

# BENCHMARK AND TREND ANALYSIS OF THE COMPETITION IN BANKING SECTOR

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## Abstract

Competition in the banking sector brings a wide range of benefits: to clients-individuals, to clients-legal and as a whole to the economic development. Comparing to other sectors, where competition policies are oriented towards the promotion of a level near to a perfect competition, the banking sector faces a continuous trade-off between competition and stability: too much competition increases instability, but too little competition will also have dire consequences for consumers. There is a number of researches dedicated to this problem, however until today a consensus have not been reached yet.

In the absence of this consensus, were decided to be applied to the benchmarking analysis. In addition, trend analysis identifies which areas are getting worse.

For this purpose were selected a list of 8 countries in the region that are comparable either by territorial size, population size or cultural characteristics, including Armenia, Estonia, Latvia, Moldova, Romania, Russian Federation, Slovak Republic and Ukraine. The study contain analysis of concentration indices and of measures of market power.

The results of the study emphasize the existence of different levels of concentration and performances on the banking markets of the analyzed countries, as well as some similarities which allowed us to make some conclusions and recommendations.

**Keywords:** competition, banking sector, market power, market concentration, benchmarking analysis, trend analysis.

**JEL classification:** C4, G21, D40, D50, L11.

## 1. Introduction

Competition in the banking sector brings a wide range of benefits: to clients-individuals through increasing the access to the banking and financial services, higher interest rates at deposits and lower costs for credit, to clients-legal entities through decreasing the cost of financing and as a whole contributing positively to the economic development of the country and increasing of the population's welfare.

Universally, competition policy aims to ensure:

- technological innovation which promotes dynamic efficiency in different markets;
- effective price competition between suppliers;
- safeguard and promote the interests of consumers through increased choice and lower price levels.

Comparing to other sectors, where competition policies are oriented towards the promotion of a level near to a perfect competition, the banking sector faces a continuous trade-off between competition and stability: too much competition increases instability and the risk of systemic failure, but too little competition will also have dire consequences for consumers and investors.

There is a great number of researches dedicated to this domain, however *until today a consensus have not been reached yet*.

In the absence of this consensus, were decided to be applied to the benchmarking analysis, which involves the study of economic processes and phenomena in relation to a criterion considered as the basis of reference, thus establishing the proportional levels and the development level of the analyzed phenomenon.

In addition to the benchmarking analysis, trend analysis identifies which areas are getting worse.

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## 2. Brief review of concepts

Merriam Webster's online dictionary [10] defines benchmarking as "the study of a competitor's product or business practices in order to improve the performance of one's own company."

However, the term derives from the noun benchmark. The definition of a benchmark includes "a point of reference from which measurements may be made" and "something that serves as a standard by which others may be measured or judged." [4]

But we had decided to apply this method at macroeconomic level in order to assess the performance of the competition policy as a public policy.

Benchmarking is used to measure performance using a specific indicator resulting in a metric of performance that is then compared to others. [6]

Benchmarking *methodology* consists of four phases: Phase 1: Plan—establish the project scope, develop the data collection approach and requirements, and set the criteria for peer groups; Phase 2: Collect—collect data; Phase 3: Analyze—analyze and validate information collected to identify performance levels, leading practices, enablers, and proven templates and other tools; Phase 4: Adapt—report and develop action plan for change. [1]

Historically, the benchmark is based on Kaizer and comparative advantage thinking.

In this paper the benchmarking analysis was applied in order to estimate the appropriate level of competition in banking sectors, accordingly to the situation registered during last decade in several European economies, classified by the WorldBank as lower-middle-income economies and upper-middle-income economies.

The trend analysis, a form of comparative analysis, is an aspect of technical analysis that tries to predict the future movement of an indicator based on past data. Trend analysis is based on the idea that what has happened in the past gives an idea of what will happen in the future.

We believe that benchmarks should be used extensively to justify competition policies, improve banking regulation framework and to make predictable the behavior of regulators (Central Banks and Competition Authorities) for banks managers and clients.

Regulators are the rule-enforcers and they are appointed by the government to oversee how markets work and the outcomes that result for producers and consumers.

## 3. Analytical framework

*Benchmarking criteria.* So, firstly we had selected the criteria. The study contains analysis of concentration indices and of market power indicators, inclusively: the 3 and 5-bank assets concentration indexes, the Lerner index, the Boone indicator, the H-statistic index, the bank lending-deposit spread, the return on equity and the return on assets.

