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Financial Markets Department

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some potential implications of
the new standards for credit risk



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The views expressed in this paper are those of the authors and do not necessarily correspond to the views of the Bank of Finland or the Financial Supervision.

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The New Basel Accord: some potential implications of the new standards for credit risk

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Abstract

This paper discusses some potential implications – both intended and unintended – of The New Basel Accord, which is to be finalized by the end of 2001. Our focus is on the reforms of the rules for determining minimum capital requirements for credit risk. The discussion is divided into effects at the level of an individual bank, effects on the structure of the financial markets, and macroeconomic implications. We present a survey of potential effects rather than a profound analysis of any of them. Therefore conclusions are inevitably preliminary, and in many cases they are likely to be controversial. Although the new capital accord as a whole is a major improvement on many properties of the current framework, our aim is to find potential problems that might need to be considered in the implementation and application of the new rules. Overall, the new accord will be largely an experiment, of which many of the consequences remain to be seen.

Key words: The New Basel Accord, capital adequacy requirements, credit risk, banking stability

Uusi Baselin sopimus: keskustelu uusien luottoriskistandardien mahdollisista vaikutuksista

Suomen Pankin keskustelualoitteita 2/2001

Esa Jokivuolle – Karlo Kauko
Rahoitusmarkkinaosasto

Tiivistelmä

Uusi, luottolaitosten vakavaraisuussäätelyä koskeva kansainvälinen Baselin sopimus on tarkoitus viimeistellä vuoden 2001 loppuun mennessä. Tarkastelemme tässä työssä sopimuksen potentiaalisia vaikutuksia yksittäisiin luottolaitoksiin, rahoitusmarkkinoiden rakenteeseen sekä makrotalouteen erityisesti luottoriskien mittausta koskevien uudistusten johdosta. Vaikka uusi sopimus tuo merkittäviä parannuksia vakavaraisuuden nykyisen säätelyjärjestelmän ongelmiin, pyrimme nostamaan esiin seikkoja, joita on ehkä syytä ottaa huomioon uuden sopimuksen viimeistelyssä ja soveltamisessa. Näkökulman valinnasta johtuen monet johtopäätökset ovat alustavia ja toisinaan ehkä jopa kiistanalaisia. Kaikkia uuden sopimuksen vaikutuksia rahoitusmarkkinoihin on tuskin mahdollista vielä täysin ennakoida.

Asiasanat: Uusi Baselin sopimus, vakavaraisuusvaatimukset, luottoriskit, pankkitoiminnan vakaus

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1 Introduction

When asked what he thought of The French Revolution Chou En-lai answered, "It is too early to tell".

In different parts of the world governments have imposed capital adequacy requirements on banks. Unlike many other government statutes on banking, these capital adequacy regulations have been largely harmonised on an international basis. The famous Basle accord was made in 1988, and it has since then become an international standard. It has been implemented almost as such in the national legislation of most countries, including the whole EU, all the major developed market economies, and a large number of developing and transition economies. This capital adequacy framework requires that bank's own funds must equal at least 8 % of risk-weighted assets and market risks. The method to calculate risk-weighted assets is rather mechanistic. As to outstanding loans, each receivable is given a weight that varies between 0 and 100 %, depending on the debtor. To take a few illustrative examples, commitments by OECD governments are given a 0 % weight, households' mortgage loans a 50 % weight and corporate loans a 100 % weight.

This capital adequacy standard is about to be reformed, mainly because the original Basel Accord has in many ways become outdated. In particular, it has become apparent that the current accord is no longer in line with the internal credit risk measurement systems of the leading banks. The Basel Committee on Banking Supervision published a consultative paper on the reform in 1999, and a more concrete proposal for a New Basel Capital Accord in January 2001. The final version is to be published by the end of 2001. EU has also published its own consultative documents (1999, 2001) which, however, closely parallel those of Basel. In the documents the Basel Committee discusses the three "pillars" of the new framework. In the first of them, the Committee proposes various ways to improve the measurement of risks on which minimum capital requirements are based. The other two pillars concern the upgrading of the supervisory review process and the increased use of market discipline as a complement to regulation and supervision. The proposed reforms would obviously solve many problems of the current capital framework.

To a large extent the focus in this paper will be on the potential implications, both intended and unintended, of the increased risk-sensitiveness of the new rules for credit risk under the minimum capital requirements. Rather than commenting on the proposed reforms we take them as given and try to make preliminary assessments of their effects on issues such as banking stability, structure of the financial markets and macroeconomic developments. Overall, there are only limited possibilities of making quantitative assessments of the effects of the new framework. The relevance of historical data would only be of limited value when structural regime changes like the one at hand are concerned. It would also take a considerable number of years after the implementation of the new accord before much could be said about the overall effects of the reform. What is available now for making assessments about the future are qualitative judgment and the empirical results regarding the effects of the 1988 Basel Accord. On the whole, the new accord will be much of an experiment, many consequences of which remain to be seen. Nonetheless, further analysis on both theoretical and empirical front should be called for.

