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The changes implied by the implementation of the new Basel II Capital Adequacy requirements and their impact on bank lenders and the structure of their capital:

Will the new credit risk assessment methods prove to be effective?

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Introduction 3
Part One: Assessing Credit risk 9
I. Standardized approach 9
A) The new external ratings-based risk weightings 10
1. Claims on sovereigns 10
2. Claims on banks and securities firms 11
3. Claims on corporates 11
4. Claims included in the regulatory retail portfolios 11
5. Claims secured by residential property 11
6. Claims secured by commercial real estate 11
7. Past due loans 12
8. Off-balance-sheet items 12
B) Which external ratings should be used? 12
C) Which banks will implement the standardized approach 13
II. The IRB approaches 13
A) The two approaches 14
B) Which banks can use IRB 17
III. The securitisation framework 18
Part Two: The direct changes on a bank's capital structure 19
I. Better internal risk management 20
II. Improved recognition of credit risk mitigation techniques 22
III. The infamous operational risk charge 24
Part Three: How the new capital structure will impact on banks' lending policies 26
I. Changes to banks' lending policies: a new bank- borrower relationship 26
II. Basel II and procyclicality 28
III. Basel II and lending to SMEs 30
IV. Basel II and emerging markets: 32
A) Banks incorporated in emerging markets 33
B) Lending to emerging markets 34
Conclusion 35

Introduction

On 11 May 2004, consensus was finally achieved on an accord that has already become famous for a number of years under the name Basel II[1]. This new accord creates a framework for capital regulation for internationally active banks[2]. It was adopted by the Basel Committee, which is an emanation of the Group of 10 (G10), working together with Luxembourg and Switzerland and functioning as a component of the Bank of International Settlements, which is established in Basel in Switzerland[3]. The decisions of the Basel Committee do not have binding authority on the Member States of the Committee and thus do not become part of international law. Nevertheless, over the years, the Basel Committee has shown to have a strong influence in international banking regulation, its decisions having become *de facto* industry standards.

This was already the case for the 1988 accord adopted by the Basel Committee (now commonly labelled **"Basel I"[4]**), which has been transposed by a large number of countries into their national legislation, even though the old accord was originally only designed for internationally active banks[5]. The biggest "client" of the original 1988 accord probably has been the EU which has implemented its provisions in the Own Funds and Solvency Directives, which have later been consolidated in the Second Banking Consolidated Directive[6].

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[1] The official title of the accord is: *International Convergence of Capital Measurement and Capital Standards, Basel Committee on Banking Supervision* (**"The Basel Committee"**), Bank for International Settlements. The final version of the accord was published in June 2004. I will refer to it as **"The accord"** or as **"Basel II"**

[2] The accord is addressed at internationally active banks but will probably become the standard for a number of other, smaller banks

[3] For a detailed review of the history of the Basel Committee and its status, see Lastra, *Central Banking and Banking Regulation*, pp. 169 ff.

[4] I will also refer to it as "**the old accord**"

[5] Walker, *International Banking Regulation: Law, Policy and Practice*. p. 572

[6] Directive 2000/12/EC of the European Parliament and of the Council on the *Taking up and Pursuit of the Business of Credit Institutions* (OJ L126/1 of 26 May 2000)

The original Basel I Accord has set rules for calculating capital that banks are required to hold, trying to avoid individual bank failure which could lead to systemic risk[7]. The capital required through Basel I is calculated by dividing the amount of eligible capital (own funds) through the risk-weighted assets. The obtained ratio must then be higher than 8%[8].

$$\frac{Own\ \ funds}{Risk - weighted\ \ assets} \geq 8\%$$

Own funds are divided into Tier 1 and Tier 2 capital[9]. Tier 1 can be seen as "permanent" capital, containing share capital, undisclosed reserves, and some other elements, whereas tier 2 is a more volatile type of capital, containing, *inter altri*, undisclosed reserves, hybrid capital instruments, and, the most important part of tier 2, subordinated debt[10].The rules on the calculation of own funds remain broadly unchanged from Basel I to Basel II[11].

As for assets, they are taken into account with respect to their risk: supposedly riskier assets will receive a higher risk-weight and thus require more capital[12].

However, these risk weights are set quite arbitrarily in the Basel I accord and thus they do not represent the real risk that is associated with the asset. An example illustrating this problem is given with loans to sovereigns, which, under Basel I, receive a 0% risk weighting (consequently requiring no capital) if they are an OECD Member State and a

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[7] Systemic risk is concerned with confidence in the banking system as whole. It is the risk that the default of one banking institution that is part of a larger system will spread to other institutions or undermine their activities. See Cranston, *Principles of Banking Law*, p. 71

[8] For a summary review of the provisions of Basel I and the calculation of the solvency ratio, see Wood, *International loans, bonds and securities regulation*, Ch. 23 (pp. 390 – 399)

[9] see Wood, pp. 382-382 and 390-392

[10] There are limits as to the amount of tier 2 capital, which should not exceed 100% of tier 1 capital. Also, subordinated debt should not exceed 50% of tier 1 capital

[11] There have just been minimal changes, contained in §§ 37 to 39 and 43 of the new accord

[12] Each asset will receive a risk weighting that is determined by the accord. The amount of the risk-weighted assets will then be obtained by multiplying the amount of each asset with its risk weights and then adding all these products together. Off-balance sheet items also receive a risk weighting and a credit conversion factor, both determined by the accord. These three figures will then be multiplied and the results added together. These two results (on-balance sheet and off-balance sheet items) will then be added together to form the amount of the risk-weighted assets. This calculation formula remains the same under Basel II, what changes, is the way that risk weightings are calculated.

risk weighting of 100% if they are not. This has, of course led to absurdities, with countries such as Mexico receiving a 0% weighting even if their probability of defaulting on a loan is quite high. On the other hand, corporations always receive a 100% risk-weighting, regardless of their relative prosperity and small probability of default.

These rules, because of their incoherence, have induced banks to "regulatory capital arbitrage"[13], taking their lower risk assets out of their balance sheets through securitisation and other financial techniques, leaving only their riskier assets on their balance sheets (i.e. loans with higher probabilities of default).

Over the years, it became clear that the system contained in Basel I needed to be changed. A first change to the old accord was undertaken in 1996 with an amendment[14] on the inclusion of market risk in the capital charge. This amendment has been fully integrated into Basel II without suffering any major changes.

From that moment on, the need for a newer and more precise regulation became more pressing, with the new accord supposed to add more financial stability to the entire banking system. The Basel Committee thought that this would be best achieved by bringing regulatory capital[15] closer to economic capital[16]. Effectively, this target would be achieved by better risk measurement, meaning that the older crude methods for taking credit risk into account for regulatory purposes would be replaced by newer and more modern methods, which should be taking into account the exact amount of risk related to an asset held by a bank. In the end, the goal was to allow banks the usage of their own credit risk data and models to assess their needs for regulatory capital.[17]

In June 1999, a first draft for the new accord was released for consultation by the Basel Committee, followed by another draft in 2001. At the time, the Basel Committee wanted to finalise the new accord by end of 2001 and have it implemented by 2005[18]. This goal proved impossible to achieve and, because of heavy criticism by the banking industry,

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[13] For a detailed review of this practice, see David Jones, *Emerging problems with the Basel Capital Accord: Regulatory capital arbitrage and related issues*, Journal of Banking and Finance 24 (200) 35 – 58.

[14] *Amendment to the Capital Accord to Include Market Risks*, published in January 1996 by the Basel Committee

[15] The capital required for regulatory purposes under the Basel accord

[16] Economic capital is the way by which a bank, internally, allocates capital to assets, depending on their risk.

[17] See §§ 4 – 6 of the new accord. In the subsequent developments, any references to a § will be references to the Basel II accord.

[18] see Walker, *op. cit.*, p. 569

another round of consultations was undertaken in April 2003. During the same time, an important amount of impact studies of the new accord were undertaken, with the latest one being QIS 3 (Quantitative Impact Study), which was held in October 2002. After this large amount of consultations, agreement on the new accord was finally reached in May 2004 and the accord will have to be implemented by year-end 2006. A last quantitative impact study (QIS 4) will be held in the near future, to assess the so- called "calibration factor" which should make sure that the overall capital level required by the new framework remains the same as under the old framework. This calibration factor will be assessed during the parallel run of the old and the new accord, scheduled to happen until year-end 2006.

Thanks to this large amount of consultation procedures, the resulting accord is a modern framework that is generally accepted by the banking industry, as it has had the opportunity to give important input for the development of Basel II[19]. In the end, it is a framework by the industry for the industry.

Even if the new accord is technically not binding[20], it already has a high moral value, and will certainly be implemented by a large number of regulators. Again, the EU is leading the way with the proposal of a new capital adequacy directive (CAD III), which will be entirely based on the Basel II framework[21].

The new accord is based on a three pillar structure. Pillar I will contain rules on minimum capital requirements. Pillar II contains the rules on the so-called supervisory review process, which is a form of dialogue between the regulator and the bank, where the regulator may adapt the minimum capital calculated under Pillar I to build in a cushion. Pillar III sets rules on market discipline for banks. The three pillars are designed to work hand in hand.

