

**MAX KUBAT**

University of Economics, Prague, Czech Republic, max.kubat@centrum.cz

## **DOES BASEL III BRING ANYTHING NEW? A COMPARISON BETWEEN CAPITAL ACCORDS BASEL II AND BASEL III**

### **Abstract:**

Basel Accords represent the most important documents of banking supervision. Basel II came into force almost at the same time as the financial crisis set in. Relatively soon after this, the work on the new capital accord known as Basel III was initiated. The question is whether the new agreement brings something really principally different from Basel II, or whether it is just a tool to reassure the public and markets with some form of stricter requirements. Basel Committee is based on G-20 countries representation. Introduction contains a brief explanation of how the Basel capital accords are reflected in European law. The first part of the article explains core principles of Basel II with several possible explanations of its failure. The second part clarifies the main principles of Basel III and compares them with Basel II. The criterion for comparison is search for fundamental distinctions between the introduced tools. From five monitored areas (definition of capital, capital requirements, risk coverage, leverage ratio, liquidity management) three of them meet this criterion. The redefinition of capital means only better clarification and unification of definitions. The risk coverage part focuses on technical issues, but no new risks are perceived. There is a significant change about new capital requirements. Two new buffers are requested. While previous capital requirement were based on direct connection with risks, the connection between capital conservation buffer and countercyclical buffer is only indirect to measured risks. Also the leverage ratio and liquidity management bring new tools and thus principle change. There is a significant change in leverage ratio that brings a new tool which is not based on risk. It makes the calculation easier and should avoid cheating in capital manipulation. Liquidity management is a completely new part of banking regulation measures, therefore there is nothing to compare with Basel II.

### **Keywords:**

Basel capital accords; Basel II; Basel III; capital requirements; capital adequacy

**JEL Classification:** L51, F02, G28

## 1 Introduction

As the financial crisis resulted in panic on world markets, there was obvious effort to placate the situation. Almost at the same time as the financial crisis set in, Basel II came into force. As one of the measures to calm the situation down was initiation of working on new Basel capital accord, generally known as Basel III. The question is whether the new agreement brings something really principally different from Basel II, or whether it is just a tool to reassure the public and markets with some form of stricter requirements. My objective in this paper is to answer this question by comparing of Basel II and Basel III capital accords. The criterion for comparison is search for fundamental distinctions between the introduced tools.

## 2 Basel accords in European law

In this section I aim to shed light on how the Basel agreements become binding rules. Basel Committee on Banking Supervision (BCBS) is a body acting on the basis of the G 10 countries. Its published papers, including the text of the Basel agreements, are not legally binding and are only recommendatory.

BCBS's activity is based on international consensus with broad respect. Even G 10 non-member countries accept Basel agreements voluntarily in their jurisdictions. Basel II, for example, 112 countries in 2010 have already implemented or intended to implement (FSI Survey, 2010, p. 6).

In the EU countries the Basel agreements implementation is going on the basis of European directives. These directives are subsequently incorporated into the legal systems of the member countries. The requirements of the Basel agreements are formulated as a minimum, above procedure therefore allows both the EU and subsequently the member states to introduce stricter requirements. The risk of this approach is a certain inconsistency in the implementation of the rules. The advantage is a more precise specification of some local terms corresponding domestic laws and practices.

Basel I has been incorporated into European law by three directives, namely directive 89/299/EEC of the 17th April 1989 about own resources (Own Funds Directive, OFD), by directive about solvent ratio 89/647/EEC of 18th December 1989 (Solvency Ratio Directive, SRD) and by the capital adequacy directive 93/6/EEC of 15 March 1993 (Capital Adequacy Directive, CAD I). The CAD I is interesting that it has already established standards for market risk, which appear in the Basel I as of 1996. Requirements for monitoring market risk, however, were already known from earlier documents BCBS.

Basel I as amended by the Additional Act of 1996 was fully introduced by set of three directives in June 1998, namely by directive 98/31/EC about the capital adequacy of investment firms and credit institutions, directive 98/32/EC about solvent ratio of credit institutions and directive 98 / 33/EC amending some of the earlier directives. The set of directives is referred to as CAD II.

Basel II was reflected to European law by two directives in June 2006, namely by

directive 2006/48/EC about admission to provide credit institutions services and directive 2006/49/EC about the capital adequacy of investment firms and credit institutions. The directive set is referred to as a CRD (Capital Requirement Directive). It is worth to note that both the CAD II and CRD have a wider scope than Basel I, or Basel II. Both Basel Accords exclusively focus on internationally active banks, CAD and CRD II, in addition to banks, focus even on investment companies.

Slight modifications of Basel II in the next years were reflected in the European law by two additional amendments, CRD II from 2009 (directive 2009/27/EC, 2009/83/EC and 2009/111/EC) and CRD III from 2010 (directive 2010 / 76/EU).

The last of the Basel agreements, Basel III, has been implemented into European law by directive known as CRD IV. Its approval was expected in mid-2012 with effect from January 2013. Due to the delayed vote in the European Parliament the directive was approved on 16th April 2013, which also postponed effect for a year (European Parliament News, 2013) The practical impact of the approval process delay on banks is negligible. Implementation of Basel III was unquestioned, banks had to be prepared regardless of the delay.

