FINANCIAL INNOVATION AND ITS IMPLICATIONS IN THE CONTEXT OF EUROPEAN FINANCIAL INTEGRATION

(Phd. thesis summary)

Scientific Coordinator:
Prof. Univ. Dr. Ovidiu STOICA

PhD. Candidate:
Alina Camelia ŞARGU

Iaşi, 2012
We make known that on 13/07/2012, 09:00 o'clock, in room B417, building B of the University Alina Camelia ȘARGU, from the Faculty of Economics and Business Administration, will publicly defend her thesis with the theme: “FINANCIAL INNOVATION AND ITS IMPLICATIONS IN THE CONTEXT OF EUROPEAN FINANCIAL INTEGRATION”, in order to obtain the title of PhD in the field of FINANCE.

The PhD. Commission is composed of:

**President:**
Prof. univ. Dinu AIRINEI, PhD. Dean of the Faculty of Economics and Business Administration, „Alexandru Ioan Cuza” University of Iași

**Members:**
Prof. univ. Ovidiu STOICA, PhD. – scientific coordinator, Faculty of Economics and Business Administration, „Alexandru Ioan Cuza” University of Iași
Prof. univ. Ioan TRENCA, PhD. – referent, Faculty of Economic Sciences and Business Administration, „Babes - Bolyai” University of Cluj Napoca
Prof. univ. Ioan BĂTRÂNCEA, PhD. – referent, Faculty of Economic Sciences and Business Administration, „Babes - Bolyai” University of Cluj Napoca
Prof. univ. Vasile COCRIȘ, PhD. - referent, Faculty of Economics and Business Administration, „Alexandru Ioan Cuza” University of Iași

We are sending you the summary of the thesis and await you at the public defence of the thesis. The thesis can be found at the Library of the Faculty of Economics and Business Administration.

Rector,
Prof. univ. Vasile IȘAN, PhD.

Secretary PhD. service,
Gabi COSTIN
TABLE OF CONTENTS

Table of contents

Table of content for figures, graphs and tables

Introduction

Chapter 1 – The necessity for the development of financial innovation and its effects
1.1. Delimitations regarding the concept of financial innovation in the context of the current economy - literature review
1.2. Determinant factors of financial innovation occurrence and development
   1.2.1. Imperfect markets – stimulating factor in the development of financial innovations
   1.2.2. Asymmetric information and financial innovation
   1.2.3. Transaction costs and marketing strategies as determinant factors for financial innovation
   1.2.4. The impact of fiscal regime and of the legislative framework on financial innovation
   1.2.5. The influence of the deepening globalization and the risk perception on the financial innovation
   1.2.6. Technological progresses and financial innovation
1.3. Financial innovation – key factor in the development of financial systems
1.4. Controversies regarding the financial innovation in the financial systems
1.5. Implications of the financial innovation on the regulation process
   1.5.1. General considerations regarding the regulation of financial innovations
   1.5.2. Challenges of the regulation process determined by the emergence and development of financial innovations
      1.5.2.1. Financial innovations and their impact on the financial intermediation process
      1.5.2.2. Difficulties related to the development of new financial products and services
      1.5.2.3. Premises of integration corresponding to financial innovations in the financial system
   1.5.3. Difficulties in the establishment of an adequate legislative framework for the regulation of financial innovations

Chapter 2 – The implications and importance of creating a single European financial market
2.1. The necessity for the integration of the European financial markets
2.2. The integration of the European financial markets issue reflected in the academic literature
2.3. Premises of the European financial integration
   2.3.1. Impact of the internationalisation process on the European financial markets
   2.3.2. Euro and the European directives in the financial sector – catalytic factors of the financial integration process
2.4. Challenges of the mission for the integration of the European financial markets
2.5. The analysis of the actual integration degree of the main components of the European financial markets
   2.5.1. The dynamic of the euro zone banking sector integration
   2.5.2. The impact of the integration process on the euro zone stock market
   2.5.3. The evolutions of the euro zone bond market in the context of the integration process
2.6. The perspectives of the European financial markets integration process
Chapter 3 – The role and the place of financial innovation in the context of the European banking integration process
3.1. The importance of the banking system in the European economies
3.2. The challenges of the new electronic technologies in the banking sector
   3.2.1. From TARGET to TARGET 2 – innovation and transformation in the European payments systems
   3.2.2. The innovation and development of retail banking payments systems - SEPA
   3.2.3. The necessity for innovation of the payments and funds transfer systems in order to maintain the profitability of European banks
3.3. Financial innovation and credit risk transfer in the European banking system
   3.3.1. Particularities of the credit risk transfer techniques
      3.3.1.1. Theoretical fundamentals regarding the securitisation process
      3.3.1.2. The characteristics of the main types of credit derivatives instruments
   3.3.2. The place of the credit derivatives and loans sales operations in the theory of financial innovations
   3.3.3. Comparative study of the characteristics of credit derivatives versus loans sales operations
   3.3.4. Econometrical analysis at European Union level regarding the complementarily in usage between credit derivatives and loans sales operations
3.4. Implications of financial innovation on the monetary policy

Chapter 4 – Financial innovation and the integration of the European capital markets – challenges and perspectives
4.1. The place of the capital market in the contemporaneous European economies
   4.1.1. The role of the capital market in the European economy
   4.1.2. The importance of the capital market in the current European economy
4.2. The European capital market and the challenges of the financial products innovation
   4.2.1. Considerations regarding the importance of the new financial instruments from the development of the European capital markets perspective
   4.2.2. Financial derivative instruments and their role at European level
4.3. The effects of the financial infrastructure innovation on the development of the European capital market
   4.3.1. The impact of the introduction of the continuous electronic trading system on the European Union capital market
   4.3.2. Study on the impact that Direct Access Trading Systems have on the liquidity and volatility of the European stock exchanges
      4.3.2.1. Literature review on financial innovation and the stock exchanges trading systems
      4.3.2.2. The analysis of the stock exchanges short term transactions characteristics
      4.3.2.3. The impact of the regulation and commercial barriers on the pre-trading transparency
      4.3.2.4. Methodological considerations
      4.3.2.5. Empirical results and research conclusions
   4.3.3. Target 2 Securities – an important stage in the innovation and integration of the European financial infrastructure
4.4. The ascension of institutional investors and their impact on the European capital market, as a reflex to the challenges raised by the financial innovation
Chapter 5 – The implications of financial innovation on the Romanian financial sector on the background of European financial integration

5.1. Financial innovation and the efficiency of the Romanian banking sector in the context of the current financial crisis: foreign vs. domestic banks
   5.1.1. Foreign banks and their contribution to the innovation of the Romanian banking sector
   5.1.2. Literature review regarding the efficiency of the banking sector in the case of the developed and emerging economies
   5.1.3. The determination of the financial innovation impact on the Romanian banking sector efficiency with the help of DEA for the period 2002 – 2010
      5.1.3.1. The analysis and the measurement of the costs, allocative, technical, pure, technical and scale efficiency in the case of the foreign and domestic banks
      5.1.3.2. Regression analysis for the establishment of the determinant factors of cost efficiency

5.2. The impact of internet banking services on the efficiency of Romanian banks: a DEA and PCA approach
   5.2.1. Literature review regarding the measurement of the efficiency of banking institutions that are carrying out activities in the on-line environment
   5.2.2. The characteristics of the internet banking services provided by the banks operating in Romania
   5.2.3. The evaluation of banks efficiency that are providing internet banking services using the DEA method
   5.2.4. The analysis of the role that internet banking services have in the strategies of the Romanian banks using PCA

5.3. The impact of financial innovations on the Romanian capital market in the context of the European integration process
   5.3.1. The development dynamics of the Romanian capital market – qualitative transformations
   5.3.2. Study regarding the main trends that are exhibited on the Romanian capital market
      5.3.2.1. The implication of the European financial integration process on the development of the Romanian capital market
      5.3.2.2. Deregulation, re-regulation and the impact of financial innovation on the capital market
      5.3.2.3. The impact of the internationalisation process on the Romanian capital market
      5.3.2.4. The ascension of the institutional investors and their impact on the capital market
   5.3.3. Comparative analysis regarding the impact of financial innovation and the current financial crisis on the capital markets from Romania, Hungary, Poland, Czech Republic and Bulgaria

5.4. The perspectives of the Romanian financial sector under the impact of innovation and financial integration

Conclusions and proposals

References
In the last two decades, the phenomenon that have marked the evolution of the world economy have been represented by globalisation, the interdependence and the proliferation of new financial instruments, thus the analysis of the financial innovation as part of the contemporary financial systems has become an actual and interesting research theme.

The chosen field of research is represented by the financial innovation, with a focus on the financial innovations from the banking and capital markets, the two main financing channel of every modern economy. The choosing of the research field is not random, financial innovations having at this time a regular impact on the financial environment, thus becoming a permanent and irreversible phenomenon and implicitly a very interesting topic to be studied in order to better understand its origins and determinants.

The aim of our research is to make a qualitative and quantitative analysis through which we will determine and underline the current development directions of the financial innovations and also their impact on the European financial system, taking into account the mutations occurred as a result of the deepening of the integration of the European financial markets.

Taking into account the proposed aim, the objectives that we have set in our research are represented by:

- making a unitary approach of the different categories of financial innovations that are present on the European financial markets, underling their present development directions;
- the underling of the impact that Direct Access Trading Systems, as a form of financial innovation, have on the liquidity and volatility of the European stock exchanges;
- the highlighting of the way that credit derivatives and loans sales are used in practice, as a form of financial innovation, by a sample composed from the 50 major banking corporations by assets that are located in the European Union according to the existent data in Bankscope;
- the analysis of the impact that financial innovation and the financial crisis had on the capital markets from Romania, Hungary, the Czech Republic and Poland;
- the analysis of the impact that financial innovation, represented by the AMTs, has on the efficiency of the Romanian banking system, for the period 2002-2010, in the context of the competition between the foreign and domestic banks;
- the underling of the way in which the banks that are operating in Romania integrate in their efficiency enhancement strategies financial innovation represented by the internet banking services.

In order to achieve the established objectives, our research has been structured in five chapters and a section dedicated to the conclusions and proposals:

Chapter 1 – The necessity for the development of financial innovation and its effects is focused on the delimitation of the theoretical aspects related to financial innovations, underling the high need for the development of such innovative instruments bringing at the same time into discussion the effects that they have on the contemporary financial system.

