Integration and stability of financial systems in the Member States of the European Union

PhD thesis summary

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INTRODUCTION

As a significant part of the economic and social system, the financial system is considered to be one of the most important creations of modern society. It creates the mechanism for the flow of funds between various economic entities, such as: households, economic agents, governments and financial institutions, and determines the cost and amount of funds available in the economy to pay the daily expenses. Globalization, deregulation, financial integration, disintermediation have been the basis of changes in the financial services industry, and in this context the banking industry has experienced a huge level of consolidation in recent years.

There are financial systems based on banks and financial systems based on the financial market. They are based both on a series of common financial institutions, but also on elements of particularity under the conditions of rigorous regulations, these in turn differentiated by the tradition and the specificity of each financial system. The dynamism of the global financial system causes the characteristics of local financial systems to be changed much faster, and the objectives are readjusted according to the changing value criteria in the company, in turn modified by the effects of technological progress on financial relations, the effects of blockchain, fintech, etc. The financial system is one of the most regulated sectors of the economy, the banks being part of the financial institutions that occupy one of the first places. Financial regulation is a set of rules and practices imposed by public authorities aimed at establishing and maintaining financial stability.

The stability of the financial system makes it necessary for its main components, namely markets, corresponding infrastructures and financial institutions, to be able to absorb perturbations together. Stability also requires that the financial system facilitates a smooth and efficient reallocation of the financial resources of those who save to investors, that the financial risk is accurately analyzed and valued and that it is managed effectively. Financial integration can be understood as the process by which financial markets are becoming more interconnected and similar from behavioural point of view. Financial integration requires the liberalization of capital accounts, the promotion of common standards for financial transactions and the establishment of the financial infrastructure that can support cross-border transactions. The degree of financial integration is different for developed markets compared to emerging markets.

In the literature there is a high degree of heterogeneity regarding the concept of financial integration. Thus, some researchers argue that financial integration has a positive impact on economic growth, while others say that financial integration has a negative impact on economic growth. Financial integration can affect economic growth directly and indirectly through financial development. On the other hand, financial development can affect economic growth, directly or indirectly through financial inclusion and financial integration. Financial inclusion is perceived as a catalyst for financial development and financial integration of economic growth.

The title of the doctoral thesis Integration and stability of financial systems in the Member States of the European Union announces the research motivation, the purpose of the research and confirms, through the post-crisis efforts of the European financial authorities to re-establish a new financial architecture, the topicality of the theme. The major changes produced at the level of the European Union, both institutionally and in terms of the regulatory and supervisory framework, we could say even transposed in a profound reform, have given birth to institutions such as the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), the European Insurance and Occupational Pensions Authority (EIOPA), which together with the creation of the Banking Union, helped to stop the tendency (sharpened
by crisis) to fragment the financial markets in the European Union, while transmitting a message of European unity in the effort to restore confidence in European markets.

The integration process was received with hope and enthusiasm throughout the world, as it was believed that financial integration allows capital to travel to the most attractive destination. The concept refers to the degree to which financial systems are interconnected. The degree of integration of financial markets worldwide has varied from country to country as well as from region to region. As expected, developed countries experienced deeper financial integration than developing or emerging countries. Financial integration involves many benefits, as well as some costs. The most significant cost of financial integration is the risk of financial contagion. The financial contagion can be defined as a systematic effect on the probability of a speculative activity on the financial markets of a certain country which subsequently results from similar activities on the financial markets of another country.

The fact that financial integration can promote financial stability and propagate a financial crisis through the effects of financial contagion means that it is a double-edged sword. In other words, financial integration can act as a mechanism by which a crisis can be transmitted and it can also act as a mechanism by which financial stability can be achieved. Relatively the recent global financial crisis has affected Europe very strongly due to its improper means of prevention because the level of integration of regulatory and supervisory structures at EU level has been low. Given the central position of financial institutions in this crisis, the degree to which the crisis has hit countries and the persistence of problems generated at EU level, a closer look at the process and level of banking integration in the EU is needed in the context of strengthening economic and monetary union of the EU. However, not much information is known about the costs and benefits arising from the financial integration existing at the level of some countries in the same economic region, economic block or neighbouring countries with trade links and business cycles. These aspects also concern the phenomenon of regional financial integration.

The purpose of the research is to test the financial integration in the Member States of the European Union by:

i) synchronization of financial markets in the European Union;

ii) integration of European banking systems.

The integration of financial systems is one of the most dynamic topics addressed in the literature. In order to achieve the aforementioned purpose, we have formulated the following objectives and assumptions.

a) First of all, we chose to analyze the synchronization of financial systems, and not the synchronization of capital markets indices, because the financial system was at the centre of the two crises. In addition, the financial system is the basic pillar through which the real economy is supported, its stability being closely interconnected with the economic and sovereign risk. As a result, the analysis will allow us to capture the periods of financial instability in the EU, as well as the degree of financial convergence and integration between EU Member States. The divergences between the financial markets of the EU Member States create malfunctions in the functioning of the single market and, in particular, in the functioning of the single monetary area. In these circumstances, given the disparity of the indicators, our research is all the more important, because it will give us an exhaustive picture of the degree of financial integration, as well as its variability between 2004 and 2017.

Given the above, the main objective is the analysis of financial integration in the Member States of the European Union. Secondary goals are multiple. First, we aim to identify the dynamics of the variability of financial integration. Secondly, we will be surprised by the differences between the Member States of the European Union. Third, we will investigate how the global financial crisis and the sovereign debt crisis have influenced the dynamics of integration, given the most important events of the two crises. Fourth, we will also analyze the
dynamics of banking integration in EU Member States. Fifth, in an empirical model, we will identify the factors that influence the dynamics of financial integration in the EU member states.

b) Secondly, we addressed the integration of financial systems in the EU and its impact on stability, from the perspective of the integration of banking systems. In particular, given the importance of integration and economic convergence and the importance of financial integration and convergence, the main objective of this chapter is to analyze the degree of financial integration in the EU. More specifically, the analysis of the integration of the banking systems will be carried out in the light of the interest rates practiced by the credit institutions on the loans granted and on the attracted deposits. To study the integration of banking systems, we will use the model proposed by Phillips and Sul (2007). We chose this model because it allows us to thoroughly evaluate the dynamics of integration. Some of the most important advantages of the model are: it does not impose initial assumptions regarding the stationarity or non-stationarity of the data; it allows the estimation of long-term equilibrium in a heterogeneous sample, taking into account the historical trend of the variables; it allows illustrating the trend for each country in relation to the sample average.