After a brief review of the proposed new regulatory framework in chapter 2, the discussion that follows is divided into three sections. These are the impacts of the reform at the level of a single bank (chapter 3), the impacts on financial markets (chapter 4) and macroeconomic effects (chapter 5). The paper presents a survey of potential effects rather than a profound analysis of any of them. Therefore conclusions are inevitably preliminary, and in many cases they are likely to be controversial. These are summarized in the final chapter.

2 The proposals for the new capital adequacy framework

By now there is a number of sources, in addition to the original consultation documents, from which one can obtain a good view of the proposed reforms. In this paper we refer the reader to these rather than present a complete review of the proposals ourselves¹. Nonetheless, a short recapitulation in the following is in order.

The proposals of the Basel Committee for Banking Supervision (1999, 2001) and the European Commission (1999, 2001) are divided into three "pillars"². In addition to these, issues regarding the scope of consolidation are considered in the new framework, with certain noteworthy differences between Basel and the EU. The new accord should be finalized by the end of 2001, and its application should start in the beginning of 2004.

Pillar I, our main focus, deals with changes to the current framework of calculating minimum regulatory capital requirements. These include changes to the treatment of credit risk including credit risk mitigation techniques, such as collateral, as well as the addition of new risk categories such as operational risks. The overall aim of the reform is to better align banks' capital with their true risks. The so called market risks are left intact this time, although there has been some work on clarifying the borderline between the banking book and the trading book.

The treatment of credit risk is further divided into two alternative approaches: the standardised approach (SA) and the internal ratings based approach (IRBA). In the former the aim is to use ratings, provided by external credit assessment institutions, to assign a wider range of risk weights to corporate, bank and sovereign credit exposures. In the latter, credit institutions' own internal ratings for their customers, subject to supervisory approval, would be used for the same purpose. The risk weights planned under the IRBA exhibit much higher risk-sensitivity than those under the SA. Moreover, there are two options within the IRBA: the foundation approach and the advanced approach which relies even more on institutions' own estimates for the various risk dimensions of their credit portfolios. On the whole, the IRBA is expected to be pursued by the more sophisticated institutions and it is intended to pave the way for the ultimate acceptance of the use of banks' own credit risk portfolio models in determining regulatory capital.

Pillar II focuses on improving the supervisory review process. This emphasizes that, despite improving the risk-sensitivity of the minimum capital requirements, supervisors need to take a comprehensive view on how banks handle their risk management and internal capital allocation processes. Subject to shortcomings in these, supervisors could require higher than the minimum capital target from a given institution. The possibility of such sanctions could also help preclude any remaining opportunities for capital arbitrage that the new framework might leave. Pillar III is about increasing credit institutions' disclosure requirements in order to enhance the functioning of market discipline (see also Mayes, Halme and Liuksila, 2001). Increasing disclosure requirements may be an important complement to ensure the credibility of banks' internal ratings accepted for use under Pillar I.

¹ See Basel Committee for Banking Supervision (1999, 2001), European Commission (1999), Karacadag and Taylor (2000a, b) and Standard & Poor's (1999). Jokivuolle and Launiainen (2000) contains a review in Finnish. The second round proposals are to come out in early 2001.

² The second consultative document of the EU is primarily a complement to the Basel document as regards EU specific issues.

3 Impacts at the bank-level

The overall aim of better aligning a bank's capital with its true risks should in itself improve the stability of the financial sector. Low-risk banks may well do with less capital than before, whereas high-risk banks have to hold more capital if they are to maintain their risk positions. There will undoubtedly remain shortcomings even in the new capital rules in that all risks are not accurately measured, but the improvement on the current system could be quite significant. If this would happen, the distribution of capital within the financial sector would become more just after the reform. Nonetheless, at this point it still remains somewhat unclear what will the effect of the reform be on the overall level of capital in the system. In the following we discuss some issues that may affect the final impact of the more risk-sensitive capital rules on behaviour and stability of individual banks.

3.1 Effects of new risk-weights on banks' actual capital levels

According to Basel (2001) the final calibration of risk-weights in the new framework, along with taking into account the capital charge for operational risks, is intended to be such that the overall amount of capital in the industry will not be eroded. Nonetheless, the details of how this calibration will eventually be done are currently not available. Much may depend on the results of the quantitative impact study to be carried out in cooperation with the industry (Basel, 2001, Overview: pp. 9-10)³.