Chapter 2 – The implications and importance of creating a single European financial market considers the analysis of the financial integration process, underling the importance and the challenges of the creation of a single an integrated European financial system, starting from a general approach of the proposed theme, more certainly the implications of the financial innovation on the European financial system in the context of the financial integration process.

Chapter 3 – The role and the place of financial innovation in the context of the European banking integration process is focused on the study of the financial innovations tied to the European payment systems (SEPA, TARGET2), the credit transfer instruments, namely loans sells and credit derivatives and also on the way in which financial innovations have determined a series of changes in the monetary policy.

Chapter 4 – Financial innovation and the integration of the European capital market – challenges and perspectives analysis the link between financial innovation and the capital markets integration process in the context of the development of a new financial infrastructure at the European level (TARGET 2 - Securities) and also a change in trading methods and a shift toward 24/24 continuous electronic trading. Afterwards, with the help of a quantitative analysis we have underlined the way in which financial innovation represented by the Direct Access Trading Systems contributes to the enhancement of the stability of the European capital market, through the raise of the liquidity and the diminishing of the volatility.

Chapter 5 – The implications of financial innovation on the Romanian financial sector on the background of European financial integration is dedicated to the analysis of the way in which the financial innovation has affected the Romanian banking sector and capital market. Taking into account the characteristics of the Romanian economical-financial environment, we have focused only on these two components of the
financial sector, also keeping in mind that some components of the financial sector that are present at the European Union level are missing or are underdeveloped in the case of Romania.

The last part of the research is dedicated to the **conclusions and proposals** that can be drawn as a result of the undertaken approach. Thus, we have summarised the main ideas that can be drawn as a result of our research, underlining also the originality elements of our approach, the way in which this study completes the existing academic literature on the subject of financial innovation and nevertheless we have identified a series of new research directions.

The **research methodology** through the nature of the theme (macroeconomic, global) is deductive, non-interactional, the quantitative analysis elements being merged with the qualitative analysis ones.

In a first stage of the research we have undertaken a general briefing (preliminary), through a primary fundamental research, analysing a series of primary documents (studies and academic articles, reviews of researches). Afterwards, we have undertaken a series of empirical analyses that have underlined the way in which financial innovations used in practice can influence the activity of the financial institutions, underlining the way in which these are contributing to the diminishing of the volatility and the enhance of the liquidity of the stock exchanges, help banking institutions better cover credit risk or enhance their efficiency, in the context of the financial integration process that is taking place at the European Union level.

Our research encompasses a series of personal contributions that are conferring it originality and rigorously, thus:

- **a first element** of originality of our research is represented by the presentation of a common vision on financial innovation, analysing the impact of it on the European banking sector and capital market;
- **a second element** of originality of our research is represented by the undertaking of an empirical analysis that has underlined the link between the Direct Access Trading Systems (as a form of financial innovation) and the enhancement of the liquidity and the diminishing of the volatility of the main stock exchanges from the European Union;
- **a third element** of originality of our research is represented by the quantitative analysis of the way in which the main banking groups from the European Union use in practice the financial derivative instruments and the loans sells operations;
- **a forth element** of originality is represented by the quantitative analysis of the way in which, in the context of the European financial integration process, the banks that are operating in Romania have developed the ATM networks (as a form of financial innovation) and how this has influenced their overall efficiency.
- **a fifth element** of originality of our research is represented by the undertaking of an empirical analysis that has allowed us to identify the way in which the banks that are operating in Romania are integrating financial innovation (in this case in the form of internet banking services) in their efficiency enhancement strategies.

In **conclusion**, correlating the results of the undertaken analyses we can state that, in the context of financial integration, in the last years, at the European Union level, there has been a “financial revolution”, based on the development of financial innovations and the extraordinary diversification of financial instruments and services, that has directly impacted the efficiency and the stability of the European financial system.
The dynamic of the European financial sector presents a real interest both for the decision makers and also for the participants from the different financial markets, either if we talk about listed firms, investors or financial intermediaries. In the last years, the main characteristic of the European financial sector was represented by the integration process, that took place on the background of profound structural changes on the financial scene as a result of the manifestation of a series of complex processes and phenomenon, from which financial innovation stands out as it influences two of the key attributes of the financial sector, namely: its stability and efficiency. Starting from the characteristics of the financial sector, we can observe that the financial innovation affects exactly the attributes that the European Union, through the financial integration process, tries to improve. In this context, the study of financial innovation and of its implications on the European financial sector in the light of the financial integration process becomes a subject of real interest.

Financial innovation has been considered as being one of the main causes for the radical changes that have took place in the financial systems, both nationally and internationally, especially during the 1980 and 1990. Most of the scientific researches undertaken on the subject of financial innovation have been focused on:

- the concept of financial innovation and its forms;
- the determinant factors of financial innovation;
- the effects generated by the manifestation of financial innovation.

Thus, despite the recent interest manifested for the researching of this subject, financial innovation does not represent a new phenomenon in the spectrum of the European financial systems. Instead, the novelty of the subject derives from the accelerated rhythm and amplitude with which financial innovation occurred in the last decade, as well as from the emergence of new secondary markets on which new financial instruments are traded and nevertheless because of the ascension of derivative instruments that allows a more efficient transfer and coverage of risks (Partnoy et Skeel, 2007).

Overtime, financial innovation has registered a series of different characteristics. Thus, in the 1960, financial innovation mainly occurred as a result of the desire to circumvent the rigid standards regarding commercial and financial relationships that were in place in most of the industrialised countries of the world as a result of the Bretton Woods Agreement. Starting with the 1970 and continuing into the 1980, once the Bretton Woods system has collapsed, most of the countries have adopted a floating exchange rate regime, the financial innovation from that period being focused on the avoidance of risks that could occur because of the floatability of the exchange rate and of the interest rates. A wide range of instruments for the coverage and avoidance of risks has been created and launched during this period of time.

Starting with the 1990 the relation of the control over the financial sector has represented the main trend at global level, and the firms and the population have started to manifest a wider and higher demand for financial products and services. Thus, in this period, the main objective of the financial innovation has been represented by the improvement of the financial instruments profitability. The motivation for the development of innovative financial instruments has been determined by the higher demand for new investment products that will offer a viable alternative to classical investment products. During this period of time the main characteristic of financial innovation has been represented by the integration and internationalisation of the financial fluxes, a whole series of financial derivative instruments that were linked with the foreign exchange market and the capital market being developed.

In the last years financial innovation at international level has become more complex and sophisticated. For example, in the case of the capital market the development of financial innovation has been extremely wide, being stimulated by the beginning of the deregulation process in the 1980 and deepened by the globalisation process. Thus, both stock exchanges and the issuers of stocks have undertaken a comprehensive process of creation and implementation of financial products and services that provide adequate answers to the particular needs of investors and will fit their risk profile (e.g. the creation of ABS - asset backed securities). These evolutions have lead to the creation of a wide range of financial securities and instruments, extremely sophisticated, which were extremely hard to control and regulate by the appointed authorities. We must underline the fact that not financial innovation but their proliferation as a result of moral hazard has lead to the appearance of severe market abuse cases, extremely complex products being cold to investors that did not have either the required expertise for the understanding of the risks implied nor the financial resources required for the coverage of the potential loses, all these culminating with the start of the financial crisis in 2007. In the case of the banking sector, the commercial banks have developed and implemented a series of financial innovations that have changed the aim of the banks through the activity that they were following, the products offered and nevertheless the risk management techniques used, these aspects not having a harmful potential if the regulation
and control systems would have kept up with the changes occurred. First, the commercial banks have focused their activity more on the retail banking segment, on mortgages and also credit cards loans. Second, the commercial banks have developed new products (like securities portfolio management products) and put aside their traditional operating area. Third, they have complemented their range of services offered to customers by adding to the traditional loaning services also direct investment options. Forth, the banks with an international profile have become more interested in the emerging countries, some of the main international banking groups enhancing their operations volume and value on these markets. All these have lead to a wider spread of risks in the banking sector, implicitly making the process of risk identification in the financial sector more complex, while the sensitivity of the financial system to shocks has become harder to anticipate. Because of this, when the financial turbulences have occurred in the fall of 2008, the impossibility to identify certainly the risks that different complex financial instruments developed in the last period encompass, the incapacity to quantify in a coherent way the loses and the lack of a clear specification on the liability of the parts involved in the transaction regarding the eventual loses, has made events to degenerate and become almost impossible to control.

On the background of these evolutions, the concept of financial innovation has received an extremely negative connotation in the last period, such an approach being in our opinion an extremely unilateral one for such a complex concept. Because of this we consider appropriate to first analyse the main definitions that have been attributed until now to the term of financial innovation and afterwards starting from these we will try to provide a complete definition for this concept.

The term “innovation” has received a great variety of definitions, both implicitly and also explicitly. Roger (1995, p. 11), the author of “the diffusion of innovation theory” defines innovation as being “an idea, a practice or an object that is perceived as new by an individual or another form of acceptance (nota bene by an institution)”. From this point of view for the human perception it counts less if an idea is new or not, taking into account the moment and the place where this innovation has been first conveyed. The degree of novelty with which an individual (institution) perceives an idea, determines its reaction towards it. Thus, if that idea is perceived as being new by the individual (institution), it will be considered as being “an innovation”. In regard to financial innovation, Silber (1975, p. 1) note in the preface of his paper: “Innovation means change. While most economists have reserved this concept in order to define the various technological progresses, the historians of economic thoughts have considered that this term can be extended in order to define also the institutional changes that take place over time”. Further, the author underlines the link between financial innovation and the enhancement of the welfare considering that: “it becomes of crucial importance in order to define financial innovation the way in which this phenomenon, product, service, institution affects the economic welfare of the market participants” (Silber 1975, p. 2).

“Financial innovation” has a direct effect on the diminishing of negative elements (like costs and risks), and also an enhancement effect of the positive elements (development of products, services, instruments that better fulfil the needs of the market). In his paper, “Of financial innovation and excesses”, Van Horne (1985) underlines that financial innovation in the true meaning of the word helps the efficiency growth of the markets and complements the range of products and services offered on these. Also, Llewellyn (1992) argues that financial innovation refers also to the creation of new financial instruments, techniques and markets, and also to the separation of different characteristics and risks of the individual financial instruments and their reassembling in order to enhance the general efficiency of a financial system.