Secondary goals are multiple. First of all, we aim to identify how the degree of integration has evolved over time. Secondly, we will investigate how the global financial crisis and the sovereign debt crisis have influenced the dynamics of integration from the point of view of financial stability. Third, we will look at the differences between developed countries and emerging countries. Starting from the research purpose and pursuing the proposed objectives, we structured the doctoral thesis into four parts, the first two dedicated to theoretical-methodological research and the next two to applied research. In the first chapter we proposed an assessment of the state of the European financial system, with theoretical and methodological syntheses. The second one was dedicated to a theoretical incursion on financial stability and integration, calling for a broad dialogue with the literature. In the third chapter, through the empirical research conducted on the synchronization of financial markets, we set out to contribute to the literature by investigating the degree of synchronization between the financial systems in the European Union. In the last chapter, through the objective of researching the integration of European banking systems into an extended sample, we also set out to contribute to the development of the literature.

In the first chapter of the doctoral thesis - CONSIDERATIONS REGARDING THE EUROPEAN FINANCIAL SYSTEM, we propose, in the first part, to evaluate the current state of the financial system, which is in a wide process of transformations, as reflected in the literature. We will give importance to the opinions of the specialists regarding the transformations undergone by the current financial systems, as a general approach, we will follow the synthesis of the current characteristics and the impact of the technological progress and the financial innovation, as well as the new regulations. A treatment of the risks that have affected the financial stability will also be pursued in this section. Then, we aim to synthetically analyze some of the European financial systems, focusing on the structural elements and the main characteristics, but also on identifying trends and perspectives. We aim to analyze 12 European financial systems from the point of view of the contribution of each segment (banks, insurance companies, investment funds, etc.) in total financial assets, and, based on the classifications of European countries established in the specialized literature, we will create more many clusters through which we will try to analyze different components and financial structures that will support some objectives pursued in the econometric studies designed. The end of this first part will include several opinions leading to a radiography of the new financial architecture of the Euro area designed by the European authorities in order to create a more stable financial system that will ensure better results at the level of community growth and development.
To achieve the objectives proposed by the empirical research, in the second chapter - *STABILITY, INTEGRATION AND CONVERGENCE IN THE EUROPEAN FINANCIAL SYSTEM*, we set out to undertake a treatment of financial stability, financial integration and convergence, as well as to evaluate the influence and impact of the latest financial crisis on financial stability and integration in the countries of the European Union. Acquiring the conduct in the literature, we set out to address both stability and financial instability, but also the ability of the financial system to withstand shocks and absorb imbalances as a result of these shocks without affecting the efficient allocation of financial resources and/or the smooth functioning of payment systems and, by extension, a stable economy. The study of the status of the financial integration process has continued to concern us, both at the level of the literature and at the level of the opinions of the European institutions, combining the conceptual approaches with those with practical applicability. At the end of the section we set out to quantify the impact of the latest financial crisis on financial stability and integration without wishing to investigate the causes and effects of the crisis, as these have been widely discussed in the academic literature, but also at the political level. The objective was to provide the theoretical and conceptual support for the next chapter.

The third chapter of the work - *INTEGRATION OF FINANCIAL MARKETS IN THE MEMBER STATES OF THE EUROPEAN UNION. EMPIRICAL RESEARCH OF THE IMPACT OF THE FINANCIAL CRISIS AND THE SOVEREIGN DEBT CRISIS* has set out to study the dynamics of the synchronization of financial sectors in the European Union. After dealing with the introductory notions regarding the integration of the European financial systems and the synthesis of the most important opinions in the literature, in the empirical research we will use a DCC-MIDAS model, conceptualized by Colacito et al. (2011), whose main advantage is that it allows the extraction of a short-term and long-term component for the correlation series. In order to estimate the DCC-MIDAS model, in general, there are two stages. First, using a single-variable GARCH-MIDAS model, volatility is estimated. Secondly, to obtain the standardized residuals, observations are deflated using average volatility. By proposing to identify the factors that influence the dynamics of the synchronization of the financial sectors in the European Union, we will use a regression model, widely used in highlighting the variables that influence the synchronization of the returns. We will follow the investigation of the dynamics of financial integration between the financial sectors of 22 EU Member States and the financial sector in the Euro area. To achieve this objective, we will use quotations for 159 companies in the banking, financial services, insurance and real estate sectors, as well as the Euro Stoxx Financials index. The estimates will be based on daily data for the period 8 January 2004 - 1 February 2017. In addition, another proposed objective is to identify the variables that influence the dynamics of EU integration. In this regard, the use of both global factors, specific to the money market or financial market, as well as some country specific factors will be pursued.

The objectives of the research proposed in the fourth chapter - *INTEGRATION AND STABILITY OF BANKING SYSTEMS IN THE MEMBER STATES OF THE EUROPEAN UNION. EMPIRICAL RESEARCH* begin from the systemic importance of the banking sector in the European Union. In this last chapter, we will test the hypothesis of the integration of the banking systems, using a different approach from the one of the previous chapter, trying by this approach to provide consistency and robustness to the results already obtained. In this regard, given the availability of data, we will analyze the integration of banking systems in 24 Member States over the period 2007-2017. For this purpose, we will study the integration from the perspective of the single price law, having as main criterion the interest rates in the banking sector. More specifically, the analysis of the integration of the banking systems will be carried out in the light of the interest rates practiced by the credit institutions on the loans granted and on the attracted deposits. To study the integration of banking systems, we will use the model
proposed by Phillips and Sul (2007). We chose this model because it allows us to thoroughly evaluate the dynamics of integration. Some of the most important advantages of the model are: it does not impose initial assumptions regarding the stationarity or non-stationarity of the data; it allows the estimation of long-term equilibrium in a heterogeneous sample, taking into account the historical trend of the variables; it allows illustrating the trend for each country in relation to the sample average. In essence, the model tests the convergence hypothesis for the data series included in the sample. In addition, if the whole sample’s convergence hypothesis is rejected, the model allows grouping of data series into convergence clusters. In this way, we can see how, depending on the degree of integration, the EU Member States are grouping together. The sample will include 24 EU countries, and to determine the integration of the banking systems in these countries, we will use data series for the active interest rate and the passive interest rate between 2007 and 2017. This period includes both the effects of the global financial crisis and the effects of the sovereign debt crisis. Specifically, we will use monthly data on interest rates applied by credit institutions to deposits from the non-financial sector and households and to loans to the non-financial sector and households of population.

For the non-financial sector, we included the following series of data in the estimates: the total interest rate on time deposits and the total interest rate on loans granted. For households, we included the following series of estimates: the total interest rate on time deposits, the total interest rate on real estate loans and the total interest rate on consumer credit. All series refer to data denominated in national currencies. Interest rates on attracted deposits and on loans granted were extracted from the European Central Bank (ECB) database and from the databases of the central banks of the countries included in the sample.

Based on the above, it follows that we set out to achieve a balanced structure of the doctoral thesis, with an appropriate allocation for the theoretical aspects, but with a strong emphasis on empirical research precisely to demonstrate the actuality of the research purpose, but also the scientific value of the general and specific objectives. We want the part of the conclusions from the end of the doctoral thesis sufficiently robust to give consistency to our approach in terms of originality and academic rigor.