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[19] see, for instance the response of the Luxembourg Banking industry on the third consultative document "review of capital requirements for banks and investment firms, commission services third consultation paper working document", available at http://www.cssf.lu (**"response of the Luxembourg Banks to Basel II"**). The Luxembourg banking sector expresses that it is generally in favour of the new framework. Interviews conducted with representatives of the different banks by the author have confirmed this general sentiment, although there is concern about the final implementation as Luxembourg's banks are rather small banks, and will thus have difficulties reaching the more favourable IRB approaches. cf. *infra*

[20] cf. *supra*, the accord is not an international treaty and thus not a part of international law

[21] The proposal for a new capital directive has been released on 14 July 2004, labelled COM(2004)486

Whereas the old accord only contains rules on credit risk, Basel II, in its first Pillar, will add two new charges to the amount of regulatory capital. The first is a charge on market risk, where Basel II contains the provisions of the 1996 amendment on Market risk. The second is a newly created charge on operational risk, which has been very controversial and subject to a large amount of debate, be it only for the difficulties of assessing it[22].

In the present analysis of the Basel II framework, I will mainly focus on credit risk[23], and shortly address operational risk. Market risk will be left aside as there have been no changes to the framework already in existence for this type of risk.

As regards measurement of credit risk, Basel II replaces the previous accord by introducing three different methods of assessing credit risk. The first is a standardized approach, which is in fact a more risk-sensitive version of the approach for assessing credit risk contained in Basel I. The two other methods, the Internal Ratings Based (IRB) approaches take into account the risk ratings produced by the bank's internal services to assess the credit risk attached to the bank's assets. The two IRB approaches (Foundation and Advanced), differ in the type and amount of internal data the banks are allowed to provide for the calculation of credit risk. In the Foundation approach, a large amount of the data for assessing credit risk will have to be provided by the bank's regulator, whereas in the advanced approach, banks will be allowed to provide a greater amount of data themselves.

There is a general belief that, with the new approaches (especially with the Advanced IRB approach), banks will be able to do more sound calculations of credit risk, and as such may be able to hold lower amounts of capital for regulatory purposes. In other words, Basel II should allow banks to converge their regulatory and their economic capital.

In the present analysis I will demonstrate that Basel II will indeed allow a more efficient capital structure for banks, which will impact on their lending decisions: if banks are more informed on the risk they are taking before lending money, they will be able to take more sound lending decisions. There are, however, questions remaining as to the beneficiaries of these loans, i.e. the borrowers, how will they be affected by the new bank capital structures, will these have an effect on borrowers at all. The big question is whether Basel II will have such an important impact on the financial system as Basel I had[24], giving banks incentives to adopt new practices. This will of course affect borrowers immediately:

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[22] cf. *infra* part two for a short overview on this new charge

[23] Credit risk still remains the most important issue, see Ong, *Internal Credit Risk Models*, p.16

[24] see The Banker, Special supplement on Basel II, July 2004, p. 156

if banks hold capital in exact proportion to the risk of their assets, they will probably move away from riskier assets, as this will mean that for these, they will have to set aside large amounts of capital. Banks do not like to keep too large amounts of capital, as it is by far the most expensive source of financing. On the other side, however, banks will prefer lending to borrowers presenting a relatively low risk. There remains however the question of whether banks will pass on the savings made on capital to borrowers in the form of lower interest rates.

During the negotiations of the accord, other issues have arisen that are related to two special groups of borrowers. These two groups are the group of the small and medium entities (**"SMEs"**) and the group of emerging markets. There was a general fear that banks would lose incentives to lend to them as they present higher risk profiles. These concerns will be addressed in part three.

Part one will address the changes that Basel II implies on the new methods for assessing credit risk. Part two will analyse the benefits of the new regime from the point of view of a bank's capital structure. Part three will then analyse how this new regulatory capital assessment methods may affect a banks' lending policy.

Part One: Assessing Credit risk

As already outlined above, the new accord contains three new methods for banks to assess the credit risk they are incurring: the standardized approach, the foundation IRB approach (**"FIRB"**) and the advanced IRB approach (**"AIRB"**). The Basel Committee considers these three approaches as evolutionary: banks should aim to move up the ladder from the standardized approach to the AIRB approach as their internal credit risk modelling and risk management become more developed. Studies have shown that there is a strong incentive for banks to try to gain as quick as possible the right to use one of the IRB methods as they will be required to hold less capital than under the standardized approach. These studies have further demonstrated that banks using the AIRB approach will be required to hold less capital than banks using the FIRB approach[25].

As we have seen, regulatory capital arbitrage has become one of the major problems within the sphere of capital regulation. This has resulted in banks engaging into the practice of securitising their assets, thus decreasing their capital needed for regulatory purposes. Basel II seeks to limit this by taking securitisations into account for the calculation of credit risk through the securitisation framework.

I will now describe the standardized and IRB approaches and the securitisation framework.

I. Standardized approach

The standardized approach is a more elaborated version of the method for assessing credit risk that was contained in the Basel I regime.

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[25] A large number of studies have been undertaken, the most important one being QIS 3, conducted by the Basel Committee. At EU level, the Commission has also asked PriceWaterhouseCoopers to conduct a *"Study on the financial and macroeconomic consequences of the draft proposed new capital requirements for banks and investment firms in the EU"* (**"The PWC report"**). Even if it is based on the draft European proposals to implement Basel II, the results of this study should adequately reflect the situation under Basel II as the EU proposals are following the provisions of the accord.

A) The new external ratings-based risk weights

Under Basel II, credit risk will be calculated as a function of external credit ratings produced by rating agencies, known as ECAIs[26] under the new accord[27]. This means that every bank's asset will receive a risk weight according to its rating which has been assessed by a third party, a rating agency. The new accord further allows a more sensitive assessment of credit risk by increasing the number of risk buckets. The calculation of the risk-weighted amount will then be achieved by multiplying the amount of the loan with the risk weight, e.g. a loan of €10 million with a risk weight of 20% will be a risk weighted asset of € 2 million. Considering that a bank will have to set aside a capital of 8% of its risk-weighted assets, this loan will require the bank to have set aside a capital of at least € 160'000.

The important changes that have been brought by Basel II are not contained in the method of calculation itself but in the assignment of risk weights to the different loans. The new accord creates thirteen categories of assets and attributes risk weights to them. I will only focus on the major categories[28]:

1. Claims on sovereigns[29]

This is the part where the new accord introduces the most important changes. Whereas the old accord only distinguished between OECD and non-OECD sovereigns for assigning a risk weighting of 0% or 100%, the new accord now assigns risk weightings according to the rating given to the sovereign by the rating agencies. One of the direct consequences of this will be that lending to some OECD countries such as Mexico will now require a larger amount of regulatory capital, as Mexico has a BBB rating attracting a risk weighting of 50%[30] It is to be noted that an unrated sovereign will only receive a risk weighting of 100%, whereas a sovereign rated below B- will receive a risk-weighting of 150%.

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[26] External Credit Assessment Institutions

[27] The three major rating agencies are Standard & Poor's (S&P), Moody's and Fitch. They all produce letter-coded ratings that are comparable from one agency to another. For a comparison of S&P's and Moody's rating category definitions, see Crouhy, Galai and Mark, *Risk Management*, pp. 266-267

[28] See annex for summary tables of the risk weightings

[29] §§53 – 56

[30] But Mexico, as an OECD country, received a 0% weighting in Basel I

2. *Claims on banks and securities firms*[31]

Claims on banks can be treated in two ways by the regulator which implements the accord. Banks can either receive a risk weighting that is one category less favourable than the weighting of the sovereign of their country of incorporation, or they can be given a risk weighting according to the rating given to them by a rating agency.
Claims on securities firms will be treated as claims on banks if the firms are subject to regulatory supervision that is comparable to that of the Basel II framework

3. *Claims on corporates*[32]

As far as claims on corporates are concerned, there is a big difference with respect to Basel I: in the original accord, these claims were automatically assigned a risk weighting of 100%. In the new framework, they benefit from a treatment that is much more favourable, as these claims will be assigned risk-weights that are proportional to their risk, i.e. to the credit rating assigned to the borrowing company by a rating agency. As of this, loans to corporates with a high rating will now only receive a risk-weighting of 20% (for corporates rated from AAA to AA-).

4. *Claims included in the regulatory retail portfolios*[33]

These claims will be assigned a risk weighting of 75%. Claims included in this portfolio must be of a small amount (under €1 million), must be diversified (to justify this relatively low weighting compared to Basel I), they must be exposures to an individual person or SME, and, finally, they must be in the form of one of the products listed in § 70 of the new accord[34].

5. *Claims secured by residential property*[35]

These claims will be weighted at 35%, as compared to a weighting of 50% under Basel I.

6. *Claims secured by commercial real estate*[36]

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[31] §§ 60 – 65

[32] §§ 66 – 68

[33] §§ 69 – 71

[34] E.g. revolving credits, personal tern loans and leases, etc. The category expressly excludes securities

[35] §§72 - 73

The risk-weighting of these claims remains at 100%

7. *Past due loans*[37]

Past due loans will receive a higher risk weighting for their unsecured portion which is past due for more than 90 days, net of provisions.

8. *Off-balance-sheet items*[38]

There are no major changes to the taking into account of off-balance sheet items. The credit conversion factor (CCF) system will remain in place and there will be only smaller changes to the amount of the CCF, which will generally be 50% or 20% for short-term off-balance sheet items. Any commitments that a bank can cancel unconditionally will receive a CCF of 0%.

B) Which external ratings should be used?

