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**THE EUROPEAN UNION – GLOBAL BANKING ACTOR.  
THE NATIONAL BANK OF ROMANIA IN THE  
CONTEXT OF EUROPEAN BANKING SUPERVISION  
AND SECURITY  
- SUMMARY -**

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## **I. INTRODUCTION**

For almost two decades, economic systems have been going through an economic and financial crisis that differs from others in the history of crisis episodes, given its unprecedented severity, contagion rate, and global size. According to Isărescu, the global financial crisis was caused by the mortgage market in the United States (Isărescu, 2009). The deep causes were and continue to be both macroeconomic and microeconomic in nature. Abundant liquidity has made microeconomic causes such as securitization, financial disintermediation, cracks in the rating agencies' business models and excessive deregulation to combine and lead to today's financial crisis.

Therefore, the financial crisis can cause lack of balance in an economy where financial markets operate efficiently, and lead this economy towards a point where economic activity is contracting strongly and financial markets experience serious disturbances; the robustness of financial institutions, and their ability to cope with management needs that are appropriate to the risks assumed is also threatened.

Historical studies show that these banking crises, which have often become systemic and have led to a generalized economic crisis, accompanied capitalist development. Regardless of the development level in the country where bank crises occur, one can identify common features, which are both quantitative and qualitative. Generally, crises occur after a period of economic upturn, which results in asset price rises - real estate boom, which in turn leads to the expansion of bank credits. Banking crises inevitably occur when changes in markets make speculators unable to earn enough money to repay their own financial debt, the difficulties in selling financial assets causing the collapse of their prices. At the same time, if banking panic also occurs, when a "bank run" leads to a "capital flight", crises lead to takeovers, mergers or bankruptcies of financial institutions, or, at best, lead to government assistance in view of banks' exit from collapse. The long-term effects of these crises are also felt at the level of public debt, as the negative impact is manifested at the level of the entire economy.

The current economic crisis has led to structural changes in financial systems and national economies. The global financial sector, exposed to derivative financial instruments, created on the basis of real estate credit, was the channel for spreading these transformations.

Given the current conditions, Central Banks are required to act for the most efficient supervision of the banking system and monitor banking security, in order to avoid systemic risks and ensure financial stability by creating and maintaining a stable financial environment that is necessary to achieve macroeconomic stability.

On the other hand, Information, as independent element of the information system in the management of any organization, thus implicitly of the banking system, consists of those data which bring to beneficiaries an increase of knowledge concerning the organization, either directly or indirectly, which provides them with new, usable elements in meeting the needs of the organization concerned.

According to some specialists, there are differences between information, data and knowledge, but at the same time, with all the differences, there are links among them that contribute to the existence of information systems. Thus, as shown by Argyris C., data are primary elements that are collected for information or, in some situations, for solving problems

(Argyris, C., 1992). Other authors (Miranda, 1984) argue that: "In current speech, the notions of information and data are considered synonymous", but in fact they are essentially different. An economist, an engineer, a manager or a businessman must understand these notions with which they are going to operate. In order to understand the difference between these notions, several case studies have been conducted. For example, in order to ensure its competitiveness, Bethlehem Steel, an industrial giant, hired a team of 14 IBM experts to analyze its information system (Nițchi, ȘI, Racovițan, D. et al., 1996, P.11). The conclusion was that people involved in the management of the organization did not clearly distinguish the difference between information and data, and thus "maneuver too much data and too little information".

We find that, in all fields of human activity, information is a decisive participant in development and progress, as well as in the mitigation of the risks and uncertainties (Black Swans) (Taleb, NN, 2010, 2014), (Rada, IC, Magdoiu, LD , 2016), (Măgdoiu, LD, Council, IC, 2016), with the view of ensuring the judicious substantiation of specific policies and strategies.

Although we are aware that in the banking field information and data can only be used as synonyms, through a convention whereby the object is used as its model, given that economic and business information relates to rather pragmatic preoccupations, that there are many controversies between philosophers, computer scientists, cyberneticists and others on this issue, that the research space in this field is unlimited, our approach focuses only on a few aspects that relate to the use of data bases about The Credit Risk Center (CRC) and the Payment Incident Center (PIC). We find that an important role in this respect is played by the creation of public systems for reporting and managing credit information and payments incidents. Thus, (Neagoe, A. coordinate, Toma, G., Grădinariu, G., Sirbu, A., Popescu, M., Zainea, G., Ardelean, Radovici, D., Stancu, D., 2015, p.11) argue that "The creation of public systems for reporting and managing credit information, in the form of credit and private credit registers, in the form of credit bureaus, responded to the needs that have become more and more prominent in this respect, both at the micro-prudential and the macro-prudential level. If private credit bureaus respond mainly to creditor's requirements for reducing the risks associated to their own lending activity, the central credit registers also satisfy the central bank's needs in acting as regulators and supervisors of the financial and banking system. " The categories of credit information held, their structure, their levels of detail, the services provided, make the two types of credit information management systems complementary, each bringing added value to users.

Due to the complexity of the issue, and to the fact that we have limited control over the events, the need for prudential supervision and the security of banking information emerge as essential. since our attention is directed to a contemporary phenomenon seen in a context of real life, we believe that the right research strategy is that of the case-study. It allows us to bring questions such as "how" and "why". After we have chosen the research strategy, we have built an architecture that allowed us to solve problems. For this purpose, we have established a study hypothesis: The primary variable: "The need to modernize prudential supervision and banking security to protect the interests of depositors and to ensure the stability and viability of the entire banking system in the National Bank of Romania" and the Secondary Variable: Modernization of historical methods for the prudential supervision of credit and security institutions in a European context, through the management of banking information security and prudential supervision, in order to protect the interests of depositors and the stability and viability of the entire banking system". We construct, as for any empirical study, a research design that logically leads us from

the primary variable to the secondary variable that links the empirical data to the initial questions to be answered and the set of conclusions (responses) relating to these questions (Yin, 2005). The intermediate stages of this logical plan will be the collection and analysis of relevant data.

## **II. THE EUROPEAN UNION AND ITS BANKING SECURITY**

We build our approach in the context of the European Union and its banking security, being convinced that this study will contribute to a better understanding of the functioning of the European institutions in general and of the European banking institutions, in particular; as regards the banking institutions, we shall look at their competencies that relate to the need of ensuring security.

From among the policies of the European Union, our analysis will give a special attention to the "European Monetary Policy", the aim of which is to maintain both banking stability and ensure financial stability.

At present, on the International Relations scene, progress has been made in implementing the Single Mutual Surveillance Mechanism (MUS), with the European Central Bank (ECB) assuming new responsibilities for the prudential supervision of credit institutions within the MUS.

The first "EU Anti-Corruption Report" stemmed from the need for its elaboration, as stipulated in the official statement of the European Commission "Fighting Corruption in the EU", which was adopted in 2011. It was conceived as a specific EU mechanism to strengthen, first and foremost, the political will of the Member States, and then lead to the application of existing institutional and legal instruments. (BNR, International Relations Bulletin, 2014).

Another International Relations issue is the European Commission's concern to introduce new measures for the structural reform of the European Union's banking system. The legislative act (EU Regulation), prohibiting involvement in the risky (systemic) trading, in their own account, of the largest and most complex banks in the EU, proved very important.

The National Bank of Romania is directly interested in certain developments in European relations, such as the directive on the resolution and recovery of credit institutions and investment firms; the creation of a single resolution mechanism (MUR); revision of directives on joint deposit guarantee schemes; The directive on consumer credit agreements for residential immovable property or new rules on financial instruments markets.

Of particular importance for International Relations and European Banking Security, the European Banking Authority (EBA) Report, addressing the risks and vulnerabilities of the European banking sector, proved of great importance.

As part of existing relations, such as the Vienna Initiative, where the EBRD was the main actor, the significant weaknesses that mitigate the economies in Central and Eastern Europe have been identified; these have been exacerbated by situations related to the financial crisis, such as: excessive dependence on foreign capital and excessive use of foreign currency funding.

The application, by EBA, of technical standards on the information to be made public by the competent supervisory authorities gives importance to the new stage of International Relations and Banking Security.

As in any other community, where none agrees with everyone, in the case we focus on here, the German Constitutional Court considered that the ECB exceeded its mandate through the Outright Monetary Transactions (OMT) program, and thus asked the EU Court of Justice to give

a ruling judgment against the ECB's Governing Council Decision on the Euro system's definitive trades program on government bond secondary markets.

The Global Gold Market is another objective of International Relations and Bank Security in the European Union. The evolution of gold demand on the world market has been presented in various World Gold Council Reports.

International Relations have been marked by the launching of the ECB's Internet Security Assessment Guideline, which was endorsed by the Governing Council of the ECB on January 30th, 2014.

The European Commission, by virtue of its International Relations and Banking Security, publishes forecasts on the economic recovery of Europe, a process identified to be taking place in all Member States, becoming more and more balanced in the Member States at the level of growth factors. However, it is still fragile as a result of the crises that Europe and other places in the world still have to face.

A major issue in European International Relations and European Banking Security was the postponement of the general revision of quotas by the IMF Board of Governors, postponed on the proposal of the Board of Directors, on the reason that, since it failed to meet the requirements for the entry into force of the revision, the quota shares of member countries were virtually not increased; it was also argued that the amendment to the IMF Statute regarding the reform of the Board of Directors was also not put into practice.

The publication of the Report on Bank Exposure and Credit Developments for Central, Eastern and Southeast European Countries, prepared by the staff of financial institutions participating in the Vienna 2 Coordination Committee, and which aims to develop cross-border banking and credit financing in Central, Eastern and Southeastern Europe, is a new step in International Relations and European Banking Security.

One of the most relevant EU Policies is that referring to Security and Defense, for the building of a safer Europe, for the benefit of all its citizens.

The terrorist threat to EU security has seen, over the past few years, an unprecedented extent and appears to follow an ascendant trend. (EU Report, 2017 Europol.

<https://www.europol.europa.eu/activities-services/main-reports/european-union-serious-and-organised-crime-threat-assessment-2017> ).

Another crucial aspect, that relating to drug trafficking, which brings a fifth of all profits from organized crime, jeopardizes entire communities, businesses, government institutions and, in the broad sense, pulls down the entire economy.

The global acceptance of the euro as a stable currency with low inflation rates makes this currency attractive to counterfeiters, although euro banknotes are produced using a sophisticated printing technology.

Human beings traffic is also a serious security issue, since it affects fundamental human rights and human dignity through human abuses against persons, for the sole purpose of obtaining economic gain.

Economic crime is a serious threat to EU security for some complicated reasons.

Excise fraud is related to the smuggling, misappropriation and illegal manufacture of excise goods: tobacco, alcohol and fuels, and is preferred by organized crime groups in the EU.

Money laundering is an offense in its own right, but it is closely linked to other forms of serious crime such as organized crime and terrorist financing. (EU Report, 2017 Europol,

<https://www.europol.europa.eu/activities-services/main-reports/european-union-serious-and-organised-crime-threat-assessment-2017> ).