RESULTS OBTAINED (SELECTION)

In the following, we will present the results that show the degree of synchronization between the financial sectors of the EU member countries and the Euro Stoxx Financials index. The results were obtained using a bivariate DCC-MIDAS model.

Chart 3.2 shows the degree of synchronization for the financial systems of Austria, Germany and the Netherlands, countries considered to be part of the hard core of the Euro area. Dynamic analysis indicates interesting aspects. In the case of Austria, we observe a low financial integration in the first part of the analyzed period. After 2005, the financial sector in Austria becomes more integrated. In our opinion, this trend can be determined by the positive effects induced by the adoption of the single European currency on the integration of the Member States. The global financial crisis causes fast increases in the correlation between the financial sector in Austria and Euro Stoxx Financials. Thus, the announcement of BNP Paribas regarding the suspension of three hedge funds, as well as the bankruptcy of Lehman Brothers, generates significant appreciation of the correlations. It should be noted that these increases are followed by short-term decreases. This tendency is more evident in terms of short-term correlations. Regarding long-term correlations, during the global financial crisis, we observe a continuous growth. And during the sovereign debt crisis, the pattern of sudden growth - decline is resumed. The financial assistance package, granted to Greece in May
2010, determines a significant increase in the degree of synchronization. This trend is also evident in the case of the financial assistance package granted to Ireland (September 2010), in the case of Greece’s debt restructuring (October 2011) and in the case of the financial assistance package granted to Spain (June 2012). It should be noted that during the sovereign debt crisis, long-term correlation indicates a slight increase in integration. The sudden increases in correlations, as a result of the negative events generated by the global financial crisis and the sovereign debt crisis, are driven by similar investor behaviour. This observation is consistent with Forbes and Rigobon (2002), Capiello et al. (2006), Baele (2005), Chiang et al. (2007), Syllignakis and Kouretas (2011), authors who have shown that in times of crisis, when yields fall sharply, the correlations between markets tend to increase. In the last part of the analyzed interval, we can observe a stabilization of the degree of integration around a balance value of about 0.55.

In the case of Germany, we can see a different dynamic of the degree of financial integration compared to Austria. The dynamics of integration between the German financial sector and the Euro Stoxx Financials index is much more stable during the analyzed period. In our opinion, the differences between Austria and Germany can be determined by the different exposures of the financial sectors in these countries. Specifically, Austrian financial institutions have higher exposure in Central and Eastern European countries (e.g. Erste Group Bank AG, Raiffeisen Bank International AG or Vienna Insurance Group AG), while German financial institutions have a more targeted exposure more to international markets (Deutsche Bank AG, Commerzbank AG or Allianz SE). And in this case, during the global financial crisis and during the sovereign debt crisis, sudden increases in correlation can be observed around negative events (for example, BNP Paribas announcement, Lehman Brothers bankruptcy, financial aid package to Greece). The impact of these events is visible, in particular, in the short-term correlations. Long-term correlations show a higher degree of stability, fluctuating around a balance value of 0.60.

Regarding the financial sector in the Netherlands, we can observe, at the beginning of the analysis period, between 2004 and 2006, a period of stability of the correlation between the financial sector and the Euro Stoxx Financials index. Subsequently, until the middle of 2007, there is an increase in correlations, visible in the long-term trend. During the global financial crisis and the sovereign debt crisis, we observe trends similar to those mentioned in the case of Austria and Germany, respectively sudden increases in the degree of synchronization caused by the negative events of the two crises. In fact, the highest values of the correlations can be observed in September 2008 (bankruptcy of Lehman Brothers) and May 2011 (the financial aid package granted to Greece). In fact, following the bankruptcy of Lehman Brothers and, in particular, due to international liquidity restrictions, the Dutch authorities decided to nationalize ABN Amro at the end of September 2008. In the last part of the analyzed period, from 2013 in particular, we can observe a tendency of diminishing correlations and a return of them to the level before the crisis.
Graph 1.3.2: The degree of synchronization between the financial sector and the Euro Stoxx Financials index in Austria, Germany and the Netherlands (countries in the hard core of the Euro area)

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedging funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.

Graph 3.3 shows the degree of integration for the banking systems in Austria, Germany and the Netherlands. Comparing the two graphs (Graphs 3.2 and 3.3) we can see some similarities and differences. For Austria and Germany, the integration of banking systems has a dynamic similar to the integration of financial systems. In the case of the Netherlands, we can see that the index of banking integration is very stable. This characteristic is explained by the fact that for the calculation of the indicator only the quotation for ING Bank, bank included in the Euro Stoxx Financials index and strongly connected with the financial system in the Euro area, was taken into account. It should be noted that in all three countries, the index of banking integration has higher values than the index of financial systems integration. Higher values are explained by the stronger interconnection of banks in these countries with the international financial market.
Chart 1 3.3: The degree of synchronization between the banking sector and the Euro Stoxx Financials index in Austria, Germany and the Netherlands (Euro area hard core countries)

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedging funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.

Graph 3.4 reveals the financial integration in Belgium, France and Finland. In the case of Belgium, we observe a stable period at the beginning of the analysis period, characterized by a low degree of correlation with the Euro Stoxx Financials index. Since 2006, there is a period of increasing degree of integration. This trend is accentuated by the global financial crisis and the sovereign debt crisis. The bankruptcy of Lehman Brothers, the financial aid package to Greece and the debt restructuring for Greece are the events that determine maximum points, indicating contagion among investors. The financial system in Belgium has faced many difficulties both during the global financial crisis and during the sovereign debt crisis. At the end of September 2008, the Belgian government nationalized Fortis operations, while in October 2011 the authorities nationalized Dexia. These events have generated major tensions in the financial system in Belgium, as well as in the financial systems in the Euro area. In addition, short-term correlations have numerous turning points during the two crises, indicating major tensions among investors. Starting with 2013, a decrease in correlations can be observed. Overall, the dynamics of the integration of the financial sector in Belgium during the period analyzed is very similar to that of the Netherlands.

In the case of the French financial system, we can observe a continuous trend of increasing the level of financial integration. This trend is accentuated by the global financial crisis and the sovereign debt crisis. Also in the case of France, the bankruptcy of Lehman Brothers, the financial assistance package granted to Greece, the restructuring of Greece’s debt, but also the financial assistance package received by Spain for the recapitalization of the banking sector generates significant increases in correlations. In the last analysis period, we can observe a decrease of the degree of synchronization and a stabilization of it around a value that reflects an average integration of the financial system - 0.60. The trend of decreasing correlations, observed in particular since July 2012, is explained by a tempering of tensions in financial systems in
Europe. This tempering has as main determinant both the interventions of the European Central Bank (ECB) on the secondary market of sovereign bonds and the statements of the ECB president (for example, Mario Draghi’s statement that the ECB will do whatever it takes to save the Euro, brought a normalization on the Euro area financial markets).

