

Llewellyn, David T.

Working Paper

A regulatory regime for financial stability

Working Paper, No. 48

Provided in Cooperation with:

Oesterreichische Nationalbank (OeNB), Vienna

Suggested Citation: Llewellyn, David T. (2001) : A regulatory regime for financial stability, Working Paper, No. 48, Oesterreichische Nationalbank (OeNB), Vienna

This Version is available at:

<https://hdl.handle.net/10419/264640>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

A detailed black and white engraving of three figures in historical attire. The figure on the left is a man in a long coat and hat, holding a staff. The central figure is a woman in a long, patterned dress and a tall, pointed hat, also holding a staff. The figure on the right is a woman in a long, flowing dress and a tall, pointed hat, holding a staff. The background is a textured, light-colored surface.

WORKING PAPER 48
A REGULATORY REGIME
FOR FINANCIAL STABILITY

DAVID T. LLEWELLYN

Editorial Board of the Working Papers

Eduard Hochreiter, Coordinating Editor
Ernest Gnan,
Wolfdietrich Grau,
Peter Mooslechner
Kurt Pribil

Statement of Purpose

The Working Paper series of the Oesterreichische Nationalbank is designed to disseminate and to provide a platform for discussion of either work of the staff of the OeNB economists or outside contributors on topics which are of special interest to the OeNB. To ensure the high quality of their content, the contributions are subjected to an international refereeing process. The opinions are strictly those of the authors and do in no way commit the OeNB.

Imprint: Responsibility according to Austrian media law: Wolfdietrich Grau, Secretariat of the Board of Executive Directors, Oesterreichische Nationalbank

Published and printed by Oesterreichische Nationalbank, Wien.

The Working Papers are also available on our website:

<http://www.oenb.co.at/workpaper/pubwork.htm>

Editorial

This volume contains a paper by David T. Llewellyn that was presented at the 29th Economics Conference of the Oesterreichische Nationalbank on “The Single Financial Market: Two Years into EMU”, held in Vienna on May 31 and June 1, 2001. A shorter version of the paper will appear in the conference volume.

ABSTRACT

As bank failures clearly involve avoidable costs, there is a welfare benefit to be derived from lowering their probability and reducing the cost of those that do occur. The paper suggests a paradigm for enhanced financial stability. A central theme is that, what are often viewed as alternatives, are in fact complements within an overall regulatory strategy. The discussion is set within the context of what is termed a *regulatory regime* which is wider than the rules and monitoring conducted by regulatory agencies. Just as the causes of banking crises are multi-dimensional, so the principles of an effective *regulatory regime* also need to incorporate a wider range of issues than externally imposed rules on bank behaviour. The key components of the regime are: (1) the *rules* established by regulatory agencies; (2) *monitoring and supervision* by official agencies; (3) the *incentive structures* faced by regulatory agencies, consumers and banks; (4) the role of *market discipline* and monitoring; (5) *intervention arrangements* in the event of bank failures; (6) the role of internal *corporate governance* arrangements within banks, and (7) the disciplining and *accountability* arrangements applied to regulatory agencies. The central theme is that the components of the *regulatory regime* need to be combined in an overall *regulatory strategy*, and that while all are necessary, none alone are sufficient. The objective is to optimise a regulatory strategy by combining the components of the regime, bearing in mind that negative trade-offs may be encountered. Thus, if regulation is badly constructed or taken too far, there may be negative impacts on other components to the extent that the overall effect is diluted. The paper also argues that the optimum mix of the components of the regime will vary between countries, over time for all countries, and between banks. The proposed *New Basel Capital Accord* is discussed in terms of the *regulatory regime* paradigm.

July 27, 2001

1. INTRODUCTION AND ISSUES*

The objective of this paper is to draw lessons from recent banking crises most especially with respect to the design of an optimum "regulatory regime". Analyses of recent financial crises, in both developed and less-developed countries (see, for instance, Brealey, 1999, Corsetti, et al, 1998, Lindgren, *et al.*, 1996, and Llewellyn, 2000) indicate that "regulatory failures" are not exclusively (or even mainly) a problem that the rules were wrong. Five common characteristics have been weak internal risk analysis, management and control systems within banks; inadequate official supervision; weak (or even perverse) incentives within the financial system generally and financial institutions in particular; inadequate information disclosure, and inadequate corporate governance arrangements both within banks and their large corporate customers.

Just as the causes of banking crises are multi-dimensional, so the principles of an effective *regulatory regime* also need to incorporate a wider range of issues than externally imposed rules on bank behaviour. This suggests that strategies to avoid future crises also need to be multi-dimensional involving macro policy, the conduct of regulation and supervision, the creation of appropriate incentive structures, the development of market discipline, and the internal governance and management of financial institutions.

In this context, the paper considers alternative approaches to achieving the objective of financial stability. A maintained theme is that what are often defined as alternatives are in fact complements within an overall regulatory strategy. The discussion is set within the context of what will be termed a *regulatory regime* which is wider than the rules and monitoring conducted by regulatory agencies. In essence, the focus is on how the components of a *regulatory regime* are to be combined to produce an optimum regulatory strategy. This follows on the tradition of Lindgren *et al.* (1996) who emphasise the three key strands of governance: internal to the firm; the discipline of the market, and regulation and supervision by official agencies. However, the paper takes their paradigm further and discusses alternative approaches to regulation and supervision.

When a particular regulatory problem emerges, the instinct of a regulator is often to respond by creating new rules. This implies an *incremental approach* to regulation by focusing upon the rules component of the *regulatory regime*. The paper argues that there are potentially serious problems with such an incremental rules-approach in that it may blunt the power of the other mechanisms in the regime and may, in the process, reduce the overall effectiveness of the regime.

* The author is affiliated with Loughborough University, Loughborough, Leics, LE11 3TU, UK; Tel: (44) (0)1509 222700, Fax: (44) 1509 223910, Mail: D.T.Llewellyn@lboro.ac.uk

The starting point is that bank failures involve avoidable costs. For instance, in the case of Indonesia, Malaysia, South Korea and Thailand, non-performing loans of banks recently amounted to around 30 per cent of total assets. Banking crises have involved substantial costs. In around 25 per cent of cases the cost has exceeded 10 per cent of GNP (e.g., in Spain, Venezuela, Bulgaria, Mexico, Argentina, Hungary). Evans (2000) suggests that the costs of crises amounted to 45 per cent of GDP in the case of Indonesia, 15 per cent in the case of Korea and 40 per cent in the case of Thailand. These figures include the costs of meeting obligations to depositors under the blanket guarantees that the authorities introduced to handle systemic crises, and public sector payments to financing the recapitalisation of insolvent banks. Barth *et al.* (2000) also note that the costs of recent bank crises in Chile, Argentina, Korea and Indonesia are estimated at 41 per cent, 55 per cent, 60 per cent, and 80 per cent of GDP respectively. A further study (Hoggarth *et al.*, 2001) calculates that economic activity forgone as a result of recent bank crises has been between 15 and 20 per cent of annual GDP.

As bank failures clearly involve avoidable costs that may be significant, there is a welfare benefit to be derived from lowering the probability of bank failures, and reducing the cost of bank failures that do occur. In what follows these are the twin objectives of the *regulatory regime*. The objective of the paper is to suggest a wider paradigm for ensuring financial stability, i.e., reducing the probability of bank failures and the costs of those that do occur.

The general economic rationale for financial regulation (in terms of externalities, market imperfections, economies of scale in monitoring, grid-lock problems, and moral hazard associated with safety nets) has been outlined elsewhere (Llewellyn, 1999). For purposes of the present paper, the economic rationale for regulation is taken as given. While this ground will not be repeated, two observations are entered at the outset. Firstly, the presence of an economic rationale for regulation does not justify everything that a regulator does. Secondly, the case for regulation does not exclude a powerful role for other mechanisms to achieve the objectives of systemic stability and legitimate (but limited) consumer protection. On the contrary, the central theme of the paper is to emphasise that the various components of the *regulatory regime* need to be combined in an overall *regulatory strategy*, and that while all are necessary, none alone are sufficient. There is always a potential danger that the regulation component, if pressed too far, will blunt other mechanisms and in the process compromise the impact of the overall impact.

The structure of the paper is as follows. The main themes are summarised in the remainder of this section. Section 2 establishes the concept of the *regulatory regime* and the trade-offs that can exist between its components. This is followed in Section 3 by a more detailed discussion of each of the seven components of the regime. Section 4 discusses the concept of what is

termed *contract regulation* whereby regulated firms are able to self-select regulatory contracts. Section 5 reviews how the optimum structure of a regulatory regime will vary for different countries and will change over time. Section 6 suggests a series of desirable shifts within the *regulatory regime* and, in this context, offers a brief assessment of the recently-issued Basel Committee consultative paper on capital adequacy. A brief overall assessment is offered in section 7.

After a brief overview of the experience of recent banking crises, the main themes of the paper may be summarised as follows:

(1) Debate about regulation is often excessively polarised with too many dichotomies. What are often posed as alternative approaches are in truth complementary mechanisms. It is emphasised that the skill in formulating regulatory strategy is not so much in choosing between the various options, but in the way the seven components of the *regulatory regime* are combined.

(2) Regulation needs to be viewed and analysed not solely in the narrow terms of the rules and edicts of regulatory agencies, but in the wider context of a *regulatory regime* which has seven core components:

- the rules established by regulatory agencies (the regulation component);
- monitoring and supervision by official agencies;
- the incentive structures faced by regulatory agencies, consumers and, most especially, banks;
- the role of market discipline and monitoring;
- intervention arrangements in the event of compliance failures of one sort or another;
- the role of internal corporate governance arrangements within financial firms, and
- the disciplining and accountability arrangements applied to regulatory agencies.

(3) *Regulatory strategy* is not to be viewed solely in terms of the rules and supervision of regulatory agencies. The debate about regulation is often too narrow because it focuses almost exclusively on the first component of the regime, namely rules imposed by the regulator. The debate should rather be about how to optimise the combination of the seven components of the regime. Strategy should focus on optimising the overall *regulatory regime* rather than any one component. This is a difficult and demanding mandate, and to the regulator the more effective approach in the short-run might appear to be imposing more rules. The danger is of thinking in terms of incremental change to regulation, rather than strategically with respect to the overall regime. The objective is to move towards an optimum mix of the components, combined with careful choice of the various regulatory instruments

within each. Thus, it is not a question of choosing between either regulation or market disciplines.

(4) Several reservations are entered about the conventional approach to regulation for financial stability:

- it tends to be excessively 'rules based',
- excessive reliance is placed on the first component of the *regulatory regime*,
- insufficient emphasis is given to incentive structures, the role of market discipline, and corporate governance arrangements within banks,
- insufficient attention is given to potential trade-offs within the *regulatory regime* and the negative externalities of rules,
- regulation tends to be insufficiently differentiated between banks whose risk profiles are not homogeneous.

(5) A key issue for the regulator is how its actions can not only contribute directly to the objectives of regulation, but how they impact on the other components of the regime. Most important is the issue of how regulation affects incentive structures within firms, and the role played by market discipline and monitoring.

(6) The optimising strategy needs to be set in the context of trade-offs between the various components of the regime. In some circumstances the more emphasis that is given to one of the components (e.g. regulation) the less powerful becomes one or more of the others (e.g. market discipline on financial firms) and to an extent that may reduce the overall effectiveness and efficiency of the regime.

(7) The optimum mix of the components of the regime changes over time as market conditions and compliance culture change. It is argued that, in current conditions, there needs to be a shift within the regime in five dimensions: less reliance placed on detailed and prescriptive rules; more emphasis given to official supervision; a greater focus on incentive structures; an enhanced and strengthened role for market discipline and monitoring, and a more central role for corporate governance arrangements within banks.