Computer-related crime is a threat to European security and is one of the EU's priorities in the fight against crime. Technical innovation has always been associated to the generation of social welfare, but it does not always happen, as it can be so easily used for abject purposes.

Of course, the European Union, with the view of fighting against threats to its security and the security of its citizens, has created bodies and strategies that fight both at Union and at national level in each Member State. Europol is the European Union Agency for cooperation in law enforcement.

Without claiming to have covered all aspects related to International Relations and European Security, including banking, we intended create at least a context in which our case study method of investigation could emphasize the established hypothesis of this doctoral thesis.

### **III. THE RESEARCH METHOD**

In order to carry out our research, we made use of the case-study method, which is one of the various existing research methods, presenting both advantages and disadvantages (Yin, 2005). We preferred this strategy because we use initial questions of the "how" and "why" type and because we have little control over events and our attention is focused on the phenomenon: "The need to modernize prudential supervision and banking security in order to protect depositors' interests and ensure the stability and viability of the entire banking system in the National Bank of Romania (BNR) ", so that this phenomenon can be removed by means of "Modernizing the historical methods for the prudential supervision of credit and security institutions in the European context, through the management of banking information security and prudential supervision, that would ensure the protection of depositors' interests and the stability and viability of the entire banking system". We use this method because we intend to deal with the contextual conditions of the need to modernize prudential supervision and banking security in order to protect the interests of depositors and ensure the stability and viability of the entire banking system in the National Bank of Romania, being convinced that they can be particularly relevant to the phenomenon studied. Secondly, if the phenomenon and the context are not always differentiable in real life, we will use strategies for data collection and analysis. The components of the research design are as follows:

#### **III.1. The study questions**

This first component of the research design is part of the five critical components for the case study research strategy. The "how" and "why" questions are rather explicative and can determine one to use case study, histories and experiments as favorite strategies. Such questions reveal the operational links that need to be traced back in time, faster than their mere frequency or incidence. Thus, if we want to find out how and why it is necessary to modernize prudential supervision and banking security in the National Bank of Romania, we will not rely on a survey or review of archive data, but we will manage better by conducting a case study. Or, if we want to know why modernization of historical surveillance and security methods is being achieved through the management of banking information security and prudential supervision, we will conceive a series of proposals for the management of banking information security and prudential supervision. So these kinds of questions give us an important clue as to the most

relevant strategy we need to use. The case study strategy is best suited for "how" and "why" questions, so our first task in this regard is to clarify the exact nature of the questions. Thus, we set the following study questions:

- 1. How and why is it necessary to modernize prudential supervision and banking security in the National Bank of Romania?**
- 2. How can historical methods of supervision and security in the National Bank of Romania be improved in a European context?**
- 3. Why is the modernization of historical surveillance and security methods done through the management of banking information security and prudential supervision?**

### **III.2. Hypothesis**

The study hypothesis is the second component of the research design and it focuses our attention on the need to modernize prudential supervision and banking security in order to protect the interests of depositors and ensure the stability and viability of the entire banking system in the National Bank of Romania. It is a problem related to our study, which we intend to examine. Our research started with the following question: How and why is it necessary to modernize prudential supervision and banking security in the National Bank of Romania? Thus, from the beginning, the "how" and "why" questions, which capture the essence of what we are interested in, led us to choose the case study as an appropriate strategy. This type of questions does not indicate what we should study, leaving to ourselves the formulation of the hypothesis by which we will advance in the right direction. We have thought that the historical methods of prudential supervision of credit and security institutions in the European context need to be upgraded, through the management of banking information security and prudential supervision, in order to protect the interests of depositors and the stability and viability of the entire banking system. The hypothesis, in addition to reflecting an important theoretical aspect (namely that it is necessary to modernize historical methods of prudential supervision of credit and security institutions in a European context), also indicates where to look for relevant evidence (in order to establish and verify the measure in which the management of banking information security and prudential supervision ensure the protection of depositors' interests and the stability and viability of the entire banking system).

The hypothesis we have established is the following: **If it is necessary to modernize prudential supervision and banking security in order to protect the interests of depositors and ensure the stability and viability of the entire banking system in the National Bank of Romania, then the historical methods of prudential supervision of credit and security institutions, in a European context, through the management of banking information security and prudential supervision, in order to protect the interests of depositors and the stability and viability of the entire banking system, should also be modernized.**

### **III.3. The Analysis Units**

Representing the third component of the research design, the analysis unit is related to the fundamental problem of defining the "case". Our case does not refer to individuals or groups of individuals, where an individual represents the case being studied and at the same time the primary analysis unit, but refers to a phenomenon (the need to modernize prudential supervision and banking security in order to protect the interests of depositors and ensure the stability and



viability of the entire banking system in the National Bank of Romania) and to an entity (the National Bank of Romania), which is not so well defined as an individual. We are aware that it is a case study about decisions, programs, implementation processes and organizational changes. We are also aware that these kinds of topics are not very easy to define in terms of the "beginning" and "end" points of the "case". A study on such topics may reveal (Yin, 2005): a) variations in the definition of decisions, programs, implementation processes or organizational changes, and b) their components that existed before their formal nomination. So, our study should take into account the delimitation conditions a) and b) in delimiting the conditions of analysis.

Our attempt to establish the unit of analysis, and therefore of the case, is related to the way we formulated the initial questions of study, namely: we wanted to study the improvement of the historical methods of supervision and security in the National Bank of Romania, in the European context through the management of banking information security and prudential supervision that takes place independently of the current existence of prudential supervision and banking security in order to protect the interests of depositors and ensure the stability and viability of the entire banking system in the National Bank of Romania. The analysis unit of our study is **"prudential supervision and banking security in order to protect the interests of depositors and ensure the stability and viability of the entire banking system in the National Bank of Romania"**. Depending on this unit of analysis, the design and data collection strategy may vary slightly. The selection of the analysis unit was done after we first specified the primary research questions. At the time of setting up the analysis unit, we did not consider this to be definitive, having the possibility, as with other aspects of design, to be reconsidered as a result of the findings obtained during the data collection process.

### ***III.3.1. The primary analysis unit***

The primary unit of analysis is to modernize the historical methods of prudential supervision of credit and security institutions in a European context.

### ***III.3.2. The contextual analysis unit (the existence of the case)***

The contextual analysis unit is the existence of the case, namely: the need to modernize prudential supervision and banking security in order to protect the interests of depositors and ensure the stability and viability of the entire banking system in the National Bank of Romania.

### ***III.3.3. The embedded analysis unit***

The embedded unit comprises the modernization of historical methods for surveillance and security through the management of banking information security and prudential supervision.

### ***III.3.4. Linking data to hypotheses***

The fourth component of case study design is usually little discussed in case studies. It anticipates the data analysis stage, but research design should help build solid bases for this study of the investigation. Linking data to hypotheses can be done in several ways, but none has become precisely defined. That is why we opted for a promising approach to case studies, that of

the *pattern matching* concept described by Donald Campbell in 1975 (Yin, 2005, p. 143). This analysis technique in case studies implies "the use of a pattern matching logic" (Yin, 2005, p. 143), which compares an established pattern, with empirical bases, with an anticipated (or with more alternative predictions), according to Trochim (1989). If the pattern established on empirical bases: the need to modernize prudential supervision and banking security in order to protect the interests of depositors and to ensure the stability and viability of the entire banking system in the National Bank of Romania coincides with the pattern anticipated (predicted) by us: the modernization of historical methods for the prudential supervision of credit and security institutions in a European context, through the management of banking information security and prudential supervision, whose results can help to strengthen the internal validity of the investigation. In our case, the patterns are related to the dependent and the independent variables defined above, namely the predicted pattern with respect to the independent variable is defined before the data is collected. The information obtained in this case can be related to the theoretically determined hypothesis.

### ***III.3.5. Criteria for data interpretation***

The fifth component of the case study design can cause problems if our data matches one pattern better than the other. However, the question is, how accurate should be the suitability, in order to be considered valid? We are aware that we cannot make any statistical tests to so such a comparison, and it is also impossible to do such a test, because all the data in the pattern is quite contrasting so as to enable us to make interpretations by comparing at least two alternatives. The alternatives depend on our understanding of the conditions under which the new findings of research: banking information security management and prudential supervision may be useful in modernizing prudential supervision and banking security to protect depositors' interests and ensure the stability and viability of the entire banking system in the National Bank of Romania. We are also aware that people often believe that research serves only itself, "without satisfying any practical need" (Yin, 2005, p. 145).

This *pattern matching* technique is also valid when it comes to an explanatory study, as patterns are related to either dependent variables (Yin, 2005, p. 143), in our case: the need to modernize prudential supervision and banking security in the National Bank of Romania, or the independent variables, in our case, the modernization of historical methods for the prudential supervision of credit and security institutions in the European context by managing banking information security and prudential supervision or both. This technique is equally relevant if the study is descriptive, as long as the anticipated (predicted) pattern with respect to certain variables is defined prior to data collection (in our case: the modernization of historical methods for the prudential supervision of credit and security institutions in the European context through the management of banking information security and prudential supervision) and is established prior to data collection.

As a last component of the research design, it anticipates the data analysis stage. The data obtained through the chosen strategies and techniques is a constant challenge, as it should generate a quality analysis which, on our part, requires a special attention paid to all evidence. We present the evidence objectively and show an appropriate interest in exploring alternative interpretations (Yin, 2005). We use the combined criteria for interpreting findings, generally using the logical models in which "The logical model intentionally stipulates a complex chain of

events over time. They are included in repeated cause-effect-cause-effect patterns. " (Yin, 2005). That is, the dependent variable from an initial stage "the need to modernize prudential supervision and banking security in the National Bank of Romania" becomes an independent variable at a later stage "the modernization of the historical methods for the prudential supervision of credit and security institutions in European context, through the management of banking information security and prudential supervision ". The use of the logical model implies the matching of the empirically observed events: the need to modernize prudential supervision and banking security in the National Bank of Romania with theoretically predicted events: the modernization of the historical methods for the prudential supervision of credit and security institutions in the European context, through the management of banking information security and prudential supervision.

#### **III.4. Preliminary theories**

After we have discussed the five components of the design presented above, we must begin to develop the preliminary theory related to the topic of the study. This practice of elaborating theory before data collection differentiates case studies from other similar methods. The other methods (ethnographies and "grounded theory") deliberately avoid specifying theoretical hypotheses at the beginning of the investigation (Yin, 2005, p. 47), a situation that induces mistakes, determining people to take them as case studies, based on the belief that, through the choice of the case-study method, one can immediately move to the data collection stage and reach the "field contacts" very quickly. This leads to serious errors, as long as the creation of relevant field contacts depends on the understanding or the theory of the studied object.

