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Regulatory Response to the Financial Crisis of 2007- 2008
Will Basel III Help Prevent Future Crises in the Banking Sector?

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NORGES HANDELSHØYSKOLE

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Abstract

This thesis analyses the shortcomings of the international banking regulation as a cause of the financial crisis of 2007-2008 and evaluates the effectiveness of the post-crisis regulatory architecture for prevention of future crises in the banking sector. It shows that the international standards for banking regulation and supervision -Basel I and Basel II- effective at the onset of the crisis, were not strong enough to protect the banking sector from the financial turmoil because they contained loopholes allowing regulatory arbitrage and encouraging perverse practices which eventually led to the breakdown of the global financial system and destabilized the world economy. The new international regulatory framework Basel III has managed to address most of the lessons of the financial crisis and to close the gaps revealed in Basel II. However, some issues remain unsolved and they might undermine the regulatory effort to ensure global financial system stability in the future. The analysis of the achievements and the outstanding problems of Basel III leads to the conclusion that Basel III will not be able to completely eliminate the possibility of future crises in the banking sector primarily because it leaves the shadow banking sector out of its scope. Nevertheless, it has a strong regulatory base and potential to reduce the likelihood of future crises or at least to mitigate the disruptive effects on the banking system associated with such events provided that it is timely and consistently implemented across the globe. It is also important that the international banking regulation be regularly updated in step with the financial innovation if the objective of financial system stability and resilience is to be achieved in the long run.

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Foreword

The combination of law and economic studies has always been attractive to me because the two disciplines are practically linked and jointly applicable in the contemporary business and corporate world. This is especially valid for the strongly regulated banking industry.

Therefore, I decided to write about the international banking regulation and its fundamental review that has been made in the last three years in response to the global financial crisis. My topic was particularly inspired by a couple of guest lectures delivered by practitioners at the largest Swiss banks UBS and Credit Swiss as a part of the curriculum in the Financial Institutions course which I took during my exchange semester in Switzerland in the fall of 2010.

The topic is interesting and challenging because (1) the global financial crisis is an actual problem that concerns each single economy, (2) the scale and the dimensions of the crisis set a very difficult task to policy makers to find a global solution to problems, (3) the presentation and the analysis of the international regulatory process from its first steps with Basel I up to its recent standard - Basel III - in one paper allows the new and the old frameworks to be directly juxtaposed and gives a complete idea about the international regulatory developments and perspectives, (4) the success of the new banking regulation is uncertain and has to be followed up and proved in the future; therefore, it is intellectually challenging to assess Basel III at its initial stage and to see whether the own conclusions and suppositions about its effectiveness will turn out to be true in the time, and (5) the last framework is not a final one and there is still a lot of space for further regulatory improvements and fresh ideas.

At this place, I would like to express my special gratitude to my thesis supervisor Professor Guttorm Schjelderup who supported me in the choice of my topic and was sincerely engaged with my thesis and willing to help me improve my work during the whole process of writing.

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Introduction

In 2007 the world was hit by the most severe financial crisis after the Great Depression of 1929 that the financial history has ever recorded. Countries and regions all over the world have experienced banking crises and significant systemic financial problems many times before but the recent crash affected every single nation across the globe and every single aspect of the real economy. The depth of the crisis and its world-wide systemic implications were unprecedented and raised critical questions and international discussions among policy makers and bankers about the omissions of the financial regulation and oversight and how it should address the problems this time in order to overcome the negative effects on the world economy and to ensure the durable safety and stability of the financial system on a global level. The most challenging question in such circumstances is whether the measures taken will be sufficient and appropriate enough to help prevent from future financial crises. The global consequences of the crash made clear that if financial and economic safety and stability is to be pursued and achieved in the future, the financial and banking world will need an internationally coordinated and harmonized macro-prudential approach to financial regulation and supervision because the banking systems and the financial markets are already strongly interconnected, and thus interdependent, and problems at a single systemically important financial institution may have system-wide repercussions on a global level.

Apart from the financial regulation, there are several other areas such as corporate governance in banking system, global capital imbalances, and monetary policies which have been largely discussed as contributing causes to the financial crisis. These fields will also need a thorough revision and appropriate policy responses. The new design of the financial regulation and supervision, however, is the major challenge for policy makers. Therefore, this thesis will be primarily focused on the regulatory response to the global financial crisis of 2007-2008.

Additionally, even if the crisis started with the breakdown of the mortgage-backed securities market and affected all players in the financial system, it was the banking sector that transmitted the financial turbulence and shocks throughout the globe. Thus, the thesis will deal exclusively with banking regulation and supervision, and particularly with its fundamental weaknesses which led to or allowed the outbreak of the crisis and the regulatory corrective actions that have been and should be further taken in order to prevent such events in the future.

Finally, because the global scale of the financial crisis provokes international concern and requires a global approach to solution of the current and future problems in the banking sector, the thesis will leave regional or any country-specific regulation and internal bank's policy out of its scope and will put the emphasis of the analysis on the international standards for banking regulation and supervision, and specifically the standards of the Basel Committee on Banking Supervision (BCBS) – Basel I, Basel II and Basel III – designed for internationally operating banks.

The purpose of the analysis of the pre- and post-crisis international banking regulation and supervision in this thesis is to answer the following research question:

Will the new regulatory framework Basel III be sufficiently sound and resilient to protect the banking sector from financial crises in the future?

In order to evaluate the effectiveness of the new regulatory architecture for prevention of future crises in the banking sector the analysis will proceed as follows:

The first section presents the basic aspects of banking regulation and supervision. It aims to explain the necessity of banking regulation and supervision and its main objectives at first place and to give a general idea about the different approaches to banking regulation, different types of risks banks are exposed to, as well as the different levels at which the banking regulation and supervision take place. These main banking concepts will help gain a better understanding of the purpose, the functions and the contents of the international standards for banking regulation and supervision – Basel I, II and III- analyzed and discussed in the rest of the paper.

Sections 2, 3 and 4 are dedicated to the state of the regulation before the crisis and the nature of the crisis itself.

Section 2 gives a brief overview on the international standards of the BCBS- Basel I and Basel II - effective in the banking sector at the onset of the crisis. This is necessary in order to facilitate the comprehension of their critical analysis and discussion made in Section 4 and to provide the basis for the further comparison to the new regulatory framework - Basel III.

Section 3 aims to explain the evolution of the financial crisis and to provide a summary of its highlights. It focuses on those significant developments that were to a large extent a result of a flawed banking regulation and supervision and are therefore of particular interest for

regulators as regards their future efforts for regulatory improvements and enhanced supervisory controls. The concrete shortcomings of the financial regulation which led to these developments are then discussed in detail in Section 4.

Section 4 deals with the causes of the financial crisis from regulatory perspective. It analyzes the key failures of banking regulation and supervision, internal management and controls, and financial accounting and explains how the deficiencies in the regulatory frameworks facilitated and encouraged regulatory arbitrage and created perverse incentives for bankers to take excessive risks which led to exorbitant risk concentrations, excessive leverage and insufficient capital levels in the banking sector and caused the subsequent financial crash. The critical analysis of the problems of Basel II will be further used to evaluate how successful Basel III has managed to address these problems and to close the gaps of Basel II.

Sections 5 and 6 are designed to analyze the effectiveness and the soundness of the international regulatory response to the financial crisis.

Section 5 summarizes the new standard Basel III and the enhanced framework Basel II which aim to correct the shortcomings of the pre-crisis Basel II framework, discussed in Section 4, and to bring in some new important elements that have not been addressed before in order to promote better bank solvency management and financial system protection.

Section 6 then discusses the achievements of the new regulation in terms of overcoming the flaws of the preceding regulatory frameworks addressed in Section 4. It also outlines some outstanding problems and analyzes their potential negative impact on the financial stability of the system in the long run. Finally, the capacity and the potential of Basel III to prevent future crises in the banking sector are evaluated by weighing its strengths and weaknesses in Chapter 6.3. in order to answer the research question posed in this thesis.

In conclusion, Section 7 summarizes the main findings and inferences once again and elaborates on some additional issues that should be further addressed in order to strengthen the new regulatory framework and to ensure its success in preventing the banking sector from severe financial crises in the future.

The research in this thesis is based entirely on secondary sources of information like the ones found in academic journals and banking literature as well as the official documents of the BCBS published at Bank for International Settlements (BIS) web site.

Section 1: Bases of Bank Regulation and Supervision

This section will review the basic aspects of the banking regulation in order to gain a better understanding of the main problems that will be further discussed. Since banks are the key building block of the financial system and the main concern of the post-crisis regulation the term financial regulation¹ in the context of this thesis will imply bank regulation.

Furthermore, banking regulation will refer to external regulation rather than banks' self-regulation. When the latter is meant, it will be explicitly stated.

1.1. Purpose of Bank Regulation and Supervision

1.1.1. Reasons for Regulation

In historical perspective financial regulation has usually been an immediate reaction to financial crises (Nobel and Zimmermann, 2005). In crisis circumstances the problems and the fragility of the banking system become extremely tangible and this enhances the necessity of regulatory actions to set new rules of further functioning and exercise strong controls on all banks in order to terminate the ill practices and mitigate the negative impact on the economy. Some economists such as Kaufman (1996) and Dowd (1996) support the free banking and reckon that banks should be a subject to discipline of an unregulated market place. Analyzing the history of U.S. Federal regulation on banks they find out that efforts of the regulatory institutions to provide protection against fragility of banks actually create additional problems (e.g., reduced market discipline, increased risk exposure). As Dowd explains, these problems require further intervention that on turn creates new problems. This vicious circle eventually leads to an even larger fragility of the banking system and a worse economic outcome than the unregulated starting point. Goodhart (1998), on the other hand, argues that the main cause of problems in banking has traditionally been the failure of internal governance and controls—poor credit control, connected lending, insufficient liquidity and capital. He argues further that the private sector, left to itself, produces market failure because of information asymmetries, negative externalities and oligopolistic market power and the results in the case of private self-regulation (in free market conditions) are worse than in the case of public regulation, even with all the failures that the latter may entail. Moreover, the social cost of failures in unregulated financial system creates public pressure and forces the establishment of an external regulation from a higher instance. Therefore, he concludes, the banking system

¹ Financial regulation includes banks, securities markets, mutual and hedge funds, insurers, and central banks

requires enhanced and improved external regulation and supervision in addition to and partly in place of self-regulation in order to reinforce internal controls and to prevent from market failure.

Goodhart (1998), among others, states the three main reasons for banking regulation. First, customers lack market power and are vulnerable to exploitation from the monopolistic behavior of banks. Secondly, bank clients are less informed and unable to monitor banks because of difficulty or cost of obtaining information and, therefore, require protection. Finally, regulation is necessary to ensure safety and stability of the financial system.

1.1.2. Objectives of Regulation

The reasons for banking regulation determine the main purposes and objectives of the regulators. The financial regulation is not so much concerned with the control of monopoly behavior. As Matthews and Thompson (2005) explain, although banks are to some extent able to use information about clients to exercise some monopolistic pricing (e.g., unduly high consumer loan interest rates or unduly low deposit interest rates), the ferocious contestability of the banking market has in general contributed to decline in interest margins and diminution of monopolistic power. The purpose of the regulation in this direction is, therefore, to ensure fair and open competition, and reasonable access to systems and information (Goodhart, 1998).

The core objectives of banking regulation are to ensure the customer protection and the safety and soundness of the banking system. By so doing the regulation will also achieve the financial stability of the economy as a whole.

The main threat for bank customers, first and foremost for the depositors and creditors of the bank, arises from the possibility of bank failure and the consequential losses the customers may suffer. Additionally, information asymmetry makes customers vulnerable to fraud and misuse on the part of the bank. To achieve clients' protection the financial regulation and supervision should ensure the safety, stability and proper conduct of the bank itself, i.e. that the bank will remain solvent and will be able to meet its obligations towards its customers when they come due. By focusing on the safety and soundness of the individual institutions the financial regulation will ensure not only customer protection but also the financial stability of the whole banking system.

System protection is important for two reasons. First, it is a common notion among economists, regulators and investors that the financial system, and particularly the banking system, is much more vulnerable to systematic risks and contagion than any other economic sector. This is so because of banks' special function as asset- and maturity-transformers. The difference in the degree of liquidity of their assets and liabilities makes them highly vulnerable to depositor withdrawals and bank runs in extreme cases. Additionally, banks are more susceptible to systemic crises because of the largely developed interbank market where banks deal with each other on a massive scale and imbalances and shocks are quickly spread throughout the whole sector (Moosa, 2008)². Hence, while the failure of one firm in another business is typically in favor of the competition, in banking, the failure of one bank affects negatively the other institutions and may cause a crisis in the whole financial system.

Secondly, bank failures and crises in the financial system have adverse consequences for the economic stability. Banks as intermediaries allocate financial resources among various economic sectors and are the central provider of payment and liquidity services for the real economy (Saunders and Cornett, 2008). Disruption in banking sector, however, leads to reduction in credit flows to the rest of the economy, and hence to disturbance of the normal economic activity and subsequent economic stagnation. Therefore, regulatory protection of the financial system is of great significance in the contemporary world of international banking since systemic failures pose a threat for the economy as a whole and have social costs that exceed the private costs of the failing institutions as it is evident from the current crisis.

A very important function of the regulation is that it strengthens the reputation of the banks and increases the confidence of the clients. This determines the behavior of the customers and is crucial for both the single bank and the systemic dimension because the functioning of the financial markets largely depends on the trust of market participants (Hoffmann, 2004). The crisis of 2007-8 was to a large extent a crisis of confidence. Therefore, another objective of the regulation should be to ensure sufficient information transparency so that market participants can assess banks' real risk positions and make informed decisions. Additionally, the regulators should maintain the credibility of the banks in the eyes of their clients by ensuring banks integrity, i.e. that the banks are not committing fraudulent actions such as money laundering, exchange rate manipulations and insider transactions on securities market (EF, 2000).

² See 1.4. *Systematic risk*

1.2. Approaches to Bank Regulation

Regulators have developed several approaches to customer and individual bank as well as bank system protection. Saunders and Cornett (2008) indicate four protective mechanisms of the U.S. Safety and Soundness Regulation which broadly reflect what occurs elsewhere.

These are the basic elements of the prudential regulations and financial safety net applied in many countries to prevent from or minimize banking sector problems and particularly the risk of failure by institutions and systems. Various other laws in different jurisdictions complement the country-specific regulatory systems.

The first layer of protection is directed to diversification of assets in order to reduce credit risk. To encourage diversification regulators establish limits on bank lending to an individual borrower. Banks are required, for example, not to make loans exceeding more than 10 percent of their own equity capital to any one public or private party, i.e. if a bank has 8 percent of its assets funded by its own capital, the bank is not allowed to lend more than 0.8 percent of its assets to any one borrower (Saunders and Cornett, 2008).

The second layer of protection includes minimum own equity capital requirements to minimize the insolvency risk. This requirement protects depositors and other liability holders because equity holders legally bear the losses on assets first. Only when and if the equity is turned down to zero bank creditors can suffer losses.

The third layer of regulation is monitoring and supervision. Moosa (2008) points out three functions of financial supervision: macro-prudential supervision, micro-prudential supervision, and conduct-of-business regulation. Macro-prudential supervision intends to limit financial system distress which has damaging effects on the whole economy. Micro-prudential supervision is concerned with the solvency of the individual institution rather than the whole system. The objective is to protect consumers from loss by ensuring that banks are operating in compliance with laws and regulations and to take corrective actions when prudential requirements fall short. Conduct-of-business regulation seeks to protect investors and customers by imposing business conduct rules requiring transparency and information disclosure in order to ensure fair treatment and to increase the confidence in the banking system. It may also include competition and money laundering issues.

The fourth layer of protection is the financial safety net which includes deposit insurance and lender of last resort³. Deposit insurance is a guarantee (explicit or implicit) provided privately or by the government to protect depositors against losses in case of bank failure and thus reduces the risk of systemic bank runs⁴. A lender of last resort is typically the central bank, which funds banks when borrowing from the market is restricted. The purpose is to prevent systemic problems due to liquidity shortage in individual institutions⁵.

Additionally, regulators in most countries require that banks maintain certain levels of liquidity at any time. These requirements include minimum level of cash reserves against demand deposits and minimum ratios of liquid assets banks must hold in order to meet their immediate needs of cash.

1.3. Structure of Bank Regulation and Supervision

Banking regulation and supervision takes place at four levels. The first level are the international organizations and committees initiating the establishment of international standards for regulation and supervision of financial markets. The second level is the regional regulation which concerns first and foremost the EU countries which national legislation is pre-empted by the EU regulations. The third level are the national legislative authorities in each country which enact the laws with immediate effect in the banking sector. The fourth level is banks' self-regulation in the form of internal controls and risk management practices or in the form of voluntary industrial norms.

1.3.1. Global Regulators

The globalization and the increasingly complex nature of international financial markets in the recent decades have created new levels of financial risk and new dimensions of financial crises. Instability in the financial sector in one particular country affects nowadays not only the local market or geographical region but has world-wide repercussions in all economic areas. Therefore, a growing number of international organizations have engaged in the development of new supervisory and regulatory international standards aiming to reduce the danger of financial system collapses. These organizations seek the promotion and implementation of the standards through effective co-operation and co-ordination of all

³ An expanded definition of financial safety net includes also the prudential regulatory and supervisory framework (Schich, 2008)

⁴ OECD definition, <http://stats.oecd.org/glossary/detail.asp?ID=6200>

⁵ OECD definition, <http://stats.oecd.org/glossary/detail.asp?ID=1518>

separate national financial authorities in order to achieve harmonization of international policies as a way of avoiding the inefficiencies and uncertainties that result from differences in national laws.

International standards as defined by the Financial Stability Forum (FSF) are “widely accepted good principles, practices, or guidelines in a given area”⁶. They act as recommendations which have no compulsory form and are not directly applied. The standards have to be transformed into national laws in order to become legally binding for the financial institutions of a particular country. Additionally, they offer flexibility in implementation which gives countries the possibility to choose between options which best suit their national systems (Zulauf, 2006).

Standards are often compared to the “soft law” that is voluntarily endorsed by the national legislative authorities because of its persuasiveness and proven effects. In the banking sector, however, international banks who seek to be internationally competitive, to avoid enhanced supervision in the host countries and to improve their position on the capital markets, more often exercise strong pressure on their home country legislators to align the standards with the national law (Zulauf, 2006). Additional stimulus for the enactment of the standards is created through the annual inspections carried out by international organizations such as IMF or OECD which set the standards as a benchmark when assessing the financial stability and the overall economic situation in a particular country (Hoffmann, 2004).

Financial Stability Forum has designated twelve internationally recognized key standards for sound financial systems which represent minimum requirements for good practice⁷. For the banking industry the most important standards are the standards of Basel Committee on Banking Supervision (BCBS) and the standards of The International Organization of Securities Commissions (IOSCO). Both organizations as well as the other international financial standard setting bodies are coordinated at the global level by the Financial Stability Board (FSB)⁸.

The Basel Committee on Banking Supervision (BCBS) is the international regulatory and supervisory institution for the banking sector. Its Secretariat is provided by the Bank for

⁶ FSF definition, <http://www.financialstabilityboard.org/cos/standards.htm>

⁷ See Appendix 1

⁸ Financial Stability Board (FSB) is the successor to the Financial Stability Forum (FSF) since April 2009

International Settlements (BIS) - the world's oldest financial organization which encompasses the largest central banks in the world. The Committee was established at the end of 1974 with the purpose of cross-border co-ordination of the individual national supervisory authorities with regard to the activities of their internationally operating banks. Its main objectives are to promote and facilitate the adoption and implementation of basic principles on key supervisory issues and improve the quality and efficiency of the banking supervision worldwide. The foundation of the Committee as a reaction to the collapse of the Breton Woods system and the subsequent closures of Bankhaus Herstatt in Germany and Franklin National Bank in the United States is the first serious attempt to develop formal supervisory co-operative procedures on international level. All forms of co-operation before that have been of a purely ad hoc and bilateral nature (Walker, 2001).

The Committee has issued a large number of papers so far. To the most popular publications belong: the Committee's recommendations on cross-border banking supervision which became known as the Basel Concordat published first in 1975, revised later in 1983 and reformulated as a set of Minimum Standards⁹ in 1992; the Core Principles for Effective Banking Supervision issued 1997 and revised in 2006; and the basic standards setting minimum capital requirements for banks -the Capital Accords of 1988 and 2001 known respectively as Basel I and Basel II- as well as the latest standard of the Committee in response to the financial crisis of 2007- Basel III- issued in December 2010¹⁰. The international standards Basel I, Basel II and Basel III will be the main focus of the analysis in the following sections.

The other set of standards relevant to the banking sector are the standards of The International Organization of Securities Commissions (IOSCO). IOSCO, created in 1983, is recognized as the international standard setting body for securities markets and the global coordinator of securities market regulators. Its main objectives are: facilitating cross-border co-operation, investor protection, ensuring fair, efficient and transparent markets, and reduction of systemic risk¹¹. These standards are particularly important for the banking industry because banks are in continuous interaction with securities markets as part of their trading, hedging, funding, and diversification activities.

⁹ See Basel Committee on Banking Supervision: *Minimum Standards for the Supervision of International Banking Groups and Their Cross-Border Establishments*, July 1992. Basel

¹⁰ All papers could be found at www.bis.org, <<Basel Committee on Banking Supervision>>

¹¹ See www.iosco.org

1.3.2. Regional Regulators

In response to the world financial crisis the European Parliament established in November 2010 the European Banking Authority (EBA) as the successor of the Committee of European Banking Supervisors (CEBS). The main purpose of EBA is to ensure the stability of the financial system in the EU, the protection of depositors and investors, the transparency of the financial markets and the strengthening of the international supervisory coordination¹².

1.3.3. National Regulation

Bank regulation differs significantly across countries in terms of bank legislation, government and central bank policy, structure of the banking sector and performance of individual banks. Country-specific bank policies determine permissible banking activities such as engagement in securities, insurance, and real estate activities or integration of banking and commercial activities. Other policy differences include the size of the banks, the degree of government ownership, government protection through deposit insurance and/or lender of last resort, entry barriers, foreign ownership of banks, etc. Nevertheless, national regulatory regimes across countries have the same main goal- the safety and the soundness of their financial systems.

1.3.4. Self- Regulation

Self-regulation is not unambiguously understood. What is meant here is not the self-regulation of the market left to itself (i.e. in the absence of external regulation). It is rather the supplementary regulation in the form of self-imposed and self-binding rules such as codes of conduct or codes of practice, customer charters and voluntary agreements, developed and enforced autonomously by the interested parties themselves whenever such rules make sense. These rules can be set up by the single entity for internal checks and controls and risk management in order to ensure its sound procedures and processes or by the industry and professional organizations as generally valid standards and practices for all participants. In principle, self-regulation is a voluntary independent regulatory approach. However, in the case of the industry-wide norms peer pressure can enforce compliance by the existing participants or even hamper potential new entrants if they do not abide by the established professional standards. Additionally, self-regulation can be formally required and endorsed by the legislation in some countries. An example for successful self-regulation in the banking

¹² See www.eba.europa.eu

sector is Switzerland which has long traditions in this field. Self-regulation in Switzerland exists in three forms¹³. The first one is the free and autonomous self-regulation without any state intervention. The second is compulsory self-regulation as regards some issues which should be regulated by the banks themselves and then endorsed by the regulator. The third form is a hybrid between voluntary and compulsory self-regulation. Self-regulation, e.g. codes of conduct, is initiated and voluntarily drawn up by a group of banks in collaboration with the regulator. Once approved by the regulator the codes of conduct become legally binding and act as minimum standards not only for the members of the group but for the whole banking sector. Banks are monitored for compliance with the codes and are liable to sanctions in case of infringement just like in the case of any other laws.

The advantage of the self-regulation in comparison to institutional regulation is that it is based on the inside know-how of bank practitioners and, therefore, is more flexible and can be adapted faster and more accurately to changing market conditions and consumer demands (EF, 2000, EBK, 2007, Carmichael and Pomerleano, 2002). Other advantages include lower implementation and compliance costs because of the larger discretionary power of the self-regulators, higher acceptance and greater willingness to comply by the regulated because it is self-designed, and positive effect on banks reputation (EBK, 2007, Carmichael and Pomerleano, 2002).

Self-regulation is also a subject to some criticism. The main drawback is that it can cause conflicts of interest among the involved parties as well as towards third parties, particularly the depositors and investors as well as the financial market because the self-regulators are much more concentrated on their personal rather than public interest. Another weakness is the risk that the more powerful players in the industry will set rules in their own self-interest and will disadvantage the smaller participants (EBK, 2007, Carmichael and Pomerleano, 2002).

