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The Assessment of Financial Literacy: The Case of Europe*

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ABSTRACT

The study starts from the definition of financial literacy and its components, to identify the criteria that an assessment methodology should have to properly measure it. In the second part, an empirical analysis of the degree of financial literacy of adult population in several European countries (France, Germany, Italy, Sweden, UK) is used to highlight similarities and to stress differences between countries. Results show how the availability of 50 items allows to differentiate the levels of financial literacy in various areas of knowledge (e.g. loans, investments, money management). The use of money (e.g. credit cards, debit cards, cash) is the area of knowledge where individuals seem to be more well-informed and confident. Conversely, investment and investment products (e.g. stock, bonds) represent a weak point, with average scores being dramatically low.

Keywords: financial literacy, financial knowledge, consumer finance.

I. Introduction

The interest in financial literacy and awareness about its potential in protecting consumers from making mistakes or taking wrong financial decisions have grown over time. Several countries developed national strategies to promote financial literacy through financial education, with an aim of assessing current financial literacy and planning initiatives devoted to developing well-informed and aware financial consumers. Those efforts from governments, policy makers, and other institutions, such as OECD and World Bank, require reliable measurement of financial literacy to estimate a baseline level of knowledge of a certain target group (e.g. youth, adults, working population, etc.), plan for financial education curricula, and

assess the effectiveness of such initiatives.

This paper uses a literature review to summarize definitions and ways to measure financial literacy, with the aim of demonstrating how measures on financial literacy improvement based on a reasonable number of items that take into account different areas of knowledge can provide a clearer understanding of financial literacy level than measures based on just a few items.

The paper is organized in two parts. The first one is focused on the definition of financial literacy and its measurement. The second part analyzes data from different European countries to assess the financial literacy of adult populations.

II. Definition of Financial Literacy

The assessment of financial literacy requires a clear definition about what financial literacy means. In one

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of the first studies on financial literacy, Noctor, Stoney and Stradling (1992) refer to financial literacy as "the ability to make informed judgements and to make effective decisions regarding the use and management of money". This definition starts from the ability (competence) but makes a step forward pointing out that financial literacy includes ability to take financial decisions. If the word knowledge is not mentioned in this definition, it can be argued that it is included in it. If knowledge and competence are different concepts, we can assume there is a hierarchic connection between them. This is due to the fact that knowledge represents some kind of pre-requisite to develop competence, if competence is an ability to apply knowledge to practical issues, solving a problem or taking a decision. Hence, if it is possible to have knowledge and not be able to apply it (competence), it does not work the opposite way. People cannot apply knowledge they do not possess. It follows that, including competence, the definition of Noctor et al. (1992) assumes the relevance of knowledge too and includes all the three basic elements of financial literacy: knowledge, competence and the use of money.

Similar definitions, based on the concept of ability, were used by Mandell (2008) for whom "financial literacy refers to the ability of consumers to make financial decision in their own best short and long term interest". Servon and Kaestner (2008) stated that "Financial literacy refers to a person's ability to understand and make use of financial concepts". Within this first set of definitions, the one of Noctor et al. (1992) is closer to a concept of financial literacy as a decision-making process. This definition was used in several other studies such as Schagen and Lines (1996), Beal and Delpachitra (2003), ANZ (2008), Atkinson and Kempson (2008) and Worthington (2013). In their study, Schagen and Lines (1996) tried to define abilities related to the "use of money" that need to be considered, arriving to (1) the understanding of key concepts central to money management and (2) the conclusion that a working knowledge of financial institutions, systems and services is the key ability to develop to be financially literate. Similarly, Bowen (2003) made an attempt to specify the skills needed to make "use of money". The author talks about financial knowledge "as the understanding of key financial terms and concepts needed to function daily in American society", saying that "it includes knowledge about items related to banking-checking and savings, auto-life-health and homeowners' insurance,

loans, taxes, and investing".

Vitt et al. (2000) defines financial literacy as "the ability to read, analyze, manage and communicate about the personal financial conditions that affect material well-being". Referring to 'reading', 'analysing' and 'managing', the authors develop the concept of 'competence' in specific areas, all related to the use of the information. The key role of information as the input of a financial decision-making process is quite evident in Mason and Wilson (2000). For these authors, financial literacy is "an individual's ability to obtain, understand and evaluate the relevant information necessary to make decisions with an awareness of the likely financial consequences". The words 'ability' and 'understand' recall 'competence' and 'knowledge' even if the need of an access to financial information introduces a new issue and highlights how much knowledge and competences risk to be meaningless in a scenario where information is not available. The same issue is stressed by Johnson and Sherraden (2006) who note that the application of knowledge and competence requires access to financial information and financial institutions.