### **3 Basel II content**

The form of the new Capital Accord, known as Basel II, was published in June 2004. In the meantime, the BCBS published a number of documents in the form of proposals to revise the previous Capital Accord, including three quantitative impact studies. The new agreement should have been implemented by the end of 2006, or 2007 (BCBS, 2004, p. 1).

The basic objective of the Basel II agreement remains the same as for Basel I, which is to strengthen the soundness and stability of the international banking system, but was approached much more complex than just regulation of capital adequacy (BCBS, 2004, p. 2). However, there is also the view that, while in the case of Basel I the real target was quite obvious, Basel II is nothing more or less than the result of a series of pragmatic, mutually conditioned adjustments of the initial agreement, which the Basel Committee defends against criticism from the banking industry. The beginning of this series is dated to 1998, when the BCBS announced its intention of future credit risk measurement. The result has been considerable criticism questioning the competence of the Basel Committee. BCBS has set out through a greater acceptance of bank internal models for measuring credit risk, which, however, exposed a suspicion that its work is too much under the influence of banks to be controlled.<sup>1</sup>

While the focus of Basel I laid in banks' capital adequacy, Basel II is built on the three pillars. Minimum capital requirements represent only one of the three pillars.

The first pillar of Basel II, focused on capital adequacy, is engaged by the well known relation between capital and capital requirements. The second pillar focuses on

---

<sup>1</sup> Rochet refers to this situation as a regulator's fundamental dilemma. In case the regulator refuses prevailing industry practice, which regulates and sets its own rules, thereby is exposed to accusations of incompetence. Or, on the contrary, accepts the commonly used practice, but at the cost of being suspicious as surrendering under the regulated entities (Dewatripont, Rochet, Tirole, 2010, p. 80-81).

supervision as a process of evaluation of the adequacy of the bank's capital by the regulator. The third pillar called "market discipline" is dedicated to regular and adequate disclosure of information by banks to get to other market participants an overview of risk activities of the concerned banks (Cipra, 2002, p. 157-158).

Novelty and feature of the growing complexity of the Basel agreements is the application of regulatory requirements on a consolidated basis. Newly they are for internationally active banks, the agreement is primarily determined for them, all their branches, or subsidiaries, taken into consideration, and the entire holding company is regulated. The agreement is applied to the bank at any level within the banking group (BCBS, 2004, p. 6).

The first pillar covers the most space under Basel II. The level of minimum capital requirement is still maintained at 8 % and in principle there is not any change in the definition of capital and the proportion of its individual components, as defined in Appendix I to Basel in 1996 (BCBS, 2004, p. 11). Substantial changes, however, are given to the calculation of risk-weighted assets. First there is a newly developed calculation of capital requirements for credit risk and, secondly, a new capital requirement for operational risk is created.

The formula for calculating the capital adequacy according to Basel II is as follows:

**Formula 1: Capital adequacy according to Basel II**

$$\text{Capital adequacy} = \frac{\text{Tier 1} - \text{Deductible items} + \text{Tier 2} + \text{Tier 3 used}}{\text{CRcr} + \text{CRmr} + \text{CRop}} * 8 \%$$

CRcr means capital requirement for credit risk

CRmr means capital requirement for market risk

CRop means capital requirement for operational risk

Source: Kašparovská, 2006, p. 83

Basel II allows banks to calculate capital requirements for credit risk under two methods, namely standardized method and the internal rating based (IRB) method.

The essence of the standardized method is external assessment allocated to a specific subject. An example of an external evaluation provider is the rating agency Standard & Poor's, which BCBS presents to demonstrate the whole approach (BCBS, 2004, p. 14)

To enable banks to use any external evaluation there must be the providing institution, commonly called as ECAI, approved by the national supervisory authority. The relevant ECAI is approved after meeting six criteria set out in Basel II, where there is also more detailed description of their importance. The criteria are objectivity, independence, international approach, or transparency, disclosure of methodology,

procedures and used criteria, adequate resources for providing of evaluation and credibility (BCBS, 2004, p. 22). Alternative institutions for providing of evaluation in the case of sovereign states are the Export Promotion Agencies (ECA), which must follow the methodology approved by the OECD (BCBS, 2004, p. 14).

In the standardized approach, credit risk subjects are divided into several categories. The main categories are sovereign states, non-governmental actors in the public sector, banks, non-banking businesses, category of loans secured by real estate and others. Unlike Basel I risk weights are not assigned to these categories, but within the categories of entities appropriate ratings are allocated. Then to a group of subjects with the same evaluation in the same category a risk weight is assigned, according to risk-weighted assets are calculated (BCBS, 2004, p. 14-21).

A detailed analysis of the Basel II methods is not the subject of this paper, there is no need to elaborate a standardized method beyond its core principles. For better clarification the non-enterprise risk weight category is shown in next table:

**Table 1: Risk weights for non-banking enterprises category in Basel II**

Credit assessment	AAA to AA-	A+ to A-	BBB+ to BB-	Below BB-	Unrated
Risk weight	20 %	50 %	100 %	150 %	100 %

*Source: BCBS, 2004, p. 18*

A standardized method is rather more complicated than the original approach according to Basel I, but removes the lack of differentiation between different entities. While according to Basel I all enterprises had risk weight of 100%, it is now possible to distinguish between good and bad businesses.

IRB method is based on the bank's internal risk assessment. To use this approach, however, bank must have the consent of the supervisory authority, as well as some of the components in the evaluation process within the IRB method may be determined by the supervisory authority.