The accord refers to the rating system used by Standard & Poor's (S&P) but admits that this does not mean that S&P's system would be the only eligible system. If it is clear that ratings produced by the major rating agencies will be acceptable, there remains the question as to whether ratings produced by smaller or domestic rating agencies can be taken into account. This becomes of interest as smaller companies (especially in Europe where the practice of assigning ratings is not as well established as in the US) are generally not rated by the large agencies, but may well be so by domestic ones. For the bank that is lending to these companies, this could very well translate in smaller capital requirements as these companies may have a domestic rating that attracts a smaller risk weighting than the unrated category.

Rating agencies, for their ratings to be eligible for the determination of the credit risk weightings, need to fulfil the following criteria: they must be objective, independent, should be internationally accessible and transparent, should disclose important information about their methodologies, should have sufficient resources and they need to be credible to a large extent[39].

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[36] § 74

[37] §§ 75 - 78

[38] §§82 - 89

[39] See § 91 of the accord which further elaborates these requirements

The accord also solves the problem of conflicting ratings by different agencies: if there are two different ratings available for one institution, the higher risk weight (i.e. the lower rating will be preferred). If there are three or more different ratings, according to the accord, "the assessments corresponding to the two lowest risk weights should be referred to and the higher of those two will be applied[40]. This should avoid that banks engage into rating arbitrage, i.e. that they systematically select the higher ratings in order to obtain a lower capital requirement. In the case there is a rating for the issuer and a different rating for the issue, the rating of the issue will be preferred[41].

C) Which banks will implement the standardized approach

The standardized approach is best adapted for relatively small banks that do not have enough data to build up their own internal credit risk models and for banks that simply do not want to make the large investment such an internal system requires. But this may hit back at them as therefore they probably will be forced to hold larger amounts of minimal capital[42]. In any case, the Basel Committee only sees the standardized approach as a first step for banks to take before moving on to the IRB approaches[43], which are regarded as a goal that should be achieved by as large a number of banks as possible.

II. The IRB approaches

I will treat the two IRB approaches together as their basic principles are the same. Banks' internal ratings will, in general be very different from ratings established by rating agencies, the reason being that rating agencies are not counterparties to risky investments, whereas banks are. As the ratings produced by agencies are generally made public and because they are generally assigned at the request of the borrower[44], rating agencies generally have a large amount of information and even an insight into the management of the company and they can therefore spell out a rating that will be quite indicative[45].

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[40] § 96 of the accord

[41] §99

[42] cf. infra, part two

[43] see § 44 of the accord where the Committee indicates that it will provide incentives in the future for banks to move to one of the IRB approaches, thus impliedly indicating that it favours these approaches

[44] But the rating agency remains independent and will make sure not to have any conflict of interest with the borrower, allowing it to assign an independent and true-to-reality rating

[45] see Ong, Internal Credit Risk Models, p. 261

Generally, agencies will seek to keep these ratings as stable as possible, meaning that a company will not be immediately downgraded for a small fluctuation, to avoid a panic reaction by the public as regards its securities. Internal bank ratings, on the other side are based on a much smaller amount of information that is given to the bank by the borrower[46]. This explains that banks using the IRB approaches should be carefully monitored in order to assess the integrity of their internal risk modelling, to make sure that they do indeed hold an appropriate amount of regulatory capital.

A) The two approaches[47]

The new accord lays down two methods for assessing credit risk on the basis of internal ratings. The goal of this section is not to explain the exact functioning of the two methods as it is more of a mathematical than a legal process, but rather to indicate the basic mechanism and the effects this will have on banks' capital.

In the first IRB approach, the Foundation approach (FIRB), banks will be allowed to use their own estimates of probability of default (PD)[48] of their counterparty, with all other relevant data for assessing a risk weighting then being provided by their regulator.[49]

In the second approach, the Advanced approach (AIRB), banks will be allowed to also use their own estimates of Loss given default (LGD), Exposure at default (EAD) and effective maturity (M).

The LGD is the economic loss sustained by a bank as the result of the default of its counterparty, after taking into account any guarantees or collateral[50]. EAD corresponds to the amount legally owed by the bank client in the event of default. The EAD is calculated at the time horizon of one year[51]. M is the remaining term to maturity that borrowers are permitted to take to fully discharge their contractual obligations[52].

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[46] *ibid.*

[47] see annex for a diagram of the functioning of the IRB approaches

[48] The PD indicates, in percent, the risk that a borrower will default on a given loan

[49] see Walker, *op. cit.* p.580

[50] PriceWaterhouseCoopers, *"Study on the financial and macroeconomic consequences of the draft proposed new capital requirements for banks and investment firms in the EU"* , Appendix 7: Glossary

[51] *ibid.*

[52] *ibid.*

In application of the IRB approaches, banks will have to split up assets into five broad categories: corporate[53], sovereign, bank, retail and equity[54], with each class being assigned different risk weightings. Under FIRB, in the first three classes, banks will only calculate the PD, with the regulator providing them with estimates of LGD, EAD and M. Under the AIRB, banks will have to calculate these four components by themselves. For the retail class, there is no distinction between the FIRB and the AIRB approaches, banks will calculate their own estimates for the four components (PD, LGD, EAD and M). A different set of rules applies for the equity class where banks can either use a market-based approach or a PD/LGD approach.

The accord then provides risk-weight functions for each class which will transpose the components into risk-weighted assets for each asset class. Finally the amounts so obtained for each class will be added together, constituting the credit risk part of the minimum capital ratio.

In earlier versions of the accord, banks applying the IRB approaches would have had to hold capital in order to cover expected and unexpected losses. But consultations showed the general discontent of the industry with these provisions and they were therefore replaced at the committee's meeting in Madrid in October 2003. The "Madrid breakthrough" separates unexpected from expected losses and introduces the rule that only unexpected losses would have to be taken into account. There will be a special treatment for expected losses, which will be compared to provisions. Any shortfall will then be deducted from the own funds[55].

From these methods of calculation, it becomes easily visible that the IRB approaches will produce more granularity in the risk-weighted assets than the standardised approach does. This is a purely mathematical conclusion, as the IRB approaches are based on a function, whereas the standardised approach is based on risk buckets, placing a number of loans with very different real risks into one same risk-weighting bucket. With more granularity comes more precision, meaning that the risk-weighted assets will be of a smaller amount in the IRB approaches[56], which implies that the bank will need a smaller amount of regulatory capital.

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[53] This class contains specialised lending, such as project finance, commodities finance etc.

[54] §215

[55] see http://www.bis.org/press/p031011.htm

[56] see Ong, *op. cit.* p. 49 and p. 261

The same reasoning gives the result that the AIRB approach will require smaller amounts of capital than the FIRB approach, as banks are allowed to use more precise data in the former than in the latter. The reduction in the amount of capital is furthered by the stronger recognition of credit risk mitigation techniques (cf. infra). It is clear that banks and regulators will have to invest into their internal systems in order to be able to implement the IRB approaches efficiently[57].

A last word needs to be said about specialised lending, which is treated in a specific way under the IRB approaches. If the bank is not able to estimate a PD, specialised lending, such as project finance, object finance etc. falls under the corporate asset class, but is not treated the same way as the other corporate assets. The new accord then comprises five subcategories of specialised lending and gives a definition for each. Assets falling under one of these categories and for which no PD can be calculated will then have to be put into one of five risk buckets, a risk-weighting then being assigned to them. As this system is lacking granularity, it becomes clear that it will entail relatively high capital charges[58]. The risk-weights assigned to these assets are quite high[59] as project finance is generally misunderstood[60]. It is often perceived as bearing very high risk, because of the lack of public information[61]. However, banks functioning under the AIRB approach will be able to entirely assess the risk presented by these projects themselves, thus obtaining lower regulatory capital requirements. The result of this could be that specialised lending would become commercially uninteresting for smaller banks that lack the data or the incentives to move to the AIRB approach, thus having a strong impact on an entire market segment, which is not necessarily the result intended by Basel II. This explains the efforts made by the Basel Committee to reduce the risk weights on special lending in order not scare smaller banks away from this segment.

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[57] Walker, *op. cit.* p.580

[58] §220 – 228 and 275 - 284

[59] They have been significantly lowered throughout the different versions of the accord, as they were set at a very high level in the first proposals but subsequently have been reduced dramatically due to industry criticism.

[60] see Paul Ashley, *Can Project Finance Survive Basel II?*, Mercer Oliver Wyman, available at http://www.merceroliverwyman.com

[61] or the lack of financial information on the special purpose vehicle that has been set up for the project

B) Which banks can use IRB

The IRB approaches are designed for banks that are large enough to be able to implement internal risk management efficiently. Smaller banks will therefore probably prefer the standardized approach, as implementation costs of the IRB approaches can be proportionately very high[62]. The eligibility criteria for the use of the IRB approaches are quite restrictive and too broad to be explained here in detail, but certain elements should at least be indicated:

Banks using IRB should be able to meaningfully differentiate credit risk, they should make sound assignments of ratings, their rating processes should be subject to serious supervision, and they should collect their data with great diligence. In short, banks wanting to use the IRB approaches need to make proof of great discipline[63].

The validation of the IRB system that a bank intends to implement can be compared to a car[64]: the regulator will not only supervise the "engine" of the car, which would be the quality of the internal ratings model, but also the quality of the collected data to populate the model (which would be the petrol in our metaphor) and the internal control mechanisms, which would be the car's instruments. The challenge then for the bank is, metaphorically, to build an entire car.

