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Financial Literacy: Building a Conceptual Framework

Abstract

Financial literacy is now globally acknowledged as an important element of economic and financial stability and development. Many researchers and organizations focus their efforts on the issues related to its evaluation and improvement. However, in the initial stage of any research an analysed concept should be clearly defined and explained. A plenty of competing definitions is offered by different authors. Thus, the main goal of the current research was to provide a deep understanding of the concept of financial literacy, specifying its key elements. To achieve the established goal, an analysis of the textual information was performed, using software AQUAD 6.0 and Hamlet II. Information data base included 52 definitions of the term "financial literacy" and the related terms proposed by individual researchers and organizations, such as OECD, EIOPA, ACIS and others. Completing the procedure of open-coding, the main directions of the research are detected: (1) analysis of key domains of financial literacy, which are knowledge, ability, attitude, and behaviour; (2) analysis of key aspects of financial literacy, e.g. numeracy, debt literacy etc. Analysis of frequencies within the framework of content analysis assisted authors to detect main elements of financial literacy and to define the most important competencies for financially literate behaviour. The results of content analysis provided by AQUAD and analysis of joint frequencies provided by Hamlet were used to perform the further analysis of the information, using hierarchical clustering technique. Diversified exploration of the concept of financial literacy allows constructing a platform to expand the horizon of its understanding. The received results will be used by the authors to develop a framework for assessing financial literacy level in Latvia.

Key Words

financial literacy, content analysis, joint frequencies

JEL Classification: D03, D83, G02

Introduction

Financial literacy, financial capability and the related concepts are frequently debated in the academic literature in the past 10 years. The importance of financial education is confirmed by different researchers [12, 22]. The issues related to the evaluation and improvement of financial literacy level became the development priorities in many countries [6, 10]. Financial skills and knowledge allows making efficient and reasonable decisions and, consequently, provides individuals with stable income. In turn, lack of financial literacy is considered to be the factor contributing to ill-informed financial decisions that could have a negative impact on the financial well-being [3, 14]. Financial literacy is an important element of economic and financial stability and development, because the ability to apply

financial knowledge in day-to-day life allows achieving not only individuals' goals, but also has a positive impact on economic health of the society [2, 20, 23].

The concept of financial literacy is closely related to the concept of financial capability. Sometimes these concepts are used interchangeably. Besides, there are some other associated concepts, such as financial numeracy, financial attitudes and financial self-efficacy, financial insight, financial culture, economic literacy etc. For the purposes of the current research the globally recognized term 'financial literacy' is being used. The research question has emerged examining a plethora of the competing definitions are offered by different researchers and organizations. There is no consistent approach to defining the concept and its core elements. Thus, the goals of the research are (1) to examine the existing conceptual definitions of financial literacy, (2) to define the key dimensions of the concept, and (3) to formulate its core cognitive and behavioural aspects. Several hypotheses were formulated by the authors:

- H1: Key dimension of financial literacy is financial knowledge and understanding;
- H2: Key element of financial literacy is numerical ability;
- H3: Different aspects of financial literacy are emphasized and contradictory definitions of the concept are proposed by individual researchers and organizations.

Considering high social importance of financial education, it is necessary to develop a knowledge platform to increase the level of financial literacy. Thus, further research should focus on issues about its evaluation and implementation of strategies to improve the financial literacy levels of certain groups of population. The current research provides a conceptual framework for understanding the concept of financial literacy, thus building a theoretical foundation for development of the methodology of financial literacy evaluation.

1. Literature review

The need for financial literacy has become significant with the deregulation of financial markets and the rapid growth in development and marketing of financial products [19]. Analysing the previous studies examining the link between the level of financial literacy and day-to-day financial management, it is stated that financially literate individuals are more likely to plan for retirement [23], more likely to participate in financial markets and perform better on their portfolio choice [11, 26] and they more likely to accumulate higher amounts of wealth [17]. In turn, individuals with low level of financial literacy tend to use costly methods of borrowing [8, 21], unable to judge their debt position [4] and become target of investment fraud [15]. Thus, an improved level of financial literacy helps individuals to achieve financial well-being, respond to life events in a confident manner and reduce the risk, hence avoiding distress and enhancing the sense of security.