Even after a few decades from the research of Silber, the academic literature has not been able to offer a clear definition for the concept of “financial innovation”. Thus, financial innovation is fundamentally determined by the evolutions of the financial market, the changes that take place in the economic, technological and regulatory framework leading to the development of new financial instruments that generate higher profits.

Therefore, financial innovation refers to both technological progresses that facilitate the access to information, the trading possibilities and the development of new payment methods and also the development of new products and financial services, new organisational forms and the development of more complex financial markets (Eugenio Domingo Solans, 2003).

After they have analysed the basic functions of the financial system, including the role that financial intermediaries have, Frame et White (2004, p. 118) considered financial innovation as being: “something new that leads to the diminishing of costs, risks or provides an enhancement of a product/service/instrument in order to better satisfy the needs of the market participants”. This definition is the most used in the academic literature in order to explain the concept of “financial innovation”.

Also, in the opinion of Lerner et Tufano (2011, p. 6) financial innovation represents a continuous and dynamic creation and afterwards popularisation of new financial instruments, and also of new technologies, institutions and markets. The emergence and development of these is determined apparently by the investors’ preference for certain financial flux models (Gennaioli et al, 2010).
Starting from the opinions presented previous related to the concept of financial innovation, we consider that it can be defined as the development process of new financial products and services, of new techniques and organisational forms that help to a better fulfilment of the functions of the financial system limiting as much as possible the negative effects that could occur as a result of an excessive or wrong usage of these innovations in practice (e.g. the wish to excessively maximize the profit despite the possibility for the occurrence of systemic risks). Such a definition of the financial innovation process is sufficiently wide in order to encompass all of its forms that are present in practice, underling at the same time the constructive character that should be the base of any innovative undertaking.

In the academic literature financial innovation is classified in the following categories:

- **product innovation** – that leads to the emergence of new financial instruments, new types of contracts or new markets; most of the times these are not completely new but are the result of the changes that occur in some characteristics of the already existent financial products or the combination of some existing characteristics in a new way;
- **process innovation** – that has as a result the emergence of new financial techniques (e.g. new distribution ways for securities, new processing methods for the transactions or new ways for the establishment of prices for transactions).

Still, in practice these differences are less clear, because most of the times the innovation of products and processes is interconnected. Also, financial innovation involves most of the times the improvement of existing financial products, more exactly, previous financial products constitute the base for the next generation. Merton (1995) illustrates this dynamic of the financial innovation process using the concept of the “financial innovation spiral”.

Taking into account the presented aspects and corroborating them with the academic literature we can observe that in time there were four fundamental theories regarding the determinant causes for the emergence of financial innovations:

- the theory for the emergence of financial innovation as a result of the market constrains developed by Silber (1981);
- the theory for the emergence of financial innovation for the circumvention of the law developed by Kane (1981);
- the theory for the emergence of financial innovation as a result of the legislative changes developed by Sylla (1982);
- the theory for the emergence of financial innovation for the diminishing of trading costs developed by Neithans (1983).

Starting from these theories it becomes important to analyse the determinant factors for the emergence, manifestation and development of financial innovation, with a focus on: imperfect markets, informational asymmetry, trading costs and marketing strategies, fiscal and regulatory framework, the enhancement of the globalisation process and the perception of risks and nevertheless technological progresses.

The academic literature on the effects, both negative and positive, generated by the manifestation of the financial innovation on the stability and efficiency of the financial systems is comprehensive.

Thus, on the one side there are a series of studies that underline the way in which financial innovation contributes to the enhancement of the efficiency and stability of the financial systems. In this sense, a series of international renowned researches from this field, like Miller (1986) and Merton (1992), underline the importance of new products and services in the financial field, these being characterised most of the times as the “engine of economic growth”. In general, the benefits that derive from the development and usage of financial innovation are multiple. The cost for financial intermediation can be reduced as a result of the development and usage of financial innovations offering entities searching for financing the possibility to access different markets and allowing different actors from these markets to efficiently explore their competitive advantages. Also, the new financial derivatives instruments allow the undertaking of arbitrage between financial markets from different countries, as well as between different instruments, this diminishing the price anomalies and implicitly eliminating the markets imperfections. Moreover, a series of instruments allow the usage of diversified hedging options facilitating the enhancement of protection against the risks, while at the same time another series of financial derivative instruments facilitates the evaluation and transfer of risks toward entities that want and have the capacity to manage them more efficiently. Nevertheless, these instruments allow the separation of risk and its “commercialisation”. Thus, we can state that if these process are made under correct and professional terms these instruments can have a direct effect on the efficiency enhancement of the way resources are allocated in the economy.

There are two crystallised views in regard to the implications of financial innovation on the stability of the financial system. One of these argues that because financial innovation facilitates the dissipation of risks in
an optimal way, it can enhance the stability of the financial system. In contrast to this, the other view underlines the harmful potential that financial innovation can have on the stability of the financial system exactly because it allows the accumulation and the multiplication of risks. A possible theory regarding the double effect of the financial innovation takes into account the nature of the financial shocks, starting from the idea that on the one hand in the case of small shocks, that are very little correlated, the usage of derivative instruments (especially the ones used for the dissipation of risks) can enhance the stability of the financial system, while on the other hand in the case of systemic shocks, that are highly correlated, doubled by an intense decrease of liquidity at international level (like in the case of the shock that took place in the summer of 2007), the usage of derivative instruments can raise the vulnerability of the financial system.

Thus, for example, the manifestation of the financial crisis that started in 2007 has underlined the existence of a high number of complex and opaque financial products on the international markets, like: credit default swaps, mortgage-backed securities or collateralized debt obligations. The role that these innovative financial products had in the financial crisis has sparked a vivid debate regarding the added value that they bring to the international financial system and also which should be the correct answer of the regulatory authorities regarding the control and evaluation of these products. It is obvious that around this debate there are already two main views. On the one hand there are the ones who consider that financial innovation is mostly useless (e.g. Krugman, 2009: “It is difficult to identify any financial innovation that has lately helped the society in the true meaning of the word and that has not only represented a new method for the improvement of the way in which speculative bubbles are created or just a new method through which regulations are eluded and is not de facto a ponzi scheme”). On the other hand, are the ones who consider that financial innovations have some good sides and some bad sides (e.g. Levine, 2010: “Despite the fact that the events from the last years have proved that financial innovation can represent an instrument for the destruction of the economy, the last centuries have underlined that it represents a crucial and indispensable element of the economic development process and the achievement of welfare”). Recent studies have increasingly underlined that financial innovations are not fully good or fully bad but have rather a mixed effect on the economy (e.g. Johnson et Kwok, 2009; Litan, 2010; Mishra, 2010).

The evolution of the total value of the different types of financial derivative instruments issued between 1998 and 2010 at global level (bi-annual values, thousand of USD billions)

![Graph showing the evolution of the total value of financial derivative instruments](http://www.bis.org/statistics/otcder/dt1920a.csv)

We can state that the fragility of the financial systems is not determined by the wide usage of innovative financial products, but rather by the excess of the financial markets that the existing regulatory and supervisions systems were not able or did not wanted to inhibit at the right moment. Thus we can consider that the current international financial system has at its core the right and solid principals that make unnecessary the complete redesigning of it, a readjustment of the control and regulatory framework being more needed in order to cover the aspects underlined by the financial crisis, thus enhancing the stability of the international financial system.
Chapter 2 – THE IMPLICATIONS AND IMPORTANCE OF CREATING A SINGLE EUROPEAN FINANCIAL MARKET

The phenomena that mark the evolution of the world economy in the last three decades were under the sign of globalisation, financial innovation, of interdependence and interactions. Thus, the processes of integration and innovation that took place at the European financial market level have represented an interesting and current problem, existing several studies that are approaching this subject taking into account especially the fact that it is an extremely dynamic process.

Thus, the problem analysed in this chapter is that of the European financial integration, focused on the integration of the banking and capital markets at European level, which represent the main components of the European financial market. The importance of the subject in the case of our research derives exactly from the fact that the financial integration process at European level as well as the innovation process run in parallel, existing a biunivocal link between the two processes, respectively, on the one hand one of the characteristics of the financial integration process at the European Union level is represented by the financial innovation that takes place on the national financial markets and can be easily and quickly transferred on the other financial markets from the EU, and on the other hand the financial innovation represents one of the main catalytic factors of the European financial integration process.

In this context, the integration of the European financial markets represents a subject of great interest, existing numerous studies in this field, that are focused mostly on the positive side of the integration process (Guiso et al., 2004; Levine, 2005; Bekkaert et al., 2007; Papaioannou, 2007; Jappelli et Pagano, 2008; Ang, 2008; Coricelli, 2008; Guglielmo et al., 2009) and to a lesser extent to the negative implications and the impediments that might occur in this process (Baele et al, 2004; Flood et Rose, 2005; Bekkaert, 2009; Kose et al., 2009). The question that arises is if in the current context, we can observe a real integration process of the European financial markets and how the European single currency (as a form of financial innovation) has contributed to the deepening of this process. In order to offer a pertinent solution for this problem the analysis must be focused firstly on the place that the banking and capital markets are having in a modern economy and on the necessity of the complex European financial integration process, illustrating its sustainable factors and also the negative factors. Secondly, the analysis will evaluate the real integration degree of the European banking and capital markets, reflected through the compound of a series of financial indicators, trying at the same time to anticipate the perspectives of the common European financial sector.

The importance of the European Union financial sector integration derives from the fact that the integrated markets are more flexible and efficient, entry barriers being less present on these markets, which implicitly leads to the enhancement of the competition and of the pressures related to the necessity for the enhancement of the activity undertaken. Likewise, through the removal of the entry barriers on the market the possibility of the clients to opt between the different financial services providers is enhanced, implicitly diminishing the ability of the suppliers to arbitrage between the prices to certain products and services that they provide.

We must also take into account the fact that there are a series of deep factors, that cannot be easily changed or removed, that hinder and prevent the deepening of the European financial markets integration process. These factors can be classified in three main categories: philological, fiscal-legislative and technical, each of them representing an obstacle extremely hard to overcome. But, the initiatives undertaken so far, the creation of the affiliation falling to the European culture and never the least the financial innovation contributes undoubtedly to the overcoming of these barriers, a long period of time being needed in order to completely remove them.

