Proceedings of the 3rd International Conference on Economics and Social Sciences (2020), ISSN 2704-6524, pp. 368-380

The 3rd International Conference on Economics and Social Sciences
Innovative models to revive the global economy
October 15-16, 2020
Bucharest University of Economic Studies, Romania

Comparative Analysis of the Concentration Degree and Sustainable Development of the Economic Key Sectors Romania versus UE

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DOI: 10.2478/9788395815072-040

Abstract

This paper aims to analyse, with available or estimated data from competent bodies, the level of concentration of some of the critical sectors in Romania, namely the banking, the cement and the fuel distribution sector, taking into account not only the situation at the national level but also the structure of those markets with other European states. This research focuses on whether the structure of Romania's key sectors is less competitive than in other European countries / European media. Depending on the information available, some analyses are performed considering the number of active competitors on the market, turnover, and production achieved. The approach is not homogeneous from one sector to another, but adapted to the data available for each sector, e.g., the data sources are diversified, internal reports/estimates of various external bodies. The goal is to verify their convergence towards expected results/conclusions to ensure the substantiation of the conclusions. The analysis of three of the most important economic sectors, concerning their impact on the Gross Domestic Product (GDP): banking, cement and fuel distribution, shows that they rank from the level of concentration perspective below the European averages corresponding to those sectors, while there is a low level of penetration - share in GDP.

Keywords: concentration indicators, economic sectors, competition, sustainability.

JEL Classification: M20, D41, C82

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1. Introduction

Sustainability is a multidimensional objective that requires an integrated approach of the social, economic, environmental, and technological environment (Nica et al., 2018).

In 2015, the General Assembly of the United Nations (UN) formally adopted "The 2030 Agenda for Sustainable Development," which provides a framework for "peace and prosperity for people and the planet, now and into the future" (2020). As part of this agreement, all United Nations Member States agreed upon the Sustainable Development Goals (SDGs) that represent a shared expression of stakeholder needs at a global level balancing economic, social, and environmental development. The SDGs comprehend themes such as ending world poverty to undertaking urgent action to combat climate change and its impact by 2030 (Fonseca et al., 2020).

The banking, cement, and fuel industry sectors have a crucial role in fostering the SDGs, e.g., to promote sustained, inclusive, and sustainable economic growth (SDG 8), and build resilient infrastructure and sustainable industrialization and innovation (SG 9).

2. Literature review

According to the structure–conduct–performance (SCP) paradigm developed by Mason (1939) and Bain (1951) when markets have a high concentration (few suppliers), there is a climate that favours collusion activities among firms, positively affecting their profitability. The existence of positive relationships between a firm's market share (MS) and its performance is also proposed by Rhoades (1983) relative market power (RMP) hypothesis. However, higher industry concentration leads to strong firm (supplier) power, and weak buyer (customer) power. And less powerful buyers do not press the suppliers much, which might lead ultimately to lower supplier performance and lesser competitiveness (Porter, 1998). Moreover, the Treaty on the Functioning of the European Union (TFEU) contains rules that aim to achieve a free and dynamic internal market and promote general economic welfare (EU, 2020). They comprehend rules on antitrust, merger control, State aid, and public undertakings and services. Effective competition enables businesses to compete on equal terms and contribute to their continuous quest to offer the best possible products at the best possible prices for consumers, which ultimately fosters innovation and long-term economic growth and sustainability.

Concentration and competition are linked to geographical areas and product markets, both in empirical analyses and theory. For example, banks provide many products that do not serve a unique market, and defining a relevant market involves making a preliminary decision about potentially relevant structural characteristics, such as competition and concentration (Bikker and Haaf, 2002).

The banking, cement, and fuel distribution retail sectors have several particularities to be considered when analysing competition on those markets.

