



*Studies on the Potential Impacts of
the New Basel Capital Accord*



STUDIES ON THE POTENTIAL IMPACTS OF THE NEW BASEL CAPITAL ACCORD

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INTRODUCTION

In April 2003, the Basel Committee on Banking Supervision published the third consultative paper (CP3) of the new Basel Capital Accord relating to the prudential regulation of banks, which was followed in July 2003 by the EU Commission's draft directive with the same contents, but slightly different detailed rules (Capital Adequacy Directive, CAD3). During the consultative process both organisations expect comments from the players affected by the new capital regulation, thus from the central banks of each country as well. The significance of the new capital regulation is underlined by the fact that the Basel recommendation will soon be followed by the European Union's directive (presumably in 2004), the implementation of which will be one of the largest regulative challenges for Hungary.

Accordingly, the Magyar Nemzeti Bank pays special attention to preparing the implementation of the Basel II/CAD3 capital accords, laying the groundwork for the adaptation and carrying out the necessary background analyses. Our main objective in the first phase of this rather complex and far-reaching project was – through participation in the legislative process – to analyse the issues important and relevant for the MNB, as well as to assess the potential consequences of implementation in Hungary. During such analyses we focused on the macro-prudential consequences. Accordingly, we carried out a detailed assessment of five topics:

1. Correlations between Basel II and pro-cyclicality (Katalin Mérő–Balázs Zsámboki)
2. Capital requirements and the problems of provisioning (Edit Horváth)
3. Preferential treatment of small and medium-sized enterprises (András Bethlendi–Anna Naszódi)
4. Management of market risks (Anikó Szombati)
5. Corporate governance and the role of supervision (Dr. István Czajlik–Edit Horváth)

The studies were prepared on the basis of information available up to 30 September 2003. The main findings of the studies may be summarised as follows:

Katalin Mérő and Balázs Zsámboki investigate in their study the potential linkages between the new Basel capital standards and pro-cyclicality both in theoretical and empirical terms. The authors point out the potential contradiction that may occur between the final objective of the regulation (that is, to provide a stable, efficient

financial intermediary system) and the tools, i.e. applying prudential rules at individual level, used to achieve this objective. Rules pertaining to individual institutions – though at the micro-level – may be optimal to ensure the security of the given institution; however, if applied at a systemic level, they may not necessarily have the same impact.

One of the most obvious examples for this is the cyclical behaviour of banks, which may be intensified by prudential regulations. Due to the greater risk-sensitivity of the Basel II accord, the analysis of the pro-cyclicality of the banking activity – that is, the strong correlation between the real-economic and lending cycles – as well as of the cycle-strengthening impact of the regulation and the potential solutions, is especially important.

The authors point out that cyclical behaviour of banks is a natural attribute of lending activity, but they also emphasise that in its current form the regulation may already contribute to strengthening the cyclical nature of this banking activity. Presently, pro-cyclicality is strong mainly in the areas of provisioning and profitability, however it also appears to be significant in terms of willingness to lend. In addition to this, the new Basel rules may intensify the pro-cyclicality of capital adequacy as well.

Primarily relying on academic literature, the authors describe the potential systemic problems arising from the endogenous nature of risks and their impact on lending activity. At the same time, there are a number of questions concerning the potential consequences in Hungary, since it may be difficult to separate possible pro-cyclical banking behaviour from structural changes and the catching-up process occurring over the long term, which results in an increase in banks' lending activity and the deepening of financial intermediation. For these reasons, the pro-cyclicality of the domestic banking sector is currently not, or only partially visible.

The study points out that due to the application of risk-sensitive capital-adequacy calculation methods, the increased volatility of capital carries risks from macro-prudential aspects. At the same time, taking into account the capability of domestic banks to accumulate and attract capital, as well as the commitment of the shareholders, capital support for small subsidiary banks in Hungary will not be a problem over short and medium term.

Edít Horváth analyses the problems of regulating credit risk in light of the new Basel Accord. From a central bank's point of view, it is important to know what

kind of new, regulative approach applies to the most significant risk type of the banks, i.e. credit risk. The Basel II Accord with its internal rating based approach allocates the credit risk instruments of the “old system” – specific provisions and capital requirements – not only to individual loans as was customary in the past, but rather on the basis of a new, portfolio-based approach. The recognition of future margin income in case of revolving loans’ capital requirements is a new element of the tools for regulating credit risk.

As regulatory capital and specific provisions only partially fulfilled their original role, i.e. coverage of expected and unexpected losses, the expectations of the regulators in Basel II concern the overall coverage of the credit portfolio risk. The aggregated value of the two instruments is of key importance from a prudential point of view, and they perfectly substitute each other in offsetting risk. In addition to this, the portfolio approach gains further ground through the reallocation of specific provisions permitted within a customer portfolio (e.g. companies), when, after reaching a certain value, the specific provisions allocated to a specific corporate loan may be used for reducing the capital requirement of another corporate loan. These innovations, however, concern only the elements of the defaulted asset portfolio, that is, those loans that according to the Basel II Accord were defined as defaulted assets. Other reserves for non-defaulted loans (e.g. general provisions) cannot be allocated: they may only reduce the capital requirements of individual loans.

The author points out that the above rules are likely to influence the incentives and the practice of specific provision allocation. Therefore, she deals separately with the analysis of the new rules’ domestic relevance and the possible consequences of adapting the definitions and values stipulated by the Basel Committee in Hungary. In the opinion of the author, the criteria for separating defaulted and non-defaulted loans (definition of default) and the adoption of the levels of loss reserves by the Committee for defaulted portfolio, are of key importance. Taking account of the current reserves on Hungarian banks, the study also assesses the further requirements implied by the Basel rules.

The author suggests that the possibility of allocating specific provisions and the related portfolio approach will result in a prudent practice that is closer to risk-assessment and risk-management. However, this new practice will make a distinct separation between specific provision’s role in the accounting valuation of assets and in the definition of capital requirements.

In their joint study, *András Bethlendi* and *Anna Naszódi* assessed the domestic consequences of the preferential treatment of small and medium-sized enterprises (SMEs), with special attention to the role of diversification in lending to small entrepreneurs. The recommendations of the Basel II Accord make lending to SMEs more attractive compared to financing large corporates, as lower minimum capital requirements are stipulated.

As in the European Union, SMEs in Hungary account for a large portion of GDP and employment. In recent years, this entrepreneurial segment has become a priority target-group for several domestic banks, and the ratio of SME loans is growing dynamically within the total corporate loan portfolio. The authors express the opinion in their study that the regulation aimed at restricting risk-assumption by credit institutions should be based not on economic policy considerations, but rather purely on economic considerations, as capital requirements lower than justified in economic terms due to the increasing volume of the SME loan portfolio, may even lead to serious system stability problems. Therefore, from the central bank's point of view, it is essential to carry out a domestic impact analysis of the preferential treatment of SME loans.

The authors describe in the study how and to what extent the various lending risk-assessment methods favour SMEs, and review whether the planned regulation is in harmony in terms of economics with the conditions of the Hungarian economy and corporate structures. As the economic reasoning for the preferential treatment of SMEs is based on diversification, the authors also analyse the domestic relevance of this argument.

Taking into account the expected development tendency of the Hungarian corporate structure and bearing in mind the competitiveness of domestic banks and companies, the study proposes the adoption of the SME definition in the Basel recommendation. When looking at the lending to domestic SMEs one can establish that – although loans granted to SMEs on their own represent a greater risk – portfolios of such loans may significantly reduce the relative variance of the total portfolio; thus in terms of risk, it is advantageous to finance this market segment.

The authors suggest that, despite the stated principles and theoretical background, the planned regulation shows some weaknesses when implemented in practice. When analysing the preferential capital requirement reductions by SMEs' size, the authors established that there is a significant fluctuation in the capital requirement

reduction based on company size as a function of probable default (PD), which is not justified by the logic and the conditions of the current Basel recommendation. The study by *Anikó Szombati* examines the changes in the rules pertaining to the trading book, the main objective of which – in line with credit risk management – is to ensure more transparency and independence. Although the quantification methods of market risks have not been fundamentally changed, there are modifications in two main approaches that directly affect the players of the Hungarian financial sector. As of its entry into force in 2006, in the area of setting up and managing the trading portfolio on the one hand, a more flexible approach (which takes better account of real market conditions, but is still adequately prudent) may be expected, and on the other hand changes in the credit risk calculation methods will be integrated. As a result of this, the impact analysis reports published by the Basel Committee, the European Commission and the Hungarian authorities unequivocally forecast that compared to the volume of changes in capital requirements as a whole, a small, but (relative to the base value) still significant capital requirement increase may be expected in the area of trading book portfolios. Although surveys indicate that by applying more advanced methods, the size of this increase can be reduced considerably, there are some new elements – e.g. the conservative mechanisms integrated in the pricing of collateral used for repurchase agreements – that undoubtedly anticipate an increase in capital requirements.

Dr. István Czajlik and Edit Horváth emphasise in their study that the New Basel Accord can achieve success only if its impact goes beyond mere compliance with complicated solvency rules. The accord will only function properly if risk management plays greater role when defining the strategy of institutions and making business decisions, and when the whole banking organisation is characterised by risk-awareness. In order to achieve this, it is extremely important to ensure that risk management procedures are properly developed and controlled within the organisation. Accordingly, when developing the new capital accord, the Basel Committee on Banking Supervision pays close attention to corporate governance issues as well, and defines specific new criteria for the application of more developed methods.

The Basel II Capital Accord defines new requirements concerning the relationship among the board of directors, management and internal audit, and the responsibilities and roles of the various bodies. Furthermore, it extends the role of the board in

the approval of the classification and assessment process. The authors draw attention to the provision (which is likely to have serious consequences in Hungary as well) according to which the board of directors must have suitable knowledge of the rating system and must be capable of interpreting the relevant reports. All of this highlights the need for advanced professional training.

The study emphasises that the critical point of applying the capital accord is the reflection of the models' results in business decisions. Therefore, in addition to setting the requirements for guarantee capital, it is essential to ensure that risk aspects are taken into account in the individual decisions (e.g. credit rating process) and in the business plans. It may be an important step forward in the case of Hungarian credit institutions as well that the relevant regulations of the institutions will have to include the related standards and procedures, and when auditing prudent operation, the supervisory authority will have to evaluate this area as well.

Since the internal management structure and the control environment (stipulation of tasks and responsibilities) of the various institutions largely depend on the size and the main markets of the institution, one of the most important findings of the study is that during the future implementation, the supervisory authority must be provided with proper discretion in terms of assessing compliance with the general corporate management requirements.

According to the opinion of the authors the analysis of the impacts of New Basel Capital Accord rules on financial stability should not be restricted to the evaluation of the technical rules of Pillar 1. Pillar 2 treating risks not addressed in Pillar 1 and supervisory review process, and Pillar 3 defining the information to be disclosed to the market, bear similar significance for the financial system's operation and behaviour.

The authors point out that, of those issues that came to light in Pillar 2, a number of conceptual questions remained unanswered. The most important deficiency is the failure to define the starting point for intervention by the supervisory authority. According to the proposal, under a certain capital level supervisory measures may be initiated on a discretionary basis, or in the case of a capital level below the capital requirements of Pillar 1 on a normative basis. The study summarises the dangers of enforcing automatic compliance with the new capital requirement system, and describes cases when such behaviour could be unjustified. The authors are of the opinion that the limitations of credit risk models and the appearance of similar

bank valuations and behaviour require non-usual reactions from the supervisory authority; nevertheless, the transparency of the measures taken by the supervisory authority cannot be reduced in such cases either.

In summary, it can be established that, despite the numerous positive features, the new Basel capital standards need fine-tuning in several areas, and there are many uncertainties concerning its prospective effects. We hope that the present set of studies will contribute to professional brainstorming concerning the New Basel Accord and to the better understanding of their expected impact on Hungary, and support domestic legislation with useful findings.

KATALIN MÉRŐ–BALÁZS ZSÁMBOKI

SOME CORRELATIONS BETWEEN THE BASEL II
CAPITAL ACCORD AND PRO-CYCLICALITY

EXPECTED IMPACTS ON HUNGARY IN THE LIGHT OF
INTERNATIONAL EXPERIENCES

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1. Introduction

The importance of the financial sector's prudential regulation can be justified by several reasons. In the end, however, all arguments point to the management of systemic risks and support of the financial system's prudent operation.¹ Nevertheless, we must point out the potential contradiction that may exist between the final objectives and the tools used to achieve those objectives. Namely, prudential regulation involves not systemic requirements, but rules relating to individual institutions. It is important to note, however, that what can be optimal at an individual level to achieve stability, will not necessarily work at the system level.²

One of the most obvious examples for the incompatibility of the individual rules and regulations and the systemic consequences, is the cyclical behaviour of banks intensified by prudential regulations. The pro-cyclicality of banking activity, i.e. the strong correlation between the real-economic and lending cycles, as well as the analysis of the cycle-strengthening impact of regulations and the potential solutions, have long been a subject of interest to the MNB, and several detailed studies have been prepared on this topic (cf. MNB Occasional paper 23). However, in connection with Basel II, the topic has begun to receive more attention at the international level as well, and the studies published in recent years enriched previous findings with several new aspects.

Nevertheless, it must be emphasised that cyclical banking behaviour is a natural attribute of lending activity and not a phenomenon caused purely by prudential regulation. For example, it is an interesting question as to why banks loosen their lending standards under "normal" economic circumstances when coming out of a recession. Some theories hold that this is because banks "forget" the problems they previously faced.³ It can be proved that the more time that has passed since the last economic recession, the less cautious banks are. The reason for this, amongst other things, could be that the composition of credit assessment staff changes, and persons who have not previously experienced hard periods tend to make decisions more often. This process basically represents a deterioration in the credit rating staff's knowledge. As under favourable economic conditions lending decision-mak-

¹ For a good summary of the arguments for and against regulation, see Mishkin (2001).

² For the summary of micro- and macro-prudential aspects of regulation, see Borio (2003).

³ Berger-Udell (2003).

ers rarely see non-performing loans, through which they could gain experience, the credit rating process becomes less efficient as well. This symptom is also referred to as “disaster myopia” and is independent of regulation. However, prudential regulation applicable to banks – even in its current form – contributes to the strengthening of banking activity’s cyclical nature.

According to international analysis, pro-cyclicality is strong mainly in the areas of provisioning and profitability; however, it also appears to be significant in terms of propensity to lend. On the other hand, the pro-cyclicality of capital adequacy cannot be traced clearly. One of the most important criticisms concerning the planned new Basel rules is that they generate pro-cyclicality not only in the aforementioned areas, but also in capital adequacy, thus considerably increasing pro-cyclicality, which already characterises the sector today. As an adverse consequence of this, banks’ compliance with the capital rules may result in a significant credit crunch during downturns in the economic cycle.

There is no unified opinion in the literature concerning the pro-cyclicality of capital held by banks. According to some studies the new rules will not have a material impact on the pro-cyclicality of capital. These works primarily draw the attention to the decisive role that the buffer capital – i.e. reserves above the minimum requirements – plays in banks’ capital structure or to the “through the cycle” nature of some ratings.

On the other hand, primarily in the academic literature, there are strong arguments against this view, based on the endogenous nature of risk. Homogenous reactions to endogenous risks demonstrably lead to a considerable increase in the volatility of the processes, which may ultimately cause a crisis. The planned Basel rules establish a strong link between risks and capital, and simultaneously they lead to a strictly uniform reaction to risks: in periods of prosperity they encourage the strengthening of credit expansion by reducing the capital requirement, while in periods of depression, the considerably increased capital requirements may lead to cut-backs in lending activity. Since capital incentives result in identical lending behaviour throughout the sector, even minor pro-cyclical movements at the individual bank level may lead to significant pro-cyclical amplitude at the banking system level.

Therefore, it is problematic that while the new capital rules indeed establish a connection between risk and the amount of capital required for covering such (i.e. from

micro-prudential point of view they may provide depositors with adequate protection), the same risk-sensitivity may behave in the opposite way at the system level: not only may it fail to mitigate risk, but it could considerably increase the vulnerability of the banking sector. The intensification of systemic risks is caused by the standardised reaction of banks to endogenous risks, which may further strengthen already existing (but so far not clearly demonstrated) pro-cyclical banking behaviour (with respect to capital). If the processes described above become typical, the new capital rules may become a textbook case of the contradiction between micro- and macro-prudential regulation, or between the stability of individual institutions and system stability. Under the currently proposed regulation this problem has not yet been resolved.

As far as the effects on Hungary are concerned, the most important question is, whether implementation of the new capital rules would indeed increase the vulnerability of the banking sector, establish the (as of yet untraceable or only partially traceable) pro-cyclical bank behaviour, or (even beyond these effects) slow down the structural process occurring over the long run and retard the increase in bank's lending activity and the deepening of financial intermediation.

In the second part of this study, we summarise and evaluate the most important statements made in the international literature concerning the pro-cyclical consequences of the Basel II Capital Accord. Chapter 3 looks into the pro-cyclicality of the Hungarian banking sector's activity. Finally, on the basis of the foregoing, we draw some conclusions regarding the possible effects of Basel II rules' pro-cyclical nature on the future development of the Hungarian banking sector.

2. Some correlations between Basel II and pro-cyclicality

The standard method and cyclicity

One of the most important innovations of Basel II is that it considerably strengthens the relationship between regulatory capital and risk assumed, and furthermore offers a "menu" to banks, based on which they will be able to choose from a variety of methods when defining their capital requirements. Although the standard method, which will be available for banks with less sophisticated risk management systems,

is much simpler than the methods based on internal ratings (IRB), in Basel II the risk-sensitivity of the standard method will also be significantly enhanced. The reason behind this is that the classification provided by external rating agencies will be widely considered when classifying clients according to risk and defining capital requirements. In the current system (Basel I), fixed risk weights put less emphasis on the issue of pro-cyclicality; a strong relationship can only be demonstrated between provisioning, accounting of loan losses and real-economic cycles.

However, the risks weights in the new system will no longer be permanent over time. Although credit rating agencies attempt to classify their clients in a manner that bridges several economic cycles, relevant empirical studies are not unanimous concerning the success of such attempts.⁴ Ratings showing stability should be treated with healthy scepticism, since the capacity of rating agencies is limited, and acquisition and evaluation of information is expensive; therefore, the rating may not change for companies on which less new information is available, whereas the long-term creditworthiness of the client may have changed.

If we restrict the survey on pro-cyclical classification only to those companies who we surely know have recently been subject to rating review, then a very strong connection can be seen between the economic cycle and credit ratings. The same applies in the case of newly issued ratings, since it is noticeable that initial ratings in periods of cyclical growth are generally better than the ratings of companies that were first assessed during recession.⁵

It should be emphasised that in principle, credit ratings do not represent an absolute scale in the measurement of credit risk. Even credit rating institutions interpret risk classification as an ordinal scale, i.e. ratings at a certain point of time represent the relative risk of clients compared to each other. Thus, a rating does not mean that a permanent probability of default (PD) is linked to it. Consequently, in theory ratings should be independent from real-economic cycles, since if PD grows in all rating categories and thus the relative distance between them remains permanent, then items subject to rating should not be re-categorised with reference to this.⁶ On the other hand, looking at the transition matrices it can be seen that downgrading

⁴ See e.g. Amato–Furfine (2003) and Catarineu-Rabell et al. (2003).

⁵ Amato–Furfine (2003).

⁶ Of course, it may happen that clients with different ratings are affected in different ways by the economic cycle, and e.g. clients with poorer rating are more sensitive to real-economic changes, i.e. the relative distance between the rated companies changes. In such cases, re-classification is justified.

during recession is much more frequent, which contradicts the principle of the ordinal scale.

Another important phenomenon is the recently observed overshooting in ratings, i.e. if the classification of a client is changed, then such change is often significant, which reflects either excessive optimism or excessive pessimism at a given point in time. Recent currency crises, when certain countries were drastically downgraded and then within a few months their rating was gradually improved, offer good examples of this. Such fluctuations are absolutely not in line with the principle of long-term rating, overlapping several cycles. All these factors suggest that the changes in credit ratings with time are accompanied by changes in risk weights and thus in bank capital requirements as well. Consequently, the volatility of capital is expected to increase compared to the current system.

However, we should point out here as well that, although the standard method reaffirms the role of credit rating agencies in the calculation of bank capital requirements, there are significant differences in the economic role of such rating agencies in the various countries. While the weight and influence of rating agencies in the United States and in some Western-European countries is truly decisive, their activity in Hungary is minimal. Although the Basel II accord encourages using the services of credit rating agencies, it is unlikely that the situation in Hungary will change substantially in the near future.

The role of credit rating could be relevant in the case of parent and subsidiary companies of large foreign investors. Such firms, however, rarely rely on the Hungarian financial intermediary system, and therefore, a potential change in their rating would rather influence the foreign financing bank. Moreover, according to recent information, large foreign banks and their Hungarian subsidiaries will make their rating decisions on the basis of the more sophisticated IRB method, i.e. relying on their own internal rating principles: thus the findings of the standard method are less relevant in their case. Since we do not expect any significant change in the role of credit rating agencies in Hungary, and it is unlikely that credit rating agencies would rate small and medium enterprises, which are gaining an increasing weight amongst the clients of the Hungarian banking sector, Basel II is not expected to result in major changes in this respect.

The IRB models and cyclicity

Endogenous risks

Compared to the standard method described in the previous section, the risk-sensitivity of the IRB models is much greater, which of course was one of the expressed aims of the regulations. However, criticism of the new Basel Accord is growing stronger in the academic literature, and amongst the new regulations, the IRB methods in particular are “under fire”.⁷ The major point of criticism is that the risk-based capital rules do not differentiate between exogenous and endogenous risks. If the behaviour and expectations of market players are varied, then risk indeed can be deemed an external factor, as players follow different strategies and have different standpoints. In this case, risks are determined outside the system. In fact, stress-tests only make sense in such cases, as one can measure the shock impacts properly by using statistical methods only under such circumstances.

However, if the expectations and reactions of market players become identical, and such reactions have a direct impact on market prices, we face endogenous risk. In such cases market players try to take an identical position, thus they influence the external environment by their behaviour, i.e. the risk is no longer an external factor, but defined within the system. The impact of this can be particularly significant in stress situations, as shocks are expected to have similar effects on all other market players as well, thus their reactions are likely to be similar too, consequently the environment goes through a considerable change compared to the initial stress situation. Thus, due to the endogenous risks, the functions describing the previous situation will no longer apply as they are replaced by new distributions.⁸

The existence of endogenous risks is a general phenomenon, which is well known to experts working in banks’ treasury or in securities trading companies. Nevertheless, it is a strange contradiction that while market traders are well aware of the fact that risk becomes endogenous in certain cases, they tend to measure risk by VAR models, which are built on exogenous risks.

⁷ For a detailed description of academic criticism, see Danielsson et al. (2001), Danielsson–Shin (2002), Danielsson–Shin–Zigrand (2002) and Danielsson–Zigrand (2003).

⁸ Concerning the applicability of stress-tests researchers are paying more and more attention to the so-called “extreme value” principles addressing the above problems. See, e.g. Danielsson–de Vries (2000).

The extensive utilisation of VAR-based risk models may have adverse consequences not only in stress situations, but also under normal market circumstance, namely due to the harmonisation of preferences. If the various market players use risk models that are based on the same principles, then these models will give identical or very similar signals in the individual market situations. Consequently, due to their similar preferences market players will react in a similar way even to minor market fluctuations, thus generating significant one-way price movements due to which risk will become endogenous.⁹

With regard to common reactions generated by endogenous risks, it should be noted that it is not identical with herding, a subject often dealt with in the literature. The latter is connected to information asymmetry and to the resulting free rider problems, according to which the acquisition of information is too expensive for the market players, therefore instead of collecting and evaluating the information, it is cheaper to observe and follow the behaviour of players assumed to possess the necessary information. Therefore, herding is a reasonable answer to the imperfect information environment. Naturally, herding is a common phenomenon of financial markets and it could be useful especially for small investors to follow the steps of large players. However, if we disregard information asymmetry and assume that all players have the same information, common, one-way movements could still occur. A precondition for this is that information was interpreted in the same way by all, i.e. the players drew the same conclusions and reacted in the same manner to the changes in external environment. Therefore, it is important to emphasise that under certain unfavourable cases the likelihood of movements to one direction is not zero, but almost 1!¹⁰

1. The impacts of endogenous risks and regulatory reactions

There have been several examples of the serious consequences of endogenous risk in recent economic history. The stock exchange crash in the United States in 1987, and the speculative attacks against some of the Asian and South-American currencies perfectly illustrate this phenomenon. In most cases small

⁹ It should be noted with regard to the “nature of risks” that risk appetite is not a constant factor, but one that changes over time. Risk-averse behaviour may become stronger especially in a crisis situation, widely known as “flight to quality”, i.e. the phenomenon of retreating into quality investments and securities. In the case of external shocks, not only “objective” risk changes, but risk perception as well.

¹⁰ Danielsson–Shin (2002).

changes in external circumstances were accompanied by large and abrupt aggregated impacts, because market information shifted expectations to one direction, which resulted in common, one-way actions.

The negative consequences of endogenous risks can also be observed in the derivative market. The change in the price of the underlying product, which represents the initial external shock (stress), leads to margin calls from the party incurring the loss. Such constraint may force the closure of positions in the case of other instruments as well, or the sale of assets: consequently it will generate negative movements in the prices of those as well, resulting in new stress situations and further strengthening the negative spiral.

What should regulative bodies do in order to avoid such unfavourable processes? Of the possible regulative reactions it is worth mentioning the practice of FSA, when in 2002 it suspended using the so-called “resilience test” in the case of life insurers, i.e. it loosened prudential requirements to avoid forcing insurers to close their positions and liquidate their assets, thus avoiding the further decline of the securities market. However, relief of rules should be approached with care, as it may generate moral hazard problems and encourage market players to pursue a looser risk-taking policy.

One might ask what relationship there is between endogenous risks and the Basel II rules. The answer involves the risk functions included in the new Basel recommendations, a more detailed critique of which is presented in the following chapters. Although these functions appear rather complicated, still bearing in mind the diversity and complexity of the financial sector they might be seen as an excessive simplification of reality. The currently applied risk models assume that market players are price takers, i.e. their activity has no influence on the movement of market prices. If so, it is possible and sensible to perform statistical calculations based on historical data. However, this all pre-supposes a stable environment.