(8) As financial firms and different types of financial business are not homogeneous, the optimum regulatory approach will be different for different banks and businesses. This has been recognised by the regulatory authorities in the UK with more emphasis being given to a risk-based approach. However, there should be yet more differentiation. The skill lies in making sufficient differentiations to reflect the heterogeneous nature of regulated firms, while not unduly complicating the regulatory process to an extent that can cause unwarranted inequality of treatment.

(9) One particular approach to regulation is what will be termed *contract regulation*. In this model, once the regulator has established objectives and a set of general principles, individual banks are able to choose their own regulation. Once the choice has been agreed with the regulator, a contract is established between them. If the bank fails to deliver on the contract, sanctions are applied in the normal way, and the regulator has the option of withdrawing the choice from the regulated firm and imposing its own contract.

(10) The recently issued New Basel Capital Accord is a move in the direction of a broader approach to bank regulation and a recognition that other mechanisms (notably an enhanced role for market discipline) are needed.

This all amounts to emphasising an overall "regulatory strategy" rather than focusing on regulation *per se*. A central theme is that regulation is an important, but only one, component of a regulatory regime designed to achieve the objectives of systemic stability and consumer protection. Giving too much emphasis to regulation *per se* has the danger that the importance of the other components are down-played, or even marginalised.

Regulation is about changing the behaviour of regulated institutions on the grounds that unconstrained market behaviour tends to produce socially sub-optimum outcomes. A key question is the extent to which behaviour is to be altered by way of externally imposed *rules*, or through creating *incentives* for firms to behave in a particular way.

2. THE REGULATORY REGIME

The concept of a *regulatory regime* is wider than the prevailing set of prudential and conduct of business rules established by regulatory agencies. External regulation has a positive role in fostering a safe and sound financial system and consumer protection. However, this role, while important, is limited, and insufficient in itself. Equally, and increasingly important, are the other components of the regime and most especially the incentive structures faced by financial firms, and the efficiency of the necessary monitoring and supervision by official agencies and the market.

There are several reasons why emphasis is given to the overall *regulatory regime* rather than myopically to regulation:

- prescriptive regulation is not invariably effective in achieving the twin components of financial stability; reducing the probability of bank failures and the costs of those that do occur;
- regulation may not be the most effective way of securing these objectives;

- regulation is itself costly both in terms of its direct costs and unwarranted distortions that may arise (e.g. via inaccurate risk weights applied in capital adequacy arrangements) when regulation is inefficiently constructed;
- regulation may not be the most efficient mechanism for achieving financial stability objectives in that alternative routes may achieve the same degree of effectiveness at lower cost;
- regulation tends to be inflexible and insufficiently differentiated;
- there are always potential dangers arising from a monopolist regulator;
- regulation may impair the effectiveness and efficiency of other mechanisms for achieving the objective of financial stability.

A sustained theme is that a *regulatory regime* needs to be viewed more widely than externally-imposed regulation on financial institutions. In current conditions it would be a mistake to rely wholly, or even predominantly, on external regulation, monitoring and supervision by the "official sector". The world of banking and finance is too complex and volatile to warrant dependence on a simple set of prescriptive rules for prudent behaviour. The central role of incentive structures is constantly emphasised. There are many reasons (market imperfections and failures, externalities, "grid lock" problems, and moral hazards associated with safety-net arrangements) why incentive structures within financial firms may not be aligned with regulatory objectives (Llewellyn, 1999).

This means that a central consideration for the regulator is the impact its own rules have on regulated firms' incentive structures, whether they might have perverse effects, and what regulation can do to improve incentives. Incentive structures need to be at the centre of all aspects of regulation because if these are wrong it is unlikely that the other mechanisms in the regime will achieve the regulatory objectives. It is necessary to consider not only how the various components of the regime impact directly on regulatory objectives, but also how they operate indirectly through their impact on the incentives of regulated firms and others. Incentive structures are at the heart of the regulatory process.

Trade-offs within the Regime

Within the *regulatory regime* trade-offs emerge at two levels. In terms of regulatory strategy, a choice has to be made about the balance of the various components and the relative weight to be assigned to each. For instance, a powerful role for official regulation with little weight assigned to market discipline might be chosen, or alternatively a relatively light touch of regulation but with heavy reliance on the other components. A given degree of effectiveness can be provided by different combinations of rules, supervision, market discipline etc. and with various degrees of discretion applied by the regulator.

The second form of trade-off relates to how the components of the regime may be causally related. In some circumstances the more emphasis that is given to one of the components (e.g. regulation) the less powerful becomes one or more of the others (e.g. market discipline on banks) and to an extent that may reduce the overall impact. Thus, while regulation may be viewed as a response to market failures, weak market discipline, and inadequate corporate governance arrangements, causation may also operate in the other direction with regulation weakening these other mechanisms. For instance, the more emphasis that is given to detailed, extensive and prescriptive rules, the weaker might be the role of incentive structures, market discipline and corporate governance arrangements within financial firms. This has been put by Simpson (2000) as follows: "In a market which is heavily regulated for internal standards of integrity, the incentives to fair dealing diminish. Within the company culture, such norms of fair dealing as 'the way we do things around here' would eventually be replaced by 'It's OK if we can get away with it'". In other words, an excessive reliance on detailed and prescriptive rules may weaken incentive structures and market discipline.

Similarly, an excessive focus on detailed and prescriptive rules may weaken corporate governance mechanisms within financial firms, and may blunt the incentive of others to monitor and control the behaviour of banks. Weakness in corporate governance mechanisms may also be a reflection of banks being monitored, regulated and supervised by official agencies. The way intervention is conducted in the event of bank distress (e.g. whether forbearance is practised) may also have adverse incentive effects on the behaviour of banks and the willingness of markets to monitor and control banks' risk-taking.

An empirical study of regulation in the United States by Billett et al. (1998) suggests that some types of regulation may undermine market discipline. They examine the costs of market discipline and regulation and show that, as a bank's risk increases, the cost of uninsured deposits rises and the bank switches to insured deposits. This is because changes in regulatory costs are less sensitive to changes in risk than are market costs. They also show that when rating agencies down-grade a bank, the bank tends to increase its use of insured deposits. The authors conclude: "The disparate costs of insured deposits and uninsured liabilities, combined with the ability and willingness of banks to alter their exposure to each, challenge the notion that market discipline can be an effective deterrent against excessive risk taking".

The public policy objective is to optimise the outcome of a regulatory strategy in terms of mixing the components of the regime, bearing in mind the possibility of negative trade-offs. The key to optimising overall effectiveness is the mix of the seven core components. All are necessary but none alone are sufficient. The skill of the regulator in devising a regulatory strategy lies in how the various components in the regime are combined.

3. COMPONENTS OF A *REGULATORY REGIME*

Having established the overall framework and the nature of the *regulatory regime* this section considers some of the key issues related to each of the seven components with particular reference to regulatory strategy designed to optimise the overall effect of the regime as a whole rather than any of the components.

(1) *REGULATION*

Five particular issues arise with respect to the regulation part of the regime: the type of rules established; the weight to be given to formal and prescriptive rules of behaviour, the form of the rules that are established, the impact that rules may have on the other components of the *regulatory regime*, and the extent to which the rules differentiate between different banks.

Type of Rules

Four types of rules can be identified: (1) with respect to the prudential management of banks and other financial firms (e.g., capital adequacy rules, large exposure limitations, rules on inter-connected lending, etc.), (2) with respect to conduct of business (e.g. how financial firms conduct business with their customers, disclosure requirements, etc.); (3) rules with respect to allowable business (e.g., the extent to which banks are allowed to conduct securities and insurance business); and (4) rules with respect to ownership, i.e. who is allowed to own banks.

Prescriptive rules

A former US regulator has noted that: "Financial services regulation has traditionally tended towards a style that is command-and-control, dictating precisely what a regulated entity can do and how it should do it.....generally, they focus on the specific steps needed to accomplish a certain regulatory task and specify with detail the actions to be taken by the regulated firm" (Wallman, 1999). This experience of the US also suggests that the interaction of the interests of the regulator and the regulated may tend towards a high degree of prescription in the regulatory process. Regulators tend to look for standards they can easily monitor and enforce, while the regulated seek standards they can comply with. The result is that regulators seek precision and detail in their requirements, while the regulated look for certainty and firm guidance on what they are to do. Wallman suggests that: "The result is specific and detailed guidance, not the kind of pronouncements that reflect fundamental concepts and allow the market to develop on its own."

Although precise rules have their attractions for both regulators and regulated firms, several problems emerge with a highly prescriptive approach to regulation:

- An excessive degree of prescription may bring regulation into disrepute if it is perceived by the industry as being excessive, with many redundant rules.

- Risks are often too complex to be covered by simple rules.
- Balance sheet rules reflect the position of an institution only at a particular point in time, and its position can change substantially within a short period.
- An inflexible approach based on a detailed rule book has the effect of impeding firms from choosing their own least-cost way of meeting regulatory objectives.
- Detailed and extensive rules may stifle innovation.
- A prescriptive regime tends to focus upon firms' processes rather than outcomes and the ultimate objectives of regulation. The rules may become the focus of compliance rather than the objectives they are designed to achieve. In this regard, it can give rise to a perverse culture of "box ticking" by regulated firms. The letter of the regulation may be obeyed but not the spirit or intention.
- A prescriptive approach is inclined towards "rules escalation" whereby rules are added over time, but few are withdrawn.
- A highly prescriptive approach may create a confrontational relationship between the regulator and regulated firms, or alternatively cause firms to overreact and engage in excessive efforts at internal compliance out of fear of being challenged by the regulator. In this sense, regulation may become more prescriptive and detailed than is intended by the regulator because of the culture that a rules-based approach generates.
- In the interests of "competitive neutrality", rules may be applied equally to all firms, although they may be sufficiently heterogeneous to warrant different approaches. A highly prescriptive approach to regulation reduces the scope for legitimate differentiations. Treating as equal firms that in practice are not equal is not competitive neutrality.
- A prescriptive rules approach may in practice prove to be inflexible and not sufficiently responsive to market conditions.
- A potential moral hazard arises in that firms may assume that, if something is not explicitly covered in regulations, there is no regulatory dimension to the issue.
- Detailed rules may also have perverse effects if they are regarded as actual standards to be adopted rather than minimum standards with the result that, in some cases, actual behaviour of regulated firms may be of a lower standard than without rules. This is most especially the case if each firm assumes its competitors will adopt the minimum regulatory standard.

Form of rules

A third issue relates to the type of rules chosen by the regulator. Black (1994) distinguishes different types of rules along three dimensions: precision (how much is prescribed and covered in the rule), simplicity (the degree to which the rule may be easily applied to concrete situations), and clarity. The more precise is the rule, the easier it is to enforce. On the other hand, precise rules are less flexible within the overall regime.

Impact of rules

A fourth issue is whether the degree of precision in rules has a positive or negative impact on compliance, and the other components of the regime. For reasons already suggested, precision and detail may have a negative effect on compliance and compliance culture: if something is not explicitly disallowed it is presumed to be allowed. Conversely, a regime based more on broad principles than detailed and extensive rules has certain advantages: principles are easily understood and remembered, they apply to all behaviour, and they are more likely to have a positive impact on overall compliance culture. It might also be the case (as suggested by Black, 1994) that principles are more likely to become board issues with the board of financial firms adopting compliance with principles as a high level policy issue, rather than a culture of "leaving it to the compliance department". As put by Black, "it helps chief executives to see the moral wood for the technical trees."