In our case, the development of theory as part of the design phase is essential for both the purpose of our investigation (that of proposing a theory on the modernization of historical methods for the prudential supervision of credit and security institutions in European context, through the management of banking information security and prudential supervision, in order to ensure the protection of depositors' interests and the stability and viability of the entire banking system) and for later implementation.

The case study will show why the management of banking information security and of prudential supervision only succeeded when the National Bank of Romania was able to modernize historical methods for the prudential supervision of credit and security institutions in a European context, with the view of ensuring the protection of depositors' interests and the stability and viability of the entire banking system, and failed when the management of information security and of prudential supervision was applied to old organizational structures. This statement summarizes a theory for the implementation of the banking information security and prudential supervision management system, namely that there is a need for organizational restructuring regarding prudential supervision and banking security in the National Bank of Romania in order to make this implementation effective.

The case study can also show why the mere replacement of the old organizational structure (e.g. key-persons in the supervision system) was not enough in order to achieve the modernization of the historical methods for supervision and banking information security in a European context. This second statement summarizes an alternative theory: failure can occur due to individuals' resistance to change, while their replacement is the only condition for effective implementation. However, we will not discuss here this alternative theory.

By elaborating the preliminary theory, we have the certainty that, as it is developed, the ideas expressed will gradually cover the questions, the hypothesis, the analysis units, the logical association of data with the hypotheses and the criteria for the interpretation of the findings, i.e. the five components of the research design. Therefore, we will notice that, in this sense, the complete design takes the form of a "theory" on the object of our study. This is not, in the formal sense, a vast theory in the field of economics and social sciences, and we are aware that we are not perfect theorists. The goal is simply to obtain the satisfactory plan and this requires theoretical hypotheses, which have been defined by some authors as "a (hypothetical) story explaining the actions, events, structures and ideas" (Yin, 2005, p. 48). We hope that, finally, the complete design will provide useful clues for the selection of data that must be collected and also for the strategies we are going to use in order to analyze data. In fact, this is the reason we elaborate the theory before collecting the data, which is an essential step in the investigation of the cases.

At the same time, we are aware that this stage is not an easy one, on the contrary, it is a rather difficult one, but, based on the literature that can provide a rich framework for conceiving the study, we will be able to develop a theory that is appropriate to our case. In order to overcome the barriers to the development of the theory, we have prepared for our study by reading the literature in the field, the sources being presented in the bibliography; we have also discussed the theme and our ideas with professors and colleagues that activate in the field approached, by trying to give answers to provocative questions related to our study, and explaining our intention and our expectations in terms of results. With all these, we are aware that it is extremely difficult to cover the full range of potential theories relevant to our study.

The development of the theory is not only a matter of facilitating the data collection stage, but if we manage to develop it properly, it will also represent the level at which the results of the study will be generalized. The theory, designated by the phrase "analytic generalization" (Yin, 2005, p. 51), put in contrast to another method of generalizing the results, known as "statistical generalization" (Yin, 2005, p. 51), represents the greatest challenge for us. Because "statistical generalization" is less relevant to case study research strategies, being more widely accepted when researchers have immediate access to quantitative formulas in order to determine the level of confidence with which generalizations can be made, in other words for "sampling units" (Yin, 2005, p. 51), and our case study is not a "sampling unit", we are going to use the "analytical generalization" method, in which the theory we develop before the data analysis stage will be used as a template to compare the empirical results of the study. This could help us if we encounter more cases that support the same theory, and thus we might claim that we have made a replication.

We first consider the primary analysis unit comprising: **THE MODERNIZATION OF HISTORICAL METHODS FOR THE PRUDENTIAL SURVEILLANCE OF CREDIT AND SECURITY INSTITUTIONS IN EUROPEAN CONTEXT**. The supervision of the banking system in Romania is under the competence of the National Bank, which has the exclusive capacity to authorize credit institutions in Romania and perform their prudential supervision, thus ensuring the stability and viability of the entire banking system. This competence extends beyond the borders of our country, in order to make prudential supervision more effective, by concluding coordination and cooperation agreements with competent

authorities in other countries. Thus, given the responsibilities resulting from its dual monetary and prudential nature, the NBR has an intrinsic role in maintaining financial stability.

Also relevant for the management of banking information security is our research objective on the effectiveness and the degree of consolidation of the management system for the non-payment risk generated by the use of debit payment instruments in Romania. The National Bank of Romania is trying to understand the payment behavior of account holders by means of the payment incidents reported by credit institutions at the Payment Incident Center (PIC), in accordance with the current regulations. Thus, the payment incidents recorded in the PIC database, which are being analyzed, refer to: (Neagoe, A. coord., Toma, G., Grădinariu, G., Sîrbu, A., Popescu, M., Zainea, G., Ardelean, D., Iancu, D., Stancu, D., 2015, p.175) the incidents of payments with debit payment instruments (checks, bills and promissory notes) for the public interest, including for the specific purposes of the users, all being managed by the PIC. The analysis of data from the PIC database takes into account a number of principles (Neagoe, A. coord., Toma, G., Grădinariu, G., Sîrbu, A., Popescu, M., Zainea, G., Ardelean, D., Iancu, R., Ghinea, A., Radovici, D., Stancu, D., 2015, p.175): "the principle of reviewing, according to which all reporting entities (credit institutions) have the obligation to report to PIC all information regarding payment incidents; the principle of reciprocity, according to which each reporting person reports the incidents of payments on behalf of natural and legal persons and can obtain from PIC information on the reported incidents of payments reported on behalf of an account holder by all the reporting persons; the principle of aggregation, according to which the PIC disseminates information on the incidence of payments resulting from the aggregation of individual information reported by the reporting person; the principle of the effectiveness of the exchange of information, according to which the PIC receives and delivers information quickly through an electronic network from/to the reporting persons (credit institutions)". Through its work, the PIC ensures the existence of a centralized and up-to-date source of information on payment refusals of debit instruments, which increases the level of understanding as regards the legal provisions and regulations on debit payment instruments and security of use; it is also a security partner for credit institutions in the process of preventing, assessing and limiting the risks posed by bad customers.

In our case, in this approach, according to Regulation no. 2 on the organization and functioning, within the National Bank of Romania, of the Credit Risk Center, of January 9th, 2012, published in the Official Gazette, Part I 49/20 January 2012, which became functional on February 1st, 2012, with subsequent modifications and completions, a debtor's identification, who is either a natural person or a non-banking legal person, and his/her transactions in RON and in foreign currency, whereby the reporting persons are at risk in relation to that debtor, are included in the credit risk information. This information, which is processed and disseminated by the CRC, is the information reported by the reporting persons. The information reported by the reporting person about the breach of the contractual provisions by the credit and/or debit card holders, which can be classified as fraud (in relation to the requirements of the law), while the amount of fraud is not recorded in arrears in the records of the reporting person, represents the information about card fraud. In order to transmit the information to the reporting persons, the cross-border exchange of information between the national credit registers is also carried out. The sum of the amounts of the planned operations (credit granting; commitment, by the declarant, on behalf of the debtor, to a natural person, a legal person, other than the reporting

persons, or to a credit institution/financial institution abroad), reported to the CRC by a reporting person for a debtor, who is either a natural person or non-banking legal person, provided it is equal to or above the reporting limit, represents the individual risk. This is determined by the declaring person and represents that persons' exposure to a debtor. The non-banking legal person, entered in the CRC database as a result of being reported by the reporting party, is called the person under review. The sum of all individual risks reported by all reporting parties for the same debtor, less the forecasted value of the transactions performed in RON and other currencies, is the global risk. It is determined by the CRC and represents the exposure of all reporting entities in Romania to a single debtor. At the CRC the reporting persons are:

- Credit institutions, Romanian legal persons, for all information collected from their territorial units in Romania on credit risk and information on card fraud;
- Branches of foreign credit institutions in Romania for all information collected from their territorial units on credit risk and information on card fraud;
- Non-banking financial institutions, Romanian legal persons, registered in the Special Register, for all credit risk information and information on card fraud;
- Branches in Romania of foreign financial institutions registered in the Special Register for all information collected from their territorial units in Romania on credit risk and information on card fraud;
- Institutions issuing money electronically, Romanian legal persons, for all information about card frauds collected from their territorial units in Romania, which, according to the Regulation of the National Bank of Romania, no. 8/2011, on electronic money institutions, record a significant level of lending activity;
- Payment institutions, Romanian legal entities, for all credit risk information and information on card fraud collected in their territorial units in Romania, which according to the Regulation of the National Bank of Romania, no. 21/2009, on payment institutions, as subsequently amended and supplemented, records a significant level of lending activity. (NBR Regulation 2, 2012).

The Regulation includes the very important stipulation that the option of reporting information on the assignment of debtors of Romanian branches of credit institutions from other Member States must be communicated in writing to the Directorate which coordinates the activity of the CRC. (NBR Regulation 2, 2012). The following concepts are further defined: the accredited person to transmit and receive, from the CRC, credit information and card fraud information, which is the employee authorized by the management of the reporting person; The reporting period in which the credit risk information relates to the previous month, which is the period between 1st and 17th of the current month; users, who are the declaring persons and the National Bank of Romania. The Regulation also specifies the reporting limit, according to which the individual risk of a debtor is transmitted by the reporting persons to the CRC, a limit which can be modified by the NBR.

Specific information on payment incidents, for the public interest, including for users' specific purposes, is regulated by Regulation no. 1 on the organization and functioning, within the National Bank of Romania, of the Payment Incidents Center of January 9th, 2012, published in the Official Gazette, Part I 49 on January 20th, 2012, which became functional on February 6th, 2012, with subsequent amendments and completions. Information specific to payment incidents, for public interest, including for user-specific purposes, is managed by the PIC. In

order to investigate information security specific to incidents of payments, we emphasize that the Regulation defines information for the public interest, including for the specific purposes of users, namely:

1. The payment incident is the failure to fulfill, strictly and in due time, the obligations of the account holders during the process of settling the payment instrument. These obligations are due to the effect of the law, and the failure to do so is brought to the knowledge of the PIC by the reporting persons.

2. The major payment incident is a payment incident caused by one of the following situations: a check issued without the authorization of the drawee, which is why it was refused at payment; check submitted for payment before the expiry of the submission deadline but declined due to total lack of availability; a check submitted for payment before the deadline for submission, but declined because of a partial lack of availability; check issued with a false date, which is why it was refused to pay; A check issued by a drawee in a bank ban, which is why he was denied payment; promissory note/ (bill) submitted for payment within the time limit, but refused to payment for total lack of availability; promissory note/bill, submitted for payment in due time, but declined to pay due to partial lack of availability; promissory note /bill at a certain time of sight, at a certain time from the date of issue or at a fixed term present for payment on time, but refused to pay out of total availability; promissory note /bill with a due date at a certain point in time, at a certain point in time from the date of issue or at a fixed term present for payment in due time but refused for payment due to a lack of partial availability.