In this context, it becomes of real interest for our research the analysis of the progresses registered so far in this process in the case of the banking and capital markets sector, both for the stocks and bonds markets. In order to underline this aspect, the quantitative analysis undertaken has been focused especially on the euro zone, mostly because of the higher degree of homogeneity existing between the participating economies and also because of the evolutions underlined is not influenced by the currency risk, reflecting quite accurately the integration degree achieved on these financial markets.

The indicators that underline the financial integration process are classified as price based indicators and quantitative indicators. Price based indicators are based on “the law of one price” which suggests that the assets generating similar financial fluxes and having similar risks characteristics should have the same price and should generate a similar income. The quantitative indicators are based on the idea that integrated markets are characterised by a high degree of cross-border transactions. Although, both categories of indicators are far from being perfect, the current extremely turbulent financial situation suggests that the obtained results using these measurements should be viewed with caution.
The indicators used in our analysis confirm the fact that the retail banking sector from the euro zone has been the least affected by the financial turbulences, still being fragmented at national level, while the corporate banking and intra-banking sectors and also the activities related to the capital market have suffered the most as a result of the turbulences, registering a slight recovering to pre-crisis levels. The presented indicators underline also that, since the introduction of the European single currency, the integrations has advanced significantly, and underline also that the European financial integration process is a real one.

Despite all these, the European banking sector integration dynamic is completely different, being separated on two distinct areas, the euro zone and the other European Union member countries zone. Thus, in the euro zone the banking systems of the member states are already registering a high integration degree according to the quantitative and price based indicators used. At the same time, in the case of the non-euro zone new EU member countries the integration of the banking sector registers a lower degree. Taking into account the maturity and the high level of competition registered in the case of the euro zone banking systems, it becomes evident the fact that, in perspective, the most spectacular results will be register in the case of the new EU member countries banking systems regarding the integration process. Because of this we consider that in the next period the integration of the European banking system will take place on the west-east axis, from the euro zone countries toward the new member states that wish to adopt the European single currency. Taking into account these aspects, it becomes evident that the adoption of the European single currency (and also the period previous to this decision) will generate a positive impact on the integration-development process of the European banking sector (Pérez et al., 2005).

Still, these perspectives will be directly influenced by the evolutions of the financial and economic crisis that has passed into a new stage with the developments of the problems related to the sovereignty debt of the euro zone member states (Greece, Italy, Spain, Portugal and Ireland). The negative impact that the financial and economic crisis has had on the banking integration process has been underlined by the quantitative and price based indicators used, but because these events are still in full swing we cannot anticipate if their impact will be one on the long term or more on the short to medium term.

![The territorial dispersion of the main pan-European stock exchanges](image)

Source: Simulation based on the LSE®, OMX®, Deutch-Borsa®, BME® and Euronext® data

In regard to the European capital markets we can observe from the figure that at the level of the euro zone states (especially in the case of the first wave of adopters of the European single currency) the degree of the stock markets integrations is much higher. Likewise we can observe the development of some pan-European stock exchanges (LSE, OMX and Euronext) and also the affirmation of some strong nationalist stock exchanges (BME and Deutsche Börse) based on some more nationalist economies but with high performances (the German economy is the main European economy, while the Spanish economy has the top position in regard to the absorption of European non-refundable funds). This picture underlines that the “west” is ready to move to the next level that of a merger between two or more pan-European stock exchanges, for the creation of a truly pan-European stock exchange.
At the same time, we note the fact that the “east” is still fragmented, especially because of the economies, that are still in the emergence phase. Probably that the stock exchanges from this region will be absorbed by the pan-European stock exchanges one at the time, with the development and the alignment of the national economies to European standards, or the creation of a series of non-affiliated regional alliances of stock exchanges (e.g. CEESEG).

In the context of these evolutions, in our opinion it becomes evident the fact that, in perspective, the deepening of the integration process of the European capital markets will be directly influenced by the changes that will take place in these markets, changes that will be determined especially by the appearance and manifestation of financial innovation. At the same time, the deepening of the integration process will lead to the appearance of new opportunities in the European capital markets, opportunities that will stimulate, implicitly, the appearance and development of new financial innovations that will offer investors the possibility to benefit from the advantages of this process.

Analogue to the Holy Grail, which was considered to have magical powers, also the integration of the European financial markets bring a series of economic benefits, almost magical, these benefits being still based on realities, this being underlined by the quantitative and price based indicators used in our analysis. We must understand thus that the integration process of the European financial markets is a long term process, current, which dynamic and reality surrounds us and which benefits we will fell fully on the medium and long term.

The banking system represents at the European Union level the main channel through which the economy is financed, existing a series of significant differences between the banking activities undertaken at the level of each member state. Because of this the innovation and the integration of the banking system at the European level represents one of the most important elements of the European financial development process, the achieving of these objectives facilitating at European Union level a sustainable and durable economic growth.

The payment infrastructure represents one of the three base components of the European financial system, alongside the financial markets and institutions. The complexity and especially the importance of the payment infrastructure operations has increased significantly in the last two decades, particularly because of the high volume and value of the financial activities undertaken, the adoption of financial innovations and the progresses registered in the information and communication technologies.

The main objective of the payment infrastructure is to facilitate the undertaking of transactions between different economic agents and to facilitate an efficient allocation of resources in the economy, the payment systems TARGET2 and SEPA representing two of the most important financial innovations that have appeared in the context of the financial integration process.

TARGET2 (Trans-European Automated Real-time Gross settlement Express Transfer 2) represents the second generation of the trans-European automated real-time gross settlement from the euro zone. This system is operated by the Eurosystem and has been lunched between November 2007 and May 2008, replacing the old system TARGET1. The emergence and development of TARGET2 underlines the constant preoccupation of the European institutions and authorities for the development of financial innovation at the payment infrastructure level that facilitates and stimulates the inter-European transactions and implicitly the deepening of the integration process. The TARGET system has suffered a series of major changes from the moment of implementation until present and as in the case of most important financial innovations, once implemented into practice a series of alternative usages have been identified (in the case of TARGET – the settlement of commercial payments) that in some cases become more important than the original aim for which that financial innovation has been created (e.g. in the case of TARGET – the creation of an infrastructure that facilitates the transmission of the single monetary policy).

In regard to the retail payment systems, the SEPA system is destined to address both needs related on the one hand to the offering of a payment system for retail users integrated at European level (more exactly through the removal of the differences between the payments made nationally and at European level) and on the other hand to the innovation of the existing payment methods (the providing of payment solutions in accordance with the new situations: e.g. e-payment for e-commerce, m-payments, e-invoices, etc). This system will represent in time a motivation for the suppliers of payment services to enhance their competition level, their efficiency, safety and level of innovation for the payment service market, these evolutions contributing directly to the enhancement of the overall welfare of the European society (Bolt et Schmiedel, 2009). Also, the development and adoption of this system into practice depends implicitly of the policy objectives related to the development of a more integrated, competitive and innovative European market.

Risk transfer techniques, like the securitisation process, loans sales operations or credit derivatives have represented an important part of the wave of financial innovations that took place at the international financial markets level in the last years.

Thus, in the quantitative analysis of this chapter we have researched if two of the most used financial innovations at the banking system level, the credit derivatives instruments and the loans selling operations respectively are considered by the banks that operate in the European Union as substitutable or complementary in regard to the credit risk transfer, both from a theoretical and empirical point of view.

In this context, in the case of our analysis, in a first phase we have studied the particularities of the main credit risk transfer techniques, underling the advantages and disadvantages of their usage in practice. Afterwards, using references to the academic literature dedicated to the financial innovation, we have discussed the raison d’être of the credit derivatives and of the loans sales operations – two of the main credit risk transfer techniques. Subsequent, we have investigated the similarities and the differences that exist between the credit derivatives instruments and the loans sales operations, in order to identify the most suited instruments for the risk transfer, taking into account the characteristics of the innovator (the one who buys protection/issuer), as well the nature of the credit that will be sold/brought. Following this comparison, we had the possibility to outline a series of conclusions regarding the preferences that the different banks had in choosing the right instrument for the credit risk transfer.
These considerations have been checked based on the available empirical data. Thus, the empirical analysis undertaken has been based on the activity conducted with credit derivatives instruments and loans sales operations by a sample of banks that are located in the European Union, between 2007 and 2009. The sample included the 50 largest banking groups’ form the European Union depending on the assets held according to Bankscope, the analysis performed capturing the way in which the financial innovation is used in practice in the context of the financial integration process. The analysis has tested the conditions and how the intensity with which the credit derivatives and the loans sales operations are used confirm the theoretical predictions and are linked to a series of banks characteristics like: 1) the size of the bank, 2) the capitalisation and liquidity degree, 3) the diversification of the loans portfolio, 4) the quality of the loans or 5) the level of profitability.

The size of the banks seems to be the main factor influencing the operations undertaken with credit derivatives, these being made especially for speculative purposes and to a lesser extent for hedging operations. Big banks, well capitalised and diversified represent the main actors on this market. In regard to loans sales operations, these are mostly undertaken by the well diversified banks, with a high capitalisation level that have extremely well loaning opportunities, these institutions dominating the secondary credit market. The results of the undertaken analysis suggest the fact that most of the banks from the sample have not substitute the usage of credit derivatives instruments with the loans sales operations in regard to the management of credit risks, these being used as complement instruments (more exactly the credit derivative instruments are in general used for speculative purposes while the loans sales operations are more used as part of the credit risks management strategies). Despite all this, also a series of banks from our sample tend to be concentrated only on one of the two credit risks transfer market segments suggesting that for some banks these instruments represent close substitutes.

The financial innovation process has resulted also in a series of transformations from the monetary policy perspective. Thus, the monetary policy decisions are transmitted in the real economy through the financial system that represents the interface between the monetary policy and the real economy. For these reasons, any financial innovation that affects the conditions and the structure of the financial market has the potential to influence directly the monetary policy transmission mechanism (Chan, 2004). On the other hand, through the impact on the monetary policy transmission mechanism, financial innovation represents also a challenge for the way in which monetary policy is developed and implemented.

In the functionality framework of the monetary policy we can note that if the macroeconomic conditions are stable the measures adopted by the central banks through the adjustment of the directory interest rate influence the real economy and finally the price level through multiple channels, between which traditionally the interest rates channel and the loans channel stand out (Roman, 2011), while in the case of extreme events, like the current financial and economic global crisis, the transmission of the monetary policy decisions to the real economy through the two channels can be inefficient in fixing the macroeconomic slippages and the holding of a stable price level.

