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# The banking system and its supervision

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**THE BANKING SYSTEM AND ITS SUPERVISION**

By

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Master of BANKING, INVESTMENT AND FINANCE

Neapolis University Pafos

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2017

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the Degree of

**MASTER OF SCIENCE**

# **THE BANKING SYSTEM AND ITS SUPERVISION**

Dissertation

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# **CHAPTER 1**

## **MOTIVATION & AIM**

The aim of the study was to present the banking system and its supervision, and also study the impact of the crisis in Cyprus and Ireland.

Furthermore, the objectives of the study were to present the risks of the banking system and to examine the spread of the crisis in the financial and banking sectors. In addition, the study aimed to present and examine the capital adequacy and competition in the banking sector. Yet another objective was to investigate the situation in the construction and tourism sectors and the cooperation of Cyprus with the state of Ireland.

The reason for choosing this topic at the academic level is the author's desire to study the banking sector, considering that the subject is interesting at the theoretical level, and even more since this topic is also considered to be quite timely given the current crisis of all countries. In recent years, there has been a great deal of turmoil as a result of the global financial crisis, which originally occurred in the United States with a focus on bank failures soon to be expanded to other states. The economic crisis spread directly to the developed countries and then globally, with very bad consequences for every company and bank. With regard to the International Monetary Fund, the crisis is spreading directly to the real economy, resulting in the recession and decline in employment.

The Greek economy, due to the economic policy of internal devaluation, remains in a state of deep recession and high unemployment, with no obvious signs of recovery in macroeconomic aggregates. The significant decline in employees' and pensioners' incomes, as well as of the GDP, is accompanied by a marginal increase in exports and a sustained increase in public debt to the extent that it fails to become viable even with the help of international organizations (EU, ECB, IMF). These paths prove in the most clear and understandable way that the policy of internal devaluation in Greece, which was aimed

at the rise of exports and the economic recovery, by its reorientation from the domestic to the international economy, has failed.

In general terms, the macroeconomic elements of the Greek economy confirm the view that the declining trend of capital has more pronounced results than internal devaluation.

With regard to the Cyprus crisis and the current situation, the key elements that characterize the current picture are the fall of the entire market with a direct link to the banking sector. In comparison with earlier years with high interest rates and increased profits in banks, today the picture is very different, resulting in a continuous fall in all kinds of borrowing and direct fall in profits, as well as in fear on the part of the customers for any additional move. Moreover, there is no background for stimulating bank lending, while NPLs are increasing more and more over time. These effects, which are only a small picture of the underlying causes of liquidity decline, reflect the current image of the banking system.

## **CHAPTER 2**

### **THE BANKING SYSTEM AND ITS SUPERVISION**

Exploiting economies of scale from banks is largely due to the globalization of capital markets and to rapid technological development in the field of telecommunications and information technology.

It is necessary to establish a regulatory framework for the smooth operation of the system and crisis prevention, as the economic and social costs of a crisis are high. A crisis in the banking system is completed in three stages: the crisis-creating phase, the phase of the beginning of the crisis and the crisis-spreading phase and the systemic crisis.

Often there is an increased problem between the principal and the agent and there are particular problems of mismanagement in the state-owned banks. The corporate governance problem allows for the development of frivolous and dangerous asset management phenomena by the bank's management without taking into account the interest of the owners-shareholders of the foundation and in many cases managers are primarily interested in personal gain.

While rising inflation disrupts the country's macroeconomic stability, the government is increasing its official rate, leading to a decline in economic activity and a decline in demand and prices, especially in areas where the recent past has had high profits. The inability of borrowers to repay their loans in a timely manner is the result of tight monetary policy and shrinking economic growth. The spread of the crisis is determined by factors related to the underlying principles of economies that are influenced by investor behavior. With regard to investment behavior in the event of a country crisis, it is likely that foreign investors who have invested in the country in crisis will reduce their exposure to other markets that are considered to be at high risk, reduce their overall risk or withdraw funds from healthy markets to face potential liquidity problems. In both cases the

cost and information asymmetry problems reinforce the withdrawal of funds leading to a massive outflow of capital from these markets and the emergence of the bank's evolution.

The Basel Committee's regulatory framework is being improved with new rules when problems arise in the banking sector. So there is the Basel I, the Basel II agreement and the newly-developed Basel III agreement to be incorporated into the operation of banks in all countries

## **2.1 Regulation And Financial System**

The growth of the economy largely depends on the efficient allocation of the profits of the economic units. The financial system of each country has taken on the part of the conversion of savings into loans for investment in the production process. This is achieved by transferring funds from surplus economic units to deficit economic units (Battiston et al., 2016).

The role of commercial banks in bank-oriented credit systems, such as those of European countries, is to mediate between surplus and deficit economic units, to reduce the cost of credit transactions and to provide liquidity insurance thus aiming to annihilate the problem of imperfect and asymmetric information. The theoretical definition of a bank, as set out in the legislation of all countries stipulates that: "A Bank is an organization whose current business activity is to receive the deposits of the public and to grant loans" (Ruhl, 2016).

The bank, however, is not a simple intermediary, but is essentially a development phenomenon because it does not only transfer money but creates money itself, contributing to the economic development of the country (Brummer, 2015).

The creation of new money through debt issuance and not only the simple transfer of the preexisting money has the greatest economic importance, since the new purchasing power enables the economic actors to apply new technologies, which is the main driver of

the economic development. The structure of the banking system in recent decades has changed significantly. There are a growing number of banks gradually progressing to privatization and expanding their market share (Cochrane, 2014).

In a short time, a number of significant mergers and acquisitions have taken place and financial services have been developed with great variety and complexity. The liberalization and expansion of the banking sector led to an increase in credit growth and bank profitability, mainly in developing and developed countries, making the credit institutions as the most important development factors of an economy (Klomp and De Haan, 2015).

Nevertheless, the broadening of the banking sector appears to enhance the frequency and intensity of banking crises since the increase of the credit tools and their complexity has caused a corresponding increase in banking risks (Levin and Lo, 2015).

## **2.2 Regulation And The Banking System**

The inability of a bank to cope with one of the risks faced and the withdrawal of the depositors' confidence to this are the reasons for the onset of a crisis. The crisis spreads in the interbank market of the country and gradually most or all of the country's banking capital is depleted, causing the crisis in the banking system. Specifically (White, 2014):

*Table 2.1- Phases of Banking Crises*

<b><i>1<sup>ST</sup> PHASE: Creation Of The Bank Risks (Mismanagement):</i></b>
Bad Banking Operation
Bad Economic Environment
<b><i>2<sup>ND</sup> PHASE: Onset Of The Banking Crisis (Lack Of Confidence From Financiers):</i></b>
Foreign investors - Private lenders
International Organizations
<b><i>3<sup>RD</sup> PHASE: Spread Of The Banking Crisis (Banking Concern And Crisis In The Financial System)</i></b>
Domestic Interbank Market
International Organizations

### ***2.2.1 Risk Emergence and Creation***

The creation of risks, which arise during the first phase of the crisis, is what sets the conditions for the onset of the crisis and the starting point of a bank collapse. The causes of the creation of banking risks include the bad banking operation and the bad economic environment in which the bank operates. There is a reciprocal relationship between the microeconomic management and macroeconomic policy since both the structure and the quality of the financial system affect the macroeconomic stability of a country and the macroeconomic policies have a significant impact on the banking sector. Therefore, the creation of risks is the result of a combination of microeconomic and macroeconomic factors (Cheng, Hong and Scheinkman, 2015).

### ***2.2.2 Weaknesses in The Banking Operation***

One of the main risks causes is the bad operation of banks, which is characterized by: a) frivolous lending policies, b) high risk taking, c) poor management, d) lack of internal control, e) focus on increasing the market share and not on profitability and f) imbalance between due liabilities and cash availability. The characteristics of the problematic operation cause equivalent risks of collapse of a bank, when the institution does not ensure the offset of these by maintaining adequate capital and investing in safer positions (Tsai et al., 2016).

The divergence of aspirations between the shareholders and the managers leads to conflicts and focuses on issues related to the consumption of corporate resources to non-productive services and goods, excessive risk aversion and the emphasis on short-term investment decisions. Where the ownership is concentrated in a small number of individuals, there are phenomena of irrational and preferential lending to corporate giants, which are created with the support of a bank (De Rynck, 2016).

Often there are also phenomena of irregular transactions and fraud, which are favored by a climate of impunity. Political leaders usually allow the above operation of banks and financially support them, since the political costs of an intervention for the consolidation of the banking industry is high, while the economic interests resulting from the maintenance of the risky operation create strong pressures on political leaders. The bad operation can be observed in state-ownership banks, a significant number of which operates with the financial support mentality of government spending and privileged business financing. Thus, there is a distortion of the efficient allocation of resources and competition in the industry, significantly limiting the social benefits and the financial soundness of healthy banks (De Rynck, 2016).

### ***2.2.3 Weaknesses in The Economic Environment***

Although the crises are usually attributed to the mismanagement of banks, the causes are due to the negative developments in the broader economic environment of a country and the inappropriate macroeconomic policies. A macroeconomic disturbance is expected to affect citizens' income, significantly reducing loan repayments and creating problems in bank assets, while a disturbance on expectations for inflation or a possible devaluation will have a negative impact on the trend for deposits, adversely affecting the liabilities and reducing the ability for liquidation. The empirical research has shown that banking crises tend to follow periods of expansionary monetary and fiscal policy, accompanied by abrupt deregulation and liberalization of the financial sector fostering the competition of banks to maximize profits (Huang et al., 2015).

The above consistently drive the banks to change their portfolio towards the higher risk loans and to finance their assets with current liabilities without hedging the interest rate risk. This development coupled with lack of experience and proper preparation of supervisory authorities creates the conditions for the onset of a crisis that may well be achieved by the macroeconomic policies (Wetherly and Otter, 2014).

If the government follows an expansionary monetary policy in which the real short-term interest rates are negative and robust economic growth is recorded with rising prices, all the banks proceed to a great credit expansion, seeking to gain a greater share of the profits generated in the market during that period. Of course they know that at some point there will be maximum growth which will be followed by recession. However, the state will not allow the collapse of all banks or any international financial institution and banks have the illusion that they will be able to promptly disengage from the looming recession. Then the first problems of non-paid loans and liquidity appear and the state is not able to immediately resolve the situation (Alves and Francisco, 2015).



#### ***2.2.4 Risks in The Banking System***

The bad operation of the banking system and the adverse economic environment are the causes of the banking risks as already mentioned. However, the causes often appear from a combination of the above two. The more the credit tools increase and the capital market internationalizes, the more the commercial banks are burdened with the intermediation and management of financial risks. Intense competition in the banking area and the constant pursuit of profit maximization require the engagement of more and more credit institutions in risk taking and management. However, the profitability and reliability greatly depend on the management as an inadequate risk management threatens the solvency of the bank (Hoenig and Morris, 2014).

In order for a bank to support its solvency it should be able to cope and manage risks, such as credit risk, market risk, liquidity risk, operational risk, business risk and reputational risk. From the moment banks identify the risk, they are trying to politicize the potential loss in order to determine their management decisions and their policy, using techniques such as the disturbance simulation, the scenario analysis and the value analysis in risk (Errico et al., 2014).

#### ***2.2.5 Causes for The Onset Of The Banking Crisis***

The moment of the collapse of the banking system is the second phase of a banking crisis. The banking crisis is triggered the moment the confidence of one of the four financing sources is withdrawn as the bank management is not able to cope with the risks that have been created. The four main factors in financing the assets of banks are the depositors, the local government as guarantor, the private external creditors and intergovernmental financial institutions. Poor micro-management of banks in connection with the political changes reinforce the risks, the maintenance and expansion of which in

turn reinforce the distrust of financiers as to their capacity to cope with the developments. The distrust is followed by the withdrawal of confidence that translates to withdrawal of funds, creating liquidity problems. The ailing bank is going to collapse. The lack of confidence in the banking system or the collapse of the government leads depositors to withdraw deposits in order to secure their money (Claessens et al., 2014).

The immediate withdrawal of the depositors' positions is therefore the consequence of the fact that there are doubts both for the effective management of risks by banks and for the timely government intervention to reduce the crisis and guarantee the deposits, leading to loss of confidence towards the banking system. A similar trend is observed in cases of war conflicts and major domestic disturbances. Government policies have the potential to trigger the onset of a banking crisis mainly due to changes in political leadership and the policies that the new government decides to follow. Although government economic policies are responsible for the creation of banking risks, during the first phase of the crisis a change in the country's political scene is able to lead to the crisis (Lang and Schmidt, 2016).

Often, the new leadership policies wanting to correct problematic situations that have arisen in the past or wanting to relinquish the responsibility from larger problems in the future tend to abandon the injurious retention policies of a banking crisis that kept the troubled banks running. The banking institutions, in the context of the internationalization of the capital markets, are high funding recipients from external private creditors which lead to negative expectations of the international market for the local economy and thus to the withdrawal of foreign allocations. Particularly in developing countries, borrowing from foreign banks at times is high due to the high yields with the result that local banks become quite vulnerable to the expectations generated in international markets for the exchange rate and the domestic economic environment (Midtgaard, Vadlamannati and de Soysa, 2014).