*Geographical coverage.* For the study were selected a list of 8 countries in the region that are comparable either by territorial size, population size or cultural characteristics, including Armenia, Estonia, Latvia, Moldova, Romania, Russian Federation, Slovak Republic and Ukraine. Where was possible the situation in the Euro area was analysed.

The analysis is carried out from the perspective of the Republic of Moldova.

*Methodological limitation.* The provided analysis do not measure the full range of competition indicators that characterise the state of competition in the banking sector. Although the case study assumptions for this benchmarking analysis make the data comparable at a global level, they also reduce their scope.

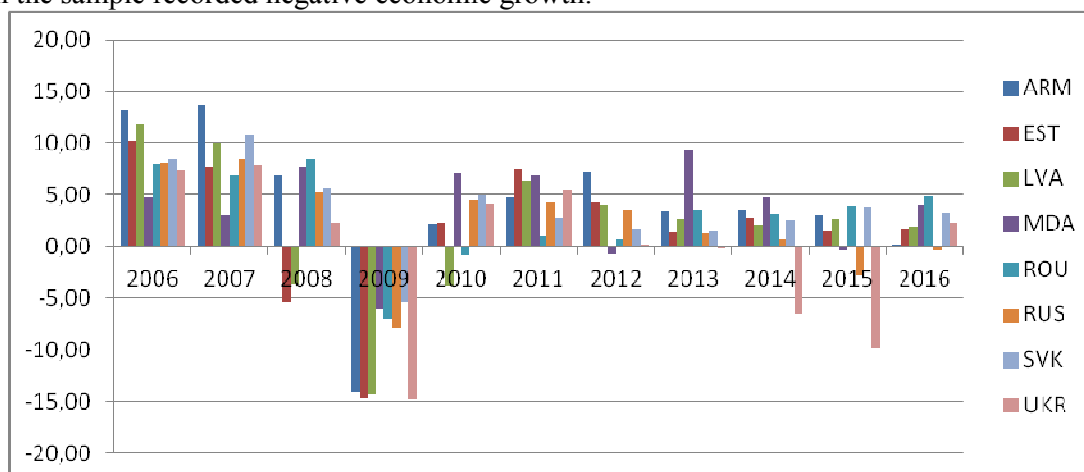
## 4. Data used and estimation results

For benchmark and trend analysis, were used annually publicly available data compiled by the World Bank and Central Banks.

In order to capture a Juglar cycle, were decided to analyse the period of 2006-2015.

The first indicator being analyzed is GDP growth, as a main macroeconomic indicator, which characterises the general macroeconomic context and trends.

Regarding on the trend of GDP, its evolution in the Republic of Moldova corresponds with the evolution in the selected countries, which confirms the assumptions made at the base of their choice as reference economies for our study (fig. no 1). Thus, in 2009 all the countries in the sample recorded negative economic growth.

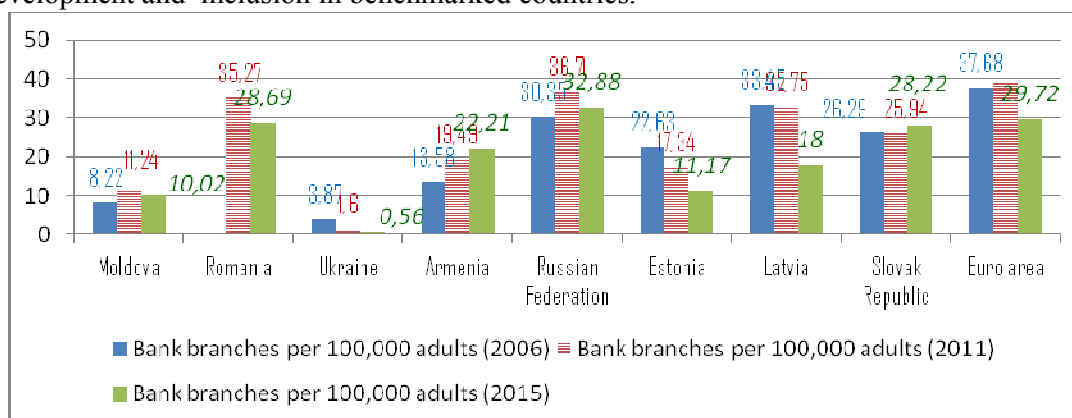


**Figure no. 1. GDP growth (annual %)**

Note: Armenia -ARM, Estonia – EST, Latvia –LVA, Moldova – MDA, Romania –ROU, Russian Federation – RUS, Slovak Republic-SVK, Ukraine- UKR.

