81**	- 0.2456
How important do you feel it is that your financial decisions have an impact on relationships? (Q26)	**0.783**	0.215

Source: Own research, 2023

The principal component analysis related to the perception of masculine and feminine traits was successful, as the conditions were fulfilled, KMO value was medium, and Bartlett's test was significant (Table 4). The explained variance was 71.95%. The variable of financial success (Q23) is significantly separated from the other variables under study. One explanation for this is that its descriptive statistic value was the highest among the set of variables. The other three variables (Q24, 25 and 26, respectively) mainly measured empathy, influence on others, and influence on relationships. These three variables were grouped into one factor for the analysis. Consequently, there is a marked separation between feminine and masculine traits, although the average value of these variables was well below the success factor. Based on the background variables, it was found that the feminine traits were predominantly female, with male respondents (by definition) predominating in the perception of masculine cultural dimensions.

Table 5. Factor analysis of financial cultural determinants of inequality

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		**0.572**
Bartlett's Test of Sphericity	Approx. Chi-Square	659.09
	df	6
	Sig.	**0.00**
Total variance explained	**70,493%**	
Component		
Rotated component matrix (varimax rotation)	Individually perceived inequality	Socially perceived inequality
How much do you feel that money creates unequal relationships? (Q27)	-0.163	**0.893**

How much do you feel that your level of financial knowledge puts you at a disadvantage in your financial decisions? (Q28)	0.53	**0.536**
To what extent do you feel there is an equal distribution of income in society? (Q29)	**0.857**	-0.31
How much do you feel that inequalities caused by financial knowledge levels are compensated? (Q30)	**0.831**	-0.056

Source: Own research

The fourth dimension of culture examined the issue of equality and inequality, and the variables are suitable for principal component analysis, since the KMO value exceeds the minimum required value of 0.5, while the Bartlett test also yielded significant results. The explained variance was 70.49%. Regarding the value of the background variables, it was found that a significant proportion of respondents believe that money creates unequal relationships in society (mean value of variables Q29 and Q30 was 4.98). A low mean value was given by respondents (2.73) for the question of being disadvantaged because of their financial knowledge (Q28). However, the mean value of the variables classified in the socially perceived inequality factor did not differ significantly from the mean value of the variables, yet the study placed the variables in a separate factor.

As for the variables, the first factor is named individually perceived inequality, while the second factor is clearly named on the experience of socially perceived inequality.

The study produced a total of 8 factors to describe the financial aspects of the cultural dimensions. Then, the correlation between the variables created was tested. The combinations of variables with the highest correlation coefficients, but with a strength of correlation coefficient below medium, are marked in grey.

Table 6. Correlation analysis between factor variables of cultural dimensions

		Low level of uncertainty /Self confidence	Compliance and long-term decisions	Individualist	Collectivism	Feminine	Masculine	Individually perceived inequality	Socially perceived inequality
Low level of uncertainty /Self confidence	Pearson Correlation			**-.083****	**.112****	**.313****	**-.104****	**.247****	**.257****
	Sig. (2-tailed)			**.002**	**.000**	**.000**	**.000**	**.000**	**.000**
	N			**1358**	**1358**	**1358**	**1358**	**1358**	**1358**
Compliance and long-term decisions	Pearson Correlation			**.172****	**.120****	**.082****	**.271****	**-.149****	
	Sig. (2-tailed)			**.000**	**.000**	**.003**	**.000**	**.000**	
	N			**1358**	**1358**	**1358**	**1358**	**1358**	
Individualist	Pearson Correlation	**-.083****	**.172****			**.094****	**.174****		**-.055***
	Sig. (2-tailed)	**.002**	**.000**			**.001**	**.000**		**.044**
	N	**1358**	**1358**			**1358**	**1358**		**1358**