Apart from the depositors, the local government and foreign lenders another financing source of the developing countries that do not have access to international capital markets are the international financial organizations. Many times these organizations undertake the consolidation of the financial sector and the financing of the country, and require the immediate implementation of reform programs and structural changes in the system. The withdrawal of support from an international organization to domestic government due to the absence of the required reforms may result in triggering a general crisis in the banking system. However a banking crisis could be triggered by the decision to accept the consolidation process in the banking sector, in accordance with the recommendations of the international financial institutions (Levine, Lin and Xie, 2016).

#### ***2.2.6 The Spread of the Crisis in the Financial and Banking Sector***

The banking system of a country is more susceptible to the onset of a crisis when it presents low centralization of the industry activity in contrast to the case of a centralized banking sector in which the profit margins are higher for banks which results in fewer incentives to assume high risks, thus reducing the chances for the onset of a systemic crisis. At the same time, the surveillance of a small number of banks is easier as opposed to systems consisting of many small banks. This results in the more efficient supervision of banks and reduces the transmission of the risk (Black et al., 2016).

The above hypothesis is disputed by scholars who argue that a banking crisis is more likely in a centralized system. This view is based on the fact that high rates of the centralized system lead in assuming higher investment risks by the borrowing companies, thus increasing the chances for the non-repayment of the loans by the companies. On the other hand, the small number of banks in a centralized system creates particular concerns to the managing authorities for the possible collapse of a bank, resulting in the emergence

of policies for the continuous strengthening of the banks because they are too big to fail, while strengthening the risk for the onset of a systemic crisis (Bekaert et al., 2014).

The collapse of a bank within the context of the banking interconnection leads to the inability to fulfil its obligations to other banks with which it cooperates. The spread of the crisis is the end result which is determined by the size of the interbank market. The risk of the dissemination of the crisis from a banking sector or the wider financial system to other sectors of the system that causes the destabilization of the real economy is characterized as systemic risk. The contribution of the systemic risk<sup>1</sup> in the onset of a banking crisis is high since the contagious and growth mechanisms that connect the banks significantly reduce the capital available to banks, thus spreading the crisis. Massive deposit withdrawal efforts resulting from the lack of sufficient confidence toward the credit institutions cause severe liquidity problems. The bank run<sup>2</sup> is characterized as a crisis, since after a short time the largest number of banks proceeds in hasty liquidation of their assets, thus reducing the value of their assets and therefore increasing the probability of bankruptcy (Goh et al., 2015).

The integration of financial markets and the internationalization of the banking market have created conditions for the spread of the banking crisis beyond the borders of a national banking system. (Calomiris and Haber, 2014).

In recent years there is an upward trend in cross-border bank acquisitions and mergers in an attempt of the banks to increase their size and presence in different countries, to create value and benefits and achieve better distribution and assimilation of the risk. But the diversification of the banks' portfolios that theoretically constituted the protection of the institutions against crises has proved insufficient in practice since the money and

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<sup>1</sup> The Group of Ten states that the systemic risk refers to the risk that will trigger the contraction of the economic value or confidence while boosting uncertainty towards a substantial part of the financial sector is important to bear impact on the economy.

<sup>2</sup> The bank run caused by the collapse of a credit institution causes contraction of economic activity and is responsible for the creation of monetary instability

capital markets show increasingly higher correlation coefficients between them. The global dimension of the operations of large banks, brokerage firms and other institutional investors contributed to the development of systemic risk transmission channels. Banks exploiting the opening of the markets and seeking to maximize their profits, grant loans to foreign companies, governments and foreign banks with low credit rating. The opening to international markets is accompanied by a significant expansion of activities of banking institutions in foreign countries where the margins are high, while the stability and viability of the local systems is questionable. Finally, the probability of systemic risk internationally is strengthened by the information asymmetry that characterizes the financial markets as the borrowers outweigh the lenders in terms of quality information on the risk faced by each, and so the latter become more exposed to risk (Caporale, Hunter and Ali, 2014).

Table 2.2- Banking Crises

<b>Year of identification of the crisis</b>	<b>Country</b>
1974	Germany
1975	United Kingdom
1976	Chile
1977	Spain
1978-1979	Germany
1980	Chant, Ecuador, Argentina, Egypt, Congo, Kuwait, Morocco
1981	Uruguay, Chile
1982	Turkey, Colombia, Mexico, Ghana, Italy
1983	Niger, Guinea, Israel, Philippines
1984	Mauritania, United Kingdom
1985	Guinea, Kenya
1986	Bolivia, Thailand, Portugal
1987	Mali, Peru, Costa Rica, Norway, Denmark
1988	Lebanon, Panama, Cameroon, Benin, Republic of Central Africa, Ivory Coast, Nepal, Senegal, Madagascar
1989	Sri Lanka, Argentina, Czechoslovakia, El Salvador
1990	Brazil, Bangladesh, Tanzania, Algeria, China, Japan
1991	Djibouti, Burkina Faso, Sweden, Finland, São Tomé and Príncipe, Liberia, Switzerland, United Kingdom, Italy, Luxembourg, Greece
1992	Bosnia-Herzegovina, Chant, Kenya, Estonia, Hungary, Slovenia, Congo, Nigeria, Zaire
1993	Cape Verde, Guinea, Kenya, Togo, Eritrea, FYROM, Spain, France
1994	Burundi, Zaire, Mozambique, Armenia, Estonia, Poland, Bolivia, Brazil, Venezuela, Uganda, Jamaica, France
1995	Zambia, Swaziland, Zimbabwe, Russia, Cameroon, Argentina, Mexico, Latvia, Lithuania, Georgia, Kirgizstan, Azerbaijan, Paraguay, Sierra Leone, United Kingdom
1996	Bulgaria, Croatia, Nicaragua, Ecuador, Rumania, Yemen, France, Italy
1997	Taiwan, Ukraine, Vietnam, Thailand, Indonesia, Korea, Malaysia, Czech Republic, Italy
1998	Guinea, Latvia, Slovakia, Philippines, Russia, Japan
1999	Albania
2001	Germany, Turkey

The classification of the crisis is in accordance with the estimation of the year that the crisis began, because it was not identified in time. Also, the individual bank crises in the EU are included. Prevention is the way in which a crisis can be addressed. Prevention includes all activities that will take place for the deterrence and effective control of a crisis, and its management, which includes limiting the negative consequences of a bank run and recovery efforts of the lost credibility of the banking system. Prevention should be the most important method to deal with a looming crisis due to the high economic and social costs involved (Carnevale and Mazzuca, 2014).

### **2.3 European Security and Market Authorities and the Management of the Crisis**

The recovery from the crisis and the restructuring of the banking system is achieved through relevant policies and procedures of governments. The economic situation and the ability of governments and their readiness are the factors that determine the policy to be followed by each government to deal with a banking crisis. Key priorities of the government are: a) the immediate identification of the magnitude of the problem by the government, b) the granting of public resources to cover the banking system problems, c) the prompt resolution of the problem of coverage of non-paid loans allowing healthy banks to continue operating, d) the promotion of consolidation procedures of the administrations of troubled banks and corporate governance, e) the strengthening of the safety net and particularly of the supervisory procedures, f) the improvement of information systems and f) the selection of macroeconomic policies that will restore the stability to the economy (Boin, Rhinard and Ekengren, 2014).

The cost of resolving the crisis is included to the overall cost brought about by the crisis in the economy and society of the country where it occurs. Public expenditure includes bold capital grants to credit institutions that are necessary to resolve the crisis.

There is a proportional relationship between the size of the crisis and the financial and production losses. Thus, the magnitude of the crisis determines the size of the financial and production losses, which means that the greater the crisis the more the financial resources needed to resolve it and correspondingly the greater the negative effects on growth. But there is a direct correlation of the above since the magnitude of the financial cost will determine in turn the duration of the crisis and the scale of the production losses (Boin, Busuioac and Groenleer, 2014).

Therefore, the greater the public expenditure on an immediate resolution, the smaller the duration of the crisis and accordingly the losses in terms of production are also limited. The empirical test of Bauer and Becker (2014) argues that the fiscal cost tends to be higher in countries with low income and those with a higher degree of banking intermediation, while the duration of the crisis is greater in developed than in emerging markets since the production losses during the crisis are greater in the first.

The long-term effects of a banking crisis are much greater from the short-term financial expenses to cover the bank liabilities. Financial resources are transferred from other productive uses abandoning plans of financial stability and limiting the growth rate of the economy because according to the Eichengreen et al. the consequences of a crisis reduce by one percentage point the GDP of the year of the crisis and by three percentage points the next year's GDP. The study of McNeil, Frey and Embrechts (2015) concludes that the overall economic losses during the crisis range from 15% to 20% of the annual GDP, while Vaughan-Williams (2015) argue that the revival of production starts from the second year after the banking crisis. The high economic and social costs of a banking crisis require the focus of the governmental efforts and of the relevant stakeholders on the ways to prevent a banking crisis.

In the context of the market economy, the financial stability is a public good, which should be provided by establishing the necessary institutional framework to ensure the



proper functioning of the banking system and to prevent a crisis. This institutional framework is the safety net, which is a set of measures and mechanisms, institutionalized or not, with the purpose of preventing or effectively suppressing a banking crisis. The components of the safety net are: a) the conditions for authorization, b) prudential supervision, c) monitoring and intervention policy, d) the guarantee of deposits, and e) the financial debt (Hoijtink, 2014).

The establishment and operation of a credit institution in a country is defined by the conditions for authorization and are usually determined by the supervisory authority of the system. The definition of the conditions is designed to ensure the capital adequacy, the ability of executives in the management and proper business ethics. The basic requirements are: a) the business plan, b) the deposit of a guarantee letter of a recognized credit institution with an equal amount of the share capital of the credit institution, c) the disclosure of the identification of shareholders, natural or legal persons that have qualifying holdings in the credit institution and percentage of participation, d) a declaration for the origin of the financial means of shareholders and e) the deposit of the principal at the Central Bank (Strange, 2015).

The main factor ensuring public confidence in the banking system is considered the prudential supervision of the banking system, and this is why it the most important component of the safety net. The imposition of a monitoring system of the investment strategies and risk-taking policies of the banks is a priority of the supervisory authority, limiting the chances of a systemic crisis onset. The supervisory functions are grouped into three categories: a) activities for the protection of investors, b) micro-prudential supervision and c) the prudential analysis at the macro level. Many studies have been developed regarding the body that should be entrusted with the supervision of the banking system and in particular the focus of the academic debate is between the central bank and another independent authority (Reason, 2016).

The supervisory authority of the country has undertaken the monitoring work and the intervention policy that refer to a continuous monitoring process of banks for compliance with the existing rules of operation, while the supervisory authorities intervene in case it is found that the operation of the bank is contrary to the prudential supervision rules. The interventionist policy takes either the form of penalties or the form of active participation of supervisors in risk reduction developed by the bank, possibly the spread of a crisis in the banking system (Baselga-Pascual, Trujillo-Ponce and Cardone-Riportella, 2015).

A type of consumer protection is the guarantee of deposits, which is limited to the payment of compensation to depositors, in bankruptcy cases and complete collapse of a bank. The Directive 94/19/EC of the EU promoted the harmonization of national TECs setting a minimum coverage limit of 20,000 for the EU economies. In addition to the deposit coverage limits, there is a differentiation as to the financing of the relevant Fund because the financing is based on the collection of regular contributions and the creation of a reserve or on the cost sharing process of the compensations, in retrospect, to the participating institutions. Some contributions are determined based on the perceived risk exposure of banks by imposing to the administrations of such banks, incentives for more effective management of risks and limiting the moral risk (Nurullah and Staikouras, 2015).

The refinancing lending or the role of last resort lender refers to the temporary financing of a credit institution that presents lack of liquidity, in order to restore the confidence and to ensure the solvency of the banking system. The incentives of depositors to withdraw their deposits from banks decrease with the establishment of the refinanced loan in a banking system, since they know that banks have instant access to cash in case of liquidity problems. In this way, they will always be able to meet the obligations of their depositors. Of course, a moral risk problem is created by the coverage of the lender of last resort to banks, because it allows the bank administrations to maintain a risky operation against the system's stability and the overall social benefit. Also, often there is a selection

problem of the bank to be financed since it is difficult to distinguish an insolvency situation. The central bank assumes the role of the lender of last resort. As part of its role, the central bank should intervene, on an optional and temporary basis, in healthy cases of lack of liquidity by lending with the imposition of a penalty. The collapse of the ailing bank will generate implications to the banking system, which, in any case, must be taken into account (Koch and MacDonald, 2014).

The views differ as to whether the role of the lender of last resort should be taken by the central bank or whether the role can be delegated to another authority. But in the vast majority of cases, the central bank assumes the role of the lender either by tradition or because of the ability to directly provide liquidity. Finally, in recent years, there is a debate regarding the existence of an international lender of last resort, like the IMF, but the differences of the national financial interests do not allow the internationalization of the lender role (Olson and Wu, 2015).