Graph 3.4: The degree of synchronization between the financial sector and the Euro Stoxx Financials index in Belgium, France and Finland (Euro area hard core countries)

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedging funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.

The financial integration in Finland follows a pattern similar to what we observed in the case of Belgium. Specifically, after a period of stability, a slight increase follows. Later, during the two crises, this increase is accentuated by the negative events. Finally, we can see a tendency to decrease the degree of synchronization and a return to the fundamentals. In contrast to Belgium, it can be observed, however, that the level of integration of the financial sector in Finland is lower.

Graph 3.5 shows the integration of banking systems in Belgium, France and Finland. And in the case of these countries, we can observe certain peculiarities. In Belgium, the bank integration index has two points of minimum much more visible and more persistent than the index of financial integration, in 2009 and 2011. In our opinion, they reveal the endogenous problems that the banking system in Belgium faced - the Fortis and Dexia nationalizations at the end of 2008 and 2011, respectively. For France, the index of banking integration follows a dynamic similar to that of financial integration, with the mention that the values of the former are higher. The explanation of the higher integration for the banking system is similar to that mentioned in the case of Germany, that is, the stronger interconnection to the financial market. In the case of Finland, there are no major differences between the dynamics of financial and banking integration.
Graph 3.5: The degree of synchronization between the banking sector and the Euro Stoxx Financials index in Belgium, France and Finland (Euro area hard core countries)

Graph 3.6 shows the degree of financial integration in Greece, Ireland and Portugal, countries on the periphery of the Euro area. The global financial crisis and its effects have created the premises for the Euro area sovereign debt crisis. The constraint of liquidity on the financial markets, as well as the high degree of indebtedness, both in the public sector and in the private
sector in some Euro area Member States have created the premises of sovereign crises in Greece, Ireland and Portugal. The negative effects from the sovereign level were transferred to the financial institutions, given the high exposures that they had on public bonds. In addition, the financial institutions were severely affected by the liquidity constraint. The effects generated by the spiral financial institutions - public authorities quickly spread to the real economy. Under these circumstances, Greece, Ireland and Portugal received financial assistance packages from international creditors.

**Graph 1 3.6: The degree of synchronization between the financial sector and the Euro Stoxx Financials index in Greece, Ireland and Portugal (Euro area periphery countries)**

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedging funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.

The degree of integration in the case of the Greek financial system reveals the highest volatility. In agreement with the previous observations, the beginning period indicates stability, followed by an easy tendency to increase the correlations. The global financial crisis triggers sudden increases in correlations, signalling episodes of contagion. The bankruptcy of Lehman Brothers is the event with the most significant impact. Unlike the countries in the hard core of the Euro area, during the sovereign debt crisis, the dynamics of integration in the financial sector in Greece follows a different pattern. Specifically, according to the financial assistance package granted to this country, both short-term and long-term correlations have a strong downward trend, indicating a significant decrease in financial integration in Greece. In these conditions, at the end of 2012, the correlations reach the minimum during the analyzed period. This result indicates a decoupling of the Greek financial system from the Euro area system. At the end of the analysis period, we can see a small increase in the correlations.

The dynamics of the integration of the financial system in Ireland highlights similarities with the countries previously analyzed, but also particularities. Similarly, between 2004 and 2006, we observe a period of stability, followed by an increase in correlations. During the global financial crisis, we note a high volatility, marked by significant increases in correlations. During
the sovereign debt crisis, we observe a major increase determined by the financial assistance package granted to Greece. Later, like Greece, we notice a tendency to diminish the degree of integration. It should be noted that the financial assistance package granted to Ireland by international creditors has a low point. Starting with 2013, we observe a tendency of stability of the correlations, reaching the values from the beginning of the analysis period. In these conditions we can say that the appreciation of the correlations during the crisis periods was determined by episodes of contagion and not by economic and financial fundamentals. Also, in our opinion, the high volatility of the correlations during the global financial crisis is generated by the higher degree of interdependence of the financial system in Ireland, the United Kingdom and, implicitly, the United States.

The integration of the financial system in Portugal with the Euro Stoxx Financials index indicates a dynamics similar to Greece, with differences regarding the impact of major events. Between 2004 and 2007, we observe a high stability of the correlations around some equilibrium values. It should be noted that the values of the correlations during this period, about 0.30, indicate a reduced integration. The global financial crisis and, in particular, the bankruptcy of Lehman Brothers generate a sudden increase in correlations. This growth continues even during the sovereign debt crisis, the maximum points being reached when granting financial assistance packages to Greece and Ireland. Similar to Ireland, the financial assistance package granted to Portugal represents the moment that triggers an episode of accentuated diminution of correlations. In the last part of the analyzed interval, we observe a stabilization of the correlations around some values that reflect a low integration. Overall, the dynamics of the integration index is similar in the three countries, but the values are different. Moreover, intuitively, compared to the hard core countries of the Euro area, the correlation values are lower, reflecting weaker integration. Graph 3.7 highlights the dynamics of banking integration in Greece, Ireland and Portugal. In the case of Greece, both the dynamics of banking and financial integration and their values are close, the differences being minor. In the case of Ireland and Portugal, the two indices are equal, because, as can be seen from the data section, listed financial sector companies are only from the banking sector. Graph 3.8 shows the degree of financial integration in Italy and Spain. After Greece, Ireland and Portugal, Italy and Spain were among the countries negatively affected by the sovereign debt crisis. The first signs of the fragility of the two countries appeared in the second part of 2011, the yields of public bonds and the bankruptcy premiums for the two countries reached maximum values (Albertazzi et al., 2014). Under these circumstances, unexpectedly and surprisingly, the ECB acquires bonds issued by Spain and Italy on the secondary market to limit tensions in the financial markets.

In Italy, the dynamics of the correlations between the financial sector and the Euro Stoxx Financials index follows a similar pattern to what we observed before in the case of other countries. Specifically, after a period of stability at the beginning of the analysis period, there is an upward trend, accentuated by the global financial crisis and the sovereign debt crisis. Thus, during the two crises and, in particular, during the sovereign debt crisis, we observe numerous inflection points, the correlations being marked by a high volatility. Starting with 2013, we observe a slight reduction of the correlations, followed by an increase at the end of the analysis period. Overall, the correlation values indicate a degree of financial integration similar to that obtained in the countries of the hard core of the Euro area. Compared to Italy, the correlations obtained for Spain are more stable. They are amplified by the bankruptcy of Lehman Brothers, the financial assistance package granted to Greece, but also the financial assistance package granted to Spain for the recapitalization of the banking sector. Intuitively, during the sovereign debt crisis, the correlations remain high. In our opinion, this fact is explained by the endogenous nature specific to the sovereign debt crisis, both in the case of Spain and Italy. For example, in May 2012, Spain had to nationalize the third largest bank - Bankia. Regarding the values of the
correlations, we observe high values, over 0.60 during the whole analysis period, implying a high degree of interdependence between the financial system in Spain and the one in the Euro area. For Spain, the degree of integration is similar to that obtained for the countries in the hard core of the Euro area. In these circumstances, we can say that the financial systems in Italy and Spain remain important pillars of the Euro area financial system.