According to a PwC Romanian study (Semenescu and Curmei, 2015), the banking system contributed 4.2% to Romania's cumulative GDP in 2012-2016 when indirect effects on the economy are also considered. The banking sector directly employed an average of 57,887 people in the period 2012-2016 and contributed with another 51,221 in the rest of the economy, thus generating 109,108 jobs in total. The number of employees in the banking industry in 2016 represents approximately 1.2% of the total of 4.8 million employees in the economy, being higher than in 65% of the economic activity branches.

The contribution to the world GDP of the cement industry is significant (Deopale and Ghiculescu, 2019). In 2016, the industry cement contributed 1.9% of the European Union's GDP (EU28). The Romanian cement market was about 7.9 million tons and 2,257 million lei in 2016. From 2007 to 2016, the market registered a negative dynamic. Dramatic reduction from 2009 (74%) was followed by another 12% decline the next year. In 2011, there was an attempt at a weak recovery, but the market volume remained at the same level with small fluctuations in the next five years. As a share in the annual GDP, Romania's cement market, in value, was about 1.5% in the period under analysis (Fedorko at al., 2018).

The retail sector of fuels (gasoline and diesel) occupies an important place in the Romanian economy (Agoston and Dima, 2012), having a direct impact on other economic sectors and consumers. The main characteristics of this sector do not differ much from those of the rest of the European countries, its structure being, in general, oligopoly, with a high degree of concentration with homogeneous goods, high barriers to entry, relatively high transparency and relatively low elasticity of demand with respect to price (Paunescu et al., 1999; Anderson et al., 1999; Busu et al., 2019).

Due to the high level of investment required to enter the market, these sectors are described as sectors with a high market concentration (Busu, 2012; Pjanić et al., 2018; Azar et al., 2020; Busu et al., 2020). However, this is not an issue for the market's competitive functioning, as concentration is sometimes a necessary, but not sufficient, factor in the exercise of over-competitive prices that could affect the final consumers' welfare (Edlin and Emch, 1999; Salaman and Storey, 2005; Sidak, 2006; Ze et al., 2018).

3. Research methodology

The level of concentration of a market provides useful information in evaluating the degree of competition on that market. There are several market concentration indicators based on the calculation of the market shares. Generally, the computation of these indicators is based on the value of the products or services traded. However, they could also be computed as the ratio of the volume of products to the services traded (depending on the specificity of the market).

In general, market shares are computed based on the annual data concerning the value/volume of sales. If very homogenous products characterize the analysed market, then it is recommended to compute the market shares based on sales volumes rather than on sales values.

The leading indicators of the degree of concentration of the market are the following: Concentration Ratio (CR) and Herfindahl-Hirschman Index (HHI). We will analyse the concentration in the selected sectors by using the above-mentioned concentration indicators.

The Herfindahl-Hirschman indicator is the sum of squares of the market shares of all companies on that market. Formally, the indicator is computed as:

$$HHI = S12 + S22 +... Sn2 \qquad (1)$$

where S1, S2, ..., Sn are the market shares of the undertakings in the sector.

Hence, it infers greater importance to the undertakings with a larger market share. HHI is the most used indicator of market concentration by competition authorities. Its value varies between 0 (perfect competition) and 10000 (monopoly).

However, there are no universally accepted levels of this index to classify a market in the following categories: a low concentrated market, a medium concentrated market, or a highly concentrated market.

We give below the levels used by The European Commission, respectively by DOJ-FTC:

Degree of concentration	**HHI value**	
	DOJ*	EC**
Low	[0,1500]	[0,1000]
Medium	[1500-2500]	[1000-2000]
High	[2500,10000]	[2000,10000]

Note: *Department of justice, **European Commission

The concentration rate is the sum of the market shares of the largest companies on the market. Formally, the equation used is:

$$CR(k) = S1+ S2+... Sk \qquad (2)$$

where S1, S2, ..., Sn are the market shares of the undertakings in the sector.

The formula states that the indicator is based on the top companies in the sector. A small number of undertakings appear to show the oligopolistic nature of the sector (a small number of undertakings control a significant share of the market). Its value varies between 0 (perfect competition) and 100 (oligopoly if $n > 1$ and monopoly if $n = 1$).