1.4. Types of Bank Risks and Risk Management

The starting point for developing institutional bank regulation as well as internal bank controls are the various types of risks the banks are exposed to. The regulator should ensure that the banks have the necessary mechanisms and processes to assess and manage three generic risk types (under Basel II): *credit risk, market risk and operational risk*.

¹³ See <http://www.finma.ch/d/regulierung/Seiten/selbstregulierung.aspx>

Credit risk or *default risk* is the possibility that a contractual counterparty will not fulfill its obligations because it is unable or unwilling to honor the contract (Ammann, 2001). Credit risk is often referred to also as counterparty risk. The difference is that counterparty risk is more transient financial risk than standard creditor default risk and is generally associated with trading of over-the counter (OTC) derivatives where each counterparty is exposed to the default risk of the other party. Therefore, it is the risk of non-performance of a trading partner (Santomero, 1997).

Financial institutions, in this case the banks, are compensated for assuming credit risk by the interest paid by the borrowers on their debt obligation. Credit risk is an idiosyncratic risk that can be eliminated through careful risk management that involves screening and monitoring of the most creditworthy loan applicants, correct loan pricing based on the probability of default of the borrower and the degree of collateral, and diversification of the loan portfolio.

Nevertheless, one portion of the risk remains undiversified because diversification reduces primarily the individual firm-specific credit risk whereas the banks are still exposed to systematic credit risk, outlined below, that affects the economy as a whole and may cause simultaneous default of all or a lot of borrowers (e.g., economic recession). Therefore, it is difficult and impossible for the banks to make in advance accurate estimates of the total loss; they can easily calculate the expected loss and cover it with loan loss reserves but they cannot predict the unexpected loss. Thus, bank's capital is a necessary tool for risk mitigation required not only by the regulator (regulatory capital) but also by the banks themselves (economic capital) in order to provide a cushion against unexpected losses.

Market risk arises because of the bank's trading activity. It is the risk that the value of the traded assets and liabilities and as a result the earnings on the trading portfolio can fluctuate due to extreme changes in interest rates, exchange rates, asset prices and other market conditions such as market volatility and market liquidity (Saunders & Cornett, 2008). Bank's trading portfolio (trading book) contains financial instruments such as equities, fixed-income securities, commodities, derivatives, bonds and foreign exchange which are characterized with short trading horizons and secondary market liquidity whereas the investment portfolio (banking book) contains assets and liabilities that are relatively illiquid and held for longer-term investment, funding or hedging purposes, e.g., loans and deposits. However, some long-term loans become more liquid and tradable through securitization (e.g. mortgages). Market risk affects primarily the trading book but also the banking book whenever banks take open or

unhedged positions in their traded assets and liabilities (Saunders and Cornett, 2008). To reduce the market risk banks measure and manage the closely related interest rate, foreign exchange, and equity return risks, establish control systems to limit the risk taken by traders and use various internal models to measure the market risk exposure of the bank such as the RiskMetrics model estimating the potential loss or value at risk-VAR- of the traded positions for different periods as well as on a daily basis calculating daily earnings at risk-DEAR. Since 1996 with the Amendment to the Capital Accord Basel Committee on Bank Supervision requires that banks apply regulatory capital add-on to counteract market risk¹⁴.

Operational risk is a collective risk category that includes several risk sub-categories such as technology risk (malfunction or break down of existing technology or support systems), employee risk (e.g., internal fraud, human error), capital asset risk (e.g., fire, flood), customer risk (e.g., client dissatisfaction with a product) and external risks such as taxation risk (tax avoidance), legal risk (e.g., fraud, violation of regulation or law) and strategic and reputational risk (e.g., failed merger) (Saunders & Cornett, 2008). Operational risk is defined by the Bank for International Settlements (BIS) as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events”¹⁵. The losses may be direct financial losses (e.g. loss of income) or indirect financial losses in the form of revenue forgone as a result of business suspension or damage to bank’s reputation leading to, e.g., client withdrawals. BIS definition includes explicitly legal risk and excludes strategic and reputational risk. Most financial institutions, however, accept the broader view that adds strategic and reputational risk to the operational risks as well.

Unlike credit and market risk the operational risks arise inside the bank. Operational risks are the reason for not the consequence of the losses incurred. Therefore, the bank is in a position to better manage operational than market and credit risks because it can directly influence internal processes, people and systems, e.g., information or internal control systems (Nobel & Zimmermann, 2005). Bank’s efforts to control and reduce operational risk include: loss prevention (training and development of employees), loss control (planning, organization, backup systems), loss financing (catastrophe insurance) (Saunders & Cornett, 2008). Nevertheless, operational risk just like the credit and market risks cannot be completely eliminated through risk management and it has also been incorporated into capital

¹⁴ See Basel Committee on Banking Supervision: *Amendment to the Capital Accord to Incorporate Market Risk*, January 1996. Basel

¹⁵ See Basel Committee on Banking Supervision: *The New Basel Capital Accord*, January 2001, p. 94, Basel

requirements with The New Basel Capital Accord, 2001. By definition, the minimum regulatory operational risk capital charge includes legal risk but not strategic and reputational risks. The latter are subject of further regulatory decisions (Basel II).

Other risk types that the banks should manage in order to avoid distress and ensure stability and fulfillment of their obligations are *interest rate risk* and *liquidity risk*. Interest rate risk and liquidity risk are inherent to banks because of their fundamental function as maturity- and asset-transformers of short-term deposits into long-term loans.

Interest rate risk is the risk that arises because of the mismatched maturities of banks assets and liabilities (Saunders and Cornett, 2008). Saunders and Cornett (2008) subdivide interest rate risk into (1) refinancing risk and (2) reinvestment risk, depending on the type of maturity mismatch. Refinancing risk exists when banks hold longer-term assets relative to their liabilities. It is the risk that the cost (the interest rate) of rolling over or re-borrowing funds could rise above the return (the interest rate) on asset investments. Reinvestment risk exists when the maturity of the assets held is shorter than the maturity of the liabilities. In this case the bank faces the risk that the interest rate at which it could reinvest funds could fall below the cost of funds (the borrowing rate). In both case banks will take losses as a result of changes in the interest rates.

Interest rate risk is tightly linked to market risk since the interest rate is the rate at which future cash flows from assets and liabilities are discounted in order to calculate the present (market) value of these assets or liabilities. Therefore, increase in the interest rate leads to decline in market values, and conversely, falling interest rates increase the market values of assets and liabilities (Saunders and Cornett, 2008).

Banks can directly control interest rate risk by matching the maturities of their assets and liabilities. Managing interest rate risk in such way, however, is not consistent with the banks special function as asset-transformers and reduces bank's profitability because the returns from acting as a specialized asset-transformer are also reduced. Therefore, banks use other techniques to hedge against interest rate risk such as futures and forward contracts as well as options and swaps (Saunders and Cornett, 2008).

Liquidity risk consists of two components: the risk of a funding crisis (funding liquidity risk) and market liquidity risk. Funding liquidity risk is the risk that the bank will not be

able to fund increases in assets and meet cash flow or collateral obligations as they come due, without incurring unacceptable losses or affecting the daily operations of the bank. Market liquidity risk is the risk that a bank cannot sell off an asset position at the market price because of inadequate market depth or market disruption (BIS interpretation¹⁶).

The reasons for the liquidity risk in a bank, as explained by Saunders and Cornett (2008), can be found on both the liability- and the asset-side. The liability-side liquidity risk is present when liability-holders (e.g., depositors) seek to withdraw their deposits immediately; the asset-side liquidity risk arises when the bank has to fund the exercise of off-balance-sheet loan commitments or credit lines. In a normal situation the banks are able to assess and manage effectively their liquidity needs without incurring losses that could threaten their solvency. There are several ways to do so. The most direct source of liquidity is cash. Banks, however, limit their cash holdings because cash reserves pay no interest. They would rather invest it in less liquid and longer-maturity assets in order to increase profit. Alternative ways to meet liquidity demand are borrowing additional funds in the money market or/and selling off assets starting from the most liquid ones such as T-bills. Sometimes, however, because of a sudden surge in liability withdrawals due to, e.g., damage of bank's reputation and lack of confidence by liability holders, the bank can face a liquidity crisis. Kaufman (1996) explains that a shock, in this case a liquidity shortfall, at a single bank can be quickly transmitted to other banks because banks are tightly financially interconnected: they lend continuously to and borrow from each other and rely on funding from capital markets. As a result, the initial shock at a single bank can lead to funding liquidity crisis and functional disturbance, affecting the whole financial system. There could also be some unexpected need for cash from all depositors simultaneously (bank runs) due to systematic factors such as worsened economic conjuncture. In such conditions, when all, or many, banks face abnormally high withdrawal demands, borrowed funds can become extremely expensive or even restricted (Saunders and Cornett, 2008). This will result in a more serious funding liquidity risk. Banks will then be compelled to sell some of the less liquid assets to meet their obligations towards liability holders. Selling these assets immediately will be possible at a lower (fire-sale) price than the fair market value that the bank would otherwise receive if it had enough time to negotiate the sale of the asset (market liquidity risk). The liquidity risk problem can eventually cause insolvency risk, where

¹⁶ See Basel Committee on Banking Supervision: *Principles for Sound Liquidity Risk Management and Supervision*, p.1, September 2008, Basel

the bank's capital resources are depleted and the bank cannot pay its creditors as promised, and end up with the bank's failure.

Liquidity regulations are predominately country-specific (Gualandri et al., 2009). National liquidity regimes impose different liquidity buffers such as minimum cash reserves on demand deposits banks must hold in order to meet increased liquidity needs in the short run¹⁷. In general, banks would choose to hold cash reserves even in excess to minimum requirements in order to meet immediate liquidity needs. Other specific rules include limits on maturity mismatches or reliance on a particular funding source, liquidity ratios as well as qualitative measures such as supervisory requirements to develop internal systems for the management, control, monitoring, and reporting of liquidity positions, identifying specific measurements of liquidity risks (Gualandri et al., 2009).

Because liquidity risk turned out to be of crucial importance in the recent crisis it received an extensive regulatory attention in the latest international framework-Basel III. In December 2010 Basel Committee has introduced for the first time global liquidity standards which aim to improve the ability of banks to absorb financial and economic shocks and thus reduce the risk of contagion and systemic break down¹⁸.

Particular attention with regard to the financial crisis deserves also the *systematic risk*. *Systematic* or *systemic risk* includes all risks that threaten the functioning and the stability of the whole system. Functional disturbances that affect the whole banking system are as a rule a result of the realization of the combination of all risks- credit, market, operational, and liquidity risk (EF, 2000).

There are several reasons for systematic risks in banking sector. A "classical" reason are the bank runs (EF, 2000). As already explained, the strong interconnectedness between banks makes them more susceptible to systematic risk than firms in any other industry (Kaufman, 1996). Therefore, actual or perceived shocks at one institution cause a crisis of confidence towards the other intermediaries (bank panics); in the absence of deposit insurance protection this results in bank runs and liquidity problems. The latter are quickly spread among banks

¹⁷ e.g., U.S. Federal Reserve requires reserves of 0-10% depending on the amount of liabilities (data as of January 2011 at <http://www.federalreserve.gov/monetarypolicy/reservereq.htm>); Swiss National Bank: 2.5 % (Nationalbankverordnung, NBV, 2004, Art.15, Abs.1); European Central Bank (ECB): 2% (Regulation No 1745/2003 of the ECB on the application of minimum reserves, Art.4, 2003)

¹⁸ See Basel Committee on Banking Supervision: *Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring*, December 2010, Basel

and can threaten the stability of the whole financial system. Since systematic risk is a combination and consequence of credit, market, liquidity and operational risks, holding sufficient capital and managing adequately liquidity helps avoid default from adverse shocks originating at other banks but is not sufficient (Kaufman, 1996, EF, 2000). Additionally, governments protect depositors against losses and banks against runs through deposit insurance.

Nobel and Zimmermann (2005) argue additionally that systematic risks are not based solely on the transmission of insolvency and liquidity problems from one bank to another but can arise simultaneously in many intermediaries due to a single common factor such as macro shock.

Another reason for systemic risk is the globalization of the markets and their actors and the concomitant development of global information, trade, and payment systems. The globalization of these systems as well as the global organization of the financial conglomerates and institutional investors facilitates the spreading of disturbances (EF, 2000).

Externalities can also provide an explanation for the systematic risks. They arise in many ways through incomplete information of market players about the creditworthiness of the counterparties, bank's reliability, and behavior of the other market participants. The consequences of these externalities can be reduced through higher transparency. The regulatory instruments to achieve it are the requirements for information disclosure and information accessibility (EF, 2000).

Systematic risk is basically an un-diversifiable risk and as such is very difficult to measure and manage by banks. Regulatory efforts of governments to address systematic risk, especially during the current crisis, have been focused on reinforcement of financial safety net for banks by providing guarantees such as explicit deposit insurances in order to restore confidence and prevent bank failures. Kaufman (1996), among others, argues that safety net in the form of deposit insurance or any other anti-systemic risk regulations, may have an unintentional negative impact on bank's risk taking behavior and market discipline if poorly designed or implemented. It may foster moral hazard and actually increase fragility of banks and the likelihood of bank crises instead of reducing them. McCoy (2006) concludes that countries considering adoption of explicit deposit insurance need to have proper safeguards against moral hazard by banks. These safeguards include: strong banking regulation, a strict

failed bank resolution regime, carefully designed deposit insurance with safeguards against risk, healthy private monitoring, and strong institutions. If all these safeguards are present the deposit insurance will serve the intended purpose, i.e. protect both banks and depositors while eliminating the possibility of moral hazard.

On a global level, Basel Committee and the Financial Stability Board are in an ongoing process of developing integrated approach to systemically important financial institutions and elaborating further measures to mitigate systematic risk that include liquidity surcharges, tighter large exposure restrictions and enhanced supervision¹⁹.

1.5. Costs of Bank Regulation and Supervision

Bank regulation aims to increase social benefits and reduce social costs through minimizing the risk of market failure. This public good, however, is created by generating private costs for the regulated banks. The costs of regulation borne by banks include, for example:

- Cost of capital adequacy requirements. Holding high level of equity capital constraints banks ability to use more debt (deposits and other liabilities) as a cheaper source to finance their assets and to leverage like other firms.
- Cost of regulatory compliance. Administrative costs for monitoring and supervision as well as costs for information production in adherence to reporting standards can become even more redundant for banks if there are multiple regulators.
- Costs incurred as a result of reduced profitability or opportunity cost. For example, the asset diversification requirements prohibit the loan extension to a single borrower above a certain limit even though the additional loans to the same counterparty may have positive net present value for the bank (Saunders and Cornett, 2008). Another example is holding cash reserves which bear no interest. Well-managed banks find it quite burdensome especially if they need lower than required cash levels for their own liquidity purposes. Restrictions on permissible activities also reduce bank's potential for profit realization. The opportunity or indirect costs constitute the "lion's share" of the total costs of bank regulation, however they are very difficult to measure (Hoffmann, 2004).

In order to achieve efficient regulation the regulators should take into consideration the net regulatory burden imposed on the regulated institutions. They should ensure that the benefits

¹⁹ See Basel Committee on Banking Supervision: *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*, p.7. December 2010. Basel

of regulation outweigh substantially the costs involved if the regulation is to make sense. Otherwise, high regulatory burden may have detrimental effect on the financial institutions in terms of profitability, efficiency, and competitiveness and, therefore, deteriorate the quality of the financial services and products offered and hamper the functioning of the financial market as a whole. A thorough cost-benefit analysis by the regulators before any new rules are introduced will help avoid bringing in excessive and counter-productive regulation.

Section 2: International Bank Regulation Effective at the Onset of the Crisis

This section will present the main regulatory instruments set in the international regulatory and supervisory standards of the Basel Committee on Banking Supervision (BCBS) - the Basel Capital Accords known as Basel I and Basel II. Basel I is the initial framework establishing minimum capital standards for international banks. The extended framework Basel II keeps and develops further Basel I standards adding some new dimensions of regulation and supervision.

By introducing regulatory instruments such as minimum international standards for capital adequacy, the objective of Basel I and II, in line with the main regulatory and supervisory concepts discussed in the previous section, is to minimize the possibility of bank failures and to strengthen the soundness and the stability of the global banking system. The other goal of these international frameworks is to provide uniform rules and a level playing field for internationally active banks in order to ensure consistency in application and fair competition.

2.1. The Initial Framework Basel I

In 1988 BCBS drew up a document²⁰ which became known as Basel Capital Accord or Basel I. Basel I is an agreement between the major industrialized countries (G10)²¹ to apply minimum levels of capital requirements to their internationally operating banks. The capital adequacy standards address entirely the credit risks of assets (both on- and off-balance sheet). Capital standards for other risks at this stage are not explicitly stipulated and additional provisions against risky assets are left to the discretion of the individual supervisory authorities.

Basel I sets a minimum risk-based capital ratio which the banks should maintain at any time in order to absorb losses incurred from counterparty failure and ensure solvency and soundness. To be adequately capitalized, the bank must hold target standard capital in the

²⁰ The original name of the document is *"International Convergence of Capital Measurement and Capital Standards"*, July 1988

²¹ Initially the Basel Committee on Banking Supervision comprised representatives of the Central banks and the supervisory authorities of the Group of Ten (G 10) countries (Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom, United States, and Luxemburg as an associate member). Today, the Committee includes 28 member countries. The new members are: Argentina, Australia, Brazil, China, Hong Kong, SAR, India, Indonesia, Korea, Mexico, Russia, Saudi Arabia, Singapore, South Africa, Spain, and Turkey.

amount of minimum 8% of its weighted-risk assets. Additionally, the share of the core capital should be at least 4%.

The ratios are calculated as follows:

$$\text{Capital ratio} = \frac{\text{Capital (Tier 1 + Tier 2)}}{\text{Credit risk – weighted assets}} \geq 8 \%$$

$$\text{Core capital ratio} = \frac{\text{Core capital (Tier 1)}}{\text{Credit risk – weighted assets}} \geq 4\%,$$

where:

Capital is defined as the sum of two tiers: the core capital (Tier 1) which should be at least 50 % of the total bank's capital base and the supplementary capital (Tier 2) limited to 100 % of Tier 1 capital.

Tier 1 (core) capital includes²² (a) permanent shareholder's equity in the form of common stock, perpetual non-cumulative preferred stock, and minority interests in equity accounts of consolidated subsidiaries; (b) disclosed reserves such as retained earnings, share premiums or other surplus, and (c) qualifying innovative capital instruments up to a maximum of 15 % of Tier 1 capital. Goodwill should be deducted from Tier 1 capital.

Tier 2 (supplementary) capital includes (a) undisclosed reserves that have been accepted by the bank's supervisory authority; (b) general loan-loss reserves limited to 1,25 percent of risk-weighted assets; (c) hybrid (debt, equity) capital instruments; (d) subordinated debt limited to 50 percent of Tier 1 capital; (e) asset revaluation reserves

From *total capital (Tier 1 + Tier 2)* banks should deduct

- investments in unconsolidated subsidiaries
- holdings of other banks' capital (at national discretion)

Credit risk-weighted assets are calculated as the sum of credit risk-adjusted on-and off-balance sheet asset positions. On-balance-sheet assets are classified in several categories according to their riskiness and are then multiplied by the risk weight assigned to the respective category. Off-balance-sheet assets are first converted into credit risk equivalents by

²² According to 1988 Accord (Basel I) and "Instruments eligible for inclusion in Tier 1 capital", 1998 published at <http://www.bis.org/press/p981027.htm>

multiplying the nominal amounts of the positions by a credit conversion factor (set by the regulator) and then the credit equivalent amounts are multiplied by the assigned risk weights to them. The risk weight or the risk exposure of a position is determined by the probability of the counterparty failure. In Basel I the risk weights are set by the regulators.

Basel I was followed by several amendments of which the most important is the fifth revision which includes additional capital charge for market risk. This revision was published in 1996 as "Amendment to the capital accord to incorporate market risks".

The amendment introduced *Tier 3* capital as an additional capital to meet market risks along with Tier 1 and Tier 2 capital. Tier 3 capital consists of short-term subordinated debt with an original maturity of at least two years and can be used as a cushion solely against market risk, i.e. credit and counterparty risks should be covered by Tier 1 and Tier 2 capital. Tier 3 capital cannot exceed 250% of bank's Tier 1 capital required to support market risk which means that at least 28% of market risks should be covered by Tier 1 capital. Additionally, Tier 2 capital can be substituted for tier 3 capital up to the same limit of 250%.

The amendment offers two approaches for measuring market risk exposures. The first one is the standardized method proposed by the Bank for International Settlements (BIS). Secondly, with regulatory approval and under certain conditions banks are allowed to use their own internal risk management models to measure market risk²³.

The BIS standardized method to calculating the minimum capital requirement for market risk is different than the risk-weighting approach applied for calculation of the capital charge for credit risk described above. The capital charge for market risk is directly and separately calculated for each single position or risk category (fixed-income securities and equities in the trading book and foreign exchange and commodities throughout the bank). The sum of the capital charges across all positions yields the total capital charge for market risk. The total capital charge for market risk is then multiplied by 12.5 (the reciprocal of the capital ratio of 8 %) in order to create notional market risk-weighted assets. The capital ratio is calculated by dividing the total eligible Tier 1,2, and 3 capital in the numerator by the sum of the market and credit risk-weighted assets in the denominator.

²³ Details about the two approaches can be found in "Amendment to the Capital Accord to Incorporate Market Risks", 1996 at www.bis.org

The second option for market risk measurement is to use internal models such as Risk Metrics and Historic (back simulation) model where market risk is measured as VAR at a certain confidence level and time period. If banks decide to use their own internal models they should satisfy certain criteria in order to receive approval by their supervisory authority and /or validation of model's accuracy by external auditors. Banks should prove that they have appropriate and sound market risk management systems as well as rigorous and comprehensive stress testing programs. Additionally, when calculating their capital charge they should apply some minimum quantitative standards, particularly for VAR calculations, set in the amendment.

2.2. The Second Framework Basel II

In 2001, BCBS issued “The New Basel Capital Accord”²⁴ which became known as Basel II. Basel II is more sophisticated and complete framework in comparison to Basel I because it has revised and improved the credit risk measurement in Basel I and introduced capital requirements for operational risks. Additionally, Basel II is structured in three mutually connected pillars which provide an integral concept for adequate capital support of the risks, better risk management, and overall stability of the financial system.

Basel II was created by BCBS in order to address the changes in the banking sector related to market innovation and increased complexity in banking industry that Basel I could not deal with effectively any more. Basel II was necessary also to correct some essential shortcomings of Basel I which resulted in unintended effects in the banking sector such as circumventing capital requirement and increasing credit risk exposures through innovative financial instruments. The criticism of Basel I and the necessity of Basel II will be discussed in detail in Section 4.

The New Basel Capital Accord has been updated and supplemented by several later publications all referred to as Basel II. The contents here are based primarily on the initial document of 2001. Where necessary, specific other documents will be additionally mentioned.

²⁴ See Basel Committee on Banking Supervision: *The New Basel Capital Accord*. January 2001, Basel

2.2.1. The First Pillar- Minimum Capital Requirements

Capital ratio

The first pillar treats the methods of calculation of minimum capital requirements for credit, market and operational risk. Basel II keeps entirely the definitions and the limitations of Tier 1, 2, and 3 capital set in Basel I and its fifth amendment. The required capital ratio continues to be minimum 8% for total capital. However, the total capital now includes new capital charge for the operational risk in addition to the minimum levels of capital required as a buffer against credit and market risks.

The ratio is calculated as follows:

$$\text{Capital ratio} = \frac{\text{Total capital}}{\text{Total risk assets}} \geq 8\%,$$

where:

$$\begin{aligned} \text{Total risk assets} = & \text{Credit risk – weighted assests} \\ & +12.5[\text{capital charge for market risk}] \\ & +12.5[\text{capital charge for operational risk}] \end{aligned}$$

As in the case of market risk, the measure of operational risk is multiplied by 12.5, the reciprocal of 8 %, in order to retain the principle of capital ratio calculation. The approaches to calculation of the capital charge for operational risks are presented below.

Capital requirements for credit risk

For the calculation of credit risk capital charge Basel II brings in some essential improvements which aim at achieving more sophisticated measurement of the credit risk-adjusted assets. The regulators provide two options for the treatment of credit risk. The first one is the Standardized Approach which has the same methodology of calculation of the capital ratio and the same definition of risk-weighted assets as the one developed in Basel I and outlined in the previous chapter. The essential improvement in the new framework is that it offers a wider differentiation of credit risk weights²⁵. Basel I sets arbitrary risk categories, for example, all loans to private sector counterparties, including corporates, have a risk weight of 100 percent regardless of the differences in individual credit risk. Under Basel II, different corporations fall in different risk categories according to their credit rating. Additionally, the

²⁵ The credit risk categories in Basel II are shown in Appendix 2

risk weights for sovereign, bank, and corporate loans are refined by applying ratings provided by external credit rating agencies recognized as eligible by national supervisors (e.g., Moody's and Standard & Poor's). As a result, the Standardized Approach in Basel II is more risk sensitive and produces more precise capital ratios based on the actual credit risks the banks are exposed to, compared to Basel I (Saunders and Cornett, 2008).

