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CREDIT RISK REGULATION IN THE CZECH REPUBLIC AFTER BASEL II¹

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Abstract

In this year, new capital adequacy regulation, known as Basel II, came into force. Based on these rules, two directives of the European Parliament and of the Council have been revised and the new decree of Czech National Bank has come into force. This new decree brings some new aspects in credit risk regulation. The aim of this paper is to characterize the main changes in credit risk regulation due to Basel II and to outline the effects on the availability of loans for nonfinancial companies. According to the new rules, the bank's capital charge is calculated to capture credit, market and operational risk. Banks are able to choose between standardized measurement concepts and more refined internal procedures and models which should lead to reduction of capital charges. Two new methods of calculating loan loss provisions have been implemented. Limits for credit exposure of banks remained unchanged. Small and medium-sized companies should benefit both from Standardised Approach and Internal Ratings Based Approach. Corporations with good financial health should benefit from IRB Approach and corporations with rating assessment from external rating agencies will advantage of Standardised Approach. Changes in other aspects of credit risk regulation should not affect the lending activity of banks.

Keywords: credit risk; Basel II; capital requirements, availability of loans; rating

JEL codes: G 21, G 28

1. Introduction

In this year, new capital adequacy regulation, known as Basel II, came into force. The scope of application includes, on a fully consolidated basis, any holding company that is the parent entity within a banking group to ensure that it captures the risk of the whole banking group. It relies on three pillars: capital adequacy requirements, supervisory review and market

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discipline. Based on these rules, two directives of the European Parliament and of the Council have been revised and the new Czech National Bank decree has come into force.

This new decree brings some changes in credit risk regulation. Therefore the aim of this paper is to characterize the main changes in credit risk regulation due to Basel II and to outline the effects on the availability of loans for nonfinancial companies.

Second chapter of this paper describes the principles of Basel II rules. The third chapter consists of three parts: first of them pay attention to changes in capital charge for credit risk, the second deals with changes in rules for calculating loan loss reserves and provisions and the third with limits for credit exposure of banks. The effects on loan availability are included in the fourth chapter.

2. Characteristics of Basel II Rules

Before Basel II, the capital adequacy of banks was calculated according to the Capital Accord of the Basel Committee of Banking Supervision, valid from 1988. With this agreement, the minimum capital requirement was fixed at 8 % of the standard risk-weighted credit positions of a bank. Other risks were not included in this calculation. Because of growing importance of bank's trading activities, market risk was incorporated in 1996. The amendment also enabled banks to use their internal models in order to calculate capital requirements for the market risk.

Later, the Capital Accord was criticized. The main reason consisted in the fact that these rules ignored the increasing importance of new financial instruments and new methods of credit risk management, such as credit derivatives, securitization of assets or global use of collateral. Because of this, the capital requirements did not correspond to risk profiles of banks. Therefore the Basel Committee of Banking Supervision has developed a framework that should strengthen the soundness and stability of the international banking system. The Committee believes that the revised rules will promote the adoption of stronger risk management practices by the bank industry. The reform of Capital Accord – Basel II - relies on three pillars:

- minimum capital requirements;
- supervisory review;
- market discipline.

According to the new rules, the bank's capital charge is calculated based on the sum of three risk categories: credit risk (the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms), market risk (risk resulting from fluctuations in interest rates, exchange rates, quotation of shares and commodities) and operational risk (risk of losses resulting from inadequacy or failure of internal mechanisms, persons and systems of external events). No changes have been made in the definition of capital and the minimum capital ratio of 8 % has also remained unchanged. As a significant innovation, the operational risk has now been added to be covered by capital. Banks are able to choose between standardized measurement concepts and more refined internal procedures and models, according to their operations. More advanced approach should lead to reduction of capital charges.

Second part of Basel II defines the rights and obligations of national regulators. To the most important tasks of bank supervision belongs the control of the reliability and predictive efficiency of bank's internal methods of risk measurement. Supervisors' experience has shown that capital requirements sometimes do not need to guarantee the solvency of a bank. It is suggested that banks should maintain economic capital above the regulatory minimum. If not, the national regulators could intervene.

The third pillar comprehends the market discipline of banks. Each bank have to inform about its relevant risk indicators (risk profile, how much of its capital is being hold as reserve in proportion to the accepted risks) so as to make use of the disciplining forces of the markets as a complement to the regulatory requirements. As a result of the competition, credit institutions will be forced to implement modern risk management systems.

The revised rules provide a range of options for determining the capital requirements to allow banks and supervisors to select approaches that are most appropriate for their financial market infrastructure and to allow adapting the standards to different conditions of national markets.