The need to analyze financial literacy in a decision-making framework - implicit in the definition of Vitt et al. (2000) - is even more clear in Danes and Haberman (2007) where "financial literacy is the ability to interpret, communicate, compute, develop independent judgment, and take actions resulting from those processes in order to thrive in our complex financial world".

If financial literacy should be related to both knowledge and competence, some studies paid more attention to 'knowledge', as Kim (2001) stated that "financial literacy is a basic knowledge that people need in order to survive in a modern society". Similarly, the FINRA (2003) adopted a definition of financial literacy as "the understanding [knowledge] ordinary investors have of market principles, instruments, organizations and regulations". The NCEE (2005) also addresses a pivotal role of knowledge in its definition of financial literacy as "familiarity with basic economic principles, knowledge about the U.S. economy, and understanding of some key economic terms". Lusardi and Tufano (2009) defined financial literacy as "familiarity with the most basic economic concepts needed to make sensible saving and investment decisions" and Almenberg and Widmark (2011) refer to financial literacy as "familiarity with basic financial concepts and products". Again, Lusardi (2008) talks about financial literacy as "the knowledge of basic financial concepts". Definitions

of financial literacy merely shaped around financial knowledge and. Generally, studies use financial knowledge as a proxy of financial literacy due to the need to fill the gap between available data - usually on financial knowledge - and the information needed, that involves financial skills and competences too. If the need to cope with the lack of data by using financial knowledge to measure financial literacy is reasonable, a rearrangement of the definition of financial literacy itself to ignore financial abilities and refer simply to financial knowledge is not. Reshaping the definition of financial literacy to make it fit with the data available can have positive effects on the consistency of results in empirical analysis. However, it risks extending conclusions from knowledge to competence assuming that a broader knowledge involves broader competence, even when people could be confident in answering questions about knowledge but not as confident in taking a financial decision. So, a definition of financial literacy should refer to both knowledge and competence on financial issues, keeping in mind that financial literacy should be assessed within a financial decision process, even if difficulties in measuring all these aspects can require the use of proxies.

The need to stress the different roles of knowledge and ability in financial literacy is evident in a number of studies. Moore (2003) highlights how individuals can be considered financially literate if they are competent and can demonstrate that they use the knowledge they have obtained. Huston (2010), in a research that reviewed more than 70 studies, arrived at the conclusion that "financial literacy consists of both knowledge and application [ability] of human capital specific to personal finance". Knowledge and competences are included in a definition as different concepts even by the JumpStart Coalition (2007) and the US Financial Literacy and Education Commission (FLEC) (2009). They defined financial literacy as "the ability to use knowledge and skills [competence] to manage financial resources [money] effectively for a lifetime of financial well-being"¹. This last definition clearly includes all the three key elements of financial literacy (knowledge, competence and the use of money), matching with the core meaning of these topics. If financial literacy is related to the achievement of financial goals (the 'use of money'), the awareness that different goals require different finan-

cial knowledge and abilities was included in a definition of financial literacy by Remund (2010) who takes into account both short- and long-term perspectives of a decision-making process. In his study, "financial literacy is a measure of the degree to which one understands key financial concepts [knowledge] and possesses the ability and confidence to manage personal finances [money] through appropriate, short-term decision-making and sound, long-range financial planning, while mindful of life events and changing economic conditions".

III. The Assessment of Financial Literacy

The assessment of financial literacy relates to the process by which the degree of knowledge and abilities of an individual (or a group of individuals) on a set of financial issues is estimated according to some criteria and by the application of a methodology.

Schmeiser and Seligman (2013), in a study on the measurement of financial literacy, highlighted how the measurement of financial literacy is still in its infancy and there is no standardized instruments for this yet. To understand how to measure financial literacy we need to analyze a number of issues and provide answers to some questions.

The quality of financial literacy measurement depends on the aim of this measurement and its application. Hence, the first issue to take into account is the reason why the measurement is developed. In order to develop a measure of financial literacy we need to know *why the measure is needed and how it will be applied*. When the aim of a study is to provide an overview of financial literacy, stressing how much people know about finance, or analysing the connection of financial literacy and some non-financial factors (e.g. education, stress, risky behaviors, etc.), it is important to include a wide range of financial topics in a study. Taking into account different aspects of the financial preparedness of an individual is consistent with the analysis of very different topics in the areas of money management, borrowing, saving and investment, insurance, etc. This is particularly reasonable when the target group of a study is quite large and includes people that differ in terms of financial needs, previous experiences in finance and different social

¹ The same definition will be used two years later by Hung, Parker and Yoong (2009) and Murphy (2013).