At the beginning of the evaluation process there is dividing of bank assets, respectively credit exposures to them, into five classes. The classes are non-banking firms, sovereign states, banks, retail clients<sup>2</sup> and investments in equity securities.<sup>3</sup>

Each of these five asset classes has a set of three components, which are:

- Risk components, or estimates of the risk factors.
- Risk weights functions that represent the ways in which risk components are converted to risk-weighted assets, and therefore to the capital requirements.

<sup>2</sup> Retail clients are further divided into individual claims, debts secured by non-commercial real estate, but includes under defined conditions also assets for small businesses.

<sup>3</sup> Includes any instrument constituting direct or indirect share in the property.

- Minimum requirements, which are minimum standards which must be achieved by the bank to be able to use the IRB method for certain class of assets (BCBS, 2004, p. 47-54).

Basel II IRB method distinguishes the four risk components. The probability of default (PD) that the borrower fails to meet its obligations, exposure at default (EAD), which expresses the amount of assets at risk in the event of default, and loss given default (LGD) defining the amount of lost assets when the default of the borrower and maturity (M).

Basel II provides, by using the IRB method, two options, the basic and advanced approach. When using basic methods bank estimates only PD, the other three components are provided by supervisor. In the case of advanced method all four components are estimated and calculated by banks (BCBS, 2004, p. 54-84). Because it is a really big difference in the approach to the calculation of risk-weighted assets, these two variants of the IRB method are reported by some authors as two independent methods and together with a standardized method Basel II has three procedures for calculating the capital requirement for credit risk.<sup>4</sup>

IRB method gives banks the possibility of an individualized approach to measuring risks against individual borrowers and, moreover, it is the bank that your client knows best. On the other hand, it is obvious that there is increased level of cost of this approach, especially in the advanced version.

While the capital requirement for market risk remained unchanged, Basel II introduces a new capital requirement for operational risk and allows three methods of its calculation.

Operational risk is defined in the agreement as the risk of loss resulting from inadequate or incorrectly carried out process based on human or system error or from external events. While the legal risk is accepted as part of operational risk, reputational and strategic risk is excluded (BCBS, 2004, p. 137).

Basel II distinguishes for operational risk calculation method of the basic indicator, standardized method and the advanced method. The choice of method must be implemented in cooperation with the supervisor, the basic premise is that the more complex method, the more adequate capital requirement is calculated. In case when the bank has already used some of the more complex methods, it cannot switch by its own will to a simpler method. This requires the consent of the supervisory authority, which allows it, if the bank no longer meets the requirements for more complex method. It is expected that an internationally active banks will use a more complex method than the basic indicator method (BCBS, 2004, p. 137).

The basic indicator method is based on calculating the capital requirement from the gross income of the bank for the last three years and the coefficient set by BCBS. The formula for calculation is as follows:

***Formula 2: Calculation of capital requirement for operational risk by basic***

---

<sup>4</sup> Three methods are for example in Kašparovská, 2006, p. 83-84.

### ***indicator approach***

Capital requirement<sub>operational risk</sub> =  $[\sum(\text{Gross income}_{1...n} * \alpha)]/n$

$\alpha$  is coefficient set by the Committee as 15 %

$n$  is number of previous three years for which gross income is positive

Source: BCBS, 2004, p. 137-138

Gross income is defined as the sum of net interest income and net non-interest income. Years in which the gross income is negative, are not counted.

The standardized approach for calculating the capital requirement for operational risk arises from the fact that the various banking activities have different degrees of operational risk. Banking activities are divided into eight business lines. Each line has a coefficient provided by BCBS within the range of 12 to 18%. The final capital requirement is calculated as the sum of the capital requirements for each business line. These partial capital requirements are calculated similarly as the basic indicator method.

### ***Formula 3: Calculation of capital requirement for operational risk by standardized approach***

Capital requirement<sub>operational risk</sub> =  $\{\sum_{\text{years } 1-3} \max[\sum(GI_{1-8} * \beta_{1-8}), 0]\}/3$

GI<sub>1-8</sub> is annual gross income for each of the eight business lines

$\beta_{1-8}$  is a coefficient set by Committee for each of the eight business lines

Source: BCBS, 2004, p. 149.

There is no doubt that standardized method for calculating the capital requirement for operational risk optimizes its size. On the other hand, the bank must monitor the amount of gross income for each business line.

Advanced measurement approach for operational risk are generally methods used by banks after the approval of the supervisory authority. It is not possible to describe the general scheme of calculation, because Basel II does not contain it. All responsibility lies on the local supervision authority, BCBS provides only general principles that models should meet. The main principles are sufficient resources for the application of advanced methods, independent system of operational risk management, internal incorporation of risk management into everyday processes, regular reporting and good documentation of the entire system. The construction of a specific model is up to the bank itself (BCBS, 2004, p. 142-147).

The second pillar of Basel II formulates the basic concept of supervision, including its transparency and accountability. Functions of supervision are not only in ensuring that banks meet the applicable capital adequacy requirements, but should actively encourage banks to develop and use better techniques in the management and monitoring of risks. There is expected individual approach of supervisor, who is

ensuring that banks have adequate capital adequacy level and not only the minimum level.

The core of the second pillar are four key principles which should be monitored and controlled by supervisor.

The first principle states that banks should have a process for assessing their overall capital adequacy in accordance with their risk profile and a strategy for managing the different levels of capital.

