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THE NEW BASEL ACCORD AND DEVELOPING COUNTRIES: PROBLEMS AND ALTERNATIVES

Jonathan Ward

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Comments and suggestions would be welcomed by the author:

Jonathan Ward
Research Fellow
ESRC Centre for Business Research
Cambridge University

e-mail: j.ward@cbr.cam.ac.uk

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Abstract

The new Basel Accord framework relies on markets and supervisors to discipline banks. Yet both markets and supervisors fail, and more so in developing countries than in high-income countries. Therefore, the new Accord is not, as its designers claim, suitable for wide application. Nevertheless, developing country policymakers have little choice but to implement it in part or in whole. Hence there are problems of governance in international regulation. I offer seven general principles for the design of a prudential regime more robust to government and market failure. Four alternative capital regimes are evaluated in the light of these principles. Simpler and harsher regimes are likely to achieve greater safety with a given level of resources.

Keywords: Basel Accord, Basel 2, international banking law, bank regulation, capital adequacy, finance and development, World Trade Organisation

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Executive Summary

The new Basel Accord consists of three 'pillars': capital requirements, supervision, and market discipline. In the sophisticated version of the capital requirements pillar, capital requirements are based on banks' own measures of risks. The new framework is based on the premise that discipline by the markets and by supervisors is beneficial. Yet both markets and governments fail.

The new framework has not been designed with developing countries in mind, and it is especially likely to fail in developing countries. First, developing countries experience greater macroeconomic volatility, and greater volatility of external flows and greater vulnerability to external shocks. Secondly, Basel 2 relies on strong institutions. In developing countries, institutions limiting rent-seeking are weaker: banker and bureaucrat have more opportunity and incentive to reap private benefits at public cost. And thirdly, skills are scarce. Supervision and market discipline require skilled supervisors and market participants. Even the more basic capital requirements rely on the skill of bankers, since any capital adequacy rule relies on the valuation of assets that have no market price.

Yet developing countries are under pressure to implement the new framework. Implementing the Basel Accord is, according to the official view, voluntary. In reality it is not entirely voluntary. Countries that do not implement risk sanction in several ways. Most notably, the lending programmes of the IMF and World Bank come with conditions attached, and these conditions include compliance with international regulatory benchmarks. Bank branches from developing countries are authorised in high-income countries only if their home country supervision meets Basel standards.

Although they have little chance of influencing the Accord itself, developing countries do have some choices to make. I offer seven suggestions for policymakers in developing countries.

1. Prudential regulation of banks aims to protect depositors and to protect the financial system. The two objectives are imperfectly aligned. Regulations imposed on institutions in order to reduce systemic risk should not treat systemic risk as exogenous, because systemic risk is largely determined by the collective behaviour of banks. A prudential regime concerned with risk at the level of the system cannot focus on the constituent parts alone. Regulators and supervisors should pay more attention to the stability of the system.

2. While the incentives of regulators, accountants and market participants are of great importance, bankers' incentives are the most important. Public intervention should be designed so that bankers fear failure. 'Risk-sensitive' capital requirements are neither necessary nor sufficient for incentive-compatibility.

3. The Basel 2 framework for credit risk is procyclical, the IRB approach especially so. In future, developing countries will be even more vulnerable to high-income countries' business cycles. Rather than relying on supervisors to ensure that banks can survive recession, they should consider imposing countercyclical prudential requirements. These could include countercyclical minimum capital ratios, collateral haircuts, liquidity and currency mismatch limits.

4. The new Accord shifts from rules to standards. Developing countries should rely as much as possible on *simple rules* that are easy to write, communicate, enforce and verify. They should restrict the role of supervisory discretion to the minimum.
5. Capital requirements fail to protect against low-probability, high-impact risks, and they are sensitive to the failure of underlying assumptions. Like engineers, regulators should build in redundancy. In addition to capital requirements, they should *also* use a suite of simple back stop limits and stress tests.
6. In order for domestic prudential requirements to have effect in the presence of foreign banks, regulators must protect their autonomy. They should consider requiring all foreign banks to submit themselves to local regulation by incorporating locally. This would be an alternative way of counteracting competition in laxity.
7. The combination of maladaptive design and near-obligation creates a severe problem of governance in international regulation. Developing countries cannot by themselves entirely solve these problems, but they could perhaps mitigate them. The benefits of designing an individual regime would be enhanced and the costs lowered if developing countries were to act collectively to design and enforce a framework appropriate to their circumstances.

Applying the principles, I then discuss what developing countries should do about the new Accord. Although some form of capital adequacy framework is likely to form a part of any prudential regime, the requirement could be simple, and it could be a small part.

I discuss four defined options: full Basel 2; a restricted form of Basel 2 ('Basel 1.5'); the same but with higher capital ('Basel 1.5+'); and the 1988 Accord, but with operational risk added Pillar 1, with Pillars 2 and 3 added, and a 9% minimum capital ratio ('current plus'). The first option, implementing Basel 2 in full, is the least preferred, for reasons outlined in the first part of the paper. The second, implementing a restricted form of Basel 2, using only the simple capital adequacy options and relying only to a limited extent on supervision and market discipline, would economise on scarce resources and reduce the possibility of favouritism, inconsistency and corruption. Its weakness is that it is not clear whether it would be seen to satisfy international standards. The third, 'Basel 1.5+', requires more capital than the second and so offers a greater degree of safety; however the extra degree of safety is smaller than it seems. 'Current plus', which has been proposed by a group of non-G10 regulators, has the great advantages of continuity and of international acceptance; however, since it includes Pillars 2 and 3, it suffers from many of the problems of Basel 2, and 9% is very little safer than 8%. Of these four, 'Basel 1.5+' is likely to be the best approach to achieving prudential objectives; but high-income countries and IFIs will need to be persuaded.

As a fifth option, developing countries could take the Basel framework as a starting point and, using the seven principles, simplify the regime and adapt it to local circumstances ('*f*(Basel)'). I give examples of how this might be done.

1. Introduction

Governments in many developing countries began to deregulate in the 1990s, by ceasing to direct credit, privatising state banks, removing interest rate ceilings, and allowing freer entry. Many countries also liberalised the capital account. In most cases, deregulatory initiatives were not backed up by strong regulation, severe imbalances were allowed to build up after the regime change, and crises followed some time afterwards. Williamson and Mahar (1998) found that almost all the countries in their sample that liberalised experienced a financial crisis. Kaminsky and Reinhart (1998) found that in 18 of the 26 banking crises studied, the financial sector had been liberalised during the previous five years. Demirgüç-Kunt and Detragiache (1997) found that indicators of financial liberalisation were significantly related to the probability of banking crisis.

Furthermore the strength of regulation in liberalising countries appears to matter. Lindgren, Garcia and Saal (1996) found that only five of 34 countries experiencing a crisis had an 'adequate' legal and supervisory framework, and that even in those cases, enforcement and supervision were weak. Williamson and Mahar (1998) built an index of regulation and supervision strength, and found that in countries experiencing crises, the index was negatively correlated with the severity of crisis. Of the 25 LDCs in their sample, only three strengthened prudential regulation before liberalising, with another three reforming at the same time. Demirgüç-Kunt and Detragiache (1998) found that banking crises are worse in countries with weak institutional structures.

Since the Mexico crisis of 1994 and the Asian crises of 1997-98, the conventional wisdom has changed. The new consensus holds that, while capital account liberalisation and domestic liberalisation are the best policies in the long run, liberalisation reforms should be accompanied by efforts to improve the incentives of financial agents (eg Pesenti and Tille, 2000), particularly by strengthening regulation and supervision (eg the Economic Communiqué from the G-7 Summit at Halifax, June 1995). It is, for example, a mistake to liberalise if large parts of the system are insolvent or likely to become so. Consequently, the policy recommendation is sequencing: not all capital flows should be liberalised before the legal and regulatory infrastructure is built.[1] There is, perhaps, less consensus about whether liberalisation should be preceded or accompanied by improved regulation; or indeed whether it is the ordering of liberalising measures or their duration that most affects the probability of dangerous imbalances arising.

But how should regulation be strengthened? Most commentators, painting on a large canvas, have been content to depict bank regulation impressionistically, and to assume that 'strengthening regulation' is a matter of implementing international standards, of which the most important is the 1988 Basel Capital Accord. Some, however, have gone into more detail to discuss alternative approaches to prudential regulation. Among these are Hawkins and Turner (2001), Brownbridge and Kirkpatrick (2000), and several papers by Caprio and colleagues at the World Bank.

There is a single international model of prudential regulation, designed by the Basel Committee on Banking Supervision. The 1988 Basel Accord is being wholly rewritten. The Committee hopes to finalise a new Accord, generally known as 'Basel 2', by the end of 2003, and to introduce the new rules by the end of 2006. A third round of consultation is due in the first quarter of 2003. However, the shape and most of the details of the new

Accord are fixed, and so for the rest of this paper I assume that neither developing countries nor anyone else can influence the new Accord itself.

The aim of this paper is to answer the following questions. Is the new Basel Accord appropriate for developing countries? Are there better alternatives? And to what extent do developing countries have a choice? I use the term 'developing countries' very broadly, to include emerging markets and even some industrial countries.[2] In the context of developing countries, the new Basel capital adequacy framework has been appraised by Karacadag and Taylor (2000), Griffith-Jones and Spratt (2001), and Powell (2002).

The Basel Committee does not have the right to impose its own Accord on others, and has never, at least explicitly, sought to do so. Nevertheless, more than 100 countries have implemented the Basel Accord in some form. There are several possible explanations: it is cheaper to pick one off the shelf than to start from scratch; financial markets reward governments and banks in developing countries where a Basel regime is implemented; the international official community (including the Basel Committee and the international financial institutions) encourages them to do so; and financial institutions from countries not complying with Basel standards find it difficult to enter important financial centres such as London and New York. Developing country regulators may feel that they have little choice. If so, the Accord has the status, if not the form, of customary international law, and those designing it bear the responsibilities of international law-makers.

The Basel Committee (1999, 5) intends that its "underlying principles should be suitable for application to banks of varying levels of complexity and sophistication", which means large banks in non-G10 countries and domestic banks in G-10 countries. There is, however, no reason to believe that a regime designed for rich countries is appropriate, nor has the Committee given arguments to suggest that its intention has been realised, nor indeed has it spelt out the underlying principles. All three pillars – minimum capital requirements, supervisory review, and disclosure – are based on assumptions about the efficiency of a market-based system that are implausible in countries where the institutions supporting markets are weak. The new regime substantially increases the degree to which supervisors must exercise discretion, and hence is vulnerable to government failure. If this discretion is not used for the public good, then regulation will be ineffective. Even the simplest version of Basel 2 may not deliver the necessary degree of protection in developing countries.

The more sophisticated approaches, based on banks' internal risk measures, are likely to fail in rich countries and in poor. If regulators implement the more sophisticated approaches, they will effectively be deregulating, contracting out the determination of capital requirements to banks. A combination of a Basel-style regime and liberalising measures would represent an explosive combination of two kinds of deregulation.

Developing world policymakers are therefore on the horns of a dilemma. If they do not implement Basel 2, they face the risk that they and their financial institutions may be punished, but if they do, they face the prospect of wasting finite resources, and at worst an increased risk of corruption and of crisis.

The question then is what else policymakers in developing countries might do instead, or in addition. I suggest that regulators should design rules that consciously take into

account the possibility of market and government failure. I offer seven general suggestions for regime design.

When it comes to capital adequacy, there are four broad options: implementing Basel 2; implementing some of Basel 2; implementing a mix of Basel 2 and the 1988 Accord; and going it alone. Implementing Basel 2 in full will both waste resources and increase fragility. Implementing only the simplest parts of Basel 2 will reduce the dangers, but will not on its own constitute an effective regime. Consequently, high-income countries and the IFIs should take care not to take a narrow view when assess the adequacy of financial regulation in developing countries. I do not try to suggest a single solution, but instead consider several specific rules in the context of those principles.

The rest of the paper is structured as follows. The next section describes the new proposals, their rationale, and their weaknesses. Section 3 considers the likely impact of the new proposals on developing countries, in two components: external bank lending, and domestic intermediation. Section 4 examines the extent to which implementing the Accord is voluntary. Section 5 offers seven principles for the design of a prudential regime. Section 6 discusses capital adequacy in the light of the principles, and Section 7 concludes.

2. The new Basel proposals

Basel Accords 1988 and 2003

The 1988 Basel Capital Accord (Basel Committee, 1988) is a commitment by financial authorities within the G-10[3] countries to apply a minimum capital requirement to internationally-active banks in the G-10.[4] It defines a measure of *capital* and a measure of *risk*, the latter measure known as 'risk-weighted assets'. The rule is that a bank's capital must be no less than 8% of its risk-weighted assets.

The Accord is an example of 'soft law' (Alexander, 2000). Its signatories do not legally bind their nations. Although they are expected to fulfil their promises, there is no explicit sanction for violation.

The problem with rules is that the world is complex, and it changes (Hart, 1961). And so it is for the 1988 Accord. The calculation of risk-weighted assets is crude. For example, OECD governments[5] are held to be much less risky debtors than non-OECD governments, which is true on average but not in all cases. Some collateral is recognised, while other collateral of equivalent quality is not. Banks have incentives to collect risks that they consider underpriced by the Basel regime, and to repackage and sell risks that are they consider overpriced. Junk debt might be in the former category, lending to blue-chips in the latter. Incentives to do so are stronger, the more the regulatory measure of risk differs from the bankers' assessment of risk.

The designers of the Accord knew that the rules were crude, but they were the best technology available. At the time, banks were ill-equipped to respond to marginal incentives. Since then, however, risk management and product innovations have reduced the cost of reacting to marginal incentives, and competition has sharpened banks' incentives to do so. Innovations have created products, such as credit derivatives, for which the 1988 Accord has no answer. Many new products are created precisely because the Accord requires them to be treated in ways that do not reflect the economic risk.

Sophisticated banks can now use them to manipulate the ratios (an act known as 'regulatory arbitrage') to achieve virtually any solvency ratio of their choosing. For sophisticated banks the Accord is a minor irritant, not an effective constraint.

Consequently the Basel Committee is changing the rules. It is engaged in a lengthy, iterative process of designing and consulting on new proposals. The Committee plans to publish the final rules at the end of 2003 and to implement them simultaneously in member countries at the end of 2006. Since the Committee does not have the power to make rules in member states, this timetable is a statement of intent rather than a commitment.

The new framework (Basel Committee 1999b, 2001a, 2001c) updates the capital adequacy rules to address product innovations such as credit derivatives. It also aims to reduce regulatory arbitrage by reducing the gains from it. As a result, regulatory risk weights are to be moved towards bankers' risk estimates, to become more 'risk-sensitive'.

But Basel 2 is no mere second edition. It represents a change of approach to regulation. Banks can, and do, change their risk profiles very rapidly. Periodic examination of prudential returns has become less useful, and some banks routinely window-dress at reporting dates. Regulators, like auditors, have for some time been shifting their attention away from box-ticking rule enforcement towards a subjective assessment of the risks in a bank and of the degree to which they are managed, or 'supervision'. (In most Basel Committee countries, this is actually a return to tradition.) Rules are seen to be inflexible, inappropriate in a fast-changing world. In addition, regulation – not just financial regulation - has moved away from simple quantitative limits towards more price-based, 'incentive-compatible' systems. Regulators have come to believe increasingly in the benefits of assisting markets in their quasi-regulatory job. In the context of bank regulation, the idea is that markets, if given sufficient information, will increasing funding premia, thus 'disciplining' banks that take on more risk and reducing their risk appetite.[6]

Reflecting these changes, the Basel 2 proposals are based on three 'pillars'. The first is capital adequacy (or solvency) regulation; the second is the 'supervisory review' process; and the third is disclosure requirements as an aid to market discipline.

Pillar 1 now sets capital requirements against three risk classes: credit risk (introduced in 1988); market risk (1996), and operational risk. Each of the risk classes will offer a menu of approaches varying from the crude but penal to the sophisticated and more generous.[7] The simpler approaches are based on rules automatically relating an observable and verifiable figure to a capital requirement. The more sophisticated approaches do not set capital requirements directly. Instead, they specify conditions under which banks determine their own capital requirements. Banks estimate inputs into a risk weight function set by regulators;[8] what is verified by supervisors is not the input, but the process by which the input is estimated.

For banks, credit risk is the most important risk category. The simplest approach to credit risk is now called the 'standardised' approach. Instead of basing the risk weight on the category of borrower (bank, sovereign, public sector entity, none of the above), the risk weight is now based on the borrower's rating. There are rules determining what kind

of rating agency's ratings can be used. The more sophisticated, internal ratings based, or 'IRB' approach, relies on banks' estimates of key determinants of credit risk. It comes in two flavours. The foundation approach uses banks' estimates of a borrower's probability of default (PD), while other inputs are set by the regulator. In the advanced approach, the bank may estimate other inputs, such as loss given default (LGD), but the mapping from input to risk weight is still set by the Basel Committee.[9] There are also to be three approaches to operational risk: the Basic Indicator Approach, the Standardised Approach, and the Advanced Measurement Approaches. The definition of capital remains the same.

Banks may only use the sophisticated methods for regulatory capital purposes if supervisors are satisfied, both at the outset and thenceforth, that they meet certain minimum standards. These standards are rules, in that they bind behaviour. Unlike formulaic rules, however, standards do not have content until they are enforced (Kaplow, 1992). Third parties – courts, other regulators, market participants – cannot observe or verify whether standards have been enforced, only (at best) the processes used by the enforcers. Standards therefore delegate discretion to supervisors in a way that simple rules do not. The more sophisticated approaches require supervisors to make skilled judgements, and so contain a large element of discretion. While the addition of two pillars appears to be a more revolutionary architectural redesign, the change of rule type within Pillar 1 is in fact more radical.

However, the 1988 Accord is by no means free of discretion. The calculation of capital requirements is based on inevitably artificial delineations, whose boundaries are vague and require interpretation. Two boundaries are particularly difficult: judging whether a securitisation has truly transferred risk outside the bank; and judging whether a transaction should go into the banking book or the trading book. Defining and defending these boundaries takes up a great deal of regulatory time.[10] Banks, too, employ people to invent products that reap the regulatory rewards of one category with an economic structure that belongs to another. Securitisations are designed so that the loans are legally transferred from the balance sheet; in reality a bank intending to fund its activities in the future by securitisation will find any way it can to compensate investors for any losses. Therefore, while investors may have no legal recourse, they often have 'moral' recourse.

A third definition, that of capital, is also extremely problematic. Banks maximising shareholder value should use a simple definition of capital: equity. So do those who make lending decisions, such as bank lending officers and credit analysts. The Committee, however, recognised two 'tiers' of capital, and added a third in 1996. Tier 1 is supposed to be equity and Tier 2 is mainly subordinated debt,[11] although some kinds of subordinated debt are now treated as Tier 1 capital for no good reason.[12] Tier 2 also includes general provisions, up to a maximum of 1.25% of risk-weighted assets (ie 16% of minimum capital). The boundary need not coincide with that drawn by tax authorities. So banks' subordinated liabilities are designed to possess just enough payment flexibility to persuade the banking supervisors to treat them as core capital and just enough payment obligation to persuade the tax authorities to treat them as debt. The effective result is to replace equity with debt, increasing the probability of insolvency.

But by far the most important source of subjectivity in the Accord is the same as that in banks' accounts: valuation. Being the differences between assets and other liabilities,

capital is sensitive to the valuation of assets and liabilities. Banks' traditional assets are loans, and the great majority of loans do not have a market price. (This helps to explain both the existence of banks and their vulnerability to runs.) The accounting and regulatory solution has been, broadly, to record loans on the balance sheet at the lower of cost and net realisable value. Where a loan is considered to be impaired, the net realisable value is reduced by taking a provision. Changes in net realisable value should also flow through the income statement.

However, there is no common regulatory approach to loan classification or provisioning. Many bank regulators do not have the power to prescribe accounting standards for banks. Nor do International Accounting Standards prescribe, although the G-7 finance ministers and the IMF have called for this gap to be filled.[13] The multitude of different approaches has considerably complicated the design of the credit risk component of the new Accord (do provisions appear in the income statement? Do they appear as a liability or as a reduction in assets? Do they constitute part of capital? Are they supposed to constitute an estimate of existing impairment, including known but latent losses, or should they also look forward to expected or even unexpected loss? See BCBS, 1998b for some answers).

As in the other companies, it is primarily the responsibility of bank managers to produce accounts, and to value their assets. Bank managers decide the level of provisions, following accounting precepts. Since there is no market price with which to verify the provision, auditors examine the process by which provisions have been decided more than the level of provisions itself. Supervisors, a second line of defence, do likewise. And both sources of protection can suffer from private incentives that cause them to collude with bank managers to inflate the reported solvency of the bank. If this governance fails, bank managers can effectively decide both the value of the bank and its reported income for the year, a temptation hard to resist.[14]

So the story that the Basel 2 rules have become outdated is correct, but incomplete. Banks have concentrated their attacks on those areas in which the rules were missing in the first place, where supervisors were forced to use their discretion to fill in the gaps. It is not so much that the rule has failed, but that there has failed to be a rule. Basel 2 does not correct all these problems; for example, the definition of capital is off limits.

The weaknesses of Basel 2

Unfortunately, the new framework has several fundamental weaknesses.[15] First, it relies on banks' own risk estimates. This is not incentive-compatible. The review was prompted largely by the observation that banks in large financial centres were increasingly circumventing the rules by regulatory arbitrage. The conclusion that the Committee came to at the very beginning of the process was that differences between regulatory and economic capital caused regulatory arbitrage, and the way to eliminate regulatory arbitrage was to make the regulatory rules converge on economic capital, that is, to make the rules 'risk-sensitive'. "The Committee expects that the New Accord will enhance the soundness of the financial system by aligning regulatory capital requirements to the underlying risks in the banking business and by encouraging better risk management by banks and enhanced market discipline," said the BCBS Secretariat (2001).

Given the flood of regulatory arbitrage, this was the obvious conclusion to draw, but it was wrong, and the review has run into severe difficulties as a result. Because they have limited liability, banks shift risk to others but keep the rewards, and so benefit too much from risk. They also suffer from internal agency problems that induce their traders and credit officers to seek risk. Banks may manage their risks perfectly for shareholders but pose too much risk to others. A set of rules designed to eliminate private incentives for regulatory arbitrage will not reflect the social risks. There *should* be incentives for regulatory arbitrage. 'Risk-sensitivity', if it means sensitivity to private risks, is therefore the wrong goal. Instead, capital requirements should be related to social risk.

At the very least, banks' private risk measures need to be adjusted to measure social risk. The value at risk rules, for example, multiply banks' risk estimates by a factor of at least three. This can help correct failure externalities, albeit only under the strong assumption that all bank failures pose the same risk to the system. However, when their own estimates are used to set capital, banks have an incentive to manipulate them. There are two protections against this distortion: *ex post* punishment for bad model performance and minimum standards judged by supervisors *ex ante*. Inherent data problems rule out the possibility of an automatic penalty function,[16,17] and so the regime relies entirely on an increasingly baroque set of supervisory standards. Supervisory judgement is prone to failure. These protections will therefore be insufficient.

Even if the incentives to manipulate the estimates can be corrected, there is a further problem. What protects the individual bank may not protect the system. Important properties – such as risk, correlations, liquidity - of the very system that the Basel Committee is trying to protect are not exogenous but defined by the collective behaviour of banks and other financial institutions. If banks manage risk in the same way, shocks, news and changes of opinion have greater effect.

Daníelsson, Shin and Zigrand (2002) show that adding a value at risk constraint affects the demand for assets, and hence prices and price distributions. Their simulations suggest that general use of VaR lowers asset prices, increases their volatility, and increases the amplitude and duration of asset price response to large shocks. The same authors compare the fallacy of using for policy purposes models that assume exogeneity of risk to the Lucas Critique: the risks derive from banks' behaviour and are not invariant to changes of regime.

Regulators have not explained or tested the claim that using sophisticated quantitative models represents "better risk management" from the point of view of anyone but bank shareholders. Yet so confident is the Committee that models are better that the new framework contains a capital incentive to move to the more sophisticated approaches.[18] As an example, regulatory capital on a given portfolio will rise during downturns and fall during upswings, and this may increase the amplitude of economic cycles. This is because banks prefer to estimate risk over short horizons. Minimum data requirements do not cover a full cycle, nor does the forecast horizon. 'Risk-sensitive' rules will reward short-term lending, reducing the extent to which bank systems provide liquidity insurance to customers.

The new framework, in which several approaches to credit and operational risk are available, replaces one form of regulatory arbitrage with another. The IRB approach

generates higher capital requirements than the standardised approach on lower-quality assets, but lower requirements on higher-quality assets. Banks on the IRB approach will tend to acquire all the high-quality assets and banks on the standardised approach all the low-quality assets – the assets for which the standardised approach undercharges. Banking groups will be tempted to 'cherry-pick' between the two regimes, but even if they do not, the banking system will do it automatically. Banks on the IRB approach may branch into jurisdictions where only the standardised approach is offered, or vice versa. Adverse selection is seen as a price worth paying to achieve a framework that can be applied by different banks and that contains incentives to improve risk management. But if the IRB approach is not a better form of risk management from a social perspective, these costs may not be worth bearing.

The second problem is that supervision may fail to achieve its objectives for any one of a large number of reasons. Supervision has two advantages over formal regulation: supervisors use a broad range of information, notably of a soft, subjective nature; and they generally try to encourage improvements in risk management, which is for many risks a more efficient form of insurance than capital. However, in reality supervisors may not have the skill, the power or the incentives to supervise effectively. A supervisory regime such as Basel 2 requires powerful yet benevolent supervisors, the stock of which is limited. Supervision, on the other hand, requires bureaucrats to exercise discretion, which may be used for good or ill. The effectiveness of supervision therefore depends on the incentives of supervisors, and of others such as bankers, politicians and auditors. These incentives are affected by formal constraints, such as the law, but also by informal constraints of culture and norm, which vary across countries and persist over time. It is easy to build incentive mechanisms that fail to achieve regulatory objectives, and difficult to build mechanisms that succeed. Organisational structures give even the most public-spirited supervisor reasons to misbehave.