3.1. The banking sector

According to the BNR Report on financial stability in December 2018, the Romanian banking sector has the lowest degree of financial intermediation in the European Union. The ratio of assets to GDP being 52.2% in June 2018, a value significantly lower than the EU average, of 208%.

In the period 2008-2017, there is a decrease in the average level of banking assets in GDP, from approx. 400% in 2008-2010, to 250% in 2017, the indicator for Romania varying slightly around 50% in the same period.

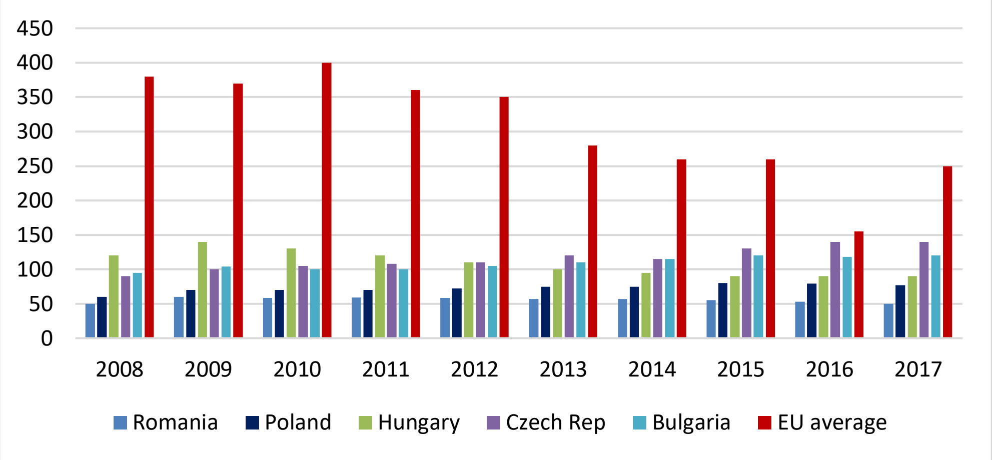


Figure 1. The share of banking sector assets in GDP
Source: BCE, ARB Report

Improving the structural features of banking markets seems to be a way to improve operational efficiency at the European level, stimulating consolidation. Thus, at the European level, mergers and acquisitions have intensified in the last ten years. The number of banks decreased by 1140 during this period. In March 2018, a number of 3874 banking institutions were operating.

This consolidation trend was also manifested in the Romanian banking sector. The number of banking institutions decreased to 35 in September 2018 (of which 7 are branches of foreign credit institutions), compared to a number of 43 active banking institutions in 2009.

Concentration indicators in the banking sector (Herfindahl - Hirschman index for assets was 918 in September 2018, compared to the average value of 1065 recorded in the EU in December 2017, corroborated with the fact that the level of concentration of assets in the first 5 banks in Romania was 60% in September 2018, compared to an average European level of 64% in December 2017) show a relatively low concentration of banking assets in Romania, lower than the EU average specific values.

In addition, using information taken from the European Central Bank, cumulated with that from the European Commission, we obtain the situation of the number of credit institutions per thousand inhabitants below, which shows that Romania is also below this European average.