While the final calibration determines the amount of capital needed to fulfil the minimum capital ratio of 8 per cent for a given portfolio, there may be other factors in the reform that affect the actual amount of capital banks will choose to hold in excess of the minimum requirement. Since the launch of the 1988 Basle Accord it has become evident that banks' actual capital ratios on average exceed the 8 per cent minimum. Jackson et al. (1999) report that the average capital ratio among major institutions in G-10 countries rose from 9.3 % in 1988 to 11.2 % in 1996, ie, by about two percentage points. Although other important factors may have played a role, too, Furfine (2000) argues that the capital regime of 1988 was a necessary ingredient to explain the observed changes in capital ratios.

Furfine's (2000) key argument is that banks face considerable costs from approaching, let alone falling below, the minimum capital requirement. These might come in the form of intensified supervisory review, weakening reputation, or immediacy of the need to restore the capital position either by cutting lending or trying to obtain new external capital. To avoid these costs, banks choose to hold capital buffers in excess of the minimum requirement. In the New Basel Ac-

³ To illustrate the potential effect of the new risk-weights based on external ratings, some preliminary calculations were done for this paper. Applying the new standardized risk weights on data of the total long-term U.S. corporate debt per rating class, rated by Moody's in the period 1987-99, resulted in on average about a 30 per cent drop in the minimum capital required for this stock of debt over the sample period. Of course, these type of calculations are quite arbitrary as the aggregate Moody's data may not at all be representative of relevant bank portfolios. Moreover, no risk mitigating factors were considered.

cord the increased risk-sensitivity of the capital charge would apparently increase the likelihood that, *ceteris paribus*, an institution "hits" the eight per cent minimum ratio some time in the future as ratings, either internal or external, migrate unexpectedly. This effect would be supposedly stronger in the more risk-sensitive IRBA. Banks may want to limit this probability by further increasing the capital cushion above the minimum level. This means that, for a portfolio for which the new capital rules would leave the minimum capital requirement unchanged, the bank would hold an actual amount of capital which is higher than under the current framework (see also Jokivuolle and Peura, 2001). Banks may also shift their asset allocation towards less risky assets. Other things equal, these effects would improve banks' stability⁴. However, in the following section we consider the potential reverse side of the increasing risk sensitivity on banks' choices.

3.2 Will the internal ratings based systems be (properly) used?

As the coverage of external ratings in the corporate sector is limited particularly in Europe, the development of the IRBA has been considered crucial for truly enhancing the risk-sensitivity of the new capital accord. Institutions could adopt an IRBA, subject to supervisory approval, on a voluntary basis, and therefore it is essential to build sufficient capital incentives in the regulatory framework for them to do so. Otherwise the effectiveness of the reform, aiming at improving risk-sensitivity, might remain modest⁵. Indeed, the primary hurdle to the use of the IRBA is that not many banks may yet have sufficiently developed internal rating systems that would readily fulfil the supervisory minimum requirements (Karacadag and Taylor, 2000b). Moreover, there is the potential danger that only those banks who will benefit from the IRBA in the form of lower future capital requirements will adopt it whereas those who will not will hold to the standardised approach. This sort of "adverse selection" would imply that the overall amount of capital in the banking system would decrease.

Basel (2001) refers to a modest average capital relief (2-3 % percent lower average risk-weighted assets), intended to provide banks with incentives to use the (foundation) IRBA over banks using the SA. However, as discussed in the previous section, considering banks' potential need to hold higher capital buffers over the minimum to account for the higher volatility of the capital charge in the IRBA over that in the SA, it is not clear whether the size of the planned capital incentive will be enough. In other words, the higher risk-sensitivity of the IRBA could also constitute a hurdle to using it rather than the SA.

Potential problems remain also in the use of the IRBA, which could severely impair the effectiveness of the framework. These are related to banks' incentives to promptly and fully adjust their customers' ratings downwards as a result of deteriorating economic conditions, as these adjustments would lead to increases in

⁴ It could also be argued that the need to hold ever higher capital cushions to account for the increased volatility of capital charges would be an argument for supervisors under the supervisory review process to expect higher actual capital levels than just the minimum requirement (see also Basel, 2001)

⁵ Among other incentives to banks to move to the IRBA could be prestige and bringing regulatory and economic capital calculations closer to one another.

banks' capital charges. After all, allowing the use of internal ratings in determining capital charges is a bit like "setting the fox to keep the geese". In particular, to the extent that judgemental elements in customer ratings are used within the IRBA, it will be a major challenge to supervisors to oversee that biases of excessive optimism do not enter ratings. Strengthening the supervisory review process under Pillar II might have a potential role in dealing with these potential pitfalls.