3. Any of the following means of payment: check, bill of exchange, promissory note is a payment instrument.

4. The system imposed by a credit institution, drawn on an account holder forbidding him to issue checks for a period of one year, as a result of a major payment incident with the check, is the banking ban.

5. A natural or legal person, resident or non-resident, who is required to pay the assumed obligation by the issuance / acceptance of a payment instrument, is the payer, who is the drawee for the check, for the bill of exchange is the accepted drawee, and for the promissory note is the subscriber.

6. The persons that declare at CIP are defined as credit institutions - Romanian legal persons, for all information regarding the incidents of payments produced by their own account holders or those in their territorial units; the branches in Romania of foreign credit institutions for all information related to the incidents of payments produced by their own account holders.

7. The employee authorized by the reporting person's management to transmit to and receive from the PIC information on the incidents of payments is the accredited person.

8. Natural or legal persons, whether resident or non-resident, who are registered with the National File of Persons at Risk as a result of the registration of one or more major payment incidents, are considered persons at risk.

9. The declaring persons, the National Bank of Romania, the Ministry of Internal Affairs, the Prosecutor's Office attached to the High Court of Cassation and Justice, their territorial units, the courts, other institutions of the state with attributions of supervision and control, through other credit institutions, natural and legal persons, resident or non-resident, who request information under the law, are the users of the PIC database. (NBR Regulation 1, 2012).

From its double hypostasis of monetary and prudential authority, the National Bank of Romania has an intrinsic role in maintaining financial stability, a concept stated on the bank's website <http://www.bnr.ro/Stabilitate-financiara---Rolul-BNR-3114.aspx>, a role which is exercised "both by the prudential regulation and supervision of the subordinated institutions, as well as by the effective formulation and transmission of monetary policy measures and the supervision of the optimal operation of payment and settlement systems of systemic importance." In order to fulfill this role, and to maintain the concept of financial stability, "it is necessary to identify the risks and vulnerabilities of the financial system as a whole and also of its components, since financial stability monitoring is preventive". However, some malfunctions, such as incorrect risk assessment and inefficiency of capital allocation, are occurring and developing and may affect the stability of the financial system and the economic stability. With a view to broadening the national financial stability framework, it is necessary to step up cooperation among the authorities responsible for the authorization, regulation, supervision and control of the financial markets.

According to specialists, the European context of prudential supervision and the security of banking information is Romania's membership of the Banking Union, where the European Central Bank (ECB) became the first pillar of resistance, which took over the supervision of the largest banks in the euro area, which hold more than 70% of the Romanian banking system. In Mugur Isarescu's view, a strong argument for accepting a non-euro country to this union is "the prevalence, in the banking sector, of euro area capital" (Isărescu, 2014). The massive presence of euro-zone capital in the banking system in Romania determines cross-border regulation and supervision, and the preservation of banking supervisory powers merely at national level "would have only suboptimal results" (Isărescu, 2014), since access to information on mother banks is limited and there is no overall perspective upon the situation. Affiliation to the Banking Union allows participation "from the inside in the construction of a mechanism that will have to be joined at the latest when joining the euro area anyway" (Isărescu, 2014). We need to realize that the existence of the Banking Union will definitely have effects on the financial system in Romania, even if we are not members. Moreover, it ensures participation in the adoption of certain decisions that have effects that are going to be felt".

The entry into the Banking Union also ensures " the removal of a stimulus for disintermediation by foreign banks" (Isărescu, 2014), and the experience following the beginning of the international economic crisis gives us a lesson on the protection of the national banking system, as "some supervising authorities can impose prudential measures on capital controls, transfers and intra-group lending, limiting branch activity, or banning profits repatriation, causing some banks to reduce the activity of their subsidiaries in host countries".

The European Central Bank (ECB) became, on November 4th, 2014, a historic day for the European Union, "the single direct supervisor of the top 120 banks representing 85% of the total euro area banking assets, thus raising the first pillar will support the European Banking Union, a project in which Romania is also involved" (Cojocaru, 2014). On that occasion, Daniele Nouy, the French President of the Supervisory Board of the Single Surveillance Mechanism set up under the auspices of the ECB, said that the supervision would be "tough, fair and independent." On the very first day of work, she tried to harmonize the 18 models of banking supervision in the euro area in a model that can be applied at a pan-European level. This model aims to make banks



take more prudential measures to prevent economic crises, as the ECB's ultimate goal, as sole supervisor, is the rebuilding of confidence in a financial system shaken by crisis and scandals.

As another element of the primary analysis unit, which includes: **THE MODERNIZATION OF HISTORICAL METHODS FOR THE PRUDENTIAL SURVEILLANCE OF CREDIT INSTITUTIONS AND SECURITY IN EUROPEAN CONTEXT**, we theorize, in the second part, the functions of **banking information security management**.

The management of banking information security, its functions: planning (provisioning, forecasting), organization, training (command-motivation), coordination and control are essentially manifested through the information security attributes (functions), i.e. the attributes of information or the syntactic role it meets, the set of properties.

The availability of banking information is that security attribute, element of banking information security management, which provides legal information when needed. The legal users of the Credit Risk Center (CRC) are the reporting entities and the National Bank of Romania (NBR Regulation 2, 2012) and the users of the Information on Payments Incident Center (PIC) are the reporting persons, the National Bank of Romania, the Ministry of Internal Affairs, the Prosecutor's Office attached to the High Court of Cassation and Justice with their territorial units, the courts, other institutions of the state with supervisory and control duties; through other credit institutions, other legal entities, resident or non-resident, under the conditions stipulated by the law (NBR Regulation 1, 2012).

The second approach is related to the availability of information specific to users, managed by the National Bank of Romania's Payment Incidents Center (PIC) regarding incidents of public interest payments, including those done for specific purposes (NBR Regulation 1, 2012). The availability of this information to their users: declaring natural persons, the National Bank of Romania, the Ministry of Internal Affairs with its territorial units, the Prosecutor's Office attached to the High Court of Cassation and Justice and the courts, other state institutions, with supervisory and control duties; through other credit institutions, other legal, resident or non-resident natural persons, under the Security Assurance Act, through the National Payments Incident Report (NPIR), which is the file containing information on check-in incidents, bills of exchange, bill, structured for each one in particular; it is of general interest; The National File of Risk persons (NFRP), which is automatically powered by NPIR and contains information on major incidents recorded on behalf of a resident or non-resident natural or legal person. The availability of this type of information is also ensured with the transmission and recording of information on payment incidents, in compliance with their Regime when the ban is generated or when the CIP database incidents of payments are suspended/resumed/ canceled. They are also available when organizing and managing information in databases. All these situations are regulated by NBR (Regulation No. 2, 2012).

The Confidentiality of information is a functionality security attribute. Banking information and banking operations are confidential (Oprea, I., Pamfil, CG., Radu, R., Zăstroiu, V., 2010, p. 72), and the act of reproduction, transmission of a secret, in our case, of banking information is also confidential. The confidentiality of bank information refers precisely the confidentiality of its secrets. Confidentiality is a ban, as a limitation, as a foreclosure of unauthorized/illegitimate users' access to bank information. It is an exception to the normal use of banking information and is a consequence of the existence of contrary interests in society, and

the use of information could harm one of the parties. Protecting the interests of the parties in the CRC and PIC involves protecting secrecy and implicitly accepting confidentiality.

The need for protection of the transmission and recording of information on payment incidents, as well as its regulation, generates the confidentiality of reports to the PIC, of the information flow, of the registration, organization and dissemination of the Information Incident of the Incident Payments Center; the confidentiality of the electronic format transmitted to the PIC through the Interconnection Network for information on incidents of payments by the reporting party; confidentiality of the content of the Reporting Form on bank denials with checks, bills of exchange and promissory notes, information from them, transmitted to the PIC by the declaring person; the confidentiality of technical conditions that allow the operative transmission of electronic information on payment incidents recorded and managed by the National Bank of Romania, at its central office; compliance as regards the completion of the forms provided, the content standards and their confidentiality, in the forms sent by the reporting person for the registration of the information in the PIC database; the confidentiality of the take-over, through the PIC application, after the registration of the information in the CIP database, by making the requests containing the information entered in the name / name of each client available; the confidentiality of the bank ban on records of payment incidents in the CIP database, and their suspension/resumption/cancellation; the confidentiality of the organization and management of information on recorded incidents of payment and the dissemination of such information.

The integrity of the Information Flow concerning the transmission, registration, organization and dissemination of credit risk information and card fraud. The CRC may not, on its own initiative, modify the information provided by reporting persons about credit risk and/or information on card fraud (NBR Regulation 2, 2012). The CRC ensures the integrity of recordings of reported information by the reporting person and the processing of this information in order to obtain the aggregate data necessary for the users. The integrity of credit risk information and information on card fraud is maintained in the FCR and FFC files for a period of 7 years from the date of registration (NBR Regulation 2, 2012). If the access to credit and card information has been made by unauthorized persons, the director of the specialized department who coordinates the CRC's activity may order the cessation of the disclosure of credit risk information and of card fraud, held by CRC. (NBR Regulation 2, 2012).

The PIC ensures the registering of information on payment incidents reported by the declaring persons and the processing of such information in order to obtain the aggregate data required by users. FNIP and FNRP are managed according to the PIC's own needs, in order to operationally highlight the information on: identification of account holders; refusal to pay checks, bills or promissory notes.

The next theorization we make for the Contextual Analysis Unit is the existence of the case, namely: **THE NEED TO MODERNIZE PRUDENTIAL SUPERVISION AND BANK SECURITY IN ORDER TO PROTECT DEPOSITORS' INTERESTS AND ENSURE THE STABILITY AND VIABILITY OF THE ENTIRE BANKING SYSTEM IN THE NATIONAL BANK OF ROMANIA.** In the first part of the theoretical analysis of the contextual analysis unit, we will conceptualize the need to modernize prudential supervision, and in the second part are going to identify the concepts of security and the security of banking information.

The evolution of the Romanian economy after 1989 can be discussed from several perspectives, such as the transition to a new economic and political regime, new institutional structures, structural reforms such as privatizations and the imposition of structural reforms, "the opening of the economy called *Transformational recession* by Kornai Janos, which initiated a long cycle of institutional changes and economic mechanisms that bear the generic name of a post-communist transition" (Dăianu, 2015). The adherence to the European Union may constitute another type of analysis. The necessity of modernizing the historical methods was generated by the financial crisis that "showed how erroneous the assumptions that Central Banks and Governments were operating and how frail was the regulatory and supervisory framework of the financial markets" (Dăianu, 2015) and the theories according to which "the markets know everything", arguing "public intervention must be minimal" are paradigms that have failed and led to these crises. Therefore, specialists started to speak of "the need to regulate and supervise the financial system, the emergence of macro-prudential supervisory bodies" (Dăianu, 2015). Analyzing, from this point of view, central bank policies, specialists such as Axel Weber (former head of the Bundesbank), or Daniel Daianu, showed that it was a mistake to neglect credit dynamics by underestimating systemic risk or where credit cessation was attempted, i.e. in Romania, where the EU unique market intervened by imposing certain measures on the central banks. The massive liquidity injection (Qes) in recent years had the essential role of avoiding the collapse of banking systems.