backgrounds. The same measure of financial literacy would be less reliable if applied in a study with the aim to analyze behavior of recipients in relation to a specific target. For instance, the topics to be addressed in a study on the role of financial literacy in the use of credit cards by youth will differ dramatically from a study that aims to summarize the big picture about financial knowledge of a large population. If credit cards can be used as a payment instrument and/or a borrowing facility, financial literacy should be considered in terms of money management and borrowing. It should not be studied with the lens of insurance and planning since the latter topics are not logically connected to the object of a study. Therefore, a measure of financial literacy applied to the knowledge of different financial areas may fit well in one case (overview of financial literacy) but not fit in another case (use of credit cards). Needless to say, the opposite is also true since a measure developed to analyze a specific financial behavior such as the use of credit cards should not be used to measure financial literacy in general terms. A measure developed to analyze money management and borrowing is taking into account only a part of what can be relevant to finance. This approach seems to be coherent with the recommendations provided by the Financial Service Authority in the UK (FSA 2005) on the measuring of financial literacy. In their study, FSA concludes how an overall scale based on knowledge and skills in different financial areas could be inappropriate, supporting the view that measurement should be limited to some selected topics.

Measurement of financial literacy might vary the *degree of difficulty* of test questions, depending on the aim of a study. Some studies will test more advanced knowledge and abilities, while for other cases to test the knowledge of basic financial principles may be enough. Lusardi (2009) analysed financial literacy as a tool for informed consumer choice, highlighting that basic concepts are not enough to take financial decisions. To make a competent savings and investment decision, one needs more than simply applying the knowledge of fundamental financial concepts, although it is essential. One needs to be aware of the relationship between risk and return, to know how bonds, stocks, and mutual funds work, and to understand basic asset pricing. Again, the need to differentiate between knowledge and abilities is stressed by Huston (2011) who suggests to measure knowledge, ability and behaviors separately and connect the three results by a scoring grid.

If the above-mentioned criteria suggest "what" is relevant to measure, before thinking about "how" to do it, it is useful to set some broad criteria for a scoring system on financial literacy. Results from previous studies² agree that measures of financial literacy should be *relevant, simple and comprehensible*, with the ability to differentiate between different people. A measure of financial literacy is relevant if it is based on the issues that show a connection with the needs of financial knowledge of the recipients. It will be simple and comprehensible if it is possible to explain the outcomes to a non-technical audience. The ability to differentiate between people with different knowledge and abilities is needed to evaluate their scores and compare.

Nicolini (2019) reviewed around 80 studies to demonstrate how different measures of financial literacy were developed. Results show how nearly all available options of measuring financial literacy have been used: self-assessment questions, answers to single questions as self-standing measures of financial literacy, the amount of correct answers to a set of questions. Some studies are looking at these measures in order to develop indices of financial literacy that discriminate between people who correctly answered at least some questions or who were able to provide correct answers to all of them. The same study takes reviews the evidence about topics. Almost three out of four studies (55 out of 78) included the knowledge of basic principles as a reference point or as a part of a bigger set of topics in the assessment of financial literacy. Compound interest, risk diversification and inflation are the most frequent topics. Broad areas of application of such general items make them a perfect match for financial literacy measures applied in studies that try to provide a big picture of financial literacy in a wide population. In most of the cases (41 out of 55), these topics are the only ones used to assess financial literacy, while in the others (14 out of 55) they are used with more specific topics (e.g. money management, saving and investment, etc.). When a specific area of knowledge was emphasized, saving and investments received more attention. More than twenty studies included questions on saving and investments (23 out of 78). In most studies this was the only area of interest, however in some cases (10 out of 23) it was either the focus of the analysis

² FSA (2005), Lusardi and Mitchell (2014), Atkinson and Kempson (2008).

or the only topic that was matched with items of general issues.

IV. Financial Literacy in Europe

This section presents the results from an empirical study on financial literacy in Europe. The first sub-paragraph describes the survey used to collect data as well as the questionnaire structure. The second presents the results of the survey, comparing the degree of financial literacy across different European countries.

A. Data

The data were provided by the Consumer Finance Research Center (CFRC): a research center promoted by a network of academics, with an aim of doing research and developing studies on consumer finance by linking together academics, financial authorities, consumer unions and NGOs³. From 2014 to 2018, the CFRC promoted a set of national surveys, targeting adults population (older than 18 years), with an aim of measuring the degree of financial literacy in Europe. The survey was replicated in different countries (France, Germany, Italy, Sweden, the UK) with the application of the same criteria and questionnaire, in order to collect data both for a national study and an international comparison. The questionnaire was specifically developed to analyze financial literacy and financial behaviors of financial consumers in European countries. The structure and the contents of the questionnaire were released by the experts of the CFRC taking care of previous studies and customizing the questions to make them fit with the peculiarities of the specific country (e.g. financial products and services available, legal framework, features of the welfare system, etc.).

The questionnaire is organized in three sections. The first section gathers information on respondents' socio-demographic characteristics. Questions concern age, gender, education, marital status, income, and other information useful for identification of respondent's personal profile.