The power of supervision also depends on convention and norm, rather than on formal law; the tools of persuasion are subtle, and persuasion is difficult to monitor. Supervision is intrinsically interpersonal, and human relationships can distort decisions. Furthermore, supervision is a complex activity in which the supervisor acquires and process a great deal of information and makes decisions under uncertainty. Rationality is bounded. Moreover, even the richest supervisory agencies possess scant information about the relationship, if any, between supervisors' actions and bankers' behaviour. Whether supervisory actions are effective or entirely superstitious is not known. In summary, the new regime is founded on a largely untested belief that supervision works. It is not robust to supervisory failure.

Thirdly, a shift towards banks' internal risk measures and on supervision implies a shift from rules to standards. This has hugely important implications barely considered by the Committee. Standards work better in some jurisdictions than others. High-level principles and qualitative standards delegate to bureaucrats the task of giving content to the law. Not all legal and political systems can easily accommodate this delegated administrative approach. Indeed, even in the US, the courts' willingness to accept delegation of powers to administrators is a modern phenomenon, and even now, as in the UK, administrators are subject to procedural constraints in the exercise of their powers. Elsewhere, administrative powers themselves are more strictly limited. Treating people

unequally (even if they are truly unequal) may be illegal: Article 7 of the Austrian constitution, for example, has been interpreted by legislators and regulators to require identical treatment of evidently different banks. Unequal treatment, if not illegal, may be politically impossible. Closely related to this is the question of fairness. Political and legal structures are partly designed to stop those with power from exercising it unfairly. Failing to follow precedent or otherwise acting inconsistently is generally regarded as unfair, or worse.[19] Supervision is inherently flexible and individualistic. There is great scope for unfairness; indeed, it is hard to apply judgement fairly, particularly where, as is inevitably the case in supervision, different individuals judge different cases. The same issues arise with model recognition. There is no guarantee of consistency even within countries. The supervisory approach therefore creates some overwhelmingly difficult problems of law, politics and equity.

Fourthly, the primary purpose of the international capital adequacy regime is to protect against international competition in laxity (Kapstein, 1989), and the new regime will fail to achieve its purpose. Regulators impose externalities on each other because banks may branch across borders under home country regulation, affecting competitive conditions in other countries. Regulators respond strategically to other regulators' laxity by increasing their own. The 1988 Accord appears to have reversed the long-term trend towards lower capitalisation. Unfortunately, the race to the bottom has already begun again, for two reasons: the shift from rules to standards reduces observability, and there are more areas of national discretion.

Standards are not contractible. Another regulator's standard can only be observed by observing both the formulation of the standard and every decision and the information used to give content to the standard in every case. Low regulatory and supervisory standards are therefore easy to disguise, as the IMF has observed. In the new world, peer pressure will have less disciplinary effect than in more easily observable, rule-based regimes such as the 1988 Accord. And markets have neither the information nor the incentives to punish those inadequately supervised.

The number of areas in which national regulators are to choose between different options has jumped sharply. National discretion is useful only when Basel Committee members cannot agree on a single approach, and so by a revealed preference argument, they can be expected to use that discretion differently. National discretion is equivalent to a hole in the international regime. A national discretion checklist recently published as a companion to a Basel Committee survey lists 44 areas of national discretion. Arguably, it no longer makes sense to say that member countries are joined with one Accord.[20] When it comes to Pillar 2, there is little desire for coordination. Institutional arrangements and attitudes to supervision differ widely across countries, and there is little common understanding of the role and purposes of supervision.

The thirteen jurisdictions represented on the Committee are therefore likely both to diverge and to become more lax. If the current degree of harmonisation is optimal, this laxative divergence must be costly.

The final problem is excessive faith in disclosure requirements. The modern rationale for bank regulation is based on asymmetries of information and externalities. Banks know

more than their depositors and regulators, and less than their borrowers. Disclosure requirements is that they reduce the asymmetries.

Some disclosure requirements are almost certainly beneficial. There is a strong case for improving disclosure standards in most countries. Weak accounting and disclosure standards undermine the effectiveness of all three pillars. Barth, Caprio and Levine (2001) also find that regimes with higher levels of bank information disclosure have significantly lower levels of government corruption.

However, that since the production and processing of information is costly, the optimal disclosure requirement is finite. Furthermore, disclosure cannot correct for all the market failures. Banks are large, and impose extra costs when they fail. These costs are borne by creditors deemed worthy of protection (depositors), and by the economy in general. This last aspect is often neglected by those promoting disclosure. It is implied that those to whom bankers shift risk will require compensation if they are adequately informed. However, if all participants in the economy suffer indirectly from a bank failure, transactions costs may rule out such an outcome even under full information. Nordic countries suffered a banking crisis in the early 1990s in spite of a high level of disclosure.

Disclosure requirements, therefore, cannot by themselves correct for all externalities. Moreover, some asymmetries of information are inevitable. Banks exist as agents for depositors in lending to firms that cannot provide credible information on their financial health. As Eichengreen (1999) says, "it is unavoidable that borrowers should know more then lenders about how they plan to use borrowed funds. This reality is a key reason why banks exist in market economies. Bank fragility is inevitable."

Disclosure may not have the desired disciplinary effect. A supply of accurate and timely information is necessary, but not by itself sufficient to discipline bankers (Karacadag and Taylor, 2000). There are several steps in the process of market discipline, and all may fail.

First, market participants must change behaviour in response to new information. Lamfalussy (2000) reports that bank lenders ignored relevant information in the public domain, notably BIS statistics showing a build-up of external debt and a shortening of its maturity, for some time before the Asian crisis hit. (The 1996 *BIS Annual Report* noted that Thailand had become the biggest debtor in the world.) They must acquire, process and act on information. This is costly – and may be subject to increasing marginal costs – and so participants will not act hyper-rationally but with 'bounded rationality'. Satisficers use rules of thumb. Participants must also have the incentive to acquire and process information, and so they must believe themselves to be uninsured; such a belief would be irrational in many countries. Furthermore, particularly among those with only a small stake in the bank's survival there are externalities to monitoring and incentives to free ride. Indeed, one reason why not all credit is allocated through the market is that banks do not free ride in the monitoring of their own private loans; and one rationale for regulation is that the regulator acts as a monitor on behalf of depositors.

Secondly, the market price of bank liabilities must reliably reflect participants' judgements of the 'fundamental' risks of the bank, rather than estimates of other people's judgements. Market efficiency requires that there be traders unconstrained by liquidity constraints or risk-aversion willing to trade against noise traders. Even when the market

disciplines, it does not necessarily do so beneficially. Markets are driven by expectations about average opinion. There is no reason to assume that 'average opinion' should become more stable with more information. In fact, more information can reduce heterogeneity among participants. Market shifts are associated with increasing agreement among participants. Homogeneity can be the enemy of stability and of liquidity. Anything that aids coordination can induce instability, and information can do that. A 'sunspot' run on a solvent bank is an example of coordinated market discipline. Morris and Shin (2002) argue that, while more information always helps those playing a game against nature (making a decision under uncertainty), it does not necessarily do so when players have some private information and when players' best actions are complementary to others' best actions. In such cases, public information has two roles: it provides information about 'fundamentals' (eg a bank's risks); it can also provide a focal point for players' beliefs. Agents second-guess each other as they try to herd, and it is rational for them to do so. Market participants react to public information not only by revising their estimates of fundamentals, but also by revising their estimates of others actions, which also depend on public information. As a result, they place too much weight on public information, and they overreact to noisy public signals. For some parameters, Morris and Shin find that social welfare is decreasing in the precision of public information.

Market discipline is also procyclical. It has a deflationary impact in bad times. If there are some in the market who trade on short-term information, perhaps constrained by short-term liquidity, market discipline will be volatile. Informed traders should then trade not only on long-run fundamentals, but on their expectations of noise traders' behaviour. In good times, the market disciplines those, like PDFM, unwilling to acquire inflated shares in companies that have never produced a profit.

Regulators are well aware of the problem of overreaction when it comes to suggesting that their own assessments of banks (CAMELS ratings, individual capital requirements) might be published. In Europe, the latest draft directive (European Commission Services, 2002) Article 128 states that individual capital requirements above the minimum shall not be published. The IMF/World Bank assessments of countries financial sectors are not generally published, for the same reason.

Thirdly, for bank managers to respond to market discipline by reducing risk, their personal welfare must fall with the price of the bank's liabilities. This requires strong corporate governance standards.

In the new regime, market participants will be required to understand each bank's risk measurement system and, in comparing banks' risks, somehow correct for differences in reporting systems. They will also be expected to use the soft information required in Pillar 3 to correct for supervisors' different standards. The Basel 2 disclosure requirements embody an optimistic view of the benefits of greater disclosure.

To summarise, in its reliance on market discipline and on internal risk estimates, the new framework relies too much on the absence of market failure. This is intellectually incoherent. It is market failure that justifies regulation. And in its reliance on supervisory judgements, the framework is not robust to government failure.

3. The new Basel Accord and developing countries

The supply of external funds

A change of regime is likely to affect bank lending in at least three important ways: price, maturity, and volatility. The three are connected. Because lenders can withdraw costlessly from short-term debt, the change in the supply of credit in response to a shock is greater if the debt is short-term. So short-term debt generally carries liquidity risk. On the other hand, since the term structure of rates is on average upward-sloping, it is usually cheaper to borrow short-term.

The new Accord is likely to change the *cost of external borrowing* for many governments and banks in developing countries. Risk weights for sovereign or interbank lending in the 1988 Accord are based on OECD membership, and on external or internal ratings of credit quality in the new regime. In the new approaches, loans to some countries, notably Turkey, will attract higher risk weights than they do at present. On the other hand, borrowers in highly-rated countries outside the OECD such as Botswana will benefit.

That is not an unintended side-effect. The changes are designed to improve banks' incentives to distinguish between different levels of risk and thus to allocate credit more efficiently. It is desirable that borrowers should face incentives to improve their credit rating rather than to join the OECD.

Most G-10 banks lending across borders will use the IRB approach, and so it is this approach that is the more important for analysing external effects. Changes in funding costs can be estimated using a toy model commonly used in prudential regulation. We assume that capital requirements bind. The price of lending (the credit spread) changes by an amount equal to the minimum capital requirement multiplied by the change in risk weight multiplied by the difference between the cost of capital and the cost of other funding.

In the IRB approach, the risk weight is a function of four variables. The function is concave in probability of default (PD); linear in effective maturity (M); and proportional to loss given default (LGD, or 1 minus the recovery rate) and to exposure at default (EAD). Estimating the impact on funding costs requires assumptions about M, LGD and EAD, and on banks' internal ratings. Powell (2002) circumvents this last problem by taking banks' external ratings of banks, and assuming that banks' internal PD estimates are equal to the historical annual PDs for each rating category. He maps the implied PDs on to the IRB risk weight function published in January 2001 (BCBS, 2001a). Assuming that the marginal cost of equity is 13%, that the maturity is 3 years and LGD is 50%, he estimates that BB-rated sovereigns in Zone B will pay 57 basis points more, and B-rated sovereigns 320 bp more when borrowing from banks on the IRB approach.[21]

The IRB risk weight function was revised in December 2001, and again in the technical guidance for the QIS 3 study. It is now flatter and produces lower risk weights, and the difference is especially pronounced at high PDs. This means that more borrowers receive a lower risk weight than they do now; others receive a lower increase. Furthermore, in the foundation IRB approach the average maturity has been lowered to 2.5 years from 3 years and the unsecured LGD from 50% to 45%. Table 1 sets out the change in the cost of funding for borrowers currently receiving a risk weight of 100%, borrowing at 2.5

years' maturity and assuming an LGD of 45% and using the same methodology and PD figures as Powell. Under the new approach, all corporates and Zone B sovereigns rated at rating *notch* BB (Ba2) or better should enjoy a fall in the cost of bank borrowing at a maturity of 2.5 years (or more, for reasons to be explained shortly). Nearly two-thirds of non-OECD countries that receive a long-term foreign currency bond rating have a rating of Ba2 or better.[22]

Table 1: LGD = 45%, maturity = 2.5 years, EAD = 100%, current risk weight 100%

Rating	PD (%)	Risk weight (%)	Change in cost of funding (bp)
AAA	0.00	14.8*	-89
AA	0.00	14.8*	-89
A	0.03	14.8	-89
BBB	0.20	44.8	-57
BB	1.40	110.8	11
B	6.60	202.9	107
CCC	15.00	307.2	216

* Except for sovereign exposures, the minimum estimated PD permitted is 0.03%.

Banks, however, usually borrow and lend within the banking system at short maturities, and the current risk weight scheme for banks is different. In the 1988 Accord, lending in foreign currency to Zone B banks at maturities of up to one year receives 20% risk weight; lending over one year 100%. In the new IRB approach, the effective maturity is generally subject to a floor of one year.[23] At maturities between 1 year and 2.5 years, we may expect the term structure of credit spreads to be upward sloping (see below). If we assume a maturity of 1 year, an LGD of 45% and an EAD of 100%, we can see that a larger proportion of banks than sovereigns can expect to see an increase in their cost of funding.

Table 2: LGD = 45%, maturity = 1 year, EAD = 100%, current risk weight 20%

Rating	PD (%)	Risk weight (%)	Change in cost of funding (bp)
AAA	0.00	7.7*	-13
AA	0.00	7.7*	-13
A	0.03	7.7	-13
BBB	0.20	31.2	12
BB	1.40	92.0	75
B	6.60	184.6	171
CCC	15.00	289.5	280

Note that this model overestimates the price impact in either direction, because capital requirements do not entirely bind. For example, the term structure of credit spreads is not explained by the prudential regime. This is particularly important where the model produces a forecast of large increases; the current price is more likely to reflect marginal economic capital in such cases. The model also says nothing about quantities, which vary more when credit is rationed.[24]

There are three further reasons to expect that these estimates will overestimate funding costs. First, the estimate ignores the possibility that the lending bank may count some provisions against the expected loss portion of capital requirements (BCBS 2002c, 66), the effect of which becomes significant at BB or worse. Secondly, banks on the advanced IRB approach may use significantly lower LGDs; if so, their risk weights will fall proportionately. Third, different banks will produce different estimates of PD and banks are likely to borrow from those with PD estimates below the average.

There are two possible biases in the other direction. First, these estimates ignore capital requirements for operational risk. Secondly, for sovereign PDs, there is a bias in the opposite direction, since the PD mapping uses corporate default experience; low-rated sovereigns have higher PDs than low-rated corporates in the same rating category.

Some have expressed concerns that low-rated borrowers will be priced out of the market (Griffith-Jones and Spratt, 2001, Powell, 2002). The price impacts are very much lower under the newer IRB approach, but increased capital requirements may still exacerbate credit rationing. Nevertheless, this is consistent with two hypotheses: the new approach will overprice the credit risk on riskier borrowers, or the current approach underprices it. Both may be true, but the latter is hard to reject.

Others have noted that, where there is more than one approach to credit risk, adverse selection will operate to the benefit of borrowers and to the detriment of regulatory objectives. The IRB and standardised approach risk weight curves intersect. Banks on the IRB need to hold less capital than banks on the standardised approach for high-quality loans and more for low-quality loans. Selection may well have a powerful effect within G-10 countries. IRB banks will accumulate high-quality portfolios and SA banks lower-quality portfolios; capital requirements for such concentrated, poor-quality portfolios are likely to be insufficient. Selection could also reduce the cost of borrowing from G-10 banks. However, the supply of cheap credit to low-rated borrowers in developing countries will be limited, since most internationally-active G-10 banks will be expected to use the IRB approach.

The second potential impact is on the *maturity* of financial flows. The Basel Accord favours short-term lending to non-OECD banks. Interbank lending of up to one year (in foreign currency) receives a 20% risk weight, lending over a year 100%. If the Accord has changed behaviour, therefore, it will have shortened the maturity profile of lending to non-OECD banks, increasing these borrowers' liquidity risk.

It is not easy to establish how much effect this incentive has had on lending behaviour. The Bonte Report (BCBS, 1999c) made pairwise comparisons between OECD and non-OECD countries and found only weak evidence that the Basel short-term subsidy distorts the maturity of lending among higher-rated borrowers. Another interesting phenomenon is that, as a percentage of BIS banks' claims on developing countries, short term debt

rose by nearly 18 percentage points from 1989 until 1995, falling only after the Asian crisis. However, other plausible explanations are available. It is individually rational for banks to lend shorter-term to weaker borrowers, in order (*cet. par.*) to increase their probability of exit. The growth of trade financing may have shortened maturities. Short-term bank lending has often received priority in international rescues (eg Mexico in 1995, Sweden in 1992).

Yet banks would be unwise to ignore the capital rules entirely, not merely if they are capital-constrained, but if they might be capital-constrained in the future (ie unless the shadow price of regulatory capital is zero, taking into account uncertainty over future capital and risk-weighted asset paths). One piece of evidence from a different credit market that maturity differences affect lending behaviour is in the profusion of 364-day facilities, which is difficult to explain by other hypotheses.

It was widely argued after the Asian crisis (eg IMF 1998; Council for Foreign Relations, 1999) that the Basel rules should be amended to discourage the build-up of excessive short-term lending and so reduce the probability of liquidity crises among borrowers. However, despite the near-consensus that the 1988 regime's reward for short-term lending is problematic, the new regime will continue to reward short-term exposures in several ways:[25]

- Option 2 for banks[26] includes a carve-out for bank lending of less than three months' original maturity.[27]
- In the standardised and foundation IRB approaches, committed facilities of less than one year original maturity receive 40% of the capital requirement of committed facilities of over one year.
- Banks using the advanced IRB framework for corporate lending, as well as banks using the foundation IRB approach in a jurisdiction where the supervisor so decides, will be *required* to incorporate explicit maturity adjustments. This adjustment will be made using the mark-to-market methodology, which is steeper than the default mode;[28] it is especially steep for lower-quality borrowers.[29] Banks using the maturity adjustment will therefore prefer to lend short-term, particularly to developing country borrowers. [30]
- Regulators have discretion to require banks to make the maturity adjustment in the foundation IRB approach.
- At national discretion, regulators may lower the risk weights for highly-rated specialised lending exposures, provided they have original maturity of less than 2.5 years.

The effects are not easy to gauge at this stage: they depend on the proportion of banks in each country using each approach, on regulators' choices about maturity in the foundation IRB approach, and on the extent to which capital requirements affect behaviour. Regulators have not yet made their choices public, although they have had to give indications to their banks completing the QIS3 questionnaire.

In the standard approach to interbank lending, the carve-out applies at a lower maturity than that in the 1988 Accord. This is likely to lower the proportion of lending that is

below a year; it is also likely to increase the proportion of lending that is very short-term, so that the impact on bank borrowers' liquidity risk is ambiguous.

The fact that the choice of whether to have a maturity adjustment in the foundation IRB approach is left to discretion indicates that different jurisdictions will make different choices. I expect that large US banks will apply a maturity adjustment, probably by virtue of being on the advanced IRB approach; German banks will not.[31] This could have several effects:

- The term structure of credit spreads could be affected, becoming more concave. If regulatory capital determines the price of interbank lending, US banks will offer a steeper term structure than German banks. The two will cross at 2.5 years. The price of credit will be the lower of the curves. This is another example of adverse selection, operating to the benefit of borrowers.
- Banks using the maturity adjustment may acquire a large share of short-term lending (below 2.5 years) and banks on the other approach may have a larger share of lending at more than 2.5 years maturity. In this case, US banks will play greater roles in funding reversals. This could have political implications.
- External bank lending is to some degree geographically specialised (Hawkins, 2002). Those countries for whom American banks are large lenders may experience greater incentive to borrow at short maturities than others such as eastern Europe, where Germany is an important lender.

Incentives to lend short-term will be stronger when regulatory capital is binding, typically when the home country is in recession; and if borrowers are downgraded in a host country recession, the slope of the credit spread against maturity may increase.

The third impact is on the *volatility* of flows. Private capital flows are cyclical and unstable. The proximate cause of crises is a sharp reversal in net private capital flows. Reversals of private capital flows as a proportion of GDP amounted to 12% in Mexico 1981-3, 6% in Mexico 1994-95, 20% in Argentina 1982-83, and 7% in Chile 1981-83 (Ocampo, 1999). Along with portfolio flows, short-term banking lending is the easiest to reverse. Bank lending, which is largely short-term, comprises the largest component of these shifts. Short-term debt flows from BIS banks[32] to developing countries swung from an inflow of $43.5bn in 1997 (this total much reduced by outflows in the second half of the year) to an outflow of $85bn in 1998.

Private capital flows to developing countries have remained low ever since. Direct equity investment has remained surprisingly constant in nominal terms, although the share of FDI to developing countries as a proportion of global FDI has fallen. Portfolio flows have been positive but small. But the external claims of BIS banks have fallen every year and the flow of cross-border bank lending to emerging economies has remained negative. This is no doubt partly due to the effects of a fall in import demand in developing countries, but if credit is rationed it is primarily driven by supply: the World Bank suggests that much of the drop results from supply constraints.

Hawkins (2002) suggests that, while some of this fall is cyclical, some of it may be structural. This drop in bank lending has been broadly offset by an increase in lending in domestic currency by subsidiaries of BIS banks (Hawkins, 2002). Cross-border bank

lending is almost entirely in foreign currency.[33] Subsidiaries are likely to be funded locally in local currency, so that while external financing has fallen, the extent of mismatches has also fallen.

In the new framework, risk weights will be based on ratings that vary systematically over the cycle, lowering capital requirements when credit is plentiful. The new framework is likely to increase the volatility of bank lending flows.

In the standardised approach, risk-weights are based on external ratings. Rating agencies do not adopt a fully 'point in time' approach, but instead seek to avoid excessive ratings volatility by assessing a borrower's ability to withstand a recession. However, ratings migrations retain a systematic component (Monfort and Mulder, 2000; Estrella et al., 2000).[34] For a sample of 20 large emerging markets, Monfort and Mulder (2000) estimate a model of ratings formation based on macro and financial indicators. Simulating the effects of a crisis using loan data from the 1990s, they calculate that capital requirements as a proportion of loans to countries in their sample would have increased by 40% in the second half of 1997.

Most if not all banks lending into developing countries will be on the IRB approach. Banks are required to use one-year ahead estimates of probability of default, "taking a conservative view of projected information", using at least five years' data, and to update the ratings at least annually (BCBS, 2001a). Both the lack of data history and the shortness of the horizon will cause ratings to migrate systematically during a credit cycle, and more frequently than in the standardised approach. The curve mapping ratings to risk weights is steeper in the IRB approach. Therefore capital requirements on a given portfolio under the IRB approach are likely to be more variable than under the standardised approach.

Capital requirements will therefore vary with the credit cycle of the recipient country, and probably with a larger amplitude than in high-income countries. Lower-rated borrowers are likely to face larger cycles in price and credit supply than highly-rated borrowers. (Although the risk weight curve is concave, which would imply the opposite, financially weaker borrowers are more affected by economic cycles, rating migration is more common at high PDs, and the curve mapping ratings to PDs is convex.)

The volatility of flows will combine push and pull factors. Banks using internal ratings will adjust those ratings to the cycle of the recipient country. At the same time, the availability of funds will also depend to a greater extent than now on the lender's domestic credit cycle, exacerbating the likelihood of contagion due to common creditor effects. International lending is somewhat specialised (Spanish banks lend disproportionately to Latin America, German to central and eastern Europe, Japanese to Asia) and so common creditor contagion is most likely to be regional.

The Committee (BCBS, 2002b) promises to control cyclical effects by introducing a stress testing requirement for banks using the IRB approach. "Banks adopting an IRB approach to credit risk will be required to perform a meaningfully conservative credit risk stress test of their own design with the aim of estimating the extent to which their IRB capital requirements could increase during such as stress scenario. Banks and supervisors will use the results of such stress tests as a means of ensuring that banks hold a sufficient capital buffer under Pillar Two of the New Accord." Clearly, for this mechanism to

affect lending behaviour, supervisory review must have a strong disciplinary effect. In most, if not all countries, this is highly improbable.

In summary, bank lending from industrial countries is still likely to be weighted towards the short-term, and may be even more volatile. Ocampo (1999) argues that for all national policymakers to implement policies that insure themselves individually against shocks is less efficient than an international regime that pools insurance. For example, holding reserves to back private-sector fx liabilities attracts negative carry and lowers growth; it would be more efficient for a pool of reserves to back fx liabilities in several countries. From this perspective, it would be inefficient for industrial country rules to encourage behaviour among lenders that increases fragility among borrowers in developing countries. Krueger (2000) argues that, since foreign-currency liabilities in the banking system cause financial crises and balance of payments crises to be linked, and since the policy prescription in the one case is incompatible with the prescription in the case of the other, the two kinds of crises should be kept separate by reducing such liabilities. Krueger argues that restrictions should be placed on industrial country banks lending to developing countries in a currency foreign to the borrower. However, for the foreseeable future, developing countries will have to protect themselves.

Bank regulation in developing countries

Basel 2, if implemented by local regulators, will also affect intermediation by domestic institutions. In this section I shall consider whether the Basel 2 regime is appropriate for the circumstances of developing countries.

There are several differences between high-income and developing countries that are relevant to the prudential regime: in developing countries, the economic climate is riskier and subject to greater uncertainty; financial agents have greater opportunities and incentives to engage in redistributive rather than productive activities; and most have lower skills.

