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INTERNATIONAL CAPITAL ADEQUACY STANDARDS
by
Professor W.P. Hogan
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International Capital Adequacy Standards.

1. Introduction

On 15 July, 1988 the Committee on Banking Regulation and Supervisory Practices - the Basle Committee - promulgated an agreed set of rules on capital adequacy applicable to internationally-operating banks in the member countries of the Organisation for Economic Co-operation and Development.(8) These rules specify not only a comprehensive definition of banks' capital but also introduce risk weightings for the components of banks' assets and off-balance sheet business. This determination reflected lengthy negotiations amongst the monetary authorities supervising major financial centres around the world, namely from the countries comprising the Group of Ten(G10), Switzerland and Luxembourg.¹ The two aims of this new set of rules were clearly stated; to strengthen the soundness and stability of the international banking system and to develop a regulatory framework fair and consistent in its application so that competitive inequality amongst international banks would be diminished.

The purpose of capital adequacy is the provision of sufficient shareholders' funds to absorb unanticipated losses so as to maintain a bank as a going concern or, in worse circumstances of potential insolvency, protect depositors by having shareholders bear the losses. In this way capital adequacy helps ensure the stability of the banking system. Such a requirement assumes a greater significance when national monetary authorities have made explicit or implicit guarantees protecting depositors in banks. In those circumstances there is a potential moral hazard problem with bank management having little incentive to constrain risk-taking.² An historical perspective on the development of capital adequacy measures is offered in the next section.

The new capital/risk-adjusted assets ratio(CRAR) reflects a comprehensive international effort to bring uniformity across bank participants.

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¹ The Group of Ten(G10) countries comprise Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, United Kingdom and the United States.
² Moral hazard may be defined as actions of economic agents to maximize their own utility in the detriment of others in situations where they do not have to bear the full consequences of their actions.(22)
in international financial markets and to increase bank capital to levels
commensurate with perceived risk exposures in all aspects of banking
business. Details of the new scheme are explained in Section 3. It defines
components of bank capital and the risk-weightings assigned to different
types of assets and off-balance sheet exposures. Ways of measuring the
value of those exposures are also specified.

What then follows is an analysis of the effectiveness of the new set of
rules. In Section 4 this critical appraisal begins with a focus on the
measurement of capital. Section 5 follows with a critique of the risk-weighting
of assets and off-balance sheet exposures. Most concern is with the
assigning of risk weightings to very broad classes of assets and exposures,
the predominant focus on credit risk, and the failure to establish any portfolio
approach linking the structure and maturity of liabilities to those for assets.
Next, in Section 6, attention turns to issues bearing upon international
conformity to the provisions of CRAR.

2. Developing Risk-Based Rules

Turbulent economic conditions in the 1970s and early 1980s were a
reflection of instability in international trade and payments. Repercussions
in international banking were revealed in the deleterious effects of a
narrowing of margins on lending for banks’ capital/assets ratios; returns on
banks’ equity could only be sustained by increasing the leverage or asset
gearing on banks’ capital. Undoubtedly, internationally-operating banks
were exposed to increased risks. Banks were exposed to a much
enhanced risk of insolvency should borrowers collapse or governments lack
the foreign exchange to meet their servicing commitments, and those of their
residents, to banks abroad. These possibilities, with their implications for
the stability of the international banking system, have since bedevilled the
workings of many banks in North America and Europe and help explain the
strong resurgence of interest in capital adequacy during the past few
years.

In 1975 the banking authorities of the G10 countries, meeting under
the aegis of the Bank for International Settlements (BIS), had agreed on rules
by which parent and host authorities dealt with the supervision of banks’
foreign establishments. That Concordat, as it was known, was re-affirmed in
1983. But another pervasive influence on the conduct of banking emerged
during the 1980s. The rapid growth of off-balance sheet business reflected
the erosion of the distinction between intermediation by banks and direct
financing through equity and bond markets, a process now familiarly
described as securitisation. But impetus for this change in the ordering
of markets was not independent of the relative weakening in the financial
quality of banks’ asset portfolios, for reasons mentioned in the preceding
paragraph, when compared with industrial and commercial corporations.
Moreover the rapid growth of markets in financial futures and options during
the 1970s provided access to means of risk management hitherto unavailable
directly to non-financial corporations. The proliferation of interest rate and
currency swaps during the 1980s further extended the array of financial
instruments for managing liabilities and assets in securities markets as well
as moderating risk exposures.

Hence banks, by the middle of the past decade, had become as much
hostages to the effectiveness of financial innovations as prisoners of past
asset allocations. While the latter impact called into question the extent of
capital support for balance sheet activities, the first mentioned cast doubt
on any assessments of banks’ viability which did not account for contingent
exposures.

Concern over the rapid growth of off-balance sheet business led
banking authorities to co-ordinate measures for its supervision through the
Basle Committee. By March 1986 that Committee had developed a set of
proposals for risk assessment. While the measures suggested were not
prescriptive they provided the basis for national authorities to devise
techniques appropriate to their national setting.