International cooperation in issues of regulation, supervision and monitoring of the markets is considered of particular importance because of the internationalization of the capital and money markets. A better understanding of the existing and emerging problems of the financial system and the timely adoption of preventive measures of a systemic disturbance, are the result of an effective international supervisory cooperation. The gradual consolidation of the European banking sector may require the existence of a European safety net which will prevent a banking crisis (Quaglia, 2014).

## **2.4 Supervision of the Banking System and the Economic Crisis**

The prudential supervision of the banking system is the most important component of the safety net. To achieve the stability of the system and the protection of depositors, the pursuit of supervisory measures to reduce disincentives of banks in reducing asymmetric

information is essential. Over the past two decades, the concept of prudential supervision is almost identical to the Accord of the Basel Committee, the core of which is the capital adequacy against the risks assumed by banks. Since the late 1980s, when it filed the first Commission proposal (Basel II) was submitted, the capital adequacy in many countries constitutes the subject for substantial academic criticism that stems from two different theoretical approaches (Black et al., 2016).

The regulatory approach identifies the need for a regulatory framework for the operation of banks and focuses its criticism, mainly on the height and elasticity of the capital requirements to strengthen the competitiveness and to reduce the incentives of the hazardous management of the banks' assets. Unlike the deregulatory approach questions the effectiveness of the regulatory and supervisory standards arguing firstly that the safety net in general prevents the creation of a robust and competitive sector in the context of a perfect market where firms entering and leaving and secondly that the capital adequacy enhances the incentives of banks to engage in a risky management of their assets (Haas and Lelyveld, 2014).

## **2.5 Capital Adequacy and Risk-Taking**

The core of most national and international prudential banking regulations is the capital adequacy of a bank and constitutes the regulatory capital required to be held by each institution depending on the size and management of its assets. In case of unexpected changes in the economic environment, regardless of the determination of the regulatory capital, the credit institutions use similar techniques to what they characterize as economic capital or capital at risk, which is the capital that is sufficient to maintain their rating. The required regulatory capital is determined by the supervisory authorities and is based on the banks' assumed risk (risk-based regulatory capital) or it is flat for all banks. Depending on

the phase of the economic cycle, banks adapt to changes in the capital requirements of the balance sheet. During the growth phase of the cycle, the coverage of an increase in capital requirements could stem from the equity since profitability is high, while in the recession phase the coverage is likely to be achieved through the reduction of loan grants since the contraction of the economic activity reduces the demand for loans and increases the risks (Berger, Kick and Schaeck, 2014).

An important parameter for determining the banks' reaction to the change in the capital requirements is the withheld capital level before the change. There will be negative consequences for the insufficient banks from the possible failure of the regulatory capital, which significantly affects their solvency and reputation. Thus, banks with low regulatory capital before the change, in the event of an increase in capital requirements, increase faster and more the relevant rates compared to the banks with satisfactory regulatory capital before the change. But according to Chalermchatvichien et al., (2014), the level of the regulatory capital determines the size of the risk exposure of banks. Therefore, a bank with a very low percentage of regulatory capital is significantly exposed to the risk, suggesting that the moral risk is very likely for banks that are close to insolvency. The choices of institutions are significantly determined by other factors such as the business cycle, the structure and competitiveness of the sector and the corporate governance model. For this reason it is difficult to determine a bank behaviour model in case of a possible increase in capital requirements.

The theoretical discussion between the two approaches is developed in the form of three dilemmas with a focus on capital adequacy: a) the dilemma of capital adequacy or risk-taking, b) the dilemma of the capital adequacy or the banking sector competition and c) the dilemma of capital adequacy or the development of the economy (Berg and Kaserer, 2015).

### ***2.5.1 Capital Adequacy and the Competition in the Banking Sector***

The second issue that arises from the debate is the capital adequacy and competition, particularly with respect to the competition with other financial companies and the profitability of banks. According to the deregulatory approach, the competition between the institutions of the sector is strengthened due to the lack of a regulatory framework (Aktas et al., 2015).

The existence of a regulatory framework enables the survival of troubled banks, eliminating the positive effects that a competitive and healthy banking sector would have on the market, in which the institutions will be entering and leaving according to their survival capacity in a fully competitive environment. The effective operation of the sector is guaranteed by the competition. In particular, through a screening process the businesses facing mismanagement problems and failed options are eliminated while the quality and variety of the intermediation services and payment is improving (Chakrabarti, 2015).

In contrast, according to the regulatory approach, the failures of the banking market are ignored noting that the competition in this sector can be achieved with common rules for all banks in a dynamic regulatory framework within which the smooth operation of the sector will be ensured and the investors will be protected. In the competition situation, the capital requirements are more effective than a single level of deposit guarantees<sup>3</sup>. According to Boot and Marinco, the competition in the banking sector is strengthened by the capital requirements. If the capital requirements increase, then new institutions can gain access to the banking sector because the competitiveness of the quality of banks is limited and the competitive banks can enter faster in the banking sector. Also, in recent decades, there has been a shift in relation to the sources of financing of investment activities by banks in the capital market. Under this situation, there is intense concern about the

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<sup>3</sup> The guarantee of deposits can create distortions to the competition in favor of the low-quality banks. Criticism of the deregulation approach can stem from the deposit guarantee. The risk-based capital requirements is the most effective regulatory tool and reduce the advantages brought about by the deposit guarantee in the low quality banks

disadvantages of the introduction of capital requirements on the competitiveness of banks in relation to financial companies that operate in the capital market. Regarding the deregulatory approach, the imposition of capital requirements may limit the competitiveness of banks because the regulatory capital increase the investment financing cost, and in this way the companies resort more easily to the capital market (Haufler and Maier, 2016).

Moreover, the direct connection of the change of the financial preferences of companies with the financing costs from banks is difficult. The competitiveness of the banks is directly related to the profitability, and consequently testing the effects of the imposition of capital requirements on profitability is necessary. Many times, the supporters of the deregulatory approach believe that the short-term profitability and the progress of the company may be affected by any external interference and that this situation may affect the viability of the business itself in the future (Barrell, Karim and Ventouri, 2016).

Therefore, if the amount of the regulatory capital required is higher than the amount of the capital that the bank would voluntarily retain or from the amount that would be determined by the market, then the capital requirements are characterized as external constraint on the operation of a bank and thus influence its profitability. However, it is possible that the maintenance of regulatory capital to be evaluated positively by the markets because of the enhancement of the bank's solvency thereby reducing the financing cost of the banks' assets (Mili et al., 2016).

Another way to address the disadvantages of capital requirements on banks' profitability is the market valuation by monitoring the fluctuations in the banks' share prices during the period of the announcement for the establishment of a new level of capital requirements. If the capital requirements are higher and are perceived negatively by the market regarding the profitability of the market, then this profitability will translate to a reduction in the banks' share price. Studies of Curado, Guedes and Bontis (2014) point to a

negative relationship between the introduction of capital requirements based on risk and the price of the banks' shares with repercussions on the profitability of the banks<sup>4</sup>.

### ***2.5.2 Capital Adequacy and Economic Growth***

Another issue refers to the selection of capital adequacy and economic growth. The question is how the capital requirements are associated with credit expansion and the role they play in the economic growth. When the capital requirements increase the banks' credit decreases and so the loan supply and the production activity are reduced (Karim et al., 2014).

The question mainly arises in times of recession when the stability of the banking sector requires increase retained bank capital enhancing the likelihood of a credit contraction (as in the case of Japan) with an impact on the economy of the country<sup>5</sup>. Many times, the supervisory authorities of the banking sector receive pressures regarding the decisions to be taken by the political authorities of a country. The politicians want to take steps that will positively affect the development of a country, so the action is delayed until the situation in the banking sector worsens<sup>6</sup> (Chalermchatvichien et al., 2014).

Banks reduce lending and this is evidenced by the close relationship of the bank financing with specific sectors, namely businesses and the real estate market. Gupta et al., (2014) study and analyze the effect of the regulatory capital on the real estate market in the US. They noticed that entrepreneurs invest less for buying real estate in times of economic crisis due to reduced lending by banks. Small businesses are affected considerably because

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<sup>4</sup> Both studies are based on three announcements in the period 1986-1988 for the US banking sector. The analysis of Eysell and Arshadi focuses on 27 major banks in the country and the analysis of Madura and Zarruk (1993) includes a larger sample and shows how the negative effect on the share price is observed among the largest banks in the sample

<sup>5</sup> There is a negative relationship between the economic cycle and the capital requirements because in periods of decline in economic activity there is an increase in capital requirements

<sup>6</sup> The politicians want the quickest recovery of the economic cycle and the strengthening of economic activity in order to avoid the problems created in times of recession and to create more favorable conditions, which is a purpose opposite to that of the supervisory authorities.



their investments depend significantly on the banks. In contrast, large companies have the ability to find different capital market financing sources.

## **2.6 The Basel Committee on Banking Supervision (BSBC)**

The Basel Committee on Banking Supervision (BCBS) was established in 1974 and consists of the central bank governors of the member states of the G10 who convene four times a year. Its members are representatives of central banks and other supervisory authorities of the following countries: Netherlands, Belgium, Luxembourg, Sweden, Switzerland, Germany, France, Canada, Italy, UK, USA, and Japan. The Committee has no legal authority and operates under the supervision of the BIS (Bank of International Settlements) headquartered in Switzerland. As mentioned above, the Committee has no legal power and aims to provide guidance for the smooth operation of the banking institutions. Therefore, the new banking operation framework was associated with capital adequacy. (Mignola, Ugoccioni and Cope, 2016).

### ***2.6.1 The Basel Accord I***

The Basel Accord I emphasized on the bank capital requirements to risks that result from the bad behavior of the borrowers (e.g. insolvency, default). Basel I concerned the minimum level of capital that a bank should have in relation to the credit risk exposure of its loan portfolio, and it was set at 8%. The minimum capital adequacy helped to prevent unfair competition between banks which appears due to the different capital requirements in force in each state<sup>7</sup> (Cummings and Durrani, 2016).

For the first time Basel I linked the amount of own capital with the credit risk and the market risks and established the solvency ratio to address these risks. More specifically,

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<sup>7</sup> For Factoring companies the rate of capital adequacy was 10%.

the solvency ratio is defined as the ratio of own capital for regulatory purposes\* of the credit institution to the risk weighted assets, including the off-balance sheet bank assets. Specifically the Capital Adequacy Ratio (CAR) is (Cummings and Durrani, 2016):

$CAR = \text{Regulatory Capital} / \text{Risk weighted assets}$

which is  $CAR > 8\%$

$CAR = \text{Conventional Regulatory Capital} / \text{Risk weighted assets}$

Which is  $CAR > 4\%$

## 2.7 Pillars of Basel I

The regulatory framework of Basel I is based on four pillars:

**1. First Pillar (Constituents of Capital):** The first pillar is known as “Constituents of Capital”. It refers to the types of equity capital included in bank reserves and their percentage. There are two types of capital called Tiers. Tier 1 includes the liquid assets while Tier 2 includes the so-called hybrid securities which are derived from fixed assets liquidation. It should be noted that Tier 1 and Tier 2 must be in the same currency.

**2. Second Pillar (Pillar II):** The second pillar consists of the “Risk weighting” and refers to the establishment of a risk assessment system in bank assets, which includes five categories that are differentiated on the basis of the involved risk (Tang, 2014):

- The first category is charged at 0% and includes risk-free assets, like cash.
- The second category is charged at 0% and includes low risk assets such as loans given to banks of the OECD members and government requirements

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\* Own capital is the regulatory capital without the intangible assets and provisions

- The third category is charged at a rate higher of 50% and includes mortgages. Initially the residential properties were included and then the commercial properties. It is mandatory for all properties to have a prenotation\*.
- In the fourth category, the rate reaches 100% and includes the high risk assets. An example of this category is the loans given to banks of non-OECD members states.
- The fifth category includes assets at any rate categorized according to the banking crisis.

It must be emphasized that the second pillar is associated with circulars relating to high risks namely large financial exposures. Such circulars specify that a risk-client cannot exceed in finance 25% of the bank's equity capital and the total risk-clients with a balance higher than €100.000 may not exceed 8% of the bank's equity capital.

**3. Third Pillar (A Target Standard Ratio):** The third pillar (A Target Standard Ratio) connects the first and the second pillars. The third pillar requires banks that have adopted Basel I to maintain assets that are burdened with the coefficients of the second pillar of up to 8% of their total assets. This rate appears sufficient to cover the minimum capital requirements and to hold the banking system from potential credit risk.