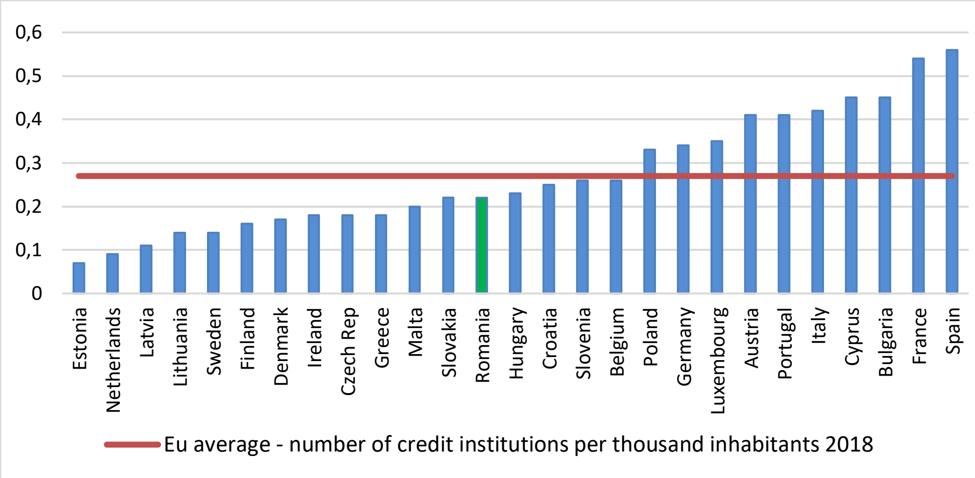


Figure 2. Number of credit institutions per thousand inhabitants, 2018

Source: calculations based on data taken from the European Central Bank https://sdw.ecb.europa.eu and https://ec.europa.eu/eurostat

In the period 2013-2018, HHI calculated for credit institutions registered significant variations (over 500 units) only in the case of Finland and Cyprus, for the rest of the states registering small variations, according to the following chart.

For Romania, the value of HHI in the period 2013-2017 remained below 1000, without major variations, registering a slight increase, from 821 in 2013 to 909 units in 2018, which shows a low concentration in this sector.

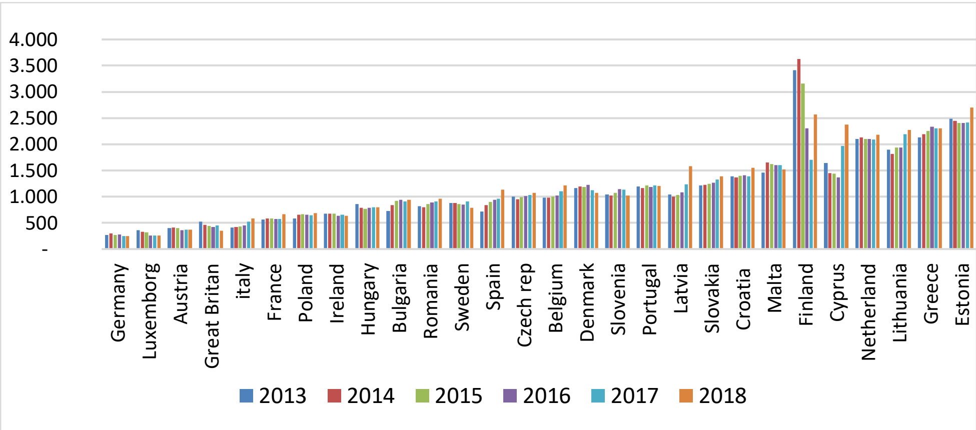


Figure 3. Evolution of the Herfindahl - Hirschman Index for credit institutions (based on total assets), 2013-2018.

Source: calculations based on data taken from the European Central Bank

As the chart below shows, the value of HHI in the case of Romania remains below the European average.