Some national authorities, such as those in France and the United
Kingdom, explored in great detail the workings and significance of capital
adequacy measures other than the simple capital to total assets ratio. Thus
measures of risk associated with different types of assets, or claims against borrowers, were developed and then incorporated in the
capital/asset ratio. For example, in April 1985 the Bank of England
incorporated note issuance facilities in assets for purposes of measuring capital adequacy. In the Netherlands, formal provisions were made for different capital to total asset ratios for each category of asset and some contingent liabilities fell within the compass of capital adequacy requirements.(11) In others these risk adjustments were informal in the sense of being used for guidance when assessing the performance and stability of individual banks. (75, pp. 234-5)

During the early 1980s the Basle Committee was the focus of discussion on prudential and supervisory policies amongst the most important national banking authorities. In this period most features bearing upon the application of CRAR were recognised and developed. Most important was the appraisal of contingent liabilities for understanding bank risk. However any measure of capital adequacy, as comprehensive as it may be, could not encompass, "... the whole range of considerations which bear on the adequacy of a bank's capital to support its overall business." (9,p.222) Thus in the mid-1980s there were signals warning against exaggerated expectations as to what might be achieved. That caution did not permeate sufficiently the statement on international convergence of risk-adjusted capital adequacy standards. (8)

The extent of co-operation between national monetary authorities was further revealed in January 1987 when the United States Federal Banking Supervisory Authorities and the Bank of England published a joint consultative paper outlining a proposal for a modified risk asset approach incorporating off-balance sheet activities. (2, pp.87-93) However this joint effort reflected the lengthy discussions in the Basle Committee over the preceding ten years on the international co-ordination of bank supervision.

The principal objective of the joint consultative paper was to promote international convergence of supervisory policies. Although the stated purpose was prudent control, competitive considerations were involved from the outset. This was revealed in responses of U.S. banks to some initial proposals issued by their supervisory authorities in January 1986 summarised as, "... without similar requirements for foreign bank competitors, the proposed requirements would put U.S. banks at a competitive disadvantage both at home and abroad, ..." (3,p.27)

The initiative of the U.K. and U.S. authorities spurred wider international discussions, most importantly those under the aegis of the Bank for International Settlements (BIS) with its Committee on Banking Regulations and Supervisory Practices - the Basle Committee - negotiating a set of proposals to which reference was made at the beginning of this paper. An initial draft proposal for a risk-based capital adequacy measure was made public late in 1987. This draft scheme was reviewed and the results of lengthy deliberations in the first half of 1988 incorporated in the revised proposal made public during July that year.

Some features in the new set of rules should be noted. First, the agreed measures establish a minimum level of capital as determined by CRAR. National monetary authorities are free to set higher requirements. Recent commentary on the United States banking outlook points to higher ratios in that country. (15) Secondly, the application of the new rules is the responsibility of each national authority so that interpretations of the provisions may differ between countries.

3. The Risk-Adjusted Scheme

The new set of rules have two main elements; first, the defining of what is meant by capital and, secondly, the measurement of credit risk associated with a bank's assets and off-balance sheet exposures. The aim of the second element is to measure the exposure to credit risk of the various components of a bank's assets and commitments so as to derive a risk-adjusted value for all these activities. Then the defined measure of capital is linked to these risk-adjusted values to obtain CRAR. The minimum requirement for this ratio has been set at 8 per cent of which core, or Tier 1, capital must be at least 4 per cent.

There is a transition period for the introduction of the new rules. At the end of 1990 an interim minimum standard of 7.25 per cent applies of which half should be core capital. Even so that core capital may be "watered down" with 10 per cent of the requirement being drawn from supplementary, or Tier 2, capital. This has the effect of requiring at least 3.25 per cent in core capital from the end of 1990. At the end of 1992 the transition period ends with the scheme fully implemented.
The response of national banking authorities to the new rules has varied. Some, such as in Australia and the United Kingdom, have fully implemented the arrangements with few transitional provisions. The United States authorities as with the French are taking advantage of the transitional arrangements. In Japan the new rules will apply only to those banks with foreign subsidiaries or branches.(31)

a. Measuring Capital

Capital is divided into two components. Core or Tier 1 capital is composed of paid-up ordinary shares, funds in the share premium account, general reserves, retained earnings, non-cumulative irredeemable preference shares and minority interests in subsidiaries not wholly-owned where accounts are consolidated with those of the parent bank. In essence all of these elements are available to support the bank in the event of losses. Tier 1 capital must be 50 per cent or more of total capital as measured for capital adequacy purposes. Tier 2 or supplementary capital contains those items akin to unencumbered equity capital but are not transparent in their valuation or availability to support the bank as a going concern or to absorb losses. These requirements are specified in greater detail in Appendix A.

With Tier 2 or supplementary capital there are specific limitations on the contribution of individual components in the measurement of capital adequacy. The contribution of general provisions for bad and doubtful debts in measured capital cannot be more than 1.25 per cent of total risk assets and exposures when the new scheme is implemented fully. The conventional argument for this limited contribution is that these general provisions are determined by past experiences and in some sense may recognise unspecified financial weakness in the asset portfolio.

Other items included in Tier 2 capital are asset revaluation reserves, redeemable preference shares, mandatory convertible notes and similar instruments, perpetual subordinated debt and term subordinated debt where the original maturity is at least seven years and with the proviso that value for adequacy purposes is amortised by 20 per cent each year over the final five years to maturity. Redeemable preference shares and term subordinated debt cannot contribute more than 50 per cent of the Tier 1 capital provision. The Basle Committee lists hidden reserves in Tier 2 capital with the valuation based upon a discount of 55 per cent of the margin between the historic cost book value and the market value of the securities. The capital requirement value (CRV) of the hidden reserves is given by the equation CRV = .45(MV-HV) where MV is market value and HV the historic value.

b. Risk Adjustments to Assets and Exposures

The second part of the new requirements deals with the risk adjustment to the value of assets on the balance sheet and the contingent commitments off the balance sheet. The predominant features of these allocations are the specific designation of weightings to the various assets held as claims against governments and banks, the special provision on loans for residential dwellings and the lumping together of all other loans to the market sector of the economy.