Differentiation

A central issue in regulation for financial stability is the extent to which it differentiates between different banks according to their risk characteristics and their risk analysis, management and control systems. Most especially when supervisory resources are scarce, but also in the interests of efficiency in the banking system, supervision needs to be more detailed and extensive with banks deemed to be riskier than others. The objective of "competitive neutrality" in regulation does not mean that all banks are to be treated in the same way if their risk characteristics are different. Reflecting the practice in the UK, Richardson and Stephenson (2000) argue that the Financial Services Authority (and formerly the Bank of England) treats the requirements of the Basel Accord as minima and requires individual banks to hold more capital than the minima dependent upon their risk exposure. Capital requirements are set individually for each bank. The authors list the major factors that are taken into account when setting individual bank's capital requirements: experience and quality of the bank's management; the bank's risk appetite; the quality of risk analysis, management and control systems; the nature of the markets in which it operates; the quality, reliability and volatility of earnings; the quality of the bank's capital and access to new capital; the degree of diversification; exposure concentrations; the complexity of a bank's legal and organisational structure; the support and control provided by shareholders, and the degree to which a bank is supervised by other jurisdictions. As the authors note: "these considerations imply that the appropriate margin above the minimum regulatory capital requirements will differ across banks."

(2) MONITORING AND SUPERVISION

Because of the nature of financial contracts between financial firms and their customers, continuous monitoring of the behaviour of financial firms is needed. The question is who is to undertake the necessary monitoring: customers, shareholders, rating agencies, etc. In

practice, there can be only a limited monitoring role for retail depositors due to major information asymmetries which cannot easily be rectified, and because depositors face the less costly option of withdrawal of deposits. Saunders and Wilson (1996) review the empirical evidence on the role of informed depositors. The funding structure of a bank may also militate against effective monitoring in that, unlike with non-financial companies, creditors tend to be numerous with a small stake for each.

As most (especially retail) customers cannot in practice undertake monitoring, and in the presence of deposit insurance they may have no incentive to do so, an important role of regulatory agencies is to monitor the behaviour of banks on behalf of consumers. In effect, consumers delegate the task of monitoring to a regulatory agency. There are strong efficiency reasons for consumers to delegate monitoring and supervision to a specialist agency to act on their behalf as the transactions costs for the consumer are lowered by such delegation (Llewellyn, 1999). However, this is not to argue that a regulatory agency should become a monopolist monitor and supervisor of financial firms.

In practice, in countries that have recently experienced banking crises "some form of supervisory failure was a factor in almost all the sample countries" (Lindgren, et al., 1996). In many countries supervisory agencies did not enforce compliance with regulations (Reisen, 1998). In Korea and Indonesia in particular, banks did not comply with regulatory capital adequacy requirements or other regulations (UNCTAD, 1998). In particular, connected lending restrictions were not adequately supervised partly because of political pressure and the lack of transparency in the accounts of banks and their corporate customers.

In many crisis countries there has often been a lack of political will on the part of supervisory agencies to exercise strong supervision. This may be associated with adverse incentive structures faced by politicians and others who may gain from imprudent banking, (Fink and Haiss, 2000). While prudent banking is a public good, hazardous behaviour can be beneficial to some stake-holders. Others have noted the lack of political will to exercise strong supervision in the transitional economies of Eastern Europe (Baer and Gray, 1996).

A further dimension to supervisory failure in crisis countries was that supervisory intensity was often not adjusted in line with liberalisation in financial systems and the new business operations and risk characteristics of banks that emerged in a more de-regulated market environment. This is discussed in more detail in the next section. This was also the case with Scandinavian countries when, in the second half the 1980s, banks responded aggressively to de-regulation. The nature and intensity of official supervision needs to reflect the nature of the regulatory environment. In practice, while the latter changed this was often not accompanied by sufficiently intensified supervision.

(3) INCENTIVE STRUCTURES

The maintained theme is that the incentive structures and moral hazards faced by decision-makers (bank owners and managers, lenders to banks, borrowers and regulators) are major parts of the *regulatory regime*. The overall issue is two-fold: there need to be appropriate internal incentives for management to behave in appropriate ways, and the regulator has a role in ensuring internal incentives are compatible with regulatory objectives. Overall, we need to know more about incentive structures within financial firms and whether, for instance, incentive structures align with compliance. Research is also needed into how regulation impacts positively and negatively on incentives within regulated firms. We have already alluded to the possibility that detailed rules may have the negative effect of blunting compliance incentives.

Within the *regulatory regime* paradigm, a central role for regulation is to create appropriate incentives within regulated firms so that the incentives faced by decision-makers are consistent with financial stability. At the same time, regulation needs to avoid the danger of blunting the incentives of other agents (e.g. rating agencies, depositors, shareholders, debt-holders) that have a disciplining role with banks. The position has been put well by Schinasi *et al.*(1999): "Policy makers are therefore faced with the difficult challenge of balancing efforts to manage systemic risk against efforts to ensure that market participants bear the costs of imprudent risk taking and have incentives to behave prudently". They argue that banks have complex incentive structures. There are internal incentives that motivate key decision-makers involved with risk, corporate governance mechanisms (such as accountability to shareholders), an external market in corporate control, market disciplines which may affect the cost of capital and deposits, and accountability to bank supervisors. The presence of regulation and official supervision overlays the structure of incentives faced by bank decision-makers.

The key is to align incentives of the various stake-holders in the decision-making process. The alignment of incentive structures has three dimensions: between the objectives set by regulators and supervisors and those of the bank; between the overall business objectives of the bank and those of actual decision-makers in the management structure, and between managers and owners of banks. Conflicts can arise at each level, making incentive structures within banks particularly complex.

If incentive structures are hazardous, regulation will always face formidable obstacles. There are several dimensions to this in the case of banks: the extent to which reward structures are based on the volume of business undertaken; the extent to which the risk characteristics of decisions are incorporated into reward structures; the nature of internal control systems within

banks; internal monitoring of the decision-making of loan officers; the nature of profit-sharing schemes and the extent to which decision-makers also share in losses, etc. Reward systems based on short-term profits can also be hazardous as they may induce managers to pay less attention to the longer-term risk characteristics of their decisions. High staff turnover, and the speed with which officers are moved with the bank, may also create incentives for excessive risk-taking. A similar effect can arise through the herd-behaviour that is common in banking. In the case of the Barings collapse, managers who were supposedly monitoring the trading activity of Leeson also benefited through bonuses derived from the profits he was making for the bank.

It is clear that some incentive structures may lead to dysfunctional behaviour (Prendergast, 1993). This may often emerge when incentives within regulated firms relate to volume that create a clear bias towards writing business. Bank managers may be rewarded by the volume of loans, not by their risk-adjusted profitability. Many cases of bank distress have been associated with inappropriate incentive structures creating a bias in favour of balance sheet growth, and with moral hazard created by anticipated lender-of-last-resort actions (Llewellyn, 2000). Dale (1996) suggests that profit-related bonuses were an important feature in the Barings collapse.

Laws, regulations, and supervisory actions provide incentives for regulated firms to adjust their actions and behaviour, and to control their own risks internally. In this regard, they can be viewed as *incentive contracts*. Within this general framework, regulation involves a process of creating incentive compatible contracts so that regulated firms have an incentive to act consistently with the objectives of financial stability. Well designed incentive contracts induce appropriate behaviour by regulated firms. Conversely, if they are badly constructed and improperly designed, they might fail to reduce systemic risk (and other hazards regulation is designed to avoid) or have undesirable side-effects on the process of financial intermediation (e.g. impose high costs). At centre stage is the issue of whether all parties have the right incentives to act in a way that satisfies the objectives of regulation.

Given that incentives for individuals can never be fully aligned with the objectives of the bank, there need to be external pressures on managers to encourage adequate internal control systems to be established. Several procedures, processes and structures can, for instance, reinforce internal risk control mechanisms. These include internal auditors, internal audit committees, procedures for reporting to senior management (and perhaps to the supervisors), and making a named board member of financial firms responsible for compliance and risk analysis and management systems. In some countries the incentive on bank managers has been strengthened by a policy of increased personal liability for bank directors, and bank directors are personally liable in cases involving disclosure of incomplete or erroneous

information. The Financial Services Authority in the UK has also proposed that individual directors and senior managers of financial firms should, under some circumstances, be made personally liable for compliance failures.

The form and intensity of supervision can differentiate between regulated institutions according to their relative risk and the efficiency of their internal control mechanisms (Goodhart, *et al.*, 1998). Supervisors can strengthen incentives by, for instance, relating the frequency and intensity of their supervision and inspection visits (and possibly rules) to the perceived adequacy of the internal risk control procedures, and compliance arrangements. In addition, regulators can create appropriate incentives by calibrating the external burden of regulation (e.g. number of inspection visits, allowable business etc.) to the quality of management and the efficiency of internal incentives. Evans (1999) suggests several routes through which incentive structures can be improved: greater disclosure by financial institutions; subjecting local banks to more foreign competition; ensuring a closer alignment of regulatory and economic capital; greater use of risk-based incentives by supervisors, and lower capital adequacy requirements for banks headquartered in jurisdictions which comply with the BIS's core principles of supervision.

With respect to prudential issues, capital requirements should be structured so as to create incentives for the correct pricing of absolute and relative risk. In this area in particular, the potential for regulation to create perverse incentives and moral hazard is well established. The basic problem is that if regulatory capital requirements do not accurately map risk then banks are encouraged to engage in regulatory arbitrage. For instance, if differential capital requirements are set against different types of assets (e.g. through applying differential risk weights) the rules should be based on calculations of relative risk. If risk weights are incorrectly specified, perverse incentives may be created for banks because the implied capital requirements are either more or less than justified by true relative risk calculations. A critique of the currently-enforced Basel capital arrangements is that risk weights bear little relation to the relative risk characteristics of different assets, and the loan book largely carries a uniform risk weight even though the risk characteristics of different loans within a bank's portfolio vary considerably. The current BIS consultation paper seeks to address this issue, (Basel Committee, 2001).

The moral hazard associated with perceived safety-net arrangements have been extensively analysed in the literature. Garcia (1996) in particular analyses the trade-off between systemic stability and moral hazard. Three possible hazards are associated with deposit insurance: banks may be induced to take excessive risk as they are not required to pay the risk premium on insured deposits; there are particular incentives for excessive risk-taking when a bank's

capital ratio falls to a low level; and depositors may also be induced to seek high-risk banks due to the one-way-option bet.

Deposit insurance has two opposing impacts on systemic risk. By reducing the rationality of bank runs (though this is dependent on the extent and coverage of the deposit insurance scheme and the extent of any co-insurance) it has the effect of lowering the potential for financial instability. On the other hand, for reasons outlined above, the moral hazard effects of deposit insurance may increase risk in the system. Given that there is little firm empirical evidence for bank runs in systems without deposit insurance (including in the US prior to deposit insurance), the second factor probably outweighs the first. There is something of a trade-off in this: the stronger is the deposit protection scheme, the smaller is the probability of bank runs and systemic instability, but the greater is the moral hazard. This reinforces the case for deposit insurance to be accompanied by regulation to contain risk-taking by banks subject to deposit insurance. Reviewing the experience of bank crises in various countries, Demirguc-Kunt and Datragiache (1998) argue on the basis of their sample of countries: "Our evidence suggests that, in the period under consideration, moral hazard played a significant role in bringing about systemic banking problems, perhaps because countries with deposit insurance schemes were not generally successful at implementing appropriate prudential regulation and supervision, or because the deposit insurance schemes were not properly designed."

(4) MARKET DISCIPLINE

The fourth component of the *regulatory regime* relates to the arrangements for market discipline on banks. The central theme is that regulation can never be an alternative to market discipline. On the contrary, market discipline needs to be reinforced within the regime. In fact, market discipline is one of the three pillars in the proposed new Basel capital adequacy regime. A starting point is that, as noted by Lang and Robertson (2000), the existence of deposit insurance creates a large class of debt-holders who have no incentive to engage in costly monitoring of banks.

Monitoring is not only conducted by official agencies whose specialist task it is. In well-developed regimes, the market has incentives to monitor the behaviour of financial firms. The disciplines imposed by the market can be as powerful as any sanctions imposed by official agencies. The disciplining role of the markets (including the inter-bank market) was weak in the crisis countries of South East Asia in the 1990s. This was due predominantly to the lack of disclosure and transparency of banks, and to the fact that little reliance could be placed on the quality of accountancy data provided in bank accounts. In many cases standard accountancy and auditing procedures were not applied rigorously, and in some cases there was wilful mis-representation of the financial position of banks and non-financial companies. This is not an issue for less developed countries alone. For instance, Nakaso *et al.* (2000)

argue that market discipline did not operate efficiently in Japan due largely to insufficient financial infrastructure (weak accountancy rules, inadequate disclosure, etc.).