Describing the volume of risks assumed in the financial markets by a function, and applying this as a regulative standard would have serious consequences. It is a well-known phenomenon discussed widely in economics literature that the use of statistical correlations for regulative purposes may result in the loss of previously existing correlations’ validity (Goodhart’s Law).¹¹ In the context of the Basel II

¹¹ “Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes.”
Quoted by: Christal–Mizen (2001).

accord, the structural changes due to new risk-based capital calculations will have the consequence that the results calculated on the basis of the current system will not tell too much about the future.¹²

Criticism of risk management models

A great deal of criticism can be formulated concerning risk management models. Of these, we highlight below some of the statements considered relevant for Basel II and pro-cyclicality.

The “fat tail” problem

One of the shortcomings of the internal rating models, which are used by Basel II for regulative purposes, is that they cannot handle the “fat tail” problem. In essence, this means that under identical expected value and variance, extreme outputs are much more frequent in reality than follows from the normal distribution generally used in risk management models.

2. What is the likelihood of a stock exchange crash?

Danielsson, J. (2003) describes a clear example of the “fat tail” problem. During the 1987 stock exchange crash in the United States securities yield was 20 sigma off the average yield. Under a normal distribution, events of this magnitude would happen only once every 4×10^{88} days. Bearing in mind that the Earth only existed for 10^{14} days and the whole universe existed for a “mere” 10^{17} days, this result is quite astonishing. If we made the same calculation for the much less extreme event of a 5-sigma deviation, then the result would be that under normal distribution such event would occur once every 10,000 years, but – measured by the S&P 500 – there have been 30 such events between 1929 and 2003. All this suggests that risk management models based on normal distributions are of little use under extreme circumstances.

¹² For a more detailed description of the topics, see Lowe (2002).

Correlations of PD, LGD, and EAD with real-economic cycles

In recent years there have been several empirical surveys concerning the behaviour of risk functions' parameters, which have several lessons for our analysis.¹³

It is in the “nature” of risks that there is a correlation between clients in terms of the probability of default (PD).¹⁴ The Basel recommendations calculate this correlation with one system-level risk factor. Moreover, they do so in such a manner that correlation is a decreasing function of PD. This means that the higher the probability of a client's default, the more weight individual factors have. Thus, the risk weight function compared to previous proposals became flatter, therefore a larger PD would increase capital demands to a lesser extent, i.e. it reduces the cyclical fluctuation of capital.

However, it is worth looking into the correlations between the PD and loss given default (LGD) as well. In the IRB Foundation approach recommended by Basel II, LGD has a fixed value, i.e. it is independent from the economic cycle and PD. In reality, however, this is a serious simplification of facts, as there is a positive correlation between PD and LGD.¹⁵ Moreover, in terms of risk management, risk increases together with the growth of the correlation between these two parameters. The primary reason for such positive correlation is that when the number of bankruptcies goes up, the supply of non-performing assets or assets covering such also increases, which further depresses prices. This in turn reduces return rates, i.e. loss rates go up.

As opposed to the IRB Foundation approach, when applying the IRB Advanced method banks adjust their LGD estimates together with PD, i.e. in accordance with economic cycles. The simulation performed for the probable effects of the phenomenon shows that there is a significant difference in capital requirements if instead of the 50% LGD estimate of the IRB Foundation method, capital requirements are calculated with an LGD fluctuating between 40% and 60%.¹⁶

¹³ See for example Lowe (2002).

¹⁴ If there was not a correlation between them, then average failure could be forecasted, i.e. there would be no such thing as “unexpected loss”.

¹⁵ For a more detailed description of the problem, see Altman et al. (2002).

¹⁶ See Altman et al. (2002). These calculations were performed by using the 1981–2000 data of the S&P transition matrix.

Similar calculations concerning the application of the IRB method also showed large amplitudes in banks' capital requirements in Mexico in the 1990s.¹⁷ If banks had calculated the capital requirements in accordance with the stipulations of Basel II, in the first two years after the 1994 crisis period a minimum of 40%, but in the case of some banks even a 100% increase in capital requirements should have been needed. It is generally true that economic cycles manifest themselves more strongly in open developing countries firmly integrated into the world market; therefore, with the application of the IRB methods the amplitude of changes in bank capital requirement could be higher.¹⁸

Naturally, it may be interesting to examine this question in the case of Hungary as well, as banks plan to introduce the IRB method simultaneously with the new Basel Capital Accord's entry into force or shortly thereafter. In order to measure cyclical nature, first it should be examined how strong economic fluctuation is compared to other countries, and whether average PD and LGD values are higher in this country. In both cases, the change in capital requirements may be higher in Hungary than in the member states of the Basel Committee. Unfortunately, currently available data are insufficient to carry out the above calculations; accordingly, an estimation of the pro-cyclicality level in the IRB method is doubtful.

Although many models handle cyclicity for PD, the models – similarly to LGDs – do not consider changes in the exposure at default (EAD) during the economic cycle, despite the fact that the latter also shows cyclical movements.¹⁹ This phenomenon is particularly noticeable in the case of contingent liability call-offs, as both the volume of guarantees called off and commitments drawn down typically increase in periods of recession and/or liquidity shortage.

Consequently, by the application of the IRB Advanced method, pro-cyclicality increases significantly compared to the IRB Foundation method. Of course, one might ask whether it is a good idea to decrease the precision of risk management models by stipulating the use of fixed or limited LGD. There is no easy answer to this question. Nevertheless, one should understand that no matter which solution the regulator chooses, there is a trade-off between stability and precision and one aim can be achieved only at the expense of the other.

¹⁷ Segoviano-Lowe (2002).

¹⁸ According to the analysis conducted by Catarineu-Rabell et al. (2003) bank capital requirement could increase by 15%–50% even in developed countries in times of recession, depending on the risk management method chosen.

¹⁹ Allen-Saunders (2003).

Disciplinary power of the market and cyclicity

The same problems also emerged concerning another aspect of Basel II, i.e. Pillar 3. Under normal circumstances, market disclosure rules contribute to the transparent operation of the financial sector and facilitate wider processing and evaluation of information. They furthermore encourage management to follow prudent behaviour. In addition, they represent some sort of control over the supervisory authority. However, under unfavourable conditions as discussed in the previous sections, market disclosure rules may also shift expectations in one direction.

If the market recognises this danger, then the market might play a role in increasing banks' buffer capital requirements in boom periods. It can be observed even under the current regulative regime that although supervisory bodies prescribe a capital adequacy ratio of 8%, institutions with a ratio of 10%–12% have access to funds at much lower risk premiums in accordance with the market's judgement. Thus, the power of market forces can be stronger than the regulative minimum, and banks already have significant excess capital accordingly.

Currently, the role of buffer capital is a scarcely analysed area in professional literature. Some studies have come to the conclusion that the volume of capital reserves above the minimum level move contrary to real-economic cycles, i.e. in periods of prosperity excess capital typically decreases, while in recession it increases.²⁰ Although the direction of such movements is generally significant from a statistical point of view, their amplitude is rather negligible.

At the same time, the lending activity of better capitalised banks is normally less influenced by external shocks, i.e. the behaviour of these institutions is less procyclical. According to the relevant empirical results, one factor that partly accounts for this is that banks with a higher capital adequacy ratio generally pursue a more risk-averse strategy, thus their clientele is also safer, i.e. they depend on real-economic fluctuation to a lesser extent.²¹ In addition, excess capital plays an important role in absorbing potential loan losses, therefore banks with solid capital are forced to cut back their lending activity during periods of economic recession to a lesser extent.

²⁰ In case of Norway, see Lidquist (2002), in case of Spain, see Ayuso et al. (2002), in case of Italy, see Gambacorta–Mistrulli (2003).

²¹ Gambacorta–Mistrulli (2003).

The market's disciplinary power may play an important role in forcing market players to demand higher excess capital from banks rated more risky on the one hand, and on the other hand in ensuring that buffer capital does not decrease during economic booms. If, in addition to this, the regulations and the supervisory authorities also communicate properly that they expect higher capital than the minimum level even during boom periods, this could influence the market's judgement as well, and thus the pro-cyclical bank behaviour intensified by the other components of Basel II could be mitigated.

3. The pro-cyclicity of the Hungarian banking sector's activity

Regarding the pro-cyclicity of the Hungarian banking sector's activity, a starting point for this analysis was the conventional fact that the behaviour of individual banks and generally of certain countries' banking system (due to the characteristics of banking activity) is as a rule pro-cyclical. Ex post for the presentation of pro-cyclicity, it is customary to analyse the joint movements of the various ratios of the output gap, which is most suitable to measure cycles, and ratios of banking activity. Based on such an analysis, in prosperity phases of the economic cycle banks' lending activity generally increases compared to GDP, the price of assets securing the loans goes up, the profitability of banks improves and provisioning decreases. On the other hand, the relationship between bank's capital adequacy and economic cycles is less clear. Easier and cheaper capital attraction may increase capital adequacy in the ascending phase of the cycle, while the prosperity-based loan expansion plays an opposite role. The currently prevailing bank capital requirements are not pro-cyclical; the required capital is a direct ratio of the risk-weighted on- and off-balance sheet assets, therefore it is sensitive only to the cyclical movements of the assets. The capital requirement for one unit of banking assets does not change in the various phases of the cycle.

Cyclicity of lending

The cyclicity of banks' lending behaviour varies by period and country. To illustrate this phenomenon, based on data for certain OECD countries Borio–Furfine–Lowe

(2001) analysed the relation between the output gap²² and the private-sector's GDP-related loan portfolio for the period of 1979–1999. They found that although the relationship between economic and lending cycles does not follow a clear scheme, its existence can clearly be demonstrated.

As of the second half of the 1980s, primarily due to the bank crises following the liberalisation of banking markets, banks' risk awareness increased and international standards related to risk management systems started to be outlined. Since the Basel Accord was agreed on in 1988, it would be worthwhile to conduct an analysis of the reactions to changes in risk in this period.

Figures 1. a-d illustrate the connection between the lending activity and economic upswings in some EU member states that did not experience systemic bank crises between 1985 and 2001. The charts clearly show that the GDP-related loan portfolio was growing as a trend, i.e. the period was characterised by significant deepening of financial intermediation. At the same time, in the case of the United Kingdom, Spain and Italy, the amount of growth and periodical reversals of such, and temporary turnarounds in the deepening trend move together with prosperity cycles quite strongly. Generally, in periods characterised by negative output gaps (or in periods when the output gap is still positive, but is dynamically decreasing and expected to turn negative) the GDP-related loan portfolio decreases or stagnates, while a positive output gap (or one which is still negative, but increasing and assumed to turn into a positive output gap) is accompanied by an increased role of lending in financing the economy. The only difference between the various countries is the size of the changes connected to cyclical upturns.

In the case of Germany there is a deviation from the typical scheme. Here, the prosperity at the end of the 1980s and beginning of 1990s was not accompanied by a deepening of financial intermediation; the economy-financing role of lending started to show a distinct growth only later, in the recession period of the 1990s. This is the consequence of the lending boom²³ in corporate and consumer lending after German reunification, which obviously has a structural origin.

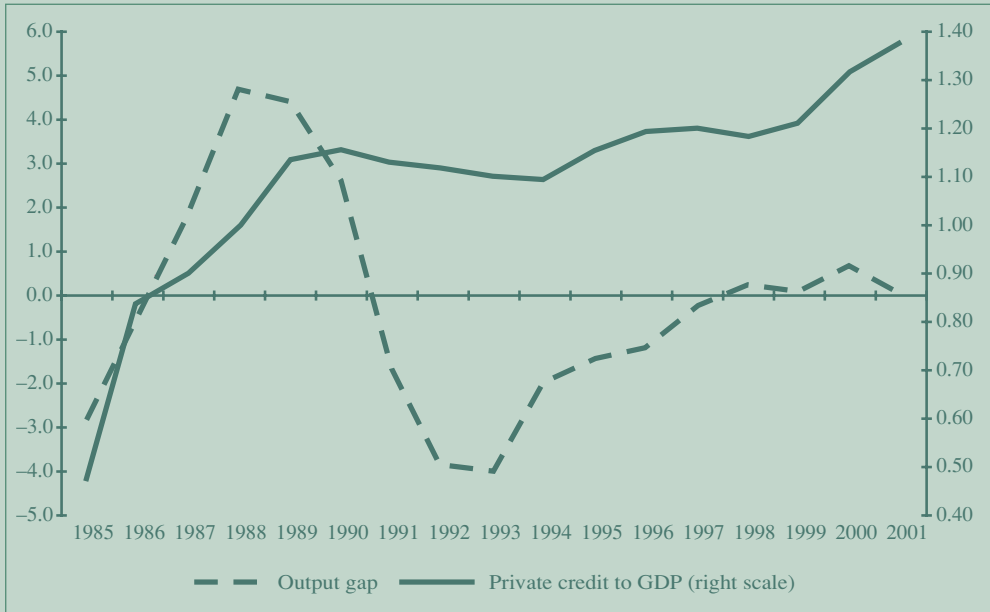
Scandinavian countries, which suffered a deep, systemic bank crisis, show a different picture. In these countries, liberalisation of the financial sector was followed by

²² The output gap is the difference between the actual and potential GDP expressed as a percentage of potential GDP. A positive value is the sign of an overheated economy, while if it is negative, it signals depression.

²³ See: Deutsche Bundesbank (2002).

Output gap and GDP-related volume of bank loans granted to the private sector in some EU countries

Figure 1.a United Kingdom

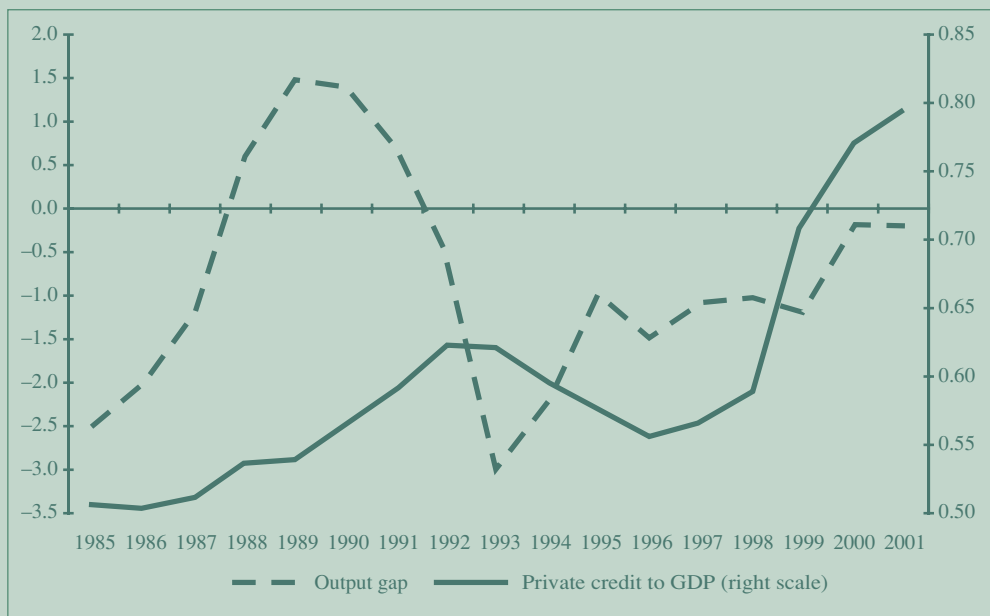


Source: OECD and IFS

a credit expansion of outstanding size, unsupported by a cyclical upturn, which later in the period of obvious and lengthy economic recession, following the outbreak of bank crises, swung around into a drastic decrease of lending. Lending, which started to increase again after the crisis, e.g. in Finland, did not recover to the 1985 GDP-related lending level even as late as 2001.

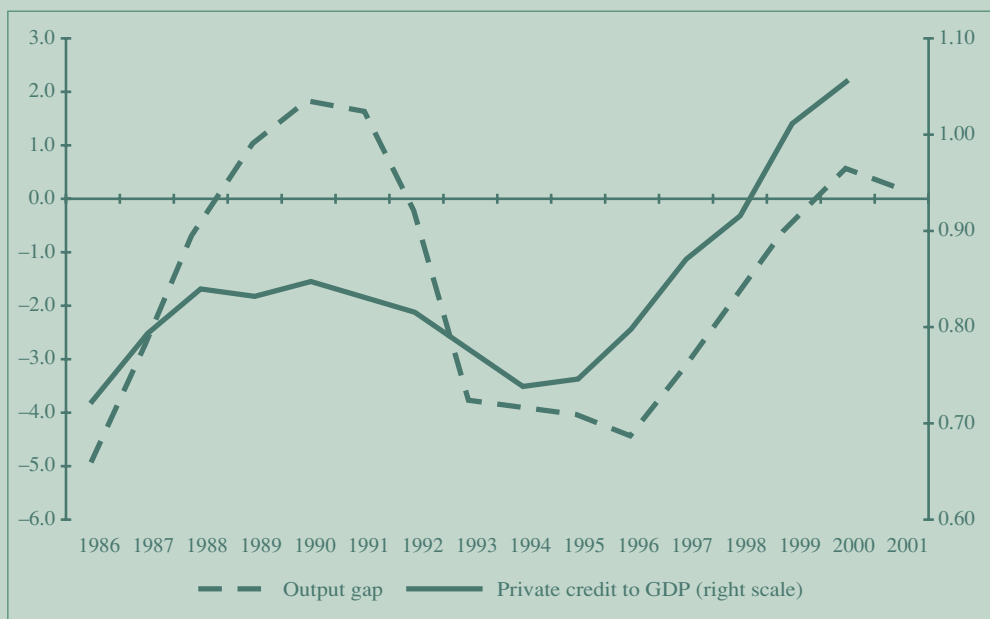
If we analyse the general correlations concerning the pro-cyclicality of banking activity on the basis of domestic data, the picture is less clear. Since the existence of the two-tier banking system, bank loans granted to the domestic private sector have also shown movement corresponding with the economic cycle. On the other hand, Figure 3 clearly illustrates that banking activity in the given period was much more strongly influenced by the economy's long-term trend than by the nature of the cycle: the lending activity of banks continuously decreased during the transformation crisis, following which it began increasing year by year.

Figure 1.b Italy



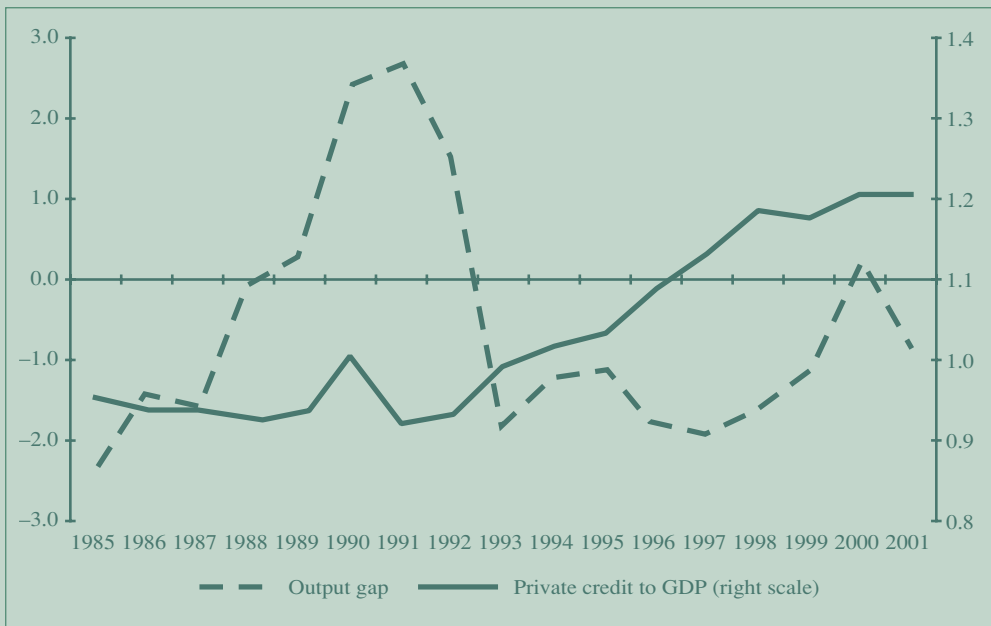
Source: OECD and IFS

Figure 1.c Spain



Source: OECD and IFS

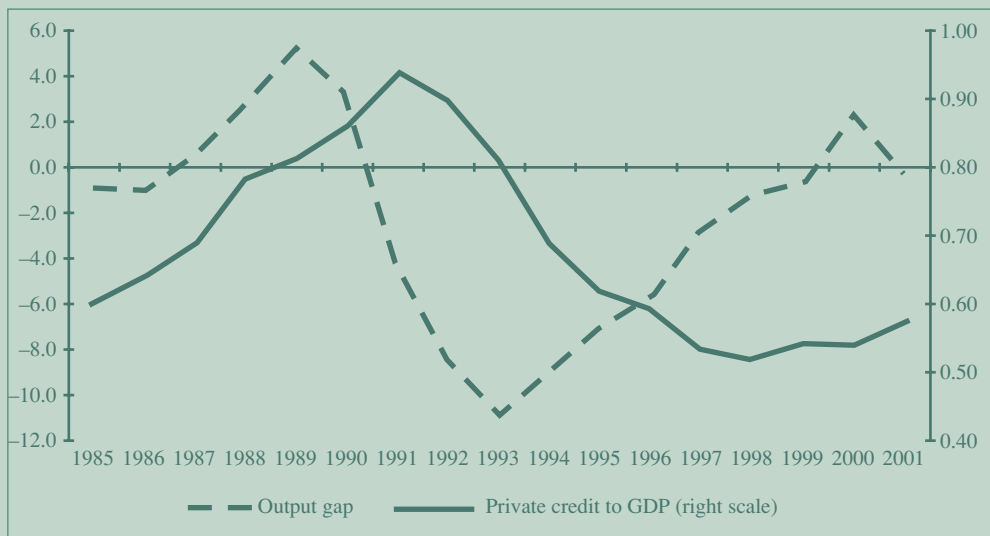
Figure 1.d Germany



Source: OECD and IFS

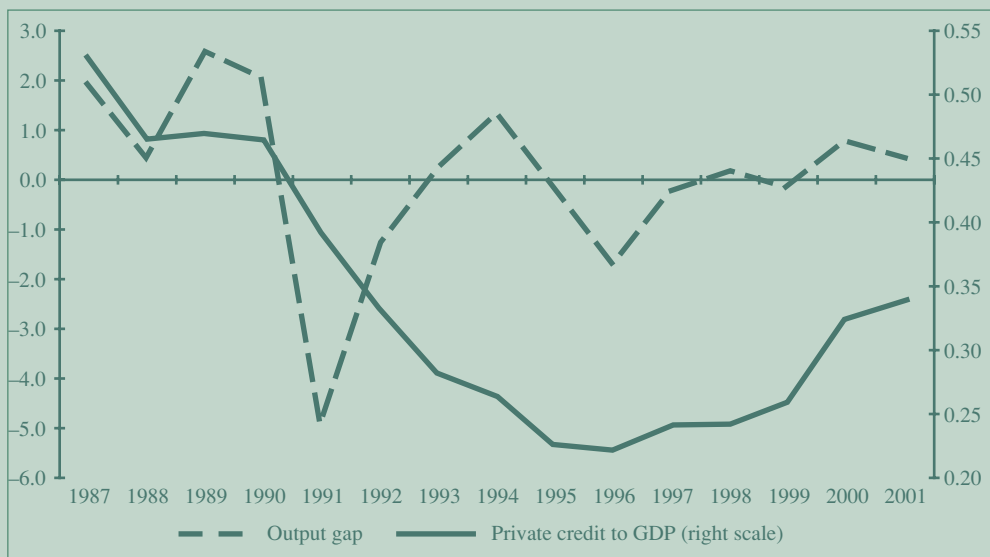
The transformation crisis between 1987 and 1995 (even in those years when improving prosperity was typical) was characterised by a steady decline in loans granted to the corporate sector, which was in the process of transformation and went through a wave of bankruptcies. This process was a natural attribute of the transformation. From 1996 – in an improving or favourable prosperity situation – the loans to GDP ratio continuously increased. However, one can rightfully ask the question even concerning the period of 1996–2002 as to whether the strong procyclical lending behaviour was the sign of a cyclical joint movement or just the manifestation of deepening financial intermediation that, as a rule, follows the transformation crisis. We can observe the same correlations in the case of Hungary that characterised the EU countries in Figure 1, i.e. between 1985 and 1995 the fall in the volume of lending was smaller in boom periods, whilst between 1996 and 2002 increase was more moderate in years characterised by less favourable trends. In summary, the change in the economy-financing role of lending was dictated by the structural processes. However, the volume of such changes was influenced by the business cycle as well.

Figure 2 Output gap and GDP-related volume of bank loans granted to the private sector in Finland



Source: OECD and IFS

Figure 3 Output gap and GDP-related volume of bank loans granted to the private sector in Hungary



Source: IFS and MNB

Cyclicality of provisioning

In addition to the expansion of lending, the most general sign of pro-cyclical banking behaviour is that the coverage of loans by provisions decreases in boom periods and increases in recession. Provisioning and prosperity show a negative correlation in almost all countries and periods.

It is worth examining the prosperity-related fluctuations of loan provisioning²⁴ in Hungary only following the completion of the bank consolidation period, since in the period of 1987–1995 the volume of provisions was primarily defined by changing regulations or measures taken in the framework of consolidation. Figure 4 shows a strong negative correlation between loan provisioning and the economic boom in the case of Hungary as well.

The correlation between provisioning and the business cycle can be considered strong even in international comparison²⁵ (see Table 1).

At the same time, in view of the Hungarian situation, concerning provisioning the question arises as to whether it is a sign of a strong pro-cyclicality or of the stabilisation that followed the consolidation period of the banking system. On the basis of Figure 4 (despite the strong negative correlation), the latter statement appears more reasonable. Following the consolidation period of the banking sector, provisioning basically continuously declined and from the extremely high starting value it gradually approached the standard international value characteristic of stable banking sectors. The gradual decline in provisioning was only halted by the portfolio deteriorating impact of the Russian crisis, which undoubtedly was of a pro-cyclical nature, even if at the level of output gap this effect was overcompensated by the boom typical in election years. However, on the whole structural reasons for the continuous decrease of the provision ratio appear to be stronger than prosperity reasons.

²⁴ The ratio of the amount of special provisions on loans or posted loss of value and the total loan portfolio.

²⁵ The strength of the statement is reduced by two factors. On the one hand, correlation in the case of countries listed for comparison in the table was calculated for a longer timeline (generally from any year of the 1980s until 1999) than applied by us; the Hungarian ratio concerns the period between 1996 and 2002. On the other hand the foreign figures compare provision ratio to total assets, instead of the more expressive total loan portfolio, used by us.