The analysis of the situation in the Republic of Moldova referring to the analyzed countries leads to the following conclusions: in 2006 and 2007 recorded the lowest level of economic growth; in 2009 it recorded the second best level of the indicator, after Slovak Republic; in 2010 it registered the highest economic growth; in 2011 it ranked second with the strongest economic growth after Estonia; in 2012 was the only country (among the selected countries) that had negative economic growth; in 2013 and 2014 recorded the highest rate of economic growth; in 2015 there was a negative economic growth alongside Ukraine (which was affected by the military conflicts taking place in the Donetsk, Luhansk and Donbas regions) and Russia (which is affected by the EU and US sanctions); in 2016 it registered the second highest rate of economic growth, after Romania.

Secondly, were analyzed a set of indicators that characterize the level of financial development and inclusion in benchmarked countries.



**Figure no. 2. Bank branches per 100,000 adults in the Republic of Moldova among benchmarked countries**

Source: IMF. Financial Access Survey (FAS).

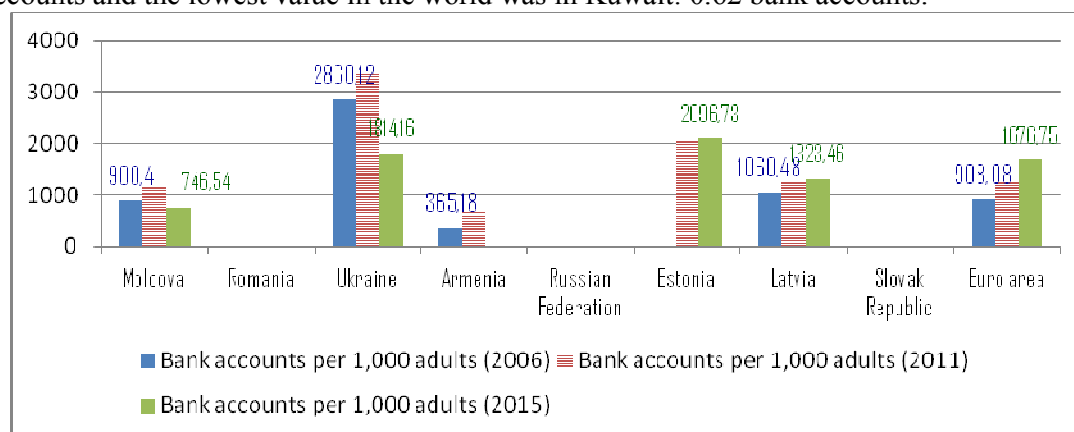
Figure no. 2 shows how Commercial bank branches (per 100,000 adults) varies by country and depicts the indicator's trend. In most countries and in the Euro area, the number of Bank branches per 100,000 adults increased in 2011 compared to 2006. In 2015 it decreased compared to 2011. This is explained to a certain extent by the change in the channels of distribution of banking services and orientation from traditional to online channel.

In the 2015 year the country with the highest value is Russia, with a value of 32,88, followed by Romania with a value of 28.69. The number of bank branches per 100,000 adults in Euro area in 2015 constituted 29,72.

The country with the lowest value is Ukraine: 0.56. This is the lowest value in the world.

In Moldova, the number of bank branches per 100,000 adults in 2006 amounted to 8.22, after which it increased to 11.24 in 2011 and then dropped to 10.02 at the end of 2015.

The second financial inclusion indicator is Bank account per 1,000 adults. The world average for 2015 was 736.93 bank accounts. The highest value was in Estonia: 2096,73 bank accounts and the lowest value in the world was in Kuwait: 0.62 bank accounts.



**Figure no. 3. Bank account per 1,000 adults in the Republic of Moldova among benchmarked countries**

Source: IMF. Financial Access Survey (FAS).

