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List of abbreviations

AEG – Accounting Experts Group
AMA – Advanced Measurement Approach
BCBS – Basel Committee on Banking Supervision
BCG – Basel Consultative Group
BI – Business Indicator
BIS – Bank for International Settlements
CAR – Capital Adequacy Ratio
CCB – Countercyclical Capital Buffer
CCF – Credit Conversion Factor
CCR – Counterparty Credit Risk
CET 1 – Common Equity Tier 1
CRA – Credit rating Agencies
CVA – Credit Valuation Adjustment
DRC – Default risk charge
DSR – Debt Service Ratio
EAD – Exposure at Default
EMDE – Emerging markets and developing economies
ES – Expected shortfall
ESFS – European System of Financial Supervisors
ESRB – European Systemic Risk Board
EU – European Union
FED – Federal Reserve System
FDIC – Federal Deposit Insurance Corporation
FSB – Financial Stability Board
G20 – Group of Twenty
GI – Gross Income
G-SIB – Global Systemically Important Bank
ICAAP – Internal capital adequacy assessment process
IFRS – International Financial Reporting Standards
IRB – Internal Ratings Based
IRC – Incremental Risk Charge
LCR – Liquidity Coverage Ratio
LDG – Loss Given Default
LVR – Loan to Value Ratio
M – Maturity
MPG – Macro prudential Supervision Group
MREL – Minimum Requirement of Eligible Liabilities
MtM – Mark-to-market
NPA – Non-performing Assets
NSFR – Net Stable Funding Ratio
OECD – Organization for Economic Cooperation and Development
PD – Probability of Default
PDG – Policy Development Group
RRAO – Residual risk add-on
RWA – Risk Weighted Assets
SFT – Security Financing Transaction Exposure
SIG – Supervision and Implementation Group
SMA – Standardized Measurement Approach
SREP – Supervisory Review and Evaluation Process
SRL – Supplementary leverage ratio
TLAC – Total Loss-Absorbing Capacity
VaR – Value at Risk
1. Introduction

At the beginning of the twentieth-century, economic institutions were faced with a variety of hazards in the environment, which threatened severely to undermine the established financial system. The number and impact of these factors depended on the concrete situation and the period in which they occurred, as well as the subjects that were exposed to a given risks. Through a systematic approach, economic entities were looking for a way to minimize the adverse effects of the crisis and to regain the set economic structure.

The economic and financial crises are among the most significant factors that have stood in front of the economic players. Although a lot of them have been exposed to the adverse effects of the crisis, the target of the research will be the banks, as one of the most important subjects in the financial market.

After the world was faced with a financial crisis in the banking sector, the standards and legislation aimed at the economic prosperity of the banks were defined. Introducing the given regulations, as well as the establishment of institutions whose primary role is to analyze and monitor the potential risks that the banks and other financial organizations are exposed to, dates from the thirties years of the twentieth century, immediately after the end of the Great Depression. Bearing in mind that shortly after the outbreak of the big financial crisis the primary role was to restore confidence in the collapsed banking system of the United States, the institution whose job was deposit insurance as well as a definition of new regulations and procedures, “Federal Deposit Insurance Corporation” - FDIC was established.¹

However, the “Basel Committee on Banking Supervision” – BCBS had the most significant role for the institutional risk management in monetary institutions.² Although it was established relatively late - in 1974, Committee has quickly become one of the most important institutions for the consideration and solving of the future crisis in the world. The organization was established at a time

² Ibid. p.1194
when there was a severe disturbance in the financial market, through an agreement of central bank governors of the G10\(^3\) member countries.\(^4\)

The focus of the Basel Committee was also on establishing long-term cooperation with the smaller states regarding control over the local financial institutions. In this way, the external risks were minimized, and a unique uniformity among the states members was created. The intention was to establish a global framework, which will primarily neutralize the economic and financial risks.

The first important document issued by the BCBS was “Concordat on cross-banking supervision” in 1975, whereas in 1978 the principles of consolidation of international banks were added.\(^5\) The last version from 1983 included principles for sharing responsibilities for control of internationally active banks between national and host supervisors.\(^6\) This document was a milestone for introduction of future Basel standards.

Although there are Basel I, II and III, the focus of the research will be the last Basel Accord (Basel III) as an answer to the financial crisis. The first part will be focused on the financial crisis as a unique external effect with which economic institutes had faced and which showed the undoubtedly need for banking regulation. In the second part, attention will be short paid to the importance of banking regulation and bank capital. Within the third part, the historical aspects of the development of BCBS will be presented, its establishment as well as the consequences it brings. In the fourth part attention will be paid to the Basel II standard that represents a kind of continuation of the already established Basel Accord, as well as the disadvantages of it. In the fifth section, particular focus will be on Basel III as a response to the latest financial crisis. The sixth part will show the changes of the possible introduction of Basel IV standard. And finally, the seventh part will define the concluding remarks and observations that were obtained in the context of the work.

2. Banking Regulation

\(^3\) The Basel Committee members were: Belgium, Holland, Canada, France, Italy, Japan, Luxembourg, Germany, USA, Swiss, Spain, Sweden and Great Britain. Today's members are also: Argentina, Australia, Brazil, Hong Kong, India, Indonesia, South Africa, China, South Korea, Mexico, Russia, Saudi Arabia, Singapore and Turkey.

\(^4\) Ibid. p.1194

\(^5\) Ibid. p.1195

\(^6\) Ibid. p.1195
The banking and financial sectors are representing the primary axis which contributes to economic stability and economic prosperity. The banking industry has crystallized during the years as one of the most essential factor of growth and development, which allows direct and indirect improvement of all business processes in each country. Based on that, it is crucial that the potential risks, to which banks are exposed, are under control and minimized as much as practically possible. Also, it is important that other financial institutions are "released of pressure" and that the conditions for their work and normal functioning are created. The environment, in which banks are working today, is a combination of dynamic factors which, to a greater or lesser extent, affect the operations of financial institutions. Constant improvement of the system of control of their business contributes to increasing the stability and organization of the whole system. The process of rigid control of the banking system was a process that has developed very long, whether it comes to activities within financial institutions, as well as within the entire national system for banking operation control.

The introduction of banking regulation is important primarily for two reasons:

1. Control of the banking system
2. Establishing a sound basis for further banking operations.

Striving for a higher regulation of the banking sector resulted from the financial and economic crisis that hit the world economy and to which especially the banks were exposed. The global financial crisis has triggered a question of the impact of deregulation on the efficiency of the financial system. The first important point of banking supervision is that banks have to be solvent. Thus, the danger that the bank collapses is reduced, and the customer loyalty and overall confidence in the banking system are increased. Also, it is important to regulate obligations for maintaining liquidity at a level sufficient for banks to meet their commitments. Through the implementation of the Basel III Agreement, and taking into consideration these

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10 Ibid. p.5
important factors, the BCBS has sought to regain confidence in the collapsed banking system and to protect end customers of banks. Banking regulation was quite different from country to country in which it was applied, as the conditions and situations in which the banking sector was, changed. Banks have thus been forced to respect and maintain the requirements regarding their financial operations. Some banks were due to liberal relations, with a considerably less rigorous regulation of the banking system, in a position to become much more competitive in comparison with the banks in countries where the standards and requirements were considerably higher.

In the early eighties, at a time when the global risks began to grow rapidly, the entire focus of the BCBS moved to capital adequacy ratio of big and sophisticated financial institutions. These requirements were especially pronounced in developing countries, primarily because of their indebtedness and inability to properly service their needs. Concurrently with the changing priorities of the BCBS itself, a level of complexity of the overall banking transactions became more extensive. Since at the market appeared a significantly larger number of economic players the volume of transactions has become much higher. In this way, it became clear that the regulations of the banking system have become necessary to bring order and establish a functioning of the banking system. Over time, numerous critics of the Basel agreement appeared, which saw in it a limiting factor for the free banking activity, as well as the motive for the "suppression" of the banking market.

2.1 Bank Capital

Bank capital has an important function for the business of institutions because its adequacy largely determines banks position in the market. Capital shows a level of a success of banks and is a kind of guarantee that the funds invested are safe. Also, the capital itself is also important for the regulatory bodies. The authorities stipulate a significantly higher capital adequacy in order to minimize the risk of insolvency.

13 Ibid. p.1196
14 Ibid. p.1196
through stricter regulations imposed on banks, required a higher amount of capital, which is especially lately significantly increased. On the other side, the banks management is more focused on achieving a certain amount of profit. The increasing levels of competition between banks reduce the degree of capital that banks hold because the focus is mainly on profitability.

To make it easier to comprehend the position and role of capital within the bank's business processes, the capital can be considered as:

1. **A tool for reduction of potential losses** that the bank realizes in its business, and to prevent insolvency. In order to maintain the required level of solvency, the banks must maintain an adequate level of capital, as well as to direct it towards unexpected losses. In this way, adequate levels of capital amortize potential shocks and unforeseen adverse effects from the market.

2. **A tool for protecting creditors** because maintaining an adequate level of capital protects all creditors, and it can be seen as a specific regulator of bad business and stabilization in the market. If the management of the bank has been operating inefficiently, and the bank makes losses in business, coverage of newly coming losses is essentially done at the expense of bank reserves, and then through the decrease of its available capital.

3. **A tool for the protection of agencies for deposit insurance** (such FDIC in the United States) from large outflows of funds in a particular period. In this way, lenders are sure that they are insured up to a certain limit, in case that the bank makes losses or if it comes to its liquidation.

4. **A tool to limit the growth of assets and deposits.** If the bank plans to increase total assets, it must automatically raise the level of capital, not only deposits and borrowings. In this way a unique balance, which is in the interests of the financial institution, maintains.

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16 Ibid. p.6
17 Ibid. p.6
In particular supervision authority obliges institutes and its management that consistently maintains an adequate level of capital, the level needed to cover the risks that may arise from its business processes.\textsuperscript{19} The CAR (or core capital ratio) it is a key indicator for the assessment of the risk-bearing capacity of a credit institution. It is a ratio of eligible capital to the risk-weighted assets of credit, market and operational risks.\textsuperscript{20} There are numerous reasons for the higher rates of capital, from the increased inflation and the increasing riskier financial activities to the intense competition among banks and instability of the world economy, and growing pressure from regulators to strengthen capital base.\textsuperscript{21} Because of the increased need for higher rates of bank capital, the importance of planning the long-term needs for capital, in order to diminish the risk of dealing with a possible lack of capital in the future, is increasing.\textsuperscript{22}

2.2 Risks arising from banking sector

In order to protect from the negative influences, as well as to adapted its business activities to the market situation, banks must identify and clearly define the risks to which may be exposed, as well as to establish a way to minimize them.

The basic strategies for risk management are:\textsuperscript{23}

1. Identification
   - Classification of all potential hazards which are relevant for the bank.
     This identification may be based on different criteria that the bank managers highlighted as essential for the survival of the bank.

2. Measurement
   - Calculation of the degree of influence of certain environmental factors on the bank. Depending on the severity of this impact, there are the measures that the bank could use to minimize the risk.

\textsuperscript{19} Ibid. p.10
\textsuperscript{20} “Odluka o adekvatnosti kapitala banke”, Službeni glasnik Republike Srbije br. 46/2011, 6/2013 i 51/2014, p.11.
\textsuperscript{22} Ibid. p.19
3. Assessment

- Subjective and objective evaluation of the specific strategies to reduce actual risks to the degree of fulfillment of targets.

Figure 1: The process of risk management

The most significant risk categories for the bank are:\textsuperscript{24}

- Credit Risk
- Market risk
- Operational risk
- Liquidity risk
- Systemic risk

Credit Risk

“Credit risk is the risk of adverse effects on financial result and equity due to the failure of the debtor to meet the obligations to the bank”.\textsuperscript{25} The largest part of this risk


arises from traditional banking borrowing activities, whereas significant part also comes from banking and trading books.\textsuperscript{26}

The latest financial crisis just validated how important is proper management of credit risks. Counterparty risk connected with investing in new and complex products like mortgage-backed securities, without really knowing what stands behind it, caused massive losses.\textsuperscript{27} Also, the crisis pointed out that the traditional models for managing credit risk are not satisfactory any more.\textsuperscript{28} Banks should try to develop more sophisticated and innovative models for controlling these risks.

**Market risk**

Market risks are the risks of losses arising from adverse movements of the market sensible factors, like interest rates, exchange rates, currencies or commodity prices.\textsuperscript{29} In the management of these risks the most important are preventive activities that protect the bank from negative movements of the risk factors at the market as well as from losses that caused when it comes to on and off-balance sheet positions of banks.\textsuperscript{30}

**Operational risk**

“\textit{Operational risk is the risk of direct or indirect losses due to inadequate procedures or internal processes, human factors, systems or external events}”.\textsuperscript{31} The levels of development of the banks, type, size or their business environment are important factors which contribute to operational risks.\textsuperscript{32} Operational risk in correlation to other risk types is a potential hazard for the system as a whole.

**Liquidity risk**

\textsuperscript{27} Capgemini Financial Services, “Credit Risk Management: Trends and Opportunities, The Current State of Credit Risk Management”, 2011, p.3.
\textsuperscript{28} Ibid. p.4
\textsuperscript{29} Matić, V., “Tržišni rizici”, Bankarski rizik 5, Bankarstvo 3-4, 2008, p.70.
\textsuperscript{30} Ibid. p.71
\textsuperscript{31} Filipovska, Msc. O., “Importance and treatment of operational risks in banking managemen’t, Expert contributions, Bankarstvo 5-6, 2011, p.65.
\textsuperscript{32} Ibid. p.61.
Liquidity risk is a risk of possibility that the bank does not hold enough liquid funds for the settlement of due liabilities and that will not be able to meet its current and future cash flow needs. The latest crisis and the problem of maturity transformation have underlined the importance of liquidity risk.

**Systemic risk**

"Systemic risk is a risk that affects not only individual financial institutions but the functioning of the financial system as a whole. Systemic risk is defined as a risk of disruption in financial services which is caused by a problem in the entire financial system or its components, and that has the potential to leave serious negative consequences on the real economy". Systemic risk has two dimensions; the first arises from the interconnectedness of financial institutions, which are therefore vulnerable to the spread of risk that affects other members of the system, while the second relates to the inherent cyclicality of the financial system.

After the financial crisis had caused tremendous instability of the whole system, supervisors were trying to control and reduce this risk by introducing different macro- and micro-prudential measures. In this regard in 2011 two important institutions are formed, “European Systemic Risk Board” – ESRB, which is obliged to control macro-prudential level and “European System of Financial Supervisors” – ESFS, responsible for micro aspect.

3. The financial crisis in the ‘80s – need for banking regulation

During the last three decades financial and banking crisis were repeatedly targeted and analyzed by many experts in order to understand better their significance and the role that each of them had on financial subjects. In particular, the forms in which the crisis occurred as well as triggers for the every crisis are different from case to case.

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33 Ivaniš Dr. M., “Rizici u bankarskom poslovanju”, Pravno-Ekonomski Pogledi, br. 3/2012, pp.5-6.
35 Ibid.
case. But the root of every crisis was the inability of banks to respond to the increased external demands, the problem of insolvency and liquidity.

In the early eighties, the primary source of free capital in the world market was represented by the so-called “petro dollars” accumulated after a huge surge in oil prices during and after the second oil shock in 1979. Because of this, US banks have been overcrowded with a vast amount of those “dollars” which had to be invested somewhere. The problem was that the recession in the US and Europe, based on high energy prices, was still in force. The clients of banks were forced to seek loans to cover their huge current account deficits, but the level and burden of debts exceeded the national level. When customers were able to withstand anymore, they just easily stopped all debt servicing which also meant the start of the financial crisis of the eighties. Every day, the situation was unfavorable because the real estate prices grew faster than wages in certain markets.

