

Financial literacy of hungarian teenagers¹

GÁBOR DÁVID KISS – ANDREÁSZ KOSZTOPULOSZ – PÉTER KOVÁCS – BALÁZS RÉVÉSZ

Personal financial literacy is the ability to read, analyze, manage and communicate about the personal financial conditions that affect material well-being. It includes the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future, and respond with competence to life events that affect everyday financial decisions, including events in the general economy. Instead of asking the target group for definitions, it is much better to study their decisions and attitudes in connection with financial products. This study focuses mostly on the dimensions of savings, loans, insurances, credit cards and general issues.

This paper presents the theoretical and empirical frames of the “SZTE GTK – Econventio” questionnaire, based on the experiences of the first sampling in 2011 and the improvements for the next sampling in 2012. The main research question remains to prove some connection between demographic factors and financial literacy.

Keywords: financial literacy, teenagers, “SZTE GTK – Econventio” questionnaire

1. Introduction

This paper presents the method of measuring financial literacy among Hungarian teenagers created/invented/executed by the SZTE GTK – Econventio workgroup. After a short definition of financial literacy, the importance of the knowledge-based, client-bank interactions will be presented then the theoretical background of the questionnaire will be summarized. The methodology of the “SZTE GTK – Econventio” questionnaire is based on the model of rational behavior by Simon (1955) and on the financial literacy model of the *JumpStart Coalition* (2007) – which is the one of the most significant entities in this field in the US according to *Huston* (2010). The last chapter summarizes our entire model, and the paper is closed with a short conclusion.

2. The importance of financial literacy

Financial literacy is the ability of using the existing broad knowledge about financial products in business and everyday life, as *Huston* (2010) suggests. The speciality of this subject comes from the nature of money transactions, because they are based much more on trust than any other enterprise, as *Botos* (2006) states in his recent article. A bank risks the money of its depositors due to investment operations, establishing a “my-adventure-with-your-money” situation. The traditional specialization of commercial and investment banking ended, but the era of universal banking introduced a set of radically new challenges of information and telecom technologies. As a result of the evolution of the retail customers’ preferences, together with the decrease of the added value supported the idea of CRM – which means product diversification and niche strategies. Therefore, retail banks had to be open for universal solutions in the case of back and front office, as well (*Consoli* 2005, *Haenlein et al* 2007). The retail branch had to face higher transparency and the consumers’ brand switching behaviour – choosing the right offer, opening accounts, doing transfers, abolishing an account – is cheaper and faster, as well. This commodization of basic banking products had a negative

¹ The Project named “TÁMOP-4.2.1/B-09/1/KONV-2010-0005 – Creating the Center of Excellence at the University of Szeged” is supported by the European Union and co-financed by the European Social Fund.

impact on the industry margin and the profitability – so the development of the products has to fit for the customer’s necessities (*Haenlein et al 2007, Goddard et al 2007, Puri–Rocholl 2008*). On the liability side of the balance, market-based institutions overtook the dominant role in supplying credit from commercial banks – the share of deposit collection in 2007 was reduced to 39%, contrary to the interbank market instruments to 16% and bonds to 27% reductions, while derivatives gained an important role in risk management (*Ondo-Ndong 2010*). Therefore, we can say that financial products became more and more complex, while the banking system relies more and more on the interbank market liquidity. After the sub-prime crisis in 2008, regulations like the Basel III liquidity ratios or the Austrian loan-to-deposit ratio aim to provide additional incentives to improve the private client-bank relations. These frames are regulated by the Markets in the Financial Instruments Directive (MiFID) across the European Economic Area (2004/39/Ek, In Hungary 2007. CXXXVIII law (Bsztt.)) – transactions between retail customers and banks have to be based on fair, objective and professional process, clear orientation without deception. All financial service providers have to pay attention to the customer’s financial skills, experience and particular circumstances to ensure all necessary information before making the financial decision.

The level of financial literacy determines the opportunities of the bank operations, because it affects not only the saving or borrowing behaviour, but the overall economy behaviour, as well. This chapter summarized the necessity of the knowledge-based client-bank interactions, therefore, we are able to show, how we can measure the financial literacy with a questionnaire.