The AIRB approach will only be available from year-end 2007, as the Basel Committee intends to undertake some more consultation with respect to this topic before final implementation.

A study by Mercer Oliver Wyman[65] and others has shown that over 75% of European, North American and Australian banks are trying to reach IRB status by 2006. A wide majority of banks that will not be ready by then intend to reach the status by 2010. The survey also showed that European banks are leading the way in moving to IRB

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[62] see PWC report p. 13. There is however an important school of thought claiming that banks should try to reach the standardized approach as fast as possible. The FSA is, for instance of this opinion. In a consultation paper (n°189, *Report and First Consultation on the Implementation of the New Basel and EU Capital Adequacy Standards*, p.12), the FSA expresses its belief that the IRB approaches should not be reserved to the largest and most complex firms.

[63] Walker, p.580

[64] Eric Tordjman & Naji Freiha, *La validation des systèmes de notation internes dans le cadre de Bâle II*, Banque Magazine, N°645 mars 2003 p.56

[65] Results of this survey have been presented in: *Reality Check on Basel II*, The Banker, Special Supplement on Basel II, July 2004, p. 154

approaches[66]. Again, it should not be forgotten that Basel II is designed such as to give banks incentives to move to the IRB approaches.

III. The securitisation framework

Securitisation programmes, which have known a great proliferation under Basel I, have always been subject to cautious appreciation by regulators, generally because they take the assets out of the banks that present the smallest credit risk, leaving only the riskier ones on the bank's balance sheet. This is due to the fact that securitisation of less risky assets is commercially more interesting[67]. The new framework therefore takes securitisations into account for the determination of regulatory capital. I will only briefly address the new rules[68].

First of all, banks will have to take their exposure to securitisations into account with respect to their economic reality and not their legal nature. Both traditional and synthetic securitisations will have to be taken into account. These exposures will be taken into account by deducting their risk-weighted amount from the bank's own funds[69]. Securitisation exposures will be given a risk-weighting, which can either be determined through a standardized approach (the functioning of which is similar to the standardized approach for assessing credit risk, with different risk-weightings) or through an IRB approach.

The assigned risk-weighting will then be multiplied by the amount of the exposure and deducted from the eligible own funds as explained above.[70] Inevitably, this will create a need for more capital: if the risk-weighted assets remain constant, the own funds will need to be increased to keep the overall ratio constant (at 8% or above).

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[66] This can mainly be explained by the fact that external ratings are not as widespread in Europe as in other regions such as the US, the IRB approaches will therefore be much more interesting for European banks to implement.

[67] See Ong, *op. cit*., p.25. See also supra as regards the deficiencies of Basel I with respect to securitisations

[68] The rules are contained in the securitisation framework, which makes up §§ 538 - 643 of the new accord

[69] The deduction will be as follows: 50% of the amount from Tier 1 and 50% from Tier 2

[70] For a more detailed review of the rules on securitisation, see. Basel Committee, *Second Working Paper on Securitisation*, October 2002. Some changes have however been made since this working paper, which can be found in the new accord.

Part Two: The direct changes on a bank's capital structure

With the new accord, there will certainly be changes on bank capital. Some changes will be to the amount of capital that banks will have to hold[71]. The more important changes however, are not the result (lower capital) but the way in which this result is obtained. Basel II will try to achieve convergence between two conceptions of capital that exist inside a bank[72]. The first conception is regulatory capital, i.e. the amount of capital that is held for regulatory purposes and has been, until Basel II, fixed quite arbitrarily. The second is economic capital. In this conception, banks assign their capital internally with respect to the level of risk of their different assets. Until recently, most banks did not have decent internal risk management and their management of economic capital was all but efficient. With Basel II, this will change as banks will be able to move to a better internal risk management. Actually, they will even be encouraged to do so as the amount of capital they will have to hold under the IRB approaches will be much lower than under the standardised approach.

Banks will not only gain the ability to perform better risk management, but they should also, with Basel II, see their credit risk mitigation techniques recognised in a larger way.

However, the new accord has also introduced a charge on operational risk, which will partially set off the savings that are made on capital under the new IRB approaches.

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[71] The latest Quantitative Impact Study (QIS3) held by the Basel Committee shows, on average, that there will be a small increase in regulatory capital for banks using the standardized approach, but with some banks experiencing an increase of over 100%. Under the FIRB approach, capital will remain constant, with decreases, however, for more retail-oriented banks. Under AIRB, there is a general tendency for decreases in the amount of regulatory capital required. These results should however be considered with great caution: there are great divergences in the obtained results and the averages presented are all but representative. QIS 3 has also been analysed at EU level in the PWC report (p. 31), where the results show an increase of 2% in capital for most banks using the standardized approach and decreases of almost 7% and 9% for banks using the FIRB and AIRB approaches respectively. Smaller domestic banks, generally specialising in retail activities may experience more important decreases (up to 34% with the AIRB approach). These decreases should become more important with the taking into account of the Madrid breakthrough.

[72] Hammes & Shapiro, *The implications of the new capital adequacy rules for portfolio management of credit assets*, JBF 25 (2991) 97 – 114 and *Reaping the rewards of improved risk management in retail banking*, Mercer Oliver Wyman, June 2003, available at http://www.merceroliverwyman.com

I. Better internal risk management

The impact of Basel II on banks' capital structure will largely be dependent on how they implement the accord. If banks only see the accord as a regulatory burden and make minimal investments to implement it, they will not fully profit from the new opportunities in risk management offered by the accord. Basel II rewards the banks that make an early effort in improving their internal credit risk models, as it is clear that only banks using the IRB approaches will be able to hold smaller amounts of capital for a given set of assets.

Therefore, banks that want to stay in a position of leader in the modern post-Basel II financial world will need to seek more than just compliance with the accord, but should rather use it as a good opportunity for developing better risk management techniques and internal controls[73].

Basel II discriminates between banks that are ready to make the large investments for its implementation and those banks that are not, i.e. it discriminates between larger and smaller banks, probably creating competitive inequalities[74]. It is sure that smaller banks will not have the same incentives to create complex credit risk models as larger institutions will. Nevertheless, even smaller banks can "win" with the new rules by ending up having a better internal risk management[75], and therefore being competitive in the financial markets. Smaller Banks will also have the problem that they will simply lack data to populate their internal models and thus will not be able to build up an internal system[76][77]. There may, however, be a chance that larger institutions that have developed internal systems may at some point want to sell them to smaller competitors; thereby reimbursing part of the costs

[73] Dr. Christopher Marshall, *What lies beyond compliance*, The Banker, Special supplement on Basel II, October 2003

[74] *ibid.*

[75] It is, of course, very difficult to place a value on this, which explains why banks are generally not ready to invest considerable amounts

[76] *Basel II sums up the future of credit risk*, Financial Times, 1 May 2003

[77] This is, for instance, the case of banks that are active on the Luxembourg market, which has a relatively low rate of defaults and it is therefore difficult to build up a history for the correct calculation of PD's. This rareness of defaults is due to the fact that the market is mainly retail oriented, as larger financing packages are generally provided for in London or other major financial centres (information kindly provided by Mr. Marco Heintz of the Banque Générale du Luxembourg, in an interview conducted by the author).

they had to expend in order to develop the system[78]. In this scenario, both large and small banks would be winners.

In any case will the investment be worth the trouble as a bank can manage its capital more efficiently with one of the IRB approaches than under the standardised approach.

The result is that banks will be able to make better and more consistent lending decisions: with Basel II, banks will get the ability to effectively distinguish between two borrowers that look the same but present very different risks[79]. This will be especially true for corporates, which all fell under the same risk-weight in Basel I, whereas with Basel II banks will be able to take their real risk into account. This will also allow banks to better assign their provisions and to adapt the conditions of their loan to the risk presented by the borrower[80][81].

These developments mean that risk now becomes an even more important factor in lending decisions than it was before. "Risk gets a seat at the table"[82]. The formerly distinct roles of risk and finance functions will now move even closer together and risk issues may move up to a higher decision-level within the bank hierarchy. Overall this should bring some improvements in business performance, with banks becoming able to choose their assets more selectively and hence maximising their balance sheet value[83]. The whole lending process will also become more transparent, at least between the bank and the borrower[84], as the borrower will have to provide the bank with a large amount of information about its internal processes and its assets and liabilities for the bank to be able to calculate a PD and the other components such as LGD, EAD and M, in the case it uses the AIRB approach.

Two observations need to be made at this point:

First, there is a strong probability that banks will not immediately have the possibility of actually saving capital. This is due to the provisions contained in Pillar II, where the

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[78] Raj Malhotra *in Basel gives banks the whip hand*, Euromoney, March 2001, p.53

[79] Jason Kofman, *Laying the groundwork*, The Banker, Special Supplement on Basel II, July 2004, p. 65

[80] *ibid.*

[81] If they have not already been doing so. There is, however, only a very small number of banks that were using advanced internal risk modelling before the development of Basel II, as they simply did not have any incentive to do so

[82] *Reality checks on Basel II*, The Banker, Special Supplement on Basel II, July 2004, p. 157

[83] *ibid.*

[84] information provided by Mr. François Pauly, Banque Oppenheim (Luxembourg), in an interview conducted by the author

regulator may ask banks to hold a higher level of capital than the one they would have calculated under Pillar I. Specifically, the Basel Committee insists that it wants to keep the overall levels of bank capital constant. In the end, the savings on capital that could be achieved through the adoption of one of the IRB approaches by a bank will only be gradually achievable[85]. Secondly, Basel II is not designed for banks to save capital but to allocate it more efficiently with regard to the risk attached to the asset that capital is allocated to[86]. The smaller capital requirements banks are subject to do not imply that banks will actually return capital to their shareholders or, in general, undertake capital reductions[87]. Rather will banks prefer to allocate capital in more efficient ways[88]. Their newly liberated capital will allow them to acquire new assets or reacquire assets that they had previously sold or securitised through the practice of regulatory arbitrage. These assets would not have presented enough risk for justifying the high capital charge assigned to them under Basel I and investing in them would have been unreasonable. But under Basel II, acquiring this type of assets becomes interesting again.