In order to overcome this situation, it was necessary to introduce specific agreements and measures, restrict borrowing rates, as well as to lower artificially initial costs of servicing the loans. In the first years of the financial crisis a significant lack of proper measures to respond immediately to a disorder within the financial institution was noticed, then in the financial markets, but also at the macro level by the monetary and fiscal authorities.

Basel agreements represented a logical consequence of the growing crisis because it was necessary to regulate the level of performances of economic entities and appropriately direct the capital that they possess.

## 4. Basel Committee

It was necessary to define the terms and conditions which financial institution must comply with in times of crisis and instability, in order to establish a clear and

38 Ibid. p.5
39 Ibid. p.5
40 Ibid. p.5
unambiguous control of the banking system. Defining a unique agreement at the international level contributed to the uniformity of a banking system.

“The Basel Committee on Banking Supervision” was established in late 1974 as an advisory body whose primary goal was to provide a control of the banking system. In this way, a single institution was formed, that was primarily engaged in controlling financial operations and business activities, both at the international and national level. The original mandate of the Committee was to deal with the challenges of international banking regulation in the world in the mid-seventies.

Generally speaking, the world was faced with a growing volume of international banking transaction as well as the complexity of the procedures and processes of economic agents. When it was established, the Basel Committee was faced with major problems in the banking system because one of the largest banking institutes – “Herstatt Bank” failed. The bank itself was not able to settle the outstanding liabilities to other banks in the market, which resulted in considerable disturbances in the international banking system. This event made it clear that the financial crisis may have an international character if the institution is strong enough and important at the market, and whose branches and scope of business are spread into more related markets. In this way, it was evident that the active international coordination is necessary, in order to affect any future financial crises and to prevent and stop spreading out on the connected markets.

The first proposal followed in 1975, established the rules in doing a business of internationally active banks and determined the responsibility of the supervisor and the host country as well as the country from which the bank encouraged. In this way, a clear relationship and regulation, as well as guidelines for action in the financial crisis, were created.

The Basel Committee can be seen as a forum that brings together the most economically developed countries, which serves to provide defining and implementing single regulations related to the national economy. Also, the committee serves as a unique support for the exchange of information for less...
developed countries that are unable to self-regulate their banking systems and successfully respond to the financial crisis.

The BCBS is best known for the Basel agreements related to the standards of capital adequacy in the banking system, as well as defining the core principles for effective banking regulation. In this way, national banking systems can be brought under complete control, which minimizes the adverse effects of financial crises. The Basel Committee encourages contacts and cooperation with member countries and other economic bodies in order to harmonize the functioning and contribution to a unique goal. The Committee is located in Basel, Switzerland (at “Bank for International Settlements”).

Besides the regular daily activities on control of the banking system, the BCBS is ready to give advice and help to supervisory authorities all over the world even in countries which are not member states. Hence, it can be seen as an advisory body which helps to restore order in the banking market.

4.1 The organization of the Basel Committee

The Basel Committee has more rigid form regarding organizational structure because its foundation is based on strict principles and rules. Since being established very little changed in the structure in a way that its form was directed toward the targets that should be achieved.

The head of the Committee is the Chairman who has the widest power and who may be elected from the countries members of the committee. In addition to the chairman, one of the most important roles within the committee has the Secretariat, in charge of administrative and formal tasks. Although it is not formally defined, in practice, the Committee usually meets four times a year to analyze the situation in practice and give new directions.

The Committee reports to the Joint Committee of Governors of central banks and Heads of supervision from its member countries.

Basic subgroups within the BCBS are:

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46 Basel Committee on Banking Supervision, [http://www.bis.org/bcbs/about.htm](http://www.bis.org/bcbs/about.htm) accessed 15.03.2016.
47 Currently on the position of the chairman is Mr Stefan Ingves, Governor of Sveriges Riksbank.
48 Bank for International Settlements – BIS, [http://www.bis.org/bcbs/about.htm](http://www.bis.org/bcbs/about.htm), accessed 15.03.2016.
1. “Supervision and Implementation Group” (SIG)
In the beginning, the primary goal of this group was to share information continuously and to promote consistency in the implementation of the Basel capital regulations. A few years later, its scope was extended to a concrete implementation of guidelines and standards of the Basel Committee.

2. “Policy Development Group” (PDG)
This group is dealing with issues related primarily to the development of advanced policies to improve a healthy banking system.

3. “Accounting Experts Group” (AEG)
This group should ensure that international accounting and auditing standards and practices promote strong and proper risk management in banks, support transparency and strengthen the security and stability of the banking system.

4. “Basel Consultative Group” (BCG)
This group tries to ensure support of the committee to supervisors worldwide when it comes to supervisory issues.

5. “Macro-prudential Supervision Group” (MPG)
This group provides the Committee with the reports about systemic risk and systemic important banks (SIBs).

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4.2 Basel I standard

“The Basel Committee on Banking Supervision” has tried to adopt a set of norms and regulations that are supposed to provide advice and direction to respond to the growing financial difficulties the banking sector were experiencing. Also, this crisis had global proportions and therefore the number of financial subjects which were hit by it has grown national measures.

Concerning preventing the adverse effects of the financial crisis in the late eighties, the first agreement under the BCBS was introduced, which gave the first guidelines how to act in times of crisis. Recommendations of Basel were partly motivated by a great desire to establish and define the standards for banks on the global level in order to put them in an equal position concerning the amount of capital with which they must hold. The adoption of the so-called “Basel Capital Accord” in July 1988 began to define the standards which member states were supposed to adhere.\(^50\) This agreement is in the practice known as Basel I standard.

Also, globally banking business was not standardized, which at one point had to be placed under the unified action for reasons of control and security of financial

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institutes. Standardized conditions contributed to the uniformity and facilitated the functioning of defining future standards.

The significance of the Basel I Accord is in the fact that the signatories of the document were the governors of the central banks of all of the G10 members. In this way, all relevant economic subjects agreed to go into reform of the banking system and to accept conditions on a global level.

When it comes to the banking system in Europe, most of the standards were implemented through a directive on the adequacy of the level of capital. The defining of the general provisions or general reserves for loan losses was a part of the first amendments to this document which were adopted in 1991. Those provisions should be taken into account for the purpose of calculating of capital adequacy. In this way, the risk arising from financial losses due to insolvency is significantly reduced, and it contributed to the free movement of capital among market participants.

Basel I, has been considerably expanded at the beginning of 1998 with new principles in order to apply new market conditions. This document has become known as the extended version of Basel I.

The fact that this regulation was, in addition to the signatory countries, implemented in almost all the countries in which international banking groups operate, shows that the agreement has achieved the planned objectives.

At the beginning it was necessary to define what capital is. Total regulatory capital was divided into two categories, Tier 1 and Tier 2 capital, considering that Tier 2 has a limit of 100 percent of Tier 1 capital.

52 Ibid. p.1196
53 Ibid. p.1196
54 Ibid. p.1197
Thus calculated, the amount of capital is the legally prescribed minimum amount of capital or regulatory capital.

Minimum capital requirements defined by Basel I are calculated as in Equation 1:\(^*\)

\[
\text{Capital adequacy ratio} = \frac{\text{Total regulatory capital}(\star)}{\text{Total RWA}} = \min 8\%
\]

\(^(*)\) Tier 1 + Tier 2 capital

Equation 1: Minimum capital requirements by Basel I

Figure 4: Risk-weights of assets

<table>
<thead>
<tr>
<th>%</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Cash</td>
</tr>
<tr>
<td></td>
<td>– Claims on OECD central governments</td>
</tr>
<tr>
<td></td>
<td>– Claims on other central governments if they are denominated and funded</td>
</tr>
<tr>
<td></td>
<td>in the national currency (to avoid country transfer risk)</td>
</tr>
<tr>
<td>20</td>
<td>Claims on OECD banks and multilateral development banks</td>
</tr>
<tr>
<td></td>
<td>– Claims on banks outside OECD with residual maturity &lt;1 year</td>
</tr>
<tr>
<td></td>
<td>– Claims on public sector entities (PSE) of OECD countries</td>
</tr>
<tr>
<td>50</td>
<td>Mortgage loans</td>
</tr>
<tr>
<td>100</td>
<td>All other claims: claims on corporate, claims on banks outside</td>
</tr>
<tr>
<td></td>
<td>OECD with a maturity &gt;1 year, fixed assets, all other assets …</td>
</tr>
</tbody>
</table>


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The adoption of the agreement of this magnitude and importance was accompanied by numerous criticisms and skepticism but eventually has succeeded to refute any criticism in practice and contribute significantly to the successful execution of business activities.

Many critics point out that the Basel Accord was primarily focused on credit risk, i.e. its aspects, while the market risk was almost not mentioned. In this way, the scope of risk exposure which exists was substantially reduced. The ultimate insensitivity to risk has caused that many banks migrated lending loans to riskier groups, where they could achieve much higher risk premiums with the same capital invested. Although a greater risk of exposure exists, alone the premium for the bank was tempting to realize their capital placements.

Also, the Basel agreement did not provide capital requirements for exposures to other types of risks. Critics were pointing out here that it is not practically smart to apply the same minimum capital adequacy ratio for all risks in the market. In this way, by using the approach “one size fits all”, the overall risk in the market is unified, and relative differences were not made.

Changes to the Basel I standard were necessary in order to keep pace with the influence of environmental factors. The fact is that a unique portfolio of the bank is exposed, in addition to credit risk, to other types of risks such as interest rate, foreign exchange, commodity, and price. The changes that followed were only “initial trigger” for the adoption of future standards (Basel II and Basel III), which fully accepted the market conditions as well as the development that came after, while respecting all the risks to which the financial institutions were exposed.

4.3 Basel II standard

The founders of the Basel agreement by the time became aware of the need that the principles on which the Basel I was established must be updated and redefined in order to respond to the pressures of the environment and the crisis to which the banking sector was exposed. In early 1999, the world's leading countries have

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58 The capital adequacy ratio according to Basel I standard is 8%.

59 Ibid. p.1198.
agreed to the terms of the new agreement which concerned the regulation of banking industry. In mid-2004, after more redefining, the final agreement among the Member States was reached, entitled “International Convergence of Capital Measurement and Capital Standards – a revised framework”.\(^\text{60}\) In business practice, the agreement has been accepted as *Basel II standard* and has referred to the bank's capital adequacy in modern business processes. Officially, the agreement entered into force in December 2006, when the leading countries agreed in respect of its application. The US began with the implementation of Basel II a bit later.\(^\text{61}\)

The main goals of the Basel II standard were.\(^\text{62}\)

- *Higher quality and stability of international banking system*
- *Introducing more strict principles of risk management*
- *Creating more equal market in terms of competition for internationally active banks.*

The new standard was based on three mutually associated set of rules, so-called “Pillars”, for regulating operations in the financial sector. Pillars are so defined that each successive means reducing pressures on the previous one.

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\(^\text{61}\) Implementation of Basel II began less than two months after acceptance in Europe.

4.3.1 The first Pillar

The base of the first pillar constitutes the minimum capital requirements for credit, market, and operational risk. The core principles for minimum requirement for credit risk were determined by the Basel I standard, and their application is only further upgraded. The novelty in the practical operations is substantial changes treatment of credit risk and that these standards for the first time define capital requirements based on operational risks.

For estimating the capital requirements for credit risk different approaches, based on the specificity of each bank, could be used. Standardized approach is used by banks which do not have developed sophisticated control and with simpler business operations. In this case, for assessing the creditworthiness of the clients, the data from external rating agencies will be used. In the case of very complex and large banks with the permission of supervisory body the Internal Ratings Based – IRB approach could be utilized. Depending on the difficulty level of IRB approach used the four parameters: Probability of Default – PD, Loss Given Default – LGD,
Exposure at Default – EAD and Maturity – M, could be determined entirely or partially by the bank itself.\(^{64}\)

Another novelty of Basel II was the calculation of capital claims for operational risks where the three approaches were introduced: *Basic Indicator Approach – BIA*, *Standardized Approach – SA* and *Advanced Measurement Approach – AMA*.\(^{65}\) Basic Indicator Approach is the most simple and is calculated as three-year average of net operating income multiplied by fixed rate of 15\%.\(^{66}\) Standardized Approach divides the banking activities to eight different groups where net operating income of each is multiplied by fixed rate (12-18\%) and summed together.\(^{67}\) Advanced Measurement Approach is most sophisticated, and it is based on the internal models developed by banks.\(^{68}\)

For calculation of capital requirements for market risk, two approaches are used: *Standardized Approach - SA* and *Internal model - IMA* introduced internally by banks but approved by the supervisors.

Minimum capital requirements defined by Basel II are calculated as shown in Equation 2.\(^{69}\)

\[
\text{Capital adequacy ratio} = \frac{\text{Total regulatory capital}(\star)}{\text{Total RWA (**)}} = \text{min } 8\%
\]

\(^{(\star)}\) Tier 1 + Tier 2 capital

\(^{(**)}\) for credit, market, and operational risks

*Equation 2: Minimum capital requirements by Basel II*

The total regulatory capital remained the same as by Basel I but the novelty is in denominator where the operational risks are included.

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\(^{65}\) Ibid. p.73

\(^{66}\) Ibid. p.73

\(^{67}\) Ibid. p.74


\(^{69}\) Ibid. p.54
4.3.2 The second Pillar

The second pillar - the process of supervisor’s examination includes primarily quantitative standards regarding capital adequacy. This pillar introduces an entirely new approach to risk management and assessment of capital adequacy and indicates the necessity of supervision in every aspect of the business activities of banks in the market. It emphasis was on the analysis of the internal adequacy to cover all risks to which banks are exposed certain period. Its role is to introduce new processes and through monitoring as a primary instrument to encourage banks to develop internal risk management techniques, but also to provide a unique fulfillment of quantitative standards for a longer period.

Some critics say that Basel II is more rigorous referring to the degree of risk to which the banks are exposed. In this way, their freedom of action is significantly limited, and there is no possibility of completing individual actions. As part of a practical approach to banking supervision, the essential position was given to external credit agencies whose rating information is used to classify all clients (companies) from an expanded portfolio of banks, which eventually affects the level of loan requests.

A detailed elaboration of the principles of supervision led by the Basel II standard was published in a separate document, adopted in 2006 under the "Core principles of effective banking supervision".  

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70 Ibid. 59
In practice, a particular process of banking supervision is clearly defined on four core principles aimed at improving internal risk management systems and controls. These four principles are:\(^{72}\)

1. **The process of internal assessment of capital adequacy - ICAAP**
   This process refers to a detailed analysis and evaluation of the capital which banks have in a given period. Within the internal assessment of capital adequacy level of capital is compared relative to the allowable prescribed minimum and in accordance with the risk profile.

2. **The process of supervision - SREP**
   Presents the most important process, the principle on which banking supervision is based. It includes a set of activities that supervisors carry out, within assessing bank’s ICAAP and strategy, in order to protect the bank's capital over a longer period.

3. **The capital above the minimum levels**
   A minimum amount that each bank must hold as adequate capital following the set of regulations is clearly defined (by pillar 1).

4. **The intervention of the supervisors**
   The intervention of supervisor is primarily related to preventing banks capital falling under the minimum level required to support the risks, or if there is a risk that banks could negatively react to potential danger.

Supervisors should initiate and support banks to develop internal models to measure capital requirements connected with the risk profile which banks are exposed, but also on the other side from supervisors is required to control the entire process which banks implement.\(^{73}\) In general, supervisors have a broad range of measures that could be used to “press” the banks to timely deliver relevant information and show their capital in the right light. In this way, they get the real picture of how much is the capital “vulnerable”, as well as regarding the dangers that threaten the banks. The way, in which the supervisor conducts its activities, if the principles of capital adequacy are not met, depends on the legislative powers that the supervisor has.


These rights and competences differ because there are not the same legislative bodies, policies and procedures in all countries. Activities conducted by the supervisor in the practice range from oral warnings and guidelines to more or less stringent penalties.

