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Investigating the Relationship between Machiavellianism and Financial Behavior and Objective and Subjective Financial Knowledge of Iranian Association of Certified Public Accountants

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ABSTRACT

Recognizing the personality characteristics of accountants becomes even more important when these characteristics influence their behaviors in performing professional duties. On the other hand, financial behavior and financial knowledge are important components of personal financial wellness that have undeniable effects on people's lives. The aim of this study was to investigate the relationship between Machiavellianism and financial behavior and financial knowledge in the Iranian Association of Certified Public Accountants. This study is applied in terms of purpose and it has used the method of descriptive-analytical research. The results of the study showed that there is a significant and inverse relationship between Machiavellianism with financial behavior and financial knowledge by considering demographic variables. While no significant relationship was found between objective financial knowledge and financial behavior, there is a significant and direct relationship between subjective financial knowledge and financial behavior and between objective financial knowledge and subjective financial knowledge.

Keywords:

Machiavellianism, Financial behavior, Objective and Subjective financial knowledge.

1. Introduction

Understanding the personality characteristics of accountants and auditors becomes doubly important when these characteristics influence their behaviors in performing professional duties (Triki, Cook, & Bay, 2017). Machiavellianism is one of the negative personality characteristics, which is intentionally manifested in people through lying, cheating, pessimism, the desire to control others, the desire to enjoy a high socioeconomic status, and the neglect of moral principles. People with high Machiavellianism do not see any way to maximize their own self-interest, regardless of the feelings and rights of others (Gurlek, 2020). Financial knowledge is also a group of financial skills that enable people to make appropriate financial decisions and better manage their financial resources (Adiputra & Patricia, 2020).

The two dimensions of financial knowledge- objective financial knowledge and subjective financial knowledge- play distinct roles in financial behavior. That is, two people with the same level of objective financial knowledge can have different mental assessments of their knowledge levels, which lead to different behavioral outcomes. In some cases, subjective financial knowledge is more effective than objective financial knowledge in determining financial behavior (Tang & Baker, 2016). Improving financial knowledge through financial education or work experience in the financial field can affect financial behavior and personal financial wellness (Dewi et al., 2020). In the last decade, behavioral research in the field of accounting such as Parmitasari et al. (2020) and Tang and Baker (2016) have shown the relationship between personality and psychological characteristics with financial knowledge and financial behavior. Some studies such as Davis and Runyan (2016) also showed a significant relationship between negative personality characteristics with financial behavior and financial knowledge. In other words, appropriate financial decisions and behaviors require certain personality and moral characteristics. Due to the need to develop the moral qualities of members of the Iranian Association of Certified Public Accountants and the effect that different personality characteristics have on individuals' decisions and it may take them away from the ultimate task of the profession, which is to build trust and confidence in society, as well as the impact of these characteristics on financial knowledge and responsible financial behaviors of individuals, we decided to conduct a study to investigate the relationship between Machiavellianism and financial behavior and objective and subjective financial knowledge of the Iranian Association of Certified Public Accountants.

2. Literature Review

Machiavellianism and immoral behaviors

Machiavellianism is a negative personality characteristic. Machiavellian people are characterized by characteristics such as manipulation and fraud, apathy, pessimistic worldview, negative tendencies, immoral behaviors, malice towards others, pragmatism and long-term strategic planning to achieve personal ambitions. In the accounting profession, Machiavellianism is a threat, because if these people have a chance to achieve their filthy goals and desires, they will ignore honesty and integrity and behave against the law (Nadi et al., 2020). Dimensions of Machiavellianism in this study are taken from the research of Dahling, Whitaker and Levy (2009) including the following:

1) Suspicion and distrust of others
2) Exercising immoral influences (non-observance of moral principles)

People with high Machiavellian character tend to commit immoral acts when they have the opportunity to make a profit.

1) Tendency to control others
   The need to dominate and control interpersonal situations is defined to minimize the power of others
2) Desire for position and status
   Tendency to gain power, wealth and high socio-economic-political status (Dahling, Whitaker, & Levy, 2009).

Financial behavior and Financial knowledge

Financial behavior means an individual's ability to (plan, budget, review, manage, control, and save) the financial resources at his or her disposal on a daily basis. The role that money plays in people's lifestyles is called financial behavior (Parmitasari et al., 2020). In this study, like the research of Tang and Baker (2016), financial behavior is measured with components (savings, investment, retirement account and retirement plans).