II. Improved recognition of credit risk mitigation techniques

The bringing together of economic and regulatory capital also means that credit risk mitigation techniques (**"CRM"**) need to be taken more into account. Basel II does this by attaching importance to the real risk presented by an asset, i.e. the loss that a banks risks to incur with operation of the CRM, thus attaching more importance to CRMs than was previously the case

Some CRM techniques have already been addressed in part one, such as assets secured on real estate or commercial property. This section will be about other CRM techniques that are recognized by Basel II, the major ones being collateral, guarantees, credit derivatives and netting. Specific and detailed rules have been adopted in order for the bank to be able to take its CRM into account when assessing its credit risk. In general, banks will have to make sure that CRM techniques are clearly defined: a particular security may, e.g., only be

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[85] PWC report, p.78. The report submits that banks will only be able to fully benefit of the lower capital requirements from 2009, as until then, from 2007 to 2009, capital will be subject to regulatory dampening through Pillar I while banks will already experience improved risk management

[86] Mr. Marco Heintz, during an interview conducted by the author

[87] There are other factors influencing banks' decision on the level of their capital, such as depositor protection, growth opportunities, in order to meet the expectations set by rating agencies, etc.

[88] *ibid*

used as collateral for the credit A of a person X but not for a second credit B. In any case, CRM techniques must provide the character of legal certainty[89] for banks to obtain capital relief.

For banks using the standardised approach, the accord sets rules for the taking into account of CRM techniques:

For collateral, the rules can be found in §§123 ff. of the accord. Generally, collateral will be eligible if, in addition to legal certainty, the bank has the right to liquidate and take legal possession of the asset subject to the security in the event of default of the counterparty. Also, there should be no "material positive correlation" between the counterparty providing the collateral and the borrower. The bank's liquidation procedures must be clear and robust. The accord also gives a list of eligible financial collateral (to which convertible bonds have recently been added).

There will be two approaches for capital relief with respect to collateral, a simplified one, which is almost identical to the Basel I rules, and a comprehensive approach allowing a more fine-tuned appreciation of the impact of collateral.

On-balance sheet netting can be taken into account if it is legally enforceable.

Guarantees and credit derivatives[90] are eligible for capital relief if they are direct, explicit, irrevocable and unconditional[91]. Banks will also have to satisfy minimum operational conditions and a condition of low correlation between the guarantee or credit derivative and the exposure[92] as otherwise the effect of the CRM would be rendered nil.

Under the IRB approaches, the methods of recognition and conditions for CRM techniques are the same as under the standardized approach and their impact will be on the amount of LGD[93]. Under the FIRB approach, the exact levels of this impact are prescribed in the accord, under AIRB, banks will have to evaluate these impacts in their own internal

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[89] §117

[90] § 140

[91] It is to be noted that the unconditional character of the guarantees has been subject to debate at the EU level during the structured dialogue which should lead to the implementation of Basel II in the CAD II directive, this requirement being considered as too broad and inappropriate. The requirement has, however, not been dropped from Basel II. See *Review of capital requirements for banks and investment firms*, Commission Services Third Consultation Paper, Explanatory Document, European Commission, July 2003, p. 38. **"The Commission Explanatory Document"**

[92] see also: Walker, *op. cit.*, p.579

[93] §§ 286 - 293

systems under supervision of the regulator. Banks may reflect the effect of the CRM by adjusting either PD or LGD[94]. The result is that under the AIRB approach, banks will have the highest possible recognition of CRMs, thus being able to expect much lower capital requirements on secured loans than under the previous accord. This will give banks strong incentives to move their activity to sectors where they can expect highly secured loans.

As far as leasing is concerned, it is recognized the same way as collateral of the type which is subject of the leasing arrangement. If the leasing arrangement falls under the retail asset class, it will also benefit from the lower risk weighting attaching to the retail class[95].

This wider recognition of CRM techniques will have an important impact, helping banks reduce their capital held for regulatory purposes. This may give banks incentives to invest more in secured loans, especially in the retail and SME sectors (cf. infra).

III. The infamous operational risk charge

Operational risk is *"the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events"*[96].

The operational risk charge is one of the major additions of the new Basel II framework, and for sure the most controversial one[97]. What it does is extend the scope of regulatory capital to non-financial risks, which is, according to Walker, insupportable[98]. The charge is mainly criticised, especially by banks, for two reasons: First, it will offset the capital savings made through the new credit risk measurement approaches. Second, banks claim that it is very difficult, if not impossible to put a figure on the exact value of operational risk. All the gains made by more precisely measuring credit risk, will be lost to operational risk

An entire book could be written about operational risk in Basel II and I shall therefore only shortly describe the mechanisms for the calculation of operational risk.

The new accord provides for three methods to measure operational risk. The basic indicator approach, the standardized approach and the advanced measurement approach.

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[94] § 306

[95] Commission Explanatory Document, p. 37

[96] PWC report, Annex 7: Glossary

[97] see, for instance, Walker, *op. cit.*, p. 593, who describes this capital charge as the most regressive part of the new accord.

[98] *Ibid.* Walker suggests that this class of risk should rather have been taken into account in Pillar II, as a part of supervisory review process.

Here again, as for credit risk, banks are encouraged to move to the more high-level approaches. In the first approach, banks will be asked to hold capital for operational risk with respect to a certain percentage of their average annual gross income over the last three years. This percentage has been set at 15% by the committee, thus creating a relatively high charge on capital for operational risk. In the standardised approach, operational risk charge will, in a similar but not as bold way, be calculated as a percentage of gross income. In the advanced measurement approach, banks will be able to rely on internal indicators for assessing operational risk. This approach is comparable to the IRB approaches for assessing credit risk. Again, the more evolved the approach used by the bank, the lower or more adapted its charge on capital for operational risk will be, provided its management of operations is well developed.

As mentioned above measuring operational risk is extremely difficult. An easy example illustrates this: for a bank to be able to measure this class of risk internally, it will have to build a historic database of losses due to operational risk in order to be able to build an internal model for operational risk. Banks often do not have such historical records and will have to build them from scratch implying large investments in time and implementation costs. Further, even the most developed model will probably never be perfect as it will lack information on those incidents that nearly happened and where a last-minute solution helped avoid the incurring of severe operational losses. This information would, however, be very important to evaluate operational risk in a true-to-life manner[99].

The operational risk charge does, to the contrary of the new credit risk measurement approaches, represent a severe burden for banks. That simple fact that they will be able to put a figure on operational risk will not necessarily increase their competitiveness. In the end, it will mainly have been a huge cost to implement the measurement of this risk, without any direct benefit. What the charge on operational risk does, however, is penalise banks that have very bad back-office management. It thus rewards banks that have a clear, transparent and efficient back-office[100]. In other words, with efficient operational risk management, banks will not make any capital savings but rather avoid increases in regulatory capital.

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[99] Information collected at an interview with Mr. François Pauly

[100] Information collected at an interview with Mr. Marco Heintz

Part Three: How the new capital structure will impact on banks' lending policies

As we have seen in the two preceding sections, a given bank's capital structure will experience important changes under Basel II: the bank will be able to manage capital in a more efficient way, and this will surely have impacts on its lending policies.

These changes in lending policies might have effects on the economy. For instance, Basel II was often criticised as creating more procyclicality in the banking sector. In this part, I will address this argument and dismiss it to a certain extent. Basel II has further been criticised as having negative impacts on banks' attitude towards SMEs and emerging markets. In this part I shall also analyse how these concerns have been addressed and either redressed or partly dismissed.

I. Changes to banks' lending policies: a new bank-borrower relationship

The dramatic changes brought about by Basel II in the form of convergence of regulatory and economic capital, will not come about without affecting a relationship that has been in existence ever since banks started operating, the bank-borrower relationship.

The big question that has always been around is whether lower regulatory capital requirements will give banks incentives to lower the prices on their loans, or at least adapt them to the level of risk presented by the borrower[101]. An easy solution for the banks would be to simply obtain higher margins on their loans by not passing on to their borrowers the savings made.

In order to be able to answer this question, we need to give the elements that impact on loan pricing, and then we will be able to determine if regulatory capital has a noticeable impact on pricing.

