

# ANALYSIS OF THE PROFITABILITY INDICATORS AND THE INDICATORS FOR ASSESSING THE QUALITY OF BANK ASSETS IN EU MEMBER STATES IN THE PERIOD FROM 2007 TO 2017

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**Abstract:** *The research paper analyses the profitability of banks in EU Member States -earnings after taxes, return on equity and return on assets. It also reviews the dynamics of the indicators for assessing the quality of bank assets, such as the share of watch exposures and non-performing exposures on loans and advance payments, specific provisions and loan impairments of banks in the European Union and the euro area, since, similar to the profitability indicators, they are strongly affected by financial crises.*

**Key words:** *banks; banking system; profitability indicators; earnings after taxes; return on equity; return on assets; indicators for assessing the quality of bank assets; risk exposures on loans and advance payments; loan impairments; specific provisions; European Union*

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## Introduction

An analysis of the financial indicators of banks is essential, since banks accumulate a substantial financial resource from citizens and companies. Their financial situation should be subject to strict control as the insolvency of a bank can have a negative impact on the economy of a country.

Zavadska, Drozdovska and Yavorski (2012) point out that the stakeholders in the assessment of bank performance are various economic agents who are primarily interested in two major aspects: the efficiency of bank performance and the risk which is borne by a bank. The ex post analysis of bank

efficiency and its exposure to risk render it possible to assess the current health of a bank and to make forecasts. The efficiency of a bank performance is assessed by employing relevant coefficients and more complex control methods. The information required for making such assessments is provided in the financial statements of banks.

According to Johnson and Johnson (1996), the financial results of banks are analysed in order to assess the accomplishment of the goals and tasks which have been set by managers and to compare achieved results with the results achieved by other banks of the same type. This includes analysing key financial reports and designing the major ratios and indicators that will be employed to measure financial results. The objective of the analysis is to identify currently existing advantages and disadvantages and thus enable managers to focus on dealing with weaknesses and consolidate the strengths of their banks.

The main method which is used to analyse the financial health of banks involves an analysis of ratios and trends. Employed analytical techniques vary from studying the financial statements of banks to more complex methods like regression analysis.

The analysis of ratios is helpful in identifying the relations that have an impact on the business environment in which a bank operates and in defining the parameters of correlations that might be employed to single out potential problems. In order to identify trends, we compare the values of those ratios over several periods.

The last stage of the analytical process involves selecting a group of similar banks to be compared. In order to conduct a comparative analysis, analysts need to carefully select banks with similar features. Johnson and Johnson (1996) recommend that the analysis should include a comparison with other banks in the same geographical region or in the same trade zone so that the advantages and disadvantages of competitors could also be identified.

Zavadska, Drozdovska and Yavorski (2012) state that financial statements present the operations of banks since they form the balance sheets of banks and their financial results. The financial health of a bank depends on the success of its transactions, while financial statements make it possible to assess the overall impact of operations on the condition of the bank. Frank Johnson and Richard Johnson (1996) claim that 'managing the profitability of a bank in a dynamic and constantly changing environment requires professional awareness and interpretation of the information presented in the financial statements'.

The focus of the research of the profitability of banks in EU member states is on several key financial indicators of the credit institutions, such as profit after taxes, return on equity and return on assets, which are key measurers for assessing the profitability of banks. The analysis also employs indicators for assessing the quality of bank assets, which were strongly affected by the financial crisis, and profitability indicators like watch exposures and non-performing exposures on loans and advance payments, specific bank provisions and loan impairments of banks in the European Union and the Euro Area. Banks

generate their revenue from their active operations. The quality of bank assets has a major impact on the profitability of banks, therefore the indicators used to assess that quality are also included in this analysis. The analysis includes three groups of EU member-states: the first one is the group of old EU and Euro Area member states like Belgium, Germany, Italy, Luxembourg, the Netherlands and France which established the European Economic Community. The second group is that of the other EU member states that are part of the Euro Area. The third group is of EU member states which are not part of the Euro Area, such as Great Britain, Denmark, Sweden, Poland, Hungary, the Czech Republic, Bulgaria, Romania and Croatia.

The research covers the period from January 2007 to December 2017, which includes the period of the global financial crisis and the debt crisis in the Euro Area. The research uses official statistical data provided by the European Central Bank (ECB) and the Bulgarian National Bank (BNB). There is no available data about some countries for some of the years in the analysed period<sup>1</sup>.

The object of this research is banks in their role of major financial intermediaries in the economy. The subject of the research is the profitability and the quality of bank assets.

The main objective of the research paper is to review the dynamics of the earnings after taxes, the return on equity and the return on assets of banks in EU

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<sup>1</sup> There is no available data for the year 2007 about the indicators used in the analysis about banks in the Euro Area and there is no data about some financial indicators of banks in the European Union, or about Germany, Luxembourg and the Netherlands. There is no available data about specific provisions of the banks in Ireland, Greece, Spain and Austria in 2007, while the data available about profit after taxes, return on equity, return on assets and the ration between watch exposures and non-performing exposures on loans and advance payments is incomplete. There is no available data about the ratio between watch exposures and non-performing exposures on loans and advance payments in Ireland for the years preceding 2012. There is no data available about the year 2007 about the specific provisions of banks in the Euro Area of countries that are new EU member states, like Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania, and available data about profit after taxes, return in equity, the share of risk exposures and non-performing exposures on loans and advance payments in Slovenia, Malta, Slovakia and Lithuania is incomplete. Data about the ratio of watch exposures and non-performing exposures on loans and advance payments in Slovenia is only available for the years after 2011, and for Cyprus after 2009. As for EU member states which are not in the Euro Area, i.e. Great Britain, Denmark, Sweden, Poland, Hungary, the Czech Republic, Bulgaria, Romania and Croatia, there are partial data for the year 2007 about the indicators earnings after taxes, return on equity and return on assets, the ratio of watch exposures and non-performing exposures on loans and advance payments in Bulgaria, Romania, the Czech Republic and Poland. There are available data about Croatia about the period from 2013 to 2017; data about the ratio of watch exposures and non-performing exposures on loans and advance payments in the Czech Republic in 2016 and 2017 and in Sweden in the period from 2011 to 2017. There are no available data about Great Britain for the years 2007, 2014 or 2015.

member states in the period from 2007 to 2017 and to analyse measures for improving their financial results.

To accomplish this, we need to fulfil the following specific tasks:

1. Conduct a quantitative analysis of the profitability indicators of banks in EU member states.
2. Make a comparative analysis of the financial results of banks in the European Union.
3. Conduct a quantitative analysis of the indicators for assessing the quality of bank assets in EU member states.

The main thesis of the research paper is that the global financial and economic crisis had a strong negative impact on the profitability of banks and the quality of their assets in EU member-states, yet there was some improvement in the financial results and the values of the indicators for assessing the quality of bank assets towards the end of the researched period.

The research employs a combination of several methods, such as comparative analysis, inductive reasoning, deductive reasoning, descriptive analysis and synthesis, historical and logical analysis. The analytical approach is used since it guarantees higher objectivity of research findings.

## **1. Dynamics of Earnings after Taxes, Return on Equity and Return on Assets of Banks in EU Member-States in the Period from 2007 to 2017**

### **1.1. The Theoretical Basis of Bank Profitability Analysis**

Bikker and Bos (2008) point out that 'since bank shareholders receive the profit which a bank makes, it is in their interest to maximise that profit. This could be achieved by maximizing revenue and minimizing costs'.

Professor P. Stefanova (1994) states that 'bank profitability is an indicator of their yield' and Associate Professor S. Trifonova (2002) points out that 'the profitability of a bank gives awareness about the end result of their performance'. Associate Professor S. Trifonova (2002) also points out that bank profitability 'largely depends on the nature of their activity, as well as on the volume, the contents and the structure of their assets and liabilities which are ultimately presented by the value and the dynamics of the revenue generated and the costs incurred by commercial banks'.

According to Professor P. Stefanova (1994), 'Bank earnings give awareness about the end result of bank performance ... Increasing the size of that profit is an objective goal of the capital invested in the operation of a bank'. Bikker and Bos (2008) point out that 'banks seek to maximise their profit'. Professor P. Stefanova (1994) believes that 'the most reliable indicator of growing bank capital, i.e. the profitability of banks are profit margins, which are

defined as the ratio between gross profit minus taxes and the value of bank assets'.

There are different options for measuring the profitability of a bank and different indicators measuring different aspects of bank performance. Professor P. Stefanova (1994) identifies profit margins, i.e. the ratio between bank profit and the sum of bank assets, as the major indicator for assessing the end results of the active and the passive operations banks engage in. The measurer indicates the profit which a bank has made by using 100 units of assets, in other words, the profit which a bank has generated from 100 units of capital invested in the bank. That indicator can be used to identify the position of each bank within the banking system and the economy in general. Banks seek to achieve a profit margin that is at least as high as the average for the other banks in the country. A low profit margin indicates that a bank is implementing an extremely cautious lending and investment policy and its current expenditure is high. High profit margins indicate that banks are engaged in aggressive lending and investment policies, increasing the share of their earning assets and reducing their operation costs. If that is the case, banks are likely to be assuming a higher risk. That could result in higher profitability, yet a higher risk could also entail higher losses, and even bankruptcy.

Shareholders are interested in the profit margin of a single share (which is calculated as the ratio between earnings and the number of shares) or the profit margin of equity (which is the ratio between earnings and equity).

The profit margin of capital is calculated as the ratio between the earnings and the capital of banks.

Most of these indicators give awareness about the profitability of banks. The profit margin of a single share tends to be least accurate or exhaustive as a measure for assessing the profitability.

According to Professor P. Stefanova (1994), an extremely high profit margin of the equity accompanied by a relatively low profit margin of earnings from assets might be due to the large share of borrowed capital and, respectively, the small share of equity in the liabilities of a bank. This poses certain threats to the liquidity of banks. In terms of shareholders' interests, a bank may be performing efficiently, yet an extremely large amount of liabilities may ultimately lead to the failure of the bank.

Professor P. Stefanova (1994) points out that increasing the share of income-producing assets, i.e. loans and investments, is essential for raising the profitability of banks, although this factor has some negative impact as well. It increases the financial risk to which banks are exposed since the reliability of loans and banks liquidity decline, while the risk grows as a result of reducing the share of the liquid capital. Increasing the profitability of banks usually goes in parallel with increasing the risk of banking.

Zavadzka, Drozdovska and Yavorski (2012) define return on assets (ROA) and return on equity (ROE) as the indicators that are used most frequently to measure the profitability of banks. Those indicators are calculated with the formulae:

$$\text{ROA} = \frac{\text{Financial result}}{\text{Assets}}$$

$$\text{ROE} = \frac{\text{Financial results}}{\text{Equity}}$$

According to Zavadská, Drozdovská and Yavorski (2012), those are the two major indicators that are employed to assess the financial health of banks. Return on assets is used to assess the profitability of the assets which a bank holds, while return on equity enables bank owners to determine the profitability they could achieve, as well as the extent to which their bank could restore its equity base.

Mishkin (2016) points out that 'return on assets is a major measurer of the profitability of banks. Return on assets shows whether a bank has been managed effectively since it indicates the average earnings from every single dollar that has been invested in assets'.

Balls (2011) also identifies return on assets and return on equity as the two key indicators for measuring bank profitability. According to Balls (2011), 'return on equity is more important as a measurer of profitability'. Balls (2011) claims that 'return on equity indicates the earnings of a bank from each dollar which the shareholders have invested in the business. Bank managers seek high return on equity'.

Cecchetti and Schoenholtz (2014) also state that 'return on assets is a key measurer of how effectively a bank is exploiting its assets. A manager may compare the performance of different business lines of their bank by comparing the return on assets in different bank divisions'.

Hubbard and O'Brien (2011) claim that 'the shareholders of a bank possess the bank equity and are interested in the earnings of the bank which the bank managers will make from their investment. In other words, shareholders frequently assess the bank managers' performance based on the return on equity, rather than on the return on assets'.

Frank Johnson and Richard Johnson believe that 'the overall parameters of achieved financial results are synthesized in two key indicators – return on assets and return on equity'. According to them, 'return on assets and return on equity are the basis on which bank services are compared'.

Associate professor S. Trifonova (2002) puts an emphasis on the 'importance of return on assets as a primary indicator how effectively a commercial bank is managed, since it indicates whether the bank management is able to turn bank assets into net earnings. Return on equity, on the other hand, is a measurer of the rate of return, i.e. the income which shareholders in commercial banks receive for investing their capital in those banks. Return on equity largely depends on the capital structure of banks'.