Market discipline works effectively only on the basis of full and accurate information disclosure and transparency. Good quality, timely and relevant information needs to be available to all market participants and regulators so that asset quality, creditworthiness and the condition of financial institutions can be adequately assessed.

A potentially powerful disciplining power of markets derives from the market in corporate control which, through the threat of removing control from incumbent management, is a discipline on managers to be efficient and not endanger the solvency of their banks. As put in a recent IMF study: "An open and competitive banking market exerts its own form of discipline against weak banks while encouraging well-managed banks" (Lindgren et al., 1996).

Several parties are potentially able to monitor the management of banks and other financial firms: owners, bank depositors and customers, rating agencies, official agencies (e.g. the central bank or other regulatory body), and other banks in the market. In practice, excessive emphasis has been given to official agencies. The danger in this is that a monopoly monitor is established with many of the standard problems associated with monopoly power. There may even be adverse incentive effects in that, given that regulatory agencies conduct monitoring and supervision on a delegated basis, the incentive for others to conduct monitoring may be weakened.

In the interests of an effective and efficient regulatory regime, the role of all potential monitors (and notably the market) needs to be strengthened, with greater incentives for other parties to monitor financial firms in parallel with official agencies. An advantage of having agents other than official supervisory bodies monitor banks is that it removes the inherent danger of having monitoring and supervision conducted by a monopolist with less than perfect and complete information with the result that inevitably mistakes will be made. A monopolist supervisor may also have a different agenda than purely the maintenance of financial stability. It has been noted that "Broader approaches to bank supervision reach beyond the issues of defining capital and accounting standards, and envisage co-opting other market participants by giving them a greater stake in bank survival. This approach increases the likelihood that problems will be detected earlier....[it involves] broadening the number of those who are directly concerned about keeping the banks safe and sound," (Caprio and Honahan, 1998).

Given how the business of banking has evolved, and the nature of the market environment in which banks now operate, market discipline needs to be strengthened. The issue is not about market *versus* agency discipline, but the mix of all aspects of monitoring, supervision and discipline. In its recent consultation document on capital adequacy the Basel Committee recognised that supervisors have a strong interest in facilitating effective market discipline as a lever to strengthen the safety and soundness of the banking system. It argues: "market discipline has the potential to reinforce capital regulation and other supervisory efforts to promote safety and soundness in banks and financial systems. Market discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner".

Some analysts (e.g. Calomiris, 1997) are sceptical about the power of official supervisory agencies to identify the risk characteristics of banks compared with the power and incentives of markets. Along with others, (including Evanoff and Wall (2000) who present a detailed set of proposals for the implementation of a subordinated debt rule), he has advocated banks being required to issue a minimum amount of subordinated and uninsured debt as part of the capital base. Holders of subordinated debt have an incentive to monitor the risk-taking of banks. As noted by Lang and Robertson (2000), discipline can be imposed through three routes: the cost of raising funds, market signals as expressed in risk premia implicit in the price of subordinated debt, and through supervisors themselves responding to market signals. Discipline would be applied by the market as its assessment of risk would be reflected in the risk premium in the price of traded debt. In particular, because of the nature of the debt contract, holders of a bank's subordinated debt do not share in the potential upside gain through the bank's risk-taking, but stand to lose if the bank fails. They therefore have a particular incentive to monitor the bank's risk profile compared with shareholders who, under some circumstances, have an incentive to support a high-risk profile. This is particularly the case when a "gamble for resurrection" strategy becomes optimal for shareholders. In this respect, there is a degree of symmetry between the reward structures faced by equity and subordinated debt holders in that equity-holders have the prospect of unlimited upside gain while losses are restricted to the value of their holding, while debt-holders do not share in any excess rewards (in the absence of default their rewards are fixed) but face the prospect of total loss in the event of default. For such a scheme to work, however, it must be well-established that holders of such subordinated debt will never be rescued in the event of the bank failing.

The impact of an increase in the debt-equity ratio (arising through substituting subordinated debt for equity) on the incentives for risk-taking by banks is ambiguous. On the one hand, a rise in the ratio raises the proportion of liability holders who have an incentive to monitor risk. This might be expected to lower the risk-appetite of banks. On the other hand, a decline in the equity ratio may raise the risk-appetite of equity holders as they have less to lose and may face a rational gamble-for-resurrection option. A decline in the equity ratio also has the

disadvantage of increasing the probability of insolvency. It is also the case that the market disciplining role of subordinated debt may be limited because in practice such debt will always be a small proportion of a bank's total liabilities. The most powerful route is likely to be through market signals and how these induce supervisors to respond.

A scheme along these lines has been introduced in Argentina whereby holders of subordinated debt must be entities of substance which are independent of a bank's shareholders, and it requires issue of the debt in relatively lumpy amounts on a regular basis (Calomiris, 1997). However, while there is a potentially powerful role for market discipline to operate through the pricing of subordinated debt, the interests of holders of such debt do not necessarily precisely coincide with those of depositors or the public interest more generally (Dewatripont and Tirole, 1994). It is not, therefore, a substitute for official monitoring. It is intended as an extension of the role of market monitoring.

A further example of market discipline could be to link deposit insurance premia paid by banks to the implied risk of the bank as incorporated in subordinated debt yields or classifications of rating agencies.

The merit of increasing the role of market discipline is that large, well-informed creditors (including other banks) have the resources, expertise, market knowledge, and incentives to conduct monitoring and to impose market discipline. For instance, the hazardous state of BCCI was reflected in market prices and inter-bank interest rates before the Bank of England closed the bank. Market reports also indicate that some money brokers in London had ceased to deal with BCCI in advance of it being closed.

Leaving aside the merits and drawbacks of particular mechanisms that might be proposed (and one such mechanism has been suggested above as an example), the overall assessment is that regulation needs to reinforce, not replace, market discipline. The *regulatory regime* needs to be structured so as to provide greater incentives than exist at present for markets to monitor banks and other financial firms.

In addition, there is considerable advantage in regulators utilising market data in their supervisory procedures whenever possible. Evidence indicates that markets give signals about the credit-standing of financial firms which, when combined with inside information gained by supervisory procedures, can increase the efficiency of the overall supervisory process. Flannery (1998) suggests that market information may improve two features of the overall process: (1) regulators can identify developing problems more promptly, and (2) regulators have the incentive and justification to take action more quickly once problems have

been identified. He concludes that market information should be incorporated into the process of identifying and correcting problems.

If financial markets are able to assess a bank's market value as reflected in the market price, an asset-pricing model can in principle be used to infer the risk of insolvency that the market has assigned to each bank. Such a model has been applied to UK banks by Hall and Miles (1990). Similar analysis for countries which had recently liberalised their financial systems has been applied by Fischer and Gueyie (1995). On the other hand, there are clear limitations to such an approach (see Simons and Cross, 1991) and hence it would be hazardous to rely exclusively on it. For instance, it assumes that markets have sufficient data upon which to make accurate assessments of banks, and it equally assumes that the market is able to efficiently assess the available information and incorporate it into an efficient pricing of bank securities.

An additional route is to develop the role of rating agencies in the oversight role. Rating agencies have considerable resources and expertise in monitoring banks and making assessments of risk. It could be made a requirement, as in Argentina, for all banks to have a rating which would be made public.

While market discipline is potentially powerful, it has its limitations and Bliss and Flannery (2000) argue that there is no strong evidence that equity and debt-holders do in fact affect managerial decisions. This means that, in practice, it is unlikely to be an effective complete alternative to the role of official regulatory and supervisory agencies:

- Markets are concerned with the private costs of a bank failure and reflect the risk of this in market prices. The social cost of bank failures, on the other hand, may exceed the private cost (Llewellyn, 1999) and hence the total cost of a bank failure may not be fully reflected in market prices.
- The cost of private monitoring and information collection may exceed the benefits.
- Market disciplines are not effective in monitoring and disciplining public sector banks.
- 'Free-rider' problems may emerge.
- In many countries, there are limits imposed on the extent to which the market in corporate control (the take-over market) is allowed to operate. In particular, there are often limits, if not bars, on the extent to which foreign institutions are able to take control of banks, even though they may offer a solution to under-capitalised institutions.
- The market is able to efficiently price bank securities and inter-bank loans only to the extent that relevant information is available, and in many cases the necessary information is not available. Disclosure requirements are, therefore, an integral part of the market disciplining process.

- It is not self-evident that market participants always have the necessary expertise to make risk assessment of complex, and sometimes opaque, banks. In addition, there are some areas within a bank (e.g. its risk analysis and control systems) where disclosure is not feasible.
- In some countries, the market in debt of all kinds (including securities and debt issued by banks) is limited, inefficient and cartelised although market discipline can also operate through inter-bank and swaps markets.
- When debt issues are very small it is not always economic for rating agencies to conduct a full credit rating on a bank.

While there are clear limitations to the role of market discipline (discussed further in Lane, 1993) the global trend is in the direction of placing more emphasis on market data in the supervisory process. The theme being developed is not that market monitoring and discipline can effectively replace official supervision, but that it has a powerful role which should be strengthened within the overall *regulatory regime*. The recent consultative document issued by the Basel Committee on Banking Supervision (Basel Committee, 1999a) incorporates the role of market discipline as one of the three pillars of a proposed new approach to banking supervision. The Committee emphasises that its approach "will encourage high disclosure standards and enhance the role of market participants in encouraging banks to hold adequate capital."

As neither the market nor regulatory agencies are perfect, the obvious solution is to utilise both with neither having a monopoly of wisdom and judgement. The conclusion is that more systematic research is needed into the predictive power of market data, and how market information can usefully be incorporated into the supervisory process both by regulators and the markets.

(5) INTERVENTION

A key component of the *regulatory regime* is the nature, timing and form of intervention by regulatory agencies in the event of financial distress within a bank.

The closure of an insolvent or, under a Structured Early Intervention and Resolution (SEIR) regime, a near-insolvent bank, can impose a powerful discipline on the future behaviour of banks. Such 'creative destruction' has a positive dimension. It is also necessary to define the nature of 'closure'. It does not necessarily mean that, even in the absence of deposit insurance, depositors lose. Nor do bank-customer relationships and information sharing need to be destroyed. As with the bankruptcy of any company, there is always some residual value within an insolvent bank. Bank closure may simply mean a change in ownership of a bank and the imposition of losses on equity holders. In most countries, 'bank closure' has not meant

the destruction of the bank. Thus, Barings was purchased by ING Bank. In many instances, regulatory authorities have brokered a change in ownership of insolvent banks while imposing losses on shareholders. The skill in intervention that leads to the 'closure' of an institution lies in ensuring that what remains of value is maintained.

Intervention arrangements are important not the least because they have incentive and moral hazard effects which potentially influence future behaviour by banks and their customers. These arrangements may also have important implications for the total cost of intervention (e.g. initial forbearance often has the effect of raising the eventual cost of subsequent intervention), and the distribution of those costs between tax-payers and other agents. Different intervention arrangements also have implications for the future efficiency of the financial system in that, for instance, forbearance may have the effect of sustaining inefficient banks and excess capacity in the banking sector.

The issue focuses on when intervention is to be made. The experience of banking crises in both developed and developing countries indicates that a well-defined strategy for responding to the possible insolvency of financial institutions is needed. A response strategy in the event of bank distress has three key components:

- taking prompt corrective action to address financial problems before they reach critical proportions;
- being prepared to close insolvent financial institutions while nevertheless not destroying what value remains;
- closing of unviable institutions, and vigorously monitoring of weak and/or restructured institutions.