Figure 4 Provisioning and the output gap in Hungary



Table 1 Correlation between provisioning and output gap

Country	Correlation
Hungary	-0,86
United Kingdom	-0,38
Italy	-0,21
Spain	-0,41
Germany	-0,21

Source: Borio-Furfine-Lowe (2001) and MNB

Cyclicality of capital and profitability

In respect of Hungary, it is once again only worthwhile to examine the cyclicality of bank capital after the bank consolidation period. In this period the capital situation of banks was also primarily defined by long-term structural processes rather than

by fluctuations in the business cycle. In 1996, the capital adequacy ratio was extremely high due to privatisation accompanied by capital increases. However, the purpose of the owners injecting capital – even at the moment of capital increase – was not to maintain the outstanding capitalisation level, but rather to provide capital required to cover growth on the Hungarian market with serious development potential. Therefore, it should not be assumed that the continuous “deterioration” of the capital situation and capital adequacy approaching the international standards were of a cyclical origin.

Table 2 Capital adequacy ratio trends in Hungary

	1996	1997	1998	1999	2000	2001	2002
Capital adequacy ratio	16.7	15.7	15.3	14.2	13.7	13.9	11.1

Source: MNB

In line with the non-cyclical nature of current capital rules, the correlation between banks’ capital situation and the output gap shows a rather mixed picture at an international level as well. Measuring capital adequacy by the gearing ratio,²⁶ the 1980s and 1990s were characterised by a negative correlation between capital and the output gap e.g. in Italy, Australia, Japan, Sweden and the USA, while positive correlation was observed in e.g. Germany, Norway, Spain and the United Kingdom.²⁷ Normally, the connection between profitability and output gap can be clearly demonstrated. In the countries examined by Borio–Furfine–Lowe in the 1980s and 1990s, with the exception of Germany²⁸ there was a positive correlation between the two categories, with outstanding correlation factors in some countries (Australia: 0.71, Finland: 0.81, Spain: 0.84, Sweden: 0.6).

In Hungary, it is impossible to conduct a meaningful analysis of the connection between banks’ profitability and output gap. Until completion of the bank consolidation period, even profitability was defined by the constant changes in regulations and individual cases of intervention by the state. Following this, the aggregated profitability of the banking sector was shifted by Postabank’s loss (also non-cycli-

²⁶ Equity/total assets.

²⁷ See Borio–Furfine–Lowe (2001).

²⁸ Negative correlation in the case of Germany could be explained by potential profit levelling through hidden reserves.

cal), reported for 1997–1998. The period between 1999 and 2002 is far too short for the purposes of analysis.

In summary, the pro-cyclical nature of the domestic banking sector's activity cannot yet be analysed or demonstrated reliably. In any case, the issue of pro-cyclical-ity can be relevant only after the transformation crisis and the completion of bank consolidation, i.e. from 1996, but the time elapsed since then has been too short to serve as a basis for drawing any meaningful conclusions. Moreover, the entire period is characterised by relatively favourable economic trends. Still, what can be demonstrated is that the changes in those ratios of banks most suitable for the documentation of pro-cyclical-ity are currently much more determined by long-term trends, typical for structural transformation, than short-term business cycles. Cyclical movements generate only slight deviations from the trend.

4. Conclusions

1. Currently, the values of the domestic banking sector's major indices are determined by trend-like changes, with the impact of cyclical fluctuations lagging significantly behind. Therefore, the pro-cyclical-ity of the domestic banking sector's behaviour can be proven only in part or cannot be demonstrated at all. This also complicates the analysis of the expected pro-cyclical impacts of the Basel II Accord.
2. Potential capital regulation that is strongly pro-cyclical could be especially harmful for Hungary, where a strong credit crunch during recession could hinder the steady deepening of lending. However, anti-cyclical regulation that potentially offsets this impact should also be handled with care: the restriction of cyclical over-lending in prosperity periods should never hinder the deepening of financial intermediation by overreaching itself.
3. As credit rating agencies' role is negligible in Hungary, the cyclical behaviour of Hungarian banks choosing the standard method is affected to a lesser extent. It is rather the scope and value of approved collateral, i.e. their capital requirement decreasing role that changes. However, we must be prepared for the fact that many banks are planning to choose the standard method only temporarily, and in a few years all solid institutions will wish to calculate their capital requirements based on the IRB method. The standard method could be a relevant

option in the long run for smaller, non-integrated credit institutions, but not for the whole financial sector. Therefore, when assessing the potential impacts we must focus on the IRB methods. However, even now we must draw attention to the potential process of adverse selection, according to which – as a result of using various capital adequacy calculation methods simultaneously – IRB banks may “cherry pick” good customers, while risky clients may be concentrated in the clientele of institutions using the standard method.

4. As a result of Basel II, the loan market is expected to show more similarities to the securities market than before (more public information, increasing role of credit rating agencies, etc.). Similarly to the securities market, in certain crisis situations this may cause liquidity to “dry up” for the entrepreneurial sector, i.e. banks will be unwilling to lend in the same way as before. The privileged role of banks in providing liquidity is expected to decrease.
5. The study points out the danger that due to the above problems, the volatility of banks’ capital will increase pursuant to the application of the IRB method and therefore pro-cyclical bank behaviour may grow stronger. For the time being, the entire Hungarian banking sector is well-capitalised, but some institutions are already operating around the 8% limit. For the purpose of evaluating the effects of increased capital volatility, the ratio of banks with a capital adequacy ratio below 10% could be relevant. At the end of 2002 the market share of such banks was 23.6%. Thus, a 25% increase in capital requirements would cause around one quarter of the banking sector to fall back to the capital adequacy limit. Of course, this information alone does not reveal too much. This question should be looked at in conjunction with domestic banks’ capital accumulation and capital attraction capabilities. According to current information, most Hungarian banks have adequate capital attraction capability, and due to the commitment of the owners the capital support of small – compared to the large foreign institutions – Hungarian subsidiaries is not a problem. In the case of those institutions where these conditions are not present, increasing capital volatility could have serious consequences and could even lead to problems at the level of the whole banking system.
6. Should subsidiaries currently operating in Hungary be converted into branches, the basis of lending activity in these institutions will be the capital of the foreign bank. Thus, if the foreign institution has a capital shortage due to the econom-

ic cycle, it will influence the lending activity of the Hungarian branch as well, i.e. external problems could more easily spread to the Hungarian economy. However, due to the relatively small size of Hungarian banks, as mentioned before, we feel that this danger is negligible.

7. The strengthening of capital cyclicalities raises the possibility of focussing more on regulations of non-capital nature in order to ensure stability. For example, these could be rules on diversification, strict compliance with limits of large credits, etc.
8. Based on the Basel II incentives, there may be a portfolio realignment in the case of loans where banks are unable to properly price the relatively large capital requirement. It is important to differentiate between this type of individual effect, changes pursuant to structural reorganisation and cyclical movements; this will not be easy, especially when structural changes and the incentives of Basel II aimed at portfolio realignment are accompanied by real-economic cycles. All of this will represent a serious challenge for the MNB as well.

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EDIT HORVÁTH

CREDIT RISK REGULATION AND MANAGEMENT
IN BASEL II

CAPITAL REQUIREMENTS AND PROVISIONING IN THE
BASEL II SYSTEM

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1. Introduction²⁹

In its Second Consultative Package (CP2) published in 2001, the Basel Committee declared that, in contrast to the former regulatory approach, the new risk-weighted capital requirements must also provide coverage for expected losses, in addition to unexpected losses. In this chapter, the following subjects are investigated: the updated system for the regulatory treatment of both expected and unexpected losses related to credit risk, the different functions associated with provisions and regulatory capital, the recently formed interlink between the two, and finally their applicability in the current Hungarian legislative framework.

The need to adopt a new approach emerged from evidence that provisions failed to perform their original function as cover for expected losses due to the inadequate allocation principles and practices presently applied. This deficiency is compensated for by the proposed international standardisation of capital requirements. The functional inadequacy of provisions is derived from the fact that they serve the dual purposes of accounting and prudence. Accounting aims to reflect the changes in value, whilst prudence is used to monitor the changes in risk exposures. One of these objectives may often be implemented to the detriment of the other, for example if the accounting purpose takes precedence in practice. Different countries regulate specific provisions³⁰ in a variety of ways, but mainly according to accounting principles. As a consequence of the dominance of accounting principles and the lack of other regulatory standards or best practices in the markets, specific provisions are primarily used as a means to recognise and manage losses already incurred or, in other words, realised.³¹ Thus, with the exception of several countries or, more precisely, several credit institutions, the magnitude of specific provisions is not a true reflection of the expected loss arising from credit risk.

Although new proposals provided a solution for this problem, the methodology employed has raised numerous additional questions. The important issues in con-

²⁹ The study was completed in June 2003. The amendment proposals approved at the 10–11 October 2003 meeting of the Basel Committee primarily referred to this subject, however, the majority of the findings of the study are still relevant.

³⁰ Hungarian legal provisions stipulate that value impairment be generated for certain asset types and provision raised for others (off-balance-sheet items). The combination of the two methods corresponds to the internationally used term "specific provisions".

³¹ Accounting cannot (and should not) manage statistical probability of losses, meaning losses whose occurrence is not indicated by any sign or information related to a certain asset yet can be projected from historical data or future expectations.

sideration of the consultative papers issued by the Basel Committee are divided into three sections as shown below.

Findings are also examined in the context of provisioning practices in Hungary, with a view to submitting amendment proposals both to the Basel and the European Committees.

The three sections are as follows:

1. If regulatory capital provides sufficient cover for expected losses as well, what functions will be retained for specific provisions and, in certain countries, general provisions?
2. How to weight the risk provisions raised with a certain degree of forward-looking if there is an overlap in the expected loss cover function?
3. What are the interpretations and consequences of rating a loan as a defaulted asset through generating provisions to reflect the significant deterioration in asset quality?

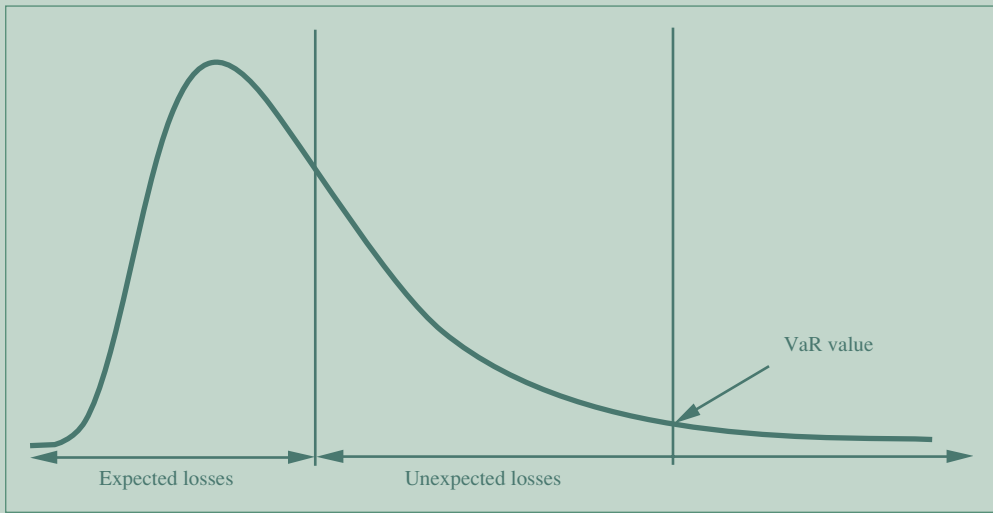
2. Traditional regulatory treatment of credit risk

One special feature of credit risk is the prevalence of losses. Typically, loans do not have a secondary market, thus lending cannot yield profits in the same sense as market risk can. Currently, the loss-oriented approach is still predominant, even though banking instruments designed to sell and buy credit risk are evolving and spreading extremely fast in the most advanced markets, a trend anticipated to bring about major changes.

Credit risk is often illustrated by the following loss function to permit a better understanding of the VaR value of the loan portfolio.

The distribution function in Figure 1 can be used to determine the expected loss, the uncertainty thereof, and the VaR value for a specific term. Nonetheless, it cannot be applied to model the ‘ideal’ regulatory regime for credit losses, mainly due to the **different time horizons set for the regulatory instruments**. The examination period for specific provisions associated with the expected losses relates to the maturity of the specific asset whilst it is determined as one year for the regulatory capital linked to the VaR value. Essentially, the difference arises from the fact that specific provisions reflect the decrease in the asset value whereas regulatory capital is a future indicator for one year ahead during which period risk exposures can be eliminated or addition-

Figure 1 Distribution of losses on a loan portfolio



al regulatory capital allocated. The credit risk management functions of these two instruments are summarised in the following sections.

After the assessment of credit risk, credit institutions have two options to protect themselves against future losses: by pricing loans appropriately or allocating own funds. Theoretically, the price of a loan, i.e. the interest rate reflects the credit risk. Therefore, interest income must provide sufficient cover for the occurring loss as the loss expected at the moment of pricing.³²

However, this theory only works in practice if, on the one hand, market participants have reached a certain stage in quantifying their expected losses and, on the other hand, risk-based pricing practices are not distorted by internal and external environmental phenomena such as strong competition in the lending market. As opposed to the early history of regulation marked by price and quantitative limits with direct intervention in pricing policies, the current prudential framework focuses on capital adequacy regulations, i.e. the allocation of own funds. Directives for the proposed level of institution's own fund impose a limit on risk exposures in a more implicit fashion. The easiest way for the participants to meet the objective of improving market share is to lower their prices or ease lending standards. Reduced

³² Above a certain level of expected losses, banks normally reject the credit application. The above conclusion refers to approved loans.

prices and increased provisioning necessitated by the deterioration of the customer portfolio as a result of looser standards will lower profits. If the trend persists, capital adequacy requirements become effective with a significant impact on both pricing and credit allocation practices.³³ Supervisory authorities can thus affect and limit banks' exposures in a more sophisticated manner, yet still exert influence on credit prices and volumes. With the exception of several consumer protection provisions, the prevailing regulatory regime does not change pricing practices directly, nor does it stipulate minimum requirements or offer best practice criteria, therefore banks may continue to determine the level of income within their own competence.

Prudential regulations use three accounting categories to record and settle credit losses already incurred or to be incurred in the future: (1) specific provisions; (2) general provisions; and (3) regulatory capital.

In accordance with the recommendations of the Basel Committee, provisions (including specific and general provisions) indicate the decrease in the total value of assets and must reflect the estimated losses inherent in the portfolio.³⁴ The requirement for provisions to be regularly adjusted to changes in asset value emerges from accounting regulations. As a consequence, the period of examination is the maturity of the asset because the asset value is affected by any future event or loss occurring during its lifespan.

A specific provision is generated by the banks upon occurrence of actual losses or events leading to probable losses. However, loss is always associated with a specific loan and its occurrence is not influenced by the performance of the rest of the loan portfolio.

General provisions raised by the credit institutions act as a buffer against any unforeseeable decrease in the value of the loan portfolio. Therefore, in terms of (accounting) assignability, their function is similar to that of regulatory capital, as they cannot be associated with specific loans but the entire portfolio. The Basel Committee stipulates that a portion of general provisions forms part of the regulatory capital allocated against unexpected losses, albeit up to the value of certain

³³ Due to the cost of equity and the method of determining the capital requirement in a straightforward link to the specific customer and loan, capital requirements may also affect the bank's lending approach even when ineffective (the bank has regulatory capital above the minimum adequacy level).

³⁴ BIS: Sound practices for loan accounting and disclosure, July 1999.

regulatory limits. In combination with specific provisions, general provisions raised in excess of such regulatory limits may be applied to offset expected losses.

Regulatory capital is aimed at maintaining operational stability. Its function as an integral component of the risk management system is to prevent any unprotected loss arising from credit risk that would leave the bank exposed and jeopardise the viability of sound business. Therefore, loss protection measures must be planned and implemented for a reasonable horizon during which the bank can close its risk positions or obtain additional capital (the regulatory standard stipulates a period of 1 year).

The original concept is based on the premise that specific provisions can be matched to the expected losses associable with the specific loans, whereas regulatory capital is allocated against unexpected losses on the entire loan portfolio. This logic is also supported by the formula used for calculating the amount of variable regulatory capital: the total amount of specific provisions is subtracted from the income earned on the entire portfolio, thus the remaining income (after deduction of all operating expenses) provides cover for losses incurred in excess of expected losses, i.e. for unexpected losses.

The distinction between regulatory capital and specific provisions according to whether they are meant to finance expected or unexpected losses may appear to be artificial to some extent. This is reinforced if the contradictions underlying the duality of accounting (to reflect changes in value) and prudential (to monitor changes in exposures) functions are taken into consideration. **In most cases, supervisory authorities and experts agree that at the present neither specific provisions nor regulatory capital can appropriately serve their real purpose in the preparation for expected and unexpected losses within one year. This conclusion holds true for the majority of national banking sectors. However, with the development of risk management systems, certain banks and countries have taken the opportunity provided by regulatory guidelines and raised general provisions or other reserves to reflect the value of expected losses.**³⁵

Nevertheless, the fundamental objective of regulation is for regulatory capital and provisions to provide adequate combined cover for both expected and unexpect-

³⁵ Practices differ considerably in the various countries. In Canada, general provisions act as cover for expected losses, in Spain a separate provision category was created for this specific purpose, and in Germany the system has unique features.

ed losses related to the loan portfolio. The split of the prudential function between the two instruments is already a secondary issue, and this approach has gained evidence in the regulatory framework for the Basel II New Capital Accord. Of course, from the perspective of taxes and dividend payments, it is a matter of great difference whether the bank raises provisions or allocates capital.

3. Credit risk in Basel II and the CAD3 directive

The first proposal of January 2001 did not investigate the issue of specific provisions. It assumed that capital adequacy requirements would provide cover for both expected and unexpected losses, whereas the loan book value reduced by the specific provisions would serve as a basis for the identification of losses. However, in consideration of the critical comments received, the Basel Committee decided to review the former guidelines.

As a result of the review, the latest version referred to as the Third Consultative Package (CP3) contains IRB (internal ratings-based) approaches, where the point of departure for risk evaluation (to determine the capital adequacy requirement) is the nominal value of the loan. Eight per cent (8%) of the risk weighted assets stipulated by the regulators is used to define a value of VaR with a view to establishing the maximum credit loss at a confidence level of 99.5%. The amount of specific provisions already generated by the bank to cover expected losses will reduce the risk-weighted assets and thus the capital requirement, albeit up to the amount of the expected losses identified by the regulatory risk weight.³⁶ In respect of performing loans (non-defaulted assets), the portion of the general provision excluded from the calculation of regulatory capital and, under certain conditions, the loan-related future margin income³⁷ may be applied to offset the expected loss up to the amount of the latter. In contrast, the total risk-weighted value of defaulted assets shall be defined as expected loss (there is no uncertainty because default has already occurred) and all raised provisions may be accounted for.

³⁶ The loan-specific capital requirement is determined as follows: first, the risk weight (%) is defined in consideration of all attributes of the customer and the transaction. From this percentage, the specific provisions multiplied by 12.5 is subtracted, then this figure is multiplied by 0.08 to calculate the HUF equivalent of the capital requirement. Each HUF accounted for as specific provision will reduce the capital requirement by one HUF.

³⁷ Future margin income: interest income after deduction of operating expenses. Portfolio-related provisions, like country or industry risk provisions are also recognised in offsetting the expected loss.

Expected losses

Expected loss is identified as the PDxLGDxEAD multiplication product in the Basel Accord, whose conversion factor to risk-weighted assets is the equation:

$$EL = 12.5 \times PD \times LGD \times EAD$$

The expected loss component does not contain any maturity adjustment, a factor that may be derived from the basic argument that the expected loss period, during which the changes in the loan value are monitored and recorded, is equivalent to the full maturity of the asset.

However, there is a certain degree of inconsistency between this rule and the definition of the probability of default (PD) used to measure the probability of default over a time span of one year in the entire Basel system.

The above formula includes neither maturity adjustments nor any other adjustments integrated into the risk weight function, such as the various values of correlation with the aggregate economy. **Figure 2** illustrates the risk weights associated with the individual customer segments according to the IRB Foundation approach and the expected loss components thereof in the context of the probability of default (PD) before the occurrence of default.³⁸ The upper figure shows customer segments of an equal LGD value set at 45% with an identical expected loss component. Therefore, the expected loss components represent completely different proportions within the risk weights assigned to the various customer segments but related to the same probability of default. Consequently, any portfolio-based provision or specific provisions not associated with default as defined in the New Accord³⁹ may reduce the risk weight of “other retail loans” to a far greater extent than that of “corporate loans”. **These differences are significant enough to shape provisioning policies recognised in offsetting losses, thus credit institutions may be interested in raising portfolio-based provisions for instance for SME or other retail loans rather than for corporate loans as the respective capital adequacy level can be lowered considerably.**

³⁸ In the IRB Foundation approach the Basel Committee prescribes a 45% LGD value for corporate and interbank loans, the retail customers are without any fixed LGD value and the banks must determine it (the Committee has set different values in its examples, such as 25% and 45% for mortgage loans, 85% for revolving credits, 45% and 85% for other retail loans).

³⁹ Provisions relating to country risk, industry risk or any provisions which do not relate to significant decline in credit quality.

Figure 2.a Risk weight functions with the expected loss components when LGD=45%

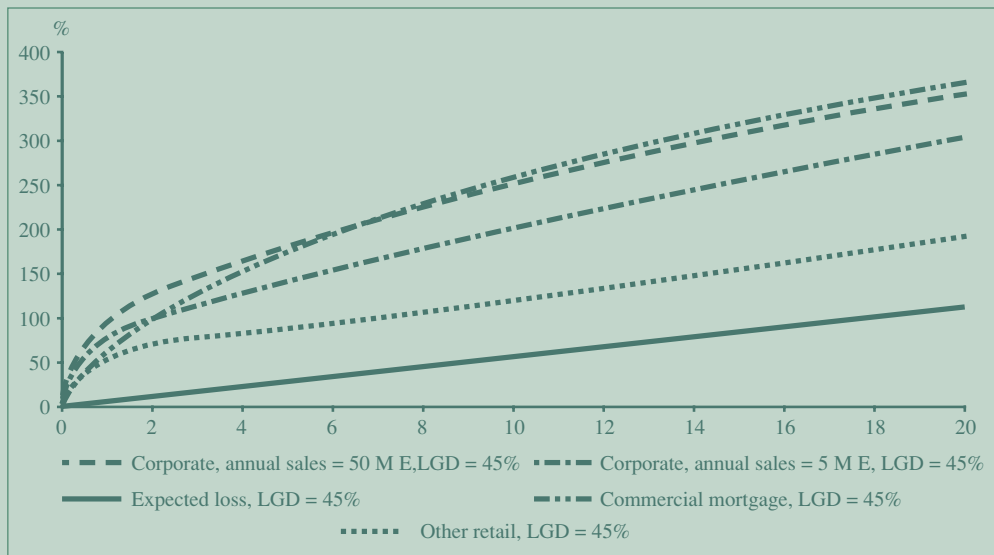
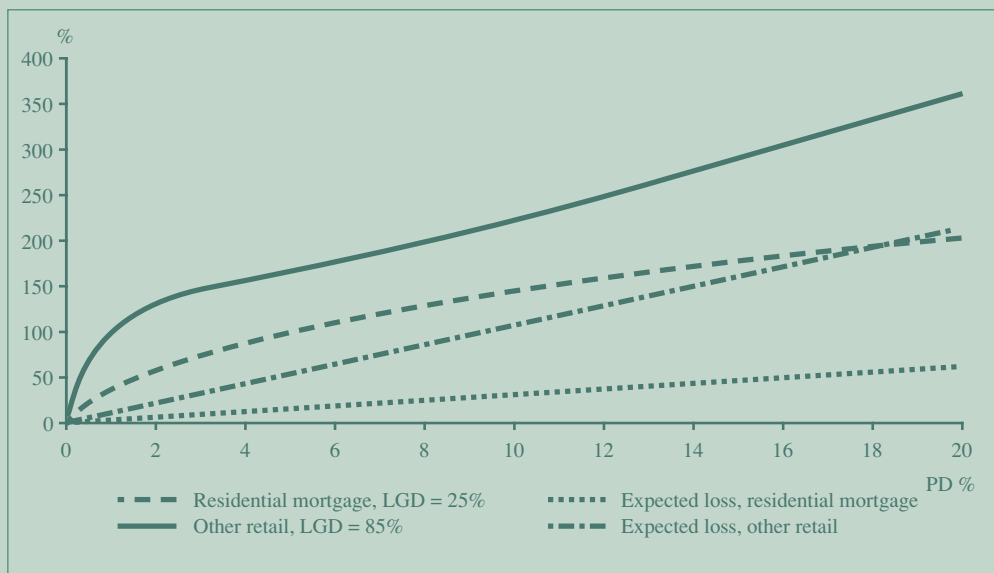


Figure 2.b Risk weight functions with the expected loss components when LGD=25% and 85%



Using the same example, however, tax reductions may act as an even more powerful incentive to generate provisions for corporate loans as opposed to capital require-

ment reduction, since recognised provisions reduce pre-tax profits, thereby diminishing the differences between the various customer segments.

Provisioning and the event of default⁴⁰

A special precedent is set by the circumstance that, pursuant to the definition of default, specific provisioning generally triggers default. An exception to this rule is the generation of provisions for “non-material” credit losses. The content of materiality is not defined in detail by the Basel Committee. However, as suggested by the comments made in other sections of the accord, non-material are both losses that are negligible or associated with a non-default event (such as limit overdraft by EUR 1 past due for over 90 days without any threat of bankruptcy) and general provisions raised for a portfolio (e.g. to cover country risk). **In adherence to such regulations, every country may decide individually which provisioning amount or rating category shall indicate the occurrence of default.** The fundamental principle is that if specific provisions reflects a significant deterioration in the credit quality or indicates an event from which a credit loss may arise, default shall be deemed to have occurred.

Specific provisions are weighted differently in the case of defaulted and non-defaulted assets. As referred to previously, **in respect of non-defaulted assets only a minor portion of specific provisions can be applied to offset the expected loss on the risk weight.** In such instances, the capital requirement may primarily be reduced by the **general provisions** excluded from the calculation of regulatory capital and **provisions settled against the country risk.**

However, the accord does not suggest explicitly how to recognise provisions generated for a portfolio when calculating the capital requirements for individual transactions, which make up the aggregate capital requirement.