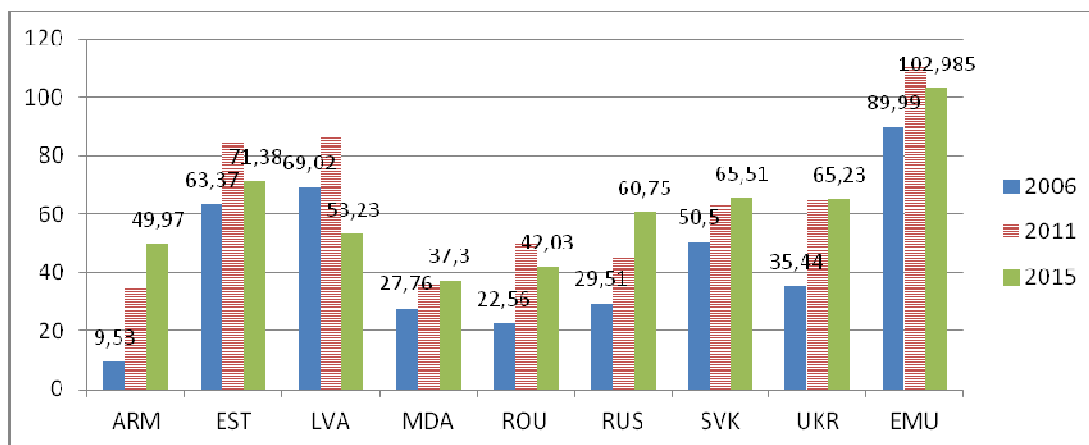
We would like to mention that we do not have data for several countries from the selected sample (Romania, Russia, Slovakia).

Of the analysed countries, most accounts are held by Estonian and Ukrainian citizens (2096.73 and 1814.16 respectively), which represents a level higher than in the Eurozone.

In the euro area the indicator's value is rising.

In the Republic of Moldova, the number of Bank accounts per 1,000 adults in 2006 amounted to 900.4, then increased to 2011 and then decreased to 746.64 by the end of 2015. The decline in the indicator in the Republic of Moldova was caused by the liquidation of three banks in 2015.

During the analyzed period, the deposit money banks' assets to GDP ratio in the Republic of Moldova increased. Despite of this, in 2015 was recorded the lowest level compared to all the reference countries (fig. no.3).



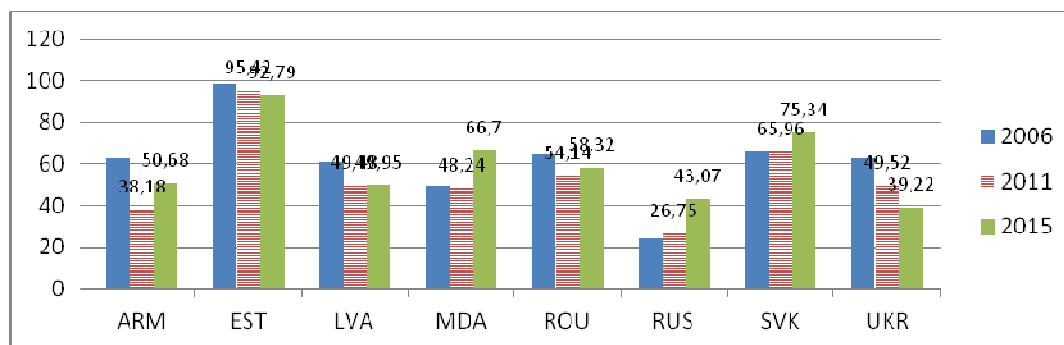
**Figure no. 4. Deposit money banks' assets to GDP in the Republic of Moldova among benchmarked countries**

Source: IMF. International Financial Statistics (IFS).

Thus, in the 2015 year, the value of the Deposit money banks' assets to GDP in Moldova is 2.76 times lower than in the Eurozone and represents only 60 of the value registered in Ukraine (fig. no. 4).

Another trend to be noticed is the decrease in the level of indicators in 2015 compared to 2011 in EMU and in analyzed countries (except for Slovakia).

The analysis of the situation in Moldova among the situation in the selected countries shows that in 2015 the value of the "Bank concentration" indicator, calculated as the sum for the three largest banks in Bankscope, is lower than in Estonia and Slovakia, but higher than in the rest of the analyzed countries (fig. no. 5).