The second option is to use Internal Ratings Based Approach (IRB)²⁶ where banks are allowed to employ their internal rating systems and internal estimates of the creditworthiness of the borrowers and the respective credit risk exposures in determining the capital requirement. Because of that IRB Approach produces even more risk-sensitive capital charge than the Standardized Approach. Banks using IRB, however, should abide by rigorous methodological and disclosure rules set by the regulators and, as in the case of internal based models for market risk, are subject to explicit permission by bank's supervisory authority. The IRB Approach to credit risk includes two versions: the Foundations Approach and the Advanced Approach.

Under the IRB approach, banks must categorise credit risk exposures into broad classes of assets with different underlying risk characteristics defined by the Committee. The classes of assets are corporate, sovereign, bank, retail, and equity. The capital requirement and risk-weighted assets (RWA) must be individually derived for each asset exposure using formulas, or risk-weight functions, specified by the Committee for each asset class. Total risk-weighted assets are the sum of individual RWA.

In general, for an asset A:

$$\text{RWA (or capital requirements)}_A = f(\text{PD}_A, \text{LGD}_A, \text{EAD}_A, M_A),$$

where:

PD is the probability of default of the borrower over a given time horizon

LGD is loss given default which measures the portion of the exposure that will be lost in the event of default

EAD is the exposure (amount) at default

M is maturity which measures the remaining economic maturity of the exposure

²⁶ See Basel Committee on Banking Supervision: *International Convergence of Capital Measurement and Capital Standards*, June 2006, Basel

The functions include different risk components for the different asset classes. The risk components are either determined by the bank itself or set by the regulators depending on the variant of IRB Approach being employed. Under the Foundations Approach, in general, banks use their own estimates of PD and supervisory estimates for LGD, EAD and M. Under the Advanced Approach banks provide their own estimates for all risk components, subject to certain minimum standards.

The IRB Approach is based on measures of unexpected losses (UL) and expected losses (EL) for credit risk. Capital requirements are intended to protect banks against unexpected losses (UL). IRB framework provides a separate treatment of the expected losses (EL) which are covered by eligible provisions. Where the total expected loss amount exceeds total eligible provisions, banks must deduct the difference from the capital. Where the total expected loss amount is less than total eligible provisions banks may recognise the difference in Tier 2 capital up to a maximum of 0.6% of credit risk-weighted assets.

Credit risk mitigation

Pillar 1 under Basel II offers also credit risk mitigation (CRM) techniques which are recognized by the Committee for regulatory capital purposes. Under certain minimum conditions and operational and disclosure requirements banks using CRM techniques can obtain capital relief.

The credit risk mitigation techniques include risk mitigating instruments such as collateral, credit derivatives and guarantees, or on-balance sheet netting agreements. The framework provides very similar approaches for the treatment of the mitigators in Standardized and IRB methods.

Asset securitization²⁷

Asset securitization involves the legal or economic transfer of assets or obligations by an originating institution to a third party, typically referred to as a special purpose vehicle (SPV), which then issues asset-backed securities that are claims against specific asset pools. An SPV is a corporation, trust, or other entity organised in a way that isolates the SPE from the credit

²⁷ See Basel Committee on Banking Supervision: *International Convergence of Capital Measurement and Capital Standards*, June 2006 and *The New Basel Capital Accord*, January 2001

risk of an originator or seller of exposures. SPVs are commonly used as financing or investment vehicles in which exposures are sold in exchange for cash or debt.

Under Basel II banks must apply the securitisation framework for determining regulatory capital requirements to cover the risks arising from securitisation exposures. Securitization exposures include asset-backed securities, mortgage-backed securities, credit enhancements, liquidity facilities, interest rate and currency swaps, credit derivatives, etc. Banks are required to hold regulatory capital against all of their securitization exposures. Upon certain operational requirements originating banks may remove securitized exposures from their balance sheet and thus from the calculation of their risk-based capital ratio, e.g., in the case of legal transfer of securitized assets to a third party via a true sale whereby the bank ceases its effective or indirect control over the transferred assets. It is said that the bank has achieved a clean break. The treatment of the risks associated with securitizations is similar in Standardized and IRB Approaches. The IRB framework, however, is more risk-sensitive.

Capital requirements for market risk

The New Capital Accord retains the approaches to measurement of market risk capital charge adopted with the Amendment of 1996.

Capital requirements for operational risk

With the increase of technological developments the proper management and mitigation of operational risks gained in importance for the safety and stability of banks. The regulators acknowledged the significance of the threat and proposed the incorporation of the operational risks into capital requirements with Basel II in 2001.

The first pillar in Basel II introduces three methodologies for the calculation of operational risk capital charge: the Basic Indicator Approach, the Standardized Approach, and the Advanced Measurement Approach (AMA)²⁸. Banks are encouraged to choose an approach to calculate operational risk capital that they believe is consistent with their mix of activities and their risk profile. Internationally active banks and banks with significant operational risk exposure, however, are expected to use the more risk-sensitive Advanced Measurement Approach whereas the Basic Indicator and the Standardized Approach are more appropriate

²⁸ For details about the approaches see Basel Committee on Banking Supervision: *International Convergence of Capital Measurement and Capital Standards*. June 2006, Basel

for banks with less significant operational risk exposures. Banks are also permitted to use the Standardized or Basic Indicator Approach for some business lines and AMA for others. Once the banks have received the regulatory approval for more advanced approach, however, they are not allowed to scale back to simpler approaches unless their supervisors advise to do so.

In Basic Indicator Approach banks must hold capital for operational risk equal to the average over the previous three years of a fixed percentage (denoted alpha) of bank’s annual gross income.

This can be expressed as follows:

$$\text{Operational capital charge} = \alpha \times \text{Average annual gross income,}$$

where:

α is set to 15 % by the BCBS and

Gross income is defines as net interest income plus net non-interest income

The drawback of the Basic Indicator Approach is that it is too aggregative and does not differentiate among business areas with different operational risk profile (Saunders and Cornett, 2008).

As in the Basic Indicator Approach, the Standardized Approach requires that banks hold capital for operational risk equal to a fixed percentage of the three-year average of the gross income. The difference here, however, is that rather than calculate capital based on the gross income at firm level, the bank must calculate a capital requirement based on the gross income of a single business line. The bank’s activities are divided into eight business lines shown in Appendix 3. The capital charge for each business line is calculated by multiplying gross income (as a broad indicator that reflects the size or the volume of bank activities and thus the likely operational risk exposure in that business line) by a factor (denoted beta) assigned by BCBS to that business line. Adding capital charges across all business lines together yields the total capital charge for operational risk. The capital charge can be expressed as follows:

$$\text{Operational capital charge} = \beta_1 \times \text{AGI}_{\text{BL1}} + \beta_2 \times \text{AGI}_{\text{BL2}} + \dots + \beta_8 \times \text{AGI}_{\text{BL8}}$$

where:

β_{1-8} is a fixed percentage set by the Committee for each business line (shown in Appendix 3)

AGI_{BL1-8} is the average annual gross income for each business line (shown in Appendix 3)

In order to use Standardized Approach banks should have adequate operational risk systems that comply with the minimum criteria outlined by the Committee.

With supervisory approval banks are allowed to use also Advanced Measurement Approach which enables them to calculate their regulatory capital requirements for operational risk based on internally generated risk estimates, subject to qualitative and quantitative standards set by the Committee. The quantitative requirements for a sound internal risk measurement system include the availability of internal data, relevant external data, scenario analysis and factors reflecting the business environment as well as internal control systems. The regulatory capital charge should be calculated as the sum of expected loss (EL) and unexpected loss (UL) for specified business lines and event types set by the Committee²⁹. In order to make proper operational risk estimates banks should have a minimum five-year observation period of internal loss data as well as reliable external data.

2.2.2. The Second Pillar- Supervisory Review Process

The regulatory supervision is an integral part of the whole procedure of compliance with the minimum capital requirements for banks. The supervisory review intends to ensure that banks have sound internal systems and rigorous processes in order to assess adequate capital levels that support all risks in their business as well as to encourage banks to strengthen their risk management and improve internal controls.

Pillar 2 emphasizes the primary role of bank's board and senior management for ensuring internal control, sound risk and capital measurement systems, and thorough monitoring and reporting. Banks should have methodologies for measuring and management of credit risk both at individual and portfolio level. Those ones using IRB method should prove that they have sufficient capital to meet any deficiencies indicated by the credit risk stress test. In case of a shortfall, supervisors may require banks to reduce their risk or/and hold additional capital. Banks should also supplement their VAR model with stress testing to identify adverse events or changes in market conditions when evaluating the capital adequacy for support of market risk. As for risk factors that are not captured under Pillar 1 (e.g., liquidity risk, interest rate risk, particular stage of the business cycle effects, etc.) the supervisors will typically

²⁹ Operational risk loss events types are shown in Appendix 4

require that banks hold adequate (economic) capital beyond the core minimum requirements and commensurate with the bank's risk profile.

Additionally, banks are subject to supervisory scrutiny under Pillar 2 as regards their compliance with the minimum criteria and disclosure requirements for the more advanced internal methods for risk assessment, particularly IRB method for credit risk, as well as for their credit risk mitigation techniques and asset securitizations.

In order to ensure compliance with the regulatory requirements, supervisors are expected to regularly review and evaluate banks' capital adequacy relative to their risks, the quality of capital held, the adequacy of bank's risk management and internal controls as well as the information reporting and systems. The periodic review can include on-site examinations and inspections, off-site reviews, discussions with bank management, and review of work done by external audits. Whenever the supervisory review shows unsatisfactory results of the bank's own risk assessment and capital allocation, and /or banks do not comply with the requirements set by the regulator, or fall outside the well-capitalized zone, the supervisors are empowered to take discretionary prompt corrective actions to reduce risk or restore capital. There are several means for supervisors to ensure that individual banks are adequately capitalized. Normally, the supervisors will require that banks hold capital above the minimum Pillar 1 standard as a buffer against uncertainties and unexpected losses. The supervisor may also set target capital ratios or define categories (e.g. adequately capitalized, well capitalized, undercapitalized)³⁰ above the minimum requirement in order to identify decline in capital levels at an early stage and intervene with appropriate remedial actions. These actions may include intensifying the monitoring of the bank, restricting the payment of dividends, requiring bank to prepare and implement a satisfactory capital adequacy restoration plan, and requiring the bank to raise additional capital immediately. Any corrective actions taken by the supervisors, however, should be carried out in a highly transparent and accountable manner.

2.2.3. The Third Pillar- Market Discipline

In order to promote market discipline the third pillar of Basel II introduces requirements for formal disclosure of the scope of application of the New Accord, capital structure, risk exposures and assessment, and capital adequacy of banks. The purpose of disclosure is to

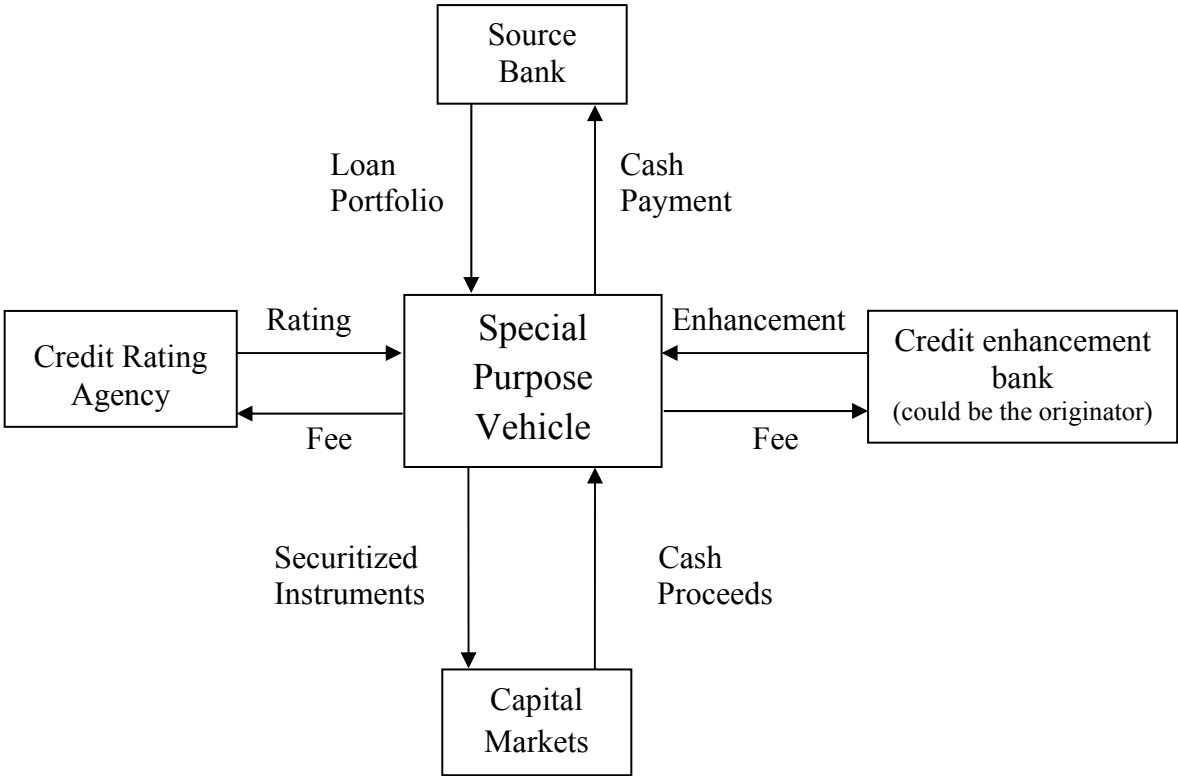
³⁰ See Appendix 5 for exemplary capital categories

increase banks transparency and provide market participants with access to critical information about the risk profile and the capital adequacy of banks in order to reduce the information asymmetry and help investors take informed decisions. The framework defines a set of core disclosures valid for all institutions. An additional set of requirements includes supplementary disclosures for some banks depending on the nature of their risk exposure, capital adequacy, and methods adopted to calculate the capital charge. Both core and supplementary disclosures are particularly important for internationally operating banks. Standardized approaches used for credit risk and market risk measurements, internal methods for risk assessment as well as credit risk mitigation techniques and asset securitizations are all subject to disclosure requirements.

Section 3: The Financial Crisis of 2007-2008

The financial crisis of 2007 started as a subprime crisis in the US mortgage market, turned into a crisis in the banking sector and evolved eventually into a global financial crisis. The period preceding the crisis is characterized by increased credit extension, particularly to the real estate sector, and excessive leverage in the financial system favored by historically low interest rates, abundant liquidity, low financial market volatility, increased risk taking behavior and loose credit standards (FSF, 2008, Lechner, 2009). In such conditions the demand for housing and housing investment escalated to a boom and caused a continuous rise of the prices of the real estate (Lechner, 2009). The housing bubble eventually burst in 2007 and unleashed a crisis which spread very fast in the interconnected banking world and throughout the real economy.

A key factor fostering the housing boom was the remarkable growth in innovative financial instruments such as asset-backed securities (e.g. mortgage-backed securities -MBSs) and the related securitization process which enabled the development of the so called “originate and distribute” model illustrated in Scheme 1.



Scheme 1: Originate-to-distribute model: adapted from Matthews and Thompson (2005)

In this model, as explained by Matthews and Thompson (2005), banks bundled a large number of their credit assets in a pool, securitized them and sold them to special entities called special purpose vehicles (SPV) or structured investment vehicles (SIV) which were separate legal entities set up specifically for the transaction. The accounting standards for de-recognition allowed banks to remove these assets from their balance sheet. The SPVs, on turn, repacked this pool into different tranches of asset-backed securities (ABS) which received different and usually highly optimistic ratings by the credit rating agencies (CRAs) based on the inherent risk of their composition, and sold them profitably throughout the world to other banks and institutional investors outside the regulated banking sector such as hedge funds, insurance companies and private equity firms. The asset-backed securities usually received credit enhancement in the form of a guarantee from the originating or other bank which was recorded by the bank according to the accounting rules off-balance sheet as contingent liability to the SPV, i.e. it allowed recourse to the bank in case of mortgage defaults. This enhancement or guarantee by the bank actually made the rating and the sale of ABSs in the market possible. Without it the financial claims issued by the SPV will not be marketable and the whole process will fail since the banks would not be allowed to remove the assets from their balance sheet.

Banks benefited from this scheme because by removing assets from their balance sheet they eased the pressure from capital requirement. Indeed, banks often created SPVs specifically to evade regulatory requirements since these SPVs were not a subject to the same regulation as banks and operated without capital buffers (FSF, 2008). By so doing banks did not violate the rules for calculation of the capital requirement; they just took advantage of the loopholes and regulatory arbitrage opportunities embedded in the regulatory and accounting frameworks in order to reduce their capital and set resources free for other profitable activities. The securitization process, however, allowed banks to take increasingly high risks and at the same time to maintain low levels of capital which did not correspond to their true risk exposures and did not provide sufficient buffer against losses during the crisis³¹. It also facilitated banks in raising additional funds through securitized short-term debt which was relatively cheap, and thus more attractive, compared to long-term financing (Diamond and Rajan, 2009). This, combined with the low levels of capital, contributed to the build-up of excessive leverage before the crisis.

³¹ The capital circumvention practice and other regulatory arbitrage issues as well as their consequences for the banks will be discussed in more details in Section 4.

The “originate and distribute” model has been developed by the investment banking of the large globally operating banks enabling them to actively trade credit risks as opposed to the older model where banks originate and hold credits on their balance sheet until maturity (Zuberbüchler, 2008)³². The reasoning behind as explained by Diamond and Rajan (2009) is that securitization is a convenient tool to sell residential mortgage loans to international investors who would otherwise not be willing to hold them directly because of credit servicing and uncertain credit quality. Secondly, packing different types of mortgages together diversifies risk. Furthermore, the riskier portions could be offered to more risk appetite investors whereas the safest AAA-rated could be sold to international investors. The demand for AAA papers was so high that banks invented a further mechanism to squeeze more such securities out of the underlying package of mortgages by second securitization of ABS. Banks packed together the lower quality securities from the initial package with securities from other packages including a large portion of AAA papers and securitized them once again by issuing Collateralized Debt Obligations (CDOs). Through the securitization mechanism banks were able to distribute, trade, and hedge their credit risks which increased the perception of high liquidity of credit instruments (FSF, 2008, Lechner, 2009).

The success of the innovative financial instruments, the low default rates as well as the rising asset prices induced banks to take full advantage of the overall macroeconomic upsurge and to optimize their revenues by extending more loans and producing more securitized assets that were sold or used to obtain short-term debt. The problem, however, was that banks started lending to subprime (highly risky) borrowers strongly loosening their credit extension criteria. Banks felt encouraged to do so because as long as the prices went up the borrowers who were not able to pay back their credit would sell their house with a gain and refund their loans (Lechner, 2009, Diamond and Rajan, 2009). Additionally, under the “originate and distribute” model the primary goal of the banks originating the loans was to sell them to another banks or market players. Therefore, the originating banks had no direct interest to ensure the creditworthiness of the borrower because if the borrower defaulted on the repayment another bank will bear the losses (McIlroy, 2008). The loose credit standards and the vague risk redistribution in the originate- to- distribute model led to excessive risk taking and high risk concentrations in banking sector which were difficult to identify, and therefore difficult to

³² See also EBK, Jahresbericht 2007, p.98

protect form. As long as the market went up, however, everybody along the chain felt safe and did not bother about the true risks behind the MBSs.

Furthermore, the perception of obvious stability and the expectation of low future volatility incited banks to increase their cheap short-term borrowing neglecting the possibility of becoming illiquid and incapable to roll over financing in worse times, and to take excessive risks in order to generate higher returns (Diamond and Rajan, 2009). Moreover, there were a lot of risk appetite investors willing to share these risks and thus high market liquidity which facilitated the functioning of the scheme.

From June 2004 until June 2006 the FED gradually increased interest rate levels. The prices in the real estate sector reached their peak in the middle of 2006 and began to fall sharply from early 2007 onwards. As a result, subprime borrowers defaulted on their mortgage obligations and the value of the highly rated securities backed with subprime mortgages fell dramatically. Banks holding large amounts of already illiquid and devalued MBS on their balance sheet had to write-down millions of assets suffering huge losses and depleting their capital cushions. The largest risk concentrations and thus write-offs occurred in the global investment banks. They had large amounts of best rated (AAA) tranches of CDOs on their balance sheet which were thought exclusively safe before the crises but lost a lot of value afterwards (Zuberbüchler, 2008). The reason to hold large amounts of these securities on their books rather than sell them was that banks believed that these securities were worthwhile investments (Diamond and Rajan, 2009).

In these quickly deteriorating market conditions banks started to realize their vulnerability in terms of credit risk, and particularly the risk of securitization exposures. Banks misjudged and underestimated the potential for illiquidity and the concentrations of risks dormant in their off-balance sheet explicit or implicit commitments (credit enhancements) to their SPVs that evolved once the market risk-taking reversed (FSB, 2008). As the asset-backed securities market deteriorated and ABSs could not be sold anymore, SPVs run into financing difficulties and turned to banks for liquidity. As a result, banks had to bring the contingent liabilities to these SPVs back onto their balance-sheet, running on turn into liquidity problems as well. Where explicit commitments were missing banks still had to provide liquidity to their SPVs because of reputational concerns (Zuberbüchler, 2008, ICB, 2010).

Financing from the interbank money market became very heavy because of this shadow banking scheme in which short-term borrowing has to be supported by longer-term assets like mortgage-backed securities as collateral. The devaluation of MBSs, however, meant that the same amount of collateral would now support less borrowing which forced banks being highly levered to deleverage and sell off assets at fire-sale prices triggering further falls in asset prices (Mishkin, 2010). Borrowing dried up also due to increased risk aversion, tightened lending conditions, mutual mistrust among banks in terms of their soundness, quality of structured products, and repayment capabilities, and fears about own liquidity resources. This caused a severe contraction and dysfunction in the interbank and related financial markets (FSF, 2008).

Having suffered large unexpected losses because of massive write-downs and off-balance sheet commitments while at the same time being inadequately capitalized to meet these losses and experiencing additional liquidity problems, the first banks started to fail in the second half of 2007. The failure of the fourth largest U.S. investment bank Lehman Brothers in 2008, however, raised market uncertainty about the safety and soundness of major financial institutions and unleashed a crisis of confidence which in the autumn of 2008 practically locked up inter-bank money markets and created a large-scale liquidity crisis (The de Larosière Group, 2009).

To sum up, losses and liquidity problems at the relatively small financial segment of the subprime residential mortgages in the US market caused a chain reaction in the whole strongly interconnected banking sector and given the systemic risk inherent to the financial system resulted in a global financial crisis throwing economies around the world into recession. Strategically large international financial institutions had to be bailed-out by their governments in order to save the financial system from complete collapse.

Section 4: Causes of the Financial Crisis

The causes of the financial crisis were and still are largely discussed by financial regulators, investors and policy makers. The attention is focused on four broad areas: corporate governance, global capital imbalances, loose monetary policies and underlying weaknesses in financial regulation. This section will explain the causes of the crisis primarily from regulatory perspective outlining the deficiencies and loopholes in the regulatory framework which gave incentives for regulatory arbitrage and perverse behavior by bankers leading to exorbitant concentrations of risk in the banking sector and the subsequent crunch. Since the main force behind these developments is the human factor, the first chapter will shortly explain the incentives of the bankers to act in a way inconsistent with the financial stability. The following chapters will then explain the reasons for the failures of the risk management and the regulatory systems as well as the key role of the credit rating agencies.

4.1. Remuneration Systems

Flawed executive compensation schemes provide a reasonable explanation for the short-term oriented behavior of bank managers reflected in excessive risk taking and weakened risk management and underwriting standards. The remuneration package of top management of large international financial institutions includes bonuses usually in the form of stock options or warrants which give holders the right to purchase company stock at pre-specified price within certain timeframe. Given that their tenure is constrained in time managers have a strong incentive to increase the market value of the shares and thus the amount of their compensation as much as possible in the short run by undertaking riskier but more income generating activities. This behavior was encouraged by the favorable market environment before the crisis providing high risk opportunities, particularly in the abnormally profitable securitization business, and the regulatory deficiencies providing incentives for regulatory and accounting arbitrage and moral hazard. As Stiglitz (2010) explains, the existing accounting regulations allowed managers to manipulate accounting information in a way that they were able to overstate profits today by recording potential liabilities off-balance sheet. The use of stock options encouraged managers to concentrate on increasing reported income and thus rising stock prices in the short-run rather than increasing true profits in the long-run. In addition, if the compensation was structured so that executives participate in gains but not in losses they will have strong incentive for excessive risk taking.