The second principle states that supervisory and regulatory authority should review and evaluate by banks created capital adequacy assessment tools, strategy and the ability to monitor the risks and ensure their compliance with regulatory capital indicators. In case the regulator is not satisfied with the outcome of this activity, he should intervene appropriately.

The third principle demands that the supervisory and regulatory authorities should expect that banks will maintain higher levels of capital ratios than the set minimum, and should be able to require these higher levels from banks.

The fourth principle puts a duty to supervisory and regulatory authorities to seek a precaution to prevent situations when banks indicators decline below the limit. In case that such a situation threatens, they should require curative action (BCBS, 2006, p. 204-212).

The principles of the second pillar clearly emphasise active approach of the controller and its relatively great autonomy. These principles are very general, and although there are many details in the document about them, the implementation of Basel II in the Czech Republic meant about 100 provisions to which the Czech Central Bank had to respond (Bürgerová, 2007, p. 2)

The third pillar called "market discipline" is perceived as an addendum to the previous pillars in the form of a set of requirements about information to be disclosed by banks. Against the idea that the third pillar deals with only marginal detail could be argued with reference to regulation justification: due to the existence of information asymmetry. It is the third pillar that copes with information asymmetry.

The information, required to be disclosed, far exceeds the enumerated possibilities of this work. Basel II requires to create a formal policy on public disclosure by banks. Most of the information is to be published semi-annually, but a summary of the bank's policies and objectives of risk management are published annually. Internationally active banks and other main banks are required to publish information about Tier 1 and indicators of capital adequacy on a quarterly basis.

Among the disclosed documents there are general information about the bank, information on its capital structure and adequacy, and information about all types of risks (credit, market, operational), which are included in the Basel II first pillar (BCBS, 2006, p. 226-242).



### 3.1 Why Basel II failed?

Evaluations of the Basel II agreement point out its failure, which can be supported by an eloquent argument of the global financial crisis of 2007 or by the existence of a successor agreement (Basel III). In the evaluation why Basel II failed, there are already differences.

According to Masera (Masera, 2010, p. 302-303) Basel II allowed systemically important institutions to gain an advantage in the apparent diversification, which resulted in the reduction of capital buffers. While Basel I was not able to cope with securitized instruments, the solution proposed in the new agreement has brought only a partial remedy, created a feedback loops, and thus strengthened the pro-cyclical effects of the system. Basel II ignored a number of important risks and underestimated the ability of banks to manage them. Masera also criticizes excessive liaison with external ratings, as well as the orientation of the entire methodology to historical data and relying on good terms regarding the liquidity of banks.

Even more radical position was formulated by Lall, according to him "*Basel II is not the solution to the current turmoil, but rather an underlying cause of it.*" (Lall, 2009, p. 3). Although Basel II was implemented substantially concurrently with the crisis, he based his argument on that the first version which was already known since 2004 and since then has formed an investment decision, including the detrimental lending practices. Together with Masera, he takes the thesis that large international banks were able to manipulate outcomes in the regulatory process to their advantage. As an example of BCBS surrender before banks, there is the allowance to use the advanced version of IRB method, which enables large banks to reduce relevant capital requirements (Lall, 2009, p. 3-13).

Rochet identifies himself with objection against the advanced IRB approach as well. With reference to the actual implemented mathematical procedures for this method, he claims that it is virtually impossible for anyone to assess the relationship between the regulator and the bank and that, therefore, the supervisor performs its job well. Objectivity of such relationship is disrupted by a number of parameters that cannot be independently evaluated and are often only unrealistic assumptions. Stating the objection that current risk management is more art than science, he concludes that a large responsibility devolved to the supervisor, turns against the original objective to eliminate distortions in competition between banks from different countries (Dewatripont, Rochet, Tirole, 2010, p. 82-84).

## 4 Basel III changes

In the sections below, to answer our question about Basel II and Basel III core principles differences, I would like to focus on five main areas of Basel III, namely capital definition changes, capital requirements changes, risk coverage, leverage ratio and liquidity management.

### 4.1 Changes in the capital definition

In Basel III in comparison with Basel II several changes in the definition of capital

appear. There is a clear emphasis on greater unity in the definition of the key items. Tier 3 disappeared completely as a capital component originally reserved to cover market risks. Only Tier 1 and 2 remain, with the evident intention of strengthening Tier 1 component.

Tier 1 is newly divided into two parts: common equity Tier 1 and additional Tier 1. According to the stipulated limits, share of common equity Tier 1 must not fall below 4.5 % RWA, the proportion of total Tier 1 capital must not fall below 6 % of RWA and the share of sum of Tier 1 and Tier 2 must not break the barrier of 8 %.

Common equity Tier 1 includes following items:

- Common shares issued by the bank that meet the criteria for classification as common shares for regulatory purposes.
- Stock surplus (share premium) resulting from the issue of instruments included
- Common Equity Tier 1
- Retained earnings
- Accumulated other comprehensive income and other disclosed reserves
- Common shares issued by consolidated subsidiaries of the bank and held by third parties
- Regulatory adjustments applied in the calculation of Common Equity Tier 1.

All rules that can be applied in the calculations are specified in the accord in to detail.