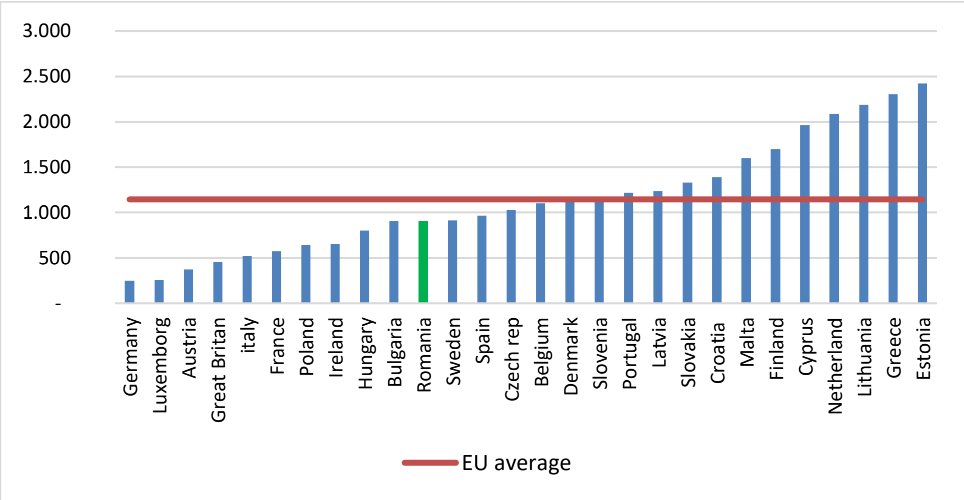


Figure 4. Herfindahl - Hirschman index for credit institutions (based on total assets), European average, 2018.

Source: calculations based on data taken from the European Central Bank

Also, in the case of the CR5 indicator presented in the following chart, Romania is below the European average in 2018, confirming that the level of concentration in the Romanian banking sector is lower than the European average.

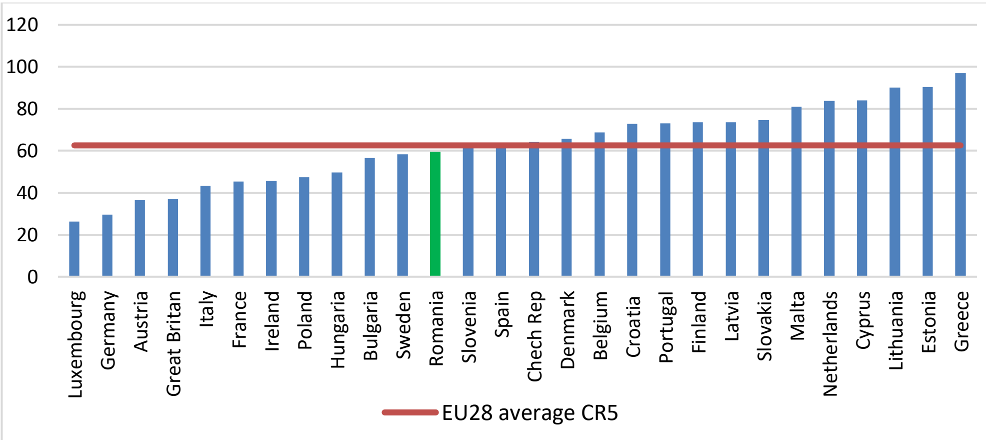


Figure 5. Total assets percentage of the 5 largest credit institutions (CR5), 2018

Source: calculations based on data taken from the European Central Bank

In this context, it can be concluded that the Romanian banking sector is a competitive sector and there is room for further consolidation.

3.2. The Cement Sector

Currently, the Romanian cement market is characterized by an oligopoly structure, the main cement producers present on the Romanian market being the groups: HeidelbergCement Romania SA, CRH Cement (Romania SA) and Holcim Romania SA - members of CIS (Cement Sustainability Initiative).

All cement production plants in Romania were built before 1990, with fully Romanian capital and are currently owned by the three main cement producers. Besides, there are Cemrom SA and Ceminter International SA on the cement market that do not have factories, but other types of installations.

Thus, Cemrom entered the market in 2010 and owns an ecological grinding station in Corbu, Constanța County. The company carries out cement production and marketing activities. Ceminter has owned a loading and a homogenization installation in the Port of Constanța since 2008.