The compensation schemes of subordinate staff in the financial sector also induced short-term risk-taking behavior because traders were paid based on their short-term risk-adjusted performance (Diamond and Rajan, 2009).

Besides the reward systems, however, a lot of other incentives encouraged financial institutions to act in a short-term perspective and to make as much profits as possible to the detriment of the long-term interests of their stakeholders (The de Larosière Group, 2009). Even if the managers understood that this type of strategy was not truly value-creating and that securitization exposed the system to bad risks they could have hardly avoided the herd behavior given the strong pressure by the competition (Diamond and Rajan, 2009, The de Larosière Group, 2009). With such incentive structures determining a prevailing mindset in the financial institutions it would be naive to think that regulation alone can solve all the problems that became evident in the crisis. Well-targeted regulation, however, could have helped mitigate or eliminate some of the misleading incentives and thus prevent from or constrain the dimensions of the crisis (The de Larosière Group, 2009).

4.2. Deficiencies of Risk Management and Internal Controls

The safety and stability of the financial institutions depend first of all on their own internal management and controls which did not prove sound during the crisis. The main failure of the risk management in banks was the inadequate assessment and thus inaccurate pricing of risks—something that has been overlooked also by their regulators and supervisors. Banks, regulators, and supervisors severely underestimated credit risks, concentration risks, market risks and liquidity risks, particularly for AAA-rated tranches of structured products. Some banks held large exposures to super-senior tranches of CDOs without entirely understanding the risks inherent in such instruments, and failed to take appropriate actions to control or mitigate those risks (FSF, 2008). The risk measurement models such as VAR-models for measuring of market risks were not suited to estimate the exposure to systemic shocks and tail risks for complex structured products, and therefore underestimated the overall risk exposure (FSF, 2008, The de Larosière Group, 2009).

Risk management system failures were aggravated also by failures of corporate governance procedures and weak internal controls as well as inadequate communication across business lines and functions. (Yeoh, 2010, FSF, 2008, The de Larosière Group, 2009). Many boards and senior managers seriously underestimated the risks they were running and did not provide

the necessary oversight or control of banks activities. Top management compensation schemes contributed to excessive risk-taking and short-term oriented behavior. The originate-to-distribute model created additional distorted incentives for bank managers to overlook risks. Knowing beforehand that the default risks of borrowers would be transferred or sold through MBSs or CDOs to other market players, bankers had no incentive to ensure high lending standards (The de Larosière Group, 2009). The application of the model that looked attractive in the context of liquid money market, however, led to bad highly risky practices such as increased leverage, short-term borrowing and sub-prime lending. Many banks did not fully capture their risk exposures within the capital adequacy calculation and ended up insolvent in the crisis.

The overall effect of the failures of risk management and internal controls was an overestimation of the ability of financial firms to manage their risks, and the respective underestimation of the capital they should hold in order to meet potential losses (The de Larosière Group, 2009).

4.3. Shortcomings of Financial Reporting and Accounting

One of the problems with financial accounting, as already noted in chapter 4.1., was that it gave bankers incentive for short-term performance and encouraged the reporting of misleading information which did not reflect the true risk exposures . The accounting rules allowed immediate recognition of profits but made no provision for a discount for future potential losses (The de Larosière Group, 2009). US-GAAP allowed securities and the implicit risks to remain off-balance sheet (ICB, 2010). This contributed to a large extent to the massive use of complex structured products. Banks set up conduits and SIVs to securitize assets assuming implicit or explicit commitments to these SIVs. In the case of explicit commitments banks insured the debt issued against the securitized assets using credit guarantees (e.g., in the case of commercial paper). These credit guarantees mostly structured as “credit enhancements” were recorded off-balance-sheet as contingent liabilities with recourse to bank balance sheets for outside investors (Acharya et al, 2010, Yeoh, 2010). The use of such structure created a belief that the risks did not lie with the arrangers and led market participants to underestimate bank’s risk exposures. Additionally, the off-balance sheet entities intended to allocate less capital against risks connected with these conduits than if they were booked on-balance sheet. This led to relatively low levels of capital compared to

the size of the balance sheet, excessive leverage, and increased sub-prime risks hidden in off-balance sheet vehicles which hit back the bank when they had to be recorded on-balance sheet once market liquidity dried up.

Another problem with the accounting was the “fair-value” or “mark-to market” accounting rule imposed by the Financial Accounting Standard Board (FASB). According to this principle banks are required to record their assets in their books at current market values. The main deficiency of the principle is that it has strong procyclical, meaning here negative, detrimental effect on the financial institutions in a downturn (Nobel, 2009). This became evident in the current crisis when the market for asset-backed securities shrank substantially and the prices deteriorated. The rules forced banks to incur huge losses having to write-down large amounts of financial assets, and particularly securities held on banks’ balance sheets. Due to strong pressure by banks, however, FASB eased the mark-to-market rule in April 2009, allowing banks to value their assets when the market is not active for an asset, at prices that would be received in an orderly market rather than forced liquidation³³.

4.4. Insufficient Information and Transparency

Lax disclosure requirements and unregulated shadow banking system before and during the crisis allowed banks to operate with complex structured products without providing information about the quality and performance of the underlying assets and the risks involved in the securitization process. Even when publicly available, the information disclosed was not timely and useful enough to help investors and market participants assess the type and magnitude of risks associated and the capital adequacy and solvency of banks (FSF, 2008). Banks actually benefited from this information asymmetry and lack of transparency as long as there were risk- appetite investors who were more concerned with the exclusively high yields of the new financial products rather than with the explanation of their true nature. The other reason for providing insufficient information was that the senior bank managers “gambled” on “ludicrously complex” products which they themselves did not understand as well (McIlroy, 2008). Securitized instruments were meant to increase the efficiency in the banking sector by spreading risks more evenly across the financial system. The nature of the securitization model, however, made it difficult to ascertain whether risks have been actually spread or re-concentrated in less visible parts of the system (McIlroy, 2008, The de Larosière Group,

³³ <http://www.fasb.org/sbd040209.shtml>

2009). As a result, there was increased opacity in the financial system and ambiguity about which market participants bear what degree of risk which eventually caused a crisis of confidence in the financial market and led to investors' withdrawal and liquidity crunch during the turmoil (FSF, 2008, The de Larosière Group, 2009).

Indisputably, supervisory and regulatory authorities also failed to strengthen the reliability of valuations and risk disclosures. Basel Committee addressed these flaws by introducing disclosure rules under Pillar 3 of its Basel II Capital Accord. It did, however, nothing for the timely implementation and enforcement of the framework.

4.5. Performance of Credit Rating Agencies (CRAs)

A large contribution to the financial crisis and particularly to the expansion of the structured products market and its subsequent failure play the CRAs which provided over-optimistic ratings of the innovative financial instruments. CRAs assigned AAA- ratings to the senior tranches of subprime-related MBSs and CDOs-the same rating they gave to standard government and corporate bonds- triggering unprecedented growth of subprime lending and creating misleading perception of financial stability. As the risks became so large and obvious that they could not be ignored any more, CRAs announced sudden downgrades of these instruments which raised serious concerns about the quality of credit ratings with regard to structured products and loss of confidence among investors.

The main criticism of CRA focuses on its flawed rating models, conflict of interest in the rating process, and insufficient transparency and information about the key assumptions and criteria, risk characteristics, and methodologies used in the rating of structured products (FSF, 2008).

The poor rating models for assessment of the default probability of complex structured products were based on insufficient historical data on the US sub-prime market. The data available spanned a period of benign economic environment with rising house prices. There was not sufficient historical data about how particular asset pools would respond to potential economic downturn. CRAs, however, could have taken into account the correlations in the defaults that would occur in a market downturn (FSF 2008, The de Larosière Group, 2009). As Goodhart (2010) explains, because MBSs are constructed on basis of mortgage pools that consist of static portfolios of fixed-income investments that become seasoned over time, their ratings, which are predictable, move either towards default or AAA together. This "all-or-

nothing” nature of the risk results in high yields in good times and concentrated defaults in bad times. Once the conditions start to deteriorate the volatility of MBSs ratings is much more extreme than for corporate debt. Therefore, Goodhart concludes, the problem with rating MBSs arises not because the future cannot be predicted but because CRAs apply to structured products the same traditional rating model they use for corporate and government debt. Instead of giving one particular rating, for example A or BBB, CRAs should publish additional detailed information on the potential volatility of ratings migration in each case.

In addition, CRAs underestimated the severe loosening of underwriting standards by certain originators and thus neglected their due diligence of the quality of the collateral pools underlying rated securities. This led to inadequate assessment of the credit risks of instruments collateralized by subprime mortgages (The de Larosière Group, 2009, FSF 2008).

The other issue that received attention was the conflicts of interest involved in the rating of structured products. CRAs apply issuer-pays model which implies that they may have incentive to give good ratings to the ones who pay for the rating. The standard conflict of interest, however, is very unlikely in traditional corporate business because of reputational concerns. As Goodhart (2010) explains, the existence of CRAs is strongly dependent on their reputation and normally they would not damage it just to retain a single client and gain another fee. The incentive to over-rate, however, is much higher with structured products for two reasons. Firstly, structured products earned abnormally high profits for the investment bankers issuing the securities and generated higher fees for the CRAs in comparison to corporate rating. Secondly, structured products were often rated by only one or two agencies compared to corporations which sought ratings by all or several major agencies. The investment banks sought for the agency that will give the highest rating for their products (the so called “rating shopping”). This fostered increased competition between CRAs and induced them to become lax and biased in their estimates.

The conflict of interest arises also because CRAs sell consulting services to entities that purchased ratings. To the extent that CRAs discuss with issuers the structuring and rating of different tranches, the potential for conflicts of interest becomes greater (FSF 2008). If the CRAs, however, advise their clients how to structure their tranches in order to achieve particular rating it is absolutely normal that if the clients follow the instructions they will get the ratings they strive at. Moreover, referring to IOSCO’s code of conduct for CRAs

Goodhart (2010) argues that CRAs are actually obliged to support issuers with details of the techniques used to assign ratings and to answer methodology related questions. He assumes that conflict of interest is possible only if CRAs and issuers jointly apply a rating that CRA reckons as too high.

Finally, because of the complexity of the structured products and the difficulty of the analysis of the underlying assets which require experience and special knowledge many investors did not fully understand the risk characteristics of these products. CRAs, however, also did not provide sufficient and clear information about the assumptions and the criteria used in their rating. As result, when the reliability on CRAs ratings became questioned, many investors could not asses the risks on their own, which added to market illiquidity (FSF 2008).

4.6. Underlying Weaknesses of Basel Capital Accords

If the prudential regulation has to be blamed for the current crisis, it is important to emphasize that the causes lie primarily in Basel I since Basel II framework was not fully implemented before the crisis and entered into force in January 2008 in the EU and is only applicable in the US since April 2010 (The de Larosière Group, 2009). Furthermore, it could be argued that if Basel II had already been fully implemented, especially in the USA where the crisis started, it would have helped avoid or at least mitigate the crisis (The de Larosière Group, 2009, Gualandri et al., 2009). For example, had the capital requirements for liquidity lines provided to SPVs already been in place, then they might have eliminated some of the difficulties (The de Larosière Group, 2009).

Basel II, however, also has several severe flaws which have been revealed by the financial crisis yet before it has been definitely implemented. These deficiencies will be discussed here in order to understand the necessity of its fundamental review that has been made recently with Basel III.

4.6.1. Capital Adequacy

The typical criticism of Basel I is its limited risk sensitivity which results in unrealistic capital ratios. As already discussed in Chapter 2.2., assets with different credit risk are allocated under the same broad asset class and thus assigned the same risk weight regardless of their particular quality (e.g., all corporate loans have 100% risk weight). By adding up the credit risks of individual assets together, Basel I also ignores the diversification of risk in the asset

portfolio. This produces higher capital charge than if correlation is taken into account. As Moosa (2008) explains, these deficiencies have created an incentive for circumventing the capital requirement and increasing the credit risk in the loan portfolio. In order to boost their income banks shifted the composition of their portfolio towards high-yield, low-quality assets. Since high-quality and low-quality loans had the same risk weight, banks were able to keep the same capital ratio while increasing their overall risk. The other form of regulatory arbitrage was the use of securitization. Under Basel I securities unlike loans are not subject to capital requirement. Thus, through the securitization of mortgage loans banks reduced their capital charge without reducing their risk exposure if the assets were held on bank's books or shifted with explicit or implicit commitments to their SPVs off-balance sheet.

Basel I created incentives to circumvent capital requirement through securitization and contributed this way to the development of the “originate and distribute” model characterized with excessive risk taking, subprime lending, and short-term borrowing before the crisis. The model developed with the idea to distribute risks more evenly throughout the financial system actually contributed to large risk concentrations hidden in ABSs which were perceived as safe both by banks and investors until the subprime borrowers started to default. Basel I did not capture the risks from the securitization exposures within the capital adequacy calculation and allowed banks to remove assets from their balance sheet and to maintain lower capital levels relative to their true risk exposures. As a result, many banks ended up insolvent due to inadequate capitalization during the crisis.

By circumventing the capital requirement, as already mentioned in Section 3, banks took advantage of the loopholes in Basel I in order to increase their profitability while at the same time sticking to the capital calculation rules, i.e. what banks did was not illegal. The problem was that the omission of the regulatory framework to include securitizations in the capital adequacy allowed such behavior. Moreover, banks' supervisors have the discretionary power to impose restrictions on banks activities or require prompt corrective actions if they establish that banks are undercapitalized.³⁴ Supervisors, however, like bankers and investors were also not aware of the true risks of the securitizations and even if they were, according to the capital coverage scope of Basel I, they would neither be expected to require that banks hold additional capital specifically against securitizations because banks will immediately say that

³⁴ See 2.2.2. Supervisory Review Process

they are not obliged to, nor to punish banks because they have not included securitization risk in their capital calculation. They were only allowed to require that banks hold capital above the minimum but provided the magnitude of the risks hidden in ABSs that measure would have hardly been sufficient to prevent the failures. What supervisors could have done was to incite revision of Basel I framework in order to correct the omissions, which they actually did with Basel II. However, they did not trigger the timely implementation of Basel II. This and other problems of banks' supervision will be discussed in detail in Chapter 4.6.6.

In order to overcome the shortcomings of Basel I the regulators developed the improved and extended Basel II framework. Basel II corrects the problem with the arbitrary risk weights of Basel I by suggesting wider credit risk weights differentiating between obligors and their risk profiles. Therefore, it aligns minimum capital requirements more closely to the actual risks banks face and strengthens the risk management practices. In contrast to Basel I, Basel II framework takes into account also the risk mitigation techniques such as collateral and thus produces more realistic and more risk-sensitive capital ratios. Some critics argue, however, that the categories of new risk weights are still limited and it is unclear how closely they reflect true credit risk (Moosa, 2008, Saunders and Cornet, 2008). Others like Goodhart (2005) reckon that risk-based capital measure is basically wrong. Particularly in a fast changing market the financial innovation will soon make risk assessments outdated and erroneous, however accurate and sophisticated they might be at the moment when they are determined (Goodhart, 2005). Another problem is that unrated firms are weighted 100% whereas firms rated BB- or below receive 150% risk weight. This creates incentives for risky firms to avoid ratings in order to obtain cheaper finance (LSE, 2001). Because of such loopholes the potential for regulatory arbitrage under Basel II remains as well.

Basel II, however, managed to address adequately the problem with the innovative financial instruments and thus to eliminate regulatory arbitrage incentives for moving risk exposures off-balance sheet or distributing them through the securitization process. Under Basel II banks are required to hold regulatory capital against all of their securitization exposures, including MBSs, ABSs, credit enhancements, liquidity facilities, etc. unless a clean break has been achieved through legal transfer (sale)³⁵. Additionally, the regulation and supervision of the

³⁵ See also 2.2.1. Asset securitization

securitization process has been strengthened through compulsory disclosure requirements in Pillar 3. This framework, however, was not implemented before and during the crisis.

Basel II framework is undoubtedly superior to Basel I. Nevertheless, it also has some deficiencies. One of the main critiques, as already discussed, is that it keeps the risk-based capital calculation which, even if more sophisticated, still allows regulatory arbitrage. Furthermore, the heavy reliance on the ratings of CRAs in the Standardized Approach for assessment of credit risk in the aftermath of the sub-prime crisis also turns out to be problematic. The use of ratings of CRAs, as it has been shown in Chapter 4.5, is inappropriate and misleading because they provide inconsistent and conflicting forecasts of the creditworthiness of individual clients. CRAs are unregulated and the quality of their risk estimates is unreliable because of lack of transparency and information about the rating models used. The regulators allowed the use of CRAs but did nothing to ensure a consistent application of ratings in order to dampen incentives for “rating shopping” (LSE, 2001).

Basel II, like Basel I, also fails to address credit risk portfolio diversification opportunities. The Standardized model is a linear measurement of risk that ignores correlations among assets and asset group credit risks, i.e. risk weights are calculated for each asset separately and then summed up to get the total measure of credit risk (Saunders and Cornet, 2008). Thus, Basel II has been criticized to produce inadequate capital ratios as well. As Moosa (2008) further explains the failure of the regulation to consider asset correlations creates perverse incentives for banks to reduce their capital requirement by investing in highly correlated, relatively low-risk individual assets, i.e. banks create more risky portfolios consisting of less risky individual assets. These portfolio concentrations of similar type of assets such as MBSs expose banks to higher risks since the assets move towards default together and thus threaten the insolvency of the bank. This was demonstrated during the crisis with the large amounts of strongly correlated in terms of credit risk MBSs such as AAA-rated CDOs and other derivatives in banks’ portfolios which caused severe losses once their value started to jointly move down. The correlations arise naturally because of common dependence on macroeconomic factors such as real-estate prices, market interest rates or the business cycle (Hellwig, 2010).

4.6.2. Risk Models Set in Basel II- Pillar 1

LSE Group (2001) warns about the destabilizing effects of the key deficiencies in Basel II and thus the danger of global financial crisis already before the crisis occurred. The Group

criticizes the risk models proposed by Basel II pointing out that the models, particularly Value-at-Risk models advocated in the advanced approaches to calculating capital charges for credit, market, and operational risk, give inaccurate risk forecasts and underestimate the joint downside risk of different assets, i.e. the systemic dimension of risk. VaR models are based on the assumption that the stochastic process is stationary and banks' own actions, based on a volatility forecast, do not affect future volatility itself, i.e. they treat risk as exogenous and fail to consider the fact that market volatility depends also on the behavior and interaction of all market participants and is thus endogenous. In times of "calm" market participants are heterogeneous in terms of their risk-aversion and their actions offset of each other. Thus, the failure to account for risk endogeneity is not that harmful. In a downturn, however, the failure to appreciate the endogenous nature of risk and liquidity at systemic level may lead to perverse behavior. In times of crisis banks become homogenous and pursue similar strategies to mitigate adverse effects. The homogeneity and strategy convergence are enhanced even more when banks are encouraged by regulators to employ similar risk models. As a result, individual actions reinforce each other and aggravate the negative effects. This is a typical externality which regulators do not take into account. Externalities, however, boost systemic risk and threaten the stability of the financial system. In such situations, the use of VaR or similar techniques may not be appropriate anymore. At the onset of a crisis, the behavior of market participants which govern the process generating the underlying data used in the model, has changed from heterogeneous to homogeneous. This violates the main assumption of VaR models that the underlying stochastic process is stationary and thus VaR models do not produce correct risk estimates anymore.

Another deficiency of VaR models is that, when the returns are not normally distributed, and this is the case with credit, market and especially operational risk, the existing models produce misleading and insufficient risk measures. They provide only an estimate of a particular point in the distribution but do not measure the scale of potential losses in the adverse tail of risk distributions which is important given that low probability, high loss events can pose severe threat to the banking system in a crisis. Furthermore, regulators propose 99% risk level which does not reflect adequately systemic risk. Additionally, the framework suggests minimum estimation horizon of one year which is in practice used as an upper bound. This means that banks ignore the data about the long-run volatilities and make imprecise forecasts.

These deficiencies of VaR-models became crucial in the current crisis, particularly for the risk assessment of complex structured products, because neither the models nor the stress tests were able to project the risks and the potential losses in the tail, i.e. in the case of a severe price fall and contraction of the market of asset-backed securities. Additionally, the calculations in VaR-models based on volatility data derived from observation of a too short time period of benign conditions before the crisis produced unrealistic prognoses. Therefore, while the models may pass the test for normal conditions, they are inappropriate for exceptional circumstances (The de Larosière Group, 2009).

Furthermore, by ignoring tail risks VaR models open a loophole for regulatory arbitrage giving banks the opportunity to shift risks away from the distribution of risks that matters for the calculation of capital requirement to the tail through the use of, e.g., options (LSE, 2001).

4.6.3. Basel II Procyclicality

Banking is a risk-sensitive business and as such is inherently procyclical (Moosa, 2008, LSE, 2001). Basel II, as a form of capital-based regulation, has been severely criticized because it is believed to exacerbate the procyclicality of the banking system. This is so because of the cyclical up- and downgrades in the CRA- and internal ratings allowed to use under Basel II (McIlroy, 2008). LSE Group (2001) and Moosa (2008) explain that since riskiness of assets varies over the business cycle, so do the risk-sensitive capital requirements. Thus, the capital charges decrease and banks overland in booms- exactly when the danger of a systemic crisis is largest. Conversely, banks hold more capital when the estimates of default risk are higher and contract their lending activity in downturns when macroeconomic stability actually requires an expansion of lending. In order to maintain required capital levels when prices fall and quality of assets deteriorates in a crisis a bank will either have to take on more capital, which in the short run may be impossible or costly, or to dispose of risky assets. Banks that want to sell risky assets in the absence of regulation will find less risk-averse banks willing and able to buy these assets and thus provide liquidity. Under regulatory constraints, however, these banks will not be able to do so because they also have to maintain their capital levels. As a result, disposing of risky assets will be possible only at fire sales prices which will further deteriorate the market for such assets and deepen the crisis by accelerating the downturn. Therefore, bank capital requirements exacerbate the procyclical tendencies making recessions more severe and booms more inflationary and increase the likelihood of systemic

crises in banking sector instead of reducing it. This contradicts to the central purpose of prudential regulation which is to ensure the safety and stability of the financial system

Additionally, ratings of CRAs under Standardized approach are accused of lagging behind rather than leading the business cycle. This may produce capital requirement that peaks during recession, when banks are least able to meet these requirements and vice-versa (Saunders and Cornett, 2008, Moosa, 2008).

There is also inherent procyclicality in VaR-models because they are based on too short statistical horizons to capture fully market prices movements (The de Larosière Group, 2009). If volatility goes down in a year the models tend to understate the risks involved and thus capital levels and vice-versa.

By contrast, the regulatory capital requirements under Basel I are neutral as regards the economic cycle because assets are rated at a fixed risk weight regardless of the stage in the cycle, e.g. loans on corporations and on residential property are rated respectively at 100% and 50% in the good times as well as in the bad ones (McIlroy, 2008). Under Basel II where CRA- and internal ratings are used, if a company loses its AAA rating, the banks that have extended loans to it will have to adjust their capital accordingly (McIlroy, 2008). The procyclical impact on the capital levels will be much more expressed in the case of IRB than in the case of Standardized approach using CRA-ratings, i.e. in a downturn IRB produces higher capital requirement than the Standardized approach and vice-versa (Goodhart, 2005).

4.6.4. Liquidity

The capital accords fail to address liquidity risk which was at the heart of the financial crisis from the very beginning. Prior to the crisis low interest rates encouraged low-cost short-term borrowing which was more attractive to banks than long-term funding in good times but increased the risk of becoming illiquid in bad times. Banks build up excessive on- and off-balance sheet short-term leverage while maintaining very low levels of capital relative to their risk exposures. As a result, when ABS- market broke down banks came under severe liquidity stress because they were not able to roll over short-term financing anymore and did not have sufficient liquidity buffers. Since liquidity risk is strongly linked to solvency and systemic risk the lack of prudent liquidity management at individual institutions before the crisis turned out crucial for the stability of the whole system. Moreover, financial innovation and the related asset securitization have increased banks interconnectedness with the financial

markets and with it the correlations between liquidity, market and credit risks. This transformation of the financial system from the old “originate and hold” to the “originate and distribute” model requires a system-wide consideration of liquidity. Basel II, however, has no provisions for liquidity and does not take sufficiently into account the risk transformation which creates a gap in the framework and diminishes the effect of the regulation of the other risks since here is also valid that a system is as strong as its weakest element(s). This is a very serious omission of the Basel Committee providing that the main purpose of Basel Accords is to preserve the soundness of the financial system and to limit bail-out actions and liquidity interventions by Central banks.