Financial knowledge is gained through financial studies or work experience in the field of finance. In order for people to have a high level of financial knowledge, it is necessary to develop financial skills and learn to use financial instruments (Parmitasari et al., 2020). In the present study, such as Tang and Baker (2016) and Lind et al. (2020) we divided financial knowledge into two parts: objective and subjective financial knowledge. In objective financial knowledge (competence) which is assessed by using knowledge-based financial questions and the amount of correct answers of the participants, the level of objective financial knowledge of individuals is determined. Subjective financial knowledge (trust), which is a kind of subjective self-assessment, is asked to express their opinion on their level of knowledge in each of the areas and financial issues raised (Lind et al., 2020). The components used to measure objective and subjective financial knowledge in this study, according to Tang and Baker (2016) research was: (Risk and return, time value of money, inflation and purchasing power, interest rates and prices of bonds and mortgage market or rent).

In previous studies, Rahnamay Rudposhti and Mahfouzi (2017) showed that the Machiavellian character of members of the Iranian Association of Certified Public Accountants is higher than most groups studied by other researchers. Ghalamgh, Yaghoubnejad and Fallah Shams (2019) examined the relationship between financial literacy and Machiavellian personality of Tehran Stock Exchange investors. The results of data analysis showed a significant and inverse relationship between financial literacy and Machiavellian personality of investors. Triki, Cook, and Bay (2017) compared the personality characteristics of accountants and other groups and examined differences between the Machiavellian degree of professionalism in the United States and Canada. The results show that US certified accountants are less Machiavellian than Canadian Certified accountants.

Tang and Baker (2016) examined the relationship between self-esteem and financial behavior among adults in the United States. Findings showed that this psychological and personality characteristics are significantly related to people's financial behavior. Parmitasari et al. (2020) studied the psychological and personality characteristics and financial knowledge on financial behavior in Muslim students with scholarships in Indonesia. The results of the study showed that psychological and personality characteristics and financial knowledge affect financial behaviors simultaneously and separately. Adiputra and Patricia (2020) in their research showed that financial knowledge has a significant positive effect on people's financial behavior. Mountain et al. (2020) concluded that financial knowledge is directly related to financial behavior and formal university learning has no effect on financial behavior. The results also showed that financial knowledge plays an important role in improving financial behaviors. Coskum and Dalziel (2020) in a study examined the relationship between different aspects of students' personal characteristics in Turkey with the mediating effect of financial attitude on financial behavior and knowledge. Their findings showed that financial knowledge, if reflected in people's financial attitudes, strengthens the relationship between financial knowledge and students' financial behavior.

Lind et al. (2020) in a study showed that both objective and subjective financial knowledge prevent financial anxiety. However subjective financial knowledge has a significant and direct relationship with financial behavior, there is no significant relationship between objective financial knowledge and financial behavior. The results also showed that there is a direct and significant relationship between objective financial knowledge and subjective financial knowledge. Dewi et al. (2020) in their study showed that financial knowledge has a positive and significant effect on the financial behavior of the academic community in Indonesia. A review of the literature and theoretical foundations indicates that the dimensions of personality, psychological dimensions, financial behavior and financial knowledge are interacting with each other and have a significant relationship. Therefore, the present study aims to examine the relationship between these factors in the Iranian Association of Certified Public Accountants and compare them with each other.

Research hypothesis

According to the stated cases, hypotheses have been proposed as follows:

H1: Machiavellianism has significant relationship with the financial behavior of the Iranian Association of Certified Public Accountants by considering demographic characteristics

H2: Machiavellianism has significant relationship with the financial knowledge (objective and subjective) of the Iranian Association of Certified Public Accountants by considering demographic characteristics.

H3: Objective financial knowledge has significant relationship with the financial behavior of the Iranian Association of Certified Public Accountants by considering demographic characteristics.

H4: Subjective financial knowledge has significant relationship with the financial behavior of the Iranian Association of Certified Public Accountants by considering demographic characteristics.

H5: Objective financial knowledge has significant relationship with the subjective financial knowledge of the Iranian Association of Certified Public Accountants by considering demographic characteristics.