There is a certainty that regulatory capital, existing under its current form (i.e. Basel I regulatory capital) does not have a major impact on loan pricing, because it does not, in any respect, reflect the real risk of the underlying asset. Loans, however, at the present

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[101] If a borrower presents a low level of risk, the bank will only have to set aside a low amount of capital, which will then reduce the bank's costs on this loan, capital being a bank's most expensive source of financing.

time, are priced with respect to the estimate of their real risk, market condition, but also taking into account competitive factors[102]. Offer and demand certainly have an impact on loan pricing too. The PWC report finds similar results, suggesting that there is more to loan pricing than just the price of capital[103]: loan pricing also includes the costs of the funds (as banks will have to borrow on the interbank markets), costs of servicing the loan, costs of advertising, expected credit losses, tax. In other words, the price of capital is not the only and certainly not the main factor determining the price of a loan. The report has also found that the beneficiaries of changes in capital depend largely on the economy of the country the respective banks are active in. Therefore, there seems to be no direct answer to the question whether capital savings will be passed on to borrowers or not. The only possible answer to this question being: it depends on "*capital reductions, profitability, demand, industry structure and competitiveness"*[104] in each individual country.

The final certainty that exists here is that regulatory capital is not the main driver of loan pricing, and as such a reduction in loan capital should not have a big impact on loan pricing. However, for banks that had already implemented evolved risk management before Basel II and that are now considering the move to internal risk management, there may be differences with Basel II as these banks will now discover the concept of "economic" capital and thus be able to assess the risks attached to loans on a more formal basis[105], including the assessment of the pricing of the loans.

What will however change in the bank-borrower relationship is the dialogue between the two parties, at least for banks applying one of the two IRB approaches: this dialogue will be a lot different from what it was under Basel I. Banks will now have an incentive to gather as much data possible about a borrower, their financial situation and management processes, as this will give banks the opportunity to achieve the best possible estimation on the PD (and, possibly of LGD and EAD) of the borrower, thus keeping the amount of regulatory capital for a given loan at a minimum. Sure, a large number of banks have already been doing this before, but there are also a large number of banks around that did not have advanced internal risk management before and therefore did not bother collecting

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[102] *Capital Standards for Banks: The Evolving Basel* Accord, Federal Reserve Bulletin vol. 89 n°9 September 2003, p. 403

[103] PWC report p. 85

[104] PWC report, p. 87

[105] As before, risks related to certain loans were, in these banks, assessed in a rather informal manner implying many uncertainties about the risk that is really attached to the asset.

such data about their borrowers. With Basel II, these banks will finally have incentives to do the investments to achieve the status and the impact on the relationships with their borrowers will become very different.

From the borrower's point of view, the reform may then well seem rather uninteresting, as he will be forced to disclose much more information to the bank lender than he used to be, literally letting the borrower appear naked in front of the lender. As a result, the reform is probably not very beneficial for the customer (the borrower) who will probably not get cheaper lending but will have to disclose more than he had to. Even though this should add to financial stability, as banks will not engage too easily into lending at a cheap rate to borrowers that present a high probability of default, this aspect of the Basel II reform can and should be criticised as it puts higher constraints on borrowers, who are, in my eyes, worse off than they were before.

II. Basel II and procyclicality

The argument about Basel II creating more procyclical bank behaviour has become an important part of the public debate about Basel II. Its importance in an analysis about more efficient capital under Basel II is only marginal, but yet, procyclicality has an important influence on how banks will structure their capital.

The procyclicality argument has, in my eyes, gained too much importance in the debate about Basel II, overshadowing the important benefits and costs brought by the accord.

Procyclicality is the effect that is feared to be happening with the implementation of Basel II: it is feared that the accord will exaggerate economic cycles, by making them more violent. If the accord really were to encourage procyclicality, it would boost credit expansion in good times while it would imply stronger contractions on lending in bad times[106]. This would have bad consequences for the economy, by imposing artificial distortions on business cycles. The effect on bank capital structure becomes clear at this point: certain authors have demonstrated that Basel II will create a stronger link between lending and capital: if a borrower experiences a downfall, this will immediately impact on the bank's capital by increasing its capital requirement, maybe even forcing the bank to raise the pricing of its loan[107]. It is true that ratings, be they internal or external[108] do have a

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[106] *Can Basel II be made to work?*, The Banker, August 2002, p.63

[107] Chami e.a., *Emerging issues in Banking Regulation*, IMF Working Paper WP/03/101, p.13

procyclical effect, but this does not mean that bank capital will be much affected by this. Ideally, to counter procyclicality, a bank will build up a capital cushion in good times, which will then absorb losses in bad times. This is exactly the mechanism that has been implemented by the Basel Committee in Pillar II of the accord[109]. According to the provisions of this pillar, regulators will be able to ask banks to hold capital in excess of the 8% ratio, thus creating a buffer for absorbing losses in bad times and thereby effectively reducing procyclicality. The creation of a capital buffer is already best practice in the banking industry where hardly any bank operates at a ratio of exactly 8%[110], with banks generally trying to operate at a comfortably higher level[111].

PriceWaterhouseCoopers[112] takes the argument even further by claiming that Basel II will be much less procyclical than Basel I actually was, because banks will now be able to recognise deterioration of their borrowers at an earlier stage, which was impossible under Basel I, as banks will be better informed about their borrowers than before.

To conclude, it sounds reasonably safe to assume that Basel II will not be more procyclical than its predecessor. Procyclicality, in any case, is endemic to the financial system and especially to the banking sector[113].

It is also safe to assume that banks know that procyclicality is endemic to their business and that it will be hardly furthered by Basel II. Therefore, it may well be that the banking industry used procyclicality as a negotiation tool against the Basel Committee to keep the accord as simple as possible and thus reduce implementation costs to a minimum[114].

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[108] see *Market Dynamics Associated with Credit Ratings*, ECB Occasional Paper Series no. 16, June 2004, p.22

[109] *Can Basel II be made to work?, op. cit.*

[110] Information collected at an interview with Mr. Marco Heintz.

[111] One of the reasons for this is that banks operating at exactly 8% would only get a rating of BBB from S&P, which is commercially uninteresting for a bank, see *Basel II prompts strategic rethinks*, Euromoney, December 2002, available at http://www.merceroliverwyman.com

[112] PWC report, pp. 122 and 128 - 129

[113] see PWC report, pp- 128 - 129

[114] One of the major concerns of banks has always been the extreme complexity of the new accord. For an example, see *Response of the Luxembourg Banking industry on the Third Consultative Document*, available at http://www.cssf.lu

III. Basel II and lending to SMEs

When the first proposals for a new accord were published, a great phobia arose that lending to SMEs would become utterly unattractive. Concerns arose mainly in Germany, where SMEs are an important part of the economy[115]. The problems arose because SMEs are more likely to default than larger companies, thus attracting higher capital on the bank lenders' side. This statement needs to be mitigated, however, as a portfolio of loans to SMEs generally has a relatively low risk, due to the extremely low correlation between the loans in the SME sector, and allowing high risk differentiation[116]. Further, loans to this type of companies generally have a high level of collateral attached to them.

However, under the original proposals, lending to SMEs would have required banks to set aside high amounts of capital with respect to these loans and they would thus be less interested in lending to SMEs, or lending at such a high cost that borrowing would be uninteresting for SMEs. The Basel Committee was made aware of these issues and has thus modified its proposals in order to obtain better conditions for lending to this special type of companies.

Taking into account all the expressed critiques, the new rules set up by the Basel Committee for SMEs have become by far more attractive than they were before.

For instance, in the standardised approach, the changes are most impressive for loans to SMEs that will qualify as retail[117], which will receive a risk weighting of 75%, compared to 100% under Basel I. This means that under the final version of the accord, in the standardised approach. loans to SMEs should actually call for smaller, rather than larger, capital requirements than before. This result has been confirmed by the PWC report, which expects a general tendency of lower capital requirements for SMEs falling under the retail portfolio of a bank[118]. For SMEs falling under the corporate qualification, the changes will not be as dramatic, most SMEs being unrated and thus receiving a risk weighting of 100%, just the same as under the previous accord

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[115] see *Basel proposals unfair on SMEs*, The Banker, Special supplement on operational risk, June 2002 p. 16

[116] Claude Simon, *L'octroi de credits face aux contraintes de Bâle II*, Speech at a round table about access to capital for SMEs, available at http://www.cssf.lu

[117] i.e. where the total amount of loans to one entity does not exceed € 1 million

[118] PWC report, p. 95 – 96. It needs to be pointed that the obtained results vary immensely from one country to another

Under the IRB approaches, the Committee intervened in various ways, reducing risk weightings in IRB capital requirements in general, implementing a better recognition of collateral and also giving retail loans a lower risk weighting[119], as, in IRB, certain loans to SMEs may fall under the retail class[120], just as under the standardized approach.
The Committee has also eased up the rules for SMEs falling under the corporate class[121], arguing that even if these companies present a higher PD than larger companies, they are however less sensitive to the evolution of the macro-economy, presenting a lower overall risk[122]. These results have been confirmed by the QIS 3[123] and by the PWC report[124]. As a result, loans to these companies will be treated separately within the "corporate" class, receiving a special lower risk-weight[125].
Lending to SMEs falling under the corporate class will become even more attractive under the AIRB approach which allows for the highest possible recognition of CRM techniques, thus substantially lowering capital requirements for loans to SMEs[126]
Now that it is established that lending to SMEs will require less capital for banks, rather than more as would have been the case under the old proposals, we need to focus on what SMEs can do to prepare themselves in order to be able to obtain a good rating by their bank, which may result in more advantageous lending conditions for them[127].