4.3.3 The third Pillar

The third pillar of Basel II includes disclosure requirements and higher market discipline which should improve the efficiency of Pillar 1 and Pillar 2 by increasing market transparency. This Pillar obliges banks to make the relevant information on risks and capital, publicly available and make it possible for other participants at the market to have the insight of risk management and capital of banks. Banks have to disclose such information depending on their level annually, semi-annually or quarterly.

5. The emergence of the latest financial crisis

In the United States market a new type of mortgages – subprime mortgages were made. From 1993 when no subprime mortgages existed, their number grew to $625 billion in 2005. Those mortgages financed the purchase of real estate for the needs of the population. In this way, people were able to achieve more quickly the level of borrowing than its real income allows it. Short-term rates were very low as well as the initial costs. The first two years of repayment, the bank guaranteed fixed interest rates at very low levels, often below the applicable discount rate. After the expiration

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75 Ibid.9
of a defined period, this changed to the regime of floating interest rate, according to the conditions in the financial markets.\textsuperscript{79}

Apart from the obvious risks, both in the banking sector and on the side of the population, such an economic structure was expanding in the market, opening doors to the financial services even for those groups that did not meet the strict criteria of creditworthiness.\textsuperscript{80} The rationale used is that when the individual risks, even when higher than expected, are well covered with the mortgage so the creditors may recover their debts and thus cover the of lack of liquidity.\textsuperscript{81}

Banks have adopted a new way of financing mortgages by issuing bonds and transferring substantial risks by selling them on the specialized securities market based on real assets ("Asset-backed securities"). In the whole process of trying to earn more money, banks did not pay much attention to checking the creditworthiness of the clients and movements on the market.\textsuperscript{82}

It is widely spread opinion that the weakening of financial regulation in the United States had a significant impact on the emergence of the crisis since the subprime market is less supervised than the prime mortgage market. Only around 20% of all subprime mortgages were made by banks which are supervised on a three-year basis, other 30% by affiliates of the banks which could be checked and 50% are made by not supervised independent mortgage companies.\textsuperscript{83} When the inability to service these loans was so widespread, so it could be spoken about the failure to repay loans at a global level, it was necessary to radicalize the procedures and standards in the banking sector.

There are no precise estimates and forecasts how long financial crisis will take, and to what extent it will affect the financial institutes, but one thing is for sure that the adequate implementation of the proposals of the Basel Committee could significantly reduce its negative impacts. Basel Committee gave suggestions for improvement of Basel II, in the form of new Basel III Standard, which is intended primarily to strengthen the framework and to respond to the global economic crisis.

\textsuperscript{80} Ibid. p.8
\textsuperscript{81} Ibid. p.8
\textsuperscript{82} Ibid. p.10
5.1 Basel II and problems of the crisis

Basel II regulation was not adequately prepared for the latest financial crisis. In the early stage of the crisis, severe losses were caused by financial instruments connected to subprime mortgage loans, which led further to decrease in production and increase of credit risks. In order to reduce the growth of risk-weighted assets (due to an increase of PD and LDG) and keep the capital adequacy over required minimum level, banks had to cut exposures to the real sector drastically.\textsuperscript{84} Further, this led to “feedback” effect which spread quickly over the whole banking industry. In this regard, there were many opinions that Basel II, due to procyclicality effects, just made the crisis impact worse.

Even though the mortgage crisis in the USA was more than severe, the losses arose from this crisis (approx. 500 Billion $) were not bigger than losses from the banking crisis in Japan in the ‘90s, or Dot-com bubble in 2000, only the fact that the banks were now more mutually dependent caused significant trouble.\textsuperscript{85} Banking system was too sensible due to enormous debt and maturity transformation.\textsuperscript{86}

One of the characteristics of the banking system is very high level of interconnection between banks. This was particularly visible in derivative transaction where banks used credit insurance to protect against risks of mortgage securitization. The problem was that the risks did not disappear but were only forwarded to the insurer without taking into consideration possibility that the insurer will not be able to pay it out.\textsuperscript{87}

The similar issue of being too interconnected applies for a reassessment of market prices of securities in trading books. When one bank sells securities, this will have an effect on the market prices and make the second bank reevaluate and write a loss on this paper, which will lead further to the sale of securities and decreasing of prices.\textsuperscript{88} Such reevaluation of mortgage securities was the primary cause of the massive losses in August 2007.\textsuperscript{89}

\textsuperscript{84} Grbović D., “Uticaj bazela II na procikličnost finansijskog sektora: slučaj zemalja u razvoju”, Univerzitet u Udinama, Ekonomski Fakultet, 2009/10, p.36.
\textsuperscript{88} Ibid.
\textsuperscript{89} Ibid.
The main problem was that banks had pretty high level of debt and not enough equity to absorb the losses which occurred.\textsuperscript{90} This disproportion was so large that the big European banks had a level of debt of approximately 96 to 98 percent of assets whereas equity was only 2 to 4 percent.\textsuperscript{91}

On the other side, the complexity of financial products, as well as the lack of liquidity and market transparency, was just some of the problems with which Basel II could not cope.\textsuperscript{92}

The major critics of Basel II Standard regarding the financial crisis could be summarized as following:\textsuperscript{93}

1. \textit{The average level of capital required is insufficient} – although the necessary minimum capital level is the result of close analysis there are opinions that this level should be higher.

2. \textit{Fair-value accounting for the trading book has caused significant losses in the portfolios of intermediaries} – new accounting standards made balance sheets more sensitive to changes in asset values.

3. \textit{Capital requirements are cyclical} – during the crisis number of customers which are not able to pay back their debts rise, making profits falling and if there is not enough profit to cover losses bank has to use own funds.

4. \textit{The estimation of credit risk is assigned to non-banking institutions} – this problem is evident especially under standardized approach, where external credit rating agencies – CRAs play an important role. These are criticized mainly because of lack of independence and evaluation methodologies used.

5. \textit{The wrong assumption that banks’ internal models for measuring risk exposures are better} – by using their models to estimate the risk exposures, banks could try to underestimate those exposures in order to minimize required regulatory capital.

\textsuperscript{90} Ibid.

\textsuperscript{91} Ibid.

\textsuperscript{92} Grbović D., „Uticaj bazela II na procikličnost finansijskog sektora: slučaj zemalja u razvoju“, Univerzitet u Udinama, Ekonomski Fakultet, 2009/10, p.90.

\textsuperscript{93} Cannata F., Quagliariello M., “The role of Basel II in the subprime financial crisis: guilty or not guilty?”, Carefin, Università Bocconi, Milan, 2009, p.3.
6. Encourages intermediaries to deconsolidate pretty risky exposures from their balance-sheets – intermediaries of many banks were stimulated to invest in off-balance sheet positions for which they were not obliged to keep required capital reserves.

6. Basel III agreement

Since the financial crisis showed many conceptual shortcomings of Basel II standard, there was a strong need to introduce a new regulation which could better cope with effects of the crisis. The changes were necessary because the previously defined principles were not adequately responding to the actual market situation. The manner and extent of the risks significantly affected bank’s capital and formed the need for a new way of “defense”. The core of the framework was aimed at building a much safer and more reliable financial system, and to strengthen its resilience in periods of economic turbulence.

At the beginning, there were member states which were not fully supporting this recommendation, and suggested solutions that were silently against the agreement itself. Many economists believe that already at that point in the Basel Committee there was a certain line of criticism of the accord itself, which will later come to the fore.

A principle agreement on the appearance of the Basel III accord, as well as the aspect in which it will be implemented in the future, was adopted at the meeting by the “Central Bank Governors and Heads of Supervision” – GHOS in September 2009.\(^{94}\) The session was attended by all the founding members, and it is considered one of the most important in recent history. Finally, in mid-December 2010, the BCBS has published the final framework for strengthening the rules for international capital and liquidity in the banking industry, with the primary objective to improve the ability of the banking sector to mitigate the negative consequences of the financial crisis.\(^{95}\)


\(^{95}\) Ibid. p.1203
The direct result of the exposure to the financial crisis was that the numbers of institutes had serious problems, despite the fact that they have had the required balance of capital because they lacked adequate liquid capital and could not “close” their current positions. That is why a unique modification of the capital framework together with the implementation of global minimum standards for liquidity was necessary. Reform itself is reflected in the application of micro and macro approaches within which capital requirements for the banks are defined.96 Decision makers were led by guidelines from micro to macro level, namely with the fact that the stability of the bank at the micro level lowers the risk of system broad shocks that might follow and threaten the whole financial sector and the economy of a country at the macro level.97The validity of the Basel III agreement is a long-term oriented and represents a unique balance between micro and macro-prudential approaches, defined by the adverse effects and constraints from the market.98

The micro-prudential measures aim to:99

1. Improve the capability of the banks to answer to the collapses arising from financial and economic stress, by holding capital of better and higher quality;
2. Improve the risk management and risk coverage of the banks;
3. Increase transparency of the bank’s operations and enables stronger supervision;

Macro-prudential approach introduces:100

1. Capital buffers in form of Countercyclical and Conservation buffer;
2. New liquidity framework with liquidity indicators for short- and long-term liquidity
3. Leverage ratio with a backstop function should compensate weakness of capital-based requirements.

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98 Ibid. p.1204
100 Ibid. p.181
6.1 Implementation of the Basel III

The Basel III standards implementation began in early 2013 and will be implemented in stages until 2019.\textsuperscript{101} A key aspect of the reforms of the banking system is to strengthen the capital and liquidity, including improving access to risk management supervision. Also, from member states is required much greater transparency in doing business and publishing data for easier control.

Under the agreement, all member countries of the Basel Committee are obliged to implement the Basel standards faithfully through its national legislation and to ensure their conformity on a global level.\textsuperscript{102} On the other hand, single banks are also obliged to plan and prepare their systems in order to comply with the defined standards.\textsuperscript{103} Many economists believe that setting and establishing Basel standards is insufficient to remedy all the problems caused by the financial crisis, but it is necessary to implement a set of comprehensive measures and actions to make the whole system work. The BCBS explicitly proposed more stringent mechanisms when compared to Basel I and Basel II that the member countries that were much more exposed to the financial crisis could lead its economic systems in order and adequately respond to the crisis.

View of many analysts is that the introduction of capital requirements for liquidity risk is the most important innovation introduced by the Basel III standard, because, in

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
\textbf{Micro Approach} & \textbf{Macro Approach} \\
\hline
0-4,5\% & 4,5\%-6\% & 6\%-8\% & 8\%-10,5\% & 10,5\%-13\% & Over 13\% \\
Core Tier-1 capital & Tier-1 capital & Additional capital & Min. Total capital plus & Countercyclical buffer & Systemic Important \\
min 4,5\% & Core Tier-1 capital & conservation buffer 2,5\% & & & Banks (SIBs) 1-2.5\% \\
\hline
\end{tabular}
\caption{Requirements of micro- and macro-prudential approach}
\end{table}

\textit{Source: Matić, V., “Basel III – Changed concept of capital (1), Banking Risk 24, Bankarstvo 7-8, 2011.}

\textsuperscript{101} Remarks of Nout Wellink, „Basel III and beyond“, FSI and EMEAP Working Group on Banking Supervision, Kuala Lumpur, Malaysia, 2011, p.3.


\textsuperscript{103} Ibid. p.1204
addition to credit, market and operational risk capital requirements are being expanded to liquidity risk too.\textsuperscript{104}

The BCBS has paid particular attention to liquidity standards and their implementation in practice.\textsuperscript{105} For this reason, the minimum ratio cover for short-term liquidity was enacted in 2015, as a separate standard.\textsuperscript{106} On the other hand, the minimum ratio coverage for long-term liquidity should be introduced during 2018.\textsuperscript{107}

In addition to the adequate definition of the guidelines for the agreement, one of the fundamental issues that supervisors have been dealt with is how to implement the agreement on the specific business processes of the banking system efficiently. The consequences that could be caused by the inadequate implementation of the Basel Accords could be even more severe than the primary level of the financial crisis. That is why the BCBS has adopted two studies – for the long-term impacts, and the transition effects.\textsuperscript{108} The BCBS has requested from each member country to deliver what would be the expected impact on the country's economy as well as expectations regarding the effects that can be demonstrated. Information obtained, have helped to improve the study and mold to the demands of the market, while respecting the individuality of each member national circulation.\textsuperscript{109}

Reform measures for capital requirements should be gradually introduced into the banking system in order to meet defined standard levels of capital and liquidity. Stages of implementation of the Basel III agreement, which is planned to be introduced until 2019, are as shown in the table below.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|}
\hline
Stage & Description \\
\hline
1 & Initial implementation of minimum capital requirements \\
2 & Introduction of new liquidity ratios \\
3 & Transition phase for long-term liquidity coverage \\
\hline
\end{tabular}
\end{table}

\textsuperscript{104} Ibid. p.1204
\textsuperscript{105} Ibid. p.1205
\textsuperscript{106} Ibid. p.1205
\textsuperscript{107} Ibid. p.1205
\textsuperscript{108} Ibid. p.1211
\textsuperscript{109} Ibid. p.1211
Basel III regulation – response to the financial crisis

![Figure 8: Phase-in Arrangements](image)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Min. Core Tier 1 Capital Ratio (% of RWA)</td>
<td>3.6%</td>
<td>4.0%</td>
<td>4.5%</td>
<td>4.5%</td>
<td>4.5%</td>
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<tr>
<td>Capital Conservation Buffer (% of RWA)</td>
<td>0.25%</td>
<td>1.25%</td>
<td>1.25%</td>
<td>2.5%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Min. Core Tier 1 plus Capital Conservation Buffer (% of RWA)</td>
<td>1.5%</td>
<td>4.0%</td>
<td>4.5%</td>
<td>5.125%</td>
<td>5.75%</td>
<td>6.375%</td>
<td>7.00%</td>
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<td>Phase-in of deductions from Core Tier 1</td>
<td>2.0%</td>
<td>4.0%</td>
<td>4.0%</td>
<td>8.0%</td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Min. Tier 1 Capital (% of RWA)</td>
<td>4.5%</td>
<td>5.5%</td>
<td>6.0%</td>
<td>6.0%</td>
<td>6.0%</td>
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</tr>
<tr>
<td>Min. Total Capital (% of RWA)</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
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<td>8.0%</td>
</tr>
<tr>
<td>Min. Total Capital plus Capital Conservation Buffer (% of RWA)</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>10.0%</td>
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<tr>
<td>Counter cyclical Buffer</td>
<td>Range between 0-2.5% (common equity or other fully loss absorbing capital)</td>
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<tr>
<td>Capital instruments that no longer qualify as Min. Core Tier 1 Capital or Tier 2 Capital</td>
<td>Phased out over 10 year horizon beginning 2013 (reduction of 10% per year)</td>
<td></td>
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</table>

Note: Orange numbers are for transition periods and dates are as of 1st of January.


In the EU, Basel III was introduced though Capital Requirements Regulation - “CRR” and Capital Requirements Directive - “CRD IV” which are jointly represented as “CRD IV”. The Regulation is made as “single rulebook”, meaning that is applicable to all Members uniformly. In case of directive, the Member States of the Basel Committee are obliged to incorporate rules and procedures of the new agreement to the new laws in a way which suits them, in order to better adapt to the local markets. Also, banks should gradually adjust their business activities to imposed standards since the common interest of both the public and private sectors is to sustain the banking system and bring it to a much higher level.