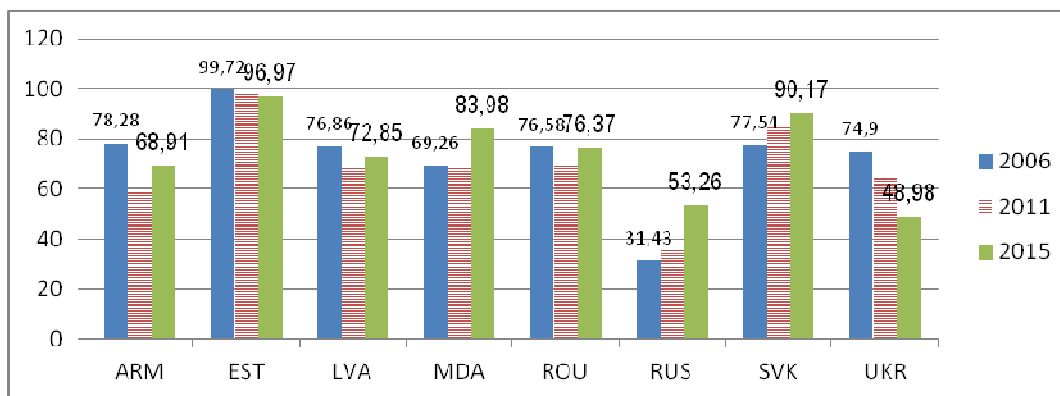


**Figure no. 5. 3-Bank concentration in the Republic of Moldova among benchmarked countries**

Source: Bankscope, Bureau van Dijk (BvD).

In the Republic of Moldova, in 2015, the "3-Bank concentration" indicator is 70% higher than in Ukraine and slightly higher than in Romania and Russia.

Based on the indicator 5-Bank asset concentration, the Republic of Moldova is placed on the top of analyzed countries, following Estonia and Slovak Republic.



**Figure no.6. 5-Bank asset concentration in the Republic of Moldova among benchmarked countries**

Source: Bankscope, Bureau van Dijk (BvD).

The conclusion which arises from the fig. no. 6 is that large commercial banks clearly dominate the Moldovan banking industry in terms of size.

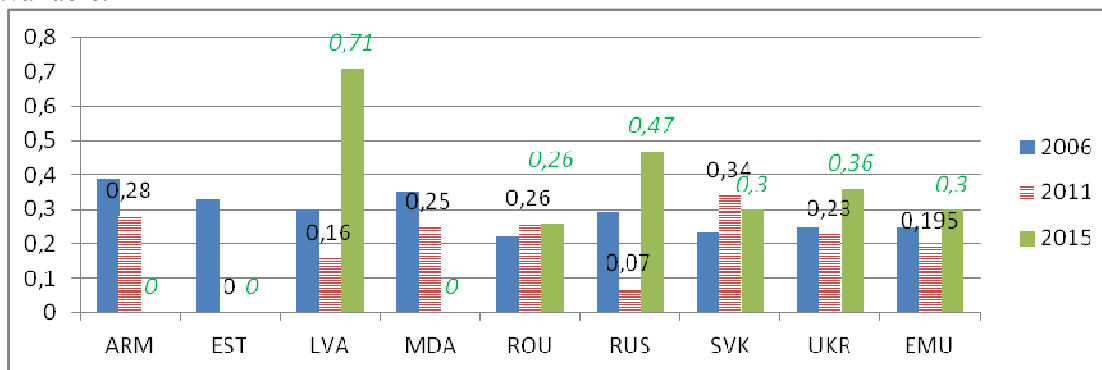
*The non-structural approach* assesses the degree of competition directly by observing behavior of firms in the market.

The Lerner index is a non-structural indicator, that measures the market power in the banking market. It compares output pricing and marginal costs (that is, markup). So, it is defined as the difference between output prices and marginal costs (relative to prices). The index ranges from a high of 1 to a low of 0, with higher numbers implying greater market power. [12]

An increase in the Lerner index indicates a deterioration of the competitive conduct of banks.

Analysis of the Lerner Index in the banking sector of the Republic of Moldova denotes the existence of a moderate level of competition in the banking sector.

In 2006-2011, the level of competition estimated considering the Lerner Index, was reduced. Unfortunately, for the 2015 period, data on the variation of these indices is not available.



**Figure no.7. Dynamics of the Lerner Index in the banking sector of the Republic of Moldova among benchmarked countries**

Source: Bankscope, Bureau van Dijk (BvD).

The first and most important remark refers to the indicator's trend presented in the fig. no. 7 is that in most countries and in the Euro area, the **Lerner Index** decreased in 2011 compared to 2006, and in 2015 it increased compared to 2011.

In 2015 year the country with the highest value is Latvia, with a value of 0,71, followed by Russia with a value of 0,47.