The research question has emerged due to the inconsistency of proposed definitions of financial literacy notion. Different organizations and individual researches define it in a specific manner, emphasizing different aspects (Tab. 1).

Tab. 1 Financial literacy dimensions

Information source	Financial literacy dimensions
Robson (2012), [25]	Knowledge Attitude Behavior
Atkinson&Messy (2011), [3]	Awareness Knowledge Skills Attitude Behaviours
Orton (2007), [22]	Financial knowledge and understanding Financial skills and competence Financial responsibility
Remund (2010), [24]	Knowledge of financial concepts Ability to communicate about financial concepts Aptitude in managing personal finances Skill in making appropriate financial decisions Confidence in planning effectively for future financial needs
Widdowson&Kim (2007), [27]	Basic numeracy skills and basic arithmetic ability Understanding of the benefits and risks associated with particular financial decisions Ability to understand basic financial concepts Capacity to know where to seek professional advice

Source: authors' composition

Based on the analysis of extracted text segments including the term “financial literacy”, it is concluded that most often financial literacy is defined as (1) a financial knowledge [7], (2) financial skills [16], (3) financial behavior [1] or a certain combination of elements [3, 12, 23, 27]. As for particular aspects of financial literacy, there is no coherence between researchers as well. Lusardi and Tufano [18] mainly focus on debt literacy. Gerardi *et al.* [8] decomposes the concept into money literacy, price literacy and budget literacy. According to Kefela [13], thematic areas for studying financial literacy are budgeting, savings, debt management, financial negotiations and bank services. Remund [24] defines five categories: (1) knowledge of financial concepts, (2) ability to communicate about financial concepts, (3) aptitude in managing personal finances, (4) skill in making appropriate financial decisions and (5) confidence in planning effectively for future financial needs. Multiplicity of definitions and underlying concepts generates a need for applying statistical methods in analysis of the extracted information.

2. Methods and empirical results

The main objective at the initial stage of the research was to reduce the information base in order to form a system of categories h can be used for further analysis. The procedure of open-coding, supported by AQUAD was performed, applying the strategy of generalization, however, following the principle of permanent comparisons [9]. Initial stage of coding yielded over 80 codes. Further, two systems of categories were used: (1) key domains of financial literacy, and (2) particular aspects of financial literacy (knowledge and skills necessary to be successful in financial affairs). For the purposes of the current research four key domains of financial literacy were defined: (1) knowledge (understanding is implied); (2) skills (competencies) to apply the knowledge; (3) attitude (set of values); (4) behaviour

(acting in a certain manner). The result of analysis of frequencies, provided by AQUAD, indicates that financial literacy most often is defined as a set of cognitive (knowledge and skills) and behavioural attributes (Fig. 1). Non-cognitive terms, such as motivation or confidence, are not mentioned so frequently.

Fig. 1 Frequency table: key domains of financial literacy

	A	B
attitude	7	8
behavior	17	19
knowledge	18	16
skills	16	13
A: /Def researchers		
B: /Def organizations		

Source: own

To define the most important knowledge and skills that financially literate person should have, the codes from the initial code catalogue were grouped and replaced by meta-codes. The results of the second stage of content analysis yielded 18 elements:

- 11 elements related to ability to deal with finances: plan ahead; act effectively; analyse information; apply knowledge; compare options; make informed decisions; manage credit and debt; manage finance; numeracy; obtain information; set financial goals.
- 7 elements related to financial knowledge: borrowing-savings; budgeting; economic issues; financial concepts; financial instruments; financial services; investment.