When defining the deadlines for implementation of liquidity standards, Basel framework approached this topic very seriously because of the fact that this is one of the most sensitive parameters for the banking sector, which directly affects its survival in the market. Based on the results of analyses of liquidity standards, the banking supervisory committee has decided that set up regulations should also be partially mitigated, when it comes to global banks liquidity. The new changes reflected in a much wider range of assets included as an essential part of the high-quality capital. Minimum reserve requirements for banks should amount to 60% of the previously planned minimum, and to gradually increase by 10% until reaching an

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111 Ibid. p.3
112 Ibid. p.3
amount up to 100%, i.e. full implementation in 2019. All this should give positive effects and reflect on lowering costs in the banking sector.\(^{113}\)

Figure 9: *Timeline of Basel III implementation*


### 6.1.1 Implementation of Basel III standard in the USA

Since the crisis in 2007 occurred, it was clear that the financial markets regulatory system in the USA was not strong enough to control and prevent such events in the future.\(^{114}\) *“Dodd-Frank Wall Street Reform and Consumer Protection Act”* was introduced in 2010 as a response to the problems in the US financial market.\(^{115}\) Additionally, the “Collins Amendment” of the Dodd-Frank Act, issued by FDIC, regulated minimum capital, and leverage requirements.\(^{116}\) In 2013, the FED introduced “Final US Rules”, in combination with some articles of Dodd-frank Act, which replaced Basel I Standard and has ensured the ground for the introduction of Basel III in the USA.\(^{117}\)

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115 Ibid.
In comparison to Basel III, the “Final US Rule,” proposed a few solutions which are different and even more rigorous than those in Basel III.\textsuperscript{118} Some of the most important differences could be summarized as:

- **Regulatory Capital Definition**: Large banks with consolidated assets more than USD 15 billion should eliminate trust and cumulative preferred securities as non-qualifying Tier 1 instruments.\textsuperscript{119} For institutions with the total consolidated asset less than USD 15 billion those instruments could be still incorporated into Tier 1 capital.\textsuperscript{120}

- **External Rating Agencies**: The “Final US Rule” forbids the use of credit ratings from external rating agencies due to the massive problems caused by such ratings during the latest financial crisis.\textsuperscript{121} As a possible solution for institutions outside of US, they recommend “country risk classification codes” issued by OECD.\textsuperscript{122} On the other side, Basel III gave a recommendation to institutions to try to build their internal systems for credit risk assessment instead of depending on external credit rating agencies.\textsuperscript{123}

- **Leverage Ratio**: All US banks should keep a minimum leverage ratio on the level of 4 percent. For the banks using advanced approach a “Supplementary leverage ratio”, including both on and off-balance sheet...
positions, of a 3 percent is applicable. \textsuperscript{124} Furthermore, for all large banks (with more than 700 billion of consolidated assets) further 2 percent are added, making the total SRL 5 percent. \textsuperscript{125} The primary function of this additional ratio is comparable to capital conservation buffer. \textsuperscript{126}

- **Liquidity requirements:** US regulatory bodies proposed in 2013 two different LCR versions - “full” and “light” ratio, depending on the size and complexity of the institutions. \textsuperscript{127} In comparison to Basel, among others, US liquidity proposal differs in treatment of HQLA which does not include: \textsuperscript{128}
  - Public sector securities
  - Covered bonds
  - Mortgage-backed securities
  - Corporate debt bonds.

The full implementation of 100 percent is expected by 1\textsuperscript{st} of January 2017.

The more detailed comparison between Dodd-Frank Act and Basel III is shown in Annex 3.

In contrast to US banks, which have still some time till full application of the latest Basel regulations, European banks are in unenviable position regarding higher capital and liquidity requirements. \textsuperscript{129}

\textsuperscript{126} Ibid. p.11
\textsuperscript{128} Ibid. p.14
6.1.2 Implementation of Basel standards in emerging markets and developing economies – “EMDE”s

The group of 20 most developed countries implemented Basel III Standards but their introduction did not go so smooth because of diverse levels of regulation and development of banking systems. The even worse situation could be in developing countries.
There are opinions that the Basel Accords are essentially defined and focused primarily on the subjects that originate from developing countries.\textsuperscript{130} The financial crisis that has burdened their economies heavily and their adequate capital have been significantly influenced by the lack of ability to respond effectively to the growing problems.

Maybe the biggest issue for introducing Basel III standard in developing countries is increasing of capital requirements and introducing of amortizations buffers. Since the costs of lending should be increased the crediting of emerging market companies will be reduced as well as investments. There is also fear that shadow banking could be increased in EMDE countries due to higher capital requests. Stricter capital requirements will lead to increase the price of lending and possible turn to shadow banking.\textsuperscript{131}

Also, one of the problems which could arise is fulfilling the LCR requirement for investing in high-quality sovereign and corporate bonds which are in some cases not easily available on the markets of developing countries.\textsuperscript{132}

There is also doubt if the supervisors from those countries are competent enough to cope with the introduction of new regulations. As a part of the solution to this problem, Basel Committee introduced \textit{Supervisory colleges} - a platform for sharing information and mechanisms for risk for managing and reducing the risks.\textsuperscript{133}

When it comes to implementation of the Basel Agreements for credit risk, two approaches differ.\textsuperscript{134} Which approach management of the institution will choose depends on factors which the bank is exposed to, the capital adequacy ratio and level of the standards. As a result, riskier assets will be concentrated in banks with the standardized approach because it will require relatively less capital in the banking system. This method is fully relying on external rating agencies, as shown in the latest crisis, could be seen as risky. In this regard, the entire banking system must keep a much higher amount of capital than necessary, due to exposure to potential

\textsuperscript{131} Sherpa, D.,“Critical evaluation of Basel III as prudential regulation and its consequences in developing countries’ credit needs”, Jawaharlal Nehru University, New Delhi, 2013, p.13.
\textsuperscript{132} Financial Times, \url{http://www.ft.com/cms/s/0/d18ac52a-b615-11e1-a511-00144feabdc0.html#axzz4BSEpP5qW}, accessed 07.06.2016.
\textsuperscript{134} These are Standardized Approach – SA and Internal Ratings Based Approach – IRB approach.
financial risk in the future. This is especially important for banks that originate in developing countries, where due to the higher risk and relatively low information support a standardized approach is used for managing capital. On the other side, using IRB methodology is pretty problematic for those countries since they mostly do not have developed adequate models and historical data to use more sophisticated procedures.

“EMDE” countries must formulate a joint strategy for action regarding implementation of Basel III regulations because in most cases they are faced with the same level of problems within the business.

Figure 13: Timeline of implementation of Basel III around the world

Source: Nguyen Thi Thu T., “Basel III and impacts on credit risk management”, Alexandru Ioan Cuza, University of Iasi, p.3.

6.2 Specifications of Basel III standard

The financial crisis, as the result of years of wrong treatment of assets and capital, led to the establishment of a new set of standards, rules and procedures, which referred to operations of banks and thus established capital controls. The way in which the crisis has evolved depended on many factors and the interdependence between financial institutions in the country/region.

Also, procyclicality and systemic risk, illustrating the need to take into account all the particular weakness of the bank, as well as the possible risks.\textsuperscript{136} The adverse effects that the crisis has caused were brought very quickly to the region, and for this reason, one could speak of a global crisis, viewed from a macro perspective. In this way, the initial belief that the crisis will be concerning only micro aspect, rather solving accumulated problems of individual subjects is proved to be wrong. Some measures under the Basel III are focused on these aspects, primarily through the implementation of the regulatory buffers, whose only task is - to mitigate the adverse negative effects caused by the global financial crisis.\textsuperscript{137}

Critics point out that is wrong to think that Basel III is an adequate substitute for Basel II and Basel I, as each agreement is based on various factors that have shaped them. It should be noted that the Basel III complements the previous standards, but that does not change their significant role.\textsuperscript{138}

In comparison with Basel II standard, Basel III implemented several important reforms which could be summarized in the following table:

\begin{figure}
\centering
\begin{tabular}{|l|l|l|}
\hline
Limits of Basel II & Reforms of Basel III & Objectives  \\
\hline
Undesirable and insufficient capital definition & New capital definition (see 3.1) & - Increase quality, consistency and transparency of the capital base  \\
\hline
- Tier 1 capital: going concern capital including common equity tier 1 capital and additional tier 1 capital & - Tier 2 capital: gone concern capital  \\
- Tier 3 capital: eliminated & - Tier 3 capital: eliminated  \\
\hline
\end{tabular}
\caption{The most significant improvements in Basel II standard}
\end{figure}

\textsuperscript{137} Ibid. 1206
\textsuperscript{138} Ibid. 1206
The Basel III regulation should have effects on increasing the quality and quantity of banks capital, in particular on common equity, in order to increase the absorption of capital risk and financial crisis.\textsuperscript{139} Experts agree that the use of security capital\textsuperscript{140} is a strong incentive to all financial subjects to build adequate capital in periods of stable business.\textsuperscript{141} The essence is to accumulate funds in order to overcome the crisis in terms of shocks and an unstable business. Safety capital is of extreme importance for developing economies, which are often faced with cyclical developments and volatility. Periods of stable business should be exploited in order to accumulate capital for the possible coming crisis. Opinions are divided when it comes to this approach; because it does matter in which period a safety margin will be formed.

\begin{table}[h]
\centering
\begin{tabular}{|l|l|l|}
\hline
The mark-to-market losses not captured in case of counterparty default or Credit Valuation Adjustments (CVAs) & \textbf{Increased capital requirements} & - Capital charge for potential mark-to-market losses  
- Higher standards for collateral management and initial margining  
- Higher capital requirements for OTC derivatives exposures  
- Reinforce the Counterparty Credit Risk management  
\
Pro-cyclicity of the banking system, tending to boost the amplitude of the business cycle & \textbf{New capital buffers} & - Capital conservation buffer of 2.5\%  
- Countercyclical buffer of 0-2.5\% depending on macroeconomic circumstances  
- Reduce pro-cyclicity and avoid the destabilizing effects experienced in the last crisis  
\
No significant changes in the assessment of derivatives and off-balance sheet items & \textbf{New leverage ratio} & - Leverage cap of 3% under test  
- Volume based and not risk adjusted (on- and off-balance sheet items)  
- Constrain the build-up of leverage and avoid destabilizing deleveraging processes  
\
Lack of monitor of funding gap between deposits and loans & \textbf{New liquidity standard} & - Liquidity Coverage Ratio (LCR)  
- Net Stable Funding Ratio (NSFR)  
- Promote short-term resilience of a bank’s liquidity risk profile by ensuring that it has sufficient high quality liquid assets to survive a stress scenario lasting one month  
- Promote resilience over the longer term by creating additional incentives for a bank to fund its activities with more stable sources of funding  
\
Over-reliance on the rating agencies to determine the riskiness of assets & \textbf{New standard} & - Perform internal rating alongside external ratings  
- Incorporation of eligibility criteria for the use of external ratings  
- Reduce reliance on external rating and minimize cliff effects  
\
\hline
\end{tabular}
\caption{Basel III regulation – response to the financial crisis}
\end{table}

\textsuperscript{139} Ibid. 1206
\textsuperscript{140} It is so called capital buffer - financial measure designed to mitigate the negative shocks on the market.
\textsuperscript{141} Ibid. 1206

On that basis, the final Basel III capital framework defined the three components in order to determine the regulatory capital base. Banks have to fulfill the following minimum ratio of capital, starting from 1\textsuperscript{st} of January 2013:\textsuperscript{142}

- 3.5% CET1 capital to RWA
- 4.5% Tier 1 capital to RWA
- 8.0% of the total capital to RWA

For most banks, the security will be in the future qualified as Common Equity Tier 1 - CET 1.

The new regulatory standards also recommended two minimum ratios for the supervision of liquidity risk. These standards are:\textsuperscript{143}

- \textit{Liquidity coverage ratio (LCR)} - is short-term resistance liquidity risk
- \textit{Net stable funding ratio (NSFR)} - liquidity stress test for banks for a period longer than 30 days.

Liquid assets of high quality may be included in the calculation in two categories:\textsuperscript{144}

- \textbf{The first level of the funds} - these funds are restricted to cash and central bank reserves that can be withdrawn in times of crisis, as well as ECB eligible securities for the needs and purposes of the LCR.
- \textbf{The second level of assets} - includes government and high quality corporate and covered bonds. This level of resources cannot cover more than 40\% of total liquid assets after haircut for the purposes of the LCR calculation.

\textbf{6.2.1 Systemically important banks – “G-SIB”s}


Also, one of the novelties was defining globally systemically important banks – G-SIBs and determination of special regulations under Basel Standard regarding those banks. Systemically important banks are those whose bankruptcy or liquidation pose a threat to the whole financial system. As seen in the latest financial crisis, the banking market which very inter-connected as well as the exposures shared, caused that the problems of one systemically important institution are an immediate danger to other institutions with which it is associated.

In November 2011, at the meeting of the G20 leaders the competent “Financial Stability Board” - FSB has submitted the list of 29 banks, which are identified as “systemically important banks” and whose vision disorders endanger the stability of the system as a whole. The criterions used based on “indicator-based measurement approach” were size, complexity, interconnectedness. The submitted list of banks stood 17 European banks, 8 American and 4 banks, originating from Asia. The exact list of all systemically important banks (2015 update) is in Annex 4.

6.3 Structure of Basel III agreement

The structure of the Basel agreement is rather rigid, given the stringent requirements which imply. In fact, the structure of the Basel III agreement is built on the foundations of previous agreements, with certain modifications, which are in line with market demands. As in the case of Basel II, Basel III is based on three interrelated pillars, which are related to the different requirements in the banking sector. Stricter capital requirements, with the use of liquidity and leverage coefficients, should contribute to the strengthening of capital and liquidity of banks.

146 Basel Committee on banking supervision, “Global systemically important banks: updated assessment methodology and the higher loss absorbency requirement”, BIS, 2013, p.4.
147 Ibid. p.5
6.4 The first pillar of Basel III - Capital requirements

Changes in capital requirements are related to the introduction of fixed control in the banking sector, in order to establish much stricter controls on capital, which the bank owns. If a bank faces with increased problems of the financial crisis, it is necessary to possess a particular kind of “adequate” capital, in order not to put its business activities in question. Concerning providing “fresh” capital on time, the BCBS has offered a brand new concept of capital, which is different with respect to Basel II, and primarily refers to:

- **Change in capital structure** - modification in a first and secondary level of banks’ capital (Tier 1 and Tier 2), which are the basis for defining further steps of business and must be strictly regulated and channeled so that the banks can meet its requirements. One of the most significant changes occurred in the structure of Tier 1 capital, because of the separation to the Common Equity Tier 1 capital and Additional capital.

---

• **Reversal of additional capital for coverage of market risk** - this capital was defined under Basel II solely for the unpredictable market risks to which banks could be exposed.

• **The increase of the required capital level** - the amount of capital is defined by the management of the bank in consultation with the Central Bank of the local country.

• **The introduction of a new category of capital** - it is a unique stabilization reserve for the purpose of absorbing future market disturbances.

Also in comparison with the previous Basel agreement some fundamental changes occurred, which were in line with the developments in the banking market. According to the previous standard of Basel, banks were required to hold at least half of its regulatory capital as Tier 1. It is important to point out that half of the Tier 1 capital should be equity capital, and the other half high-quality capital compared to other capital structure. In order to achieve a higher quality of capital the exclusion of assets of disputable quality was made. By the newly-formed "Basel III agreement", the procedure which refers to the removal of “bad” assets in business operations is much more severe and rigid. The focus is on share capital, which has a much higher quality.

The total regulatory capital consists of:  

- **Tier 1 Capital or going-concern capital**
  - Common equity Tier 1 capital
  - Additional Tier 1 capital

- **Tier 2 Capital or gone concern capital**

The next three figures show each of the capital category divided into essential elements.