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[119] *ibid.*

[120] As seen earlier, under IRB there are five asset classes. Loans to SMEs may fall either under the corporate or under the retail class, depending on whether the satisfy the conditions for being entered into the retail class or not (cf. part one)

[121] which would be mainly medium-sized companies

[122] Claude Simon, *op. cit.*

[123] Banks should experience a decrease in regulatory capital ranging from 3 to 11% for SMEs falling under the corporate class, and an impressive decrease of up to 31% for SMEs falling under the retail asset class.

[124] The PWC report indicates results by country: It predicts capital savings, under the FIRB approach, ranging from 0% (for Greece) to a very dramatic 35% (for Belgium). For the corporate asset class, it predicts a decrease in required capital of about 4% for loans to SMEs. See PWC report p. 86 and pp. 90 - 96

[125] § 273

[126] The retail class is handled in the same manner under FIRB and under AIRB, there are thus no differences in the results obtained

[127] At least for banks operating under the IRB approaches, as for banks that operate under the standardised approach, there is no such large manoeuvring margin.

It is clear that presenting themselves to their bank in clear and transparent way. In order to determine the factors that can lead to a good rating, we will have to analyse what factors weigh on the establishment of an internal rating by a bank. Two types of factors exist[128]:

- quantitative factors, such as the company's accounts, its profitability, its cash-flows (including the payment of its debts and the recovery of debts due to it and the structure of its own funds.
- qualitative factors such as the quality of management, quality and stability of the employees, quality of billing and of the internal controls, technological means and the economic environment the company works in.

Banks can only establish a realistic internal rating if they receive the above-mentioned information on time. SMEs should thus be encouraged to present the information they have to their bank in a timely and honest manner. Banks may reward them or give them the incentive to do so by informing them of their internal rating.

Further, in order to obtain a good internal rating, SMEs can also undertake the following three actions, identified by the Centre for European Policy Studies (CEPS)[129]: control their financial leverage, pursue profitability and rely on collateral.

To conclude, it is safe to assume that Basel II will have an impact on SME lending, not a negative one as was feared, but rather a highly positive one, banks having to hold lower capital for SME lending than they had under the previous accord. SMEs themselves are also winners, being forced to revise their internal management and practice stronger discipline, in order to receive a good internal rating from their bank and be able to borrow at advantageous conditions.

IV. Basel II and emerging markets:

During the consultation periods, a number of fears filtered through that the new accord would have a very negative impact on the economies of emerging markets. The fear was, on the one hand, that the new credit assessment methods would be too complex to implement for banks from emerging markets and on the other, that banks from developed

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[128] Claude Simon, *op. cit.*

[129] Rym Ayadi & Francesco De Rossi, *Practical Implications of the New Basel Capital Accord for the Europan Banking System: Results & Analysis of an Industry Survey*, Centre for European Policy Studies, available at http://www.ceps.be

markets would stop lending to emerging sovereigns, banks or companies, or would only do so at a high price.

A) Banks incorporated in emerging markets

The problem with implementing Basel II for banks in emerging markets exists at two levels: as well for the standardised as for the IRB approaches.

As for the standardised approach, the problem is that ratings are by far not as widespread as in Europe, not to talk about the US. This implies that the more granular risk-weighting that should come with Basel II will be more or less without any effect, most of the loans of these banks falling under the unrated category.

As for the IRB approaches, the problem that banks from emerging markets will experience is that they will lack the data to populate their credit risk models[130] and will thus be unable to move to the advanced IRB approach. For some banks, this will mean that they will have to give up specialised lending, as otherwise they would have to hold exaggerated amounts of capital, rendering the business commercially uninteresting[131].

It is however to be noted that the Basel II framework has been designed by the richest and most developed countries in the world, it therefore becomes clear that it would hardly have been designed for banks from emerging markets[132], the framework having been designed for and adapted to large internationally active banks. It is no wonder then that the latter will benefit most from it, with emerging markets lagging behind. This should not be seen as an apology of the design of Basel II but rather as a realistic assumption. Banks from emerging markets would probably better have to move forward under Basel I for some more time, and move to Basel II only when their economy produces enough data to allow them to use Basel II at its full potential. The risk is that, meanwhile, large banks implementing Basel II efficiently, will take over their business, as they can be more competitive, being allowed to hold smaller amounts of capital for the same types of loan (this is especially true for e.g. project finance and other forms of specialised lending).

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[130] In most emerging markets, there simply is a lack of data on defaults etc.

[131] *Braced for impact*, The Banker, Special Supplement on Basel II, October 2003, p.9

[132] *Basel gives Banks the Whip Hand*, Euromoney, March 2001, p. 51

B) Lending to emerging markets

Another problem that has arisen with respect to Basel II and emerging markets is the fear that banks would be forced to hold too large amounts of capital if they wanted to lend to borrowers from emerging markets.

The fears are not entirely unfounded, as under Basel II, sovereigns from emerging markets will be treated in a much less favourable way than under Basel I. This is especially true for sovereigns from OECD countries, as their presumption of non-default that existed under Basel I has been given up and replaced by risk-weightings that reflect the real risk of loans to these sovereigns. Identically, under the standardised approach, sovereigns which could have received a maximum risk-weight of 100% under Basel I may now face a risk-weight of up to 150% if they are rated below B-.This fear is real for sovereigns from emerging markets whose ratings are generally quite low.

As for banks and companies from emerging markets, their positions may well be uninteresting too with the new framework as empirical evidence shows that their ratings are often coupled to their sovereign's rating. If their sovereign is downgraded, they generally also suffer a downgrading[133]. This then puts them in a fragile position with respect to banks applying the standardised approach that lend to them.

However, the PWC report has found that most of these fears are unfounded, as a number of banks work at a higher ratio than the minimum of 8%, thus already having a capital cushion. This is especially true with regard to sovereigns with a lower rating where banks generally allocate a higher capital charge to loans made to them, already taking into account the higher risk presented by these loans. Banks have already been doing this even though Basel I assigns a risk weighting of 0% to a large number of these loans[134].

The report raises a further very sensitive argument, claiming that Basel I created distortions in lending patterns, as it assigned risk-weightings arbitrarily and not with respect to the real risk of the underlying asset[135]. Basel II corrects this by requiring higher capital charges for riskier loans. In the end, what the Basel II accord does is align regulatory capital and economic reality. As a result, Basel II may imply changes to the lending patterns to emerging markets, but there is a high probability that these changes will only be minimal

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[133] Ferri e.a., *How the Proposed Basel Guidelines on Rating-Agency Assessments would affect Developing Countries*, World Bank Policy Research Working Paper 2369, June 2000

[134] PWC report, p. 125 - 126

[135] *ibid.*

as banks probably already have taken into account the higher risks associated with this type of lending.

Conclusion

At the beginning of this analysis I asked the question whether the changes in the credit risk assessment methods will prove to be effective, meaning whether they will imply any real changes in bank capital structure, whether these changes will be beneficial and how they may impact on banks' lending policies. I have demonstrated that the changes are effective:
One of the major goals of the new accord, according to the Basel Committee, was to achieve more financial stability than the previous accord could. This goal has, in my opinion be reached through a good combination of new credit risk assessment methods (that take into account the real risk attached to a loan and do not set arbitrarily amounts on credit risk, as was the case in the previous accord) and an intelligent use of the dialogue between the bank and its regulator which is implemented through Pillar II of the accord. The result will be a far more efficient and realistic risk management by banks, leading to more sound regulatory capital standards. A capital cushion will be added by the regulator to the minimum amount of capital that has been determined by the bank itself, in order to guarantee the financial stability that has been looked for. The procyclicality argument that has been raised by the banks, claiming that the procyclical effects of the accord would counteract the sought financial stability has been dismissed to a large extent.
Better risk management for banks is probably the main achievement of the new accord and such an achievement should be largely welcomed. The new accord was very difficult in reaching; it took an impressive five years before an agreement could be reached. Still, a large amount of concessions remains, since not all the States represented in the Basel Committee will implement the new accord, due to its complexity. This is, for instance the case of the US and of Switzerland, the two countries having decided to only implement the accord for very large, truly internationally active banks, because of the complexity of the framework, the costly implementation for banks and, last but not least, the extreme complexity of the regulator's task, as regulators will have to radically change their methods of supervision, in order to be able to validate banks' internal ratings systems without committing any errors or validating systems too easily. The EU has however decided to

implement Basel II entirely, in its CAD II directive, which will apply to a very large number of banks operating in the EU, raising big challenges for banks as well as regulators.

Basel II brings about changes in the level of required capital for banks. The more advanced a bank's risk management will be, the more radical the changes will be, with impressive reductions in the amount of minimum capital for regulatory purposes. Overall this will not mean that banks will reduce their capital, but that from the moment on they apply the Basel II rules (especially the IRB approaches), banks will be able to keep a more risk-sensitive capital and thus use their capital more efficiently. In the end, Basel II does not necessarily bring us cheaper capital for banks, but it certainly will be better capital, meaning that capital will finally be allocated to where the risk really lies in a bank's assets. The better taking into account of credit risk mitigation techniques certainly works in this way. Risk now becomes a major factor in a bank's capital management, and thus gets a seat at the table. There is, however, a boundary to the savings in minimum capital requirements, which can be found in the operational risk charge on capital. The Basel Committee has decided to create a capital charge on this non-financial risk, which has been subject to very heavy criticism within the banking industry. However, this charge certainly has one beneficial effect, which is in relation to a better stability of the financial system and a better risk management by banks, in that this new charge for operational risk will force banks to monitor their operations exactly, and avoid errors that could easily have been avoided but would not have if their had been no such capital charge. In other words: this charge will help penalising banks that do not manage their back-office in a clean and transparent way and thus create risk for their customers or the entire financial system. Failures in operation of a bank can easily lead to a bank's failure, thus bringing up systemic risk. Banks that have transparent and well-organised management procedures will be subject to a smaller charge. This should encourage bank to keep their back-offices as efficient and well-managed as possible.