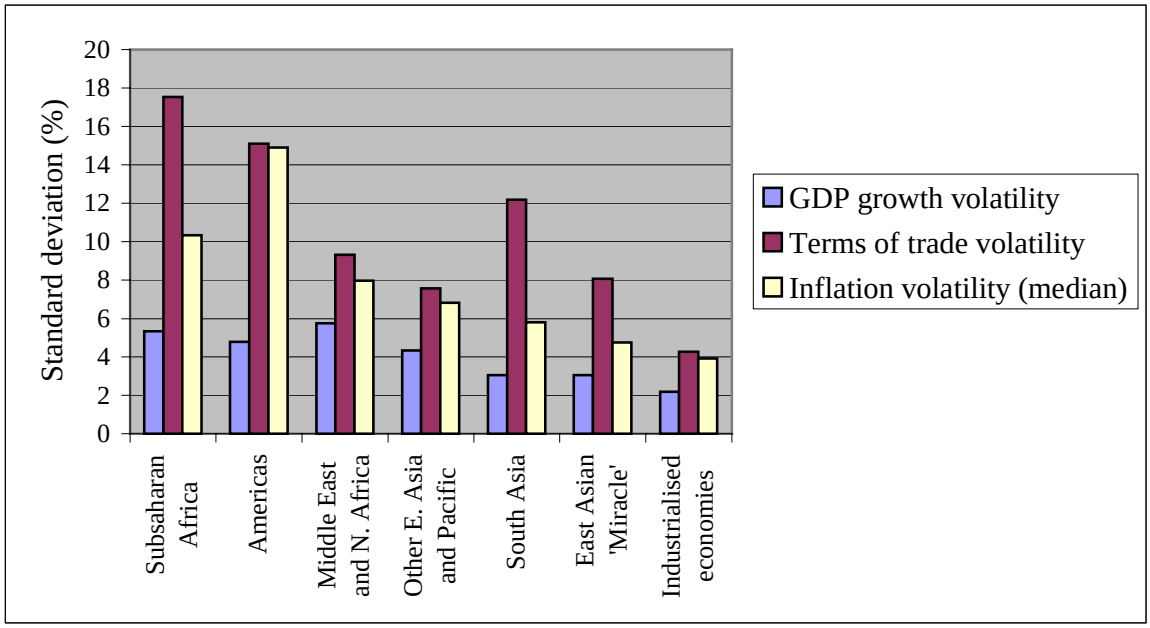
The economic environment is riskier (Chart 1). Particularly in Latin America, inflation has been higher and more volatile. Banks are largely nominal institutions. Inflation surprises in either direction can hurt banks, as Russian and Brazilian banks found when inflation fell following IMF intervention. Real income has also been more volatile. Developing countries are also more vulnerable to external shocks, in the form of shocks to export demand, financial flows, commodity prices, or major-currency exchange rates. Ocampo (2000) argues that developing countries are “business cycle takers”. Developing countries are generally smaller, and typically less diversified in their production of goods and services, and so they are heavily exposed to shifts in the price of important goods (such as those of commodities, which themselves exhibit high price volatility).

Currency and debt crises are more frequent. Small economies’ foreign currency reserves are cheaper to acquire, being small in comparison to the assets of a large international bank. Current account deficits are more volatile. Currency markets are illiquid and small transactions can move prices. More recently, asset market returns have become increasingly correlated with those in high-income countries.

Because the institutions constraining behaviour are weaker, financial actors have private interests that diverge from social interests. Law and its enforcement are often weaker.[35]

Rights in banking law are often less clear, eg the right to enforce title to security in the event of default. Rights that exist in theory may be difficult to assert, because of judicial corruption. Insolvency proceedings often take years. Delhaise (1998) reports that it was common for proceedings in Thailand to take five years.[36] This helps induce norms of non-payment among debtors.[37] Exit processes for banks are often prolonged; during this time 'zombie banks' can multiply their losses, as the Japanese authorities have allowed their banks to demonstrate over many years.

Chart 1: Average volatility, by region 1970-1997



Source: Caprio and Honohan (1999).[38]

Bank regulations are often more generous than in industrial countries. Minimum capital adequacy ratios are sometimes lower: Ghana and Puerto Rico require 6%, Cambodia and Rwanda 5%, St Kitts and Nevis zero. In their FSAPs (see below) the IFIs have found (IMF 2000) that 43% of countries are 'noncompliant' or 'materially noncompliant' with Basel capital adequacy requirements overall;[39] 35% with large exposures requirements; 57% did not have an adequate system for market risks; and 58% do not comply with international consolidated supervision standards.

Regulatory weakness is not usually so obvious. Loan classification requirements are commonly less strict than in industrial countries (other than Japan). In Thailand in 1997, a loan could go 360 days past due before being declared non-performing. Now they are allowed to be rolled over and classed as performing instead. Not only do weak accounting standards weaken capital adequacy standards, they also weaken any standard founded on the capital base, such as large exposures limits.

Most countries have capital adequacy rules that look something like the Accord. A large number of countries also set large exposures requirements and liquidity requirements. However, enforcement of bank regulation is often found wanting (IMF, 2000). For example, Indonesia, Malaysia, Thailand and Korea had all strengthened prudential

regulations in the years prior to the 1997 crisis. Many banks, however, did not in practice satisfy their capital adequacy requirements or fx limits (Brownbridge and Kirkpatrick, 2000; Caprio, 1998).

Weak enforcement may be caused by low supervisory resources, collusion, or forbearance by the regulator, but it often arises for want of support from the government or judiciary. The powerful in poorer countries frequently do not want banks to be supervised or regulated. Developing countries, particularly in Asia, often have very concentrated ownership structures, with a few very powerful networks controlling banks, large sections of the non-banking private sector, and having large influence over the government. Since bankers are powerful, politicians impede regulators if given the opportunity. One means of doing so is to restrict regulators' powers to require information to be disclosed, to conduct visits, to close down an institution or to find the management unfit. Another way is to give supervisors legal liability for their actions so that they take no action. IMF (2000) comments that, if the regulator is not independent, all other Core Principles (see below) are of limited use.

Constraints on the behaviour of government officials are generally fewer. Perceptions of government corruption are much higher, on average, in developing countries.[40] State intervention is therefore more likely to be malign. Governments in poor countries often implement policies that do more to reallocate wealth from sectors of the population or from future generations than to increase wealth, and this severely restricts development (Easterly, 2000).

Bankers, too, have more undesirable incentives. The state often intervenes in credit allocation; it implicitly or explicitly guarantees banks and major corporate borrowers; disclosure requirements are weaker and less well enforced; bankers have more opportunity to lend favourably to friends, or to themselves; market discipline is weaker because information is worse and investors are insured; even if capital markets do exercise market discipline, corporate governance weaknesses may mean that bankers do not need to respond.

Borrowers also face less discipline. Banks acquire and process less information about their borrowers; they have weaker 'informational' capital, and so credit is allocated less efficiently. Many banks can survive without a 'credit culture' (Delhaise, 1998). Non-performing loans, while widely under-reported, vastly exceed those in high-income countries, yet banks' loan spreads often do not reflect the true credit risk and banks are chronically unprofitable.

Finally, all financial actors - bankers, market participants, supervisors, auditors - require skills. Skilled labour is in general more scarce. Banking too, is a skilled task.[41] Skill scarcity in a highly uncertain environment contributes to banks' systematic underprovisioning and inefficient credit allocation. Skill scarcity undermines all three pillars.

In summary, the external risks are higher, skill levels are lower, bankers' incentives worse and government intervention more likely to fail. Other things equal, therefore, banks are more likely to fail. Bank crises are more frequent in developing countries (IMF, 1998). Lindgren, Garcia and Saal (1996) found that three quarters of IMF member institutions suffered banking crises between 1980 and 1995. They are also more costly.

In their share of financial intermediation, banks are more important in developing countries, non-bank intermediaries less. Caprio and Klingebiel (1997), Honohan (1997) and Lindgren, Garcia and Saal (1996) find that banking crises are more costly in developing countries. Banking crises are also more costly because they are more often associated with currency crises (Kaminsky and Reinhart, 1998/9). The context in which supervision and regulation take place is therefore different. The three pillars are to be applied in circumstances where significant loss of wealth is more likely and where banks perforce take greater risks.

Pillar 1

In this section I discuss the new standardised approach to credit risk, deferring discussion of the IRB approach to the next section. I ignore operational risk and market risk.

The new standardised approach uses credit assessments produced by External Credit Assessment Institutions (ECAIs) – rating agencies, national credit registers and export credit guarantee agencies. The latest risk weights for loans to corporates are set out in Table 3 (from BCBS, 2002c[42]).

Table 3: standardised approach risk weights

Residential mortgages	Performing	40%
	90 days past due	100%
Others	AAA, AA	20%
	A	50%
	BBB, BB, unrated	100%
	B, CCC, D; 90 days past due	150%
	'Retail'*	75%

* Each exposure must be below €1m and must represent less than 0.2% of the total non-mortgage retail portfolio.

The standardised approach is not free of problems. Ratings measure the wrong risk for regulatory purposes; they do so imperfectly; and they cover few borrowers.

Monfort and Mulder (2000) report three criticisms of the use of sovereign ratings for regulatory purposes: they are insufficiently tested; they measure default risk, not unexpected loss; and they are procyclical. They find that ratings lag indicators of crises, and so could be destabilising. (I would add that rating agencies attempt to measure credit quality for private investors, not the social cost of default.) Ratings also respond asymmetrically, falling soon after the crisis hits but staying low well after recovery. Estrella et al. (2000) find that downgrades are serially correlated but upgrades are not.

There are also agency problems with the use of ratings. Rated institutions put pressure on ECAIs to grant favourable ratings, and they shop around. Two defences are reputation and minimum regulatory standards. The ECAI's investment in reputation provides the buttress against such pressure and against rating shopping; but the agencies' reputations are less valuable than they were before recent large bankruptcies, and the demise of

Andersen shows that reputation may not provide sufficient defence against perverse incentives. Only recognised ECAIs may be used in the determination of capital requirements. Recognition of ECAIs is left to national discretion. The standards are subjective, and regulators may abuse national discretion by lowering standards in order to reduce capital requirements. Governments, particularly where they own the ECAI, may wish to manipulate ratings of well-connected borrowers. Following the lead of the Basel Committee,[43] a publicly-owned ECAI could be used direct credit to political favourites.

There are also difficulties more specific to developing countries. Very few borrowers in developing countries are rated. Many countries receiving private sector external bank funding also have a sovereign rating, but most banks and almost all companies do not. Powell (2002) reports that of 157 sovereign borrowers, 96 are unrated. Of the rest, the ratings are evenly split between BBB or higher and BB or lower. On the corporate portfolio, Powell (2002) reports that 150 firms in Argentina have public ratings, out of 80,000 in the central bank's credit register. Estrella et al. (2000, Annex IV.A) aggregate the ratings provided by four large rating agencies.[44] The results are presented in Table 4.

Table 4: number of companies rated in 2000 by the four largest agencies, by region

	Banks	Industrials/corporates
USA	757	3,297
Europe, Middle East and Africa	862	520
Asia	274	318
Latin America	175	215

Since the risk weights below 100% are available only to high-quality borrowers more commonly found in industrial countries, the standardised approach will apply a risk-weight of 100% to almost all non-government lending in most countries. The Committee's second impact study (QIS2), reported that 81% of the corporate exposures of reporting banks from outside the G-10 and EU were unrated (a 100% risk weight), while 5% would have attracted a risk weight of 150%.

Because of their coordinating role, changes in public ratings may have strong effects on lenders' behaviour. If there are more than two ratings, the standardised approach chops the tails; if there are two, the lower rating is used. There are three agencies with pretensions to global coverage, but few developing country borrowers are rated by all three. Much of the time the risk weight may be sensitive to a single rating.

The credit risk mitigation rules provide less incentive to hedge credit risk in developing countries. In the standardised approach, only highly-rated debt instruments, listed equities, gold and some units in collective investment undertakings qualify as eligible collateral. Since there is much less rated paper, the stock of collateral is limited. There are also fewer eligible guarantors.

The new framework will exacerbate the cyclicality of domestic bank intermediation and may increase capital requirements. Domestic banks on the standardised approach will be subject to cyclicality in the capital required on a given credit portfolio, which may exacerbate economic cycles. Those on the IRB approach will be subject to more. On the

standardised approach, most rating changes do not change risk weights, but when a ratings migration does affect a risk weight, it does so markedly. There are large 'cliff faces' between buckets.

Banks in developing countries inevitably have poorer-quality loan portfolios. Segoviano and Lowe (2002) estimate that over the period 1995-1999 the annual *ex post* probability of default in the *highest-quality* of the five rating categories used by banks in Mexico was 0.89% - equivalent to a BB rating from Standard and Poor's – that is, below investment grade. Banks in developing countries are also often highly exposed, via collateral, to property and equity prices, and asset prices are also volatile. Furthermore, correlations between credit risk inputs are likely to be higher because banks have less opportunity to diversify.

To estimate the impact on banks' capital requirements would require actual bank portfolios.[45] The fourth impact study ('QIS 3'[46]) should shed more light on this question.[47] About fifty countries are said to be taking part. To estimate the true impact on banks' capital requirements would also require an analysis of how bank portfolios will change in response to the new regime, which is outside the scope of this paper and of QIS 3.

Despite the difficulties of the new approach – which is very unpopular with many developing country regulators - the current 'Club' approach is indefensible. It is unfair and inefficient. The Committee has used the most obvious, and perhaps the only, approach related to credit risk that was simple, available, and even broadly related to credit risk. However, the new approach undeniably works better in high-income countries.

Pillar 2

Supervision is more important in the new regime: first, it has its own pillar, so that regulators must conduct supervisory review in order to comply fully with Basel 2; second, supervision is necessary for IRB approval. The Basel Committee is clear that supervision is a non-negotiable part of full implementation. Thus, the industrial-country model is to be exported. Mishkin (2001) suggests that the best thing for the world is for others to copy the US model: "Bank supervision in countries outside the United States would also help promote a safer and sounder financial sector by adopting similar measures [to CAMELS ratings] to ensure that risk management procedures in their banks are equal to the best practice in financial institutions elsewhere in the world."

To have beneficial effect, the supervisor must assess risks skilfully, and choose among many possible actions to induce a desirable response from the bank. Supervision must be a discretionary activity. "The supervision of banks is not an exact science, and therefore, discretionary elements within the supervisory review process are inevitable" says the Committee (2001b).

The results of self-assessments and assessments by the IFIs show that there are widespread supervisory weaknesses in many countries (IMF, 2000). Many supervisory agencies lack monetary resources, political independence, power to exercise discretion, clear decision frameworks, reliable information, strong management and skilled staff. Thus, although the market failures are more severe, supervisory intervention is less likely

to correct them. Of the first 26 Core Principles Assessments, 43% were noncompliant or materially noncompliant with the Core Principles requirement for adequate resources and independence; 39% with the requirement to have powers to take remedial action; 38% with the requirement for legal protection for supervisors; and 30% with the power to exchange information with other supervisors. 54% did not comply with the requirement to have a framework for remedial measures. The IFIs' assessments of the 25 Core Principles in 26 countries are summarised in Table 5 (source: IMF, 2000).

Table 5: Results of Core Principles Assessments

No. of CPs with weak compliance	No. of countries
14-19	6
10-13	6
6-9	9
0-5	5

Numbers of staff are generally high. In the World Bank database, Thailand reports 503 bank supervisory staff, of whom 350 have ten years or more in bank supervision. These are statistics to fill supervisors in high-income countries with envy. Russia has 3,200 bank supervisors, or 2.4 per institution. Korea reports an average tenure of 17 years, the Philippines 25. Vietnam and Indonesia report 3 professional bank supervisors per institution; Malaysia 4.7; India 5 to 6; Korea 5.7; the Philippines 7; Thailand 8 to 12. By comparison, the US reports 0.07[48], the UK 0.66 and Germany 1.

Supervision is a skilled task, however. Despite efforts by the Financial Stability Institute, G-10 and EU member countries, and the IFIs to provide technical assistance,[49] skills remain in short supply. Nouy (1999) reports that a survey of 120 regulators, conducted at the Sydney ICBS in 2000, showed that skill shortages – in regulatory agencies and in banks – were seen as the most acute problem. Caprio (1996) argues that it would take five to ten years to train developing country supervisors to industrial country standards. The stock of people able to judge credit risk systems is, to varying degrees, low,[50] and the wage rates are correspondingly high: in roughly descending order: commercial banks, industrial country regulators, developing country regulators.[51] While all regulators struggle to recruit sufficient skilled people, the problem is worse in developing countries. This was the second most acute problem highlighted in Nouy (1999). It is takes more skill to supervise, and to enforce standards, than to enforce rules. The relative costs of implementing a discretionary regime are higher in developing countries.

Many supervisors do not possess sufficient political independence to supervise, or if they do, they rely on government for financing. Supervisors may bear personal liability (see World Bank database); this is contrary to Core Principle 1. They may have insufficient power to require information to be disclosed, to conduct on-site examinations, to require a bank to take action, to replace the management, or to close a bank.

In many cases the restrictions on supervisory authority may be quite justified, since supervisors may have no incentives to exercise discretion benevolently. Unless

supervisors have clear incentives to use their powers correctly, they should not get them. The effects of enhanced discretion are likely to include favouritism (domestic over foreign, big over small, state over private), inconsistency, overall weakness (including failure to close weak banks), mistakes, and corruption.

Barth, Caprio and Levine (2001) find that high levels of supervisory power are associated with higher levels of government corruption.[52] "For most countries, greater supervisory powers go with greater corruption and worse outcomes for bank development." This effect, however, is much less marked in countries with open political systems (eg those with open and clean elections). Recommendations to enhance the role of supervision rely on a 'helping hand' model of government. Their evidence suggests that supervision is more commonly employed in countries where the government's hand is 'grabbing', and that there is a causal relationship between the two.

The same authors also find some evidence that supervision is ineffective. More generous deposit insurance is strongly associated with bank fragility and probability of crisis. Increasing supervisory power does not mitigate this effect, whereas better-developed property rights and greater political openness do. The official supervisory power indicator is not related to bank development, bank efficiency or the level of non-performing loans,[53] nor are other supervisory variables such as supervisory independence. Powers to declare bank insolvency, or to forbear do not appear to have significant effect.

Developing countries must invest limited resources in mitigating financial fragility while trying to benefit from increased participation in global capital markets. Where regulators are not supported by government and judiciary, the return on investment in supervisory capacity is likely to be negative.

It is this context that the IRB approach must be evaluated. Implementing the IRB approach would waste resources. The IRB approach requires a large diversion of scarce resources by regulators from labour-intensive to skill-intensive regulation. With weaker enforcement, there is less to stop banks manipulating their risk estimates. Acquiring and managing reliable information is also an enormous challenge for the best banks in high-income countries. Most banks are likely to find it difficult to acquire sufficient reliable information.

Banks in developing countries make (and should make) riskier loans than those in high-income countries. The function that maps banks estimates of risks on to risk-weights is steeper than that implied by the standardised approach and the two curves intersect.[54] For poorer-quality loans, the IRB approach produces higher capital requirements. The IRB approach should produce higher capital requirements (if the standards were strictly enforced) than the standardised approach for most banks in developing countries.[55] For that very reason, regulators and banks in many developing countries may be discouraged from using the IRB approach. However the IRB approach is also an opportunity to lower standards invisibly; if this is the case, capital requirements under the IRB approach will not necessarily be higher, and that is particularly likely to be the case under the advanced IRB approach.

Segoviano and Lowe (2002) examine the actual internal ratings and default experience of a group of Mexican banks between 1995 and 1999. Each uses the same five-point scale. Using default experience, the authors construct ratings transition matrices and default

matrices, and use these to construct capital requirements under a foundation IRB and standardised approach. The cyclicality estimates are clearly an upper bound, since Mexico experienced a crisis in the sample period, but that is partly what capital requirements are for. Using the flatter December 2001 IRB risk weight curve, they find that the average risk weight on loans in the corporate portfolio would have risen from 10% in 1995 to 17% at the end of 1996 under the IRB approach. They also found that the capital requirements of banks with higher-quality loan books varied by more in proportionate terms, but less in absolute terms. Some banks' capital requirements would have doubled. Although the amplitude of the effect is 30% less than it was using the January 2001 risk weight curve, it is still highly cyclical. It is likely that such large changes would have reduced credit availability during the recession, since external lending and non-bank financing are imperfect substitutes. The standardised approach is less cyclical.

There is also the problem of arbitrage between the two approaches to credit risk, causing adverse selection. Banks will wish to move only higher-quality credits on to the IRB approach. If banks must move all or nothing, banks with higher-quality portfolios will wish to move; banks with lower-quality portfolios will not. Banks on the standardised approach may over time accumulate risky assets, underpriced by the standardised approach. Countries with banks largely on the standardised approach could find that lending to higher-quality borrowers is conducted mainly by foreign bank branches on the IRB approach while domestic banks collect lower-grade assets.

Implementing the IRB approach on top of a weak infrastructure could increase the financial fragility of an economy and its banking system, and exacerbate misallocation of resources. It would be deregulation in the guise of regulation. For precisely this reason, countries not supportive of regulation, where banks are very powerful, may be tempted to instruct their regulators to implement it.

Since standards have no content before they are enforced, verification must focus on the *process* by which they are enforced. It will be easy for supervisors to set different standards for different banks, while going through the same processes. In fact, it is difficult, even for those who want to, to enforce consistency. Supervision relies on soft information that cannot be reliably communicated; consequently, supervisory decision-making must be decentralised. Standards provide an opportunity for bureaucrats to allocate favours. Big banks could be preferred over small, for example, because of their greater influence. Closet protectionists may apply higher standards to foreign banks than to domestic banks without fear of discovery.

The IRB approach, therefore, would not represent strengthened regulation, but *deregulation*. In developing countries, the scope and pace of deregulation is an important policy choice. Many countries are being urged, for good reason, to strengthen their regulatory capacity before embarking on liberalisation, 'strengthening' their systems by deregulating could be disastrous.

Pillar 3

In section 2, I argued that disclosure requirements could not, even at best, be relied on to correct all the market failures in banking. The arguments against relying excessively on Pillar 3 are much stronger in the context of developing countries. Information is more

costly to produce. Capital markets are smaller, thinner, and easier to manipulate. And with weaker corporate governance arrangements, banks are more likely to ignore such market discipline as may arise.

Conclusion

Basel 2 is not good news for developing countries. Flows of external bank borrowing are likely to be even more volatile, and their maturity is likely to continue to be largely short-term. Developing countries will remain vulnerable to external liquidity shocks, and must protect themselves.

A single model designed by and for a subset of the richest countries is unlikely to be appropriate. More than ever, the new model requires reliable information, skilled supervision and strong enforcement (Brownbridge and Kirkpatrick, 2000). As a result of greater volatility in the economic environment, the Basel framework offers a lower degree of protection in developing countries. Furthermore, it is likely that rules will be more weakly enforced in poorer countries, particularly if those countries were not involved in the production of the rules and do not entirely believe in them. In their study of 107 countries, Barth, Caprio and Levine (2001) find no evidence "that the best practices currently being advocated by international agencies are best, or even better than alternative standards, in every country".

In fact, many regulators in developing countries consider the new framework unsatisfactory. I shall argue in the next section that they have limited choice but to implement it.

4. Is the Basel Accord voluntary?[56]

The official position is that countries are under no obligation to comply with an Accord to which they have not contributed, but are encouraged to do so. In practice, the incentives to comply are stronger than is generally recognised. Over a hundred countries claim to have implemented the Accord. There are several possible explanations:

- Official sector discipline
- Market discipline
- Market access requirements
- Reputation
- International spillovers
- Production efficiency

Developing countries are likely to have the same incentives to implement Basel 2 as they did the 1988 Accord. The World Bank (2001) comments that "the international community is likely to expect all banks to adopt and implement the Basel Committee's recommendations." The Basel Committee is also encouraging widespread adoption. It hopes that the new Accord's "underlying principles should be suitable for application to banks of varying levels of complexity and sophistication," without specifying what those principles might be. It encourages and "expects" widespread adoption.

Official sector discipline. Before agreeing to release emergency funds, the IMF agrees a reform programme with a recipient country. The World Bank also attaches conditions to its Financial Sector Adjustment Loans. Since the Asian crisis, a consensus has emerged that microeconomic factors are causally related to, and may be predictive of, vulnerability to crisis. The IFIs have established frameworks for assessing microeconomic and 'macroprudential' factors. The two IFIs, with expert banking supervisors usually in tow, assess financial sector vulnerabilities and identify development priorities during their Financial Sector Assessment Programs (FSAPs).

In these assessments they have regard to international standards. The international standards of bank regulation are the 25 Core Principles for Effective Banking Supervision (BCBS, 1997).[57] The IFIs increasingly conduct Core Principles Assessments during FSAPs, as well as at the beginning of technical assistance missions (IMF, 2000).

Most of the core principles are true principles: they are broadly worded and can be satisfied in different ways. This, for example, is the seventeenth core principle:

> Banking supervisors must have regular contact with bank management and thorough understanding of the bank's operations.

The sixth core principle, however, refers to the Basel Accord, and so functions substantively as a very detailed rule:

> Banking supervisors must set prudent and appropriate minimum capital adequacy standards for all banks. Such requirements should reflect the risks that banks undertake, and must define the components of capital, bearing in mind their ability to absorb losses. At least for internationally active banks, these requirements must not be less than those established in the Basle Capital Accord and its amendments.

IMF emergency programmes now have regard to CPAs and so are now likely to include regulatory conditions, or benchmarks. The stand-by facilities for Turkey[58] and Uruguay[59] are recent examples.[60]

The World Bank has routinely attached regulatory and supervisory conditions to financial sector adjustment loans since the LDC debt crisis of the early 1980s. Cull (1997) reports that conditionality has even moved away from improving prudential regulations since 1990 and towards bank supervision and recapitalisation. Since 1990, 79% of financial sector adjustment loans have included conditions related to bank supervision (63% before 1990), and 71% to prudential regulation (88% before 1990). Nevertheless, prudential regulation conditions still rank third behind supervision and recapitalisation, and well above, for example, privatisation or the removal of directed credits.

Conditionality has - and is intended to have - incentive properties. Regulators know that their choice of policies influences the availability of finance. Conditions are likely to include compliance with to international capital standards, because of Core Principle 6. But the relationship between core principles implementation, Basel 2 implementation and official support remains unclear. Most of the core principles relate to supervision, and so there is clear overlap between the CPs and Pillar 2. A member of the Core Principles Liaison Group (Simanovskiy, 2001) has pointed out that there may be conflict, and suggested that the CPs should take priority.

The status of the Basel Accord also depends on the attitude of the Bank and Fund. Will they interpret the sixth core principle rigidly? Do they think that copying the Accord is the best thing a developing country can do? They are under no obligation to do either, and it is not clear whether they will. IMF staff offered an equivocal response to the Basel 2 proposals (IMF, 2001), which suggests that they might prefer to focus on the Core Principles. The World Bank's attitude to Basel 2 is difficult to interpret. Its response to the Basel Committee (World Bank, 2001a) appeared more positive than the IMF's. The Bank is "concerned that non-G10 countries might lack the proper incentives to adopt and implement [Basel 2], which would be an unwelcome outcome." At the same time, much of the empirical research into which regulatory and supervisory tools actually work has taken place at the World Bank; the researchers express caution about the benefits of exporting the rich-world model (eg World Bank, 2001b).