A key issue relates to rules *versus* discretion in the event of bank distress: the extent to which intervention should be circumscribed by clearly-defined rules (so that intervention agencies have no discretion about whether, how and when to act), or whether there should always be discretion simply because relevant circumstances cannot be set out in advance. The obvious *prima facie* advantage for allowing discretion is that it is impossible to foresee all future circumstances and conditions for when a bank might become distressed and close to (or actually) insolvent. It might be judged that it is not always the right policy to close a bank in such circumstances.

However, there are strong arguments against allowing such discretion and in favour of a rules approach to intervention. Firstly, it enhances the credibility of the intervention agency in that market participants, including banks, have a high degree of certainty that action will be taken. Secondly, allowing discretion may increase the probability of forbearance which usually eventually leads to higher costs when intervention is finally made. Kane (2000), for instance,

argues that officials may forbear because they face different incentives from those of the market: their own welfare, the interests of the agency they represent, political interests, reputation, future employment prospects, etc. Perhaps less plausibly, he also argues that, under some circumstances, the present generation of tax-payers may believe they can shift the cost of resolution to future generations. Thirdly, and this was relevant in some countries which recently experienced banking distress, it removes the danger of undue political interference in the disciplining of banks and regulated firms. Experience in many countries indicates that supervisory authorities face substantial pressure to delay action and intervention. Fourthly, and related to the first, a rules approach to intervention is likely to have a beneficial impact on *ex ante* behaviour of financial firms.

A rules-based approach, by removing any prospect that a hazardous bank might be treated leniently, has the advantage of enhancing the incentives for bank managers to manage their banks prudently so as to reduce the probability of insolvency, (Glaessner and Mas, 1995). It also enhances the credibility of the regulator's threat to close institutions. Finally, it guards against hazards associated with risk-averse regulators who themselves might be dis-inclined to take action for fear that it will be interpreted as a regulatory failure, and the temptation to allow a firm to trade-out of its difficulty. This amounts to the regulator also "gambling for resurrection". In this sense, a rules approach may be of assistance to the intervention agency as its hands are tied, and it is forced to do what it believes to be the right thing.

Put another way, time-inconsistency and credibility problems should be addressed through pre-commitments and graduated responses with the possibility of over-rides. Many analysts have advocated various forms of pre-determined intervention through a general policy of SEIR. There is a case for a graduated-response approach since, for example, there is no magical capital ratio below which an institution is in danger and above which it is safe. Other things equal, potential danger gradually increases as the capital ratio declines. This in itself suggests that there should be a graduated series of responses from the regulator as capital diminishes. No single dividing line should trigger action but there should be a series of such trigger points with the effect of going through any one of them being relatively minor, but the cumulative effect being large. Goldstein and Turner (1996) argue that SEIR is designed to imitate the remedial action which private bond holders would impose on banks in the absence of government insurance or guarantees. In this sense it is a mimic of market solutions to troubled banks. An example of the rules-based approach is to be found in the Prompt Corrective Action (PCA) rules in the US. These specify graduated intervention by the regulators with pre-determined responses triggered by capital thresholds. In fact, several countries have such rules of intervention (Basel Committee, 1999a). SEIR strategies can, therefore, act as a powerful incentive for prudent behaviour.

The need to maintain the credibility of supervisory agencies creates a strong case against forbearance. The overall conclusion is that there should be a clear bias (though not a bar) against forbearance when a bank is in difficulty. While there should be a strong presumption against forbearance, and that this is best secured through having clearly-defined rules, there will always be exceptional circumstances when it might be warranted in the interests of systemic stability. However, when forbearance is exercised the regulatory agency should, in some way or another, be made accountable for its actions.

A useful case study is to be found in the example of Finland where strict conditions were imposed in the support programme. These are summarised by Konskenkyla (2000) as:

- support was to be transparent and public;
- the attractiveness of public funding of the programme was to be minimised;
- the owners of supported banks were, where possible, to be held financially responsible;
- the terms of the programme were to support the efficiency of the banking system and the promotion of necessary structural adjustments within the system;
- the potential impact on competitive distortions were to be minimised;
- banks receiving support were to be publicly monitored;
- the employment terms of bank directors were to be reasonable and possible inequities removed.

It is also the case that some bank directors and managers in Finland have been held financially liable for hazardous behaviour (see Halme, 2000).

(6) CORPORATE GOVERNANCE

In the final analysis, all aspects of the management of financial firms (including compliance) are ultimately corporate governance issues. This means that, while shareholders may at times have an incentive to take high risks, if a financial firm behaves hazardously it is, to some extent, a symptom of weak corporate governance. This may include, for instance, a hazardous corporate structure for the financial firm; inter-connected lending within a closely-related group of companies; lack of internal control systems; weak surveillance by (especially non-executive) directors, and ineffective internal audit arrangements which often includes serious under-reporting of problem loans. Corporate governance arrangements were evidently weak and under-developed in banks in many of the countries that have recently experienced bank distress.

A particular feature of corporate governance relates to cross-share-holdings and inter-connected lending within a group, (Falkena and Llewellyn, 2000). With respect to Japan, Nabaso *et al.* (2000) note that such cross-share-holdings, which have long been a feature of Japanese corporate structures, increased during the 'bubble era' that preceded the banking

crisis. In some cases, banks sold capital to companies (in order to raise their capital-asset ratios) and at the same time purchased stock in the companies. Several problems arise in cross-share-holding arrangements: credit assessment may be weak; the mix of debt and equity contracts held by banks may create conflicts of interest; when equity prices fall banks simultaneously face credit and market risk; and banks often counted unrealised gains as capital even when in practice they could not be realised,

There are several reasons to suggest that corporate governance arrangements operate differently with banks than with other types of firms. Firstly, banks are subject to regulation which adds an additional dimension to corporate governance arrangements. Secondly, banks are also subject to continuous supervision and monitoring by official agencies. This has two immediate implications for private corporate governance: shareholders and official agencies are to some extent duplicating monitoring activity, and the actions of official agencies may have an impact on the incentives faced by other monitors, such as shareholders and even depositors. However, official and market monitoring are not perfectly substitutable. Thirdly, banks have a fiduciary relationship with their customers (e.g. they are holding the wealth of depositors) which is rare with other types of firm. This creates additional principal-agent relationships (and potentially agency costs) with banks that generally do not exist with non-financial firms.

A fourth reason why corporate governance mechanisms are different in banks is that there is a systemic dimension to banks. Because in some circumstances (e.g. presence of externalities) the social cost of a bank failure may exceed the private costs, there is a systemic concern with the behaviour of banks that does not exist with other companies. Fifthly, banks are subject to safety-net arrangements that are not available to other companies. This has implications for incentive structures faced by owners, managers, depositors and the market with respect to monitoring and control.

All these considerations have an impact on the two general mechanisms for exercising discipline on the management of firms: internal corporate governance and the market in corporate control. While there are significant differences between banks and other firms, corporate governance issues in banks have received remarkably little attention. However, Prowse (1997) also shows that accountability to shareholders, and the effectiveness of board monitoring, is lower in banks than in non-financial firms. A key issue noted by Flannery (1998) is that little is known about how the two governance systems (regulation and private) interact with each other and, in particular, the extent to which they are complementary or offsetting.

A key issue in the management of banks is the extent to which corporate governance arrangements are suitable and efficient for the management and control of risks. In the UK, the FSA has argued as follows: "Senior management set the business strategy, regulatory climate, and ethical standards of the firm....Effective management of these activities will benefit firms and contribute to the delivery of the FSA's statutory objectives." Corporate governance arrangements include issues of corporate structure, the power of shareholders to exercise accountability of managers, the transparency of corporate structures, the authority and power of directors, internal audit arrangements, and lines of accountability of managers. In the final analysis, shareholders are the ultimate risk-takers and agency problems may induce managers to take more risks with the bank than the owners would wish. This in turn raises issues about what information shareholders have about the actions of the managers to which they delegate decision-making powers, the extent to which shareholders are represented on the board of directors of the bank, and the extent to which shareholders have power to discipline managers.

Corporate governance arrangements need to provide for effective monitoring and supervision of the risk-taking profile of banks. These arrangements need to provide for, *inter alia*, a management structure with clear lines of accountability; independent non-executive directors on the board; an independent audit committee; the four-eyes principle for important decisions involving the risk profile of the bank; a transparent ownership structure; internal structures that enable the risk profile of the firm to be clear, transparent and managed; and the creation and monitoring of risk analysis and management systems. There would also be advantage in having a board director being responsible for the bank's risk analysis, management and control systems. Some bank ownership structures also produce ineffective corporate governance. Particular corporate structures (e.g. when banks are part of larger conglomerates) may encourage connected lending and weak risk analysis of borrowers. This was the case in a significant number of bank failures in the countries of South East Asia and Latin America. Some corporate structures also make it comparatively easy for banks to conceal their losses and unsound financial position.

The Basel Committee has appropriately argued that effective oversight by a bank's board of directors and senior management is critical. It suggests that the board should approve overall policies of the bank and its internal systems. It argues in particular that: "lack of adequate corporate governance in the banks seems to have been an important contributory factor in the Asian crisis. The boards of directors and management committees of the banks did not play the role they were expected to play" (Basel Committee, 1999b). According to the Committee, good corporate governance includes:

- establishing strategic objectives and a set of corporate values that are communicated throughout the banking organisation;

- setting and enforcing clear lines of responsibility and accountability throughout the organisation;
- ensuring that board members are qualified for their positions, have a clear understanding of their role in corporate governance and are not subject to undue influence from management or outside concerns;
- ensuring there is appropriate oversight by senior management;
- effectively utilising the work conducted by internal and external auditors;
- ensuring that compensation approaches are consistent with the bank's ethical values, objectives, strategy and control environment;
- conducting corporate governance in a transparent manner.

An interesting possibility is the extent to which all this results from moral hazard associated with official regulation and supervision: a further possible negative trade-off within the *regulatory regime*. It could be that the assumption that regulatory authorities impose regulation and monitor banks reduces the incentive for non-executive directors and shareholders to do so. The presumption may be that regulators have more information than do non-executive directors and shareholders, and that their own monitoring would only be wastefully duplicating that being conducted by official supervisors. Further research is needed into the role of non-executive directors and institutional investors in the effectiveness of corporate governance mechanisms in banks.

4. CONTRACT REGULATION

We return to the question of differentiation between banks. Even within the regulation component of the regime a wide range of options is available, and in particular with respect to the degree of discretion exercised by the regulator. At the risk of over-simplification, two alternative approaches may be identified. At one end of the spectrum, the regulator lays down precise regulatory requirements that are applied to all banks. While there may be limited differentiations within the rules, the presumption is for a high degree of uniformity. At the other end of the spectrum (in what might be termed *Contract Regulation*) the regulator establishes objectives and general principles. It is then for each regulated firm to demonstrate to the regulator how these objectives and principles are to be satisfied by its own chosen procedures.

A detailed and prescriptive rule book approach may add to compliance costs without commensurate benefit in terms of meeting the objectives of regulation. If the objectives can be achieved by an alternative regime that is less costly for banks to operate with lower compliance costs, there would be advantage in reducing the dead-weight costs. It may, for instance, be possible to achieve the same objectives in a way that allows firms more scope to

choose the manner in which they satisfy the regulator's requirements, and at the same time minimise their own compliance costs.

Under this regime, the regulator sets a clear set of objectives and general principles. It is then for each bank to demonstrate how these objectives and principles are to be satisfied by its own chosen procedures. In effect, the bank chooses its own regulation but within the strict constraints set by the objectives and principles set by the regulator. Put another way, the firm is able to choose its preferred route to achieving the objectives of regulation. Presumably, each bank would choose its own least-cost way of satisfying the regulator. Once the regulator has agreed with each bank how the objectives and principles are to be satisfied, a contract is established between the regulator and the bank. The contract requires the bank to deliver on its agreed standards and procedures, and sanctions apply in the case of non-performance on the contract. If the bank does not deliver on the contract, sanctions apply in the normal way and the regulator has the option of withdrawing the choice from the bank which would then be required to accept a standard contract devised by the regulator.