3. Changes in Credit Risk Regulation in the Czech Republic

Based on Basel II rules, two directives of the European Parliament and of the Council have been revised:

- Directive 2006/48/EC of 14 June 2006, relating to the taking up and pursuit of the business of credit institutions, which specifies mainly principles and technical instruments for prudential supervision and disclosure (minimum capital requirements for

credit, market and operational risk²; supervision and disclosure) and powers of execution.

- Directive 2006/49/EC of 14 June 2006 on the capital adequacy of investment firms and credit institutions, which lays down the capital adequacy requirements applying to investment firms and credit institutions, the rule for their calculation and the rules for their prudential supervision.

Czech National Bank has implemented these two directives into a new Decree No. 123 Coll. of 15 May 2007 on prudential rules of banks, credit unions and investment firms, which has come into force on 1 July 2007. The decree regulates:

- requirements for internal systems of banks for management and control (§ 7 - 36);
- rules for calculation of capital adequacy requirements (§ 37 - 179);
- limits for credit exposure of banks (§ 180 - 189);
- rules for loan classification and calculation of loan loss provisions (§ 194 – 205);
- other aspects of bank business (§ 190 – 193; 206 – 237).

Parts of the decree which are related to credit risk will be briefly characterized in following subchapters.

3.1 Minimum Capital Requirements for Credit Risk

Minimum capital requirements are the heart of the new Basel II rules. All banks have to provide capital which is at all times more than or equal to the sum of following capital requirements: for credit risk, market risk and operational risk. The capital adequacy ratio is then calculated as follows:

$$8 \% * \frac{\textit{capital}}{\textit{capital requirements}} \quad (1)$$

Capital charge for credit risk can be calculated either with the Standardised Approach or with Internal Ratings Based Approach.

² The term “own funds” is used instead of the term “capital“ in this directive.

3.1.1 Standardised Approach

In the Standardised Approach for measuring credit risk, banks have to assigned each asset item or off-balance sheet item to one of sixteen determined exposure classes (e.g. claims on central governments or central banks; claims on regional governments or local authorities; claims on international organizations; claims on corporations; retail claims etc.). The exposure value of each off-balance sheet item is the following percentage of its book value: 100 % for full-risk items (such as guarantees, credit derivatives), 50 % for medium-risk items (e.g. irrevocable standby letters of credit, undrawn credit facilities with maturity of more than one year), 20 % for medium/low-risk items (e.g. documentary credits) and 0 % for low-risk items (such as undrawn credit facilities which may be cancelled unconditionally).

To calculate risk-weighted exposure amounts, all exposures are multiplied by risk weights. The application of risk weights is based on the exposure class to which the exposure is assigned. The capital requirement is 8 % of the sum of all risk-weighted exposure amounts.

The innovation is that risk weights applied to claims on sovereigns, banks and corporations can depend on their credit quality. The credit quality can be determined by reference to the credit assessments made by external credit assessment institutions recognized by supervisors. In case of claims on banks, the risk weights can be derived either from external rating of the sovereign of the country³ or from external rating made by external rating agencies.

Corporate exposures with external rating can have risk weight of 20 %, 50 %, 100 % or 150 %. All unrated claims are given a 100 % risk weight. For claims on corporations, the new regulation will probably not bring major changes with regard to previous treatment, because unrated claims will still be given a 100 % risk weight. Corporations with good financial health could benefit from rating assessment but only a few Czech firms have external rating. On contrary, claims with a bad external rating are given an increased risk weighting of 150 % (Table 1).

Table 1 Risk Weights for Corporations in the Standardised Approach⁴

<i>Rating</i>	<i>AAA to AA-</i>	<i>A+ to A-</i>	<i>BBB+ to BBB-</i>	<i>BB+ to BB-</i>	<i>B+ to B-</i>	<i>Below B-</i>	<i>Unrated</i>
<i>Risk weight</i>	20 %	50 %	100 %	100 %	150 %	150 %	100 %

Source: Based on Deutsche Bundesbank Monthly Report, p. 75

³ The risk weight is in that case usually one category less favorable than claims on the sovereign.

⁴ As an example, rating categories of Standard & Poor's are used in Table 1.

Regulatory retail portfolio includes not only claims on individuals but also exposures to small businesses. The uniform risk weight in this category is 75 %. Comparing with previous legislation, this means a significant reduction in the capital requirements (in the former decree, the risk weight was 100 %).

The weak point of Standardised approach is the fact that because of lack of external ratings among Czech firms, sufficient differentiation of the borrowers is practically impossible. In the end, the calculation of capital requirement based on Standardised Approach is only slightly different from the calculation before the new regulation came into force.