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Figure 16: *Elements of CET 1*

<table>
<thead>
<tr>
<th>CET1 Capital Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Qualifying common stock instruments (plus any related surplus and net of any treasury stock)</td>
</tr>
<tr>
<td>+ Retained earnings</td>
</tr>
<tr>
<td>+ Accumulated other comprehensive income</td>
</tr>
<tr>
<td>+ Qualifying CET1 minority interest</td>
</tr>
<tr>
<td>+ Regulatory adjustments</td>
</tr>
<tr>
<td>− Regulatory deductions</td>
</tr>
<tr>
<td>= CET1</td>
</tr>
</tbody>
</table>


Figure 17: *Elements of Additional Tier 1*

<table>
<thead>
<tr>
<th>Additional Tier 1 Capital Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Additional tier 1 capital instruments (plus any related surplus)</td>
</tr>
<tr>
<td>+ Tier 1 minority interest not included in CET1</td>
</tr>
<tr>
<td>+ Nonqualifying tier 1 capital instruments</td>
</tr>
<tr>
<td>− Investments in a banking organization’s own additional tier 1 capital instruments</td>
</tr>
<tr>
<td>− Additional tier 1 capital deductions</td>
</tr>
<tr>
<td>= Additional tier 1 capital</td>
</tr>
</tbody>
</table>

The package of reforms of the capital framework, in addition to modifications of the structure of regulatory capital, also brings changes where total Tier 1 capital must always be at least 6% of risk-weighted assets.\textsuperscript{152} This means that Tier 2 capital must be maximum 2% of risk-weighted assets in order to fulfill the regulatory minimum of capital adequacy of 8%.\textsuperscript{153}

The final framework gives the possibility that loan and the lease loss provisions\textsuperscript{154} may be included in Tier 2 capital up till 1.25% of risk assets, which markedly reduces the risk.\textsuperscript{155} This criterion can only be applied to the banks which use the standardized approach for credit risk defined by Basel I.\textsuperscript{156}

Also, there is the proposed increase of Common Equity capital from 2% to 4.5% of the risk-weighted assets. With the growth to 4.5%, banks were given a considerably larger set of regulatory measures that can be used to reduce negative economic consequences of the financial crisis on time.\textsuperscript{157}

\begin{table}[h]
\centering
\begin{tabular}{|l|}
\hline
\textbf{Tier 2 Capital Elements} \\
+ Tier 2 capital instruments \\
+ Total capital minority interest not included in additional tier 1 capital \\
+ Allowance for loans and lease losses ("ALLLs") \\
+ Nonqualifying tier 2 capital instruments \\
+ 45 percent of pretax net unrealized gains for community banks that make the AOCI opt-out election \\
– Investments in a banking organization’s own additional tier 2 capital instruments \\
– Additional tier 2 capital deductions \\
= Tier 2 Capital \\
\hline
\end{tabular}
\caption{Elements of Tier 2}
\end{table}


\textsuperscript{152} Ibid. p.12
\textsuperscript{153} Ibid. p.12
\textsuperscript{154} Allowance for Loan and Lease Losses – ALLL
\textsuperscript{156} Ibid. p.19
\textsuperscript{157} Ibid. p.28
Basel III regulation – response to the financial crisis

Figure 19: Basel 3 – Concept of capital

Besides, banks have been suggested to make an additional business capital reserves in the periods of stable business in order to create a kind of “buffer” which would be able to mitigate the negative consequences. In case that the bank’s equity capital falls into the so-called “intermediate zone” between 4.5% and 7%, banks will be obliged to restrict the payment of dividends and bonuses to employees in order to achieve a minimum level of capital of 7% again. In this way, banks were given clear guidelines regarding capital, which would be used as dedicated assets in periods of crisis disorders.


158 Ibid. p.54
The combination of stricter capital commitments, higher minimum capital requirements and the recommendation for introduction of new capital buffers will give banks the opportunity to withstand easier periods of stress which will contribute to economic growth.

6.4.1 Capital requirements for Credit Risk

As latest financial crisis showed, one of the most vulnerable points of banking business was counterparty credit risk and adjustment of fair value on derivatives. The banks were not obliged to keep capital for MtM losses, but only for derivatives in the trading book.160 Around 2/3 of all those losses were due to adjustment of fair value on derivatives and the rest were real defaults.161

In order to prevent this risk in the future BCBS recommended new approach within Basel III standard - variability charge in the form of CVA risk capital charge.162 “CVA is an adjustment to the fair value (or price) of derivative instruments to account for counterparty credit risk (CCR).”163

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162 Ibid. p.1
In revised version of the framework it is planned to introduce two approaches for the particular categories of banks:

- **Fundamental Review of the Trading Book – FRTB CVA approach**, which could be used by banks only by supervisors’ approval and should be introduced in the form of standardized approach SA-CVA and an internal model approach IMA-CVA.\(^{164}\)

- **Basic CVA approach**, which is planned for banks which do not have developed sophisticated internal capabilities to use the first model.\(^{165}\)

Figure 21: *Elements of the CVA calculation*

![CVA Calculation](image)


### 6.4.2 Capital Requirements for Market Risk

For calculation of the capital requirements for market risks before Basel III banks could use two approaches: Standardized approach and approach based on internal models.\(^{166}\) In January 2016, BCBS has published revised document regarding necessary capital requirements for market risk - „*Minimum capital requirements for market risk*”.\(^{167}\)

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\(^{164}\) Ibid. p.5  
\(^{165}\) Ibid. p.5  
\(^{166}\) Basel Committee on Banking Supervision, „Minimum capital requirements for market risk”, Standards, BIS, January 2016, p.5  
\(^{167}\) Basel Committee on Banking Supervision, „Minimum capital requirements for market risk”, Standards, BIS, January 2016
According to this revised paper, by using the standardized approach, capital requirement for market risk is calculated as the sum of 3 components: the risk charges under the sensitivities based method and the default risk - DRC, and the residual risk add-on - RRAO.\footnote{Ibid p.14} The detailed structure of each of these categories can be seen on figure 22.

Figure 22: The structure of the Standardized Approach for Market Risk

![The structure of the Standardized Approach for Market Risk](source: Basel Committee on Banking Supervision, „Minimum capital requirements for market risk”, Standards, BIS, January 2016, p.3.)

The capital charge for Incremental risk - IRC was exchanged by DRC which will still be a VaR risk measure at the confidence level of 99.9% and a one-year risk horizon.\footnote{GFT, “FRTB The dawning of a new era for market risk management”, 2015, p.8.} Besides, a RRAO was introduced to reflect specific risks of more sophisticated derivatives not included in the first two categories.\footnote{Basel Committee on Banking Supervision, „Minimum capital requirements for market risk”, Standards, BIS, January 2016, p.3}

The revised standardized approach is more risk conscious, additionally complex for calculation and should result in higher capital requirements.\footnote{PWC, First Take, „Ten key points from Basel's Fundamental Review of the Trading Book”, 2016, p.1.}
On the internal model approaches side, the current Value-at-Risk approach – VaR is replaced with the Expected Shortfall - ES in order to better capture tail risk, which will lead to further increase of regulatory capital.  

The new framework also proposed a stricter borderline between banking and trading book transactions, in order to prevent banks from moving its illiquid assets from trading to banking book and so avoid holding higher levels of capital.

Figure 23: Main changes in capital requirements for Market Risk

More detailed proposed changes and implications of the new capital requirements for the Market risk could be found in Annex 7.

6.4.3 Capital requirements for Operational Risk

Capital requirements for operational risk were introduced already within the Basel II accord. Since then three methodologies for calculation of capital requirements were widely used, Basic Indicator Approach, Standardized Approach, and Advanced Measurement Approach. In its last consultative paper, “Standardized Measurement Approach for operational risk”, BCBS has proposed the cancellation of the AMA since its complexity, costs and the wide range of internal models used have led to the loss of confidence in this approach.

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172 Ibid. p.3
173 Ibid. p.1
BIA as the simplest method of all three has shown some shortcomings which did not qualify this approach as a possible exchange for AMA since the main indicator is calculated as 15% of the three-year average of gross income - GI. The same problem of GI as core indicator led to the revised SA which was published in 2014 in Basel document called “Operational risk – Revisions to the simpler approaches”.\textsuperscript{175} In practice, this means that the banks with losses - negative income will not have high capital requirements calculated in for operational risks.\textsuperscript{176}

The new approach, Standardized Measurement Approach - SMA, introduced with the main function to exchange AMA, uses the new Business Indicator – BI in combination with “Bank-specific operational loss data”.\textsuperscript{177} In comparison with GI, the new indicator uses only positive values in calculation avoiding the problems shown by GI.\textsuperscript{178} Similar as by SA in the new methodology banks are divided into five categories differing by the size of the indicator.\textsuperscript{179} The capital requirements for banks in the first bucket correspond to the BI component whereas the smaller banks must determine any loss data with BI up to € 1 billion.\textsuperscript{180} For the banks in the other buckets, capital requirements are calculated by multiplying the BI component with the multiplier of internal losses as shown in Figure 24.\textsuperscript{181}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{business_indicator_range.png}
\caption{Business indicator range and component}
\end{figure}


\begin{itemize}
\item \textsuperscript{175} Basel Committee on Banking Supervision, “Operational risk – Revisions to the simpler approaches”, Consultative Document, BIS, October 2014.
\item \textsuperscript{176} Basel Committee on Banking Supervision, “Standardized Measurement Approach for operational risk”, Consultative Document, BIS, March 2016, p.3.
\item \textsuperscript{177} Ibid. p.3
\item \textsuperscript{178} Ibid. p.3
\item \textsuperscript{179} Ibid. p.6
\item \textsuperscript{180} Ibid. p.6
\item \textsuperscript{181} Ibid. p.6
\end{itemize}
6.4.4 Capital buffers

6.4.4.1 Capital conservation buffer

The financial crisis showed that losses in the financial sector can be extremely high and can cause instability in the banking sector with a feedback effect since the problems in the financial sector are contributing to the additional downturn in the economy, which has a further negative impact on the banking industry.\(^{182}\) Basel introduced the capital conservation buffer which should be 2.5% on top of the minimum capital requirements.\(^{183}\) The primary function of the buffer is to guarantee that banks have enough capital that the can be easily used at the time of financial stress in order to absorb losses.\(^{184}\) Banks are obliged to form this buffer in times of positive business and will be allowed to use this buffer only in times of stress. As shown in the Figure 25, depending on the level of the buffer held, the restrictions on the allocation of profits will be defined. For example, if the level of capital conservation buffer is between 0.625% and 1.25% bank will be allowed to pay out only 20% of its earnings and the rest of 80% must be conserved as the buffer in the next year.\(^{185}\) The goal of this regulation is to prevent the wrong distribution of profits as bonuses and dividends in the time when the bank’s capital is weakened.

Figure 25: Maximum payout ratio for capital conservation buffer

<table>
<thead>
<tr>
<th>CET1 Capital Conservation Buffer (as a % of total RWAs)</th>
<th>Maximum Payout Ratio (as a % of eligible retained income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 2.5%</td>
<td>No payout ratio limit applies</td>
</tr>
<tr>
<td>Less than or equal to 2.5% and greater than 1.875%</td>
<td>60%</td>
</tr>
<tr>
<td>Less than or equal to 1.875% and greater than 1.25%</td>
<td>40%</td>
</tr>
<tr>
<td>Less than or equal to 1.25% and greater than 0.625%</td>
<td>20%</td>
</tr>
<tr>
<td>Less than or equal to 0.625%</td>
<td>0%</td>
</tr>
</tbody>
</table>


\(^{182}\) Omega Finance, Zašto Bazel III?, p.8.
\(^{184}\) Ibid.157
\(^{185}\) Ibid.157
Capital conservation buffer will be gradually implemented over five years, starting from 2016, increasing each year by 0.625% till it reaches 2.5%.\textsuperscript{186}

6.4.4.2 Countercyclical buffer

The primary objective of introducing the countercyclical buffer is to protect the entire banking sector in the period of excessive credit growth and to fulfill macro-prudential aspects of protection.\textsuperscript{187} This is done by maintaining the level of lending during the economic crisis and on the other side by reducing lending during periods of excessive aggregate credit growth.\textsuperscript{188}

Banks are not obliged to form this buffer, but it is up to national supervision bodies to decide if it should be introduced.\textsuperscript{189} The level of the buffer will change in relation to the state of the economic cycle, and the decision of national supervisor in the range of 0% to 2.5%.\textsuperscript{190}

Basel Committee has published the individual guideline for consideration of the countercyclical buffer, where some of the helpful indicators for national authorities for taking decisions about the buffer, are mentioned. Some of those are:\textsuperscript{191}

- Credit/GDP ratio
- Real GDP growth
- Credit Default Swaps spreads
- Assets prices.

6.4.5 New capital requirements for “G-SIB”s

Since the crisis showed what importance for the global financial stability the “G-SIB”s have, the regulators were looking for a possible way to make those banks more efficient in the period of crisis.

\textsuperscript{188} Ibid.1
\textsuperscript{190} Ibid. p.157
The main idea of the new regulation is that the globally systemically important institutions always have to hold sufficient level of liabilities to be able to absorb all possible losses.\textsuperscript{192}

Hereof, the FSB and EBA have recommended two frameworks:\textsuperscript{193}

- Total Loss-Absorbing Capacity Standard – TLAC
- Minimum Requirement of Eligible Liabilities – MREL.

### 6.4.5.1 Total Loss-Absorbing Capacity Standard – TLAC

In November 2015, in order to solve “too big to fail” problem, the FSB has published new Total Loss-Absorbing Capacity Standard for “G-SIB”s. The new TLAC requirement is binding for all of 30 banks worldwide recognized as “G-SIB”s.\textsuperscript{194}

It is planned that all those banks starting from 1\textsuperscript{st} of January 2019 must hold minimum TLAC ratio of at least 16 percent of the risk-weighted assets and 6 percent of the leverage ratio.\textsuperscript{195} From 1\textsuperscript{st} of January 2022 is planned that ratios should increase to at least 18 percent of the risk-weighted assets and 6,75 percent of the leverage ratio.\textsuperscript{196}

The two ways for calculating TLAC ratio are shown in the equations below:\textsuperscript{197}

\begin{equation}
\text{TLAC Ratio} = \frac{\text{CET1} + \text{TLAC Eligible Instruments} - \text{G-SIB Investments}}{\text{RWA}} > 16\%
\end{equation}

\textit{Equation 3: Calculation of TLAC ratio with RWA}

\begin{equation}
\text{TLAC Ratio} = \frac{\text{CET1} + \text{TLAC Eligible Instruments} - \text{G-SIB Investments}}{\text{Leverage Ratio}} > 6\%
\end{equation}

\textit{Equation 4: Calculation of TLAC ratio with Leverage}

\textsuperscript{192} BBVA Research, Europe Regulation Watch, “MREL and TLAC: What are the consequences of breaching them?”, 2015, p.1.
\textsuperscript{193} Ibid. p.2
\textsuperscript{194} The banks categorized as “G-SIB”s are listed in the Appendix 4.
\textsuperscript{195} Deloitte, White Paper Nr. 74, “MREL und TLAC Neue Anforderungen an die Verlustabsorptionsfähigkeit von Banken”, 2016, p.11.
\textsuperscript{196} Ibid. p.11
\textsuperscript{197} Ibid. p.10
Loss-Absorbing Capacity is a level of eligible liabilities accessible in case of unexpected loss.\textsuperscript{198} In order to qualify as eligible liability for TLAC, instruments must at least consist of 33 percent subordinated debt or may not comprise more than 67 percent of common equity.\textsuperscript{199} In this regard, the FSB has in particular clarified that liabilities may be classified as TLAC-eligible instruments provided they have among others maturity of at least one year, which are paid and unsecured and are not redeemable.\textsuperscript{200}

It is expected that introduction of such approach will be pretty expensive for the institutes, especially holding 33 percent of the unsecured debt. The consequences of introducing TLAC will depend on the specification of each of the banks, like business models, country, strategy, etc. It is anticipated that banks which have higher deposits base will have additionally increased costs of funding for issuing further debt.\textsuperscript{201}

According to the latest study of BCBS, TLAC shortfall will amount to 422 billion EUR with the requirements for the year 2022.\textsuperscript{202}

In the case of breach of the minimum level of TLAC ratio, authorities should react immediately and treat the breach the same as the violation of minimum capital requirements.\textsuperscript{203}

The “G-SIB’s should disclose TLAC data in order to achieve a higher level of transparency.