The advantage of this general approach is that individual banks are able to minimise their own costs of regulation by submitting to the regulator a plan that, while fully satisfying the requirements of the regulator, most suits their own particular circumstances and structure. As part of this paradigm, and in order to save costs in devising their own regime, banks would also have the option of adopting an approach established by the regulator. In effect, what is involved is a regime of "self-selecting regulatory contracts". *Contract regulation* necessarily implies increased differentiation in the regulatory arrangements between banks.

Under a regime of *contract regulation* the role of the regulator is four-fold: establishing regulatory objectives, approving self-selected contracts, monitoring standards and the performance on agreed contracts, and disciplining infringements of contracts. A by-product advantage is that the regulator would learn more about optimum regulatory arrangements through the experience of the variety of contracts.

While there are clear limits to how far this regime could be taken in practice, in some areas the regulator could offer a menu of contracts to regulated firms requiring them to self-select. Many countries are moving toward a pre-commitment approach to regulation (Kupiec and O'Brien, 1997). In this approach, each bank agrees with the supervisory agency the models and procedures it will use to evaluate their risks but are subject to penalties if they violate these procedures. The main feature is that each bank indicates how much it is expected to lose from its trading operation over the next quarter and sets aside capital to cover it. It is penalised if losses exceed the stated level. There are several advantages to a pre-commitment strategy: it avoids the necessity of detailed and prescriptive regulation, it creates powerful

incentives for bank decision-makers (the choice of an excessive amount of capital imposes costs on the bank while choosing too low a level of capital risks the imposition of penalties), and it is flexible to the extent that it offers scope for each bank to choose a level of capital which is appropriate to its own particular circumstances. On the other hand, Estrella (1998) argues that the precise design of the penalty structure is likely to be complex.

5. DIFFERENTIATIONS IN THE REGIME

A central theme has been that the two components of the financial stability objective (reducing the probability of bank failures and minimising the costs of those that do occur) are most effectively and efficiently served by a regulatory strategy that optimises the *regulatory regime*. This is necessarily more complex than myopically focusing upon regulation *per se*. The skill lies in combining the seven key components incorporating various positive and negative trade-offs that may exist between them.

However, there is no presumption for a single optimum combination of the components of the regime. On the contrary, optima will vary between countries at any point in time, over time for all countries, and between different banks within a country at any particular time. The optimum mix of the components of a *regulatory regime* and of instruments will change over time as financial structures, market conditions and compliance cultures evolve. For instance, the combination of external regulation and market discipline that is most effective and efficient in one set of market circumstances, and one type of financial structure in a country, may become ill-suited if structures change. Also, if the norms and compliance culture of the industry change, it may be appropriate to rely less on detailed and prescriptive regulation, at least for some banks.

Neither does the same approach and mix of components in the *regulatory regime* need to apply to all regulated firms, or all types of business. On the contrary, given that none of these are homogeneous, it would be sub-optimal to apply the same approach. A key issue is the extent to which differentiations are to be made between different banks.

Space precludes an extensive discussion of these differentiations. Nevertheless, the major determinants may be summarised as follows:

- the expertise that exists within banks and the extent to which reliance can be placed on internal management;
- the incentive structures within banks and those faced by regulators, supervisors and intervention agencies;
- the quality of risk analysis, management and control systems within banks;
- the skills of regulatory and supervisory agencies;

- the nature and efficiency of the basic financial infrastructure of a country: quality and reliability of accounting and auditing; nature, definition and enforceability of property rights; enforceability of collateral contracts; information disclosure and transparency, etc.;
- the existence of financial markets;
- the efficiency of financial markets most especially with respect to issues such as the extent to which market prices accurately reflect all publicly available information about the true value and risk characteristics of banks;
- the existence of financial instruments to enable banks to mitigate risks;
- the strength of incentives for stake-holders to monitor the risk characteristics of banks;
- the extent of moral hazard created by public intervention (e.g. deposit insurance);
- whether rating agencies provide rating services to investors in banks;
- the complexity and opaqueness of bank structures;
- ownership structures of banks and the extent to which owners are able to effectively monitor banks and influence the behaviour of bank managers to whom they delegate the responsibility of managing the bank;
- the degree of complexity of the business operations of banks;
- the existence or otherwise of an effective market in corporate control in the banking sector;
- the degree of ownership independence of banks from their corporate customers;
- the extent to which decision-making in banks is independent of political influence;
- the capital structure of banks.

A potential problem in allowing different mixes of the components of the regime between countries is that competitive neutrality issues may arise. Banks in countries that rely more on detailed and prescriptive regulation may be placed at a competitive disadvantage *vis a vis* other nationalities of banks competing on an international basis. Conversely, banks operating in a less prescriptive regime may gain competitive advantages. However, this only applies to the extent that the differences that exist do not reflect risk considerations. It cannot legitimately be claimed that a bank with inadequate risk analysis and management systems and which, as a result, is subject to more formal regulation than other banks, is inequitably being penalised or placed at an unwarranted competitive disadvantage.

Over time, and as the complexity of banks operations increases, it is likely that less reliance can be placed on detailed and prescriptive rules. Risk becomes too complex and volatile an issue to be adequately covered by a simple set of prescriptive rules. Also, as markets develop and become more efficient, a greater role can be envisaged for market discipline. Similarly, less reliance may be needed on regulation to the extent that the skills within banks raise the sophistication and accuracy of banks' risk analysis and management systems is raised.

Equally banks within a country are not homogeneous with respect to their skills, risk analysis and management systems, corporate governance arrangements, their overall significance within the financial system, legal, organisational, and corporate structures, or access to markets for capital. These differences may also create differences between banks in the optimum mix of the components of the *regulatory regime*.

6. SHIFTS WITHIN THE *REGULATORY REGIME*

Drawing together some of the earlier themes, several shifts within the *regulatory regime* are recommended in order to maximise its overall effectiveness and efficiency:

- Less emphasis to be given to formal and detailed prescriptive rules dictating the behaviour of regulated firms.
- A greater focus to be given to incentive structures within regulated firms, and how regulation might have a beneficial impact on such structures.
- Market discipline and market monitoring of financial firms need to be strengthened within the overall regime.
- Greater differentiation between banks and different types of financial business.
- Less emphasis to be placed on detailed and prescriptive rules and more on internal risk analysis, management and control systems. In some areas, externally imposed regulation in the form of prescriptive and detailed rules is becoming increasingly inappropriate and ineffective. More emphasis needs to be given to monitoring risk management and control systems, and a to recasting the nature and functions of external regulation away from generalised rule-setting towards establishing incentives and sanctions to reinforce such internal control systems. The recently issued consultative documents by the Basel Committee on Banking Supervision (Basel Committee, 1999a and 2001) explicitly recognises that a major role of the supervisory process is to monitor banks' own internal capital management processes and "the setting of targets for capital that are commensurate with the bank's particular risk profile and control environment. This process would be subject to supervisory review and intervention, where appropriate."
- Corporate governance mechanism for financial firms need to be strengthened so that, for instance, owners play a greater role in the monitoring and control of banks, and compliance issues are identified as the ultimate responsibility of a nominated main board director.

Recent Trends In Regulatory Practice

Space precludes a detailed review of how regulatory arrangements have been evolving in practice. However, in some areas substantial changes have been made and others are in the pipeline. This section briefly considers some of the trends that are emerging with respect to the international approach to the prudential regulation and supervision of banks. While the

Basel Committee would not necessarily adopt the paradigm of the *regulatory regime* outlined earlier, there are some shifts in approach along the lines outlined in this paper.

When setting capital adequacy standards on banks, the regulator confronts a negative trade-off between the efficiency and costs of financial intermediation on the one hand, and financial stability on the other. Although it is a complex calculation [absent the Modigliani-Miller theorem (which does not, in any case, apply to banks with deposit insurance)] as the cost of equity exceeds the cost of debt (deposits) the total cost of financial intermediation rises as the equity-assets ratio rises. If the regulator imposes an unnecessarily high capital ratio (in the sense that it exceeds what is warranted by the risk profile of the bank) an avoidable cost is imposed on society through a high cost of financial intermediation. On the other hand, a high capital ratio reduces the probability of bank failure and hence the social costs of financial instability. It also means that a higher proportion of the costs of a bank failure are borne by specialist risk-takers rather than depositors.

When judging the efficiency and effectiveness of capital adequacy regulation, four basic criteria are to be applied: (1) does it bring *regulatory capital* into line with *economic capital*?; (2) does it create the correct risk-management incentives for owners and managers of banks?; (3) does it produce the correct internal allocation of capital as between alternative risk assets and therefore the correct pricing of risk?, and (4) to what extent does it create moral hazard?.

BIS Approach to Capital Adequacy

The problems with the current BIS capital adequacy regime (1988 Accord) are well established. In particular:

- The risk-weights applied to different assets and contingent liabilities are not based on precise measures of absolute and relative risk. This in turn creates incentives for banks to misallocate the internal distribution of capital, to choose an uneconomic structure of assets, and to arbitrage capital requirements. It is also liable to produce a mis-pricing of risks. There is, for instance, an incentive for banks to choose assets whose *regulatory risk-weights* are low relative to the *economic (true) risk weights* even though, in absolute terms, the risk weights may be higher than on alternative assets. The distortion arises not because of the differences in risk weights but to the extent that differentials between regulatory and economic risk weights vary across different asset classes. Jackson (2001) notes that the current Accord imposes excess capital on loans to low-risk corporate borrowers and that this has been a factor inducing banks too securitise such loans. For instance, applying 99.7 per cent VaRs on portfolios of exposures and using Credit-Metrics transactions, she calculates that the current Accord imposes excess capital requirements on corporate loans to borrowers with credit ratings higher than BB.

- The methodology involves the summing of (project) risk assets and does not take into account the extent to which assets and risks are efficiently diversified, (portfolio risk). However, in practice supervisors in some countries often make differentiation according to the overall risk profile of individual banks.
- No allowance is made for risk-mitigating factors such as hedging strategies within the banking book though allowance is made for risk mitigation in the trading book.
- All loans to corporates carry a risk-weight of unity whereas the major differences within a bank's overall portfolio exist within the loan book.
- Banks are able to arbitrage their regulatory capital requirements in a way that lowers capital costs without any corresponding reduction in risk.
- The current Basel Accord applies only to credit and market risk, and no allowance is made for operational, legal or reputation risk.

Some national regulatory and supervisory authorities have discretion in how the Accord is applied (subject to certain minima), and differentiate between banks according to their overall risk profile. This means that the distortions may not be as serious in practice as the Accord might suggest. Nevertheless, the fact remains that the current Accord is seriously flawed. However, there are many countries where no discretion is allowed and the Basel requirements are adopted precisely.

Partly because of these weaknesses, the Basel Committee on Banking Supervision has recently proposed a new framework for setting capital adequacy requirements (Basel Committee, 2001). It has issued a substantial consultation document which, when adopted, will represent a significant shift in the approach to bank capital regulation. It is envisaged that the New Basel Capital Accord will be implemented by 2004. It is not proposed to discuss the New Accord in detail here other than to note that it is based on three central pillars: Minimum Capital Requirements (which will set new capital requirements for credit risk and an operational risk charge), a Supervisory Review Process (which will require supervisors to take intervention action if a bank's risk profile is high relative to capital held), and an enhanced role for market discipline which will require more information disclosure by banks. As described in Jackson (2001), the Supervisory Review (Pillar 2 of the New Accord) is based on four interlocking principles: (1) banks will be required to have processes for assessing their capital requirements in relation to their risk profile, (2) their processes will be evaluated by supervisors, (3) banks will be expected to operate with capital above minima set in Pillar 1, and (4) supervisors should intervene at an early stage to prevent capital from falling below the level required to support the bank's risk characteristics. The last-mentioned is a move in the direction of SEIR.