For assets held on balance sheet there are five categories of risk weighting: zero, 10 per cent, 20 per cent, 50 per cent and 100 per cent. The coverage of items in each of these categories is listed in Appendix B. Broadly, the categories attracting less than 100 per cent risk weighting include different types of claims on governments, central banks and other banks. Foreign exchange and transfer risks are acknowledged only in distinctions made between banks of member countries of the Organisation for Economic Co-operation and Development (OECD) and banks in other countries. Claims or assets on companies other than governments and OECD banks are generally treated as 100 per cent risk credit for weighting purposes. Only housing loans fully secured against residential property are treated differently, attracting a 50 per cent risk weighting. These weights are applied to the nominal values shown in balance sheets to derive a risk-adjusted value for estimating capital adequacy. National authorities have some discretion in their allocation of weights to the claims on governments and banks.(28,29)

The treatment of off-balance sheet business is more complicated. Direct credit substitutes are all weighted 100 per cent being simply commitments no different from comparable balance sheet items; these substitutes include guarantees and their equivalent, bills endorsed and assets sold with recourse. The same weight applies to asset sale and repurchase agreements, and outright forward purchases. Contingent items related to a
specific transaction or performance are weighted at 50 per cent while letters of credit related to trade attract 20 per cent. Newer techniques such as note issuance facilities and revolving underwriting facilities are assigned a 50 per cent weight. Other commitments, such as unused overdraft limits, attract a 50 per cent weight when the original maturity exceeds one year.

Adjustment procedures for market-related instruments such as foreign exchange and interest rate contracts are complex. With these items the risk elements reflect the relationship between the current market values of contracts and their initial values as a measure of current risk exposure, and the potential risk exposure reflecting fluctuations in rates during the remaining period to maturity with attendant exposures in the event of default. Details of these procedures are provided in the latter part of Appendix C.

Two methods are permitted by which to calculate the credit equivalent values of these market-related contracts. Once such values are measured they are, with one exception, weighted by the appropriate risk category laid down for on-balance sheet assets. For example, an interbank swap would attract a 20 per cent weighting. However, non-bank market participants are not held to a 100 per cent risk weighting. Instead a maximum 50 per cent weighting is laid down because participants are usually recognised as being of high quality in terms of credit risk. (Annex 3, p.6)

A most important qualification applies to these calculations. Where these instruments, most obviously options and futures, are traded on exchanges and subject to daily mark-to-market valuations with associated payment and repayment of margins requirements, they are excluded from the risk assessment procedures and do not count in risk-adjusted values of bank assets. This provision recognises the market discipline imposed by the trading requirements of options and futures exchanges.

Consideration was also given to whether or not provision should be made for the netting of contracts between the same counterparties. By netting is meant taking the net rather than the gross value of claims in contracts such as swaps. Recognition of this procedure would diminish greatly the credit exposure of parties in such contracts and thus flow through to capital requirements under the new rules. Acceptance of this procedure depends heavily upon whether or not master contracts between participants

in swap markets would be recognised under national bankruptcy laws rather than be unwound to identify the gross claims and liabilities associated with individual contracts. At present netting provisions would seem to rest with individual national authorities.

4. Queries about Banks’ Capital

a. Subordinated Debt

Subordinated debt offers a means for a bank to expand its capital base in a flexible way to meet shifts in the structure of its business; an important feature for banks with commitments across a number of currencies. Subordinated debt may be denominated in currencies other than the domestic currency of the bank concerned so moderating impacts on capital requirements of exchange rate variability. The proliferation of subordinated debt in banks’ capital structures is a reflection of foreign exchange market conditions. The advantages and disadvantages of including subordinated debt in capital for adequacy requirements were canvassed in the Report of the Committee on Banking Regulations and Supervisory Practices when introducing the new set of rules. (p.8).

The main argument against including subordinated debt in bank capital has been its lack of permanence and the need to repay or refinance the debt at maturity. The capital base of the bank might be destabilised should refinancing be required at a time of volatility in capital markets. Furthermore one participating country has reserved its position not just with subordinated debt but all supplementary capital provisions. (p.4, fn.3)

Another shortcoming is the inability of subordinated debt to absorb losses in a going concern. Nevertheless subordinated debt offers one advantage by providing depositors with protection in a liquidation; such debt ranks ahead only of share capital in terms of prior claims on the assets of the bank. Unlike owners, subordinated debt holders do not share in any increase in bank profits derived from the pursuit of high risk strategies. Hence these

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3. The Reserve Bank of Australia has been reluctant in its acceptance of all subordinated debt as part of capital, most of all the new variety. It did to as part of the move towards international convergence as much as on its own volition (p.8).

4. This reference is to the stance taken by the Deutsche Bundesbank. However, the official German commentary on CRAR refers to two countries expressing reservations about the capital standards (p.37).
holders should be expected to prefer such debt issued by conservatively-managed banks. Subordinated debtholders offer a potential source of market discipline on risk-taking because those banks with perceived higher risk will be forced into relatively higher borrowing costs if funds are to be attracted to them. While public offerings of subordinated debt should provide an additional source of market discipline to that of new equity in the case of publicly listed banks, the issuing of subordinated debt would ensure a primary source of market discipline for privately held banks.

