

Review of research on financial literacy and education of Poles¹

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Abstract. The principal objective of this review is to determine whether the conducted studies provide a diagnosis of Poles' financial literacy and of financial education efforts undertaken in Poland. To make this evaluation, we first analysed the issues, which the studies are focused on and presented their key results synthetically. We further analysed which groups participate in these studies and what institutions commission such research. The summary, in addition to conclusions resulting from the presented considerations, offered initial recommendations which, if implemented, could contribute to better verification of Poles' financial literacy and knowledge in empirical studies. The authors first reviewed the literature, which resulted in defining conceptual boundaries of terms critical to the topic of this paper. The core research material consisted of selected reports from studies of financial literacy and education of Poles and an analysis of those studies.

Keywords: financial literacy, financial capability, financial knowledge, financial education.
JEL Codes: A20, C83, I21, I25.

1. Introduction

Changes in financial markets and the corresponding greater complexity of mechanisms and products offered in those markets have vastly contributed to a higher risk for concluded transactions. Consequently, the importance of financial literacy (or even capability) and knowledge of financial products and services by individual users has gradually increased. The events of the past years, particularly the global socio-economic crisis, prove that financial capability, literacy and knowledge are still too narrow.

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Being unaware of even the most elementary principles prevailing in financial markets may lead to erroneous decisions when managing one's personal finances, which translates not only into the loss of money, but also into people losing real estate properties or liquidity surpluses. Further, given current demographic processes, and considering the retirement solutions adopted (within the obligatory social security system), insufficient financial literacy contributes to increasingly noticeable problems with accumulating appropriate savings which could constitute the depositor's security for his or her old age.

Considerations like those above have led to identification of a significant research issue, namely, the evaluation of studies of the financial literacy and education of people in Poland. The principal objective of this review is to determine whether the conducted studies provide a diagnosis of Poles' financial literacy and of financial education efforts undertaken in Poland. To make this evaluation we shall first analyse the issues that those studies are focused on and present their key results synthetically. We shall further analyse which groups participate in those studies and what institutions commission such research. The summary, in addition to conclusions resulting from the presented considerations, shall offer initial recommendations which, if implemented, could contribute to better verification of Poles' financial literacy and knowledge in empirical studies.

To accomplish the adopted objectives of this paper, the text has been divided into several sections. The first presents the meanings and understandings of the basic terms used in the discussion about financial literacy. The second focuses on reviewing selected studies of financial literacy and education in Poland. The third section comprises conclusions resulting from a comparison of the studies and their various aspects.

With these objectives in mind, the authors shall first review the literature, which will result in defining conceptual boundaries of terms critical to the topic of this paper. The core research material shall consist of selected reports from studies of financial literacy and education of Poles and an analysis of those studies.

2. The concept of financial literacy and education

According to a definition taken from the field of psychology, awareness is a person's basic psychological state of being conscious of internal phenomena (such as thinking processes) and external phenomena to which he or she is able to react. It should also be noted that awareness is a dynamic process [psychologia.net.pl, n.d.]. On the other hand, when speaking about economic issues, several concepts are used. These include in particular financial literacy and financial capability.

There are four main components of financial capability in the literature, i.e. knowledge, skills, attitudes and behaviour [Kempson, Collard, Moore 2005; Zottel, Perotti, Bolaji-Adio 2013]. Broadly speaking, financial capability represents the knowledge, understanding, skills and motivation for making financial decisions which are appropriate for the outside environment and to the situation of a given individual [Mundy 2011, p. 3; Zdanowska 2012, pp. 251-260].

Financial literacy is somewhat differently understood, sometimes being perceived only as one of the aspects of financial capability. It is recognized, then, that it relates to the knowledge and awareness of financial concepts and products [Bolaji-Adio, Iarossi, Perotti, Zottel 2013] or that it covers financial knowledge and skills [Holzmann, Mulaj, Perotti 2013]. However, when analysing research studies over the past several years, it can be noted that this was the financial literacy term most often referred to in their titles and scope. In Poland, the subject of research is primarily financial literacy, as well. For these reasons, this article focuses on the issues of financial literacy. At the same time, it should be mentioned that the authors are aware that it seems that a growing number of researchers are striving to slowly extend the approach (from financial literacy to financial capability).