3.3 Effects of increasing informativeness

The aim of the new accord is to strengthen the connection between the reported solvency ratio and the underlying "true" financial soundness. If this succeeds, the official capital adequacy ratio becomes more informative, and different stakeholders of a typical bank, both from the securities market and the interbank loan market, would probably pay increasing attention to it. This would probably affect banks' funding costs as low-risk banks would be more clearly separated from high-risk banks.

A counter-argument to the previous reasoning could be that banks have the possibility to disclose all the relevant information anyway. All the information to be disclosed under the reformed capital accord could be disclosed under the old system on a voluntary basis, implying that any rational bank that could benefit from the disclosure would publish the information. If this is the prevailing situation, the capital accord reform might make a fairly limited difference to banks' relative funding costs⁶. On the other hand, official solvency ratios calculated according to internationally standardised principles would probably affect funding costs more efficiently than a large amount of information disclosed by banks themselves in an un-coordinated way. Reliable solvency ratios calculated in a uniform way could be used as criteria in decision making almost as such with very little further analysis, whereas few would-be creditors might be willing to spend resources on analysing and interpreting large amounts of non-comparable information disclosed by different banks. Moreover, as producing information is costly, small institutions might calculate no solvency ratios unless government regulations oblige them to do so (see also Hyytinen and Takalo, 2000). In summary, if the role of the regulatory capital ratios in conveying standardised and comparable information is valuable to the market in assessing various institutions' riskiness, then the proposed reform would probably further facilitate the markets' ability to make these assessments and price bank liabilities more accurately.

Because the relevance of the capital adequacy ratio to banks' funding costs may strengthen, some banks might have incentives to alter their official capital adequacy ratios. Banks might adjust their true risk levels, but even the use of doubtful methods is possible. For instance, banks might practice window-dressing by changing the contents of the securities portfolio for the moment of the closing of the books, or alternatively they might try to utilise remaining possibilities of capital arbitrage, ie. they could replace certain assets with other assets bearing an essentially similar risk but belonging to another risk-weight category. The use of doubtful methods to artificially alter the solvency ratio might have a long-lasting negative impact on the reputation of the bank, but this might be a minor disincen-

⁶ Another reason for why changes in the content of the official capital ratio might not have much impact on banks' funding costs is that too wide implicit or explicit safety nets might keep a bank's own creditors indifferent as to the real risks of the bank.

tive if the bank is about to end up in acute and serious financial problems. Thus, the new capital accord might have opposing effects. The new accord would, *ceteris paribus*, improve the reliability of solvency ratios as indicators of banks' financial standing. However, this effect might be partly offset by the possibility that at least some banks might have more incentives to manipulate the official solvency ratio.

What way, then, might banks try to manipulate their capital ratios? To take a simplistic approach, one might state that the capital adequacy ratio is nothing but an indicator of financial soundness. Because any bank wants to appear creditworthy, banks have incentives to make their capital adequacy ratios appear higher. This effect may be particularly relevant to a specific sub-group of credit institutions, namely small and medium size banks with a weak deposit base. Obviously, the cost of market-based funding is no major issue if deposits cover the need for funding. A high capital adequacy ratio might not impress the creditors of a large bank with external ratings; most counterparties would still monitor credit ratings rather than solvency ratios. In the case of small and medium size institutions, however, the solvency ratio might be one of the best indicators a would-be creditor could observe.

However, a completely different effect might also arise. The so-called signalling models of corporate debt (See Ross 1977 and Heinkel 1982) predict that high levels of debt indicate good business prospects. Because managers try to avoid bankruptcy, they are not willing finance investments by issuing debt unless future income is likely to cover all the loan servicing costs. Hence, indebtedness is an indicator of promising business possibilities, and a high level of indebtedness could increase the aggregate market value of securities issued by the firm, which is desirable. Maybe it is not entirely unrealistic to hypothesise that this effect could arise even in the case of banks. If a bank has a capital adequacy ratio far higher than most competitors, shareholders and creditors might suspect that managers, or possibly even government officials, have decided that the capital adequacy ratio has to be far higher than 8 % because not all the risks are fully reflected in the official ratio. Hence, bank credibility might be maximised by an optimal level of solvency, neither alarmingly close to required minimum, nor abnormally high. This might encourage some banks to artificially manipulate their capital adequacy ratios that could otherwise give the impression of being suspiciously high.