There are other means for testing the market standing of a bank. Banks fund their asset portfolio in short-term markets such as those for commercial paper and certificates of deposit. As with subordinated debt, pricing in those markets reflects risk premia. Hence while the price signals associated with the issuing of subordinated debt are important to the risk assessment of the issuing bank, other marketable securities offer similar possibilities.

b. Provisions and Reserves

The treatment of items included in supplementary, or Tier 2, capital shows the problems arising from efforts to resolve conflicting views on how to account for banking business. The use of hidden or latent reserves by recording book values rather than market values in balance sheets contrasts sharply with procedures resting upon market valuations and aiming at transparency. The clearest example of the latter approach is found with exchange-traded instruments, mainly futures and options, where the risk weighting is zero because of marking the contracts to market values and having margins calls or payments each day.

Asset revaluation reserves, whether of the property or hidden varieties, are prone to the market valuations from which they draw their substance. Their prominence in the 1980s reflects the sustained growth in most nominal values for much of the period. Yet the value of the hidden reserves evaporates rapidly with any drop in market values so that their contribution to the capital of a bank is likely to be the least at the very time when capital strength is most needed, namely with worsening economic conditions and exposure to proportionately higher bad debts in the assets portfolio. No less telling is the contrast between the valuation of hidden reserves at 45 per cent of the margin between market and book values, and the 100 per cent recognition of property revaluations even when determined on a prudent basis.

If the new measures of capital in the two tiers are to be stated publicly then the meaning and purpose of hidden reserves are not obvious. They are no longer hidden! Should, however, the structure of the two tiers of capital be confidential to the national authorities there is no effective basis for checking on competitive equality internationally.

A separate though related query arises about the purpose served by general provisions for bad and doubtful debts, appearing in Tier 2 capital. Bank accounting practices submerge them in their historical positions under other liabilities or, most often, contra-assets so reflecting their origins as hidden reserves. With Tier 1 capital required to be 4 per cent of total capital, the obvious adjustment is to abandon this vestigial remnant of an opaque banking era. By placing the funds now allocated to these general provisions, into general reserves they would be identified for what they really are, retained earnings. In this way Tier 1 capital would be bolstered.

The argument for a specific classification of general provisions for bad and doubtful debts is that they are to meet unanticipated future losses in the stock of assets. Yet the practice with such provisions does not accord with the description of their purpose. Losses in any one year are met by setting them off against earnings in the year. The general provision does not come into those calculations. Rather the general provision is topped up from annual earnings to preserve some given ratio of those provisions to total assets. The increments to the general provisions respond to asset growth not losses. Only if losses exceeded annual earnings would the general provisions be drawn upon but in that function those provisions have the same role as any general reserve.5

Converting general provisions to general reserves should be more acceptable than another technique witnessed recently, namely the use of the increment in value arising from property revaluations to issue bonus shares to

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5 These points raise wider issues about the valuation of assets and liabilities of banks, especially conflicting roles of historic cost and market valuations. A greater reliance on market discipline rather than regulatory procedures was perhaps called for the application of mark-to-market procedures for balance sheet elements in much the same way as the new rules require application to off-balance sheet business. Some features of this problem have been traced already, cf.10, p. 186.
existing owners. This has been witnessed in the United Kingdom and Australia. That device converts Tier 2 capital to Tier 1 capital ostensibly strengthening the capital adequacy of the bank concerned in terms of the new requirements. Yet that increment is secured without additional funds coming into the bank concerned.

c. A General Point

Designation of what constitutes bank capital, core and supplementary, rests upon no unambiguous principles. Core, or Tier 1, capital has its focus on those funds completely available to meet losses and protect depositors' claims in the event of winding up the bank. Yet that clarity of purpose has been clouded by the authorised manipulation of property revaluations into Tier 1 capital. Thus an essential requirement for a bank's capital, according to the Bundesbank, being that it "... has a sound basis and is wholly made up of risk-free top quality elements." is absent. (13,p.38)

The two requirements for a bank's capital are straightforward: first, funds should come from unencumbered raisings of money conferring ownership on the subscribers; and, secondly, additions to capital other than new issues of equity in the bank should come from cash flows generated in the course of banking business. With this definition hidden reserves and property revaluations have no place in the components of bank capital. They reflect estimates of realisable gains should the securities or property portfolios be sold.

Subordinated debt does not meet requirements though the failure is much less obvious than with revaluation reserves. It arises from the inability of such debt to meet losses in a going concern. For that reason the weakness lies in the possibility of a bank, relying substantially on subordinated debt within total capital, being hastened into winding up in face of a liquidity crisis. That prospect does not strengthen the capacity of banks to manage strains arising from any short-term economic malaise.

The main attraction for incorporating subordinated debt within capital is that capacity to support the workings of banks in currencies other than domestic or home currency of each bank thus matching in some measure commitments to the capital supporting them. This balancing of advantage in the foreign exchange management of banks' capital with the weakness in supporting day-to-day operations explains efforts by authorities to specify only categories of subordinated debt as suitable for counting as part of capital. Hence the perpetual and non-cumulative features and the rejection of any trigger mechanisms in the debt agreement. (9,p.221)

The measurement of capital within the new set of rules looks a bit flimsy in light of the interpretations placed upon it by some national authorities. However, misgivings did not start with national specifications. Rather it is the failure to spell out the basic requirements for recognition of the essential constituents of capital which bedevils the new set of rules. Hidden reserves and asset revaluations have no place.