It must also be added that those who study the subject encounter an attitude where literacy (perceived as some kind of competence) is a wider concept [Pleśniak 2013, pp. 259-262]. It is understood as a combination of the awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately to achieve individual financial wellbeing [OECD/INFE 2011, p. 3]. Thus, literacy constitutes a wider concept than financial knowledge. When focusing on studies devoted to financial literacy and education, one may notice that there is no clear definition of financial capability, literacy and knowledge. In a number of studies knowledge, just like awareness or in fact, capability, is treated as equivalent to financial literacy [Huston 2010]. According to the authors, in order to comprehensively examine and assess financial literacy, it should be assumed that it covers all the aforementioned aspects, i.e. both the financial knowledge and skills of individuals in this area as well as their attitudes and their behaviour towards changes in the financial environment. Nevertheless, it must be stressed that such differences in the very definitions of the concepts suggest potential problems with interpreting and comparing the results of various individual studies.

As awareness, including financial literacy, is a dynamic phenomenon and may expand or contract, financial education is carried out not only to limit the possibility of loss of awareness but also to expand it. Financial education is a process of passing on information to improve understanding of financial products and services along with the risks they carry. When they have such information, individuals are capable of making more conscious choices, they may find out where to look for assistance and how to effectively manage their finances [OECD 2005, p. 4]. Therefore, it is financial education that shapes financial literacy. As part of their work on national strategies for financial education, OECD adopted a definition that also pointed to education's impact on limiting financial and social exclusion [Grifoni, Messy 2012, p. 11]. Research on financial education carried out in the EU shows that given the changing financial market, financial education should be broadly perceived as a continuous process which allows the target customers of financial services to make conscious and effective decisions and which motivates financial agents to develop adequate products [*Financial Education and...* 2007, p. 3].

3. Selected studies of the financial literacy and education of Poles

Research on the financial literacy and education of Poles may be divided into two groups. As a country, either Poland is included in a research project conducted on a larger group of states (international study) or the study is limited to Poland's territory only.

The largest set of studies carried out solely on people in Poland belongs to the Kronenberg Foundation established by Bank Handlowy w Warszawie S.A. (brand: Citi Handlowy). Since 2008, this foundation has been studying various aspects of Poles' financial literacy and knowledge [Kronenberg Foundation 2008-2016]. Its most extensive research, focused on "Attitudes of Poles towards saving / finances", was carried out between 2008 and 2016. The research project's main objective was to reveal Polish people's attitudes towards finances, that is, household budget management, saving and investment. The project focused on the Polish society in general as well as on selected groups (women in 2014) or selected aspects of finance ("payday loans" - 2014, "family finance" - 2015 or "six questions about banking" - 2015). Due to the regular nature of the research into Polish people's attitudes and a mostly comparable set of topics, the research program provides an evaluation of changes occurring during the studied period with regard to selected elements of financial literacy and knowledge. For instance, in 2016 this report provided information about changes in Poles' attitudes towards spending (spending planning and control) and saving (including in particular evaluation of the needs and possibilities of saving, sources of information about saving possibilities or ways of saving, also covering saving for retirement). However, the questions referred both to declarations and to objectively verified values.

The results of another study entitled "Financial Knowledge of Poles" were published in 2009. The purpose of this research was to evaluate the level (subjective and actual) of financial knowledge of Poles and diagnose those areas in which Poles most need financial education (for the purpose of education campaigns). Additionally, the study also covered issues referring to general values and attitudes of Polish people, and also the need to gain knowledge, as declared by the respondents, and the extent to which they are interested in it. The questionnaire also contained a set of questions designed to facilitate conclusions about Poles' involvement in the financial system (including attitudes towards financial institutions, attitudes and behaviours related to saving, investments, insurance, retirement and taxes). Here, an attempt was made to identify the relationship between the level of financial knowledge of the Polish people and their financial decisions. The most recent, more detailed survey, was carried out in August 2015. It was called "School Starter Kit versus Spending Planning" and its purpose was to assess parents' attitudes towards the planning of spending related to the start of the school year.