3.1.2 Internal Ratings Based Approach

After permission of Czech National Bank⁵, Basel II rules gives banks the possibility to use internal methods to calculate capital requirements for credit risk. Internal Ratings Based Approach (IRB Approach) allows banks that are able to perform statistical measurement of the respective risk to adjust their capital adequately to their individual risk. Internal credit risk models take into account the portfolio diversification and correlation effects.

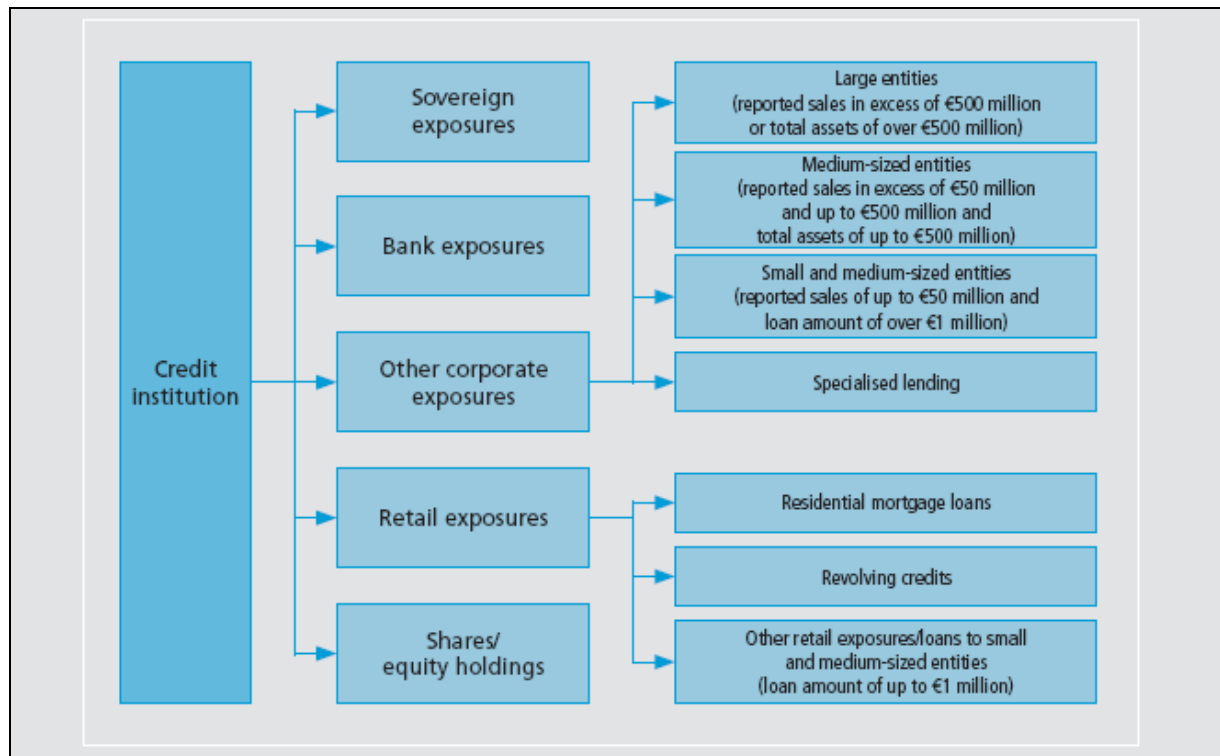
Depending on the approach used (Fundamental or Advanced IRB Approach), the inputs are either partly defined by supervisors or estimated wholly by banks. As in the Standardised Approach, the IRB Approach also defines exposure classes (to seven determined classes belongs e.g. claims on central governments and central banks; claims on corporations; retail claims or securitization positions). Each client must be assigned to the correct category. Regulations are based on the fact that for loans in the retail category it is necessary to hold less capital than for corporate loans (retail loans have lower credit risk, as a result of higher diversification and lower loan amounts). Under certain conditions, banks may treat small and medium-sized firms as private clients and therefore they may hold lower capital charges for them.

The capital charge in the IRB Approach is again 8 % of the sum of all risk-weighted exposure amounts. Risk-weighted exposure amounts are computed according to specified formulas, with the use of exposure at default and the risk weight function, which depends upon probability of default (which means the probability of default of a counterparty over a one year period), loss given default (i.e. the ratio of the loss on an exposure due to the default of a counterparty to the amount outstanding at default) and maturity. In the Fundamental IRB

⁵ Permission is given only if the Czech National Bank is satisfied that bank's systems for the management and rating of credit risk exposures are sound and implemented with integrity and they meet specified standards. Detailed data for at least three years prior to bank's qualification to use IRB Approach are also needed.