The blocking of the two traditional transmissions channels of monetary policy underline the impossibility to use the directory interest rate (as conventional or traditional monetary policy measure) to influence directly the interest rates from the economy and does not underline the incapacity of the central banks to influence the real economy (Roman, 2011). From this perspective it is noteworthy that the central banks of the developed countries affected by the global financial crisis have developed and implemented a series of innovative monetary policy instruments known as unconventional monetary policy measures through which they can handle the new challenges determined by the financial turbulences.

Thus, the unconventional monetary policy measures can be grouped in (Roman, 2011, apud Bernanke et al, 2004, p. 8 and Bernanke et Reinhart, 2004):

- **measures designed to guide public expectations**; such measures are referring to the commitment of the central bank in front of the public to maintain the directory interest rate at a low level for a certain period of time. This commitment can be conditional – then when it refers to a certain period of time for which the interest rate will be held – or unconditioned when the holding of the commitment is linked to the evolution of certain macroeconomic indicators;

- **measures to increase the size of central bank liabilities**, respectively the measures that aim the quantitative enhancement of the central bank balance sheet also known as “quantitative easing” or unconventional policies aimed toward the liabilities of the central bank. Such measures aim to enhance the monetary base and are comprise from direct private or public titles buying operations in order to influence the long term interest rate of financial assets;

- **measures aimed at changing the structure of central bank balance sheet assets**, known as “credit easing” or unconventional policies aimed toward the assets of the central bank, which aim to sustain the credit flux toward the economy and has two forms: measures aimed directly to sustain the credits and measures aimed to sustain indirectly the credit.
The central banks have the possibility to use in practice at the same time more unconventional monetary policy measures taking into account the macroeconomic situation that they are facing and the characteristics of the respective national economy, being important that the financial landscape is constantly monitored, following closely the changes that are happening in practice as a result of the financial innovation in order to identify early the eventual side effects that could distort the stability of the financial system.

Thus, some financial innovations can lead to the change of the way in which the economy reacts to the impulses given by the monetary policy or can distort the indicators that are used for the conception of the central bank policies. Taking into account that more and more financial data are becoming available we consider that through the extension and development of studies analysing the impact that financial innovation has in terms of monetary policy, the monetary authorities will be able to have a significant and adequate level of information which will allow them to know and even to anticipate the implications of financial innovations for the development and implementation of monetary policies. This approach will facilitate the reviewing and strengthening of the old regulation of the central banks regarding financial institutions in order to cope with the new existing market conditions and only through this the market participants will be able to capitalize on the advantages of the financial innovations without the possibility of exacerbating the associated risks.
The importance and the utility of the capital market in the well functioning of the market economy mechanism is at the present moment an undisputed thing. Regardless of the different nuances that can be made on this theme, it is considered that for a good functioning of this mechanism, the capital market is the component which contributes to the achievement of two major objectives, generally valid: the financing of the economy and the assurance of capital mobility based on economic efficiency principals and the minimisation of the investment risks. Its influences are the most important argument for the capital markets to become one of the most important pillars that supports the contemporary world, at least in its economic dimension.

The liberalisation wave, combined with the interconnection of the markets has lead to the development of new products and financial services, new financial institutions and even new financial markets. Thus, financial innovations have been developed as a necessity but also as a trend for the development of financial markets in all the strong industrialised countries. *Over the first three quarters of the XX century, financial innovations have been forbidden in most of the countries, financial products being the subject of strict regulations. But once the deregulation process has started at the end of the 1970 (in the case of the stock exchanges de deregulation started on 1 of May 1975 - Mayday) the financial products have registered a development without precedent that continues also in present days.* Thus, after the tune of the stick exchanges liberalisation process has been set by the New York Stock Exchange, this process has been extended to the European level starting with 1986 when in London the transatlantic deregulation model is copied, the attitude of this phenomenon being so high that it was named “big-bang”, expression that has been used previous in physics, in order to underline the importance of the process (Chambers, 2009). The expression underlines also the radical changes that have followed and the deep impact that these have had on the development of financial innovations, determining the development of a whole range of new financial products.

The main achievement of financial innovations, that has settle the supremacy of the capital markets over the banking intermediation process at least in the case of the Anglo-Saxon countries is represented by the revolutionary of the risk management, through the usage of credit derivative instruments. The magnitude that these instruments have, determined the capital market to resemble “an upside-down pyramid in which the peak represent what should have been at the bottom, meaning the stocks and bonds, while the rest is represented by the derivative instruments” (Gallois, 1997).

In general, the permanent emergence and development of financial products was based on the concern to extend the financial field and to attract as many investors and participants on the financial market as possible. Despite all this, although financial innovations, materialised in new financial products, have in general a positive effect on the capital markets, in certain situations they can have also a series of negative effects, that can affect even the whole national economy.

Numerous controversies have appeared especially in regard to the effects of the financial derivative usage. In this context, we must mention that the financial derivative instruments do not reduce directly the risks, because they cannot influence the different risk factors, but distribute these risks from the investors that do not want to assume them to a series of investors that are accepting them. Despite all these, *in the presence of inappropriate regulations and also in the context in which these instruments are reaching in present an extremely high scale and complexity, the usage of financial derivatives can determine the appearance of negative consequences.*

Still, financial innovations have lead to the creation of a series of management instruments essential for any financial assets holder, allowing investors to optimise, accordingly to their strategy and possibilities, the ratio between risks and revenues for the investments that they made.

In addition, the introduction of the electronic trading systems, 24/24, at the level of the European capital markets has lead to the intensification of a series of trends, among which:

- the disappearance of frontiers between the different categories of providers once the process of financial products acquiring is electronically disintermediated;
- the growing affirmation of the complementarity between the on-line and off-line structures;
- the progress of disintermediation and the avoidance of banking intermediation for payment, settlement and compensation operations;

Thus, on the background of the revolution that took place in the communication filed, the field of informational technologies, the enhancement of the reliability and security of communication through the internet and the extension of the possibilities to access the internet, both through computers and also through other means, like mobile phones, PDAs or tablets, the electronic trading systems, 24/24, have drastically
reduced the transactions costs and have succeeded to offer clients more practical and comfortable means to use their financial resources.

The **quantitative analysis** from this chapter is based on the study of the direct access trading systems (DAT) that represent one of the most important financial innovations of the last 20 years in the stock exchanges field. These allow the investors to have direct access in real time to the stock exchange, both in regard to the transmission of orders and also in regard to the information received from the market. These characteristics make DAT an extremely useful instrument for the undertaken of transaction on the short term (intraday trading), because the economic results and evolutions can be extremely rapid correlated with the information received in real time and directly from the stock exchange, to which it can be added the extremely rapid execution of orders. In regard to the information received, the DAT allows the displaying of pre trading information (pre trading transparency) regarding the traded volume and the prices. Our research was focused on the three main dimensions of the pre trading information (PTI), namely: 1) the identification of the investor that has introduced the bid or ask order (PTI1), 2) the segregation of price levels (PTI2), and 3) the number of price levels displayed in the order book (PTI3).

**In the research undertaken we have focused on the way in which the financial innovation, represented by the DAT** – that allows different levels of PTI according to the existing regulatory and commercial barriers – has an effect on the volatility and liquidity of the stock exchange.

The results obtained underline a strong link between the transaction volume and the first two dimension of the pre trading information (the identification of the investor who has initiated the bid or ask order and the segregation of prices). Thus, the general results of our research tend to confirm the ones of previous studies like the one of Boehmer et al. (2005) that underlines the causality links between a high level of pre trading information and the enhancement of the liquidity and the diminishing of the volatility of the analysed stock exchanges respectively.

Nevertheless, the legislative changes occurred at European level determined by the implementation of MiFID and the ones occurred in the post-MiFID period should stimulate on the long term the removal of the access to pre trading information heterogeneity between the different categories of investors. The undertaken reforms specify a minimum of pre trading information (PTI) that must be provided by all of the regulated stock exchanges from the European Union. The minimal information is represented by: “the aggregate number of orders for each price level and at least the best five ask prices and bid prices offered”. The identification of the initiators name alongside the segregation of prices and the offering of a larger range of additional information is not mentioned clearly in the MiFID directive. This can lead on the long term to the maintaining of the major differences between the stock exchanges from the European Union and the North American ones regarding the quality of the pre trading information that are available to investors and also the maintaining of these differences inside the European Union. This is the reason why we consider the opportunity to review the regulation framework at European level and to specify express a wider range of minimum pre trading information that must be provided to the investors that are active on the European Union stock exchanges.

Last but not least, one of the most important **financial innovations related to the payment systems** at European level is represented by the **TARGET2 Securities system**, the element that was missing from the strategy regarding the creation of an integrated infrastructure for securities in the common market. **Thus, the creation of a financial innovation as a common and neutral settlement platform, that will stimulate the interoperability and the real competition between the service providers, has become reality once this project has been crystallised**.

The advantages of TARGET2Securities occur through the achievement of scale economies and the stimulation of the competition. Thus, implicitly the scale economies will be achieved as a result of the usage of a common trading platform, this diminishing the costs especially in the case of the cross-border transactions. The securities depository systems will need also to compete through the range of services and products that they provide and to a lesser extent through the securities transfer facilities. This will determine that some of these systems will offer their clients the possibility to group their portfolio, the place where the securities are issued becoming a lesser reason for the choosing of a depository. Nevertheless, the finalisation of the TARGET2 Securities project implementation will lead to a diminishing of the fees and commissions charged and will encourage the undertaking of cross-borders transactions with securities at the European Union level.
Chapter 5 – THE IMPLICATIONS OF FINANCIAL INNOVATION ON THE ROMANIAN FINANCIAL SECTOR ON THE BACKGROUND OF EUROPEAN FINANCIAL INTEGRATION

At the present moment Romania has a modern and competitive financial system, that allows the free circulation of values in the economy and offers on the internal market banking products and services similar in structure and content with the ones offered on the European financial sector.

In regard to the Romanian banking system, in our first quantitative analysis from this chapter we have studied if the foreign banks present in Romania have the tendency to use more financial innovations into practice and are more efficient than domestic banks between 2002 and 2010. The analysis method used was represented by the Data Envelopment Analysis that has allowed us to compound and distinguish between five types of efficiency namely: cost efficiency, allocative efficiency, technical efficiency, pure technical efficiency and scale efficiency. Additional to this we have also undertaken a series of parametric and non-parametric tests in order to establish if the domestic and foreign banks present in the Romanian banking system are from the same population. Finally, we have made a multivariate Tobit regression analysis in order to establish the determinant factors of the Romanian banking sector efficiency, the financial innovation, represented in this case by the ATMs network, playing a significant role in the achievement of a superior efficiency in the case of the foreign banks compared with the one of the domestic banks from the Romanian banking system.