Collectivism	Pearson Correlation	**.112****	**.120****			**.209****	**-.119****	**.237****	
	Sig. (2-tailed)	**.000**	**.000**			**.000**	**.000**	**.000**	
	N	**1358**	**1358**			**1358**	**1358**	**1358**	
Feminine	Pearson Correlation	**.313****	**.082****	**.094****	**.209****			**.326****	**.162****
	Sig. (2-tailed)	**.000**	**.003**	**.001**	**.000**			**.000**	**.000**
	N	**1358**	**1358**	**1358**	**1358**		1358	**1358**	**1358**
Masculine	Pearson Correlation	**-.104****	**.271****	**.174****	**-.119****			**-.194****	
	Sig. (2-tailed)	**.000**	**.000**	**.000**	**.000**			**.000**	
	N	**1358**	**1358**	**1358**	**1358**			**1358**	
Equality compensated by knowledge	Pearson Correlation	**.247****	**-.149****	**-.024**	**.237****	**.326****	**-.194****		
	Sig. (2-tailed)	**.000**	**.000**	**.382**	**.000**	**.000**	**.000**		
	N	**1358**	**1358**	**1358**	**1358**	**1358**	**1358**		
Inequality	Pearson Correlation	**.257****		**-.055***		**.162****			
	Sig. (2-tailed)	**.000**		**.044**		**.000**			
	N	**1358**		**1358**		**1358**			
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

Source: Own research, 2023

The low level of uncertainty/self-confidence factor shows a weak negative relationship with individualism and masculinity. A possible explanation for this is that it is not driven by individual goals and is not primarily success-oriented. The study revealed a weak positive relationship with collectivism. This therefore indicates that people who are self-confident in the financial dimension are averse to individualism and masculine cultural traits that embody success-oriented attitude. The analysis reveals a weaker than medium positive relationship with perceptions of inequality perceived as individualistic and inequality perceived as socially inequitable, while a weaker than medium positive relationship with cultural traits, which can be classified as feminine. Those who are thus self-confident in financial terms tend to be more sensitive to inequality as well as to financial goals that are socially important. A possible explanation for this could be that those who are aware of socially important financial issues are more confident in financial decisions.

It can be concluded regarding the factor variable of compliance with the rules and long-term financial decisions that a stronger than medium relationship with the masculine cultural dimension based on financial success is present, even if not particularly strong. A weak positive relationship is found with individualism, collectivism and feminine financial culture traits, while a negative weak relationship is found with the variable perceived individual inequality. In this respect, it is therefore not possible to clearly identify the effect of culture trait, as it shows a relationship with many factors.

Individualism showed a relationship with the uncertainty avoidance variable as previously defined, with a positive relationship with longer-term planning. A negative relationship is shown with perceptions of socially perceived inequality. There is a positive relationship between femininity and masculine cultural traits. From this cultural dimension, it can be concluded that an essentially

rule-following attitude lined with combat insecurities, success-oriented attitude, while also sensitivity to social and community influences can be expected.

In line with the aforementioned, collectivism shows positive weak relationships with self-confidence and long-term financial planning variables and weak negative relationships with masculine cultural traits. What can be deduced from this is that respondents with collectivist traits avoid uncertainty but do not necessarily strive for success, and that unity and belonging are more important to them than individual success. The relationship between feminine financial personality traits and perceptions of individual inequality is weaker than medium. For this variable therefore, the link is that feminine financial personality traits representing a sense of community are related to collectivist ideas in this respect.

In relation to the feminine financial culture traits, there is a weaker than medium correlation, in order of magnitude of the correlation coefficient, with collectivism, self-confidence and perceived individual inequality. Moreover, a weak relationship with the variables long-term financial orientation, individualism and socially perceived inequality can be seen here. The weaker than moderate relationships suggest that feminine financial cultural traits that correspond to socially important financial activities are most strongly associated with self-confidence, perceived inequality on an individual level, along with collectivism. Otherwise, it comes as no surprise that a significant proportion of these respondents are women that tend to have a higher education.

Masculine personality traits showed a weaker than medium relationship with adherence to the rules and longer-term financial planning, but a weak positive relationship with individualism, self-confidence and perceived individual inequality. A positive relationship was found with individualism. This profile is therefore self-directed, with a preference for individual prosperity and more long-term financial planning.

The individually perceived inequality factor has a weaker than medium relationship with self-confidence, but also with collectivism and feminine financial culture traits. The dual face of the variable shows, with the trait compensated by knowledge having an effect on self-confidence, while perceptions of equality are related to collectivism and the presence of feminine financial culture traits. The perception of social inequality is connected to self-confidence, with a strength of less than medium.

Financial aspects of cultural dimensions were then examined with financial knowledge and experience, also using correlation analysis (Table 7).