Graph 1 3.7: The degree of synchronization between the banking sector and the Euro Stoxx Financials index in Greece, Ireland and Portugal (countries at the periphery of the Euro area)

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedging funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.

Graph 1 3.8: The degree of synchronization between the financial sector and the Euro Stoxx Financials index in Italy and Spain (countries at the periphery of the euro area)

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedging funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.
Graph 3.9: The degree of synchronization between the banking sector and the Euro Stoxx Financials index in Italy and Spain (countries at the periphery of the Euro area)

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedging funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.

Graph 3.9 highlights the dynamics and degree of integration for banking systems in Italy and Spain. As we can see, in both countries, the differences between financial integration and banking integration are minor. In our opinion, the similarities can be explained by the fact that the banking systems of Italy and Spain were strongly affected by the sovereign debt crisis. Under these conditions, the contagion effects have spread rapidly to the other sectors of the financial industry. Graph 3.10 highlights the dynamics of the degree of synchronization in the old EU Member States, which have opted not to join the Euro area. The analysis of the results, especially in comparison with the estimations obtained for the Euro area states, indicates aspects that are worth highlighting.

In Denmark, the first stages of evolution of the degree of synchronization are similar to those obtained for the Euro area countries. Thus, we can observe a stable period, between 2004 and 2006, followed by a period of increasing degree of integration. The global financial crisis generates a sudden increase in correlations, reaching a maximum at the end of 2008. Increased correlations indicate contagion effects generated by the degree of financial instability. Later, a tendency to diminish the correlations can be observed. This trend is also maintained during the Euro area sovereign debt crisis. Starting with 2012, we observe a stability of the correlations, the values varying slightly around 0.40. As we can see, there are differences in how the sovereign debt crisis has influenced financial integration in Denmark, compared to the Euro area Member States. Specifically, in Denmark, contagion effects were absent, indicating a low spread of Euro area instability in the country’s financial system. In our opinion, this is due to the reduced exposure of financial institutions in Denmark on international markets and in the Euro area countries. There is one exception, Danske Bank A/S, but this one concentrates its operations in the Scandinavian Peninsula, while its presence in other markets is aimed mainly at customers in the Scandinavian Peninsula. It should be noted that the values of the correlations between the financial sector in Denmark and the Euro Stoxx Financials index indicate a low convergence with the financial system in the Euro area. In Sweden, contrary to expectations, we can see a different pattern of financial integration from that of Denmark, especially during the sovereign debt crisis. Thus, during the sovereign debt crisis, we can observe maximum points reached when granting the financial assistance package to Greece, restructuring the debt of Greece and granting the
financial package to Spain. Also, we observe a high volatility of the correlations during the two crises. Starting with 2013, the correlations decrease slightly stabilizing around a balance value close to 0.50. In our opinion, the similarities of the Swedish financial system with the Euro area countries during the sovereign debt crisis, as well as the high degree of integration with the Euro area financial system, are due to the four major financial institutions in Sweden: Nordea Bank AB, Skandinaviska Enskilda Banken AB, Svenska Handelsbanken AB and Swedbank AB. Their interdependence with the international financial markets, but also the exposures in the Euro area Member States are higher compared to the financial system in Denmark.

Graph 3.10: The degree of synchronization between the financial sector and the Euro Stoxx Financials index in Denmark, Sweden and the United Kingdom

In the UK, the results indicate that integration with the Euro area financial system is high. Also, we can observe a stability of the dynamics of the correlations during the analyzed period, these fluctuating around a value of 0.60. It should be noted that the intensity of the dependency values between the UK financial system and the Euro Stoxx Financials index is different during the two crises. During the global financial crisis, we can see two high points of the suspension by BNP Paribas of three hedging funds and the bankruptcy of Lehman Brothers. Also, between these two moments, we notice that the synchronization degrees are maintained at a high level. This is explained by the fact that one of the largest mortgage banks in the UK, Northern Rock, has had major problems since September 2007. Moreover, in February 2008, Northern Rock was nationalized. In addition, the UK’s largest financial institutions - Barclays PLC, Lloyds Banking Group PLC, Royal Bank of Scotland Group PLC and Standard Chartered PLC - have high exposure in international financial markets, but also in the United States, leading to bigger contagion effects. And during the sovereign debt crisis, an increase in correlations can be observed, but its magnitude is smaller. Subsequently, since 2013, we have noticed a slight decrease in the correlations. It should be emphasized that, in 2016, sudden increases in correlations can be observed. These are generated by the instability induced by the referendum
triggered for the exit of Great Britain from the European Union. Graph 3.11 shows the evolution of banking integration in Denmark, Sweden and the United Kingdom. The dynamics of financial integration and banking integration show a similar evolution during the analyzed period. Differences can be observed regarding the values of the two indicators. Specifically, in the case of banking integration, the values are higher, highlighting a higher degree of convergence for the banking sectors in these countries with the financial sector in the Euro area. The analysis of the results obtained for the old member states of the European Union revealed the heterogeneity of the degree of financial integration. This heterogeneity is observed both in terms of the differences of integration between states and in the dynamics of integration over time. In addition, the way in which the financial systems of each Member State have responded to the instability caused by the global financial crisis and the sovereign debt crisis is different. In these conditions, in our opinion, for the optimal functioning of the Euro area, it is necessary to increase the degree of financial integration and to create mechanisms to absorb the negative shocks caused by the economic and financial crises. An initiative initiated in this regard is the creation of the banking union and the capital markets union. However, it is necessary to quickly complete the institutional structure, especially as regards the single resolution mechanism and the bank deposit guarantee fund.

**Graph 3.11: The degree of synchronization between the banking sector and the Euro Stoxx Financials index in Denmark, Sweden and the United Kingdom**

Notes: Synchronization degrees were obtained by estimating a DCC-MIDAS model. Short-term synchronization has daily values, and long-term synchronization, quarterly values. (a) BNP Paribas freezes three hedge funds. (b) Lehman Brothers Bankruptcy. (c) Financial assistance package for Greece. (D) Financial assistance package for Ireland. (E) Financial assistance package for Portugal. (f) Restructuring sovereign debt for Greece. (g) Financial assistance package for Spain.