Section number two consists of 50 multiple choice questions on financial literacy. Questions are organized in ten groups of five questions each. Each group analyzes financial knowledge and financial behaviors on a specific area of contents. The ten areas are the following: Interest rates, Inflation, Mortgages, Investments, Bonds, Bank accounts, Payments, Savings and Investments, Loans and Debts, and Retirement and Planning.

For each area, five questions were developed following the same principles. Questions are differentiated by the difficulty of a topic. The first two questions are the easiest ones. Questions 3 and 4 stress more advanced topic, while question 5 is the most difficult. Difficulty is mainly referred to as the degree of sophistication of financial content, while other technical sources of difficulty were minimized. So, the length of the question (number of words) does not differ much. The need for mathematical skills was reduced to basic operations, and the use of jargon was limited. This is intended to reduce the chance that a respondent does not answer correctly, even being knowledgeable of the content, due to difficulty related to the technicalities of the question. Standardization of the test involved even the number of options in each question. The only exception is the five questions frequently used in previous surveys (the so-called "Lusardi-Mitchell" questions) - which are part of this questionnaire - in which all questions have the same number of options, equal to three. At the same time, two further options are available: the "do not know" and the "prefer not to say" options to avoid the risk of respondents trying to guess. This second section of the questionnaire provides 50 items to be used to build financial literacy measures. Such a generous number of items was intentionally included in the questionnaire in order to develop and compare several measurements of financial literacy.

The third section of the questionnaire investigates financial behaviors and attitudes in several financial areas. The use of bank accounts, the preferences between difference payments options (e.g. cash, credit cards, etc.) when different options are available, or the preferences for bond or stocks, are few of the financial behaviors discussed in the questionnaire.

B. Level of Financial Literacy in Europe

The availability of 50 items on financial literacy gives

³ For details about the CFRC visit www.consumer-finance.org.

the chance to assess financial literacy more thoroughly than some previous studies. 50 questions are divided into ten groups of five questions with varying levels of difficulty. Ten areas of knowledge investigated by those items are Interest rates, Inflation, Mortgages, Diversification, Bonds, Bank Accounts, Payments, Stock Investments, Debts, and Retirement and Insurance. The first five areas represent an extension of the so called "big five" questions originally developed by Lusardi and Mitchell and replicated in several surveys. The first question of the first five sets is a "big five" question. An additional four questions were added in each to complete the set. The remaining five sets were chosen to address different areas of knowledge and include both daily decisions (e.g. payments, bank account management) and long-term decisions (e.g. stock investments, retirement and insurance). Different financial literacy measurements were developed on the basis of those 50 questions. The first one is constructed as the sum of correct answers to the full set of items, being a range from zero to fifty. In addition, ten topic-specific measurements counted the number of correct answers to the five questions in each set. Moreover, it is possible to identify for which topic respondents are the most lacking in knowledge, and in what areas individuals are more knowledgeable.

Infographics of the results for five European countries included in this study (France, Germany, Italy, Sweden, and UK) - overall and separately for men and women -- are reported below.

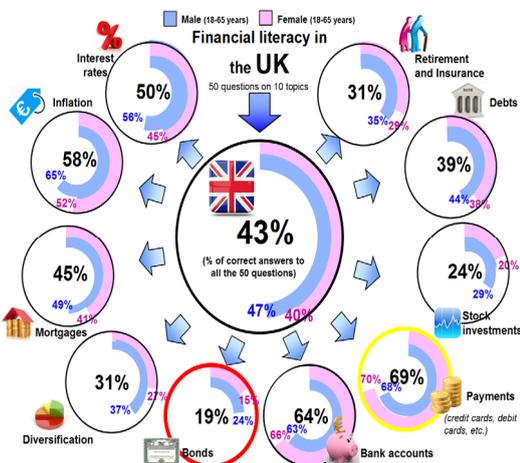


Figure 1. Financial literacy in the UK
Source: Data from CRFC (2016) N = 280 men, 316 women, 11 n.a.

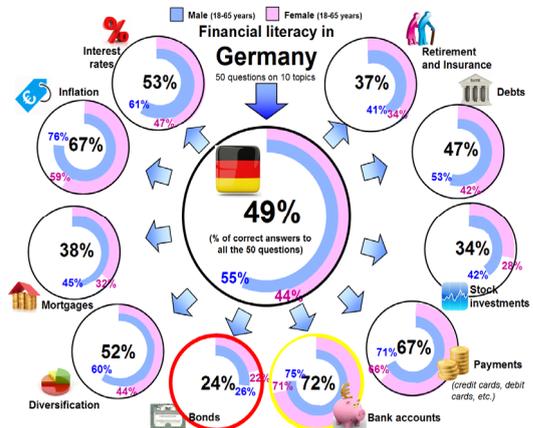


Figure 2. Financial literacy in Germany
Source: Data from CRFC (2017); N=244 men, 275 women, 14 n.a.