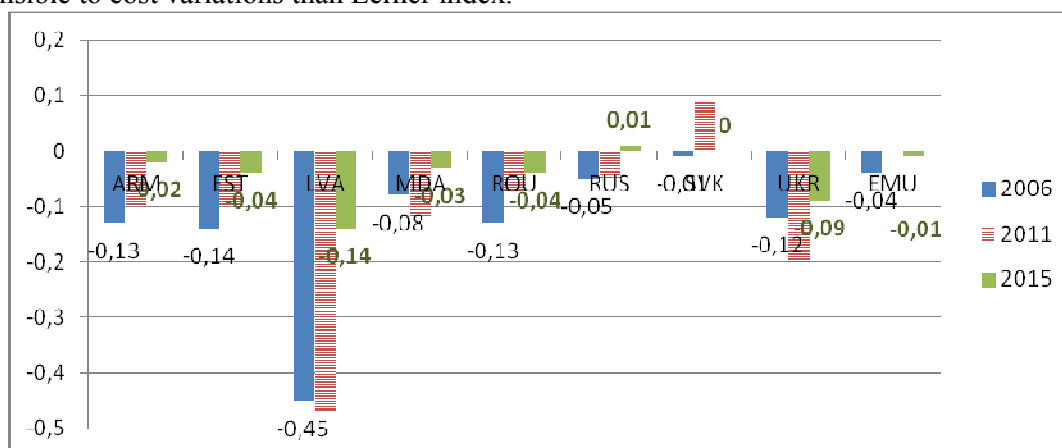
The value of the Lerner Index in the Euro area in 2015 constituted 0,3. The country with the lowest value is Romania, with a value of 0,26 and denotes about a lowly market power .

In order to evaluate the competition based on profit-efficiency in the banking market, were used the Boone indicator.

The Boone indicator measures the degree of competition based on profit-efficiency in the banking market. It is calculated as the elasticity *of profits to marginal costs*.

An increase of the Boone indicator implies a deterioration of the competitive conduct of financial intermediaries. A more negative value of Boone indicator reflects a higher degree of competition.

The instability of the indicator during 2006-2015 indicates that Boone index is more sensible to cost variations than Lerner index.



**Figure no.8. The Boone indicator in the banking sector in the Republic of Moldova among benchmarked countries**

Source: Bankscope, Bureau van Dijk (BvD).

In 2015 the country with the lowest value is Latvia, with a value of -0,14, followed by Ukraine with a value of -0,09, and Estonia and Romania with values of -0,04.

The value of the Boone indicator in the Euro area in 2015 constituted -0,01.

The country with the highest value is Ukraine, with a value of -0,09.

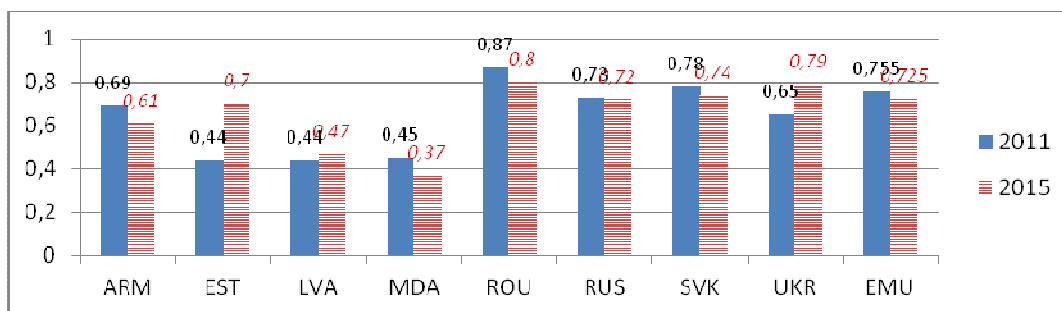
The *H-statistic* index, as per the *Panzar-Rosse model* represents a measure of the degree of competition in the banking market. It measures the elasticity of banks revenues relative to input prices.

Under perfect competition, an increase in input prices raises both marginal costs and total revenues by the same amount, and hence the *H-statistic* equals 1.

Under a monopoly, an increase in input prices results in a rise in marginal costs, a fall in output, and a decline in revenues, leading to an *H-statistic* less than or equal to 0.

When *H-statistic* is between 0 and 1, the system operates under monopolistic competition. However, it is possible for *H-stat* to be greater than 1 in some oligopolistic markets.