Mishkin (2016) adds that there is a direct relationship between return on assets (which measures the effectiveness of bank management) and return on equity (which measures the success of an investment). That correlation is

established with the equity multiplier (EM) or the size of assets per dollar of equity:

$$EM = \frac{Assets}{Equity}$$

or

$$\frac{Net\ earnings}{Equity} = \frac{Net\ earnings}{Assets} \times \frac{Assets}{Equity}$$

from which the following formula can be devised:

$$ROE = ROA \times EM$$

The equation shows the size of return on equity when a bank maintains lower equity at a certain volume of assets. The smaller the amount of bank equity is at a certain volume of assets, the higher the profit of bank owners will be.

### 1.2. A Quantitative Analysis of Earnings after Taxes, Return on Equity and Return on Assets of Banks in EU Member States

Figure 1 and Figure 2 show earnings after taxes, return on equity and return on assets of banks in the European Union and the Euro Area in the period from 2008 to 2017.

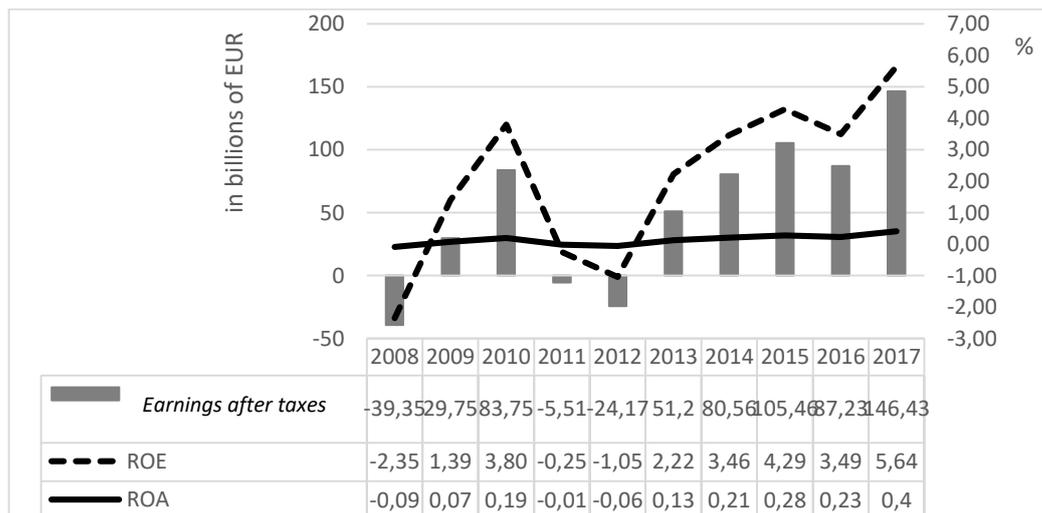
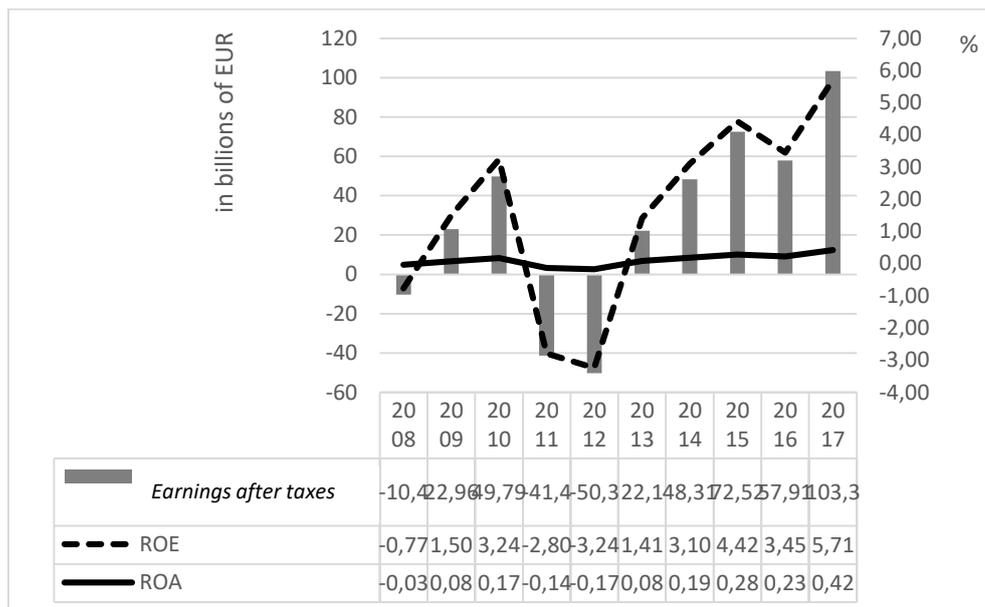


Figure 1 Earnings after taxes (in billions EUR), return on equity (%) and return on assets (%) of the banking system of the European Union in the period from 2008 to 2017

Source: ECB, computations made by the author.



*Figure 2 Earnings after taxes (in billions of EUR), return on equity (%) and return on assets (%) of banks in the Euro Area in the period from 2008 to 2017*

Source: ECB, computations made by the author.

In 2008, banks in the European Union and banks in the euro area made a loss. The loss reported by banks in the European Union was four times as high as the loss reported by banks in the euro area. Banks reported profit in 2009 and 2010, yet in 2011 and 2012 reported losses by banks in the euro area were much higher than those reported by banks in the European Union. From 2013 till the end of the researched period, banks reported profit which increased every year, the only exception being the year 2016, when the earnings after taxes reported by banks both in the European Union and in the euro area were lower. The highest values of the indicator were registered by both groups of banks in 2017. Available data indicate that banks in the European Union and in the euro area have recovered from the financial crisis and are now functioning steadily. We need to point out that registered changes in the values of the indicator were similar for banks in the European Union and for banks in the euro area.

Changes in the values of the return on equity indicator followed the changes in the financial results achieved by banks. At the beginning of the period, i.e. in 2008, the values of the indicator were negative. A growth in the values was registered till 2010 by banks in the European Union and in the euro area. This was followed by a significant decline in 2011 and in 2012, the values of the return on equity indicator were negative. In 2013, values started growing again and continued to increase till the end of the researched period, the year 2016 being an exception with a reported decrease.

Changes reported by both groups of banks in return on assets each year were similar to reported changes in return on equity, yet the dynamics of changes

in return on equity was more explicit. The values of the return on assets indicator were lower, with no serious fluctuations reported in the period from 2008 to 2017 by the banks in the European Union or those in the euro area. We should note that the values of the return on equity and the return on assets reported by the banks in the European Union were slightly better than those reported by banks in the euro area.

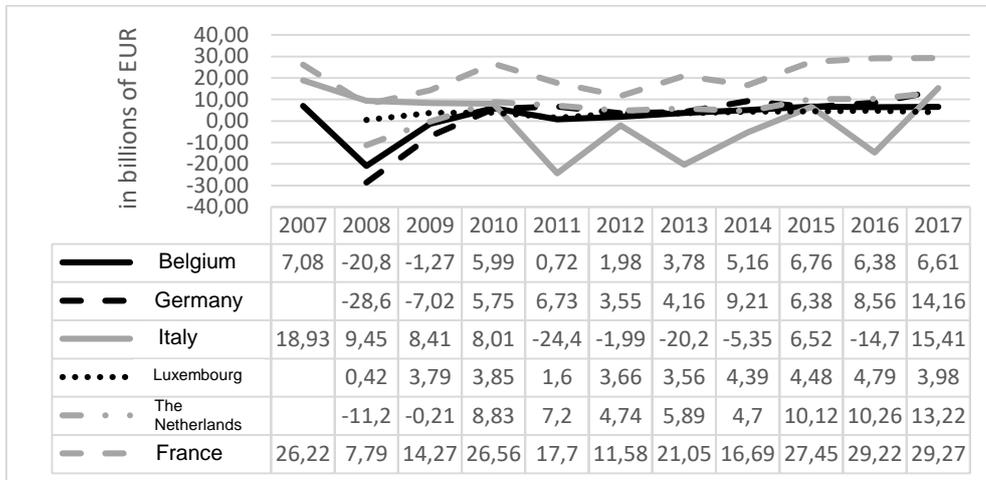


Figure 3 Earnings after taxes of the bank systems of Belgium, Germany, Italy, Luxembourg, The Netherlands and France in the period from 2007 to 2017. (in billions EUR)

Source: ECB.

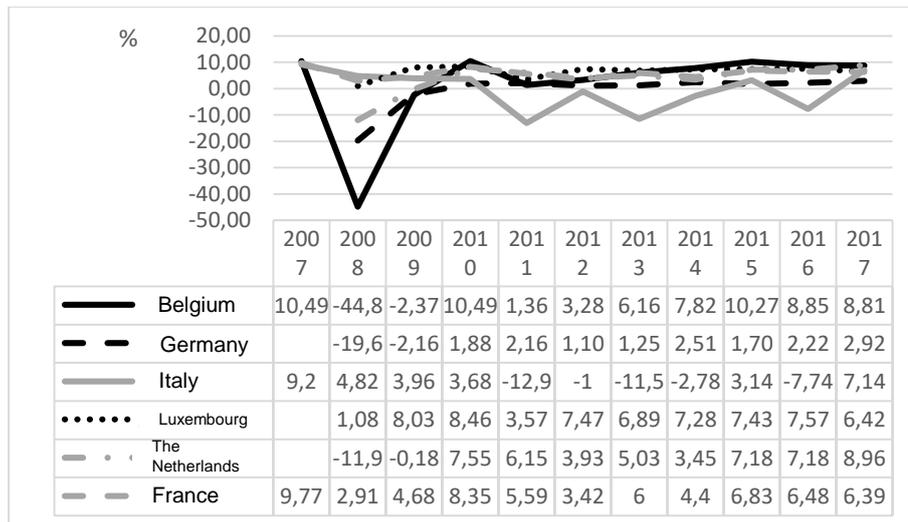
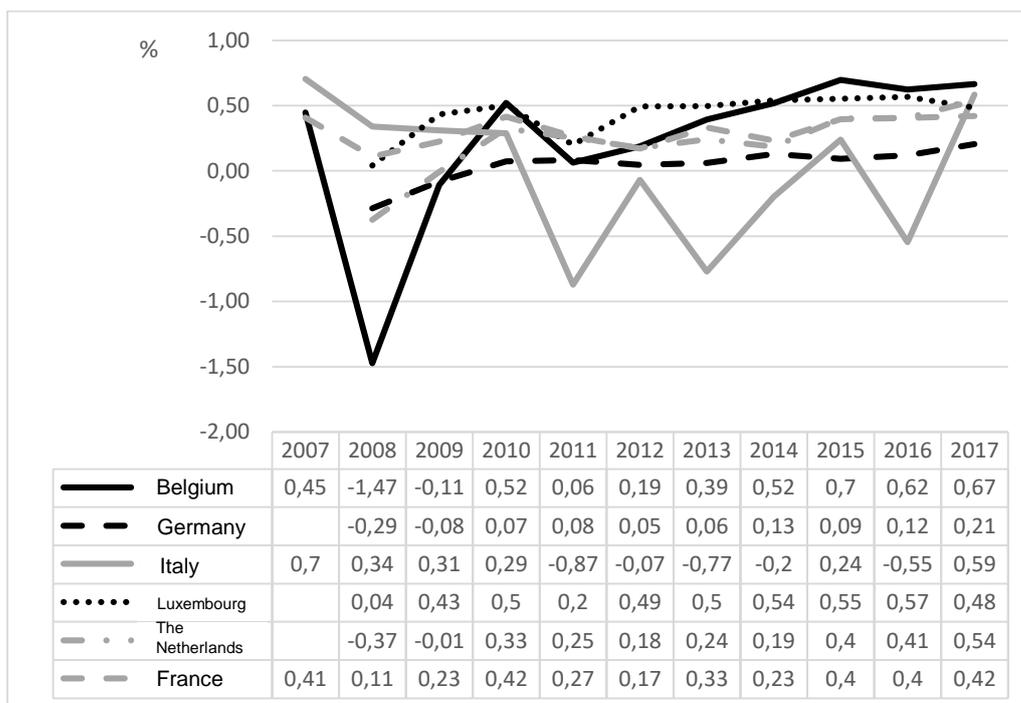


Figure 4 Return on bank equity in Belgium, Germany, Italy, Luxembourg, The Netherlands and France in the period from 2007 to 2017 (%)

Source: ECB, computations made by the author.



