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**Simultaneous use of the financial literacy level  
and the financial inclusion degree as a result  
of financial education efficiency  
in Visegrad Group countries**

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**Abstract**

The appropriate level of financial knowledge and the degree of financial integration needed in today's financialized world. This paper studies the level of financial literacy and the degree of financial inclusion among the students who study economic fields. These students are a special target group – very important for future development of financial markets. They are not only the future participants, but also the potential animators and creators of the financial market as well as the future financial advisors. The research sample comes from Visegrad Group countries (4V Countries), as the representatives from Central and Eastern Europe countries, where the level of financial literacy and degree of financial inclusion seems to be lower in comparison to the West European Countries. The research also contributes to knowledge in the area of expanding the methods of assessments of efficiency of financial education. The Authors decided to verify the new assessment of effectiveness of financial education. It will be conducted by a separate and simultaneous assessment of financial literacy and financial inclusion. The main results of research confirm the very low level of financial literacy and financial

inclusion of young future economists in 4V Countries in both groups: starting and finishing the professional financial education. In addition, examining the degree of financial inclusion among the students who at the same time are educated at the basic level confirms the much lower level of informed financial inclusion.

**Keywords:** personal finance, financial education, financial inclusion, financial literacy, financial markets.

**JEL Classification:** D14, D 83, I22, I23.

## Introduction

Recently more and more attention has been paid to very serious and dangerous problem of low level of financial literacy and unsatisfactory degree of financial inclusion all over the world. In addition, the statistics reveal huge disparities in these areas, especially taking into account poor and rich countries. The differences are also noticeable in more developed regions, e.g. Europe. The developing countries of Central and Eastern Europe (CEE) represent definitely less favorable level of financial literacy and degree of financial inclusion in comparison to the most developed countries of West Europe. Less equipped with financial knowledge and skills societies of East and Central Europe represent the lower level of financial inclusion and at the same time may slow down the growth of European region. It refers to European financial market development with consequences to European economy as the whole.

The situation may be improved through high-quality relevant financial education using both traditional and modern forms and educational tools [Kieźel 2015; Frączek 2016a]. Unfortunately, many actions under financial education do not bring expected results and financial education seems to be not effective. The problem of the lack of financial education efficiency is highlighted and the methods of measuring this efficiency are searched for.

That is why the Authors of the paper decided to measure the level of financial literacy and financial inclusion in Visegrad Group countries (as the representatives of Central and Eastern region in Europe) among the university students who study economic fields, as the great potential (future participants, creators and experts) for development of European financial market.

The most popular way of measurement of the efficiency of financial education are survey questionnaires, that show the percentage of respondents who achieved the best scores in test on financial literacy (financial knowledge and skills), represent the whole society or chosen target groups. The purpose of this paper is the assessment of effectiveness of financial education among students who study at the economic universities or economic faculties in Visegrad Group

countries (Czech Republic, Hungary, Poland and Slovakia) by a separate and simultaneous assessment of financial literacy and financial inclusion.

The research paper consists of the literature review as rationale for a research study and defining the research problem, the research problem section, which covers the research questions, methodology, which presents main stages and details of research study, presentation the results of survey research and discussion as well as the conclusions.

## 1. Literature review

Results of much research conducted all over the world confirm a very low level of financial literacy<sup>1</sup> [Atkinson, Messy 2012; Xu, Zia 2012; OECD/INFE 2013b; OECD/INFE 2015; Frączek 2016b; World Bank 2016], an unsatisfactory degree of financial inclusion<sup>2</sup> [World Bank 2012; Demirgüç-Kunt, Klapper 2013; World Bank 2015]. In addition, the more detailed research shows the relationships between the elements of financial literacy and particular forms of products and services offered by regulated and unregulated financial institutions [Frączek, Mitrega-Niestrój 2014].

It also should be noted that the level of financial literacy is different in particular groups of countries, e.g. developed and developing or in the countries with different income.

The differences are also noticed among particular regions of the World as well as inside the regions. The example may be Europe, where developing countries of Central and Eastern Europe (CEE) represent lower level of financial literacy as well as the lower degree of financial inclusion in comparison to the most developed countries of West Europe. And although CEE countries have achieved significant progress in many economic fields during last two decades<sup>3</sup>, results of inefficient financial education may slow down the European financial market development with consequences to European economy. Europe is still

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<sup>1</sup> Financial literacy is a combination of awareness, knowledge, skill, attitude and behavior, necessary to sound financial decision-making and ultimately achieving individual financial well-being [OECD/INFE 2013a].

<sup>2</sup> Financial inclusion refers to the process of promoting affordable, timely and adequate access to a wide range of regulated financial products and services [Atkinson, Messy, 2013]. Besides of having banking account, savings and borrowing money the financial inclusion covers the basic forms of financial settlements including non-cash forms [Zieliński 2015].

<sup>3</sup> The successful transition of these countries from a state-run, inefficient and closed economic system to a developing and competitive market economy was a genuinely historical achievement. The top three CEE countries in the context of Growth Conditions are: Slovakia, Poland and the Czech Republic [Rozmahel et al. 2013].

divided into groups of countries of Western and Northern, on the one hand, and a group of Southern and Eastern countries on the other. In particular it concerns the legal framework and conditions for private enterprises<sup>4</sup>. Certain groups of countries create the so-called clusters and beginning with the Governance and Institutions dimension, the persisting gap between the core countries and the rest of the EU is apparent [Rozmahel et al. 2013].