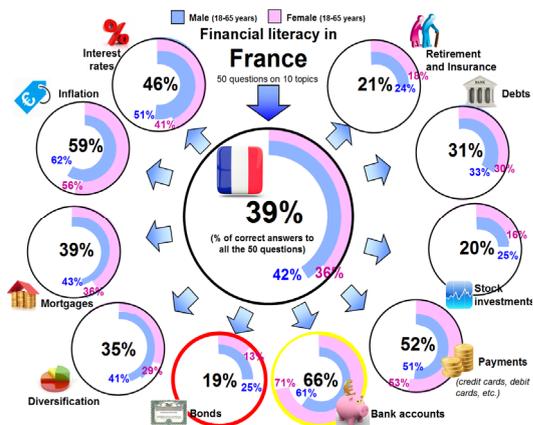


Figure 3. Financial literacy in France
Source: Data from CRFC (2017); N=243 men, 263 women, 11 n.a.

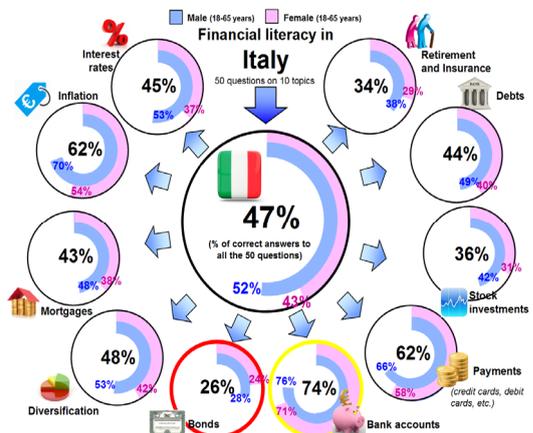


Figure 4. Financial literacy in Italy
Source: Data from CRFC (2015); N=247 men, 255 women

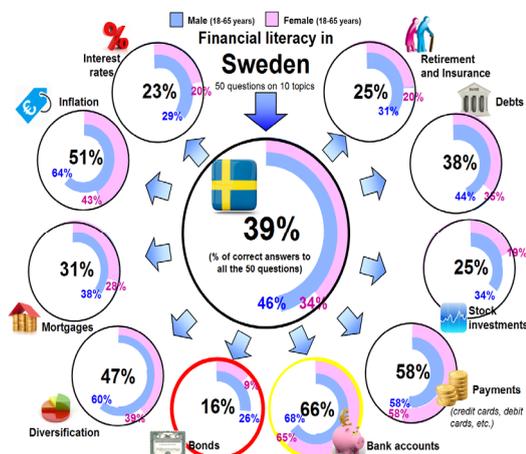


Figure 5. Financial literacy in Sweden

Source: Data from CRFC (2015); N=269 men, 369 women, 35 n.a.

Looking at the overall scores - reported in the center of each graph and obtained through the sum of correct answers to all the 50 items - Germany has the highest score (49% of correct answers on average), followed by Italy (47%) and the UK (43%). France and Sweden show average scores (39% for both of them) that are 10 percentage points below that in Germany. Regardless of differences between countries, results are far from being encouraging: on average a European citizen from the sample failed to correctly answer more than half of the questions.

The breakdown of the overall score into ten topic-based scores may be more informative. Looking at the area of knowledge where individuals scored the worst on average, it is clear that Bonds is unanimously the most critical area. It is the area with the lowest score in every country of the sample. In Germany, the average percentage of correct answers to five questions on bonds is 24%. This result is essentially the same in Italy (26%), while the percentage drops to 19% in France and the UK, reaching a minimum in Sweden (16%). Such a low average score is not limited to bonds, but seems to involve the investment areas generally speaking. Results for Stock Investments are only a bit higher than the knowledge on bonds in some cases. The average number of correct answers to five questions on stocks is 34% in Germany and 36% in Italy, while it is 24% in the UK, 25% in Sweden, and only 20% in France.

On the other hand, the area of knowledge with the best scores is Bank Account in three out of five countries (Italy, France, and Sweden), and Payments Tools for the

other two countries (Germany, and the UK). Such difference between countries is balanced by the fact that in countries with the highest knowledge on Bank Accounts, the financial literacy score on knowledge is the second best score, while countries that perform best on Payment Tools show the second best result in Bank Accounts. The percentages of correct answers to five questions on Bank Accounts or five question on Payments Tools goes beyond 70% more than once (e.g. Italy - 74% in Bank accounts, Germany - 72% in Bank Accounts) and are systematically greater than 60%.