3. Financial literacy and economic rationality

Financial literacy is only one property of an economic actor; therefore it is useful to begin from the Homo Oeconomicus or the behavior model of rational choice by *Simon (1955)*. The rationality of this actor exists in three dimensions: gathering information (perfect knowledge of the environment), preferences (clear and stable) and decision making (rational calculation to find various casual relationships that determine the pay-offs, the set of alternatives open to choice and the preference-orderings among pay-offs). The rational choice-based agent theory suggests how to behave “rational”.

This model can be updated by the finding of *Kahneman and Tversky* and their model of bounded rationality which involves biases during information collection (about probabilities as well as spatial, channel and time limits) causing framed preferences and heuristic decisions (*Ackert–Deaves 2010*). Under these circumstances the reaction will be non-linear, which means they do not respond strongly to relatively small changes in the inputs, but larger movements may trigger a disproportionately larger response with a strong effect on other economic variables (*di Mauro et al 2008*).

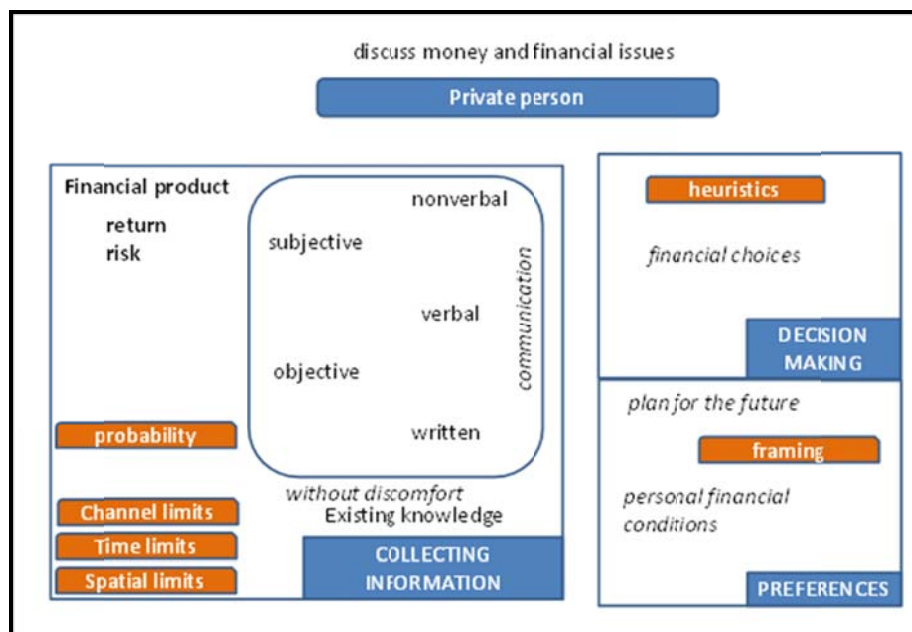
Huston (2010) distinguishes between financial knowledge and financial literacy the following way: financial literacy has an additional application dimension which implies that an individual must have the ability and confidence to use their financial knowledge to make financial decisions. Therefore, financial literacy could be conceptualized as cognitive (personal finance knowledge) and practical (personal finance application) dimensions. At first we define the properties of the financial knowledge then we apply the two models of rational choice, one of the definitions by *JumStart* on financial literacy.

The personal financial literacy has no general accepted definition. Financial knowledge could be analyzed in four dimensions: cash-flow management, credit management, saving, investment, as *Hilgert–Hogarth (2003)* suggest. A different approach is provided by *Wang (2009)*, where financial knowledge derives from objective and subjective elements. Objective knowledge means accurately stored information, while subjective knowledge is a belief about that state of knowledge. *Monticone (2010)* showed on the inverse U-shape form of the age

profile of financial knowledge, that middle-aged adults have higher level of financial knowledge than both their younger and older counterparts due to their labour activity and consumption patterns. This result could be useful during the evaluation of the answers given in the questionnaire.

JumpStart coalition has a leader role in the development of the US financial literacy, as *Huston* (2010) underlines. According to their definition, financial stability is the ability to read, analyze, manage and communicate about the personal financial conditions which affect material well-being, including the ability to discern financial choices, discussing money and financial issues without (or despite) discomfort, planing for the future, and responding with competence to life events that affect everyday financial decisions, including events in the general economy (*Vitt et al* 2000).