3. Methodology

The present study is applied in terms of purpose and descriptive-analytical in terms of method. In this research, library texts were used to collect theoretical foundations and backgrounds. Data were collected through a questionnaire. A simple random sampling method was used for sampling. The population of the study is all members of the Iranian Association of Certified Public Accountants. The total number of members of the Association in January of 2019 is equal to 2507 people. Based on Cochran's formula, a sample with a volume of 333 people was selected. Research data were analyzed by descriptive and inferential statistical methods. The statistical tests used in the research are: limit, mean, Kolmogorov-Smirnov test, Pearson correlation test, t-test and Levin test. To estimate the research models, the structural equation model was used using SMART PLS2 software and confirmatory factor analysis was used through pebble diagrams using SPSS 22 software and the research hypotheses were tested.

To measure Machiavellianism, the Dahling, Whitaker, and Levy (2009) Machiavellian questionnaire consisted of 16 items is used. The variables of objective financial knowledge, subjective financial knowledge and financial behavior were measured by Tang and Baker (2016) questionnaire with 5, 5 and 8 items, respectively. It can be stated that the reliability of the questionnaire is appropriate, because Cronbach's alpha coefficient for all variables and the whole questionnaire is higher than 0.7. Then, the content and face validity of the research were examined . To evaluate the content validity of the questionnaire, 11 accounting experts were interviewed, all of whom confirmed its accuracy.

Research Conceptual model

According to the theoretical and experimental foundations, the proposed conceptual model of the research is presented as (Figure 1).

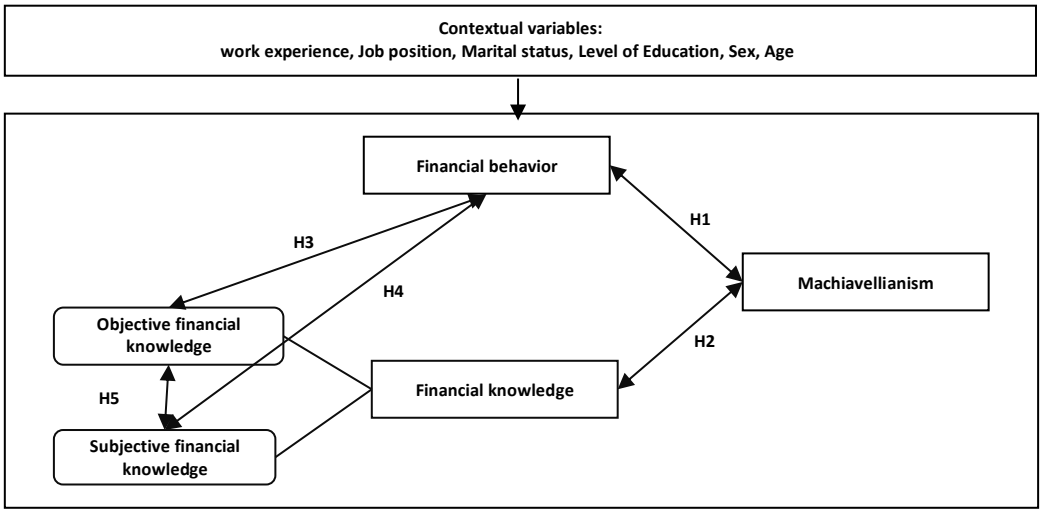

Fig1. Proposed conceptual model of research

Based on figure mentioned above The independent variable in this study is Machiavellianism, which includes four personality characteristics (suspicion and distrust of others, non-observance of moral principles, desire for control and desire for position). Financial behavior and financial knowledge are considered as dependent variables. Financial knowledge itself is also divided into two parts: objective financial knowledge and subjective financial knowledge. In this study, demographic characteristics including (age, sex, level of education, marital status, and job status and work experience) have been considered as contextual variables.

4. Results

In this study, to investigate the relationship between the questionnaire questions and the structures of the structural model, confirmatory factor analysis was used, which is in fact a kind of equivalent measurement model (Parhizgar & Aghajani Afroozi, 2011). Latent and Observed variables (structural model structures) in Smart PLS software is done in the form of Table 1.

Based on above Latent and Observed variables (structural model structures) are named in Smart PLS software in the form of Table 1. Also in demographic characteristics portion of the table these characteristics are introduced.

