

Basel II, Procyclicality and Credit Growth – First Conclusions from QIS 3¹⁾

Vanessa Redak,
Alexander Tscherteu

I Introduction

Recently, there have been increasing concerns that the New Basel Capital Accord (Basel II) may have adverse macroeconomic effects. In particular, it is feared that small and medium-sized enterprises (SMEs) may be faced with restrictive bank lending practices and that the new capital adequacy framework may have procyclical effects on the overall economy. The first part of this article gives an overview of the current status of the discussion regarding the above-mentioned aspects of Basel II. Then the authors analyze the arguments brought forward in the debate as to their relevance for Austria, taking into account, in particular, the results of the third Quantitative Impact Study (QIS 3),²⁾ which required the participating Austrian banks to apply the New Basel Capital Accord to their balance sheet assets.

2 Basel II and Procyclicality

In addition to the financial sector's inherent procyclical tendency, the procyclicality specifically identified in connection with Basel II is based on the following mechanism: Basel II provides for the calculation of the probability of loans to default. As these probabilities of default (PDs) correlate with cyclical factors, the PD rises or falls with the business

cycle. Thus a downturn implies higher capital requirements for banks than an economic boom because of the higher PD. The change of the capital ratio, in turn, affects the volume of potential lending. During a downturn, for example, banks can provide fewer funds for lending because of higher capital requirements. This decline in lending limits – *ceteris paribus* – the financing options for businesses and households and thus reduces consumption and investment activities, which consequently dampens down economic growth even further.³⁾

In general, all financial regimes with minimum capital requirements are said to be procyclical, as a recession and the write-offs of and provisions for loans it entails drive up capital requirements, and, thus, the capital cushion for lending shrinks. Already the Basel Capital Accord of 1988 (Basel I) had raised the question of to what extent capital requirements generate procyclical effects or encourage restrictive lending policies. This discussion was especially delicate in the early 1990s, when numerous industrialized countries were on the brink of recession and when there were concerns that more rigid capital requirements might aggravate the situation and lead to a credit crunch. The majority of studies on the topic,⁴⁾ however, concluded that there was no clear empirical evidence for a connec-

¹ The analysis in this paper is largely based on the compilation of the Austrian country report in the course of the third Quantitative Impact Study (OeNB, 2002, p. 57). The banks participating in the field test calculate how the New Basel Capital Accord affects their assets and, consequently, their capital requirements. The data of the individual banks were aggregated by the Oesterreichische Nationalbank (OeNB) to prepare the country report for Austria. The conclusions drawn from QIS 3 when compiling the country report, which are presented in this paper, would not have been possible without the manifold contributions of the OeNB staff members involved in the preparation of the country report. We would like to thank in particular the following colleagues for their valuable contributions, interpretations and support: Nikolaus Böck, Gabriela de Raaij, Evgenia Glogova, Yi-Der Kuo, Mario Oschischnig, Birgit Wlaschitz.

² See also BCBS (2002).

³ See also Altman et al. (2002); Diamond and Rajan (2000).

⁴ For a summary, see Jackson (1999).

tion between Basel I and the crisis or restrictive lending practices. However, some studies yielded opposite results for specific sectors (real estate, SMEs) in several U.S. states, for Japan and also for Austria.¹⁾ Hahn (2002b), for example, concludes from a panel-econometric investigation, which includes data from 750 Austrian banks, that banks' capital ratio in accordance with Basel I had a slight adverse effect on Austrian banks' exposure.

Basel II is expected to have a stronger procyclical effect. Contrary to Basel I, where the capital requirements for a number of loans do not change over time, Basel II requires banks to make differentiated risk assessments of borrowers and to adjust capital requirements accordingly. Therefore, the extent of procyclicality largely depends on how banks assess credit risk. Basically, they have two options: the standardized approach, where external credit assessment institutions (e.g. rating agencies) provide ratings, and internal ratings-based approaches (IRB)²⁾, where the ratings have to be calculated by the bank itself.

3 The Choice of Rating Systems

The choice of rating systems and the concrete design of the rating largely determine the extent of the procyclical effects of the New Basel Capital Accord. A number of studies have

been dedicated to this topic, which often go beyond the empirical investigation of the interrelation between rating, capital requirements and procyclicality, putting forward proposals for the improvement of the design of the ratings.³⁾ Recently, the Bank for International Settlements (BIS) itself published a great number of papers on the procyclicality of rating systems or provided support for such publications.⁴⁾

The majority of these studies applies Basel II to a historic banking portfolio⁵⁾ and examines the effects of the new framework on banks' capital requirements. As expected, all the studies mentioned find that procyclicality increases especially if banks apply the IRB approach instead of the standardized approach. We know from experience that rating agencies leave their ratings of companies unchanged for a longer period of time, which implies that a changed economic situation does not automatically increase or reduce the probabilities of default. Therefore, the standardized approach, which is based on external ratings, is less sensitive to the business cycle than the IRB approach, where banks recalculate the probabilities of default usually every year.

Interestingly, the studies find that this procyclical bias of the IRB approach is especially strong in very contrasting economies, i.e. in capital market-oriented countries and in

1 For the U.S.A. see also Hancock and Wilcox (1998), for Japan see Honda (2002).

2 The IRB approaches are divided into the foundation internal ratings-based approach (FIRB), where the bank determines only the probability of default, and the advanced internal ratings-based approach (AIRB), where the bank also estimates the loss given default (LGD) as well as the exposure at default (EAD).