Nonetheless, the total amount of provisions may be recognised in the case of the defaulted assets portfolio and the capital requirements reduced to zero as long as the bank holds the specific asset in its books. This is a considerable allowance when compared with previous concepts, and has the following implications:

⁴⁰ CP3 Article 414–419, 346.

In the event of default (PD=100%), the stipulated risk weight is the same as the calculated expected loss (at this stage loss cannot be defined as unexpected any longer). For instance, corporate and SME loans have a risk weight of 569% as shown by the function, against which the full amount of the provision can be settled. Therefore, **if a HUF 45 provision has been raised for a loan with a nominal value of HUF 100, there is no necessity to allocate capital** (risk weight = $569 - 45 \times 12.5 = 0$). The practice to determine the potential capital requirement for defaulted assets may seem unusual. On the one hand, this need arises from the definition of default because in the events of or leading to default, the amount of the loss (loss given default) cannot yet be quantified with a high degree of certainty, thus both expected and unexpected returns are probable. On the other hand, after default event capital is also associated with the expected loss to complete the portion of asset value uncovered by specific provisions.

The occurrence of default as defined in the regulations does not imply that the total amount of the loan is written off (collateral enforcing or reversal from the books must be initiated). **The sole consequence is the necessity for the banks to hold an adequate level of provisions and regulatory capital whose aggregate amount shall cover the HUF equivalent of the average loss given default (LGD) as determined by the Basel Committee.**⁴¹

The Committee permits the re-allocation of provisions within the specific customer segment on the assumption that LGD reflects the average loss to be incurred on the specific customer portfolio in the event of default. This option is granted without limitation to users of the *IRB Foundation approach*. However, applicability under the *advanced IRB approach* should be restricted to the case when the bank has chosen to define LGD as an average value. Accordingly, if the amount of the provision raised for the defaulted asset exceeds the value of the expected loss component (in this case the formula is as follows: $EL = 12.5 \times LGD \times EAD \times 1$), it can be offset against the loss on another defaulted asset as well (see paragraph 345, CP3). Thus, the provision amount in excess of HUF 45 can reduce the capital requirement set for the other defaulted asset recorded under the same customer group. By allowing this step, **the regulations essentially permit re-allocation of specific provisions.**

⁴¹ In the case of a corporate loan of HUF 100 of nominal value (LGD = 45%) with HUF 45 of provision: if the loss of value is HUF 45, capital requirement is zero, if the loss of value is HUF 20, the capital requirement is HUF 25 [(569-20x12.5)x0.08].

The objective of the Basel Committee is to enable the banks to hold sufficient reserves in the event of default equivalent to the amount of average loss determined for the specific portfolio segment by either the Committee or, when the advanced approach is used, the bank.

However, there are no rules or incentives for the distribution of the reserves between specific provisions and regulatory capital, an issue to be decided by the banks within their own competence in compliance with the effective law on dividend payments and taxation.

In our view, this regulatory framework will encourage banks to raise provisions equivalent to average LGD value without any incentive to go beyond this limit. On the one hand, the lack of capital requirement associated with the loan at this level also means that additional provisions will not reduce the capital charge. On the other hand, **the option to re-allocate surplus provisions within the portfolio implies that supervisory authorities pay particular attention to portfolio-level LGD coverage whilst the direct link of the provision to the specific assets has lower priority.**

Supervisory authorities must develop policies **aimed at separating the function of specific provisions into asset valuation (accounting) and capital requirement calculation.** In the latter case, the portfolio-based approach and conformity with the previously established LGD value will prevail. According to current practice, upon asset valuation a 70–80% provision must be raised for certain asset types. For maintaining this high level of provisioning ratio it is necessary to either set a fixed provisioning rate or offer more powerful incentives to make the bank interested in accounting for higher specific provisions.

The change in the regulatory approach does not impose any additional burden on market participants as long as the LGD value is a true reflection of the expected loss on the portfolio. In such case, the loans subject to high specific provisions may offset the others with lower specific provisions when capital requirements are to be determined, up to a level where capital need not be raised any more for the entire portfolio of defaulted assets. Thus, rating a loan into a category with typically low specific provisions (e.g. special watch) should also trigger default regardless of the amount of specific provisions to achieve the average loss of the portfolio. If the *advanced IRB approach* is applied, it is a matter of the bank's accuracy in its loss estimation, whilst in the *IRB Foundation approach* the correspondence between the values fixed by the

Basel Committee and the average loss or specific provisions accounted for in the national banking systems remains an issue to be resolved.

Interest income as a risk mitigating instrument

A major turning point in the history of risk-based regulatory approach is the recognition of future margin income as a risk cover instrument subject to the appropriate pricing of certain loan types. The interest premium provides funding for loan-related specific provisions and the cost of capital. In the calculation of capital requirements, it is primarily the reserves already raised (specific provisions and other provisions) that are recognised as risk cover, however, in this instance supervisory authorities take into consideration the income. **This practice offers multiple benefits to banks. Firstly, it reduces the amount of capital charge not only in respect of defaulted but also non-defaulted assets from the date of the credit lending on a continuous basis, and secondly, the marginal income typically exceeds the total specific provisions that the bank would have accounted for.**

Nonetheless, proposed regulations only permit this option for a **single product type** represented by the revolving credit which has a traditionally high price and a high expected loss (e.g. credit card) where the interest premium eliminates the necessity for the bank to cover the expected loss by allocating own funds. Further restrictions apply since only revolving loans with an exposure of under EUR 100,000 (approximately HUF 25 million) granted to natural persons may be deemed as revolving credit. A pre-requisite for the recognition of interest spread income as a risk cover instrument is profound knowledge of loss rates related to the product and the performance of a successful volatility test. According to the volatility test criteria, the margin income to be realised on the specific loan in the next 12 months (after deduction of the ordinary business expenses) must exceed the amount of expected loss and its twofold variance value. Should these requirements be met, a maximum 90% of the expected loss component may be covered by the future margin income, which is a significant allowance considering the high level of expected losses peculiar to retail loans.

In our view, if other retail consumer loans pass the difficult volatility test in terms of pricing, the preferential treatment of revolving loans (credit cards) should be discontinued. As certain retail loans are replacement products, it is proposed that the effect of the FMI recognition be extended to these as well.

Specific provisions in the standard approach

Compared with the former version, the standard approach has also undergone certain changes in order to encourage banks to opt for raising higher specific provisions. The risk weight applied to loans with principal or interest repayments past due for over 90 days is affected by the amount of specific provisions generated to date. If the specific provisions exceeds 20% of the outstanding debt amount, a 100% risk weight is to be applied instead of the 150% weight normally used. Should the specific provisions coverage be higher than 50%, the supervisory authority may decide to take into account the loan value netted after deduction of the specific provisions with a risk weight of 50%. The same procedure can be applied to any other loan valued at a 150% risk weight.

The prudential approach reflected by the IRB methodology, which regards specific provisions and regulatory capital as complementary in risk management, also manifests itself to some degree in the standardised approach.

4. Hungarian regulations

The Hungarian regulations for capital adequacy requirements essentially comply with the 1988 Basel guidelines, therefore we will not focus on the examination of changes in capital requirements in this paper, focusing instead on the consequences arising from Hungary's unique features in terms of specific provision practices.

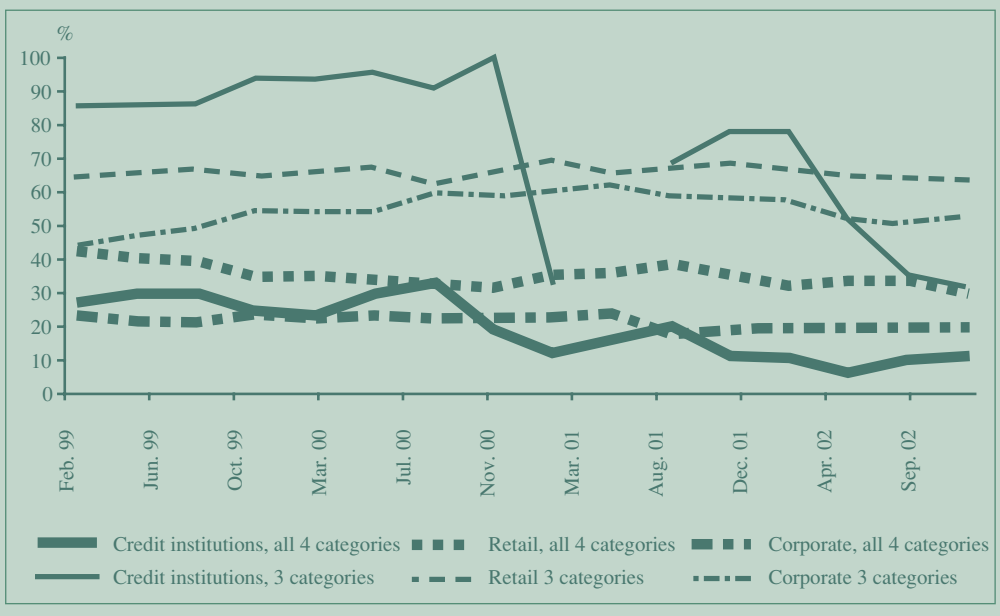
Regulations pertinent to specific provisions correspond to the Basel guidelines to a reasonable degree where special watch, substandard, doubtful and bad debt rating categories have an almost identical meaning. There is a significant difference in the interpretation of general provisions as Hungarian regulations stipulate an upper limit to maximise general provision allocation at a level, at which inclusion of the total risk provision as a primary component of regulatory capital is still permitted. **For this reason, general provisions to reduce the amount of the Basel II capital requirement do not exist within the current Hungarian legislative framework. However, provisions accounted for country risks may be applied, which have concentrated in certain banks and are negligible at the overall banking system level.**

We conducted a comparative study to establish the ratio between the total specific provisions accounted for by Hungarian banks and the rated loan portfolio, as well as the total amount of reserves including the amount of capital charges related to net (book) values and specific provisions. If we use the IRB *Foundation approach*, it can be easily determined how the method will affect rated loans after implementation. Based on one of the interpretation premises of the current definition, the probability of default on rated debts is 1, thus we only had to use the values (LDG) set by the Basel Committee to evaluate the changes.

The issue was investigated in more detail in terms of the implications of the default definition to be introduced in Hungary, whereby the specific provisions allocation must be followed by a review to define the debt as a defaulted asset if those provisions reflect a significant deterioration in the loan quality. We are not in a position to survey how the specific provisions accounted for by Hungarian banks is split between the settlement of losses realised and the preparation for expected losses to occur. However, due to the legal definition of the special watch category of domestic credit rating systems, the idea has emerged that the related specific provisions may not reflect an extent of deterioration that would necessitate declaration of default. **Due to the lack of a clear relationship between deterioration in quality and specific provisions allocation, the scope of our investigation is limited to the consequences of regarding or disregarding the specific provisions associated with special watch category loans as an event triggering default.**

Our survey was based upon the customer segmentation criteria defined by the Basel Committee, and examined the loan coverage separately in respect of interbank, corporate and retail customers. The data were suitable for the modelling of the whole banking system, the amount of reserves was determined as the aggregated specific provisions and capital charges related to the rated portfolio as disclosed by the banks, and then the ratio between the amount of reserves and the gross value of the rated portfolio were calculated. This indicator is comparable to LDG values, which the Basel Committee stipulates as the level which should be covered by the combination of specific provisions and capital charges. In the IRB *Foundation approach*, the LGD value set by the Committee is 45% for interbank and corporate loans, while retail customers are not assigned any fixed LGD value, so this must be determined by the banks (the Committee has used different values in its examples, such as 25% and 45% for mortgage loans, 85% for revolving credits, 45% and 85% for other retail loans).

Figure 3 Specific provisions and capital charge as a percentage of outstanding debts



The specific provisions and regulatory capital charge rates relative to the rated portfolio were examined in two instances. In one case, all four rated categories were taken into account, then – following the omission of special watched loans – the data of the remaining three categories were used.

As shown by Figure 3, the total specific provisions and capital charge assigned to the **rated corporate portfolio** amounted to **21% at the end of 2002**, with the rate stagnating between 20% and 23% in the past three years. In respect of **interbank loans**, loan cover and rated portfolio levels showed high fluctuation where the amount of rated loans was low⁴² with a mere **12% combined reserves** by capital and specific provisions in **December 2002**. Banks tend to raise the largest amount of reserves for the **retail portfolio** as far as problem loans are concerned, where it had a coverage rate of **40% to 50%**. **All of these values are below the ratios set by the New Capital Accord. The implementation of the IRB Foundation method will have the greatest impact on the interbank market where there is a necessity to lift the current 11% rate to 45%.**

⁴² In June 2002, for instance, Hungarian banks did not hold any rated interbank loan portfolios. Before 2000, special watch and bad loans accounted for a large portion of the rated portfolio, which also explains why the loan coverage rate is so high in three rating categories.

Due to the low level of loss reserve ratios in the Hungarian banking system the three rating categories of the worst quality (substandard, doubtful and bad loans) were examined separately. **This investigation also served to model the scenario where the specific provisions generated for special watched loans fails to trigger the event of default in the Hungarian adaptation of the capital accord. In this case even if the undesirably low current level of provisioning is maintained, the rate of combined coverage provided by the specific provisions and minimum regulatory capital charge for the retail and corporate portfolios⁴³ held in the Hungarian banking system will exceed the 45% Basel standard significantly.**

With regard to the changes in provisioning and reserve charges, we have concluded that in case of all four rating category Hungarian banks are underreserved, while if only looking for the three worse category they are overreserved, if we compare the current provisioning and reserve charges with Basel II requirements. Neither of the Hungarian supervisory authorities are of the opinion that current reserve allocation is overstated, so it would not be fortunate for the regulations designed to measure and manage credit risk better to convey the message that the current underprovisioned rated portfolio has even an excessive coverage. **Therefore, we do not propose for the Hungarian adaptation that a mechanical rule be set for the specific provisions, where provisions for special watch rating category do not mean significant credit quality worsening and so do not trigger default. As a general practice, specific provisions accounted for special watch loans shall be regarded as an indicator of default. However, deviations from the rule must be allowed for, if such provisions are explicitly not generated as a consequence of significant deterioration in quality.** Defining a loan as defaulted does not depend upon the amount of specific provisions but on the cause of provisioning, thus even minor specific provisions accounted for a special watch loan may represent an event leading to default if it is triggered by information reflecting a significant deterioration in the credit quality.

It can also be concluded that in the light of current provisioning and reserve practices, interbank lending incurs significantly lower losses than corporate lending

⁴³ According to the Stability Report published in May 2003, the amount of loss of value accounted for against corporate and SME loans has not grown at the same rate as risks in the past few years. As regards retail customers, the share of loss of value dropped in parallel with the credit boom. However, to some degree it is acceptable as risks decreased at the same time.

(the provisioning and reserve charge is 12% on interbank loans as opposed to 21% on corporate loans) yet at a higher rate of volatility. These observations are also supported by the findings of the QIS3 IRB *advanced approach* illustrating that banks valued interbank transactions at an LGD rate considerably lower than 45%. Therefore, we propose the review of the 45% LGD rate set for the interbank market by the Basel Committee.

5. Proposed modifications

Specific provisions before the default event

1. The Basel Accord contains powerful incentives for banks to account for higher volumes of portfolio-based provisions against non-defaulted assets. Provisions reduce both taxable income and the capital requirement, thus banks are likely to opt for this method up to the amount of expected losses. If the IRB approaches are used, the ratio of expected loss portion of risk weighted assets and risk weighted assets set for customer groups of the same LGD will show great divergence. Therefore, there will be significant variances between the amounts of capital charges which can be set off by specific provisions. For instance, assuming an equal probability of default, the amount of retail capital charges can be cut in half through the recognition of specific provisions whilst corporate capital requirements can be reduced by 25%, depending on the PD value. Differences may occur by lack of adjustments in the computation formula for expected losses ($PD \times LGD \times EAD$). In our view, these differences should be based on strong economic arguments as they will significantly influence the behaviour of banks.
2. We believe further guidelines are necessary to clarify how portfolio-based provisions can be recognised in the calculation of capital requirements related to individual exposures, and whether such instruments include the specific provisions generated for industry risk.

Specific provisions as an indicator of default

In the Hungarian provisioning system, specific provision allocation generally reflects a significant deterioration in credit quality and leads to the occurrence of default. Nevertheless, there are exceptions to this rule (e.g. if a new product is automatically assigned to the special watch category, and specific provisions is generated solely to protect against the risk related to the uncertainty over the market launch). Thus, we agree on the proposal that the allocation of specific provisions can only be regarded as an indicator of default if the argument for such allocation is the deterioration of asset quality.

1. The Basel directives permit the re-allocation of specific provisions of defaulted assets. This is a shift in focus as the approach focuses on individual loans before default and later, after the default event, changes to a portfolio-based approach. The main factor in determining further capital requirements is the amount of specific provisions and its conformity with LGD value. If the bank has a provisioning level equal to the LGD value, the capital requirement related to the defaulted assets will become zero. The LGD rate is therefore of prime importance, yet upon occurrence of default, the loss is still uncertain. On the other hand, in the IRB Foundation approach fixed LGD values are based upon the average rates of G10 countries and therefore do not reflect the actual loss value of customer portfolios of a specific (especially accession) country. After the identification of these insufficiencies, we think that the calculation of the reserve charges (capital requirement and specific provisions) related to defaulted assets relies too heavily on LGD value.
2. In our opinion, the Basel directive must address this problem and the issue of allowing the national supervisory authorities to set additional capital requirements for defaulted assets.
3. We propose a draft amendment that the re-allocation of specific provisions of defaulted assets be allowed by the IRB advanced approach, on the condition that LGD reflects an average value, be it related to a specific customer group, a sub-segment or an industry average.
4. In our view, this regulatory framework encourages banks to raise provisions equivalent to average LGD value swiftly without any incentive to go beyond this limit. On the one hand, the lack of capital requirement associated with the loan at this level of provisions also means that additional provisions will not reduce the reserve capital charge. On the other hand, **the option to re-allocate surplus**

provisions within the portfolio implies that supervisory authorities pay particular attention to portfolio-level LGD coverage whilst the relationship between LGD value and the specific assets has lower priority.

5. This reflects a change in the regulatory approach, forcing supervisory authorities to develop policies aimed at separating the function of specific provisions into asset valuation (accounting) and capital requirement calculation. In the latter case, the portfolio-based approach and conformity with the previously established LGD value will prevail. In the current practice, upon asset valuation a 70–80% provision must be raised for certain asset types. In this instance, however, it is necessary to either set a fixed provisioning rate or offer more powerful incentives to make the bank interested in accounting for higher level provisions.

Future margin income as a risk mitigating instrument

A pre-requisite for the recognition of FMI as a risk cover instrument is profound knowledge of loss rates related to the product and the performance of a successful volatility test. According to the volatility test criteria, the net income to be realised on the specific loan in the next 12 months (after deduction of the ordinary business expenses) must exceed the amount of the expected loss and its twofold variance. Should these requirements be met, a maximum 90% of the expected loss portion of risk weight may be covered by the future margin income, which is a significant allowance considering of the high level of expected losses peculiar to retail loans.

6. In our view, if other retail consumer loans pass the difficult volatility test in terms of pricing, the preferential treatment of revolving loans (credit cards) should be discontinued. As certain retail loans are replacement products, it is proposed that the effect of the regulation be extended to these as well.

General provisions

Regulations for general provisions vary in every country. The differences also arise from the lack of correspondence between the Basel (general provision) and the European (funds for general banking risk) directives. It is proposed that the European guidelines be aligned to the Basel terminology and the regulatory framework standardised within the European Union.

ANDRÁS BETHLENDI–ANNA NASZÓDI

REFLECTIONS ON THE PREFERENTIAL
TREATMENT OF SMALL AND MEDIUM-SIZED
ENTERPRISES IN HUNGARY

THE ROLE OF DIVERSIFICATION

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1. Introduction

The proposed Basel II Accord principally uses economic considerations to make lending to small and medium-sized enterprises (hereinafter: SMEs) more attractive for credit institutions compared to large corporations, but it also takes economic policy objectives into account by setting a lower minimum capital requirement. The new accord offers three main approaches for establishing the capital required for covering credit risks: the standardised approach, the IRB Foundation approach and the IRB Advanced approach, all of which ensure positive discrimination of SMEs.

This study explains how and to what extent the above credit risk assessment approaches ensure preferential treatment for SMEs, and explores whether the proposed regulation is in harmony with the corporate structures of the Hungarian economy. This analysis will only be relevant if foreign banks continue to allow their affiliates in Hungary to operate independently of their parent organisations and do not provide direct finance to Hungarian companies either, since Hungarian companies would only amount to a small fraction of the parent banks' total portfolio.

2. The reasons for and approaches to positive discrimination for small and medium-sized enterprises

The preferential treatment of SMEs can be supported by the following arguments: firstly, lending to smaller enterprises will result in a diversified portfolio (by reducing the total of individual risks) which is preferred from the point of view of risk; and secondly, smaller companies are less sensitive to the general economic situation, i.e. to the common risk factor (asset correlation), thus SME lending carries a smaller danger of procyclicality. According to the economic policy arguments, SMEs must be given preferential treatment because they significantly contribute to employment and production, and, because of the absence of alternative financing channels, they are more dependent on bank funds than large corporations.

Table 1 Distribution of the main indices of companies in 2001 (%)

Company group	Distribution by number of companies	Share of employment	Contribution to GDP generated by the corporate sector	Contribution to exports
Self-employed persons	64.3		2.6	1.0
Micro-enterprises	32.0	23.4	11.7	5.1
Small enterprises	3.0	19.5	15.6	7.7
Medium-sized enterprises	0.6	20.9	19.7	13.6
SME total	99.9	63.8	49.6	27.4
Large corporations	0.1	36.1	50.5	72.6
Total	100.0	100.0	100.0	100.0

Source: APEH (Hungarian tax authority)

Note: All companies were regarded as SMEs, except for large corporations.

As evidenced by the above table, Hungarian SMEs are responsible for a considerable share of GDP produced by companies (49.6%) and corporate employment (63.8%), as is the case elsewhere in Europe. Although their support appears to be a well-justified economic policy objective, we are of the opinion that a regulation intended to reduce the risks for credit institutions must not be burdened with economic policy roles.

The effect of the regulation also depends on whether the economic capital required for SME loans or the regulatory capital⁴⁴ is greater, as well as on the prudence of the credit institution. If we assume that a credit institution is operating prudently, then its capital will be higher than the regulatory and economic capital requirements. However, if the institution is not operating prudently, then it will aspire to comply only with the minimum regulatory capital requirement in either case.

If the regulatory capital requirement is greater than the economic capital requirement, then, irrespective of the prudence of the institution's operation, the recommendation does not support SME lending as it would require banks to be overcapitalised. Thus, it may influence lending in the opposite direction than intended.

⁴⁴ If using the advanced method the credit institution can estimate all parameters, while in the case of the basic method they can only estimate the probability of default (except for the regulatory retail category), the other parameters are set by the supervisor.

If the economic capital requirement is greater than the regulatory capital requirement, then a prudently operating credit institution is not encouraged to engage in SME lending by a lower regulatory capital, provided that it generates adequate funds for its economic capital requirement. Thus it grants as much credit, and at the same rates, to the SMEs as it would with a higher regulatory capital requirement which would be still lower than the economic capital.

If the economic capital requirement is greater than the regulatory capital requirement but the credit institution is not operating prudently, then the low regulatory capital will motivate credit institutions to grant more credit to SMEs and/or at lower rates, than dictated by economic rationality. In this case, the regulation will support SMEs through credit institutions, but at the same time it will discourage prudent lending based on economic considerations by credit institutions.

Having explored all scenarios, we can conclude that the economic policy objective of the regulation can only be achieved if the regulatory capital requirement is lower than the economic capital required for SME lending, and only at the price of discouraging credit institutions from prudent operation. If the credit institution feels that for secure operation it needs capital which is greater than the regulatory capital and has adequate funds, i.e. it is operating prudently, then the economic policy to be implemented through the regulation will be ineffective.

While based on the above argument we do not accept the justification based on economic policy objectives, preferential treatment of SMEs may still be justified by the diversification resulting from SME lending and by their lower sensitivity to the general economic situation. In this study, we only investigate the latter of the above justifications, i.e. arguments based on diversification.

We must mention here that, with the exception of retail credit card lending and revolving retail loans, the Basel proposal does not take into consideration the issue of pricing when determining minimum capital requirements. However, we are of the opinion that the economic capital requirement cannot be determined in any asset category without taking into consideration pricing, and provisioning. It is generally the case that banks are better secured against credit risks by charging a risk premium on SME lending than in the case of loans granted to large corporations. Thus, from this point of view, at an identical anticipated loss rate, a lower capital requirement for SMEs is justified. This probably applies throughout the entire Hungarian banking system, although we have limited information about the pricing applied by

individual banks. In our opinion, a detailed investigation of these issues would be a worthy undertaking.⁴⁵

We explored the issue of diversification by carrying out a survey of the lending policies of Hungarian banks and analysing the situation of Hungarian companies. However, before we proceed, let us explain briefly how and to what extent the Basel proposal prefers SMEs to large corporations in the various approaches used in credit risk calculation.

The standardised approach

Similarly to the regulation currently in force, the minimum capital requirement according to the standardised approach is 8% of the risk-weighted asset. However, this approach takes into consideration the rating given by external rating agencies, on the one hand, and differentiates between the various asset types to a greater extent, on the other hand, i.e. it uses more asset categories in rating. It also applies a wider range of risk rates: subject to the rating of individual assets and the asset category, a 0%, 20%, 50%, 75%, 100%, 150% or greater weight must be attributed to individual assets.

Loans granted to unrated enterprises only need to be taken into account at a 100% weight when calculating the risk-weighted asset. However, this relief applies not only to small and medium-sized enterprises with no external credit rating, but to larger enterprises as well.⁴⁶ As only a fraction of Hungarian enterprises are rated, and because we do not anticipate a rating “boom” in the near future, presumably the credit institutions opting for the standardised approach will apply a 100% risk weight to the majority of corporate loans.

The Committee proposes to offer further incentives to SMEs within the framework of the standardised method. Credit institutions can classify SME loans into the expanded asset category of retail loans referred to as regulatory retail portfolio (which comprises qualifying SME loans and all retail loans except for mortgage loans). This asset category has received a 75% risk weight, which is a significant 25% capital requirement relief relative to the current regulation. According to the Basel proposal, certain

⁴⁵ The rate at which expected losses are priced may also be significant in the case of the “other retail loans” category, as evidenced by the high APRC of consumption loans.