With a negative impact on the European economy as a whole, the 2007-2008 financial crisis brought to the fore the importance of strengthening the European Union, a project in which all Member States were included and which was functional but incomplete. Thus, "strengthening European institutions and finalizing the process of reforming the framework of governance are essential actions for the good functioning of the European Union" (Libocor, Vol. 108, p. 6). One of the four elements of the EU's economic governance framework is the Banking Union: "The Banking Union aims at completing and consolidating the Economic and Monetary Union, defragmenting the financial markets within the single market, disrupting the vicious circle between banks and governments and preventing the crises within the banking system" (Libocor, Vol. 108, p. 8). Therefore one should emphasize the need for the EU Member States, including Romania, to join the Banking Union and the adoption, at national level, of the Single Banking Supervision Mechanism as a guarantor of preventing crises in the banking system and their effects on taxpayers and depositors in order to restore confidence in credit institutions, strengthening the confidence in the single currency and strengthening financial stability, the entire national and European banking system, strengthening the regulatory and supervisory framework of the financial sector so that it can provide an effective response to the financial crisis.

The evolution of the Romanian banking system, after the 90s, in all the aspects involved, namely: "the size and number of credit institutions, their form of ownership, the types of activities carried out, the complexity of operations, the increase of the degree of sophistication of the offered products, the legislative and institutional framework" (Davidescu, Vol. 426, p. 5), implies the need to continuously modernize the supervision of the Romanian banking system. It should be noted that, before the beginning of the financial crisis, the robustness of the Romanian banking system was at a "comfortable level of adequating the capital to risks, a situation that is also a consequence of the prudential regulatory and supervisory measures adopted by the central

bank when the first manifestations of the effects of the crisis of the central bank became apparent at the onset of the international financial crisis"(Davidescu, Vol. 426, p. 5). The measures imposed in the process of prudential supervision within the credit institutions considered to have a high risk profile, the introduction of prudential filters, at the individual level as well, with the implementation by banks of the new IFRS accounting standards as the basis for accounting, as well as the indicators used for the degree of capital adequacy, calculated at the level of the Romanian banking system, which have remained at high levels, created the "premises for the proper implementation of the additional capital requirements imposed by the Basel III regulations" (Davidescu, Vol. 426, p. 6), applicable gradually in Romania until the end of 2018.

***The fundamental objective is to protect the interests of depositors and to ensure the stability and viability of the entire banking system.*** Credit institutions, Romanian legal persons, are obliged to report to the National Bank of Romania the data and information necessary for the assessment of compliance with the prudential and legal framework in force at the deadlines and in the form established by the NBR; The National Bank of Romania ensures the verification of the framework for the management of strategies, processes and mechanisms implemented by each credit institution, Romanian legal person, and carries out its own assessment of the risks to which the credit institution is or may be exposed. On the basis of the verification and evaluation carried out, the National Bank of Romania determines, to a large extent, the management framework, the strategies, processes and mechanisms implemented by the credit institution, Romanian legal person, and whether the funds held by it ensure prudent management and adequate coverage of the risks, in relation to the risk profile of the credit institution. The monitoring of compliance with prudential requirements and other legal requirements, by credit institutions, Romanian legal persons, is carried out both on the basis of the credit institutions' reports and on-the-spot verifications at the headquarters of the credit institutions and their branches, in the country and abroad. On-the-spot checks are carried out by the staff of the National Bank of Romania, empowered to do so, or by financial auditors or experts appointed by the supervisory authority "(Davidescu, Vol. 426, pp. 11-12).

In the second part of the contextual unit, we are going to identify the concepts of security and banking information security.

The threats associated to the rapid growth of fintech companies and the decline in the revenue of investment banking divisions have prompted major American banks to be more innovative and to adapt to new market conditions much faster (Zărnoeanu, A., 2016). The presence on the market of on-line deposits of fintech companies is a powerful source of liquidity for future on-line peer-to-peer credit platforms that will start lending and start launching platforms (for example, GSBanK .com, Goldman Sachs platform), where customers can place their savings in return for an effective annual interest rate that is well above that offered by traditional banks (DAE of 1.05% vs. 0.01-0.03% / year and higher than 0.75-1% per year offered by fine-tech start-ups such as Ally Bank, Discover Bank and Capital One 360) (Zărnoeanu, A., 2016).

The reference to the security of an entity (organization-institution, human being, system, etc.) can lead us to think of a number of means that would ensure all the conditions so that the entity can fulfill all its objectives for which it was created.

In accordance with the concepts of the CERT-RO concepts of the National Center for Answering to the Security Incidents in Information systems, of the Ministry of Communications,

concerning: Risk Management, Security Incidents, Vulnerabilities, Countermeasures, "information is secured if its availability, confidentiality, integrity, authenticity, and non-repudiation is ensured in so far as it is necessary for the entity that created it or the one that uses it".

Moving to the analysis of our objective in this approach, we refer to the security of "credit risk information and information on card fraud for the specific purposes of users, subject to professional secrecy" (NBR Regulation 2, 2012). We analyze here the security regarding the RCC's participation in the "cross-border exchange of information in accordance with the provisions of the Memorandum of agreement on the exchange of information among national credit registers, with the view of transmitting it to the reporting persons, agreement concluded by the National Bank of Romania with the competent authorities in Member States "(NBR Regulation 2, 2012). In this situation, the management of the security of banking information refers to the database that the CRC organizes and manages.

The security of transmission and recording of credit risk information and information about card fraud must comply with a certain regime.

The other objective of our research refers to the security of information specific to the payments incidents, for the public interest, including for the specific purposes of the users. The concept of security and security of this type of bank information extends to the PIC database structure and access. PIC organizes and manages the database and ensures its security.

We are going to theorize the Embedded Analysis Unit which includes the **MODERNIZATION OF THE HISTORICAL SUPERVISORY AND SECURITY METHODS THROUGH THE MANAGEMENT OF BANKING INFORMATION SECURITY AND PRUDENTIAL SUPERVISION.**

The management of Prudential Banking Supervision is the first part of the theoretical analysis of the unit that starts with the adoption of the fundamental objective of the supervisory authority of the banking system, which in Romania is the National Bank of Romania, and *the fundamental objective is to prevent systemic risk by promoting effective supervision of the banking system that would ensure the stability and viability of the entire banking system.* In order to fulfill this fundamental objective, as part of the function for the organization of prudential supervision management, the NBR, as a banking supervisor, organizes and uses a range of supervisory tools and approaches, including: The Uniform Evaluation System - CAAMPL, the Evaluation Process and Verification by Surveillance - SREP, Stress tests.

As part of the supervisory evaluation management function, NBR supervises the credit institutions, ensures the verification of the internal process of evaluation that regards the adequation of credit institutions capital to risk (ICAAP). "The ICAAP verification process is integrated into the Verification and Review Process conducted by the Surveillance Authority (SREP)" (Davidescu, Vol. 426, p. 21). Any bank, in relation to its nature and risk profile, as well as the ability of the management structure to adequately identify, measure, aggregate and adequately monitor risks, along the development and use of robust risk management systems, must maintain an appropriate capital. Determining the degree of capital adequation is made in accordance with the effect of the risks to which the bank's financial conditions are exposed (adequacy). The minimum level required by regulations to deal with unwanted consequences depends on the types and magnitude of the risks in the bank's activity. Within the NBR, the responsible structure of the NBR's Supervisory Directorate develops an approach in this respect,

which in fact represents "an implementation of the CEBS Guideline (EBA) on the joint assessment of the elements covered by the Assessment and Verification Process Surveillance Authority (SREP) and joint decision on capital adequacy in cross-border groups (GL 39)" (Davidescu, Vol. 426, p. 21).

Credit institutions, particularly the management structure, are individually responsible for the development and implementation of the ICAAP.

The need to improve the management of prudential supervision on a continuous basis is also given by another way of assessing a bank's financial situation, namely, by the stress test, which applies in the case of the concretization of one or several severe (but plausible) risk events that might affect the financial performance, the capital volume and even the existence of the banks (Bank of International Settlements, 2009).

As part of the function of planning the management of prudential supervision, the NBR determines the frequency and degree of detail of the checks and evaluations, taking into account the principle of proportionality. This planning is made taking into account the size, the systemic importance, the nature, the extension and the complexity of the activities carried out by each credit institution, which are Romanian legal persons.

In exercising the management of prudential supervision, the NBR considers the potential impact of its decisions on the stability of the financial system in all other Member States concerned. In Romania, and in the general European context, the resolution framework has been revised and supplemented in such a way that it corresponds to the realities existing at the level of a banking system affected by the economic crisis.

Simultaneously with the establishment of the special administration, the NBR decides: withdrawal of the approval granted to the persons exercising management and/or management responsibilities of the credit institution; withdrawal of approval of the credit institution's financial auditor; the suspension of the voting rights of shareholders holding qualified participations in the credit institution.

In order to exercise the position of a special administrator, the NBR may appoint one or more natural persons, or a legal person, as part of prudential supervision.

The security of bank information is the second part of the theoretical analysis of the unit included in the analysis **MODERNIZATION OF THE HISTORICAL METHODS OF SUPERVISION AND SECURITY BY THE MANAGEMENT OF BANKING INFORMATION SECURITY AND PRUDENTIAL SUPERVISION.**

The security of information is provided by mechanisms such as: cryptographic mechanisms, biometric mechanisms, or steganography mechanisms. These mechanisms can also be used to ensure the security of banking information. "The applications of these mechanisms are highlighted, for instance: the biometric passport, a new steganography system for secure communications designed and implemented by the author (Tigănoaia Bogdan-Dumitru) (Tigănoaia, Bd., 2013, p.36).

We draw attention upon one of the mechanisms aimed to ensure the security of banking information, which is the cryptographic mechanism. Cryptography refers to the application of banking data coding techniques; it ensures secure communication between two entities: the reporting entity-CRC; CRC- reporting person; Declarant-BNR; NBR-declarant person; Declarant-CIP CIP-declarant person, etc. The method is based on numerous data

encryption/encryption techniques. Secret key encryption or public key encryption can be performed.