Approach, banks estimate only the probability of default for different types of borrowers (Figure 1); loss given default and exposure at default are determined by supervisors and depend on the type of product and on the collateral posted. On the contrary, in the Advanced IRB Approach, banks estimate all risk parameters themselves.

Figure 1 Asset classes in the IRB Approach



Source: Deutsche Bundesbank Monthly Report, p. 77

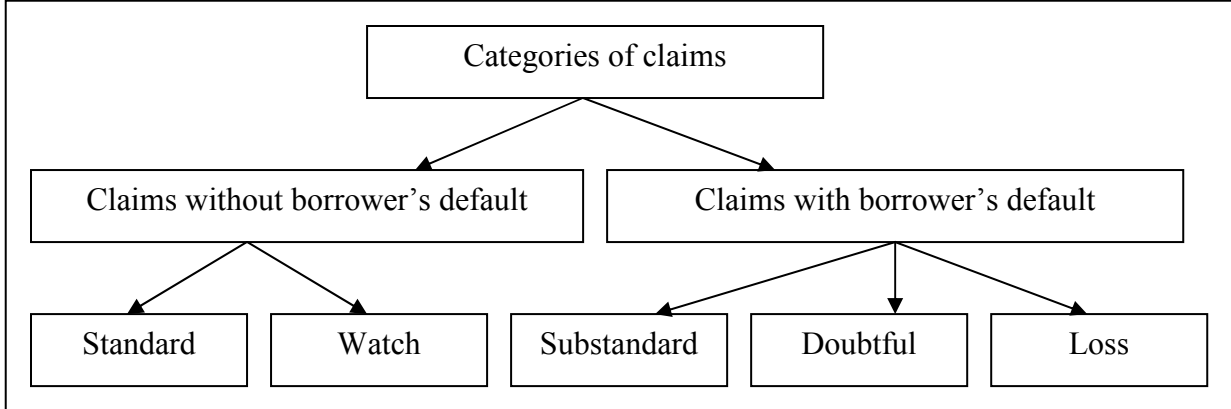
The risk parameters are estimated according to bank's internal rating system. Within the rating process both information regarding the business development in the past as well as the future prospects of the borrower are processed. It takes into account quantitative criteria (financial indicators based on historical and planned financial statements which provide a fair overview of the financial situation of the firm; the size of the firm; the character of the industry etc.) and qualitative criteria (they describe the potentials, opportunities and expected risks which could affect financial statements, such as quality of the management, accounting, products and place of business, market and its development). This principle is usually applied: the bigger the firm, the greater the importance of quantitative criteria; the smaller the firm, the greater the importance of qualitative criteria (the personality of the entrepreneur is of special importance).

Collateral is an important factor in determining the bank’s risk. It is assessed based on bank’s internal criteria and it reduces the basis for the calculation of capital adequacy. The simple principle is claimed: the more sophisticated the approach, the wider scale of eligible collateral types.

3.2 Calculating of Loan Loss Provisions

Banks have to reliably classify loans on the basis of credit risk. Each loan has to be assigned to one of five defined categories (Figure 2).

Figure 2 Loan categories



Source: Based on Decree of Czech National Bank No. 123 Coll. of 15 May 2007 on prudential rules of banks, credit unions and investment firms

Category of standard claims contains sound loans that are repaying according to the schedule. Repayment difficulties are not foreseen and full repayment is expected. Standard loans are such loans where installments are max. 30 days overdue; no credit has been rescheduled because of bad financial and income position of the borrower in last 2 years.

Full repayment of watch claims is expected. The criteria are following: installments are overdue not more than 90 days; no credit has been rescheduled because of bad financial and income position of the borrower in last 6 months.

Claims with borrower’s default are connected with higher credit risk. Full repayment of substandard loans is in doubt but partial repayment is highly probable; installments are overdue max. 180 days. Full repayment of doubtful loans is highly unlikely but partial repayment is possible and probable; installments are overdue not more than 360 days. Loss loans are irrecoverable or repayable only partial and on very small amount; installments are overdue more than 360 days; this category also contains loans provided to borrowers that are in bankruptcy proceedings.

Banks have to assess either the book value of individual loans or the collective book value of portfolio of homogeneous loans. If the book value of loans depreciates, banks have to create loan loss provisions in order to cover the expected losses. For this purpose, it is possible to use one of following methods:

- Discounting of estimated future cash flows – the provisions are equal to the difference between book value of the loan and present value of future cash flows, discounted by effective interest rate.
- Coefficients – banks calculate provisions as a multiple of amount overdue minus collateral and the value of coefficient. Values of coefficients are following: 0.01 for watch loans, 0.2 for substandard loans, 0.5 for doubtful loans and 1.0 for loss loans.
- Statistical models – banks have to have loan portfolio that concerned sufficient number of homogenous loans. The length of the used underlying historical observation period must also be sufficient. Then the loan loss provisions are calculated as a statistical estimation of expected losses of this portfolio.