A major feature of the proposed approach to capital adequacy is that it will be more risk-sensitive with the objective of aligning *economic* and *regulatory* capital more precisely by

making regulatory capital requirements more accurately reflect the actual risks of banks. In addition, the range of risks to be covered will be widened including setting capital adequacy requirements for operational risk.

The proposed Basel Capital Accord can be viewed in terms of the *regulatory regime* paradigm outlined in this paper:

- Substantial emphasis is to be given to the importance of banks developing their own risk analysis, management and control systems, and it is envisaged that incentives will be strengthened for this. In some cases (i.e. those banks with sophisticated risk analysis systems) this will enable banks to apply their own methodologies in calculating risk and the required capital backing, (a move in the direction of *contract regulation*). In the process of emphasising the importance of banks developing their own internal risk analysis and management systems, the consultative document argues as follows: “The Committee recognises the relationship that exists between the amount of capital held by the bank against its risks and the strength and effectiveness of the bank’s risk management and internal control processes. However, increased capital should not be viewed as the only option for addressing increased risks confronting the bank. Other means for addressing risk, such as strengthening risk management, applying internal limits, and improving internal controls, must also be considered. Furthermore, capital should not be regarded as a suitable substitute for addressing fundamentally inadequate control or risk management processes”, (Basel, 2001).
- The Committee's consultative paper stresses the important role of supervision in the overall regulatory process. The Supervisory Review Process will mean that supervisors must ensure that banks have sound internal risk analysis and management systems to assess capital adequacy. This will require a high standard of sophistication on the part of bank supervisors if they are to be able to assess banks’ systems. This in turn has implications for the training and qualifications of bank supervisors. This second pillar of the capital adequacy framework will: "seek to ensure that a bank's capital position is consistent with its overall risk profile and strategy and, as such, will encourage *early supervisory intervention*" (italics added). This represents a step towards SEIR.
- In an attempt to bring regulatory capital more into alignment with economic capital, it is proposed to widen the range of risk weights and to introduce weights greater than unity. Risk weights to be applied will be refined by reference to a rating provided by an external credit assessment institution (such as a rating agency) that meets strict standards.
- A wider range of risks are to be covered including legal, reputation and operational risk.

- Capital requirements are to take into account the volatility of risks and the extent to which risks are diversified.

- Two alternative approaches to assessing credit risk for purposes of defining required capital will be applied: a Standardised Approach (similar to the current arrangement with the addition of more risk weights), and an Internal Ratings Based (IRB) Approach (which allows banks to use their own internal models). Although a modified form of the current Accord will remain as the "standardised" approach, the Committee believes that, for some sophisticated banks, use of internal and external credit ratings should be incorporated, and also that portfolio models of risk could contribute towards aligning economic and regulatory capital requirements. The IRB approach will not rely on pre-determined supervisory risk weights. Banks will be able to input their own assessment of the probability of default associated with each borrower. As noted by Jokivuolle and Kauko (2001), "the IRBA is expected to be pursued by the more sophisticated institutions and it is intended to pave the way for the ultimate acceptance of the use of banks' own credit risk portfolio models in determining regulatory capital". These assessments will be derived from banks' historical data of individual loan categories, rating agencies, or other external industry sources, and they must meet "robust supervisory standards". The Committee recognises that the use of internal ratings is likely to incorporate information about customers that is not available either to regulators or external rating agencies. In effect, in some respects, this would involve asking banks themselves what they believe their capital should be. This is a form of pre-commitment (as discussed earlier). In practice, while banks will slot loans into buckets according to the internal ratings, the capital requirements for each bucket will be set by Basel. The object is to bring the regulatory process more into line with the way banks undertake risk assessment. However, the Committee does not believe that portfolio models of risk can be used in the foreseeable future. Nevertheless, over time, the Committee states that it would like to see more banks moving from the Standardised Approach to the IRB approach and also that, within the IRB approach, banks will shift from the foundation to the advanced approaches as their risk management capabilities develop.

- The Committee recognises that use of internal ratings is likely to incorporate information about customers that is not available either to regulators or external rating agencies. In effect, in some respects this would involve asking banks themselves what they believe their capital should be. This is a form of pre-commitment, and a move in the direction of *Contract Regulation*. In practice, while banks will slot loans into buckets according to the internal ratings, the capital requirements for each bucket will be set by Basel. The object is to bring the regulatory process more into line with the way banks undertake risk assessment.

- Allowance is to be made for risk-mitigating factors such as the use of derivatives contracts to the extent that they are applied to reduce or shift risk.
- Greater emphasis is to be given to the role of market discipline which is the third Pillar in the proposed new approach. It will encourage high standards of transparency and disclosure standards and "enhance the role of market participants encouraging banks to hold adequate capital." It is envisaged that market discipline should play a greater role in the monitoring of banks and the creation of appropriate incentives. The Committee has recognised that supervisors have a strong interest in facilitating effective market discipline as a lever to strengthen the safety and soundness of the banking system. It argues: "market discipline has the potential to reinforce capital regulation and other supervisory efforts to promote safety and soundness in banks and financial systems. Market discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner". This will require more information disclosure by banks and regulators will specify the precise detail of information disclosure.
- The proposals also include the possibility of external credit assessments in determining risk weights for some types of bank assets. This would enhance the role of external rating agencies in the regulatory process. The Committee also suggests there could usefully be greater use of the assessment by credit rating agencies with respect to asset securitisation made by banks.
- The principle is established that supervisors should intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require remedial action if capital is not maintained or restored.
- The consultation document gives some emphasis to the important role that shareholders have in monitoring and controlling banks.

Overall, the new approach being proposed by the Basel Committee envisages more differentiation between banks, a less formal reliance on prescriptive rules, elements of choice for regulated institutions, an enhanced role for market discipline, a greater focus on risk analysis and management systems, some degree of pre-commitment, and a recognition that incentives for prudential behaviour have an important role in the overall approach to regulation. The new approach would create powerful incentives for banks to improve their risk analysis and management methods and to develop their own estimates of economic capital. Equally, there would be powerful incentives for supervisors to develop and enhance their monitoring skills (Stephen and Fischer, 2000).

7. ASSESSMENT

This paper has introduced the concepts of *regulatory regime* and *regulatory strategy*. Seven components of the regime have been identified: each are important but none alone is sufficient for achieving the objectives of regulation. They are complementary and not alternatives. Regulatory strategy is ultimately about optimising the outcome of the overall regime rather than any one of the components. Regulators need to consider that, if regulation is badly constructed or taken too far, there may be negative impacts on other components to the extent that the overall effect is diluted. However, there may also be positive relationships between the components, and regulation can have a beneficial effect on incentive structures within financial firms.

Regulation and supervision of banks and financial institutions has the potential to make a significant contribution to the stability and robustness of a financial system. However, there are limits to what regulation and supervision can achieve in practice. Although regulation is an important part of the *regulatory regime*, it is only a part and the other components are equally important. In the final analysis, there is no viable alternative to placing the main responsibility for risk management and general compliance on the shoulders of the management of financial institutions. Management must not be able to hide behind the cloak of regulation or pretend that, if regulation and supervisory arrangements are in place, this absolves them from their own responsibility. Nothing should ever be seen as taking away the responsibility of supervision of financial firms by shareholders, managers and the markets.

The objective is to optimise the outcome of a regulatory strategy in terms of mixing the components of the regime, bearing in mind that negative trade-offs may be encountered. The emphasis is on the *combination* of mechanisms rather than alternative approaches to achieving the objectives. The skill of the regulator in devising a regulatory strategy lies in how the various components in the regime are combined, and how the various instruments available to the regulator (rules, principles, guidelines, mandatory disclosure requirements, authorisation, supervision, intervention, sanctions, redress, etc.) are to be used.

ACKNOWLEDGEMENTS

The author is very grateful for valuable comments on an earlier draft from Marsha Courchane, Gillian Garcia, Glenn Hoggarth, Patricia Jackson, Klaas Knot, David Marston, Peter Sinclair, and participants at an International Monetary Fund central banking seminar held in Washington, DC in June, 2000. The usual disclaimer applies.

REFERENCES

- Baer, H, and Gray, C, (1996), "Debt as a Control Device in Transitional Economies: The Experiences of Hungary and Poland", in R. Frydman, C. Gray and A Rapaczynski, eds., *Corporate Governance in Central Europe and Russia*, Vol. 1, Central European University Press, Budapest.
- Basel Committee (1999a), 'A New Capital Adequacy Framework', Consultative Paper, Basel Committee on Banking Supervision, BIS, Basel, June.
- Basel Committee (1999b), "Enhancing Corporate Governance for Banking Organisations", Basle Committee on Banking Supervision, BIS, Basel.
- Basel Committee (2001), *The New Basel Capital Accord*, January.
- Billett, M, Garfinkel, J and O'Neal, E (1998), "The Cost of Market versus Regulatory Discipline in Banking", *Journal of Financial Economics*, pages 333-358
- Black, J, (1994), "Which Arrow? Rule Type and Regulatory Policy", *Public Law*, June.
- Bliss, R. & Flannery, M. (2000), "Market Discipline in the Governance of US Bank Holding Companies: Monitoring vs Influency", Working Paper Series Federal Reserve Bank of Chicago, WP-00-03, Chicago, March.
- Brealey, R. (1999), 'The Asian Crisis: Lessons for Crisis Management and Prevention', Bank of England *Quarterly Bulletin*, August, pp 285-296.
- Briault, C. (1999), "The rationale of a Single Regulator", *Occasional Paper*, No. 2, Financial Service Authority, London.
- Calomiris, C. (1997), *The Postmodern Safety Net*, Washington, DC, American Enterprise Institute.
- Caprio, G. (1997), 'Safe and Sound Banking in Developing Countries: We're not in Kansas Anymore', Policy Research Paper, No. 1739, World bank, Washington.
- Corsetti, G, Pesenti, P, and Rabini, N, . (1998), 'What Caused the Asia Currency and Financial Crisis?', Banca D'Italia, Temi di Discussione, December
- Dale, R (1996), *Risk and Regulation in Global Securities Markets*, Wiley, London.
- Demirguc-Kunt, and Detragiache, E, (1998), "The Determinants of Bank Crisis in Developing and Developed Countries", *IMF Staff Papers*, March.
- Dewatripont, M. and Tirole, J. (1994), *The Prudential Regulation of Banks*, MIT Press, Cambridge, MA.
- Estrella, A. (1998), "Formulas or Supervision? Remarks on the Future of Regulatory Capital", Federal Reserve Bank of New York *Economic Policy Review*, October.
- Evanoff, D. & Wall, L. (2000), "Subordinated Debt and Bank Capital Reform", paper presented at Western Economic Association International Conference, Vancouver, June.
- Evans, H, (2000), "Plumbers and Architects: A Supervisory Perspective on International Financial Architecture, *Occasional Paper*, No. 4, Financial Services Authority, London, January.