3 For considerations on this subject, see the study "Calibration of Rating Systems – A First Analysis" by Breinlinger et al. in this publication.

4 See also Borio et al. (2001); Altman et al. (2002); Lowe (2002); Segoviano and Lowe (2002); Allen and Saunders (2003); Catarineu-Rabell et al. (2003).

5 Altman et al. (2002) analyzed in detail an Italian portfolio; Segoviano and Lowe (2002) a Mexican one and Catarineu-Rabell et al. (2003) a British portfolio.

developing countries. In the former it makes sense to apply rating systems that are also strongly based on stock prices. The classic example for this kind of rating system is the KMV model. A strong correlation between stock prices and cyclical developments also results in strong procyclical effects in the rating.

The IRB approach might have an adverse effect in developing countries as well.¹⁾ Owing to the comparatively high default rates in developing countries and emerging markets, the average capital requirements under the IRB approach may be extremely high (Reisen, 2001; Segoviano and Lowe, 2002). Therefore, some authors assume that, in addition to the technological difficulties of implementing an IRB approach in these countries, the higher capital requirements will also cause these countries to refrain from applying internal ratings-based systems, which, in turn, runs counter to the intention of Basel II.

A common problem of internal ratings-based systems is the use of one-year point-in-time data. The short-term (one-year) time horizon of rating systems is attributable not only to accounting and tax aspects, but in particular to the lack of adequate datasets. Hence, the average rating of a loan portfolio changes with the business cycle. During an economic boom, credit risk declines because it is assumed that the probability

of default will be low in the following year (Borio et al., 2001).

Several revisions²⁾ to the capital adequacy framework which were made before the launch of QIS 3 aimed at refuting the argument that Basel II would further reinforce the procyclicality of lending and thus accelerate both downturns and upswings.

Basel II addresses this problem by requiring a time series of at least five years for the calculation of probabilities of default. In light of the problem of generating longer time series, however, transitional arrangements were put in place to enable especially small banks to collect a sufficient amount of data.

Moreover, since the launch of the second consultative paper the risk-weight curves have been flattened considerably. However, procyclicality was not the original motive for this revision. The intention was simply to achieve a lower risk weight for all probabilities of default than originally planned, as the results of the studies preceding QIS 3, i.e. QIS 2.0 and QIS 2.5, had indicated – in the opinion of the Basel Committee – that the capital requirements³⁾ for corporate exposures were too high (see table 1). These results prompted changes in the risk-weight functions,⁴⁾ which now yield a generally lower and flatter risk-weight function. The result of the follow-up study QIS 2.5

- 1 *At this point, there is no room for comments on the meanwhile fairly comprehensive discussion about the effects of Basel II on developing countries and emerging markets. Interested readers may want to consult the following papers: Griffith-Jones et al. (2002) and Hayes and Saporta (2002).*
- 2 *The introduction of “dynamic provisioning” (i.e. “anti-cyclical capital buffers”), as has been proposed by some EU countries, the ECB and the European Commission and which is employed in Spain, has been discussed by the Basel Committee but has not been incorporated in the current framework. For the Spanish example see especially Fernández de Lis et al. (2001) and <http://www.bde.es/provesta/proestae.htm>.*
- 3 *At the same time, the increased risk-weighted assets result in higher capital requirements.*
- 4 *The main reason for the change of the risk-weight function as proposed in the second consultative paper was the switch from the assumption of a fixed correlation to one with a fluctuating probability of default.*

Table 1

Change of Risk-Weighted Assets in QIS 2.5 and QIS 2.0

	Change of risk-weighted assets in QIS 2.5 %	Change of risk-weighted assets in QIS 2.0
Corporate	- 7	+22
Retail	-38	-28

Source: BIS.

clearly reflects the obvious effect of the changes. The new risk-weight functions were already used in QIS 2.5,¹⁾ which caused a reduction of the risk-weighted assets by 29 percentage points in corporate exposures and by 10 percentage points in retail exposures. However, the flatter risk-weight function also results in a less fluctuating risk weight at a given change of the probability of default. On the assumption that the ratings depend on the business cycle, the capital costs remain fairly constant over the business cycle, which would reduce procyclical effects.

Catarineu-Rabell et al. (2003) is among the few studies on the relationship between ratings and procyclicality that already uses these new risk curves. The authors aim to determine the different capital requirements of the old and new risk-weight curves and, at the same time, identify the differences between various rating models. In particular, they compare Moody's rating model to the KMV model,²⁾ which is clearly more sensitive to market prices. The basis for this empirical test is a hypothetical corporate loan portfolio, which is typical of an average G-10 bank. This portfolio was shocked with data reflecting a recession spanning several

years in order to determine the corresponding deterioration in the loan quality. It was found that the new risk-weight curves caused the capital requirements to rise considerably less sharply than the old risk-weight curves. At the same time, Moody's rating model proved to be less sensitive to the business cycle than the KMV model; with both curves, the increase in the capital requirements in a recession is clearly less pronounced with Moody's than with the KMV model.