*Figure 5 Return on bank assets in Belgium, Germany, Italy, Luxembourg, The Netherlands and France in the period from 2007 to 2017 (%)*

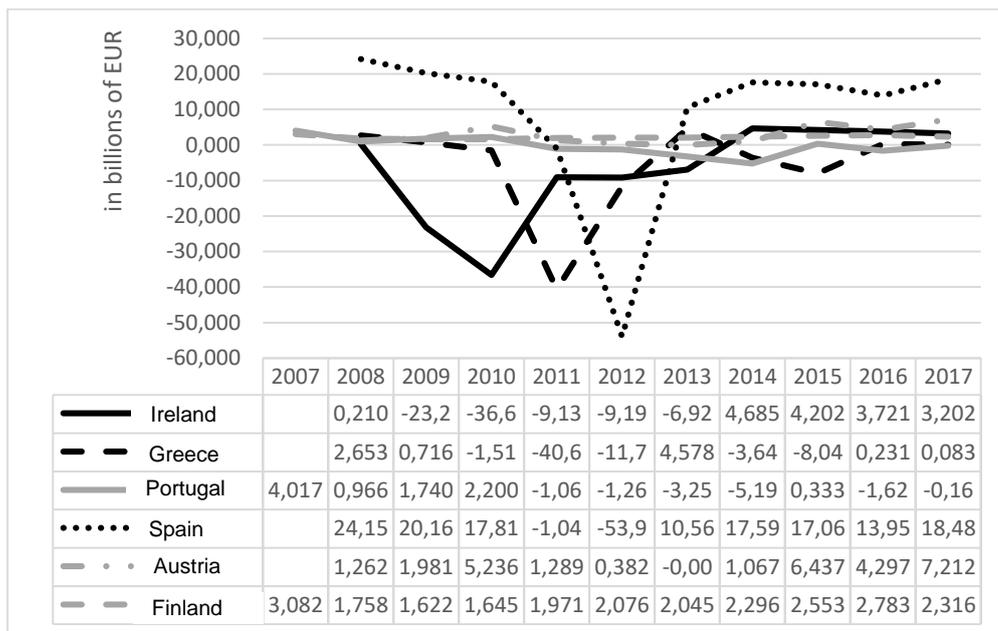
Source: ECB, computations made by the author.

In 2008, banks in all EU member states reported decreasing earnings after taxes, with Belgium, Germany and the Netherlands registering losses. In 2008, the lowest values of the indicator were reported by Belgium, Germany, Luxembourg, the Netherlands and France, while Germany reported the biggest losses. The poor financial results were due to the impact which the global financial and economic crisis had on the performance of banks. In 2009 and 2010, there was an improvement in the values of the indicator in all countries, but Italy. In 2010, all countries included in the research, reported a net profit, yet in 2011, and in some countries, 2012 as well, the values of the indicator went down again. In the period from 2013 to 2015, banks in most researched countries registered improving financial results, which remained at the same levels in 2016 and in 2017. We should note that observed changes in the values of the indicator of bank performance in all countries in the euro area were registered in parallel. Italy was the only exception from the trend, since the financial result achieved by its banks declined in the period from 2008 to 2011. The Italian bank system reported a substantial decrease in operating losses in 2012, yet in the following year reported losses were high again. In 2014 and 2015, there was an improvement in the values of the indicator for German banks, followed by substantial losses in 2016, while reported earnings after taxes in

2017 were close to those registered in 2007. Italy's bank system reported losses in the period between 2011 and 2014, as well as in 2016. The adverse effects of the global financial and economic crisis and the debt crisis in the euro area affected most dramatically the banks in Italy, both in comparison to the other researched countries and to all EU member states. Italian government circumvented the rules and managed to save small Italian banks from going bankrupt. The bank systems of the other three countries that were strongly affected by the financial crisis - Belgium, Germany and the Netherlands – reported losses in 2008 and 2009, then registered profit till the end of the researched period. The bank systems of France and Luxembourg were the best performing ones in terms of that indicator, since they did not register any operating losses in the period from 2007 to 2017. The trend in the financial results reported by the banks in all researched countries was very dynamic.

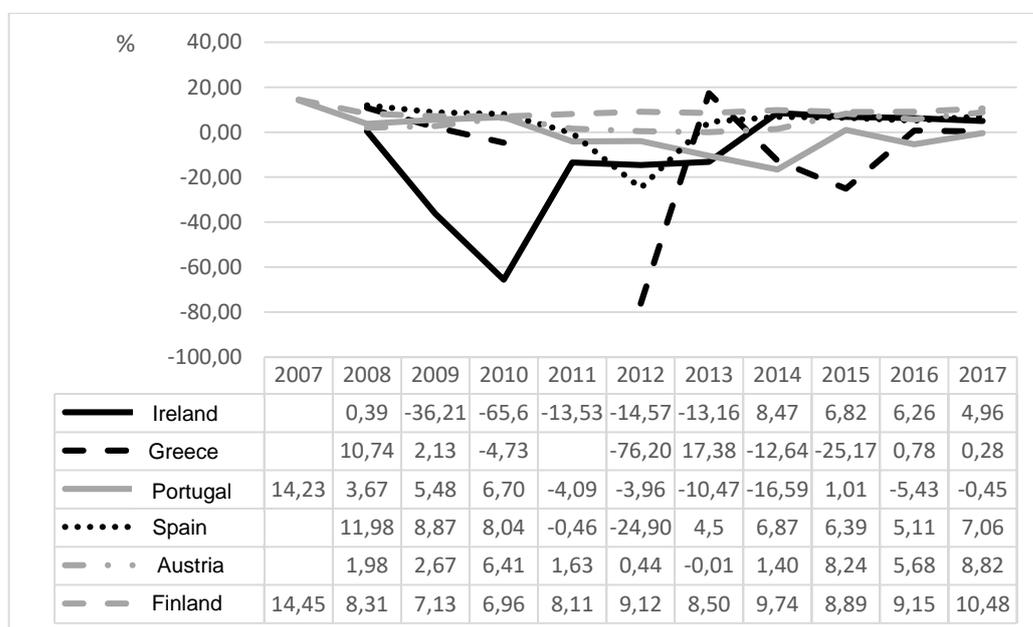
Changes in the values of return on equity followed changes in the financial results reported by the banks. Initially, those values went down. It is noteworthy that return on equity decreased reaching an extremely low value of 44.82% in Belgian banks in 2008. On the one hand, this was due to the substantial loss that was reported (20.89 billion EUR), and on the other hand, the equity of the Belgian bank system went down by nearly 45% in 2008, compared to its amount in 2007. This was followed by an increase in the values of the indicator till 2010 in the bank systems of the countries that once established the European Economic Community. Those values then dropped significantly in 2011, rising slightly in the period from 2013 to 2015. It is not possible to identify a common trend in the changes of the return on equity in the researched countries in the years that followed. The dynamics of that indicator in the Italian bank system differed dramatically from the general trend and followed the changes in the financial results reported by Italian banks, its values being negative during most of the years. As the figures below indicate, the dynamics of return on bank equity in Belgium largely exceeded reported financial results, while at the same time being much lower than the dynamics of return on equity for the banks in Germany, Italy and France.

The values of the return on assets indicator were low and followed changes in reported financial results and return on bank equity in the period from 2007 to 2017. The values of the indicator increased in the bank systems of researched EU member-states in 2017. The deterioration in the values of the indicator was higher than the deterioration of the return on equity in Italy, Luxembourg and France. Besides, the dynamics in the return on equity and the return on assets in the Belgian bank system was greater than that of reported earnings after taxes. Figures 6, 7, and 8 present changes in earnings after taxes and in the values of the indicators return on equity and return on assets in the banks of the countries in this research for the period from 2007 to 2017.



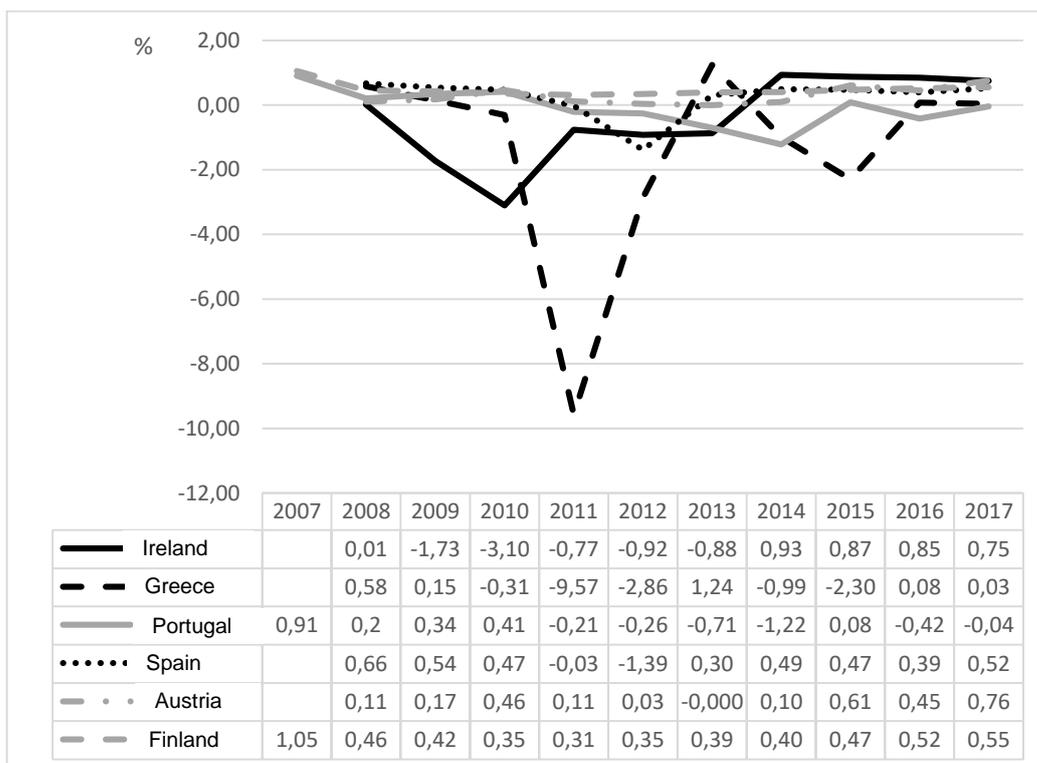
*Figure 6 Earnings after taxes of banks in Ireland, Greece, Portugal, Spain, Austria and Finland in the period from 2007 to 2017 (in billions EUR)*

Source: ECB.



*Figure 7 Return on equity of banks in Ireland, Greece, Portugal, Spain, Austria and Finland in the period from 2007 to 2017 (%)*

Source: ECB, computations made by the author.



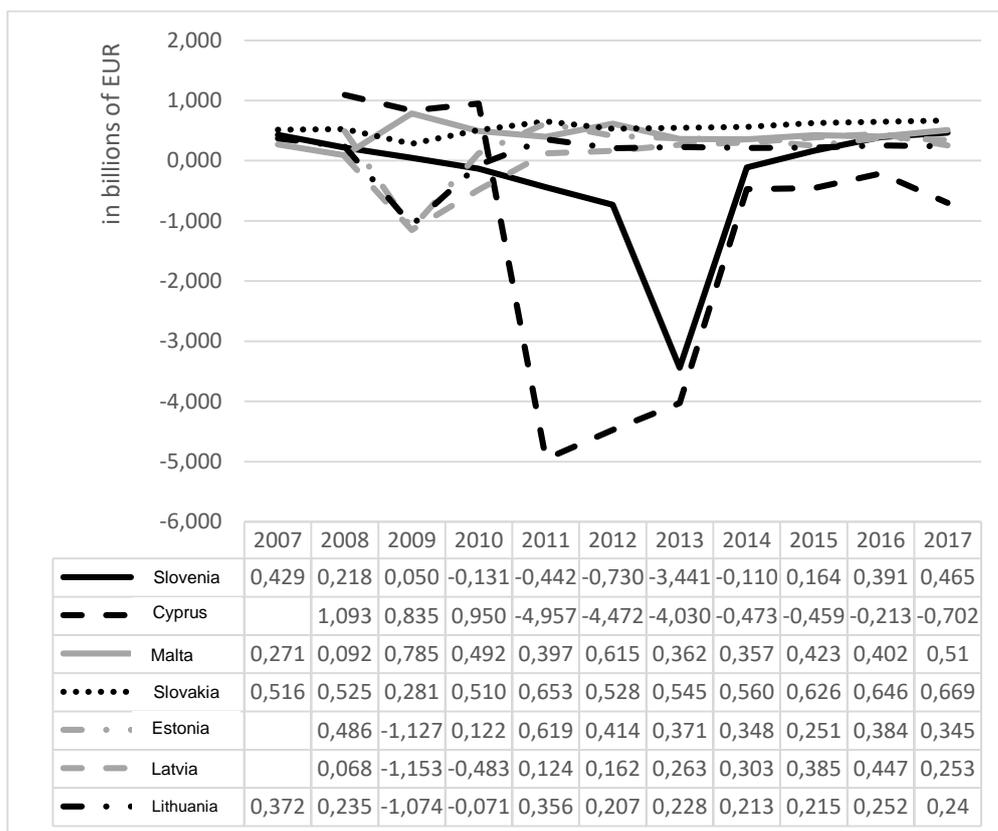
*Figure 8 Return on assets of banks in Ireland, Greece, Portugal, Spain, Austria and Finland in the period from 2007 to 2017 (%)*  
 Source: ECB, computations made by the author.

