



The determinants and development of crowdfunding in the Central and Eastern Europe countries

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Abstract

Motivation: Crowdfunding (CF) is a method of raising money for projects and enterprises by online platforms. Since 2003 it is expanding and becoming a natural method of pre-financing for start-ups before reaching out to investors. The estimations gave the picture of fundraising worldwide at the level of 35 bln USD via CF platforms in 2015. Nevertheless, this method does not progress equally worldwide and it is essential to find what results in the difference in CF development among the countries.

Aim: The aim of the article is to examine the relation between: (1) the welfare of countries, (2) structure of population and (3) availability of crowdfunding. The paper examines the countries of Central and Eastern Europe (CEE) for the period 2005–2015.

Results: There is no direct correlation between GDP per capita of a country with its online per capita investments. The richness of a country does not influence people's willingness to invest through online methods. In the countries of average level of welfare, alternative financing sources are used more widely. Moreover, there is a significant impact of the age



structure of the population on crowdfunding development. Estonia has the youngest structure of population. Although there are not many inhabitants and the GDP per capita is average, the country has the most willing online crowd investors.

Keywords: crowdfunding; social funding; innovation; financing; Central and Eastern Europe
JEL: G24; L26; M13; O16; O52

1. Introduction

As crowdfunding platforms do not equally progress in size and popularity in all countries, it is essential to find out the potential factors of crowdfunding development. This paper examines the potential relations between the primary variables: (1) the welfare of the countries, measured by GDP per capita, (2) structure of population, what explains the potential willingness of investment in new technologies, using the new methods, basing on social media or online applications, (3) availability of crowdfunding.

Ten analysed countries (the EU members) from CEE are: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia. The authors concentrate on the factors of crowdfunding's development in the period 2005–2015. In the initial stage of analysis, Croatia was also taken into consideration, but due to lack of data it is not analysed. Also, due to insufficient data, information concerning crowdfunding covers the period of 2007–2015.

In connection with the intended objectives the authors formulate two theses. The first assumes that more crowdfunding platforms are created and financial funds collected in the countries with higher GDP per capita. The second thesis outlines, that there is a significant impact of the age structure of the population on increase in the level of financing through crowdfunding.

The article consists of two main parts. The first part, of a theoretical character, outlines the background, history and definitions of crowdfunding, while the empirical part analyses the factors contributing to the final results.

The authors notice that the other determinants of crowdfunding development might be researched. They include innovative power (i.e. R&D spending and patents), the depth of a banking sector (i.e. the number of banks, the volume of banking assets), the stock market capitalization, the number of newly born companies, or the level of taxes. Nevertheless, the authors did not aim to focus on access to traditional financing and analyse such factors as welfare and structure of population in the context of the willingness of people to decide on alternative investment in the form of crowdfunding.

2. Literature review

The basis of crowdfunding is related to the theories of innovation and entrepreneurship. Schumpeter (2004, p. 66) defines the economic activity as a circular

flow and innovations as the prime cause for economic development. (Jain & Malhotra, 2009, pp. 127–129). The great merit of Schumpeter (2004, p. 66) is the awareness that innovations create a monopoly resulting from the ability to satisfy the needs in the better way than the others. This advantage lasts till the moment when another new innovation appears on the market and will be ready to satisfy the needs better. Schumpeter distinguishes the innovator-entrepreneur, who is able to implement changes due to inventions and discoveries.

In the 1960s many economists use the approach of Schumpeter within neo-technological theories, alluding to the crucial role of technological progress and innovation. Posner (1961, pp. 323–341) emphasized the opportunities for trade development through different levels of technical knowledge among countries. Posner distinguished two groups of entrepreneurs: innovators, who create new products and technologies, and imitators, who take over the solutions found in other countries.

Also, Porter (1990, pp. 69–71), Rugman and Oh (2008, p. 58) underline that innovations (new technologies, new methods of production, new products, the appropriate segmentation of the market and identification of the new groups of buyers) create competitive advantages. Cho and Moon (2013, pp. 143–166) place the human factor at the heart of their nine-factor model. They noted that entrepreneurs are the most important group undertaking innovative, often risky venture, being key factors of competitiveness for countries in semi-developed stage. Innovation is a key to success in a changing global economy. Crowdfunding represents an ultimate change what permits it to become an alternative way to finance small businesses.