4 Credit Risk Mitigation and Procyclicality

Some critics of Basel II have pointed out that procyclical tendencies may also be linked to credit risk mitigation (CRM) and the related recognition of collateral as proposed by the new framework. The increased recognition of CRM techniques marks another effort of the Basel Committee to render the new Accord more risk-sensitive. The recognition of loan collateral is part of risk mitigation. The 1988 Accord recognized only three types of collateral, i.e. cash, securities issued by OECD central governments and public-sector entities, and securities issued by specified multilateral development banks. Moreover, only guar-

1 It must be noted that the sample of participating banks has become smaller.

2 As already mentioned, in the case of the KMV model stock prices are directly included in the calculation of probabilities of default. If stock prices are highly volatile, the ratings also fluctuate more distinctly than with other models.

antees by OECD central governments and public-sector entities, multilateral development banks as well as banks and investment firms were recognized as limiting to capital requirements. The reduction of the capital requirements was achieved by replacing the risk weight of the borrower by the risk weight of the organization providing the guarantee or the collateral.

The new Accord recognizes a significantly larger number of types of collateral and institutions providing guarantees (BCBS, 2002). Moreover, it facilitates not only the substitution of risk weights, but also the deduction of the value of the collateral or guarantee¹⁾ from the value of the exposure.

With regard to concerns about the heightened procyclicality linked to the new capital adequacy framework, the increased recognition of collateral has triggered the question of whether the value of collateral also fluctuates with the business cycle and thus, aside from the creditworthiness of the borrower, a second factor, i.e. the value of the collateral or guarantee, amplifies procyclicality (Hahn, 2003, p. 143).

5 The Effects of Basel II on SMEs

The SME sector, which is prevalent in economies like Austria and Germany, depends heavily on bank lending.²⁾ An increased procyclicality of lending would cut these businesses off from one of their most important sources of financing, especially in economically slow times. In addition, their often low capital ratio would, in con-

junction with difficult borrowing conditions, further increase these businesses' insolvency risk.

Particularly in Germany,³⁾ this was subject to a broad and, at times, heated debate. A number of studies supported the Basel-critical view, finding – on the basis of empirical investigations – that loans for SMEs would become more expensive (Hansmann and Ringle, 2001; Taistra et al., 2001; Grunert et al., 2002). Surveys conducted at savings banks and enterprises as well as estimates of the sensitivity of lending rates to changed parameters such as capital costs, ratings and LGDs showed that Basel II might have considerable adverse effects on SMEs, including a surge in interest rates on loans by up to – in an extreme case – 245 basis points (Grunert et al., 2002, p. 1059).

In mid-2002 the Basel Committee decided to modify the draft framework in order to accommodate the concerns regarding lending to SMEs. The new proposal permits banks to apply retail treatment to SME exposures of up to EUR 1 million. Hence, under the IRB approach, an SME loan classified as retail exposure with comparable risk will require 40% less capital than large enterprises.

6 Basel II and Lending

One difficulty that arises when assessing the question of to what extent Basel II will have an impact on credit growth is the general lack of information available on the actual lending motives of banks. Although Basel II includes mechanisms that increase capi-

1 It is not the actual value of the collateral which is subtracted from the actual value of the exposure, but, as a rule, haircuts are applied in both cases. These are upwards or downwards adjustments that may reduce the value of the collateral and increase the value of the exposure.

2 For Austria, see Valderrama (2001).

3 For the discussion of results for Austria, see also Partsch and Wlaschitz (2002), Schwaiger (2002) and the study "Calibration of Rating Systems – A First Analysis" by Breinlinger et al. in this publication.

tal requirements, the direct connection between capital and loan supply has hardly been investigated. From an econometric point of view, the lack of data makes it impossible to accurately identify the supply and demand-side criteria that are crucial for lending.

The Deutsche Bundesbank recently carried out a study which analyzes the development of bank lending against the backdrop of Basel II (Deutsche Bundesbank, 2002). In Germany, a controversial debate has been going on about the question of to what extent the decline in loan growth over the past few months can be traced to banks' preparations for Basel II and the associated restrictive lending practices.

This survey, which is based on an econometric estimation of loan equations, in many points rejects the assumption that the decrease in lending in Germany is attributable to Basel II. Rather, the weak credit growth can be explained by the cyclically induced restraint in credit demand by businesses and households. On the demand side, the slight increase in the demand for other financing instruments (debt securities and other securities) has contributed, if not considerably, to the weak credit growth.

On the supply side,¹⁾ banks' lending restraint can mainly be explained by the jump in corporate and consumer insolvencies in Germany over the past few years. Owing to these insolvencies, banks rate borrowers' creditwor-

thiness principally worse and change their lending terms accordingly. The authors of the study do not see a direct impact of Basel II but point out that the upcoming new capital adequacy framework seems to have heightened banks' income and risk awareness.