In 2010-2015, the *H-statistical* index recorded decreasing values between 0,45 and 0,37. So, the value of the *H-statistic* is between 0 and 1, which suggests that the system operates under a monopolistic competition.



**Figure no.9. Dynamics of the H-statistic index in the banking sector of the Republic of Moldova among benchmarked countries**

Source: Bankscope, Bureau van Dijk (BvD).

Comparing to benchmarked countries, in the Republic of Moldova, the H-statistical index recorded the lowest livelihood, as 0,37 in 2015, indicating a low level of competition and low elasticity of banks revenue versus input prices. This allows the conditions on the Moldovan banking market to be characterized as: under the monopolistic competition.

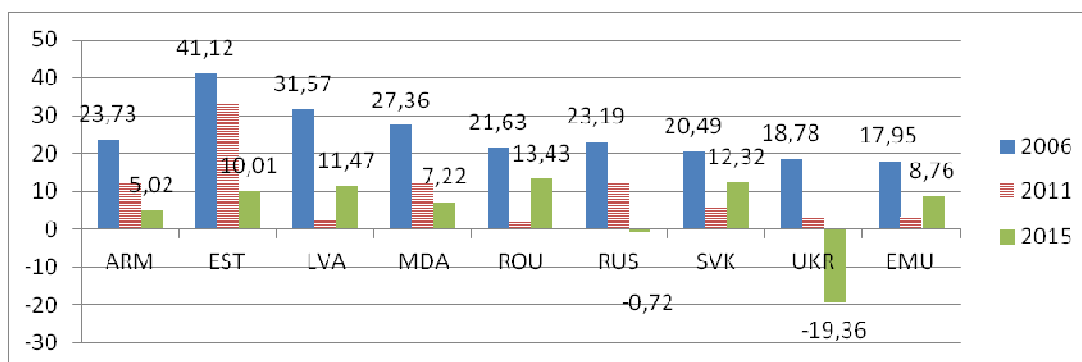
In 2015, the highest level of the H-statistical index was recorded in Romania (0,8), followed by Ukraine (0,79), Slovak Republic (0,74).

The value of the H-statistic index in the Euro area in 2015 constituted 0,725.

Moldovan banks are relatively profitable compared to other banks in the developed world.

High profitability does not, in and of itself, equate to low levels of competition and contestability within a market – indeed, it should attract new players. Similarly, it does not necessarily lead to worse outcomes for consumers [6].

Sustained high profitability could be the result of factors which are not detrimental to consumers. For example, it could be the result of productivity gains from technological advances being captured for shareholders.

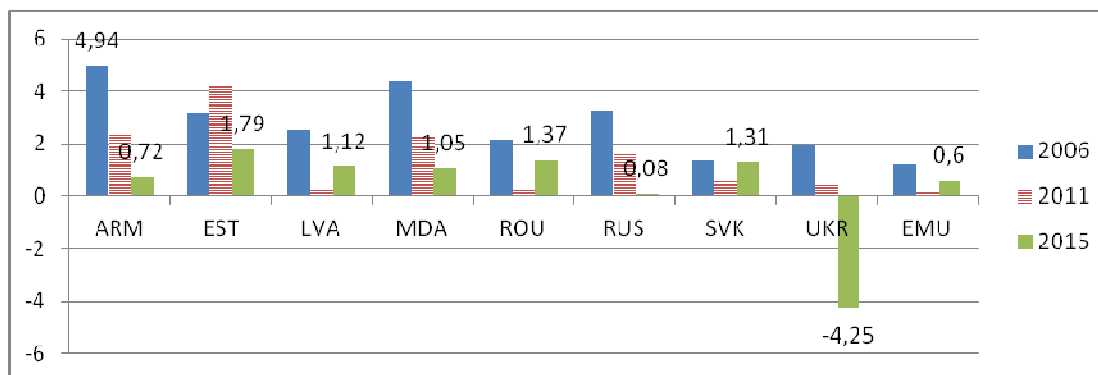


**Figure no.10. Bank return on equity (% before tax) among benchmarked countries (%)**

Source: Worldbank.

Ranking the banks operating in analyzed countries based on magnitude of ROE, shows that the most profitable is the banking system of Romania, which is followed by the banking system of the Slovak Republic and Estonia.

The ratio Bank return on equity (% before tax) in the Moldovan banking system is lower than in Euro area.