Financial knowledge, skills and financial inclusion in particular countries determine the financial wellbeing of households [Demirgüç-Kunt, Klapper 2013; Dupas, Robinson 2014], as well as the financial management in enterprises [Mahendra Dev 2006; World Bank 2016a]. The level of financial literacy and degree of financial inclusion influence the financial stability [Khan 2011; Mehrotra, Yetman 2015], the development of financial markets with impact on the economy as a whole [King, Levine 1993; Mavrotas, Son 2006]. That is why the different levels of knowledge on finance and the degree of financial inclusion also affect the level of heterogeneity in Europe.

The level of financial literacy as well as the degree of financial inclusion also depend on age. The literature provides a lot of results of research on financial literacy and financial inclusion among young people [Lusardi et al. 2010]. This target group is seen as a special one. The young people are potential active participants for the future financial markets and their financial knowledge, skills, awareness, patterns, behavior as well as the usage of financial products and services influence the current and future functioning and development of financial markets and economy. The young people are seen as the great potential of the broadly defined future. For example, the university students who study economic fields seem to be the great potential for financial markets as the future active participants, experts and creators of financial markets. Therefore very important is level of their financial knowledge, skills and awareness (elements of financial literacy) as well as the experience in financial markets (financial inclusion). But one cannot find in the literature the results of research on financial literacy and financial inclusion among the students who study economic fields.

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<sup>4</sup> In addition, CEE countries create fairly homogeneous cluster due to their low government spending, low rate of tax on work, and a similar development, but for example with regard to openness and one dimension of the market, there are no clear homogeneous clusters in Central and Eastern Europe to form a homogeneous group. Poland and Slovakia have a relatively higher level of trade within the industry, as well as the total trade with other EU countries. In turn Czech Republic and Slovakia reveal Foreign Direct Intensity Investment like in West European Countries.

The presented facts create a very serious problem of effective financial education<sup>5</sup>. In turn, effective education requires measurement of its results. And the measurement of effectiveness of financial education is the problem. The literature contains information about the evaluation of financial educational programs [Hathaway, Khatiwada 2008; Huston 2010]. The pervasive approach to the measurement of outcomes of financial education are pre- and posttests. Sometimes the so called retrospective pretests (RPTs) are used in research, in which the respondents and at the same time the participants of educational programs are asked to think back to their level of knowledge and behavior prior to the program. In addition, the literature underlines the necessity of study of the financial education impact on behavior as essential [Tennyson, Nguyen 2001].

Apart from the efficiency measurement of the separate educational programs, a measurement of efficiency of many educational actions is conducted as a whole in many countries all over the world. In such cases the efficiency of the financial education is measured by the prism of degree of its objectives realization, i.e. level of financial literacy and a degree of financial inclusion. These types of measurement are carried out on all adults in the most countries around the world. But usually each of these two concepts (financial literacy and financial inclusion) is measured separately. The main way of measurement of the level of financial literacy and degree of financial inclusion is designation/calculation of the percentage of respondents of questionnaire survey with positive answers. Separate measurement of the level of financial literacy allows only for a preliminary and indicative assessment of mainly theoretical basic knowledge, without the guarantee of its usage in practice. In turn, the separate measurement of degree of financial inclusion shows the scale of participating in the financial market but without the guarantee, that the financial decisions are the informed decisions.

Financial education is essential to both related concepts: financial literacy and financial inclusion. The main aim of financial education is to enhance and improve the financial literacy level. It may be considered or explained by different ways, e.g. by the aspect of knowledge and awareness of the financial products available within a country. On one hand the knowledge, skills or awareness are the elements of the financial literacy and on the other hand, it is an important pre-requisite for financial inclusion [Atkinson, Messy 2013]. It is said that financial inclusion is promoted by financial education.

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<sup>5</sup> Financial education is a process by which financial consumers/investors improve their understanding of financial products, main concepts and become more aware of financial risks and opportunities, to make informed choices [OECD 2005].

It should be noted that improving the level of financial literacy in time through financial education is not always guaranteed. According to JumpStart Financial Literacy Surveys of High School Seniors, the period 1997-2008 is the evidence for a fall of the highest mean financial literacy score from 57.3% in 1997 to 48.3% in 2008 [Mandell 2009]. There is a significant relationship (the lack of interaction) between college-level financial education and investment knowledge [Peng et al. 2007]. In addition, considering financial education in school (different level of formal financial education) there are not conclusive results of research on relationship between state curriculum mandates and student knowledge of personal finance [Tennyson, Nguyen 2001].

There are no unequivocal results on efficiency of financial education and it evokes a lot of discussions on financial education, e.g. on justification of certain actions, curriculums, ways of carrying out the initiatives of financial education as well as ways of measurement of efficiency of financial education, etc.

The effective education is significant problem all over the World, but especially important in the developing countries. Research on the level of financial literacy among the students who study economic fields allow for determining chances and dangers for financial markets in particular countries of Central and Eastern Europe with the impact on European economy.

## **2. Research problem**

The mentioned insights about the measurement of outcomes of financial education allow for the presumption that the effective way to evaluate the effectiveness of financial education should take into account both the level of financial literacy and the effects of its use at the financial market in practice (e.g. by financial behavior, market share – simply a degree of financial inclusion). The idea of the Authors of this paper is to verify a new, more accurate measure of efficiency of financial education, which combines measurement of financial literacy and financial inclusion – by the prism of financial decisions based on knowledge, skills and awareness (informed decisions), which facilitate and support financial market participation.

The verification of the new way of measurement will be conducted on the sample of the university students who study economic fields – as the one of the most important group for future development of financial markets. The research sample will be university students from Visegrad Group countries – as the representatives of the countries of Central and Eastern Europe. The rationale for the selection of university students who are studying economic fields to the research

were the assessment of effectiveness of literate in finance group of young people, which seems to be best educated in finance – as the potential of development of financial markets.