Thus, we have underlined that the average efficiency of the foreign banks has been 52.7% while the efficiency of the domestic banks has been only 39.2%. Also, the results of the research have underlined the fact that during the analysed period the overall efficiency of the banking system has not registered a significant improvement. Moreover, during the period 2006-2009 the overall efficiency of this sector has registered the highest decline from the whole analysed period, this being determined by the deterioration of the macroeconomic environment as a result of the start of the global financial and economic crisis. In regard to the financial innovation, this has a different impact on the efficiency registered by the foreign and domestic banks respectively. Thus, the inconclusive and insignificant link between the financial innovation and the efficiency of the domestic banks underlines the fact that these banks, although having adopted several financial innovations into practice, were unable to use them skilfully in order to enhance their overall efficiency. This confirms the hypothesis according to which domestic banks tend to adopt financial innovations rather after these have proven their reliability in practice. Instead, the positive and significant correlation between the financial innovation indicator and the cost and allocative efficiency of the foreign banks has underlined their ability to use financial innovation in order to really enhance their activities efficiency and of the way in which they use their resources. We can thus conclude that the foreign banks present on the Romanian banking system tend to register a plus of efficiency as a result of the fact that they adopt and use in practice much faster and better financial innovations in comparison with the domestic banks.

Another form of financial innovation present on the Romanian banking sector is represented by the internet banking services that have known a considerable development in the last decade, as an efficient way to diminish costs and enhance the profitability of the banks, leading at the same time to the raise of the satisfaction level of the costumers, because of the ease and speed with which transactions are operated. Therefore, the providing of this service has become an important strategic component of the activity of any banking institution that aims to improve the quality of the services that it provides.

The main problem that appears in this case is represented by the way in which internet banking services contribute to the enhancement of the overall performance and efficiency of a bank. In general, the internet banking services can help a banking institution to diminish its operating costs, through the reduction of the necessity to own an extensive territorial network. In this context, the second quantitative research from this chapter aims at analysing in which way the internet banking services affect the overall efficiency of the banks providing such services to their customers and to establish the operational strategy of these banks for the enhancement of their overall efficiency.

In order to achieve this aim we have used DEA and also the PCA method. Thus, in order to undertake DEA we have used both financial and non-financial variables to measure the performances of the banks from the sample. The principal components analysis (PCA) has been applied to the results obtained for the banks performance in order to indentify the different groups in which the banks are situated taking into account the banking strategy used (Serrano Cinca et Mar Molinero, 2004). This approach allows the decision makers to understand the different orientation of the business strategies used by the banks from the sample. Our analysis has underlined the existence of two business strategies in the case of the Romanian banking system namely: the strategy based on the “diminishing of the operating costs” and the strategy based on the “usage of internet banking services”.
This approach allows us to identify the banks that had the capacity to use the financial innovation, as internet banking services, in order to improve their overall performances. Thus, the obtained results underline the fact that only a few of the Romanian banks (Banca Transilvania, OTP Bank) are able to use efficiently the internet banking services in order to improve their performances, while most of the other banks from the sample are preferring a mixed approach based on the parallel usage of the internet banking services and the costs diminishing strategies. In this context and taking into account the negative impact that the global financial crisis had, it is to be expected that the internet banking services will become more and more used in the performance growth strategies of the banks that operate in Romania.

Despite the turbulences registered on the international financial markets and the macroeconomic problems from our countries, the perspectives of the Romanian financial sector tend to be, in the next period, under the spectrum of development and usage in practice of financial innovations.

In regard to the banking sector, the most spectacular evolutions have been registered in the case of the TARGET2 and SEPA systems, as a precondition of the European single currency adoption.

In this context, the medium term perspective is that, once these financial innovations are adopted across the whole Romanian banking system, they will create the premises for a possible diminishing of the prices for the funds transfer services and the banking payments. Thus, the banks will be faced with the possibility of a diminishing of the revenues made especially from the retail banking segment, this determining them to compensate these changes through the volume increase of the intermediated transactions and the extension of the products and services range that they provide, financial innovations representing a key element of this strategy.

In the case of the Romanian retail banking segment, in the next period, a series of financial innovations will be implemented, linked on the one hand with the facilitation of the on-line payments and those made through cards (the 100% adoption of the EMV standard and the definitive removal of magnetic cards starting with 2016-2017) and on the other hand with the development of the home banking services (through the development of banking applications for smart-phones and the extension of the services available through internet banking and ATMs).

In regard to the usage of credit derivative instruments (loans sales and the usage of the securitisation process) in the Romanian banking system, on the medium term, there is no foreseeable raise of these activities on the one hand because of the diminishing of the mortgage lendings that represent the base of these instruments and on the other hand because, taking into account the negative effects that the excessive usage of credit derivative instruments had on the macroeconomic stability, it is to be expected that the authorities both from the national and European Union level will try to discourage the undertaking of such operations by banks. Already the first steps in this direction have been taken with the establishment of the calendar for the implementation of the Basel III agreement.

Concerning the capital market, starting with the 1990 the economies from Central and Eastern Europe have been mainly characterised by the transition process toward market economy. In this context, alongside the reform process of the macroeconomic fundaments, these countries had to develop also the institutions associated with this new economic system that they wished to adopt, the capital market representing one of these fundamental institutions, the supreme symbol of the market economy. In this context, we have considered useful to analyse the evolutions in the development process of the capital markets in the case of Hungary, Poland, the Czech Republic, Bulgaria and Romania, as well as the way in which financial innovation has been integrated in the development strategies of these markets. We have eliminated from our sample Cyprus, Malta, Slovakia and Slovenia because of their small size capital markets and also the Baltic states (Estonia, Latvia and Lithuania) as the stock exchanges from these countries have been acquired by a pan-European stock exchange, this leading to a different development of the local investment environment.

Following the undertaken analysis we have concluded that in the case of all the researched countries financial innovation represented by the financial derivatives instruments – future contracts, options, swaps and forward contracts on different assets (foreign exchange, indices, commodities and stocks) – tends to be present except Bulgaria.

Still the presence of derivative instruments does not necessary implies also their usage. In this sense, Hungary is by far the market with the highest tendency to use this type of instruments, them being used including by individual investors. At the same time, we must underline that the trading platforms used in Poland, the Czech Republic, Hungary and Bulgaria are compatible with the ones used in western Europe by the pan-European stock exchanges, while in the case of Romania are used own trading platforms that are not compatible with any of the western trading platforms. This situation presents a series of inconveniences especially for foreign investors that in the case of the emerging markets are count on the existence of a compatible trading platform that will allow them to use even a single trading screen.
Thus, in the next period, we can anticipate that the Romanian capital market will register a series of profound changes on the background of the changes that took place both at the management level and also at the level of the products that are provided. Taking into account the fact that at the present moment the operations on the capital market are somehow segregated between the Bucharest Stock Exchange and the Sibiu Commodities Exchange it is to be anticipated a possible alliance or merger between the two institutions in order to provide investors and the listed companies with a uniform framework, with complete and integrated products and services.

In regard to the Bucharest Stock Exchange, it has become obvious the fact that on the medium term there is the need for a growth and internationalisation strategy, the financial crisis underling fully the weak points of this institution. As the Romanian banking system is not providing at this moment the necessary loans in order to relunch the economy, it would have been normal that the capital market should have been a viable financing option for the Romanian firms. But, because the BSE and the infrastructure that it has is not facilitating the undertaking of more complex operations that will allow the potential investors to have a better coverage of their risks, the traded volume has reached an all time low in 2010 and also in 2011. The growth strategy of the BSE should aim in the next period the development of products and services for firms that search financing opportunities and for investors, and also the implementation of a new trading platform that will be compatible with the existent ones on the developed European stock exchanges that will allow the undertaking of more complex operations. It is not excluded even the implementation of some financial innovations, like the DAT systems, in order to enhance the attractiveness of the intraday transactions, this approach it may take place on two levels: thus, either BSE will make a series of collaboration agreements at regional level with other stock exchanges from the region, either at a certain point in the future it will be acquired by a pan-European stock exchange, being known the fact that there were offers for BSE from Nasdaq OMX.

Last but not least, we must underline the fact that the development of the market for financial derivatives products in Romania is extremely reduced. This is due on the one hand of the restrictive policy regarding the range of products offered at the Bucharest Stock Exchange and on the other hand because at the Sibiu Commodity Exchange the number of listed firms is extremely low. At the same time, the instability of the macroeconomic environment both at national level but also at the European and international level has contributed to the significant diminishing of the traded volume with these instruments. Similarly, the impossibility of the banks, insurance companies, private pension’s funds and of the domestic investment funds to undertake complex operation on the Romanian capital market, preferring investments in governmental securities, has determined an extremely low level of transactions with financial derivatives.

Concluding, the perspectives of the Romanian financial sector are directly linked on the one hand with the efficient implementation of the financial innovations into practice, both in the case of the banking sector and of the capital market, that will allow the diminishing of operating costs and will facilitate the resumption of the normal economic activity and on the other hand to the macroeconomic evolutions from the national and European level. The financial innovations can offer the Romanian financial system the strengths necessary for the rejuvenation of the activity, disturbed greatly by the financial and economic crisis, while the deepening of the European integration process can contribute to the enhancement of the attractiveness of this sector for international investors that are searching stability and developed markets which can offer them high returns.
The role of financial institutions and markets has registered continuous transformations in the last three decades as a result of the manifestation of a series of financial innovations. Thus, the development in an accelerated way of some financial markets, of new behaviours in regard to investments and of new financing methods have transformed fundamentally the sphere of the European financial sector. These significant changes have taken place on the background of the financial integration process that takes place at the European Union level, contributing to the growth of the complexity level of the contemporary financial environment. In this context the undertaken of a qualitative and quantitative analysis will determine and underline the current development direction of the financial innovation and also the impact that it has on the European financial system, taking into account the changes occurred as a result of the deepening of the integration process at the European financial markets level represents an appropriate answer for the underlying of these evolutions and the understanding of the perspectives of this process.