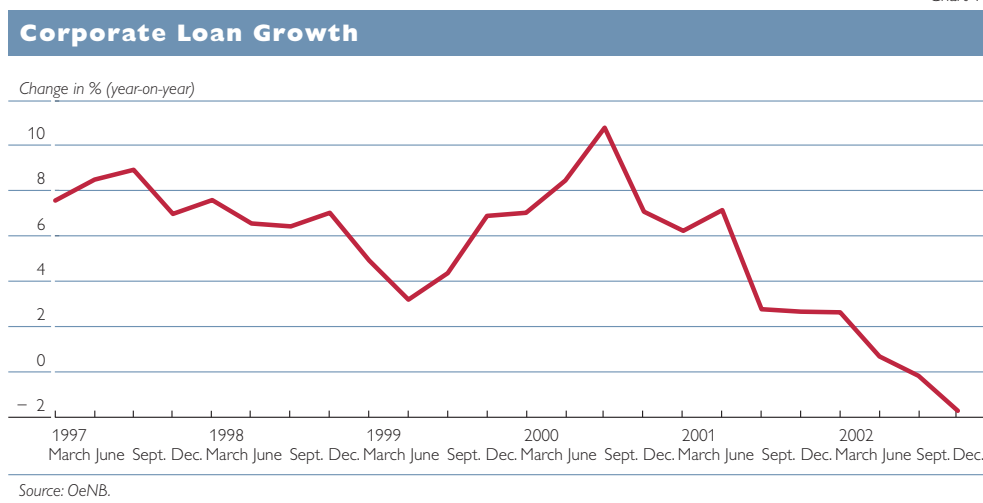
As for Austria, there is no immediate necessity from a balance sheet point of view to limit lending, since most Austrian banks' own funds exceed the required 8%. The average (unconsolidated) capital ratio of the Austrian banks almost continuously amounted to more than 12% in the past five years (OeNB, 2002, p. 56). Banks are therefore holding a sufficient capital buffer, even if the loan quality deteriorates owing to macroeconomic developments.²⁾

However, credit growth has recently been extremely weak in Austria, as in numerous other European countries as well as in the U.S.A. Corporate loans have been decreasing sharply; the growth of loans to nonfinancial corporations has been negative since the third quarter of 2002 (see chart 1). Large Austrian banks in particular have meanwhile become increasingly aware of the changes induced by Basel II and already started to prepare for the transition to the new capital adequacy directive. However, it is unclear whether these preparations have already led to increased risk awareness in lending or whether the decline in loan growth can be mainly traced to cyclical and demand-side developments.

1 The authors point out that the analysis of the supply-side factors was not determined by the econometric investigation; the determination was only possible by conducting a survey among banks.

2 In the course of stress tests carried out by the Oesterreichische Nationalbank, macroeconomic factors which lead to an increase in credit risk and, consequently, in capital requirements were identified (Boss, 2002; Kalirai and Scheicher, 2002).

Chart 1



7 QIS 3

The following analysis of QIS 3 includes some initial considerations on the effects of Basel II on lending in Austria as well as on the macroeconomic implications mentioned before. After a brief introduction of QIS 3, we aim to show the extent to which its results can provide insights into the following group of subjects which were discussed in several studies mentioned earlier:

- procyclicality and the shape of the risk-weight functions
- small and medium-sized enterprises (SMEs)
- small and medium-sized banks
- credit risk mitigation and procyclicality

7.1 General Facts on QIS 3

In October 2002, the Basel Committee on Banking Supervision launched a comprehensive field test for banks entitled “Quantitative Impact Study 3” (QIS 3).

The exercise and the resulting country report serve as the basis for assessing to what extent the submitted proposals on risk weighting are suited for increased risk differentiation and,

consequently, the establishment of risk-adequate capital requirements.

QIS 3 aims at facilitating a comparison of the three approaches to credit risk assessment, i.e. the standardized approach, the foundation IRB approach (FIRB) and the advanced IRB approach (AIRB), with the provisions of the existing Accord. Aside from the five core portfolios – corporate, interbank, sovereign, SMEs and retail – QIS 3 for the first time also takes into account the effects of the new framework on the trading book, investments in related entities and securitization. Furthermore, the effects of operational risk were also considered.

Thanks to the participation of a great number of Austrian credit institutions – a total of more than 30 banks provided data – it was possible to create a, by international comparison, large sample. The results for the standardized approach presented below are based on data from a total of 18 credit institutions, 11 of which also used the foundation IRB approach. These 18 institutions represent approximately 48% of all Austrian banks’ total assets.

On the basis of the banks' individual reports, the participating countries prepared a country report, whose data were further aggregated (e.g. for G-10 countries, non-G-10 countries within the EU, etc.). The results will be incorporated in the new consultative paper, which is scheduled to be published in mid-2003.

7.2 Procyclicality and the Shape of the Risk-Weight Functions

The Basel Committee aimed to dispel concerns that the new capital adequacy framework would further increase the procyclicality of lending and thus amplify both economic downturns and upswings by making some adjustments.