Looking at other topic-based indices, in Diversification (based on five question on the diversification of investments) Germany (52%) and Italy (48%) score the highest, although the score of Sweden (47%) is quite near. At the same time, this area of knowledge is quite weak for the UK (31%) and France (35%). The need to address financial literacy looking at specific domains of knowledge is evident. In case of Mortgage Index, the Britons are the most knowledgeable on average (45%) scoring better than Italy (43%), France (39%) and Germany (38%).

Knowledge on Retirement and Insurance is another area where financial literacy seems to be quite low. Results from Germany are still the best, but the average number of correct answers to five questions of these areas are below 40% (Germany - 37%). The scenario is not positive even in Italy (34%) and the UK (31%) but becomes even more negative in Sweden (25%) and France (21%). For the latter two countries, the presence of a strong and efficient welfare system may partially explain why people in Sweden tend to know less since it is safe to assume that they do not need to play an active role in planning their retirement. The lack of knowledge about retirements and insurance in France is not explained by similar circumstances.

A final comment about financial literacy in Europe relates to a "gender gap". Such phenomenon is not new and there are a lot of studies from different countries around the world that show that on average females tend to be less knowledgeable in finance than males. Unfortunately, this result is confirmed in all cases of this study. As seen in the figures, females score on average less than males in every topic-based area in every country. Sometimes the gap is very small (e.g. France, Debt: Male 32% Vs Female 30%) but in other cases it can be wider than 10 percentage points (e.g. Sweden, Bonds: Male 26% Vs Female 9%; Italy, Inflation: Male 70% Vs Female

54%). There are a few exceptions that could be referred to as a "reverse gender gap", in which females score on average better than males. It happens in France (Payments: Male 51% Vs Female 53%; Bank Accounts: Male 61% Vs Female 71%) and the UK (Payments: Male 68% Vs Female 70%; Bank Accounts: Male 63% Vs Female 66%). Such results suggest that females may tend to develop comparable degree of financial knowledge when knowledge is related to products and services used in an iterative manner (e.g. credit cards, bank accounts, etc.), where probably a learning-by-doing effect occurs. Needless to say, further investigation is required to arrive at final conclusions. However, it is interesting how results from previous studies did not show any examples of this "reverse gender gap". Such result supports the hypothesis that an assessment of financial literacy based on a small number of items risks providing misleading or incomplete information on a complex phenomenon.

V. Conclusions

This paper investigated financial literacy in Europe using data from different European countries. Available definitions of financial literacy stress the need to address financial knowledge, financial skills, and financial attitude to measure financial literacy. At the same time, a measurement that relies on financial knowledge only is not by definition incomplete. The lack of knowledge discovered in the empirical analysis in Europe can be considered evidence of a lack of financial literacy, due to the fact that financial skills represent the ability to apply financial knowledge in order to take a financial decision. Assuming that people cannot apply knowledge they do not have, a low degree of financial knowledge can be interpreted as a low degree of financial literacy. In case of a fully knowledgeable population the assumption that such population is also financially literate could fail if such knowledge is not properly applied in taking financial decisions (e.g. lack of financial skills or financial attitude).

The availability of rich data from different national surveys allowed assessment of financial literacy more thoroughly than in other studies. Although respondents failed to correctly answer more than fifty percent of the questions on average, the analysis of results in single

topic areas shows that in some topics - such as payments tools and the management of bank accounts - individuals tend to score much better. Areas such as investments related topics (e.g. bonds, stocks, diversification) are the ones where the average scores are lowest. Results also confirm the existence of a "gender gap", with female respondents tending to score lower than males in every country. While this latter result confirms evidence from previous studies, the analysis of single content areas show how that gender gap is much smaller or disappears in certain domains (e.g. payments tools and bank accounts), including a reverse gap in some cases.

Results from this study strongly support the hypothesis that a reliable estimation of financial literacy cannot be based on a small number of questions. That is particularly true when a financial literacy measurement is used to assess the effectiveness of financial education curricula or other initiatives aimed at increasing consumers' financial literacy.

References

- Almenberg J., Widmark O. (2011). "Numeracy and financial literacy among Swedish adults". Swedish Financial Supervisory Authority (Finansinspektionen), Report.
- ANZ (2008). "ANZ Survey of Adult Financial Literacy in Australia". Available at www.anz.com/.../au/abolutanz/an_5654_adult_fin_lit_report_08_web_report_full.pdf (last access October 2018).
- Atkinson A., Kempson E. (2008). "Measuring and improving financial capability: Designing an approach for Kenya". Personal Finance Research Centre - University of Bristol,
- Beal D., Delpachitra S.B. (2003). "Financial Literacy Among Australian University Students", *Economic Papers*, Vol.22, No.1, pp.65-78.
- Bowen C. (2003). "Financial Knowledge Of Teens And Their Parents". *Journal of Financial Counselling and Planning*, Vol.13, No.2, pp.93-102.
- Danes S., Haberman H. (2007). "Teen Financial Knowledge, Self-Efficacy, and Behavior: A Gender View". *Journal of Financial Counselling and Planning*, Vol.18, No.2, pp.48-60.