Throughout the analysis, relationship strengths between variables where the value is at least in the weaker than medium category were marked in grey. In the following, it is an explanation of these relationships that are presented. It can be concluded from the analysis that an adequate level of financial knowledge (Q10) and its application in decision making (Q14) is essential for the existence of self-confidence. The correlation, however, is negative. This fact may indicate that respondents have low financial knowledge, yet they do not perceive uncertainty and have relative financial confidence. One possible explanation for this is the familiar Kruger and Dunning (1999) effect, which is that low knowledge is associated with high self-confidence in certain areas.

Compliance to the rules and long-term financial decisions show a stronger than medium positive relationship with financial knowledge and its application variables. Consequently, it can be

stated that having and being able to apply adequate knowledge is a prerequisite for longer-term financial planning and compliance.

Those with an individualistic financial culture dimension, have higher correlation coefficients for the variables measuring the adequacy of knowledge (Q10) and concepts (Q11) and application (Q13 and Q14). It can thus be surmised that individualists prefer to make decisions on their own, and they also do it right in their own judgement, which can be inferred from the value of the correlation coefficient, which is the highest in this case.

There was a negative relationship with all the variables measuring financial knowledge and application examined for the masculinity factor, which implies that masculine financial culture dimensions of success do not hold the appropriate financial knowledge, either in perception or in real situations requiring decision making, and therefore, in relation to non-respondents who only want to make successful financial decisions in theory, they do not have the appropriate knowledge to do so.

Table 7. Correlation analysis between cultural dimension factor variables and financial knowledge variables

		To what extent do you consider your financial knowledge to be adequate for making economic decisions? (Q10)	**How familiar and clear are you with the financial concepts, processes and relationships that influence your financial decisions? (Q12)**	**How effectively do you apply your financial knowledge and experience to your financial decisions? (Q13)**	**To what extent do you feel that your current financial knowledge enables you to make good decisions in different financial situations? (Q14)**
Low level of uncertainty /Self confidence	Pearson Correlation	**-.214****	**-.186****	**-.197****	**-.255****
	Sig. (2-tailed)	**.000**	**.000**	**.000**	**.000**
	N	**1358**	**1358**	**1358**	**1358**
Compliance and long-term decisions	Pearson Correlation	**.389****	**.418****	**.404****	**.348****
	Sig. (2-tailed)	**.000**	**.000**	**.000**	**.000**
	N	**1358**	**1358**	**1358**	**1358**
Individualist	Pearson Correlation	**.371****	**.361****	**.400****	**.422****
	Sig. (2-tailed)	**.000**	**.000**	**.000**	**.000**
	N	**1358**	**1358**	**1358**	**1358**
Masculine	Pearson Correlation	**-.270****	**-.297****	**-.301****	**-.299****
	Sig. (2-tailed)	**.000**	**.000**	**.000**	**.000**
	N	**1358**	**1358**	**1358**	**1358**

Individually perceived inequality	Pearson Correlation	**-.207****	**-.191****	**-.201****	**-.196****
	Sig. (2-tailed)	**.000**	**.000**	**.000**	**.000**
	N	**1358**	**1358**	**1358**	**1358**
Socially perceived inequality	Pearson Correlation		**-.097****	**-.113****	**-.070****
	Sig. (2-tailed)		**.000**	**.000**	**.010**
	N		**1358**	**1358**	**1358**

Source: Own research

The relationship found between the individually perceived inequality factor and the variables measuring financial knowledge and application (Q11 and Q13) shows a negative value. This therefore nuances the effect of financial knowledge in the factor, as negative relationships indicate inadequate application.

For the socially perceived inequality factor, only weak relationships with a negative value were found. This suggests that a significant proportion of those who perceive social inequality do not have adequate financial knowledge and are disadvantaged in its application. Collectivism and feminine financial culture traits did not show a correlation with any of the variables and have therefore been omitted from the table.

From the resulting factor variables, a two-step cluster analysis was performed, including all 8 variables, but this resulted in only one cluster. The variables with low explanatory power with respect to the cluster were then excluded, leaving the 5 variables with the highest predictive importance, as seen in Figure 1. The study produced 5 clusters, with the Silhoutte indicator measuring the appropriateness of the cluster analysis falling within the acceptable range (Figure 2.)