Banking systems in the European Union have been significantly affected by the global financial crisis and the sovereign debt crisis. Under these circumstances, a number of processes and trends have emerged at the level of the EU banking systems. For example, in some Member States, the authorities intervened with public funds to support credit institutions (Ireland, Greece, Cyprus, Slovenia, Portugal, Spain, the Netherlands and Germany). Relevant issues arise from the
analysis of interest rate paths on loans to the non-financial sector (see Graph 4.1). Note that the curve dynamics must be interpreted in relation to the average of the sample that is equal to 1. Consequently, the distance from the average of the sample is an indication of the segmentation of interest rates. The equilibrium points for the three convergence clusters are very clearly delineated. The equilibrium point for the first convergence group is above the average of the sample. Consequently, we can say that in Greece, Bulgaria, Romania, Poland, Ireland and Portugal, interest rates on loans granted by credit institutions to the non-financial sector are higher than the average of the sample. At the end of the analysis period, we can see that the dispersion between the trajectories of the countries in the sample is higher, compared to the beginning of the analysis period, which means lowering the level of integration. At the beginning of the analysis period, with the exception of five Central and Eastern European countries, all countries could form a convergence group around the average of the sample.

The high degree of heterogeneity can also be seen from the trajectory dynamics highlighted in Graph 4.2. Moreover, over time, the dispersion between interest rate curves has increased, so at the end of the analysis period we have the highest difference between countries above the average and countries below the sample average.
CONCLUSIONS, CONTRIBUTIONS AND FURTHER DEVELOPMENTS

GENERAL CONCLUSIONS

The presentation of the conceptual foundations that characterize the current state of the financial systems, carried out in the first part of the paper, was meant to show that, after passing the 10-year cycle since the last global financial crisis, the world economy is growing strongly due to favourable monetary conditions, which, on the other hand, it accentuates financial vulnerabilities. Monetary impulses fuel the trend of increasing returns on financial markets by increasing asset prices, sometimes above their fundamental values. The increased risk appetite is also increasingly visible in the real estate and cryptocurrency markets, for example. Public debt has grown significantly over the past decade, while household and corporate debt has remained high. The conclusion was easily reached that it is in the company's interest for the financial system as a whole to operate safely and efficiently for private persons, companies and other market participants. This is because a serious crisis in the financial system risks leading to extensive economic and social costs. The stability of the financial system is based on both public and market confidence. The basic requirements for trust are solid institutions and efficient markets.

Applying to the quantitative analysis as a technique in order to systematize and present the data in the form of graphs, we studied the structure of 12 European financial and banking systems that we considered representative. Each national financial-banking system, at European level, has undergone major changes in the period mentioned above. We easily found the concentration of financial systems by reducing the types and number of financial institutions as a result of an intense activity of mergers and acquisitions but also as a result of the regulations that
followed the crisis. From the synthetic analysis of the characteristics of the European financial and banking systems, it was possible to draw some important conclusions. Thus, while systems such as those in Austria or Germany belong to the developed category, with a high degree of interconnection and risk mitigation, but also a rapid adaptation to changes in the financial environment, such as those in Poland and other countries in the region are not very developed in relation to the real economy, registering relatively low levels of financial intermediation compared to the average value at European level.

Another conclusion that emerges from the content of this first part of the doctoral thesis is that the banking sectors dominate the European financial systems, and the role of financial markets is not an important one, compared to the US or Asian financial systems. The post-crisis business model in the European banking sectors has also affected the banking network (the number of banking units), which is steadily decreasing, a tendency partly reflected in the increasing use of digital banking by consumers, as more than half of individuals in the European Union use internet banking. The major transformations of the European financial architecture and of the regulatory and supervisory framework provide us with the support to conclude that the European financial authorities consider that prevention is cheaper than post-factum intervention, and rigorous regulation can eliminate financial instruments with major social risk. Last but not least, the due importance and breaking of the vicious circle that linked the sovereign debts to the banks' capitalization was given due importance. The crisis showed us that, due to the limited coverage area, the national regulation had become inefficient, and the regulatory differences created the conditions for wide arbitrage possibilities.

In the second part of the doctoral thesis, we continued the theoretical approach of the research through the terminological and conceptual analysis of the notions regarding financial stability and financial integration, carrying out a review of the representative opinions in the specialized literature, but also of the central banks' considerations regarding financial stability, aspects that allowed us to synthesize the state of knowledge, but also to draw some conclusions.

In the dynamic context of the global economy, financial stability seems difficult to define and measure despite an impressive suite of approaches. The absence of excessive volatility and financial crises can characterize a stable financial system, in the most simplistic approach possible. But, when the economies of the European states are more or less integrated with the economies of the other continents, it is not at all easy to differentiate the local capital from the foreign one and then the efficiency of the capital control activities can be called into question. In this case, central banks or other financial authorities must pay particular attention to the stability of financial systems in order to avoid financial crises and reduce the costs involved.

Making a dialogue with the European Central Bank and 26 other national central banks on defining and addressing financial stability, given that, at the level of literature, there is still the approach that there is no unanimously recognized definition, seems an approach located in the area of hazard. But, in our opinion, this study has provided us with the support for a solid foundation of empirical research in the following chapters, because we have noticed that: among the most important current risks to the stability of the European financial systems is the impasse on Brexit, the tightening of the policy. monetary of the Federal Reserve, the accentuation of trade conflicts and political tensions at international level; uncertainties about the sustainability of public debt in some EU countries continue to create tensions and impose new measures to maintain financial stability in Europe; a new culture has emerged in terms of regulation, supervision and crisis management;

We can estimate, based on the study, that the financial system made up of markets, institutions, financial intermediaries, payment and transfer systems is stable when it ensures the efficient allocation of resources and the fulfilment of key macroeconomic functions, efficient payment settlement and management of risks and shock absorption. Moreover, compared to the
authors’ opinions in the academic literature, we can see that most central banks treat financial stability and not instability.

And with regard to the conceptual approaches regarding the financial integration process, there is a high degree of heterogeneity. In a broad sense, financial integration can be understood as the process by which financial markets are becoming increasingly interconnected and similar from the behaviour point of view. In practical terms, the integration of financial markets aims at an increase of capital flows and a trend of prices and yields of internationally traded financial assets, equalizing to a common national base. Technically, we can talk about total financial integration, in which the real interest rates are the same on the markets of the financially integrated countries. However, the degree of financial integration is different for developed markets compared to emerging markets. We have held several opinions, which we also agree with, which claim that financial integration at EU level has the potential to stimulate economic growth, this can happen through different potentially interconnected channels, ranging from improved capital allocation, investment opportunities and specialized production, to increase the total productivity of the production factors.