- FINRA (2003). "NASD investor literacy research: Executive summary". Available at <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p118411.pdf> (last access October 2018).
- FSA (2005). "Measuring Financial Capability: an exploratory study". Financial Service Authority, Consumer Research 37.
- Huston S. (2010). "Measuring Financial Literacy". *Journal of Consumer Affairs*, Vol.44, No 2, pp.296-316.
- Huston S. (2011). "Financial Literacy Profiles of American Adults". *Consumer Interests Annual*, 2011.
- Johnson E., Sherraden M.S. (2006). "From Financial Literacy to Financial Capability Among Youth". Center for Social Development Working Paper, Working Paper 06-11.
- Jumpstart Coalition (2007). "National Standards in K-12 Personal Finance Education", Jumpstart Coalition.
- Kim, J. (2001). "Financial Knowledge and Subjective and Objective Financial Well-being". *Consumer Interests Annual*. Vol. 47: 1-3.
- Lusardi (2008). *Financial Literacy: An Essential Tool for Informed Consumer Choice?*. NBER Working Paper No. 14084. Available at <https://www.nber.org/papers/w14084> (last access July 2019).
- Lusardi A. (2009). "Financial Literacy: An Essential Tool for Informed Consumer Choice?". *Networks Financial Institute at Indiana State University Working Paper*, 2008-WP-13.
- Lusardi A., Tufano P. (2009). "Debt Literacy, Financial Experiences, and Overindebtedness", NBER Working paper, Working Paper 14808.
- Mandell L., (2008). "Financial Education in High School". in Lusardi A. "Overcoming the saving slump" *The University of Chicago Press*, pp. 257-279.
- Mason C., Wilson R. (2000). "Conceptualising Financial Literacy". *Loughborough University Business School (UK), Research Series Paper 2000:7* ISBN 1 85901 168 3.
- Moore D. (2003). "Survey of Financial Literacy in Washington State: Knowledge, Behavior, Attitudes and Experiences". *Washington State University Social and Economic Sciences Research Center*, Technical Report 03-39.
- NCEE - National Council for Economic Education (2005). "What American teens & adults know about economics". http://www.councilforeconed.org/cel/WhatAmericansKnowAboutEconomics_042605-3.pdf (last access October 2018).
- Nicolini (2019). *Financial Literacy in Europe. Assessment Methodologies and Evidence from European Countries*. Routledge - Taylor & Francis Group. London and New York. ISBN 9781138362611.
- Noctor M., Stoney S., Stradling R. (1992). "Financial Literacy: A Discussion of Concepts and Competences of Financial Literacy and Opportunities for Its Introduction into Young People's Learning". Report prepared for the National Westminster Bank, National Foundation for Education Research, London.
- Remund D.L. (2010). "Financial Literacy Explicated: The Case for a Clearer Definition in an Increasingly Complex Economy". *Journal of Consumer Affairs*, Vol. 44, No 2 pp. 276-295.
- Schagen S., Lines A. (1996). "Financial literacy in adult life: a report to the Natwest Group Charitable Trust". Slough, Berkshire: National Foundation for Educational Research.
- Schmeiser M., Seligman J. (2013). "Using the Right Yardstick: Assessing Financial Literacy Measures by Way of Financial Well-Being". *Journal of Consumer Affairs*, Vol.47(2) pp. 191-374.
- Servon L.J., Kaestner R. (2008). "Consumer Financial Literacy and the Impact of Online Banking on the Financial Behavior of Lower-Income Bank Customers". *Journal of Consumer Affairs*, Vol. 42, No 2, pp.271-305.
- US FLEC - Financial Literacy and Education Commission - (2009). "2008 Annual Report to the President Executive Summary" Available at https://www.treasury.gov/about/organizational-structure/offices/Domestic-Finance/Documents/exec_sum.pdf (last access July 2019).
- 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." Middleburg, VA: Fannie Mae Foundation.
- Worthington A. (2013). "Financial literacy and financial literacy programmes in Australia". *Journal of Financial Services Marketing*, Vol.18 pp.227-240.