5. Weighting Assets and Exposures

a. Risk Weightings

One of the two objectives of the Basle Committee proposals was to strengthen the soundness of the international banking system by eliminating the moral hazard problem implicit in the traditional capital/large assets measure of capital adequacy. This was to be achieved by relating capital requirements to risk exposures. Moreover this position is supported by formal analysis showing that risk-related capital regulation has the potential to place an upper bound on the probability of bank insolvency provided that the weightings for individual bank activities are chosen optimally. (21)

However, the risk-adjusted measures now being implemented fall well short of this ideal. They provide a measure of risk which is spurious; the measures are partial in their coverage and ad hoc in specific detail such as lumping all lending to companies in the market sector under the same weighting, namely 100 per cent. There is no recognition of different qualities of collateral securing a loan with the exception of the 50 per cent weighting for residential mortgage financing. Moreover, the risk weightings are devised to account almost exclusively for credit risk. Sovereign or country transfer risk only enters into the Basle Committee recommendations in the broadest way by the distinction between banks, central banks and governments of OECD countries vis-a-vis the rest of the world.
Interest rate risk, having been incorporated to some extent in the 1987 draft proposals from the Basle Committee, disappeared in the final version. However, where national authorities have elected to differentiate between central government securities not exceeding one year to maturity and those exceeding one year to maturity some measure of interest rate risk is recognised. Yet with no similar distinctions made for securities of other levels of government and fixed rate commercial loans there is a glaring inconsistency in the application of risk weights. The more convincing rationale for differentiating between short-term central government securities and other securities would be in terms of liquidity risk.

With the focus on individual components of the asset portfolio and off-balance sheet exposures and the assigning of risk weights broadly, the risk-adjusted approach inevitably provides a confusing perspective on bank risk. By treating each component independently of all others, the opportunities for diversification and the many risk hedging and immunisation strategies available to a bank in a portfolio framework complete in its treatment of assets and liabilities, are ignored. Interest rate risk may be hedged by matching asset maturities to liabilities of roughly similar duration. Consequently, it is wrong to examine asset risk independently of the composition of a bank’s liabilities as is the case with this risk-adjusted scheme. It is as if maturity transformation between liabilities and assets has no relevance to bank risk.

The new measures also ignore the stability, or otherwise, of commitments in the liabilities portfolio other than capital. No distinction is drawn between one bank with a large, diversified deposit base across households, non-financial business activities and financial intermediaries and another heavily dependent upon marketable financial instruments for its funding familiar in the two terms, “core” and “funded” deposits.

Important distinctions in loan portfolios are also ignored in the new measures. For example, fixed and variable rate lending are treated the same though they contain quite different risk exposures. Nor is any credit risk distinction made between lending of different maturities. Banks’ participation in shorter term funding with companies of strong financial standing must be impaired when compared with non-bank financial intermediaries not subject to these requirements.

With the risk-adjusted capital adequacy framework bearing little relationship to total bank risk, the moral hazard problem, referred to in the Introduction, remains. Thus Mouton, a member of staff at the Federal Reserve Bank of Philadelphia, argues that regulators “want to find the balance between the need for quantitative analysis and the need for subjective judgement that is critical to the examination process. Thus, a comprehensive evaluation of the different risks that banks face need not be part of the risk-adjusted ratio since this analysis is covered within the supervisory and examination framework.” (24,p.31) Similarly, the Reserve Bank of Australia notes that other risks “may need to be taken into account as a separate matter in the overall assessment of capital adequacy. The Bank will continue to have close regard to quality of assets, profitability, liquidity, loan exposures and provisions, and the effectiveness of management systems for monitoring and controlling risks.” (29,p.2) Thus in Australia and the United States the weighted risk asset approach is viewed as complementary to the workings of the subjective examination and assessment procedures and prudential policy generally. But, as was noted earlier in the review of developments in Section 2, participants in the Basle Committee were well aware of this position. (9,p.222)

b. Credit Allocation

The new set of rules sought to overcome distortions in the allocation of bank credit between on and off-balance sheet business. Nevertheless the apparently ad hoc selection of risk weightings and neglect of important risk-based distinctions in banking has the potential to impose new distortions. Capital regulation may be viewed as a tax on the regulated institution or its customers. In this case, a differential tax is effectively being imposed where the burden of the tax depends on the bank’s asset composition and nature of its off-balance activities. The effect of such differential weighting may encourage designated low risk activities at the expense of high ones with possibilities for segmenting financial markets and altering interest differentials between alternative forms of financing.

6 The Australian authorities have long held to the view that prudential policy called for an assessment of the overall commitments of individual banks (21)
For industrial and commercial lending the 8 per cent requirement holds so the question is whether or not that means a different weighted average cost of capital, and thus a different pricing of assets, from that which a bank would have adopted for its own purposes. In effect the extent to which the new requirements deflect a bank in its asset allocations must stem for their impact on the return expected from an asset given the risk premium that the bank attaches to each particular asset. There is no priori reason to claim that the new requirements distort lending behaviour of banks. The possibilities are there and await empirical verification over the next few years.

Inclusion of off-balance sheet activities in CRAR is a regulatory response to the growth of securitisation in financial markets reflecting a desire to bring such a development within banking regulation. Paradoxically, securitisation was, in part, a response to banking regulation directed to quantitative restraints and market segmentation. By imposing what is effectively a regulatory tax on off-balance sheet credit exposure the authorities sought to moderate the existing regulatory bias favouring off-balance sheet activities but at a cost of making regulated banks less competitive than those intermediaries not subject to regulation of their activities. With other financial institutions offering close substitutes for banking products, the new risk-weighted approach to capital regulation could have a significant impact on banking activities. Under these circumstances, borrowers may respond to any increases in cost of bank credit enhancement by borrowing directly in the capital markets.