Some of meta-codes were applied to replace a rather big amount of codes. For instance, the code 'CAN_manage credit debt' was used to label such units of meaning as 'ability to keep track of cash', 'ability to make ends meet', 'ability to make decisions regarding debt contracts' etc. To support the evidence provided by the AQUAD the further analysis was done by means of text analysis software Hamlet II 3.0. Hamlet generates statistics for individual and joint word frequencies and the corresponding frequencies expressed in a chosen unit of context. The wordlist for Hamlet was created based on the code file prepared for AQUAD and contained 9 entries and 40 synonyms. However, it was modified to get the list containing the most informative categories. Vocabulary list statistics is presented in Figure 2.

Fig. 2 Vocabulary list statistics

VOC.LST.	FREQUENCY	% VOC.LST.	% TEXT	CONTEXT UNITS
budgeting	13	8.18	0.64	10
choice	21	13.21	1.03	12
concepts	14	8.81	0.69	9
debt literacy	12	7.55	0.59	9
information	27	16.98	1.33	13
investing	16	10.06	0.79	8
numeracy	11	6.92	0.54	6
plan for future	26	16.35	1.28	13
services	19	11.95	0.93	14

Source: own

The most frequently mentioned and, thus, the most important notions are 'choice', 'information', 'investing', 'services' and 'plan for future' with the weight over 10 % in the vocabulary list. Figure 3 represents the results of the analysis of joint frequencies, displayed

in lower-triangular matrix format, labelled with the corresponding vocabulary list entries. As a similarity measure Jaccard index is used, because it is the most suitable index for textual analysis, as it treats joint non-occurrences as irrelevant [5].

Fig. 3 Matrix of joint frequencies based on Jaccard coefficient

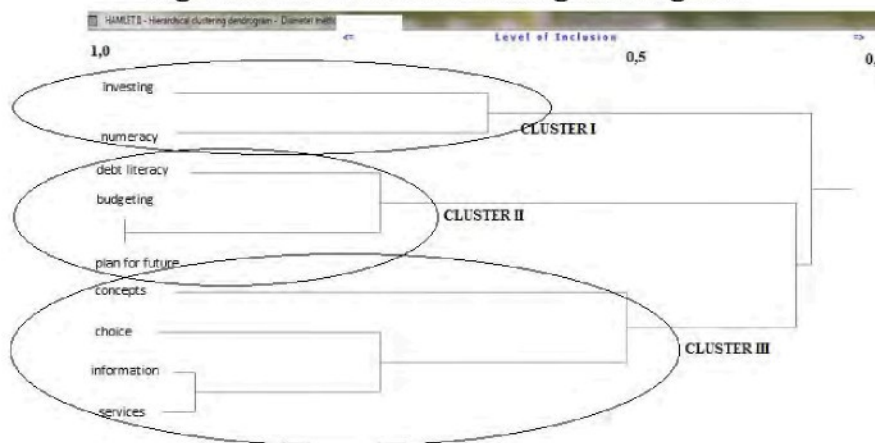
Jaccard coefficient - ignores joint non-occurrence

	i	1	2	3	4	5	6	7	8
budgeting	1								
choice	2	0.23							
concepts	3	0.05	0.08						
debt literacy	4	0.40	0.18	0.05					
information	5	0.24	0.38	0.14	0.20				
investing	6	0.36	0.09	0.18	0.38	0.17			
numeracy	7	0.19	0.09	0.18	0.38	0.12	0.33		
plan for future	8	0.53	0.29	0.13	0.32	0.25	0.28	0.10	
services	9	0.37	0.41	0.17	0.32	0.35	0.28	0.10	0.30

Source: own

The significant joint frequency (Jaccard index > 40 %) is observed between the following pairs: debt literacy – budgeting, plan for future – budgeting, services – choice. Besides, the strong link (Jaccard index > 35 %) is between debt literacy and investing, debt literacy and numeracy, information and choice, services and budgeting, budgeting and investing. The further analysis of the matrix of joint frequencies was performed using cluster analysis technique. The results are displayed in a form of hierarchal cluster dendrogram (Fig. 4).