2.1. The definition and background of crowdfunding

The fundamentals of what today is called ‘crowdfunding’ originate from the 1700s, when Dean Jonathan Swift started the Irish Loan Fund (Hollis & Sweetman, 1996, p. 5) that provided loans to low-income families in rural areas. Modern microfinance mechanism was invented by Mohammad Yunus in 1976 in Bangladesh. His goal was to give banking financing to low-income people, reduce the exploitation of the poor and create opportunities for self-employment. In 1983 it transformed into Grameen Bank. The term ‘crowdfunding’ was first used by Sullivan (2017), a founder of the FundaVlog in 2006.

Mollick (2014, pp. 2–4) explains the CF mechanism underlining the ability to attain funding from large audiences, when each individual provides online a small amount of money. It is an alternative of gathering a large sum from one sophisticated investor, without the use of standard financial intermediaries (Belleflamme et al., 2014, pp. 585–609). Steinberg and DeMaria (2012, p. 2) state that crowdfunding is the process of asking the general public for donations providing startup capital for new ventures. Similarly, Freedman and Nutting (2015, p. 1) claim that crowdfunding is a method of collecting many small

contributions, by means of an online funding platform, to finance or capitalize a popular enterprise.

The key components of crowdfunding are: an online tool, a goal of the project, financial threshold in limited time, presence of the crowd, financial or non-financial returns. Therefore, in the process of crowdfunding three groups of interest are enumerated: entrepreneurs, investors and a platform with structural and contextual linkages between them (Valanciene & Jegeleviciute, 2014, p. 602).

2.2. Traditional and alternative methods of financing

Every day there are companies being founded and closed because of different reasons: they are too ambitious, haven't explored the market before starting or just gave up. The success would not be possible without the help of the private equity investors, who provide money, experience and networking.

Small-scale entrepreneurs have limited access to some forms of financing like long-term bank loans, issuing shares or bonds. They are not known on the market, do not have a credit history, nor sufficient assets and equity capital to cover the credit risk. They typically cite access to finance as the most important constraint to growth (de Mel et al., 2011, pp. 456–485). They use internal sources: private means of the owner, money borrowed from family and friends, and retained earnings of the company. There are sources addressed mainly to them. Start-ups may apply for short-term bank credits (overdrafts) or use factoring or leasing. Also, the European Union supports the development of small and medium enterprises. The initiatives, which transfer institutional support to this sector, are provided on national and international levels (Bednarz & Markiewicz, 2015, pp. 89–115).

The alternative ways of collecting the financial means for providing business activity are mainly based on financing offered by business angels (BAs), venture capital funds (VC) or private equity funds (PE). Business angels are individual investors, investing their funds in projects in the start-up phase or in the early stages of development. VC concerns financial support in the area of new technologies (information and communication technologies, biotechnology, life sciences, etc.) through the acquisition of a new issue of shares. The wider approach is exemplified by PE funds, which provide equity capital to the enterprises not listed at the stock exchange, used to develop new products or services, to expand working capital, to strengthen the company's balance sheet, to assist in a privatization, a merger or an acquisition.

Shneor et al. (2016, p. 138) indicates crowdfunding as an alternative financing channel for enterprises among the main trends that may prominently affect business in the near future. The benefits of crowdfunding include access to valuable and appropriate feedback towards proposed concept, proof of project validity, along with direct communication with probable partners (clients, media, funders, etc.) (Mollick & Kuppaswamy, 2014, pp. 1–18). Another ben-

efit is the expansion of geographical range of investment, because in some segments of donation-based crowdfunding, geography plays less significant role in the funding of promising projects (Agrawal et al., 2011). One of the biggest privileges is engagement of early adopters to check the prototype ideas at low costs. With low barriers to entry, it leads to an access to other forms of financing, like VC or PE, in the following round of financing.