Another comprehensive survey, "Economic Knowledge of Poles", was conducted in 2014 by the Freedom Institute (Instytut Wolności) and Raiffeisen Polbank [Instytut Wolności, Raiffeisen Polbank 2014]. The survey covered numerous aspects, such as

the banking penetration ratio in Poland, Poles' trust in banks, evaluation of financial knowledge (regarding information about banking products and their fees / costs, among other things), knowledge of financial matters (such as the influence of inflation on interest rate levels / interest on banking products or differences between interest rate and percentage points), as well as assessment of knowledge of taxes (the number of thresholds and types of tax relief). This allowed the authors to draw conclusions, for instance, about the knowledge individual groups had, differentiation in terms of age, gender, professional activity etc.

A study ordered by the Kronenberg Foundation and BIK (Biuro Informacji Kredytowej), carried out in 2014, examined Poles' self-evaluation of their financial literacy and its objective level regarding loans (covering aspects like creditworthiness, credit scoring, annual percentage rate or credit history, consumer bankruptcy and debt loop) [Kronenberg Foundation 2014].

Many surveys are dedicated to selected professional or social groups. One of them is a survey carried out by Professor Małgorzata Iwanicz-Drozdowska and her team which evaluated the financial literacy of selected occupational groups (medical doctors and IT specialists working in Warsaw) and social groups (students of universities and high schools in Warsaw). The survey focused, among other things, on the banking penetration of individual groups of respondents, their attitudes to saving and spending control, having basic information about financial products, willingness to expand their knowledge in this area and sources of knowledge about financial products. Additionally, the researchers analysed respondents' awareness of consumer rights, protection mechanisms against the bankruptcy of financial institutions and the security of deposited funds [Iwanicz-Drozdowska 2011, pp. 214 and 252-254]. In 2013 another survey was conducted on a selected social group i.e. people of 50+ years of age in the voivodship of Łódź. The study was carried out by a team supervised by Professor Monika Marcinkowska [Kuchciak, Świeszczak, Świeszczak, Marcinkowska 2014, p. 261].

Another group, at least equally important, that was the subject of relatively frequent studies on financial literacy is children and adolescents (understood as people under the age of 25 or so-called "young adults" - up to the age of 35). In this group may be included: the research conducted on behalf of the National Bank of Poland (NBP) [NBP 2014], the study of selected aspects of financial literacy and competence in the management of personal finances of "Young" Poles conducted by the Association of in Debt Support Program, based in Poznań with the support of BIG InfoMonitor [Association of in Debt Support Program 2017] or six editions of financial literacy and maturity studies of youth from primary and lower secondary schools covered by out-of-school economic education programs [Marchewka, Nogaj 2012; 2013; 2014; 2015].

The conducted studies also include those that allow comparisons of Poles' financial literacy and knowledge with the financial literacy and knowledge of people in other countries. For instance, an OECD survey carried out in 2011 [Atkinson, Messy 2012] focused on identification of the financial knowledge of respondents based

on their answers to questions (for instance, about the concept of inflation) or short mathematical calculations (e.g. interest capitalisation). Another example is a survey by Citi Foundation, CSR Europe and Money Advice Service in 2011, which covered four countries (France, Poland, Spain and the United Kingdom) and two age groups in each of them, i.e. 16-30 and 55-64 [Kuchciak 2013]. The survey conducted regularly since 2012 by ING Bank Śląski S.A. (as part of the ING Financial Barometer), the results of which may be compared with those of other studies performed by the ING Group [ING Group 2012-2017]³, shows the level of knowledge in Poland compared to other countries. The questions referred, for instance, to perceived subjective and objective financial knowledge, attitudes towards saving and loan-taking, possession of concrete information about products and their use as well as expectations regarding financial institutions.