Fig. 4 Hierarchical clustering dendrogram



Source: own

The main clusters (level of inclusion > 0.5) join the following entries: **Cluster 1**: investing, numeracy; **Cluster 2**: debt literacy, budgeting, plan for future; **Cluster 3**: concepts, information, services. Besides, all the notions are connected at relatively high level of inclusion (approx. 0.3). It provides the strong evidence that defined knowledge and skills are all essential for financially literate behavior. The further discussion of the obtained results is provided in the conclusion section.

The received results are crucially important for the further steps of the research – development a theoretical framework and measuring instrument for evaluation of financial

literacy level in Latvia. One of the most comprehensive issues is to develop an appropriate measurement scale that will provide an opportunity to get reliable survey results. Despite of variety of available measurement instruments, the authors consider that they cannot be used directly for evaluation of financial literacy level in Latvia. Firstly, the content of questionnaires is not relevant for analyzing economic reality in Latvia (for instance, some financial products are not provided by Latvian financial institutions). Besides, many of questionnaires are aimed to test just respondents' elementary numerical ability that is only one of financial literacy elements. The purpose of the authors to create an instrument that covers all the aspects of financial literacy, starting with a basic level (numeracy) and finishing with specific financial knowledge, such as understanding of financial markets. The results of frequency analysis (Fig. 2) can be used as a basis for making a decision regarding to inclusion of a certain element into a questionnaire. The information obtained in the result of joint frequencies analysis (Fig. 3) and cluster analysis (Fig. 4) will help to combine questions in sections according to the content (belonging to an appropriate financial literacy category) and the level of complexity and comprehension.

Conclusion

The current paper presents the results of the research aimed to explore the concept of financial literacy. Qualitative data (definitions and text segments) was processed, using AQUAD 6.0 and Hamlet II 3.0 software. Procedures of content analysis, joint frequencies analysis and clustering were applied to verify the developed hypotheses.

- **H1: Key dimension of financial literacy is financial knowledge and understanding.**
The hypothesis was partially proved, because a knowledge domain is highlighted in a combination with behavior and skills. Many researchers emphasize an experienced knowledge, i.e. an ability to apply an acquired financial knowledge to make informed decisions regarding to financial matters.
- **H2: Key element of financial literacy is numerical ability.**
Based on the results of the analysis, the hypothesis can be rejected. Frequency of the notion (Figure 2, 3) is much lower than for instance a frequency of 'information'. However, a numerical ability is absolutely necessary element for understanding of other underlying elements, as for instance, investing. Actually, the conclusion about the second hypothesis can be finally made depending on the subjective understanding of the term 'numeracy'. In case of its relation only to mathematical literacy, it can be irrelevant due to access to various tools for making calculates. However, if numeracy implies an ability to interpret the received results of made calculations, it is a basis for an ability to read, analyse and interpret financial information (notion 'information'). In turn, frequency of 'information' is the highest one among the entries (Figure 3).
- **H3: Different aspects of financial literacy are emphasized and contradictory definitions of the concept are proposed by individual researchers and organizations.**
The hypothesis is rejected regarding to analysed domains of financial literacy – the importance of a particular domain is proved almost equally by individual researchers and organizations (Figure 1). In turn, there are certain differences, analysing particular aspects of financial literacy (Figure 2). For instance, an ability to compare options and make informed choice is focused mainly in studies of individual researchers.

The given research focuses primarily on individual financial literacy, rather than on its social aspects. However, it is admitted that the improved level of financial literacy has an impact on the wider society. The understanding of underlying concepts of financial literacy provides a theoretical foundation for further analysis in a field of its evaluation. The results of the current research will be used for development a methodology of evaluation the level of financial literacy of different target groups of Latvian citizens.

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