Two criteria of convergent reliability and validity were used to fit the measurement model**.** Composite reliability (CR) and Cronbach's alpha were used to measure the reliability of the model. The results are shown in Table 2. Two convergent and divergent validity criteria were used to evaluate the validity of the questionnaire, which is used in modeling structural equations. The criterion of Average Variance Extracted (AVE) indicates the degree of correlation of each structure with its indices and the higher the correlation, the better the model will fit (Lee, Jan, & Huang, 2015). (AVE) and (CR) are calculated in the convergent narrative method and should always have low relationships. According to Table 2, all variables were confirmed in terms of reliability, because Cronbach's alpha of all of them in the corresponding column in the table is higher than 0.7. On the other hand, convergent validity was also confirmed, because the column values (AVE) in the above table are more than 0.5. The value (CR) was also calculated to be greater than AVE.

CR>0.7 CR>AVE AVE>0.5

Table 1: Latent and Observed variables in the software

variables	Latent variables	Observed variables
Financial Knowledge	Knowledge	Ok1,…, Ok5; Mk1,…, Mk5
Objective Financial Knowledge	Objective	Ok1, Ok2, Ok3, Ok4, Ok5
Subjective Financial Knowledge	Subjective	Mk1, Mk2, Mk3, Mk4, Mk5
Financial Behavior	Behavior	Fb1,Fb2, Fb3, Fb4, Fb5, Fb6, Fb7, Fb8
Machiavellianism	Maciavelli	SD1,…, SD5; II1,…,II5; TC1,..,TC3; TP1,...,TP3
Demographic characteristics		
Demographic characteristics * Machiavellianism	MACIADE	Machiavellianism * Gender * Age * Level of Education * Marital status * Job position * work experience

Table 2 - Convergent validity and reliability of variables

Latent variables	Cronbach's alpha	AVE	CR
Machiavellianism	0.875283	0.606286	0.902476
Financial Behavior	0.730408	0.780032	0.792025
Financial Knowledge	0.855917	0.746666	0.885157
Objective Financial Knowledge	0.724821	0.787613	0.820406
Subjective Financial Knowledge	0.771594	0.841964	0.891758

Based on Table 3, the high reliability of all variables in the model is confirmed. Composite reliability and Cronbach's alpha coefficient of all variables in the table are lower than 1 and higher than 0.7. Therefore, the goodness of fit is approved based on these two criteria. It can be said that all the main variables have been measured correctly. Therefore, we can test the research hypotheses with respect to the results (Lee, Jan, & Huang, 2015).

Better fitness of the model is achieved when the value of R2 for model structures is close to one. Based on the results of Table 4, the structural model is suitable for the R2 criterion.

Study data were analyzed using SPLS software. For each of the hypotheses, the results of Tables 5, 6 and 7 are presented as follows.

The hypotheses of this study are analyzed and interpreted from the model and tables 5, 6 and 7.

Table 3 - Correlation coefficients between Latent variables

	Machiavelli	Behavior	Objective	Knowledge	Subjective
Machiavelli	1				
Behavior	0.835163	1			
Objective	0.861770	0.902955	1		
Knowledge	0.920939	0.890264	0.981484	1	
Subjective	0.932391	0.843152	0.924560	0.979633	1

Table 4 - R2 values of model structures

Latent variables	R^2
Machiavellianism	0.875283
Financial Behavior	0.730408
Financial Knowledge	.0855917
Objective Financial Knowledge	.0724821
Subjective Financial Knowledge	.0771594

Table 5 - Direct linear effect of the role of research structures

	From the structure	To the structure	Standard deviation	Standard error	t-value	Result
1	Machiavellianism	Financial Behavior	0.135067	0.135067	2.762	Confirmed
2	Machiavellianism	Financial Knowledge	0.018599	0.018599	49.655	Confirmed
3	Objective Financial Knowledge	Financial Behavior	0.182389	0.182389	1.322	Rejected
4	Subjective Financial Knowledge	Financial Behavior	0.197041	0.197041	3.616	Confirmed
5	Objective Financial Knowledge	Subjective Financial Knowledge	0.0911932	0.0911932	10.095	Confirmed

❖ Matrix of t-statistics, numbers higher than 1.96 at the level of 0.05 and higher than 2.58 at the level of 0.01 are significant

Table 6- Pearson correlation test (demographic characteristics of work experience, age and education)