**4. Fourth Pillar (Transitional and Implementing Arrangements):** On the fourth pillar (Transitional and Implementing Arrangements) the Basel Committee requires the central banks to build a strong supervisory system that will apply its instructions. The Basel Committee has applied the international supervisory system with the minimum requirement of a uniform capital adequacy ratio. The calculation of the 8% of the adequacy ratio is performed in the same way by all banks, while with the fourth pillar the review involved the addition in the weighted assets of the trading portfolio so as to represent the market risk in addition to the credit risk. These assets vary depending on the risk arising

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\* There are no rules requiring that it must be the first prenotation

from the price changes in exchange rates, equities, interest rates and other market parameters. It has been found that the market risk is more complex than the credit risk because there is a possibility of error. The only way to address this risk is to diversify it. The supervisory authorities therefore took into account all the parameters to compensate for the risk among securities that have a negative correlation between them. The Basel Committee attached great importance to the market risk and since 1998 it has urged banks to use internal models based on the methodology of the maximum potential loss. Although the Basel Committee has set strict rules, there were major causes which contributed to the bankruptcy of some banks. For this reason, the Basel Committee considered necessary the development of the new regulatory framework, called Basel II, in order to cover this risk, which was called operational risk. Therefore, certain modifications had to be made to the new regulatory framework as in any revision. Together with the integration of the operational risk there was an attempt to improve the effectiveness of banks in relation to the capital adequacy requirements through incentives to healthy borrowers for financing and by “punishing” the banks that chose to spread the volume of their work by granting loans to non-creditworthy borrowers. It was certain that the Basel I regulatory framework would give incentives for “supervisory arbitrage”, since the regulatory framework provided for a minimum capital adequacy of banks at 8% of their total assets. Analytically this meant to achieve strong profit margins of low-grade business loans, without the simultaneous increase in required capital. The consequence was to degrade the quality of the loan portfolio of several banks without a parallel increase of capital requirements and provisions for bad debts (Tang, 2014).

In 1999 the Basel Committee published its review of the regulatory framework. Initially, the revised regulatory framework related to regulatory equity capital. Also because the banking system is a key factor in the development of a country since there are problems in the economies if the banks are experiencing difficulties. For this reason special

attention was required by the competent institutions to find an appropriate solution. Finally it should be mentioned that the guidelines of the regulatory framework of Basel I are incorporated into the national legislation States. Although the guidelines were addressed to developed countries, several emerging countries have incorporated the guidelines in order to achieve economic stability and access cheap money, conditions that attract foreign investment (Pagliari, 2014).

## **2.8 The Basel II Accord**

The weaknesses of the Basel Accord I and the market requirements have led to the need to conduct operations to achieve its revision. Responsible for this revision was the Banking Supervision of the Basel Committee and the European Commission. In 2001, the Banking Supervision of the Basel Committee presented the new document with new ideas and expiry date of implementation in 2004. The European Commission supported these ideas, but mainly emphasized on the proposals concerning the Monetary Union. In June 2004 the Basel Committee published a document entitled “a new framework for capital adequacy”, which initiated the process of revising the Basel Accord I. The new regulatory framework was called Basel II and was based on three pillars: the pillar of minimum capital requirements, the pillar of the supervisory control and the market discipline pillar. The objectives of the Basel Accord II are (de Jesus Santos, da Silva Macedo and Rodrigues, 2014):

- To maintain the Basel I objectives as regards the maintenance and stability of the international financial sector by strengthening competitiveness and taking risks.
- The emphasis on market transparency and the supervisory review.

The new regulatory framework is based on three pillars

**1. First Pillar: Minimum Capital Requirements:** The first pillar focuses on the methods of calculation of capital adequacy of banks. Banks consider two types of credit risk: a) the internal rating approach and b) the standardized approach. The comparison of the capital requirements of banks plays an important role in distinguishing these methods. Also, according to the first pillar bank assets are weighed against the operational risk. The minimum capital adequacy ratio is given by the following formula: a) Minimum capital adequacy ratio (Basel II), b) Regulatory Capital / Credit Risk + Market Risk + Operational Risk. The standardized approach approximates more accurately the fluctuations in credit risk and the scale of the weights on the credit risk ranges from 0% to 150%, while in some cases this is 35% and 75% (Table 2.2)

*Table 2.3 Standardized Approach - Risk weights*

Counterparty type	BASEL I	BASEL II (Ratings by Standard&Poors)					
		AAA to AA	A+ to A-	BBB+ to BBB-	BB+ to B-	< B-	Non-rated
States and Central Banks	OECD members: 0% Non- OECD members: 20%	0%	20%	50%	100%	150%	100%
Banks and investment service companies	OECD banks: 20%	2%	50%	100%	100%	100%	100%
	Banks with OECD: 100% Multilateral development banks: 20%	20%	50%	50%	100%	50%	50%
Companies	100%	20%	50%	100%	100% 150%	100%	100%
Retail banking - mortgages	50%	35%					
Retail banking - other loans	100%	35%					

Source: S&P classification

More specifically, the first pillar of the Accord<sup>8</sup> (Kumar, Banga and Sharma, 2014):

➤ Differentiates the existing standardized approach for calculating capital requirements.

This method emphasizes the risk and does not make changes in performance risk weights.

➤ Accepts the calculation method based on the internal rating approach (IRB). With this method the banks calculate the risk by internal rating parameters.

*Table 2.4- Parameters of internal rating approach*

Parameters of internal rating approach	
PD	Probability of Default Statistical estimation of default probability
LGD	Loss Given Default Recovery rate in case of default
EAD	Exposure at Default
M	Maturity Duration of exposure

Source: [www.hba.gr](http://www.hba.gr)

**2. Second Pillar:** Supervisory authorities monitor banks to ensure the capital adequacy and develop risk management. Banks with their internal rating system ensure the desired level of capital adequacy. This system should include supervision, supervisory capital assessment processes, risk monitoring and internal control. The supervisory authorities for their part should control the internal procedures for assessing capital adequacy and may intervene if they consider it necessary in case of improper functioning of the internal system. Finally, the supervisory authorities should require banks to have a

<sup>8</sup> International Convergence of Capital Measurement and Capital Standards

higher supervisory capital level from the smallest Basel II ratio on the grounds that the banks should be protected against any uncertainty and any risk.

**3. Third Pillar:** The third pillar refers to the power of the market in relation to the banks and on the capital adequacy. The market announces the financial data of the banks and so the investors have the opportunity to evaluate banks and to perceive the risk (Kumar, Banga and Sharma, 2014).

*Table 2.5-The Institutional capital adequacy framework in force on 3/12/2006*

(i) PILLAR I - CALCULATION OF MINIMUM CAPITAL REQUIREMENTS
<p>Two stages of minimum capital requirements (calculation / analysis)</p> <p>1st stage (calculations)</p> <ul style="list-style-type: none"> <li>• Definition of regulatory capital</li> <li>• Minimum capital adequacy ratio of 8%</li> <li>• Calculate weighted assets</li> </ul>
<p>2nd stage (analyzes)</p> <ul style="list-style-type: none"> <li>• Risk-weighted assets against market risks <ul style="list-style-type: none"> <li>➤ Position Risk <ul style="list-style-type: none"> <li>- Internal Designs (Var)</li> <li>- Duration index method</li> <li>- Standardized approach</li> </ul> </li> <li>➤ Counterparty risk</li> <li>➤ Significant financial exposures</li> </ul> </li> <li>• Risk-weighted assets for credit risk <ul style="list-style-type: none"> <li>➤ Standardized approach</li> </ul> </li> </ul>



(ii) PILLAR II - REGULATORY CAPITAL ADEQUACY TESTING PROCEDURES

Four basic principles

- Internal total capital adequacy assessment process
- Supervisory assessment of internal capital adequacy assessments and compliance with minimum levels
  
- Enforced retention of higher than the minimum capital limits
  - Conducting supervisory controls

Fields of application

- Interest rate risk of the banking book
  - Operational risk
    - Credit risk
    - Definition of default
  - Simulated crisis situations
  - Concentration risk Y
    - Residual risks
    - Securitization

(iii) PILLAR III – MARKET DISCIPLINE

- Information disclosure policy
- Analysis and risk assessment:
  - Credit
    - General description
    - Standardized approach
    - Internal rating systems
    - Risk mitigation techniques
    - Securitization of receivables
    - Investment portfolio shares
      - Market
        - General description
        - Standardized approach
          - Internal designs
          - Operational
          - General description
- Advanced Measurement Approaches
  - Interest rate
    - General description
    - Standardized approach
    - Capital structure and adequacy

## **2.9 BASEL III: The New Regulatory Framework**

The international financial crisis was the main cause for the reformation of a new regulatory framework for the Basel III, while previously the Basel Committee had established the Basel I and Basel II (Dietrich, Hess and Wanzenried, 2014).

### ***2.9.1 Sources and Necessity of Basil III***

The Basel Committee on Banking Supervision published the following on December 16, 2010.

- Basel III: A global regulatory framework for more resilient banks and banking systems
- Basel III: International framework for liquidity risk, standards and monitoring

We refer to publications made in 2008 for the international financial crisis (2007-2009) because changes are published constantly, i.e. on 13 January 2011, the Basel Committee announced a new press release: “Basel Committee issues final elements of the reforms to raise the quality of regulatory capital” (Catalli et al., 2016).

These publications are intended to make the international banking system more powerful through micro-prudential and macro-prudential intervention. The first case concerns the support banks in times of great intensity and the second addresses the systemic risk that would be created.

The term “financial macro-prudential”, the subset of which is the macro-prudential regulatory intervention, is composed of the policies adopted to limit the exposure of the financial system to the systematic risk, which results from factors that do not concern individual financial service providers or individual market and infrastructure of the financial system, but have a more general character. The macro-prudential intervention

seeks to address the two dimensions in which systemic risk manifests (Angelini et al., 2015):

a) The first is the time dimension, namely the development of systematic risk over time. In this context the macro-prudential policies aim at enhancing the resilience of the financial system in times of economic downturn by limiting the procyclicality, which can lead to the rise of the systemic risk due to interactions developed either within the financial system or between the financial system and the real economy.

b) The second dimension is the cross-sectional dimension, namely the distribution of risk in the financial system at any given moment. In this case, the objective of the macro-prevention policies is to reduce the concentration of systemic risk which may occur either because of the simultaneous exposure of more financial service providers to risks from similar exposures, or because of the interconnectedness of these entities (and the transmission of the problems between them), especially if they are systemically important financial institutions (Huertas and Lastra).

Therefore, the main purpose of Basel III is the macro-prudential and regulatory intervention and according to Hannoun, the "Basel III" is an "enhanced Basel II plus a macro-prudential overlay. The Basel Committee is responsible to make the relevant changes on the new regulatory framework in order to avoid any possible risk. At EU level, the adoption of the work of the Basel Committee has been completed with the adoption in 2013, of the Regulation and Directive of the European Parliament and of the Council which will bring about sweeping changes in provisions of Directives 2006/48/EC, and the addition of new chapters (Angelini et al., 2015).

In 2007 the first signs of the global financial crisis began to show. The main area affected by the financial crisis was the banking sector. Most states have included in their national law the Basel II provisions. In detail the causes of the financial crisis were the following (Rubio and Carrasco-Gallego, 2016):

- Huge increase of the banking system with a fairly large number of banks. Although the rates of capital adequacy were dynamic, the resurgence of the banking system began to weaken them. So the banks found an outlet with the regulatory capital arbitrage methods in order to reduce the implementation costs of the regulatory framework and to securitize the accounts receivables<sup>9</sup>.

- In addition, it was found that banks faced a problem with stocks liquidity. According to the Basel Committee at the beginning of the economic crisis showed that while a great number of banks claimed they had capital adequacy, it was proved that they faced a big problem and that because their liquidity was poorly managed. This shows how important the liquidity in the banking sector is and in the financial markets in general.

Particularly before the crisis the bank financing took place at a low cost (especially from debt markets and the interbank market) and was adequate. With the crisis, the sharp reversal of the market conditions highlighted the speed with which the banking system can run out of liquidity. This necessitated the resorting of the affected banks to their central banks for financial support which led the latter to adopt the known as unconventional monetary policies (Howarth and Quaglia, 2016).

- Insufficient risk prevention. In particular it is clear that the international financial crisis was evident, but nevertheless the inadequacy in implementing measures to address it was also pronounced. According to the provisions of Basel II the banks could grant loans more easily in times of economic boom when the capital requirements for these loans were milder. In contrast, during the period of economic recession the banks grant loans difficulty since the capital requirements become more stringent.

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<sup>9</sup> Securitization of receivables is the grouping of similar requirements of all the assets such as credit card debts, mortgage loans in a portfolio and the assignment of receivables to a company called Special Purpose Vehicle (SPV). This entity issues securities. The money received after the sale of securities is transferred to the bank and the receipts of interest rates and amortization of the assigned loans are used for the payment of interest rates and amortization of the securities issued by the special purpose vehicle.

### ***2.9.2 Impact of the Financial Crisis and the Commission contribution of the Basel III***

The financial crisis reached its peak in a short time and in 2008 the markets were pushing banks to reduce their growth. Most banks were not able to absorb the damage caused by the economic crisis. Therefore, they reduced the value of their assets and the lending to companies and individuals. This resulted into negative effects on the economy of most countries and in order to rescue the banks and the entire banking system, the governments intervened and created fiscal imbalances, some of which were developed into financial crises (Angelini et al., 2015).

The Greek case is different. In Greece the banks were not exposed to the risks that led to the international financial crisis, but the current financial crisis (which has adversely affected the liquidity of the banking system) is primarily a product of the accumulated financial imbalances for decades. The result was the intervention of the Basel Committee with the new regulatory framework, Basel III. The specific terms of the Basel II proved inadequate to address the crisis (Claessens and Kodres, 2014).