Crowdfunding is not free of flaws and risks. It is not the easiest way to gather funds, since it requires activity and proficiency, substantial amounts of time, effort and energy. The capital gap is the biggest obstacle to the development of innovative business projects. The main directions for improvement would be reduction of administrative barriers and strengthening the market infrastructure (Rupeika-Aboga, 2014, pp. 117–124).

3. Methods

In this paper the authors investigate aggregated international data provided by Eurostat (2016), the World Development Indicators (2017) and reports prepared by Cambridge University. While studying papers they use methods of data collection, organizing and processing information. During the development of the paper the generally accepted qualitative and quantitative methods of economic research are used, including selection, analysis and synthesis, descriptive statistics and graphical illustration methods.

4. Results

This section compares the measure of prosperity, which is the ratio of GDP per capita in selected countries for 2005–2015. Prosperity in economic terms is seen as a state to meet the material and emotional needs of individuals and society. It is a trigger sense of self-fulfillment, enabling the achievement of happiness, allowing increase in the level of investment through generating charity, or the desire to invest in developed goods and services. There are used many measures of well-being, because its concept is multidimensional. However, GDP per capita is the basis for international comparisons used by the OECD and other international organizations and institutions.

Chart 1 illustrates the rising trend of GDP per capita in 2005–2015 with the exclusion of years 2008–2009, due to the financial crisis (PPP is the purchasing power parity). The only countries which did not suffer the decline for this period are Poland (rise of 6%) and Hungary (0.2% rise).

The countries which are outstanding concerning the rise of GDP per capita were the Czech Republic and Slovenia (chart 1). They are the leaders either at the beginning of the period of analysis in 2005 (Slovenia 23,887 USD and the Czech Republic 22,286 USD) and at the end, in 2015 (Slovenia 31,144 USD and the Czech Republic 32,758 USD). The Czech Republic and Slovenia are

the only CEE countries, which are countries with the highest level of well-being (above 30,000 USD).

In 2015 Romania, with 21,403 USD, and Bulgaria, with 17,957 USD, still did not reach the level of GDP per capita of Slovenia and the Czech Republic from 2005. In Romania, however, it was noticed the highest dynamics of growth: the level of GDP per capita in 2015 reached 223% of the 2005 level. The second country with the highest dynamics was Poland and the third one — Lithuania (adequately 189% and 188%).

Table 1 presents the comparison of population age structure by three major age groups in 2005 and 2015. In Lithuania, Hungary, Poland, Romania and the Slovak Republic less young people live (0 to 14 years old) in 2015 compared to 2005. In each country there is less persons at working age (15–64) and more older (aged 65 or over) than 10 years before.

Taking into consideration the relation between percentage of young people comparing to persons aged 65 or older, in every country (except the Slovak Republic) this trend is negative — the countries are getting older. The richest countries, the Czech Republic and Slovenia, have growing number of children aged 0–14 (as well as Estonia and Latvia), but are aging societies with the highest rate of elder people in the Czech Republic (26%, when comparing 2015 and 2005) and medium one in Slovenia (17% rise) and low in Estonia (13%).

Cambridge Centre for Alternative Finance (CCAF) surveys 273 crowdfunding platforms representing 31 European countries. Based on 2015 data from CCAF, online investments per inhabitant are compared with GDP per capita in chart 2. This comparison shows that alternative financing do not correlate with GDP per capita. The Czech Republic has the highest GDP per capita, but simultaneously takes the 4th place taking into account online investments per capita, while Slovenia the 5th one.

Taking into consideration the number of platforms in CEE (chart 3) in the years 2007–2010 only few platforms were created, mainly in Poland, the Czech Republic and Estonia. Starting 2011, the rising trend is visible. It relates to the world trend towards online alternative financing as well as a global change to sharing economy. It was not taken into account how many platforms ceased to exist or how much money they raised every year, due to lack of aggregated data.

Table 2 illustrates the volumes of online investments in the entire CEE. The annual growth of 191% occurs from 2013 to 2014. Year 2015 ended with 167% annual growth rate. In 2015 it was invested in: Estonia 32 mln EUR, Latvia 15 mln EUR, Poland (with the biggest number of platforms) 10 mln EUR, the Czech Republic 9 mln EUR and Lithuania 2.3 mln EUR.