\textsuperscript{199} Deloitte, White Paper Nr. 74, “MREL und TLAC Neue Anforderungen an die Verlustabsorptionsfähigkeit von Banken”, 2016, p.12.
\textsuperscript{200} Ibid. p.11
\textsuperscript{201} PwC US, “Forging Consensus on TLAC”, 2015, p.3.
\textsuperscript{202} Ibid. p. 3
6.4.5.2 Minimum Requirement of Eligible Liabilities – MREL

In 2015 EBA has published the draft for MREL, which should become legally binding for all banks from the European Union, not only for “G-SIB”s.\(^\text{204}\) The main idea of introducing such ratio is to increase the loss absorbency by taking care that the banks have enough liabilities to ensure implementation of the resolution tools.\(^\text{205}\) In this way, potential losses in the future should be entirely borne by creditors and shareholders and not by taxpayers.\(^\text{206}\) The MREL ratio is calculated as follows:\(^\text{207}\)

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\(^\text{206}\) Ibid. p.5
The regulatory ratio should be calculated by responsible authorities for each institute separately, taking into consideration different factors. It is expected that an average MREL ratio will be between 6 and 16 percent. The figure 27 shows more detailed the differences between TLAC and MREL.

Figure 27: MREL vs. TLAC

<table>
<thead>
<tr>
<th>MREL</th>
<th>TLAC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope of covered firms</strong></td>
<td>All credit institutions and investment firms</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>To ensure that there is an appropriate level of loss-absorbing and recapitalisation capacity for the relevant group to be resolvable, and that the critical functions can be continued without taxpayer (public) funding and avoiding adverse effects on the financial system.</td>
</tr>
<tr>
<td><strong>Eligible Instruments</strong></td>
<td>Equity, junior debt, senior debt and other unsecured liabilities with residual maturity over one year. Senior unsecured debt may be excluded if it accounts for less than 90% of the total liabilities in the same rank.</td>
</tr>
<tr>
<td><strong>Pillar 1 vs, Pillar 2 approach</strong></td>
<td>Case-by-case approach (Pillar 2) based on each bank’s characteristics: resolvability assessment, complexity, risk profile, etc.</td>
</tr>
<tr>
<td><strong>Sizing</strong></td>
<td>MREL is calculated based on the minimum capital, including capital buffers and leverage requirements and the recapitalisation needs after resolution. Additionally, some adjustments may be applied based on risk profile, resolution strategy, etc.</td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>MREL is expressed as a percentage of total liabilities and own funds of each institution.</td>
</tr>
<tr>
<td><strong>Come into force</strong></td>
<td>MREL requirement is already approved and will come into force in 2016. The EBA proposes a 48-month phase-in period (4 years)</td>
</tr>
</tbody>
</table>

Source: BBVA Research, Europe Regulation Watch, “MREL and TLAC: What are the consequences of breaching them?”, 2015, p.5.

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208 Ibid. p.33
209 Ibid. p.33
6.5 The second pillar of Basel III - Supervisory Review and Evaluation Process (SREP)

“The Supervisory Review and Evaluation Process” - SREP as the part of the Pillar 2, should next to the already existing “Internal Capital Adequacy Assessment Process” – ICAAP, contribute to the wider supervisory review process.

“The key purpose of SREP is to ensure that institutions have adequate arrangements, strategies, processes and mechanisms as well as capital and liquidity to ensure a sound management and coverage of their risks, to which they are or might be exposed, including those revealed by stress testing and risks institution may pose to the financial system.”

In 2014, the EBA has published a consultation paper on “Guidelines on common processes and methods for the supervisory review and evaluation process – SREP” in accordance with Article 107 paragraph 3 of Directive 2013/36/EU (CRD IV).

This new framework gives a closer look at overall practices and criteria which should be used by supervisors in the process of banking supervision.

Figure 28: Overview of the common SREP framework

Categorization of institutions

For the SREP purpose, all the institutions should be categorized into four categories ranged from the highest supervision intensity to the lowest. These categories are:212

- **Category 1** includes all global systemically important institutions G-SIIs as well as other systemically important institutions O-SIIs and other institutions considered by National Competent Authorities - NCAs as large or systemically important.

- **Category 2** includes large to medium institutions with diverse business lines also with non-bank activates included and specialised institutions with an important stake in the market.

- **Category 3** includes medium to small institution which offer mainly products from credit portfolio, operating in the domestic markets or with non-significant cross-border activities.

- **Category 4** includes other small and simpler domestic institutions which are not included in any other category.

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212 Ibid. pp.21-22
Figure 29: Application of SREP to different categories of institutions

<table>
<thead>
<tr>
<th>Category</th>
<th>Monitoring of key indicators</th>
<th>Assessment of all SREP elements (at least)</th>
<th>Summary of the overall SREP assessment</th>
<th>Minimum level of engagement/dialogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quarterly</td>
<td>Annual</td>
<td>Annual</td>
<td>Ongoing engagement with institution’s management body and senior management; engagement with institution for assessment of each element.</td>
</tr>
<tr>
<td>2</td>
<td>Quarterly</td>
<td>Every 2 years</td>
<td>Annual</td>
<td>Ongoing engagement with institution’s management body and senior management; engagement with institution for assessment of each element.</td>
</tr>
<tr>
<td>3</td>
<td>Quarterly</td>
<td>Every 3 years</td>
<td>Annual</td>
<td>Risk-based engagement with institution’s management body and senior management; engagement with institution for assessment of material risk element(s).</td>
</tr>
<tr>
<td>4</td>
<td>Quarterly</td>
<td>Every 3 years</td>
<td>Annual</td>
<td>Engagement with institution’s management body and senior management at least every 3 years.</td>
</tr>
</tbody>
</table>


Monitoring of key indicators

Key financial and non-financial indicators of all institutions should be monitored on a quarterly basis by supervisory authorities, but if necessary this monitoring could be more frequent. Also, taking into account institution’s size, business model, complexity and risk profile different thresholds should be defined in order to evaluate materiality of risks, update assessment and scoring in SREP elements.\(^{213}\)

Some of the indicators which could be used in this process are: \(^{214}\)

- Capital ratios
- Leverage ratio

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\(^{213}\) Ibid. p.25
\(^{214}\) Ibid. p.33
Basel III regulation – response to the financial crisis

- LCR and NSFR
- Credit Valuation Adjustment - CVA
- Average PD/LGD
- Percent of defaulted loans
- Equity price
- ROE etc.

SREP Assessment

Each SREP element will be assessed, based on predefined list of key indicators by taking additional qualitative aspects into account. The final score of each SREP element depends on the expert judgment of the “Joint Supervisory Team” - JST.\(^2\)

SREP Score is calculated as shown in Equation 6:\(^3\)

\[
\text{Key Indicator score} + \text{Qualitative Score} = \text{Total Score}
\]

where 1=no risk, 2=low risk, 3=medium risk, 4=high risk, F=likely to fail

\(\text{Equation 6: Calculation of SREP Score}\)

The overall SREP score is combination of findings and scores obtained during the assessment of each element.

Supervisory Measures

The supervisory regulators have a broad catalogue of potential measures which could be used to deal with SREP issues. Depending on problems detected in the SREP scores, national authorities may apply supervisory measures or early intervention measures. Quantitative supervisory measures could be e.g.:\(^4\)

\(^3\) European Banking Authority EBA, “Guidelines on common processes and methods for the supervisory review and evaluation process – SREP”, EBA/GL/2014/13, p.25.
\(^4\) Ibid. pp.172-180
- Increasing own funds requirements
- Restrict/Prohibit distributions of dividend
- Introducing of specific Liquidity requirements
- Using Net Profit as support for own funds

Finally, the implementation of SREP process will be a big challenge for both institutions and authorities, but the whole concept should contribute a lot to the common goal - more stability and harmonization of the financial market.

6.6 The third pillar of Basel III – Disclosure requirements

In January 2015, Basel Committee has published revised “Pillar 3 disclosure requirements consultative document” with the main intention to increase comparability and consistency of disclosures. For all institutes will be mandatory to disclose their first report under this framework with 2016 year-end disclosure report.218

In March 2016, the next Consultative document, which includes proposals for the second phase of Pillar 3 analysis, has been issued. This phase covers:219

- Improvements of reviewed Pillar 3 frame
- Further modification and extension of Pillar 3 based on regulatory policy reforms
- Incorporation of all Basel Committee disclosure prerequisites into one framework

Improvements of reviewed Pillar 3 framework

The main enhancement of the reviewed Pillar 3 framework is so called "proposal for a dashboard of key regulatory metrics" in order to provide interested investors a better

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overview of banks position.\textsuperscript{220} The publication need for hypothetical risk-weighted assets by using SA for credit risk from 2014 Consultative document now is expanded on counterparty credit risk, securitization and market risk.\textsuperscript{221}

\textbf{Further modification and extension of Pillar 3 based on regulatory policy reforms}

These revisions include proposed disclosure requirements for TLAC framework for global systematically important banks G-SIBs, as well as revisions of disclosure requirements of operational and market risks. Regarding operational risk, the more detailed disclosure is required including data on historical operational risk losses.\textsuperscript{222} The disclosure of market risk includes new publication requirements for interest rate risk in the banking book – IRRBB.\textsuperscript{223}

\textbf{Incorporation of all Basel Committee disclosures into one framework}

In order to enable institutions better and easier approach to all relevant regulatory information, Basel Committee decided to consolidate all existing and upcoming disclosure requirements into one single Pillar 3.\textsuperscript{224} This consolidation includes seven different documents issued by the BCBS since 2011.\textsuperscript{225}

\textbf{6.7 Global liquidity standards}

\begin{itemize}
\item \textsuperscript{220} Ibid. p.1
\item \textsuperscript{221} Ibid. p.1
\item \textsuperscript{222} Ibid. p.2
\item \textsuperscript{223} Ibid. p.2
\item \textsuperscript{224} Ibid. p.2
\item \textsuperscript{225} Ibid. p.2
\end{itemize}

According to Basel Committee on Banking Supervision, “Consultative Document, Pillar 3 disclosure requirements-consolidated and enhanced framework”, BIS, 2016, p.7 these documents are:

- “Composition of capital disclosure requirements (2012)
- Global systemically important banks: updated assessment methodology and the higher loss absorbency requirement (2013)
- Basel III: A global regulatory framework for more resilient banks and banking systems – revised version (2011)
- Basel III leverage ratio framework and disclosure requirements (2014)
- Liquidity coverage ratio disclosure standards (2014)
- Net Stable Funding Ratio disclosure standards (2015)
- Pillar 3 disclosure requirements for remuneration (2011).”
The one of the biggest problem in the latest financial crisis, next to existence of inadequate banking capital, was the deficit of liquidity. Before the crisis, many banks did not have any liquidity reserves, or those were too small. The problem arose to some extent when economic subjects faced with the impossibility of segregation of own capital, because of a higher level of capital adequacy, without it affecting their liquidity. The problems with liquidity were so severe that some banks faced with massive savings withdrawals and some of them like a British bank “Northern Rock” in 2007 were the typical example of a bank run.

The first significant change regarding improving the process of managing liquidity risk occurred in late 2008 when the “Basel Committee on Banking Supervision” has created a unique document called „Principles for Sound Liquidity Risk Management and Supervision”. 226 The purpose of the paper is to focus on the need to improve the process of managing liquidity risk through a few guidelines: 227

1. The management of the banks should accept the responsibility for improving access to liquidity risk management, taking into account that the tolerance to risk exposure should correspond to previously created business strategies and position of the bank;

2. Management of banks should be the creator of strategies, policies, and procedures for managing liquidity risk, as well as creator of a favorable climate for the safe management of such risk;

3. There is a need to establish processes on a higher level for the identification, measurement, analysis and control of the intensity of liquidity risk in a banking system. It is not enough just to create that system, it is extremely necessary to work on their improvement in line with market conditions;

4. The banks should introduce "stress tests" of the exposure to liquidity risk as a regular practice and those results should be regularly published and transparent, in order to timely and adequately obtain feedback from the market.

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So that banks can comply with such guidelines, the specific standards were created, focused on liquidity and with the primary objective of avoiding the financial crisis. When taking into account the period on which these rules apply, we can distinguish two key liquidity indicators:\(^{228}\)

- **Short-term liquidity indicator** - Liquidity Coverage Ratio (LCR)
- **Long-term liquidity indicator** - Net Stable Funding Ratio (NSFR)

### 6.7.1 Liquidity Coverage Ratio - LCR

It is the indicator of highly-liquid assets cover which should contribute significantly to greater resistance to distortion in banks liquidity over a period of 30 days. LCR indicator implies that banks maintain an adequate level of unencumbered, highly liquid assets that can be converted into cash in the period of one month in the case of unexpected events in the market.\(^{229}\) That is why the banks should hold high-quality assets in the form of reserves, which can be more easily converted into cash, depending on the need to maintain an optimal level of liquidity.

According to the liquidity coverage indicator, the state of unencumbered, highly liquid assets of the bank over a period of 30 days must be higher than the projected net outflow of cash flows. Banks are required to maintain the LCR indicator at the level of 100%, i.e., to ensure that the difference between the inflow and outflow of liquid funds is entirely covered by liquid assets.\(^{230}\)

The equation for calculation of Liquidity coverage ratio is:\(^{231}\)

\[
	ext{LCR} = \frac{\text{Highly liquid assets}}{\text{Total net outflow of cash flow over a period of 30 days}} \geq 1
\]

*Equation 7: Calculation of LCR*

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\(^{230}\) Ibid. p.8

\(^{231}\) Ibid. p.13
“Highly liquid assets” - HQLA, located in the numerator of LCR indicator has the following essential characteristics: low risk, rapid ability to convert into cash, a low degree of correlation with risky assets, the existence of an active market where these types of assets are quoted, low level of volatility, etc.\(^ {232}\) Highly liquid assets are classified into two categories:\(^ {233}\)

1) **Highly liquid assets of the first level** which includes: cash and cash equivalents, the amount of reserves with the central bank which is exceeding the mandatory level, government securities with a risk weighting of 0% by Standardized approach, etc. all not included under haircut;

2) **Highly liquid assets of the second level** which comprises: government securities with a risk weighting of 20% by the Standardized approach, covered and non-financial corporate bonds with investment rating (with rating class at least AA-). This asset group cannot contribute with more than 40% in total HQLA after taking haircuts into consideration.