Better risk management by banks will not leave the financial system untouched, to the contrary. The relationship between banks and their borrowers will change, probably dramatically, as better risk management calls for a better dialogue between the bank and its borrower; otherwise the bank will not be able to assess the risk of the loan exactly and may well give a pessimistic assessment, thus unnecessarily increasing the amount of capital needed to cover this loan. For borrowers this means that they will have to act more

transparently *vis-à-vis* their bank lenders. In exchange, they may well receive better conditions on the loans granted to them.

This newly defined relationship has its most impressive effect on the financing of SMEs, where regulatory capital should experience the most dramatic decreases. A similar effect can be seen for banks that are mostly active in the retail sector.

The relationship to emerging markets borrowers will also change, as risk is now taken more into appreciation, especially with regard to sovereigns. The downside for banks lending to sovereigns is that with Basel II, lending to OECD sovereigns with a bad credit rating will require much more capital than under Basel I (where there was no capital charge at all for such loans). The good news is that very risky loans will from now on require capital to be set aside. This can only be warmly welcomed.

This means that in general, Basel II and its new credit risk assessment methods bring highly positive contributions to the financial system. The arbitrary assignment of capital without taking into account the real risk will now be over, finally.

Basel II was also created to avoid regulatory capital arbitrage. If it helps in eliminating certain such practices, it does, however create new ones, due to the functioning of the new risk-weighting system. Banks on the IRB approach may very well be tempted to design their internal rating systems in such a way that they will give very optimistic assessments of credit risk, thus lowering their required capital artificially[136]. However, banks will always be subject to supervision, and banks engaging into such a practice may well fall under the scrutiny of the regulator who will be able to reject the validation of their internal rating systems or simply may ask them to hold a higher capital cushion under Pillar II.

Another opportunity for arbitrage may have been created under the standardised approach which generally assigns a lower risk weighting to unrated entities than to entities with a bad, under investment-grade rating, as this would encourage companies that know that they probably would receive a bad rating not seek one at all. However, until now, ratings did not exist for regulatory capital purposes, but in general to assess a debtor's situation, and they have a large amount of other purposes as well[137]. It is then hard to believe that Basel II would have such an important impact in this area as to change this. The fears that banks working under the standardised approach would engage into "rating shopping" are also

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[136] Harald Benink, *Are Basel II's pillars strong enough*, The Banker, Special Supplement on Basel II, July 2004, p. 163

[137] For example, some investment funds may only invest in investment grade or rated companies.

unfounded, as the accord sets up strict eligibility criteria for ECAIs and avoids that bank systemically only consider the higher rating in order to keep their required capital as low as possible.

Nevertheless, there will be other changes in the financial systems, because certain banks will simply not be able to justify the high implementation costs of an internal rating mechanism, and they will thus have to give up some of their core businesses. This is especially the case for small banks that specialise in project finance or other forms of specialised lending, which can only be handled efficiently under the IRB approaches (especially so under the advanced IRB approach), which these banks simply cannot reach, be it for too high implementation costs or simply for lack of date. They would thus have to leave these businesses, as otherwise they would be force to hold extremely high levels of capital, without justification, therefore totally loosing efficiency. Mercer Oliver Wyman predicts that this will create a dominance of large global and monoline banks, as only these will be able to reach AIRB status and take full advantage of the taking into account of CRM techniques, eventually being able to keep lower amounts of capital[138].

Finally, the new credit risk assessment methods (and Basel II as a whole), will be a great benefit for those banks who do not simply see it as a regulatory burden, but seek more than just compliance, by implementing efficient internal risk measurement systems (as well on the credit risk side as on the operational and market risk sides).

It needs to be said that the accord, however is just a guidance for banks, the systems they will have to build need to be in conformity with the national legislation of their state of incorporation, which may well implement rules that are slightly different from the ones contained in the accord. However, in the case of EU banks, there will be no major differences and the accord should be a very good guidebook.

To conclude: *"Risk is a cost centre, whilst risk management is a cost avoidance centre. A firm that takes risk seriously is likely to find a more sympathetic regulator"*[139].

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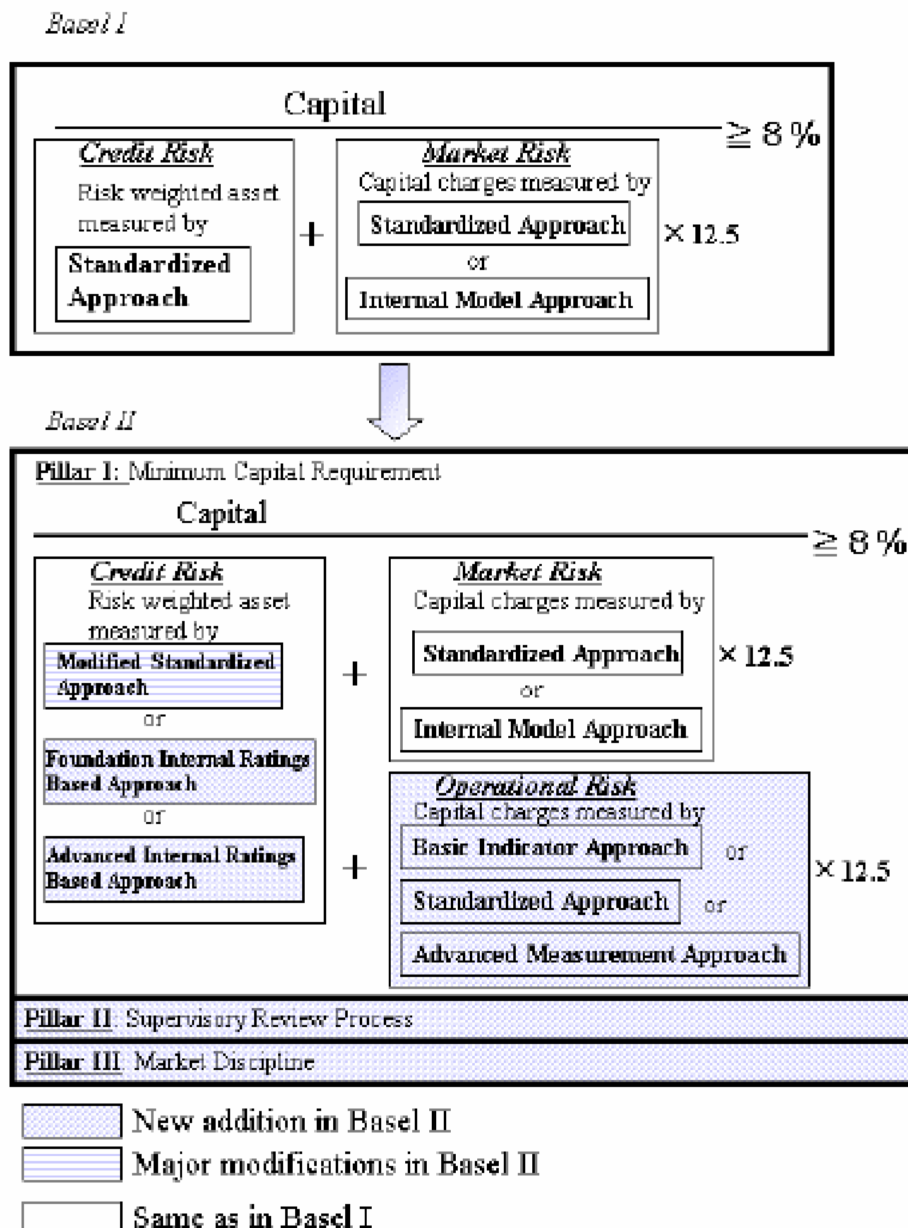
[138] Mercer Oliver Wyman, *Basle II prompts strategic rethinks*, Euromoney, December 2002, available at: http://www.merceroliverwyman.com

[139] Simon Gray and Dennis Aliga, *Operational Risk in theFinancial Sector – Policing the Minefield*, [2003] JIBLR 36, p. 41

Annexes

Annex 1:

Diagrammatic representation of the components of the new Basel II solvency ratio
Source: http://www.cssf.lu/docs/Vue_ensemble.pdf



Annex 2: Standardised approach: summary of the main risk weightings

Claims on sovereigns

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight	0%	20%	50%	100%	150%	100%

Claims on banks

Option 1

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight	20%	50%	100%	100%	150%	100%

Option 2

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight	20%	50%	50%	100%	150%	50%
Risk-weights for short-term claims	20%	20%	20%	50%	150%	20%

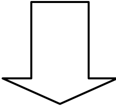
Claims on corporates

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

Annex 3: Mechanism of the IRB approaches

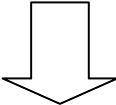
Risk components

Probability of default (PD)	Loss given default (LGD)	Exposure at default (EAD)	Effective maturity (M)

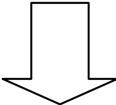


Asset Classes

Corporate	Sovereign	Bank	Retail	Equity



Risk-weight functions



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