In most of the countries in the euro area, earnings in the bank system declined at the end of the researched period, Ireland and Austria being the two exceptions. In 2008, banks in Portugal and Finland, reported a substantial drop in their earnings. In 2009 and then in 2011 and 2012, the financial results of the banks in the majority of the countries included in this research went down. There was an increase in the values of the indicator in most of the countries in 2014, followed by another decrease in 2016. We should note that banks in Greece reported losses of 2.653 billion EUR in 2008, and in 2015 reported losses amounted to 8.049 billion EUR – the third highest loss reported by Greek banks during the researched period, after the reported losses of 40.645 billion EUR in 2011 and of 11.711 billion EUR in 2012. The earnings of the bank system in Greece decreased substantially in 2009, followed by reported losses in the period from 2010 to 2012. Greek banks made a profit in 2013, then made a loss during the following two years, and in 2016 reported a small profit which began to decline in 2017. In 2009 and 2010, the values of the indicator dropped dramatically in Ireland, Greece and Spain, with Ireland and Greece reporting losses. They continued to decline in 2011 in Greece and in 2011 and 2012 in

Spain, with substantial losses reported by both countries. Banks in Ireland reported losses in the period from 2009 to 2013, and then reported positive financial results until the end of the researched period. Banks in Portugal also reported negative financial results in the period from 2011 to 2014, the size of their losses growing to reach a peak of 5.191 billion EUR in 2014. Losses were also reported in 2016 and 2017. The losses reported by banks in Austria amounted to 0.005 billion EUR in 2013. Although the values of the indicator went down over the researched period, banks in Finland performed best in terms of earnings as they reported positive financial results over the entire researched period. The loss of 53.966 billion EUR which Spain reported in 2012 was the highest registered loss in all researched countries for the period between 2007 and 2017, followed by the loss of 40.645 billion EUR reported by Greek banks in 2011, and the loss of 36.620 billion EUR reported by banks in Ireland. Clearly, the three countries that suffered the biggest losses as a result of the global financial and economic crisis and the debt crisis in the euro area were Greece, Spain and Ireland. We should note, though, that banks in Spain recovered from the financial crisis relatively quickly and steadily in 2013, and those in Ireland started recovering in 2014 and continued to do so till the end of the researched period.

Changes in the values of the return on equity indicator largely followed the changes in the financial results which banks reported. In Spain, the decline in the return on equity was much smaller than the decline in bank earnings, which might be explained with the decrease in the equity of the Spanish bank system in 2012. There is no available data about the values of the indicator for Greek banks, where a negative value of equity was reported. The dynamics of the indicator shows that banks in Spain began to overcome the negative effects of the financial crisis in 2013, and those in Ireland – in 2014. The bank system in Finland maintained positive values of the return on equity indicator and of earnings after taxes in the period from 2008 to 2017.

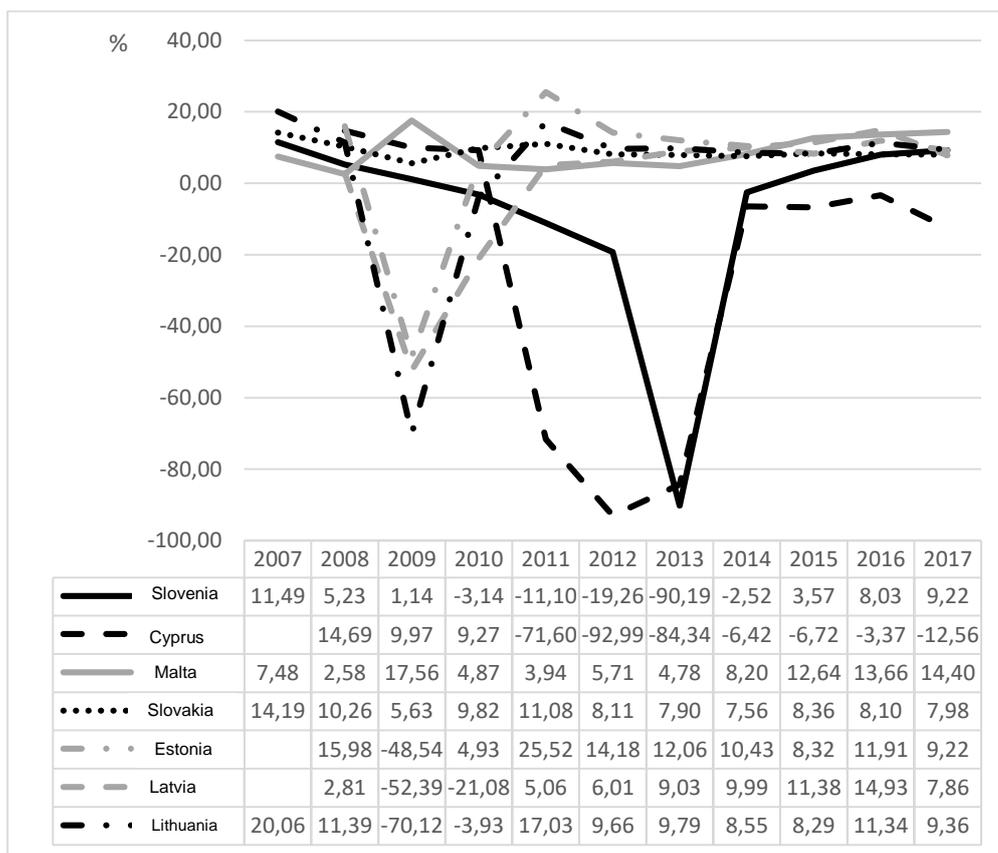
Return on assets was low and changes in the values of the indicator followed changes in the financial results and the return on equity which banks reported during the researched period. We need to note that the deterioration in the values of the indicator was smaller, than that in the return on equity in Ireland and Spain. Registered changes in the return on assets also support the statement that banks in Spain began to recover from the negative impact of the financial crisis in 2013, and those in Ireland – in 2014, preserving the trend till the end of the analysed period.



*Figure 9 Earnings after taxes of banks in Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania in the period from 2007 to 2017 (in billions EUR)*

Source: ECB.

In most of the new-member states of the European Union and the euro area, the earnings of the bank system declined towards the end of the researched period, with the exception of Slovenia, Slovakia and Latvia. In 2009, banks in Estonia, Latvia and Lithuania reported losses. The global financial and economic crisis and the debt crisis in the euro area had a negative impact on the bank systems of those countries. We should note that the Baltic countries managed to recover quickly, and a profit was reported first by Estonia in 2010, and then by Latvia and Lithuania in 2011, all three countries preserving the positive trend till the end of the period. The financial crisis affected negatively the financial results of the banks in the other countries, too, the most dramatic impact being that on Cyprus and Slovenia, as illustrated by the figures. In 2010, the bank system of Slovenia also reported a loss, which continued to grow over the following years amounting to 3.441 billion EUR in 2013. The positive financial result which Slovenian banks first reported in 2015 continued to grow till the end of the period.



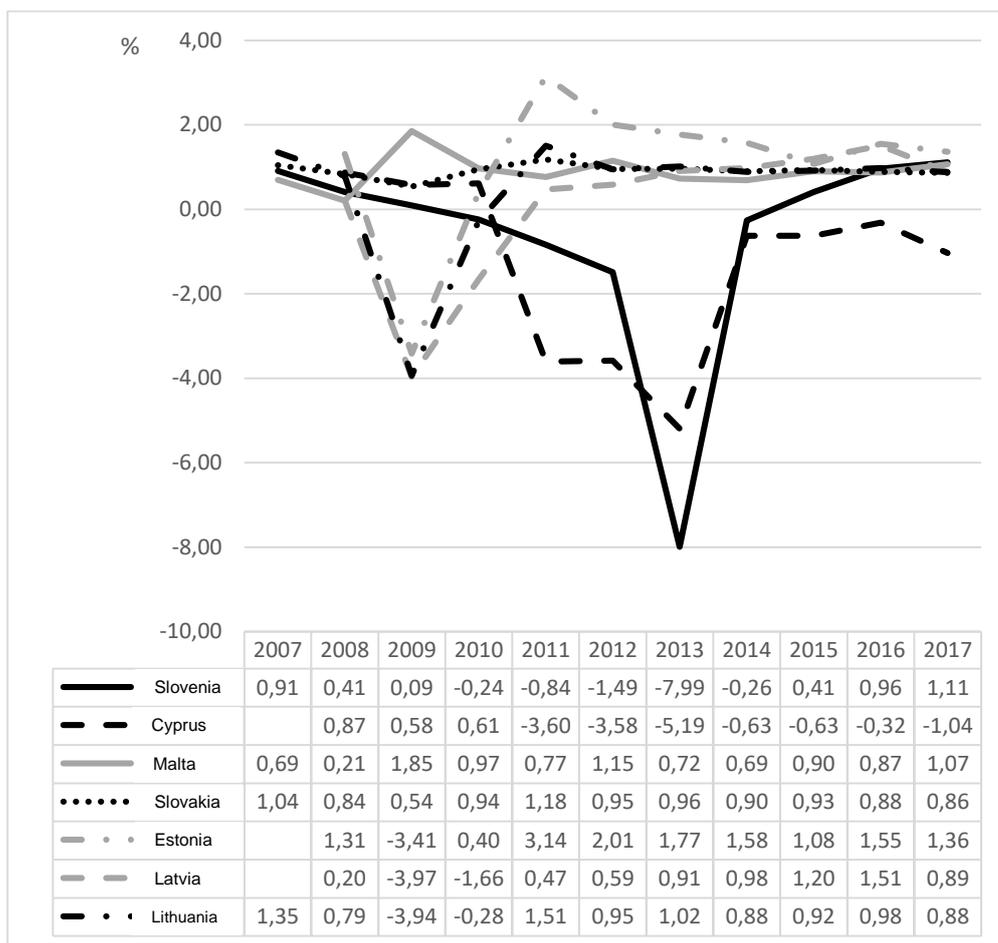
*Figure 10 Return on equity of banks in Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania in the period from 2007 to 2017 (%)*

Source: ECB, computations made by the author.

The highest loss for the period from 2007 to 2017 was reported by Cyprus in 2011. It amounted to 4.957 billion EUR and remained approximately the same over the following two years. Reported losses by banks in Cyprus then began to decline steadily until 2016 and went up again in 2017. Banks in Malta and Slovakia did better, since although their profits declined in the period from 2007 to 2017, no losses were reported.

Changes in the values of the return on equity indicator largely followed changes in the financial results reported by the banks in the euro area in new EU member-states, yet the values of the indicator deteriorated much more substantially in Slovenia, Cyprus, Estonia, Latvia and Lithuania since the equity of their banks decreased during some of the years in the researched period.

Return on assets was low and changes in the values of the indicator followed the changes in reported financial results and the return on bank equity in the analysed countries in the euro area in the period from 2007 to 2017. It should be noted that the deterioration of the values of the indicator was smaller compared to that of the values of the return on equity indicator.



*Figure 11 Return on bank assets in Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania in the period from 2007 to 2017 (%)*  
 Source: ECB, computations made by the author.

Figures 12, 13 and 14 show earnings after taxes, return on equity and return on assets for banks in the countries not included in the euro area in the period from 2007 – 2017.

In the majority of the countries that are not members of the euro area, the earnings of the bank system increased towards the end of the researched period, in contrast to its beginning, the only exception being Poland. The largest loss for the period between 2007 and 2017 amounted to 31.706 billion EUR and was reported by Great Britain in 2008. In the period from 2009 to 2011, the banking system of the country reported increasing earnings. In 2012, reported earnings were twice as low. This was followed by a period of recovery till 2015 when there was a decline in reported financial results which continued in 2016 as well. The highest earnings after taxes were reported by the English bank system in 2017.