Moulton to whom reference has already been made, responds to those critics of the weighted risk asset approach who argue regulators should not be involved in the allocation of credit, with the claim that they are "not introducing new distortions, but are simply eliminating old ones" (24, p.31) However, while the new approach attempts to eliminate differential capital requirements for on and off-balance sheet credit, the many examples offered show how new distortions may be introduced by imposing differential weights on particular assets or activities which bear little relationship to the contribution of the asset or activity to the credit risk of a bank. Furthermore, as some of the risk-weight categories are very broad in terms of risk exposure, reallocation of business within a category towards higher risk areas is a real prospect. At issue is whether or not the imposition of the risk-weightings has led banks' managements to more prudent behaviour from what they would otherwise have pursued. Any appraisal is made all the more difficult by the ignoring of collateral for loans in the commercial and industrial spheres.

c. Off-Balance Sheet Transactions

In extending the capital adequacy requirement to incorporate credit risk in off-balance sheet transactions, the new risk-adjusted approach seeks to eliminate the former bias favouring the provision of bank credit through off-balance sheet facilities vis-a-vis on-balance sheet lending. However, the new treatment of off-balance sheet activities has the potential for creating new biases.

Potential bias between on-balance sheet and off-balance sheet activities is most clearly depicted by the 50 per cent maximum risk weighting for companies which are parties to swap contracts and similar instruments not traded on exchanges. Those same companies are weighted 100 per cent should they secure direct bank financing.

If the techniques applicable to some off-balance sheet exposures will take time to work out, other impacts of the new requirements are more obvious. The incongruity of the 50 per cent weighting for swaps because market participants are first class names with the 100 per cent weighting for all commercial recipients of bank credit is referred to in the preceding paragraph. The notion of a first class name as a counterparty is flimsy in an era of takeovers. With swaps and other derivative instruments having maturities stretching out seven to ten years in quite a few instances, there is plenty of scope for ownership and management changes. Just as lending agreements have been increasingly conditional on existing ownership and otherwise subject to renegotiation or cancellation so may well the same provisions equally apply in derivative spheres.

The great irony of the first class names explanation for the preferential treatment of swaps with this 50 per cent weighting is the collapse of the swap market involving British local government councils as parties to transactions.(19,32) Whatever the outcome of the complicated legal proceedings now underway the illusion of swaps involving moderate exposure to credit risk let alone the range of market risks has been removed.
This experience also calls into question the low risk weighting applied to all lending transactions with local governments under the new requirements.

Moreover, within the provisions relating to particular types of off-balance sheet activity, a new distortion may arise from the distinction between exchange-traded instruments which have zero weight and similar activities in over-the-counter markets where a 50 per cent weight applies. Yet some participants in these latter markets have little or no more risk than parties to exchange-traded contracts, an obvious example being the interbank market for currency options. A test of the extent of this bias will be the future growth of business for futures and options at exchanges compared with over-the-counter trading and the efforts of those exchanges to devise exchange trading and, most importantly, clearing for other instruments such as swaps. (12,p.113)

The quest for an acceptable arrangement on netting of contracts reflects this contrast in the position of exchange-traded and over-the-counter derivative instruments. The purpose of netting is to secure a measure of the net claims or liabilities of the two parties to an array of contracts. At issue is whether or not a master contract embracing all the individual contracts negotiated by the parties would be binding in the event of the failure of one of the parties. Much more complicated is the development of a set of master contracts which would allow multilateral netting between parties who are regular participants in the over-the-counter markets, most important of those being swaps and foreign exchange options.

This approach to netting, referred to as netting by novation, has as its ultimate purpose the creation of a centralised net settlement system akin to the clearing house for exchange-traded options and futures. The effective development of a netting arrangement requires much more than resolution of priorities under national bankruptcy laws. The efficient netting procedure, whether on a bilateral or a multilateral basis, requires continuous up-dating of net positions amongst the parties.

This technique is essential if netting by novation is to be fully differentiated from netting by close-out. The close-out approach has a different purpose related solely to default; with default all contracts with the failing party are marked-to-market and the net sums derived from present values of the closed out contracts become settlement values, due or payable, between the parties. Close-out procedures, being directed to the specific problem of default, cannot be viewed as netting of credit exposures. Netting by novation is not about default but the net trading positions of participants as going concerns.

The problems with multilateral netting by novation relate not just to the procedures under national bankruptcy laws. The operating arrangements for managing netting settlement systems have to surmount the many locations in which most participants trade their instruments, even if mostly swaps and foreign exchange options. The recent experiences with swap contracts, to which reference has already been made, adds to the uncertainty about implementation of comprehensive multilateral netting. (30)

6. International Conformity

Promotion of a level playing field for competitive equality amongst internationally operating banks is one of the two main aims of the new set of rules. Reference has been made to differences in the workings of national bankruptcy laws affecting the implementation of international agreements on netting by novation. Those differences may also bear upon the nature of credit exposures in international lending despite common risk weighting across national boundaries.

Taxation laws no less than bankruptcy ones bear upon competitive equality. Banks are not entirely free of hindrance in shifts to new international agreed procedures. National tax authorities have interests in current valuations of contracts and the location of those contracts. Competitive equality between international banks cannot rest solely upon capital adequacy provisions however devised. Competitive equality, in practice, also reflects tax provisions since after-tax profitability is the measure of relative standing. Tax provisions bear upon the margins required by banks to sustain their operations so any differential treatment of items across national tax regimes, such as general provisions for bad and doubtful debts, would distort pricing. Similar tax complications arise with the timing for tax purposes of the
profit element in cash flows from market-related instruments such as swaps, hedges and the like.

Interpretive rulings by national banking authorities may differ from one country to another. A familiar example is the mortgage-based security being a packaging of residential loans. In the United Kingdom and the United States this type of security is treated as being the equivalent of a portfolio of residential loans whereas in Australia the same security is not allocated a 50 per cent risk weighting.