Finally, while there are some incentives to apply *at least* the international minimum capital adequacy standards, another international institution could potentially impose a ceiling. For members of the World Trade Organisation, the General Agreement on Trade in Services and (for most) its Annex on Financial Services are binding. Standards can be used as non-tariff trade barriers for protectionist reasons, and so GATS disciplines WTO members to reduce such practices over time. WTO members' practices may be challenged by other members and dispute resolution is binding. WTO members are only likely to find themselves under challenge if they adopt prudential measures that differ from international standards. Caught between Basel and Geneva, countries could potentially be forced to adopt the new Accord and nothing but the new Accord. In practice, GATS and the Annex as yet provide little constraint on countries' choices of prudential regimes; however, this may change in the future (see below).

Market discipline: it is often suggested that markets push governments into complying with international standards. Funding costs for sovereign borrowers, and probably for their financial institutions, may be lower if they comply with international norms.

However, in practice this need not be quite the strong incentive it seems. Market participants, including rating agencies, may assess the financial infrastructure of the country of incorporation, but not by looking at international standards. FSF (2000) found that market participants were usually not aware of international codes, and ignored them if they were. Unlike the IFIs, market participants have few incentives individually to devote resources to assessing standards of implementation. On-site CPAs take up several person-weeks and still cannot identify forbearance. Market participants cannot in general use the IFIs' assessments, since they are not intended to be published[61] (although assessed countries have the right to publish). At most, therefore, markets will encourage countries to *claim* to implement international standards, but will not encourage them to implement standards properly.[62]

Market access requirements for banks may also encourage adoption of Basel 2. The Basel Concordat recommends that host countries should allow foreign banks to branch in only where the home country supervision is adequate. Subsequent agreements – the Core Principles and the Basel Accord – have effectively defined 'adequate'.

London is the biggest international banking market and the favourite destination of non-G10 banks. The UK FSA bases its market access decisions on its assessments of whether

home country regimes apply the Basel Core Principles.[63] The FSA is also bound by European law. The Second Banking Co-ordination Directive requires that standards applied to third country banks (ie branches) be no more favourable than those applied to banks from other EU member states, and this has been taken to include capital adequacy standards.

In the US, the 1991 Foreign Bank Supervision Enhancement Act, amending the International Banking Act, allows the Federal Reserve Board to grant a US banking licence to foreign banks only where they are "subject to comprehensive supervision or regulation on a consolidated basis by the appropriate authorities in its home country." The Economic Growth and Regulatory Paperwork Reduction Act of 1996 permits the authorisation of banks not subject to comprehensive regulation where "the appropriate authorities in the home country of the foreign bank are actively working to establish arrangements for the consolidated supervision [of the bank]."[64] The Fed's approach to judging other supervisory regimes appears from published material to be quite flexible.

In the EU, 'equivalent' is not fully defined; nor, in the US, is comprehensive regulation.[65] This is appropriate: there is no unique adequate prudential regime, and it would be difficult to specify its characteristics if there were. In view of this lack of precision, the safest way for a developing country to demonstrate *equivalent* standards to the rich countries is to adopt (superficially) *identical* standards. It is perhaps for this reason that the Reserve Bank of New Zealand, while giving up on almost all regulation and supervision,[66] has retained an 8% minimum capital requirement, even though it considers this requirement to be unnecessary.

It should be noted that rich-country regulators that judge certain regimes to be inadequate to permit the authorisation of branches will usually allow banks based in those countries to establish local subsidiaries. The FSA, for example, has recently reviewed the adequacy of many overseas jurisdictions and required a number of banks from countries where regulation is judged to be inadequate to incorporate locally, or exit. Establishing a subsidiary and submitting to host country regulation may be more costly, but is not infinitely so.

Signalling effects will encourage the adoption of Basel 2 and more. Some countries that do not want to adopt the IRB approach may be tempted to do so for signalling reasons. If there is some reward for adopting the sophisticated approach, and the cost of implementing the sophisticated approach is lower for a 'sophisticated' country than for an 'unsophisticated' country (eg, it does less harm), then countries may be able to signal that they are 'sophisticated' by implementing Basel 2 or a model-based approach within Basel 2, even if doing so achieves no prudential good. Such signalling is inefficient.

The inducement to signal may arise from official rewards, as above, but it could be more diffuse. Some countries may use a signal of sophistication to attract business to their jurisdiction, or the signal could merely form part of a general strategy for engaging with international structures, with no defined short-run benefit.

International spillovers: The Basel Accord was created because there are cross-border spillovers in bank regulation. Bank regulators suffer from low regulatory standards in other countries and they gain from cooperating. Moreover, even if they adopt standards at least as tight, governments that implement a different regime from the international

standard are vulnerable to adverse selection. Banks in each regime collect the risks treated more favourably by that regime. Banks with access to both regimes can arbitrage between them. (The situation is much more complicated under the new regime, which itself offers a menu of possible approaches.)

Efficiency: Regime design is subject to fixed costs, and so a single global regime has the lowest aggregate production costs. Skill scarcity means that many developing country regulators have few staff devoted to policy, so that the costs of regime design are large relative to resources. It is more efficient to buy off the peg than bespoke.[67] Such efficiency advantages do not impose a legal *obligation* on developing countries. Nevertheless, the consumer may be offered less choice than is optimal by the monopoly producer.

Enforcement is also a cost, and skill scarcity is also relevant here. An international regime is also cheaper to enforce: regulators can, and do, contact each other in difficult cases. Rules are less skill-intensive to enforce than standards, and can be communicated across borders. Here, the relative advantages of copying Basel 2 may be lower than they are under the 1988 Accord: regulators can copy the rules for free, but they cannot copy the implementation of a discretionary regime for free.

In summary, there are powerful reasons to opt into the international framework – and even more powerful incentives to claim to have done so. It seems that most policymakers outside the Basel countries do not regard the Basel Accord as soft law. They do not feel that they have a choice. Many countries will feel obliged to implement Basel 2 regardless of whether they believe it works. What matters most is the IFIs' attitudes in assessing and funding, and high-income countries' approaches to market access. Conditional financing from the IFIs is likely to take into account countries' expected progress rather than their actual positions (although CPAs do not); outside the US, market access rules merely refer to the strength of a regime, not to its rate of progress. The IFIs may be able to avoid requiring excessively rapid implementation, but the EU's market access rules may still encourage regulators to move too quickly.

The actual extent of any sanction for non-compliance therefore remains unclear. However, this lack of clarity does not reduce the obligation on risk-averse governments. In this uncertain situation, superficial compliance offers a safe harbour, while governments striking off on their own risk sanction. Many policymakers outside the Basel countries do not feel that they have a choice. Many will feel obliged to implement Basel 2 regardless of whether they believe it works. Whatever its superficial form, the Accord has, for developing countries, become something near to customary international law. Enforcement mechanisms are actually weaker for the Accord's signatories.

The element of obligation places a moral responsibility on the lawmakers, even if they are not themselves the enforcers. It means that issues of procedure, accountability and legitimacy are bound to come to the fore. The capital framework is still, essentially, designed by the G-10 countries for a subset of banks in those countries. The developing world has no representation on the Basel Committee. If the Accord is indeed an obligation or anything like it, there is a governance gap. The international regulatory framework is more nearly a colonial regime than official rhetoric admits.

The Committee's position is summarised in BCBS Secretariat (2001): "The Committee has consulted with supervisors worldwide in developing the new framework and expects the New Accord to be adhered to by all significant banks within a certain period of time". Indeed, the process of consultation cannot be faulted, unless it is for excess. Developing country regulators have been invited to comment, and their comments are posted on the BIS website. Comments have also been received from the CPLG's Working Group on Capital, a group combining G-10 and non-G10 regulators. The Committee Secretariat has also held a number of meetings with regional groups of supervisors.

However, consultation is not enough, and the second part of the Secretariat's comment does not follow from the first. The Committee is under no obligation to take notice, and in general it has not. The one example of change in response to non-G10 concerns that comes to mind is the introduction of Export Credit Agency assessments for sovereign ratings in the standardised approach.

The Accord's governance problem might matter less if the Accord were suitable for application in developing countries. It is not. Indeed, one might argue that it is the flawed process that produces the flawed content. Joseph Stiglitz has recently argued that the failure of globalisation to deliver its potential gains to low-income countries is "almost a predictable outcome" of the arrangements for economic decision-making.

The Basel Committee has recently recognised that developing countries may face problems implementing the new regime (BCBS, 2002b). However, it continues to believe that internationally-active banks in developing countries should be subject to a Basel-equivalent regime, and it regards Pillars 2 and 3 as essential. Its solution is to suggest that developing countries may take longer to implement the new regime, and may apply a different regime to domestic banks. This is not a solution. It does not materially reduce the incentives of the developing country regulators to implement Basel 2. Furthermore, the distinction between domestic and internationally-active banks is not useful in this context. Core Principle 6, like the 1988 Accord, draws a distinction between internationally-active banks and others. When international competitive equality is the prime motivation for international agreement, such a distinction is a natural one. However, the institutional weaknesses that will cause the new regime to be ineffective do not suddenly disappear when a bank crosses borders.

A genuine solution would involve a broadening of representation or a reduction of obligation. The former is not without precedent. The Core Principles were designed by the Basel Committee's Core Principles Liaison Group (CPLG), which has representatives from the Basel Committee, the IFIs and developing countries. Although the group is not truly representative of non-G10 countries, it undoubtedly owns the Core Principles. In contrast to the Basel 2 proposals, the Core Principles are widely accepted among non-G10 regulators.

The combination of obligation and an inappropriate framework is potentially costly. In the remainder of the paper, I shall examine what developing countries could do to improve the process and content of prudential policy.

5. Elements of a prudential regime

The Basel Committee hopes that the new framework's underlying principles should be suitable for wide application. However, the Committee has not identified them. Since the market and government failures are qualitatively the same, at a high level of abstraction it should indeed be possible to identify underlying principles that apply to all.

In order to identify some principles for prudential regulation it is necessary to specify some objectives; and in order to specify the objectives, it is necessary to identify what goes wrong in free banking markets.

The two main reasons for prudential regulation are externalities and asymmetric information. Furthermore, the two market failures interact. For example, banks combine sequentially-rationed demand liabilities with illiquid assets, and so are vulnerable to runs, which may be socially inefficient (Diamond and Dybvig, 1983). Financial markets are driven by information, but also by expectations and opinion. Even well-informed agents are subject to large changes of expectation and opinion (Ocampo, 1999; Eatwell and Taylor, 2000). Banks runs and liquidity crises are possible because a large number of creditors, whose actions affect each other, cannot co-ordinate their actions and may collectively change their beliefs about others' actions. This can lead to inefficient liquidation, an outcome to the benefit of no creditor. Improving depositor information – commonly justified on the grounds that it reduces information asymmetries – does nothing to solve this common agency problem and could even increase instability (Morris and Shin, 2002).[68] Because banks are individually vulnerable, they are also vulnerable to contagion. A bank failure may cause the failure of another bank, by direct losses, rational updating of depositor information, or pure panic. Banks are also vulnerable to common shocks. Bank runs – whether efficient or inefficient, cause or consequence – are not uncommon in developing countries.

Limited liability is one important source of shareholder/manager moral hazard. Limited liability allows shareholders to put risks to depositors and other creditors. However, in the case of banks, the risks are passed more widely. The failure of a bank can cause gridlock in the payments system, a negative shock to the money supply, liquidity shocks to everyone, knock-on insolvencies etc. A bank failure may cause loss to all members of society, not just to creditors. Uninsured creditors have incentives to impose market discipline on their own behalf, but are hampered by partial information and free riding incentives. In any case, they do not have reason to protect the system as a whole. Banks are likely to wish to take on excessive risk. For example, high gearing allows shareholders to maximise the value of this put option; consequently, banks may prefer to operate with little capital. Differential tax treatments and convex management remuneration structures may strengthen this preference. Banks with little capital have reason to take large gambles to maximise their expected payoff, even those with low expected returns.

Banks intermediate between borrowers and lenders, but they also allocate credit. The efficiency of allocation is likely to affect the growth rate. Bankers' lending decisions can be distorted ways that reduce the efficiency of the allocation of credit. When the borrower is connected to the shareholder or manager, the shareholder or manager is likely to offer more favourable terms than he would offer to an unconnected party. When banks

make loans to companies that they or their managers own, there are irresistible incentives to roll over debt - and increase risk to bank shareholders and others - rather than foreclose. Hence, loans to connected parties can increase rapidly. For the same reason, connected parties have reason to seek financing from a connected bank. Connected lending is particularly common when the bank is part of a commercial group, as in Korea. Shareholders who are also borrowers have less, or nothing, invested in the success of the ban, and can have incentives to 'loot' from the bank's other creditors (Akerlof and Romer, 1993). Bankers may have reason to lend corruptly or fraudulently to cronies. Banks may also be used by their owners to launder money or to gain political influence.

Since banks are socially-important institutions and because free markets fail, banking is usually subject to state intervention. Much of this intervention exacerbates moral hazard problems and worsens incentives. Banks in most countries have close links with government. Neither party favours free entry and exit. The state may direct banks to lend to favoured creditors (such as itself, or state-owned companies), who may be *de facto* free of the burden of repayment. Intervention may in theory correct market failures in the credit market (a rationale invented some time after states began directing lending), but in reality often means that credit is allocated to negative-return projects and used as an instrument of patronage. Directed banks have less incentive to compete or to operate efficiently. They have little or no incentive to manage risk. State–directed lending therefore tends to increase financial fragility. State interference can also create expectations of an implicit guarantee. Large corporate borrowers often have significant political influence and may also benefit from a guarantee. Companies needing funds must compete for political influence, rather than in the market for funds.

Ownership by the state, or government officials or their cronies brings similar problems. Caprio and Honohan (1999) report that, in 1992, the Venezuelan government's response to a failing bank was distorted by the fact that the governor of the central bank was a major shareholder. Banks with an explicit state guarantee have little reason to economise on capital or liquidity, or to allocate credit to its most productive uses. State banks are often run by people skilled in networking but not in banking. While state ownership can allow banks to correct for some market failures in theory, in practice state ownership is associated with lower levels of per capita income growth (La Porta et al., 2000) and positively associated with corruption (Barth, Caprio and Levine, 2001).[69]

Even in countries where banks are free to allocate credit, state protection may increase risk-taking. Deposit insurance achieves important social goals. However, it limits market discipline. Generous deposit insurance is strongly associated with bank fragility and with the probability of crisis (Barth, Caprio and Levine, 2001). To the extent that resources allow, governments also offer liquidity insurance (lender of last resort) and, implicitly, solvency insurance. Since bank failures are costly at the time, governments have short-run incentives to support failing banks even at the cost of long-run moral hazard. Commitments not to do so are not renegotiation-proof. In 1977 the Chilean government promised not to bail banks out, and then broke its promise by guaranteeing the insolvent Banco Osorno.[70]

Having identified some failures, let us now determine the objectives. First, note that a prudential regime should not aim to eliminate bank failures. Debt is a device for discipline. If the probability of crisis is affected by debtors' actions, there is a general

trade-off: reducing the cost of financial crisis to debtors *ex post* will tend to increase the moral hazard of debtors, and so increase the *ex ante* probability of crisis. No regime can or should prevent bankers, regulators and auditors from acting on their own initiative, or from using the private information that they must inevitably possess. Moral hazard is inevitable, and institutional structures designed to limit it are bound to be of value. Some risk-sharing is needed, and banks must be allowed to fail.

The same goes for crisis. Banking crises generate enormous wealth destruction. On the other hand, the threat of catastrophe reduces moral hazard by governments, causing them to think twice before following policies likely to lead to crisis. The incentive property of this threat is, of course, why countries with experiences of high inflation adopt a nominal peg or currency board, as Argentina did in 1991. Indeed, some argue that, since sovereign debt cannot be easily enforced, it is the threat of coordination failure among creditors and resulting output loss that allows sovereign lending to take place. Policymakers need to balance the cost of crisis with the benefit of deterring strategic default.

It is extremely difficult to specify prudential objectives in a precise way. Should the aim be, as some suggest, that the aim should be to minimise the cost to the deposit insurance corporation or the taxpayer? Mimicking bank behaviour in a free market without state insurance? Aligning the interests of bankers with creditors? None of these is wholly persuasive. The cost of bank failure is not restricted to fiscal costs. Another objective could be to equate the marginal costs of regulation with its marginal benefits. This makes more economic sense but is not operationally useful. A more operationally useful version would be to pick a desired probability of default or expected loss. Some private sector associations have suggested that policymakers should target a probability of default. This regime would be based, no doubt, on banks' own models, and would be very sensitive to model risk. But targeting default probability would ignore the fact that institutions of different size pose different systemic risks. An expected cost target is better, but assumes that the government is risk-neutral.

In this case, unquantifiable objectives may be superior to precise objectives likely to distort. In the UK, for example, the statutory objectives are to provide appropriate protection for the consumer and to preserve confidence in the financial system.

Caprio and Honohan (1997), reviewing the common elements of banking crises, argue that "a strategy for prudential policy must address three main weaknesses: the impossibility of fine-tuning bank safety margins in the uncharted territory that is banking in the developing world; the need to provide insulation against the large shocks to which these economies are prone; and the lack of enforcement that results from the concentration of political power in many such countries." In the same spirit, I propose the following principles:

1. Recognise that systemic risk is endogenous
2. Reward success and punish failure
3. Beware booms
4. Use simple, verifiable rules
5. Use continuous rules and hard limits in combination

6. Preserve domestic autonomy
7. Join forces

The first five would benefit regulators in high-income countries.

1. *Reductionism and holism*

The banking system is made up of financial institutions, some of which are very large. These institutions interact directly, and affect each other indirectly by their behaviour. The system has properties, such as market liquidity and interconnectedness, that are hard to understand by observing an individual bank.

Yet regulators wishing to limit risk in the financial system intervene primarily at the level of individual banks. There is nothing wrong with this: it is easier to regulate banks individually. However, the focus on individual banks encourages regulators to make the convenient assumption that other things (such as the behaviour of other banks) are equal. The optimal policy for each institution depends on the state of other institutions. One bank's risks may be tolerable, but not if all institutions bear the same risks.

The containment of systemic risk is not the only objective of regulation. Retail financial consumers are also protected, because expecting them to monitor on their own behalf is both unrealistic (they do not have the skills or the incentives as a result of monitoring externalities) and inefficient (economies of scale in monitoring), and also because they can vote. So the same regulatory tool – capital requirements, say - is used to achieve two objectives.

The two objectives may conflict. The transfer of risk from Bank A to Bank B may protect the depositors of Bank A but make the system as a whole less stable.[71] A bank may diversify its risks by acquiring a broker-dealer; yet may reduce diversification opportunities in the system by increasing the links between credit and capital markets. Where the both current regulatory approach and the Basel 2 framework are weak is in recognising the conflict. Because the *ceteris paribus* assumption makes the job of regulation easier, the depositor protection objective in practice dominates the system stability objective:

- Liquidity requirements are supposed to protect the banking system and minimise demand for state liquidity insurance; but they are applied to single banks, and each bank satisfies its liquidity requirements by relying on other banks (or on market liquidity, which is provided by institutions primarily funded by banks). Banks may appear liquid at the individual level while the system itself is not. Banks usually suffer liquidity problems together. This makes it very difficult to identify an optimal policy for individual banks.
- In the current Accord, exposures to non-banks receive a lower risk weight than lending to non-banks. This increases the amount of interbank lending and trading, which increases the joint probability of failure in the system (by direct contagion) and hence increases the value of the implicit state guarantee.
- Capital requirements reward banks for hedging. Banks usually hedge by playing pass the parcel with other banks. The system as a whole, though, can only hedge outside the system (albeit imperfectly[72]). Since hedges outside the system are

imperfect substitutes for hedges within it, the system is unlikely to be able to hedge outside without violating the 'fairly-normal-period' assumptions implicit in capital requirements. For example, many Thai banks hedged their fx mismatches in the early stages of the 1997 crisis. Supervisors of individual banks may have been relieved, but the same actions exhausted the Bank of Thailand's reserves and placed downward pressure on the baht. Similarly, capital requirements for market risk assume that a bank can hedge or close out within ten days. Even if the entire banking system were able to close out its positions within ten days, price impacts (not to mention liquidity) would be very severe. A similar problem arises with interest rate risk. Capital requirements for interest rate risk in the banking book would encourage banks to reduce this risk; their ability to do so collectively is limited.

- By trying to reduce the procyclical effects of the new Accord, the Committee has implicitly recognised the principle that individual optimisation can produce a sub-optimal outcome at the system level. Yet it has more recently decided to introduce a maturity dimension into the IRB approach, in which the slope of the maturity function is calibrated from a market that is assumed to be exogenous. The *ceteris paribus* assumption is bound to be violated. It is by no means obvious, not least to the German authorities, that a banking system that undertakes little maturity transformation is socially efficient.

- BIS banks lending to developing countries lend almost exclusively in hard currency. Where the borrowing does not generate income in the same currency, the borrower then assumes the fx risk. However, just as banks may more efficiently bear and pool liquidity risks than their customers, it is likely that large banks may more efficiently bear the fx risks than their customers. In both Basel regimes banks are rewarded for lending in their domestic currency. Arguably, an efficient system would penalise them (eg Krueger, 2000).

- The supervisory attitude towards risk management is almost wholly reductionist. From an individual perspective, it is often clear what constitutes sound risk management, and supervisors try to encourage this kind of sound risk management (see, for example, BCBS, 2000b, Principle 17). Quick reactions are certainly better than slow; the more rapidly a bank can exit from a deteriorating situation, by selling, hedging, or calling default, the better. Tight covenants and cross-default clauses protect the individual lender. The new capital framework for credit risk mitigation contains a 'root t' rule by which capital requirements are inversely related to the frequency with which collateral is revalued or remargined. The reductionist reasoning is sound: a bank that revalues frequently actively manages its credit risk, and is more likely to take action before matters get out of control. However, the system is less stable if all banks call for the same kind of margin simultaneously than if some or all banks manage their credit risk passively.

- Two banks with the same failure probability but different size present the same risk to their depositors but different risks to the system. Prudential rules do not correct for this.

One approach to systemic risk is to improve the macroprudential information available to regulators and central banks. It is macroprudential data that is most likely to give warning to policymakers of a build-up of financial imbalances.[73] Such data include not only the traditional 'twin deficits' macro data, but also flow of funds (eg who is borrowing what), financial asset prices (and credit spread data), credit expansion, data on banks' health and profitability, external liability and maturity profiles. Nevertheless, aggregate data do not contain all the information needed to identify risks: an increase in bank interconnectedness, for example. Davis (1999) therefore recommends stress tests both of financial institutions and of the financial system. And macroprudential surveillance is only useful if action is taken in response to identified risks; such action is likely to be at the level of individual banks (in increasing liquidity in the system, for example, the central bank must in practice trade with individual counterparties). Macroprudential surveillance is likely to complement rather than replace traditional prudential tools.

How might capital requirements and supervision at the micro level adopt a macroprudential perspective? One solution to these difficulties would be to hand the pursuit of the two objectives to two separate bodies. The agency responsible for systemic risk would have no alternative but to tackle these thorny problems. Both bodies would probably want to set capital and liquidity requirements, and banks would be subject to two kinds of capital requirement, possibly with different methodologies and different data requirements.[74] Regulation would be more costly; and, given the risk of coordination failures and confusion, there is not guarantee that it would be more effective.

A second solution would be to use different tools for different jobs. Liquidity requirements could be used for the banking system, capital requirements for depositors. However, both tools can be used to achieve both objectives; there are significant economies of scope.

A third approach, less neat but more practical, would be to continue to use prudential tools for both purposes, but to take greater account of the systemic issues (Tumpel-Gugerell, 2002). This would not merely apply to capital requirements, but also to supervision. Regulators need to take a more strategic view. They should consider what kind of system is desired from the perspective of systemic risk. Should banks also provide non-banking services? Who should bear liquidity risk? Who the fx risk? Who should be taking the long-term view and who the short-term?

Since our understanding of systemic risk is imperfect, regulators must rely on judgement and rules of thumb. I offer three suggestions:

- Rules could reward banks more for hedging outside the system (equivalently, tax the passing of parcels). In capital requirements, one way of doing so would be to do the opposite of what the Committee does: increase counterparty risk on interbank hedges.[75]
- In framing rules with built-in incentives, regulators should consider what would happen if all banks (or, in CAD3, all banks and investment firms) were to act on the incentives. Would the system be more or less stable? Would each bank actually be safer?

- If self-defeating herding cannot be prevented within the rules, use stress tests to require banks to be able to survive the identifiable risks caused by concentrations of risk in the system.

When it comes to supervision, I shall argue below that developing country regulators should rely on it as little as possible. However, those countries – most notably within the G-10 and EU - that do rely on supervision should radically rethink what they are trying to achieve. If supervisors promote sound risk management aimed at maximising risk-adjusted return on equity, they commit the same logical fallacy as when they contract out capital regulation by using banks' models. From a systemic perspective, it is not at all clear what constitutes sound risk management. *Soi-disant* 'sound' risk management and 'best' practices may be nothing of the sort. The system might even be more stable if banks never remargined, never reassessed their credit risk, never marked to market and never disclosed their net values. Prudential regulation should not be overly responsive to short-term market movements; nor, for the same reason, should supervision.

In summary: **regulators and supervisors should pay more attention to the systemic impact of their interventions**.

2. *Carrot and stick*

Bank shareholders and managers do not bear all the consequences of their risk taking. Without fear of loss, bankers will seek risk. The objective of a prudential regime is to restrain bankers if their appetites for risk are excessive. *Anything* that does that is incentive-compatible. And, since all prudential regulations designed to limit risk-seeking are imperfect, bank managers will seek ways to circumvent them.

One of the most important points in this paper is that risk-sensitivity is not necessarily incentive-compatible; on the other hand, many possible regimes are potentially incentive-compatible. An incentive-compatible regime simply needs a reward and a punishment. Of these, offering punishment is much the harder, and is beyond many governments.