Basel II treats liquidity indirectly through the capital base required for the credit, market, and operational risks and provides only partial solutions to liquidity problems (Gualandri et al., 2009). Liquidity is addressed in Pillar 2 where banks are required to have sound internal systems and rigorous processes in order to assess adequate capital levels that support all risks in their business including risks that are not captured under Pillar 1 such as liquidity risk. Supervisors will typically require that banks hold capital in excess to the minimum requirements in order to ensure the coverage of such risks³⁶. This treatment of liquidity risk, however, is absolutely insufficient provided the severe consequences for the solvency of the bank it may have. Moreover, the evaluation of the adequate capital levels depends to a large extent on the discretionary actions of the supervisory authorities (Gualandri et al., 2009).

Basel II provides also partial solutions to the liquidity problems linked to the complex structured products. Pillar 1 requires that banks hold capital against liquidity commitments to off-balance sheet exposures, even if their duration is less than one year. The commitments with shorter maturities, however, are treated as senior exposures with lower capital charges. Therefore, the incentives for regulatory arbitrage by creating off-balance sheet exposures in the form of short-term liquidity lines extended to securitization vehicles are still not eliminated under Basel II (Gualandri et al., 2009).

Gualandri et al. (2009) explain the omission of Basel II to incorporate liquidity risk into capital requirements with the difficulty to align the international scope of regulatory framework for capital adequacy with the national character of liquidity regimes. Different liquidity regimes are characterized with different quantitative and qualitative approaches and

³⁶ See also 2.2.2. Supervisory Review Process

levels of disclosure which are affected by the national regulatory context- national deposit insurance schemes, monetary policy of central bank, and insolvency regulation. The fragmentation of national liquidity regimes has additionally contributed to the financial system fragility in the current crisis. Therefore, the regulators will face a serious challenge to create a common framework of liquidity rules and to coordinate supervisory practices.

4.6.5. Systemic Risk

The fundamental purpose of Basel Capital Accords is to ensure and protect the safety and stability of the financial system through capital-based requirements on an international basis. Nevertheless, the system did not pass the test of the financial crisis of 2007-8. Therefore, the main critique of Basel II framework is its failure to understand systemic risk and its strong interconnection with liquidity risk. A key risk to the stability of the system is that a firm will fail and that this may have system repercussions. The failure of an individual firm in most other industries gives a healthy, competitive impetus to efficiency (ICB, 2010). In financial sector, however, liquidity linkages between banks can cause shocks at one institution to propagate in a very short time throughout the system and result in a chain reaction of bank runs and system break down³⁷.

In general, Basel II fails to understand the degree of interdependency of the risks affecting the financial institutions and treats credit and market risks separately without correlating them in terms of their system relevancy (Nobel, 2008). It focuses more on the individual bank's risk rather than systemic risk. In the end, the aggregate risk facing the system is higher than the simple sum of the individual risks. The regulation is primarily concerned with calculating the capital levels in accordance with the existing risks but does not provide any guidelines for reducing risk exposures and concentrations and controlling bank insolvency risk (Moosa, 2008). VaR models produce estimates of capital ratio which completely disregard systemic risk. Furthermore, the use of similar risk management models may lead to larger than normal price movements and thus provoke systemic risk. Additionally, protecting the system is severely hampered by the underlying procyclicality of the regulation which exacerbates the inherent susceptibility of the financial system to systemic crises.

Failure of the Basel framework to address systemic and liquidity risk resulted in the use of the “traditional” means for saving the financial system in a crisis through bail-outs and deposit

³⁷ See also 1.4. Liquidity Risk

insurance. Public safety net aims to reduce the social cost of the crisis but has a proven negative impact over the market and management discipline and creates incentives for moral hazard³⁸. State support implies acceptance of risks (and hence costs) by the state and utilization of the related benefits by the private sector (ICB, 2010, Stiglitz, 2010). This separation of costs and benefits produces inefficiencies and distorts risk management. Too big to fail banks (meaning systemically important financial institutions-SIFIs) knowing that they have the explicit or implicit guarantees to be bailed out through liquidity injected from their lender of last resort in times of trouble will have strong incentives for excessive risk taking and poor decision-making in order to generate higher profits and will always take advantage of their implicit protection at the expense of the taxpayers and the other market players. Conversely, facing the real prospect of failure in the absence of state support bank managers will be more risk averse and responsible for the consequences of their decisions because they know that their own bank will have to bear the costs of poor performance. Therefore, banks should be allowed to fail in order to ensure market efficiency and fair competition, to promote management discipline and punish hazardous behavior, to build a stronger and safer banking sector, and thus reduce the cost of bail-outs for the rest of the economy. The main concern during the crisis, however, was that allowing too big to fail banks to actually fail would have more damaging impact on the financial system and the economy than the cost of bail-out. This raised the issue about the necessity of a regulatory framework for the safely resolution of SIFIs, meaning resolution that could be carried out at a maximum low cost for the society. Allowing SIFIs to safely fail then will reduce the reliance on public support and limit the moral hazard in the future. Because of their increasing importance in the financial system SIFIs and the related systemic risk are the main items in the post-crisis regulatory agenda.

4.6.6. Supervisory Framework- Pillar 2

Supervisors under Pillar 2 are obliged to assess the quality of banks risk management and capital measurement systems. The supervisory framework allows regulators to be more flexible with respect to bank's specific circumstances when they establish the required capital charge. LSE Group (2001) argues, however, that this flexibility may have unintended consequences. A high degree of flexibility implies high discretionary power which supervisors may use to set lower capital levels for some banks in order to afford them a competitive advantage. Alternatively, supervisors may choose minimum ratios when higher

³⁸ See also (1)1.4. Systematic Risk and (2)Kaufmann, 1996

capital levels are more prudent. High discretionary power may eventually result in the failure of the accord to achieve level playing field and uniform and consistent implementation across countries. Additionally, it may lead to regulatory capture, and thus to distorted incentives to defend bank's individual rather than the public interest.

The Group identifies a further ground for potential competitive disadvantage across countries as regards the capacity- financial and human- of banks and regulators to employ internal risk models. IRB approach for credit risk assessment, for example, requires substantial investment and well trained talent to design and use the system which may not be possible for poorer countries. Moosa (2008) complements this argument by adding that Pillar 2 focuses primarily on general principles and does not take into account the differences in supervisory competence across countries. Therefore, Basel II is likely to achieve its objectives only partially.

This criticism, even if well-grounded, is more valid for the years ahead, now when Basel II has already been fully implemented. The main problem of bank regulation and supervision with respect to the current crisis, however, turned out to be the lack of macro-prudential scope and, therefore, the failure to timely and effectively counteract to the crisis and, if not able to prevent, at least to mitigate it. Supervisory authorities recognized the underlying weaknesses of the financial sector yet before the turmoil but did not undertake more serious actions most probably because they believed that the financial system is strong and resilient enough (FSF, 2008). Moreover, bank supervisors actually welcomed the "marketization" of financial risk because they saw it as a way to reduce risk concentrations on banking sector by spreading risk across market players worldwide which was supposed to have stabilizing effect on the global system (Persaud, 2010, McIlroy, 2008). Another suggestion is that the financial supervisors did not have or received subsequently all the relevant information on the global magnitude of the risks and that they did not fully understand and thus adequately evaluated the risks (The de Larosière Group, 2009). Meanwhile, deficiencies in the pre-Basel II framework facilitated the development and the growth of largely unregulated derivatives market and shadow banking structures such as SPVs and SIVs carrying along excessive risks covered with relatively low capital levels and potential liquidity problems. BCBS analyzed the weaknesses of the OTD-model shortly before the crisis but it was already too late to react to the ongoing events (Zuberbüchler, 2008). Additionally, supervisory authorities did not manage to cooperate effectively and to share information properly on a cross-border basis which is one of

the fundamental objectives of BCBS supervisory framework. Fierce international competition among financial centers gave incentives to national regulators and supervisors to avoid unilateral action, thus, focusing more on the micro-prudential supervision of individual institutions rather than on the macro-systemic dimension of risks (The de Larosière Group, 2009). All this suggests serious flaws in the existing global supervisory framework. Therefore, supervision needs to be revised both on micro-and macro-prudential level.

4.6.7. Disclosure Requirements- Pillar 3

The purpose of Pillar 3 is to compliment and strengthen Pillar 1 capital requirements and Pillar 2 supervisory review with a set of disclosure rules that will allow market participants to assess risk exposures and the relevant capital adequacy of banks. Pillar 3 was developed with the intention to provide sufficient information and increase transparency, particularly in terms of the securitization process. Admittedly, these improvements would have helped reduce information asymmetry, had they been in place before and during the crisis.

Moosa (2008) summarizes some criticism on Pillar 3 which basic points are that the requirements for effective market discipline do not show in detail what information about bank's financial and risk positions needs to be disclosed which results in a lack of consistency in the way banks report risk information. Furthermore, Pillar 3 is about creating disclosure and transparency which are necessary but not sufficient condition for effective market discipline. Therefore, the effectiveness of Pillar 3 as regards market discipline is questioned.

4.6.8. Other Criticism of Basel II

Additional criticism of Basel II is directed towards its omission to treat the interest rate risk³⁹ in the trading book, although this risk is accounted for in the banking book under Pillar 2. It also fails to address business, reputational and concentration risk (Moosa, 2008, Saunders and Cornet, 2008). Saunders and Cornett (2008) draw an interesting comparison between Basel II and risk-based capital schemes for property-casualty and life insurers, pointing out that the latter have more complete coverage of risk than does the bank scheme.

Further criticism relates to competition concerns. The intention of the designers of Basel II has been to create an international standard that can be implemented across jurisdictions in

³⁹ See 1.4. Interest rate risk

such a way that banks can “play on a level field” (Moosa, 2008). Some national and bank-specific discretion, however, is inevitable. Due to tax and accounting differences across banking systems and in safety net coverage, the 8 % risk-based capital requirement does not create a level playing field for banks in different countries (Saunders and Cornet, 2008).

4.7. Summary

The analysis made in this section clearly shows that the regulations imposed in the past have not worked properly and failed to protect the system from the financial crisis of 2007-2008. Deficiencies in the regulatory and accounting frameworks have allowed regulatory arbitrage and manipulation by banks and have contributed to bank’s vulnerability and inability to survive prolonged stressed conditions. The main problem with Basel I and II was that they did not fully capture all risks into the capital adequacy calculation. Therefore, many banks ended up insolvent due to low capital levels before the crisis. Additionally, both frameworks did not take into account liquidity and systemic risks which play a key role for the financial and economic stability on a global level in the strongly interconnected banking sector and the related financial markets.

Therefore, there is an international call for a regulatory response to the crisis in order to overcome the deficiencies of the regulatory frameworks and to address the problems revealed by the crisis. When designing the new regulatory architecture the regulators should consider the following main principles:

First of all, international banking regulation and supervision will need a macro-prudential approach in order to address the problems on a global level and to ensure the stability of the financial system in the long run and avoid future crises. To protect the whole financial system is the fundamental philosophy of Basel frameworks. In the aftermath of the crisis, however, it turns out that the international bank regulation and supervision has been much more focused on the position of individual banks in isolation rather than the system protection. Therefore, the regulators should put emphasis on systemic issues such as increasing bank’s resilience to cyclical developments and strengthening the requirements for the SIFIs, in order to promote macro-stability.

Secondly, it was to a large extent the failure of bank supervisors to take coordinated and timely action to stop or at least mitigate the crisis. Thus, the system survival in the future will require consistent standard implementation and stronger international collaboration and

coordination among bank supervisors. Supervisory authorities should operate effectively and share information properly on a cross-border basis in order to identify potential risks in the system and take common corrective actions at an early stage.

Third, the role of the regulation is to achieve appropriate behavior of regulated institutions by establishing a set of common rules which create incentives. The regulation of banks should create incentives for banks to act in a way consistent with the fundamental objectives of system stability and consumer protection. Basel frameworks, however, have been improperly constructed and have created weak and even perverse incentives for bankers in the financial institutions and within the financial system in the past. Hence, when optimizing the regulatory regime, the regulators should very well consider the incentive structure they will create with the new rules. The incentive structures should be at the center of the regulatory process because, as Llewellyn (2001) explains, if they are wrong or inappropriate it is unlikely that the other mechanisms in the regime will achieve their regulatory objective. Therefore, if regulators want to ensure a sound financial system on a global level the incentives for bankers should be consistent with system stability.

Further regulation is necessary in the following areas:

- The capital framework will need a thorough revision in order to address all risks properly, including the risk from complex securitizations and re-securitizations and counterparty risk, and to enhance bank's resistance in times of financial stress;
- Bank's resilience in adverse conditions should be further strengthened through liquidity requirements;
- The enhancement of Pillar 2 supervisory review process of Basel II should focus on stronger bank controls and international convergence;
- Pillar 3 of Basel II promoting market discipline should be enhanced in order to achieve increased transparency and consistent disclosure rules among banks and towards all market players;
- Compensation structures, deposit insurance and bank resolution, risk management and internal controls, CRAs and accounting rules for financial institutions are all urgent issues that should be addressed if the possibility of future crises is to be reduced.

Section 5: Regulatory Response to the Financial Crisis

The deficiencies of financial regulation and particularly of Basel I and II Capital Accords gave perverse incentives to banks for regulatory arbitrage and caused partially the current crisis. The international regulatory framework proved to be insufficient, flawed and unsound to help prevent or mitigate the turmoil. Therefore, the Basel Committee had to take prompt measures to address the lessons of the financial crisis and reform bank regulation and supervision. In July 2009 the Committee introduced a package of measures to enhance the three pillars of Basel II followed by a new regulatory and supervisory framework in December 2010 which became known as Basel III. Basel III builds on and complements the enhanced Basel II framework. The reform aims to overcome the main deficiencies of Basel II discussed in the previous section and to strengthen the global capital and liquidity rules in order to ensure a more resilient banking sector. It also aims to strengthen risk management and internal controls as well as banks' transparency and disclosures. The new rules take into account the systemic dimension, and particularly the importance of the SIFIs. By addressing the risks on a macro level Basel III intends to improve banking sector's ability to absorb shocks arising from financial and economic stress and thus ensure the stability of the financial system as a whole.

This section will present the main aspects of the international regulatory response to the financial crisis by the Basel Committee on Banking Supervision. It will shortly outline the most important changes in Basel II framework introduced with the "Enhancements to the Basel II Framework" of July 2009 as well as the new rules introduced with the two documents: "Basel III: A global regulatory framework for more resilient banks and banking systems" and "Basel III: International framework for liquidity risk measurement, standards and monitoring" which will be hereinafter referred to as Basel III. The consequences of the new rules on the banking sector and their effectiveness for protecting the financial system from future crises will be then discussed in the next section.

5.1. Enhancements to the Basel II Framework⁴⁰

The enhancements to Basel II aim to strengthen the 1996 capital requirements for the trading book as well as the three pillars of the Basel II framework. The reforms of Pillar 1 include:

⁴⁰ See Basel Committee on Banking Supervision: *Enhancements to the Basel II Framework*, July 2009, Basel

- Higher capital requirements for the trading book , complex securitizations and exposures to off-balance sheet vehicles which were the main source of losses in the current crisis. The capital requirement must be determined based on VaR stress test covering 12-month period of significant financial stress;
- Higher risk weights and thus higher capital requirements for resecuritization exposures in both banking and trading book;
- Operational criteria for credit analysis of externally rated securitization exposures intended to ensure that banks perform due diligence and do not rely simply on rating agencies' credit ratings;
- Uniform capital requirement for all securitization liquidity facilities regardless their maturity. The old rule required less capital for the liquidity facilities under one year;
- Banks are not permitted to recognize external ratings for risk-weighting purposes if those ratings are based on support (guarantee) provided by the bank itself. If a bank provides a guarantee to an exposure and that guarantee plays a role in determining the credit rating the bank must treat this exposure as if it were not rated.

The reforms of Pillar 2 are focused on risk management and internal controls. A key element of the risk management is a thorough and comprehensive internal capital adequacy assessment process (ICAAP) which should produce capital levels sufficient to support all material risks banks face.

The enhancements address under Pillar 2 certain areas that have been identified in bank's risk management process during the crisis as weaknesses. These areas include:

- Firm-wide governance and risk management and controls. Supervisors should ensure that banks have in place sound firm-wide risk management system that enables them to define the institution's risk appetite and recognize all material risks, including reputational and strategic risks. A sound risk management system requires: active board and senior management oversight, comprehensive and timely identification, measurement, mitigation, controlling, monitoring and reporting of all risks, comprehensive internal controls, appropriate management information system (MIS), and appropriate policies, procedures and limits. Risk management processes should be monitored frequently by independent internal as well as external auditors;
- Risk concentrations. Through its risk management processes and MIS banks should identify, measure, control and mitigate risk concentrations across firm, business lines,

asset types, risk areas, and geographic regions in a timely manner. Banks should employ stress-testing techniques in order to assess the impact of such concentrations in adverse market conditions. An appropriate level of capital for risk concentrations should be determined together with bank supervisors;

- Off-balance sheet exposures and securitization risk. The enhancement requires that all securitization risk not fully captured under Pillar 1 be addresses in bank's ICAAP (e.g. liquidity and reputational risk of each exposure)
- Valuation practices. According to "*Supervisory guidance for assessing banks' financial instrument fair value practices*" published in April 2009 by the BCBS banks should have adequate governance structures and control processes for fair valuing of exposures for risk management and financial reporting purposes. The established practices should be appropriate for initial pricing, mark-to-market pricing, valuation adjustments and independent periodic revaluation. Banks must have the capacity to produce valuations using alternative methods also during periods of stress;
- Reputational risk and implicit support. Banks should have appropriate policies in place to identify sources of reputational risk and consider the potential provision of implicit support they might have to provide or losses they might experience in adverse market conditions. Once identified potential exposures should be incorporated in banks ICAAP. Reputational risk scenarios should be included in regular stress tests where the effect of reputational risk should be measured in terms of credit, liquidity, market, and other risk types;
- Stress testing practices. The regulators put a special emphasis on the stress testing as an important tool of banks internal risk management that provides forward looking assessments of risk and alerts bank management for potential shocks related to various types of risk. Banks should examine future capital requirements under stress scenarios and plan their capital position in the long-run. A comprehensive set of principles for the sound governance, design and implementation of stress testing programs at banks is outlined in the *Principles for Sound Stress Testing Practices and Supervision* published by the Committee in May 2009.
- Sound compensation practices. In April 2009 the FSB published *Principles for Sound Compensation Practices* which should be implemented by banks and reinforced by supervisors. In line with the principles the compensations of the staff engaged in financial and risk control areas should be independent of these business areas.

Compensation must be adjusted for all types of risk so that it is balanced between the profit and the risk assumed in generating the profit. Employees' incentive payments should be linked to both the individual contribution and the overall performance of the firm. Compensation payout schedules should be structured in accordance with the time horizon of risks. Bank's board should monitor the compensation system to ensure that it operates as intended. In addition, the enhancements require supervisory review and disclosure of bank's compensation policies to stakeholders.

It is the role of the supervisors to evaluate whether a bank has in place sufficient and sound firm-wide risk management process that enables it to define its risk appetite and recognise all material risks, including the risks posed by concentrations, securitisation, off-balance sheet exposures, valuation practices and other risk exposures. These elements should be adequately incorporated into the bank's risk management system and ICAAP. Differences between the capital assessment under a bank's ICAAP and the supervisory assessment of capital adequacy made under Pillar 2 would normally trigger a dialogue between the supervisor and the bank's management about how to improve internal governance and controls, processes and systems in order to produce adequate levels of capital. An appropriate target capital ratio set by the supervisor under Pillar 2 would be one that exceeds the minimum Pillar 1 standard so that all risks of the bank – both on- and off-balance sheet – are adequately addressed, particularly those related to complex capital market activities. This way supervisors will ensure that a bank maintains sufficient capital for risks not adequately covered under Pillar 1 and that it will be able to withstand a prolonged period of financial market stress by drawing down on the capital buffer built-up during good times. When banks are not able to achieve sufficient capital levels, supervisors are expected to intervene with rapid corrective actions as already described in detail in Chapter 2.2.2.

The Committee strengthens also the disclosure requirements under Pillar 3 particularly the disclosures related to securitisation activities, re-securitization exposures, liquidity facilities, sponsorship of off-balance sheet vehicles, valuation practices, and liquidity positions. Banks are responsible for making disclosures that reflect their real risk profile and convey them to market participants. The requirements show in detail what information about bank's financial and risk positions needs to be disclosed, achieving this way consistency and uniformity in the way banks report information to the outside world.

Pillar 1 and Pillar 3 enhancements must be implemented by the end of 2011. Pillar 2 enhancements became immediately effective in July 2009.

5.2. Basel III⁴¹

5.2.1. Capital Framework

Basel III raises the quality and quantity of the regulatory capital base and improves the risk coverage. Additionally, the framework supplements the risk-based capital requirement with a leverage ratio that intends to constrain the excess borrowing in the banking system. Basel III introduces also several macroprudential elements into the capital framework in order to counteract systemic risk arising from procyclicality and from the interconnectedness of banks.

Capital Base

Basel III makes some changes to the definitions of capital since the crisis has revealed some inconsistency in the elements of the capital base across jurisdictions and insufficient transparency and disclosure which did not allow the full assessment and comparison of the quality of capital between jurisdictions. The key element of the new definition is the common equity as the highest quality component of bank's capital.

The new regulatory capital consists only of Tier 1 and Tier 2 capital. Tier 3 capital available under Basel II to cover solely market risks is completely eliminated under Basel III. The total capital (Tier 1 plus Tier 2) is kept at 8% of risk-weighted assets.

Tier 1 Capital (going-concern capital) includes Common Equity Tier 1 restricted to at least 4.5% of risk-weighted assets and Additional Tier 1 Capital. Total Tier 1 Capital must be at least 6.0% of risk-weighted assets.

Common Equity Tier 1 Capital consists of: (a) common shares that meet the classification criteria; (b) stock surplus resulting from the issue of instruments included in Common Equity Tier 1 capital; (c) retained earnings; (d) accumulated other comprehensive income and other disclosed reserves; (e) minority interests that meet the criteria for inclusion in Common Equity Tier 1 capital; (f) regulatory adjustments applied in the calculation of Common Equity Tier 1 capital.

⁴¹ See Basel Committee on Banking Supervision: *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*. December 2010, Basel

Additional Tier 1 Capital includes: (a) instruments issued by the bank that meet the criteria for inclusion in Additional Tier 1 Capital (and are not included in Common Equity Tier 1 capital); (b) stock surplus resulting from the issue of instruments included in Additional Tier 1 capital; (c) instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria for inclusion in Additional Tier 1 capital and are not included in Common Equity Tier 1 capital; (d) regulatory adjustments applied in the calculation of Additional Tier 1 capital.

Dividends are removed from Common Equity Tier 1. Regulatory adjustments or deductions from capital (goodwill, deferred tax assets, investment in own shares, reciprocal cross holdings, etc.) are generally applied at the level of common equity. Innovative capital instruments which are currently limited to 15 % of Tier 1 will be phased out.

Tier 2 Capital (gone-concern capital) consists of: (a) instruments issued by the bank that meet the criteria for inclusion in Tier 2 Capital (and are not included in Tier 1 capital); (b) stock surplus resulting from the issue of instruments included in Tier 2 capital; (c) instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria for inclusion in Tier 2 capital and are not included in Tier 1 capital; (d) certain loan loss provisions; (e) regulatory adjustments applied in the calculation of Tier 2 capital

For an instrument to be included in Tier 1 or Tier 2 capital it must meet all the criteria set in Basel III framework⁴². For Additional Tier 1 Capital and Tier 2 Capital the Committee is in process of harmonization and development of additional entry criteria.

Finally, the capital base has been strengthened through requirements for disclosure of all elements of regulatory capital base and deductions applied and a full recognition to the financial accounts. This improves the transparency and achieves consistency of disclosure among banks.

Risk Coverage

The crisis has revealed the failure of the capital framework to capture major on- and off-balance sheet risks as well as derivative related exposures which led to low capital levels insufficient to cover the high risk concentrations in banking sector. In addition to the

⁴² See Appendix 6 for classification criteria

enhancements of the Basel II framework outlined in Chapter 5.1 Basel III introduces measures to strengthen the capital requirements for counterparty credit exposures arising from banks' OTC derivatives, repo and securities financing activities. The framework allocates higher capital charge against these exposures.

Banks should apply a multiplier of 1.25 to the asset value correlations (AVC) of all exposures to regulated financial institutions whose assets are at least 100 bn. This means that exposures to financial institutions will require higher capital charge in comparison to non-financial corporate sector because the AVCs of the inter-financial sector exposures are higher relative to non-financial ones.