4. Results of the review of selected studies of Poles' financial literacy and education

The authors of this paper conducted a review of empirical studies carried out to identify the state of financial literacy and education. When looking at the results of that review, one may conclude that empirical studies were not carried out on a visible scale until the 21st century, and if one takes into consideration the surveys in which Poles participated, this is a matter of only the last decade. In this respect, actions (including research into this subject) intensified undoubtedly due to the global economic crisis dating back to early 2007. As a result of the crisis, greater attention was drawn to the low level of financial literacy and the need to undertake actions to expand it through financial education.

The surveys in which Poles participate are both international and local. The former are usually conducted (or ordered) by international organisations, particularly OECD, but also financial institutions operating on an international scale, including in Poland (e.g. ING Group, Kronenberg Foundation). The surveys with a local range have been developed with the contribution of both public institutions (such as universities, NBP or Social Security Institution) and commercial banks (Kronenberg Foundation, in particular). In addition to the abovementioned studies, other research programmes are carried out by independent research teams in various scientific centres, research institutions and ordered by financial institutions and non-governmental organisations. Finally, sample and *ad hoc* surveys are conducted by public opinion polling organisations.

The most important feature that later affects the evaluation and interpretation of the results is the great diversity of surveys. This means a very wide range of areas scrutinised and analyses performed. The most frequently raised issues include the causes and consequences of the state of society's financial literacy, features which distinguish financial knowledge levels, relations with other phenomena and

³ The research is conducted in the total of several tens of states all over the world, e.g. Poland, Germany, UK, France, Austria, Australia, Spain, Italy, the Netherlands, India, Turkey, USA and South Korea.

processes as well as possibilities to improve financial literacy (including financial education efforts). Within areas in which the level of financial literacy and knowledge is verified directly, one may distinguish knowledge of specific products, phenomena and processes (including modern technologies), risks involved with products, and information sources. Another topic is verification of individual people's capabilities of managing their personal finances. Researchers analyse the skills and attitudes of respondents, particularly in the areas of saving and investment, taking on and repaying debts, planning and control of spending, insurance, retirement and taxes. Additionally, respondents are often requested to self-evaluate their financial knowledge, they are asked about their expectations for expanding their financial literacy and declared needs regarding participation (or lack of participation) in the financial market. There are also issues of knowing the law within areas of interactions with entities operating in the financial market and the field of consumer protection. Financial education is most often considered from the angle of the entities involved, beneficiary groups and types of solutions used. However, as people's expectations to increase their financial literacy are higher than those acquired as a result of financial education, a new direction of research is being taken up. Its purpose is to verify the effectiveness (and in the long run, also the efficiency) of financial education. Hence, another area is verified with the respondents, namely their opinions on how necessary it is to be economically knowledgeable, self-evaluation of that knowledge, their willingness to expand it or participate in initiatives of entities which pursue financial education activities.

As regards the method of studying financial literacy and education, the one prevailing in the research programs reviewed herein is the survey, which is consistent with the observations of B. Frączek [Frączek 2013, pp. 118-128], among others. Surveys include both closed-ended questions (with 3-4 answers to choose from) and short open-ended questions. Surveys also use constructions in which the respondent must arrange responses in the correct sequence or mark a value on a given scale (e.g. level of trust in institutions or risks posed by a given product). A synthetic analysis of the studies referred to herein and research methods they use is presented in Table 1 below.

The review allows us to formulate the hypothesis that some of the questions are of a relatively superficial nature. The questions asked to the respondents embrace issues that are too general and thus make it impossible to carry out a properly justified process of formulating conclusions. At the same time, a large number of questions about the same issues is duplicated by the entities performing the research. Due to the adoption of different research methodologies, and above all to various constructions of questions, there are numerous discrepancies in respondents' answers to the same issues (e.g. about financial products known). Doubts also arise from questions (for instance, about awareness of a specific phenomenon) the answers to which are declarations only (there is no actual verification of the respondent's knowledge). Many times, no differentiation is made between the consequences of the lack of knowledge of finance and the ability to actively function in financial markets.