⁴⁶ Even large corporations are not necessarily rated. The rating of enterprises is more widely practised in the United States than either in Europe or in Hungary. 94% of the S&P 500 companies and 53% of the DAX-30 companies have a rating (Danielsson [2002]).

quantitative criteria must be met for this rating. The credit institution's risk exposure to any one SME must be less than EUR 1 million (app. HUF 250 million), and according to the previous versions of the Basel proposal this cannot exceed 0.2% of the overall retail portfolio. As the 0.2% numerical limit has been heavily criticised, the Third Consultative Paper of the Basel Committee already proposes a slightly different arrangement: it sets out that the supervisor must be satisfied that the regulatory retail portfolio is sufficiently diversified to a degree that reduces the risks in the portfolio, warranting the 75% risk weight. The 0.2% limit is recommended as an optional concentration criterion. Besides the two quantitative criteria there is also a criterion applicable to the orientation of the debtor: company loans classified into the regulatory retail portfolio must be granted to small enterprises.

In fact the purpose of the recommended 0.2% limit and the limit applied to exposure to one counter-party is to ensure that the risk related to each exposure within the overall portfolio is relatively small, as a less concentrated portfolio may lead to a greater degree of diversification. The 0.2% limit applicable to single risk also determines the minimum number of loans in the portfolio category: if comprised of loans of equal size, 500 loans will guarantee a maximum risk exposure of 0.2%. Assuming that the credit institutions grant credits to enterprises according to the distribution of company loans and the highest amount of credit is HUF 250 million, then, based on the 2001 data and applying the 0.2% limit, the portfolio must contain some 6,000 elements (see Box 2).

Looking at the degree of indebtedness of companies, we can establish that, applying the EUR 1 million (HUF 250 million) limit, the majority of corporate clients can be classified into the regulatory retail portfolio. Although at the end of 2001, 51% of the surveyed companies had some kind of credit type external funds⁴⁷ (total short-term loans and credits and long-term liabilities,⁴⁸ hereinafter: "debt portfolio"), 95% of these companies had a debt portfolio under HUF 250 million. At the same time, however, the credits that can be thus reclassified only amount to a small percentage, some 15% of the overall corporate debt portfolio.

The 0.2% limit creates a competitive disadvantage for smaller credit institutions in the field of financing larger SMEs (associated with higher exposure). As they have a

⁴⁷ See Table 2.

⁴⁸ Long-term liabilities also include owners' loans. We regard these as credit type assets, as opposed to the balance of payments statistics that track foreign owners' loans as an influx of working capital, i.e. as a capital element.

smaller regulatory retail portfolio, they can only use the preferential weighting up to a limit well under HUF 250 million. Considering the matter from the point of view of large Hungarian commercial banks we can say that, due to the 0.2% concentration limit and the currently small regulatory retail portfolio, in effect the 250 million limit would only be binding for the three banks with the largest regulatory retail portfolio (see Table 3). For the other banks' regulatory retail portfolio 0.2% is less than HUF 250 million, so that the 0.2% becomes the effective limit of the portfolio, putting credits under HUF 250 million at a competitive disadvantage because of the greater capital requirement. In 2001, 2,300 companies had a debt portfolio between HUF 112 and 250 million, their overall debt portfolio amounting to HUF 380 billion. The regulatory retail portfolio of the banks is likely to grow further by 2006, thus it is difficult to assess the degree of competitive disadvantage generated by the regulation. Of course, there are other factors besides capital requirements that may influence the treatment of SME loans as retail loans (e.g. credit risk, its measuring/management, products and other business policy considerations). This is well confirmed by the cur-

Table 2 Indebtedness of Hungarian companies at end-2001

Annual net sales (in HUF million)	5-50	50-700	700-4,000	4,000-12,500	over 12,500	Total
Number of companies	65,092	40,776	5,067	714	293	111,942
Ratio of companies with debt (%)	42	62	76	78	78	51
Average debt- portfolio (HUF million) of companies in debt	22	82	407	1,782	10,910	135
Average* debt/annual sales of companies in debt (%)	124	49	26	26	19	83
Average* debt/total assets ratio of companies in debt (%)	52	28	22	24	22	39
Share in the overall debt portfolio (%)	8	27	20	13	32	100

Source: APEH database

* Note: Average figures are the non-weighted averages of individual averages.

rent bank practice concerning the classification of loans into the retail segment, which has been developed independently from the regulation, based on business rationality, and prescribes a classification limit below HUF 250 million (see Box).

Table 3 Ten largest regulatory retail portfolios and 0.2% of such at end-2002

	1	2	3	4	5
Regulatory retail portfolio* (HUF million)	610,513	228,732	148,040	112,261	92,058
0.2% of the above (HUF million)	1,221	457	296	225	184
	6	7	8	9	10
Regulatory retail portfolio* (HUF million)	86,007	61,938	57,408	56,773	56,241
0.2% of the above (HUF million)	172	124	115	114	112

Source: Data supplied by the Hungarian Financial Supervisory Authority (PSZÁF).

* Note: All household loans except for mortgage loans, plus loans granted to micro and small enterprises.

1. Classification of corporate loans into the retail portfolio and the use of micro, small and medium-sized company categories based on the current practice of the seven largest⁴⁹ Hungarian banks

In connection with the Basel proposal, we interviewed banks about their current practice of segmentation by company size, which has presumably been developed according to economic rationality (company/bank size, effective risk measuring and risk management, profit to be gained from client). We were interested in the following aspects. Firstly, do they (and if so, under what criteria) classify corporate loans involving a standardised lending process and products into their retail portfolio and where risk measurement/management takes place at portfolio level rather than individually as in the case of companies? Secondly, up to what company size category do they use scoring systems, i.e. what is the potential size of

⁴⁹ At the end of 2002 their total share in the corporate lending market was 76.5%.

company that would still enable the company to be classified into the regulatory retail portfolio? Thirdly, what companies do they consider as small and medium-sized enterprises (SMEs), i.e. in terms of risk, and what level of annual sales separates this client category from large corporations which are treated differently?

It appears that banks categorise clients by size on the basis of their annual sales, except for one which does so in accordance with the relevant Government Regulation in force. Currently, four of the surveyed banks classify corporate loans into their retail portfolio, although their classification criteria vary widely (they apply upper limits of HUF 50, 200, 300 and 700 million annual sales respectively). Assuming that without real estate as collateral banks are prepared to grant SME loans up to 30%⁵⁰ of the borrower's annual sales, according to their current classification practices applicable to retail portfolios, their maximum risk exposure must be HUF 15, 60, 90 and 210 million respectively. Where there are greater exposures, banks attribute a greater significance to individual assessments. Thus, according to their current practice, they would not classify SME loans with a risk exposure under EUR 1 million into their retail portfolio. However, five of the banks have designed their SME scoring systems generally according to their own small and medium-size enterprise categories, i.e. up to HUF 700, 700, 1,000, 2,000 and 2,000 million, which implies a portfolio-based approach to risk management and standard lending procedures, or a move in that direction. Thus, in the future these scoring systems (and those currently under development) will allow banks to classify SME loans with a risk exposure under EUR 1 million into their retail portfolio.

Only two banks apply a classification limit for large corporations that is Western European in size (over HUF 10 and 15 billion respectively), the others set the limit of the large corporation category considerably lower. This is mainly because Hungarian companies and banks are smaller than their Western European counterparts.

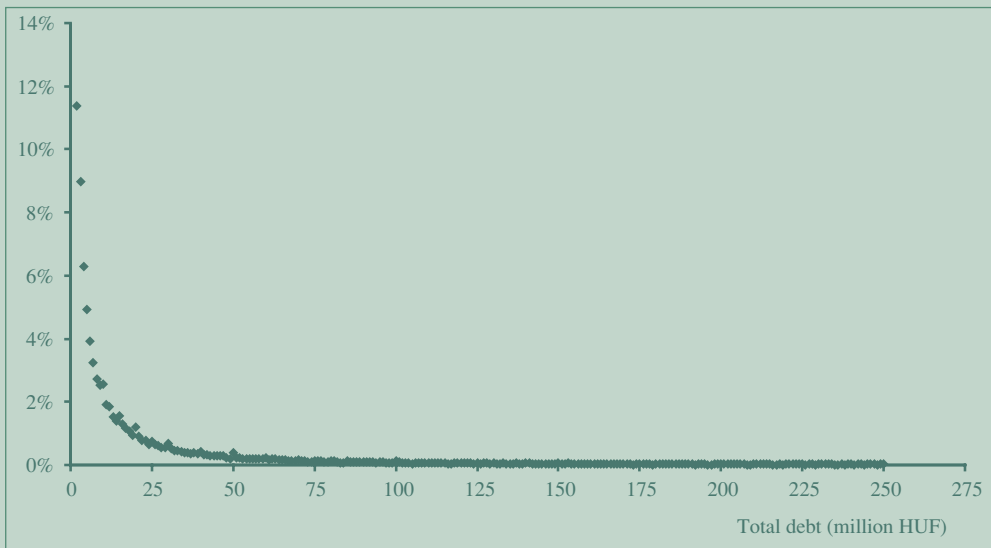
2. Concentration and client numbers

The concentration of the regulatory retail portfolio depends on the number of loans in the portfolio and their distribution by size. If all loans are the same size,

⁵⁰ Banks usually set up rules of thumb on the basis of annual sales.

then the bank needs a portfolio with a minimum of 500 loans in order to comply with the 0.2% concentration limit. However, using the division of debts⁵¹ (see Figure 1) we arrived at a more realistic figure. Apart from retail loans, only loans not exceeding HUF 250 million can be classified into the regulatory retail portfolio, so that companies with a debt portfolio of over HUF 250 million were omitted from the analysis. On the other hand, though, it did include small companies that have such small debts that we can safely assume are not to a credit institution. However, because of their size these debts can substitute for household loans left out of the analysis in the absence of available data.

Figure 1 Distribution of corporate loans under HUF 250 millions



Source: APEH database

We have assumed that credit institutions grant loans to enterprises according to the distribution of corporate loans. When calculating the concentration, the largest loan must be compared to the overall loan portfolio. For example, if the portfolio concentration limit is 0.2% and the largest loan in the portfolio is HUF 250 million, then the overall loan portfolio must be HUF 125 billion. According

⁵¹ As we have no data available on loans granted by credit institutions to individual companies and retail clients, we calculated using the total debt portfolio of companies, and only part of these are bank loans. If the ratio of bank loans within the debt portfolio is more or less the same for every company, then this method of calculation will not distort the outcome.

to the distribution above, this is complied with if there are some 6,000 loans in the portfolio (see Table 4).

Table 4

Concentration limit (%)	0.1	0.2	1.0	2.0
Largest loan (in HUF million)	250	250	250	250
Total loans granted (in HUF million)	250,000	125,000	25,000	12,500
Number of loans	11,720	5,860	1,172	586

For example, if we consider the application of a 2% limit instead of 0.2%, then, according to the last column of Table 4 and with the above distribution, a loan portfolio will be regarded as diversified if it has some 600 loans. However, the distribution ratios applied above can only express the distribution of loans classifiable into the regulatory portfolio of individual credit institutions in an approximate manner. This is because their lending policy may be different from the average, and, because by explicitly including the retail portfolio in the regulatory retail portfolio and including corporate loans granted by the relevant credit institution instead of the corporate debt portfolio, the distribution itself may change.

The IRB approach

In the case of models based on internal rating, risk weight is determined by a function,⁵² whose parameters are estimated by the credit institution. Different variations of the function apply to the various asset categories. Compared to the standardised approach, in this case SMEs are granted more facilities than large corporations. Similarly to the standardised approach, they can be either reclassified from the corporate category into the retail portfolio, whereby their risk weight is determined according to a more favourable function applicable to this group (involving a lower capital requirement), or, in the case of SMEs which cannot be reclassified in the above manner, the size adjustment can be applied.

⁵² If using the advanced method the credit institution can estimate all the parameters, while in the case of the basic method they can only estimate the probability of default (except for the regulatory retail category), the other parameters are set by the supervisor.

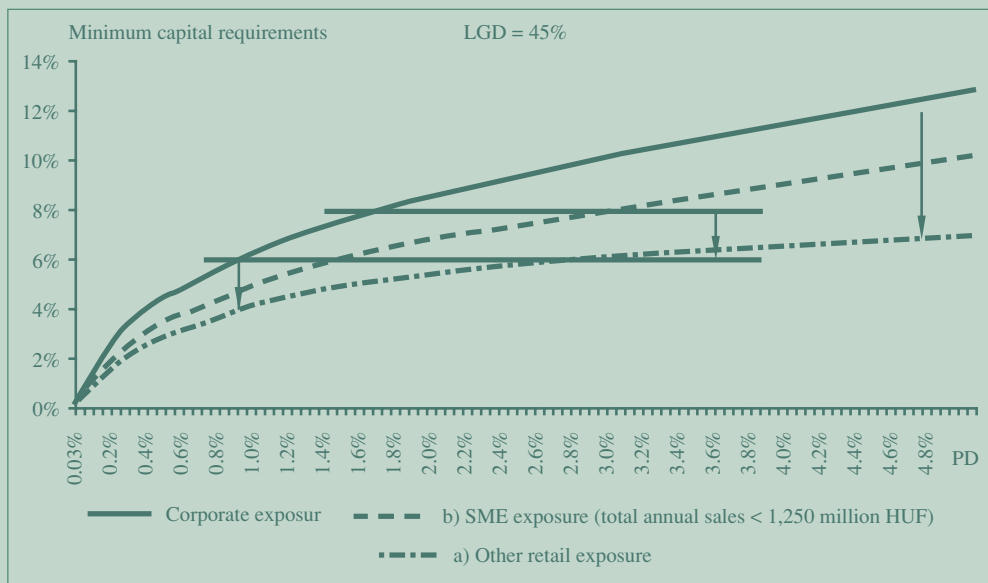
There are three categories within the retail portfolio: exposure secured by residential properties, qualifying revolving retail exposures and other retail exposures. SMEs fulfilling the criteria for the retail portfolio are to be classified into the other retail category. The curve of this category determining the capital requirement is considerably flatter than that of the corporate portfolio, so that in the case of identical probability of default (PD) and loss given default (LGD) it requires much less capital (see Figure 2). The proposal sets out two criteria for classification of SMEs into this portfolio. The first is also applied in the standardised approach, and determines the upper limit of single risk exposure (which must not exceed EUR 1 million). The other criterion stipulates that the credit institutions must manage these loans similarly to other retail loan aggregates (standard products, portfolio-level risk management instead of individual risk management, scoring system). Deconcentration is not an explicit criterion here, as opposed to the standardised method. This is because it follows from the IRB rating system and method of estimating loss parameters that a sufficiently large number of exposures are required for the parameter estimation of any given portfolio (pool), which must form relatively homogenous groups according to their risk attributes so that risk is differentiated at an acceptable level. However, the supervisor may determine the minimum number of deals for the use of the other retail portfolio category.

SME loans that cannot be classified into the other retail portfolio will benefit from a reduced capital requirement according to their size. The current proposal grants the largest capital incentive to SMEs up to annual sales of EUR 5 million (app. HUF 1.25 billion) which decreases in company size and becomes zero at annual sales of EUR 50 million (app. HUF 12.5 billion).

Figure 2 compares the rate of capital requirement reduction achievable by applying the standardised approach (from 8% to 6%) and IRB (from the corporate curve first to the SME curve granting the highest incentive, then towards the retail curve). SMEs' capital incentive according to the IRB approach may be greater or smaller than according to the standardised approach as in the case of IRB the reduction rate also depends on the parameters (PD, LGD, M).

The proposed formula for the size adjustment is based on the assumption that the relationship between sensitivity to the common macroeconomic risk factor (asset correlation) and company size is negative. Several empirical surveys carried out in

Figure 2 Comparison of the reduction of capital requirements applicable to SME loans according to the standardised approach and the IRB approach



Note: The above figure was created using the function defined in the Basel proposal.

using the banking data of developed countries⁵³ confirm the existence of such a relationship.⁵⁴ J. A. Lopez [2002] approaches this issue from an economic angle. He explains that a large corporation (that tends to be active in several fields) can be interpreted as a portfolio of several smaller companies, and due to the diversification effect the portfolio is relatively less sensitive to single risk and relatively more sensitive to the common risk factor. According to K. Düllmann–H. Scheule [2003], this relationship between company size and risk can also be explained by the varying distribution of companies by industry as there are more large corporations operating in the more cyclically sensitive processing industry.

According to the formula, in the case of a 0.03% PD the maximum incentive for SME loans is a 21.3% reduction in capital requirements compared to large corporations; then the reduction decreases, then increases, and finally decreases again (see Figures 3–4).

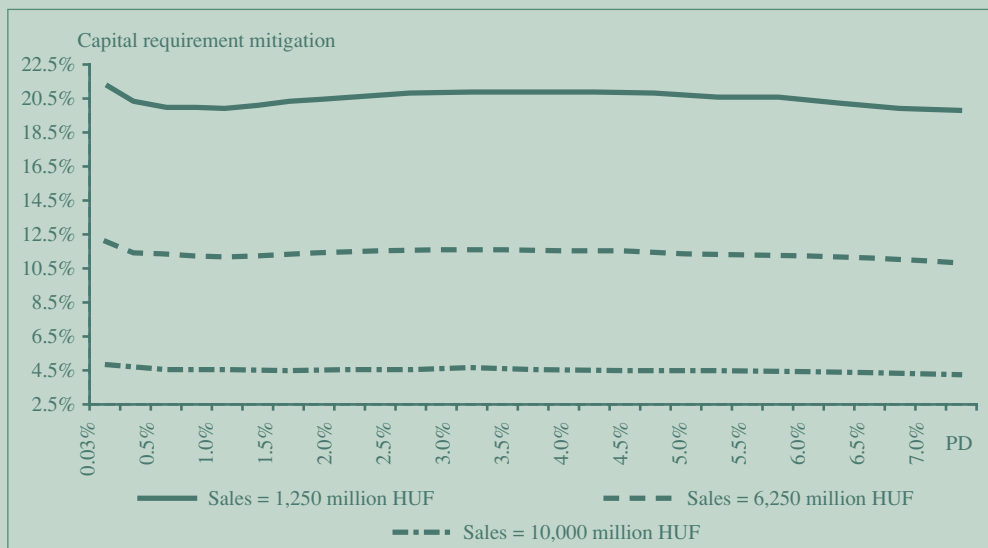
⁵³ J. A. Lopez [2002], K. Düllmann–H. Scheule [2003]. Although this is slightly contradicted by Dietsch, M.–Petey, J. [2002], they used French and German data for their surveys and claim that in Germany if the small enterprise category is divided up further the above-mentioned relationship no longer applies.

⁵⁴ This finding is hardly surprising as large corporations account for the greater part of GDP, the most important macro-economic index.

With the increase of PD, capital requirements applicable to large corporations and small companies move in the same direction as LGD (assuming that this is identical for both company sizes). Thus, according to the Basel proposal the degree of the reduction of capital requirements should be decreasing in PD, but this is not what the functions reflect. The overall effect of the asset correlation on capital requirements also depends on the relationship between the probability of default and asset correlation. According to the Basel proposal, up to a certain degree of PD the asset correlation is a decreasing function of PD, and above that it becomes insensitive to it. However, the relationship between asset correlation and PD does not depend explicitly on the size of the company. In economic terms, the negative relationship can be explained by arguing that a higher PD is principally due to the specific factors. By creating this negative relationship and setting lower capital requirements the Basel Committee intended to avoid the danger of procyclicality. Thus, during recession when PD is higher, the decrease in the asset correlation, unlike the increase of PD, reduces capital requirements, while the opposite is the case in a boom. The average PD of SMEs is higher than that of the large corporations, thus the procyclical effects referred to above would be more pronounced in their case. Thus, the benefits of the negative relationship between asset correlation and PD are generally enjoyed by SME financing, so implicitly the incentive also depends on the size of the company. All in all, SME financing doubly benefits: it will become less sensitive to the macroeconomic factor due to the size adjustment, and this sensitivity will be further reduced by a higher average PD. By granting this significant incentive the Basel Committee intend to minimise the chances of a credit crunch forming in the SME market as in the absence of alternative financing channels SMEs are much more reliant on bank funds. The survey conducted by J. A. Lopez [2002] confirms the existence of a negative relationship between asset correlation and PD, but finds that this relationship is more prominent in the case of large corporations. This is yet another argument for the suggestion to a decreasing rate of preferential reduction of capital requirements for SMEs in PD. Other surveys have found a different relationship between asset correlation and PD.⁵⁵

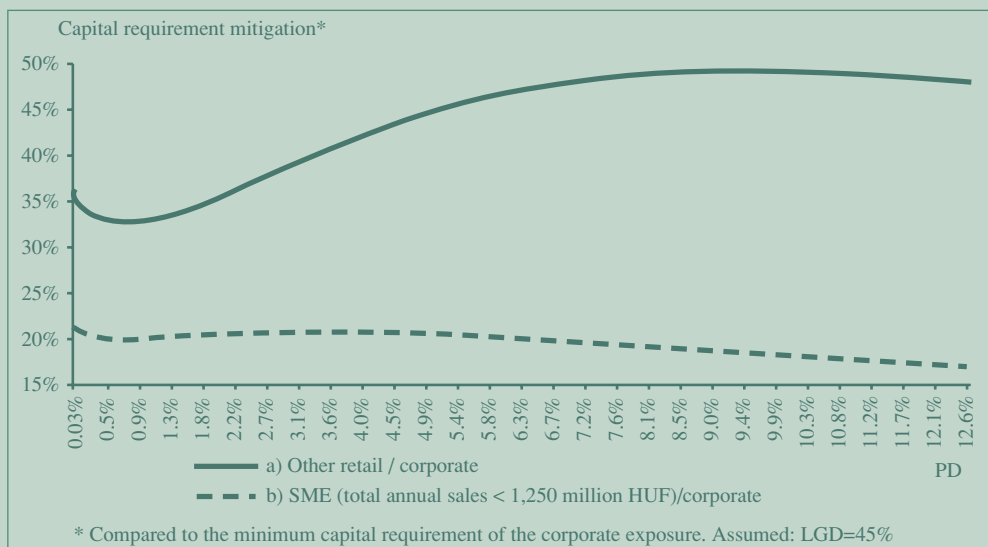
⁵⁵ The empirical survey conducted by K. Düllmann-H. Scheule [2003] found that in the case of small companies there is no relationship between asset correlation and PD, while they found a positive relationship in the case of large corporations. Dietsch and M.-Petey, J. [2002] found a positive relationship in certain size categories and a U-shape relationship in others. The diverse results of the various empirical surveys may be attributed to a number of reasons: for example, they may have used databases of different sizes and they have been conducted in different countries, using different definitions of bankruptcy and company size.

Figure 3 Rate of preferential reduction of capital requirements for SMEs relative to loans granted to large corporations, subject to PD and company size



Note: The above figure was created using the function defined in the Basel proposal.

Figure 4 Reduction in capital requirements for SME loans relative to loans granted to large corporations: a) if classified into the other retail portfolio; b) if adjusted according to company size



Note: The above figure was created using the function defined in the Basel proposal.

In summary, the relationship between asset correlation and company size and asset correlation and PD assumed in the Basel document has not yet been empirically confirmed and may bring widely varying results from country to country. Furthermore, these results (e.g. a positive relationship between asset correlation and PD) may contradict the macro-level approach (which would require a negative relationship between asset correlation and PD in order to avoid procyclicality). We propose that the adjusting factor ensuring an incentive for SMEs be modified so that the rate of preferential reduction of capital requirements for SMEs is decreasing continually in PD as the above-mentioned phenomenon indicates that in practice the regulation is poorly implemented.

3. Corporate structure in Hungary

In this section we examine Hungarian companies according to the criteria relied on by the Basel proposal. Using data from the Hungarian tax authority (APEH), we examined the distribution of companies by size, and with the help of a simple model we tested whether the allowance for SME lending is justified on the grounds of diversification.

Distribution of companies by annual sales

According to 2001 corporate data,⁵⁶ 80% of the enterprises that achieved annual sales over HUF 50 million sold less than HUF 440 million, and 90% less than HUF 930 million (see Figure 5).

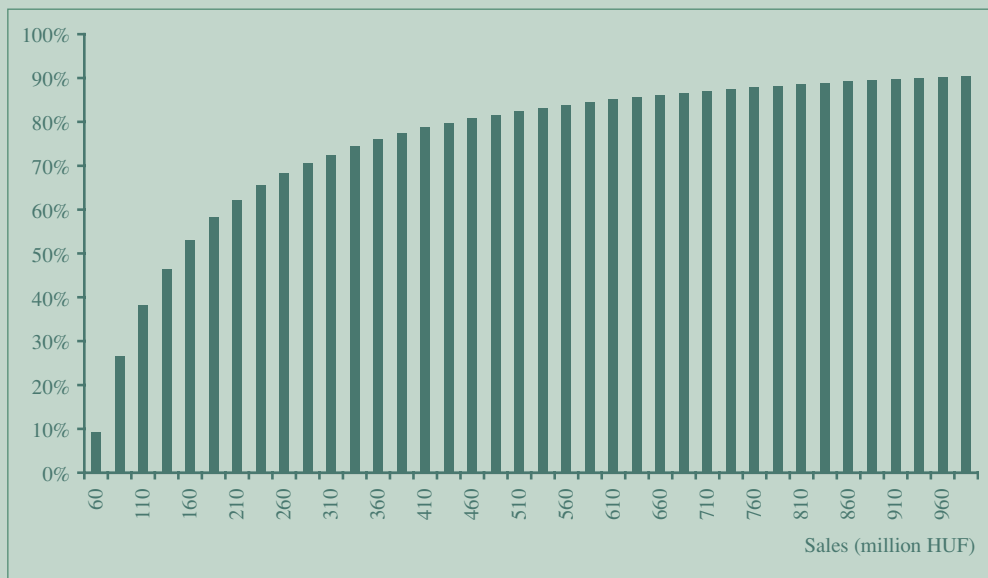
Although the above distribution of companies shows that there are few large corporations, their debt is quite high: companies with annual sales over HUF 12.5 billion (app. EUR 50 million) account for over 30% of the corporate debt portfolio (see Table 2). The indebtedness of these companies to credit institutions also implies that their significance is considerably greater than their number would indicate.

The definition of the Basel proposal for small and medium-sized companies differs from that currently in use in Hungary. According to the proposal, they are companies whose annual sales, or in certain cases total assets,⁵⁷ do not exceed EUR 50

⁵⁶ The most recent data in the APEH database are for 2001.