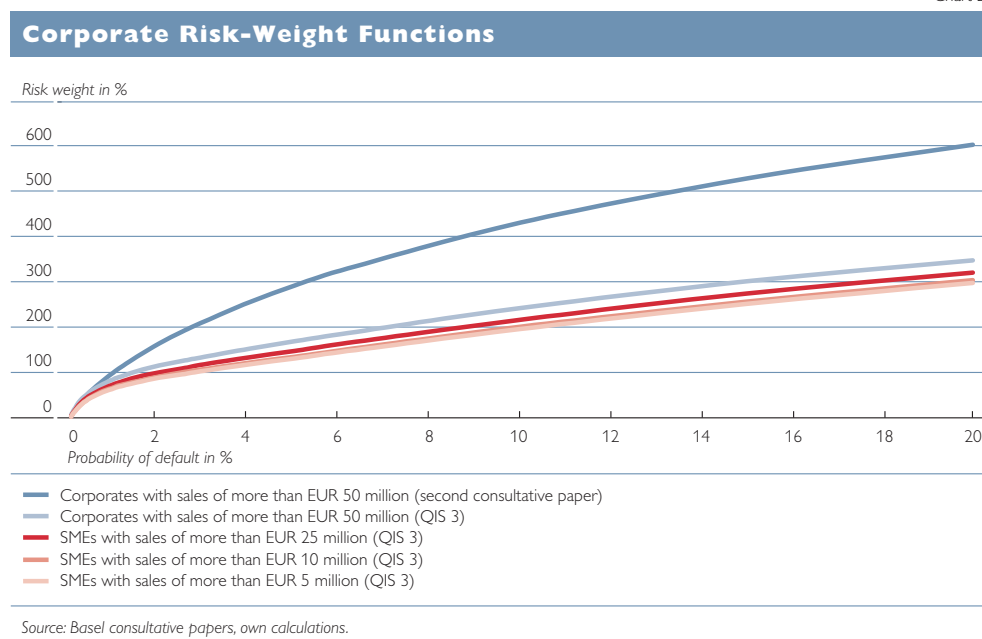
First, the already mentioned introduction of longer time series for estimating of the probability of default reduces the cyclical dependency of the resulting credit assessments and is thus more in line with "rating through the cycle," as recommended by external rating agencies.

Second, as mentioned above, the risk-weight curves have been noticea-

bly flattened since the launch of the second consultative paper.

The corporate risk-weight functions were further modified for QIS 3. Among other things, a discount was introduced for SMEs, which depends on the firm size (measured by sales). Thus the curve is not only flatter than in the second consultative paper, the discount additionally ensures that smaller firms are assigned a lower risk weight at the same probability of default compared to larger firms, which implies that they incur lower costs for their loan. Chart 2 illustrates the relationship between the level of the risk-weighted assets and the probability of default. It can be seen that the change of the risk-weight function compared to the second consultative paper has led to a clearly lower and flatter curve. Although the newly introduced discounts for SMEs represent another decrease in risk-weighted assets, it is significantly less pronounced than the change from the second consultative paper to QIS 3. However, the additional discount does not have any impact on the shape (flatness) of the curves.

Chart 2



7.3 Small and Medium-Sized Enterprises

In general, the treatment of small and medium-sized enterprises (SMEs) depends on whether a bank applies the standardized approach or an IRB approach for credit risk measurement.

When comparing the standardized approach with the currently valid framework, the following applies: According to the existing provisions, the bulk of corporate loans must be assigned a risk weight of 100%, unless they are collateralized by real estate, which allows a risk weighting of 50% of the loan.

Under the standardized approach, a loan to an SME can be classified as a corporate or a retail exposure. In the corporate sector, the exposure is weighted according to the rating available on the basis of the risk-weight categories for the corporate portfolio. Since unrated enterprises, i.e. the majority of Austrian SMEs, are assigned a risk weight that is no worse than that in the currently valid framework, the following picture can be drawn from the QIS 3 data:

- A total of 72% of the SME exposures retains a risk weight of 100%;
- Approximately 8.3% are risk weighted at 150% and 19.8% are risk weighted at 50% or lower;
- The extended options of credit risk mitigation reduce the aggregated risk weight for SMEs by another 9%.

In order to be mapped to the retail portfolio, an SME exposure has to fulfill not only some qualitative criteria

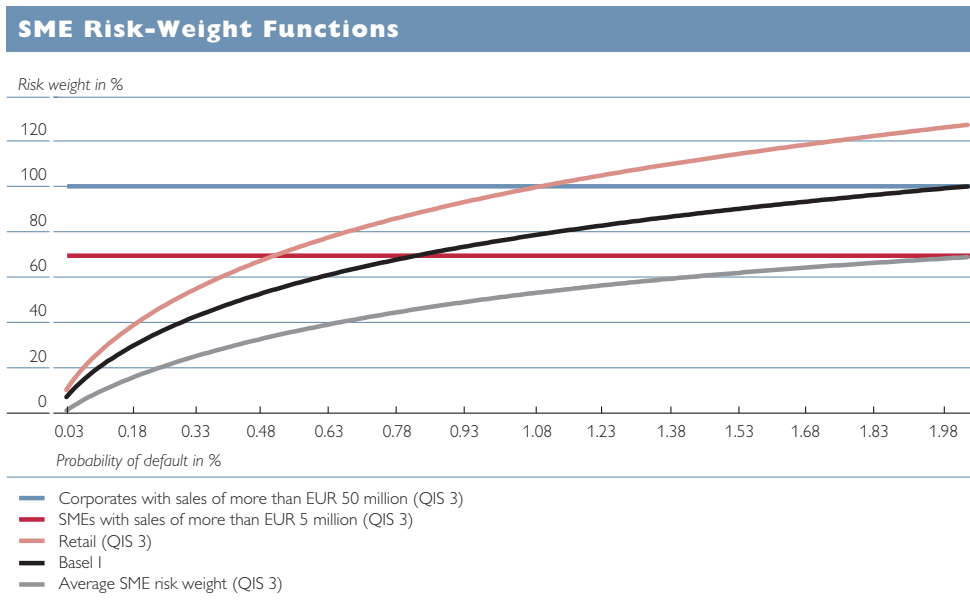
that were not examined in detail within the framework of QIS 3, but also two quantitative criteria: The loan must not exceed EUR 1 million and the share in the total retail portfolio must not exceed 0.2%.¹⁾ In the retail segment, an unsecured loan is risk weighted at 75%, a loan collateralized by residential real estate at 35%. Both risk weights are below those that are assigned under the currently valid provisions.