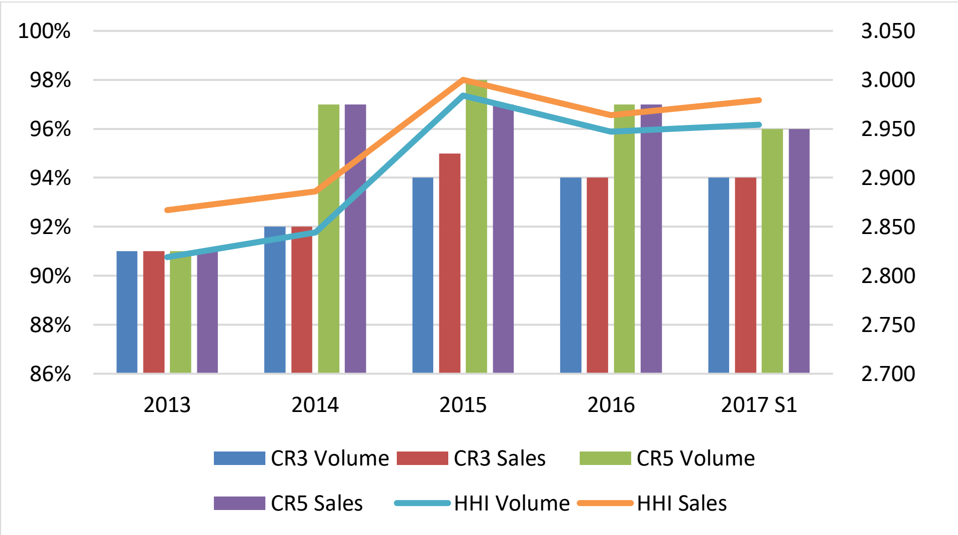
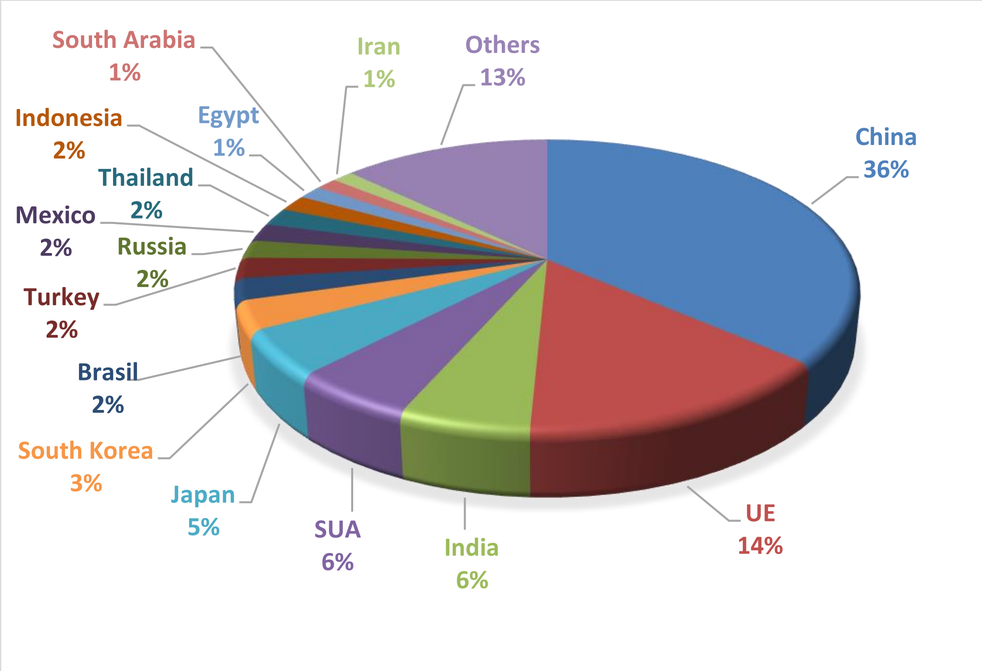


Figure 6. Evolution of concentration indicators for the cement production and marketing sector.
(HHI - represented on the right axis and CR3 and CR5 represented on the left axis)

Source: Preliminary report on the cement sector 2018, Competition Council

The structural situation of the cement production sector is mostly due to the infrastructure available to these companies, which are vertically integrated. Given the considerable barriers to entry, as identified in the Preliminary Report for the Cement Sector, 2018, the Competition Council estimates that no entries will take place in the near future, and the three main cement producers will not be removed from the first positions.

In terms of share in global production, cement production in the EU28 has fallen sharply in the last 16 years, so in 2016 it accounted for only 4.1%, compared to 14.4% in 2000. The decline was caused by reduced demand at the EU level and by expanding production in China and demand in developing countries outside Europe.