Figure 30: **Structure of LCR**


\(^ {232}\) Ibid. p.13  
Total net cash outflow in the next 30 days, which is in the denominator of the LCR indicator, is the difference between the total expected outflow and the total expected inflow.\textsuperscript{234} Expected net inflow is the upper limit, minimum between total expected cash inflows and 75% of the total expected cash outflow.\textsuperscript{235} Bank is obliged to hold highly liquid assets that are at least equal to 25% of the cash outflows.\textsuperscript{236} LCR was introduced in 2015 and is set at a level of 60%. It is anticipated that each year the limit for LCR increased by 10% per year till 1\textsuperscript{st} of January 2019. LCR was limited to 100%.\textsuperscript{237}

**Figure 31: Timeline for introducing LCR**

- **January 1, 2015**: Monthly calculations begin for the Full LCR banks  
  - 80% phased-in
- **July 1, 2015**: Daily calculations begin for the Full LCR banks that have holding companies with >$7000 or more in total consolidated assets or >$207 in assets under custody
- **January 1, 2016**: Monthly calculations begin for the Modified LCR banks  
  - 90% phased-in
- **January 1, 2017**: 100% phased-in for both the Full LCR banks and the Modified LCR banks
- **January 3, 2019**: 100% phased-in under the Basel III LCR


### 6.7.2 Net Stable Funding Ratio - NSFR

Net Stable Funding Ratio is the second indicator of liquidity introduced by Basel III, and it is defined as the percentage of the available amount of stable funding needed
for the financing of required stable funds.\textsuperscript{238} The net stable funding indicator should encourage the banks to use stable sources of financing for their business activities in a short period.\textsuperscript{239} The primary objective of introducing such an indicator was to reduce maturity mismatches between assets and liabilities with the maturity of more than one year.\textsuperscript{240} The value of NSFR indicator should be at least 100% because it is necessary that available stable funding of financing is above the required funds in the observed period.\textsuperscript{241}

The equation for calculation of Net Stable Funding ratio is:\textsuperscript{242}

\begin{equation}
\text{NSFR} = \frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100%
\end{equation}

\textit{Equation 8: Calculation of NSFR}

"Available amount of stable funding" – ASF includes: the total amount of the bank's capital, preference shares with a maturity of one year or more, liabilities with effective maturities longer than one year, demand or term deposits with maturity up to one year and financing sectors of the economy with maturities one year.\textsuperscript{243} These elements are multiplied by the specific weights specially defined for five different categories.\textsuperscript{244} For example, on the liabilities side, the total regulatory capital and liabilities with residual maturity of over one year are multiplied by the risk weight of 100%, “stable” and “less stable” deposits are multiplied by the weights of 95%, and 90% respectively, while corporate financing with maturity less than one year is weighted with 50%.\textsuperscript{245}

"Required amount of stable funding" - RSF, is defined as the weighted sum of the values of assets multiplied by the particular factor of required stable funding which is allocated to each category defined.\textsuperscript{246} For example, the factor 0% will be allocated to all cash and cash equivalents and all central bank reserves, 15% will be assigned to

\textsuperscript{240} Ibid. p.6
\textsuperscript{242} Ibid. p.2
\textsuperscript{243} Ibid. p.6
\textsuperscript{244} Ibid. p.4
\textsuperscript{245} Ibid. p.6
\textsuperscript{246} Ibid. p.6
unencumbered assets of second A level and 50% to unencumbered assets of second B level and 100% for encumbered assets for more than one year.\(^{247}\)

**Figure 32: Structure of NSFR**

![Figure 32: Structure of NSFR](image)


In order to avoid potential problems of refinancing, banks must avoid excessive financing of long-term funds with short-term sources because when the main inflows of short-term liquidity suddenly disappear, refinancing risks in individual banks can be transformed into a much more severe problem.\(^{248}\)

Besides the above two coefficients, Basel III has also introduced some of other monitoring tools for liquidity purposes, like contractual maturity mismatches, concentration of funding, available unencumbered assets, LCR by significant currencies and market liquidity monitoring tools.\(^{249}\)

### 6.8 Leverage ratio

\(^{247}\) Ibid. p.11  
Leverage is particularly interesting and important in periods of great economic and financial crisis, which are causing a much higher degree of financial risk than is the case of the regular business activities. One of the origins of the financial crisis was that the banking system, with an enormous on balance and off balance sheet debt, had reached an excessive level of indebtedness, while still holding solid risk based capital ratios.\textsuperscript{250} The logical respond was to force the banking system to reduce its debt.

The BCBS dealt with the issue of deleveraging and its influence on the total capital of the bank, and guidelines that were introduced were in accordance with its optimization. The first consultative document was published in 2013 and its revised and final version as “\textit{Basel III Leverage Ratio Framework and Disclosure Requirements}” in 2014.

As part of the Basel III agreement a modified leverage ratio is created, as uncomplicated and transparent non-risk based measure, which should be the primary obstacle for uncontrolled disruption between the amount of required capital and the level of its exposure to risk.\textsuperscript{251} In this way, the financial risk is considerably reduced and its resistance over a longer period is increased. In practice leverage ratio, it is a coefficient that maintains the ratio of capital measure to the total exposure measure and is calculated as the monthly average on a quarterly basis. LR is calculated as shown in Equation 9:\textsuperscript{252}

\begin{equation}
\text{Leverage Ratio} = \frac{\text{Capital measure}}{\text{Total exposure measure}} > 3\%
\end{equation}

Equation 9: Calculation of LR

Basel Accord provides the minimum leverage ratio rate of 3% which will be monitored twice a year.\textsuperscript{253} For calculating the leverage ratio, the Basel III provided that adequate capital is the primary measure of capital - Tier one capital, which should be reduced

\begin{itemize}
\item \textsuperscript{250} Basel Committee on Banking Supervision, “Basel III leverage ratio framework and disclosure requirements”, BIS, 2014, p.1.
\item \textsuperscript{251} Ibid. p.1
\item \textsuperscript{252} Ibid. p.1
\item \textsuperscript{253} Ibid. p.1
\end{itemize}
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by deduction items defined by the Basel Accord. These deductions are also deductible items in regulating the entire bank's exposure to financial risk. Such approach is introduced in order to avoid double counting and to have consistent measures of capital and total exposure.

As a measure of exposure to financial risk solely an accounting measure of exposure is monitored, as a category which contributes to the financial strength of the banking system the most. Also, included are financial transactions with securities, options, and futures.

As a total exposure, the value of all assets on- and off-balance sheet is considered as shown on the Figure 33:

Figure 33: Calculating total exposure for LR

<table>
<thead>
<tr>
<th>On Balance Sheet Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
</tr>
<tr>
<td>Off-Balance Sheet derivatives exposure comprising derivative contracts</td>
</tr>
<tr>
<td>Derivatives collateral received and pledged</td>
</tr>
<tr>
<td>Written credit derivatives on a notional basis</td>
</tr>
<tr>
<td>+</td>
</tr>
<tr>
<td>Off-Balance Sheet security financing transaction Exposure - SFTs</td>
</tr>
<tr>
<td>+</td>
</tr>
<tr>
<td>Off-Balance Sheet unfunded lending commitments</td>
</tr>
<tr>
<td>+</td>
</tr>
<tr>
<td>Off-Balance Sheet Standby Letters of Credit and other guarantees</td>
</tr>
</tbody>
</table>


All exposures arising from derivative transactions should be recognized in the calculation of leverage ratio. This includes both claims from direct contracts and from counterparty exposure positions. These requirements are to be reported to the credit equivalent amount (plus add-on factor for potential replacement cost).

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255 Ibid. p.133
256 Ibid. p.133
257 Ibid. p.133
The biggest difference considers the way the derivatives are included into calculation of leverage ratio because the USA accounting standards - US-GAAP deal with derivatives differently than European IFRS Standards. US-GAAP allows netting - reducing the balance positions in order to hedge risks of the balance sheet, this is not allowed in Europe, and everything must be disclosed, which makes the balance sheet larger and brings more difficulties for fulfilling the leverage ratio. In order to make relief in this regard, the netting will be permitted for short-term derivatives and repo transactions, if these have been done with the same trading partner, for the purpose of leverage ratio calculation. This will make it easier especially for banks which are using the IFRS accounting standards and are highly active in the derivatives business to meet the future requirements of the leverage ratio.

For the security financing transaction Exposure - SFT the calculation treatment shall be chosen depending on whether the bank completes the transaction in its name as principal or on behalf of another as an agent. Other off-balance sheet exposures in particular irrevocable commitments, direct credit, and letters of credit are included. Since such positions can cause considerable leverage effects, a general credit conversion factor – CCF is used by 100%. For unconditionally cancellable commitments, however, the exposure can be assessed with a CCF of 10%.

The leverage ratio is initially included as information in Pillar 2, and the institutions are required to disclose the leverage ratio on consolidated basis starting from 2015. For the implementation of leverage ratio two parallel run periods are planned:

- **The regulatory monitoring period** lasted from 1st of January 2011 until 1st of January 2013. In this phase, it was analyzed if the proposed solution for leverage and minimum Tier 1 leverage ratio of 3% were applicable.

- **The parallel observation phase** will last from 1st of January 2013 until 1st of January 2017 and in this period, the level of the leverage ratio, as well as

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261 Ibid.
263 Ibid. p.8
264 Ibid. p.8
266 Ibid p.133.
development in comparison to the risk based capital requirements will be reported and observed. Only after the observation period and possible adjustments leverage ratio will be integrated as a mandatory minimum capital requirement in Pillar 1 on 1st of January 2018.

In the figure below the most important dates for introduction of leverage ratio are mentioned.

Figure 34: Key dates for introduction of leverage ratio

![Figure 34: Key dates for introduction of leverage ratio](image)


7. Critical review of the Basel III agreement

At the highest point of utilization of the Basel II regulation, the financial crisis culminated on a global scale which has once again demonstrated that the Basel standards were insufficient means of defense against the growing financial problems of the banking sector.\(^{267}\) Basel standards were not fully able to cover potential problems incurred by economics institutes, as their specificity has caused their individuality. This is supported by the fact that Basel II could not independently contribute to resolving the financial crisis and after a giant of world banking business,

“Lehman Brothers” has touched the bottom, in order to rescue other entities at least a billion dollars was set aside from the state budget in the US and are about the same amount in Europe. Solving financial problems of major banks could not be additional “pumping” funds because the problem was only delayed for a future period. Negative aspects of the Basel agreements must also be emphasized in order to gain a broader picture and complete information regarding the possibility of resolving the financial crisis in the banking sector.

In less than four decades of work, the Basel Committee has issued dozens of documents related to various guidelines, including the general issues of organization, capital adequacy, the risk of different types, corporate governance, credit - deposit organizations and similar. In essence, all the relevant documents of the BCBS are focused on a bank’s capital adequacy. In this proportion lies perhaps the biggest drawback of the Basel Accord. Experts from the banking world frequently emphasize this to ensure the stability of the banking system but often are in practice that number above the real one.²⁶⁸ They agree that if we want to avoid a potential bankruptcy of economic entities, one hundred percent coverage of liabilities is needed, but in this case, the banks lose their ability to make a multiplier and earn additional income.²⁶⁹ The ultimate shortcomings of the first agreement Basel Committee has tried to rectify in the Basel II standard. In the new version, there were very slight attempts to take specifically into account new risks that exist in the activity of banks. When the global financial crisis started the critics were trying to prove that it is the acceptance of Basel II provoked the emergence of the financial crisis, since the banks made an effort to supplement their capital which they lacked. So banks were forced to adapt their accounting reports where they have widely used hidden balance sheet options. The BCBS, during the financial crisis, gradually began to make changes and corrections in the framework of Basel II, which in the end resulted in the creation of custom Basel III agreement. Its main disadvantages are:²⁷⁰

- The deadline for the application of this standard is prolonged until 2018, which leaves the banks enough time for action and adjustment of their business activities.

²⁶⁸ Ibid.
²⁶⁹ Ibid.
²⁷⁰ Ibid.
The threshold for equity capital is significantly increased, but not to the extent that makes it possible to avoid a new crisis. This is particularly evident in developed countries that have a sufficient level of capital to shape independently their business policy.

Enhanced role of the subjective factor in assessing banks by supervisory authorities. This request carries a much higher degree of responsibility and adapts to the requirements of specific market conditions.

In the structure of own capital, special place is given to gold. The role of gold in financial assets cannot be strictly considered as a lack of agreement, depending on how the capital is used.

Over the time, there were numerous critics of the Basel III agreement, as financial problems were much larger. Analysts say that there should be a clear distinction between risk and uncertainty. The risk is measurable, and it is possible to know to what degree it expresses itself, while by uncertainty we are not in a position to precisely predict future events. Critics agree that the latest financial crisis was a direct consequence of not taking into consideration the known risks from the environment, but the uncertainty that brought confusion in the banking sector. The big bankruptcy cases did not occur because the banks were entering the risk, but because they had no idea that they were exposed to the risk. For what the banks, Basel Committee, national regulators and rating agencies thought it was safe, turned out to be very hazardous. Nevertheless, the new regulation still depends a lot on external rating agencies.

The new Basel capital standards increase the minimum capital, but still operating under the assumption that the risk of lending is known. Banks are advised to hold more of highly rated assets but in the case of structured products those ratings are not realistic.

At the same time, the growing national regulations further complicate the whole process and the uncertainty in the system. For this reason, the future situation will not

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be much different compared to previous problems that brought to the crisis if there are no significant developments on the side of supervisors and risk management.\footnote{272}{Basel Committee on Banking Supervision, “Basel III: Necessary, but not sufficient”, Remarks by Wayne Byres, BIS, 2012, p.7.} With a critical review, the experts believe that the Basel III agreement is designed exclusively for developed economies with well-organized banks.\footnote{273}{Radenković-Jocić, D., Stanković, J., Anđelković-Pešić, M., “Harmonizacija regulative u upravljanju rizikom u bankarskom sektoru Srbije”, Univerzitet u Nišu, Ekonomski fakultet, Niš, 2012, p.1205.} Such banks, substantially easier manage the risks to which they are exposed and have the tools to solve them. Also, these subjects are much “more liquid” and can easily meet the conditions imposed by the Commission. Additionally increasing of capital requirements will increase the barriers for new banks to enter the market and lower the competition.\footnote{274}{The Economist, http://www.economist.com/blogs/freeexchange/2010/09/basel_iii accessed 02.06.2016.}

Speaking about novelties of Basel III, liquidity indicators were also subject to criticism. The main problem of Liquidity coverage ratio is that is pushing banks too much towards investing in government bonds, which was can also be pretty risky as shown on the example of Greece. The issue of Net stable funding ratio is the competence of the banks to manage stable and unstable funding during the stress periods. The Leverage ratio is criticized for possibly being too low and since it is introduced as a back-stop control mechanism, not a front-stop.\footnote{275}{Blundell-Wignall, A., Atkinson, P., “Thinking beyond Basel III: necessary solutions for capital and liquidity”, OECD Journal, Vol. 2010, Issue 1, 2010, p.9.} After all, Lehman Brothers fulfilled the limit of 3 percent of equity but still went to bankruptcy.\footnote{276}{Hellwig, M., „Mehr Eigenkapital!”, Banker, März 2014, http://folio.nzz.ch/2014/maerz/mehr-eigenkapital, accessed 25.06.2016.}

Finally, it should be noted that the banking regulation costs. The price of the Basel III agreement is considerably more expensive capital, higher interest rates and a slowdown in the world economy, and at the same time, the likelihood of new unforeseen crises is not less than before. Banks will try to meet higher capital requirements but on the other side, they have to decrease their lending or to increase the interest rates.\footnote{277}{Aosaki, M., “Implementation of Basel III Economic Impacts and Policy Challenges in the United States, Japan, and the European Union”, APARC, Stanford University, 2013, p.16.}
Banks in Europe in some cases will need to raise hundreds of billions of Euros to fill the gap caused by new capital ratios. On the other side, some banks will need to obtain additional funds in the capital market in order to survive. In the figure 36 are showed some of the biggest international banks and their gaps to new capital ratios in 2010.

8. Beyond Basel III

Although the banks still have time up to 2019 to fully implement the existing Basel III regulation, the discussion about new Basel IV Standard has already begun. The newly planned Basel IV is coming out of a need to correct some of the biggest problems that have already been shown by Basel III and to try to make the whole process of implementation easier for the banks. In this regard, Basel Committee has formed a special working group with the task to try to improve and simplify the current Basel Standard. The working group has published their findings in the discussion paper “The regulatory framework: balancing risk sensitivity, simplicity and comparability”.279

Some of the most important changes that Basel IV should bring are a new standardized approach for credit risk and counterparty credit risk, implementation of new capital floors, higher leverage ratio, and liquidity standards, and new trading book rules.280

Figure 37: Emergence of Basel IV


The substantial change should happen in the credit risk-standardized approach which is found to be too relied on the external ratings. The introduction of so-called “risk drivers” as replacement of external ratings for determination of risk weights is planned in the future.\footnote{Ibid. p.6}

These risk drivers for the bank’s claims should be the common equity tier one capital - CET1 and an asset quality indicator net non-performing assets ratio (net NPA ratio). Currently, the risk weights used for banks claims on banks are 20 percent for EU countries, but the proposal should be between 30 and 300 percent.\footnote{Ibid. p.7} For claims on corporate (without SME risk) planned risk drivers are sales revenue and the leverage ratio.\footnote{Ibid. p.7} Depending on this, a risk weight which was currently between 20 and 150 percent (100 percent for default) will increase to 60 to 300 percent.\footnote{Ibid. p.7} The present flat risk weight rate of 75 percent for retail customers will be used in future only for “privileged portfolio” which should not exceed 0.2 percent of the total regulatory retail portfolio.\footnote{Ibid. p.7} For all other retail customers, the risk weight of 100 percent is applicable.\footnote{Ibid. p.7}

Although the leverage ratio is still not fully introduced an increase of current minimum requirement (3 percent) within Basel 4 is planned. From 2018 leverage ratio should become an integral part of minimum capital requirements - Pillar 1 and get from the role of “back-stop” ratio to the “front-stop” ratio.\footnote{KPMG, “Basel 4 – Emerging from the mist?”, September 2013, p.11.}
9. Conclusion

The banking sector is significantly sensitive to the crisis in the environment and alone is insufficient to resolve the problems. The fact is that business processes within the banking industry, taking place in increasingly complex conditions where the risk plays a crucial role in achieving business goals. Today it is tough to find a balance between business efficiency and growing customer requirements. This makes big pressure on banks that, in defining its strategic objectives, are aware of the defining of a risk
management strategy, as one of essential requirements of modern business. Thus, the financial risk as a factor that largely shapes the behavior of participants in the market could be controlled.