Under the IRB approach, an SME exposure can either be mapped to the corporate or the retail sector. In case of corporates it must, however, be considered that if the sales provisions are met, an SME discount is deducted from the corporate curve. If the loan is classified as a retail exposure, it will be assessed on the basis of the risk-weight function for other retail exposures. The potential risk-weight functions as well as the 100% Basel I risk weight are shown in chart 3,²⁾ which also illustrates the average risk weight (approximately 69%) for the entire SME exposure of all 11 banks participating in QIS 3 applying the foundation IRB approach. It is clear that – regardless of the category to which the SME exposure is actually assigned – the Basel II Accord always yields a more favorable result than the existing framework, since the points of intersection of the risk-weight functions with the average risk weight are always below the Basel I line. In other words, for the probabilities of default postulated in the study, the new provision result in a lower risk weight at all times.

¹ This criterion has meanwhile been relaxed.

² For reasons of clarity, the corporate curve with SME deduction was only drawn for the biggest possible deduction. The two other possible curves with deduction would be located between the curve “Corporates with sales of more than EUR 50 million (QIS 3)” and the curve “SMEs with sales of more than EUR 5 million (QIS 3).”

Chart 3



Source: Basel consultative papers, own calculations, QIS 3 country report.

This implies that banks with a high share of retail or SME exposures can expect a reduction of capital requirements if they apply the IRB approach.

7.4 Small and Medium-Sized Banks

Apart from the concerns voiced with regard to SMEs, there have also been warnings that small and medium-sized banks may be unable to comply with the requirements of Basel II. However, QIS 3 showed that such concerns are mostly unfounded. Small banks in particular have been closely involved in QIS 3, where they all applied advanced approaches (IRB foundation) (see table 2). This was made possible

by the efforts undertaken in the individual banking sectors to find a common solution for implementing the new Accord in the entire sector. Aside from small specialized banks, small and medium-sized banks typically tend to have a high share in retail and SME exposures in their portfolios, which require lower capital charges because of the lower risk weighting in these classes.

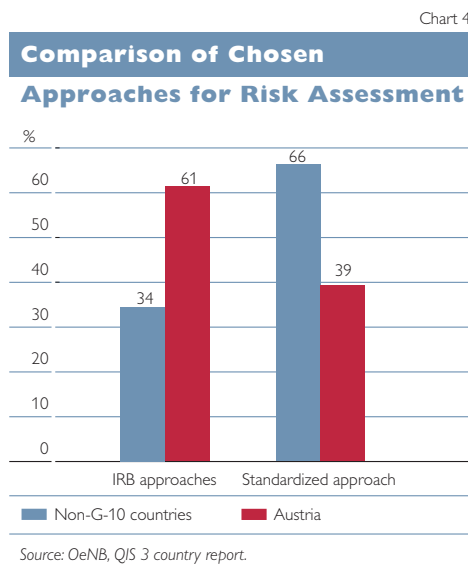
The advantage of sector solutions is not only confirmed by the fact that – compared with larger banks – the number of small banks that have chosen an advanced approach for credit risk measurement is very high in Austria, but also by the fact that

Table 2

Credit Risk Rating Systems Chosen by Austrian Banks in QIS 3

Total assets (EUR billion)	Number of banks total	Thereof standardized approach	Thereof FIRB approach	Thereof AIRB approach
< 0.5	5	–	5	–
< 10	6	5	1	–
< 20	4	1	2	1
> 20	3	1	2	–

Source: OeNB, QIS 3 country report.