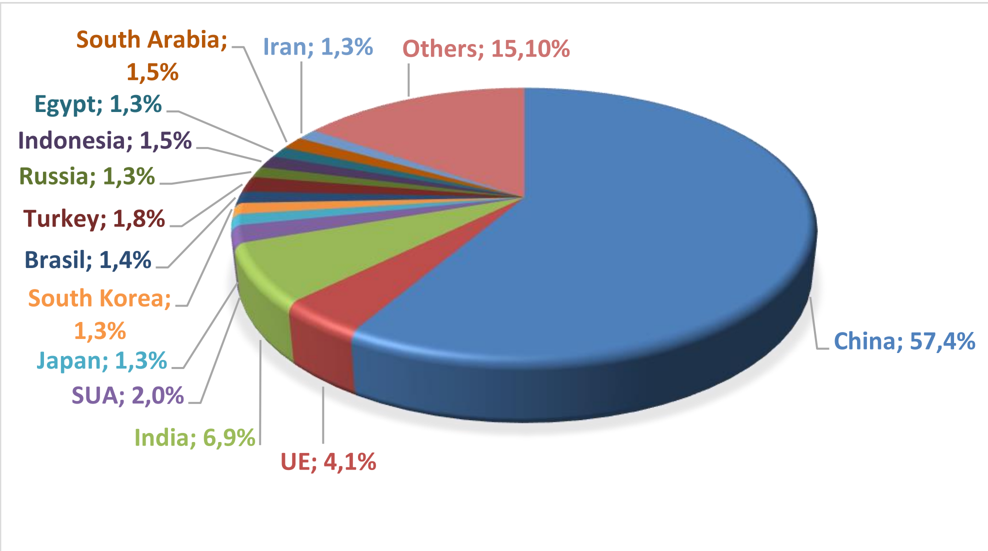


Figure 7. Structure of global cement production in 2018
Source: Preliminary report on the cement sector 2018, Competition Council

The echelon of the top 20 cement producers in the world cumulatively achieves about 75% of the global cement production. This tier includes the EU 28, which accounts for less than 4% of global cement production.

In conclusion, the information presented confirms that an oligopoly structure characterizes the Romanian cement market, having as main producers the groups: Heidelberg Cement Romania SA, CRH Cement (Romania SA), and Holcim Romania SA - members of the CIS (Cement Sustainability Initiative).

3.3. Fuel distribution market

The fuel industry in the European Union continues to be dominated by large multinational, integrated, and often multifunctional companies, which are active at all stages of fuel production (extraction, processing/refining, and distribution).

This sector's main characteristics in Romania do not differ significantly from the rest of the European countries, its structure being, in general, oligopoly. Specifically, most of the supply on this market is concentrated in the portfolio of a small number of oil companies (OMV-Petrom, Lukoil, Rompetrol, MOL, Gazprom, SOCAR). Several vertically integrated companies in this market have lower financial resources than the first category, which manages one / more fuel distribution stations.

Similar fuel market structures are found in most European countries, such as Bulgaria, Poland, Germany, or Greece. For example, for Romania in 2016, OMV Petrom Marketing, Rompetrol Downstream, Lukoil Romania, and MOL Romania Petroleum Products - the companies operating the Petrom, Rompetrol, Lukoil, and MOL gas station networks - jointly owned 80% of the local 40 billion lei market (8.8 billion euros). The four had in 2016 a turnover of 32.7 billion lei.

The market concentration is explained by the fact that three of the four at the top have their own refineries, where they produce fuels that then end up in trade. Therefore, the fuel market is also characterized in Romania's case by a small number of vertically integrated actors, an organization that generates barriers to market entry.

Compared to European countries, in 2017, Romania had a lower degree of concentration in terms of density of fuel stations per square kilometre and per thousand inhabitants.

In terms of these indicators, Romania is close to France, Poland, Germany, and Hungary, at the opposite end being Greece and Italy with significantly higher values.