#### **IV. COLLECTING THE EVIDENCE**

In our approach, we collected the evidence from the following sources: documents, archives, interviews, sites, direct observation, participatory observation, applying different methodological procedures in each case. As regards data collection, we have complied with the principles of priority: "a) multiple sources of evidence (two or more sources converging towards the same findings), b) a database (all the evidence gathered, not the final report of the study) and c) a logical succession of evidence (explicit links between the collected data, the questions asked and the conclusions reached)" (Yin, 2005, p. 107). These principles have been respected throughout the investigation of the case in order to increase the quality of the investigation. Helpful sources were found in the form of numerous articles, books on the methodology of research, which provided us with important texts related to our case study. The range of data collection techniques included in these papers are also relevant to the case study as a research strategy in the social sciences, but none focused exclusively on them. Texts have retained their value because they are easy to use and treat the basic procedures to be followed in collecting data. Recent texts have been easier to locate, but the alternatives we had access to were more complicated. Besides the familiarization with the data gathering procedures, using the six different sources of evidence, we had to continue to address the design challenges: construct validity, internal validity, external validity and fidelity. The principles outlined are of particular importance, they are relevant to all the six types of sources we respected throughout the investigation. The full list of sources may be extended to other research. Of course, by analyzing the strengths and weaknesses of Robert Yin's six major sources in Table 4.1, we noticed immediately that no particular source has an overwhelming advantage over others. The different sources are very complementary, so we preferred to use as many as possible (multiple sources of evidence).

Documentary information is relevant to our topic, PRUDENTIAL SUPERVISION AND BANKING SECURITY IN THE EUROPEAN UNION. CASE STUDY: THE NATIONAL BANK OF ROMANIA. This type of information has different forms and is the subject of our data collection plans. Among the types of documents, we mention: programs, announcements, minutes of meetings and other written reports of events of the European financial and banking institutions and the NBR; administrative documents, regulations, laws, directives, recommendations, ordinances, progress reports and other internal documents, studies or formal assessments of studied credit institutions, newspaper articles or other articles that appeared in the media about our theme; websites related to our theme.

Archival data, archive information, which is also in the form of electronic files and databases, were also relevant. Such data includes: registers, organizational documents, maps and charts, lists, archive sites, analysis and survey documents, personal documents such as journals, lists of meetings, and other types of lists. These and other archive materials have been used with other sources of information to conduct the case study. Archival evidence was relevant to us and we paid great attention to both the conditions in which they were produced and to their accuracy. We considered the volume of evidence used enough for the accuracy required from our work. We have removed from the study the evidence that was produced for a certain purpose and we have maintained only those that are relevant to our case.

Interviews have been one of the most important sources of information for us. They were also provided in the context of our personal duties, in connection with prudential supervision, as employee of the NBR, which were carried out at different bank or non-bank credit institutions in the country and their territorial units. The results were recorded in the evaluation and monitoring documents, along with the measures taken; thus the reports to the supervisory management and the conclusions of these interviews are documents that became confidential and belong to NBR. For this reason, they were not published (mentioned) in this study. Instead, we have retained the principles and regulations on prudential supervision and banking information security. In this situation interviews cannot be associated with the survey method. Unlike the survey, the interviews took the form of guided conversations, not that of structured questions. During the interviews that were part of evaluating credit institutions from the point of view of prudential supervision and banking information security management, we followed a coherent investigative line; however, the flow of the questions was flexible, rather than rigid. In conducting the interviewing process, we wanted to accomplish two important objectives: a) to follow our own research direction imposed by the subject and b) to address the questions (conversationally) in an objective manner that would serve the needs of the investigative line. We took into account, when addressing the question to the interlocutor, the importance of using "how" instead of "why" - which could have activated a defense mechanism on the part of the interlocutor. Thus, we tried to operate at two levels at the same time: on the one hand satisfying the needs of the investigation and, on the other hand, asking "friendly" and "non-critical" questions. We believe that the interviews were of an open nature and could inquire key respondents about both the conduct of the credit institution's activities and their own views on the matter. In some situations, we could ask them to provide personal interpretations of certain operations and use their assumptions as a basis for the assessment. Often, the interviewee has suggested other people to participate in the investigation or other sources of evidence. This has created the premise that an interviewee believes he has the role of "informant" rather than being responsible for the valued operations. Of course, there have been cases when they have had critical attitudes about the success of the investigation. We have often benefited from new perspectives on the subject, but have also suggested sources of helpful evidence or otherwise, providing access to these sources as well. We were very careful not to depend excessively on a single person because of the subtlety of the interpersonal influence he could have upon interviewers, thus relying on other sources of information to support the narratives received, and we looked with great care for contrastive evidence.

Given our supervision duties, we had the opportunity to visit credit institutions and their branches in the country at their headquarters; thus we were able to directly observe the operations of interest that are not exclusively of historical (archive) interest. The things we have noted have been a source of evidence for our study. These observations ranged from formal data collection activities, through the inclusion of findings in forms, field measurements of the incidence of certain types of behavior over time and nonconformities, to informal studies on the credit institution's own regulations, legislation, directives, etc. Direct observation was performed throughout the entire period of visiting credit institutions, including when collecting other evidence, such as interviews. Direct observations have been helpful in providing additional information about our theme. Direct observation has led to the assessment of a new dimension in the management of prudential supervision and of the banking information security mechanism in



the case of banking or non-banking credit institutions, with the view of ensuring financial stability.

The participatory observation was a special type of observation in which we were not mere passive observers, but, during the process of supervising banking and non-banking credit institutions, we had different roles on this process, from a specialist reviewer to prudential supervision to an interviewer, a direct observer, undertaking functional activities specific to prudential supervision.

The websites of financial institutions, European banking institutions and Romanian financial institutions, the National Bank of Romania, are an excellent source of data for our study on European and Romanian banking supervision, European and Romanian banking authorities on initiatives, foundations, recent developments, the unique mechanism of supervision, the unique resolution mechanism, the regulatory mechanism, capital adequacy mechanisms, European directives, laws, ordinances, regulations, procedures, bulletins, reports, special reports, etc.

In order to maximize the benefits provided by the sources of evidence, we have complied with three principles relevant to all these sources, which have helped us to solve the problems of determining the validity of the construct and the fidelity of the evidence of the study. The principles we have observed for data collection are: using multiple sources of evidence, creating a study database, and maintaining a logical succession of evidence. We considered the use of several different sources as the main strength of data collection for our case study. Our need to use more sources is much more relevant than in other situations, given the complexity, timeliness and dynamics of our theme in the European context of economic and financial situations. We have tried to combine personal experience in the field of banking supervision with field research at the country's banking and non-bank credit institutions. We also considered that the use of multiple sources of evidence is inherent in the case study, which allowed us to address a wider sphere of issues, from the start of financial supervision (historical) to the Unique Surveillance Mechanism, supervisory authorities, security Bank information, etc. But the most important advantage was that we were able to follow some convergent investigative lines, a process of triangulation of data sources (triangular data), triangulation of theories. The model we considered was the model of convergence and non-convergence of evidence, as in the figure below, which distinguishes between two hypostases: 1) when we really triangulate the data (the upper part: documents, archive information, open interviews) and 2) when using multiple sources in the same study, but for different events (Direct and Participatory Observations, Structured Interviews and Polls, Focused Interviews). (Yin, 2005, p. 124).

In the case of data triangulation, events and data related to prudential banking supervision and banking information security are explained by several sources of evidence (Yin, 2005, pp. 124-125), and when we used multiple sources but did not triangulate the data we actually obtained separate analyses for each source and a comparison of the conclusions of these analyses (Yin, 2005, pp. 124-125). By triangulating the data, we tried to prevent some construct validity issues as "multiple sources actually provide multiple measurements of the same phenomenon" (Yin, 2005, p. 125). The use of multiple sources was not an easy task: firstly, data collection from multiple sources is more expensive (cost of time) than gathering data from one source, and second, and more importantly, we had to learn how to apply the various data collection techniques, such as extracting and reviewing archive information about banking supervision and

banking information security, designing and conducting interviews, especially as the beginner researcher experience did not offer us too much help, compared to the professional experience in the field of research, which proved very useful.

The second principle we have followed relates to the way we stored and documented the data collected for the study, where the documentation is made up of two separate collections: 1) databases or evidence, and 2) the first and the second research reports I presented as part of the Research Project. We relied heavily on computerized data, and the sustained reports were submitted, as well as the thesis, in a printed version as well. As the distinction between a separate database and the study report (thesis) has not become an established practice, the study data is one and the same as the text of the report or the thesis, and interested readers have the opportunity to inspect the raw data that led to the findings of the study by accessing the sources quoted in the text. Our intention was that both the first and the second reports, as well as the final report (the thesis), should contain enough information so that readers can come to their own conclusions about our case study. Even though we have not been able to consolidate a database, we have used, on this issue: notes, documents, tables and narrative texts. Notes are the most common components of the database, from records during interviews to document analysis and analysis of files stored on electronic files. They can be effectively extracted from the electronic support of the dissertation or research reports by other people. Documents relevant to our case study have been collected throughout the course of the study and are found in the bibliography specifically annotated in the text. Annotations facilitate the organization and extraction of information so that other researchers can benefit from it. Tables and figures were either reproduced directly or designed by us from the database. They are organized and stored for future use. The narrative texts quoted in the content of the thesis or that of the first and second research papers, as well as part of the texts produced by us, can be taken into account for completing the database, not just for the final study report. This is reflected in our practice of giving open answers to study questions. In their final form, the questions and answers directly served the final report (the thesis), and will be more carefully described in the chapter referring to Data Analysis. Each response was an attempt to integrate the available evidence so as to converge the issues studied, the prudential supervision of banking and non-banking credit institutions, and the banking information security in a European context. Our goal in formulating the answers was to match them and to quote relevant evidence - whether coming from interviews, documents, remarks or archives. The basic objective of open responses is to document the links between certain evidence and the primary, contextual and embedded analysis units through quotes. The entire set of responses is part of the database, and is made available for possible future use in the final report. Last but not least, in order to increase the fidelity of information, another principle that we observed was to maintain a logical succession of evidence.

The idea was to allow an external observer to follow the line of reasoning linking all the evidence, starting from the initial study questions and going towards the final conclusions, but the steps can be followed in both directions (from conclusions back to the initial questions, or from questions to conclusions). We tried to move from one stage of the case investigation to another using the methodological procedures and the evidence obtained. This was the essence of the "logical succession" we wanted.

#### **IV.1. Collecting the evidence for the primary unit: MODERNIZING HISTORICAL METHODS FOR THE PRUDENTIAL SUPERVISION OF CREDIT INSTITUTIONS AND OF SECURITY IN A EUROPEAN CONTEXT**

**IV.1.1. Reform regarding supervision:** The establishment of the European Banking Authority (EBA), as part of the banking supervision mechanism created in 2011, which replaced the Committee of European Banking Supervisors (CEBS), has a more prominent role in regulating and ensuring prudential supervision, as well as in the legislative process; it also includes the role of consumer protection. Table. IV.1.1.

**IV.1.2. Developments in the process of creating a banking union.** The banking union is made up of the following components, Table IV.1.2:

**IV.1.3. European financial supervision following the introduction of the single surveillance mechanism (MUS).** In the period following the creation of the single supervisory mechanism - October 2013, the allocation of responsibilities between the EBA and the ECB had to be clarified, Figure IV.1.3.