3.4 Effects on group structures

In many cases fully owned subsidiaries operate, *de facto*, as units of the parent company. Nevertheless, the internal ratings system used by the parent company of a banking group cannot be used by its subsidiaries with the same licence.

A financial group consisting of numerous credit institutions would have to acquire licenses for multiple internal rating systems. This might be somewhat costly even if the systems are basically identical. These problems can be particularly commonplace in multinational banking groups because the approval by multiple supervisors would be required. It may not be obvious that a system licenced in one country would be automatically approved by the authorities of another country.

In addition, even if the same rating principles could be used by all the legal entities, banking laws may not allow free exchange of information between different legal units. According to the Finnish Banking Act two credit institutions of

the same group are allowed to exchange customer-specific information. However, this is no international standard. In certain other jurisdictions banking secrecy legislation imposes limitations to exchange of customer-specific information between different legal entities of the same group. Not being allowed to exchange such information would obviously make it impossible to share a common internal ratings system.

Using different internal rating systems in different subsidiaries might be complicated, especially if the different units of the banking group are managed as a single undertaking. This could be at least a minor incentive for banking groups to simplify their legal structures and to reduce the number of legal entities. If the reasons to run the business as multiple legal entities are weak, they might be outweighed by relatively unimportant factors.

4 Impacts on Financial Markets

Many aspects of the capital reform can have potential effects on the structure of the financial markets. In this section we touch on a few of them including effects on disintermediation, liquidity of the credit markets and mergers and acquisitions. Some stability issues are also raised.

4.1 Effects on disintermediation

An important question is whether costs to banks from regulation and supervision will increase after the introduction of the new framework, and whether these would speed up the process of disintermediation in the financial sector because of a negative pressure on banks' profitability. These could come both as direct costs of increasing system maintenance and reporting requirements as well as indirect costs, such as tightening capital requirements for some banks (see, for example, Diamond and Rajan, 2000a, for the cost of bank capital).

Consider the following indirect cost to banks. As a result of the capital reform, it is likely that more and more large and financially sound companies will acquire external credit ratings in order to get loans at lower interest rates. This effect will be particularly important if the use of the IRBA remains limited for some reason (see section 3). Unlike assessments made by banks, external ratings are public by nature. Therefore, there might be a reduction of asymmetric information in the market for corporate credit. According to the modern banking theory, the competitive advantage of banks as lenders is largely based on superior information. Banks have traditionally made credit assessments themselves. Making these assessments has caused monitoring costs, but the acquired information has been proprietary and provided banks with certain monopoly power. Banks have been able to maintain wider interest rate margins than what would have been possible if the information had been freely available. Thus, by encouraging the use of external ratings, the new capital accord might in certain segments of the market erode the fundamental source of banks' competitiveness. Moreover, companies' possibilities to make banks compete will improve because any would-be lender can immediately observe the credit-rating with almost no cost. This might create additional pressures on loan margins. Also, if a debtor company acquires a credit-rating, it will be easier and faster for it to issue corporate bonds in the market whenever it is not satisfied with the offers made by banks. Having this option at hand might be an additional source of negotiating power, even if it is rarely used. All these effects seem to contribute to the continuing process of disintermediation.

The proposal for the new capital framework could increase the liquidity of the market for credit. This could take place both in primary credit contracts, such as bank loans, as well as in various credit contingent claims, such as credit derivatives and securitisations. Traditionally, bank loans have been "non-marketable" assets although more recently, especially in the U.S., the market for bank loans has grown rapidly (see eg Gorton and Pennacchi, 1995). The problem of asymmetric information is generally seen as the main reason for the illiquidity of loans. In the new Basel framework, the supervisory approval of banks' internal rating systems in conjunction with enlarged disclosure requirements, as well as the potentially increasing use of external ratings in the corporate sector, might facilitate the secondary market for bank loans as information of the risks of these

contracts becomes better available. As a result, this aspect of the reform might also contribute to the process of disintermediation in that banks increasingly become mere originators of credit, bearing less of the actual credit risk themselves.

Although improving liquidity is generally seen as a positive thing, the so called "paradox of liquidity" should also be considered as a potential threat to banking stability (Myers and Rajan, 1998). Increasing liquidity of banks' balance sheets means that banks can more quickly and with smaller costs change their asset allocation. This would also make excessive risk taking easier, should the bank have particular incentives to do so, eg, in financial distress.