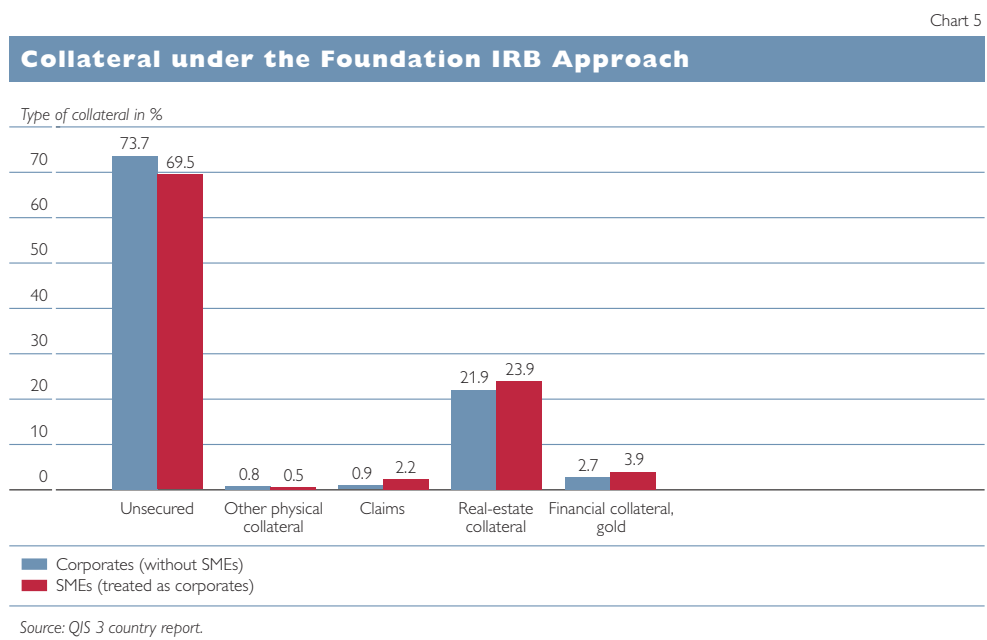


the total Austrian banking sample shows a significantly higher share in banks that apply internal models for credit risk measurement compared with the data supplied by the remaining non-G-10 countries.¹⁾

7.5 Credit Risk Mitigation and Procyclicality

As mentioned above, the treatment of collateral in credit risk mitigation is also a procyclical element in the New Basel Capital Accord. However, the QIS 3 results reveal two noteworthy observations: First, the level of corporate collateralization²⁾ – overall, only 26.7% of the outstanding corporate exposures and 30.5% of the SME exposures – limits the effect collateral with a fluctuating value can have on the capital requirements of an exposure. It must be noted, though, that the tight timeframe in which the study was carried out and IT-related shortcomings at the banks made it impossible to use credit risk mitigation techniques on a large scale. The extent of actual collateralization might therefore be higher.

Second, the specific characteristics of collateral in Austria also counter



- ¹ In QIS 3, Austria was assigned to the group of non-G-10 countries with economic structures that differ markedly from those in other countries. The report by the European Commission will provide information about the relevance of the Austrian results with regard to comparable economies. However, the report is not yet available.
- ² Only the corporate portfolio is taken into account here, since owing to the general high creditworthiness in the sovereign and banking portfolio, hardly any collateral is required there.

the concern of additional procyclicality caused by collateralization. The by far most common type of collateral in the Austrian lending business is mortgage-backed collateralization (see chart 5). Since Austrian real estate prices hardly fluctuate, that is, they have a very small cyclical component, a procyclical effect generated by the increased use of credit risk-mitigating techniques cannot be derived from the QIS 3 results.

8 Conclusions

The current scientific discussion of the effects of the New Basel Capital Accord is focusing on the question of to what extent lending may increasingly fluctuate with the economic cycle. First of all, it has to be noted that in general no clear answer has been found to the question of which factors determine lending. However, numerous of the studies referenced assume that loan supply is determined by capital costs.

Analyses of the details of the new Accord often conclude that the conception of the rating models and the evaluation of collateral are factors that may possibly increase procyclicality. In this context it should be noted that the flatter risk-weight functions and the longer timeframes for the estimation of probabilities of default envisaged by the Basel Committee, *ceteris paribus*, reduce the fluctuations of risk weights. Compared with the original

Accord, the capital resource ratio thus varies less over the economic cycle. However, the relationship between the specific features of the rating system applied and procyclical effects will be strong in the future; the regulatory authorities should also – besides other aspects – take them into consideration when examining and approving rating models.

A comparison of the results of QIS 3 with the questions raised in various papers reveals that the following seems to apply to those loan segments in particular where loan demand is considered to be sensitive to the economic cycle, i.e. corporate and retail exposures: The application of the rules proposed by QIS 3 leads to a marked decrease in capital requirements for corporate and consumer loans compared to the capital charges under the existing framework. Since this effect is generated by the transition from Basel I to Basel II, it is a one-off leveling effect.

It is difficult to derive an increased procyclical effect of the new capital adequacy framework solely from the results of QIS 3. However, the latest revisions to the proposal and the specific characteristics of the Austrian credit market have acted as a dampener on procyclical effects. Overall, it seems that the one-off leveling effect is much more pronounced than the (potential) procyclical effect.

References

- Allen, L. and A. Saunders. 2003.** A Survey of Cyclical Effects in Credit Risk Measurement Models. BIS Working Paper 126.
- Altman, E., A. Resti and A. Sironi. 2002.** The Link between Default and Recovery Rates: Effect on the Procyclicality of Regulatory Capital Ratios. BIS Paper 113.
- BCBS – Basel Committee on Banking Supervision. 2002.** Quantitative Impact Study 3 – Technical Guidance. Basel: Bank for International Settlements.
- Borio, C., C. Furfine and P. Lowe. 2001.** Procyclicality of the Financial System and Financial Stability: Issues and Policy Options. BIS Paper 1.