The new rules require that banks calculate their capital requirement for counterparty credit risk using data that include a period of stress to the credit default spreads of bank's counterparties. This way the capital charges will not follow the economic cycle and will not decrease substantially in times of low market volatility.

In addition to the capital requirements for counterparty default risk determined with the Standardized or IRB-Approach, banks must add a capital charge to cover the risk of potential mark-to-market losses (called credit value adjustment-CVA- risk) associated with deterioration in the creditworthiness of counterparty. The counterparty credit risk management standards take into account also the so called wrong-way risk which is the risk that exposures will increase when the credit quality of the counterparty deteriorates as result of risk factors highly correlated to the counterparty's probability of default. Banks should use stress tests to identify future shocks arising from changed relationships between risk factors and thus deteriorated creditworthiness of a counterparty, and implement Pillar 1 capital charge for wrong-way risk.

The Committee has also adopted additional standards to strengthen collateral risk management and initial margining. For large and illiquid derivative exposures to a counterparty the Committee requires longer margining periods to be used for the purpose of calculating regulatory capital requirement.

In order to further reduce counterparty risk the Committee is supporting the ongoing work of IOSCO and the Committee on Payments and Settlement Systems (CPSS) to establish strong standards for central counterparty clearing houses (CCPs). Bank's collateral and mark-to market exposures to a qualifying CCP will receive a low risk weight of 2 %. In addition,

default fund exposures to a CCP will be subject to risk-sensitive capital requirements. The low capitalization of bank exposures to CCP will create incentives to move OTC derivative contracts to central counterparties.

The Committee has also addressed the overreliance on external credit ratings by introducing a number of measures to mitigate the negative effects of the use of such ratings. The Committee requires that banks perform their own internal assessment of credit risk exposures regardless of whether the exposures are externally rated or not. In order to avoid certain “cliff effects” arising from credit risk mitigation practices (guarantees and credit derivatives) the framework sets criteria for eligibility of guarantors and protection providers. Basel III also requires that national supervisors incorporate IOSCO’s Code of Conduct Fundamentals for Credit Rating Agencies in their eligibility criteria for the use of the ratings of ECRIs. Finally, to eliminate the arbitrary “rating shopping” the Committee requires that banks use the chosen ECRIs and their ratings consistently for each type of claim and for both risk weighting and risk management purposes.

Leverage Ratio

One of the main reasons for the severity of the crisis of 2007-8 was the excessive on- and off-balance sheet leverage in the banking system. As the liquidity in the market dried up banks were not able to fulfill their obligations anymore and were forced to deleverage by selling off assets at fire sales prices which further amplified the downward pressure on asset prices, depleted bank’s capital, and exacerbated banks losses and the credit crunch.

In order to address the problem, the Committee has introduced a leverage ratio intended to constrain the leverage in banking sector and thus mitigate the damaging effects of a forced deleveraging process on the financial system and the economy. The ratio as a simple, transparent, independent, and non-risk based measure of risk provides additional safeguard against model risk and measurement error of the risk-based measure.

Simply put the leverage ratio is capital divided by total assets. The capital measure for the leverage ratio is based on the new Tier 1 capital. Basel III proposes for a start a minimum Tier 1 leverage ratio of 3% which will be subject to further calibration. The exposure measure includes on- and off-balance sheet items measured for the leverage ratio according to certain requirements stipulated in the framework.

Capital Conservation Buffer

In the deteriorating conditions in the banking sector right before and during the crisis many banks continued to distribute dividends and pay generous compensations. Banks did so even if they saw their financial instability because reductions in distributions would have been perceived as a signal of weakness. This collective banks activity, however, contributed to the depletion of capital in individual institutions and to the system fragility as a whole. Many banks returned to profitability after the period of distress but did not rebuild their capital buffers. Such dynamics exacerbates the procyclicality of the system. Therefore, the Committee has introduced requirements for conservation of capital in order to build-up adequate capital buffers above the regulatory minimum that can be drawn down in periods of stress. When buffers are drawn down banks should reduce discretionary distribution of earnings (in the form of dividend payments, share-backs, bonus payments) in order to rebuild them. Banks could also, as an alternative, raise new capital from the private sector instead of conserving internally generated capital. It is not acceptable that banks with depleted capital buffers distribute capital in order to signal their financial strength. Such behavior may encourage other banks to do so and eventually increase distributions exactly at the time when banks should actually be conserving earnings.

Basel III establishes a capital conservation buffer of 2.5%, comprised of Common Equity Tier 1, above the regulatory minimum capital requirement. Common Equity Tier 1 must first meet the minimum capital requirements of 4.5% (as well as the 6% Tier 1 and 8% Total capital requirements if necessary). The remainder then is used for the capital conservation buffer. If the banks' capital levels fall within the buffer range the supervisors should impose capital distribution constraints. These distribution constraints increase as the bank's capital levels approach the minimum requirement.

Countercyclical Buffer

The countercyclical buffer is a macroprudential tool which aims to protect the banking sector from periods of excess aggregate credit growth by building capital buffer in good times which can be drawn down in bad times. The buffer will be required by national supervisory authorities on an infrequent basis as an additional capital defense against potential losses only when excess aggregate credit growth is resulting in a system-wide build-up of risk. The countercyclical buffer requirement will be decreased or removed when system-wide risk

dissipates. The countercyclical capital buffer requirement for internationally active banks will be calculated as the weighted average of the buffers deployed across all the jurisdictions to which they have credit exposures.

The countercyclical buffer is set to zero in normal times and increases between 0% and 2.5% of total risk-weighted assets depending on the judgment of national authorities as to the extent of the build-up of system-wide risk during periods of excessive credit availability. Basel III regime treats the maximum countercyclical buffer as 2.5%. The buffer, however, may exceed 2.5% if national authorities recon this appropriate in their national context. The requirement is imposed as an extension of the capital conservation buffer and is also comprised of Common Equity Tier 1. To meet the requirement banks may be subject to restrictions on distributions like in the case of the conservation buffer.

The Committee requires additionally that banks disclose publicly their countercyclical buffer requirements with the same frequency as their minimum capital requirements. Banks must also disclose the geographical position of their private sector credit exposures used in the calculation of the buffer.

5.2.2. Global Liquidity Standards⁴³

Basel III has introduced global liquidity standards which aim to achieve bank’s resilience in the short and in the long run. For this purpose the supervisors have to make sure that banks hold sufficient unencumbered high-quality liquid assets to cover the total net cash outflows under a prescribed stress scenario over a 30-day period- a time frame in which the management and/or supervisors can take appropriate corrective actions and /or the bank can be resolved in an orderly way. In the longer run, the objective is to create incentives for banks to fund their activities with more stable sources of funding on an ongoing basis. The Committee has developed two ratios to achieve these objectives: The Liquidity Coverage Ratio (LCR) calculated over 30 calendar days and The Net Stable Funding Ratio (NSFR) with a time horizon of one year.

Liquidity Coverage Ratio (LCR) is defined as follows:

$$\frac{\text{Stock of high – quality liquid assets}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%$$

⁴³ See Basel Committee on Banking Supervision: *Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring*. December 2010, Basel

For “high-quality liquid assets”⁴⁴ qualify these assets that can be easily and immediately converted into cash in the markets at little or no loss of value even in periods of severe idiosyncratic or market stress. High-quality liquid assets should be additionally eligible at central banks for intraday liquidity needs and overnight liquidity facilities.

Total net cash outflows are calculated as the total expected cash outflows minus total expected cash inflows. The cash outflows and inflows are determined according to stress scenario parameters which entail both institution-specific and systemic shocks. The parameters are internationally harmonized with prescribed values⁴⁵. Certain parameters, however, allow some national discretion in order to better account for country-specific conditions.

Net Stable Funding Ratio (NSFR) is expressed as follows:

$$\frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100\%$$

Stable funding is defined as those portions of equity and liability financing considered as reliable sources of funds over a one year time horizon under stress conditions. The required amounts of stable funding depend on the liquidity profiles of the assets. All illiquid assets and securities as well as some portions of OBS contingent exposures should be backed by stable funding⁴⁶.

The standards establish minimum levels of liquidity for internationally active banks. To strengthen the cross-border consistent application of the framework and to ensure better assessment and control of liquidity risk of a bank the Committee has also developed a set of monitoring tools that should be considered as the minimum types of information the supervisors should use. Consistent with the Committee’s supervisory framework, however, national authorities may set higher liquidity levels for their banks and /or use additional monitoring metrics in order to capture specific risks in their jurisdictions.

⁴⁴ See Basel Liquidity framework for qualifying assets

⁴⁵ See Basel Liquidity framework for prescribed values

⁴⁶ See Basel Liquidity framework for stable funding

5.2.3. Implementation Program

Basel III will be gradually implemented in order to ensure that the banking sector can meet the higher capital requirements through reasonable earnings retention and capital rising without contracting the lending to the economy. The framework should be fully effective by January 1, 2019. The implementation schedule for the single requirements is as follows:

The new minimum capital requirements should be implemented at three stages starting with 3.5% Common Equity Tier 1 and 4.5% Tier 1 capital on 1 January 2013 and applying the full levels of 4.5 % Common Equity Tier 1 and 6% Tier 1 as of 1 January 2015.

The reforms to the counterparty credit risk framework will be effective on 1 January 2013. Capital conservation buffer and the countercyclical buffer will be phased-in between 1 January 2016 and 1 January 2019.

The transition period for the leverage ratio has commenced on 1 January 2011. A minimum Tier 1 leverage ratio of 3% will be tested during a parallel run period between 1 January 2013 and 1 January 2017. Based on the results of the test period the ratio will be eventually incorporated under Pillar 1 on 1 January 2018.

Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR) standards will be introduced respectively on 1 January 2015 and on 1 January 2018 after an observation period commencing in 2011 during which any unintended consequences will be addressed.

Section 6: Evaluation of the Post-crisis Regulation

This section aims to assess the efforts of Basel Committee to address the lessons from the financial crisis and to analyze how the changes brought with Basel III will affect the banking sector. It will also discuss the outstanding potential problems and weaknesses of the Basel III framework. The last chapter will then answer the research question- purpose of this thesis: Will Basel III help prevent future crises in the banking sector?

6.1. Achievements of the Post-crisis Regulation

To address the regulatory failures revealed by the crisis, the Committee has revised the international regulatory and supervisory framework. The reforms aim to strengthen both the micro-prudential, i.e. individual bank level, as well as the macro-prudential, i.e. system level, regulation and supervision. The micro-prudential measures should ensure higher resilience of the single institutions and better resistance to periods of stress. At macro-prudential level the goal is to provide system-wide protection from risks across the banking sector and to mitigate procyclical reinforcements of these risks. Admittedly, reducing risk at bank level will positively affect the integrity and stability of the whole financial system over time.

Capital adequacy

Banks turned out to be extremely fragile and vulnerable to the adverse conditions right before and during the crisis due to their very low capital levels which did not correspond to their true risk exposures. In the absence of sufficient capital buffers to absorb unexpected losses banking sector run into insolvency problems ending up with some spectacular failures of systemically important institutions and financial and economic slump.

In response to the shortcomings that became evident with the crisis the Committee strengthened the quality, quantity and international consistency of bank capital and enhanced the risk coverage thus increasing the resilience of the global banking system and ensuring stronger capital buffers and controls against losses in the future.

The enhancements of Basel II set higher capital requirements for all securitization exposures on- and off- balance sheet. Additionally, re-securitizations which were not separately treated under Basel II as more risky than securitizations have now received higher risk weights. Pillar 2 includes into capital consideration also concentration, reputational and all other risks not

covered under Pillar 1 which should be treated in terms of credit, market and operational risks.

Basel III improves the quality and quantity of the capital requirement by increasing the Tier 1 capital ratio to at least 6 % (compared to the old one - 4 %) which should be comprised of minimum 4.5 % high- quality common equity capital. Additionally, the capital conservation buffer of 2.5 % raises the total common equity capital to 7 %. The framework requires better risk coverage of counterparty credit risk with particular attention to derivatives, repos and securities financing activities. It requires capital coverage also for CVA risk. CVA risk was not addressed in the previous framework but it turned out to cause more losses than those arising from counterparty defaults. Bank's capital requirement is additionally strengthened through a straightforward and transparent non-risk based leverage ratio which supplements the risk-based capital measures and overcomes the potential arbitrage opportunities of the capital ratio inherent in its risk-weighted assets. It also can ensure that banks have relatively equal levels of capital across all jurisdictions. Basel III is trying to capture all relevant risks in the capital adequacy framework and reduce insolvency risk as a result of undercapitalization or excess leverage. By assigning higher capital charge to riskier products it also reduces incentives for excessive risk taking and better prepares the financial system to withstand adverse shocks. Under Basel III the incentives for off-balance sheet activities and regulatory arbitrage through securitizations provoked by the shortcomings of the previous Basel frameworks have been removed.

Basel III as well as the enhanced Basel II framework address the problem with the overreliance on CRAs' ratings. Both require that banks have internal control and information collection systems to assess risk exposures on their own and not solely rely on ratings provided by CRAs. Banks should have the necessary capacity to conduct credit risk analysis of externally rated securitization exposures as well as perform stress tests and use reliable valuations models and quantitative tools to assess all relevant risks. This way, banks will assign more realistic risk weights to their assets and produce capital requirement commensurate with the actual risks banks are facing. Basel III offsets also the incentives for "rating shopping" by requiring consistent use of CRAs chosen by national supervisors. This will eliminate the conflict of interest problem and thus provide reliable information to investors and market participants.

CRAAs have contributed to a large extent to the current crisis and this formed the view among regulators and investors that they should be regulated in some way in order to reduce the conflicts of interest and to increase their transparency and competition. They should be also a subject to supervision that can verify the credibility and reliability of the information they provide and ensure that their ratings are independent, objective and of high quality. Post-crisis, a common suggestion for CRAAs regulation is to involve governments either as supervisors or as promoting a public sector CRA to compete with the private CRAAs (Goodhart, 2010). Goodhart (2010), however, recommends that CRAAs be better supervised by an independent assessment body - a Credit Rating Agency Assessment Centre (CRAAC) - set up by the private sector or the government in every country where CRAAs exist. He reckons that no government intervention is further desirable except to ensure that CRAAC are independent of the CRAAs themselves.

CRAAs, however, are out of the regulatory and supervisory scope of BCBS. Therefore, their regulation will not be touched upon in details in this paper.

Risk management, internal controls and governance

Banks' lax internal governance and risk management lie at the root of the financial crisis since they are the first level of protection for individual institutions and thus the system as a whole. Therefore, they were items of primary concern in the post-crisis agenda. Pillar 2 revision in the enhanced Basel II framework intends to strengthen risk management practices and overcome the loopholes in internal controls and risk models in order to better capture risks in internal assessments of capital adequacy. Under Pillar 2 banks must apply stress testing that will play a leading role in strengthening bank's governance and the resilience of individual banks and financial system. Stress tests should keep banks management alert for potential shocks as a result of market reversal. This way banks have an indication how much capital they would need in order to absorb losses in times of adverse market conditions, i.e. they can plan their capital levels in the long-run so as to be prepared for such conditions and thus control their solvency risk. Stress tests are intended to supplement the other risk management tools and help overcome the limitations of historical data used in measurement methods and particularly the shortcomings of VaR models. Stress tests will be able to overcome the procyclicality of VaR estimations through capital charges based on stressed credit valuations and provide the information about the tail risks which VaR models cannot measure and therefore take into account exceptional circumstances and related systemic risk. Stress tests

will allow a broader view over bank's total risk profile by including a wider range of risk scenarios. They should help banks identify risk concentrations in different business areas as well as various sources of reputational risk and take appropriate measures to control, avoid or mitigate these risks in a timely manner. These provisions together with the enhanced securitization requirements should keep risk concentrations in the banking sector under the critical levels threatening the stability of the system.

Furthermore, the enhancements outline an active and critical role of boards and senior management in ensuring effective firm-wide governance and oversight and establishing adequate risk management practices. Basel II enhancements require that board and management have an understanding of risk exposures on a firm-wide basis and are duly informed about the capital market activities and products in which their bank is involved. With respect to new products and activities- such as securitization and off-balance sheet activities and complex products- senior management should understand the underlying assumptions in the business models and establish sound and effective valuation and risk management practices in order to assess the fair value of the financial instruments and control the associated risks. This will help avoid in the future management ignorance about the underlying risks and inadequate pricing of the products offered. A sound and resilient valuation system will allow banks to produce a fair value of their assets at any time even when markets disrupt and there is not a reliable price benchmark anymore.

Top management and boards should be also actively involved in compensation system's design and operations and bear direct responsibility for mitigating the risks arising from remuneration policies. This will reduce the incentives for short term hazardous behavior and excessive risk taking which jeopardize the long-term survival of financial institutions.

In addition to the strengthened internal controls by the enhancements, in October 2010 BCBS issued *Principles for Enhancing Corporate Governance* which aim to address main deficiencies in bank corporate governance revealed by the crisis. The Principles recommend that supervisors establish guidance or rules requiring banks to have sound corporate governance strategies, policies and procedures⁴⁷.

⁴⁷ See Basel Committee on Banking Supervision: *The Basel Committee's Response to the Financial Crisis: Report to G20*, p. 7, October 2010, Basel

Procyclicality

One factor that contributed to the deepening of the financial crisis was the procyclical reinforcement of the shocks throughout the banking system. Market participants tend to behave in a cyclical manner, thus amplifying the negative effects in a downturn. In addition, regulatory standards such as the accounting procyclical fair value principle accelerated the market break down. Basel II framework does not provide regulatory means to mitigate procyclicality. On the contrary, it exacerbates the procyclicality of the banking system even more because of the risk sensitiveness of bank's capital requirement. Basel III attempts to correct this deficiency of Basel II and to address procyclicality by introducing series of measures which aim to ensure that banking sector serves as a shock absorber instead of a shock transmitter throughout the financial system and real economy.

One of the measures taken is the introduction of the countercyclical buffer which aims to achieve system stability by protecting the banking sector from severe lending contraction and losses following periods of excess credit growth. Such credit crunches can destabilize the banking sector and the economy. Thus, Basel III requires that banks build up additional capital defenses in periods of growing system-wide risks. This will provide banks with capital absorption capacity in a downturn as well as help moderate excess credit growth and thus mitigate or eliminate the possibility of system-wide shocks.

Similarly, through the capital conservation buffer Basel III aims to strengthen banks ability to withstand adverse conditions and to increase the sector resilience into a downturn and help rebuild capital during economic recovery. The additional capital held as a buffer will ensure that banks have available capital to support their operations in a period of stress. Thus, the conservation buffer has a countercyclical effect.

The leverage ratio meant to constraint excess leverage levels during periods of credit expansion will also act countercyclically and thus ensure individual and system robustness and survival in stressed conditions.

In order to dampen excess cyclicity of the minimum capital charge BCBS requires that banks use long term data horizons to estimate probabilities of default and include downturn loss-given-default (LGD) estimates in their risk functions. Additionally, when determining the capital charge, particularly for counterparty credit risk, banks should use stressed inputs and thus calculate a capital charge that is more level through time and does not follow the cycle.

Basel Committee is aware of the cyclicity of the minimum capital requirements but does not consider dampening it through removing the risk weights. Instead, the supervisors will observe the impact of Basel II framework on the member countries over the credit cycle. If the cyclicity turns out to be greater than the supervisors deem appropriate, the Committee will take additional measure to reduce it⁴⁸.

Liquidity

Perhaps the most welcomed part of Basel III is its liquidity framework which complements the *Principles for Sound Liquidity Risk Management and Supervision* of the Committee published in September 2008 as immediate response to the crisis.

The securitization process before the crisis allowed the build-up of excessive leverage in banking sector through collateralized short term debt from interbank markets which exposed banks to severe illiquidity risk once mark-to-market values declined and banks were not able roll over financing anymore. In the absence of high-quality liquid assets and stable long term funding to support bank's operations in times of stress the banking sector experienced a severe liquidity shock and destabilization of the financial markets. Basel III is addressing the liquidity problems by introducing for the first time two global liquidity standards which should ensure that banks maintain sufficient liquidity to withstand a range of stress events. The LCR standard aims to ensure bank's resilience to stress and survival in the short run whereas the NSFR standard aims to eliminate structural liquidity mismatches in bank's assets and liabilities and to achieve a reliable funding base in the long run. The aim of NSFR is to limit the over-reliance on short-term wholesale funding during times of abundant market liquidity as it was in the current crisis and to enforce more stable, longer-term funding of assets and business activities, thus avoid liquidity shortfalls and maintain financial stability. NSFR should also offset incentives to fund the stock of liquid assets with short-term funds that mature just outside the 30-day horizon of the LCR.

The enhancements of Basel II also address some liquidity problems linked to liquidity facilities provided to securitization vehicles. The framework requires that all liquidity facilities be covered with the same capital charge regardless of their maturity, thus eliminating arbitrage opportunities of the old treatment where short-term liquidity commitments had

⁴⁸ See Basel Committee on Banking Supervision: *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*, p.5, December 2010, Basel

lower capital requirement. The enhancements and the “Sound Principles” require also that banks perform scenario analyses in order to identify and assess their liquidity positions and cash flow needs in stressed conditions. This should help bank management take timely actions to limit bank’s exposures and build up liquidity cushion against potential risks in emergency situations. Stress tests should help perform contingency funding planning and set appropriate strategies to control liquidity shortfalls at any time.

Basel III liquidity framework supplemented by the Sound Principles intends to ensure sound liquidity risk management and supervision which can reduce potential liquidity shocks to a large extent and protect the financial system from instability. This is possible, however, only if they are fully implemented by banks and supervisory authorities around the world because banks are strongly interconnected through liquidity channels and inconsistent liquidity treatment even at a very small number of institutions may destroy the balance in the system.

Systemic risk

Addressing systemic risk is of crucial importance if future crises are to be avoided. Systemic risk has a global dimension and cannot be efficiently regulated at national level. Therefore, BCBS emphasizes the macroprudential dimension in Basel III- something it failed to do with Basel II. Systemic risk is indirectly addressed through all the components of the framework. Effective risk management and higher capital requirements for complex securitizations and off-balance sheet exposures, as well as trading and derivative activities can ensure long-term success of individual banks and thus protect better the whole system. Adding a capital charge for CVA-risk and correlations, or wrong-way risk, which were not addressed in Basel II, creates incentives for banks to carefully and actively manage counterparty risk and has a clear systemic concern. Allocating more capital against bilateral OTC derivative contracts while at the same time requiring lower capital charges for cleared transactions intends to create strong capital incentives to move exposures to CCPs and thus reduce procyclicality and systemic risk in the financial sector arising from the interconnectedness of banks and other financial institutions through the derivatives markets.

The Committee is addressing the systemic risk in the financial sector also by raising the risk weights and capital charges on exposures to financial institutions in comparison to those to the non-financial corporate sector because of the higher correlations of the financial exposures relative to non-financial ones.

Countercyclical buffer and liquidity standards are directly linked to systemic risk and system stability. In addition, capital conservation buffer increases loss absorbing capacity of systemically important banks beyond the minimum standards and together with the countercyclical buffer protects the system from periods of excess credit growth. Furthermore, stress tests aim to assess bad outcome scenarios and help banks take preliminary measures to cover potential losses and operate effectively in a downturn, thus maintaining normal functioning of the system. Last but not least, leverage ratio aims to constrain the procyclical build-up of leverage in the system and thus prevent the system from forced deleverage and market break downs in bad times.

A serious flaw of the prudential regulation before the crisis was its failure to take into account SIFIs and their significance for the stability of the financial system. Governments had to interfere in order to save the “too big to fail banks” whose disorderly failure would have had significant disruption effect on the financial system and wider economy at a high social cost because of their size, complexity and systemic interconnectedness. To address this problem, BCBS includes in its reform package measures to strengthen the cross-border crisis management and orderly resolution of systemically important banks⁴⁹. The Committee recommends that national authorities have “appropriate tools to deal with all types of financial institutions in difficulties so that an orderly resolution can be achieved that helps maintain financial stability, minimise systemic risk, protect consumers, and promote market efficiency”. Examples of such tools are creating bridge financial institutions, transfer assets, liabilities, and business operations to another sound financial institution, and resolve claims. National authorities should incorporate clear exit options and principles in order to promote market discipline and limit moral hazard. Supervisors should plan in advance for orderly resolution of SIFIs taking into account the size and complexity of the institution’s group structure and business. If they believe that financial institution’s structures are too complex to be safely resolved, supervisors should impose regulatory incentives through e.g. capital in order to encourage simplification of the structures that will allow cost-effective and orderly resolution. National authorities should seek convergence of resolution tools, exchange information and co-ordinate their actions in cross-border resolutions. In addition to the resolution guidelines Basel Committee in co-operation with the International Association of Deposit Insurance (IADI) has issued *Core Principles for Effective Deposit Insurance Systems*

⁴⁹ See Basel Committee on Banking Supervision: *Report and Recommendations of the Cross-border Bank Resolution Group*. March 2010, Basel

in June 2009 which should also contribute to better crisis management, reduced moral hazard, effective consumer protection, and system health.