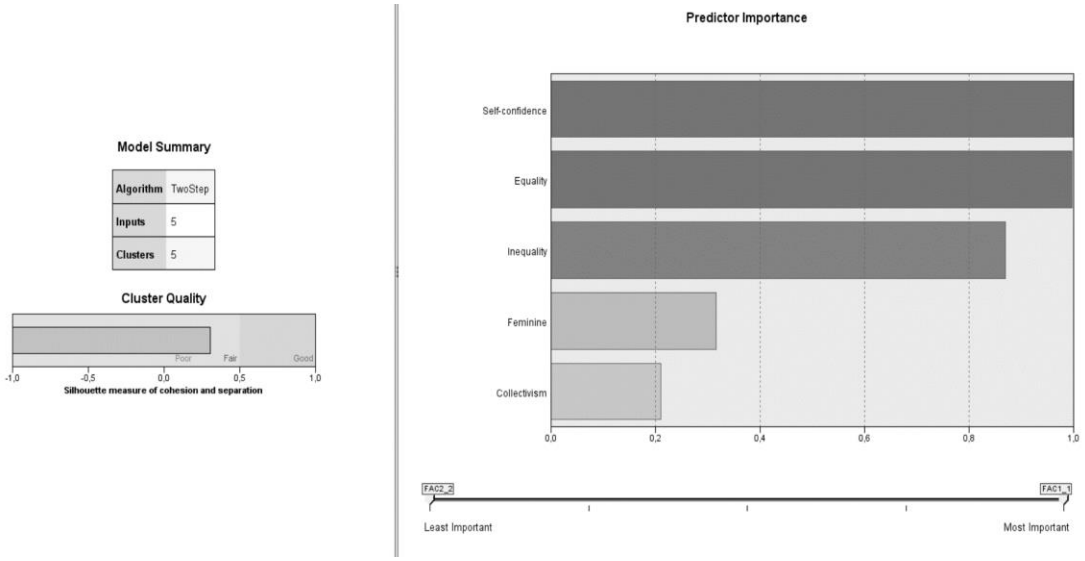

Figure 2. Scoreboard showing the cluster analysis results and the importance of variable

Source: Own research based on SPSS output

To characterise the variables, the mean value of the sample was compared with the mean value of the clusters. The results are summarised in Table 8.

Table 8. Difference in the average values of the cluster analysis

Cluster	Self-confidence	Feminine	Personal inequality	Social Inequality	Collectivism	N
Perceptive to inequality	**0.5**	**0.7**	**1.1**	**1.1**	**0.7**	**224**
Uncertain in financial decisions and mildly collectivist	**-1.1**	**-0.9**	**-1**	**0.3**	**0.2**	**294**
Assertive and social focused	**1.1**	**0.1**	**-0.7**	**1.5**	**0.4**	**378**
Sensitive to social inequality	**-0. 3**	**-0.1**	**-1.3**	**1.3**	**-0.5**	**294**
Self-confident and prefers individual interests	**0.3**	**-0.2**	**-0.3**	**-0.8**	**-0.3**	**168**

Source: Own research based on SPSS output

The first cluster was above average in terms of all variables, with the largest positive deviations for individually perceived inequality and social inequality. This cluster was named 'perceptive to inequality', as it was above average for all variables. Social sensitivity was more dominant in the data.

For the second cluster, the mean was different from the sample mean for self-confidence, feminine characteristics, and individually perceived inequality, but above the sample mean for collectivism and socially perceived inequality. Based on these figures, those belonging in this cluster are insecure in their financial decisions and therefore the cluster has been labelled as mildly collectivist.

The third cluster is characterised by the highest deviation from the sample mean for the variables self-confidence and perception of social inequality. These two factors are highlighted to define the variable name, and are therefore called the 'assertive and social focused' group.

Apart from socially perceived inequality, which has the second highest positive value relative to the sample average, the fourth cluster has a lower value than the sample average for all variables. This characteristic of the cluster was picked to define the name and characteristics of the cluster, and thereby named it the 'sensitivity to social inequality' group.

The fifth cluster is characterised by the most dominant element of self-reliance and uncertainty avoidance, being below the sample average in all aspects except for this factor. The main characteristic of this cluster is that they are basically self-confident and like to make decisions themselves, so we have named them the 'self-confident and prefers individual interests' group.

For the three variables considered to be representative (gender, residence, age group), a cross-tabulation analysis was conducted, which was significant for all three variables, while the analysis also revealed a weak relationship with the Cramer V indicator for the strength of the relationships.