As it comes to securitisations, which can be seen as a particular form of disintermediation, the immediate effect of measuring their risks more accurately within the new framework could be that the scope for securitisations primarily aimed at capital arbitrage would be diminished. This is especially so if the Basel is able to develop a risk-sensitive approach to the implicit guarantees often provided by the issuing bank. On the other hand, other aspects of the new capital framework suggest that the productive use of securitisations could increase. In particular, the proposal to include a treatment for the degree of diversification within the IRBA could encourage the use of securitisations and credit derivatives in achieving better diversification and, hence, a lower capital charge. Nonetheless, problems with the use of credit derivatives, in particular, do remain (The Economist, 2001). The recognition of the risk-reducing effect of diversification could also give a further spur to the market for syndicated loans.

4.2 Mergers and acquisitions

As the minimum standards for an IRB system would probably be made rather strict, the IRBA might primarily be available for rather advanced institutions. Furthermore, as the fixed costs of establishing an IRB system could be quite high, it might only make sense for sufficiently large institutions to invest in one. These factors would further encourage mergers and acquisitions already taking place in the financial sector, if especially small and medium size banks found it beneficial to start using the IRBA. This could be the case if the average capital relief in the IRBA over the SA were significant enough. Another thing that could directly contribute to further consolidation in the banking sector is the new proposal's recognition of credit portfolio diversification in determining the capital requirement. Mergers and acquisitions would be a natural way of reaping the capital benefits from better diversification. The likely acceptance of full-blown credit portfolio models in the future, which, unlike the current proposal, also incorporate sectoral and geographical diversification, would further give a spur to cross-border consolidation. From the stability point of view these developments might not be unambiguously positive as "too-big-to-fail" problems could accumulate.

4.3 Effects on the location of financial institutions

One of the ideas in the proposal is that banking counterparties could have different risk weights depending on their home countries' ratings.⁷ The credit-rating of the central government would be used as an indicator of the soundness of the banks incorporated within its jurisdiction. It is proposed that counter-party banks would be given risk weights one category less favourable than that applied to the sovereign. Thus, banks incorporated in countries being rated AA- or higher (Standard & Poor's) should be given a 20 % risk weight, whereas banks located in less creditworthy countries would have less favourable weights. There are strong arguments in favour of this proposal, because the credit-rating of the government certainly reflects the standing of the whole national economy.

Under this system banks would prefer money market counterparties domiciled in highly rated countries, which might reduce the costs of funding of institutions incorporated in such countries relative to banks located in less creditworthy countries. Interestingly, being located in a highly rated country is a competitive advantage that can be acquired. International capital movements have been liberalised to a very large extent, and there are few regulations that would oblige shareholders to register their company in any particular jurisdiction. In international financial groups interbank operations might be centralised in units incorporated in creditworthy countries because this could enable the group to acquire funding at a marginally lower cost. In some cases such units might even be established for that purpose, especially if the group already has branches in the highly rated country.

In some cases even countries that would fall within the 20 % risk weight category might be disregarded as legal domiciles because of the risk of downgrading. An AAA rated country would be a better location than an AA- rated country, because the latter is more likely to be downgraded to a category that would no longer qualify for the lowest risk weight.

However, EU banks shall treat the whole union as the home market, and for them the home country of an EU counterparty would be irrelevant to the risk weight. Banks domiciled outside the EU, instead, would probably apply country-specific risk weights to EU banks. This disparity might be of limited importance because EU countries' credit ratings are rather homogenous. At the moment, Greece is the only EU country with an S&P rating below AA-. On the other hand, the next round of EU enlargement is likely to change this situation. Three future members would not fall within the highest risk weight category, at least not with their current ratings.⁸ Banks located in other EU countries would have some competitive advantage over non-EU banks in interbank lending to banks in these new EU entrants. This might encourage some banks in AAA rated member countries to accumulate excessive country risk concentrations in the interbank markets of certain new member countries.

To take a fictitious extreme example, a bank incorporated in, say, Luxembourg might specialise in taking loans from Japanese credit institutions and forwarding this funding to banks domiciled in new member states. Both the Japanese bank and its Luxembourgian counterparty would have in their books loans in the best interbank category. The amount of regulatory banking capital needed for

⁷ The second option is to use the rating of the counterparty bank itself.

⁸ The Estonian S & P rating is A-, the Polish rating A+ and the Hungarian rating A.

intermediating one unit of money from Japanese savers to debtor banks in new member states would equal $(0.2 \cdot 0.08) = 0.016$ per bank, and 0.032 in total. If the Japanese bank lent directly to the same debtor banks, these loans would fall within the category of 50 % weighting, and the intermediation would require $(0.5 \cdot 0.08) = 0.04$ units of banking capital. Thus, the banking industry utilizes its regulatory capital in a more efficient way if the funding is intermediated through Luxembourg.