Also, all the provisions of the new regulatory framework were expected to start gradually to be implemented from January 1, 2013 until January 1, 2019 (deadline for full implementation).

#### 1. Systematic approach - two categories

- Provisions that accept changes in relation to Basel II
- Provisions with innovative elements

#### 2. Changes in the regulatory framework Basel II

- Provisions for bank capital

The regulatory framework provides bank protection to the credit risk from their portfolio assets e.g. loans for purchase of transferable securities, sale and repurchase

agreements. Due to the economic crisis many banks experienced losses on the ground that they had not implemented the capital adequacy rules.

### ***2.9.3 The “innovative elements”***

It has already been mentioned that one of the major causes of the financial crisis was the development of banks. Therefore, to avoid similar effects in the future the provisions of the Basel III introduced a factor which is not associated with the risk and will apply to additional requirements of capital adequacy (as a backstop measure). The ratio is set at 3% and has the equity as the numerator and the denominator is the equity exposure outside and inside the balance sheet at book value as defined by the new regulatory framework (Lin, Hong and Lin, 2016).

### ***2.9.4 Liquidity rations***

Under the new regulatory framework there are two liquidity ratios: the short-term liquidity coverage ratio (LCR) and the long-term net stable funding ratio (NSFR) (Allen and Gale, 2017).

a. Liquidity Coverage Ratio (LCR): This ratio ensures the availability of liquefiable assets in the assets of the balance sheet to pay overdue obligations and must be equal to or greater than 100% and is defined as:  $\text{Stock of high quality liquid assets} / \text{Net cash outflows over a 30-day period}$

b. Net stable funding ratio (NSFR): This ratio attempts to assimilate the problem for the liquidation of the items in the assets and liabilities of the banks' balance sheet at a different time period and is defined as:  $\text{Available amount of stable funding} / \text{Required amount of stable funding}$ . This ratio must exceed 100%

c. Surveillance methods for the liquidity risk: There are five ways to identify the liquidity risk: 1. Contractual maturity mismatch, 2. Concentration of funding, 3. Available unencumbered assets, 4. LCR by significant currency, 5. The market-related monitoring tools

We should mention that these methods enable the supervisory authorities to have direct information on the liquidity of banks.

### ***2.9.5 Reserve- Basel III***

The new regulatory framework provides that in times of prosperity and economic development of a country, the banks need to develop capital reserve to minimize the damage created. This reserve according to the projections should be of the order of 2.5% of total assets of the banks. Also an additional reserve, the countercyclical capital buffer, is necessary to be ensured by the banks. The rate will be determined each time by the supervisory authorities and will always depend on the expansion of credit and the systemic risk that will be created. The countercyclical capital buffer will range from 0% to 25% of all the assets of the banks (Marino, 2014).

The banks' capital in accordance with the new regulatory framework is divided into: 1. Main items, 2. Additional items. The main items belong to the paid up share capital in the form of ordinary shares, retained earnings, reserves and equity securities issued by subsidiaries of banking companies. The additional items include preference shares that have no fixed term, are not bound by some clause and can be withdrawn after five years (Angelini et al., 2015).

### ***2.9.6 New Quantitative Limits- Basel III***

The Basel Committee has set the following new quantitative limits on the minimum capital requirements of banks, which must be met on a continuous basis (Dietrich, Hess and Wanzenried, 2014):

- The main items of the core capital should amount to at least 4.5% of the risk-weighted items of the banks and off-balance sheet items.
- The total of the core capital shall be at least 6.0% of risk-weighted items of the assets and the off-balance sheet items (by 4.0% under the current regulatory framework)
- The total of the minimum capital of banks (basic and additional) will continue to be of at least 8.0% of risk-weighted items of the assets and off-balance sheet items. Inductively, however, the amount of the additional capital will not exceed 2%.
- The capital for general risks must not exceed 1.25% of the risk-weighted items of their assets and the off-balance sheet items as in the current regulatory framework.



*Table 2.6 Total capital requirements*

The total capital requirements that will be imposed on banks according to the Basel regulatory framework at the end of the established transitional periods (for the systematically important banks an additional capital requirement of 2% may be established) (percentages in relation to total risk-weighted items of the assets and off-balance sheet items)			
	Main core capital items	Total core capital	Total capital requirement (core and additional capital)
1. Minimum capital (from 01/01/2015)	4% (from 2%)	6.0% (from 4%)	8.0% (unchanged)
2. Capital reserve for maintenance (from 01/01/2019)	2.5% (new)		
3. Sum of 1 and 2 (from 01/01/2019)	7,0%	8,5%	10,5%
Countercyclical capital buffer (from 01/01/2019)	0-2.5% (new)		

Undoubtedly the new regulatory framework and the rules it sets will have an impact on the entire banking sector. The development of the economies will be more difficult due to the huge amount of funding that will be spent to the supervisory authorities. According to research conducted by the Bank for International Settlements and the OECD, it shows that there will be an average reduction of 0.09% in the annual growth rate for each 100 basis points increase in the equity ratio and a further reduction of 0.15% for each 50% percentage increase in liquidity (Rubio and Carrasco-Gallego, 2016).

This means that the implementation of all these measures will reduce the annual growth rate of about 0.7%. Also the expected reduction of securitization will increase by

an average of 34 basis points the cost of retail funding. This increase translates to an additional reduction of 0.1% of the economic activity. Furthermore the new measures of the regulatory framework will provide advantages because of the volatility of the economic activity. After research it is estimated that every 100 basis points increase in the equity ratio reduce the volatility of the growth rate by 1%. The same conclusions can be true for the liquidity ratios. Nevertheless we must note that certainly these results also entail the possibility of uncertainty (Laas and Siegel, 2016).

Studies have also shown that the new regulatory framework (Basel III) will result in the reduction of the return on capital (ROE) by 3.5% due to capital requirements and by 0.8% due to the liquidity rules. In addition, investors will assume a greater risk because they will be more involved in the financing. Even banks will minimize their exposure to high-risk customers and the granting of guarantees. Respectively the banks' liabilities are expected to show a demand for deposits and medium-term financing sources due to restrictions on liquidity. It is certain that adverse effects will occur in the organization and functioning of the financial sector and it is necessary to provide time to adapt. The Basel Committee announced that the new regulatory framework will be implemented by 2019. Furthermore, the concept of systemic risk involves the so-called shadow banking system. Therefore, the implementation of the prudential framework in non-banking financial institutions is deemed essential. Otherwise the banks will have to face unfair competition which will shrink the supervised banking system, for the benefit of the uncontrolled non-banking system. Such a development would nullify the efforts to enhance financial sector stability (Angelini et al., 2015).

*Table 2.7-Outline Presentation 3: Prudential Capital Adequacy Rules*

1988	Basel I - Standardized credit risk rules - limit of 8%
1996	Basel I - I. Standardized Approach II. VAR
2007	Basel II - Credit risk rules - Operational risk rules I. Standardized methodologies II. Development of internal methodologies
2014-2019	Basel III – Shift to standardized methodologies

## **CHAPTER 3**

### **THE IMPACT OF THE CRISIS ON CYPRUS AND IRELAND**

The Cypriots chose to solve the political instability that plagued the region since the Turkish invasion of 1974. The government of the country was impotent to resolve the issue and the peoples on both sides wanted the reunification of the island. The elections decided the victory of the Communist Party of AKEL and the initial progress in the proposed peace talks was satisfactory and marked a new crossing point in the divided capital of Nicosia.

The excessive expansion of domestic bank lending was evident during 2007 and 2008, as bank stock prices fell even before Lehman Brothers fell in the US. In view of the imminent collapse of the domestic banking sector at the end of September 2008, the then coalition government, Fianna Fáil-Green, issued a general guarantee not only to depositors but also to all bondholders of the six major domestic financial institutions.

The government faced unknown and rapid commitments. The huge scale of banking losses began to unfold in the next three years.

#### **3.1 The Crisis in Cyprus**

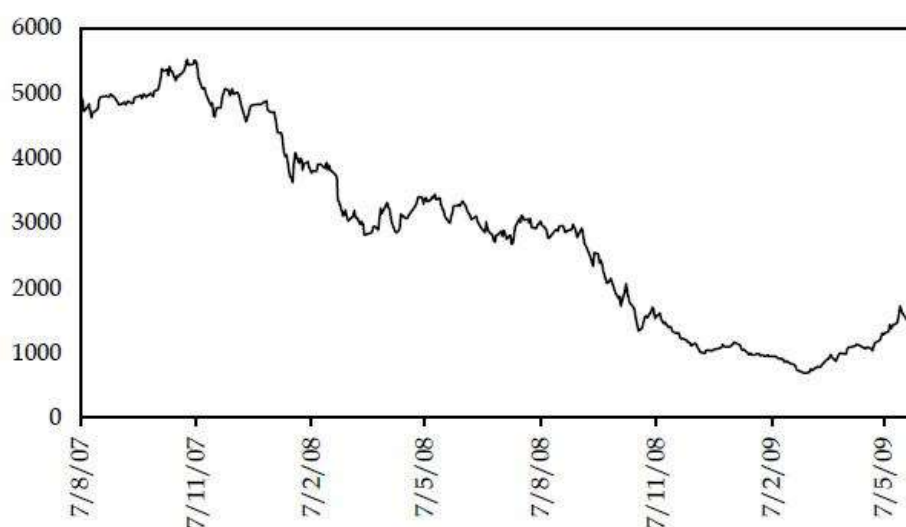
The 2006-2008 period and the events that took place at this time are of significance as they ultimately shaped the crisis. All the great events of the 2006-2008 period are listed below.

##### ***3.1.1 Share Index***

CSE was established under the Cyprus Securities and Stock Exchange Law which commenced its operations on March 29, 1996. In 2006, it launched a common platform with the Athens Stock Exchange. The crisis began to show its effects in 2006, though

ultimately everything started in October 2007, when a sharp decline in the stock market appeared, following the trend of the Greek index. The change was identical to the Greek economy due to the double entry of a large number of large institutions in Cyprus into the Athens Stock Exchange. This fall was fueled by the big institutional investors, who started selling out so as to mitigate the risk of a bad event. This caused the dominance of the downward market trends for almost two years.

*Table 3.1 - Evolution in the CSE index (August 2007-June 2009)*



Source: A world of cheap Money, 2013

Incorporation to the euro in 2004 triggered the inflows of foreign direct investment (FDI) and when the euro was adopted in 2008, it witnessed a prolonged credit boom. During these times, low interest rates and the availability of easy credit created a credit boom, and property prices rose too much leaving the private sector with a huge debt. Loans to residents in Cyprus climbed 20% per annum over the period 2007-2008. Some factors such as rising payments are also crucial though not justified by labor productivity. Since labor was not quite productive, though highly aggravating, price competitiveness started to decline significantly paving the way for huge trade deficits and current trade deficits to appear (Kröger 2012).

It is useful to begin by describing the weakness of the government bond markets in a monetary union. National governments in a monetary union issue debt in a “foreign”

currency, that is, a currency in which they have no control over. As a result, they cannot guarantee bondholders that they will always have the necessary liquidity to pay the bond at maturity (De Grauwe, 2012).

This is in contradiction with the “sovereign” countries that issue government bonds in their own currencies. This feature allows these countries to guarantee that there will always be cash available to pay the bondholders. Thus, in a sovereign country, there is a tacit guarantee that the central bank is a lender of last resort on the government bond market.

The absence of such a guarantee makes the government bond markets in a monetary union prone to liquidity crises and its transmission powers, quite similar to banking systems lacking a lender of last resort. In these banking systems, bank solvency problems can lead depositors to other banks to withdraw their deposits. When this is done by all depositors at the same time, the banks will not have enough cash. This sets in motion a liquidity crisis in many healthy banks and turns into a solvency crisis as banks try to redeem their assets by lowering their prices. As asset prices collapse, many banks find that they are insolvent. This instability of the banking system has been resolved by the central bank’s mandate to be a lender of last resort and the good element of this solution is that, when depositors are assured that there is such a solution, it rarely needs to be used (De Grauwe, 2012).

Government bond markets in a monetary union have the same structure as the banking system. When solvency problems arise in a country (Cyprus), bondholders, fearing the worst, sell their bonds on other bond markets. This causes a liquidity crisis in these other markets: for example, investors selling government bonds use revenue to invest in other secure assets, for example in German government bonds. As a result, liquidity is withdrawn from the money market, leading to a liquidity squeeze, making it impossible for the government to refinance the existing debt.

It should be stressed that the liquidity crisis in the Cypriot government bond market arises because there is a fear that cash may not be available to pay the bondholders, making the crisis real. The latter, in turn, is likely to become a solvency crisis because bond sales lead to an increase in government bond interest rates, thus increasing debt. There is a fairly high interest rate that will make any country insolvent. The characteristic of this dynamic is that distrust can push a country with confidence into a poor balance. The latter is characterized by high interest rates, a recession, growing fiscal problems and an increased likelihood of insolvency. In a poor balance, it is also possible for domestic banks to face financing problems that can turn into solvency problems.