	Work experience		Age		Education	
	Correlation coefficient (r)	Significance level	Correlation coefficient (r)	Significance level	Correlation coefficient (r)	Significance level
Machiavellianism	-0.056	0.003	-0.070	0.001	-0.071	0.006
Financial Behavior	-0.122	0.027	-0.006	0.009	-0.013	0.010
Financial Knowledge	-0.081	0.042	-0.055	0.021	-0.061	0.008
Objective Financial Knowledge	0.102	0.643	0.039	0.577	0.055	0.615
Subjective Financial Knowledge	0.055	0.007	0.346	0.012	0.064	0.042

Table 7 - T test and F Levin (demographic characteristics of sex, marital status and job position)

	Sex				Marital status				Job position			
	Levin Test (F)		t-test		Levin Test (F)		t-test		Levin Test (F)		t-test	
equality of variance	F	Sig. level	Df	Sig. level	F	Sig. level	Df	Sig. level	F	Sig. level	Df	Sig. level
Machiavellianism	0.014	0.007	331	0.005	0.055	0.015	331	0.005	0.056	0.012	331	0.023
Financial Behavior	0.191	0.002	331	0.006	0.558	0.044	331	0.013	0.152	0.007	331	0.007
Financial Knowledge	0.285	0.004	331	0.043	0.075	0.005	331	0.006	1.475	0.005	331	0.003
Objective Financial Knowledge	0.520	0.065	331	0.072	0.175	0.061	331	0.217	2.042	0.087	331	0.066
Subjective Financial Knowledge	0.067	0.006	331	0.000	0.000	0.048	331	0.005	0.867	0.003	331	0.007

Results of the first hypothesis:

Based on the results, the relationship between Machiavellianism with financial behavior by considering demographic characteristics is significant at the level of 0.01 with t = 2.76. Therefore, this hypothesis is confirmed. According to Table 6, since the significance level of Pearson test in the relationship between Machiavellianism and financial behavior in all three demographic characteristics (work experience, age and level of education) is less than 0.05, it indicates that the relationship between Machiavellianism with financial behavior is significant, however the negative values in the Pearson correlation coefficient indicate that this relationship is inverse. On the other hand, using t-test with equal variance, f-values and the significance level t (below 0.05) in Table 7, the results indicate that in terms of demographic characteristics (gender, marital status and job status), there is a significant relationship between Machiavellianism with financial behavior.

Results of the second hypothesis:

The results showed that the relationship between Machiavellianism with financial knowledge (objective and subjective) by considering demographic characteristics is significant at the significance level of 0.01 with t = 49.65. Therefore, the hypothesis is confirmed. According to Table 6, since the significance level of Pearson test in the relationship between Machiavellianism and financial knowledge (objective and subjective) in all three demographic characteristics (work experience, age and level of education) is less than 0.05, it indicates that the relationship between Machiavellianism with financial knowledge (objective and subjective) is significant, however the negative values in the Pearson correlation coefficient indicate that this relationship is inverse. On the other hand, using t-test with equal variance, f-values and the significance level t (below 0.05) in Table 7, the results indicate that in terms of demographic characteristics (gender, marital status and job status), there is a significant relationship between Machiavellianism with financial knowledge (objective and subjective).

Results of the third hypothesis:

The results showed that the relationship between objective financial knowledge with financial behavior by considering demographic characteristics is not significant at the significance level of 0.01 with t = 1.32. Therefore, the hypothesis is rejected. According to Table 6, since the significance level of Pearson test in the relationship between objective financial knowledge and financial behavior in all three demographic characteristics (work experience, age and level of education) is higher than 0.05, it indicates that the relationship between objective financial knowledge with financial behavior is not significant. On the other hand, using t-test with equal variance, f-values and the significance level t (above 0.05) in Table 7, the results indicate that in terms of demographic characteristics (gender, marital status and job status), there is not significant relationship between objective financial knowledge and financial behavior.

Results of the fourth hypothesis:

The results showed that the relationship between subjective financial knowledge with financial behavior by considering demographic characteristics is significant in t = 3.61. Therefore, the hypothesis is confirmed. According to Table 6, since the significance level of Pearson test in the relationship between subjective financial knowledge and financial behavior in all three demographic characteristics (work

experience, age and level of education) is less than 0.05, it indicates that the relationship between subjective financial knowledge with financial behavior is significant and positive values in the Pearson correlation coefficient indicate that this relationship is direct. On the other hand, using t-test with equal variance, f-values and the significance level t (below 0.05) in Table 7, the results indicate that in terms of demographic characteristics (gender, marital status and job status), there is significant relationship between subjective financial knowledge and financial behavior.