Therefore two research questions are formulated:

1. Is it possible to assume, that university students of economic fields from 4V Countries are guarantee for the sustainable development of the financial market in Europe?
2. Does the new concept of measurement of financial education effectiveness assess the results of financial education more precisely?

### **3. Methodology**

The paper was prepared after the study of literature: mainly academic and non-academic sources, as well as after conducted survey research. The literature review revealed the low level of financial literacy, unsatisfactory degree of financial practice (financial inclusion), the role of financial education and problems with measurement of its results.

In the empirical research two stages were planned.

The first stage will include study of literature and analysis aimed at presentation of the position of 4V Countries in the World and in Europe (mainly the most advanced economies in Europe), taking into account the level of financial literacy and degree of financial inclusion. This part of the research based on World Bank data will be a justification of a decision about the selection of research sample (4V Countries).

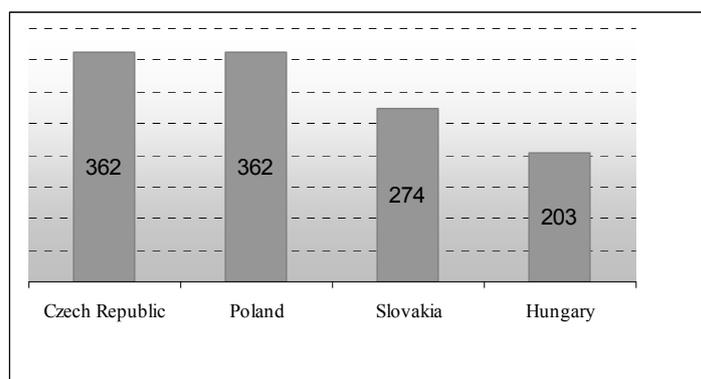
The second stage as the empirical part of the article will be the result of part of the survey carried out among students of economics of the 4 Visegrad countries: the Czech Republic – 362 students of University J.E. Purkyne in Usti nad Labem, Hungary – 203 students of the University of West Hungary in Sopron, Poland – 362 students of University of Economics in Katowice, and Slovakia – 274 students of the University of Economics in Bratislava, Faculty of Economics and Business in Kosice. The survey was conducted during April-May 2015. The study population were all students available (during lectures) of given universities. However, due to the large number of students at the University of Economics in Katowice, sample surveys were carried out among students available for lectures.

The universities participated in the research can be considered as typical state universities, where students-respondents are characterized by a number of similar features, including: the structure of gender, differences in the size of the

city they come from and differences in the economic/non-economic education of their parents. Therefore it can be assumed that the selected research sample is a miniature of the population of students of economics.

The study was carried out taking into account the respondent's country. In the study the participants were both students starting economics studies (students of first year of bachelor study) as well as students graduating from economic/financial education (students of last year of M.A. studies) from 4 Visegrad Countries (Figure 1).

**Figure 1.** Number of students – respondents in the survey conducted in 4V Countries



The choice of this target group (university students of economics) is not accidental. Young and very well educated students interested in economics and/or finance should represent a high level of both financial literacy and financial inclusion.

They are very important potential participants and creators of the financial market as well as future experts and advisors of this market.

The measurement of financial education will take into account the basic level of financial literacy using the questionnaires available in the literature. It allows for additional comparison with a different country and at a different time. The measurement of financial inclusion will be conducted considering the usage of the basic financial products and services represented by the demand.

It should be noted, that the data in the second part of the empirical research were collected in one survey research. Therefore, the result of simultaneous-use of the financial literacy level and the financial inclusion degree as an assessment of financial education efficiency will be presented as the percentage of respondents, who are literate in finance and at the same time use the basic products of financial market.

## 4. Research and discussion

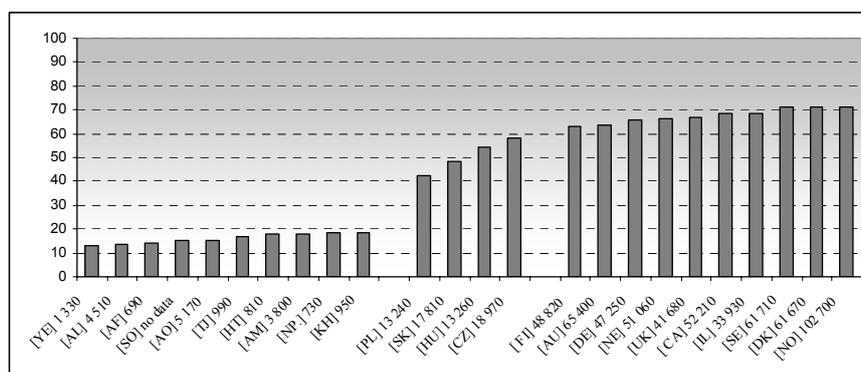
### 4.1. Effectiveness of financial education in 4 Visegrad Countries in comparison to the other countries all over the world

In order to justify the selection of countries for research (4V Countries: Czech Republic, Hungary, Poland, Slovakia), the Authors decided to present the situation of these countries based on the comparison to other countries in the World, taking into account the countries with the worst and the best result in terms of financial literacy and financial inclusion.

The data presented in Figures 2-5 show an equivocal situation/position of analyzed countries of East and Central Europe (4V Countries) in the field of level of financial literacy and degree of financial inclusion as the results of financial education. Taking into account the World as the whole, the situation of 4V Countries seems to be not bad. But considering the European region, each of 4V countries presents underperformance compared with many developed European countries.

The level of financial literacy is measured on the base of the same test conducting in the most of countries all over the World. The Figure 2 presents the percentage of respondents with the best scores (at least 3 out of 4 correct answers in the test on interest, interest compounding, inflation, risk diversification) in different countries. In addition there is the information on GDP (Gross Domestic Product) per Capita in a particular country.