### ***3.1.2 Deposits in Euro***

The Bank of Cyprus publishes on a monthly (or quarterly) basis data on bank deposits and credits as well as basic monetary aggregates. All items of monetary and banking statistics are based on the monthly financial statements that, according to the Operations of the Governor of the Bank of Cyprus currently in force, are submitted by the monetary financial institutions (MFIs) to the Bank of Cyprus.

Another factor triggering the huge turbulence in the economy was the transition in deposits. Prior to the euro, foreign currency deposits were subject to rigorous control and were considered very unstable. Due to their volatile nature, the liquidity requirement was much higher since it is considered appropriate to keep the high percentage of deposits in the form of liquid assets. This control set a 70% limit on assets held in liquefiable state. However, as the euro was now the dominant currency, a substantial part of foreign deposits were treated with a much lower liquidity requirement of just 20%, depriving the banks of the necessary cash (Pierides, 2012).

Also a key element was the rise in competition, as in 2008, two new Greek banks opted for a penetration strategy in the Cypriot banking system. With the emergence of these banking systems, Cyprus faced a major rivalry with five Greek banks (three were already operating).

### ***3.1.3 Basel II***

The inadequate protection of the financial institutions from global economic changes, as well as the outdated legal arsenal governing their regulatory function, led the Basel Committee to issue a new Basel II Accord in 2004 on the legal framework for regulating capital adequacy of these institutions.

This committee is an important forum without a legal personality, which was established in 1974 with the Bank of International Settlements in Switzerland. The Committee's recommendations are not binding in nature, but are innovative initiatives and their contribution to the understanding of the above-mentioned scientific field is catalytic and they are adopted by international organizations, such as the EU, as a whole. The recommendations formulated in the new accord are summarized in three pillars:

- Pillar I: The minimum required capital (calculation of minimum capital liabilities)
- Pillar II: The supervisory risk assessment process focuses on, among other things, the proper guidance to banking institutions on the risks of interest rate risk, credit risk and operational risk,
- Pillar III: Market discipline can be achieved by releasing information on the pillar I and II requirements. Market participants should have access to key data on available capital, the capital adequacy of the credit institution, the risk of exposure, etc.



This section studies how banks can hold less regulatory capital than the above, while their risk is much greater. According to Mishkin (2000) “Due to the high cost of maintaining capital, bank managers want to retain less capital than the levels required by the supervisory authorities. In this case, the amount of bank capital is determined by the minimum regulatory capital”. The ways of implementing and developing actions to hold less regulatory capital are as follows:

1. Under the Going concern and Gone-concern procedure where banks can, through capital in the first case, absorb losses when they occur and allow a bank to continue to operate and in the second case through capital that can absorb losses before depositors and creditors under liquidation.
2. Banks hold a small percentage of the borrowing rate by transferring the balance to the investor who buys the loans. The capital needed to set up such companies is covered by the issue of bonds, known as asset securities. Companies buying the loans benefit from the bank’s operations without dealing with the borrower, assuming part of the risk.
3. Capital allocation by banks to economic units is such that less capital is retained and capital charges are risk-adjusted.
4. Banks that have the ability to develop high-quality internal audit can retain less regulatory capital as they are considered much more solvent.
5. The saving and holding of regulatory capital is mitigated by the fact that, due to competition, banks are receiving a lower profit margin in order to achieve return on their capital and to address the risk.

Another crucial point in the banking system was the adoption of the Capital Requirements Directive or commonly known as Basel II. This enactment defines the amount of capital that banking systems should consider in relation to the risks to which they are exposed. Once the balance is disrupted, legislation is introduced which obliges the

bank to introduce risk control measures. But there was a disadvantage of this law for Cyprus, since the government bonds (of any foreign nation) were considered exempt from such risk measures, namely that they are characterized by zero risk. Cyprus had large shares in Greek government bonds and the Central Bank of Cyprus ignored this fact or did not identify it (Orphanides, 2014).

#### ***3.1.4 The Bubble in the Real Estate Sector in Cyprus***

The housing market is directly linked to the economic cycle with a two-way relationship through investment, consumption and lending, and it also affects the stability of the financial system. The bubble in house prices in the US and the unexpected use of financial instruments related to mortgage credit played a leading role in the start and evolution of the global crisis of the 2007-2009 period.

In Cyprus, the housing market did not show excessive price increases, while traditionally it is a leading force in the development process, rewarding Greeks investing in real estate. The future of the Cypriot housing market will depend on its own native forces, continued tourism development and the need for infrastructure in the country, while the current Greek macroeconomic imbalances are expected to be inhibiting.

In the Cyprus area, the housing market is very important. On the one hand, investment in housing and construction is an important part of the total economic activity. On the other hand, the residence is an investment and traditionally Cypriots have been placing their savings on properties. In general, banking systems lent aggressively to the market during the period 2006-2008 and a significant part of this credit was directed to the real estate and construction sectors. A certain increase in the credit was given to non-residents, and this policy continued until 2011, when a total of 30 billion euro (for real estate) was granted as loans to non-residents (Cyprus International Monetary Fund, 2011). In 2006, the share of non-residents' housing loans was only 3.2%, but by 2009 it had

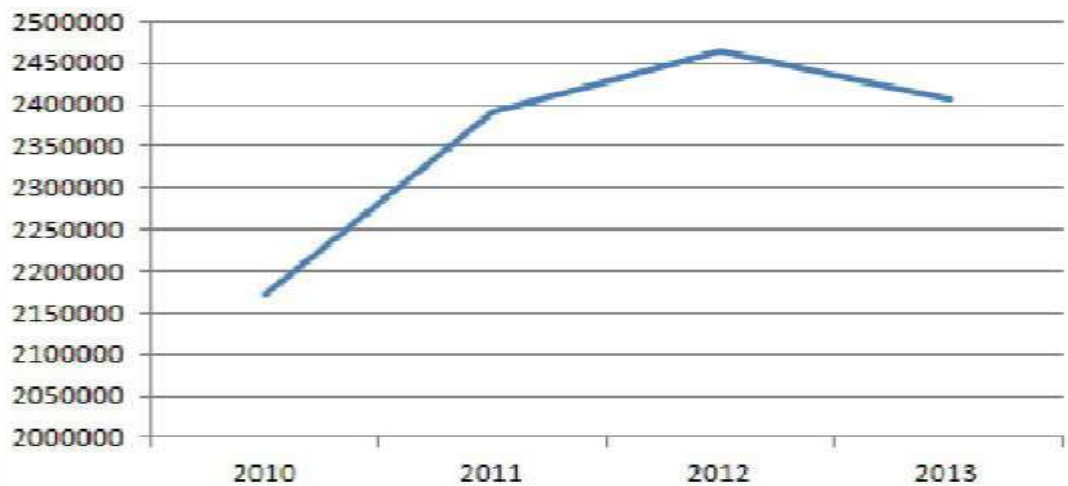
alarmingly increased to 18.6%. In response to the rise in lending, the answer was given by the fact that real estate prices were increases constantly and seemed to be a good prospect in terms of lending. However, the CBC introduced stricter measures to restore banks by restricting the ability of financial institutions to grant no more than 60% of the funding if the property purchased was to be considered a second or a holiday home (The CBC target Prudential Measures, 2011). The decision was very prudent, but the timing was completely wrong as it was only then that the financial crisis began to appear with its full force. Real estate prices fell dramatically and the banking system was hit hard.

### ***3.1.5 Situation in the Construction and Tourism Sectors***

Cypriot tourism suffered from the recession and this contributed quite a bit to the fall of the country. However, it was in a much greater comfort zone than the construction sector. Cyprus has a direct dependence on the United Kingdom in several ways, even after its independence, and tourism is considered one of them. During the critical period 2006-2008, tourism experienced a significant decline mainly due to the global recession and adverse movement of the British pound against the euro. But comparing tourism with the construction sector, its course was far less disturbing for the following reasons:

- According to the CBC, tourism represents a much lower percentage in terms of credit exposure, which was only 6.5% in 2007.
- Banking systems do not lend combatively to tourism and therefore there is no element of competition.
- Tourism will recover as soon as the situation gets a little better and its recovery has begun, which can be seen in the following graph

Table 3.2 – Tourist Arrivals



Source: Markides, n.d.

- Also, in the construction sector, the exposure was very old and therefore the nominal value of the loan was much lower than the collateral due to the increase in real estate prices, namely the property became costly and the value of the loans decreased comparatively. So, the banking system was already damaged.

All of the above five points contributed to the collapse of the banking industry in the following ways.

- Refinancing rates of the ECB were drastically reduced out of nowhere, and it was by far a steep decline globally. The movement can be observed below.
- The ECB's refinancing rates fell dramatically and this was by far a sharp drop globally. The movement can be seen below.

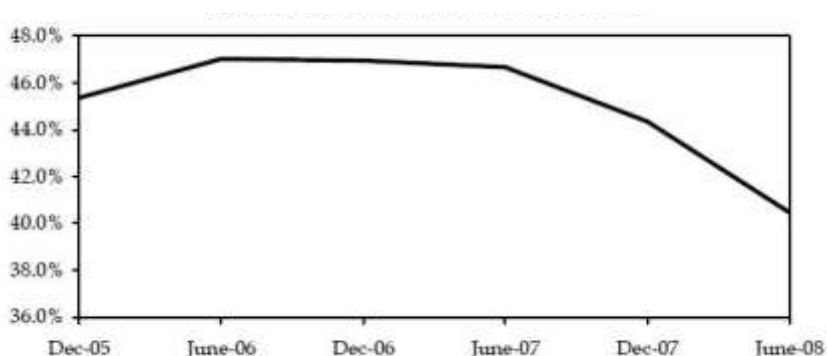
Table 3.3 – Central Banks



Source: A world of cheap Money, 2013

- Since the Central Bank of Cyprus had also linked the key interest rates with the ECB, this meant a significant income gap for it, while the deposit rates continued to rise.
- The increase in deposit rates was partly due to the Greek situation in which investors have liquidated their positions and Greece has offered high interest rates to keep cash. Due to the significant business transactions and several subsidiaries in the Greek mainland, this phenomenon was extended to the Cypriot territory.
- The state of cash or liquidity of the banking system has been burdened. The loan-to-deposit ratio rose within a year from 20% to 95% in 2008 compared to 2007. The main reason was not the increase in loans but the deterioration of the deposits as well as the liquidity requirement for foreign deposits.
- This has negatively affected the cash flow of the banking system. Also, the banking system remained at ease, but that was an alarm for the impending situation.

*Table 3.4 – Liquid Assets to Total Ratio 2005-09*



Source: A world of cheap Money, 2013

### **3.1.6 Political and Social Issues**

Other issues that helped to the crisis and were detrimental are as follows:

Monastery of Vatopedi:

Religious ranks located in a remote site on the peninsula of Chalkidiki in the northern part of Greece, were not as pious as to their actions which contributed greatly to the bad image of the Cypriot banks on the Greek island and around the world. The

Monastery of Vatopedi at Mount Athos does not need introduction in terms of the regions of Greece and the Balkans. The monks here not only have significant political influence but also huge collections of valuable objects. The centuries-old traditions and their good connections have allowed them to develop strong relationships with various leading institutions.

The location of the monastery is of interest as it is easily accessible by sea and due to its closeness to nearby ports. This is the reason why the monastery became so important among celebrities, the British monarchy, the owners of Greek shipyards and Russian tycoons.

The Orthodox Church is considered to be the largest individual landlord throughout the Greek territory, and the Vatopedi Monastery had benefited from the exchange of vast land with more valuable land, particularly in Athens. The report mentions that about 260 such exchanges were realized (Michaletos and Christo, 2008). Enormous profits were gained later and the proceeds were invested in Marfin Investment Group, which was owned by Marfin Laiki Bank.

Also, the Vatopedi monks had a very good relationship with the Marfin Laiki Bank, which was also the largest lender. The figures show that they borrowed around 30 million euros from the bank so they could re-invest in the Marfin Investment Group shares and also borrowed another 42 million euro to invest in other investment programs launched by Marfin Investment Group in 2008. Later on, the investigation began and the way in which the loans were granted was examined. The final reports showed a total amount of borrowing of 109 million euro from the monks of Vatopedi (the Vatopedi monastery is linked to losses of 4 billion euro in 2013). A court examination highlighted the profits gained by political figures as well as by influential individuals and by the monks who had close ties to them.

Being a Cypriot bank and with such transactions, Marfin Laiki began to worry, but more so the Central Bank of Cyprus and the Cypriot government, as to how such large transactions were approved because of their suspicious nature.

### **3.1.7 Laiki Bank and Emergency Liquidity Assistance (ELA):**

Under the European legal framework, the ELA is seen as a crisis support mechanism of the banking system, which provides funds that cannot otherwise be obtained. However, there is a protocol that is considered appropriate to be followed before the funds are allocated, and the most important of these rules is to examine the solvency of the banking system and whether a bank has the ideal guarantees (or securities). The credit is issued by the Central Bank of the respective country in agreement with the ECB, which is also considered the most important provider of funds.

The ELA mechanism has been seriously considered in recent years because of its inability to control the catastrophic economic events. In the case of the Laiki Bank, it was used in a totally wrong way. Basically, the idea used was to delay as much as possible the insolvency of the Cypriot banking system.