The conclusions of the study of the influence and impact of the recent financial crisis on the stability and financial integration in the European Union countries, carried out in the last subchapter of the second part of the paper, also contribute to the consolidation of the empirical research base. The latest global financial crisis has shown us that strong economies with developed financial markets cannot naturally balance themselves, and financial stability cannot be ensured without active support for monetary policy and macroeconomic policies. Managing the effects of the crisis was the result of a major effort by European governments, central banks and financial authorities. To a greater or lesser extent, all the financial and economic actors benefited from the measures to stabilize the financial sector and to support national economies taken at Union and national level. But some financial institutions or sectors needed more substantial support. State aid, in combination with monetary policy and measures to ensure the stability of the financial market, has succeeded in preventing the financial system from collapsing. The sovereign debt crisis in several Member States has generated intense dissonance in the region and has questioned the sustainability of the European Union itself. After more than a decade since the last global financial crisis broke out, the effects on economic growth, financial stability and performance of some of the institutions of different European financial systems are still felt.

The last two chapters of the paper were devoted to empirical research. Taking as starting point the importance of the integration for the stability of the financial systems, as well as the tensions generated by the global financial crisis and the sovereign debt crisis (theoretically and conceptually argued in the first part of the doctoral thesis), in chapter three we empirically investigated the integration of financial markets in the states EU members, starting from the examination of the synchronization of financial markets in the European Union, having as a basic element the quotations of shares for companies in the financial sector, banking sector, financial services sector, insurance sector and real estate sector. In addition, given the importance of the banking sector in the EU financial system, we also investigated the degree of integration of banking systems in the EU member states. Synchronization is a measure that has given us a perspective on integration and convergence. We included in the analysis conducted in this chapter, given the availability of data, 22 countries in the European Union - Austria, Belgium, Bulgaria, Czech Republic, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Great Britain, Netherlands, Poland, Portugal, Romania, Slovakia, Spain and Sweden. We also included a series of 10 macroeconomic indicators for 26 EU Member States (in addition, we introduced Estonia, Latvia, Luxembourg and Slovenia - countries discussed in the next chapter), calculated on average, between 2007 and 2016.
Some of the results obtained have caught our attention. Thus, looking at the ten indicators, we can see that there is a high level of heterogeneity between the EU Member States included in the sample. Given the Gross Domestic Product (GDP) in purchasing power standard, we can see disparities between the old EU Member States and the new Member States. Thus, the countries that formed the initial block of the EU have the highest level of GDP per capita, while the countries that joined in 2004 and 2007 have the lowest level. The situation becomes different in the case of the annual GDP growth rate, calculated as an average between 2007 and 2016. Thus, in this case, we can see that the countries that joined the EU in 2004 and 2007 have the highest growth rates, while, in the developed countries of the EU, the growth rates are lower. Moreover, in the case of Greece, Italy and Portugal, we can see real negative growth rates. This is intuitive, considering that the three countries have been at the centre of the sovereign debt crisis. Of note, it is Ireland’s performance, where we can see the highest average GDP growth, despite the fact that, in 2010, Ireland was significantly affected by the sovereign debt crisis. The inflation rate is the indicator where the highest degree of homogeneity can be observed. Thus, with small exceptions, most countries can fall within the inflation target pursued by the European Central Bank (ECB).

In order to determine the degree of integration of the financial markets, as well as the factors that influence its dynamics in the EU, we have used extensive data series. First, we used the Euro Stoxx Financials index to identify the level of financial integration in the EU, considering that the returns and dynamics of the actions on the financial markets reflect both the economic and financial fundamentals of the country and the company, respectively, as well as the influence of international markets. The financial integration in the Member States was evaluated in a similar way, considering the stock market. Specifically, for each country, we selected the most representative companies in the banking, financial services, insurance and real estate sectors, listed in the first category of the capital market. In order to reach the proposed objective, in the first stage, we have introduced in the graph of each country the most tense events of the global financial crisis and the sovereign debt crisis. In the second stage, we used an empirical approach. Thus, in a regression model, in which the dependent variable is the long-term financial integration obtained for each Member State, we included several independent variables in order to have an image on the effects generated by them. The regressors include both control variables and variables specific to each Member State.

The results indicate a high heterogeneity of financial integration among the Member States of the European Union. The differences are determined by the specific economic development of each country, as well as by the specific development and depth of each market. In addition, the interconnection of a country's financial system with international financial markets also explains the differences in integration. The highest values of financial integration are observed for the largest financial markets in the EU, respectively, the United Kingdom, Germany, France, Spain and Italy. For these countries, the values of the correlations over the entire analysis period range from 0.50 to 0.70. There is a group of states with an economic development close to the previous markets, but with a smaller market depth, respectively, Holland, Austria, Belgium, Ireland, Finland, Portugal and Sweden. Also, compared to the first group of countries, the exposure of the financial system in these countries to international markets is lower. For this group, during the entire analysis period, the correlations vary between 0.40 and 0.50. The least integrated countries are those from Central and Eastern Europe. And in the case of this group of countries, we can define the degree of integration. Thus, for Hungary and Poland, integration is higher, while for the Czech Republic, Romania, Lithuania, Bulgaria and Slovakia the degree of integration is the lowest.

The results also showed that an increase in risk on financial markets, an increase in risk aversion, as well as increased tensions in money markets lead to an appreciation of the correlations. In addition, in times of crisis in the EU Member States, caused by either a systemic
financial crisis or a negative economic cycle, financial integration increases. The sovereign risk, quantified by the yields of the bonds issued by the public authorities in the long term, is in inverse relation with the financial integration. Specifically, an increase in sovereign risk leads to financial divergence. The objective of testing the integration and stability of banking systems in the Member States of the European Union is achieved in the last chapter of the paper by using the model proposed by Phillips and Sul (2007), using a sample of 24 EU countries: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Holland, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden and a number of relevant system analysis indicators banking in the countries listed.

In order to determine the integration of the banking systems from the 24 analyzed states, we used data series for the active interest rate and the passive interest rate in the period 2007 - 2017. This includes both the effects of the global financial crisis and the effects of the sovereign debt crisis. Specifically, we used monthly data on interest rates applied by credit institutions to deposits from the non-financial sector and households and to loans to the non-financial sector and households. For the non-financial sector, we included the following series of data in the estimates: the total interest rate on time deposits and the total interest rate on loans granted. For households, we included the following series of estimates: the total interest rate on time deposits, the total interest rate on real estate loans and the total interest rate on consumer credit. All series refer to data denominated in national currencies.

Banking systems in the European Union have been significantly affected by the global financial crisis and the sovereign debt crisis. For example, in some Member States, the authorities intervened with public funds to support credit institutions (Ireland, Greece, Cyprus, Slovenia, Portugal, Spain, the Netherlands and Germany). In addition, the European Central Bank (ECB) injected significant liquidity into Euro area banking systems to ensure the stability of credit institutions. Also, the banking systems in the emerging countries have experienced capital outflows. To this end, in order to mitigate the negative effects of this process, the authorities and the main foreign banks in the region signed the Vienna Initiative. Commercial banks in developed countries have begun a capitalization process, selling their subsidiaries in some countries. At the same time, in some countries in Central and Eastern Europe - Hungary and Poland, for example - domestic capital has become more relevant in the banking system. In short, the banking systems in the European Union have undergone numerous transformations in the last decade.