**Figure 2.** Level of financial literacy in 4V Countries based on the comparison to other countries (% of adults 15+, GDP in \$)



Note: YE – Yemen, AL – Albania, AF – Afghanistan, SO – Somalia, AO – Angola, TJ – Tajikistan, HT – Haiti, AM – Armenia, NP – Nepal, KH – Cambodia, PL – Poland, SK – Slovakia, HU – Hungary, CZ – Czech Republic, FI – Finland, AU – Austria, DE – Germany, NE – Netherlands, UK – United Kingdom, CA – Canada, IL – Israel, SE – Sweden, NK – Denmark, NO Norway.

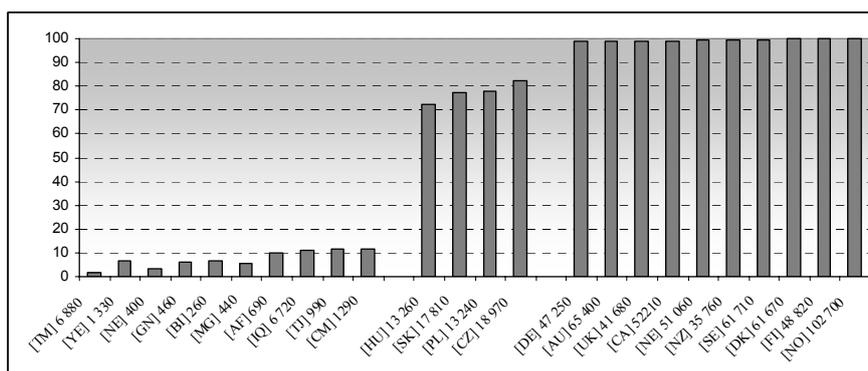
Source: Based on: World Bank [2015].

The data in Figure 2 confirm, that the level of financial literacy varies greatly throughout the World as well as – although in a smaller degree – throughout Europe.

On the one hand, the presented situation is a result of an identified bigger number of different educational schemes in the most developed countries in comparison to developing countries of Europe (mainly the countries of Central and Eastern Europe). It should be emphasized that Poland was the most active eastern European country in matters of financial literacy [Habschick, Seidl, Evers 2007]. Taking into consideration the last statement, it should be analyzed whether the way of measuring the level of financial literacy presented in Figure 2 is enough.

In addition, the degree of main areas of financial inclusion was examined (having account, saving and borrowing money as the client of formal financial institutions – Figures 3-5).

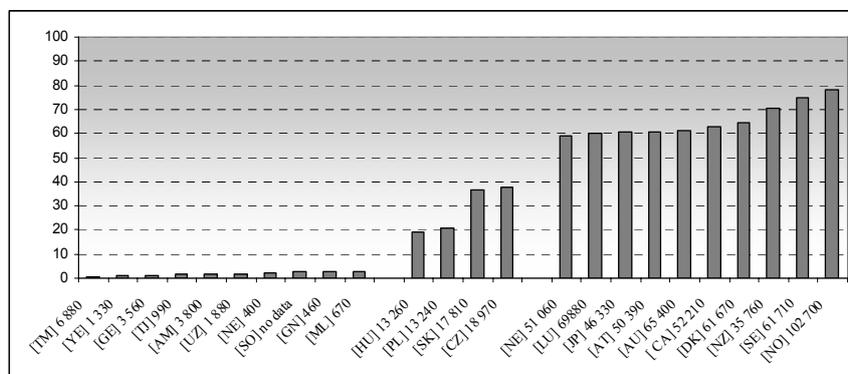
**Figure 3.** Having the account in formal financial institutions in 4V Countries on the compared to other countries (% of adults 15+, GDP in \$)



Note: TM – Turkmenistan, YE – Yemen, NE – Niger, GN – Guinea, BI – Burundi, MG – Madagascar, AF – Afghanistan, IQ – Iraq, TJ – Tajikistan, CM – Cameroon, HU – Hungary, SK – Slovakia, PL – Poland, CZ – Czech Republic, DE – Germany, AU – Australia, UK – United Kingdom, CA – Canada, NL – Netherlands, NZ – New Zealand, SE – Sweden, DK – Denmark, FI – Finland, NO – Norway.

Source: Based on: World Bank [2015].

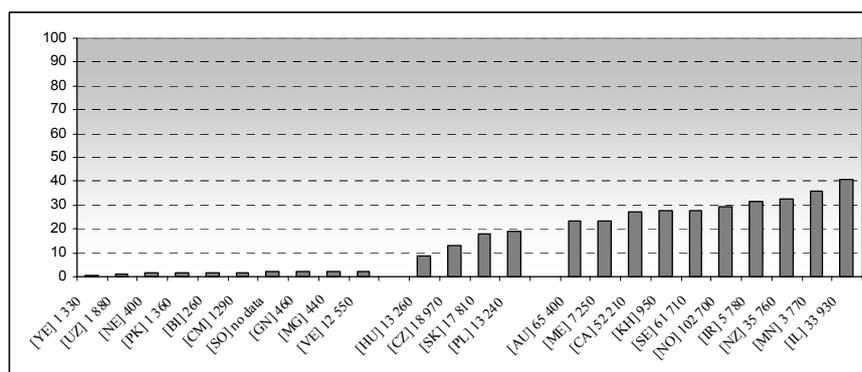
**Figure 4.** Savings in formal financial institutions in 4V Countries based on the comparison to other countries (% of adults 15+, GDP in \$)



Note: TM – Turkmenistan, YE – Yemen, GE – Georgia, TJ – Tajikistan, AM – Armenia, UZ – Uzbekistan, NE – Niger, SO – Somalia, GN – Guinea, ML – Mali, HU – Hungary, PL – Poland, SK – Slovakia, CZ – Czech Republic, NE – Netherlands, LU – Luxemburg, JP – Japan, AT – Austria, CA – Canada, DK – Denmark, NZ – New Zealand, SE – Sweden, NO – Norway.