All prudential regulations fail if managers and shareholders do not fear loss. Better to give managers their own reason to manage risks, so that prudential regulations become less necessary. For shareholders and managers to fear failure, they must lose out when things go wrong. Things usually go wrong well before a bank becomes insolvent. Undercapitalised banks with low or negative expected profitability have strong risk-taking incentives. They gamble for resurrection, increasing the eventual costs to others, and in the meantime they distort markets and reduce other banks' profits.

Banks on their way towards this state should be warned away. The recent report by the Basel Committee and certain other supervisors on dealing with weak banks (BCBS, 2002a) lists many standard suggestions as to how supervisors should require improvements in capital, assets, management, earnings, liquidity or risk management. Methods for requiring improvement include routine supervisory suggestions, cease and desist orders, prohibitions on new deposit-taking, requirements to increase provisions, asset sales, and many others.

However, instructions to improve have little effect without threat. More usefully, the report also suggests options for disciplining management and shareholders. Managers

may be replaced, or their compensation cut. "Shareholders should not be compensated for losses when a bank gets into difficulty," says the report. Regulators should be able to require a capital injection (as recently in Turkey and Uruguay), strip shareholders of voting rights (as in Turkey), and prohibit the payment of dividends or interest on subordinated debt.

A further possibility is harsher liability requirements for shareholders, which could be seen as an invitation to recapitalised but without the optionality. Harsher liability requirements could be justified on the grounds that banks impose externalities on others than creditors. Caprio and Vittas (1995) report that some US states in the 19th century applied double liability rules for shareholders, and that bank owners faced unlimited liability in the Scottish free banking era. Esty (1996) finds that US banks in states with higher liability were more indeed conservative in their behaviour.

Similar punishments could be applied to induce failure phobia in managers. New Zealand relies almost completely on disclosure. It is no surprise, therefore, that directors face criminal and civil sanctions for false or misleading disclosures,[76] includes unlimited personal liability for creditors' losses in such circumstances. While this may not be an efficient sharing of risk – who would be a bank director in New Zealand? – the principle that bank managers should contribute towards the social costs is sound.

Ultimately, insolvent or nearly-insolvent banks must be recapitalised, sold or liquidated. Recapitalisation or sale can take place before or after liquidation. While this is easy to prescribe, regulators often fail to intervene in any of the ways described. There are several reasons, but they usually involve time-inconsistency or lack of contingency planning.[77] Punishing banks may be socially costly: the government or its cronies may suffer, confidence in the system may fall, depositors may lose money. At the time, governments and regulators usually prefer banks to be bailed out. Governments very often deny regulators the powers to intervene. Political interference has been an important contributor to crisis "in a remarkably high proportion of cases of widespread banking failure", argue Caprio and Honohan (1999). For early intervention to be possible, regulators should have the legal power to act independently of government and judiciary, and supervisors must be free of personal liability.

Incentives to forbear are greater when bank closure proceedings are unclear, chaotic or prolonged. They are also greater when depositors lose their deposits; while deposit insurance may increase moral hazard, it can have beneficial distributional consequences and is a necessary safety net that helps governments to take firm action with weak banks. Deposit insurance increases moral hazard only among those depositors that believe that the bank will not be bailed out. Consequently, at least for larger banks, deposit insurance may not increase risk-shifting from bank shareholders but merely transfer the risk from depositors to a government better placed to bear it.

Governments often pretend that bad banks can be made good painlessly. A recent idea is to buy shares from banks in order to prop up the stock market and support banks' capital ratios (as the Bank of Japan promised in September 2002), and also to restrict the short selling of stocks. Such measures do not distinguish between good and bad banks, prolong competition from zombie banks and depress profits at healthier ones, and reward bad banks for bad investment decisions.

Regulators may reduce their susceptibility to subsequent seduction by sirens by binding their hands to the mast in advance. The FDICIA regime in the US requires supervisors to close down critically undercapitalised banks, with equity capital less than 2% of assets, unless the regulators and the FDIC agree that other action would be more appropriate. The advantages of such a Prompt Corrective Action ('PCA') regime may be far greater in developing countries than they are in industrial countries. Several non-G10 countries have also adopted PCA regimes.

PCA cannot offer full protection. The US regulators, indeed, regard it as a last resort to be used when more cooperative approaches have failed. It suffers from the usual problems associated with rules. It is necessarily based on simplistic measures of soundness. Optimally, intervention should also depend on the state of other banks. PCA is also incomplete, giving regulators some freedom of choice; it is still, therefore, potentially time-inconsistent. A law, in any case, is not a full commitment, because there exist rules by which laws can be changed. Governments can be expected to repeal laws in times of crisis.[78] (The 'precommitment approach' suffers from the same time-inconsistency problem.) Arguments in favour of PCA are greater where regulators are not independent. But in such places, it is more likely that the government will rip up the rules as soon as they bind. And even without a PCA approach, regulators must plan beforehand how they intend to approach banks that become weak.

On occasion, it may simply be too costly to liquidate a bank. No government, in my opinion, can credibly commit to let all banks fail. A commitment to least-cost resolution (as in FDICIA) is more credible. The state must then minimise the scope and value of its guarantee consistent with its responsibility for systemic stability. If support must be provided, the aim should be (BCBS, 2002a) to achieve legal closure without economic closure. Operations may be transferred to a bridge bank, or to another owner via a purchase and assumption transaction. The state's guarantee should be limited only to more senior creditors. The guarantee may, for reasons of confidence, have to include other banks,[79] but should exclude them where possible. When the entire banking system is insolvent, the state should try to distinguish between banks. It should close the most insolvent and restore the rest to health. Even in cases of solvency support, owners should not generally be bailed out, as Japan's bank owners often are. IMF conditionality could be used to support this principle (perhaps under Core Principle 22). Managers of failed banks should be replaced. Observed examples of ruthlessness increase the credibility of the threat and induce caution.

On the other hand, banks should allocate credit efficiently, and should be rewarded for doing so. The state should at a minimum be careful about intervening in a way likely to reduce profits. The state should avoid financial repression, enforced holding of low-yield government bonds, or loan ceilings at negative real rates. Banks should not be used as special tax sources.

The more profitable banks are, the more prudently they are likely to behave. Banks may make supranormal profits as a result of oligopoly rents, valuable lending relationships, or above-average efficiencies. The capitalised stream of these rents is known as franchise or charter value. These rents cannot all be appropriated by shareholders, and some accrue to managers. The benefits derived from franchise value give managers and shareholders an incentive to stay in business. They must balance the short-term benefits from risky

lending with the long-run benefits of remaining solvent. High-franchise-value banks choose to hold capital and control and diversify their risks (Keeley, 1990). Demsetz et al. (1996) indeed find that US bank holding companies with higher franchise value (measured by an estimate of Tobin's *q*) hold more capital and more diversified portfolios than lower-value banks.[80] Banks with low franchise value will have incentive to evade prudential requirements; banks with high franchise value do not. Indeed, high franchise value can cause bankers to be excessively risk-averse (Milne, 2001). Banks with market power may overcome information asymmetries to allocate credit more efficiently (Petersen and Rajan, 1995).

An increase in competition, by reducing rents, reduces franchise value. Liberalisation, therefore, can have unintended consequences. Banks facing more competition may be inclined to seek more risks. Deregulation is typically followed by an increase in the number of banks and an increasing in risk-taking by banks, and Keeley (1990) ascribes this to the loss of franchise value. The savings and loans crisis in the US, for example, followed the abolition of Regulation Q. Demirgüç-Kunt and Detragiache (1998) find that the effect of liberalisation on bank fragility is worse in countries with less strong institutions. In turn, the health of the private sector, and most of all the banking sector, affects the likelihood of currency crisis. A shock to a weak financial sector is likely to be translated into a fiscal shock; the differences blur in crisis (Pesenti and Tille, 2000). A weak banking sector represents an implicit claim on the state, and the threat of fiscal deficit may then trigger a crisis. Banking and currency crises and trigger and amplify the other (Kaminsky and Reinhart, 1999). Deregulation has increased competition and reduced banks' franchise values.

To some degree, the level of competition can be determined by policymakers – particularly in countries without fully liberalised regimes. The two public interests of regulation and competition should be jointly considered (Ward, 2002b).

There are three obvious ways to restrict competition: control births and deaths, place a floor on prices, and encourage mergers. Encouraging mergers often rewards weak banks or simply creates large weak banks that more likely to be too big to fail.[81] While such a policy avoids the destruction of franchise value, this value is often negative. By creating larger weak banks, a forced merger policy tends to increase social risks. Instead, Hellmann et al. (1995, 2000) recommend deposit rate ceilings (at positive real rates of interest). The number of banks can be restricted by imposing tight entry requirements[82] and, perhaps best of all, by ruthless euthanasia of weak banks, as recommended above.

In summary: **regulators must punish failure and reward success. 'Risk-sensitivity' is neither necessary nor sufficient**.

3. *Boom and bust*

A liberalised financial system is characterised by endogenous booms and busts. There is too much lending, and then too little. In upswings, risks are underpriced, and in downswings, they are overpriced. In credit risk terminology, PDs may be underestimated, while unexpected loss and LGD are almost certainly underestimated. Collateral magnifies cyclical effects. Easy credit encourages asset price inflation; more valuable asset prices can be used to secure more credit, and so on. In the downswing, the borrower's ability to repay diminishes at the same time that the unsecured exposure

increases as a result of falling collateral values. The risks revealed in the downswing are accumulated in the years of fat cows.

These swings are larger in developing countries. The extent to which central bankers should use monetary policy to restrain asset prices is currently a contentious issue following the US equity bubble. Developing countries, arguably, have less room to use macroeconomic tools countercyclically: Ocampo (2000) argues that developing countries have more need to invest in 'credibility' in downturns, which may mean adopting deflationary policies.

One way to limit the incidence of crises, therefore, is to restrain the excesses of the booms (Borio et al., 2001, Ocampo, 2000, Griffith-Jones, 2000). Like a central banker, a prudential regulator with macroeconomic concerns should take away the punch bowl just when the party gets going (in the words of William McChesney Martin). Countercyclical regulatory policy could be used an instrument of credit policy to complement monetary policy for restraining asset price variations or capital flows; or as an alternative instrument in the absence of an autonomous monetary policy.

Even from a narrow regulatory perspective, there is some justification for countercyclical policies. Risk weights that do not vary over the cycle may themselves be somewhat procyclical in effect, because they tend to bind in downswings (Blum and Hellwig, 1995). Backward-looking provisioning can also be procyclical. However, the new regime will exacerbate cyclicality of domestic lending and increase the volatility of external flows, increasing the benefits of a countercyclical policy.

One approach to damping the cycle would be to rely on supervisory suasion. The Basel Committee, having flattened the IRB risk weight curve in December 2001, is designing an approach in which supervisors will encourage banks to take into account their ability to survive a full cycle. They will do this by examining and discussing the results of a stress test designed by banks (BCBS, 2002). This is likely to have little or no effect. If markets are disciplining banks for being prudent, bankers will ignore supervisors. Since supervision is likely to be ineffective in developing countries (as well as in the G-10), this approach cannot be recommended. Asking individual supervisors to account for the cycle is to ask for inconsistency; it is also unverifiable. A single rule, applied by all supervisors to all banks, that varies over the cycle is less reliant on supervisory benevolence. A cyclical approach would be a form of centralised discretion, which would be easier to control and hold accountable.

The remaining solution available to bank regulators is to tighten prudential regulations during upswings. There are two immediate questions: which regulations to use to lean against the wind? And how to do it?

Any prudential regulation could potentially be applied countercyclically, separately or in combination. Ocampo (2000) suggests that, during booms, regulators could place restrictions on credit growth, increase reserve requirements, increase deposit insurance rates, tighten debt classification requirements and increase collateral haircuts.

Such a policy could only be a partial solution, of course. A regulatory system that relies on current market prices will be unstable in response to price shocks. There will also, inevitably, be policy errors. Nevertheless, four rules could be used alone or in

combination: capital requirements (or provisions), collateral haircuts, liquidity and fx requirements.

- Cyclical capital requirements would be the tool to attack excessively easy bank credit, or credit growth. A related suggestion often made by the Banque de France is to require that banks use cyclical provisioning. Spanish regulators require that banks partly provision on the basis of through-the-cycle expected losses. In theory, this provisioning is to be done using statistical models developed by the banks and recognised by the supervisor; in practice, so far, banks have used a kind of standardised approach regulatory risk-weighting system.[83] If the regulators were to rely on banks' models, this would be a form of IRB approach. While this approach would improve on the current IRB approach by attacking the cyclicality problem, it would be subject to all the other problems of models. Banks and regulators would need to be trusted, and there is little reason why they should be. Alternatively, a regulator that sets minimum provisioning levels for banks could raise those levels during good years and lower them during bad.

- Collateral valuation could be used in addition. Collateral magnifies swings. During booms, banks are apt to over-rely on collateral, ignoring the underlying credit risk. Bill White, in comments on Griffith-Jones (2000) reports that in Hong Kong and Singapore collateral recognition falls as the value of the collateral rises. The US Federal Reserve used to use its margin requirements as a policy tool. A cyclical approach to collateral is, unfortunately, not available to all. Banks using the advanced IRB approach will be using their own "meaningfully conservative" LGD estimates, which is not the same as producing estimates that rise during booms. Even banks using the foundation IRB or standardised approach may be permitted to calculate their own collateral haircuts if they have VaR model recognition. However, most if not all developing country banks are likely to be using collateral haircuts set by their regulator; regulators may also apply loan-to-value ceilings, and these too can be varied over the cycle.

- Booms are characterised by excess liquidity, and so regulators could apply tighter liquidity requirements, in the knowledge that liquidity assumptions behind maturity rules will cease to apply. The same applies to fx limits, if the boom is characterised by large external debt inflows. Tighter capital controls are a close substitute, and indeed both Chile and Colombia used their reserve requirements countercyclically (Ocampo, 2000).

The second question is how to do it. An automatic rule could be used. However, such a rule would be hard to design. Some discretion is likely to be better than none. If there is discretion in the mechanism, there is a time-inconsistency problem. Regulators might be tempted to lower regulations excessively during crises (as opposed to lowering standards by weaker enforcement, which is the current norm). The objectives and framework for decision-making should be determined beforehand. A 'Credit Policy Committee' could be allowed to use its discretion in achieving its objectives, with its objectives and powers limited in advance, perhaps with some disclosure of its decision-making. Note that this form of discretion would apply equally across all banks; it does not suffer from some of the weaknesses of the decentralised form of discretion embodied in a Pillar 2 approach to

cyclicality (or a Pillar 2 approach to anything, for that matter). Such a framework would be consistent with a prompt corrective action approach, since the intervention triggers could be varied cyclically.

The minimum requirement could then, perhaps, be lower than 8% at the depth of recession. Capital could then, to some extent, fulfil its primary function as a buffer against loss. However, the minimum requirement should be subject to a statutory floor well above zero:

- a bank should be closed before it reaches insolvency, because of likely overvaluation and the dangers of gambling for resurrection; and
- very low reported capital (whether or not it reflects a genuine capital inadequacy) can provide a focal point for depositors to switch to a panic equilibrium. If creditors monitor capital adequacy, some capital is needed to protect against panic rather than against insolvency.

Any regulation that reacts to market prices is likely to be both responsive and unstable. Regulators have a dilemma. Using market information uses the markets' best estimate of the risks. Ignoring it seems inefficient. However, markets overreact to information, and do so more when regulatory capital depends on current market prices. Regulators responsible for the stability of the financial system should not go about exacerbating instability. Because markets do not always reflect fundamentals and tend to overshoot, regulators should consider slowing the response of regulatory capital to changes in market prices. In order to avoid situations in which a given portfolio is subject to volatile capital requirements, they should behave as if market information is less frequently available than it actually is, or as if market information is produced in smoothed batches rather than continuously (cf Morris and Shin, 2002). One way to do this is to ensure that VaR correlation matrices or internal credit ratings are not updated too *frequently*.[84] Frequent regulatory or public reporting also causes valuations and risk estimates to be updated. If banks report on the same day, they will respond to the same updates at the same time. Higher frequency and synchrony are not necessarily better.

If countercyclical measures are based on market measures, they too should wade through treacle. However, they could be based on macroprudential indicators not dependent on short-term market price variations.

The Basel Committee has yet to form a coherent view of market-induced volatility. It is loth to interfere with banks' own risk estimates and has consciously introduced cyclical capital requirements.[85] On the other hand, it has expressed unease about full fair value accounting, partly because of the resulting volatility of earnings and capital measures.[86] It has also taken steps in the past to limit the volatility of capital requirements: in the 1996 Market Risk Amendment, the capital requirement is the greater of the latest VaR and three times the average VaR over the last 60 days. The latter is almost invariably greater.[87] Finally, the Committee has routinely phased in changes to capital requirements, partly in order to reduce behavioural shocks.

In summary: **by varying rules rather than supervision, regulators should tighten banks' belts in good times and loosen them in bad**.

4. Rules and standards

Rules exist to prevent people from doing harm, but they do so inefficiently, producing imperfect or downright perverse responses to individual circumstances. They are also perishable, since people learn over time how to avoid them. Discretion, benevolently and competently exercised, can potentially produce better responses in each individual case.

Perhaps the main example of obsolescence, subverting all prudential rules in the 1980s and 1990s, is the growth of derivatives. Derivatives transactions have commonly been used to evade regulatory fx limits, for example (see box). Governments' derivatives trades have also allowed them to overstate their fx reserves: in spring 1997 the Bank of Thailand swapped or sold forward $29bn of its $32bn in reserves without disclosing it.

However, rules are not unambiguously inferior to discretion. In practice, discretion may be improperly used. Rules may prevent time-inconsistent behaviour; they can be changed periodically; they are verifiable; and they can be easier to implement. Since they are verifiable, they bind the hands of bankers, but also those of supervisors and politicians. In most countries, therefore, regimes should be primarily based on rules, such as large exposures and speed limits, and even prohibitions.[88]

Brownbridge and Kirkpatrick (2000) argue that it is easier to fill in gaps in the rules than to improve skills or improve enforcement of standards. Hawkins and Turner (1999) argue in favour of rules that are simple to enforce. The rule is less skill-intensive, and hence of greater relative value in countries where supervisory skill is at a premium.

Rules should therefore form an important part of a prudential regime. However, as the accounting scandals in the US have shown, detailed rules are more effective when combined with high-level principles setting out the objectives of the rules.

Another dimension in lawmaking is simplicity versus complexity. Complexity refers to the amount of information needed to ascertain the content of a law (not necessarily to the length of the law itself). Since a standard is given content *ex post*, the measure of complexity refers to the complexity of the interpretative process rather than to that of the standard itself. (In fact, the complexity of the interpretative process may be unknown *ex ante*, since it is to some extent the choice of the interpreter.) Since information is costly, simplicity reduces certain costs related to lawmaking; it reduces the costs of communicating law and may also reduce the cost of framing and implementing it. On the other hand more complex laws are more likely to prescribe more accurately the behaviour desired in different circumstances. It has been argued that laws should be simpler in developing countries because the relative costs of producing, communicating and implementing complex laws are higher.[89]

The greatest sources of discretion in the current regime include the definition of capital; provisioning; securitisations; trading book boundary; and authorisation. If discretion is costly, it would be worth trying to increase the role of rules in these areas. Indeed, several regulators do have in place rules that require loans to be classified as impaired if a number of days past due, and a minimum level of provisioning by loans classification. Prohibition is an option in some areas. Bank Negara Malaysia has prohibited loans to controlling shareholders. Section 402 of the Sarbanes-Oxley Act in the US prohibits most listed companies from making loans to directors and executive officers.[90]

Because rules become obsolete, a regime that relies on rules must have in place an institution for interpreting rules in the complex real world, and one for changing the rules. The first is a policy function; the second is either a policy or legislative function. Rules, like any policies, must be expected to have a natural life-cycle of birth, effectiveness and decay.[91] As regulators acquire skills, and as banks' risk management improves, the cost of complexity will fall and the types of rule chosen will naturally evolve. It should be no surprise to regulators or regulated that rules are amended and replaced. To react to a set of rules that become obsolete by giving up on rules would be extreme.

Rules may therefore evolve, over time, away from strict prohibitions and towards price-based controls. The Draghi Report (FSF, 2000) recommends that regulators impose simple restrictions on foreign currency exposures until supervisory resources allow, eg restricting foreign currency loans or liabilities to a percentage of capital, or setting higher capital against foreign currency loans. Given supervisory failure, it may be a long time before institutions can support such discretion.

When supervisors have the skills and incentives to use their discretion well, then discretionary supervision should be a useful addition to rules. Most countries, including several within the G-10 and EU, may not be in this position. Since skill acquisition by bankers and supervisors is bound to be a slow process, it is to be expected that simple rules should form the basis of regulation in many countries for some time to come. Relying on supervision, therefore, should come later in development than recommended by the Basel Committee.

However, using discretion is a skill that requires practice. Can the circle be squared? I believe it can, if discretion is gradually added to rules, rather than replacing them. Supervisors may gradually be given the option to act on top of rules, or in advance of them. For example, US supervisors expect to intervene well before PCA binds, but the PCA regime is there as a safety net. Supervisors could be given the power to require banks to declare loans non-performing even before they are the required number of days past due.

Regulatory Luddism is, of course, not optimal either. Waiting until a crisis proves the rules to be ineffective is extremely costly. A policy-making function should be forward-looking and responsive to macroprudential indicators and to information collected by supervisors.

In summary: **regulators should rely to a large extent on simple, verifiable rules**.

5. *Price and quantity*

Pursuing the requisite architectural analogy, let us consider how a structural engineer would decide what loads the architectural structure could bear. Engineers wish to guard against catastrophic structural failure. They must balance, at the margin, the cost of failure with the cost of safety measures. An engineer uses models of static mechanics (which have, in effect, existed for over three centuries) to calculate the loads in a structure. He stresses those estimates, to simulate the effect of additional loads due to snow, wind, earthquake or impact. Engineers must ensure that the maximum predicted load on each component is less – far less - than the component's 'ultimate strength', the maximum load that can be borne by a given material under tension or under compression

without failing. Engineers build large safety factors into their models, often as much as five, to allow for calculation errors. These calculations are usually prescribed by law, perhaps because engineers do not necessarily bear all the social costs if their building fails (although they can be sued for damages).

Engineers also rely on redundancy. They design structures so that the failure of a single component, which suddenly transfers loads to other components, does not cause the failure of the whole structure. Because engineers combine safety factors and redundancy, structures use more material, weigh more, and cost more to build than they would with lower safety standards. Engineers are risk-averse: the certainty equivalent of a small probability, high-impact loss is greater than that of a high-probability low-impact loss of equivalent expected cost. If engineers equated expected cost of failure with the cost of safety measures, buildings would be cheaper to build.

The moral is obvious. First, since public authorities cannot fully diversify or insure against the risk of systemic failure, they are justified in being risk averse. They should require banks to limit their risks *beyond* the point at which the marginal expected social cost equals the marginal cost of extra capital, in order to equate, at the margin, the certainty equivalent of social cost with the cost of capital.

Secondly, reliance on a single limit or model lacks redundancy, as LTCM's near failure shows. Regulators should attack the same problem in several ways, as they have for fx and liquidity risks in Mexico. Sophisticated but prudent banks, which measure risks, allocate capital and remunerate traders on the basis of risk aggregation models, also rely on more traditional measures that protect against model failure: gross as well as net limits, limits on gapping, credit exposure limits and so on. The need for redundancy never disappears. An important example of lack of redundancy in prudential regulation is the reliance on the capital base. The capital base is the foundation on which the pillars rest. Consequently, as the Core Principles show, regulators should (and do) rely on other rules.

Priced-based regulation, such as capital adequacy rules that provide a continuous capital requirement for increased risk taking, has certain theoretical advantages for resource allocation. Those who want the risk most can pay most. A capital requirement suggests a probability, and probabilities can be estimated. A single price misleadingly suggests certainty in a developing world characterised by uncertainty. But there is a surfeit of pseudo-science in regulation. Risk managers often ridicule the crudeness of capital rules, thereby merely demonstrating their own ignorance of the function of the rules.

If a bank charges to cover expected loss, capital is supposed to protect against unexpected loss. When the loss distribution is skewed – a loss is improbable, but catastrophic if it happens – capital is less efficient than other kinds of insurance. A capital requirement is either far too much or far too little. Unless they are so large that they hamper the ability of banks to take deposits, capital requirements cannot protect against extreme events. The same applies to value at risk estimates.

Some of the quantitative limits should limit the size of exposures. This does not only mean limits on large credit exposure. Banks may become highly exposed to particular legal risks. The most obvious example is securitisations: a regulator must either recognise a risk transfer or not recognise it. 'Price-based' regulations are hard to design,

and can be misleading. Better to say that, if a securitisation is recognised, it is probable that all credit risk has been transferred, and possible that none of it has. If none of it has, the impact is likely to be high.[92] It may be better to impose a limit on exposure to such a risk than a capital requirement.

It is easy to list other examples:

- Foreign exchange risks in a pegged regime are highly skewed: they should be limited, not priced.
- Reputational risk is often catastrophic: nothing, or large. Rules limiting activities likely to give rise to reputational risk (eg money laundering) may be in order.
- A portfolio optimised against a market risk model can contain large positions in single instruments, and can be highly sensitive to correlation estimation errors and instability. In credit risk, the bank is highly exposed to errors in the estimate of PD, or to PD migrations if it lends a lot to a single borrower. While a large number of small borrowers can be treated with probabilities, it is more accurate to say of a large borrower that it defaults or it does not. Better, then, to treat large exposures as dead and apply a hard limit. Hence the value of large exposure limits to single borrowers, clustering limits, sectoral exposure limits.

Mexico

In the currency peg regime that collapsed in December 1994, Mexican banks were not permitted to hold net open positions in excess of 15% of capital. However, Mexican banks wanted the positive carry and discounted the risks. They used exchange-rate linked structured notes and other derivatives to acquire larger short dollar positions. They purchased peso-denominated notes. The notes' bullet repayment value *fell* as the peso lost value – often in a leveraged manner, and with no floor at zero. Although they looked like peso assets, they were therefore short peso positions. Banks also borrowed in dollars through offshore subsidiaries (demonstrating the value of consolidation rules). Because of their large fx exposures, Mexican banks suffered huge losses from the regime change. The central bank supplied USD liquidity support of $3.9bn at penalty rates to 17 banks between January and April 1995.