Correlating the results obtained in this study, we note the rejection of the convergence hypothesis for the banking systems in the EU. Although the model has revealed the convergence of banking systems across multiple clusters, they have a high level of heterogeneity. The lack of integration of banking systems in the European Union is an impediment to the convergence of the Member States. Interest rate divergence leads to disparities in borrowing costs for the non-financial sector and households, and real interest rates on segmentation. These factors lead to diminishing the competitiveness of companies, increasing the indebtedness of companies and households and, ultimately, increasing economic, social and financial disparities between developed and developing countries. In addition, the financial divergence has a negative impact on the degree of financial stability. Under these circumstances, increasing integration into EU banking systems is imperative. Increasing integration will lead to reduced contagion effects and cost sharing, but also to similar costs for companies and the population, which, in fact, operate in a single market with common rules. These elements will have a positive impact on financial stability.
FUTURE CONTRIBUTIONS AND DEVELOPMENTS

The doctoral thesis entitled “Integration and stability of financial systems in the Member States of the European Union” deals with a topic of actuality and practical importance relevant to the current context at European level. Following the theoretical study and the empirical research aimed at the integration and stability of the financial systems of the European Union, we appreciate that the results obtained have multiple implications for researchers, public authorities, decision-makers in the financial world and, last but not least, for investors. The empirical analysis carried out makes some contributions to the literature.

First of all, to our knowledge, there is no research to investigate the degree of synchronization between financial systems in the European Union. Most studies focused on analyzing the degree of synchronization between the main indices of the capital markets. Secondly, our approach to identifying variables that influence the degree of synchronization is innovative. Third, the analysis of the integration of financial systems and determinants will provide exhaustive information to decision-makers on the measures needed to increase convergence. In addition, synchronization provides important information to investors regarding portfolio diversification. Last but not least, unlike other studies in the literature, we used a DCC-MIDAS model. Unlike other models that allow only short-term correlations to be extracted, DCC-MIDAS allowed us to extract both short-term and long-term correlations. Long-term correlations have lower volatility and have been used to identify the determinants of synchronization.

Secondly, the empirical research carried out for the analysis of the integration of the banking systems, through the interest rates applied by the credit institutions to the loans granted and to the attracted deposits, also makes some important contributions to the specialized literature. First of all, from our knowledge, there is no such analysis on such a large sample. Secondly, by analyzing the integration of banking systems, in terms of interest rates, we will provide an exhaustive framework for decision-makers, especially given that this area is not sufficiently researched in the literature. Third, we used a methodology that allowed us to identify convergence speed and to group countries into convergence clusters.

Integrating banking systems in the EU should be the main concern of EU public authorities. This can be achieved through a process of legislative convergence, by strengthening and consolidating the banking union, by assuming a risk-sharing mechanism and a tax transfer mechanism. In our opinion, these elements will be stability anchors in case of financial crises. Public authorities in the Member States should also strengthen cooperation and coordination in order to increase integration both at EU level and at regional level - for example, Central and Eastern Europe.

The lack of integration of banking systems in the European Union is an impediment to the convergence of the Member States. Interest rate divergence leads to disparities in borrowing costs for the non-financial sector and households, and real interest rates on segmentation. These factors lead to diminishing the competitiveness of companies, increasing the indebtedness of companies and households and, ultimately, increasing economic, social and financial disparities between developed and developing countries. In addition, the financial divergence has a negative impact on the degree of financial stability. Under these circumstances, increasing integration into EU banking systems is imperative. Increasing integration will lead to reduced contagion effects and cost sharing, but also to similar costs for companies and the population, which, in fact, operate in a single market with common rules. These elements will have a positive impact on financial stability.

Public authorities should implement economic and financial policies that enhance the degree of financial integration and strengthen financial stability in the European Union in general.
and in the euro area in particular. It is unanimously accepted that a monetary union cannot function optimally under the conditions of financial divergence between Member States. In our opinion, adjustment mechanisms such as the banking union and the capital markets union would significantly contribute to increasing financial convergence. Moreover, increasing integration will have a positive effect on financial stability, by reducing contagion effects.

For credit decision makers in credit institutions, bank management, for example, results are a signal in terms of interest rate risk. At the same time, credit institutions, in cooperation with public authorities, should adopt a set of measures and rules to reduce the volatility of interest rates and the magnitude of the financial cycle.

We appreciate that our results are also relevant for the portfolio investors, from the perspective of the options they offer regarding the diversification of investments. Specifically, they show that the benefits of portfolio diversification are lower for Western European countries, with financial markets interconnected to global markets and higher for Central and Eastern European countries. Finally, the results provide investors with an overview of the sustainability of investment projects, taking into account the active interest rate.

During the activities carried out, in order to achieve the objectives described in the introductory part and to obtain the results mentioned above, we were also concerned with the dissemination of the theoretical and practical results obtained. Some of these results have resulted in several articles, some accepted for publication in ISI journals, others published in indexed journals in BDI. Also, in the works of international conferences (Dubai, Thailand etc.) and national ones with international participation (Sibiu, Pitesti, Târgu Jiu, Craiova, etc.) were presented.

As future directions of research, we aim to expand the empirical analysis, including at the level of capital markets. In this regard, we also took the first steps and, together with a team of researchers from the country and abroad, conducted an econometric study on the long-term integration of the developed capital markets in France, the United Kingdom, the USA and Canada in the context of the international diversification of portfolio and the spread of financial shocks globally. Empirical research includes both a theoretical part and an original research section that adds a multidimensional perspective by including in analysis with some of the most developed member states of the European Union, respectively France and the United Kingdom, and of the two developed states from the continent of North America, respectively the USA and Canada. The US capital market is considered to be the most representative and influential globally. In fact, this was the epicentre of the global financial crisis generated by the subprime mortgage crisis that broke out in August 2007 in the US, subsequently spreading to the majority of the world's capital markets. The phenomenon of financial integration has a considerable impact in terms of the correlated behaviour and the interconnected movements of the capital markets from different economies of the world, regardless of the geographical distance or the level of development that differentiates them. Also, the research orientation is aimed at carrying out sectoral empirical research in order to estimate the behaviour of the stock markets, by applying econometric models from the GARCH family (heteroskedastic autoregressive conditional model) in the case of the volatility of the financial time series. In this regard, we have already carried out a first research study regarding the modelling of the behaviour of the Canadian stock market at sectoral level, this being accepted for publication in an ISI Web of Science (Clarivate Analytics) journal, which can increase the consistency of the empirical research, as well as the comprehensiveness of the conclusions regarding the impact of financial integration at European level, mentioned in the doctoral thesis.
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Books (classical books or e-books)


Articles published in classic or online journal


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