⁵⁷ The supervision may order banks to use total assets as a qualification criterion for SMEs and the rate of applicable capital incentive if the total assets reflect the size of the companies more accurately than annual sales.

Figure 5 Cumulative distribution of the annual sales of companies with an annual sales over HUF 50 million



Source: APEH database

million⁵⁸ (app. HUF 12.5 billion). In Hungary, however, enterprises employing less than 250 workers whose annual net sales do not exceed HUF 4 billion or whose total assets do not exceed HUF 2.7 billion are classified as SMEs. Based on 2001 data, if the definition were to change to meet the Basel criteria, it would change the classification of Hungarian companies to such an extent that instead of the present 1,250 large corporations⁵⁹ only 290 would remain, as only 290 companies recorded annual sales over HUF 12.5 billion. However, if the Supervisory Authority ordered banks to determine the size of companies on the basis of their total assets, that would leave only 280 companies in the large corporation category. The majority of commercial banks follow a practice based on business rationality⁶⁰ that sets

⁵⁸ The proposal is in line with the new European definition of SMEs: only companies employing less than 250 workers with net annual sales below EUR 50 million or whose total assets do not exceed EUR 43 million qualify.

⁵⁹ If we omit the employment criterion and categorise companies on the basis of their annual sales and total assets, the number of large corporations will be 690.

⁶⁰ Companies can be grouped by size not only by degree of risk but also on the basis of marketing considerations. For example, a bank may also treat some clients as if they were large corporations (special services) although in fact they are only medium-sized.

a lower classification limit for large corporations. Even purely on the basis of the difference in company classification between either statutory or general banking practice and the Basel proposal, we can conclude that in terms of SME definition the planned capital regulation is not in harmony with the current characteristics of the Hungarian corporate sector.

However, such harmony may still be achieved. Firstly, the Hungarian corporate sector may change (e.g. by undergoing a restructuring process in terms of industries and sizes as a result of Hungary's EU accession) by 2006 when the regulation is due to be implemented. Secondly, the Hungarian affiliates of some foreign banks are also likely to cease to operate independently and may be incorporated in the branch network of the parent bank. This means that the parent bank will offer direct financing to Hungarian enterprises, and that these loans will thus become part of a foreign bank's portfolio. Thirdly, the European Union's SME definition, which is in line with the Basel recommendation, will be applied to Hungarian companies in respects of other important issues as well (e.g. SME subsidiaries, statistical systems).

On the basis of current data, let us estimate the division of companies by annual sales in 2006. Assuming that companies grow by a conservative 8% per year both in terms of total assets and annual sales, then by 2006, on the basis of annual sales, 450 companies would meet the HUF 12.5 billion classification criterion compared to 290 in 2001. If they were classified according to their total assets, there would be some 430 large corporations in 2006 as opposed to 280 in 2001. This suggests that the Hungarian corporate structure will probably be strong enough for categorisation which sets a higher limit for large corporations.

A lower classification limit would be detrimental to the competitiveness of Hungarian commercial banks and enterprises alike. Hungarian commercial banks could only finance companies falling between the lower and the Basel classification limits if they set a higher regulatory capital requirement than their Western European competitors. Companies between the two classification limits which are unable to obtain foreign financing due to the higher capital requirement will probably borrow funds more expensively than Hungarian companies of the same size that receive financing from foreign banks or foreign companies.

Based on the above, we recommend that the upper limit for SME classification set by the Basel proposal be adopted.

Small and medium size enterprises and the diversified corporate portfolio

SMEs' role in creating a diversified bank portfolio is ensured by the following rule: the more clients of small size which are financed by a bank, the more diversified its portfolio will be. However, we must adjust this general statement as its trustworthiness depends on the individual risk attached to SMEs relative to that of large corporations. If the individual risk of SMEs is considerably higher, then only the diversity of a portfolio containing a very large number of elements could offset the initial disadvantage created by exposure. In our analysis we will make an attempt to assess the drawbacks of lending to SMEs attributable to risk, and the extent of their impact on diversification.

Apart from exposure, a credit risk model must also take pricing into account. It probably costs more to monitor individual SMEs than large corporations, but credits not subsidised by the state are offered to SMEs with much higher interest rates. In an ideal case credit institutions also take into consideration costs and the contribution of the relevant loan to the portfolio-level risk in pricing, i.e. in determining the interest rates of loans. For the reasons mentioned above this study does not address the issue of pricing. The Basel recommendation does not determine explicitly the minimum capital requirement on individual assets based on the change of risk at portfolio-level. However, by recognising risk mitigation methods⁶¹ the idea of portfolio-level risk measurement is implicitly present in the regulation. The lower minimum capital requirement applicable to SME loans also implies a portfolio-level approach to risk, except that while the former states quite clearly what factors reduce what risk, this is not clear in the regulation applicable to SMEs. For example, the role of a credit derivative in risk mitigation is closely related to the risk of the underlying product: the risk of the credit product is lower together with the credit derivative⁶² than without it. This risk mitigation is reflected in the reduction of the minimum capital requirement if a credit institution offers both basic and derivative products. A loan granted to a particular SME will only have a diversifying effect if the credit institution lends to other enterprises as well, while the marginal diversifying effect depends on the previous portfolio. Thus we are of the opinion that the

⁶¹ Risk mitigation methods include credit derivatives, collateral and netting.

⁶² The combination of credit and credit derivative is considered a portfolio.

relief on capital requirement should not be linked to SMEs loans but to the diversification of the portfolio, which cannot be captured through the attributes of its individual elements. We will see later on that financing a sufficiently high number of large corporations can also result in an adequately diversified portfolio.

The above problem makes testing the principle behind the proposed regulation more difficult: in order to be able to establish the contribution of SMEs to the diversification of a bank portfolio, we must start with an initial portfolio. We have looked at the following⁶³ portfolios:

- 1.a Ten portfolios were created, based on annual sales, containing an equal number of elements.
- 1.b Ten portfolios were created, based on the size of annual sales, where the total annual sales of the companies in the portfolio was the same in every portfolio.
- 2.a The companies were sorted in ascending order according to their annual sales, and the one on top of the list was always taken when adding to the portfolio.
- 2.b The companies were sorted in descending order according to their annual sales, and the one on top of the list was always taken when adding to the portfolio.

During the test the following assumptions were made:

- Companies whose annual sales in 2001 did not amount to more than HUF 50 million, companies with negative total assets, those with an extreme ROA⁶⁴ or incomplete information,⁶⁵ offshore companies and financial intermediaries were omitted from the analysis. Data on annual sales, total assets and profit before taxes of the remaining 20,421 companies for a period of six years from 1996⁶⁶ to 2001 were available. Enterprises with annual sales under HUF 50 million were omitted because presumably they can only obtain bank credit subject to special collateral (state guarantee, mortgage, vehicle), plus many of these companies are more or less dormant.

⁶³ We could have also chosen to test randomly selected portfolios by using simulation.

⁶⁴ Companies with a ROA above 100% or below –50% were omitted.

⁶⁵ Unfortunately, we do not know the reason why in some cases the information was incomplete. If there are no data available on a company for a certain year, bankruptcy is only one possible explanation. Data could also be incomplete due to a merger or an inaccurate tax declaration.

⁶⁶ We chose 1996 as a start year for our test because by then the restructuring process in the corporate and banking sectors had advanced considerably, and the country had completed a successful macroeconomic stabilisation programme.

- Although the bankruptcy rate is better for measuring credit risk, in the absence of relevant information for this purpose we used the coefficient of variation⁶⁷ of ROA. Using the same standard deviation, this index shows a lower risk in the case of more profitable companies as loan repayment is much more likely. Of course fluctuating profitability is associated with greater risk. Another important group of indices used for the measurement of risk is related to the indebtedness/capital gearing ratio. These indexes show a considerable difference by industry. The same indebtedness/capital gearing ratio may represent a different risk in the various industries. As a result, the relationship between the indebtedness/capital gearing ratio and risk cannot be determined very accurately at an aggregate level, and thus we did not use this index. The findings of our analysis apply on the condition that the indebtedness of companies is acceptable to banks (which is probably true in the case of companies whose annual sales is over HUF 50 million, see Table 2).
- Credit institutions lend money to companies in proportion to their annual sales, thus if the annual sales of company B is double that of company A, then company B will be granted twice the size of the loan of company A.

Findings:

1.a

In this test, the companies were divided into ten portfolios, each containing the same number of elements. The yield of the portfolio was calculated on the basis of the average of the yields of the companies in the portfolio. Then, the average of the standard deviation of the individual yields was taken to establish the degree of risk of the individual portfolios.⁶⁸ This measure of standard deviation of the portfolio does not take into consideration the diversification effect, but the equal elements in

⁶⁷ The coefficient of variation is the ratio of the standard deviation and the expected value. The use of the coefficient of variation allows for criteria of varying order of magnitude to be compared. The standard deviation of individual companies was calculated using 6 figures as we only had data for 6 years. We offset the resulting inaccuracy by using only the yield and standard deviation of a portfolio comprised of a relatively large number of companies instead of taking the yield or the standard deviation of every single company.

⁶⁸ The average standard deviation of individual portfolio elements equals the standard deviation of the entire portfolio if the elements therein are perfectly correlated and have an equal weight in the portfolio.

each portfolio ensure that the standard deviations of the individual portfolios are comparable.

The smaller the companies that comprise the portfolio, the greater the coefficient of variation of the portfolio (see Table 5). Thus all in all, if portfolio risk is measured using coefficient of variation and the diversification effect is not taken into account, then lending to small enterprises is less advantageous.

Table 5

	Average standard deviations (%)	Average ROA (%)	Coefficient of variation (%)	Annual sales (in million HUF)
1	19	12.0	155	[50; 65]
2	18	12.6	144	[65; 84]
3	16	13.0	123	[84; 109]
4	16	14.1	115	[109; 143]
5	15	13.7	109	[143; 190]
6	13	14.0	97	[190; 264]
7	12	13.5	91	[264; 382]
8	12	13.0	89	[382; 631]
9	10	12.4	81	[631; 1,322]
10	9	10.7	80	[1,322; 853,799]

Source: APEH database

1.b

This test already took the diversification effect⁶⁹ into consideration, which considerably improved the assessment of smaller enterprises. Ten sub-portfolios were created based on the companies' size according to their annual sales so that their total annual sales were the same in each sub-portfolio. The purpose of the test was to establish the extent of contribution of each sub-portfolio to the standard deviation and yield of the portfolio containing all companies. We determined the contribution of each sub-portfolio to the standard deviation/yield by deducting the standard deviation/yield of the relevant sub-portfolio from the standard deviation/yield of the portfolio.

Portfolios comprised of smaller companies considerably reduce the coefficient of variation (see Table 6), hence lending to them is advantageous from the point of

⁶⁹ The standard deviation of the portfolios were calculated by determining the yield of each portfolio every year and calculating their standard deviation over time.

view of risk. The first three sub-portfolios were comprised of companies whose annual sales in 2001 were less than HUF 2.5 billion, and they reduced the coefficient of variation of the portfolio by more than 1%. However, their risk-reducing effect is not so much attributable to the HUF 2.5 billion limit but to the fact that portfolios comprised of smaller companies contain a much larger number of elements as this was the only way to ensure that the total annual sales of each sub-portfolio was the same. However, even sub-portfolios 4 and 5, also comprised of SMEs, reduce risk. The result of this simple test justifies the reduction of capital allowance in proportion to the company's size applied by the IRB approach, as the larger the companies are in the portfolio, the less they reduce risk. Furthermore, there must be a gradual transition between the capital requirement set for SMEs to be preferred and for companies which are not granted the same allowance, which also justifies reducing the capital allowance in proportion to the company's size. In Table 6 below, in the case of portfolios comprised of very few elements the estimates are quite inaccurate, thus the relevant calculations are not entirely reliable.

Table 6

	Contribution to the average standard deviation (%)	Contribution to average annual sales (%)	Contribution to the coefficient of variation (%)	Number of companies in the sub-portfolio	Annual sales in million HUF
1	-0.716	-1.287	-5.632	14,524	[50; 400]
2	-0.099	-0.015	-1.320	3,442	[401; 1,096]
3	-0.082	0.053	-1.263	1,390	[1,096; 2,555]
4	-0.036	-0.088	-0.274	594	[2,561; 5,735]
5	-0.002	0.015	-0.065	270	[5,739; 12,872]
6	0.113	-0.120	1.808	115	[12,876; 30 226]
7	0.149	0.136	1.735	47	[30,535; 76,722]
8	0.011	0.000	0.157	24	[78 299; 116,350]
9	0.006	0.266	-0.595	11	[117,126; 332,916]
10	0.005	-0.006	0.077	4	[384,451; 853,799]

Source: APEH database

2.a-b

We wanted to see how the coefficient of variation (degree of risk) of a portfolio changes as more elements are added to the portfolio, altering its diversification. We

sorted the companies by annual sales and created two gradually expanding portfolios starting from the opposite ends of the list.

The value of the coefficient of variation of the total portfolio of large corporations⁷⁰ comprised of 208 elements⁷¹ can be significantly reduced from 24% by adding more elements (see Figure 6). The coefficient of variation for portfolios comprised of smaller companies reaches the 24% level at approximately 400 elements (see Figure 7). As it is easier to build up a portfolio comprised of 400 SMEs than a portfolio comprised of 200 large corporations, appropriate diversification is easier to achieve in the case of SME portfolios. The coefficient of variation can be reduced even further: if the number of elements in the portfolio reaches 1,000, it will only be 18%. In other words, the addition of another 600 elements to the portfolio can reduce the degree of risk of the portfolio measured through the coefficient of variation by 25%. We also must point out here that the regulatory retail portfolio is not comprised solely of reclassified SMEs, but also of genuine retail loans whose diversification effects were not examined here. However, due to their large number and their risk parameters, which are different from those of corporate loans, they are likely to have a considerable diversification effect.

The value of the coefficient of variation of the portfolio comprised of large corporations can also be reduced from 24% by the addition of further elements. However, only SME loans can be added. The 18% level can be achieved with a portfolio comprised of 1,900 elements, i.e. twice as many as in the case of the portfolio built up starting with smaller companies.

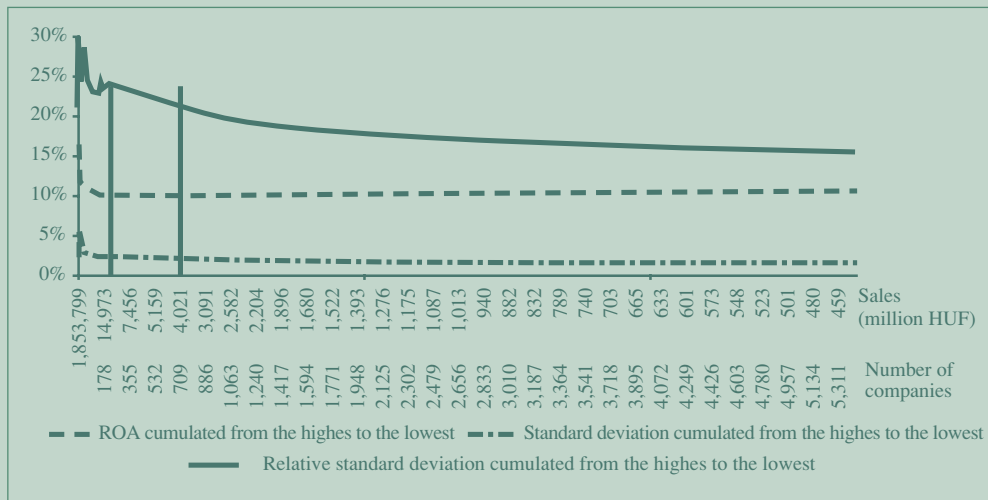
Figure 7 clearly demonstrates that even a portfolio comprised of 500 loans of approximately the same size can be adequately diversified.⁷² Corporate loans can be considered to be similar in size because the annual sales of these enterprises fall within the narrow range of HUF 50 to 53 billion, and because on setting up the portfolios we assumed that the size of loans is proportionate to annual sales. Thus the 0.2% concentration limit, which is equal to a minimum limit of 500 clients assuming that all loans are the same size, is sufficient for achieving adequate diversifica-

⁷⁰ The total portfolio of large corporations extends to the first line drawn at HUF 12.5 million annual sales in Figure 7. The second line was drawn at HUF 4 billion as according to the regulation currently in force companies with annual sales over HUF 4 billion are classified as large corporations.

⁷¹ As the database used for this test had been filtered, the number of large corporations was reduced from 290 to 208.

⁷² By sufficient diversification we mean that the coefficient of variation has dropped to an acceptable level and no longer fluctuates as the portfolio is expanded.

Figure 6 ROA and the standard deviation of the portfolio when the portfolio is enlarged by the company with next highest annual sales



Source: APEH database

Figure 7 ROA and the standard deviation of the portfolio when the portfolio is enlarged by the company with next lowest annual sales



Source: APEH database

tion. However, the above conclusion only applies within certain limits, i.e. subject to the given assumption, the measuring of risk by the coefficient of variation, and the analysis carried out on the relevant scope of companies. However, credit institutions offer loans of varying sizes (see Figure 1), and the scope of loans in the regulatory retail portfolio is different from the scope examined herein.

4. Conclusions

Similar to the European Union, SMEs in Hungary have a considerable share of GDP and employment. However, we are of the opinion that regulation intended to limit risk exposure must be based on economic rather than economic policy considerations. The economic policy objective discussed above can only be achieved if the regulatory capital requirement is set lower than the economic capital required for SME lending, and only at the price of discouraging credit institutions from prudent operation. The preferential treatment of SMEs may be justified by the diversification resulting from SME lending, by their lower sensitivity to the general economic situation (low asset correlation) and by pricing policy of banks that lays a greater emphasis on risks. Of the Hungarian aspects of the above economic considerations we only looked at the issue of diversification.

Both Basel approaches (standardised and IRB) set out deconcentration as a criterion for classifying loans into the regulatory retail portfolio, which puts smaller credit institutions at a competitive disadvantage in financing larger SMEs. However, at present it is difficult to assess the extent of this disadvantage in Hungary. This is relevant because the majority of companies have a debt portfolio under EUR 1 million (app. HUF 250 million), but the amount of debt that can be thus reclassified into the retail portfolio only amounts to a small percentage of the total corporate debt portfolio. A limit under EUR 1 million would be in harmony with current banking practice, which has been developed independently from the regulation, based on business rationality. The existing systems and operating practices of large banks allow the application of a higher classification limit of EUR 1 million, thus the internal systems could be adapted relatively smoothly to the new regulation. Apart from reclassification into the retail portfolio, the IRB approach also offers a capital incentive for SME lending, subject to the relevant company's size. According to the upper classification limit set in the Basel proposal and based on 2001 data, the cur-

rent number of large corporations would be significantly reduced. However, taking into account the prospective development of Hungarian corporate structure, and having regard to the competitiveness of Hungarian banks and companies, we recommend that the upper limit for SME classification set by the Basel proposal be adopted.

Having examined the contribution of SMEs to the reduction of risk exposure through the diversification of the bank portfolio and assuming that the indebtedness ratio of companies is acceptable to banks, we have concluded the following:

- Although lending to smaller companies is a riskier activity in itself, portfolios comprised of such companies can significantly reduce the coefficient of variation of the total portfolio: thus, SME lending can be advantageous from the risk exposure point of view.
- We have carried out a simple test and found that the reduction of capital incentive according to the companies' size as proposed by the IRB approach may also be justified from the point of view of diversification.
- The 0.2% rule of thumb applicable to concentration also results in an appropriate diversification in Hungary. However, we must emphasise that this finding proved to hold under the assumed conditions.

Having examined the preferential capital incentive applicable to SME lending subject to company size, we have concluded that the correlations and criteria of the current Basel proposal do not justify the fluctuating characteristic of the rate of preferential capital incentive subject to PD.

For lack of adequate information we have not been able to properly examine the issue of pricing. It is possible, however, that the credit risks of the SME lending are priced by Hungarian banks at a sufficiently high rate to justify granting them a reduced capital requirement similar to that of retail credit cards and revolving loans.

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CHANGES IN THE REGULATIONS ON THE
TRADING BOOK PURSUANT TO THE NEW
BASEL CAPITAL ACCORD

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The new Basel Capital Accord has left the requirements for maintaining the Trading Book and assessing its risks virtually unchanged. However, having allowed the application of credit risk models, and, in the case of the standardised approach, the replacement of former criteria by the application of external credit ratings led the Basel Committee on Banking Supervision, in the spirit of its efforts to maintain consistency, to review the regulations pertaining to the Trading Book. The amendments aim at achieving a better separation of the items in the Trading and Banking Books, as well as consideration of the new features of credit risk management, including instruments applicable for credit risk transfer.

1. Separation of the Banking Book and the Trading Book

The Committee started the revision of the rules concerning the Trading Book by elaborating a more detailed set of requirements for the definition, granting more independence and involving more responsibility for banks.

Trading intent

The first accord on the management of market risks published in 1996⁷³ devoted only a few words to the principles regarding the separation of the items in the Trading Book from the Banking Book. The new draft proposal applies a realistic approach to the problems encountered by banks, and principally leaves the classification of the instruments in the Trading Book to the discretion of the banks when trading intention exists. Thus, instead of the scope of products that had formerly been limited to financial instruments and commodities – a detailed list is specified in the Hungarian Capital Markets Act⁷⁴ – now the Trading Book may include any asset or liability of financial nature. The basic principle is that banks must transact business based on a detailed strategy known and approved by the senior management, appropriate internal operational and control mechanisms and prudent valuation. Consequently, if a bank maintains its Trading Book apply-

⁷³ BCBS (1996) Amendment to the Capital Accord to Incorporate Market Risks.

⁷⁴ Act CXX of 2001.

ing a well-defined strategy, an adequate set of limits, risk analysis and risk management mechanisms, and takes into consideration the principles of prudent valuation it does not need to select the items in the Trading Book solely from among the category of financial instruments. On top of this, it does not have to adhere to the former restrictions concerning, for example, requirements of short-term maturity or stock exchange listing.

Prudent valuation

The elimination of the administrative barriers for the separation of investment and trading portfolios may only be prudently accomplished by prescribing the application of relatively conservative valuation methods of the highest possible standards. Since in the case of less liquid items entered in the Trading Book, a price reflecting the fair market value and marketability is seldom available, risk quantification will not properly reveal the probable effects of market price volatility, which implies a hidden risk for owners and regulators. In an effort to solve this problem, the new set of rules contain detailed regulations on the conditions of valuation mechanisms and procedures that can be applied.

Valuation methodologies

Marking to market

Similarly to the former practice, the valuation of items to be entered in the Trading Book must rely on market prices to the greatest possible extent. According to the new proposal, in the course of the valuation procedure, from among the available prices, the ones effectively suitable for closing the position must be taken into account. This may mean that the exclusivity of stock exchange prices may be replaced by the application of prices prevailing at other trading places, provided that they better reflect the real situation. After selecting the source of pricing, actual quotations must take into consideration the buy or sell side effectively suitable for closing the position, and a mid rate may only be applied in special cases. The applied market prices must be reviewed on a monthly basis at least, and this review must justify the appropriateness of the choice.

Marking to model

In the absence of a concrete market price for a specific product or position, the institutions may also use models, by applying the highest volume of market input and observing the prudential requirements. According to the requirements set forth in the recommendation, inasmuch as possible, widely used models should be applied, and in the case of an in-house model, in addition to the independence of the developer organisational unit and the front office, the final form and applicability of the model should also be approved by an independent body. As long as the model is applied, both the input market parameters and the operation of the model must be subjected to a regular review performed on a monthly basis at least.

Valuation adjustments and reserves

Even though the aforementioned set of requirements should ensure that the items in the Trading Book are evaluated with due diligence, the Committee believes that in particular cases certain adjustments are also required due to uncertainties in pricing and/or sale. According to the draft proposal, it is the phase of pricing where conservative principles should be applied to take into consideration imperfect market conditions and organisational risks. Pricing corrections, preferably based on external analysis, must take into account at least the following distorting factors:

- unearned credit spreads;
- close out costs;
- costs of funding;
- early termination;
- increased actual credit risk;
- anticipated administrative costs; and
- any model risk.

In addition, supervisory authorities may explicitly prescribe reserve requirements primarily due to the uncertainties in the sales price of less liquid positions, but also due to similar risks arising from concentrated or stale positions. Reserves based on the valuation must be deducted from the regulatory capital.

The modifications regarding both the trading intent and the more extensive valuation options are expected to have an impact on Hungarian banks and investment firms. According to our expectations, institutions will take advantage of the rights set forth in the proposal and re-consider the scope of products and positions to be entered in the Trading Book. Simultaneously, a certain upturn and liquidity increase is anticipated in interbank trading in respect of unlisted instruments, and particularly shares, but also of non-government bonds. These reclassifications and the prudent control of the associated valuation and risk management mechanisms increases the responsibility of supervisory authority as well, as the broader classification options will also increase the possibility of capital arbitrage.

Note that the provisions concerning the valuation and risk management mechanisms and the organisational integration thereof have already been included, though in less detail, in the previous accord as well. However, it is a great novelty in the recent draft that while they had previously been statutory only for banks applying an internal model, after taking into effect, from 2006 as expected, all institutions maintaining a Trading Book must fulfil these requirements. Since at present the majority of Hungarian banks apply the standard method, the above methods and organisational requirements as well as the tight supervisory control will be new for them. Implementation and consistent application of the above must result in an increased risk awareness of banks and the development of risk management techniques.

2. Changes in the quantification of credit risk as a result of the new procedures for credit risks in the Banking Book

The main objective of the New Basel Capital Accord is to make the methods applied for the quantification of credit risks more risk-sensitive and to recognise (under certain conditions) the associated model-based calculations. In this regard, the most direct impact on the Trading Book is the harmonisation of credit risk quantification assumed there with the credit risks in the Banking Book. This will bring about changes primarily in the assessment of specific or issuer risks and counterparty risks, but will also affect the management of items mitigating credit risk.