Basel agreements were created from the unique need to protect the bank as well as to introduce standardized market conditions that will contribute substantially to the higher efficiency of the financial system. The idea of the Basel agreement is, in essence, the establishment of a safer and more capital-oriented financial system, which in the long run, can respond to the challenge of the crisis. In comparison with the previous agreements, Basel III is characterized by continuously improving the quality and quantity of capital structure regarding providing adequate capital and required reserves which would be activated in emergency situations and to serve as a regulator of stability.

Some of the failures of previous agreements, which were consistent with the resulting crisis in the market and now included in Basel III, may be defined as follows: 288

- Poor management of liquidity risk and/or insufficient liquidity, despite the global liquidity
- Excessive influence of different factors that manifests itself in the banking system coupled with weak credit risk
- The inadequate level and quality of bank capital
- Serious deficiencies in corporate governance, risk management and market transparency.

The one of the most significant change under the Basel III standards occurred in the structure of the primary capital of banks, where the share capital was separated from the supplementary and put into service of covering losses. Basel III obliges institutes to increase the level of equity through capitalization complying with the requirements of the new agreement. Also, it was suggested that the associated reserves should be held as highly liquid assets, which in a short time can be converted to cash and directed for maintenance of mandatory liquidity level.

Implementation of the Basel standards also substantially raises the resilience of banks to external influences concerning liquidity through the establishment of “a

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healthier capital”. Maintaining the necessary balance of liquidity is a prerequisite for a successful business of individual banks, but also one of the crucial conditions of stability of the entire banking system. The implementation of the LCR and NSFR liquidity ratios and an increased level of awareness about the importance of adequate liquidity risk management should be expected to contribute to a higher level of resistance of the banking system to unexpected events, while securing the global stability. The focus should be on key issues and causes, not consequences, creating the preconditions of the efficient functioning of the financial system.

Although there are many critics of the Basel agreements, the positive aspects that agreements brought into the banking sector give the right to establish the thesis that this is one of the most significant regulations in the history of the banking industry. Some shortcomings, which the Basel III agreement showed were compensated more than what it was expected by positive effects on the financial sector.

Full implementation of the Basel III accord, scheduled for the end of 2019, was supposed to help to the full harmonization of banking systems globally, to get an overall picture and standardized approach for solving potential future problems. Finally, the creation of the Basel Accord is unique confirmation that the working on maintaining the stability of banking operations over a longer period, in order to meet customer expectations and management needs creates a sound banking system, promotes the national economy and contributes to the general well-being of financial system. Despite the criticism, the agreements have caused much greater benefit than harm.

Even if Basel III is seen with all positive impacts, the impression of many experts is that will be necessary to introduce Basel IV agreement that would be based on the previous three, and that would generate all deficiencies and recommendations for further operations.

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290 Ibid. p.16
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11. Annexes

11.1 Annex 1: Comparison Basel I, Basel II and Basel III agreements


<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage Ratio</td>
<td>Supervisory monitoring</td>
<td>Parallel run 1 Jan 2013 - 1 Jan 2017 Disclosure starts 1 Jan 2015</td>
<td>Migration to Pillar 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Common Equity Capital Ratio</td>
<td>3.5%</td>
<td>4.0%</td>
<td>4.5%</td>
<td>4.5%</td>
<td>4.5%</td>
<td>4.5%</td>
<td>4.5%</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>Capital Conservation Buffer</td>
<td>0.625%</td>
<td>1.25%</td>
<td>1.875%</td>
<td>2.50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum common equity plus capital conservation buffer</td>
<td>3.5%</td>
<td>4.0%</td>
<td>4.5%</td>
<td>5.125%</td>
<td>5.75%</td>
<td>6.375%</td>
<td>7.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs, and financials)</td>
<td>20%</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
<td>100%</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Tier 1 Capital</td>
<td>4.5%</td>
<td>5.5%</td>
<td>6.0%</td>
<td>6.0%</td>
<td>6.0%</td>
<td>6.0%</td>
<td>6.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Total Capital</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Total Capital plus conservation buffer</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>8.625%</td>
<td>9.25%</td>
<td>9.875%</td>
<td>10.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital</td>
<td>Phased out over 10 year horizon beginning 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity coverage ratio</td>
<td>Observation period begins</td>
<td>Introduce minimum standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net stable funding ratio</td>
<td>Observation period begins</td>
<td>Introduce minimum standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All dates indicate 1 January start

### 11.3 Annex 3: Dodd-Frank Act in comparison with Basel III

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Dodd Act</th>
<th>Basel III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortgage Service flights</td>
<td>Require more information be saved with consumers regarding how payments are applied and when interest rates will change</td>
<td>Instead of a full deduction, the following items may each receive limited recognition when calculating Common Equity Tier 1, with recognition capped at 10% of the bank’s common equity</td>
</tr>
<tr>
<td>Trust preferred securities</td>
<td>Depository institution holding companies with total consolidated assets of US$15 billion or more, the requirement to exclude trust preferred securities issued before 19 May 2010 from Tier 1 capital will be phased in over a period of three years, beginning on 1 January 2013.</td>
<td>Requirement to exclude trust preferred securities from Tier 1 capital will be phased in over a ten-year period beginning on the same date</td>
</tr>
<tr>
<td></td>
<td>Trust preferred securities issued before 19 May 2010 by bank holding companies with consolidated assets of less than US$15 billion in consolidated assets as of 31 December 2009 are grandfathered as Tier 1 capital</td>
<td>No such exception</td>
</tr>
<tr>
<td>Off-balance sheet activities</td>
<td>Incorporated into new capital requirement calculation as well as leverage ratio</td>
<td>Only into leverage ratio calculation</td>
</tr>
<tr>
<td>Use of rating agency</td>
<td>Prohibits the use of credit rating agencies in the rules to implement new capital standards for US banking institutions. The US regulatory agencies are in the process of developing alternatives to the use of rating agencies</td>
<td>Heavy reliance on rating agency to determine the riskiness of the securities</td>
</tr>
</tbody>
</table>

11.4 Annex 4: List of global systemically important banks – “G-SIB”s

<table>
<thead>
<tr>
<th>Bucket</th>
<th>G-SIBs in alphabetical order within each bucket</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>(Empty)</td>
</tr>
<tr>
<td>4</td>
<td>HSBC, JP Morgan Chase</td>
</tr>
<tr>
<td>3</td>
<td>Barclays, BNP Paribas, Citigroup, Deutsche Bank</td>
</tr>
<tr>
<td>2</td>
<td>Bank of America, Credit Suisse, Goldman Sachs, Mitsubishi UFJ FG, Morgan Stanley</td>
</tr>
</tbody>
</table>

### 11.5 Annex 5: Timeline for implementing TLAC

<table>
<thead>
<tr>
<th>C-SIBs by Region</th>
<th>Bank</th>
<th>TLAC Minimum</th>
<th>Capital Conservation Buffer $^a$</th>
<th>FSBI C-SIB Minimum (1% of RWAs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2016 Minimum</td>
<td>2022 Minimum</td>
<td>2022 Domestic Standard $^b$</td>
</tr>
<tr>
<td>US</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>JPMorgan Chase</td>
<td>Higher of 16% of RWAs and 6% of leverage exposure</td>
<td>Higher of 16% of RWAs and 6.75% of leverage exposure</td>
<td>2.5% of RWAs</td>
</tr>
<tr>
<td>2</td>
<td>Citigroup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bank of America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Goldman Sachs</td>
<td>Higher of 16% of RWAs and 6% of leverage exposure</td>
<td>Higher of 16% of RWAs and 6.75% of leverage exposure</td>
<td>1.5% of RWAs</td>
</tr>
<tr>
<td>5</td>
<td>Morgan Stanley</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Wells Fargo</td>
<td>Higher of 16% of RWAs and 6% of leverage exposure</td>
<td>Higher of 16% of RWAs and 6.75% of leverage exposure</td>
<td>1.5% of RWAs</td>
</tr>
<tr>
<td>7</td>
<td>State Street</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Bank of New York Mellon</td>
<td>Higher of 16% of RWAs and 6% of leverage exposure</td>
<td>Higher of 16% of RWAs and 6.75% of leverage exposure</td>
<td>2.5% of RWAs</td>
</tr>
<tr>
<td>Europe</td>
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<td>9</td>
<td>HSBC</td>
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<tr>
<td>10</td>
<td>Barclays</td>
<td>Higher of 16% of RWAs and 6% of leverage exposure</td>
<td>Higher of 16% of RWAs and 6.75% of leverage exposure</td>
<td>2.5% of RWAs</td>
</tr>
<tr>
<td>11</td>
<td>BNP Paribas</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Deutsche Bank</td>
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<tr>
<td>13</td>
<td>Royal Bank of Scotland</td>
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<td>14</td>
<td>Groupe BPCE</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Group Credit Agricole</td>
<td>Higher of 16% of RWAs and 6% of leverage exposure</td>
<td>Higher of 16% of RWAs and 6.75% of leverage exposure</td>
<td>2.5% of RWAs</td>
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<tr>
<td>16</td>
<td>ING Bank</td>
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<td>Nordia</td>
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<td>Santander</td>
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<td>Societe Generale</td>
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<td>20</td>
<td>Standard Chartered</td>
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<tr>
<td>21</td>
<td>unicredit Group</td>
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<tr>
<td>22</td>
<td>Credit Suisse</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>LBB</td>
<td>Higher of 28.6% of RWAs and 10% of leverage exposure</td>
<td>N/A</td>
<td>1.5% of RWAs</td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>24</td>
<td>Mitsubishi UFJ FC</td>
<td>Higher of 16% of RWAs and 6% of leverage exposure</td>
<td>Higher of 16% of RWAs and 6.75% of leverage exposure</td>
<td>N/A</td>
</tr>
<tr>
<td>25</td>
<td>Mizuho FC</td>
<td></td>
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<tr>
<td>26</td>
<td>Sumitomo Mitsui FC</td>
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<tr>
<td>27</td>
<td>Agricultural Bank of China</td>
<td></td>
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</tr>
<tr>
<td>28</td>
<td>Bank of China</td>
<td>Chinese G-SIBs have until 2020 to conform to the higher of 10% of RWAs and 8% of leverage exposure, and until 2023 to meet the higher of 16% of RWAs and 0.75% of leverage exposure.</td>
<td>N/A</td>
<td>2.5% of RWAs</td>
</tr>
<tr>
<td>29</td>
<td>Industrial and Commercial Bank of China Limited</td>
<td></td>
<td></td>
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<tr>
<td>30</td>
<td>Chinese Construction Bank</td>
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</table>

11.6 Annex 6: Changes and implications of the new capital requirements for the Credit risk

<table>
<thead>
<tr>
<th>Basel III business impacts</th>
<th>Capital planning reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher capital for trading book exposures</td>
<td>Implement efficient RWA measurement approaches and analyze de-risking opportunities</td>
</tr>
<tr>
<td>Higher capital for overall market risk</td>
<td>Model approvals and data quality are critical given punitive alternatives, particularly for correlation trading and securitizations</td>
</tr>
<tr>
<td>Securitizations and correlation trading face particularly sizable increases in capital requirements</td>
<td>Analyze and de-risk in RWA-intensive asset categories</td>
</tr>
<tr>
<td>Could be impacted by reforms to use of agency ratings</td>
<td>Implementation of more sophisticated approaches for securitizations, e.g., SFA</td>
</tr>
<tr>
<td>Higher capital and transparency for counterparty exposures</td>
<td>Firms will need to rethink counterparty exposure management</td>
</tr>
<tr>
<td>Increased RWA for counterparty credit exposures, particularly for financial institution exposures</td>
<td>Counterparty limit rebalancing, hedging</td>
</tr>
<tr>
<td>Exposure and capital usage will change as a result of OTC reform</td>
<td>Renewed focus on aggregate exposure view</td>
</tr>
<tr>
<td>Further constraints on exposure-based banking</td>
<td>Incentive to spread exposures to a greater number of smaller counterparties</td>
</tr>
<tr>
<td>Commercial and retail banking with significant off-balance sheet commitments and lines of credit impacted by new leverage ratio standards</td>
<td>Continue to ensure infrastructure keeps pace with OTC reform</td>
</tr>
<tr>
<td>Specific businesses (such as originated securities lending) could have a significantly punitive impact when calculating the leverage ratio</td>
<td></td>
</tr>
<tr>
<td>Fee-based businesses look increasingly attractive</td>
<td>Firms need to consider which businesses to grow faster, which to grow slower, and which to exit</td>
</tr>
<tr>
<td>Asset-based financial intermediaries impacted by leverage, liquidity and counterparty constraints, particularly in securitization and bank deposits</td>
<td>Evaluate potential changes in strategy by business based on Basel III ROE and liquidity constraints</td>
</tr>
<tr>
<td>Additional deductions will impact certain businesses</td>
<td>Restructuring, strategy changes or disposition of MSRs, DTAs and financial institution investments</td>
</tr>
<tr>
<td>Limitation on allowable mortgage servicing rights</td>
<td>Potential reduction in servicing retention</td>
</tr>
<tr>
<td>Aggregate unconsolidated financial institution investments</td>
<td>Sale of financial institution equity holdings, MSRs, active interest from hedge funds, private equity firms not constrained by Basel and G20 standards, etc. in sales/structures that provide relief for banks</td>
</tr>
<tr>
<td>Capital for investment portfolios and liquidity interaction</td>
<td>New focus in DTA planning</td>
</tr>
<tr>
<td>Investment portfolios and banking book securitizations could be impacted by changes to use of agency ratings</td>
<td>New considerations for balance sheet management</td>
</tr>
<tr>
<td>Unrealized gains/losses will also impact capital</td>
<td>Improved and granular integrated view of capital and liquidity charges for investment portfolio to support decision-making</td>
</tr>
<tr>
<td></td>
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11.7 Annex 7: Changes and implications of the new capital requirements for the Market risk

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Abstract

The regulation and supervision of the banking system are of crucial importance to the institutional players in the financial market. If the guidelines of that regulation are target-oriented and correctly written, banks have some form of security and support in managing their business processes. The most powerful financial countries have recognized on time the essence and the importance of establishing supervisory bodies in the banking sector, so the Basel Committee was found in the mid-twentieth century. Its purpose was to accumulate all the facts and factors that affect the performance of the business processes of banks, as well as to clearly define the risks to which the economic entities are facing in the market. Besides that, the recommendations of the Committee shall include clear solutions regarding improving business processes and minimize the negative impact of the crisis. Although through the history of its existence, the Basel Committee and its agreements were subject to numerous criticisms and attacks; its influence has made the improvement of business processes and should be considered as one of the most important accords in the banking sector nowadays.

Keywords: Basel agreement, banking sector, banking regulation
Zusammenfassung


Stichworte: Baseler Ausschuss, Bankensystem, Bankenregulierung