4.4 Other aspects

There may be some potential problems with designing the new capital framework, particularly the IRBA, to be fully compatible with certain special features of banking that serve important functions in the economy⁹. If such incompatibilities are built in, banks may face disincentives to carry on with certain activities to the extent that would be socially optimal.

An example of such a problem could be the incorporation of a measure of loan portfolio diversification in the IRBA, already discussed in the previous subsection. The idea is that the more diversified a bank's portfolio is in terms of the size distribution of single exposures, the lower capital charge it should incur, other things being equal. However, a certain amount of concentration in a loan portfolio might be needed to provide banks with sufficient incentives to monitor and screen their customers¹⁰. Encouraging banks away from all sorts of customer concentrations by offering them lower capital charges might lead banks to adopt such levels of customer screening and monitoring that could be suboptimal from the overall stability point of view. The same problem concerns the use of credit risk mitigants, such as credit derivatives and securitizations, that both can be seen as effectively reducing the bank's interest in customers involved in the underlying credit contracts.

As a result of the incentives to develop IRB systems as well as to enhance the overall risk measurement and management capabilities of credit institutions, as implied by Pillar II, there would be a still growing market for commercial providers of credit risk technologies and data. For many years to come, the use of commercially provided data and methods for developing IRB systems might be necessitated by the insufficient amount of internal data currently available in many institutions within the banking sector. The pitfall of this development could be that banks start relying too heavily on these commercially provided methods at the cost of neglecting the maintenance and development of their traditional internal risk management culture. Of course, this may be one of the concerns regulators can tackle in the supervisory review process under Pillar II.

⁹ Indeed, even the very requirement for minimum capital can have perverse effects as regards its intended aim of increasing bank stability; see Diamond and Rajan (2000).

¹⁰ See Winton (1999).

5 Macro-Level Impacts

More risk-sensitive capital requirements are designed to enhance banking stability which in principle should also stabilize economic fluctuations. Risk-sensitive capital requirements could be seen as a way of containing the excessive risk-taking incentives (moral hazard) that highly leveraged institutions, such as banks, may have. At the extreme a bank may have an incentive to accept financing projects with even negative net present values as far as the upside return potential of the projects is large enough. To mitigate these harmful effects, more risk-sensitive capital rules could help restrain financial institutions from financing investment projects with bad risk-return ratios. As a result, the corporate sector, and therefore credit institutions themselves, would be in a stronger position to face negative external shocks. Secondly, more risk-sensitive capital requirements would spur banks and their customers alike to promptly resolve problems. This could further enhance efficiency and stability in the long-run. As regards this second point, the supervisory experience also suggests that rather than lowering the capital requirement on troubled institutions it is better to insist on fast resolution of problems, and require prompt restoration of capital, as weakly capitalized institutions in particular may have increased incentives for excessive risk-taking¹¹.

Nonetheless, there is also a well-known argument that bank capital adequacy requirements may exacerbate business fluctuations (Blum and Hellwig, 1995). This is because after a, say, negative aggregate demand shock banks have to adjust to the accumulating loan losses and the resulting decline in their capital by cutting lending. This would further strengthen the impact of the initial shock on the economy. Moreover, it has been suggested that this effect is stronger if "mark-to-market" accounting rules are applied (Hellwig, 1995). More risk-sensitive capital requirements would effectively work in the same way as such accounting rules, so the proposed capital reform could further exacerbate business cycles. Empirical research which has studied the impact of the 1988 Basel Accord has found some support for these views, although it appears hard to disentangle this particular effect from other potential effects¹². Some authors have asked whether the very design of the prudential regulatory regimes should account for the macro level effects (see White, 1999 and 2000).

Banks could of course anticipate these effects by raising their initial capital ratios to such levels that the decline in capital as a result of an exogenous shock is unlikely to necessitate restrictions in banks' own lending policies. However, the resulting higher average bank capital ratios would imply less financial intermediation, which could have adverse implications for long-run economic growth¹³.

Recently, the use of the so called dynamic provisioning in helping to smooth the pro-cyclical elements of capital regulation has been much discussed. Some countries have even proceeded to develop their regulatory practices in this direction. Although the goal of these efforts may be well justified, the argumentation so far has been somewhat unclear. To smooth lending cycles, loss reserves should apparently be relatively high when times are good and relatively low when times are bad. The problem is to identify when times are exceptionally good to justify

¹¹ The U.S. savings and loan crisis appears to be a case in point.

¹² See Jackson et. al. (1999). A recent paper by Furfine (2000) argues that the 1988 Capital Accord did cause a credit crunch.