5. Conclusion

Regarding the first thesis, more crowdfunding platforms arise and more financial funds are collected in the countries with higher GDP per capita. Although



in Central and Eastern Europe crowdfunding is still a niche, its annual growth rate is high and along with increasing average income advanced and innovative financial services appear.

The Czech Republic and Slovenia are the only CEE countries with GDP per capita above 30,000 USD. The Czech Republic has the highest GDP per capita in 2015 (32,758 USD), but simultaneously it takes the 4th place in online investments per capita (0.93 USD). Slovenia has adequately GDP per capita of 31,144 USD and 0.87 USD of online investment (the 5th position). The Slovak Republic, Estonia, Lithuania and Poland reached higher levels than before.

Based on 2015 data the comparison of an index Alternative Finance Volume per capita and GDP per capita shows that these variables do not correlate. The richness of the country does not influence people willingness to invest money through online. In the countries of average level of welfare, alternative sources of financing are used more widely, because more often companies suffer from lack of experience, proven credit history and own initial capital required by the banks. The common access to the Internet and sharing economy trend should change this correlation.

The second thesis outlines there is a significant impact of the population age structure on increase in the level of financing through crowdfunding. The richest countries, the Czech Republic and Slovenia have growing number of children aged 0–14 (as well as Estonia and Latvia). In 2015 the value of investments in alternative financing platforms reaches the highest level in Estonia (32 mln EUR), which has the youngest structure of population, then Latvia, Poland, the Czech Republic and Lithuania. The biggest number of crowdfunding platforms exists in Poland, the Czech Republic and Estonia.

In Estonia peer-to-peer lending platforms attract majority of alternative financing. Despite of not many inhabitants and average level of GDP per capita, this country has the most willing online crowd investors. The Baltic countries represent leaders with respect to crowdfunding adoption and growth in terms of volumes per capita (Wardrop et al., 2015). The further research may involve the detailed study of the impact of the population age structure on increase in crowdfunding value on smaller age groups.

As the future research it may be recommended to search for other contributing factors to develop crowdfunding platforms across CEE countries and different sectors. The other path of further study may be researching the role of crowdfunding as complementary or alternative financing way to traditional channels and the analysis of the disparities and nature of welfare in the CEE countries (Zdrazil & Applova, 2016, pp. 49–50) and its impact on crowdfunding development.

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Appendix

Table 1.
Population age structure by major age groups in 2005 and 2015 (in % of the total population)

Country	0–14		15–64		65 years old or over	
	2005	2015	2005	2015	2005	2015
Czech Republic	14.9	15.2	71.7	67.0	14.1	17.8
Estonia	15.4	16.0	68.0	65.2	16.6	18.8
Latvia	15.0	15.0	68.4	65.6	16.6	19.4
Lithuania	17.1	14.6	67.1	66.6	15.8	18.7
Hungary	15.6	14.5	68.8	67.6	15.6	17.9
Poland	16.7	15.0	70.2	69.5	13.1	15.4
Romania	17.5	15.5	68.4	67.5	14.2	17.0
Slovenia	14.4	14.8	70.2	67.3	15.3	17.9
Slovak Republic	17.1	15.3	71.3	70.7	11.7	14.0

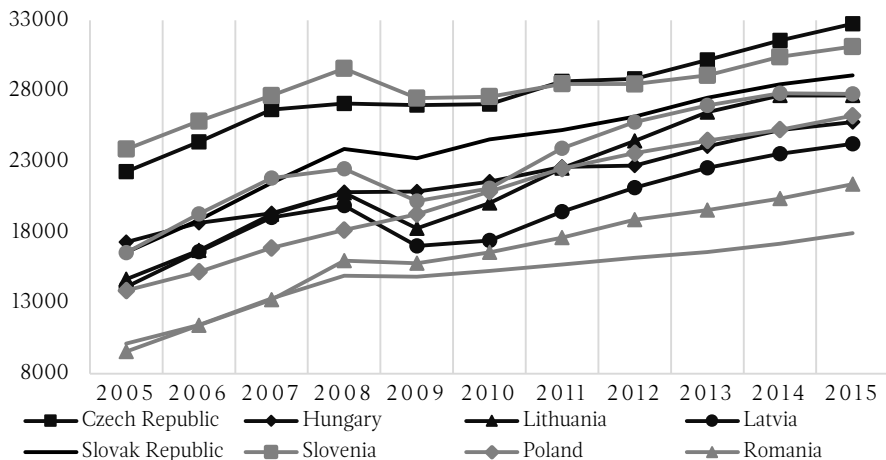
Source: Own preparation based on Eurostat (2016).