In addition, SIFI are strongly interconnected today. The latest crisis took down the global financial system not because the losses from the real estate and mortgage investments in the United States were so large- the same happened in the Japanese banking crisis in the 90's without affecting the rest of the world- but because the institutions involved were more interconnected than in previous crises (Hellwig, 2010). Therefore, BCBS and the FSB are currently developing an integrated approach to SIFIs to address the risks arising from their interconnectedness. The treatment of these risks will include capital and liquidity surcharges, contingent capital and bail-in debt in order. This will ensure additional loss absorbing capacity for global SIFIs beyond the minimum levels required for other banks that will reflect the higher risk that their failure poses on the global financial system. The Committee is also working on a methodology to assess the systemic importance of financial institutions at a global level. Further measures include mitigating risks or externalities associated with systemic banks, tighter large exposure restrictions and enhanced supervision⁵⁰.

By addressing SIFIs and their safely resolution the macro-prudential regulation will reduce to a maximum extent the reliance on public support through central bank intervention in banking sector in the form of massive liquidity injections and bail- outs at the expense of the tax payers and the rest of the economy in times of trouble and thus limit the moral hazard associated with SIFIs which are perceived too-big-to-fail.

Transparency

The crisis of 2007-2008 was to a large extent a crisis of confidence. The inconsistent and insufficient information disclosure in banking sector before the crisis led to a mutual lack of trust among banks and the related credit crunch in interbank lending as well as to the investors' withdrawal from securities trade and the subsequent market break down. Therefore, one of the main and most important achievements of the new regulation is the establishment of uniform disclosure rules in order to improve transparency, promote better market discipline and avoid uncertainty in decision making in the future. The enhanced disclosure requirements of Basel II as well as Basel III framework is an appropriate step towards providing all the

⁵⁰ See Basel Committee on Banking Supervision: *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*, p.7, December 2010, Basel

necessary information to market participants enabling them to assess and compare banks' capital adequacy, risk exposures, valuation practices, liquidity positions, and control systems and thus make informed decisions about the relationships with their counterparties.

Supervision

The Committee has raised the standards for the supervisory review process (Pillar 2) with the Enhancements of Basel II and is currently reviewing the *Core Principles for Effective Banking Supervision* in order to reflect the lessons from the crisis. In the main focus of the enhanced supervision are the SIFIs, OTC derivatives, CRAs and the shadow banking system. The strengthened supervisory framework should promote more consistent standard implementation and stronger collaboration and coordination among bank supervisors through supervisory colleges⁵¹. In October 2010 the BCBS issued *Good Practice Principles on Supervisory Colleges*. The implementation of these principles should help supervisory authorities operate effectively and share information properly on a cross-border basis, take common decisions and focus more on the macro-systemic dimension of risks rather than just on the micro-prudential supervision of individual institutions as it was in the current crisis. This will promote the financial stability at macro prudential level.

*Financial accounting*⁵²

Financial accounting rules also created incentives for regulatory arbitrage before the crisis and became a reason for huge financial losses banks with large securitization exposures suffered during the crisis because of the fair value measurement. Therefore, BCBS in collaboration with the International Accounting Standard Board (IASB) is currently advocating changes in accounting standards which promote more forward-looking dynamic provisioning based on expected losses approach that recognizes credit losses earlier and is less procyclical than the current "incurred loss" approach. The Committee has issued in August 2009 "*Guiding principles for the revision of accounting standards for financial instruments*" that should govern the reforms to the replacement of IAS 39 by an impairment standard based on an EL-approach to loan loss provisioning.

⁵¹ See Basel Committee on Banking Supervision: *The Basel Committee's Response to the Financial Crisis: Report to G20*, p.7, October 2010, Basel

⁵² See Basel Committee on Banking Supervision: *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*, p.6, December 2010, Basel

Compensation system

By integrating the *FSB Principles for Sound Compensation Practices* into Basel capital framework BCBS aims to align the remuneration of bank's top management and employees with the regulatory objectives of achieving long-term capital preservation and financial stability. The alienation of the compensation-base from short-term accounting profit generation should eliminate perverse incentives in the future for short-term oriented, hazardous behavior of bankers and prevent employees from excessive risk taking that threatens the global financial system. In addition, compensation policy disclosure requirements and supervisory intervention should contribute to higher transparency and management discipline and thus constrain behavior to the detriment of stakeholders.

6.2. Outstanding Problems

Basel III is a step towards improved capital base, mitigation of excess leverage and credit build up, control over hazardous risk taking and enhanced resilience of the global and national financial systems. Nevertheless, the system remains vulnerable because some of the problems of Basel II framework have not been appropriately addressed to this date. In addition, the new framework has also certain drawbacks which require further actions by the regulators.

Capital issues

The main criticism of Basel III addresses the fundamental problem with the risk-weighting approach to capital calculation which gave incentives for regulatory arbitrage under Basel I and II (Blundell-Wignall & Atkinson, 2010, Hellwig, 2010, Georg, 2011). Hellwig (2010) argues that the risk calibration of capital requirements have enabled large international banks to reduce regulatory capital and engage in ever more levered activities bringing higher returns and increasing systemic interconnectedness and systemic risk through derivatives. He further argues that the modifications to the risk weights to produce more precise capital requirement might be actually the very reason for the insufficient levels of capital during the crisis, not so much the deficiencies of risk modeling and management. Thus, he concludes, the efforts of the regulators to eliminate these deficiencies without removing the underlying incentive will just shift the problem elsewhere.

Basel III has enhanced the coverage of the counterparty exposure and introduced the leverage ratio to reduce this negative impact of the risk-based model. Nevertheless, as long as capital is

based on risk weights, however improved, there will always remain gaps and errors that will be exploited through regulatory arbitrage, i.e. the incentives to reduce capital and increase leverage will be still present (Goodhart, 2005). Blundell-Wignall and Atkinson (2010) argue that the leverage ratio might not work well along with the risk-weighted measure because if it is too low banks will treat it as an upper bound of the capital requirement, i.e. bank will have incentives to arbitrage risk weights in order to ensure that the risk-weighted capital charge does not exceed the mandatory minimum capital required by the leverage ratio and this way will economize on capital. Moreover, a lot of critics of Basel III find the ratio of 3% highly insufficient. Hellwig (2010), for example, reckons that a non-risk weighted capital requirement should be well into the range of 20-30% in order to ensure sound bank protection. Therefore, Blundell-Wignall and Atkinson (2010) conclude, the combination of risk-weighted capital plus leverage ratio is likely to distort the initial regulatory intentions and push banks towards investing in assets with lower risk weights and shifting promises to the shadow banking system with the risk of unintended developments through regulatory arbitrage. This on turn can create new bubbles and cause new crises in the banking sector that will be even more leveraged and undercapitalized than it has been in the past. Blundell-Wignall and Atkinson (2010) as well as Hellwig (2010), among others, reckon that the regulation should move away from the risk-weighted capital model and replace it with a high leverage ratio instead. Removing risk-weighting system will also eliminate the bulk of procyclicality except for the natural financial and economic cycle as well as the incentives to create concentrations of favored assets in the portfolio (Blundell-Wignall & Atkinson, 2010)

Another omission of Basel III is that like its predecessors it fails to take into account asset correlations and keeps the linear measurement of risk where single risk weights are added up together. As already described in Chapter 4.6.1., this produces unrealistic capital ratios, allows risk concentrations in portfolios and creates direct incentives for regulatory arbitrage. Excluding asset correlations while at the same time applying risk-weighted capital calculation does not encourage diversification. On the contrary, it creates incentives for banks to circumvent capital requirement by investing in less risky individual assets. The problem is that banks invest in low risky assets of a same class and, therefore highly correlated, in order to gain additional profits from economies of scale and specialization which effectively produces portfolios with high lump risk (Georg, 2011). This mechanism increases risk concentrations in the sector and fosters systemic risk. If portfolio variance were taken into account when calculating the capital requirement banks would have the incentive to reduce

their capital charge through diversification of assets instead. This will align the interest of both banks and regulators. Banks would have to hold less capital because the amount of their risk-weighted assets when considering the risk-offsetting effect of the diversification will be reduced. The system will be better protected because encouraging diversification through capital incentives would be more effective to deal with risk concentrations in banking sector rather than treat them under Pillar 2 with additional capital at supervisory discretion.

Additionally, higher regulatory capital requirement will reduce banks' profitability and may encourage banks to seek out more risky activities which raise the systemic risk exposure of the banking sector. The McKinsey company has estimated that with the implementation of Basel III the return on equity (ROE) for the average bank will decline 4 percentage points in Europe and about 3 percentage points in the United States from the pre-crisis level of 15 %⁵³. Raising capital with Basel III will increase the cost of financing because it will reduce the tax shield of debt. This on turn will increase the credit spreads of loans. As a result, the equilibrium amount of bank lending will be reduced. Moreover, given the dynamics and price sensitivity of some lending markets banks may not be able to fully pass the cost increase to their customers. Consequently, their profit margins will decline and they may abandon certain lending businesses. A lot of bankers express the concern that the stronger capital base and the liquidity ratio requirements will affect negatively also the trade finance. The investment banking will be strongly affected in terms of trading and securitization business. As a consequence, banks may try to restore their profitability through expansion of their activities into the unregulated sector of the shadow banking system and thus threaten the system in a similar way again.

Cyclicality

Blundell-Wignall and Atkinson (2010) admit that the countercyclical buffer is very good as an idea but express doubts that it is likely to have poor performance in practice. This is so because of the leads and lags in modeling credit. Credit is lagging behind the cycle. Therefore, "bubbles" can be easily identified at a time when the economy has already started to turn down. Increasing provisioning to offset excess credit growth then will exacerbate the cycle and thus have the opposite of the intended effect. Moreover, developments in the

⁵³ See McKinsey & Company: *Basel III and European Banking: It's Impact, How Banks Might Respond, and the Challenges of Implementation*. 2010

shadow banking system may lead to distortions similar to those created by securitization which dampened balance sheet credit growth in the past and gave misleading signal that there were no leverage problems. Therefore, the supervisors may find it difficult to identify such distortions in advance and protect the banking sector in a prescribed manner through additional capital buffers.

In addition, even if supervisors were able to identify the build-up of systemic risk at an early stage they might find it difficult to intervene and impose the buffer on banks. The FSB is aware of the problem and states that “when supervisors take an early intervention approach, there are often no tangible risk indicators (i.e. losses) to confirm that this intervention is needed, so this makes it difficult to convince a firm and their boards that such measures are necessary to deal proactively with emerging areas of risk within a SIFI”⁵⁴. Therefore, it is questionable how effectively this countercyclical measure will counteract the systemic risk and will it be possible at all to detect systemic risks while they are building-up (Hellwig, 2010, Georg, 2011).

Liquidity

Blundell-Wignall and Atkinson (2010) see some potential problems that may arise as a result of the liquidity standards. LCR standard requires banks to hold high-quality liquid assets with an obvious bias towards government bonds⁵⁵. This may have two unintended consequences. First, prioritizing government bonds may lead to decline in the lending to the private sector- particularly to SMEs- and thus distort business financing. Second, sovereign bonds of some jurisdictions are highly risky and even subject to default risk not captured by CRAs. Therefore, applying one-size-fits-all liquidity rule may in extreme circumstances actually lead to solvency problems for banks.

NSFR requires that banks maintain stable funding of their assets over one year in a prolonged firm-specific stress scenario. To achieve this, banks will have to match the maturities of their assets and liabilities which is not consistent with banks’ special function as asset- and maturity - transformers to the rest of the economy. This will reduce bank’s profitability substantially but more importantly it may hamper banks’ ability to perform their special role in the economy as financial intermediaries that are better able to manage and transform risks

⁵⁴ See Financial Stability Board: Intensity and Effectiveness of SIFI Supervision, p.3, November 2010

⁵⁵ See qualifying liquid assets in *Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring*. December 2010, Basel

than single firms or households due to their superior access to markets and instruments for hedging such as options, swaps, and futures.

Additionally, liquidity standards require that banks hold more liquid assets which may reduce returns and increase excessive risk taking in other areas. Therefore, Blundell-Wignall and Atkinson (2010) argue that liquidity should be left to the market since the crisis was primarily a crisis of solvency and confidence. Regulators could more effectively deal with solvency problems by focusing on solvency issues, resolution regimes and most importantly capital adequacy.

Systemic issues

Unregulated shadow banking system

A major problem of the Basel system, pointed out by Moosa (2008) and Blundell-Wignall and Atkinson (2010), is that it cannot treat the same financial promises in the same way regardless of where they are passed in the financial system. This is so because Basel framework lacks regulatory and supervisory integration. It regulates only banks but not the other non-bank financial intermediaries such as insurance companies, hedge funds, securities firms, i.e. the shadow banking system. Banks, securities firms and insurance companies operate in the same markets, for the same customers and with similar products and pose identical threat to system stability. Therefore, without further regulatory intervention into the other sectors of the financial system the framework cannot have full control over systemic risk and cannot fully eliminate arbitrage opportunities. While this is so banks will always find ways, e.g., by creating new financial instruments, to “play the system” and reduce their capital requirement by shifting promises outside of the banking sector to intermediaries beyond banking regulation. Passing promises transformed with derivatives to the less regulated and capitalized shadow banking system was a major reason for the explosion of the complex structured products and the expansion of leverage which led to the financial crisis. Basel III offers a partial solution to this problem by requiring higher AVC-multiplier and thus capital charge for inter-financial sector exposures. Nevertheless, the treatment of promises passed to, for example, a re-insurance company, which operates with less capital, is outside the scope of Basel regulation and, therefore, unequal in the same system. Thus, the loophole remains still open leaving space for actions which might not support the stability of the system.

Counterparty risk

Blundell-Wignall and Atkinson (2010) welcome the regulatory incentives to move OTC derivatives to CCPs. They doubt, however, that even if attractive in terms of capital reduction this option will not be always possible and banks will keep holding large derivative exposures because derivatives in their larger part are tailor-made to the needs of financial and non-financial firms and, therefore, are not suitable for the standardized trading on exchanges. Thus, the regulation may not achieve its objective to reduce systemic risk arising from derivative contracts and a critical mass of counterparty risk will remain in the system.

Implementation issues

One of the potential problems with Basel III is inherent in its implementation schedule. The framework will be fully phased in by January 2019. Admittedly, a certain period is necessary to give banks enough time to adjust gradually to the new capital and liquidity rules so that the increased minimums do not cause economy stagnation. Considering the dynamics of financial markets and the innovative power of banking industry, however, this timeline may turn out to be too long, meaning that another crisis can easily occur meanwhile. It is, therefore, important that the implementation is not postponed in time further than the set deadlines. Otherwise, Basel III may become “outdated” just like Basel II before it has been fully implemented.

Further, it is important that Basel III is consistently implemented worldwide in order to protect the financial system at a global level and avoid regulatory arbitrage between jurisdictions. However, the concerns about the gaps among jurisdictions in terms of their capacity for implementation that were mentioned as regards Basel II in Chapter 4.6.6. are also valid for Basel III. Many supervisory authorities in emerging and developing countries might not be able to meet the standards set by Basel II and Basel III, particularly the requirements for more sophisticated approaches and internal control systems, because of insufficient financial and human capacity. Moreover, adopting the global standards might not be appropriate for some countries at their stage of development at all. Eventually, Basel III might not be consistently implemented and the system will remain vulnerable to imbalances and related shocks.

Lack of punishment rules

Basel regulation and supervision, including Basel I, Basel II and Basel III, lacks tough sanction regime. This is so primarily because Basel standards are meant as a “soft law”, i.e. they act as recommendations that should be further transformed into national law in order to have juridical power. Furthermore, Basel standards pursue to achieve their objectives by creating the appropriate incentives that will provoke the desirable behavior by bankers rather than through enforcement or strong punishment rules. Admittedly, there is Pillar 2 and the supervisory review process which empower supervisors to require corrective actions by banks and to impose sanctions in case of infringement of rules. Concrete corrective actions and sanctions, however, are not explicitly stipulated and are a subject to a national supervisory discretion. This creates weak and heterogeneous bank treatment in case of rule violations across countries, regulatory loopholes and unfair competition among banks. With different sanction rules banks can easily do regulatory arbitrage through moving activities to other less regulated countries and achieve competitive advantage to the detriment of equally important players in the financial market. Hence, the discretionary power under Pillar 2 in terms of punishment of inappropriate bank behavior could be another reason for inconsistent implementation and application of Basel standards among banks in different countries and could undermine rather than strengthen the global financial stability.

6.3. Assessment of the effectiveness of Basel III for prevention of future crises in the banking sector

The effectiveness of Basel III cannot be evaluated separately since Basel III is not a completely new framework. It is not a radical change but rather an improvement and adaptation of the existing framework to the innovations in the financial market, i.e. it is the capital accord framework Basel II complemented by the lessons learned from the crisis. Therefore, the evaluation of Basel III will be made in the context of all other relevant and effective up to date Basel Committee documents, particularly those ones issued between July 2009 and December 2010, most of which were already mentioned in Sections 5 and 6.

To answer the question whether the new regulatory architecture can prevent future crises in the banking sector one should answer first of all the question whether Basel III has an adequate micro- and, more importantly, macro-prudential focus.

Basel III, the Enhancements of Basel II and a number of recommendatory documents issued by Basel Committee in response to the crisis correct almost all the deficiencies of the previous regulatory and supervisory framework discussed in Section 4 and Chapter 6.1. The new regulations increase substantially the quality and quantity of the core capital base, improve risk management and reduce bank's incentives to take excessive risks, strengthen transparency and disclosure rules, and enable banks to withstand severe stresses without public support. The strong capital requirements will enhance the resilience of the financial system to adverse shocks and contagion effects. The Committee has recognized, however, that capital-based model alone is not sufficient to achieve the systemic risk management objective and eradicate future crises or remove regulatory arbitrage opportunities. Therefore, it has introduced a number of additional measures to strengthen the safety and stability at bank and system level through countercyclical dynamic provisioning, capital buffers, the leverage ratio, and liquidity standards.

The system dimension has been taken into account in all components throughout the framework. There is still a lot of ongoing work particularly as regards SIFIs though. Whether the measures taken to enhance their regulation will be effective to ensure stability and safety of the system, one would be able to assess completely after the new rules have been finalized. What is more important here is that the regulators have recognized the importance of the systemically large banks and the role their interconnectedness plays for the transmission of shocks throughout the financial system and economy. They have addressed the issue about the orderly resolution of SIFIs which should help avoid costly bail-outs in the future and consider further a special treatment of these institutions, particularly the imposition of capital surcharges that should help reduce systemic risk. Another very important step towards better macro-prudential regulation is the enhanced supervisory collaboration on cross-border basis through supervisory colleges which should improve sharing of experience and supervisory practices, efficient and effective macro-level decision taking and timely intervention in banking sector on a global basis.

Admittedly, the reforms address systemic risk more adequately than any other previous framework and promote financial stability at micro- and macro-prudential level. Thus, they should help lower to a large extent the likelihood of financial crises and/or at least dampen the severity of the consequences if crises occur. But will Basel III be able to prevent the banking sector from crises in the future at all?

The discussion of the weaknesses of Basel III in Chapter 6.2 clearly outlines a number of omissions and shortcomings which could hamper the successful implementation of the framework. The foremost criticism concerns the underlying deficiencies and arbitrage opportunities of the risk-sensitive capital requirement in general which can make regulatory efforts to strengthen capital base useless. As Moosa (2008) notes, however, there is no way to design any set of regulation in such a way as to eliminate all possibilities to “game the system”. Moreover, removing risk calibration of capital and replacing it solely with leverage ratio will deprive the banking system of all the benefits and sophistication of the risk weighting. Leaving only leverage ratio would be a step back to Basel I and would bring with it the same problems which Basel II attempted to overcome, i.e. only with leverage ratio banks will have the incentives to invest in more risky assets while at the same time maintain the same capital charge. Therefore, the two measures would better complement each other and offset each other’s shortcomings. In addition, leverage ratio is subject to further calibration; so if it proved to be perversely used because it is too low, the Committee will simply adjust it to sufficiently high levels which will remove the incentive to reduce risk-weighted capital charge.

The effectiveness of the countercyclical provisioning as well as other measures to reduce systemic risk such as the treatment of OTC derivatives are also questioned and accused to produce weak practical results. The soundness of these arguments should be, however, proved in the coming years.

Liquidity ratios are assessed to be somewhat arbitrary and problematic as well. However, the effect of the liquidity standards will be observed by the Committee during the transitional period and calibrations will be made if deemed necessary. There is also a general criticism against regulatory intervention in liquidity at all since at the core of the crisis were solvency problems. Nevertheless, liquidity risk turned out to be the most expressed factor magnifying the depth of the crisis. If banks held enough high-quality liquid assets and did not rely primarily on short-term debt, the contagious effects of the liquidity shortfall would have been avoided or mitigated. Therefore, one cannot rely on market discipline to solve this problem.

Inevitably, however much regulation tries to eliminate arbitrage opportunities, improve risk management and protect the system, it will hardly be able to entirely control perverse behavior and reduce risk taking first of all because risk is inherent in banking sector more than any other business and is the base for profit generation. Secondly, as pointed out by

Moosa (2008), there is a basic inconsistency and controversy in the objectives of regulators and the objectives of bankers. The purpose of the regulation is to protect the soundness of the financial system, which makes holding excess capital (above the economic private targets) desirable whereas the objective of the banks and their shareholders is profit maximization and holding excess capital not available for income generation reduces return on equity. Unlike bankers, regulators do not take into account the fact that risk creates value and as long as they ignore profitability as the main driver determining banker's actions and do not align regulatory incentives with private objectives any attempts to reduce systemic risk in order to avoid social costs will actually make the financial system more vulnerable and susceptible to instability and shocks. On the other hand, however, if it were possible to completely align regulatory and private interests in managing risks, i.e. if the private objectives of banks were to protect the system rather than pursue private benefits, regulation would not be necessary at all. So, this controversy in objectives is the reason for the regulation at first place and will continue to exist only changing dynamics over time depending on the degree of regulators' interference.

The strongest argument against the strength and potential of the new regulatory architecture to prevent the system from future crises, in my view, arises from the fact that Basel III like its predecessors regulates the banking sector but excludes the shadow banking system which existence made this crisis possible. Banking sector has strong human and financial resource basis and, therefore, huge potential for innovation. Since it will be hard to change the competitive mindset of bankers, they will always find ways to "escape" from regulation pushing and accumulating risks into the less regulated shadow segments of the financial system. And since bankers from within know better than supervisors how to exploit the loopholes in the system, they will be able to earn a lot through new products whose riskiness cannot be easily measured or identified long before they got "caught up" by their supervisors or before another crisis outbreaks. Moreover, supervisory competency will cover primarily the banking sector whereas the other sectors will be subject to other supervisory regimes and authorities. Therefore, the supervisors as a whole will lack a system-wide view and complete information. There are two ways to resolve this problem. First, BCBS should work in constant and effective cooperation with the other supervisory bodies in the system- IOSCO and IAIS- to harmonize practices, exchange information on a regular basis and take jointly measures to identify and control system destabilizing factors. Or, more effectively, sharing the view of Blundell-Wignall and Atkinson (2010) among others, the FSB or a new international

organization can take on the function of a single supervisor and regulator for the whole system. If BCBS and FSB manage to adequately address this problem this will dramatically improve the powers and potential of the regulation and supervision to reduce and even avoid crises in the future.

To sum up, the financial crisis history shows a lot of examples that no regulation is able to completely eliminate the probability of crises. Post-crisis the regulation can easily address and remove loopholes revealed by the crisis and better manage already known risks. But the crises never repeat the same scenario and every next one is usually unpredictable, catching market players by surprise and revealing new risks that were not anticipated. However, as already mentioned, risk is inherent part of every business and more so of the banking industry. Without risk there is no gain. Thus, as long as there is a tradeoff between risk taking and revenue generating there will always be time and again new exaggerations and speculative bubbles.