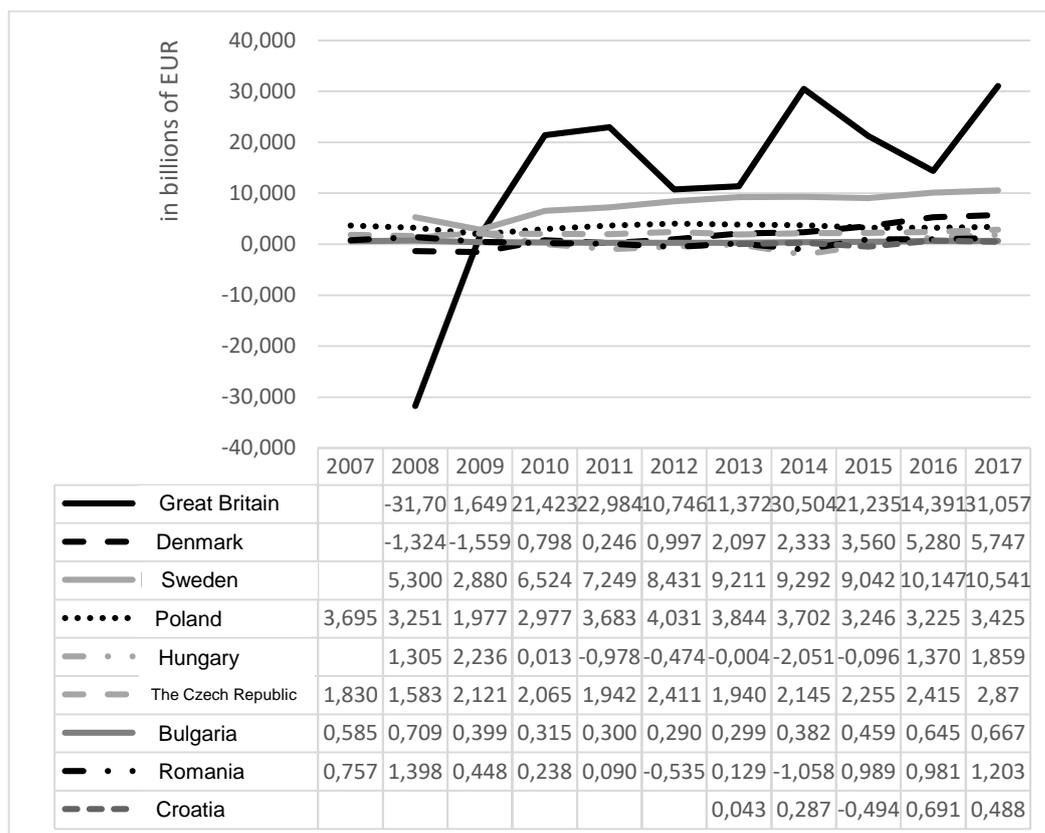
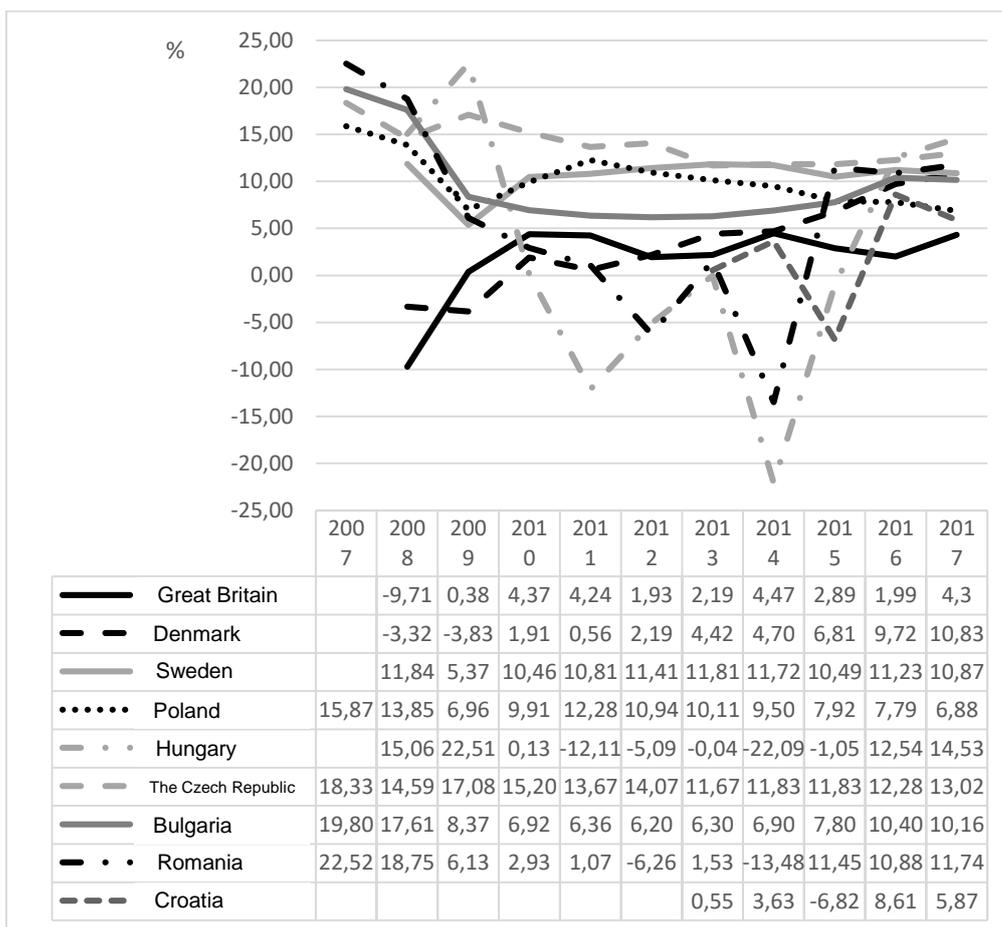


Figure 12 Earnings after taxes in the bank systems of Great Britain, Denmark, Sweden, Poland, Hungary, the Czech Republic, Bulgaria, Romania and Croatia in the period from 2007 to 2017 (in billions EUR)  
Source: ECB, BNB.

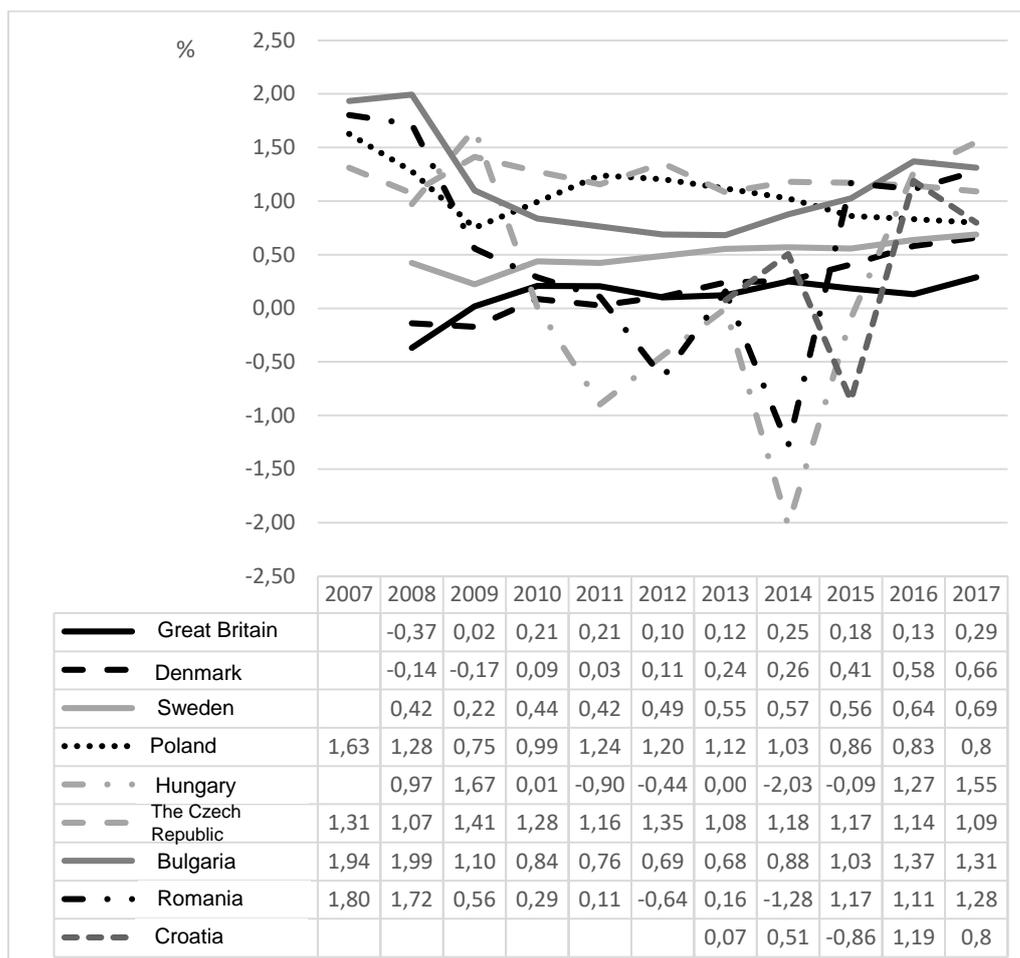
Denmark reported losses in 2008 and 2009, Hungary – in the period from 2011 till 2015, Romania – in 2012 and 2014, and Croatia - in 2015. The global financial and economic crisis and the debt crisis in the euro area led to lower financial results of banks in Bulgaria and Romania in 2009. The trend was preserved till 2013, yet, in contrast to Romania, Bulgaria did not report losses in 2012. There was an upward trend in the financial result of Bulgarian banks till 2017. The bank system of Romania reported another loss in 2014, then reported positive earnings after taxes till 2017. Although the financial crisis seriously affected the bank systems of the researched countries, many of them reported profits in the period from 2007 to 2017, Sweden, Poland, the Czech Republic and Bulgaria being some of the examples. From 2013 till the end of the researched period, earnings after taxes of banks in Denmark, Sweden and Bulgaria grew steadily, which was evidence that the bank systems of those countries managed to recover relatively rapidly from the aftermaths of the financial crisis.



*Figure 13 Return on equity of banks in Great Britain, Denmark, Sweden, Poland, Hungary, the Czech Republic, Bulgaria, Romania and Croatia in the period from 2007 to 2017 (%)*

Source: ECB, BNB, computations made by the author.

There were major fluctuations in the values of the return on equity of banks in those member states of the European Union that were not members of the euro area. The lowest value of the indicator (22.09%) was reported by Hungary in 2014. In 2008 and 2009, a decrease in return on equity was reported by banks in most countries, Great Britain, Hungary and the Czech Republic, being an exception from that trend. In 2016, most bank systems reported an increase in the return on equity, but for Great Britain, Poland and Romania. There was a steady upward trend in the values of the indicator in Bulgaria and Denmark from 2013 onwards. The values of the return on equity for Bulgarian banks remained positive during the entire researched period.



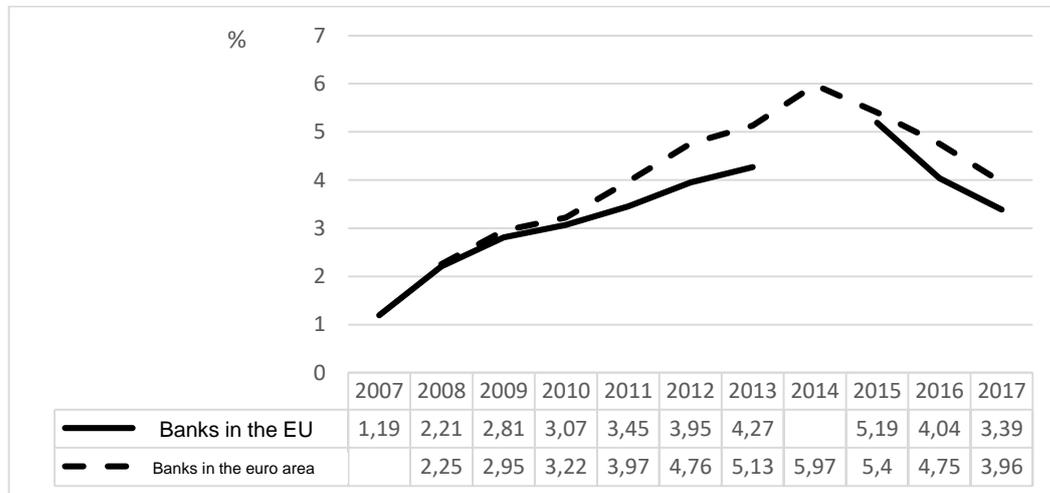
*Figure 14 Return on bank assets in Great Britain, Denmark, Sweden, Poland, Hungary, The Czech Republic, Bulgaria, Romania and Croatia in the period from 2007 to 2017 (%)*

Source: ECB, BNB, computations made by the author.

Return on assets was low in the period from 2007 to 2017. In 2011, the values of the indicator declined in most countries in the European Union that were not members of the euro area, except for Great Britain and Poland. In general, reported changes in the values of the return on assets indicator in the researched countries did not follow the same pattern during the period. Similar to earnings after taxes and return on equity, the values of the return on bank assets in Bulgaria, Denmark and Sweden increased from 2013 till the end of the researched period, which supports the thesis that banks in those countries succeeded in overcoming the effects of the financial crisis. In terms of that indicator, Bulgarian banks did not report any negative values in the period from 2007 to 2017. The country performed well compared to the other countries, in terms of earnings after taxes, return on equity and return on assets.