The innovation is that banks can choose one of three methods for calculation loan loss provisions (previously, only the use of coefficient was possible). However, it is probable that the implementation of two new methods of calculating loan loss provisions will not affect lending activity of banks.

3.3 Limits for Credit Exposure of Banks

Each bank has to monitor and control credit exposures. Although the new decree has brought significant changes in credit risk regulation, limits for credit exposure of banks have remained unchanged⁶. Limits for credit exposure of banking book are following:

- a bank may not incur credit exposures to a client or group of connected clients which exceed 25 % of its capital;
- where that client or group of connected clients is the parent undertaking or subsidiary of the bank, the bank may not incur credit exposures which exceed 20 % of its capital;
- a bank may not incur large credit exposures (i.e. credit exposures where the value is equal or exceeds 10 % of bank's capital) which in total exceed 800 % of its capital.

⁶ Rules for credit exposure were set in May 1992, slightly modified in 1996 and completely changed in April 2000.

The aim of credit exposure limits is to prevent banks from excessive concentration of loan portfolios. The limits are rather reasonable; only big corporations applying for extensive amount of loan can feel the constraint.

4. Availability of loans to nonfinancial companies after Basel II

Will changes in regulation influence the availability of loans to nonfinancial companies? Most important changes have been brought by the new rules for capital requirements for credit risk. The method of calculating of the capital charge (Standardised Approach or IRB Approach) will be very important.

Small and medium-sized companies could benefit from Standardised Approach. According to it, they can be included in regulatory retail portfolio. Their risk weight is now 75 % (100 % before) and this means significant reduction in the capital requirements. The lower bank's need of capital requirements for the loan could be reflected in greater availability of loans to such borrowers, in lower costs of financing and better conditions of loan contract.

Corporations with good financial health and with rating assessment from external rating agencies can also benefit from Standardised Approach because in the most favorable case, the risk weight used for the capital charge for their loans can be only 50 %⁷. Unfortunately, only a few Czech nonfinancial companies have external rating, as assignment of external rating means high requirements and costs for the enterprise. So for the prevailing part of corporate clients applying for a loan the risk weight remains the same as in former decree (i.e. 100 %) and also the availability of loans should not change.

IRB Approach allows banks to adjust their capital adequately to their individual risk. For loans in the retail category it is necessary to hold less capital than for corporate loans; banks may treat small and medium-sized firms as private clients and therefore they may hold lower capital charges for them. In case of corporations, companies with good financial health can also benefit because banks estimate their risk parameters according to their internal rating.

When it comes to other aspects of credit risk regulation, changes have not been so significant. It is very probable that the implementation of two new methods of calculating loan loss provisions (discounting of estimated future cash flows and the possibility to use

⁷ The risk weight of 20 % is not attainable because of the sovereign rating of the Czech Republic (e.g. Standard & Poor's assessed the Czech Republic in 2007 with a rating A-).

statistical models) will not affect lending activity of banks. Limits for credit exposure of banks are rather reasonable and moreover, they even have remained unchanged.

5. Conclusion

The aim of this paper was to characterize the main changes in credit risk regulation due to Basel II and to outline the effects on the availability of loans for nonfinancial companies.

The Basel II rules rely on three pillars. According to the new rules, the bank's capital charge is calculated based on the sum of credit, market and operational risk. Banks are able to choose between standardized measurement concepts and more refined internal procedures and models which should lead to reduction of capital charges.

Based on Basel II rules, two directives of the European Parliament and of the Council and a decree of Czech National Bank have been revised. Minimum capital requirements are the heart of the new Basel II rules. Capital charge for credit risk can be calculated either with the Standardised Approach or with Internal Ratings Based Approach. Two new methods of calculating loan loss provisions have been implemented. Limits for credit exposure of banks remained unchanged.

When it comes to availability of loans to nonfinancial companies, small and medium-sized companies should benefit both from Standardised Approach (the risk weight has been lowered) and IRB Approach (they can be treated as private clients and therefore banks may hold lower capital charges for them). Corporations with good financial health should benefit from IRB Approach (banks estimate their risk parameters according to their internal rating). In case of Standardised Approach, only corporations with rating assessment from external rating agencies will advantage. Changes in other aspects of credit risk regulation should not affect the lending activity of banks.

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