The most important achievement of Basel III framework, in my view, is that the Basel Committee has realized the importance of banks being resilient in their survival strategies in both internal and external shocks and the necessity of constant regulators' involvement in pace with the ever changing conditions in global economy and particularly in the rapid financial innovation. This is evident from the implementation program of Basel III which includes transitional observation periods and foresees corrections of the different framework components based on practical results. A very important prerequisite, however, for the success of the framework to protect the system from severe future shocks is its timely implementation. Otherwise, the enormous investment of effort to develop and refine the regulatory system will be in vain just like it happened with Basel II. Basel II took decades of regulatory work in order to make regulation more sophisticated. Nevertheless, it failed so miserably in the crisis not because it was not robust enough- indeed it would have mitigated the crisis to a large extent had it been effectively applied before the crisis. It was designed to address the risks of financial innovation. Particularly, the securitization framework eliminated to a large extent the incentives for regulatory arbitrage through shifting exposures off-balance sheet or distributing them through the securitization process. In addition, if supervisors had fully used their discretionary power under Pillar 2 to assess banks' risk management and capital adequacy, they would have detected earlier banks' unhealthy practices such as excessive leverage and poor risk estimates and intervene through imposing additional capital

requirements. Basel II failed because it never came properly into operation on an international basis before the crisis and particularly in the U.S.A. which unlike European countries have delayed its full implementation.

Therefore, considering that Basel III is not the perfect regulatory framework that provides the ultimate solution to financial stability, it will hardly prevent crises in the banking sector. Most probably the next crisis will also be related to the shadow banking because of the lack of integrity and common regulation of the different sectors in the financial system unless meanwhile the Committee and the FSB include in the regulatory framework the missing parts of the whole picture. Nevertheless, provided the strong capital base, liquidity standards and macro-prudential focus it offers, Basel III could make crises less likely to occur in the future and minimize the extent of damage on banking system associated with them. This is possible, however, provided that Basel III is timely implemented on a global level and regularly updated and improved at pace with the dynamic changes in the financial sector.

Section 7: Conclusions and Recommendations

Basel III has addressed the systemic risks in many aspects and strengthened the global supervision. It also managed to bring bankers' incentives more in line with the financial system stability objective. Therefore, as the analysis in the previous section shows, Basel III has the necessary qualities and potential to protect the system from collapses in the long run. In order to achieve this objective, however, there are several important prerequisites.

First of all, it is crucial that supervisors increase their coordination and establish reliable information exchange channels on a global basis through the supervisory colleagues and react in a timely manner to changes. The supervisory reluctance of the pre-crisis period to take appropriate measures should not be repeated. The approximately ten-year full implementation period is a reasonable time to phase in the higher capital requirements and liquidity standards that will allow banks to gradually raise capital without reducing their competitiveness and constraining lending to the real economy, and thus hampering the normal economic activity. For ten years, however, another crisis can easily occur. Therefore, regulators should be already aware of the fact that no regulatory system is perfect and should not over rely on the soundness of Basel III since in ten years Basel III may become outdated before its full implementation as it happened with Basel II. Supervisors should anticipate financial innovation and reconsider capital charges and implementation periods if necessary to take account of the new financial instruments and the dynamics of the financial markets on time.

Secondly, BCBS should continue its work on the leverage ratio, SIFIs, and liquidity framework in order to establish sound and clear rules which produce desirable practical results.

Banks have natural preference for high leverage because debt is cheaper than equity. Therefore, if regulation wants to constraint leverage in the future, leverage ratio should be set sufficiently high if it turns out that it creates perverse incentives to reduce risk-weighted capital charge.

SIFIs are at the center of the financial system because of their constant interaction among each other and with the related financial markets. Hence, BCBS in cooperation with the FSB should trigger the development of the methodology for assessment of the systemic importance of these institutions at a global level and the design of capital surcharge to address the systemic risks arising from their interconnectedness.

One option to address these risks is to require SIFIs to have certain proportion of contingent capital⁵⁶ which has to a large extent the same potential as common equity to absorb losses. BCBS has stressed the important role the convertible capital instruments should play in the regulatory capital treatment in their original consultative document for regulatory reform of December 2009 and then in their initial proposal published in August 2010⁵⁷. Nevertheless, the final package Basel III has no provisions for the use of contingent capital at the current stage. Basel Committee is still studying the potential use of the CoCos and is expected to come with an opinion by mid-2011. Many experts, however, support CoCos because of some important and attractive characteristics they have. ESFRC (2011), for example, point out the following advantages: (1) CoCos will reduce the burden for banks to substantially increase their capital base to the new high level, (2) they carry tax-deductible interest and therefore are less costly for banks, (3) they will reduce the need for bail-outs of all creditors in case of distress, (4) since investors in these debt instruments bear high risk, they will have strong incentives to strengthen the monitoring of the bank, and when necessary, to discipline the bank by requiring it to raise more capital and/or increase the interest on the debt. Therefore, contingent capital instruments may be included as more substantial part of Tier 1 capital. They will help banks increase their capital ratios at a lower cost and will have significant impact on market discipline.

Liquidity framework is the first attempt of the Committee to address liquidity risk and as such will surely need further adjustments. Some of the problems are evident even now. LCR favors lending to some businesses and disadvantages another. NSFR aims to reduce structural mismatches between bank's assets and liabilities and to ensure stable funding in the long run. But this contradicts to the fundamental function of banks that assigns them a special role in the economy which is to act as asset- and maturity-transformers of short-term deposits into long-term loans. Therefore, the Committee should make the necessary calibrations of the ratios on time in order to avoid distorted lending incentives which may lead to discrimination against loans to business and to eliminate the potential of NSFR to critically reduce bank's

⁵⁶ Contingent capital consists of capital instruments (convertible debt or contingent convertibles known as CoCos) that could be converted to common shares at the discretion of the relevant authorities if the bank becomes non-viable or mandatorily, when the capital level reaches a pre-defined threshold of capital ratio. The objective is to decrease the probability of banks reaching the critical point of non-viability and, if they do, to ensure that there are additional resources available to manage the safely resolution or restructuring of the bank.

⁵⁷ See Basel Committee on Banking Supervision: (1) Strengthening the Resilience of the Banking Sector, December 2009 and (2) Proposal to Ensure the Loss Absorbency of Regulatory Capital at the Point of Non-viability, August 2010, at www.bis.org

profitability and/or to infringe the level of maturity mismatch necessary for banks to fulfill their role in the economy.

Third, the international community needs a global financial regulator to establish consistent rules for all participants in the financial sector. Basel standards are exclusively focused on banking regulation and supervision and exclude the shadow banking system which, as already discussed in Chapter 6.2, leaves space to do regulatory arbitrage and reduces the potential of Basel III to have full control over systemic risk. As long as these non-bank financial intermediaries benefit from regulatory and accounting incentives the strongly innovative banking sector will always find easy ways to circumvent regulation through new financial instruments and to push and accumulate risks in the less regulated shadow sector putting this way the financial system in danger. Therefore, there should be one international financial organization, e.g. FSB, which acts as a single global regulator and supervisor for all sectors of finance. Alternatively, all international standard setting bodies in the system- BCBS, IOSCO and IAIS- could be subordinate to and coordinated at the global level by one international organization. FSB has exercised this function so far. However, if this scheme is to be kept in the future, FSB should establish uniform principles for standard development and make sure that all supervisors apply consistent requirements to their financial intermediaries, harmonize their practices, exchange information on a regular basis and take jointly measures to identify and control system risks in order to achieve international regulatory consistency. Only by developing an integrated regulation and an integrated supervisory network the regulators can manage to have the system-wide view of the risks financial players are engaging in and the complete information and competency necessary to reduce or avoid global crises in the future.

Fourth, prudential regulation was not the sole cause of the crisis and therefore it will not be able to solve all problems alone. Financial regulators should be proactive in seeking cooperation and coordination with the other policy makers and standard setting bodies in order to promote more harmonized rules in the financial sector. It should support the initiatives such as the regulation of CRAs or corporate governance rules that should preferably be implemented internationally. Particularly important are the joint actions of BCBS and IASB to improve the accounting standards. BCBS and IASB have already made the initial steps in this direction by addressing issues related to provisioning and fair value measurement. Another important revision is necessary as regards the accounting rules for the treatment of off-balance sheet vehicles which hid enormous risks and potential losses before

the crisis (FSF, 2008). This will ensure that accounting rules do not aggravate financial crises. Additional efforts, however, will be necessary to initiate further alignment of the accounting rules of IASB and the US-based standard-setter FASB in order to achieve international convergence of accounting practices and a level playing field on a global level.

Finally, consistent implementation of Basel III across the globe is vital for achieving financial system stability. The high discretionary power of national supervisors under Pillar 2, however, could be a serious source of inconsistency. The supervisory discretion particularly as regards the remedial actions and punishment imposed on banks in case of infringement of rules and the lack of concrete sanction regime in Basel framework creates inconsistent bank treatment in case of rule violations and loopholes for regulatory arbitrage across countries which could undermine the level playing field and the financial stability on a global level.

Inevitably, there will be strong peer and regulatory pressure after the crisis for international convergence and harmonization of sanction practices. Better results would be achieved, however, if BCBS reduce supervisory discretionary power and introduce strong, clear and equal punishment rules and effective sanction enforcement when inadequate capital and liquidity positions as well as weak risk management and control mechanisms of financial institutions are ascertained. Such uniform sanction regime with comparable set of measures will ensure consistency in implementation, transparency and fair competition across banks in different countries. It will also reduce the compliance burden related to cross-border business activities, avoid regulatory discrepancies between jurisdictions and facilitate the supervision of globally operating banks.

Additionally, BCBS or an independent committee to BCBS should check on a regular basis that national supervisory authorities apply the sanction regime every time they identify that risks are not adequately covered by banks or on a system level. This Committee should have the powers to require that supervisory authorities immediately fulfill their obligations or even to impose sanctions to supervisors that fail to meet the necessary supervisory standards. This practice will ensure that banks are deterred from increased risk-taking that generates systemic risks and that supervisors do not breach their duties. Indeed, if such clear punishment rules and independent control of supervisory authorities had been established before the crisis the supervision would have been much more effective and the crisis would have been to a large extent mitigated. The only problem is that BCBS or any other international committee will be hardly able to punish countries or national supervisory authorities if they do not abide by the

standards. In such cases more effective “control” is usually exercised by peers who respond by constraining their activities (e.g. by limiting branching activities) to countries whose regulators and supervisors have failed to meet the standards and have lost their reputation among international colleagues.

However, peer pressure cannot always be relied upon. Countercyclical buffer, for instance, aiming to provide additional capital defense in times of trouble relies entirely on discretionary power and neither the Committee nor the peers can ensure that national supervisors will use it. Additionally, supervisors may differ from one country to another in their ability to identify excessive credit growth which will lead to inconsistent application of this discretionary measure among banks as well.

Therefore, Basel standards will be more effective in ensuring their consistent implementation across the globe if they do not provide high discretionary powers to national supervisors not only in terms of sanctions or countercyclical capital buffer but also in respect of what they can do in general by the way of supervision. To align all national supervisory regimes completely will be impractical and impossible but BCBS should seek to remove the key differences in national bank legislations that may have material impact on the global market, induce competition distortions or regulatory arbitrage. Thus, BCBS should examine the problematic differences in supervisory powers and propose further developments.

In conclusion, the emphasis of the international banking regulation and supervision from now on has to be put primarily on the financial system stability on a global level. This requires consistent, full and timely implementation of an integrated regulatory framework in all countries as well as enhanced and improved cooperation and coordination between supervisory authorities on an international level. In order to ensure a proper flow of information and effective collaboration between supervisors on a global basis the regulatory efforts should be focused on strengthening the quality of national supervision and reducing the differences arising from national supervisory discretionary powers at first place. This will achieve consistency in implementation and application of the rules of financial regulation and supervision across countries and a level playing field for all financial market players. Only by removing the incentives to take advantage of the loopholes in regulation across financial sectors and across countries Basel III will be strong enough to achieve the objective of long term financial and economic stability and reduce or eliminate the threat of global financial crises.

Appendix 1 Key Standards for Sound Financial Systems

Area	Standard	Issuing Body
<i>Macroeconomic Policy and Data Transparency</i>		
Monetary and financial policy transparency	Code of Good Practices on Transparency in Monetary and Financial Policies	IMF
Fiscal policy transparency	Code of Good Practices on Fiscal Transparency	IMF
Data dissemination	Special Data Dissemination Standard / General Data Dissemination System	IMF
<i>Institutional and Market Infrastructure</i>		
Insolvency	Insolvency and Creditor Rights	World Bank
Corporate governance	Principles of Governance	OECD
Accounting	International Accounting Standards (IAS)	IASB
Auditing	International Standards on Auditing (ISA)	IFAC
Payment and settlement	Core Principles for Systemically Important Payment Systems Recommendations for Securities Settlement Systems	CPSS CPSS/IOSCO
Market integrity	The Forty Recommendations of the Financial Action Task Force / 9 Special Recommendations Against Terrorist Financing	FATF
<i>Financial Regulation and Supervision</i>		
Banking supervision	Core Principles for Effective Banking Supervision	BCBS
Securities regulation	Objectives and Principles of Securities Regulation	IOSCO
Insurance supervision	Insurance Core Principles	IAIS

Basel Committee on Banking Supervision (BCBS)
 Committee on payment and settlement Systems (CPSS)
 Financial Action Task Force on Money Laundering (FATF)
 International Association of Insurance Supervisors (IAIS)
 International Accounting Standards Board (IASB)
 International Auditing and Assurance Standards Board (IAASB)
 International Monetary Fund (IMF)
 International Organization of Securities Commissions (IOSCO)
 Organization for Economic Cooperation and Development (OECD)

Source: *Financial Stability Forum (FSF)*

Appendix 2 Risk Weights under Basel II

Risk Categories for On-Balance-Sheet Items under Basel II

Category 1 (0% weight)

Cash, Treasury securities, OECD governments, and loans to sovereigns with an S&P credit rating of AAA to AA-

Category 2 (20% weight)

Cash items in the process of collection; OECD interbank deposits and guaranteed claims
Some non-OECD bank and government deposits and securities; General obligation municipal bonds

Some mortgage-backed securities; Claims collateralized by Treasury and some other government securities

Loans to sovereigns with an S&P credit rating of A+ to A-; Loans to banks and corporates with an S&P credit rating of AAA to AA-

Category 3 (50% weight)

Loans fully secured by first liens on one- to four-family residential properties; Other (revenue) municipal bonds; Loans to sovereigns with an S&P credit rating of BBB+ to BBB- or better; Loans to banks and corporates with an S&P credit rating of A+ to A-

Category 4 (100% weight)

Loans to sovereigns with an S&P credit rating of BB+ to B-; Loans to banks with a credit rating of BBB+ to B-; Loans to corporates with a credit rating of BBB+ to BB- and unrated C&I loans

All other on-balance-sheet assets not listed above, including loans to private entities and individuals, some claims on non-OECD governments and banks, real assets, and investments in subsidiaries

Category 5 (150% weight)

Loans to sovereigns, banks, and securities firms with an S&P credit rating below B-; Loans to corporates with a credit rating below BB-

Unrated (100% weight)

Risk categories for Off-Balance-Sheet Items under Basel II

The same risk weights applied for On-Balance-Sheet Items are also assigned to (the credit equivalents of) the Off-Balance-Sheet contingent or guarantee contacts (e.g., commercial letter of credit issued to a CCC-rated counterparty will have 150% risk weight).

Interest rate and exchange rate contracts (forwards, swaps, caps, and floors) have in general a risk weight of 100%.

Source: Saunders and Cornett (2008) and Bank for International Settlements, "The New Basel Capital Accord", January 2001 at www.bis.org

Appendix 3 Table of Business Lines, Indicators, and Factors in BIS Standardized Approach for Calculating Operational Risk Capital Charge

Business Line	Indicator	Beta factors (%)
Corporate finance	Gross income	$\beta_1= 18\%$
Trading and sales	Gross income	$\beta_2= 18\%$
Retail banking	Gross income	$\beta_3= 12\%$
Commercial banking	Gross income	$\beta_4= 15\%$
Payment and Settlement	Gross income	$\beta_5= 18\%$
Agencies services and custodies	Gross income	$\beta_6= 15\%$
Asset Management	Gross income	$\beta_7= 12\%$
Retail brokerage	Gross income	$\beta_8= 12\%$

Source: Bank for International Settlements, “International Convergence of Capital Measurement and Capital Standards”, June 2006 and “Working Paper on the Regulatory Treatment of Operational Risk”, September 2001, at www.bis.org

Appendix 4 Operational Risk Loss Event Type Classification

Event-type category	Definition
Internal fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/ discrimination events, which involves at least one internal party
External fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party
Employment practices and working place safety	Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity / discrimination events
Clients, products, and business practices	Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product
Damage to physical assets	Losses arising from loss or damage to physical assets from natural disaster or other events
Business disruption and system failures	Losses arising from disruption of business or system failures
Execution, delivery, and process management	Losses from failed transaction processing or process management, from relations with trade counterparties and vendors

Source: Bank for International Settlements, "International Convergence of Capital Measurement and Capital Standards", June 2006

Appendix 5 Capital Categories for Prompt Corrective Action of FDIC

Zone	Total Risk-Based Ratio	Tier I Risk-Based Ratio	Mandatory Provisions	Discretionary Provisions
1. Well capitalized	10 % or above	6 % or above	No subject to a capital directive to meet a specific level for any capital measure	
2. Adequately capitalized	8 % or above	4% or above	1. No brokered deposits except with FDIC approval	
3. Undercapitalized	Under 8 %	Under 4 %	1. Suspend dividends and management fees 2. Require capital restoration plan 3. Restrict asset growth 4. Approval required for acquisitions, branching and new activities 5. No brokered deposits	1. Order recapitalization 2. Restrict inter affiliate transactions 3. Restrict deposit interest rates 4. Restrict certain other activities 5. Any other action that would better carry out prompt corrective action
4. Significantly undercapitalized	Under 6 %	Under 3 %	1. Same as Zone 3 2. Order recapitalization 3. Restrict inter affiliate transactions 4. Restrict deposit interest rates 5. Pay of officers restricted	1. Any Zone 3 discretionary actions 2. Conservatorship or receivership if fail to submit or implement plan or recapitalize pursuant to order 3. Any other Zone 5 provisions if such action is necessary to carry out prompt corrective action
5. Critically undercapitalized	2 % or under	2 % or under	1. Same as Zone 4 2. Receiver/conservator within 90 days 3. Receiver of still in Zone 5 four quarters after becoming critically undercapitalized 4. Suspend payment on subordinated debt 5. Restrict certain other activities	

Source: Saunders and Cornett (2008)

Appendix 6 Entry Criteria for Tier 1 and Tier 2 Capital under Basel III

Criteria for classification as common shares for regulatory capital purposes

1. Represents the most subordinated claim in liquidation of the bank.

2. Entitled to a claim on the residual assets that is proportional with its share of issued capital, after all senior claims have been repaid in liquidation (ie has an unlimited and variable claim, not a fixed or capped claim).

3. Principal is perpetual and never repaid outside of liquidation (setting aside discretionary repurchases or other means of effectively reducing capital in a discretionary manner that is allowable under relevant law).

4. The bank does nothing to create an expectation at issuance that the instrument will be bought back, redeemed or cancelled nor do the statutory or contractual terms provide any feature which might give rise to such an expectation.

5. Distributions are paid out of distributable items (retained earnings included). The level of distributions is not in any way tied or linked to the amount paid in at issuance and is not subject to a contractual cap (except to the extent that a bank is unable to pay distributions that exceed the level of distributable items).

6. There are no circumstances under which the distributions are obligatory. Non payment is therefore not an event of default.

7. Distributions are paid only after all legal and contractual obligations have been met and payments on more senior capital instruments have been made. This means that there are no preferential distributions, including in respect of other elements classified as the highest quality issued capital.

8. It is the issued capital that takes the first and proportionately greatest share of any losses as they occur. Within the highest quality capital, each instrument absorbs losses on a going concern basis proportionately and *pari passu* with all the others.

9. The paid in amount is recognised as equity capital (ie not recognised as a liability) for determining balance sheet insolvency.

10. The paid in amount is classified as equity under the relevant accounting standards.

11. It is directly issued and paid-in and the bank cannot directly or indirectly have funded the purchase of the instrument.

12. The paid in amount is neither secured nor covered by a guarantee of the issuer or related entity or subject to any other arrangement that legally or economically enhances the seniority of the claim.

13. It is only issued with the approval of the owners of the issuing bank, either given directly by the owners or, if permitted by applicable law, given by the Board of Directors or by other persons duly authorised by the owners.

14. It is clearly and separately disclosed on the bank's balance sheet.

Source: Basel Committee on Bank Supervision: Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems. December 2010, Basel, at www.bis.org

Criteria for inclusion in additional Tier 1 capital

1. Issued and paid-in

2. Subordinated to depositors, general creditors and subordinated debt of the bank

3. Is neither secured nor covered by a guarantee of the issuer or related entity or other arrangement that legally or economically enhances the seniority of the claim vis-à-vis bank creditors.

4. Is perpetual, i.e. there is no maturity date and there are no step-ups or other incentives to redeem

5. May be callable at the initiative of the issuer only after a minimum of five years:

a. To exercise a call option a bank must receive prior supervisory approval; and

b. A bank must not do anything which creates an expectation that the call will be exercised; and

c. Banks must not exercise a call unless:

i. They replace the called instrument with capital of the same or better quality and the replacement of this capital is done at conditions which are sustainable for the income capacity of the bank; or

ii. The bank demonstrates that its capital position is well above the minimum capital requirements after the call option is exercised.

6. Any repayment of principal (eg through repurchase or redemption) must be with prior supervisory approval and banks should not assume or create market expectations that supervisory approval will be given.

-
7. Dividend/coupon discretion:
- a. the bank must have full discretion at all times to cancel distributions/payments
 - b. cancellation of discretionary payments must not be an event of default
 - c. banks must have full access to cancelled payments to meet obligations as they fall due
 - d. cancellation of distributions/payments must not impose restrictions on the bank except in relation to distributions to common stockholders.
-
8. Dividends/coupons must be paid out of distributable items
-
9. The instrument cannot have a credit sensitive dividend feature, that is a dividend/coupon that is reset periodically based in whole or in part on the banking organisation's credit standing.
-
10. The instrument cannot contribute to liabilities exceeding assets if such a balance sheet test forms part of national insolvency law.
-
11. Instruments classified as liabilities for accounting purposes must have principal loss absorption through either (i) conversion to common shares at an objective pre-specified trigger point or (ii) a write-down mechanism which allocates losses to the instrument at a pre-specified trigger point. The write-down will have the following effects:
- a. Reduce the claim of the instrument in liquidation;
 - b. Reduce the amount re-paid when a call is exercised; and
 - c. Partially or fully reduce coupon/dividend payments on the instrument.
-
12. Neither the bank nor a related party over which the bank exercises control or significant influence can have purchased the instrument, nor can the bank directly or indirectly have funded the purchase of the instrument
-
13. The instrument cannot have any features that hinder recapitalisation, such as provisions that require the issuer to compensate investors if a new instrument is issued at a lower price during a specified time frame
-
14. If the instrument is not issued out of an operating entity or the holding company in the consolidated group (eg a special purpose vehicle – "SPV"), proceeds must be immediately available without limitation to an operating entity or the holding company in the consolidated group in a form which meets or exceeds all of the other criteria for inclusion in Additional Tier 1 capital
-

Source: Basel Committee on Bank Supervision: Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems. December 2010, Basel, at www.bis.org

Criteria for inclusion in Tier 2 Capital

1. Issued and paid-in

2. Subordinated to depositors and general creditors of the bank

3. Is neither secured nor covered by a guarantee of the issuer or related entity or other arrangement that legally or economically enhances the seniority of the claim vis-à-vis depositors and general bank creditors

4. Maturity:

- a. minimum original maturity of at least five years
 - b. recognition in regulatory capital in the remaining five years before maturity will be amortised on a straight line basis
 - c. there are no step-ups or other incentives to redeem
-

5. May be callable at the initiative of the issuer only after a minimum of five years:

- a. To exercise a call option a bank must receive prior supervisory approval;
 - b. A bank must not do anything that creates an expectation that the call will be exercised;¹⁹ and
 - c. Banks must not exercise a call unless:
 - i. They replace the called instrument with capital of the same or better quality and the replacement of this capital is done at conditions which are sustainable for the income capacity of the bank; or
 - ii. The bank demonstrates that its capital position is well above the minimum capital requirements after the call option is exercised.
-

6. The investor must have no rights to accelerate the repayment of future scheduled payments (coupon or principal), except in bankruptcy and liquidation.

7. The instrument cannot have a credit sensitive dividend feature, that is a dividend/coupon that is reset periodically based in whole or in part on the banking organisation's credit standing.

8. Neither the bank nor a related party over which the bank exercises control or significant influence can have purchased the instrument, nor can the bank directly or indirectly have funded the purchase of the instrument

9. If the instrument is not issued out of an operating entity or the holding company in the consolidated group (eg a special purpose vehicle – "SPV"), proceeds must be immediately available without limitation to an operating entity or the holding company in the consolidated group in a form which meets or exceeds all of the other criteria for inclusion in Tier 2 Capital

Source: Basel Committee on Bank Supervision: Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems. December 2010, Basel, at www.bis.org

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