## 2. Dynamics of the Ratio between Watch Exposures and Non-Performing Exposures on Loans and Advance Payments of Banks in EU Member-States in the Period from 2007 till 2017

Figure 15 illustrates the changes in the ratio between watch exposures and non-performing exposures on loans and advance payments of banks in the European Union and the euro area in the period from 2007 to 2017.



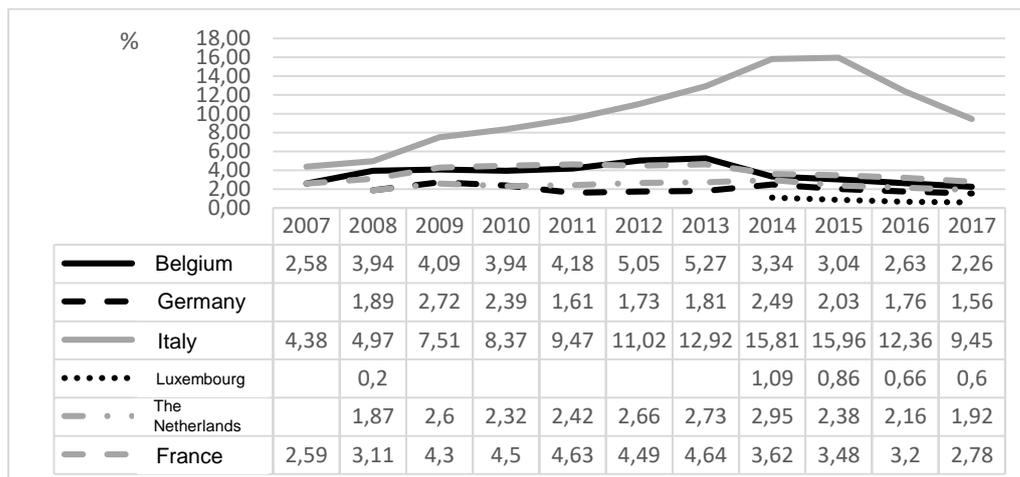
*Figure 15 Watch exposures and non-performing exposures on loans and advance payments of banks in the European Union and the euro area in the period from 2007 to 2017 (%)*

Source: ECB.

The dynamics in the ratio of bank risk exposures to the overall size of loans clearly indicates the impact which the financial crisis had on banks. The values of the indicator for both groups of banks grew steadily till 2014. There was a fourfold increase in the values of the indicator for banks in EU member-states, while its values for banks in the euro area increased more than twice. From 2015 till the end of the researched period, the share of watch exposures and non-performing exposures on loans and advance payments in EU and euro-area banks declined steadily, yet its values in 2017 were still higher than those in 2007. Banks in the European Union and the euro area should therefore continue to clear their portfolios from bad debts. It is worth noting that over the entire period the values of the ratio were higher for banks in the euro area than the values for banks in the European Union, the difference between the values of the indicator for both groups growing bigger every year.

Figure 16 illustrates the changes in the ratio between watch exposures and non-performing exposures on loans and advance payments of banks in the countries that founded the European Economic Community, i.e. Belgium,

Germany, Italy, Luxembourg, the Netherlands and France, for the period from 2007 to 2017.

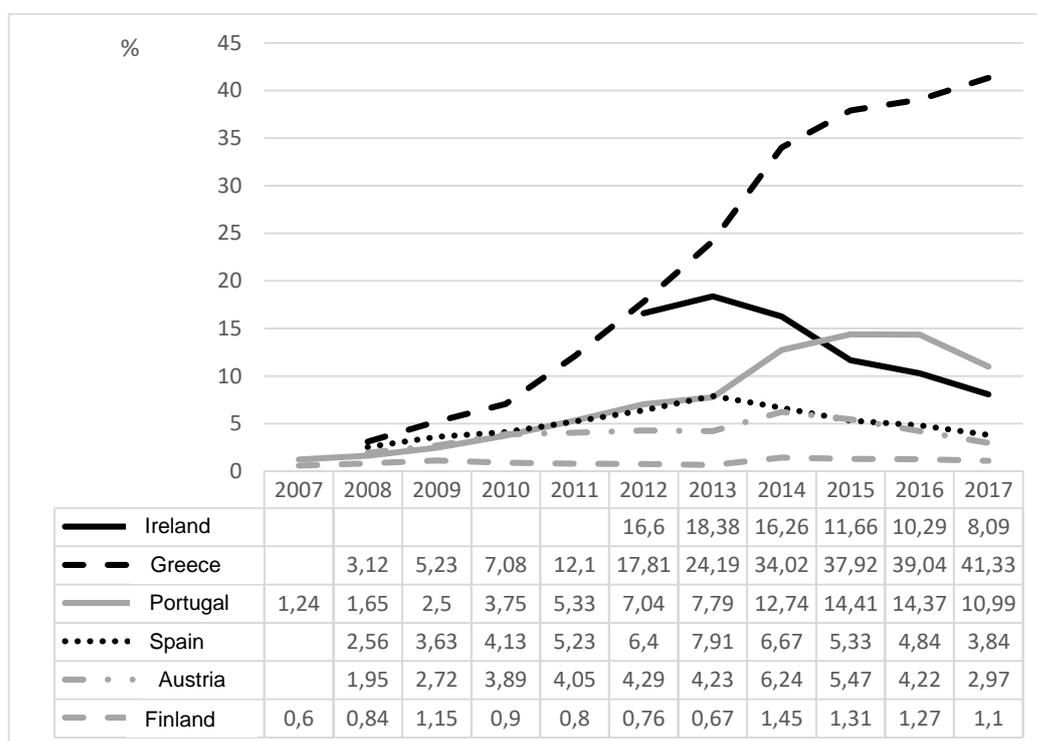


*Figure 16 Watch exposures and non-performing exposures on loans and advance payments of banks in Belgium, Germany, Italy, Luxembourg, the Netherlands and France in the period from 2007 to 2017 (%)*

Source: ECB.

The values of ratio between bank risk exposures to the total amount of extended loans went up in 2008 and 2009 in all researched member-states of the European Union and the euro area, then dropped in 2010. The values of the indicator increased again in the period from 2011 to 2014. The increase in the values of the indicator in the years of the global financial crisis and the debt crisis in the euro area seems logical when we take into account the fact that this is an indicator that is strongly affected by the financial crisis. From 2015 till the end of the researched period there was a downward trend in the share of risk exposures in the credit portfolios of the banks in the researched countries. The highest values of the indicator were reported by the bank system in Italy where it grew continuously from 4.38% in 2007 to 15.96%. In 2016 and 2017 Italian banks were also actively clearing their portfolios from bed debts, which was reflected by the values of the indicator that went down by 40%. The lowest values of the ratio were those of the bank systems in Luxembourg and Germany. In most countries, except for Italy, the values of the share of watch exposures and non-performing exposures on loans and advance payments of banks in 2017 were close to those prior the financial crisis. They were lower in Belgium and Germany in 2017 compared to the levels in 2007, which means that their banks succeeded in clearing their credit portfolios effectively and managed to resolve the issue of bad credits. In 2017, the values of the ratio in Italy were still twice as high as those in 2007. Hence, in terms of this indicator Italian banks did not perform as well as the banks in the other countries did.

Figure 17 shows the changes in the share of watch exposures and non-performing exposures on loans and advance payments of banks in Ireland, Greece, Portugal, Spain, Austria and Finland in the period from 2007 to 2017.



*Figure 17 Watch exposures and non-performing exposures on loans and advance payments of banks in Ireland, Greece, Portugal, Spain, Austria and Finland in the period from 2007 to 2017 (%)*  
Source: ECB.

As Figure 17 illustrates, the values of the indicator grew in all researched member-states of the European Union and the euro area during the global financial and economic crisis and the debt crisis in the Eurozone. The ratio increased in the period from 2008 till 2014, then declined till 2017. The only exception from the general trend was Finland where the share of risk exposures in the total amount of loans decreased in the period from 2010 to 2013, went up sharply in 2014, and then kept declining till the end of the researched period. In the countries which the financial crisis hit most seriously, the growth in the values of the indicator watch exposures and non-performing exposures on loans and advance payments was much bigger during the researched period. In 2017, its values were higher in all countries when compared to the period prior the financial crisis (there is no available data about Ireland for the years preceding 2012). In 2017, the highest values of the indicator were those of Greek banks - 41.33%, which were more than thirteen times as high as the values of 3.12% that had been reported in 2008. The negative trend developed further in Greece, the

values of the indicator growing substantially during the entire period. The ratio went up most dramatically between 2011 and 2014. Portugal's bank system followed a similar trend of development, the indicator rising from 1.24% in 2007 to 14.41% in 2015, i.e. more than eleven times. From then on, the values of the ratio declined till the end of the researched period, yet they remained much higher than the levels reported before the onset of the financial crisis. Banks in Portugal reported the biggest increase of more than 60% in 2014. In Ireland and Spain, the share of risk exposures in the total amount of loans grew till 2013 when its highest value was reported. This was followed an improvement till the end of the researched period. Both countries recovered relatively rapidly from the financial crisis. The values of the indicator which banks in Austria reported also grew steadily till 2014, yet the growth was smaller. The values of the indicator then began to decline, and the trend was preserved till the end of the period. The values of the ratio between watch exposures and non-performing exposures on loans and advance payments did not change significantly in Finland, even during the years of the debt crisis in the euro area but stood at low levels. Hence the conclusion that in terms of that indicator the country performed much better than the other countries included in the research.

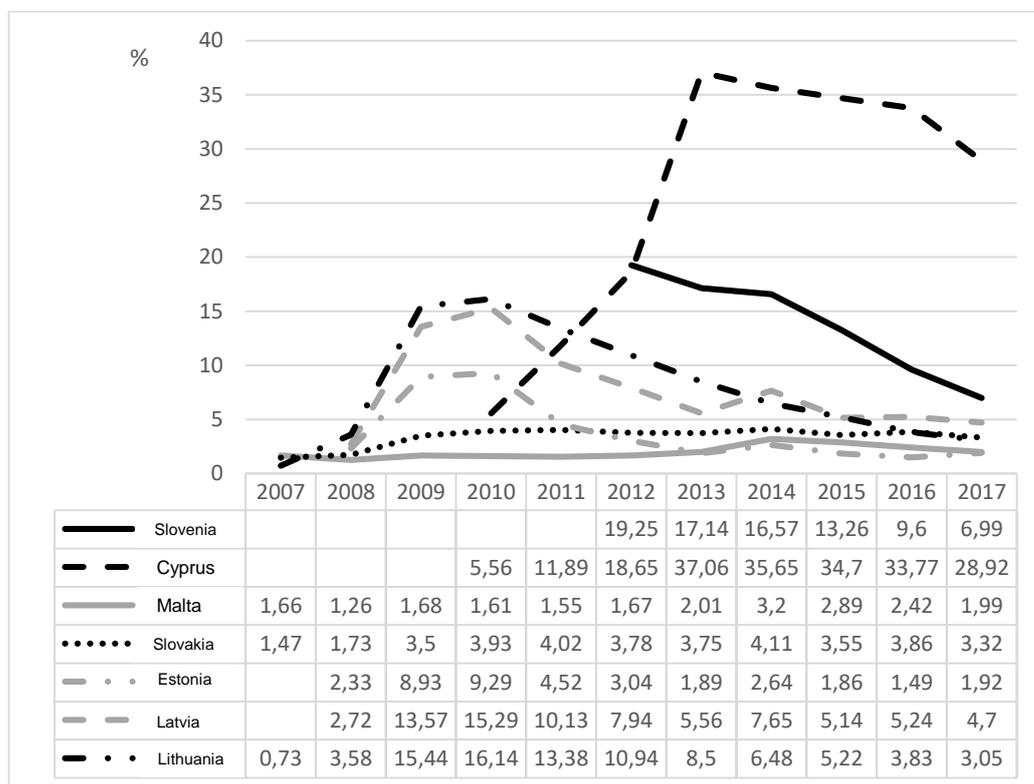


Figure 18 Watch exposures and non-performing exposures on loans and advance payments of banks in Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania in the period from 2007 to 2017 (%)  
Source: ECB.

The ratio between watch exposures and non-performing exposures on loans and advance payments of banks in new EU member-states grew considerably during the financial crisis. The ratio went up in those countries in 2009 and 2010, then grew again in the period from 2011 to 2013 and declined in the period from 2015 to 2017. The highest values of the indicator (37.06%) were registered in Cyprus in 2013. Although they declined steadily in the years that followed, in 2017, the values of the indicator stood at 28.92%. In Malta and Slovakia, the values of the indicator were low and did not change substantially over the period.