Specific risk

In the course of determining the risk weights required for specific risk calculation, the earlier administrative classification will be replaced by a rating-based classification. Based on the composition of their trading portfolios, the largest impact on Hungarian banks will be the significant increase in the capital requirement related to the government securities portfolio. Since the bond portfolio of these banks mainly consists of Hungarian government paper, they will be hard hit by the requirement of re-classifying the risk weight of the issuer risk from the previous 0% to one lower category than the country rating. This so-called “investment category” contains three weights differentiated by the maturity of the instrument. The risk weights are 0.25%, 1% and 1.60%, of which the latter is applied to all papers with a maturity exceeding two years. However, the recommendation of the Committee also allows for easing this burden if, using the national discretion, a lower risk weight is assigned to government securities denominated in domestic currency and financed from domestic resources. If regulators take advantage of the above option, the increase in the regulatory capital will only affect the part of Hungarian banks’ portfolios containing bonds issued by other emerging countries.⁷⁵

The application of credit derivatives as risk mitigants also allow for the decrease of capital requirements for specific risks exhibited in the Trading Book. The role of credit derivatives in decreasing specific risks will change depending on the perfection of the hedge. In the event of complete match, neither leg will require regulatory capital for specific risk. In order to cover the potential future settlement risk, as counterparty risk inherent to such contracts on credit derivatives, extra regulatory capital will be prescribed for both the party buying and that of selling the protection.⁷⁶

Taking into account the prevailing market conditions, these latter regulations bear little relevance to the Hungarian market since neither incentives, nor the legal background encourage the introduction and wide-spread application of credit derivatives.

⁷⁵ We should like to note that although this does not directly affect the regulatory capital requirement of Hungarian banks, the increase of the risk weight of the Hungarian state debt to 20% may be a distinctly negative factor when considering the debt financing intention of foreign institutions. Indirectly, this may also affect their commercial relations with Hungarian banks.

⁷⁶ The counterparty providing protection in the credit default swap transactions will be relieved from the obligation to apply an additional risk factor, if the contract does not provide for the obligation to clear the position in case of the default of the partner buying the protection.

Counterparty risk

The risk weights applied for the calculation of counterparty risk and their derivation will take place in accordance with the weights and credit risk calculation methods used in the Banking Book.

The specific impact of this change on Hungarian banks depends on several factors. The most important of these will be the decision of the supervisory authority whether the risk weight of banks in the standard method (expected to be the most common) is determined based on (1) the country rating, or (2) the individual ratings of banks. Further, if choosing option (2), it will depend on the discretion of the supervisory authority whether it allows more favourable ratings for less than three-month exposures with a rating reaching (BBB-). The findings of the impact analysis on interbank exposures conducted for option (1) anticipates a minor increase in the regulatory capital. However, since regulatory capital for counterparty risks is one of the most weighty elements within capital allocated for Trading Book exposures, as a whole this could result in a higher increase in Trading Book regulatory capital than that suggested by the surveys of the BIS or EU.

In addition to the options open for the supervisory authorities, the choice of trading partners will also influence the required quantity of regulatory capital, from which primarily trading relations with foreign, capital-abundant, highly rated banks will benefit. The application of more advanced methods may lead to a significantly larger spread in regulatory capital for counterparty risks. While volatility will grow due to the choice of trading partners and the higher variability of their ratings, the level of the regulatory capital is likely to become considerably lower than in the case of the standard method, i.e. the current level. This forecast is also supported by earlier European surveys.⁷⁷

Note that the implementation of the new regulatory capital system will also include a significant element of decreasing counterparty risk for Hungarian banks and investment firms. This event should be the final deadline to eliminate the anomaly caused by the currently effective Government Decree⁷⁸ assigning different risk weights to banks and investment firms (20% and 100%). In compliance with the uniform European regulation, investment firms and banks should be treated on equal terms.

⁷⁷ [European Commission \(2003\): Review of Regulatory Capital for Credit Institutions and Investment Firms. Third Quantitative Impact Study: EU Results.](#)

⁷⁸ 244/2000.

3. Tools for mitigating credit risk in the Trading Book

From among the changes affecting the Trading Book, special attention should be paid to the changes in collateral management and evaluation as a traditional tool of mitigating credit risks. These products, which primarily affect the Banking Book, will also have an influence on the Trading Book, as from now on repurchase and securities lending transactions they must be treated as receivables covered by collateral – whether or not the transaction is treated as a trading item – and therefore, must be evaluated and registered by the corresponding methods. Uniform treatment of such transactions registered in the two books will also mean that all assets recorded in the Trading Book, including commodity positions, may be subject to repurchase agreements and used as collateral for lending transactions. The treatment of repurchase, reverse repurchase, and securities (and commodities) lending transactions as a receivable covered by collateral will directly affect two types of exposure calculated in the Trading Book: counterparty risk and, through the change in exposure quantification, position risk. Quantification of counterparty risk will be based on credit risk calculation, while the collateral will be included in the exposure based on the *comprehensive approach* applied to the Banking Book. According to the comprehensive approach, the exposure and the associated collateral are revalued each day, while also applying haircuts proportionate to the expected volatility in the value of the collateral.⁷⁹ Institutions may only disregard the application of haircuts restricting the involvement of collateral only upon fulfilment of a very stringent set of requirements.⁸⁰ At the same time, a minimum holding period is also prescribed.

Recent impact analyses⁸¹ also dealt with the impact of this new set of requirements, and concluded that the excess regulatory capital revealed for Trading Book risks is

⁷⁹ There are three options for defining volatility: the application of 1. the values specified by the regulators, 2. the results of own internal estimates meeting the specified standards 3. in the case of institutions using their internal model, the results of value-at-risk (VaR) estimates suitable to take into consideration correlations as well.

⁸⁰ Among others, the set of requirements prescribes that only cash or high quality government securities may serve as collateral, that both sides of the transaction should be denominated in domestic currency, that daily marking to market should be performed and the security should also remargined on a daily basis, that settlement should only take place across a recognised settlement system, further, that the parties must be professional market players and a properly detailed and enforceable netting arrangement must exist between the parties.

⁸¹ [European Commission \(2003\): Review of Regulatory Capital for Credit Institutions and Investment Firms, Third Quantitative Impact Study: EI Results.](#)

partially attributable to the valuation corrections taking into account the volatility of the prices of collateral. Therefore, depending on the extent of their activity on the repurchase market and their need for this financing tool, Hungarian banks should prepare themselves for higher capital burdens.

Potentially, credit derivatives may be used as new items mitigating credit risks in the Trading Book. Naturally, the risk mitigating role of credit derivatives between the Banking Book and Trading Book of the same institution will not be recognised, unless actually transferred to a third party. For specific and general risk calculation of credit derivatives, the principles and the methods used in the Banking Book must be applied.

4. Changes in the European regulation

The European Commission promotes the enforcement of European interests in the international standards by effectively participating in the work of the Basel Committee. Additionally, during the preparation of the EU directive to implement the provisions of the New Basel Accord, in the areas left to the discretion or not regulated in detail by the Basel Committee it prepares regulations which also take into consideration the interests of the single European market. The last consultation period for the European draft Directive was held between July 1 and October 22, 2003.

The published working document contains the following changes as compared to the current regulations and the Basel Proposal.

Collective investment undertakings in the Trading Book

Pursuant to Directive 93/6/EEC (CAD2) collective investment undertakings had not been permitted to be entered in the Trading Book, and had to be recorded in the Banking Book by applying 100% risk weight and 8% regulatory capital. According to the new proposal, if the fund manager fulfils the minimum prudential requirements and the composition of the portfolio managed by the fund can be wholly or partially looked through based on the investment policy on a daily basis, regulatory capital for such positions is allowed to be established based on the market risks. What has remained open for discussion is the calculation of the FX risk for not fully known positions.

Change in the definition of qualifying items – elimination of divergence from the Basel rules

The regulatory authorities of the European Union have settled long-time debt by adjusting the definition of qualifying securities – instead of the former reference to the 20% risk weight – in line with the 1996 Basel Amendment and classified the issuers as such based on the fulfilment of the investment category. (Both IRB and the standard method may be used for rating.) This also means that in the case of qualifying items the same issuer may have a much more favourable credit risk rating in the Trading Book than in the Banking Book.

Expected changes in counterparty risk quantification

The opinion of the market and regulators differ regarding harmonisation of regulatory capital requirements for settlement risks with other credit risk (and counterparty risk) methods. According to the original proposal of the European Commission, the related CAD2 Annex would be abrogated, and regulatory capital should be calculated with the methods applied for credit risk quantification, even for unsettled transactions and not only for the types of transactions specified earlier (i.e. for all transactions after the trading date). If this view is given priority, the definition of the actual exposure and the possible maturity adjustments will require further work. However, market players and certain regulators believe that current regulations adequately represent settlement risk, and therefore, no further change is required beyond the incorporation of provisions on deferred payments.

5. Summary of Hungarian aspects

The proposals of the New Basel Capital Accord concerning Trading Book risks, which are expected to change the activities of Hungarian institutions, may be summarised as follows:

- The basic criteria for eligibility are trading intent and prudent valuation.
 - Extension of the scope of products so far limited to financial instruments;
 - More stringent control of valuation models, requirement of backtesting procedure;

- More freedom in the selection of input parameters for pricing;
 - Valuation systems and models as well as control mechanisms must satisfy a detailed set of requirements. Further, independent valuation and valuation reserves will gain importance;
 - In order to eliminate the potential risks inherent to the increased freedom of choice, strict rules will be implemented for the management of positions and associated risks, regardless of the method underlying the report. The elements of such rules include transparent trading strategy, more stringent risk management requirements, comprehensive information to the senior management and operation of an integrated reporting system at bank level, both for current statements and backward-looking control.
- Potential increase in regulatory capital due to the change in the specific risk classification criteria.
 - Uniform counterparty risk weights for banks and investment firms, resulting in a significantly more favourable treatment of investment firms.
 - Since counterparty risk would be treated as a credit risk, those applying the standard method should expect an increase in regulatory capital for counterparty risk, while those using more advanced methods should anticipate a decrease in the same.
 - The classification of repurchase and securities lending transactions as receivables covered by collateral and implementation of a more stringent pricing method for the same, which also takes into account volatility, will probably result in an increase of regulatory capital for these transactions as well.

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COUNTER-WEIGHTS OF THE CAPITAL
ACCORD

THE ROLE OF EXTERNAL AND INTERNAL CONTROL IN
THE PRUDENT OPERATION OF INSTITUTIONS

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The second (supervisory review) and third (market discipline) pillars of the Capital Accord promote the principle that institutions should have solvency capital reflecting their full and actual risk profile and that awareness of risk should become a central component of their operation. The second and third pillars are intended to ease the contradiction that the banks themselves are to apply the prudential requirements which allow for a great deal of discretion. Integration of rules into banking operations is supported from three sides: 1) senior management and internal control within the bank; 2) supervision; and 3) the market's judgement outside the organisation. This section focuses on corporate governance requirements in banks and on supervisory control, representing institutions of both internal and external control. However, it is important to stress that the second pillar on supervisory procedures represents more than external control because numerous banking risks are managed through this pillar, while corporate governance is only one of the qualifying criteria. These days corporate governance issues still fall primarily within the competence of the institutions themselves, although there are an increasing number of normative regulations in this area as well and the requirements of recommendations are becoming more and more specific. Originally, corporate governance would not fall under prudential regulations, but in recent years, as the complexity of banking activities has increased, regulations on the organisation structure, management and internal control have become increasingly important. This is also reflected in the significance granted to it among the requirements of the Capital Accord. The first part of this document describes the applicable Basel recommendations and requirements of the Capital Accord, and also contains a few proposals with regard to implementation.

Supervisory control will play a very important role in the external control of institutions during the first few years, because market control mechanisms are currently weaker here than in other countries with a developed financial intermediary sector. This also has structural reasons. In the European Union, practical implementation of supervisory control falls within the competence of the Member States implementing the Capital Accord. Therefore, when the new EU directive is drafted, future implementation in Member States raises a number of questions. Irrespective of the future versions in the Member States, in their current status the drafts do not clearly provide for the relationship between the requirements of the first pillar (containing the detailed technical rules) and the second pillar (stating the basic principles).

The Basel Committee and EU legislators are still expecting the views of individual countries as to violation of which pillar should entail intervention by the supervisory authorities. Our views on this subject are contained in the second part of this chapter.

1. Corporate governance issues in the new Basel Capital Accord

Internal organisational requirements

The new Basel Capital Accord can only be successful if its effect goes beyond simple compliance with complicated solvency regulations. The Accord will work well if risk management considerations become increasingly important in banking operation, and an increased awareness of risk characterises the entire banking organisation.

To achieve the above goals it is important to have properly developed and controlled risk management processes within the organisation. The Basel Committee on Banking Supervision intends to provide assistance for this process by emphasising corporate governance issues in the draft Capital Accord.

The large bank failures in the 1990s pointed to the consequences of internal control problems in banks. In fact, technical literature distinguishes bank failures that have occurred due to insufficient internal processes. Typical mistakes include lack of a controlling role and accountability of managerial bodies, inadequate recognition, evaluation and management of risks of individual banking activities, flaws in the internal control system, insufficient audit, and inadequate information flow within the organisation.

In general, corporate governance solutions are intended to solve the problem that the interests of shareholders, the board of directors representing shareholders and managers of the bank are not necessarily identical concerning the degree of risk related to business decisions, or the time and resources used for the control of internal processes. By delegating tasks and responsibilities within the organisation, good corporate governance practices facilitate the management of internal conflicts of interest and assist the organisation in ensuring transparent, monitorable and controllable operating processes. This increases the efficiency of the bank, reduces operational risk, and allows for co-ordination between different interest groups.

A very important requirement therefore is to increase awareness of risk within the organisation. If risk positions are seen in each business area and the global organisation, if they are quantified in reports, and internal risk management regulations, risk models, including amendments and supplements thereunto are regularly discussed at the meetings of managerial bodies, risk awareness of top management will also most probably increase in decision-making. Consequently, the goal can be achieved that the level of risk assumed by the institution is acceptable and transparent for all interest groups.

Below, we shall describe the difficulties of implementation of the second pillar of the new Capital Accord (supervisory control) in Hungary caused by the fact that a considerable number of requirements cannot be described on a normative basis. The obligation of reviewing corporate governance in banks is typically such an area. With this document, our intention is to illustrate the expectations conveyed to institutions from guidelines and best practices stated in the form of recommendations. Analysing the Hungarian practice of corporate governance in banks, defining best practices, and deliberately and coherently formulating corporate governance standards is a macro prudential task that can significantly improve the stability of the whole banking sector. This is why the central bank also considers a more thorough analysis of this subject a very important issue.

Below, we shall take a look at corporate governance rules reflected in the draft Capital Accord, the draft directive and other Basel recommendations touching on banking supervision. In addition to a brief description of the rules, we shall raise questions concerning Hungarian implementation, and formulate some proposals. This study deals with two aspects of corporate governance at banks.⁸² In addition to *internal organisational issues*, we also deal with *disclosure obligations* to increase the transparency of organisation processes. First we shall focus on general organisation issues of corporate governance in banks, followed by the specific requirements of some risk management areas. Finally, we shall cover the disclosure requirements of the third pillar, which will have a very strong indirect impact on corporate governance, given that, according to the regulator's intentions, regular disclosure should also accurately reflect the risk management processes of institutions.

⁸² We do not deal with shareholders' rights because the new Capital Accord touches this area only briefly with regard to solvency.

General organisational requirements

The general organisational requirements of corporate governance in banks are contained in the recommendations of the Basel Committee on Banking Supervision.⁸³ The recommendations focus on the role of the board of directors, management and internal audit. Awareness of expectations for various organisational units is very important because during the supervisory review (second pillar), the supervisory authority will also assess bank management and the banking organisation based on prudent risk management. The recommendations of the Basel Committee on Banking Supervision also provide guidelines for the Hungarian supervisory authority for assessing the quality of management in future. The Capital Accord makes an explicit reference that concerning supervisory review, it considers the contents of former recommendations applicable.

Major requirements contained in former Basel recommendations

Board of directors

The ultimate responsibility of the board of directors of a bank is to have an adequate risk management system at the bank. **Risk management in a bank** includes the following basic processes:

1. Policies and procedures developed for the identification, measurement, mitigation and reporting of banking risks. The board of directors must review the regulations every year and update them as necessary.
2. The process during which capital is allocated to the levels of banking risks.
3. The process in which capital adequacy objectives are defined, including the strategic and business plan of the bank.
4. The internal audit process, including a regular review of risk management processes.

In relation to risk management, the board of directors is responsible for approving risk management policies and internal risk assumption regulations as well as

⁸³ For example, Framework for Internal Controls (1998), Enhancing Corporate Governance (1999), Principles for the Management of Credit Risk (2000), Sound Practices for the Management and Supervision of Operational Risk (2003).

finding the adequate organisational solution. The board of directors is also responsible for *regularly* reviewing such policies and regulations. Consequently, the board of directors must approve relevant organisational changes and prepare the applicable internal regulations when Basel II is implemented.

The board of directors of a bank is also responsible for identifying and monitoring the **exposure** of the whole bank. This includes a process in which desirable exposure is defined for the individual business lines and the achievement of goals is monitored during the business year.

Proposals for the above decisions are prepared by senior managers. However, for the board of directors to fulfil its controlling function it needs to consider independent factors in its decisions as well. This is the only way to satisfy the requirement that the board of directors should act as to counterbalance the weight of senior management in controlling at the bank.

Highly qualified managers are also required for the adequate operation of risk management in a bank. For the successful implementation of the new Capital Accord it is a basic requirement that members of the board of directors should have comprehensive and thorough knowledge of risk management in banks including the nature of individual banking risks.

Management

The management is responsible for risk management within the organisation. In this context, the management defines specific organisational solutions and delegates tasks and responsibilities. It develops risk management policies and procedures and submits them to the board of directors for approval. The management supervises the risk management of individual business activities, while avoiding excessive involvement in decisions related to such activities. In all cases, major decisions must invariably be made by two managers together (“four eyes principle”).

In the delegation process, potential conflicts of interest must be taken into account for individual risks (individual business lines). Monitoring, evaluating, reporting and mitigation functions should properly separated (segregation of duties). The remuneration policy of certain important positions (for example, money market dealers) must be supervised separately.

Internal audit

Internal audit is responsible for the regular review and evaluation of risk management processes, identification of shortcomings and submission of proposals. In order to operate effectively a bank must have a permanent internal audit unit. This organisational unit must be independent from the audited activities and the organisational unit responsible for accounting and compliance functions. Independence means that internal audit defines the activities to be audited and the dates of audit in all organisational units of the bank. The internal audit unit directly reports to the board of directors or supervisory board, depending on the corporate governance model applied. The internal audit manager must be able to contact the board of directors, chairman of the board of directors, members of the audit committee or external auditor directly. The exact rules of operation must be laid down in the audit regulations, prepared by internal audit and approved by the board of directors/supervisory board.

The Basel organisational recommendations describe an institution in which the board of directors and internal audit determine, evaluate and monitor the activities of management through the adequate delegation of tasks and responsibilities. The recommendations attempt to ensure that checks and balances function well in an organisation, which should have a stabilising impact on the whole institution. However, the distribution of competencies and responsibilities between the board of directors and senior management as described above cannot be automatically adopted in the Hungarian banking system. Hungarian corporate law follows German traditions and has created joint stock companies with a system of board of directors and supervisory board. In this corporate law system, the functions of the Anglo-Saxon type *board* are divided between two bodies and very often the board of directors is responsible for operational issues too.

The Hungarian legislators created a weak supervisory board, the operation of which is often formal in practice. The Act on Credit Institutions requires only three years of experience in business from members of the supervisory board⁸⁴ without any special professional criteria. It is difficult for a supervisory board that has meetings rarely,

⁸⁴ Act on Credit Institutions, section 44(5)(a) “managerial experience in banking or corporate activities or financial and economic areas of public administration.”

pools moderate technical skills, and often strongly depends on the board of directors, to fulfil the functions of strategy setting and management control at the same time. In large Hungarian banks the board of directors enjoys more independence from senior management, and in these institutions separation between the board of directors and management can and must be made a requirement. However, in smaller Hungarian banks, which are owned by foreigners almost without exception, the above separation does not seem realistic. In smaller organisations, the board of directors and senior management are the same people. According to Hungarian experience, parent banks have a very important role in strategy setting and the management control function also appears through the internal audit of the parent bank. The question is what functions remain with the supervisory board in such cases and to what extent the Hungarian board of directors takes over the role of senior management according to the classic model. Practical assessment of the question will probably involve the judgement of the supervisory authority.

Corporate governance requirements of the new Capital Accord

The Basel Committee on Banking Supervision has set separate corporate governance rules for individual areas in the new Basel Capital Accord. These very strongly affect credit risk, operational risk and market risk management. The Capital Accord sets minimum criteria as a precondition for the application of more advanced methods, which include corporate governance requirements.

Credit risk

For Hungarian banks the most important change is expected in credit risk management. Depending on the selected method, the former, relatively rigid system based on limits and capital adequacy will be replaced with more flexible capital allocation and more sophisticated rating.

According to the Basel recommendation on credit risk management⁸⁵ the board of directors must regularly review and approve credit risk policies and strategy. The

⁸⁵ Principles for credit risk management (2000).

lending strategy must define desirable exposure for the bank, the required profitability, major target markets and desirable features of the credit portfolio. According to the new draft Capital Accord the board of directors, or an appointed committee, must approve the internal rating model. The board of directors, or the appointed committee, must be notified of all major changes that affect the rating system or major banking policies.

In the draft document, the Basel Committee on Banking Supervision defines qualifying criteria for the application of internal rating model. The supervisory authority permits application of the method if these criteria are met.

The qualifying criteria stress that the bank should be able to adequately measure credit risk and rating claims. The supervisory review will primarily look at whether or not the internal model provides reliable data. The criteria used for review will be identified by national supervisory authorities, but will only be used for evaluation and will not contain specific regulations to promote desirable solutions. The supervisory authority will also review whether an institution uses the internal rating method for the entire lending process or not. This means that PDs LG calculations must have a fundamental role in:

- the credit assessment process;
- risk management; and
- internal capital allocation in the institution.

The banks will decide whether or not other risk management decisions than capital allocation are related to ratings.⁸⁶

An independent organisational unit must develop, update and monitor the internal rating based method. Independence means personal and organisational separation from other organisational units responsible for credit decisions and credit rating.

The new organisational unit will be responsible for:

- Testing and monitoring credit rating categories;
- Compiling general analytical reports on credit ratings, including historical default data according to the rating received one year before the default and at the time of default. (An important part of the report is an analysis of migrations between categories and trends in major rating criteria.);

⁸⁶ Possible interest premium, provisioning rule.

- Developing and applying procedures that are introduced for the consistent application of rating models in different geographic locations and lending units; and
- Reviewing the rating process, and making changes.

Internal audit must audit the entire internal rating system every year. The national supervisory authorities may also prescribe regular external audits.

The mere fact that a separate organisational unit develops the internal rating based method is, of course, not enough for an effective credit risk management system. It is another organisational requirement that the credit rating process also be separated from those who assess loan applications and are interested in growth and an increase in the number of clients, yet a close connection must develop in the reverse direction (i.e., credit rating must influence the result of credit assessment). Consideration of risks may cause a problem for individual credit decisions. In wholesale lending, for instance, profitability and risk considerations will be difficult to reconcile in a strongly competitive environment. The question arises how realistic it is to charge a higher risk premium for further transactions to large customers, i.e. to apply stricter conditions, or to reject a transaction altogether. Carefully developed internal regulations can help banks to mitigate the actual risk assumed by the institution with adequate risk management techniques.

Operational risk

The Basel recommendation concerning operating risk management⁸⁷ sets organisational requirements as the ones already described in the general part. However, a recommendation must be highlighted that proposes separation of the internal audit function and the operational risk management function, or at least calls for avoidance of direct dependence.

Applying the standard and the advanced method (AMA⁸⁸) is subject to approval by the supervisory authority. An institution must comply with the qualifying minimum criteria for approval of the supervisory authority, similarly to credit risk.⁸⁹ **The general** requirements, expected for all methods, include the following:

⁸⁷ Sound Practices for the Management and Supervision of Operating Risk (2003).

⁸⁸ Advanced Measurement Approaches.

⁸⁹ Qualifying criteria.

- appropriate definition of the relationship between the board of directors and senior management in the area of operating risk management too (cf. the general recommendations in the previous part); and
- availability of adequate resources in all business areas to apply the method sufficiently.

In the case of **the standard and the advanced method**, the draft accord sets out further qualifying criteria. For corporate governance it is important that the accord prescribes an *independent* operational risk management function for the advanced method that designs operational risk management solutions and executes them within the organisation. In the case of both methods, the external auditor and/or supervisory authority must supervise the risk *measurement* system. The accord allows Member States to have their whole operational risk management audited by an external auditor.

With regard to *market risk*, the Capital Accord requires the senior management of institutions to approve the trading strategy; furthermore, the evaluation of positions must be separated from front-office activities. In addition, in relation to market risk management the Capital Accord also requires the development of a practice, similarly to general requirements, but in contrast to the previous rules not only for banks operating with an internal model.

According to the Basel Capital Accord, corporate governance will be rated at two levels. Firstly, institutions applying an advanced method for credit and operational risk management must continuously comply with the special requirements indicated above. Secondly, in relation to the supervisory review, the supervisory authority must generally assess the corporate governance of institutions, and propose changes as necessary. Since at the moment there is no established practice in Hungary for rating the internal control systems of banks, during the adaptation of the Capital Accord it will be important to define the exact evaluation criteria.

Disclosure

The disclosure (reporting) obligation stated in the third pillar supplements the minimum capital requirement (first pillar) and supervisory review (second pillar). Disclosure has an indirect impact on corporate governance. With disclosure the market receives reliable and accurate information on the financial position, per-

formance and risk management of the bank which makes access to money and capital markets cheaper and easier. Adequate disclosure

- assists market players in assessing the financial strength and performance of a financial institution more accurately;
- influences the behaviour of management;
- represents a control over the supervisory authority;
- shows that a bank manages its risks adequately by providing information on its risk measurement methods;
- reduces uncertainty in the market; and
- increases the credibility of information published by the bank.

Hungarian legislators must identify the exact range of disclosure requirements and the scope of application. According to a working document, major international banks and major subsidiaries, as well as major national banks must publish their tier-one capital data and full capital adequacy ratios every quarter. On the other hand, smaller banks have to disclose the same information annually. All disclosure must be based on the materiality concept. This means that banks must ensure that the information disclosed by them is material for users in making economic decisions (user test). Consequently, disclosure is not compliance with a list of obligations in a catalogue but it should contain everything that the institution considers important on the basis of the materiality concept. Additional disclosure may be included in the quarterly (annual) ordinary regime, but generally speaking a bank has an extraordinary disclosure obligation if a particular piece of information is material for the decisions of market players.

Banks must have a disclosure policy approved by the board of directors. The disclosure policy must define the scope of application and the form of organisational and internal audit solutions which guarantee compliance with the requirements. The bank must regularly review its compliance with disclosure requirements.