The Central Bank of Cyprus announced the ELA for Laiki Bank in April 2012 with an initial amount of 3.8 billion euro. However, this amount proved insufficient and continued to increase to 5.7 billion euro in May 2012 and 8 billion euro in June 2012. By the time the Eurozone countries decided to close the program, Laiki had already received 11.4 billion euro in ELA funds (Anastasiou, 2014).

The enormous supply of such funds that eventually resulted in a dead-end raised huge questions over the Cypriot government. Subsequent studies revealed a different picture when a letter from the President of Cyprus, Nikos Anastasiadis, to the President of the ECB, Marx Draghi, stated that they already knew that the bank was no longer considered creditworthy and that the funds given were for other purposes, including the

smooth transition of governments to for re-election reasons (Sinn, 2014). This was a desperate attempt to save what remained and the decision-makers thought that the change of the regime was the only way forward.

In other words, the funds were misused so as to save the preferential creditors of the banking system in time and to delay the international Cypriot rescue instead of avoiding and replenishing the gap created by the massive deposit expense from Laiki Bank. Preferential creditors, which are industries and other major financial institutions that were seen as an integral part of the economy, took their money back in order to support the rest of the economy that was in a stalemate, a decision that was wrong in every way.

The ECB later on, at the final dissolution of the Laiki Bank, began criticizing the Central Bank of Cyprus that it shouldn't have issued the credit to a bank that did not meet the minimum required capital requirement of 8%. But in fact the ECB is also accused for not stopping the ELA through its interventionist powers and that if it did, the situation would be far more manageable for the island (Hailis, 2013).

### ***3.1.8 The Greek Bonds***

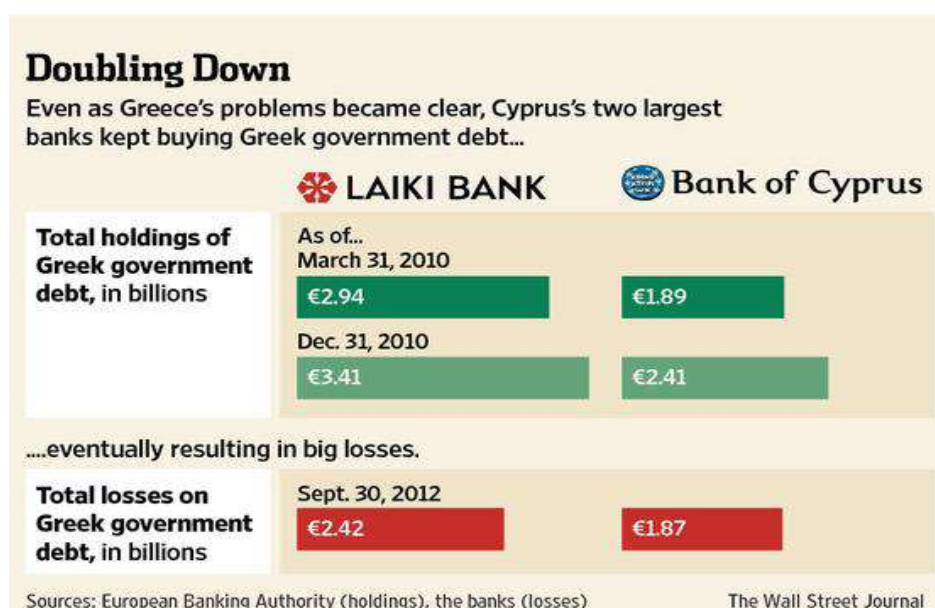
In 2008, the latest and most deadly blow to Cyprus was the decision of the Cypriot banker to invest in Greek government bonds. Greece, like many other European states, was experiencing the serious crisis that had begun since the end of 2000 and could be protected internationally in order to save its economy.

In August 2010, one of the largest rescue plans in history took place when Greece received 110 billion euro in order to support its economy. At the same time, the situation was not so bad in Cyprus and surprisingly the two largest banks in Cyprus and their risk managers were willing to invest further in Greece. Germany and France have clearly stated that the creditors of the troubled countries should significantly reduce their portfolio at all costs.



As regards the amounts invested in Greece, in 2010 loans of 18.9 billion euro were made to Greek residents and approximately 27.8% of total loans to all Cypriot banks. After the first Greek default, about 27% of all loans issued by Cypriot banks were no longer serviced. Greece was also responsible for 18.7% of all deposits with banks in Cyprus, but when comparing the data with other non-EU residents, it holds only 9.7% of the total loans made by Cypriot banks and deposits are considered also over 20% of the total (Foxman, 2013).

*Table 3.5 – Doubling Down*



Source: www.zerohedge.com by Tyler Durden

### **Bank of Cyprus and Laiki Bank:**

At the beginning of 2010, the Bank of Cyprus and the Laiki Bank of Cyprus raised a total portfolio of approximately 4.7 billion euro in Greek government bonds and despite the bad situation they continued to invest and in less than a year they held bonds of 5.7 billion euro (Enrich & Forelle, 2013), while institutions such as Barclays reduced their investments in Greece. This is about one third of the total economic statistics of Cyprus.

Since June 2011, the total exposure of local Cypriot banks to Greece amounted to 28 billion euro, of which about 5 billion euro in government bonds and the rest were loans to the residents of Greece (Foxman, 2013). So when Greece again had a problem in 2012, the two banks paid for their mistakes and were damaged by 4.3 billion euro.

The European financial crisis is linked to a number of other issues that complicate the Cypriot-Greek problem a little more. The euro is governed by the ECB and the other regulations are controlled by the European Banking Authority. Of course, the ECB does not have the power to print currency and rescue banks, and the European Banking Authority cannot borrow funds to save the financial institutions. Both are based on stable and healthier European economies, such as Germany, in order to move forward and save a situation. If the control was not in the hands of some states, the problem of the Greek bonds in Cyprus could be settled much earlier.

## **Consequences**

The Cyprus Securities and Exchange Commission imposed fines on the members of the Board of Directors amounting to 7.5 million euro. The employees were accused of their wrongful acts, including the falsification of the facts and figures of the real Greek bonds and for the authorization of the bond purchase agreements from other European banks when they were trying to get rid of the Greek bonds (Cyprus's SEC imposes fines on banks, 2014).

## **3.2 The Crisis in Ireland**

### ***3.2.1 Introduction***

The country of Ireland has experienced a very difficult economic situation since the onset of the financial crisis in the developed world. At the same time as Iceland and Latvia, as well as other small and open economies, Ireland has suffered a dramatic increase in

bank lending, credit expansion practices and banking operations in the years leading up to the 2008 international crisis. And like in these two other countries, a large part of this bank lending came from international markets.

The cost of recapitalization of the banks for taxpayers was finally estimated at around €62.8 billion (Minister for Finance, 2011). The total Irish GDP in 2011 was €155 billion (Central Bank, 2011). Almost half of these losses are due to one bank, the Anglo Irish Bank, now called IBM. Most of the other losses were caused by the two older banks, the Bank of Ireland and the Allied Irish Bank. A London fund manager said that “the Anglo Irish bank was probably the worst bank in the world. Even worse than Icelandic banks” (Lewis, 2011). The next Governor of the Central Bank, Patrick Honohan, concluded in May 2010 that this was one of the most costly bank crises in history (Burke & Kennedy, 2011).

The collapse of the banking system has caused a decline in the confidence in the Irish economy. Ireland was forced to participate in an EU-IMF lending program in November 2010. Until then, the systemic implications of the Irish financial sector’s obligations on the European banking system meant that the Irish government was under extreme and constant pressure not to reverse the bank guarantee (Beesley, 2011). The private debts of failed banks were nationalized. Irish taxpayers would be burdened with the bulk of the debt. It was argued that other countries had benefited from the Irish socialization of a large share of bank losses, which contributed significantly to the increase of Ireland’s public debt (Darvas, 2011: 16). A large part of the non-performing loans of troubled banks was transferred to the public administration, with a significant discount, although it may still be overvalued.

While the final value of commercial property was not known, the numbers of the houses declined by 47% between 2007 and 2011 (CSO, 2012). Government debt rose from 25% of GDP in 2006 to 107% at the end of 2011 (Central Bank, 2012). This percentage

was projected to reach 118% of GDP<sup>10</sup> in 2013 before it declined further (International Monetary Fund, 2011: 14). This amount includes €30 billion of bills in financial institutions. National debt reached 60% of GDP in 2010 (Central Statistics Office, 2011: 152). The national debt service costs increased by €1.1 billion reaching €5.4 billion, accounting for 6% of total tax receipts (Central Bank, 2012).

The situation emerged from the circumstances that caused the crisis and the international events, as well as the domestic ones. The following present and discuss some factors that contributed to the disaster.

### ***3.2.2 Understanding of The Crisis***

Three reports describe what happened in the Irish financial system. The first report concerns the study of the behavior of the banking sector in times of crisis. Klaus Regling and Max Watson were appointed to investigate the banking crisis in Ireland in order to study in depth the international financial environment and the impact on society.

It was essential to identify the factors that worsened the crisis in the country and to focus on the areas of the institutions' behavior (Minister for Finance, 2010).

The second report conducted by Professor Patrick Honohan in 2009 aimed to study the performance of the relevant tasks of the Central Bank and the Regulatory Authority in 2003 until the end of September 2008. The Government stated that it would make use of the 2 reports to provide the terms of reference in accordance with the 2004 Study Committee Law. Both reports were published in May 2010 (Honohan, 2010, Regling and Watson, 2010).

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<sup>10</sup> GNP or GNI is generally considered to be a better guide to the state's budgetary capacity in Ireland, given the scale of transfer prices and return to profit in the multinational export-oriented sector. See Hennigan, M. (2010a) Ireland: GDP or GNP? Which is the better measure of economic performance?, Finfacts, Thursday 10 March 2011. <http://www.finfacts-blog.com/2011/03/ireland-gdp-or-gnp-which-is-better.html>.

In September 2010, the Research Committee (Banking Sector) was set up, composed of a member, Mr Peter Nyberg, with a mandate to study the reason why some public and private institutions had functioned incorrectly from 2003 to 2009. The report was published in 2011 (Nyberg, 2011).

All three reports relate to international developments that improved the conditions of the crisis, but they also agree on identifying the specific issues of Ireland:

- Though international pressures contributed to the banking crisis, the main problem was the country (Honohan, 2010: 22).

- The banking crisis expresses global influences (Regling and Watson, 2010: 5).

International developments were not directly responsible for the crisis (Nyberg, 2011: ii). The underlying causes of the Irish financial market decline do not deepen to the diffusion of the difficult financial products. On the contrary, this was a “pure property bubble, which was aggravated by exceptional lending concentrations for real estate purposes and mainly commercial property” (Regling and Watson, 2010: 6).

In order to set this framework, the rather modest origin of the banking system in Ireland and the consequences of banks having virtually unlimited access to credit after Ireland’s accession to the euro in 1999 should be considered. It is worthwhile to understand how the expansion of the financial services has challenged the regulatory regime and its implementation. It is worth studying the reason why the property was as big as an investment product in Irish life and the wider political context in which banking organizations were allowed to assume immense risks.

### ***3.2.3 Explanation of the Fall of the Irish Bank***

Certain aspects of the negative causes of the developments in Ireland should be taken into account. It was the most obvious part to begin a study of the role of the market sectors to maintain good corporate performance. Apparently something in the Irish

experience proved defective. Moreover, the large collapse of Irish banks reflects a serious problem in the regulatory regime governing the financial sector, whether it concerns regulatory authorities or institutions, or their implementation.

The study of these issues leads to the consideration of the wider political framework of expansion of the financial sector in the 2000s.

Cyprus is among the last five countries with the smallest investments as a percentage of GDP and, of course, well below 19.7% of the EU average. This picture is reflected in the latest Eurostat data.

Of course, despite the fact that Cyprus is at low levels, efforts are being made to revive investments that have fallen since 2009 due to the problems that have become apparent in the financial system and in the budget. Investments in Cyprus amounted to 17.2% of GDP in 2016, which is among the lowest among Member States of the European Union. The financial and economic crisis has rocked the investment index. Total investment in the EU amounted to 19.7% of GDP in 2016, compared with 21% in 1996. This represents a decrease of 1.3 percentage points (Saunders and Cornett, 2003).

In all EU countries, Ireland recorded the highest rate of investment in GDP (29.3%) in 2016, against the Czech Republic (24.6%), Sweden (24.2%), Malta 23.4%), Austria (22.9%) and Romania (22.7%). At the opposite end of the scale, the lowest investment index was recorded by Greece (11.4% of GDP), followed by Portugal (14.8%), the United Kingdom (16.7%), Italy (17, 0%) and Cyprus (17.2%). Between 1996 and 2016, the GDP index declined in the majority of EU Member States, with the largest decrease in Slovakia (20.2% in 2016 compared to 33.5% in 1996 or 13.3%). Over a period of twenty years, the decrease in Greece was 9.4%, in Portugal 9% and in Cyprus 6.9%. Of the nine Member States showing an increase in the index between 1996 and 2016, the largest increases were recorded in Bulgaria (5.4% of GDP in 1996 to

19.1% in 2016 or 13.7%) and to Ireland (9.5% %), followed by Sweden (4.2%) and France (2.1%).