Additional Tier 1 is defined in a similar way and includes following items:

- Instruments issued by the bank that meet the criteria for inclusion in additional Tier 1 capital and are not included in common equity Tier 1
- Stock surplus resulting from the issue of instruments included in additional Tier 1 capital
- Instruments issued by consolidated subsidiaries of the bank and held by third parties
- Regulatory adjustments applied in the calculation of additional Tier 1 capital. As above for common equity Tier 1, all rules that can be applied in the calculations are specified in the accord into detail

Tier 2 is defined in Basel III as sum of following items:

- Instruments issued by the bank that meet the criteria for inclusion in Tier 2 capital and are not included in Tier 1 capital.
- Stock surplus resulting from the issue of instruments included in Tier 2 capital.
- Instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria for inclusion in Tier 2 capital and are not included in Tier 1 capital.
- Regulatory adjustments applied in the calculation of Tier 2 capital.

- Provisions or loan-loss reserves held against future, limited to a maximum of 1.25 % of credit risk-weighted risk assets calculated under the standardized approach (BCBS, 2011, p. 12-24).

Although this list of capital items may appear at first glance fairly general and vague, in fact, it provides a more accurate definition of capital than in the current legislation. Beyond this list of capital elements there is in Basel III a detailed scheme with concrete rules for inclusion in the components of capital, but it is not the aim of this paper to describe all of it.

Explicit treatment of minority shares deserves to be mentioned, which under certain conditions can be included under common equity Tier 1, while goodwill and other intangible assets, deferred taxes, reserves for cash flow management or investments in own shares cannot be included.

Originally intended changes in the definition of capital (especially Tier 1) should lead to even greater narrowing of capital, BCBS, however, to respond banks and other interest business groups, accepted a revision and denied some restrictive measures (Monroe, 2010, p. 34)

When comparing the original and the current definition of capital there is an undeniable change in the emphasis of equity and strengthening its role. However, I did not label these changes as fundamental as there is not anything new introduced in comparison with previous agreement. All changes express only tightening of rules resulting from the crisis exposed shortcomings.

## **4.2 Capital requirements changes**

The Basel Committee itself admits that one of causes of Basel II failure was inconsistent definition of capital across jurisdictions, which together with limited information disclosure prevented markets from evaluating and comparing quality of bank capital (BCBS, 2011, p. 2).

The concept of capital adequacy was always based on the combination of measured risk to which the bank is exposed, and of a corresponding capital requirement. Such connection between risks and capital requirements could be called as direct. Any changes were not related to methods how to measure risks and what kind of risks to monitor. All proposals to increase capital requirements for monitored risks are also based on the same principle. This direct connection is not valid for capital conservation buffer a countercyclical capital buffer. First, I will clarify the principle of capital conservation buffer.

The requirement of capital conservation buffer is justified by the desire that the minimal capital requirements cannot be in danger by declining of capital, which has been until now the basic regulatory measure. Banks should create them primarily from their own resources, in particular by limiting paid out dividends, repurchasing of their own shares and the payments of employee bonuses. An alternative way of creating capital conservation buffer is to obtain capital from private sources.

As it is implied from the substance of resources for capital conservation buffer, this

kind of capital is going to belong into the category of best common equity Tier 1. The final amount is established at 2.5% RWA. Because, as already mentioned, the common equity Tier 1 should achieve 4.5% of RWA, the final value of common equity Tier 1 ratio is 7% RWA.

Creating capital conservation buffer should begin on 1st January 2016 at pace of 0.625 % per annum and the requested full level should be achieved on 1st January 2019. Faster pace of capital conservation buffer creating is possible and national regulators could decide about it in case of positive development.

In case a particular bank will not achieve specified level of capital conservation buffer, restrictions will be imposed against her regarding the use of its internal resources according to the scenario shown in the following table (BCBS, 2011, p. 54-57).

**Table 2: The connection between common equity Tier 1 ratio and retained earnings**

Common equity Tier 1 ratio	Minimum level of retained earnings
4.5 % – 5.125 %	100 %
>5.125 % – 5.75 %	80 %
>5.75 % – 6.375 %	60 %
>6.375 % – 7 %	40 %
>7 %	0 %

Source: BCBS, 2011, p. 56

The principle of countercyclical capital buffer is very similar to capital conservation buffer. Because of the possibility of sustaining substantial losses in the banking sector and the subsequent spillover of instability from the banking sector to the real economy and back, BCBS introduces another tool to reduce this risk. Creating and size of countercyclical buffer, size is not predetermined, but it is optional instrument of national regulators. The starting point is the assumption that national regulators are close to banks in their jurisdiction, and therefore they are the best who should be able to dampen excessive credit expansion. The countercyclicity of this buffer thus lies in the creation in good times of economic upswing and its consumption in bad times of economic downswing. This practically corresponds to periods of effects taking. While the creating or the increasing of the countercyclical buffer must be reported twelve months in advance, the decision to reduce takes effect immediately.

Size of countercyclical capital buffer is optional from 0 % to 2.5 % of RWA. The principle of the countercyclical capital buffer creation is the same as for capital conservation buffer, and thus this kind of accumulated capital belongs with its quality to the common equity Tier 1. In case of full exercise of this option by national regulator the level of common equity Tier 1 increases to 9.5 % of RWA.

The Basel III solves the problem of international operations of individual banks by the

calculation of countercyclical buffer as a weighted average of individual country requirements, where the weights are the risk exposure in specific countries. Banks must calculate and publish its countercyclical buffers at least with the same frequency as their minimum capital requirements.