Table 1. Characteristics of selected financial literacy and education studies and applied research methods

Year (of research /of the report publication)	Name of research / Research client	Study area / Purpose of the study	Research method
Domestic research			
2008-2016	<i>Attitudes of Poles towards saving / finances</i> Citi Handlowy's Kronenberg Foundation	The main purpose was to identify the attitudes of Poles towards finance - home budget managing, savings and investing. The assessment included: – saving (is it worth it?, target, amount, method, time horizon); – saving for retirement; – planning and expenditure control; – knowledge of finance and sources of knowledge.	The survey (interview) on a representative sample of Poles aged 15-75, sample N = 1028 (layered by gender, age, size of the city and voivodeship). CAPI (Computer-Assisted Personal Interview) research method.
September 2009	<i>Financial knowledge of Poles</i> Citi Handlowy's Kronenberg Foundation	Examine the level of Poles financial knowledge and diagnosis of the areas in which financial education is most needed for Poles (areas for the activities of educational campaigns). Elements of the study: 1) attitudes towards finances and the factors influencing their formation; 2) inclusion in the financial system (financial services, investment, insurance, pensions, taxes); 3) condition of financial knowledge - visions vs. real knowledge; 4) general values and attitudes of Poles and their relationship to financial knowledge.	Representative sample of 1,502 adult Poles. Research method: direct questionnaire CAPI interviews.
2011	<i>Financial Education. Experiences and Perspectives</i> Professor M. Iwanicz-Drozdowska with Team	Assessment of financial literacy of selected professional groups (doctors and IT specialists working in Warsaw) and social groups (students and high school students in Warsaw).	The survey was carried out using paper and online questionnaires, aimed at students from Warsaw (837 questionnaires from universities of various profiles, including economic and financial), the medical community (doctors and nurses - 270 questionnaires) and IT specialists (326 surveys).
2014	<i>Economic Knowledge of Poles</i> Freedom Institute and Raiffeisen Polbank	Assessment of knowledge of basic economic terms (e.g. tax thresholds), as well as more advanced ones (e.g. different ways of saving). The study focuses on the practical application of financial knowledge in everyday life.	Research using CAPI in home technique on a 1000-person random sample representative for the general Polish population aged 15-75 years. The sample was the of a quota – random nature and was selected from the Central Statistical Office of Poland address sampling.
August 2015	<i>School Starter Kit versus Spending Planning</i> Citi Handlowy's Kronenberg Foundation	Assessment of parents' approaches to planning of expenses associated with starting a school year.	The survey carried out on a target sample covered N = 468 interviews - people with a child or children of school age (6-19 years old) in the household, over the age of 15. Research method: direct CAPI interviews.

Year (of research /of the report publication)	Name of research / Research client	Study area / Purpose of the study	Research method
Foreign research			
2005	OECD	Questions concerning the role of financial education.	The questionnaire addressed to the members of the OECD (together 30 countries), filled in by the institutions involved in broadly defined financial education (central banks, ministries of education and finance, consumer protection offices).
November 2010	ING Group	Assessment of finance issues knowledge. The study consisted of two parts: 1) assessment of consumers' knowledge of finance (financial quiz); 2) assessment of the behaviour and attitudes of consumers towards financial issues.	The study included 5,000 people from 10 countries (Poland, the United States, the Netherlands, Romania, Belgium, Spain, Mexico, India, Korea and Japan).
2011	Citi Foundation, CSR Europe, Money Advice Service	Assessment of the financial knowledge level / plans regarding financial situation protection.	The study included two social groups from France, Poland, Spain and the UK, i.e.: age of 16-30 years (1,200 people, a survey on Facebook) and 55-64 (review of literature and research reports).
2011 / 2012	OECD	Questions concerning: interest rates, inflation, risk and its diversification.	The study conducted in 14 countries.
2012-2017	ING Barometer ING Group	The scope of research: – savings, long-term savings; – Poles' savings targets, saving for retirement; – forms of Poles' indebtedness; – extent and purpose of the use of mobile banking; – sources of financial knowledge; – assessment of liability for financial decisions; – the role of social media in making financial decisions.	For example, research in 2016 was conducted in 13 countries: Poland, Austria, Belgium, Czech Republic, France, Spain, the Netherlands, Luxembourg, Germany, Romania, Turkey, United Kingdom, Italy. Computer-Assisted Web Interview (CAWI) technique. 12,646 respondents, 1,000 from Poland.
2016	International Survey of Adult Financial Literacy Competencies OECD/INFE	Questions mainly concentrated on: financial knowledge, financial behaviour and financial attitudes. Additionally, questions allowing the construction of financial inclusion indicators.	30 countries and economies (17 OECD countries), in total 51,650 adults aged 18 to 79, 1,000 from Poland. International survey using the same core questions translated into 30 languages. The technique depends on the study country (mainly: face-to-face – in Poland, web panel, telephone or mixed).