- Falkena, H. & Llewellyn, D.T. (2000), *The Economics of Banking*, SA Financial Sector Forum, Johannesburg.
- Fink, G, and Haiss, P, (2000), "Lemming Banking: Conflict Avoidance by Herd Instinct to Eliminate Excess Capacity", paper to be presented at SUERF Colloquium, Vienna, May.
- Fischer, K. and Gueyie, J. (1995), 'Financial Liberalisation and Bank Solvency', University of Laval, Quebec, August.
- Flannery, M. (1998), "Using Market Information in Prudential Bank Supervision: A Review of the US Empirical Evidence", *Journal of Money, Credit and Banking*, August, pages 273-305
- Garcia, G.G. (1999b), "Deposit Insurance: Obtaining the Benefits and Avoiding the Pitfalls", IMF Working Paper, August.
- Glaessner, T. and Mas, I. (1995), 'Incentives and the Resolution of Bank Distress', *World Bank Research Observer*, Vol. 10, No. 1, February, pp 53-73.
- Goldstein, M. & Turner, P. (1996), 'Banking Crises in Emerging Economies', *BIS Economic Papers*, No. 46, BIS, Basle.
- Hall, S. and Miles, D. (1990), 'Monitoring Bank Risk: A Market Based Approach', Discussion Paper, Birkbeck College, London, April.
- Halme, L. (2000), "Bank Corporate Governance and Financial Stability", in L. Halme, C. Hawkesby, J. Healey, I. Soapar and F. Soussa, *Selected Issues for Financial Safety Nets and Market Discipline*, London, Centre for Central Banking Studies.
- Hogarth, G., Reis, R., and Saporta, V. (2001), "Costs of Banking Instability: Some Empirical Evidence", Bank of England *Working Paper* (forthcoming).
- Jackson, P. (2001), "Bank Capital Standards: The New Basel Accord", Bank of England *Quarterly Bulletin*, Spring.
- Kane, E. (2000), "Dynamic Inconsistency of Capital Forbearance: Long Run vs Short Run Effects of Too-Big-To-Fail Policymaking", paper presented to IMF Central Banking Conference, Washington, DC, June.
- Kupiec, H. and O'Brien, J. (1997), "The Pre-Commitment Approach: Using Incentives to Set Market Risk Capital Requirements", *Finance and Economics Discussion Series*, no. 1997-14, Federal reserve Board, Washington D.C., March.
- Jokivuolle, E. and Kauko, K., (2001), "The New Basel Accord: Some Potential Implications of the New Standards for Credit Risk", Bank of Finland *Discussion Paper* No. 2-2001, Helsinki, March.
- Lane, T. (1993), 'Market Discipline', *IMF Staff Papers*, March, page 55.
- Lang, W. & Robertson, D. (2000), "Analysis of Proposals for a Minimum Subordinated Debt Requirement", paper presented at Western Economic Association International conference, Vancouver, June.

- Lindgren, C.J, Garcia, G, and Saal, M, (1996), *Bank Soundness and Macroeconomic Policy*, Washington, International Monetary Fund.
- Llewellyn, D.T. (1999), 'The Economic Rationale of Financial Regulation', *Occasional Paper*, No. 1, Financial Services Authority, London
- Llewellyn, D.T. (2000), "Regulatory Lessons from Recent Banking Crises", De Nederlandsche Bank Discussion Paper, Amsterdam, May.
- Nakaso, H., Hattori, M., Nagae, T., Hamada, H., Kanamori, T., Kamiguchi, H., Dezawa, T., Takahashi, K., Kamimura, A., Suzuki, T. & Sumida, K. (2000), "Changes in Bank Behaviour during the Financial Crisis: Experiences of the Financial Crisis in Japan", paper presented to IMF Central Banking Conference, Washington, DC, June.
- Prendergast, C. (1993), "The Provision of Incentives in Firms", *Journal of Economic Literature*, March, pages 7-63.
- Prowse, S. (1997), "Corporate Control in Commercial Banks", *Journal of Financial Research*, 20, pages 509-527
- Reisen, H. (1998), 'Domestic Causes of Currency Crises: Policy Lessons for Crisis Avoidance', OECD Development Centre, Technical Paper 136, OECD, Paris.
- Richardson, J and Stephenson, M, (2000), "Some Aspects of Regulatory Capital", *Occasional Paper No. 7*, Financial Services Authority, London.
- Saunders, A and Wilson, B, (1996), "Contagious Bank Runs: Evidence from the 1929-1933 Period", *Journal of Financial Intermediation*, 5, pages 409-23.
- Schinasi, G, Drees, B, & Lee, W, (1999), "Managing Global Finance and Risk", *Finance and Development*, December.
- Simons, K. & Cross, S. (1991), 'Do Capital Markets Predict Problems in Large Commercial Banks', *New England Economic Review*, May, pp 51-56
- Simpson, D. (2000), "Cost Benefit Analysis and Competition", in *Some Cost Benefit Issues in Financial Regulation*, Financial Services Authority, London.
- Stephen, D. & Fischer, M. (2000), "On internal ratings and the Basel Accord: Issues for Financial Institutions and Regulators in the Measurement and Management of Credit Risk", paper presented at IMF Central Banking Conference, Washington, DC, June.
- UNCTAD (1998), *Trade and Development Report*, United Nations, Geneva.
- Wallman, S. (1999), "Information Technology Revolution and its Impact on Regulation and Regulatory Structure", in R Litan and A Santomero, eds. *Brookings-Wharton Papers on Financial Services*, Brookings Institution Press, Washington.

Index of Working Papers:

August 28, 1990	Pauer Franz	1 ¹⁾	Hat Böhmen-Bawerk Recht gehabt? Zum Zusammenhang zwischen Handelsbilanzpassivum und Budgetdefizit in den USA ²⁾
March 20, 1991	Backé Peter	2 ¹⁾	Ost- und Mitteleuropa auf dem Weg zur Marktwirtschaft - Anpassungskrise 1990
March 14, 1991	Pauer Franz	3 ¹⁾	Die Wirtschaft Österreichs im Vergleich zu den EG-Staaten - eine makroökonomische Analyse für die 80er Jahre
May 28, 1991	Mauler Kurt	4 ¹⁾	The Soviet Banking Reform
July 16, 1991	Pauer Franz	5 ¹⁾	Die Auswirkungen der Finanzmarkt- und Kapitalverkehrsliberalisierung auf die Wirtschaftsentwicklung und Wirtschaftspolitik in Norwegen, Schweden, Finnland und Großbritannien - mögliche Konsequenzen für Österreich ³⁾
August 1, 1991	Backé Peter	6 ¹⁾	Zwei Jahre G-24-Prozess: Bestandsaufnahme und Perspektiven unter besonderer Berücksichtigung makroökonomischer Unterstützungsleistungen ⁴⁾
August 8, 1991	Holzmann Robert	7 ¹⁾	Die Finanzoperationen der öffentlichen Haushalte der Reformländer CSFR, Polen und Ungarn: Eine erste quantitative Analyse
January 27, 1992	Pauer Franz	8 ¹⁾	Erfüllung der Konvergenzkriterien durch die EG-Staaten und die EG-Mitgliedswerber Schweden und Österreich ⁵⁾

1) vergriffen (out of print)

2) In abgeänderter Form erschienen in Berichte und Studien Nr. 4/1990, S 74 ff

3) In abgeänderter Form erschienen in Berichte und Studien Nr. 4/1991, S 44 ff

4) In abgeänderter Form erschienen in Berichte und Studien Nr. 3/1991, S 39 ff

5) In abgeänderter Form erschienen in Berichte und Studien Nr. 1/1992, S 54 ff

October 12, 1992	Hochreiter Eduard (Editor)	9 ¹⁾	Alternative Strategies For Overcoming the Current Output Decline of Economies in Transition
November 10, 1992	Hochreiter Eduard and Winckler Georg	10 ¹⁾	Signaling a Hard Currency Strategy: The Case of Austria
March 12, 1993	Hochreiter Eduard (Editor)	11	The Impact of the Opening-up of the East on the Austrian Economy - A First Quantitative Assessment
June 8, 1993	Anulova Guzel	12	The Scope for Regional Autonomy in Russia
July 14, 1993	Mundell Robert	13	EMU and the International Monetary System: A Transatlantic Perspective
November 29, 1993	Hochreiter Eduard	14	Austria's Role as a Bridgehead Between East and West
March 8, 1994	Hochreiter Eduard (Editor)	15	Prospects for Growth in Eastern Europe
June 8, 1994	Mader Richard	16	A Survey of the Austrian Capital Market
September 1, 1994	Andersen Palle and Dittus Peter	17	Trade and Employment: Can We Afford Better Market Access for Eastern Europe?
November 21, 1994	Rautava Jouko	18 ¹⁾	Interdependence of Politics and Economic Development: Financial Stabilization in Russia
January 30, 1995	Hochreiter Eduard (Editor)	19	Austrian Exchange Rate Policy and European Monetary Integration - Selected Issues
October 3, 1995	Groeneveld Hans	20	Monetary Spill-over Effects in the ERM: The Case of Austria, a Former Shadow Member
December 6, 1995	Frydman Roman et al	21	Investing in Insider-dominated Firms: A Study of Voucher Privatization Funds in Russia
March 5, 1996	Wissels Rutger	22	Recovery in Eastern Europe: Pessimism Confounded ?

June 25, 1996	Pauer Franz	23	Will Asymmetric Shocks Pose a Serious Problem in EMU?
September 19, 1997	Koch Elmar B.	24	Exchange Rates and Monetary Policy in Central Europe - a Survey of Some Issues
April 15, 1998	Weber Axel A.	25	Sources of Currency Crises: An Empirical Analysis
May 28, 1998	Brandner Peter, Diebalek Leopold and Schuberth Helene	26	Structural Budget Deficits and Sustainability of Fiscal Positions in the European Union
June 15, 1998	Canzeroni Matthew, Cumby Robert, Diba Behzad and Eudey Gwen	27	Trends in European Productivity: Implications for Real Exchange Rates, Real Interest Rates and Inflation Differentials
June 20, 1998	MacDonald Ronald	28	What Do We Really Know About Real Exchange Rates?
June 30, 1998	Campa José and Wolf Holger	29	Goods Arbitrage and Real Exchange Rate Stationarity
July 3, 1998	Papell David H.	30	The Great Appreciation, the Great Depreciation, and the Purchasing Power Parity Hypothesis
July 20, 1998	Chinn Menzie David	31	The Usual Suspects? Productivity and Demand Shocks and Asia-Pacific Real Exchange Rates
July 30, 1998	Cecchetti Stephen G., Mark Nelson C., Sonora Robert	32	Price Level Convergence Among United States Cities: Lessons for the European Central Bank
September 30, 1998	Christine Gartner, Gert Wehinger	33	Core Inflation in Selected European Union Countries
November 5, 1998	José Viñals and Juan F. Jimeno	34	The Impact of EMU on European Unemployment

December 11, 1998	Helene Schuberth and Gert Wehinger	35	Room for Manoeuvre of Economic Policy in the EU Countries – Are there Costs of Joining EMU?
December 21, 1998	Dennis C. Mueller and Burkhard Raunig	36	Heterogeneities within Industries and Structure-Performance Models
May 21, 1999	Alois Geyer and Richard Mader	37	Estimation of the Term Structure of Interest Rates – A Parametric Approach
July 29, 1999	José Viñals and Javier Vallés	38	On the Real Effects of Monetary Policy: A Central Banker's View
December 20, 1999	John R. Freeman, Jude C. Hays and Helmut Stix	39	Democracy and Markets: The Case of Exchange Rates
March 1, 2000	Eduard Hochreiter and Tadeusz Kowalski	40	Central Banks in European Emerging Market Economies in the 1990s
March 20, 2000	Katrin Wesche	41	Is there a Credit Channel in Austria? The Impact of Monetary Policy on Firms' Investment Decisions
June 20, 2000	Jarko Fidrmuc and Jan Fidrmuc	42	Integration, Disintegration and Trade in Europe: Evolution of Trade Relations During the 1990s
March 06, 2001	Marc Flandreau	43	The Bank, the States, and the Market, A Austro-Hungarian Tale for Euroland, 1867-1914
May 01, 2001	Otmar Issing	44	The Euro Area and the Single Monetary Policy
May 18, 2001	Sylvia Kaufmann	45	Is there an asymmetric effect of monetary policy over time? A Bayesian analysis using Austrian data.
May 31, 2001	Paul De Grauwe and Marianna Grimaldi	46	Exchange Rates, Prices and Money. A Long Run Perspective

June 25, 2001	Vitor Gaspar, Gabriel Perez-Quiros and Jorge Sicilia	47	The ECB Monetary Strategy and the Money Market
July 27, 2001	David T. Llewellyn	48	<i>A Regulatory Regime For Financial Stability</i>