Figure 19 illustrates changes in the ratio between watch exposures and non-performing exposures on loans and advance payments in banks in Great Britain, Denmark, Sweden, Poland, Hungary, the Czech Republic, Bulgaria, Romania and Croatia in the period from 2007 to 2017.

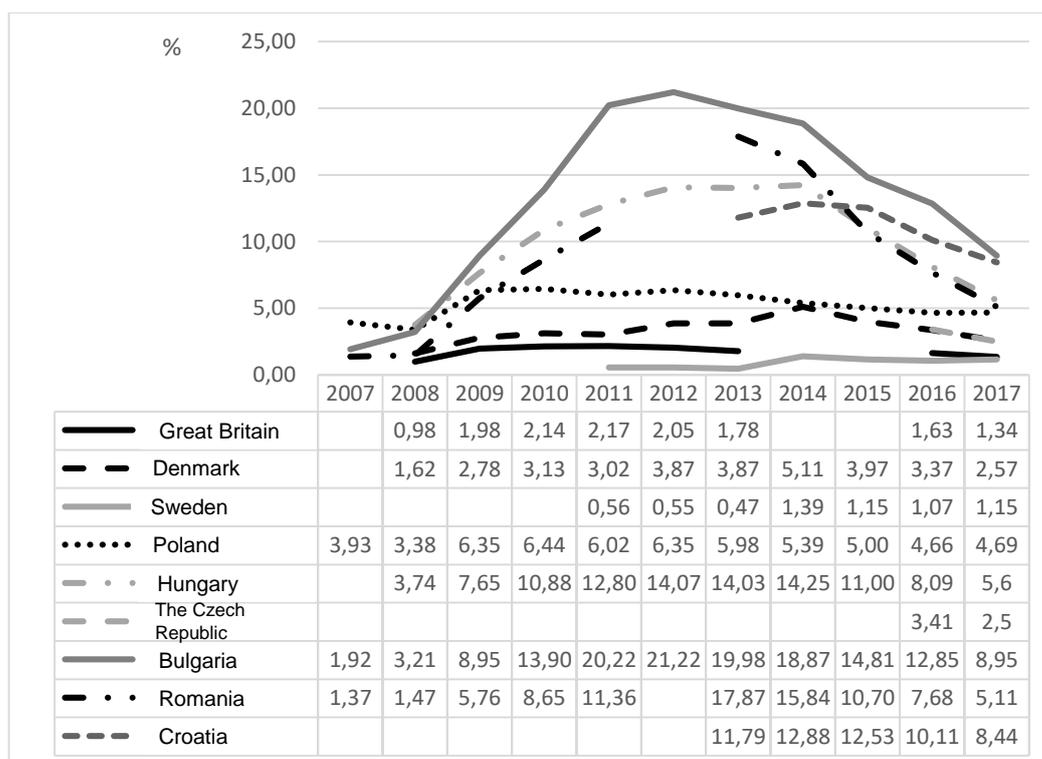


Figure 19 Watch exposures and non-performing exposures on loans and advance payments of the banks in Great Britain, Denmark, Sweden, Poland, Hungary, the Czech Republic, Bulgaria, Romania and Croatia in the period from 2007 to 2017 (%)

Source: ECB, BNB, computations made by the author.

The share of risk exposures in the total amount of loans extended by banks went up in all analysed countries in the European Union that were not

members of the Eurozone. The only exception was Croatia since available data about the country was for the years after 2012. During the researched period, the increase in the values of the indicator share of risk exposures in the total amount of extended bank loans was high in the countries that were most affected by the global financial and economic crisis and the debt crisis in the euro area. As the figure above indicates, the highest values were registered in Bulgaria, Romania, Hungary and Croatia. In 2012, Bulgarian banks reported a value of 21.22% of the indicator, in contrast to the value of 1.92% that was registered in 2007. The values of the indicator then began to decrease in 2013 and stood at 8.95% in 2017. Banks have been clearing their portfolios from non-performing loans. It is advisable that they continue to do so and at a faster rate. The countries with low values of the ratio between watch exposures and non-performing exposures on loans and advance payments were Sweden, Great Britain and Denmark. In most countries, the ratio increased till 2012 and then began to decline. Denmark, Sweden and Croatia were an exception from that trend, since the values of the indicator increased in 2014 and 2015. Although banks in EU member-states that were not part of the euro area were active in clearing their portfolios from bad loans, in 2017, the values of the indicator were many times as high as the values reported in the years before the financial crisis.

### 3. The Dynamics of Specific Bank Provisions in EU Member States in the Period from 2007 to 2017

Figure 20 illustrates the changes in the specific bank provisions in the European Union and the euro area in the period from 2008 to 2017.

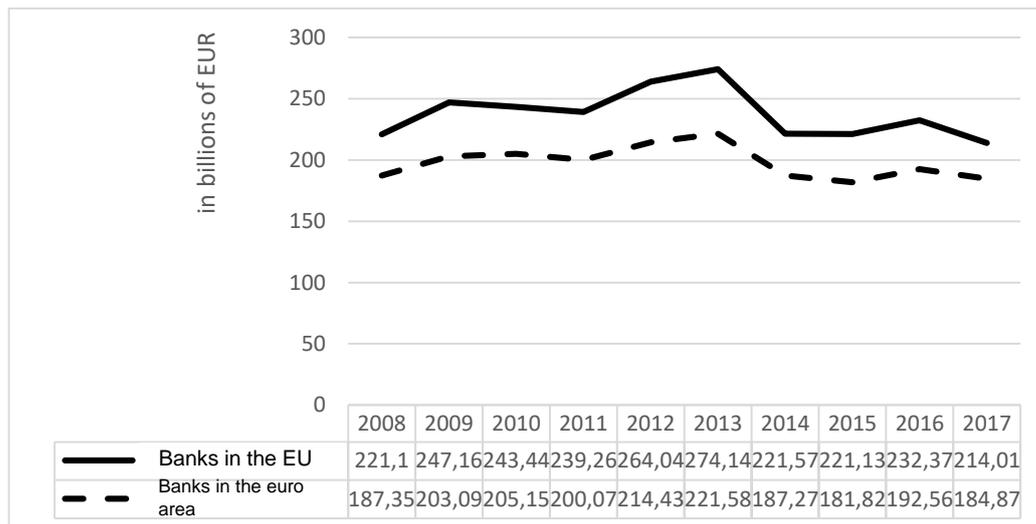
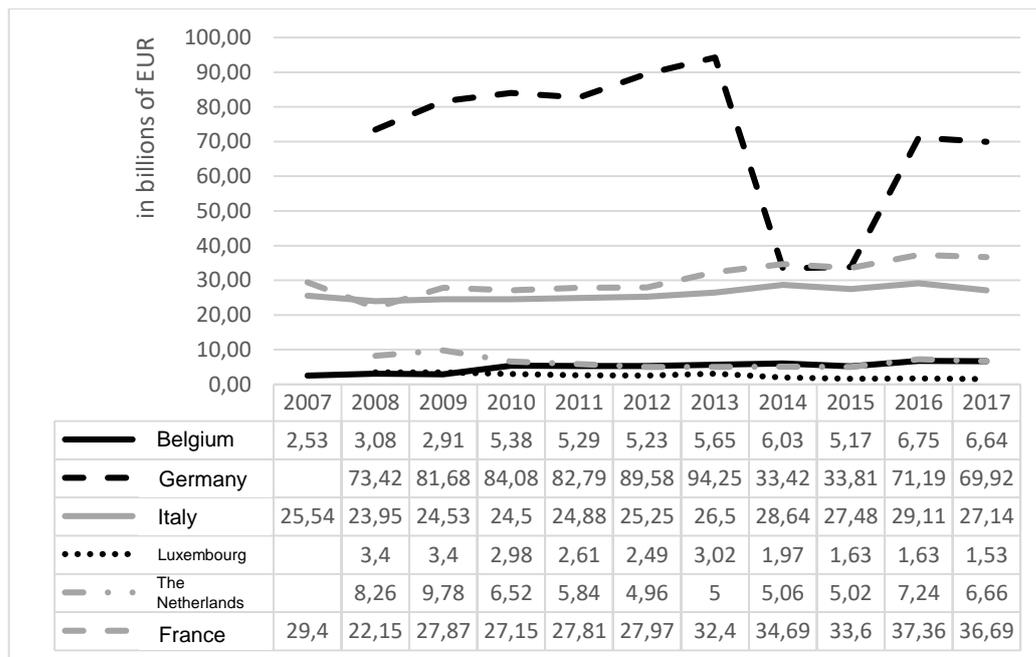


Figure 20 Specific bank provisions in the European Union and the euro area in the period from 2008 to 2017 (in billions EUR)

Source: ECB.

Specific bank provisions both in the European Union and in the euro area increased in 2009. In 2010, they continued to grow in countries in the euro area, while banks in the European Union reported a decline. In 2011, there was a decline in the bank provisions in both groups of countries, in contrast to 2012 and 2013, when an increase was registered. That was followed by a decline in the volume of specific bank provisions in both groups of countries in 2014 and 2015. It went up again in 2016 and then declined in 2017. Overall, the values of the indicator changed dynamically in the period from 2008 to 2017. Specific bank provisions increased till 2013 when a peak was reached in both groups of banks and then declined till the end of the researched period. In 2017, the values of the indicator were lower than those in 2008 in banks in the European Union and the euro area, and that should be assessed positively. It is worth noting that registered changes were similar for both groups of banks.



*Figure 21 Specific bank provisions in Belgium, Germany, Italy, Luxembourg, the Netherlands and France in the period from 2007 to 2017 (in billions EUR)*

Source: ECB.

Specific bank provisions in the majority of old EU member-states did not change substantially over the period. Germany was an exception, since, compared to the other countries, the values of the indicator were much higher there till 2013, when a peak of 94.25 billion EUR was registered. This was followed by a sharp decline to 33.42 billion EUR in 2014, which was a value similar to the values reported by the other countries. The values of the indicator

stood at similar levels in 2015. Specific bank provisions of banks in Germany increased sharply to 71.19 billion EUR in the following year and stood at the same level in 2017. A significant growth in the values of the indicator at the end of the researched period, compared to its values at the beginning, was registered by banks in Belgium. Specific bank provisions in researched countries increased in 2009 and went down in 2011. This was followed by an increase in 2013 and 2016, and then by a decline in 2017.

Figure 22 illustrates the dynamics of changes in specific bank provisions in Ireland, Greece, Portugal, Spain, Austria and Finland in the period from 2008 to 2017.