Source: Based on: World Bank [2015].

**Figure 5.** Borrowing money from formal financial institutions in 4V Countries based on the comparison to other countries (% of adults 15+, GDP in \$)



Note: YE – Yemen, UZ – Uzbekistan, NE – Niger, PK – Pakistan, BI – Burundi, CM – Cameroon, SO – Somalia, GN – Guinea, MG Madagascar, VE – Venezuela, HU – Hungary, CZ – Czech Republic, SK – Slovakia, PL – Poland, AU – Australia, ME – Montenegro, CA – Canada, KH – Cambodia, SE – Sweden, NO Norway, IR – Iran, NZ – New Zealand, MN – Mongolia, IL – Israel.

Source: Based on: World Bank [2015].

The degree of financial inclusion represented by having account, saving and borrowing money in formal financial institutions in 4V Countries as a group – is similar to the level of financial inclusion: higher than in the poor countries in the World and lower than in the richest countries (mainly European developed countries). But a more detailed analysis shows, that there are discrepancies between

the level in financial literacy and a degree of particular aspects of financial inclusion. It may mean, that the part of the used financial products and services may be results of uninformed decisions. In such a situation the separate measurement of financial literacy and financial inclusion should be supplemented by the simultaneous-use of these two concepts.

#### **4.2. Separate and simultaneous assessment of financial literacy and financial inclusion among university students of economic fields in 4V Countries – primary research**

A separate and simultaneous assessment of financial literacy and financial inclusion will be conducted among university students of economic fields in 4V Countries. It allows for testing the new proposed way of measurement and at the same time it may give the answer for the question: Is it possible to assume, that university students of economic fields are guarantee for the sustainable development of the financial market in Europe?

Taking into account that the percentage of correct answers to a particular question represents the level of financial literacy, the Authors of the paper expected that the level of financial literacy of an average individual would be much lower than the level of financial literacy of students of economic universities. Table 1 presents the comparison of the level of basic financial literacy among respondents (university students of economic fields) and population of all adults in particular 4V Countries. In research conducted among the students who study economic field the same questions on financial knowledge and skills presented in Table 1 were used. The Authors expected better scores in the case of students in comparison to “all population” scores – as the target group which is interested in economy and finance and as the group of people who participate in professional financial education.

It should be stressed, that the questions in the survey were absolutely basic. The expectation of Authors about the much better level of financial literacy of educated and interested in economy and finance young people, did not come true. In few cases the percentage of positive answers of average individual financial consumer was higher than students of economics. In addition the more extended research shows that level of financial knowledge of little bit more advanced content (basic of derivatives) is very poor. Because Slovakia did not participate in the OECD/INFE research, the Table 1 presented the additional results of World Bank – initiative research from 2015 [World Bank, 2016b].

**Table 1.** Level of basic financial literacy of university of economics students and of average adults in 4V Countries

Country/ /questions	Timevalue of money/ /inflation	Interest pay on loan	Calculation on interest and principal	Compound interest	Risk of different instruments	Risk and return	Diversification of portfolio
Czech Republic economy students	86.2%	79.8%	82.0%	56.9%	74.0%	87.0%	67.7%
Czech Republic all population OECD/INFE 2015	68.0%	<b>83.0%</b>	58.0%	34.0%	no data	71.0%	<b>69.0%</b>
Czech Republic all population World Bank, 2015	no data	no data	71.0%	54.0%	no data	no data	56.0%
Hungary economy students	82.3%	86.7%	83.3%	57.1%	70.9%	82.3%	56.2%
Hungary all population OECD/INFE 2015	67.0%	<b>91.0%</b>	53.0%	33.0%	<b>no data</b>	<b>84.0%</b>	<b>65.0%</b>
Hungary all population World Bank, 2015	no data	no data	68%	53%	no data	no data	50%
Poland economy students	84.0%	85.4%	79.0%	75.1%	80.9%	86.7%	73.8%
Poland all population OECD/INFE 2015	80.0%	77.0%	61.0%	30.0%	no data	77.0%	56.0%
Poland all population World Bank, 2015	no data	no data	60.0%	45.0%	no data	no data	39.0%
Slovakia economy students	73,7%	92,7%	81,8%	61,3%	71,2%	88,7%	79,6%
Slovakia OECD/INFE 2015	no data	no data	no data	no data	no data	no data	no data
Slovakia World Bank, 2015	no data	no data	66.0%	49.0%	no data	no data	42.0%

Note: Slovakia has not participated in the research conducted under the OECD/INFE, 2016.

The questions in test in research among students and in OECD/INFE, 2016 research were the same and the research of World Bank, 2016 refers to similar areas, but includes the other questions.

Source: Based on the conducted research and for “all population” [OECD/INFE, 2016] and [World Bank, 2016b] – data comes from research conducted in 2015.

In addition, taking into account the role of students in financial market as the creators, advisors as well as financial managers, the research was expanded among the students on fundamentals of financial derivatives.