- Boss, M. 2002.** A Macroeconomic Credit Risk Model for Stress Testing the Austrian Credit Portfolio. In: Financial Stability Report 4. Vienna: Oesterreichische Nationalbank. 64–82.
- Catarineu-Rabell, E., P. Jackson and D. P. Tsomocos. 2003.** Procyclicality and the New Basel Accord – Banks' Choice of Loan Rating System. Bank of England Working Paper (forthcoming).
- Deutsche Bundesbank. 2002.** The Development of Lending by German Banks to Domestic Enterprises and Resident Individuals – An Overview. In: Monthly Report 10. Frankfurt/Main: Deutsche Bundesbank. October. 32–46.
- Diamond, D. and R. Rajan. 2000.** A Theory of Bank Capital. In: The Journal of Finance 55(6). December: 2431–2465.
- Fernández de Lis, S., J. Martínez Pagés and J. Saurina. 2001.** Credit Growth, Problem Loans and Credit Risk Provisioning in Spain. BIS Paper 1.
- Griffith-Jones, S., S. Spratt and M. Segoviano. 2002.** The Onward March of Basel II: Can the Interests of Developing Countries be Protected? University of Sussex. April 14, 2003: <http://www.ids.ac.uk/ids/global/glonew.html>.
- Grunert, J., V. Kleff, L. Norden and M. Weber. 2002.** Mittelstand und Basel II: Der Einfluss der neuen Eigenkapitalvereinbarung für Banken auf die Kalkulation von Kreditzinsen. In: Zeitschrift für Betriebswirtschaft 10. 1045–1064.
- Hahn, F. 2002a.** The Politics of Financial Development. The Case of Austria. WIFO Working Paper 187.
- Hahn, F. 2002b.** The Effects of Bank Capital on Bank Credit Creation. Panel Evidence from Austria. WIFO Working Paper 188.
- Hahn, F. 2003.** Die Neue Basler Eigenkapitalvereinbarung ("Basel II") aus Makroökonomischer Sicht. In: WIFO-Monatsberichte 2. Vienna: Austrian Institute for Economic Research. 137–150.
- Hancock, D. and J. Wilcox. 1998.** The 'Credit Crunch' and the Availability of Credit to Small Business. In: Journal of Banking and Finance 22(6-8). 983–1014.
- Hansmann, K. W. and M. Ringle. 2001.** Finanzierung Mittelstand. Eine Empirische Untersuchung. Arbeitspapier 6, Hamburg: Universität Hamburg. February.
- Hayes, S. and V. Saporta. 2002.** The Impact of the New Basel Accord on the Supply of Capital to Emerging Market Economies. In: Financial Stability Review 13. London: Bank of England. December: 110–114.
- Honda, Y. 2002.** The Effects of the Basle Accord on Bank Credit: The Case of Japan. In: Applied Economics 34(10). 1233–1239.
- Jackson, P. 1999.** Capital Requirements and Bank Behaviour: The Impact of the Basle Accord. Basle Committee on Banking Supervision Working Paper 1.
- Jackson, P. 2002.** Bank Capital: Basel II Developments. In: Financial Stability Review 13. London: Bank of England. December: 103–109.
- Lowe, P. 2002.** Credit Risk Measurement and Procyclicality. BIS Working Paper 116.
- Kakes, J. and J.-E. Sturm. 2002.** Monetary Policy and Bank Lending: Evidence from German Banking Groups. In: Journal of Banking and Finance 26(11). 2077–2092.
- Kalirai, H. and M. Scheicher. 2002.** Macroeconomic Stress Testing: Preliminary Evidence for Austria. In: Financial Stability Report 3. Vienna: Oesterreichische Nationalbank. 58–64.
- Kaufmann, S. 2001.** Asymmetries in Bank Lending Behaviour: Austria During the 1990s. ECB Working Paper 97.
- OeNB – Oesterreichische Nationalbank. 2002.** Financial Stability Report 4. Vienna: Oesterreichische Nationalbank.
- Partsch, F. and B. Wlaschitz. 2002.** Mögliche Auswirkungen von Basel II auf die Kreditfinanzierung von Unternehmen aus Sicht der Bankenaufsicht. Oesterreichische Nationalbank. April 14, 2003: <http://basel2.oenb.co.at/publikationen/deutsch/AuswirkungenBaselUnternehmensfinanzierung.pdf>.

- Reisen, H. 2001.** Will Basel II Contribute to Convergence in International Capital Flows? In: Der einheitliche Finanzmarkt – eine Zwischenbilanz nach zwei Jahren WWU. Conference proceedings of the 29th Economics Conference of the Oesterreichische Nationalbank. Vienna: Oesterreichische Nationalbank. 48–62.
- Schwaiger, W. S. A. 2002.** Auswirkungen von Basel II auf den Österreichischen Mittelstand nach Branchen und Bundesländern. In: BankArchiv – Zeitschrift für das gesamte Bank- und Börsenwesen 6. 433–446.
- Segoviano, M. A. and P. Lowe. 2002.** Internal Ratings, the Business Cycle and Capital Requirements: Some Evidence from an Emerging Market Economy. BIS Working Paper 117.
- Taistra, G., C. Tiskens and M. Schmidtchen. 2001.** Basel II Auswirkungen auf typische Mittelstandsportfolien. In: Die Bank 7. Cologne: Bank-Verlag. 514–519.
- Valderrama, M. 2001.** Credit Channel and Investment Behavior in Austria: A Micro-Econometric Approach. ECB Working Paper 108.