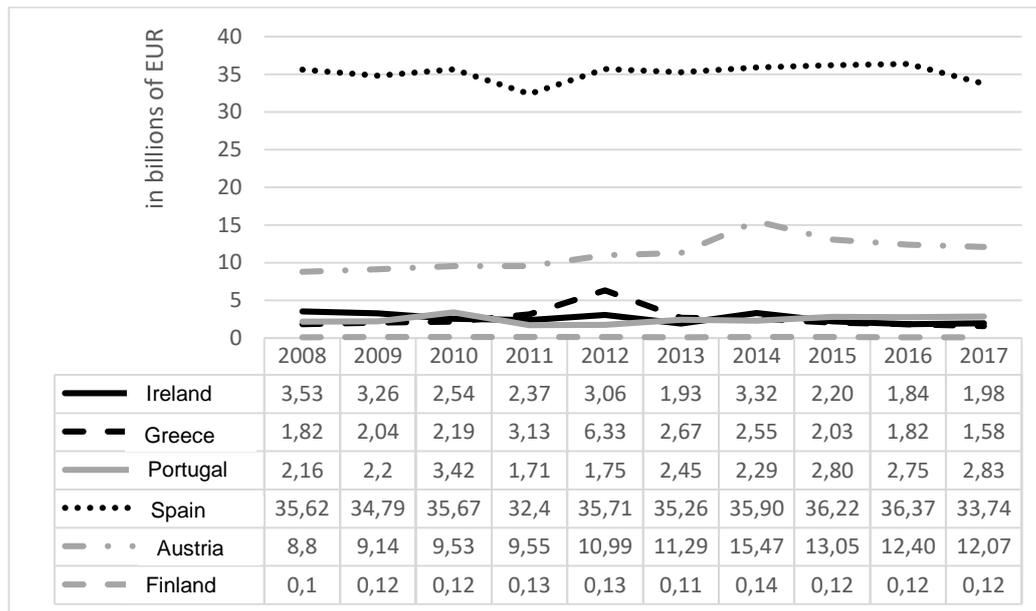
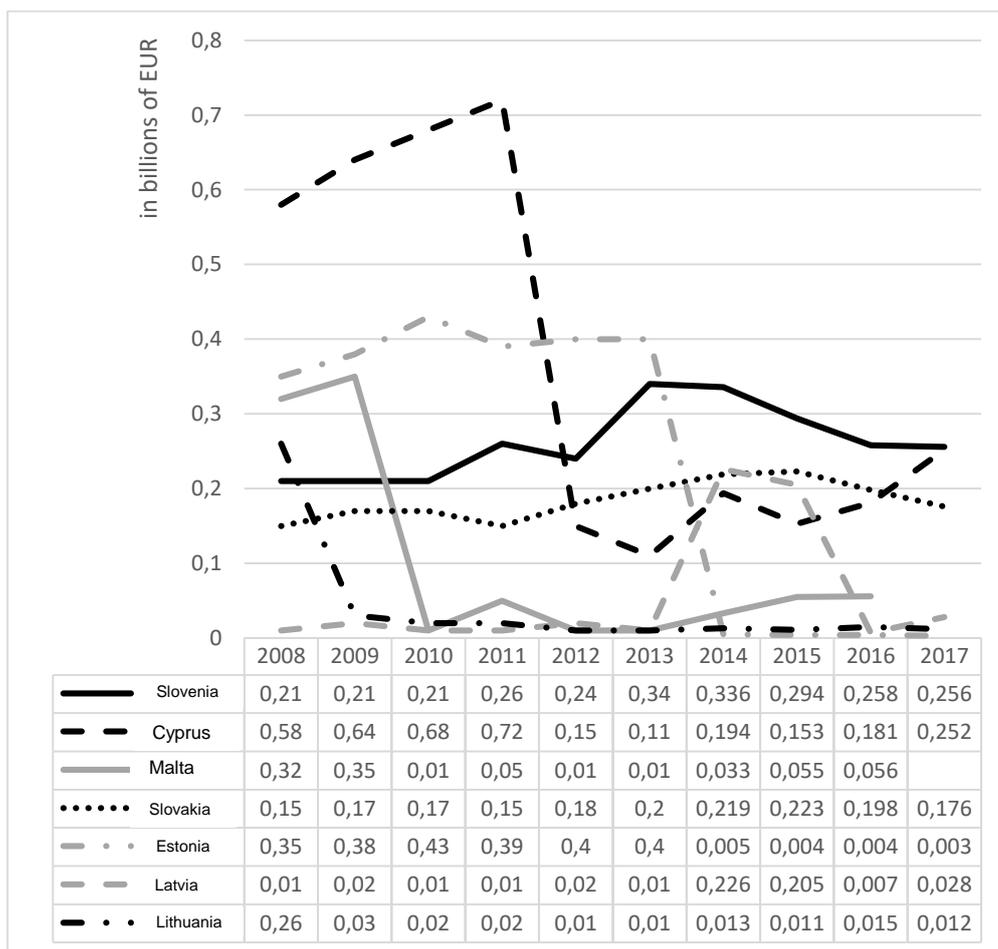


Figure 22 Specific bank provisions in Ireland, Greece, Portugal, Spain, Austria and Finland in the period from 2008 to 2017 (in billions EUR)  
Source: ECB.

The specific bank provisions in researched countries in the euro area increased in 2009 and 2010, and then in 2012. The values of the indicator went down in 2013, and then went up in 2014. A decline was registered in 2015 and in 2016. Specific bank provisions of banks in Ireland declined in the period from 2009 to 2011. No major changes were registered in the volume of specific bank provisions in Spain, Portugal and Finland over the researched period. In Greece, the values of the indicator grew steadily, rising nearly twice in 2012, and then fell sharply in 2013 and continued to decline till the end of the researched period. Specific bank provisions of banks in Austria grew steadily till 2014, the year when a significant increase was registered, and then gradually declined till 2017.

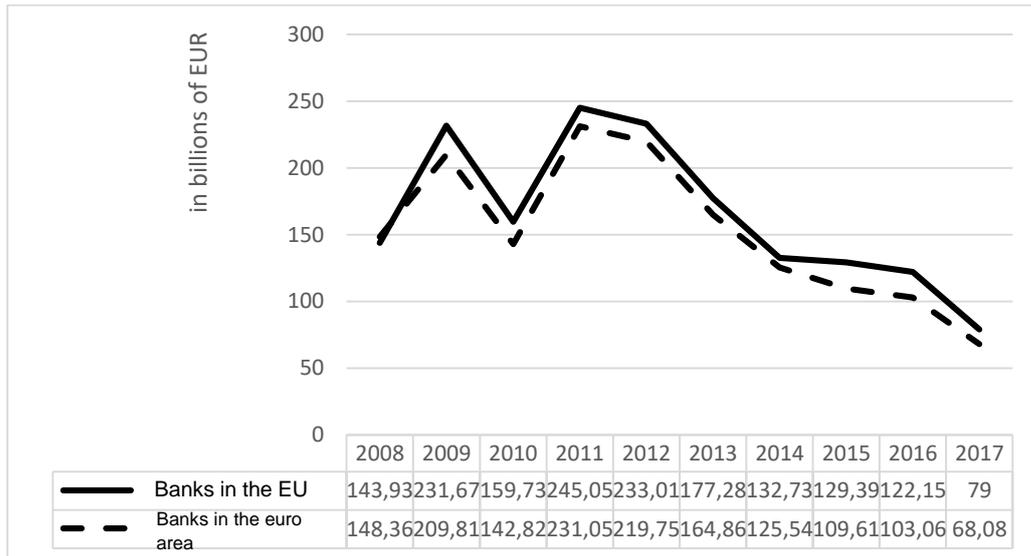


*Figure 23 Specific provisions on banks in Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania in the period from 2008 to 2017 (in billions EUR)*

Source: ECB.

During the first years of the researched period, the volume of specific bank provisions in Cyprus and Estonia went up. Specific bank provisions of banks in Slovenia and Slovakia did not change their volume during the same period. Latvia reported an increase in specific bank provisions in 2014. Till the end of the researched period, their volume declined steadily and reached its initial level. A more substantial decrease was registered in Cyprus in 2012, in Malta in 2010, in Lithuania in 2009 and in Estonia in 2014. The values of the indicator remained at approximately the same level till 2017.

Figure 24 shows changes in loan impairments in banks in the European Union and the euro area in the period from 2008 to 2017.



*Figure 24 Impaired loans of the banks in the EU and euro area in the period from 2008 to 2017 (in billions EUR)*

Source: ECB.

As Figure 24 shows, changes in loan impairments in the EU and the euro area were similar during the researched period. They grew substantially in 2009, sharply declined in 2010 and then went up dramatically in 2011. Those changes were followed by a downward trend that continued till the end of the researched period. In 2017, loan impairments in the banks of EU and of euro area members were twice as high as they had been in 2008. Changes in the values of the indicator were quite dynamic.

## Conclusion

The findings of the analysis we have conducted of banks' earnings after taxes, their return on equity and return on assets, the share of watch exposures and non-performing exposures on loans and advance payments, specific provisions and loan impairments in EU member-states in the period from 2007 to 2017 are as follows:

- Some of the indicators of bank performance in the European Union and in the the euro area have been following similar trends; examples include earnings after taxes, return on equity, return on assets, specific provisions and loan impairments. This might be due to the fact that banks in countries in the euro area are also banks in the European Union;

- The values of the indicators that were included in the analysis changed in parallel in most old members of the European Union, Germany and Italy being the two exceptions in terms of some indicators;

- In 2008, 2011 and 2012, both banks in the European Union and banks in the euro area reported losses and deteriorating return on equity and return on assets;

- In 2008, 2009, 2011 and 2012, banks in the countries that founded the European Economic Community reported declining financial results, and in some countries – even losses, as well as decreasing return on equity and return on assets;

- The global financial and economic crisis and the debt crisis in the euro area had a negative impact on the earnings after taxes, the return on equity and the return on assets of banks in Greece, Spain and Ireland. Those were the three countries which the financial crisis affected most seriously.

- The values of the earnings after taxes, return on equity and return on assets indicators of banks in Ireland, Greece, Portugal, Spain, Austria and Finland changed in parallel;

- The negative effect of the global financial and economic crisis and the debt crisis in the euro area affected most powerfully earnings after taxes, return on equity and return on assets of banks in Cyprus and Slovenia, the two countries which were hit most severely by the financial crisis;

- Due to the financial crisis, the values of earnings after taxes, return on equity and return on assets of banks in the Baltic countries Lithuania, Latvia and Estonia deteriorated, yet they managed to recover rapidly;

- The values of the earnings after taxes, return on equity and return on assets indicators of banks in Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania changed in parallel;

- In most countries that were not members of the eurozone, banks reported an increase in their earnings after taxes at the end of 2017, compared to the values in 2007. The highest loss during the period from 2007 to 2017 was reported in 2008 by Great Britain - 31,706 billion EUR. Denmark, Hungary, Romania and Croatia also reported losses. This could be accounted for with the impact of the global financial and economic crisis and the debt crisis in the euro area. We should note that nevertheless, many of the bank systems in the researched countries, including Bulgaria, reported profits in the period from 2007 to 2017;

- In EU member states that were not part of the euro area, the lowest value of the return on equity indicator (22.09%) was reported by Hungary in 2014. In 2008 and 2009, a decline in the values of the indicator was reported by most countries, while in 2016 and 2017, banks reported an increase in their return on equity;

- Most countries that were not members of the euro area reported decreasing return on assets in 2011;

- The values of the return on equity and the return on assets indicators of banks in EU member states outside the eurozone changed in parallel; this was not the case with their earnings after taxes, though;

- Banks in Denmark, Sweden and Bulgaria managed to recover relatively quickly from the financial crisis, the values of their earnings after taxes, return on equity and return on assets indicators growing since 2013;

- The share of risk exposures in bank loans grew substantially during the financial crisis. There was a decline in the values of the indicator reported by banks in the European Union and in the euro area after 2015, yet the share of watch exposures and non-performing exposures on loans and advance payments in 2017 was still higher than that in 2007. The process of clearing bank portfolios from non-performing loans in the European Union and the the euro area should continue further;

- During the financial crisis, the share of risk exposures in bank loans increased in the countries that established the European Economic Community, the biggest growth being that registered in Italy. During the last years of the researched period, the share decreased steadily, which indicated that banks were clearing their portfolios from non-performing loans and recovered from the impact of the financial crisis upon their performance;

- There was a substantial increase in the ratio between risk exposures on loans in most EU member-states that were members of the eurozone. The highest values of the indicator were registered in Bulgaria, yet the values of the indicator were also high in Romania, Hungary and Croatia. Sweden, Great Britain and Denmark were the three best-performing countries in terms of that indicator. In most countries, the ratio of risk exposures to loans increased till 2012 and then started to decline. It is advisable that banks in EU members-states that are not part of the euro area continue to clear their portfolios from non-performing loans, and accelerate the process;

- Deterioration in the indicators of banks in the euro area was bigger than that in the indicators of banks in the European Union, in particular in the values of earnings after taxes, return on equity, return on assets and risk exposures on loans;

- The values of some indicators of Italian banks were poorer than those of the banks in other old members of the European Union, for example, those of the ratio of watch exposures and non-performing exposures on loans and advance payments, earnings after taxes, return on equity and return on assets. These findings were confirmed by the results of the stress-tests conducted in European banks, as well;

- Banks in Ireland and Spain managed to recover relatively quickly from the financial crisis. The values of the indicators earnings after taxes, return on equity, return on assets and ratio of risk exposures to the total amount of extended bank loans began to improve in 2013;

- In Greece, the values of the ratio of risk exposures to the total amount of extended bank loans deteriorated, its values growing steadily over the entire researched period and reaching 41.33% in 2017;

- Finland was the best performing country in the euro area in terms of its earnings after taxes, return on equity and return on assets, the ratio of risk exposures to the total amount of extended loans, and specific provisions. Banks

in Finland were the only ones that did not report any losses or negative values of their return on equity and return on assets during the researched period;

анализирания период;

- In most countries, the ratio of risk exposures to the total amount of extended loans grew considerably during the global financial and economic crisis and the debt crisis in the euro area, while the value of the indicator in Finland stood at the same levels;

- The values which Greek banks reported about some of the indicators, such as earnings after taxes, return on equity and return on assets, deteriorated dramatically till 2015;

- Bulgaria performed very well compared to the other countries that were not part of the euro area in terms of earnings after taxes, return on equity and return on assets indicators. In the period from 2007 to 2017, Bulgarian banks reported profits and positive values of their return on equity and return on assets. Their operation was steady. The only indication of problematic issues in the Bulgarian bank system was the share of risk exposures in the total amount of loans. It is therefore advisable that banks in the country continue the process of clearing their credit portfolios from non-performing loans.

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