Source: Authors' own elaboration.

The biggest weakness of the conducted surveys is the incomparability of their results. This makes it impossible to use the completed surveys for more sophisticated analyses of research projects carried out by various entities. As presented in Table 1, they focus on various aspects of financial literacy and knowledge and consequently, do not allow researchers to evaluate them fully and completely. It must be pointed out that there have been attempts to standardise the aspects examined. These attempts include

a set of three groups of questions developed in 2004 by A. Lusardi and O.S. Mitchell, referred to as the Big Three. These questions cover three scopes of information about interest rates, the consumer price index (inflation) and risk diversification. The set of these questions was expanded in 2012 by adding aspects related to mortgage loan interest and the pricing of bonds, constituting the so-called Big Five [Hastings, Madrian, Skimmyhorn 2012, pp. 347-373]. Unfortunately, neither the Big Three nor the Big Five has been adopted for common use. It is also worth stressing that in the case of part of the studies one may see a desire to construct a synthetic gauge or set of measures of financial literacy. At the same time, on the basis of the review, one cannot see that a solution has been adopted on a larger scale.

Also, the widely used survey method is not standardised, covers either society as a whole or selected groups, and the groups are not always chosen according to strictly defined criteria. For example, the discrepancies in the identification of the concept of „youth”. Although this group of society is often extracted in research studies, unfortunately the results cannot be compared with each other.

In this situation, for future studies, it would be worth considering the possibility of repeating selected research questions that would allow us to assess the changes taking place, rather than conducting new ones leading to incomparable conclusions. If research, for objective reasons, cannot be repeated, it would be worthwhile to maintain a certain coherence within studies, covering all the elements of financial literacy defined in the conceptual part of this article. That means they should examine the knowledge and skills as well as the attitudes and behaviour of individuals.

5. Summary

Given the nature and the dynamics of changes occurring in economic and social systems, in financial markets and in the area of individual people's needs and expectations, appropriate financial literacy and knowledge is becoming increasingly important. An analysis of thematic publications [Flejterski 2008; Bywalec 2010; Goszczyńska 2010; Iwanicz-Drozdowska 2011; Ratajczak 2014] reveals an unsatisfactory level of financial literacy among Polish people. However, their literacy is improving every year. As shown by the results of S. Smyczek's research, financial illiteracy in 2013 was rated at nearly 50%, which was 7 pp. better than in 2010 [Kieźel, Smyczek 2015, pp. 133-135]. To be able to evaluate financial literacy and knowledge, at the first stage of this process, one must diligently diagnose the problem and identify its characteristic features. The appropriate tool is empirical research, both quantitative and qualitative.