**Figure no.11. Bank return on assets (% , before tax) among benchmarked countries (%)**

Source: Worldbank.

Ranking the banks operating in analyzed countries based on magnitude of ROA, shows that the most profitable is the banking system of Romania, which is followed by the banking system of the Slovak Republic and Estonia.

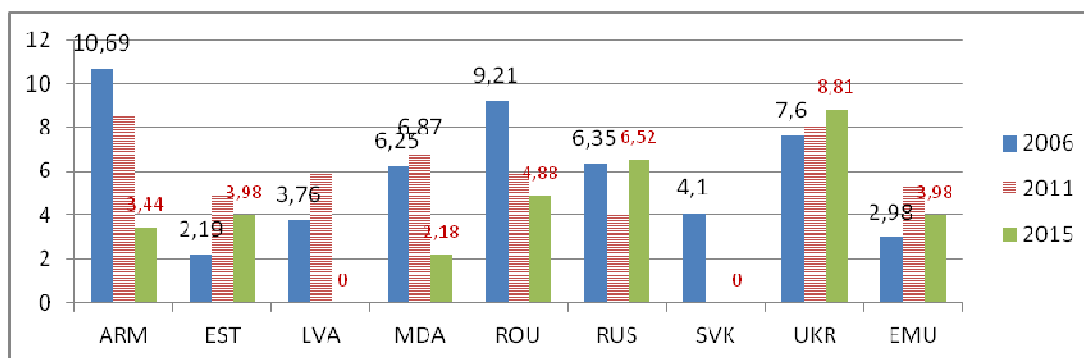
The ratio Bank return on assets (% , before tax) in the Moldovan banking system is 1.75 times higher than in Euro area.

Another indicator that can be used as an indicator of price-cost margins is the lending-deposit spread.

Bank lending-deposit spread represents the difference between lending rate and deposit rate.

Lending rate is the rate charged by banks on loans to the private sector and deposit interest rate is the rate offered by commercial banks on three-month deposits.

Fig. no.12 shows descriptive statistics for the Bank lending-deposit spread across banking system in benchmarked countries.



**Figure no.12. Dynamics of the Bank lending-deposit spread in the Moldovan banking system among benchmarked countries**

Source: IMF. International Financial Statistics (IFS).

Accordingly to the fig. no.12 the lending-deposit spread in Ukraine, Russia and Romania are consistently higher compared to the value recorded in the Moldovan banking system.

In 2006 and 2011, the level of Bank lending-deposit spread in the Republic of Moldova was higher than in neighbouring and euro area countries.

At the same time, the data presented in fig. no. 12 allow to conclude that in the Republic of Moldova in 2015 was recorded the lowest level of lending-deposit spread. From a competitive perspective, this indicates a high level of competition.

## 6. Conclusions

The results of the study emphasize the existence of different levels of concentration and performances on the banking markets of the analyzed countries, as well as some similarities.

The banking scene at the international level has undergone a transformation in the past decade, with the rapid globalisation and opening up of markets ; on both fronts of wholesale and retail banking.

Many empirical studies that were carried out have confirmed the hypothesis that higher seller concentration results in higher excess profit rates, which are accepted as indicator of market power.

According to the result of the study provided by Maudos, J., Guevara, J.[8], the market power, proxied by the Lerner index, affects the interest margin positively, and is highly significant.

In 2006 and 2011, the level of Bank lending-deposit spread in the Republic of Moldova was higher than in neighbouring and euro area countries.

Banks and other financial intermediaries tend to specialize in market segments where they exercise a competitive advantage. Whereas specialization facilitates banks to benefit from market conditions or their expertise, specialization may be accompanied by concentration of resources in counterparties, regions, industry sectors, or business products, compromising banks' diversification of their sources of business or income. This lack of diversification increases a bank's exposure to losses arising from the concentrated portfolio. Therefore, Concentration could work as a magnifying mechanism of financial shocks which may lead an institution to insolvency [2].

The benchmarking analysis has shown that in the analyzed countries there are no significant data that would derail great competition problems or financial stability problems.

But, the benchmarking is not a one-size-fits-all endeavor; the right approach should be based on declared aims. Furthermore, a wide range of expertise from assessment tools for real-time benchmarks to benchmarking studies were designed to address concrete country's specific needs.

Findings listed above are interesting and deserves to be tested in the context of future studies.

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