Figure 1. Financial literacy and economic rationality

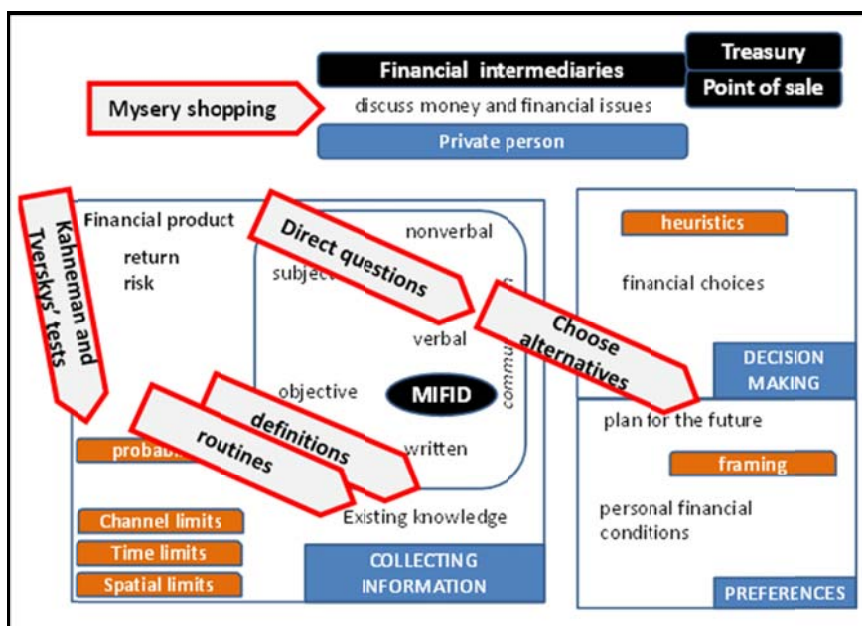


Source: own construction

Financial literacy could be easily embedded in the dimensions of rational choices as Figure 1 suggests. This combination could be useful to define the methods of collecting data about financial literacy. Measurement of financial knowledge seems to be obvious – it could be enough to ask for definitions of various financial products as the “MNB Pénziránytű” questionnaire suggests. To measure the application of this knowledge at least asking for basic calculations in this field is necessary as *Monticone* (2010) has already done it before.

The other ways/Another way of data collection are/is summarized in the Figure 2. Mystery shopping is a widely accepted method to evaluate the whole, real interaction process, showing not only comprehensive results as in the questionnaires. This method is far from our research area because we would like to apply only questionnaires and the density of the bank-contact of our sample is low due to their weak labour activity.

Figure 2. Financial literacy and economic rationality



Source: own construction

Bounded rationality of the sample could be checked through the application of the Kahneman and Tversky's test. This could be closed with the acceptance or rejection of their model – therefore, it could be useful under the domestic application of foreign items.

There are no good or bad answers in the case of preferences and attitudes – we are able to measure only their rationality. These items could be useful during the mapping of the sample's opinion about their business environment or their time-orientation.

4. Phases of THE Elaboration of the questionnaire – evaluation and improvement

It is hard to provide brand new items in this field today, the main innovation of the “SZTE GTK – Econventio” questionnaire comes from the structure of the items. In the previous chapter we introduced the vertical dimensions of the questionnaire, while horizontal dimensions are based on the work of Hilgert and Hogarth (2003). They introduced cash-flow management, credit management, savings, investment dimensions, that we improved through the introduction of an additional “labour market” and a “country-risk” dimension.

These dimensions were evaluated by a preliminary focus group interview at the end of 2010. High school students, between 17 and 19 years of age, were asked about the definition of “success” (in connection with the dimension of labour experience), their saving-consumption preferences, their experiences about the financial sector and their way of choosing between financial service providers and products. Their answers had the following impact on our questionnaire: first, their work experience is poor but it is increasing with their age; second, they have poor experience about financial services and they are not the target group of the mainstream financial products. Therefore, we can say that finance is much more a theoretical and an abstract phenomenon from their point of view, which could bias our results.

During the pilot sampling period in the spring of 2011, in 62 high schools nearly 6000 students were analyzed by our research team, it was basically the biggest sampled study in Hungary within this target group. The campaign was divided into three parts: first the students were asked about their general financial knowledge; in the second turn we focused in the field of savings and insurance; and in the third turn we collected data about loans and the pension system. This campaign was enhanced by a newsletter-service which contain information in

connection with the three questionnaires. Therefore, the team was able to measure not only the financial knowledge, but also to improve that. This pilot sampling was useful to evaluate our items and the questionnaire as well as to place the given/and give public attention in this field and to involve schools.