From the perspective of the strategy adopted by the financial intermediaries, financial innovations have become an instrument or better said a crucial weapon in the competition war, either if we talk about product innovations or process innovations, playing a crucial role in the way financial products and services providers are differentiating themselves from the competition.

The undertaken research underlines the fact that financial innovation influences directly the two main attributes of the financial sector namely: its stability and efficiency, having both positive and negative effects on it. In general, the results of the research underline the fact that the main benefits of the financial innovations (but not the only ones) regarding the enhancement of the financial sector efficiency are linked to the possibility of the innovative financial instruments to efficiently dissipate risks, while the impact of financial innovation on the stability of the financial system is still a controversy. Thus, for example, the manifestation of the financial crisis started in 2007 has underlined the existence of a large number of opaque financial products on the international markets, that have not allowed the fully understanding of the risks associated or of the way in which these products contribute to the dissipation of the risks. The role that these financial products had in the start of the international financial crisis started an intense dispute regarding the value that the innovative products are bringing to the international financial system, as well as which should be the correct answer from the regulatory authorities in regard to the control and evaluation of these products. In our opinion, the fragility of the financial systems in not given by the large usage of innovative financial products but rather by the financial markets excess that the existing regulations and the supervisory systems were unable or did not wanted to inhibit at the right moment.

Thus, financial innovation represents one of the main characteristics of the international financial markets, our research underling the existence of four fundamental theories regarding the causes that determine the development of it, the undertaken analysis highlighting at the same time the limits of the conclusions obtained. Starting from these theories we have considered important the analysis of the factors that determine the appearance, manifestation and development of financial innovation (imperfect markets, informational asymmetry, transactions costs and marketing strategy, the fiscal and legislative framework in general, the increase globalisation and the perception of risks, technological progresses) using for this a qualitative analysis and refereeing a series of examples from the economic practice in order to argue our approach.

Also, our research has studied the different problems related to the regulatory process of the financial innovations, starting from the premises that financial innovations are not implicitly positive or negative. In general, financial innovation must be regarded as a natural result of the activities undertaken in a competitive financial system. Thus, the right approach for the regulation of financial innovation should provide a balance between the stability and solidity of the financial system and the facilitation of the main functions specific to the financial institutions and markets. This approach suggests first the insurance of the necessary framework for the well functioning of the financial markets and also the existence of rules for the improvement and modernisation of these and afterwards the establishment of an adequate structure for the supervision of the financial innovation. In our opinion we consider that there is the need for a double set of measures that must be adopted in order to achieve this objective: a) a set of measures regarding the necessity to improve the infrastructure of the financial system and its preparation for innovative activities and b) another set of measures that should be aimed at the creation of regulations specific to each type of existing financial innovations.

Alongside the financial innovation, our research underline that the financial integration process represents another main characteristic of the European financial markets, especially, in the euro zone. This has been underlined by the research undertaken regarding the real degree of integration in the case of the banking market, the stock market and the bond market from the euro zone, the results of the quantitative analysis underling the fact that the progresses registered in the banking market and bonds market are more significant
than in the case of the stock market, the adoption of the single European currency (as a form of financial innovation, according to the academic literature: Solans, 2003; Noyer 2007) having a determined impact on the deepening of the integration process. Alongside these aspects, the undertaken analysis has underlined the fact that the integration process of the European financial markets is extremely complex, which finalisation is far from being achieved. At the same time, the recent events have underlined the fact that in order to achieve the full benefits of the integration process the integration process must be continued, being necessary new adjustments in order to achieve a common and relatively safe framework for the development of financial investments operations at cross border level in the European Union.

In order to underline the impact that financial innovation has on the European financial system, in the context of the integration process at the European Union level, we have considered the opportunity to focus our analysis on the two main channels through which the European economy is financed namely: the banking market and the capital market.

Thus, in the European banking system the payment infrastructure represents one of the most important components because it facilitates the undertaking of cross-border transactions between economic agents and the efficient allocation of resources in the economy.

One of the most important financial innovations linked to the payment systems are represented by the TARGET and SEPA systems. Although these are financial innovations that are not as spectacular as the adoption of the European single currency, these financial innovations contribute decisive to the well functioning of the European banking system. Taking into account the significant positive impact that these financial innovations had both on the banking system and the real economy, it becomes important to complete the migration schedule for the banks to these systems also in the case of the countries outside the euro zone, regardless if these countries will adopt the European single currency according to the established schedule or at a later date.

In the banking activity another main component, alongside the payment systems, is represented by the administration of risks. Thus, beside the innovations related to the payment systems, the innovations related to the credit risks transfer have become a base element of the activities undertaken by the European banks. In this context, it becomes of real interest the analysis of the way in which the European banks are using the credit risk transfer instruments in their daily activities. This has been underlined in our research through a study regarding the comparison of the role that credit derivative instruments and loans sales operations have in the transfer of the credit risks, both from a theoretical and empirical perspective. The empirical results are indicating that the banks from our sample consider the credit derivatives and the loans sales operations as being complementary, since most of the banks are active on both markets. More precisely the activity on the credit derivative markets tends to be in general more speculative while the loans sales operations tend to be used more as a component of the risk management process.

In regard to the European capital market we have considered appropriate to undertake an analysis on the way in which the innovation of financial products, the new investors’ categories and the new financial infrastructure have an impact on the main stock exchanges from the European Union. Thus, through the empirical research undertaken with the help of an econometric analysis we have underlined that financial innovation as Direct Access Trading has a direct effect on the enhancement of the liquidity of the European stock exchanges. Also, we have observed that the regulations at the European level aimed at deepening the financial integration process take into account financial innovation as a determined factor in this process.

Another example of such financial innovations related to the financial infrastructure at the European Union level is represented by the development and implementation of the Target 2 Securities system. The materialisation of this process will make possible the diminishing of costs related to the pan-European transactions with securities, the achievement of scale economies and implicitly the stimulation of competition between the different financial services providers.

In addition the manifestation of financial innovation has lead to the appearance of a wide range of new types of institutional investors that operate on the European markets. Alongside The comparative analysis undertaken has underlined the fact that these investors have a determined role on the European capital markets, especially in the case of Luxembourg, France, Great Britain and Germany.

Not the least, taking into account that financial innovation directly influences two key components of the banking system namely: its stability and efficiency, it becomes important to analyse if financial innovation has a direct impact on the efficiency growth and particularly on the Romanian banking system.

In this respect our research aims at completing the academic literature by offering an image on the efficiency of the Romanian banking sector and it determinants factors, among which is also financial innovation. In order to achieve this objective we have used a non-parametric analysis, based on the Data Envelopment Analysis, estimating the cost efficiency, allocative efficiency, technical efficiency, pure technical efficiency and scale efficiency complemented by a multivariate Tobit regression. The results of the analysis underline the fact
that the foreign banks present on the Romanian banking system tend to register an efficiency plus as a result of the fact that they adopt and use in practice more quickly and better financial innovations by comparison with the domestic banks.

Not the least we considered appropriate the realisation of an analysis through which to underline if the banks that operate in Romania integrate financial innovations, represented in this case by the internet banking services, in their efficiency growth strategy or if they are using just the diminishing of the operating costs in order to achieve this objective. Thus, the empirical analysis undertaken is split in two stages. In a first stage we have used a non-parametric analysis namely Data Envelopment Analysis in order to compound the efficiency scores for the banks from our sample while in the second stage we have used the principal components analysis as a ranking method for the banks from our sample, managing to identify which are the banks that use strategies based on the usage of financial innovations in the form of internet banking services in order to enhance their overall efficiency. We concluded that, despite the fact that many of the banks from our sample are using internet banking services to increase their overall efficiency, only a few of them manage to do this thing in a coherent way.

Analysing the case of the new European Union member states and implicitly Romania through a comparative analysis we have underlined the fact that the adoption of financial innovations on the capital market must be accompanied by a development process of the financial infrastructure and the education of investors, otherwise these innovations being unable to provide maximum benefits. For example, in the case of the financial derivatives instruments, although these are present officially also on the Romanian capital market, they are registering a low degree of trading, much lower than the one registered in the case of the capital markets from Poland, the Czech Republic and Hungary, countries that have gone through the same transition process toward a market economy and the ascension process to the European Union.

Starting from the analysis undertaken and taking into account their results we can draw a series of proposals regarding the way in which the development of financial innovations should be encouraged in the future, in the context of the financial integration process that takes place at the European Union level.

The adoption of the TARGET2 and SEPA systems will create a significant pressure on the banking institutions revenues, because the margins gained from the funds transfer operations will be diminished, this aspect having the premises to negatively impact their profitability. Because of this we consider that the banks that are operating in the European Union should adopt in practice a series of innovations that will allow them to compensate these losses through the enhancement of the traded volume (e.g. the raise of the active users number for the internet banking services).

Taking into account that some financial innovations can change the way in which the economy reacts to the impulses given by the monetary policy or can distort the indicators that are used as a base for the adoptions of the central banks policies we consider extremely important the extension and development of researches that will analyse the impact that financial innovation has in terms of monetary policy, thus the monetary authorities gaining a significant and adequate volume of information that will allow them to know and even anticipate certain implications of the financial innovations and thus being able to better develop and implement the monetary policy. This approach will allow the rethinking and strengthening of the old regulations of the central banks regarding credit institutions in order to allow them to coop with the new existing market conditions, this being the only way through which the participant will be able to take advantage of the financial innovations without enhancing the existing risks on the market.

In regard to the regulations at the European level it must be identified an equilibrium between the safety and robustness of the financial system and the enabling of the financial markets and institutions to exercise their innovative and creating spirits, that provide most of the times the appropriate solutions for the correction of the market imperfections.

In the case of the Romanian banking market, we consider appropriate the maintaining and enforcement by the authorities of the established schedule for the migration of all the banks that operate in Romania to the TARGET2 and SEPA systems, regardless if in the near future there could be a postponement of the adoption of the European single currency. These evolutions will allow the banks that are operating in Romania to enjoy a series of benefits, like: instant settlements, reduced costs and greater efficiency for both national and cross-border payments denominated in euro.