Banking practices, often reflecting administrative rulings by national authorities, differ from one country to another. One example is in the foreign exchange market. Forward contracts which are "out of the money" represent an unrecognised credit risk should they be rolled over at historical rates, i.e. the rates applying in the original contract. Yet this practice is the customary one in Japan and its ancillary markets. The irony of this practice is that the contract attracts a 50 per cent weighting whereas a credit exposure associated with a new contract at current rates would be at 100 per cent risk weighting. The same influences limit the participation of Japanese banks in some aspects of the swap market.(30,p.17)

The new set of rules allows national authorities to establish higher CRARs than the 8 per cent minimum for internationally-operating banks.(8,p.3) Mention has also been made of two authorities, the United States and Australian, which place CRAR as just one of a number of measures related to the supervisory procedures associated with prudential policy. When taken in conjunction with different practices within national banking markets, the workings of international competitive equality may remain more opaque than would have been expected under the new set of rules.

This stance may be explained by the worries many national authorities have about destabilising markets should differential CRARs be imposed on banks or different practices be admitted openly. Yet in markets where rumour has influence, it is hard to judge what impact a more open policy on the position of individual banks would have. Theoretical assessments on the role of secrecy and ambiguity are inconclusive in their results for system stability.(10,14)

7. Final Comments

The new set of rules sponsored by the BIS sought to secure a more effective capital provision against the total activities of banks so as to achieve greater system stability internationally and diminish competitive inequality between banks operating in international banking and financial markets. The analysis offered in preceding sections points to flaws both conceptually and in application. Being partial in their coverage, the new rules are almost exclusively concerned with credit or default risk. With the ad hoc assignment of risk-weights to credit risk exposures, and the absence of a comprehensive portfolio approach to risk assessment, the new rules provide a misleading measure of total bank risk and may distort the allocation of credit. The best understanding of their purpose is to interpret them as an initial step towards a comprehensive treatment of bank risk and convergence of prudential policies.

The measurement of capital, with divisions between core and supplementary elements, brings out the confusion of principles underlying this international compromise. The most obvious clash is between a system of accounts opaque in their public dissemination, exemplified by the use of hidden reserves, and those which, resting upon market valuations, are transparent in terms of current values. With both approaches featuring in the new set of rules, confusion was inevitable. The effect is to call into question the "rules of thumb" which seem to explain what lies behind the components of supplementary, or Tier 2, capital. But the quest for market to market valuations as reflected in the search for effective netting techniques and reflected in exchange-traded instruments is grounded in efficient concepts applicable to banking business.
Appendix A

The Components of Capital for Measurement of Capital Adequacy

The main components of Tier 1, or core capital, are:

a. Paid-up ordinary shares;

b. Perpetual non-cumulative irredeemable preference shares; and,

c. Funds in share premium accounts which are not repayable;

d. Disclosed Reserves which include:
   Retained Earnings,
   General Reserves and
   Minority Interests in subsidiaries.

The major qualification to this calculation is the exclusion of all provisions for goodwill from Tier 1. It is possible for national authorities at their discretion to deduct from total capital the value of a bank’s holdings in the capital of other banks and financial institutions.

The provisions on Tier 2, or supplementary, capital are more complicated than for Tier 1. Restrictions are placed on the extent of the contribution to total capital from these sources. The main elements are:

a. Undisclosed Reserves

b. Revaluation Reserves comprising:

   i) Asset revaluation reserves for fixed assets provided that the basis of revaluation is prudent; and,

   ii) Hidden values or “latent” revaluation reserves may be present as a result of long-term holdings of equity securities valued in the balance sheet at the historic cost of acquisition. A discount of 55 per cent is applied to the difference between historic cost book value and market value to reflect the potential volatility of this form of unrealised capital and the notional tax charge on it.

c. General provisions for bad and doubtful debts though they are subject to a restriction whereby the contribution cannot exceed 1.25 per cent by the end of 1992, but in exceptional and temporary circumstances may rise to 2.0 per cent of all risk-adjusted assets.

d. Hybrid Debt/Equity Capital Instruments which include:

   i) Perpetual cumulative preference shares whereby servicing costs may be deferred without qualification;

   ii) Mandatory convertible notes and similar instruments whereby the choice of timing of change is with the bank and not the holder, and the costs of servicing the instrument may be deferred; and,

   iii) Perpetual subordinated debt.

a) Subordinated Term Debt which includes:

   i) Term subordinated debt which has an original maturity of at least five years and is written down by 20 per cent each year over the last five years to maturity for measuring as part of supplementary capital; and,

   ii) Redeemable preference shares with a limited life are subject to the same amortisation provisions as term subordinated debt and they must be redeemable at the determination of the bank.

There is a further complication. Term subordinated debt, redeemable preference shares with limited life and similar instruments coming within item e above cannot amount to more than 50 per cent of Tier 1, or core, capital.
Appendix B

Risk Weights and Categories of Risk:

Balance Sheet Items

The provisions for the weighting of risk are based upon five main categories of assets on balance sheets of banks. The weightings assigned to these five categories are the basis for determining the risk-adjusted value of these “on balance sheet” assets.

0%  
Cash and gold; Claims on central governments and central banks denominated in national currency and funded in that currency; Other claims on OECD central governments and central banks; Claims collected by cash or OECD central-government securities or guaranteed by OECD central governments.

0.1, 0.2, or 0.5%  
Claims on domestic public-sector entities, excluding central government, and loans guaranteed by such entities.