Table 2.
Online Alternative Finance in CEE in 2013–2014

Year	Online Alternative Finance (in mln EUR)	Annual growth rate (in %)
2013	11	–
2014	33	191
2015	89	167

Source: Own preparation based on Zhang (2016, p. 72).

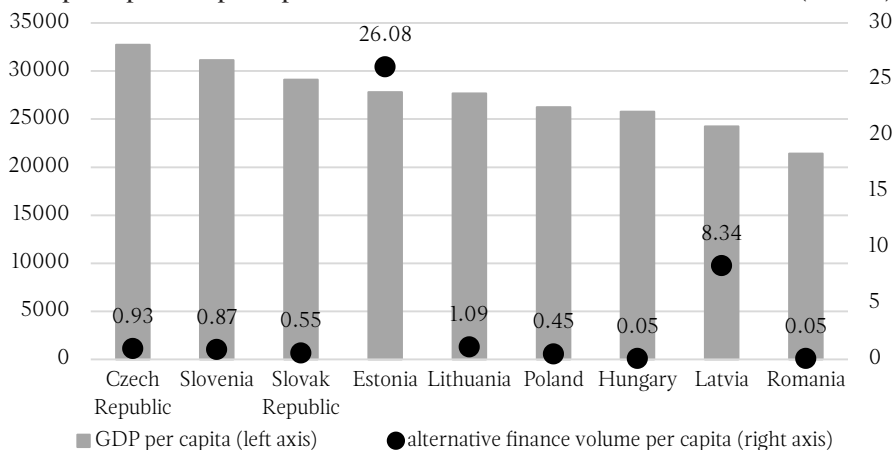
Chart 1.
GDP per capita in CEE countries in 2005–2015 (PPP, current international USD)



Source: Own preparation based on World Development Indicators (2017).

Chart 2.

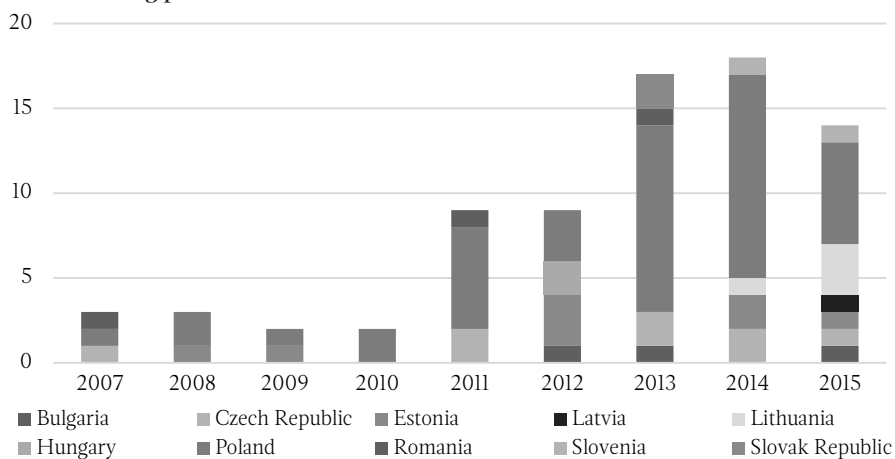
GDP per capita and per capita alternative finance volume in CEE countries (in USD)



Source: Own preparation based on World Development Indicators (2017) and Zhang (2016, p. 30).

Chart 3.

Crowdfunding platforms created in CEE countries in 2007–2015



Source: Own preparation based on Internet research and Zhang (2016).