**IV.1.4. Regulation of the European Union no. No 1024/2013** of October 15th, 2013 conferring on the European Central Bank powers as regards prudential supervision of credit institutions - Single Supervisory Mechanisms Regulation (OJ L 287, 29.10.2013, p.63).

**IV.1.5. Regulation of the European Union no. 1022/2013**, of the European Parliament and of the Council, of October 22nd, 2013, amending Regulation (EC) No 1093/2010 establishing a European Supervisory Authority (European Banking Authority) as regards the conferral of specific tasks upon the European Central Bank under Council Regulation (EU) No 1024/2013 (OJ L297, 29.10.2013, p.5).

**IV.1.6. Directive 2009/14 / EC** of the European Parliament and of the Council of March 11th, 2009, amending Directive 94/19 / EC as regards guarantee schemes as regards the coverage limit and the time limit for the payment of compensation (JOL 68, 13.03.2009, P.3); it ensures coverage of deposits up to 100,000 euro in all EU Member States. In July 2010, the Commission adopted a legislative proposal for a thorough review of the Directive with a view to harmonizing and simplifying national Deposit Guarantee Schemes, speeding up payments and improving the funding of systems. At the European Council meeting, on June 27-28th, 2013, EU leaders called for this proposal to be adopted before the end of the year.

**IV.1.7. Euro Zone Summit Meeting of June 29th, 2012.**

**IV.1.8. Towards a Genuine Economic and Monetary Union**, report presented by the European Council President Herman Van Rompuy, June 26th, 2012, p. 7 and "Roadmap to a Banking Union" COM (2012) 510 of 12.09.2012.

**IV.1.9. EU Regulation No.1093 / 2010**, of the European Parliament and of the Council, of November 24th, 2010, establishing the European Supervisory Authority (European Banking Authority), amending Decision no. 716/2009/ EC and repealing Commission Decision 2009/78/EC (OJ L331, 15.12.2010, p. 12).

**IV.1.10. The BASEL Banking Supervision Committee**, whose Basel III rules form the basis of global banking regulations, focuses on its own rate at the basic level 1, which is mainly formed of equity and reported profit.

**IV.1.11. ABE, Overview of the EBA 2011 Banking EU wide stress test**, March 18th, 2011.

*IV.1.12. The involvement of the new legislation applicable to the tax sector* to achieve the integrated framework for identifying imbalances, Table IV.1.12.

*IV.1.13. The involvement of new legislation on the correction of macroeconomic imbalances* in order to achieve the integrated framework for identifying imbalances, Table IV.1.13.

*IV.1.14. Implications of the New Economic Framework for Romania*, Table IV.1.14.

*IV.1.15. Reform of the European Financial Supervisory Architecture.*

*IV.1.16. Development of the security mechanism for the banking system* through bank resolution or state-aided restructuring of a credit institution, in accordance with the figures presented in the thesis.

*IV.1.17. The information security attributes* are those shown in Figure IV.1.17.

*IV.1.18. Regulation (NBR), no. 2/2012*, regarding the organization and functioning within the NBR of the Credit Risk Center, the availability of banking information following the Information Flow of the Credit Risk Center (CRC), as in figure IV.1.18.

*IV.1.19. Regulation (NBR), 1/2012*, on the organization and functioning of the Payment Incident Center at NBR, availability of banking information following the Information Flow of the Incident Payments Center, as in figure II.1.19.

## **IV.2. Collecting the evidence for the contextual unit: THE NEED TO MODERNIZE PRUDENTIAL SUPERVISION AND BANK SECURITY IN ORDER TO PROTECT THE INTEREST OF DEPOSITORS AND THE INSURANCE OF STABILITY AND VIABILITY IN THE BANKING SYSTEM IN THE NATIONAL BANK OF ROMANIA.**

*IV.2.1. The history of the financial crisis and the response of the European Union*, Figure IV 2.1.

*IV.2.2. The European supervisory architecture*, created in 2011, EBA is part of the European System of Financial Supervisors (ESFS), created in 2011 to ensure micro-prudential supervision. The ESFS consists of the European Banking Authority, the European Securities and Markets Authority (ESMA) and the European Insurance and Occupational Pensions Authority which, together with the national supervisory authorities, ensure micro-prudential supervision. The European Systemic Risk Board (ESRB) is responsible with macro-prudential supervision. These entities form the European supervision architecture, Figure IV.2.2.

*IV.2.3. The genesis of the international financial crisis, the causes of the economic crisis:*

"A. The accumulation of imbalance as regards the balance of payments in many countries (chronic deficits/surpluses) and B. The over-financing of the economies consisting of the global volume of excessive credits in relation to the dynamics of the real economy, a phenomenon achieved by the massive relaxation of the debtor's credit standards "(Georgescu, 2013, p. 5).

Accumulation of macroeconomic imbalances: Redistribution of wealth from wages and profits. Income and wealth inequality increased as in the graphs below: Figure. IV.2.3.1

B. The over-financing which consists of the rapid development, which is above the needs of the economy of the financial sector, schematically represented in figure IV.2.3.2.

*IV.2.4. The business model favored the financing of high risk mortgages*, Figure IV.2.4.

*IV.2.5. The indirect propagation of the economic crisis in Romania*, which took place through a variety of channels, as in Figure IV.2.5.

**IV.2.6. Net capital inflows** declined significantly after the financial crisis, as shown in Figure IV.2.6.

**IV.2.7. The necessity of resorting to EU-IMF-IFI financing**, imposed in order to avoid the disorderly and brutal adjustment of the Romanian economy, as in Figure IV.2.7.

**IV.2.8. The unsustainable rise in the external debt of the private sector** after the crisis, which was replaced, after 2008, by the tripling of Romania's public debt as in the box in Figure IV.2.8.

**IV.2.9. NATO accession and EU accession**, decisive moments for the development and modernization of the Romanian economy.

**IV.2.10. Aspects of the security concept**, the scheme in Figure IV.2.10.

**IV.2.11. Encryption with symmetric keys**, (model-adaptation), as in Figure IV.2.11.

**IV.2.12. Encryption with asymmetric (public) keys**, (model-adaptation), as in Figure IV.2.12.

**IV.2.13. Encryption system with asymmetric keys**, as in Figure IV.2.13.

### **IV.3. Collecting evidence for the embedded unit: MODERNIZATION OF HISTORICAL METHODS FOR SURVEILLANCE AND SECURITY THROUGH THE MANAGEMENT OF BOTH BANKING INFORMATION SECURITY AND PRUDENTIAL SURVEILLANCE MANAGEMENT**

**IV.3.1. The early reaction of the National Bank of Romania to the acceleration of lending** with the intensification of foreign capital inflows through a complementary use of monetary and prudential instruments as in Figures included in the thesis.

**IV.3.2. Foreign capital flows before the crisis and their reflux.** The external flows of bank capital have increased substantially since 2003, and their reflux since 2012, as in the box in Figure IV.3.2.

**IV.3.3. The high interest rates in Romania** attracted the flow of foreign capital, as in the boxes in Figures IV.3.3.1; IV.3.3.2.

**IV.3.4. Massive credit growth since 2004.** Based on external resources, banks in Romania have increased lending massively, as in the box in Figure IV.3.4.

**IV.3.5. Increase in internal credit demand during the economic boom period.** The increase in lending significantly increased internal demand during the economic boom, as in the box in figure IV.3.5.

**IV.3.6. Accelerated growth of internal credit demand.** The intensification of lending has led to an accelerated increase in internal demand, as in the boxes in Figures IV.3.6.1 and IV.3.6.2.

**IV.3.7. Encryption of information on the information flow of the CREDIT RISK CENTER with symmetric (secret)keys**, as in Figure IV.3.7.

It can be seen from the figure that from the CENTRAL HEADQUARTERS OF REPORTING PERSONS (established by the regulations and the law and presented in the previous chapters), encrypted information is transmitted by means of secret cryptographic keys, both their own keys and those of the TERRITORIAL UNITS OF REPORTING PERSONS, through secured channels, to CREDIT RISK CENTER (Central Credit File, Overdue Credit File, Group File, Card Fraud File), which decrypts the message with the same keys. The encryption key is transmitted by the CRC before the encryption process begins by a secure channel to the

reporting person and then to its territorial units. Also, by the same procedure, the transmission of the encrypted information from the NATIONAL BANK OF ROMANIA CENTRAL to the RCC and the REPORTING PERSONS and through them to their TERRITORIAL UNITS and the REVIEWED PERSONS. The encryption or the decryption key is transmitted by the CRC before the encryption or decryption process begins by a secure channel to: The National Bank of Romania, the reporting persons, the last ones in turn, to the territorial units and the persons reviewed.

In the opposite direction, the CREDIT RISK CENTER transmits encrypted information by secret encryption keys to the REPORTING PERSONS and through them to the TERRITORIAL UNITS OF REPORTING PERSONS or the REVIEWED PERSONS, as well as the NATIONAL BANK OF ROMANIA CENTERS. Respecting the encrypting principle of secret key algorithms, the CRC passes the encryption or the decryption key, before the decryption process begins, through a secure channel.

***IV.3.8. Encryption with symmetric (secret) keys of information on the information flow of the PAYMENT INCIDENTS CENTER***, as in Figure IV.3.8.

We can see from the figure presented in the thesis that from the CENTRAL HEADQUARTERS OF THE REPORTING PERSONS (established by the regulations and the law and presented in the previous chapters), encrypted information is transmitted by means of secret cryptographic keys, both their own and those of the TERRITORIAL UNITS OF THE REPORTING PERSONS, through secured channels, to the Payment Incident Center (National Payment Incident File, National File of Persons at Risk), which decrypts the message with the same keys. The encryption key is transmitted by CIP before the encryption process begins by a secure channel to the reporting person, and further to its territorial units or resident or non-resident physical/legal entities. Also by the same procedure, the transmission of the encrypted information from the CENTRAL NATIONAL BANK OF ROMANIA to the CIP and the REPORTING PERSONS, and through them to their TERRITORIAL UNITS, and resident or non-resident natural or legal persons, to the State Institutions with Supervision and Control. The encryption or decryption key is transmitted by the CIP before the encryption or the decryption process begins by a secure channel to: The National Bank of Romania, the reporting persons, the last ones in turn, to the territorial units and the persons reviewed, also to the State Institutions with attributions Supervision and Control.

In the opposite direction, the Payment Incident Center transmits encrypted information by secret encryption keys to the REPORTING PERSONS, and through them to the TERRITORIAL UNITS OF REPORTING PERSONS, RESIDENT OR NON-RESIDENT PHYSICAL / LEGAL PERSONS, STATE INSTITUTIONS WITH SURVEILLANCE AND CONTROL ATTRIBUTES, and the CENTRAL OF THE NATIONAL BANKS OF ROMANIA. By respecting the encrypting principle of secret key algorithms, CIP transmits the encryption or the decryption key before beginning the decryption process through a secure channel.