Results of the fifth hypothesis:

The results showed that the relationship between objective financial knowledge with subjective financial knowledge by considering demographic characteristics is significance at the significance level of 0.01 with t = 10.09. Therefore, the hypothesis is confirmed. According to Table 6, since the significance level of Pearson test in the relationship between objective financial knowledge and subjective financial knowledge in all three demographic characteristics (work experience, age and level of education) is less than 0.05, it indicates that the relationship between objective financial knowledge with subjective financial knowledge is significant and positive values in the Pearson correlation coefficient indicate that this relationship is direct. On the other hand, using t-test with equal variance, f-values and the significance level t (below 0.05) in Table 7, the results indicate that in terms of demographic characteristics (gender, marital status and job status), there is significant relationship between objective financial knowledge and subjective financial knowledge.

5. Discussion and Conclusions

The aim of this study was to analyze the relationship between Machiavellianism and financial behavior and financial knowledge in the Iranian Association of Certified Public Accountants. The results show that Machiavellianism has a significant and inverse relationship with financial behavior. As a result, it can be concluded that members of the Iranian Association of Certified Public Accountants with negative personality characteristics (suspicion, immorality, desire to control and desire for position) in terms of demographic characteristics are more likely to save and invest and are not active in accounts and retirement plans. According to the components used in this study, they do not have appropriate public financial behavior to measure financial behavior.

This result is consistent with the findings of Parmitasari et al. (2020), Gurlek (2020) and confirms that (confirmation of the first hypothesis). Also in this study, Machiavellian personality characteristics show a significant and inverse relationship with financial knowledge. This result is consistent with the findings of Tang and Baker (2016) and Ghalmegh, Yaghoobnezhad and Fallah Shams (2019) (confirmation of the second hypothesis). The results of testing other hypotheses indicate that however no significant relationship was found between objective financial knowledge and financial behavior, there is a significant and direct relationship between subjective financial knowledge and financial behavior and between objective financial knowledge and subjective financial knowledge. This means that higher subjective financial knowledge of members of the Iranian Association of Certified Public Accountants increases their appropriate financial behaviors. That is, improving the level of subjective financial knowledge of members significantly affects their appropriate financial behaviors in the areas (savings, investments, accounts and retirement plans). Therefore, it can be said that subjective financial knowledge is an important component that can change the financial behavior of members of the Iranian Association of Certified Public Accountants, but this is not true of objective financial knowledge. These results are consistent with the findings of Lind et al. (2020), and Tang and Baker (2016) (rejection of the third hypothesis and confirmation of the fourth and fifth hypotheses).

In most of these studies, the effect of positive personality characteristics and psychology on behavior and financial knowledge of individuals was tested and we saw a significant and direct relationship between these components. Since in the present study, the relationship between negative Machiavellian personality characteristics and financial behavior and financial knowledge (objective and subjective) is significant and inverse, in a way, this meaningful and inverse relationship can confirm that the negative Machiavellian personality characteristics has a significant and inverse effect on the behavior and financial knowledge of individuals and also confirms the results of previous research. On the other hand,

some researcher examined the effect of financial knowledge on Machiavellianism (Ghalmegh, Yaghoobnezhad, & Fallah Shams, 2019). The results of their research showed a significant and inverse relationship between negative personality characteristics and psychology with knowledge and financial behavior of individuals, which is exactly consistent with the results of the present study.

To explain the results of this study, it can be said that increasing the level of financial knowledge has a positive effect on the development of personality of members of the Iranian Association of Certified Public Accountants. As a result, people with more financial knowledge have tried to use less false and immoral methods to achieve their personal goal. In order to improve people's financial behavior, financial education programs should not focus solely on providing objective financial knowledge. The development of personality characteristics should also be emphasized. In order to increase awareness of potential barriers to transforming financial knowledge into responsible financial behavior, financial knowledge courses should be designed to provide information on the social and psychological aspects of financial behavior. To provide financial knowledge, it is not necessarily "the more, the better". Therefore, effective financial education should focus not only on transmitting relevant information and increasing objective knowledge, but also on promoting the concentration of higher levels of subjective financial knowledge. To avoid diminishing subjective financial knowledge, both objective and subjective financial knowledge should be considered in educational efforts to assist individuals in the wise management of financial affairs.

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