The Bank of Mexico then closed the loopholes. The 15% open position limit remains, but the definition of an fx position has been broadened.[93] The authorities also set limits on banks' fx liabilities denominated in or linked to foreign exchange, as a percentage of capital, which, together with fx limits, constrains dollarisation of banking sector liabilities (ie, of money). The Bank also set liquidity limits in foreign currency, *and* limits on holdings of fx-denominated sovereign debt. It also enhanced reporting requirements on the basis of these new limits, and built a debt monitoring system for commercial interbank external credit lines with a daily early warning indicator (O'Dogherty and Schwartz, 2001).

Hard limits are, in a sense, stress tests. Regulators are very keen that banks should use stress tests – using stress tests is a minimum standards for VaR model recognition for example – but they are not formally linked to capital requirements.[94] Regulatory stress tests should recognise, in a way that private risk estimates do not, the endogeneity of risk in the system. Stress tests may be chosen using likely extreme parameters estimated from backward-looking models, or from history, but in searching the state space for useful stress tests there is no substitute for intelligence. Regulators should consider plausible macro scenarios and make sure that their banks can survive them. One test should stress

test both currency and liquidity crisis at the same time, since if the currency falls, liquidity is likely to be scarce. Bad debts will rise as borrower wealth falls, and the value of collateral is also likely to fall. In developing countries, particularly those with exchange rate pegs, this is a plausible scenario that all banks should be able to survive. To be able to survive the inevitably harsher stress tests, it is likely that banks would automatically need more capital than the Basel minimum.

In summary: **regulators should use hard limits and stress tests**.

6. *Home and host*

The Basel 2 framework relies on assumptions that are likely to fail. Developing countries are vulnerable to external shocks; shocks to external bank lending flows may be exacerbated by Basel 2; and there is no true international lender of last resort. Developing countries should therefore need to consider designing their own regime.

However, wandering from the herd may bring problems. Banks conduct business across borders, and regulatory standards have effects in other countries. The more the domestic regime differs from the international norm, the greater the incentives and opportunities for adverse selection of risks between different regimes. There are good reasons to coordinate. One solution to the problem of international spillovers and competition in laxity is to coordinate regulation by setting minimum standards. This is the approach adopted in practice in the Basel Accord and in EC banking legislation. Under the Basel Concordat, subsidiaries are subject to host state regulation, while branches - with the exception of liquidity requirements - are subject to home state regulation. This is the crucial 'home/host' distinction, often neglected by commentators. Under current arrangements, therefore, an autonomous macroprudential policy is likely to be ineffective if branches of foreign banks are present. There is little point implementing a simple, prudent regime if it can be circumvented and undercut by aliens.

This approach, minimum standards plus mutual recognition, is only one solution to competition in laxity. A second approach would be to harmonise regulation; this was the original intention of the architects of the single market before they switched direction in the mid-1980s, and it may still be Europe's ultimate destiny.

A third approach would be to move to host country regulation. If foreign banks were subject to local prudential regulation, this would automatically reduce strategic spillovers. The host state could then apply its preferred rules with less fear that lending 'overpriced' in such a regime will flood to branches, leaving domestic banks with only underpriced risks. Developing countries could assert host country control *simply by requiring that banking business be conducted by firms incorporated locally*, ie that foreign branches incorporate.[95] They would also then be free to set high capital requirements on banking business, which may be justified by economic volatility and institutional weakness (see below).

Once again, the question that immediately arises is whether such an act would bring retribution. The main incentives for developing country regulators, I argued in Section 4, are the attitudes of the international regulatory community and of the IFIs, and market access arrangements. In this case, WTO arrangements are also relevant.

Clearly, a local incorporation requirement is contrary to the Basel Concordat and is the antithesis of the EU's single market framework; in fact it would be illegal under Community legislation (unless the 'general good' waiver were to be invoked, and this would certainly be subject to challenge).[96] However, developing countries are not signatories to either. A local incorporation requirement violates none of the 25 Core Principles; it could indeed be argued that it is a way of satisfying Core Principle 25: "banking supervisors must require the local operations of foreign banks to be conducted to the same high standards as are required of domestic institutions."

Would a local incorporation requirement attract opprobrium from high-income countries acting individually? Such a requirement would, of course, impose greater costs on multinational banks. They would complain, as no doubt would G-10 regulators and governments acting on their behalf. There are, however, some precedents in high-income countries. The US and Canada authorise foreign branches to conduct wholesale business only. Foreign bank branches may be authorised in Canada under the 1991 Bank Act, but these branches may not accept deposits of less than C$150,000. In the US, branches of foreign banks may not accept deposits of less than $100,000 from US citizens and residents. In the UK, the FSA has created a 'wholesale-only' deposit-taking permission effectively subject to a lighter regulatory regime, and, it is implied, to lower minimum standards for the home country regulator.[97] Since April 2001, the Reserve Bank of New Zealand has required some banks to incorporate locally (RBNZ, 2001). Such banks are not merely those, as one would expect, from jurisdictions thought to be subject to inadequate regulation (which in New Zealand means inadequate disclosure requirements). There are two other categories: banks whose liabilities (net of amounts due to related parties) exceed NZ$10 billion, and retail banks from jurisdictions whose insolvency proceedings would favour home creditors.[98] Malaysia also has a subsidiarisation requirement, also designed to protect host country depositors in the event of insolvency.

A better precedent, perhaps, is that banks from jurisdictions judged to be inadequate are routinely required to incorporate. In a sense, a local incorporation requirement amounts to a judgement by local regulators that the G-10 regime is inadequate. This might seem a shocking reversal of ordinary relations, but I have argued that Basel 2 *is* inadequate in the context of developing countries. There should be no presumption that what is adequate in one country is adequate in another, or that there even exists an objective ranking of 'adequacy' invariant to the observer's frame of reference. There would be no rational reason for high-income countries to restrict market access on the grounds that the home regulator had an incorporation requirement.

A third constraint might be the IFIs. If IMF lending is conditional on the Core Principles, emergency financing should not be put at risk. World Bank FSALs have included conditions relating to foreign ownership laws (Cull, 1997); however, a local incorporation requirement is not a restriction on foreign ownership and is in fact easier to implement in the absence of any such restrictions.

A fourth potential constraint on local incorporation in particular, and on the freedom to adopt one's own regulations in general, is the General Agreement on Trade in Services. Various general obligations are laid down as principles in GATS.[99] Article II of GATS immediately and unconditionally grants most-favoured-nation (MFN) to all WTO

members. GATS permits members some exemptions from Article II if they list their use of the exemptions. Such exemptions are, however, reviewed after five years and are in principle subject to a normal limitation of 10 years (since most commitments under the Financial Services Agreement were made in 1999, the 10-year deadline is 2009). Article VI imposes process disciplines to ensure that domestic regulations do not unjustifiably block trade. Domestic regulations that affect trade in service sectors for which a member has made commitments must be applied reasonably, impartially, and objectively. Article XVI (market access) requires that "each Member shall accord services and service suppliers of any other Member treatment no less favourable than that provided for under the terms, limitations and conditions agreed and specified in its Schedule". Article XVII (national treatment) requires members to accord to service suppliers in other member states treatments no less favourable than it accords its own like suppliers. Although Articles XIV *et seq.* also impose general obligations, there is no presumption that they apply unless a WTO member has made commitments under those Articles in its Schedule of Commitments. A member may therefore violate national treatment unless it has made a commitment not to.

The Financial Services Agreement allows a country to derogate from its GATS obligations by imposing regulatory controls on financial and capital flows if such measures are taken for 'prudential reasons'. This is the 'prudential carve-out', which applies on top of the general right to derogate temporarily from commitments made and the general exceptions of Article XIV. Importantly, the standard of review of the carve-out is lower than that applied to general obligations such as Article VI; use of the prudential carve-out should generally survive challenge so long as it is rational (it need not be proportional, for example).

The exact scope of all these restrictions is not clear, because the wording is general and it has not been tested in dispute. The scope of the term 'prudential reasons' is not provided (Alexander, 2002), nor is it agreed whether the derogation should be temporary, nor is there in Article VI a clear distinction between reasonable and unreasonable regulations. Such things could be left for discovery by the dispute settlement procedure, or they could be clarified by common agreement. One of the WTO's Committees on Domestic Regulation discusses what might count as a reasonable regime for Article VI purposes. In parallel, the Committee on Trade in Financial Services periodically tries to assess whether further explanation should be added to the 'prudential carve-out'. Australia and Switzerland have suggested that the prudential carve-out should be judged by reference to the Basel Accord.[100] If, successful, this proposal would severely restrict the ability of countries to adopt other, equally rational, approaches to prudential objectives. It would imply a very detailed common trade standard. Since Basel 2 is not appropriate for many developing countries, the standard would be a straitjacket. The proposal is not at present on the agenda. All WTO member countries are entitled to attend and so the definition may be influenced by developing countries.

What, then, would happen if a country were to impose a new local incorporation requirement only on banks that hail from jurisdictions implementing the IRB approach? Clearly, the outcome is uncertain. Requiring local incorporation should not violate Article VI (reasonable regime), although this could be tested in dispute. It should not violate Article XVII (national treatment). It would not violate Article II (MFN) so long

as the authorisation requirements were applied evenly; however, in this example that would not be the case, since the regime would discriminate along grounds of home country regime.[101] An incorporation requirement would be a restriction on legal form under Article XVI (market access). However, this would only bite if a country had made a commitment to relax a restriction on legal form in its schedule of commitments. In both this case and that of Article II violation, the prudential carve-out should offer sufficient protection, since a local incorporation requirement would be a rational response to an identified threat to safety from abroad, just as a requirement in the UK for banks from unsafe jurisdictions incorporate locally is rational; a challenge would have to persuade a panel that the approach was irrational and this would not be easy. Furthermore, Canada and New Zealand, the USA and UK have been members since the birth of the WTO in 1995, and no complaint about them has yet been lodged. If there is a rational prudential reason, WTO membership should not prevent a local incorporation requirement.

It may also be rational, hence permissible under the prudential carve-out, to apply different authorisation requirements or regulatory standards to subsidiaries of banks from different countries.[102] Subsidiaries of foreign banks are themselves vulnerable to contagion from the parent bank and the parent bank's domestic economy. Supervisors often apply tough capital, liquidity and large exposures requirements to protect against such contagion ('ring-fencing'), and the risk of contagion could vary depending on the parent country. Subsidiaries of banks from jurisdictions in which home country supervision is judged to be inadequate are routinely ring-fenced in this way. Furthermore, since parent companies are vulnerable to economic cycles in their country of incorporation, it may be rational to diversify this exposure by ensuring that bank parents come from different countries. The authorities have in China have diversified in this way. Higher capital requirements could also be justified under Basel 2 to correct for cross-regime regulatory arbitrage by the banking parent.

I conclude with two caveats. First, this is not a manifesto for chauvinism. Foreign banks appear to have a stabilising influence, and bank fragility is usually lower in systems with high levels of foreign ownership (World Bank, 2001; Caprio and Honohan, 2002). Foreign banks also bring skills, which are transmitted to local banks and workers.

Secondly, a subsidiarisation rule would provide some protection against external instability, but it would naturally be incomplete. Firms affected by developments, including capital shortfalls, in related entities. Banks, having weaker immune systems, are particularly affected by intra-group contagion. Moreover, banks with foreign subsidiaries may themselves deliberately arbitrage between different prudential regimes, so that the arbitrage takes places within institutions rather than between them.

In summary: **in order to increase the effectiveness of their prudential regimes, regulators should consider requiring foreign branches to incorporate locally**.

7. Some for one and one for some

I suggested earlier that the content of the new proposals was inappropriate for developing countries because the process was flawed. The principles outlined above suggested changes to the content; here I consider whether developing countries could change the process, that is, the international structure of rulemaking.

Eatwell and Taylor (2000) argue that, since financial stability is a global public good, the scope of intervention should also be global. They propose that a World Financial Authority (WFA) should be established with powers to control authorisation, regulation, supervision, policy formation and enforcement. Their proposals intentionally ignored institutional and political constraints. However, these constraints bind. An institution as powerful as the WFA would require a transfer of powers vastly in excess of what most nation states would be willing to contemplate. Even the EU, which has travelled some distance down the path towards an international authority, still has national financial regulators, although some consider that a pan-European regulator is inevitable in the long run. International cooperation will for the foreseeable future depend on the nation state (Ocampo, 1999).[103]

Furthermore, while it is in high-income countries' interests that regulation in developing countries should be effective, it is less obviously in their interests to cede the power to define the international benchmark. Nor is it entirely clear, should the Committee accept the need for greater voice from the non-G10, how it might go about it. The Committee has no formal voting structure and effectively works by unanimity. Its membership is chosen by the governors of the G-10 central banks. The larger the membership, the greater the risk of paralysis unless voting mechanisms are amended and veto rights renounced. Its large membership may be one reason why IOSCO has achieved far less than the Basel Committee.[104] The Bretton Woods institutions have a large membership, but voting rights are concentrated in a few hands. Building international institutions is costly, and would be more costly the larger the intended membership. It is not to be expected, therefore, that the high-income countries should propose radical changes to the structure.

Many developing country regulators have expressed dissatisfaction with the new framework. A few have suggested alternatives. The Committee is under no obligation to have regard to these suggestions. A better tactic for non-G10 countries would perhaps be to improve the process of designing the international benchmark. The aim should be to improve the new Accord as it is applied to developing countries, not to change the Accord. There are two more realistic options for building on existing institutions:

- For global coverage, use the existing non-G-10 liaison body, the Core Principles Liaison Group; and/or
- Use existing regional alliances.

Recall from Section 4 that developing countries' prime motivations for implementing the Accord do not derive from the Committee itself but from the IMF and World Bank (via lending assessed against the Core Principles) and from high-income countries (via market access conditionality). It is the CPLG that is responsible for the Core Principles. It is the CPLG that has helped define how the IFIs conduct Core Principles Assessments. It is the Core Principles that are used by the UK's FSA to assess regulatory adequacy. In principle, therefore, the CPLG has the power to change the incentives for adopting the new regime. In particular, the CPLG could redraft the sixth core principle, which is the link by which the Basel Accord is enforced. The CPLG is in any case due to review the principles during 2003.

Another advantage of using the CPLG is that the IMF and World Bank are represented on it. The IFIs are not duty-bound to proclaim the new Accord to be the unique optimum framework. It is open to the CPLG and the IFIs, therefore, to come to an agreement on the status of the new Accord that allows developing countries more scope for flexibility.[105] The CPLG and IFIs should also establish how the Core Principles and the new Basel Accord relate to each other (the Core Principles should take precedence). An opportunity is available in 2003, when the Core Principles are due for review.

Another dimension to consider in the design of an international framework is the nature of the coordination: the type of rules or standards embodied in the framework, the detail or lack thereof. For the purposes of this paper, two areas of cooperation are most relevant: the prudential regulation framework; and the definition of 'prudential regulation' currently being negotiated at the WTO. In both cases, a detailed, harmonised framework is unlikely to be efficient, since countries are different. Rules that fit all fit none very well. Heterogeneity favours standards rather than rules (Kaplow, 1992). It should, however, be possible to set down universal principles. Indeed, the Core Principles are, in the main, principles that can be implemented in different ways.

The CPLG could also be used to design a regime more appropriate for developing countries. The resources of the BCBS and IFIs would then be available to help. Basel Committee members have the resources and expertise to help other countries design a simpler regime, and they would benefit from greater financial stability in developing countries. In fact, in September 2002 the Basel Committee agreed to help design a simpler regime for use in non-G10 countries – unfortunately, for domestic banks only. Presumably the CPLG is the forum that will be used. However, it is not clear that a single alternative regime is what is needed. There is a risk that any alternative framework designed by the Committee will itself be too detailed.[106]

For many countries, international spillovers are strongest locally. If so, incentives for cooperation and peer review are also strongest locally. International spillovers are so great that many bank regulators have already formed regional alliances.[107] It is also reasonable to expect more homogeneity among regional bodies than at the CPLG. Hence, it may be possible to create more detailed agreements at the regional level, while sticking to principles at the global level. For access and lending decisions, the regional agreement and any national implementing measures would be assessed against the high-level principles.

Regional frameworks would mitigate the resource costs and reduce the risks of sanction and of unbalanced concentrations of risk due to adverse selection. A regional group could both set its own standards with reference to flexible international standards, and influence those international standards. Increased influence at the international level, combined with national and regional variations to international standards, would help to mitigate legitimacy concerns and increase ownership.

Andrew Sheng (2002) has recently suggested that there might be a role for common Asian standards. He suggests that there should be an 'Asian Financial Institute', in which common issues, standards, goals and processes would be debated.

The regional and universal could then be combined. Ocampo (1999) suggests that global institutions could act as umbrella organisations under which might sit regional bodies.

The regional groups would own their own approaches and conduct peer review of members. Giovanoli (2000) suggests that international agreements should use different rule types, with broad principles backed up by more detailed ancillary documents binding on those who choose to opt into them. In his model, the interpretative documents could have global coverage. However, there could also be several regional documents. The membership of the CPLG is not ideal: members are chosen on the basis of sophistication or political influence. (It is somewhat like the informal 'Green Room' consultation framework at the WTO.) Membership could be changed to include representatives of regional bodies. Or individual members could represent a constituency, as they do at the IMF.[108]

In summary: **developing country regulators should act collectively to change the rules of the game**.

6. What are developing countries to do about capital?

In this section I attempt to apply the seven principles to the capital adequacy regime.

A radical response to the weakness of capital requirements would be to scrap them and try to find other rules instead. However, a measure of capital must surely form a part of any prudential regime, for two reasons. First, the difference between solvency and insolvency is fundamental (although the distinction is rarely obvious in practice). It is impossible for a regulator not to have some interest in the size of a bank's capital base. Whatever the capital regime chosen, it rests on the definition of a capital base. The capital base is overstated if connected lending and consolidation rules are not in place or are unenforced, or if provisioning is weak.

Secondly, because capital is a buffer against risks, capital provides the most useful denominator for other regulatory ratios. For example, in the Large Exposures Directive, exposures are deemed 'large' if they exceed 25% of the regulatory capital base. Alternative scaling measures could be used for such rules, for example assets. However, using assets would give banks incentives to lend more when constraints bind. Not only would this increase the amount of risks borne by a fixed amount of capital, suddenly increasing assets is in the experience of regulators the most risky thing a bank can do, due to adverse selection of credit-risky assets.

So the question becomes: what capital adequacy regime should developing countries adopt? There are two benchmarks against which alternative solvency regimes should be judged. One, does it achieve prudential objectives more efficiently or reliably? Two, to what extent would the alternative regime provoke negative reactions from high-income countries, from IFIs and from markets? The challenge, therefore, is to design a capital adequacy regime that does the job better without provoking punishment. This is not easy.

It is important to emphasise at the start that a capital adequacy regime lacks redundancy. Regulators should also enforce other rules, such as authorisation and large exposures requirements, and liquidity and fx mismatch limits.

Other, more fundamental, investments may also be needed. The Core Principles for Effective Banking Supervision (BCBS, 1997) list five general 'preconditions' for effective banking supervision: sound and sustainable macroeconomic policies; a well-developed public infrastructure; effective market discipline; procedures for the efficient

resolution of problem banks; and mechanisms for providing an appropriate level of systemic protection. Even in middle-income countries, these are often lacking, and it might be better for resources to be concentrated in building institutions that might increase the effectiveness of regulation, supervision and disclosure.

Basel 1.5

The three pillars of Basel 2 are weaker because bankers, supervisors and markets cannot do the jobs expected of them. The first proposal, which I call 'Basel 1.5', is to implement a version of Basel 2 that relies less on the parts most likely to fail. I propose that:

- regulators should not offer the sophisticated approaches, but only the standardised methods;
- instead of Pillar 2, they should focus on the Core Principles; and
- they should implement some but not all of Pillar 3.

The IRB, I have suggested is not an appropriate form of regulation in developing countries. The standardised approach has its problems but is better. One problem is that it does not clearly possess a greater sensitivity to credit risk (private or public) than the current regime (although Milne, 2001, argues that no risk differentiation is necessary).

Regulators could take steps to increase the extent of differentiation of credit risk in the standardised approach. Ratings have a public good element, and there is a rationale for the state to encourage supply. France has a national agency that it will undoubtedly recognise (the credit register is run by the central bank). Many developing countries also run credit registers (see Estrella et al., 2000), some of which also have quasi-ratings (usually determined by the bank rather than the regulator). These registers, as Powell (2002) suggests, could form the basis of a national rating agency, with excellent coverage of borrowers. Many countries may well choose to base their implementation of the standardised approach on the national credit register.

There is a dilemma in using a credit register, however. If banks are allowed to use their own ratings, then it is an IRB approach, subject to all the flaws that I set out above. If the ratings are determined by the financial authorities, then there are severe dangers.

- First, if the ECAI is internalised in the regulator, then at the extreme, the regulator can set discretionary risk weights while complying with Basel 2. However, this discretion is unlikely to be beneficial unless the regulator has the skill and incentives to act in the long-run public interest. Ratings would need to be protected from government and from financial authorities. Authorities would be tempted not to downgrade large borrowers for several reasons. Large companies are often closely related to the government, as in Italy. In many countries, large corporate borrowers have been *de facto* guaranteed by the state, so that guaranteed projects crowd out non-guaranteed projects. In others, such as Japan, banks have been encouraged by the authorities to extend new financing to companies with large net liabilities in order to stave off bankruptcy.
- Second, if the register produced a single rating scheme, it would be the perfect focal point for coordination by lenders. Lenders would all react to public information on migrations at the same time, and knowing that others would react,

would all be likely to overreact (as in the Morris and Shin story described earlier in the paper). Reliance on a single rating scheme would exacerbate herding and instability. Self-fulfilling dynamics would be especially likely at the boundary between investment grade and sub-investment grade. A downgrade to sub-investment grade does not mean that a company is about to go bankrupt: the average annual default probability on corporate debt rated speculative-grade by Moody's is just 3.8% (Moody's, 2002, Exhibit 29); but if a company suffering were funded with sufficient short-term liabilities, such an event could trigger a liquidity problem. Herding instabilities would be especially dangerous if it were a bank that was downgraded.

The supervisory review requirements should be prioritised. The principles are mostly appropriate. Principle 1 states, in effect, that banks should know what they are doing, which is difficult to argue with. Principle 4 says that supervisors should intervene at an early stage, which is also true (see 'carrot and stick' above). Principle 3 says that supervisors should expect banks to operate above the minimum and have the ability to require it; also sound.

It is the second principle that is problematic: supervisors should assess banks' internal capital adequacy assessments and strategies and their ability to monitor compliance with the rules. If supervisors respond with discretion, under weak incentives, to an assessment that they may not have the skills to perform, it may be better to concentrate on enforcing rules and leave the rest to the bank.

Regulators should also conduct due diligence on the Pillar 3 proposals. Barth et al. (2001) find that disclosure requirements encourage better bank performance. However, after other regulatory variables are controlled for, the relationship between disclosure requirements and the *ex post* probability of crisis is very weak.

In its January 2001 incarnation, Pillar 3 contained core and supplementary disclosures. In September 2001 it was substantially streamlined, and all disclosures are now regarded as requirements. Pillar 3 includes an overarching general principle that for each separate risk area, banks must disclose their risk management policies and objectives, including: strategies and process; structure and organisation; scope and nature of risk reporting systems; policies for mitigating risk. This general principle appears demanding, particularly when one considers how little might be done by market participants with such disclosures. On the other hand, the disclosures for capital, credit risk and so on, particularly the 'general disclosures' have much to recommend them. Regulators should perhaps concentrate on improving disclosure of asset valuation (ie provisioning), since asset overvaluation undermines Pillars 1, 2 and 3. In comparison, disclosures of how banks manage their risks are a lower priority. The focus should be on achieving international accounting standards.

This 'Basel 1.5' approach is likely to be easier to implement, and suffer less from institutional weaknesses, than the Basel 2 approach. The question is whether it would bring international punishment.

It is not certain what the Basel 1.5 approach would mean for market access or IFI funding. It is not true to say that full implementation of Basel 2, any more than full implementation of the CPs, is a necessary condition for receiving financing. Presumably,

the lower the standard of implementation, the more likely it is that conditionality would include instructions to improve implementation. However, the direction of change would be more important in deciding conditionality than the level attained. Consequently, countries should be more or less free to adopt the approach that they consider appropriate and cross the bridge of conditionality when they get to it (that is, retain the real option value). If combined with an expression of intent to build on whatever approach is adopted as the countries institutions grow over time, that should be sufficient.

However, when it comes to market access requirements, the rate of progress is irrelevant: in the EU at least, it is the absolute standard or the prudential regime that will matter. Capital is still likely to be the cornerstone of most market access decisions, but the other Pillars will play a part. Some countries may use the IFIs' CPAs. (New Zealand will only permit branch entry if the bank regime has harsh disclosure requirements; but access to the New Zealand market is unlikely to be a priority for bank regulators outside Australia.)

Basel 1.5+

With greater macroeconomic volatility, less expert credit allocation, less credit risk diversification and weaker enforcement of prudential regulations and accounting standards, an 8% ratio delivers less protection than it does in high-income countries (in terms of probability of default, probability of banking crisis, cost of crisis).[109] Bangladesh and the Gambia apply an 8% minimum ratio in a markedly riskier environment.

Both the extent and variability of credit losses varies widely across countries, far more widely than minimum capital requirements. Non-performing loans are an observable proxy. Corsetti et al. (1998) report that non-performing loans in 1996 were 14% of total loans in the Philippines, 13% in Thailand, 13% in Indonesia and 10% in Malaysia and 8% in Korea. Capital ratios were less than NPLs in Thailand and Indonesia, and frequently so in Korea and Malaysia.[110] NPLs peaked some time after the crisis. Thailand later estimated NPLs at nearly 50% of loans.

There is a strong argument for using higher capital ratios in developing countries (Caprio, 1996; Hawkins and Turner, 2000; Karacadag and Taylor, 2000; Brownbridge and Kirkpatrick, 2000).[111] The Basel Committee (2001c, 7) itself hints at it: "supervisors must at a minimum implement Pillar 1. However, if in certain jurisdictions it is not at present possible to implement all three pillars fully, the Committee recommends that supervisors consider more intensive use of the other pillars." The Core Principles Liaison Group, having discussed the topic of system-wide minima at some length, has called for more guidance from the Committee.