**Table 2.** Level of basic knowledge on derivatives of university economics students in 4V Countries

Country/questions	Futures and options (main characteristic)	Futures (main characteristic)	Option strategies
Czech Republic	14.4%	32.3%	13.3%
Hungary	18.2%	33.5%	18.2%
Poland	37.3%	64.1%	15.2%
Slovakia	20.1%	48.9%	15.7%

**Table 3.** Financial inclusion of economics students and adults in 4V Countries

Area of financial inclusion/survey and year	Banking account		Saving money			Borrowing money		
	all adults	young adults	any savings	in formal institution	in informal institution	from family or friends	from a formal institution	from a private lender
<b>Czech Republic</b>								
Current research	90.03%		81.20%	53.61%	1.93%	30.67%	2.77%	1.38%
2015 Students	90.03%		81.20%	53.61%	1.93%	30.67%	2.77%	1.38%
World Bank 2011 A	80.70%	55.70%	49.0%	35.50%	1.10%	18.10%	9.50%	1.30%
World Bank 2014 A	82.20%	64.90%	62.60%	37.60%	3.80%	14.10%	13.00%	1.80%
<b>Hungary</b>								
Current research	97.03%		81.75%	42.85%	14.77%	26.11%	6.39%	0.96%
2015 Students	97.03%		81.75%	42.85%	14.77%	26.11%	6.39%	0.96%
World Bank 2011 A	72.70%	51.00%	26.70%	17.30%	1.60%	9.50%	9.40%	1.10%
World Bank 2014 A	<b>72.30%</b>	<b>50.70%</b>	38.20%	19.30%	2.30%	14.90%	<b>8.70%</b>	0.70%
<b>Poland</b>								
Current research	81.46%		93.11%	68.25%	6.33%	25.94%	7.16%	2.22%
2015 Students	81.46%		93.11%	68.25%	6.33%	25.94%	7.16%	2.22%
World Bank 2011 A	70.20%	47.80%	30.80%	18.00%	1.00%	13.40%	9.60%	0.90%
World Bank 2014 A	77.90%	63.70%	46.60%	20.80%	2.50%	12.10%	18.90%	0.60%
<b>Slovakia</b>								
Current research	93.80%		86.85%	55.50%	13.90%	29.20%	4.00%	2.15%
2015 Students	93.80%		86.85%	55.50%	13.90%	29.20%	4.00%	2.15%
World Bank 2011 A	79.60%	59.50%	49.30%	36.80%	1.60%	17.90%	11.40%	0.80%
World Bank 2014 A	<b>77.20%</b>	<b>37.60%</b>	62.50%	44.00%	2.50%	13.40%	17.70%	1.50%

Note: The white cells mean higher degree of financial inclusion.

Source: Based on the conducted research and [World Bank 2012; World Bank 2015].

Although the financial derivatives play the crucial role in financial risk management and it is underlined in educational contents, students from each researched country represent very low level of knowledge in this field.

The next aspects and a way of an assessment of financial efficiency is a degree of financial inclusion. Table 3 presents the degree of financial inclusion, taking into consideration the basic areas of participating in financial markets by both group: students – respondents of the research and adults (A) in 4V Countries.

The results of research show that usage of basic offers of formal financial market by students of economic fields is more advanced than average adults except borrowing money. The low level of borrowing money by students in the banks is caused by the lack of credit worthiness of young people.

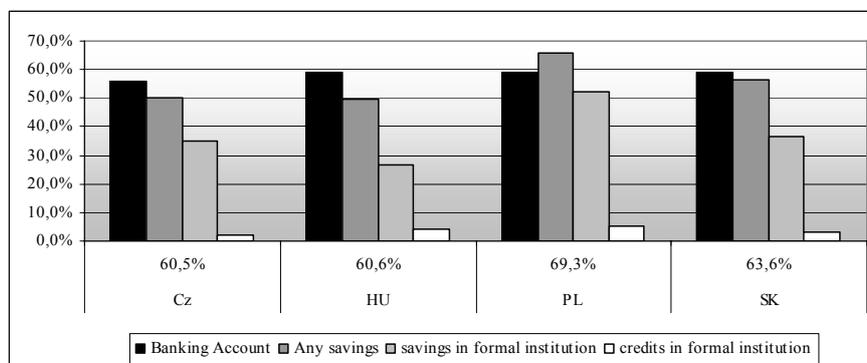
The presented ways of an assessment of financial education efficiency are typical and the most often used. It is worthwhile presenting the level of financial literacy as the percentage of correct answers for a question referring to adequate financial content and analysis of the degree of financial inclusion by determining the scale of usage of the formal financial institution's offers.

Nevertheless, taking into account the fact that proper level of financial literacy should influence making informed financial decisions and at the same time participating in financial markets, the Authors of this paper decided to measure the efficiency of financial education by simultaneous-use of the financial literacy level and the financial inclusion degree. The carried out empirical research allows to verify this way as the financial education efficiency measurement. It was possible to find the percentage of respondents equipped in financial knowledge and skills who use these in practice on the financial market. The research was conducted in two areas:

- basic level of financial literacy and using the basic financial product served by formal financial institutions,
- extended level of financial literacy (basic level of knowledge of main theories of the financial markets) and investing in risky financial instruments (e.g. stocks or currency).

It is worth comparing the data in Table 3 and data in Figure 6. More detailed analysis confirms that only part of financial inclusion (seen as participating in financial market by using the particular financial offers) is accompanied by required financial knowledge. The data may be interpreted as a confirmation, that many financial decisions made by individuals are not informed. This fact was also confirmed by the analysis of another (more sophisticated) area of financial inclusion – risky investment.

**Figure 6.** Percentage of the best educated students who have 0 or 1 mistake in their seven questions test on financial knowledge and skills and who, at the same time, use the basic financial product (served by formal financial institutions)



**Table 4.** The level of understanding the basic concept of main financial market theory by university students in 4V Countries

Country	Portfolio theory	Technical analysis	Fundamental analysis	Behavioral theory	All theories	At least one theory
Czech Republic	67.7%	20.7%	39.8%	44.2%	7.7%	84.0%
Hungary	56.2%	29.6%	42.4%	45.8%	7.9%	78.8%
Poland	73.8%	39.2%	67.7%	62.2%	21.3%	92.8%
Slovakia	46.7%	46.4%	57.3%	49.3%	19.3%	92.0%

Note: Parameters mean percentages of students, who answered correctly.