***IV.3.9. Encryption with asymmetric (public) key information on the information flow of the CREDIT RISK CENTER***, as in Figure IV.3.9.

If it gives an answer, the receiver will use the public key of the transmitter in the encryption process of the message so that decryption can be done by the transmitter with its private key. Obviously, each entity will have a pair of keys (both public and private), both as a transmitter and as a receiver.

"The keys of asymmetric algorithms are derived from a mathematical formula in the algebra of large numbers, so as from the value of a key the pair key cannot be detected" (Țigănoaia, B-D., 2013, p.38). This operation is performed by specialists with these entity attributes.

**IV.3.10. Encryption of information with asymmetric (public) keys on the information flow of the PAYMENT INCIDENTS CENTER**, as in Figure IV.3.11.

If a response comes, the procedure is the same as the one described above.

**IV.3.11. Signatures** on credit risk information and information on card fraud, in the case of CRCs, and signatures on payment incident specific information, in the case of CIP, represent a form of access management and control, as presented in the tables below that, upon completion, become documents.

This model is used for all documents containing information on credit risk and information about card fraud, both within the CRC and in the case of reporting persons, the reviewed persons or within the NBR.

B) Transmission to the National FNIP Payment Incident File, which is a file of general interest that contains payment incidents with checks (FNCs), bills of exchange (FNCb), promissory notes (FNBOs) reported by the reporting persons, then processed and distributed by CIP for public interest, including for the specific purposes of users under professional secrecy:

- in the first phase, the reporting person completes, in electronic form, the FORM FOR REPORTING THE BANK REFUSALS WITH CHECKS, BILLS OF EXCHANGE OR PROMISSORY NOTES, mandatory in all fields, digitally signed by the accredited person of the reporting person. After completing the form, it becomes a document that is transmitted on channels that are secret to CIP, Fig. IV.3.11.3.

- in the second phase, the CIP processes and spreads through the classified channels the data, in electronic format, to the reporting persons through the NOTIFICATION OF THE PAYMENT INCIDENTS CENTRAL CONCERNING THE SUSPENDING OR THE ITERATION OF BANK INTERDICTION (Fig. IV.3.11.4); it becomes a document after all the required data is completed and signed by the CIP accredited person with the digital signature.

The model presented above is used with all the documents containing information on payment incidents with checks, bills of exchange or promissory notes, both within the CIP and in the case of the reporting persons, of natural/legal persons, residents or non-residents, of the National Bank of Romania, of the Institutions of the State with Supervision and Control Attributions.

## V. ANALYSIS OF DATA

Data analysis is the chapter of the case study research strategy and consists of examining, classifying, tabling and testing the evidence. In other words, "their quantitative and qualitative reorganization in order to address the initial hypotheses of a study" (Yin, 2005, p. 135). In our case, we faced various difficulties because the strategies and techniques to be used have not been found in clearly defined bibliographies. However, there are three strategies that rely on theoretical assumptions, establishing a framework based on alternative explanations and developing case descriptions. Based on these strategies, we can use "five techniques specific to case study analysis: pattern matching, constructing explanations, time series analysis, logical models and comparative synthesis" (Yin, 2005, p. 135). The first four techniques are applicable to single-case and multi-case designs. In our investigation we took them into account, but the

challenge for us was to do a quality analysis, which made us give special attention to all the evidence we presented in Chapter III, objectively collecting evidence and showing an interest for exploring alternative interpretations.

Unlike an experienced researcher, we cannot claim that in this chapter we have excelled in analyzing the evidence of our case study, especially since this research structure is among the most developed and difficult aspects of practice without having the slightest idea of how the evidence should be examined. We have limited our analysis to examining the evidence from the analysis units we have established on the basis of the research hypothesis, in order to be able to demonstrate that the management of prudential banking supervision and banking information security, through the CRC and CIP Information Flows, causes the modernization of historical methods for banking supervision, with the view of obtaining bank stability and implicitly financial stability and ensuring the protection of depositors' interests and the stability and viability of the entire banking system.

In a personal approach, we have rigorously thought to present a sufficient amount of evidence and a meticulous examination of alternative interpretations. We tried to have an analysis strategy for the study as a whole. We created the matrix of categories, from the table below, for the classification of the evidence. The evidence presented was in the form of graphs, tables, cassettes, without the need to build, during graphical analysis, tables, data ordering, or the use of another temporal scheme. We used the pattern matching technique for alternative explanations.

## **VI. CONCLUSIONS**

As a result of our research, we reached the following conclusions:

A single EU-level supervisory system can ensure that all credit institutions are subject to convergent supervisory rules and practices. A supra-national supervisor will be much better placed to assess the risks posed by cross-border activities, thus enhancing financial stability and confidence in the euro area and in the emerging euro area.

European Supervisory Authorities publish and update drafts, technical standards for regulations, guidelines and final indications to help member states to agree on the guidelines, all banking risks, including the action aimed at combating money laundering and terrorist financing and obtaining bank security. Guidance actions are part of a wider activity that seeks to promote: consistent and effective approaches, both by credit institutions and by financial institutions that need these tools in decision-making processes to effectively manage their relationships, transactions and risks. Such approaches can be used by supervisors to align their approach to current needs.

The financial crisis has highlighted the importance of strengthening the banking system. This required the recapitalization of banks, which led to an increase in their ability to manage risks.

The reality of the support given to national authorities was preferred to the apparent financial integration, considered sufficient, but which is in fact superficial.

The existence of a unified banking crisis resolution mechanism will institutionalize solidarity between national financial and economic systems that will face major economic crises in the coming period.



The growing gap between profit and wages, in the process of distributing value, causes employees to resort to loans from banks, which in turn obtain their sources of borrowing from the beneficiaries of unfair distribution systems.

The crisis has confirmed the validity of the Keynesian idea that tells us that resources must be accumulated in times of economic upheaval for funding needed in times of recession.

One should keep in mind that economic activity is a specific human activity, so it can not only be technically operative, it has a connection with morality.

Removing harmful effects caused by the free functioning of the markets requires state intervention through appropriate regulations, in order to prevent the excesses, abuses and financial damage in Europe, and should be supported by all citizens. Market self-regulation is a utopia.

The progress made in the operational implementation of the Single Supervision Mechanism Regulation has led the ECB to take on new prudential supervisory powers for credit institutions to achieve MUS objectives such as: guaranteeing the security and solidity of the European banking system and enhancing integration and stability.

The Romanian banking system is dominated by non-residents, which hold 86% of the share capital and 90% of the banking assets. Banks with Romanian capital hold the same capital from 2012 to the present, of EUR 0.8 billion (10%).

The rapid credit expansion and the effects of the crisis have led to the accumulation of a high volume of non-performing loans, which has fallen from 21% in 2014 to 9.5% in 2016.

The banking system in Romania was very well capitalized and with a high level of liquidity, which was achieved through a prudential supervision model in continuous modernization. At present, Romania has sufficient money in the banking system, to a sustainable degree of external private indebtedness.

It is necessary to improve the financial education of the population and of companies as well, to transform banks into active factors of attracting clients, informing them on European practices, increasing the financial analysis capacity of bank officials, and vice versa, between clients and banks. They need to be aware that they need to become bankable, in order to access their credits, i.e. to have adequate financial capacity and to take responsibility for repaying the loan to banks under the agreed contractual conditions.

The monetary and prudential measures of the NBR contributed to strengthening the resilience of the banking system to shocks; additional liquidity and capital reserves; the capacity of banks to overcome the recent crisis without the use of public funds; maintaining financial stability. The Central Bank has access to "prudential information", especially in macroeconomic monitoring.

Supervision is essential for limiting moral hazard when a bank, in the absence of liquidity, asks for assistance to restore its solvency. The systemic risk argument is based on the relationship between prudential controls on credit institutions and risk assessment throughout the financial system.

The management of bank information security at the two CRC and CIP centers, by encrypting the information flow of the two centrals with symmetric and asymmetric keys: CREDIT RISK CENTRAL and THE PAYMENT INCIDENTS CENTRAL contributed to banking stability and implicitly to financial stability, while also ensuring the protection of depositors interests and the stability and viability of the entire banking system.

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## ACRONIME

ABE: Autoritatea Bancară Europeană  
ANC: Autoritățile Naționale Competente  
AND: Autoritatea Națională Desemnată  
BCE: Banca Centrală Europeană  
BNR: Banca Națională a României  
CCE: Curtea de Conturi Europeană  
CEBS: Comitetul european al inspectorilor bancari (CEBS - Committee of European Banking Supervision)  
CERS: Comitetul european pentru risc sistemic  
CIP: Centrala Incidentelor de Plăți  
CRC: Centrala Riscului de Credit  
CRD IV: Directiva privind cerințele de capital IV  
DG: Piața Internă și Servicii: Direcția Generală Piața Internă și Servicii  
EIOPA: Autoritatea Europeană de Asigurări și Pensii Ocupaționale  
ESMA: Autoritatea Europeană pentru Valori Mobiliare și Piețe  
FCC: Fișierul Central al Creditelor  
FCR: Fișierul Creditelor Restante  
FFC: Fișierul Fraudelor cu Carduri  
FG: Fișierul Grupurilor  
FNBO: Fișierul Național de incidente de plăți cu Bilete la Ordin  
FNC: Fișierul Național de incidente de plăți cu Cecuri  
FNCb: Fișierul Național de incidente de plăți cu Cambii  
FNIP: Fișierul Național de Incidente de Plăți  
FNPR: Fișierul Național al Persoanelor cu Risc  
FSB: Consiliul pentru stabilitate financiară  
G20: Grupul format din douăzeci de miniștri de finanțe și guvernatori ai băncilor centrale  
PIB: Produs intern brut  
SESF: Sistemul european al supraveghetorilor financiari  
SUA: Statele Unite ale Americii  
TARP: Troubled Asset Relief Program (program al SUA de salvare a activelor toxice)  
UE: Uniunea Europeană

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Fig. III.3.10. Schema de criptare cu chei asimetrice (publice) a informațiilor pe fluxul informațional al CENTRALEI INCIDENTELOR DE PLĂȚI

Fig. III.3.11.1 Formular de raportare a debitorilor, devenit document numai după completarea tuturor datelor cerute și după aplicarea semnăturii digitale de către persoana acreditată – colectarea datelor;

Fig. III.3.11.2 Formular Situația riscului global privind persoanele recenzate, devenit document numai după completarea tuturor datelor cerute și după aplicarea semnăturii digitale de către persoana acreditată;

Fig. III.3.11.3 Formular de raportare a refuzurilor bancare cu cecuri, cambii sau bilete la ordin, devenit document numai după completarea tuturor datelor cerute și după aplicarea semnăturii digitale de către persoana acreditată;

Fig. III.3.11.4 Formular de notificarea CIP privind suspendarea/reluarea interdicției bancare, devenit document numai după completarea tuturor datelor cerute și după aplicarea semnăturii digitale de către persoana acreditată;