In the case of necessity of the countercyclical buffer creation, the same rules and restrictions as for the capital conservation buffer will be applied. However, as a countercyclical buffer has not a predetermined level, the categories for determining the level of in bank retained capital are not in percentage but calculated in quartiles, as shown in the following table (BCBS, 2011, p. 57-60).

**Table 3: The connection between the level of countercyclical buffer and retained earnings**

Countercyclical buffer	Minimum capital conservation ratios
Within 1 <sup>st</sup> quartile of buffer	100 %
Within 2 <sup>nd</sup> quartile of buffer	80 %
Within 3 <sup>rd</sup> quartile of buffer	60 %
Within 4 <sup>th</sup> quartile of buffer	40 %
Above top of buffer	0 %

Source: BCBS, 2011, p. 60

Countercyclical buffer implementation will be under way concurrently with the capital conservation buffer from 1st January 2016.

Regarding to our hypotheses the question is what the introduction of both capital buffers represents. As I have said, their relationship to the undertaken risks is considered as indirect. It is of course true that if the volume of RWA is increased, the size of both buffers must be inevitably increased too, because they are defined by the ratio of the size of RWA. However, regarding to the justification for the existence of both buffers, it can be argued that it is not a direct relationship. While the size of Tier 1 and Tier 2 is defined in relation to the coverage of certain risks, existence and size of capital conservation buffer is justified by effort to avoid, if possible, declining of capital below the minimum capital requirements for individual risks. Similarly, a countercyclical capital buffer is not primarily established to cover specific involved risks, but to prevent resp. reduce excessive expansion in upswing times, and even further to insure that in the event of the downswing, the amount of capital will not be under the minimum capital requirements for risk coverage. In my opinion, link to RWA is thus only indirect. I consider it as a new approach in Basel III. At the same time it is an approach that seeks to address some of the complaints about Basel II, especially about measures of cyclicity.

However, it could not be said that this approach is perfect. Without wanting to anticipate the next section, the formation of two buffers is based on the retention of

resources. But what if the bank is poorly managed and does not reach any profit? Such a situation may take several years and even restriction of employee bonuses may not help the bank's situation. On the other hand, what if the best employees will leave the bank? Similarly, we can consider a situation when the Bank has achieved a profit, but very low, the detention will not lead to the desired increase in common equity Tier 1. Restriction of lending activities become the only solution, but it could mean more problems than solutions.

### **4.3 Risk coverage**

A considerable part of the text of the third Basel accord is devoted to risk coverage. Text focuses on counterparty credit risk and reliance on external credit ratings. This fact suggests that Basel III has no ambitions to monitor new risks and rather concentrates on the technical side of their monitoring.

The section devoted to counterparty credit risk focuses on changes that should adapt the current approach to new developments and experience. The relevant part of Basel III extends the text of the fourth amendment of Basel II. It is an adaptation of the method of internal models, namely with emphasis on the Effective EPE (effective expected positive exposure). Stress evaluation should be used for this calculation. Stress evaluation must be based on current market data, but stress model is based on data coming from last three years. Capital requirements to cover expected losses arising from the revaluation of open balances in OTC derivatives on their current market value are taken into consideration. Consideration and subsequent increase of capital requirement is applied to all OTC derivatives, regardless of whether they are secured or not. The last point of this Basel III part is the risk of negative correlation of exposures to a counterparty and counterparty's credit quality (i.e. wrong -way risk). Generally Basel II involved this correlation and requested that banks should be aware of this fact. Basel III, however, obliges incorporation of this correlation into stress tests and to analyze different scenarios. In addition to the specific risks of negative correlation, Basel III also distinguishes between general risks of negative correlation.

The latter part of risk coverage deals with reliance on external credit ratings and the cliff effects. As in the previous part of risk coverage, this is rather technical clarification and change in procedures. New adjustment of external credit ratings approach was, including Code of rating agencies practices rating, taken over from International Organization of Securities Commissions (IOSCO). Banks should use only solicited ratings from eligible credit rating agencies, which means agencies accepting the Code. Unsolicited ratings may be used if they are approved by the national supervisory authority. Other changes are related to credit derivatives guarantees. Cliff effects are linked to these guarantees, i.e. a situation arising as a result of an event followed by a chain reaction. There are changes in the recognition of entities that can provide a securitization of these products and thereby minimize credit risk (BCBS, 2011, p. 29-53).

### **4.4 The leverage ratio**

Based on the knowledge that one of the signs of the crisis was the excessive amount

of on-balance and off-balance sheet items, the leverage ratio is introduced as "simple, transparent and non-risk-based" indicator. Its implementation has to eliminate the state where the bank showed on the one hand excessive leverage ratio and on the other hand, good capital ratio based on risk. The new measure should, by assumption of BCBS, limit the possibility of destabilizing the financial system through the reduction of excessive leverage ratio, and thus the entire economy, and strengthen existing requirements based on risk monitoring (BCBS, 2011, p. 61).

Contemporary theory distinguishes three types of leverage ratios: balance sheet, economic and embedded leverage ratios. The on-balance sheet leverage ratio is the most widely known attitude. Economic leverage ratio is based on future cash flows depending on the market development. It includes off-balance items such as loan guarantees. Embedded ratio is based on holding assets which are themselves based on any of these types of leverage ratios, which makes it difficult to recognize (D'Hulster, 2009, p. 1).

The leverage ratio is defined as follows.