Analysis of the data over the period 1996-2016 shows that Cyprus had the largest share of GDP investment over the three-year period 2006-2008. In 2006, the investment ratio was 25.1%, in 2007 it rose slightly to 25.5% and in 2008 it was 27.2%. Analytically, the index of investment in GDP was 24,1% in 1996, 24,6% in 1997, 19,7% in 1998, 21,3% in 1999, 20,1% in 2000, 19,1% % in 2001, 20.9% in 2002, 20.3% in 2004, 21.5% in 2005 and 25.1% in 2006. Since 2009, when the crisis began to become visible in the economy, the investment index began to decrease dramatically. From 27.2% dropped to 23.4% in 2009, declined to 22.3% in 2010 and declined to 18.9% in 2011. Since then, the largest decline in investment has begun shortly before Cyprus adopts adjustment program memorandum within a tight climate in the financial sector. In 2012, the investment index declined to 15.1%, losing 3.8% in one year and 12.1% in 2008. In 2013, the investment climate became more difficult. The GDP ratio declined again in 2012 to 14.1% and declined by 1% in one year. Compared to the 2008 high, the investment ratio declined to 13.1%. The decline in investment continued in 2014. The investment index declined to 11.7%, losing 2.4% since 2008, while the difference was 15.5%. By 2015, the investment ratio rose to 13.3%, and in 2016 it reached 17.2%, gaining 4% in one year (Bessis, 2011).

### **3.2.3.1 Investments worth € 4 billion due to passports**

Around 2,000 passports were granted to foreigners as part of the government's naturalization plan, according to Bloomberg, which reported statements by Finance Minister Haris Georgiadis. It is noted that after the implementation of the plan, foreign investment in Cyprus amounted to € 4 billion. In 2016, equivalent to almost a quarter of the country's GDP. It is reported that foreigners can become citizens in less than six months in exchange for investments of at least € 2 million in Cypriot ownership or € 2.5

million in government bonds or companies. It is also reported that while the rich in the world have many options for passports and residence permits, Cyprus is the fastest. Russian investment in Cyprus in the first nine months of last year was over 50% of the total investment in 2015, according to the Central Bank of Russia (De Haas and Van Lelyveld, 2006).

### **3.2.3.2 Projects over 1 billion € in 2017-2019**

Investment projects over € 1 billion for the period between 2017-2019 are the main factors that will support the development of the Cypriot economy, according to the Central Bank. The private initiatives that are expected to strengthen the macroeconomic environment are: the Ayia Napa Marina worth 240m euros, the Larnaca Marina and the expansion of the terminal for the management and storage of petroleum products in Vasiliko. For the Limassol province, the "One" building, worth 60 million euros, the Del Mar residences, 350 million euros, the oval



## **CHAPTER 4**

### **COUNTRY COOPERATION**

Credit risk is the risk of losing an investor's financial compensation due to the failure of a borrower to repay a loan or to make a loan or to fulfill a contractual obligation. Credit risk is closely linked to the expected return on an investment, with bonds being the most striking example. The higher the estimated credit risk, the higher the required prices. Investors compensate for credit risk by imposing interest payments on the borrower.

Operational risk is involved in all the operations of a bank and is the loss that may result from the failure of internal processes, systems or human factors. Each bank can manage this risk by applying effective procedures and safeguards to all its functions.

Risk management refers to a package of concerted actions carried out by a credit institution's management to prevent and treat unfavorable impacts on equity, revenue or profits from the impact of one or more risks.

#### **4.1 Risk types**

Lately the financial institutions, especially banks have expanded their activities too much. The result of this expansion is the emergence of risks due to the financial instruments used. The following refer to the various types of risk, and mainly the credit risk that most financial institutions face (Kin and Vonortas, 2014).

The investor's losses include (Berger, Kick and Schaeck, 2014):

- Loss of capital
- Uncollected interest rates
- Reduced cash flows

- Increased costs on revenue

Examples:

- A consumer does not repay a mortgage loan or a credit card
- An enterprise does not recognize and does not pay an invoice
- An insurance company does not pay the due compensation
- A company does not pay the salaries of its employees
- The government does not pay interest coupons
- A bank unduly commits the depositors' money

The main effect of the credit risk for a company is the reduced liquidity and often this entails bankruptcy. There are many companies that are forced to modify their plans and lose their competitiveness because of the reduced liquidity. The credit risk is divided into (Fratzscher and Rieth, 2015):

- Principal risk: This risk relates to the loss of the entire value of the securities delivered to the counterparty. But the purchaser may give money for the securities without receiving them and the seller may deliver the securities without receiving money.
- Replacement cost risk: The counterparty may not be able to pay the money at the specific date set for the redemption of securities.
- Counterparty risk: this risk arises if one of the two parties has not been able to repay the debt.
- Settlement risk: This risk occurs if the counterparty fails to repay their obligations on the settlement.
- Legal risk: capital loss due to lack of a legal framework.

- Issuer risk: The beneficiary is not receiving money due to bankruptcy.

## **4.2 Market risk**

This risk arises when there is a loss in the market such as changes in interest rates or changes in stock prices. It is generated from the trading transactions or the management of assets or liabilities (Harlow and Brown, 2016).

Liquidity risk is the uncertainty of early liquidation of an investment. For example, when a bond cannot be sold to quickly prevent a loss of capital. An investment may need to be sold directly, and an inefficient secondary market may prevent the liquidation or limit the capital generated from this. Some assets are also easy to be liquidated with little risk, like the shares of SA companies, while others contain a great risk such as property. The bank's treasury management department ensures that the bank has adequate liquidity to pay its obligations. For this reason, the bank ensures that it has cash to carry out transactions (Low, Tee and Kew, 2015).

The operational risk is often used in businesses and it may adversely affect the profitability, value and reputation of a company and even its survival.

More specifically, the sources of operational risk are (Bertomeu, 2015):

- People: Employees who intentionally or not make mistakes or fail to follow the policies or procedures.
- Procedures: Defects in procedures that are in effect or lack of procedures which may lead to losses.
- Systems: automatic processes and systems including the technological infrastructure security procedures that can fail resulting in potential losses.

- External factors: Acts of third parties and other natural artificial forces that could cause losses.

The Operational Risk Management department deals with risks that are:

- Unpredictable as to the type and the time they arise
- Relatively rare and the SMEs believe that they do not exist and will never happen.
- Many and different from each other and difficult to address all in due time
- Causing difficult and unpleasant effects when they occur.

Examples such as:

- The destruction of the BP oil rig in the Gulf of Mexico 2010
- The 9/11 events in New York (terrorist attack)
- The accident in the Chernobyl nuclear plant

It is important to mention that the interest is not only on the most popular risks, but also on the daily risks that lurk in obscurity for others but for businesses can be decisive. Such risks are fire, vandalism, floods and natural disasters. It is important to note that low quality software or a virus are examples of operational risk (Zheng et al., 2014).

Addressing these risks requires a combination of services starting from advisory services in relation to the analysis of potential risks and an evaluation of their impact on the business operation. The implementation of a solution is not necessarily based on the purchase of new equipment but on achieving specific times of recovery of the business operations. These services are absorbed by the operating costs of an enterprise, which is very difficult nowadays because of the difficulty in finding funds (Gloukhov et al., 2014).

The non-compliance risk results from the failure of a bank to comply with the legislation or other regulations and codes to which it is subject. The responsibility for the

non-compliance lies with the people responsible of each unit, who are supported by the authorizing officer for the risks, namely the risk manager (Gloukhov et al., 2014).

#### ***4.2.1 Legal risk***

To counter the legal risk, the Legal Department of each bank monitors the adoption of new laws and amendments to existing in order to identify potential risks that may arise and to propose measures to overcome them. Furthermore, the purpose of the Legal Department is to support the different sectors of the bank regarding legal issues and to identify and manage legal and other risks. The management of legal risks is implemented through (Ham, 2015):

- The continuous investigation of the department in which a legal risk has occurred.
- The commitment to implement development processes and minimize such risks.
- The appropriate division of duties so that the documentation of such legal procedures to be carried out and implemented at the appropriate level of impartiality by the individuals concerned.
- Continuous investigation of the relationship between the legal risk department and the rest risk management departments.
- The implementation of the minimum safety criteria for the reduction and control of each risk.
- The implementation of monitoring and compliance processes of the legal risk considering the minimum criteria to be followed by each department of the company.

#### **4.2.2 Custody risk**

The custody risk is the potential loss of securities by a CSD. This may occur if the custodian acted negligently or committed a fraud (Coskun, 2016).

#### **4.3 Systemic risk**

The systemic risk is the risk of collapse of the whole market or the financial system as opposed to the risk associated with an organization or a group of companies or a part of the system. Theoretically, this risk may result from the failure of a large company the effects of which may lead to the failure of the entire system due to linkages and dependencies developed between the market factors (Anginer, Demirguc-Kunt and Zhu, 2014).

- Liability management to ensure the financing of the banking activity.
- Asset management in order to safeguard the revenue of the banking business.
- Management of the operation of the banking institution to ensure the minimization of general operating expenses.

It must be stressed that the above risks require special attention because in recent years the banks are not considered secured businesses but that they can lead to bankruptcy. A known example of the investment bank Lehman Brothers, which after the FED refusal for its bailout, it was driven to bankruptcy. However, the FED communicated the message to the other banks regarding the compliance with the rules to be followed. A few days later the American insurance company AIG, with business activities all over the world, came one step before the collapse forcing the FED to proceed with the loan of \$ 85 billion this time in addition to its nationalization. Subsequently, the US Treasury announced the creation of a Fund for the acquisition of other troubled banks and established a bailout

package with \$700 billion budget. At the same time, the other two major investment banks, Goldman Sachs and Morgan Stanley, submitted a request for conversion into holding banks to qualify for the supervision of the FED marking the start of a new era for investment firms (Langfield and Pagano, 2016).

#### **4.4 Cooperation Cyprus with Ireland crises**

##### ***4.4.1 The rescue plan for Ireland***

On 28 November 2010, the Eurozone Finance Ministers agreed with the European Commission and the European Central Bank to grant a loan to Ireland in order to ensure the financial stability of the European Union. The Irish rescue plan provided for a total of 85 billion euros of loans of which (Van Bekkum, 2016):

- a) €67.5 billion would be external aid and
- b) €17.5 billion would be the contribution of Ireland

The €67.5 billion of external aid would be granted equally by:

- a) The International Monetary Fund,
- b) The European Financial Stability Facility; and
- c) The European Commission

The share of each of the three bodies would be 22.5 billion euros. Especially in the case of Ireland, the United Kingdom, Denmark and Sweden, while not participating in the Eurozone, would contribute by €3.8 billion, €0.4 billion and €0.6 billion respectively to the rescue package of the Irish economy. So the cost to the European Financial Stability Facility would be €17.7 billion.

The rescue plan for Ireland was based on three main pillars:

- a) Recapitalization and strengthening of the Irish banking system by €35 billion.

- b) Budgetary adjustment to ensure the viability of the Irish debt and correction of deficits by 2015.
- c) Changes in the labor market by reducing the unit labor costs and introducing flexible forms of labor to make the economy more competitive and bring about development.

#### ***4.4.2 The rescue plan for Cyprus***

Cyprus became the fourth member of the European Union to seek financial assistance. On June 25, 2012, the Cypriot government formally requested financial assistance from the European Union. The main reason for the request for assistance was to support its banking institutions. At the same time, Cyprus also applied for assistance to the International Monetary Fund, which said it was ready to join forces with Europe in order for the country to return to growth and to restore the vulnerable banking sector (Turkan, 2014).



## CONCLUSION

People must have a great understanding of the space that is considered to be a good, serving functions of all activities, and so is the object of study from various scientific points of view. It is necessary to combine technical, legal and economic knowledge to analyze the economic behavior of man at to the space as it was developed after the creation of the concept of ownership and the formation of a corresponding market.

There are many theories about the appearance of ownership at a certain stage of the economic process. Ownership is a right that is acquired or lost and protected or limited by the current institutional framework that is aimed at the economic and social well-being of man. Thus the various economic systems, which regulate the economic activity of man, affect the values of goods and shape the values of properties or property in general.

The quantitative description of this economic event and the analysis of the economic activity of man on the real estate is the only way to determine real estate prices.

This is necessary, since in the given system of the space, the land and real estate in general, are private property and consequently they are bought and sold and therefore has a value expressed in money, that is, the price.

The immediate withdrawal of the depositors' positions is therefore the consequence of the fact that there are doubts both for the effective management of risks by banks and for the timely government intervention to reduce the crisis and guarantee the deposits, leading to loss of confidence towards the banking system. A similar trend is observed in cases of war conflicts and major domestic disturbances. Government policies have the potential to trigger the onset of a banking crisis mainly due to changes in political

leadership and the policies that the new government decides to follow. Although government economic policies are responsible for the creation of banking risks, during the first phase of the crisis a change in the country's political scene is able to lead to the crisis

Often, the new leadership policies wanting to correct problematic situations that have arisen in the past or wanting to relinquish the responsibility from larger problems in the future tend to abandon the injurious retention policies of a banking crisis that kept the troubled banks running.

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