The knowledge of basic issues relating to investment in the financial markets, explained by the main theories (portfolio theory, technical analysis, fundamental analysis and behavioral theory) is necessary in investment processes, especially in the case of risky investment. The result of research shows, that this knowledge is rather poor. The results of the next stage of analysis confirm very low level of participating in market of risky financial instruments. In addition a small group of students, who are investors are not equipped in appropriate knowledge about financial markets.

Very surprising results show that young investors do not invest on the basis of their knowledge – usually they don't know the main concepts of investing.

It was to be expected that the simultaneous-use of the financial literacy level and the financial inclusion degree as an assessment of financial education efficiency would show much lower level in comparison to individual level of financial literacy and individual degree of financial inclusion. But a varied scale can be noticed of participation in particular segments of financial market on the basis of informed financial decisions (based on elements of financial literacy:

knowledge, skills, awareness, etc.). Unfortunately, more complicated financial decisions (risky investment) in a small degree are results of appropriate financial knowledge and skills.

**Table 5.** Informed financial decision in area of risky investment

Country	Risk investment	Risk investment & very basic knowledge of all main theories	Risk investment & very basic knowledge of at least one of main theories
Czech Republic	4.1%	<b>0.8%</b>	3.6%
Hungary	10.3%	<b>3.4%</b>	8.9%
Poland	6.4%	<b>1.4%</b>	6.4%
Slovakia	9.1%	<b>2.9%</b>	8.8%

Note: Percentage of respondents.

## 5. Conclusions and implications

The main results of research confirm the very low level of financial literacy and financial inclusion of young future economists in 4V Countries. Comparing different target groups, e.g. students studying economics and/or finance with all population, significant differences in the level of financial literacy and degree of financial inclusion are also reported.

Taking into account the fundamentals of finance students represent similar level of financial literacy in comparison to “all population” in particular 4V Countries (in few cases the level of financial literacy of students is lower). In the fields of more advanced educational contents (e.g. fundamentals of financial derivatives) the level of financial literacy is very low in each reported country. It means, that students of economic fields in 4V Countries are not equipped in appropriate level of financial knowledge and skills to be active participants/investors and also the creators, advisors, experts and managers in the financial markets. Such situation does not facilitate the development of financial market in the future.

The percentage of respondents who use the basic financial products and services (degree of financial inclusion) is higher in comparison to the level of financial literacy. It is most likely the effect of today’s technological reality and non-cash settlements dominance, where it is standard to have a bank account (taking into account the researched countries).

The usage of simultaneous assessment of financial literacy and financial inclusion among university students of economic fields in 4V Countries allows for

examining the degree of financial inclusion among the students who at the same time are educated at the basic level in finance. This level of financial inclusion should be seen as an informed financial inclusion and it is increasingly lower in comparison to real financial inclusion.

Fundamentally it should be interpreted as a threat of the awaited substantial progress in European financial market. But taking into account the postulates ‘against the financial education’ which have been voiced [Willis 2008] due to low level of financial literacy all over the World, the students of economic fields in other European countries should be examined (including the students of West European countries).

Therefore, the problem of an effective way to improve the level of financial literacy and the degree of financial education is still open.

Unsatisfactory results of the research on the effectiveness of financial education, resulting in a low level of financial literacy, as well as an insufficient degree of financial inclusion among the students of economic fields as the future participants, creators, experts, managers in financial markets constitute the basis for further research.

Further research should be more detailed. It refers to a specially chosen target groups of research as well as the fields of financial knowledge (basic and more expanded) and areas of financial inclusion (basic and more sophisticated financial products and services).

Very important is also more detailed research on the particular factors influencing the level of financial literacy and a degree of financial inclusion.

## References

- Atkinson A., Messy F. (2012): *Measuring Financial Literacy: Results of the OECD/INFE Pilot Study*. “Working Papers on Finance, Insurance and Private Pensions”, Vol. 15, pp. 446-448.
- Atkinson A., Messy F. (2013): *Promoting Financial Inclusion through Financial Education: OECD/INFE Evidence, Policies and Practice*. “OECD Working Papers on Finance, Insurance and Private Pensions”, <http://dx.doi.org/10.1787/5k3xz6m88smp-en> (accessed: September 2016).
- Demirgüç-Kunt A., Klapper L. (2013): *Measuring Financial Inclusion: Explaining Variation in Use of Financial Services across and within Countries*, “Brookings Papers on Economic Activity”, pp. 279-340, [http://www.brookings.edu/~media/Projects/BPEA/Spring%202013/2013a\\_klapper.pdf](http://www.brookings.edu/~media/Projects/BPEA/Spring%202013/2013a_klapper.pdf) (accessed: August 2016).
- Dupas P., Robinson J. (2013): *Why Don't the Poor Save More? Evidence from Health Savings Experiments*. “American Economic Review”, Vol. 103(4), pp. 1138-1171.