**Formula 4: Leverage ratio**

$$\frac{\text{Tier 1}}{\text{On-balance and Off-balance sheets exposures of bank}} > 3\%$$

Tier 1 corresponds to the new definition of capital under Basel III. The denominator is prohibited to reduce balance sheet exposure through physical or financial collateral, guarantees or other instruments purchased to reduce exposures. It is also not permitted to net loans and deposits (BCBS, 2011, p. 61-63). The obvious aim of these prohibitions is to use the leverage ratio as simple as possible indicator and prevent misrepresentation of the information value and dismantle its effect.

Due to the inclusion of off-balance sheet items leverage ratio as introduced in Basel III, it belongs under the definition of economic leverage ratio.

The leverage ratio is very topical issue. The transition period began on the 1st January 2011, since banks are monitored on a six-month basis during so called monitoring phase. In parallel with this phase, the application phase started from 1st January 2013, lasting to 1st January 2017. Both phases should help to answer the question whether the selected 3% leverage ratio is appropriate. If it turns out that it is not, the ratio will be reviewed and will be finally implemented in the first pillar on 1st January 2018 (BCBS, 2011, p. 63).

#### 4.5 Liquidity management changes

Liquidity management is an entirely new issue in regulatory measures. When comparing Basel III and Basel II there is simply nothing to compare, as Basel II did not use any similar tool. On the other hand, it should be noted that the liquidity management is familiar to banks because it was used even before Basel III for

internal purposes. Basel Committee itself admits that importance of liquidity was underestimated and that lack of liquidity caused trouble even to banks with good level of capital (BCBS, 2011, p. 8). Now Basel III is introducing management standards that are represented by two indicators, namely Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR).

#### 4.5.1 Liquidity Coverage Ratio

Liquidity coverage ratio focuses on the monitoring of liquidity in the short term period. The aim is to ensure that the bank has sufficient liquidity for a period of 30 calendar days according to stress scenario specified by supervisor. It is expected that the given time is sufficient for finding a solution of the crisis of the bank.

##### **Formula 5: LCR calculation**

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

Source: BCBS, 2010, p. 3

The basic requirement for high-quality liquid assets is their availability, i.e. it must not be included among assets on which some forms of collateral are imposed, and for the bank they must be available at any time.

High-quality liquid assets are defined by the fundamental characteristics and market characteristics.

Fundamental characteristics are composed of requirement of low credit risk, simplicity and certainty of the correctness of the evaluation, the low level of correlation to risk assets and to ensure greater transparency the assets must be listed on a recognized and developed market.

The required market characteristics is trading on an active and sufficiently large market, i.e. the market with sufficient width and depth, the presence of established market makers, low market concentration and the assets should have historically proved its quality in the case of a systemic crisis.

Along with these general characteristics, Basel III lists the assets that can be included in the numerator of the formula for calculating the LCR. These assets are divided into two groups, namely Level 1 and Level 2. While the assets in the group Level 1 do not have any restrictions, the assets in the group Level 2 can reach share of high-quality liquid assets of at most 40%. The group Level 1 includes cash, reserves at the central bank or market securities representing debt secured by states or central banks which simultaneously meet special conditions. The group of Level 2 includes for example corporate bonds, but only if they comply with specific criteria included in Basel III.

The denominator of the formula, the net outflow of cash over a period of 30 calendar days, consists of the difference of expected cash outflows and the expected influx of cash as calculated in probabilistic models (BCBS, 2010, p. 3-25).



### 4.5.2 Net Stable Funding Ratio

The introduction of Net Stable Funding Ratio (NSRF) indicator, or the net stable (long term) financing, by the Basel Committee is justified primarily by the need to strengthen the medium- and long-term assets financing. As always, there is only a minimal criterion NSFR defined and NSRF is intended as a supplement to the previous indicator. NSFR differs from LCR in their longevity, which is established at the one year horizon. The second, additional, reason for implementing is ensuring that fixed assets are financed by specified minimum volume of long-term liabilities with respect to their risk level. Basically, it is therefore a variation of the golden rule of financing with an emphasis on risks.

The relationship is written formally in the following formula.

**Formula 6: Calculation of Net Stable Funding Ratio**

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

Source: BCBS, 2010, p. 25

From formula above it is visible that the requirement of a higher volume of available stable sources than the level of required stable resources. The aim of this rule is to provide annual funding in stressful conditions. The reaching of this goal depends on the definition of stable funding sources in the numerator and denominator.

Definition contains a fairly extensive list, which is not necessary to be fully presented in relation to the objective of this paper. For a better understanding, however, I consider as appropriate to at least outline it.

Available stable funding sources are mainly equity, preferred shares with maturity at least equal or greater than one year, obligations with maturity equal or longer than one year, deposits with no defined maturity or with maturity less than one year, for which it is also assumed that under the stress conditions they will not flow out of the bank, and the part of wholesale funding, which also meets the previous condition.

The above mentioned items of available stable funding sources are included in the total sum with weights, in the context of the NSRF referred as ASF factor. ASF factor can reach values of 100%, 90%, 80% or 50%, everything that is not defined, has a weight of 0%. To the highest ASF factor can be included in, for example, equity or preferred stock, only half of the highest ASF factor has priced deposits without maturity or wholesale unsecured financing.