5. The structure and items of the “2012 SZTE GTK – Econventio questionnaire”

According to the past experiences we were able to develop a single, structured-to-the-model questionnaire for the campaign of 2012 where the items were fit to the vertical and horizontal dimensions as our model required. In the following chapter we give a short summary of our “2012 SZTE GTK – Econventio questionnaire.”

The following items in the dimension of definitive-knowledge were enabled (choosing the good/right answer):

labour subset:

- the level of gross minimal wages in Hungary;
- the amount of VAT included the price of a pair of sports shoes worth of 12700 HUF;

risk and country risk subset:

- choosing a country where the EURO is not an official currency;
- approximately how much Hungary’s public debt per capita is;

basic bank services subset:

- how much time you need to transfer money to the bank account at another bank;
- what an ATM is;

savings and investment subset:

- interest rates on loans are higher or lower than interest rates of bank deposits;
- whether it is necessary to take higher risk for higher gain;

insurance and pension subset:

- you collide with your car during parking – what you should do at first;
- how much the current retirement age is;

credit subset:

- the THM (total loan-fare ratio) covers all of the costs of a loan;
- in what kind of situation it is adequate to use an account-loan;

The following items in the dimension of definitive-preferences were applied (showing the preference in the answer):

labour subset:

- working as a subordinate or having an own enterprise could provide a stable existence on the long run;
- how you could describe the man of success;

risk and country risk subset:

- whether you are interested in news and information of financies;
- whether we need to introduce the EURO as soon as possible;

basic bank services subset:

- the bank makes a both profitable offer;
- the importance of a financial balance of the family budget;

savings and investment subset:

- who will be asked first before a financial decision;
- what you would do with a sudden 10 million HUF win;

insurance and pension subset:

- whether you want to live only from the state pension in your future retired years;

- how you would increase your incomes, if the state pension would not be enough in your future retired years;

credit subset:

- in what kind of situation you would prefer to take up a loan;
- whether the entire Hungarian society should take the financial responsibility for the default of foreign currency denominated private loans;

The following items in the dimension of decision making-comparing alternatives were enabled (selecting the best alternative with the highest financial outcome):

labour subset:

- you have to choose between two summer job offers: one is in Austria for net 1000 EURO and one in Hungary for net 270000 forint. The bank has the following exchange rate: 270 forint for 1 EURO (travel, living and accommodation costs are not covered);
 - Students have to focus on the difference between the price levels in the two countries, therefore, the second offer is rational.

risk and country risk subset:

- assuming 6% inflation, you have to choose between two deposit offers for a one-year-period of savings: the first is for 6.5% interest rate and the another one is for 5.5% interest rate;
 - Students have to compensate the loss of inflation in their purchasing power right, so the first offer is rational.

basic bank services subset:

- there are 10 ATMs in your town and you need cash from your account at least three times a month, and you have to choose between two bank account offers: the first bank has only one ATM in your town and the costs of cash withdrawal is 100 HUF from their own machine, but 400 from the ATM of the other banks, while the second bank requires 300 HUF generally for the ATM usage without any difference;
 - According to the density of ATMs, the first offer means a $0,1*3*100+0,9*3*400=1110$ expenditure, contrary to the second offer's $3*300=900$. Therefore the second offer seems to be rational.

savings and investment subset:

- if you have 200,000 HUF that you need 3 months later, which form of saving is adequate: bank deposit, public traded share, real estate investment fund, 6-month discount government bond;
 - Only the bank deposit seems legit because the other forms contain additional risks and do not fit the length of savings.

insurance and pension subset:

- twice a year you usually need some dental service which costs 17,000 HUF and there are two insurance offers: the first covers the full price of the first treatment and only 50% of the second one for 2.000 HUF monthly fee; while the second offer covers only 50% for both treatments with a 1,000 HUF monthly fee.
 - Students have to cover 34,000 HUF expenditure. The first offer means 24,000 HUF insurance expenditure and a 10,000 additional payment (sum: 34,000). The second offer means 12,000 HUF expenditure for the insurance, while 20,000 HUF has to be paid for the treatment (sum 32,000) – so this seems to be the rational choice.

loan subset:

- in January 1, 2012 you need 200,000 HUF (200,000/semester) to cover your university studies. There are two alternatives: a part time job, which offer a net 34,000 forint salary

for a month in the next 5 years, or a loan for fixed 10% interest rate with a payback of 19,000 forints monthly between 2012 and 2032.