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Appendix

Table A1. CFCR data - Descriptive statistics

UK			Germany			France		
	#	%		#	%		#	%
Age			Age			Age		
<i>18-24</i>	107	17.70%	<i>18-24</i>	48	9.10%	<i>18-24</i>	67	13.00%
<i>25-30</i>	90	14.90%	<i>25-30</i>	74	14.00%	<i>25-30</i>	64	12.40%
<i>31-35</i>	71	11.70%	<i>31-35</i>	64	12.10%	<i>31-35</i>	43	8.30%
<i>36-40</i>	60	9.90%	<i>36-40</i>	46	8.70%	<i>36-40</i>	53	10.30%
<i>41-45</i>	42	6.90%	<i>41-45</i>	30	5.70%	<i>41-45</i>	50	9.70%
<i>46-50</i>	48	7.90%	<i>46-50</i>	35	6.60%	<i>46-50</i>	33	6.40%
<i>51-55</i>	55	9.10%	<i>51-55</i>	47	8.90%	<i>51-55</i>	44	8.50%
<i>56-60</i>	42	6.90%	<i>56-60</i>	31	5.90%	<i>56-60</i>	33	6.40%
<i>60-65</i>	32	5.30%	<i>60-65</i>	44	8.30%	<i>60-65</i>	46	8.90%
<i>65+</i>	58	9.60%	<i>65+</i>	110	20.80%	<i>65+</i>	84	16.20%
Gender			Gender			Gender		
<i>Male</i>	280	46.10%	<i>Male</i>	244	45.80%	<i>Male</i>	243	47.00%
<i>Female</i>	316	52.10%	<i>Female</i>	275	51.60%	<i>Female</i>	263	50.90%
<i>n.a.</i>	11	1.80%	<i>n.a.</i>	14	2.60%	<i>n.a.</i>	11	2.10%
Income (Monthly)			Income (Monthly)			Income (Monthly)		
<i>< £500</i>	94	14.00%	<i>< €500</i>	47	8.40%	<i>< €500</i>	48	9.10%
<i>£500 <£750</i>	64	9.50%	<i>€500 <€750</i>	29	5.20%	<i>€500 <€750</i>	45	8.50%
<i>£750 <£1,000</i>	57	8.50%	<i>€750 <€1,000</i>	84	14.90%	<i>€750 <€1,000</i>	67	12.60%
<i>£1,000 < £1,500</i>	103	15.30%	<i>€1,000 < €1,500</i>	104	18.50%	<i>€1,000 < €1,500</i>	126	23.80%
<i>£1,500 < £2,000</i>	74	11.00%	<i>€1,500 < €2,000</i>	70	12.50%	<i>€1,500 < €2,000</i>	86	16.20%
<i>£2,000 <£3,000</i>	86	12.80%	<i>€2,000 <€3,000</i>	28	5.00%	<i>€2,000 <€3,000</i>	74	14.00%
<i>£3,000< £4,000</i>	35	5.20%	<i>€3,000< €4,000</i>	118	21.00%	<i>€3,000< €4,000</i>	44	8.30%
<i>> £4,000</i>	28	4.20%	<i>> €4,000</i>	24	4.30%	<i>> €4,000</i>	18	3.40%
<i>n.a.</i>	66	9.80%	<i>n.a.</i>	29	5.20%	<i>n.a.</i>	11	2.10%
Total	607	100%	Total	533	100%	Total	519	100%

Table A1. Continued

Italy			Sweden		
	#	%		#	%
Age			Age		
18-24	49	9.70%	18-24	90	14.80%
25-30	45	8.90%	25-30	85	14.00%
31-35	43	8.50%	31-35	71	11.70%
36-40	49	9.70%	36-40	59	9.70%
41-45	55	10.90%	41-45	72	11.80%
46-50	56	11.10%	46-50	68	11.20%
51-55	51	10.10%	51-55	71	11.70%
56-60	50	9.90%	56-60	43	7.10%
60-65	41	8.20%	60-65	45	7.40%
65+	64	12.70%	65+	4	0.70%
Gender			Gender		
1 - Male	247	49.20%	Male	269	44.20%
0 - Female	255	50.80%	Female	305	50.10%
n.a.	0	0.00%	n.a.	35	5.70%
Income (Monthly)			Income (Monthly)*		
< €500	65	12.90%	<8,000 SEK	89	14.00%
€500 <€750	25	5.00%	8,000 <15,000 SEK	68	10.70%
€750 <€1,000	42	8.30%	8,000 <15,000 SEK	42	6.60%
€1,000 < €1,500	108	21.50%	15,000 < 22,000 SEK	83	13.10%
€1,500 < €2,000	84	16.70%	22,000 <30,000 SEK	131	20.60%
€2,000 <€3,000	65	12.90%	30,000 <38,000 SEK	84	13.20%
€3,000< €4,000	1	0.20%	38,000 <45,000 SEK	19	3.00%
> €4,000	39	7.80%	>45,000 SEK	25	4.00%
n.a.	74	14.70%	n.a.	95	14.90%
Total	503	100%	Total	636	100%

* 1 SEK ("Swedish Krona") = 0.104876 EUR (10,000 SEK = 1,048.76 EUR)
Source: <http://www.x-rates.com> (Exchange rate on Friday, October 6th 2017)