The findings of the cross tabulation analysis demonstrate that the largest proportion of men were in the 'uncertain in financial decisions and mildly collectivist' cluster (27%), followed by the 'assertive and social focused' cluster (26%), but men also made up 23% of the'sensitive to social inequality' cluster. Women had the highest proportion in the 'assertive and social focused' cluster, followed by the 'sensitive to social inequality' group.

For age group, the 18-25 generation has the highest proportion of 'self-confident and prefers individual interests' (25%), with a similar distribution for the 26-35 generation (31%).

In the 36-60 age group, the largest shares (28% each) were in the 'perceptive to inequality' and 'assertive and social focused' clusters. In the 60+ generation, the assertive and social cluster had the largest share (35%), followed by the 'uncertain in financial decisions and mildly collectivist' cluster (28%).

In terms of place of residence, Budapest residents were in the 'sensitive to social inequality' (34%) and 'assertive and social focused' cluster (29%), while those living in smaller cities were dominated by the 'ssertive and social focused' cluster with 30%. Those living in townships were mainly in the 'uncertain in financial decisions and mildly collectivist' cluster (27%), while those living in cities with county status were in the Perceptive to inequality cluster (31%) and the Assertive and social cluster (28%).

5. Conclusion

There are a total of eight factors created throughout the study to describe the financial aspects of the cultural dimensions. Consequently, the financial culture can also be characterized along the cultural dimensions of the Hofstede model, which is a first of its kind in Hungary.

Our research has found that there are altogether five groups of the Hungarian population that can be classified according to the financial culture dimensions. From the characterisation of these dimensions, we can deduce that the first group is open to acquiring knowledge in all areas, well-informed, and primarily characterised by social or community goals, accounting for 16.5% of the sample. This group is mainly female, aged 36-60, completed secondary education, and residing in cities with county status. The members of the second group are collectivist and socially sensitive in their attitude, in relation to which the combination of the idea of advancement and prosperity dominates 21.6% of the sample. This group is male-dominated, living in smaller towns and villages, and having low-level education. The third group is called 'assertive and social focused', used in financial terms, with the main message that soft skills are what move the community forward and that the community is more important than individual success, which makes up 27.8% of the sample. Members of this cluster are mainly women, live in the capital and have a secondary education. The fourth cluster has been named 'sensitive to social inequality', which may be fuelled by a sense of being left behind, and accounts for 21.6% of the sample. They are from an older generation, have higher education and live in cities. Based on the one-on-one telephone interviews, we found that this group

has neglected professional training over the past decades and is also sceptical of new technology and the latest banking solutions. The fifth group prefers to make financial decisions on their own, with individual decision making, but without a solid financial knowledge (12.4%). This group is typically young men, with a higher education. They do not seek to listen to others yet tend to make decisions independently.

Looking at the representative demographic variables, it can be stated that the most intriguing aspect to consider is the age group, as the older generation is very strongly influenced by collectivist attitudes, which implies the old socialist planned economy - paternalistic attitudes, as a significant part of this generation grew up under socialism. Young people's perception is mainly one of inequality and the need for autonomous decision-making, which shows a shift towards self-interest. In addition, the young generation (especially the youngest, aged 18-25) is characterised by a kind of stubbornness, a rejection of knowledge and reason, and a pursuit of their own original ideas at all costs. The 36-60 age group also tends to be more collectivist. All this clearly indicates an existing age gap, the dividing line of which, in the light of this research, is the age of 36, after which attitudes shift from collectivism to individualism. This is explained by the effect of the transition from a planned economy to a market economy model, which is constantly trickling down through the generations. The generation under 36 has grown up in a market economy, motivated less by collectivism and more by financial independence and the pursuit of individual goals.

The research findings show that, in part because of the relatively high proportion of the elderly, the Hungarian society does not mostly focus on self-interest in its financial decisions, but on the interests of the community, family and friends. The underlying reason is that the Hungarian society has a higher proportion of older people who were socialised in the paternalistic conditions of the socialist planned economy, and the collective approach they have passed on to the younger generation is still dominant in their upbringing, as the research confirms. Notwithstanding, the research also found that financial knowledge and its effective application do not go hand in hand. Thus, in many cases, financial self-confidence and success orientation are not accompanied by adequate financial knowledge and application. This means that perceptions of financial knowledge are not realistic and that self-confidence and success-oriented thinking are not followed by successful decision-making. Through comparison and contrasting literature, both De Bekker's and Abunov and Van Hove's findings were supported by the study.

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