The required stable funding sources are defined as the sum of the values of assets held and funded by the institution (bank). A weight called RSF factor is again assigned to each asset. The purpose of the RSF factor is to express the part of the value that cannot be easily converted into money or used as collateral in the stress period exceeding one year.

For example lowest values of RSF factor (0%) are achieved immediately by available cash or not collateralized short-term securities. The RSF factor value of 50 % is linked to gold or ordinary shares (cannot be issued directly by the bank or a related company), RSF factor value of 85 % is connected to loans to retail clients and small businesses with a residual maturity less than one year (BCBS, 2010, p. 25-30).

## 5 Conclusion

In sections above I have made a comparison between Basel II and Basel III capital accords to answer the question, whether there is or is not any principle difference in their measures. After characterizing five main areas of Basel III, it could be said that parts about capital definition changes and about risk coverage do not fulfill the criterion of principle change. The redefinition of capital means only better clarification and unification of definitions. The risk coverage part focuses on technical issues, but no new risks are perceived.

On the other hand there is a significant change in new capital requirements. Two new buffers are requested. While previous capital requirements were based on direct connection with risks, the connection between capital conservation buffer and countercyclical buffer is only indirect to measured risks. In my opinion, this is a good reason to call it principle change.

Also the leverage ratio and liquidity management bring new tools and thus principle change. There is a significant change in leverage ratio that brings a new tool that is not based on risk. It makes the calculation easier and should avoid cheating about capital manipulation. Liquidity management is a completely new part of banking regulation measures, there is nothing to compare with Basel II. The question set for this paper must be answered positively.

## 6 References

Basel Committee on Banking Supervision. International Convergence of Capital Measurement and Capital Standards: Basel II. [online]. Basel: Bank for International Settlements, 2004 [cit. 2013-09-23]. ISBN 92-9197-669-5. Available from: <http://www.bis.org/publ/bcbs107.pdf>.

Basel Committee on Banking Supervision. International Convergence of Capital Measurement and Capital Standards: Basel II: A Revised Framework Comprehensive Version. [online]. Basel: Bank for International Settlements, 2006 [cit. 2013-09-30]. ISBN 92-9197-720-9. Available from: <http://www.bis.org/publ/bcbs128.htm>.

Basel Committee on Banking Supervision. Basel III: International framework for liquidity risk measurement, standards and monitoring. [online]. Basel: Bank for International Settlements, 2010 [cit. 2012-11-19]. ISBN 92-9197-860-4. Available from: <http://www.bis.org/publ/bcbs188.pdf>.

Basel Committee on Banking Supervision. Basel III: A global regulatory framework for more resilient banks and banking systems - revised version June 2011. [online]. Basel: Bank for International Settlements, 2011 [cit. 2013-10-29]. ISBN 92-9197-

859-0. Available from: <http://www.bis.org/publ/bcbs189.htm>.

BÜRGEROVÁ, Jiřina. Role interního auditu při implementaci Basel II. Faculty of Economics at University of Economics [online]. Praha, 2007 [cit. 2013-09-30]. Available from: <http://nf.vse.cz/download/veda/workshops/basel.pdf>.

CIPRA, Tomáš. Kapitálová přiměřenost ve financích a solventnost v pojišťovnictví. 1. issue, Praha: Ekopress, 2002. ISBN 80-86119-54-8.

D'HULSTER, Katia. The Leverage Ratio: A New Binding Limit on Banks. Crisis Response [online]. 2009, issue 11, p. 1-6 [cit. 2013-01-27]. Available from: <http://www.worldbank.org/financialcrisis/pdf/levrage-ratio-web.pdf>.

European Parliament Press release: 16. 4. 2013 Parliament votes reform package to strengthen EU banks. [cit. 2014-02-07] Available from: <http://www.europarl.europa.eu/news/en/news-room/content/20130416IPR07333/html/Parliament-votes-reform-package-to-strengthen-EU-banks>.

DEWATRIPONT, Mathias, Jean-Charles ROCHET a Jean TIROLE. Balancing the banks: Global Lessons from the Financial Crisis. 1. issue, Princeton: Princeton University Press, 2010. ISBN 978-0-691-14523-5.

Financial Stability Institute. 2010 FSI Survey on the Implementation of the New Capital Adequacy Framework: Summary of responses to the Basel II implementation survey. In: Financial Stability Institute - Occasional Paper No 9 [online]. Basel, 2010 [cit. 2013-10-07]. ISSN 1020-9999. Available from: <http://www.bis.org/fsi/fsipapers09.pdf>, p. 6.

KAŠPAROVSKÁ, Vlasta et al. Řízení obchodních bank. 1. issue, Praha: C. H. Beck, 2006. ISBN 80-7179-381-7.

LALL, Ranjit. Why Basel II failed and why any Basel III is doomed. GEG Working Paper [online]. 2009, nr. 52 [cit. 2012-02-21]. Available from: <http://www.globaleconomicgovernance.org/wp-content/uploads/GEG-Working-paper-Ranjit-Lall.pdf>.

MASERA, Rainer. Reforming financial systems after the crisis: a comparison of EU and USA. PSL Quarterly Review. 2010, issue 63, nr. 255, p. 299-362. ISSN 20373635.

MONROE, Mary Frances. Basel III redefines capital. American Bankers Association. ABA Banking Journal. 2010, issue 102, nr. 11, p. 33-35. ISSN 01945947. Available from: <http://search.proquest.com/docview/821699615?accountid=37662>.