With regard to Poland, some research is conducted on an international scale (Poland is one of the countries covered by the analyses that gather respondents' answers on standardised survey questionnaires) and some studies are performed only locally. In the former, an important value added is the possibility of carrying out comparative analyses, which allows us to locate Poland in comparison to other countries, for instance, those at a similar level of development or those in which the existing level

of financial literacy of their people may serve as a reference point or those which as a result of efforts undertaken have reached the desired level of financial knowledge. However, the most valuable conclusions seem to result from international surveys that were conducted with appropriate regularity in the same group of countries and use as similar set of questions as possible. An example of good practice in this regard is the international PISA survey, which has been conducted (e.g. in Poland) at the initiative of OECD once every three years since 2000 [OECD 2017]. Each country may introduce additional components of a different character. 15-year-olds take part in the study. It covers several skill areas for students who have been included in financial literacy surveys since 2012. Thanks to this, in 2015 we could compare the results with those previously obtained. This has enabled us to provide valuable information that can contribute to more effective educational activities.

The authors believe that it would be worthwhile to treat local surveys as research constituting more detailed supplementation to the international studies. Thus, it is necessary to conclude that greater attention must be paid to research focusing on selected groups that boast unique social, demographic and professional characteristics. Another dimension of financial literacy will be represented by youth and other by adults and older people. Different educational levels - people with basic, secondary and higher education. Differences can also be seen in particular professional groups. Additionally, surveys should cover a narrower range of issues but at the same time, they should ask deeper questions about the reviewed area of knowledge or the analysed phenomenon. An important feature of local as well as international studies should also be recurring regularity.

Additionally, there is a shortage of analyses based on qualitative research. These would constitute a valuable supplement to the most often used quantitative methods, which do not draw a complete picture of the situation (e.g. in the sphere of attitudes and behaviours of individuals). Additionally, it would be worthwhile to concentrate on features characteristic of Polish society, which largely determine the level of financial literacy⁴. It is also important that qualitative research programmes should not only be studies that show the results of declared (theoretical) knowledge but should be clearly focused on a component of the process of evaluating actual knowledge.

In view of the above, it should be emphasized that despite the clear development of research on financial literacy and knowledge, there is still a need to improve their comparability. It could, in particular, provide greater precision and unification of the accepted definitions of key concepts, the construction of universal indicators and measurement methods, the regular reproducibility of research while maintaining standardized questionnaires, and the isolation and clear division into subgroups of study, characterized by specific characteristics from the point of view of financial literacy. More attention is also required to translate the subject's financial knowledge into making rational financial decisions. Therefore, one can hypothesize the need to

⁴ An example may be improperly formed financial habits resulting from the lack of financial knowledge transfers between generations. This is due to the past, post-communist model of economy, far from free market reality and strong stereotypes.

construct a model that would show a transmission mechanism between three groups of variables: awareness and knowledge about the practical use of these attributes by the individual and solutions for broadly understood financial education.

Finally, we must mention one more important aspect of research on financial literacy and education of Poles. So far, the conclusions from the research have not been clearly translated into actions to improve literacy and knowledge levels. The only thing stressed is the low level of financial literacy, but no comprehensive and long-term actions are undertaken to expand that literacy. What is more, solutions implemented as part of financial education programmes are very often selective, fail to meet the recipients' needs and expectations and additionally, their results are rarely subject to assessment. There is also a lack of analysis related to the measurement of the costs and benefits of financial education. Thus, the primary and necessary recommendation with regard to research into financial literacy and education of Poles is to tighten the relation between conclusions drawn from the surveys and actions undertaken to introduce the required changes to reduce financial illiteracy within the whole society.

At the same time, one can come to the conclusion that there is no direct relationship between education and the level of financial literacy [Willis 2011, pp. 429-434]. Educational activities will not be effective unless consumers are willing to use them, as the consequence would be the need to bear responsibility for their financial decisions [Gębski 2013, pp. 83-108]. On the other hand, there is no alternative solution. Nevertheless, it is worth emphasizing that the effectiveness of education and the rise of financial literacy also depend on financial institutions. Even high levels of literacy and knowledge will not increase financial security if the institutions do not strike a balance between the need to increase profits and protection of their clients [Benachir 2016, pp. 7-23; Nowak, Cichowicz 2016].

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Abbreviation

CAPI – Computer-Assisted Personal Interview; CAWI – Computer-Assisted Web Interview; NBP – National Bank of Poland.