Contents

Disclosure requirements are divided into three main groups. Banks must first identify the organisational units and contents to be disclosed. Secondly, they must describe their capital structure and capital adequacy. And finally, as the longest part, they must describe their procedures, risk management techniques and expo-

sure to individual banking risks on the basis of which the allocated capital volume has been defined.

In Hungary the disclosure obligation of banks presently means disclosure of accounting data. Accounting data is to reflect the true and fair value of economic processes in an *ex post* manner, while risk-based disclosure attempts to give an *ex ante* picture of the risks of the banking portfolio based on statistical probability. Consequently, the new types of disclosure (risk-based disclosure) mean disclosure of data with different contents. It is important to be aware of this.

In our view, in the initial period the impact of the market's disciplinary force will be limited in Hungary. A 15.3% share of the capital of Hungarian banks is subordinated loan capital, most of which originates from their parent banks so it may be assumed that pricing does not only reflect market factors. Therefore, initially it cannot be assumed that the ratings of banks will have an impact on banking profitability through the pricing of borrowed capital. The room for manoeuvre of banks will also increase because at the moment they have a significant solvency capital surplus. In such an environment, it is difficult to imagine that Hungarian banks would issue a large volume of subordinated loan capital in the near future.

Apart from the pricing of subordinated loan capital, the market's disciplinary force may also be reflected in pricing and limits on the interbank market. It would be worthwhile to analyse the Hungarian market in this context, although for banks with a considerable funding surplus most probably this type of market control will not be important either, because such banks are usually net creditors in the interbank market.

It is especially important to clearly describe the contents of disclosures and possible conclusions when such reports are introduced. Under extreme market conditions, disclosure of data may lead to extreme reactions too, and related concerns suggest that market players should at the beginning be very careful communicating these.

Comments and proposals

The following points contain those comments that may increase the success of adaptation of the new Capital Accord from the aspects of corporate governance.

1. Hungarian regulations must explicitly state who is responsible within an organisation for the preparation and approval of internal policies and regulations relat-

ed to the implementation of the new Capital Accord, and how often the legislator intends to review them.

2. Credit institutions must delegate responsibilities for the development and elaboration of risk models, calculation of capital requirements, classification and evaluation of positions as well as monitoring, and reporting large exposures in their internal regulations on the adaptation of the new Capital Accord. Internal policies shall also contain the qualitative requirements of the application of internal models.
3. A critical point of the implementation of the Capital Accord is business application of the results of the model. Therefore, in addition to the satisfaction of solvency capital requirements, it is important to monitor how risk criteria are reflected in pricing, assessment and risk mitigation. The applicable regulations of institutions must contain the relevant norms and procedures, and they must be taken into account when regulations are approved and prudent operation is assessed.
4. There are no international standard regulations for the professional suitability requirements of executive officers. However, we think that in relation to the implementation of the new Capital Accord, Hungarian regulations should be reviewed, in view of the special activities of executive officers in credit institutions, requiring thorough risk management and banking skills, especially after the adaptation of the new Capital Accord. Countries with developed banking practices require certain qualifications of executive officers,⁹⁰ and corporate governance best practices also contain a continuous training programme and obligations for the management.
5. Regulations must provide sufficient discretion for the supervisory authority to assess compliance with general corporate governance requirements. Naturally, this does not apply to the satisfaction of qualifying criteria.
6. It is also important to think carefully about the consequences of the limited disciplinary force of the market influencing the behaviour of banks at the beginning. It seems obvious that initially supervisory reviews must have a greater role in ensuring prudent risk management operation, but the supervisory authority must possess the right instruments to achieve this goal.

⁹⁰ For example, FSA Training and Competence regime. In its latest Basel Consultation Document, FSA indicated that it would review in individual institutions to what extent senior management are aware of the requirements of the Capital Accord.

2. The role of supervisory authorities in defining capital requirements

Opportunities and threats in the authorities' discretion

The second pillar of Basel II gives a greater role to supervisory assessment, and the EU supports this with legislation. The regulations greatly extending the rights of supervisory authorities and the lack of any standard or minimum criteria guarantee flexibility for the new capital regulations (i.e., risk-based regulations). This pillar shows a kind of principal-based approach, in which only the key principles are defined.

This chapter does not focus on the extended rights of supervisory authorities, but on the insufficiencies that occur in relation to supervisory measures and sanctions. The current drafts do not clearly identify the reasons calling for supervisory measures, or instruments to be used if requirements are not met, and therefore the conditions required for the discretionary right of the supervisory authority are completely absent. A few sections below show that risk-based regulations may require different sanctioning instruments, or in certain cases forbearance by the supervisory authority. We shall also point out the contradictions in the relationship between the second and first pillars resulting from the absence of rules and requirements in the second pillar.

When can a supervisory authority impose measures?

The three-pillar structure of Basel II indicates that the capital requirement calculated on the basis of the conditions and functions of the first pillar will replace the regulatory minimum capital requirement in the future. The second and third pillars encourage compliance with the first pillar, with provisions on supervisory proceedings and information to be disclosed.

The minimum requirement originating from the structure (minimum requirement = first pillar) are contradicted by the fact that, in addition to supervisory review, the second pillar also states heuristic requirements for risks not covered in the first pillar and requires institutions to have sufficient own funds corresponding to their risk profile. Banks calculate their capital reflecting the full risk of the institution, through an internal capital allocation model (CAAP, capital adequacy assessment process),

and the supervisory authority assesses the result based on its own judgement. If the bank does not reach this supervisory level, the supervisory authority may initiate measures. Therefore, it is not clear what the regulatory minimum is, the violation of which involves consequences, or whether supervisory measures can be proposed in the case of banking practices not involving any breaches of the law.

With regard to the minimum capital and supervisory interventions, the new picture is very similar to the trigger and target indicator system that has been used in English regulations for a long time. Accordingly, the law is violated if capital falls below the level calculated in the first pillar (trigger value) but the supervisory authority may intervene if capital is lower than the amount reflecting the risk profile and management control of the institution (1+2 pillars, target value). However, this formula is still an open issue and the classification of requirements of risk types, not taken into account in the first pillar, also raises several questions.

The following can be considered as minimum requirements:

- result of calculations defined in the first pillar;
- or calculations of the first pillar and all requirements of the second pillar relate to risks not covered in the first one.

An important reason for the separation of requirements between the first and second pillars is that these days the complexity of risk management and rapid spread of innovative instruments make it impossible to develop fully comprehensive regulations or controls. Continuous fulfilment of the basic goal (requirements reflecting the risks and their management) demands flexibility from the supervisory authority and the market too; they must take into account factors that cannot be covered in regulations when assessing the stability of a bank.

However, on the other hand, flexibility (lack of regulations) also leads to a consequence that the detailed calculations of the first pillar may easily be modified with amounts that are difficult to support objectively, which calls into question the need for sophisticated calculations. The rules of the first pillar, in a few hundred pages, specify the details for calculation of capital requirements related to risks involved in specific transactions and the operation of banks and investment firms. However, in addition to risk exposures, the required amount of capital is also influenced by the quality of risk management, the expertise of management and the efficiency of controls. These are factors that cannot be quantified or measured objectively: therefore, their translation into capital requirements is difficult.

However, the supervisory authority must take these aspects into consideration in its evaluation as well.

The same quantification difficulty applies to risks not managed in the first pillar, which were removed from the standard regulations of the first pillar because different market environments and bank profiles make it impossible to apply pre-defined standards. However, the six⁹¹ Basel and 14 European risk types and process risks⁹² include some that can be assessed in a country with standard methods, and therefore the requirement of certain standardised evaluation methods may also be justified economically and could be revised in the new Accord and in the European directive. The current draft directive provides little assistance for the assessment of the subjective requirements of the first pillar and the risks of the second pillar, and no standard criteria have been identified. The recommendations of committees and working groups co-ordinating the activities of the supervisory authorities of European and G10 countries may provide some assistance in future. However, with regard to the application of best practices, the special features of a particular country and individual banks must also be taken into account. This requires flexibility and the use of factors that cannot be laid down in legislation in advance.

Risks not treated in the first pillar

Among the risks managed in the second pillar (instead of the first one), interest rate risks, residual risks related to collateral or the risk of change in the macro-economic environment affect the institutions operating in the same country in the same way. On the other hand, other risks managed in the second pillar (concentration risk, operating risk, securitisation) can be assessed based on the individual features of banks, similarly to capital allocation corresponding to the bank's full risk profile. **Requirements of the stress test (reducing the fluctuation of capital requirement through economic cycles), residual and other risks related to collateral transactions and the interest-rate-risk stress test can be separated from those connected to the individual characteristics of an institution. The criteria needed for the**

⁹¹ Six risk types: interest rate risk in the banking book, operational risk, stress test (macroeconomic risk), residual collateral risk, concentration risk and securitisation.

⁹² 14 types of risk to be assessed; process: risk management, credit and counterparty risk, concentration risk, residual collateral risk, securitisation, interest rate risk, operating risk, market risk, liquidity risk, allocation of trading book items, reporting internal capital allocation, continuous testing and internal audit.

definition of such latter requirements can be defined much more precisely. In our view, sanctions imposed for the violation of these requirements must be automatic, as they are in the case of the first pillar. It should not depend on discretion whether a supervisory authority imposes a measure or not. The Basel Committee could decide on the issue of rule-based sanctions in order not to cause a competitive disadvantage to countries that commit to this.

The Basel Committee has laid down a principle that capital requirement should correspond to the loss that may originate from the total exposure of an institution, i.e. the objective is to achieve the total requirement of the first and second pillars. However, in certain cases this allows for the level of capital requirement reflecting the full risk profile to arrive at a lower value than the figure calculated in the first pillar. **In calculating the capital requirements reflecting its own risk profile, a bank may use an internal capital allocation model described above and find that its actual requirement is lower than the figure resulting from the first pillar.** Moreover, it may also be able to sufficiently substantiate this to the supervisory authority. **In our view, such cases may in fact occur due to the limitations of credit risk models,** and we shall highlight this issue later in the chapter describing the arguments for regulatory forbearance in the first two sections on the consequences of risk-based regulations. If the committees do not exclude this scenario (the European Commission is still expecting views on this), we consider it necessary to apply such forbearance only on the basis of clearly identified reasons, in cases where the excessive results of the first pillar are clearly due to limitations of certain conditions. In other words, in this issue the Basel and European drafts should offer an opportunity of deliberation instead of discretion to supervisory authorities.

Continental law and supervisory measures

It is obvious that the compliance with the legislative limits and requirements on the overall risk exposure and the management of a financial institution cannot be supervised properly without leaving a certain leeway for the supervisory authority. On the one hand, this is the only way to meet the expectations of the Basel Committee, i.e. to take into account all the risk factors typical of an individual institution. On the other hand, as several competitive solutions for the assessment of subjective aspects of corporate governance and organisational risks exist, to pick

one of them as a corner-stone for the regulation would make that regulation incomplete and hinders its development. All countries, whose legislative systems do not support supervisory decisions on stricter prudential requirements than those prescribed by the statutory law, have to face the problem of finding a legal base for such supervisory measures. An example for this is the civil law system, which is the dominant one in most of the European countries and provides typical representatives such as the German and the Hungarian legal systems. The main problem is that in such a legislative system an authority may only impose an obligation as a formal decision. A decision, which may be challenged in the judicial procedures, may be based exclusively on the wording of the legal regulations, as required for predictable application of the law. Therefore, the flexibility of the Basel II and CAD3 proposals is severely hindered by Hungarian legislation; Hungarian law cannot treat this flexibility properly for the following reasons:

- In juridical practice legal disputes are decided on the basis of interpretation of legal texts, and therefore, if the wording is not sufficiently normative, the court cannot properly assess the behaviour of the supervisory authority and the bank. The most important undesirable consequence of this fact is that the enforceability of legal liability is hampered. In Hungarian legal practice, enforcement of legal liability in the financial sector is already rather complicated, hence, Hungary would definitely require a solution that is more likely to improve the situation rather than to weaken it.
- In Hungarian legislation, measures must be exact enough in order to ensure the rule of law. A legislative text without precise normative content⁹³ violates the requirements of constitutionalism, including the requirement of the rule of law, and is unlikely to pass the checks and balances of the Hungarian legal system (e.g. Constitutional Court, President).

There are two possible ways to solve the problem. According to the first solution in financial regulations the regulatory technique of basic principles could be used. These principles articulate the objectives of the supervisory assessment, but at the same time offer the extent of flexibility needed for Basel II to be implemented. To ensure compliance with the basic principles some of the pre-defined technical rules might be ignored or other aspects could be added in certain cases. In

⁹³ For example, “sound risk management function”.

practice, this would create a supervisory discretion alien to the Hungarian public administrative law. The second solution **reveals a significant extension of the deliberation powers** of the supervisory authority. Definition of the basic principles and delegation of deliberation powers both require thorough legislative work, since their applicability calls for numerous conditions most of which stem from the requirement of the rule of law. If deliberation is granted, the legislator must clearly specify the situations and aspects for exercising it. For flawless application of the legal measures, legal concepts must be sufficiently exact and the set of criteria must be accurately defined. The reasons for this is that court will examine only whether the given authority indeed has powers of deliberation in the particular issue, and whether it has remained within its scope of deliberation. In addition, excessively extensive powers of deliberation would make credit institutions too vulnerable. The definition of the various criteria is adequate if it properly describes the desirable **legal practice**.

On the basis of the European directive proposal, the possibility of granting deliberation and the executability of the supervisory measures based on it serve two purposes. First: elaboration and development of risk management for each risk type even if it cannot be measured accurately. Second: compliance with the qualitative requirements. Hence, the supervisory authority's deliberation practically covers all aspects of capital adequacy, i.e. the final capital requirement for each type of risk and monitoring of the minimum qualitative requirements.

Arguments for regulatory forbearance

According to the present concepts, supervisory aspects and the method of intervention will not be covered by standard regulations, neither internationally nor in the European Union. If the capital requirement expected over and above the minimum requirements is not satisfied, the supervisory authority may exercise regulatory forbearance. However, if the minimum requirements are not met, it cannot exercise forbearance at its own discretion.

In most cases, regulatory forbearance is considered harmful and many think that it should be avoided. In many bank crises it was clear that the supervisory authorities contributed to the aggravation of the situation by not employing strict enough measures against institutions which violated the rules (the most often quoted exam-

ples are the US crisis of 1983–1985, the Credit Lyonnais crisis and the Japanese bank crisis in the 1990s). The absence of supervisory intervention with regard to individual banks may lead to consequences involving threats to the stability of the whole financial system, and if the forbearing supervisory behaviour is integrated into the expectations of market players banks may tend to apply less rigorous internal rules.

However, forbearance may be justified in certain cases: if, for example, the immediate closure of a bank would infect the whole banking system; or if the forced liquidation of a bank would result in lower revenues than the fair market value. Academic literature contains different assessments of regulatory forbearance, because there is not sufficient information about cases where supervisory authorities applied forbearance (and in fact more information can not realistically be expected). Therefore, it cannot be decided whether at the end of the day forbearance causes a decrease or rather an increase in expenditures.

Risk-based regulations developing upon the current regulatory standards once again raise the issue of regulatory forbearance even in relation to minimum requirements and force us to reconsider the role of such a supervisory attitude. Below, we point out that by adapting Basel II, all banks will use a set of regulations based on risk models; and the limitations of risk models and the development of a uniform banking behaviour may lead to consequences requiring non-usual reaction of the supervisor. For example, if the minimum or the required level of capital is not achieved, the supervisory authority may choose not to force the bank to increase it but may impose other measures instead, such as for instance on-site or off-site inspection, more frequent reports or modification of internal rules. However, in such cases the supervisor must also justify its choice, in order to avoid undue forbearance or inadequate intervention.

Potential threats of risk-based regulation are:

- **Inaccuracies in risk measurement, limitations on the model used or uncertainty of parameters;** all of these call into question the correctness and applicability of the results obtained in the first pillar of Basel II. The Basel model itself is limited, as it assumes normal distribution of asset yields, describes the economy with a single factor, limits the sensitivity of debtors to changes in the economic environment between 10% and 20%, etc. And the same insufficiencies characterise the methods used for the assessment of Basel inputs, the credit risk

factors (probability of default, loss given default). It is obvious that the use of historic data to describe possible future situations is limited. While risk models may be very advanced, there can always be situations that challenge the model for various reasons and that produce extreme values. Both banks and supervisors must take care to assess such situations, because if either a bank or the whole banking system relies on distorted results, that may lead to superfluous actions or consequences threatening stability. Extreme values are not necessarily the result of a certain state of the economy, but do occur more frequently in relation to crises or unexpected changes in the market environment when incorrect actions by the supervisor may aggravate the crisis.

Some credit risk models originate risk factors from market prices, including share prices, volatility and the leverage of companies (for example, KMV model). Thus, **the relationship between the capital and credit markets may be closer than ever before**. Well-known characteristics of the stock market are: higher and changing volatility, “price bubbles” that can be inherited easily by the credit market (even if their effect is somewhat dampened subject to the capital leverage). This requires **careful treatment as well**, including especially a **higher credit risk and capital requirements induced by an increased volatility following a burst in share-price bubble and falling share prices**.

The supervisory authority must recognise if a high capital requirement is exceptional and occurs only as a result of limitations of the methods and models used. If an otherwise solvent bank becomes unable to satisfy this capital requirement, sanctions should probably be waived.

- A supervisory action taken at the wrong time in a given market may lead to credit and liquidity shortages in institutions. This is a well-known problem related to individual banks, which represents a serious risk for the stability of the whole banking system if allowed to spread. However, the development and standardisation of credit risk assessment may lead to similar liquidity problems and less credit. It is a phenomenon well known in the securities market that due to identical trading patterns (limits, margin call, portfolio insurance, etc.), copy-cat (herding) behaviour of market players and the dominance of certain risk assessment models, the majority make similar decisions and behave in a similar way. As more and more actors appear as sellers, it will be increasingly difficult to find a partner on the buyer side and thus even formerly liquid securities may become

illiquid. A similar phenomenon led to the aggravation of LTCM / Russian crisis as well. With the development of credit risk trading and the establishment of a secondary market, the same behaviour can also be expected in the credit market. In addition this could have serious potential consequences in the primary market, i.e. in the relationship between bank and client, and it turns out that whole groups of clients may be excluded from bank funds because of identical banking valuation methods.

- Some experts⁹⁴ have come to the conclusion that monetary transmission is different in the case of effective capital requirements. It is a generally accepted view that one of the consequences of Basel II is an increasing capital requirement with unchanged lending activities by a bank in recession, so there is a higher chance that effective capital limitations develop in recessionary times. The majority of models analysing the relationship between monetary transmission and capital regulation look at the transmission of interest rate measures through the banking system on the basis of an increase or decrease in credit supply (lending channel). According to this, a rate-cut has less impact if banks are unable to lend more because of the regulatory capital requirement. On the other hand, banks tend to react to rate-increases excessively and with some delay, holding back their credit supply because in the case of institutions with a primarily negative gap a short-term rate increase leads to a decrease in profits and therefore in capital.

Naturally, these statements are valid if a bank is unable to allocate additional own funds. Therefore, they have only limited validity in Hungary where foreign investors control a large share of the market and the increase of own funds depends on the decision of the parent banks. Although no comprehensive studies have been undertaken, there are no practical examples in Hungarian financial institutions which would indicate that capital regulations or a capital requirement influence(s) the attitude of banks to lending.⁹⁵

⁹⁴ Van den Heuvel: *The Bank Capital Channel of Monetary Policy*, University of Pennsylvania, 2002.

Tanaka: *How Do Bank Capital and Capital Adequacy Regulation Affect the Monetary Transmission Mechanism*, University of Oxford, 2002.

Meh, Moran: *Bank Capital and Monetary Policy*, Bank of Canada, 2003.

⁹⁵ This could happen in the unlikely event where both the parent bank and its subsidiary face liquidity problems at the same time.

One of the basic objectives of regulations and supervisory practices is to create and maintain transparency. Transparency of supervisory actions is extremely important in emerging countries, where supervisory discretion or forbearance are often related to government intervention or are politically motivated. Of course, the same applies to developed countries but, naturally, less often.

In our view, whenever the minimum requirements and supervisory expectations are violated, the forms of supervisory action should be decided after considering the above consequences; and if such consequences are likely to occur, it is not the capital that should be increased. Similarly, insufficiencies in organisation and management should be distinguished from other violations of rules; in these cases the ideal supervisory action is certainly not sanctions related to additional capital raising.

Sanctioning instruments

The Basel Accord ties supervisory intervention to a capital requirement defined by taking into account the individual risk profile and market environment of banks. According to the draft, at this level measures must be implemented in the authority's discretion. On the other hand, if the minimum regulatory capital requirements are violated, discretion cannot be applied at present, and breaches of law involve immediate supervisory actions for everyone without exception.

Irrespective of the fact that, according to the Accord, supervisory intervention should be effected discretionally over a certain level of capital requirements, and normatively over another level, the supervisory authority can decide on the form of intervention in both cases. In addition to the raising of additional capital, the Accord lists other measures too, including, for example, supervisory inspection or the prohibition of dividend payment. The Basel Committee underlines the use of alternative measures whenever management and internal audit related insufficiencies are detected. The instruments to be applied are then supplemented with a warning to improve risk management, apply internal limits, increase provisions and other reserves, and strengthen internal controls.

With regard to the selection of supervisory measures applied in the case of capital shortages, it is important to examine whether the shortage is the result of

excessive or unjustifiable requirements. In relation to this, we propose an amendment of the Accord according to which the sole sanction possible is a capital increase in the event that capital reflecting the total risk cannot be guaranteed with other measures (stronger governance, mitigation of risk, improvement of the model, etc.) or in the event that the short-term effect of other measures cannot be ensured.

Required regulatory capital and disclosure

It is an issue related to the minimum capital requirements what amount banks should actually publish. While the requirements of the first pillar clearly originate from the risks faced, in the absence of other supplementary and subjective information, the market would not be able to sufficiently assess the ideal level of regulatory capital set by banks and supervisory authorities beyond the first pillar. However, information available only to the supervisor may be important for all those who are trying to assess the stability or profitability of a bank, i.e. investors, clients and other market players. It also has consequences if the market learns about risks in excess of the first pillar (i.e. the full risk profile) indirectly, from the interventions of the supervisory authority.

On the one hand, the opposite may be experienced in practice. For example, a few years ago it was still proposed in the US that supervisory measures should relate to changes in the price of subordinated debt, as a result of which the decisions of market players could assist the activities of the supervisor. On the other hand, no disclosure of the requirements related to the full risk profile and the excessive market interpretation of supervisory measures may encourage the authorities not to intervene in the case of unpublished risks.

Information disclosed to the market both controls and assists the activities of supervisory authorities. For example, if the market is better informed, the supervisor may have less choice to apply forbearance if a bank behaves in an imprudent fashion. Thus, for example, in cases where the supervisor would typically choose not to intervene (e.g. inadequate management of credit risks and bad debts), forbearance will not be possible; moreover, a well-informed market will also be able to assess the activities of the authority! On the other hand, in some cases the market's judgments can support supervisory forbearance if participants consider it justified.

However, the market's attitudes cannot be a point of departure for supervisory activities because, on the one hand, that would influence the behaviour of the market itself and, on the other hand, the errors of the market or market turbulence could not be controlled.

Proposed modifications

The poorly defined requirements and principles of the second pillar are not in line with the sophistication of the first one, i.e. the very tightly specified detailed technical rules. The extremely wide scope of discretion of supervisory assessment will lead to unpredictability in most countries or, which is even worse, to legal uncertainties. The current draft does not provide sufficient guidance even for the activities of supervisory authorities with discretionary power, and thus countries which need to integrate the new capital regulations normatively, with a more accurate definition of the supervisor's discretionary right, could experience a competitive disadvantage. Indeed, it may lead to unlevel playing fields if the assessment criteria, timing and measures of one supervisory authority are clearly defined, with clear legal consequences, while those with discretionary power are totally flexible. This problem does not only affect Hungary, but all other countries with continental type legislation. The Basel and the European Committee may reduce this difference and facilitate the activities of supervisory authorities if it decides to further specification on certain issues of the second pillar.

1. In our view, the second pillar contains some risks, the assessment and sanctioning of which do not necessary require supervisory discretion. If a distinction can be made between supervisory and national discretion, then the requirements related to interest rate risk and residual collateral risk as well as stress test criteria can be defined more clearly in national discretion. However, an explicit mandate for that must be proposed by the Basel or the European Committee in order to guarantee a level playing field. We recommend to distinguish these risks from other risks in the second pillar (i.e. concentration, operating risk, securitisation) and define the related criteria in more detail.
2. The sanctioning of requirements on risks covered in the previous point (interest rate, collateral, stress tests) should be defined in a similar manner, without

discretion, as in the case of the minimum requirements of the first pillar. This essentially means that these criteria should also belong to the minimum level of regulatory capital, violation of which automatically leads to supervisory measures.

3. In our view, the actual capital requirement taking into account the full risk face by an institution could also be lower than that calculated from the first pillar. However, the supervisory authority can only support a lower value of capital in justified cases, and we recommend that such cases should be defined at the level of the Basel Accord or European directive. We propose that whenever the higher capital requirement of the first pillar results from limitations of the credit risk models and other methods used, or when compliance with the requirements of the first pillar involves threats to the whole system, the supervisor should be granted an explicit mandate (deliberation instead of discretion) to accept capital amounts based on the full risk profile of institutions.
4. By adapting Basel II, each bank will introduce a uniform set of risk-modelling regulations where the limitations of the models and the development of a standard banking approach and behaviour may lead to consequences that require non-usual reaction of the supervisor. This may include cases where the minimum and required regulatory capital are not complied with, yet the supervisory authority does not force the bank to increase its capital but rather takes other measures, for example orders a supervisory inspection, or requests more frequent reports or modification of the bank's internal rules.

Instruments of supervisory measures must depend on the causes of insufficiencies. Insufficiencies may occur in two areas: either the bank does not meet quantitative or qualitative requirements, or it does not have capital exceeding its capital requirement. However, there may be various reasons for that; therefore, the measures applied by the supervisory authority cannot be fully specified. We propose that all measures that are more lenient than an immediate call for capital increase be separated, and should come before the capital increase sanction. These measures include strengthening of the control environment, changes in the bank's provisioning policy, requiring more frequent reports, or ordering a supervisory audit. We pro-

pose higher capital requirements or reduction of exposures only if that sanction does not have harmful side-effects, representing risks for the majority in the market. If there is a capital shortage, it is absolutely necessary to investigate whether it has perhaps been the result of excessive or unjustifiable requirements.

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