The Basel Committee is in fact an unlikely source of advice. Most Committee members have implemented the Accord in a manner not intended by its architects, regarding 8% as a unique target rather than the minimum acceptable for the very best banks.[112] On the other hand, system-wide minimum ratios above 8% are quite common outside the G-10, and their numbers are increasing (see Annex 1). Singapore, Russia and Turkmenistan require a higher ratio of Tier 1 to Tier 2, as did Thailand until the 1997 crisis.

Capital can both insure against loss and induce risk-aversion among owners by increasing their stake. More capital offers more safety, but there are two caveats. First, increasing

the stake increases risk-aversion only if there is a credible commitment by the state not to support shareholders (Eichengreen, 1999).

Secondly, bank soundness is not proportional to capital requirements, because capital is not observable or verifiable. Capital is the residual between assets and liabilities, and so is very sensitive to how those assets are valued. Valuation of non-marketable assets is subjective. A higher capital requirement is of little benefit if capital is easily inflated (that is, in practice, it requires banks to hold less capital against their risks than they would need to hold in a well-enforced 8% regime). If it is cheap to inflate capital, it may be almost as cheap to inflate it to 12% as to 8%. If so, capital requirements are a waste of resources. Indeed, the Basel Committee has taken great pains in many of its publications (eg, BCBS 1998b) to emphasise the importance of sound provisioning as a precondition.

Let us simplify and assume that risk-weighted assets equal assets, and capital is equity. An increase in capital requirements from 8% to 12% then means that the assets must be valued only 4.5% higher.[113] A 10% minimum would require asset revaluation of only 2.2%. Such a revaluation is well within the bounds of subjectivity in environments with high levels of economic volatility and of non-performing loans. Banks may simply increase the number of bad loans that they recapitalise.

This could be why Barth, Caprio and Levine (2001) find no robust relationship, after correcting for other features of the supervisory regime, between indicators of regulatory capital stringency and bank development, net interest margins, overhead costs or non-performing loans. They find no support for the common idea that higher capital requirements can correct for more generous deposit insurance schemes.

However, if regulators focus their attention on truthful provisioning, the cornerstone of a prudential regime, and limit the state's guarantee as recommended in the previous section, Basel 1.5+ should generally be preferred to Basel 1.5. Given the likelihood of capital overstatement, macroeconomic volatility and greater uncertainty about future volatility paths, the minimum capital requirement may need to be significantly above 8%. The increased safety provided by a 9% ratio (Israel) or 8.5% (Thailand) is very low indeed and the apparent accuracy spurious. Regulators wanting to set higher capital requirements should be thinking in the order of 12%, 16%, or 20%.

Finally, recall that external bank lending is likely to be more volatile under Basel 2. Borrowers in a given country are likely to be downgraded together; if so, countries are likely to experience greater changes in aggregate credit quantities than they have hitherto. Developing countries may need to tighten rules to protect themselves. One option is to set higher capital requirements. Others would be to tighten fx and liquidity mismatch limits, and to increase foreign currency reserves.

Basel 'current plus'

Although the 1988 Accord is obsolete in the G-10, it is less obsolete elsewhere. Many countries have implemented it only recently and are still devoting resources to improving its enforcement. Clearly, the implementation costs are lower than for any alternative.

A sub-group of the CPLG containing six non-G10 regulatory authorities[114] has made the following proposal, which was presented to regional groups at the September 2002 ICBS in South Africa. It is also known as the 'Basic Approach'. For Pillar 1, they propose to

retain the 1988 Accord, but with the addition of the operational risk requirements and the abolition of the Zone A/Zone B distinction, and to raise the minimum ratio to 9%.[115] They also propose to implement Pillars 2 and 3 and to adopt the new rules concerning the scope of application. This proposal has great strengths and weaknesses.

The strengths are these. The proposal clearly complies with Core Principle 6, and would be expected to be sufficient to guarantee market access (so long as other Core Principles are also implemented). Secondly, consolidation rules are extremely important, and too weak in many countries. Another strength is that some important countries are prepared to provide a lead against the global reliance for regulatory capital purposes on internal risk measures. China, Russia and India, among others, should certainly not implement models approaches. The 'current plus' approach is less discretionary than Basel 2. A fourth advantage, which is perhaps the greatest, is that it represents a significant saving of implementation costs. Many countries only have fairly short experience of enforcing the 1988 Accord, and their enforcement has often been found wanting. Major regulatory change can constitute a 'displacement' to the financial system that can generate short-term imbalances; it should not be entered into lightly. The 'current plus' approach would allow countries to retain their focus on the improvement of their existing capital regime.

However, the proposal also has grave weaknesses. It does nothing to mitigate the fundamental flaws of Basel 2, of market failure and government failure. It would still divert supervisory resources towards activities prone to government failure. It would represent an enhancement rather than a diminution of discretion. And the extra protection represented by 9% is very small indeed. A 9% ratio applied in Russia, with very weak institutional enforcement and an economy highly vulnerable to commodity price shocks plainly provides nothing like the protection offered by an 8% ratio in a less volatile country. The proposal could therefore be improved by increasing the minimum ratio by a large factor, and reducing the emphasis on Pillars 2 and 3; that is, by implementing 'Basel 1.5+'. The latest word is that the proposal is unlikely to be adopted.

f(Basel)

The Basel 2 framework offers a menu of choices, from the simple but harsh to the sophisticated and generous. The original aim of the Committee was include a very simple option. The Accord has become more complicated because banks (in industrial countries) have complained about aspects unfavourable to them, and because the Committee is, inevitably, a political body that reaches political compromises that are often complicated.[116] So there is still a gap in the market for a simple framework, which the Committee cannot fill. Developing countries should consider getting even simpler and harsher.

It is the poorest countries that have the most to gain from using a simplified version. However, they have the fewest resources to expend on design. There is a strong case for technical assistance in the design of their prudential regimes. The FSI could perhaps offer this, but as a joint venture half-owned by the Basel Committee, it is committed to assisting regulators to implement Basel 2 and is not equipped to ask more fundamental questions.

Using a regime designed for oneself would bring 'ownership'. Regulators are more likely to enforce a framework with enthusiasm if they have had a hand in its design; they will also find it easier, since they should understand it.

Regulators could choose to mix the existing regimes, eg external ratings for sovereign exposures (which are common), and the 1988 Accord (or 100%) for the rest, together perhaps with the new more generous rules for collateral recognition.

The simplest conceivable capital adequacy rule is a gearing ratio, as used to complement capital adequacy ratios in the USA and Belgium. These may be too simple, since they do not differentiate between risky and less risky credits. The social risk of lending to different borrowers is, after all, different (but see Milne, 2001). Gearing ratios encourage banks (maximising return on equity and with funding subsidised by the safety net) to lend to risky borrowers. They are binding only if they cannot be evaded, for example by securitisation. However, in the context of developing countries, where most private sector lending is currently weighted at 100% and will continue to be weighted at 100%, the difference is not large. And since there is no obligation to use external ratings, a flat rate 100% would be permissible under Basel 2.

If the benefits of introducing some differentiation across credit risks (*social* risks) outweigh the costs – and it may not in every country - an easy option is to take the Basel framework as an input and manipulate it, by simplifying and reducing the reliance on discretionary boundaries.

- An obvious example is in the definition of capital. The boundary between Tier 1 and Tier 2 capital is subject to widespread attack by banks, which takes up disproportionate supervisory resources. For large banks, whose failure is the most catastrophic of any company, the function of regulatory capital is not to provide a cushion in the event of failure – a cushion that could not match the social cost of failure – but to reduce the probability of failure. Only equity capital can do this, although even the payment flexibility of equity capital is limited in practice.[117] It would be both simpler and safer to abolish the distinction and recognise only undated ordinary share capital.[118] Caprio (1998) reports that the Philippines recognises only Tier 1.

- A second example is credit maturity. Banks receive lower capital requirements if their loans and commitments are of shorter maturity; consequently, they game the rules, so that contractual terms obey the rules but economic effects do not. Loans are structured to be of 364-day maturity but are routinely rolled over; hedges may be taken on for reporting dates and then quickly discarded. It would be simpler to apply the same risk weight to loans of all maturities.

- A third example is securitisations. Securitising packages of loans reduces the capital in the system, often by a large factor, because of the multiple name problem: rated securitised tranches benefit from diversification recognition while on-balance sheet loans do not. At the same time, banks prefer to keep as much of the risks on the books as possible. The reduction in capital requirements is disproportionate to the reduction in risk. A Draconian solution would be to offer no capital reward for securitisations. Securitisation would revert to its original function, as a tool for liquidity management. A less harsh, but more complicated,

solution would be to offer capital relief only for the simplest of all possible securitisations, perhaps conforming to a template contract recognised by the bank regulator, with no bells and whistles like liquidity facilities, together, if necessary, with higher risk weights for securitisations, and capital deductions for any retained toxic waste.[119] As with all other simple rules, there would be costs: for example, more complex securitisations do transfer some risk, and liquidity facilities provided by the originator may be more efficient. But these prices may be worth paying to ensure that the regime binds.

Thirdly, the standardised approach suffers from cliff faces, huge jumps in risk weights. Regulators should consider creating additional risk buckets. The cost would be low, since complexity as I defined it earlier would not increase: information gathering and processing requirements for banks would be little different.[120] Regulators could also consider reducing the risk weights for A and BB-rated exposures, where the current weights are very high in relation to the foundation IRB approach.

The volatility of standardised approach capital requirements could be lessened by recognising only through-the-cycle ratings, or by taking ratings that do vary systematically with the cycle and smoothing them by taking moving averages. Alternatively, Monfort and Mulder (2000) recommend taking the best rating of the last three years.

Furthermore, outside G-10 countries there is little collateral eligible within the standardised approach. Yet banks routinely lend against physical collateral: buildings, raw materials, inventory, plant and machinery. Subject to certain conditions, this is recognised in the foundation IRB approach and regulators could consider likewise broadening the scope of eligible collateral in the standardised approach, as EMEAP[121] has recently proposed.

Fourthly, certain risks are of greater importance in developing countries. Regulators should consider whether the benefit of imposing crude rules covering these risks exceeds the costs of the additional complexity.

- Financial asset return volatility is usually higher (although 2002 has been unusual); market indices are often more concentrated, so that less specific risk can be diversified away; and liquidity is lower and more volatile. The holding period against which regulatory market risk weights or banks' specific risks, or collateral haircuts are calculated should be longer.

- Banks, which borrow short and lend long, are structurally vulnerable to a pivot in the yield curve. Capital requirements for interest rate risk in the banking book (IRRIBB – interest rate risk in the trading book is already subject to capital requirements) can ensure that those banks that take on the risk have the capital. The Basel Committee (again) tried to construct a common Pillar 1 capital requirement for IRRIBB, but in the end moved it to Pillar 2 because different countries and different banks differ so much.[122] The relative benefits and costs of a Pillar 2 solution are different in developing countries. Nominal yield curves are more volatile. IRRIBB requirements would give countries more room to change (particularly, to raise) interest rates in response to a change in monetary conditions. In the Asian crisis and elsewhere, policymakers could not raise rates

to defend the currency without increasing defaults by bank borrowers; raising short rates also directly reduces banks' cash flow and net value.

- A harsher approach to collateral valuation may be required. Its value is more volatile and valuation is less reliable. Banks in many developing countries are said to rely excessively on collateral rather than on the borrower's ability to repay. Higher haircuts are needed. Since the banking system as a whole has a tendency to acquire systemic exposures to property, and to ignore other banks' property exposures, it may make sense for collateral recognition to be reduced well beyond the apparent (exogenous) risk of property prices.

For many countries acting individually, 'Basel 1.5+' is likely to be the best option. However, the bespoke approach, 'f(Basel)', becomes relatively more attractive when countries cooperate.

Regional coordination would be beneficial in several areas. Most salient is the recognition of ECAIs. The recognition of rating agencies is a controversial issue in many emerging countries. In their 1999 Common Position, the ASEAN countries argued that "given the important role that credit rating agencies play in the international financial markets, there should be greater transparency in the rating process." A regional approach to ECAI recognition could adapt the recognition standards to ensure transparency, and could share the task of recognition.

7. Conclusion

There are two problems. The Basel Accord is designed by rich countries, and is not appropriate for other countries. Yet it is increasingly a legal requirement for all countries. Something needs to change: if the Accord is to apply to all, it should be made more appropriate for developing countries. Alternatively, it should cease to be an obligation.

Developing countries should cooperate, probably at the regional level, to design their own variants. These variants should probably be simple, rule-based, non-discretionary, and have inbuilt redundancy. No regime can fully correct for government or market failure, but a regime designed to be robust to government failure is more likely not to fail completely.

Annex: Non-G-10, Non-EEA jurisdictions with minimum capital ratios above 8%

Country	*Minimum capital ratio (%)*	*Country*	*Minimum capital ratio (%)*
Albania	12	Kuwait	12
Argentina	11.5	Kirgizstan	12
Armenia	12	Latvia	10
Azerbaijan	10	Lebanon	12
Bahrain	12	Lithuania	10
Belarus	10	Mauritius	10
Bolivia	10	Moldova	12
Bosnia-Herzegovina	10	Oman	12
Brazil	11	Peru	9.1
Bulgaria	12	Philippines	10
Burundi	10	Russia	12
Cayman Islands	12	El Salvador	9.6
Croatia	10	Samoa (Western)	15
Estonia	10	Singapore	12
Georgia	15	Solomon Islands	15
Gibraltar	8.5	Tajikistan	12
Guernsey	10	Thailand	8.5
Honduras	10	Tonga	15
Israel	9	Turkmenistan	10
Jamaica	10	Turks and Caicos Islands	10
Jordan	12	Venezuela	10
Kazakhstan	12		

Source: World Bank database (2001). The database, summarising the results of the World Bank Survey of Bank Regulation and Supervision, was released in March 2001 and is available on http://www.worldbank.org/research/projects/bank_regulation.htm.

NB: this list is not exhaustive.

Glossary

Basel Accord: a 1988 agreement by the members of the Basel Committee to enforce a minimum solvency ratio of 8%.

Basel Committee on Banking Supervision: a group of central banks and bank supervisory authorities in the G-10 countries, which produce common standards, not binding in law. It usually meets at the Bank for International Settlements in Basel.

Basel 2: the proposed replacement to the Basel Accord. The third consultative paper is expected to be published in the second quarter of 2003, with the final rules to be published later in the year. The Committee expects its members to implement the new regime at the end of 2006.

CPA: Core Principles Assessment. An assessment by one of the IFIs of the extent to which a country complies with the Core Principles. Each principle is given one of four grades of compliance.

CPLG: Core Principles Liaison Group. A sub-committee of the Basel Committee, which aims to achieve the successful implementation of its Core Principles.

FSAP: Financial Sector Assessment Program, a joint World Bank/IMF assessment of the vulnerabilities in a country's financial system and in the way it is managed.

FSI: Financial Stability Institute. A joint venture between the Basel Committee and the Bank for International Settlements, created in 1999 to promote sound practices and provide technical assistance in financial supervision.

G-10: a club of rich countries. Canada, the USA, Sweden, Italy, France, Germany, Belgium, the Netherlands, Sweden, and the UK are the G-10, and Switzerland always attends G-10 meetings too. The Basel Committee has representatives from 13 member countries, Spain and Luxembourg being the others.

IFIs: International Financial Institutions, used here to mean the World Bank and IMF.

IOSCO: The International Organization of Securities Commissions an imperfect analogue of the Basel Committee, for securities regulators. Based in Madrid, it has 100 ordinary members and a 19-member executive committee.

OECD: the Organisation for Economic Cooperation and Development. Based in Paris, it has 30 members which collectively account for two thirds of global GDP. It has a broad remit covering economic and social issues. Members have entered into agreements in a variety of areas. Some agreements are soft, some legally binding. FATF is based at the OECD.

PCA: Prompt Corrective Action. A scheme by which a regulator is committed by law to intervene if a bank's health falls below a certain trigger or set of triggers. An example is the regime introduced under FDICIA in the US.

ROSCs: Reports on the Observance of Standards and Codes, conducted by the World Bank or IMF.

WTO: World Trade Organisation. The WTO deals with the rules of trade between member nations, and has binding dispute settlement procedures. Based in Geneva, it currently has 144 member countries. Created in 1995.

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[1] The IMF recently advised Sri Lanka *against* rapid capital account liberalisation. Public Information Notice *IMF Concludes 2002 Article IV Consultation with Sri Lanka* (11 September 2002) reports: "Directors emphasized the need to strengthen the banking system, which, together with a stable macroeconomic environment, would provide a stronger basis for a gradual and sequenced form of capital account liberalization."

[2] Lenders and investors, for the sake of convenience, may also treat all developing countries the same, and this can cause contagion (Calvo, 1999). I shall not distinguish between, say, developing, emerging and transition economies. My previous critique of Basel 2 (Ward, 2002a) applied even to those with the strongest supervisory capacity (the G-10, EEA and other countries of equivalent capacity such as Singapore). My definition of developing country includes several newly-industrialised countries such as the Republic of Korea. Also for the sake of convenience, I shall sometimes describe the complement of this broad set of 'developing countries' as 'rich countries' or 'high-income countries'.

[3] I use G-10 informally to represent the 13 countries directly represented at the Basel Committee. This may be justified on grounds of conciseness and also because the Basel Committee reports to the governors of the G-10 central banks.

[4] The Accord does not define the terms 'bank' or internationally-active'. The new Accord has a new section on the scope of application (ie the definition of 'bank') which includes a great deal of national discretion. The definition of 'internationally-active' is left entirely to national discretion.

[5] Zone A or 'Club' members are those countries which are full members of the OECD or which have concluded special lending arrangements with the IMF associated with the Fund's General Arrangements to Borrow, excluding any country that has rescheduled its external sovereign debt within the last five years. Lending to Zone A sovereigns attracts no capital requirement. Lending to Zone B sovereigns must be 8% backed by capital unless the loan is denominated and funded in that sovereign's currency. For explanation of OECD and other acronyms, see the glossary.

[6] See, for example, BCBS (1998a).

[7] This is evolution rather than revolution, since the 1996 Market Risk Amendment contained two variants, and indeed there were two methods for measuring credit equivalent amounts on OTC derivatives in the 1988 Accord.

[8] In the Market Risk Amendment, banks are allowed to use value at risk estimates, which recognise the effect of diversification. The IRB approach does not recognise banks' estimates of correlations between the inputs, but the risk weight function does assume default correlations of less than one, varying according to PD.

[9] Another important component in credit risk models is exposure at default, which is unknown *ex ante* in the case of facilities and OTC derivatives. In the advanced approach, banks will be permitted to estimate EADs on facilities but will still have to use a standard regulatory approach for credit equivalent amounts on OTC derivatives.

[10] The author spent two years while at the Bank of England trying and failing to defend the trading book boundary in the UK. The Capital Adequacy Directive's definition of the trading book combines the specific (only certain kinds of repo) with the general and unobservable (trading intent). It is reminiscent of the animal taxonomy that Borges fabulously attributed to T'ai P'ing (978), *viz.*: belonging to the Emperor; embalmed; tame; suckling pigs; sirens; fabulous; stray dogs; included in the present classification; frenzied; innumerable; drawn with a very fine camel hair brush; et cetera; having just broken the water pitcher; that from a long way off look like flies. Fortunately, the European Commission intends to amend the definition of the trading book in order to bring it more closely in line with firms' risk management practices (European Commission Services, 2002, Annex G).

[11] Under the 1988 Accord, Tier 2 capital in excess of Tier 1 is ineligible. Tier 2 is therefore of equal regulatory value until the point where the constraint binds. The economic reality is that Tier 2 capital provides protection to senior creditors in the event of bankruptcy, but provides less payment flexibility to allow the bank to avoid bankruptcy in the first place than Tier 1. Discontinuities of this kind are, of course, inevitable in the context of rules. In the new regime, there is an important distinction between wholesale and retail. The cutoff is at €1m; expect to see more loans of €999,000.

[12] Another example of the cost of enforcing these arbitrary boundaries: the UK FSA has recently published a consultation paper (CP 155) containing a 54-page discussion of the boundary between 'innovative' Tier 1 and traditional Tier 1.

[13] In collaboration with the Transparency Group, a sub-committee of the Basel Committee, the IASB has been working for over a year on an update of IAS 30, *Disclosures in the Financial Statements of Banks and Similar Financial Institutions*.

[14] Usually they will use this freedom to overstate earnings. However, taxation can create an incentive to overprovision. Specific provisions are often tax-deductible.

[15] For a more detailed critique, see Ward (2002a).

[16] In CP2, the Committee imposed a floor on capital requirements under the advanced IRB approach, and promised to review it within two years. This decision made little sense, because little new information will be available. BCBS (2002) promises to eliminate this floor and replace it with an overall floor that would apply for the first two years (90% of current charges in the first year, 80% in the second). "Should problems emerge during this period, the Committee will seek to take appropriate measures to address them, and, in particular, will be prepared to keep the floor in place beyond 2008 if necessary." However, the same criticism applies: there is little chance that those two years of experience will show banks' estimates to have been inadequate. Small sample problems, which make it difficult to distinguish between bad models and bad luck, will also make it difficult for markets to impose discipline; if they do, discipline is likely to be disproportionate and prone to Type II error.

[17] Models are extended into the field of credit risk both in the estimation of collateral haircuts and in the market-based internal models approach to equity exposures. The latter has no backtesting framework. Nor is there a backtesting framework in the advanced approach to operational risk.

[18] Much of the debate over calibration has focused on the degree to which banks should be rewarded by using more sophisticated methods with lower capital requirements. This is complicated by the fact that the more sophisticated capital requirements produce a higher dispersion of capital requirements, so that to induce all or most banks to move requires a very large reduction of the average. However, this debate has largely missed the point. Banks do not apply for permission to use internal ratings systems solely because of the capital savings, nor will they necessarily refuse to adopt them if there are capital costs. Large banks will move to models partly because it may be more convenient for internal risk management purposes, and partly because they want to be able to report to the world that they have moved to models, that they have received a regulator's imprimatur, that they are sophisticated rather than simple. There was therefore no need to lower capital requirements for the IRB approaches, and hence to lower the regulatory capital of the international banking system.

[19] [Some argue that the rule of law depends on consistency [see Stevens, 2002.] Inconsistent interpretations by the Supreme Court or (in England) by the Law Lords create severe problems; a topical problem in England in the context of the Human Rights Act.]

[20] If each of the decisions is binary and independent of others, there are 2^{44} or 17.6 trillion new Basel Accords.

[21] An alternative methodology is presented by Reisen (2001). He calculates the change in spread needed for a lending bank to maintain the risk-adjusted return on capital achieved under the 1988 Accord. It produces much larger impact estimates, for example +3709 basis points on a long-term loan to a B-rated bank.

[22] As at 18 November 2002 the countries whose long-term foreign currency bonds are rated Ba3 or worse by Moody's are Jamaica, Jordan, Peru, Russia (Ba3); Bolivia, Bulgaria, Papua New Guinea, Turkey, Vietnam (B1); Brazil, Honduras, Lebanon, Nicaragua, Paraguay, Romania, Turkmenistan, Ukraine (B2); Indonesia, Pakistan, Uruguay and Venezuela (B3); Cuba (Caa1); Ecuador (Caa2); Argentina and Moldova (Ca).

[23] At national discretion, the supervisor may waive the floor on effective maturity for certain short-term transactions including short-term loans and deposits (BCBS, 2002c, paragraph 282). At least one regulator can be expected to apply this waiver. Short-term interbank borrowing, therefore, may not be quite so expensive. The discount for funding costs of lending at one month rather than one year is 4 basis points for banks rated A or above, 9 basis points for BBB and 12 bp for banks rated BB.

[24] To derive a crude upper-bound estimate of quantity rationing, assume that capital requirements bind and that all the adjustment comes from quantity. In proportional terms, the quantity adjustment needed to keep regulatory capital constant is then $(r_1-r_2)/r_2$, where r_1 is the old risk weight and r_2 the new risk weight.

[25] I make no claim that this list is exhaustive.

[26] Option 2 is based on the rating of the borrowing bank. Option 1 ('sovereign + 1') is based on the rating of the government of the country in which the bank is incorporated.

[27] The reason is that the Committee does not want to disrupt liquidity in the interbank market. However, it is not well articulated why this market should be subsidised with lower capital requirements. In developing countries, equity financing is a better candidate for subsidy.

[28] Kupiec (2001) points out that using a year-ahead risk horizon in a hold-to-maturity framework (the banking book) is conceptually problematic.

[29] The corporate risk-weight function is linear in maturity, M, and more sensitive to M at higher PDs (as, if one believes that maturity should be part of the framework, it should be). Assuming an LGD of 45% and an EAD of 100%, the risk weight increases by 4.7pp for each year for the lowest permissible PD of 0.03% (which will cover Moody's Aaa, Aa or A), and by 12.5pp for each year for a PD of 1.2% (roughly Ba). Assuming that capital requirements bind, that minimum capital requirements is 8% of risk weighted assets and that the difference between the annual cost of capital and the cost of funding is 13pp, the cost of borrowing increases by 4.9 bp for each year for the Aa borrower and by 13 bp per year for the Ba borrower.

[30] Banks using their own VaR models for specific risk in the trading book may also prefer to hold short-term bonds; banks using the standardised method for specific interest rate risk (BCBS, 1996a) are required to hold less capital for short-term bonds, but only if the bonds are qualifying (essentially, investment grade). The new framework (BCBS, 2001, 102) retains the maturity buckets for bonds rated A+ to BBB- (or equivalent). Many developing country banks, if they are rated, may issue bonds in those rating classes. Indeed, bond issuers in developing countries have higher ratings than bank borrowers (World Bank, 2002).

[31] When effective maturity is calculated on each exposure (as under the advanced IRB approach and perhaps under the foundation), it is subject to a floor of one year - except when it is not, a waiver from the floor being available to certain exposures of original maturity less than three months, at national discretion (BCBS (2002c) paragraphs 282-283). Further curate's eggery is provided by the carve-out from the effective maturity adjustment in the advanced IRB approach (BCBS (2002c) paragraph 280), available at national discretion on lending to small domestic firms. We might call this the Mittelstand carve-out in honour of the special interest responsible, but for the fact that there are several such.

[32] That is, the 28 BIS reporting countries.