20%  
Claims on multilateral development banks and claims guaranteed by, or collateralised by securities issued by such banks; Claims on banks incorporated in the OECD and loans guaranteed by OECD incorporated banks; Claims on banks incorporated in countries outside the OECD with a residual maturity of up to one year and loans with a residual maturity of up to one year guaranteed by banks incorporated in countries outside the OECD; Claims on non-domestic OECD public-sector entities, excluding central government, and loans guaranteed by such entities; Cash items in process of collection.

50%  
Loans fully secured by mortgage on residential property.

100%  
Claims on the private sector; Claims on banks incorporated outside the OECD with a residual maturity of over one year; Claims on central governments outside the OECD; Claims on commercial companies owned by the public sector; Premises, plant and equipment and other fixed assets; Real estate and other investments including non-consolidated investment participations in other companies; Capital instruments issued by other banks (unless deducted from capital); All other assets.

In practice national monetary authorities have in many instances, distinguished central, state and local government securities when assigning weights. Central government securities with maturity less than one year have been assigned a zero weighting with greater maturities attracting a 10 per cent weighting. State and local government securities have been assigned 10 per cent or 20 per cent weightings. The Australian authorities have exercised their discretion to make these distinctions. (22, 23)
Appendix C

Off-Balance Sheet Commitments

The off-balance sheet exposures are first converted from nominal values into credit equivalent amounts comparable with on balance sheet assets. Secondly, the credit equivalent amounts are multiplied by the risk weightings appropriate to the counterparts to give a risk-adjusted value.

There is one notable exclusion from the provision of these credit equivalent amounts: financial instruments traded on options and futures exchanges, because they are subject to daily mark-to-market valuations and margin payments or repayments.

The major categories of off-balance sheet items are set out below.

<table>
<thead>
<tr>
<th>Credit Conversion factor</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>Direct credit substitutes, including financial guarantees, standby letters of credit serving as guarantees and bills endorsed under bill endorsement lines (but which are not accepted by, or have the prior endorsement of, another bank).</td>
</tr>
<tr>
<td>100%</td>
<td>Sales and repurchase agreements, forward asset purchases and placement of forward deposits.</td>
</tr>
<tr>
<td>50%</td>
<td>Transaction-related contingent items, including performance bonds, bid bonds, warranties and standby letters of credit related to a particular transaction.</td>
</tr>
<tr>
<td>50%</td>
<td>All note issuance facilities and revolving underwriting facilities; other commitments (e.g., formal standby facilities) with a residual maturity exceeding one year.</td>
</tr>
<tr>
<td>20%</td>
<td>Short term self-liquidating trade-related contingencies (such as documentary letters of credit and other trade financing transactions).</td>
</tr>
<tr>
<td>0%</td>
<td>Commitments with a residual maturity not exceeding one year, or which can be cancelled or revoked at any time (e.g., undrawn overdraft and credit card facilities).</td>
</tr>
</tbody>
</table>

Measurement of risk exposure associated with foreign exchange, interest rate and other market-related transactions cannot be related in terms similar to those of direct credit substitutes. Accordingly, two alternative procedures have been authorised for estimating the credit equivalent amount implicit in these instruments. As a matter of principle the preference appears to be for a mark-to-market approach which is referred to as the Current Exposure Method (CEM) though an Original Exposure Method (OEM) reflects practical considerations.

The CEM procedure consists of two parts. First, the current credit exposure is estimated by valuing all contracts at present market values. Secondly, the potential credit exposure is estimated by calculating a percentage of the nominal principal amount in relation to the residual maturity of the contract. This potential credit exposure is related to the cash flow over the remaining life of a contract. However, exchange rate contracts involve the transfer of the principal on maturity so that the potential exposure is much greater than for other instruments.

Thus the CEM procedure reflects a measure of the current market value of a contract plus the potential credit exposure estimated by multiplying the nominal principal amount by credit conversion weights reflecting residual maturities and types of contract as set out below:

<table>
<thead>
<tr>
<th>Residual Maturity</th>
<th>Interest Rate Contracts</th>
<th>Exchange Rate Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than one year</td>
<td>0</td>
<td>1.0 per cent</td>
</tr>
<tr>
<td>Over one year</td>
<td>0.5 per cent</td>
<td>5.0 per cent</td>
</tr>
</tbody>
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The estimated value derived in this way is then multiplied by the relevant risk weighting from Appendix B to give the risk-adjusted value for incorporation in the total calculation of risk-adjusted assets of the bank. However, the highest risk weighting is constrained to 50 per cent rather than 100 per cent as would be the case of instruments associated with participants from the market sector. The explanation for this exception is that participants in these markets tend to be first class names.
The OEM procedure is simpler. It is based upon the nominal amount of the contracts and the original maturity and is therefore more akin to the procedures applied to on-balance sheet items and direct credit substitutes. The credit conversion weights are set out below and are based upon original and not residual maturity.

<table>
<thead>
<tr>
<th>Original Maturity</th>
<th>Interest Rate Contracts</th>
<th>Exchange Rate Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than one year</td>
<td>0.5 per cent</td>
<td>2.0 per cent</td>
</tr>
<tr>
<td>One year and less than</td>
<td>1.0 per cent</td>
<td>5.0 per cent</td>
</tr>
<tr>
<td>two years</td>
<td>1.0 per cent</td>
<td>5.0 per cent</td>
</tr>
<tr>
<td>Each additional year</td>
<td></td>
<td></td>
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<tr>
<td>over two years</td>
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The resulting values are then multiplied by the risk weighting from Appendix B, subject to the 50 per cent upper limit, to derive a risk-adjusted value.

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