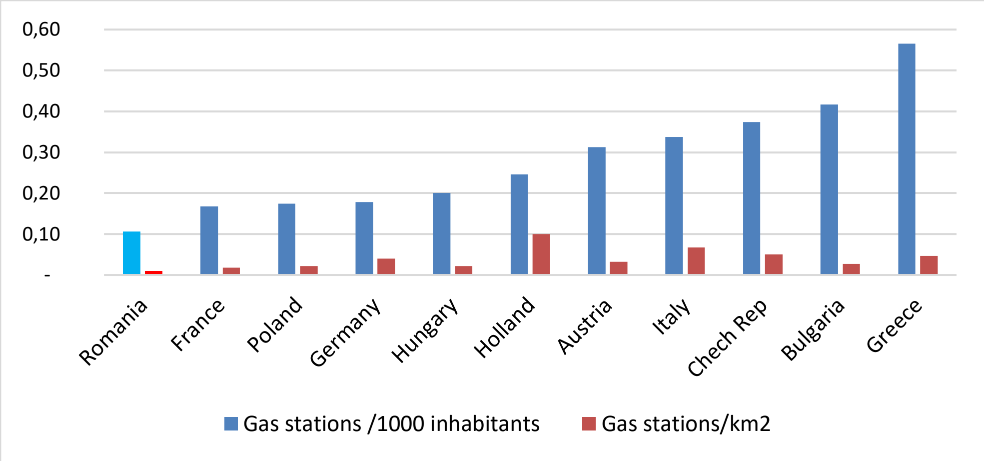


Figure 8. Gas station density, 2018
Source: https://europa.eu; National Oil Industry Associations, DG Energy

In conclusion, the Romanian fuel market is within the European average. In Romania, too, the fuel market is characterized by a small number of vertically integrated actors, an organization that generates barriers to market entry. However, compared to European countries, in 2017, Romania had a lower degree of concentration in terms of density of fuel stations per square kilometre, as well as per thousand inhabitants.

4. Conclusions

As a result of the current assessment, Romania's level of competition is relatively high in terms of the structure of the most important sectors of the economy, with more operators and lower concentration than the European average. However, these markets are in continuous development, with penetration and population coverage rates in progress to fill in the gaps with the other countries' rates.

Concentration indicators in the banking sector show a low concentration of Romania's banking assets, lower than the EU average specific values. The value of HHI in the case of Romania remains below average. In this context, it can be concluded that the Romanian banking sector has the characteristics of a competitive sector.

Regarding the cement Industry, the information presented confirms that an oligopoly structure characterizes the Romanian cement sector, having as main producers the groups: Heidelberg Cement Romania SA, CRH Cement (Romania SA), and Holcim Romania SA - members of CSI (Cement Sustainability Initiative). Under the conditions of some considerable barriers to entry, it is estimated that no entry will take place soon, and the three leading producers of the cement industry will not be removed from the first positions.

The retail fuel sector in Romania is within the European average. In our country, too, the fuel sector is characterized by a small number of vertically integrated actors. However, compared to European countries, in 2017, Romania had a lower degree of concentration in terms of density of fuel distribution stations per square kilometre, as well as per thousand inhabitants.

Thus, based on the available information on the sectors under consideration, they rank as a level of concentration below the European averages corresponding to those sectors. Simultaneously, there is a low level of penetration - share in GDP, which may be a consequence of the level of the population income, which in Romania could vary from the European average.

The contribution of the paper to the field of sector concentration and sustainable development endeavours to support academics, decision-makers, and practitioners in the field, by offering empirical evidence to support enhancing strategies for the researched sectors, and suggesting further comparative studies at European level for countries with similar conditions, in addition to the analysis carried out for Romania.

Acknowledgment

This work was cofinanced from the European Social Fund through Operational Programme Human Capital 2014-2020, project number POCU/380/6/13/125015" Development of entrepreneurial skills for doctoral students and postdoctoral researchers in the field of economic sciences".

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