¹³ See Diamond and Rajan (2000a) for a discussion on the optimal level of bank capital.

higher reserve requirements. Much of it boils down to the question of how well economic fluctuations can be forecast; ie, what is the size of transitory components in the aggregate growth. Moreover, it is unclear why the same smoothing could not be achieved with capital regulation. In economic sense, there's really no difference between loss reserves and capital. So, in essence we are back to the question of White (1999, 2000) and others of whether prudential regulation in the first place should try to smooth the macro level fluctuations.

Improving risk-sensitivity of the capital requirements against credit risk may also have consequences that have their analog in the area of market risks. It has been recently argued that leading financial institutions' wide use of risk measurement models, the so-called Value-at-Risk models, which all share essentially the same properties, and acting on the signals generated by these models, may actually have increased market volatility, and perhaps contagion effects, especially in times of market disturbances. The use of external ratings, in particular, in the new capital adequacy framework could have similar effects as institutions would simultaneously have to adjust to increased capital requirements after (correlated) rating downgrades. As many institutions would be selling off their liquid risky assets at the same time, this could further amplify the price effects on these assets in the market. Through the reduced collateral value of these assets this process could further feed into reduced lending and, therefore, amplify the initial economic shock.

On balance, more risk-sensitive capital requirements appear to have opposite effects on economic fluctuations. Further research would be most welcome to help better assess the sign of the net impact.

The issue of macroeconomic effects of the new capital framework discussed here is also relevant in the international context. Concerns have been raised that the more risk-sensitive capital requirements would further destabilize the international capital flows. While there could be such a danger in the short-term, more risk-sensitivity of the capital accord could also give financial institutions, corporates and governments incentives to deal quickly with problems in order to restore their creditworthiness. In the long-run, this could actually help stabilize capital flows¹⁴.

¹⁴ Diamond and Rajan (2000b) point out that it is important to correctly distinguish between causes and symptoms when dealing with the problems of international finance.

6 Conclusions

This paper has discussed some potential effects of the proposed new capital adequacy framework, ie, the New Basel Accord. The focus has been on the reform of the rules regarding credit risk under the so called Pillar I. When possible, we have tried to assess the effects from the viewpoint of banking sector stability. The main points raised are as follows:

It is not clear how effective will, in particular, the internal ratings based system (IRBA) be in enhancing the overall risk-sensitivity of the capital framework. First, as based on voluntariness, will the incentives for banks to adopt the approach be high enough? Secondly, can it be ensured that, once within the IRBA, banks promptly and fully adjust their internal ratings also to deteriorating economic conditions of their customers, given that this would imply higher capital charges to them?

More risk-sensitive capital rules will imply more unexpected variation over time in banks' capital charges. Banks might have to adjust to this by further increasing their capital cushions above the minimum capital requirement. On the other hand, the need for higher capital cushions could further increase the hurdle to move to the IRBA.

The reform would probably improve the reliability of regulatory capital ratios as indicators of financial soundness. Therefore banks' own creditors would be likely to pay increasing attention to this source of information. Thus, the solvency ratio could affect banks' funding costs. This might encourage banks to utilize remaining possibilities to artificially manipulate the official solvency ratio.

The new framework could speed up the process of disintermediation as banks' direct and indirect costs from regulation and supervision could increase.

The potentially increasing use of external ratings within the corporate sector might reduce banks' possibilities to charge implicit monitoring fees, such as interest rate spreads. Competition in the corporate loan market would then intensify rather than slacken. This could also contribute to the process of disintermediation.

As regards structural changes in financial markets, at least some effects on mergers and acquisitions, markets for risk mitigating products, and the overall liquidity of credit markets can be expected. For example, the number of mergers and acquisitions could further increase, especially among small and medium size institutions, in an attempt to economize on internal risk measurement costs as well as in reaping the benefits of better credit portfolio diversification. If the domicile of a banking counterparty affects its risk weight, multinational banking groups may have incentives to centralize their interbank borrowing in units registered in highly rated countries.

Certain features of the IRBA might not be fully consistent with the role of banks in the economy. For instance, rewarding diversification of the loan portfolio by a lower capital charge might, after certain point, weaken banks' incentives to engage in screening and monitoring their customers, which might in the long run have adverse stability effects. The same problem appears also in the context of risk mitigation techniques, such as credit derivatives and securitization, that effectively reduce the credit originator's interest in the credit customer.

An argument goes that more risk-sensitive capital requirements would further amplify business cycles. On the other hand, as more risk-sensitive capital requirements would be better in line with the true risks of banks, the ex ante allocational efficiency should be improved, and thereby the economy might be better prepared to encounter negative exogenous shocks. The net impact of these opposing forces is not clear and, hence, their eventual effect on stability largely remains an open question.

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