- The two amounts are the same, but involving inflation and the increase of possible incomes in the future after graduation, the second offer is rational.

Items of Kahneman and Tversky's questionnaire, following *Ackert* and *Deaves* (2010), will be ruled out from the 2012 version according to the experiences of our pilot questionnaire in 2011 due to.

In the 2011 pilot campaign, Kahneman and Tversky's items following *Ackert* and *Deaves* (2010) and denominated in Hungarian forint were involved in our questionnaire, and the consistence of the results with the original US measurements evaluated the theory of bounded rationality for our sample. But these items have to be ruled out from the 2012 questionnaire due to their length and the lack of the possibility of new developments.

6. Conclusions

This paper aimed to summarize the process of questionnaire development to measure the level of financial literacy among Hungarian teenagers. According to the theoretical and the legislative background of the economic relevance of the trust and knowledge based financial services, we presented an adequate definition of financial literacy and combined it with economic rationality. This combination provided us with a model with dimensions and ways of measuring our target group. To clarify and to evaluate the items, our research team applied focus group interviews in the late 2010 and a three-staged pilot questionnaire in the early 2011. After processing the results and the feedback, we were able to present the current, one-step questionnaire for the early 2012 campaign.

The presented results underlined that definitive questions are not adequate to measure financial literacy – it was proven both by the theoretical combination of economic rationality and financial rationality, as well as by the special circumstances of teenagers with poor experiences in the field of labour and financial services.

References

- Ackert, L. F. – Deaves, R. 2010: *Behavioral Finance*. Mason: South-Western Cengage Learning.
- Botos K. 2006: *The bank system and its stakeholders – competition in bank sector*. Szeged: Bulletins of University of Szeged, Faculty of Economics and Business Administration.
- Consoli, D. 2005: Technological Cooperation and Product Substitution in UK Retail Banking: the Case of Customer Services. *Information Economics and Policy*, 17, pp. 199–215.
- di Mauro, F. – Ruffer, R. – Bunda, I. 2008: *The Changing Role of The Exchange Rate in a Globalised Economy*. Frankfurt am Main: ECB Occasional Paper Series.
- Goddard, J. – Molyneux, P. – Wilson, J. O. S. – Tavakoli, M. 2007: European Banking: An Overview. *Journal of Banking & Finance*, 31, pp. 1911–1935.
- Haenlein, M. – Kaplan, A. M. – Beeser, A. J. 2007: A Model to Determine Customer Lifetime Value in a Retail Banking Context. *European Management Journal*, 25, 3, pp. 221–234.
- Hilgert, M. A. – Hogarth, J. M. 2003: *Household Financial Management: The Connection between Knowledge and Behavior*. New York: Federal Reserve Bulletin.
- Huston S. J. 2010: Measuring Financial Literacy. *The Journal of Consumer Affairs*, 44, 2, pp. 296–316.

- JumpStart Coalition 2007: *National Standards in K-12 Personal Finance Education*.
<http://www.jumpstart.org/guide.html>
- Monticone C. 2010: How Much Does Wealth Matter in the Acquisition of Financial Literacy?
The Journal of Consumer Affairs, 44, 2, pp. 403–422.
- Ondo-Ndong S. 2010: *Is there a case for maturity mismatch and capital ratios as complementary measures to identify risky banks and trigger for supervisory intervention?* Paris, Euroframe.
- Puri, M. – Rocholl, J. 2008: On the Importance of Retail Banking Relationships. *Journal of Financial Economics*, DOI:10.1016/j.jfineco.2007.07.005
- Simon, H. A. 1955: A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics*, 69, 1, pp. 99–118.
- Vitt, L. A. – Anderson C. – Kent J. – Lyter D. M. – Siegenthaler J. K. – Ward. J. 2000: *Personal Finance and the Rush to Competence: Financial Literacy Education in the U.S.* Institute for Socio-Financial Studies.
- Wang A. 2009: Interplay of Investors' Financial Knowledge and Risk Taking. *Journal of Behavioral Finance*, 10, pp. 204–213.