[33] The 1988 Accord offers a lower risk weight for sovereign lending denominated in the borrower's domestic currency, but only if the loan is also funded in domestic currency. The rationale for the funding requirement is transfer risk (BCBS, 1988, para. 36). The new standardised approach retains this apparently preferential treatment for sovereigns and extends it to short-term bank lending. A bank lending in a borrower's domestic currency must then either have liabilities in that currency, or face an fx mismatch charge *and* an increased counterparty risk weight, so it is an incentive to most banks to lend in hard currency.

[34] Monfort and Mulder (2000) estimate an error-correction ratings model to explain ratings changes. In its broadest specification, the coefficient on the lagged dependent variable is 0.88 for Moody's, and 0.79 for Standard and Poor's, both significantly different from unity. In both cases, other lagged variables are significant, so that ratings migrations are to some degree predictable.

[35] See, for example, the Index of Economic Freedom index of property rights, http://cf.heritage.org/index/indexoffreedom.cfm, which aims to measure freedom from government influence over the judiciary, the completeness and enforcement of commercial contract law, corruption within the judiciary and delays in receiving decisions.

[36] Insolvency laws were revised in March 1999.

[37] See La Porta et al., (1997) for indices of creditor rights and enforcement.

[38] In this table the East Asian 'Miracle' economies are Hong Kong, Japan, Korea, Malaysia, Singapore and Thailand.

[39] Compliance can be *partially* verified, since the rulebook can be read. Although Core Principles Assessments are fairly intensive, judging a standard properly requires a case-by-case examination, which is beyond their scope. IMF (2000) comments that it is difficult to judge the true extent of enforcement: "unfortunately, assessors have found that forbearance is relatively easy to hide or disguise".

[40] See Transparency International's Corruption Perceptions Index, 2002, on www.transparency.org. Of course there are exceptions: Botswana is perceived to be less corrupt than France or Italy. Most notably, South East Asian countries have experienced less macroeconomic volatility than Latin American (Chart 1), but are widely perceived to be prone to bureaucratic corruption (Transparency International, 2001).

[41] UBS (2000) *Price and Earnings around the Globe* reports net income for 'bank credit clerks' with bank qualifications and ten years' experience in a bank. Net income is estimated at $63,700 in Tokyo, $49,900 in Zurich, $29,500 in New York and $27,100 in London; and at $2,100 in Mumbai, $2,300 in Nairobi, $2,900 in Budapest and $3,600 in Manila. Credit modelling specialists command significantly higher salaries.

[42] The 'Technical Guidance' Document for the QIS3 study is an updated version of BCBS (2001a). The document has more importance than its title might suggest: it is in fact a draft Accord. Similarly, the European Commission Services' *Working Document of the Commission Services on Capital Requirements for Credit Institutions and Investment Firms* (2002) looks very much like a draft Directive.

[43] The 1988 Accord channels credit to governments and banks; Basel 2 will subsidise lending to SMEs, and treats government debt as a form of collateral free of price risk. SMEs are, here, companies with annual sales below €50m. SME borrowers can be treated as retail borrowers if SME loans are managed by the bank like retail loans, and if the exposure is below €1m. Retail borrowers receive a 25% discount risk weight in the standardised approach and a discount of up to 20% in the IRB approach.

[44] Duff and Phelps, Fitch, Moody's and Standard & Poors. The study was conducted before Fitch acquired Duff and Phelps.

[45] And preferably on the whole portfolio: using average portfolio ratings or PDs to calculate overall capital requirements would be misleading because risk weights are convex in ratings and concave in PDs.

[46] The data-gathering part of the survey ran between 1 October and 20 December 2002.

[47] I expect that the *average* bank in developing countries is likely to receive a slightly higher capital requirements under the standardised approach because: the proportion of loans (especially corporate loans) receiving a rating is much lower outside the G-10; average credit quality of the portfolio is lower; sovereign ratings are generally lower than in the G-10; and the supply of eligible collateral and of eligible guarantors is lower. On the other hand, a higher proportion of non-G10 bank portfolios consists of lending to the state and state-guaranteed enterprises, which carries a zero risk weight if denominated and funded in local currency.

[48] This figure is doubtful. Mishkin (2001) reports that there are 7,000 bank examiners in the US.

[49] The FSI is planning to devote more than half of its seminars and programmes in 2003 to components of Basel 2.

[50] Model recognition should focus more on the context in which internal systems are used than on the analytics of the systems. The skills required to judge model 'adequacy' are not primarily mathematical. Traditional supervisory strengths – scepticism and assertiveness – are more important.

[51] Schoenmaker et al. (2001), however, find no significant relationship between the GNP per head and the proportion of regulators in that country who a) are 'experts' (Masters degree or above); or b) have commercial experience; or c) have legal qualifications; or d) have economics and financial qualifications. This, combined with Nouy's results, may show that the diploma does not make the supervisor; or that supervisors' self-assessments at ICBS are biased downwards; or both.

[52] The result also holds when the authors use instrumental variables to try to control for endogeneity.

[53] There are some problems with interpreting this result because of the indicators used. Bank development (bank claims on the private sector as a proportion of GDP) is positively associated with growth (King and Levine, 1993). However, the benefit is surely non-monotonic: too high and the private sector is too highly geared, as it was in Korea in 1996/7. Similarly, bank lending must channel credit to risky projects, so a zero NPL cannot be optimal. Strong supervision could also, plausibly, improve the recognition of NPLs.

[54] The correspondence implied by the standardised approach risk weights can be found by looking at historical annual default frequencies for each exposures in each rating bucket or notch. Clearly, the correspondence is only defined at a few points; if ratings histories by notches are used, there are more points but the correspondence is not necessarily well-behaved (eg monotonic).

[55] But this is no more than an educated guess. The advantage of the IRB does not increase as the portfolio gets better. In fact (assuming EAD = 100%, LGD = 45% and M = 2.5), at AA and AAA quality the difference is only 5 pp, whereas the advantage of the standardised approach does increase as the portfolio gets worse. The IRB risk weight curve rises sharply above 150%, the maximum of the standardised approach. The differences can become very large: at a PD of 18%, in the range of Caa-C, the difference in risk weighting is about 170 pp. So, even if most of a bank's loans are in the zone where the IRB approach produces lower capital requirements, the advantage of the IRB approach can be outweighed by just a few poor-quality loans.

In principle, the expected loss portion of capital requirements for poor-quality exposures can be supported by provisions; this effectively flattens the IRB risk weight function further, pushing the point at which the standardised approach has an advantage further to the right. Furthermore, the foundation IRB approach has a wider definition of eligible collateral, including receivables, some mortgages and other physical collateral. This could make a big difference, but I have not yet seen any estimate of its impact.

[56] Kern Alexander and I will shortly be answering this question at greater length.

[57] The economic communiqué from the 1996 G7 summit at Lyon stated (28.6.96) "Over the year ahead, we should seek to make maximum progress on… encouraging the adoption of strong prudential standards in emerging economies and increasing cooperation with their supervisory authorities; international financial institutions and bodies should increase their efforts to promote effective supervisory structures in these economies." The Committee responded to this (arguably, *ultra vires*) request by producing two extremely useful documents that it would probably have produced anyway, the Core Principles (1997) and a Compendium of Documents, pulling together previously issued standards into one place.

[58] The Turkish government has an SDR12.8bn ($17bn) standby arrangement with the Fund, of which most has already been disbursed. The Turkish government's Letter of Intent of 19 June 2002 committed the government to recapitalizing troubled banks, with public support if needed. 24 of 26 banks were instructed in June to raise specified amounts of capital. Of the other two, shareholders' rights in one were suspended as the owner was found not fit and proper (the deposit insurance fund took over the voting rights). In the other, an acquisition fell through and the government (the Savings Deposit Insurance Fund) took over the bank, recapitalised it, changed the board and some senior executives, transferred its bad loans to the deposit insurance fund and put it up for sale. (The resolution of these two banks became a 'structural benchmark'.) The extra capital required amounted to TL 1,326 trillion. In its Letter of Intent of 30 July, the Turkish government said "To fill the remaining capital need, we expect requests from the Tier II public capital support scheme. Those banks that receive support will have representation by the BRSA or the Saving Deposit Insurance Fund (SDIF) on their boards." The letter also explained that four other banks had been subject to intervention by the BRSA, one of which had been liquidated. The government is to set a strategy for the sale of the bad loans transferred to the SDIF (another structural benchmark). The government is also transferring supervision of non-insurance, non-bank financial institutions from the Treasury to the BRSA; strengthening supervision of insurance firms; and introducing risk-based supervision (another structural benchmark). Despite political uncertainties, the third review was positive. The fourth review is in progress.

[59] Earlier this year, Uruguayan banks faced USD liquidity problems as a result of the Argentinian crisis, and purchased most of the reserves of the central bank. The peso was floated in June and the banking

system suffered a large wealth effect. In its Letter of Intent of 4 August, the Uruguayan government commits (a structural benchmark) to restructuring its state banks. One is to be turned into a housing association and its deposits transferred to the other, the BROU. BROU is to be recapitalised and supervised by the central bank. The state banks have also restructured the maturity of their liabilities; time deposits have been extended to three years maturity but are convertible at the option of the depositor into bank bonds. Its private sector banks were instructed to recapitalise by 5 August or face liquidation. Four insolvent private banks were in any case to be liquidated. The government, through the Fund for the Stabilization of the Banking System (FSBS) guaranteed time and sight deposits in both state-owned and the closed domestic banks, but not other liabilities. The resources of the FSBS (about $1.5bn) were provided by the World Bank, the Inter-American Development Bank, and the IMF, with liquidity support to be provided from the central bank. "In the future, banks that have insufficient liquidity to meet deposit withdrawals or that are unable to meet capital requirements as a result, will be intervened and closed."

[60] Sri Lanka is perhaps another example, although not formally: promises made relating to the Core Principles were not benchmarks. On 20 April 2001, the IMF approved an SDR 200m ($253m) standby arrangement for Sri Lanka, and this has since been fully drawn down. The programme conditions included 'improvements in the operations' of the two state banks, which account for about half the system. (The government's 2001 figures report that the two banks together had a capital adequacy ratio of 0.1%, and this is unlikely to be an underestimate. In contrast, domestic commercial banks reported capital ratios of 10.4%, and foreign banks 16%.) This began with a review of the relationship between the banks and public sector clients and their dealings with recalcitrant debtors. The government's 1 April 2001 Letter of Intent also contained a commitment to increase minimum capital requirements for commercial banks to 10% by 2003; the authorities also intend to develop a policy for handling weak banks. The FSAP mission of November 2001 and February 2002 "urged an early announcement of these steps". Source: IMF's First and Second Reviews, April 2002.

[61] Council for Foreign Relations (1999), argued that they should be. But there would be a risk of overreaction.

[62] ISDA has proposed that the BIS should publish aggregate data on numbers of banks using each type of regulatory approach to credit market and operational risk in each country. This is a promising suggestion, but again the use to which markets might put the information is unpredictable.

[63] See Directive 2000/12/EC, article 24 : "Member States shall not apply to branches of credit institutions having their head office outside the Community, when commencing or carrying on their business, provisions which result in more favourable treatment than that accorded to branches of credit institutions having their head office in the Community." This imposes an obligation on member states but does not prescribe how they are to assess whether rules are 'more favourable'. Article 14 of the proposed Financial Conglomerates Directive (see COM(2001) 213), currently in co-decision, also requires a judgement of equivalence of the home country's group supervision; if it is not equivalent, then the FCD applies on a global basis and it amends 2CSD in doing so. One piece of legislation, the Capital Adequacy Directive (Directive 1993/6/EEC) article 7(11), relies solely on the criterion of capital-equivalence for third country regimes. "In order to be granted the more favourable consolidation treatment, subsidiaries in third countries must comply "on a solo basis, with capital adequacy rules equivalent to those laid down in this Directive." However, the CAD is not critical to market access.

[64] The Board "shall also consider whether the foreign bank has adopted and implemented procedures to combat money laundering." Regulation K 211.30 sets out additional factors that the Board may take into account.

[65] Regulation K 211.24 further explains, but very briefly, the meaning of comprehensive consolidated regulation: The prime focus of the Regulation appears to be the information received by the home regulator, rather than what it does with it. The Fed's *Examination Manual for US Branches and Agencies of Foreign Banking Organizations* has a section on the assessment of home country supervision, and suggests that "effective regulatory systems may take many forms."

[66] It retains absolute minimum capital requirements, connected lending rules and informal fitness and propriety checks.

[67] Davis (2002) argues that small jurisdictions should copy large for the same reason.

[68] This is why the New Zealand model, which has since 1996 relied on transparency and a commitment (how credible?) by the state not to insure, is courageous. Economies of scope in monitoring are another reason why it could also be inefficient, although registered banks are required, as in Argentina, to seek public ratings. The regime rests on a well-founded critique of the usefulness of supervision, but ignores many of the market failures.

[69] Barth et al. (2001) also find some evidence that state ownership is positively associated with higher levels of non-performing loans, but government ownership is not robustly linked to their other two performance indicators or to the likelihood of having experienced a crisis.

[70] Brownbridge and Kirkpatrick (2000).

[71] The fx settlement arrangements of the CLS Bank are a potential example. The Bank's net payment arrangements reduce the Herstatt risk for the Bank's customers; however, some have argued that the fx settlement risk has been transmuted into highly concentrated operational risk. Similar arguments could perhaps also be applied to the large global custodians and clearing houses.

[72] Clearly, the 'system' is undefined. Hedging outside the system is imperfect because the act of hedging effectively increases the size of the system: exposures across different systems rise, shocks are more easily propagated between systems and correlations rise. But the point stands: hedging with another bank has different implications for the system than hedging with a non-bank.

[73] On early warning systems, see Bell and Pain (2000), Blaschke et al (2001), Davis (1999), Evans et al. (2000), Hawkins and Klau (2000), Sahel and Vesalala (2001), and Sundarajan et al. (2002).

[74] The systemic risk component of prudential regulation would then be made explicit. Some would regard this as undesirable, because the reduction in constructive ambiguity would lead banks and depositors to make more accurate inferences about the scope of the safety net. On the other hand, banks posing the most systemic risk would have to pay for it; in the current model, they benefit from 'too-big-to-fail' expectations for free.

[75] Incidentally, banks' holdings of other capital instruments *are* routinely deducted from capital, at least in the EU. However, the holdings are top-sliced. Credit Institutions Directive, 2000/12/EC, Art. 34 requires holdings of other credit institutions' capital in excess of 10% of either institution's own funds to be deducted. Presumably the reasoning is similar. The Basel framework has a weaker requirement to deduct *reciprocal* cross-holdings.

[76] Indeed, the 2002 Sarbanes-Oxley Act also introduces criminal penalties for CEOs and CFOs that file inaccurate reports to the SEC.

[77] The new Accord may actually increase regulators' temptations to underwrite their banks. Interbank funding costs for banks in developing countries (and hence their profitability) will depend on the internal or external rating of the borrowing bank. In many countries, rating agencies assume that the banks will be bailed out, so that the long-term rating is much better than warranted by the standalone 'financial strength' rating. Ideally, a prudential regime would require that banks ignore the value of the state guarantee and use a standalone rating; in fact it does not (and stand-alone strength ratings, a fairly recent invention, are not calibrated to PDs).

[78] Another way to solve time-inconsistency problems is by investing in reputation. In the case of bailouts during financial crises, the number of expected repetitions is low, so that with a non-zero discount rate the incentives to build reputation may be low.

[79] Governments guaranteed all bank deposits in Thailand in August 1997, in Malaysia in late 1997, and in Indonesia, following the closure of sixteen commercial banks and a general bank run on private commercial banks, in January 1998 (Hawkins, 1999).

[80] Although high-franchise value banks have more reason to hold high capital and safer assets, a bank's actual capital ratio is not in general equal to its private optimum, and so should not be taken to be reliably indicative of franchise value. A bank suffering a negative capital shock will have strong incentives to rebuild capital and reduce risk if it has high franchise value, and incentives to gamble for resurrection if it does not.

[81] The Central Bank of the Philippines has a policy of promoting mergers to create 'globally competitive' banks. The measures to encourage mergers include lower capital requirements for merged banks, restructuring of loans to the central bank, and goodwill amortisation over 40 years. The first will simply guarantee that there are large weak banks rather than small ones, which is the worst outcome of all. The last is likely to mislead investors; it could also overstate capital (if goodwill is not deducted from Tier 1 capital, as it should be).

[82] Which may be infinitely tight. Malaysia, I am told, has not issued a new licence since 1979.

[83] See Fernández et al. (2000).

[84] While at the Bank of England, I wrote a rule suggesting that the best response to a common volatility shock was for banks to update their volatility estimates. The FSA's rules still include this approach (IPRU, TV section 10). I am now less sure that this was wise.

[85] Chairman of the Basel Committee, William McDonough (2002) recently argued "another general concern expressed is that the New Accord's increased sensitivity to risk will reinforce behavioral patterns in banking organizations that may increase the cost of credit precisely at times when its supply is falling, namely during downturns in the business cycle. While we are working to address this concern about procyclicality, it is not a reason to shy away from creating better risk management tools." This argument is based on dual use of the word "better": the new approach may be better risk management for shareholders, but is not for society.

[86] An association of bank associations from Europe, the US, Canada, Japan and Australia has expressed unease about fair value measurement on the similar grounds that it would restrict banks' ability to provide long-term finance, and could result in "financial instability without cause".

[87] However, cumulative daily losses must be deducted immediately from capital, so while an asset price fall will have a lagged and small effect on VaR, it will immediately reduce capital unless there are unrecorded profits as a buffer. Large price shocks are negatively correlated with these buffers.

[88] See Hay, Shleifer and Vishny (1996).

[89] But see Davis (2002) who reverses the standard wisdom, arguing (essentially because rule production is subject to increasing returns) that standards are relatively better suited in 'small' jurisdictions including most developing countries, that small developing countries should copy laws from high-income countries rather than bear the high average cost of developing their own, and that simplicity has no relative advantage when standards are used.

[90] Oddly, FDIC-insured banks and thrifts are exempt. Foreign banks do not generally qualify for FDIC insurance and the Act appears to violate the national treatment principle of GATS for no clear prudential purpose.

[91] Indeed, although the context is not the same, books have been written in political science about the policy cycle (eg Parsons, 1995). One description of the cycle is as follows: agenda-setting, proposal formulation, policy decision, implementation, evaluation, change.

[92] Even in the US, the country with the most experience of securitisation, the law retains clear uncertainties, as shown in the case of LTV Steel in December 2000, where LTV's argument was that a sale of receivables to an SPV was not a sale but disguised funding. In 1999, First National Bank of Keystone was shut down by the OCC as a result of catastrophic and allegedly fraudulent misaccounting of its retained interests in securitised home improvement loans.

[93] The Bank of Mexico has resisted the temptation merely to add a set of detailed instruments to its rules, setting out contracts that can change an fx position. Instead, it has replaced the definition with a broader one. Its definition is this: "A foreign exchange position should be considered long or short if it generates potential gains or losses from the depreciation of the exchange rate" (O'Dogherty and Schwartz, 2001). The rule is more general than a definition solely based on assets and liabilities. It requires interpretation by banks and regulators, rather than by accountants. There is a small sacrifice of clarity in exchange for a large increase in scope.

[94] For the official view of stress testing, see CGFS, *Stress testing by large financial institutions: current practice and aggregation issues* (2000) and *A survey of stress tests and current practice at major financial institutions* (2001).

[95] Hawkins (2000) has noted that the fall in external lending to developing countries by BIS banks has been matched by increased lending by subsidiaries in developing countries. This has had two beneficial side-effects: it increases the power of the local regulator to apply autonomous policies, and reduces fx mismatches in the banking system.

[96] Hence the local incorporation requirement is not available to central and eastern European countries intending to joint the European Union.

[97] See the FSA Policy Statement *Wholesale-Only Deposit Takers: Feedback on CP88 and made text*, November 2001.

[98] The three classes are these (RBNZ, 2001):

Systemically-important banks - defined as those whose liabilities net of amounts due to related parties exceed NZ$10 billion (an amount equivalent to approximately 7.5% of the banking system aggregate).

Retail deposit takers from jurisdictions with statutory preferences - Banks that have more than NZ$200 million in retail deposits will be required to incorporate locally if legislation in the bank's home jurisdiction gives depositors or creditors from that country a preferential claim in a liquidation.

Retail deposit takers with inadequate disclosure in the home jurisdiction - Banks that have more than NZ$200 million in retail deposits will be required to incorporate locally if the bank's disclosure in the home jurisdiction is inadequate.

[99] I am grateful to Kern Alexander for repeated coaching.

[100] This approach has been used elsewhere within GATS. Article 3.1 of the Sanitary and Phytosanitary Measures Agreement requires that members should base their sanitary measures on international standards.

[101] Note that a more general restriction, a requirement to incorporate, would not violate Article II (although arguably it would be less proportionate for Article VI purposes).

[102] In the People's Republic of China, foreign life assurance entities are required, for reasons not fully explained, to satisfy much higher capital requirements than domestic entities. The US Trade Representative has made an informal complaint, pointing out that this policy was not contained in the schedule of specific commitments. But the Chinese government defends it on prudential grounds, and so the test to be applied under the prudential carve-out would merely be rationality. It remains to be tested whether this policy can be shown to be rational. To the neutral observer, some case law would be welcome.

[103] The EU is something of an exception, particularly in trade policy. While the Directives in financial services are legally binding on member states, they leave implementation open to national discretion; some, however, are so detailed as to minimise discretion. In addition, the legislative process is partly centralised and partly inter-governmental.

[104] It may also be because in the work of securities commissions, international cooperation is not the absolute imperative that it is in bank regulation.

[105] The institutions are not entirely separate. Saudi Arabia, China and Russia are closely involved in the work of the CPLG and have permanent seats on the IMF Executive Board.

[106] The Committee is clearly aware of the risk. McDonough (2002) reported that "the purpose of this initiative is not to develop one or even several specific 'Basel-approved' approaches to such regulation. Rather, we wish to provide practical assistance to supervisors confronting the challenges ahead to develop an appropriate regulatory framework suitable for their national circumstances and domestic banking systems."

[107] The Core Principles were endorsed by a number of regional bodies (BCBS, 1997): Arab Committee on Banking Supervision, Association of Banking Supervisory Authorities of Latin America and the Caribbean, Eastern and Southern Africa Banking Supervisors Group, EMEAP Study Group on Banking Supervision, Group of Banking Supervisors from Central and Eastern European Countries, GCC Banking Supervisors' Committee, Offshore Group of Banking Supervisors, Regional Supervisory Group of Central Asia and Transcaucasia, SEANZA Forum of Banking Supervisors, Committee of Banking Supervisors in Central and West Africa.

[108] Representatives from the European Commission and West African Monetary Union attend CPLG.

[109] The current Accord does not offer much protection in high-income countries either. The Committee aims to keep capital requirements roughly the same; which means, in practice, that banks on the IRB approach will on average see their capital requirements fall. The Committee's objective of roughly maintaining overall capital, which has been so unpopular with banks who claim to have improved their risk management, in fact grandfathers 16 years of regulatory arbitrage.

[110] Care is needed in comparing NPLs with capital ratios for several reasons. First, NPLs are a proportion of loans; capital is a proportion of risk-weighted assets. So NPLs of 10% may be consistent with a bank adequately capitalised at 8%. Secondly, the decision to recognise a non-performing loan is partly discretionary: the credit officer can always evergreen the loan, and this is very common and hard to prevent. Indeed, Thailand now *allows* restructured loans to be classified as performing, making its 'days past due' rules rather irrelevant. Vietnam apparently does the same. Thirdly, non-payment of interest does not imply loss of principal. Only parts of the NPL may need to be provisioned for. NPLs can exceed losses if there are recoveries. Fourthly, loan portfolios are supported by income as well as capital.

[111] The argument, effectively, is that an 8% minimum capital requirement delivers a higher probability of default in riskier countries with weaker institutions, and so a higher capital requirement is needed to achieve the same maximum probability of default. I am not certain that the maximum tolerable probability of default in developing countries should be the same as in less volatile countries with more abundant capital.

[112] Cf BCBS (1988) paragraph 7: "It should be stressed that the agreed framework is designed to establish minimum levels of capital for internationally active banks. National authorities will be free to adopt arrangements that set higher standards."

[113] More generally, if the new minimum capital requirements is x%, assets must be revalued by $(x-8)/(100-x)$ per cent for capital to remain adequate.

[114] Brazil, China, India, Russia, Saudi Arabia and WAMU.

[115] Alternatively, the extra 1% may be a substitute for the operational risk requirements; accounts differ.

[116] For example, the compromise on commercial mortgages in the standardised approach.

[117] In fact, in this respect Tier 3 capital is better than Tier 2.

[118] The cost to banks of moving from a regime where only half of 8% need be Tier 1 capital to one in which all of it must be Tier 1 is, at most, the net funding cost of replacing Tier 2 with Tier 1 (less, if the shadow multiplier on the regulatory capital constraint is less than 1). In referring to ordinary share capital I am assuming that the bank is a company limited by shares. In a mutual, the equivalent might be general reserves and retained earnings.

[119] Multiple-name credit protection purchased by way of credit derivatives (which function as synthetic securitisations) would be unrecognised. Since synthetic securitisations are close substitutes for traditional securitisations, the cost would be negligible.

[120] Each exposure must be multiplied by a risk weight. The length of the risk weight vector has no effect on the number of calculations. It has a very small effect on the amount of static data required. In a variance-covariance model, by comparison, the number of calculations is proportional to the square of the number of risk exposures.

[121] The Executives' Meeting of East Asia-Pacific Central Banks, which has 11 members.

[122] A guidance document on the Pillar 2 implementation of an IRRIBB approach is promised, as are documents on concentration risk and '*w*'.

Working Papers

No.	Published	Title	Author
1	May 2002	On Strategic Default and Liquidity Risk	Demosthenes N. Tambakis
2	June 2002	The Supervisory Approach: A Critique	Jonathan Ward
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Please address enquiries about the series to:

Mette Helene Rokkum Jamasb

Cambridge Endowment for Research in Finance

Judge Institute of Management

Trumpington Street

Cambridge CB2 1AG, UK

Tel: +44(0) 1223 764 115

E-Mail: m.jamasb@cerf.cam.ac.uk

http://www.cerf.cam.ac.uk