- Frączek B. (2016a): *Usage of Internet Technology in Financial Education and Financial Inclusion by Students of Economics Universities*. "International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering", Vol. 10(9), pp. 3106-3114.
- Frączek B. (2016b): *Iluzja wiedzy finansowej jako zagrożenie dla zwiększenia stopnia włączenia finansowego i funkcjonowania rynku finansowego*. In: T. Czerwińska, A.Z. Nowak (eds.). *Rynek kapitałowy – efektywność i ryzyko*. Wydawnictwo Naukowe Wydziału Zarządzania Uniwersytetu Warszawskiego, Warszawa, pp. 27-39.
- Frączek B., Mitreǵa-Niestrój K. (2014): *Edukacja finansowa wobec rozwoju rynku alternatywnych usług finansowych*. "Annales UMCS Sectio H Oeconomia", vol. 48(3), pp. 99-107.
- Hathaway I., Khatiwada S. (2008): *Do Financial Education Programs Work?* "Federal Reserve Bank of Cleveland Working Paper", No. 08-03, <http://www.clevelandfed.org/research/workpaper/2008/wp0803.pdf> (access: September 2015).
- Habschick M., Seidl B., Evers J. (2007): *Survey of Financial Literacy Schemes in EU 27, Final Report*. Evers & Jung, Hamburg.
- Huston S.J. (2010): *Measuring Financial Literacy*. "The Journal of Consumer Affairs", Vol. 44(2), pp. 296-316.
- Khan H.R. (2011): *Financial Inclusion and Financial Stability: Are They Two Sides of the Same Coin?* Speech on Conference BANCON 2011, Indian Bankers Association & Indian Overseas Bank, Chennai, November 4, 2011.
- Kieźel M. (2015): *Application of New Media in Financial Education on the Example of Project Implemented by NBP*. In: S. Smyczek, J. Matysiewicz (eds.). *New Media in Higher Education Market*. UE, Katowice, pp. 141-149.
- King R.G., Levine R. (1993): *Finance and Growth: Schumpeter Might Be Right*. "Quarterly Journal of Economics", No. 108, pp. 717-738.
- Rajan R., Zingales L. (1998): *Financial Dependence and Growth*. "American Economic Review", No. 88, pp. 559-586.
- Lusardi A., Mitchell O.S., Curto V. (2010): *Financial Literacy among the Young*. "Journal of Consumer Affairs", Vol. 44(2), pp. 358-380.
- Mandell L. (2009): *The Impact of Financial Education in High School and College on Financial Literacy and Subsequent Financial Decision Making*. Presented at the American Economic Association Meetings San Francisco, CA, January 4, [www.aeaweb.org/assa/2009/retrieve.php?pdfid=507](http://www.aeaweb.org/assa/2009/retrieve.php?pdfid=507) (accessed: October 2016).
- Mahendra Dev S. (2006): *Financial Inclusion: Issues and Challenges*. "Economic and Political Weekly", Vol. 41(41), pp. 4310-4313.
- Mavrotas G., Son S. (2006): *Financial Sector Development and Growth: Re-examining the Nexus*. In: M. Bagella, L. Becchetti, I. Hasan (eds.). *Transparency, Governance and Markets*. Elsevier B.V., Amsterdam, pp. 217-242.
- Mehrotra A., Yetman J. (2015): *Financial Inclusion – Issues for Central Banks*. "BIS Quarterly Review", <http://www.bis.org/publ/qtrpdf/rqt1503h.pdf> (accessed: October 2016).

- OECD (2005): *Improving Financial Literacy: Analysis of Issues and Policies*. OECD. <http://www.oecd.org/finance/financial-education/improvingfinancialliteracyanalysisofissuesandpolicies.htm> (accessed: July 2016).
- OECD/INFE (2013a): *Women and Financial Literacy. OECD/INFE Evidence Survey and Policy Responses*. [http://www.oecd.org/daf/fin/financialeducation/TrustFund2013\\_OECD\\_INFE\\_Women\\_and\\_Fin\\_Lit.pdf](http://www.oecd.org/daf/fin/financialeducation/TrustFund2013_OECD_INFE_Women_and_Fin_Lit.pdf) (access: July 2016).
- OECD/INFE (2013b): *Financial Literacy and Inclusion. Results of OECD/INFE Survey across Countries and by Gender*. Financial Literacy & Education Russia Trust Fund, Paris.
- OECD/INFE (2016): *OECD/INFE International Survey of Adult Financial Literacy Competencies*. Paris.
- Peng T., Bartholomae S., Fox J., Cravener G. (2007): *The Impact of Personal Finance Education Delivered in High School and College Courses*. "Journal of Family and Economic Issues", No. 28, pp. 265-284.
- Rozmahel P., Kouba L., Grochová L., Najman N. (2013): *Integration of Central and Eastern European Countries: Increasing EU Heterogeneity?* "Working Paper", No. 9, European Commission, Brussels.
- Tennyson S., Nguyen C. (2001): *State Curriculum Mandates and Student Knowledge of Personal Finance*. "Journal of Consumer Affairs", Vol. 35(21), pp. 241-262.
- Willis L.E. (2008): *Against Financial Literacy Education*. "Iowa Law Review", No. 94(08-10), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1105384](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1105384) (accessed: September 2016).
- World Bank (2012): *The Little Data Book on Financial Inclusion*. The World Bank Group, <http://data.worldbank.org/sites/default/files/the-little-data-book-on-financial-inclusion-2012.pdf> (accessed: October 2016).
- World Bank (2015): *The Little Data Book on Financial Inclusion*. The World Bank Group, <https://openknowledge.worldbank.org/bitstream/handle/10986/21636/9781464805523.pdf?sequence=3> (accessed: October 2016).
- World Bank (2016a): *Enterprise Surveys*. <http://www.enterprisesurveys.org/data/exploretopics/finance#--1> (accessed: January 2017).
- World Bank (2016b): *Research: S&P Global FinLit Survey*. World Bank Development Research Group and GFLEC.
- Xu L., Zia B. (2012): *Financial Literacy around the World*. "Policy Research Working Paper", No. 6107, <http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6107#> (accessed: July 2016).
- Zieliński T. (2015): *Rezygnacja z gotówki – nowy paradygmat pieniądza czy tylko innowacja w obszarze rozliczeń pieniężnych?* "Annales Universitatis Mariae Curie-Skłodowska. Sectio H, Oeconomia", No. 49/4, pp. 737-758.

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