Taking into account the constant growth of the number of households that have access to internet, in our opinion banks should adopt a strategy for the education of costumers regarding the way in which they can use the internet banking services and their advantages, aiming at the enhancement of the active number of users for these services. This approach will creates tremendous advantages for banks, on the one hand by diminishing the pressure for the development of a wide territorial network and on the other hand by diminishing operating costs and enhancing the revenues from the intermediation operations.
In regard to the capital market at the European Union level we consider appropriate the encouraging of alliances and mergers at pan-European level, in order to construct an integrated capital market, that will offer the European economy a second valid financing channel, like the one that exist in the case of the United States of America. The existence of an integrated capital market at the pan-European level could also facilitate the wide spread of financial innovations, the positive effect of their usage having the potential to positively impact a large number of beneficiaries. At the same time we must not forget the fact that such an integrated environment is extremely favourable for the accumulation of major systemic risks, this imposing the existence of a regulatory and control system at the European Union level that on the one hand will not inhibit financial innovations and on the other hand will be able to acknowledge and eliminate these harmful instruments from the financial system.

In the case of the Romanian capital market, the monetary policy promoted by the Romanian National Bank as well as the public debt policy employed by the Government should be conceptualised and correlated in order to diminish the crowding out of the resources from the capital market and allow the development of initial public offers for stocks and bonds. At the same time there should be openness toward foreign portfolio investments doubled also by caution. It is obvious that the development of the Romanian capital market cannot take place in an accelerated rhythm without a massive presence of foreign institutional investors, that in the case of the western European and North American developed capital markets ensure a large portion of the traded volume. The stimulation of the domestic institutional investors development should be another element that could contribute in a decisive way to the enhancement and expansion of the Romanian capital market.

Thus it becomes imperative the diversification of the investment instruments and services. This should represent a first step in any development strategy of the Romanian capital market at the present moment. We consider that the introduction of new financial innovative products and instruments at the Bucharest Stock Exchange will not generate instantly a spectacular result, this being underlined by previous experiences related to the launch of the state bonds or of the derive instruments, but will create the necessary premises for a further harmonious and solid based development.

At the same time, in our opinion, neither the Sibiu spot market or the Bucharest term market cannot provide investors, both domestic and foreign, with a complete and dynamic framework for the undertaking of financial investment operations, this being the reason why we considered that a future merger between these is recommended in order to consolidate the Romanian capital market.

In Romania, the investment culture is also at a very early stage. Thus, parallel with the development efforts of the capital market in regard to the diversification of the instrument and products, parallel with the refinement and completion of the legislative and institutional framework, an immense effort must be undertaken in the education of the public, a good example in this case being represented by the USA during World War I (e.g. the aggressive promotion of the investment opportunity for the general public represented by the US Treasury bonds).

Taking into account the presented elements we can conclude that the Romanian capital market is an emerging market, that is undergoing a vast progressive maturing process, characterised by expansion periods but also by contraction moments, closely correlated both with the national macroeconomic evolutions and also with the innovative tendencies and the international financial integration process.

Although the financial innovation does not represents a new subject in the academic literature, our research has a series of personal contributions that confer it originality and rigorously. A first element of originality in our research is represented by the fact that unlike previous studies that have been focused on financial innovations and that resemble better “the pieces of a puzzle hard to complete” than parts of a common vision, our research presents a common vision on financial innovation, analysing its impact on the European banking and capital market. Our approach was not intended to be exhaustive but rather a synthesizer, that will underline especially those innovations that have asserted themselves in the European financial sector in the last years in the context of the European integration process. Thus, our research is based on the analysis of several forms of financial innovation, like the payment systems at the European Union level (SEPA, TARGET2, Target2Securities), the direct access trading systems, the unconventional monetary policy measures, the financial derivatives instruments (future contracts, options, forwards and swaps, CDS, CDO), loans sales operations, ATMs and internet banking services.

A second element of originality is represented by the underling of the way in which financial innovation contributes to the enhancement of the European capital market stability, using for this a quantitative analysis based on the least squares method in order to underline the link between the Direct Access Trading systems (as a form of financial innovation) and the enhancement of the liquidity and diminishing of the volatility of the main stock exchanges from the European Union. Unlike previous researches on this theme, in the case of our approach we have used all the three dimensions of the pre trading information, as well as a series of liquidity and volatility indicators in order to underline the link mentioned previous. This original approach has allow us to underline the
existence of a significant link from a statistical point of view between the level of pre trading information provided and the enhancement of the stability of the main pan-European stock exchanges.

The recent economic and financial crisis has brought into attention, both at the academic level and also at the policymakers level, the negative impact that financial innovations can have in practice on the European financial system. Thus, the somehow general opinion is that the financial innovations developed in the last period of time have determined an enhancement of the risks to which the financial system is exposed. However, in our research we have demonstrated that the main banking institutions from the European Union do not use financial derivative instruments and loans sales operations in order to protect themselves against credit risks but rather for speculative purposes (transactional). This is a third element of originality for our research, managing through this quantitative analysis to underline the fact that not financial innovations are responsible for the “weakening” of the financial system but rather the faulty or speculative way in which these are useful in practice by the financial institutions.

In order to underline the way in which financial innovation contributes to the enhancement of the efficiency of the financial sector in the context of the European integration process we have made an analysis of the way in which banks operate in Romania and the way in which they developed their ATMs networks (as a form of financial integration) and how these have influenced the overall efficiency of the banks. This is a forth element of originality in our research, because it has allowed us to establish a link between the overall efficiency of the banks that operate in Romania and the adoption and implementation of financial innovations into practice. Also, taking into account the fact that the analysed period encompasses the pre and post ascension period we have considered appropriate to develop a quantitative analysis based on the comparison between foreign and domestic banks that operate in Romania (especially because the number of foreign banks present on the Romanian banking market has been increased tremendously once the ascension process to European Union membership has been started).

A fifth element of originality in our research is represented by the analysis of the way in which the banks that operate in Romania incorporate in their efficiency enhancement strategies financial innovations. In order to develop this research we have used again a dual approach, in a first phase compounding the efficiency scores for the banks that operate in Romania with the help of DEA. Afterwards in order to establish the efficiency enhancement strategy that is used by the banks we have employed the principal components analysis (PCA). Using the internet banking services as a form of financial innovation, through this approach we have managed to underline the fact that at the Romanian banking sector level there are two efficiency enhancement strategies used, namely: “the one based on the usage of internet banking services” and “the one based on the diminishing of the operating costs”. Also, as a result of the quantitative analysis undertaken we have managed to identify the strategy that each bank from our sample is using.

Nevertheless, as a result of the undertaken research we have also identified a series of new research directions, regarding the development and implementation into practice of financial innovations in the context of the European financial integration process.

Thus, in order to underline better the way in which the Direct Access Trading systems contribute to the diminishing of the volatility and the enhancement of the liquidity of the European stock exchanges, we are considering appropriate the extension of the undertaken analysis to encompass also other stock exchanges (e.g. those from North America, Japan or Australia).

Another possible research direction is represented by the analysis of the way in which financial innovation influences the efficiency of the banks from the new member states of the European Union.

Last but not least, the development of the financial innovations in the last years, especially in the form of financial derivative instruments, has lead to the occurrence of a series of problems related to the efficient implementation of the monetary policy. Therefore we consider appropriate to study in a future research the link between the monetary creation and financial innovation, thus enhancing the knowledge about this matter while facilitating the understanding by the authorities in charge with the regulation and supervision of the financial system of the new evolutions in the monetary field that are happening at the European financial sector level.

The general conclusion of the research is that in the context of the financial integration process at the European Union level, the financial innovation has contributed in a significant way to the enhancement of the stability and efficiency of the European financial sector. Despite all these we must underline that in the context of less clear regulations and of an excess regarding the usage of certain financial innovations there has been a significant growth of the systemic risks and even the diminishing of the performances of the European financial system. Because of this, in perspective, a more flexible regulatory and control system should be developed that will prevent the accumulation of systemic risks but will not inhibit the development and implementation of financial innovations that could be extremely beneficial for the European financial system.
Books:

REFERENCES
Articles and working papers:


72. Domingo Solans, E. (2003), Financial innovation and monetary policy, Speech delivered at the 38th SEACEN Governors Conference and 22nd Meeting of the SEACEN Board of Governors on "Structural Change and Growth Prospects in Asia - Challenges to Central Banking", Manila.


74. Draghi, M. (2009), Credit, banks and the role of supervision, Bancaria, 7, p. 16-23.


92. Gardener, E.P.M. (1986), Securitisation and the banking firm, Research Papers in Banking and Finance No. 15, Institute of European Finance, University of Wales, Bangor.


209. Stavarek, D. (2005), *Efficiency of Banks in Regions at Different Stage of European Integration Process*, Finance 0502020, EconWPA.


238. Șargu, A. C. (coautor) (2012), Modelling the new EU member states banks efficiency: a non-parametric frontier approach. Transformations in Business & Economics, ISSN: 1648 - 4460 (acceptat spre a fi indexat în Thomson Reuters ISI Web of Science - Social Sciences Citation Index), factor de impact 1.670.
243. Șargu, A. C. (coautor) (2012), Lending in foreign currency and current changes at European level, Analele Universității din Oradea, Științe Economice, nr. 1, vol XXI, Oradea, mimeo;
244. Șargu, A. C. (coautor) (2012), Credit risk transfer mechanisms in the EU banking sector, Economic Review, nr. 6, vol. 65, Sibiu, mimeo;
249. Thompson, J.R. (2007), Credit risk transfer: to sell or to insure?, Working Paper 1131, Queen’s University, Kingston, Ontario, Canada.

Reports:
29. Europe Economics (2009), Study on the Cost of Compliance with Selected FSAP Measures.

**Databases:**
1. Bankscope - Bureau van Dijk,
   Available at: https://bankscope2.bvdep.com/version-2010317/Home.serv?product=scope2006
2. European Central Bank Statistical Data Warehouse,
   Available at: http://sdw.ecb.europa.eu/
3. Eurostat,
   Available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
4. Federation of European Securities Exchanges,
   Available at: http://www.fese.eu/en/?inc=art&id=5
5. International Monatary Fund International Financial Statistics,
   Available at: http://www.imfstatistics.org/imf/
6. Loan Pricing Corporation’s Dealscan,
   Available at: http://www.loanconnector.com/dealscan/LPC_WEB_DS_SecurID.html
7. Portalul legislativ al Uniunii Europene,
8. Thomson Datastream Advance,
   Available at: http://thomsonreuters.com/products_services/financial/financial_products/a-z/datasyncstream/
9. World Federation of Exchanges,
   Available at: http://www.world-exchanges.org/statistics/ytd-monthly
10. Zephyr - Bureau van Dijk,
    Available at: https://zephyr2.bvdep.com