

An Alternative Operational Risk Framework OpRisk Partnership

by

Adriana Cronin

Tim Jaggs*

Abstract

This paper is a response to the proposal of the Basel Committee for Banking Supervision for a New Capital Adequacy framework that was published on 16th January 2001. It aims to contribute to the discussion about the capital charge for operational risk by addressing the issue from an alternative perspective. The authors believe that there is an inherent contradiction at the core of the operational risk controversy. The definition of operational risk is *cause-based* as it defines operational risk as losses caused by specific, if broadly defined, causes whereas systemic safety requires *effect-based* protection that deals with all operational losses whatever their cause. The operational risk capital buffer is designed to protect institutions from the effects of operational losses. If the causes to which the buffer will respond are specified, institutions will not be protected from effects resulting from unspecified causes. However, in the response the authors do not focus on the definition of operational risk, instead the aim is to present a more constructive approach. The paper develops a viable mechanism for operational risk assessment, measurement, modelling, pricing, rating and transfer. It addresses the issues of economic incentives for banks to comply with the proposed regulatory framework, measurement and modelling in the context of a collaborative framework, the cost of capital and the need for consistency and global standards. The concepts underpinning its conclusions are based on the importance of incentive-compatibility in a regulatory framework and the effective use of market discipline. First, the section on regulation briefly examines the rationale for banking regulation, followed by a section on securitisation that explores alternative sources of operational risk capital. The section on modelling places the measurement and assessment of operational risk into a collaborative framework and the section on disclosure addresses the need for operational loss data for the purposes of modelling as well as market discipline.

* The authors thank Phil Devon, Charles Pople and other RiskLab participants for taking the time to read and comment on the report. The views stated herein are those of the authors and are not necessarily the views of Blanch Crawley Warren or E.W.Blanch.

**Response to a proposal for a New Basel Capital Accord
published by the Basel Committee on Banking Supervision
on 16th January 2001**

Objective

The objective of this paper is to bring to the attention of regulators the following points:

1. An effective regulatory framework must simulate market forces as closely as possible.
2. Capital provision or funding of operational losses suffered by financial institutions provided by the financial markets would provide those incentives.
3. The need to incorporate into the new capital adequacy framework the option of alternative sources of regulatory capital (other than banks' balance sheet equity).

Introduction

The New Capital Accord, if implemented in accordance with the regulators' stated intentions, will have a far-reaching impact on the banking industry. An increasing number of financial institutions fall under its reach and the new capital requirements will profoundly affect the way these institutions operate on a day-to-day basis. It will also involve an as yet undetermined amount of banks' capital resources and the impact may spread outside the regulated sector e.g. global availability and cost of capital and competitive advantages for financial institutions outside the regulated banking sector.

From the moment the Basel Committee realised the need to update the capital adequacy framework, a number of initiatives dealing with various aspects of the new framework have arisen. Many of them concentrate on the development of quantitative models for the measurement and control of credit and operational risks¹. Others are looking for risk mitigation techniques such as insurance or off-balance sheet capital provision.

We believe that the search should also focus on financial markets as an alternative source of the regulatory capital. This will enable banks to substitute precious equity with capital of the same liquidity, but at lower cost. This proposal takes into account the objectives and justification of regulation and emphasises the need for regulators to provide incentives for banks. Financial markets, if employed correctly, can provide powerful incentives in the form of lower costs and sufficient capacity, to help implement more effective and sophisticated risk management in financial institutions.

In this paper the focus is on operational risk as this is the area of greatest uncertainty as to how exposures are to be measured and mapped into capital requirements. Operational losses can be devastating² and operational risk cuts across business lines and requires the attention of the whole management, not only specialised lines as with credit and market risks.

Regulators have previously established the need for market discipline to complement their supervisory efforts. There are at least two identifiable mechanisms in the New Accord that reinforce regulatory objectives with market driven or rewarded incentives: the continuum of increasingly sophisticated models (and improved risk management associated with it) and improved disclosure requirements (investors, depositors and creditors can impose strong market discipline on financial institutions to manage their risks in a prudent fashion). The question is whether these are sufficiently strong incentives as there is no certainty that the resources banks will have to invest to comply with the new capital adequacy framework will be paid off by the reduction in their capital charges. If the incentives built into the framework are not strong enough, the additional danger for regulators is an ever increasing need for resources to keep up with financial institutions either in their attempts to by-pass the capital requirements (e.g. credit

¹ Market risk was quantified by JP Morgan's RiskMetrics VaR model in 1995.

² Over the last 20 years the entire financial services industry lost \$200 billion through major operational mishaps, Operational Risk, Test your knowledge of Op Risk, ERisk, 2000.

derivatives and regulatory capital arbitrage) or in increasing the scope and intensity of supervision. The aim must be to introduce sufficient incentives within the regulatory framework to ensure that banks derive as direct a benefit from implementing the regulators' requirements as possible at the same time that regulatory objectives are achieved at a cost that is efficient and justifiable to both the banking sector and the regulators.

This paper is based on a study of a number of working papers and reports of the BIS relating to banking regulation and supervision, and numerous papers and articles by individuals, organisations and institutions dedicated to the analysis and reporting of developments in the financial sector³.

Three of its four sections deal with the main focus of the current debate on the new capital adequacy framework: regulation, modelling and disclosure. In the new framework the minimum capital requirements (Pillar 1) are applied in conjunction with supervisory review (Pillar 2) and market discipline (Pillar 3). This is where the need for an incentive-compatible framework is most marked, as the resources required to bring Pillars 2 & 3 to the level envisaged by the regulators may be prohibitive. The section on securitisation introduces new elements to the debate and demonstrates the advantages of alternative capital provision. The regulators are invited to consider incorporating such alternative capital into the new framework.

Section I – Regulation

1. Justifications for Supervision⁴

Banking is one of the most regulated industries in the world due to the central role that banks play in financial intermediation. The justification for any regulation usually stems from a market failure such as externalities, market power or asymmetry of information between buyers and sellers. There is still a lack of consensus on the nature of the market failure that makes free, non-regulated banking not optimal, nonetheless there are two justifications that are often presented for regulating banks: the risk of a systemic crisis and the inability of depositors to monitor banks.

In recent decades, the systemic risk has been exacerbated by other trends in economic development: globalisation and consolidation (concentration of assets and operations). Large and complex financial institutions are more likely to spread contagion in the financial system. Systemic financial risk can be transmitted through the wholesale activities of financial institutions and through interdependencies between banks. Global financial institutions' size and complexity make any meaningful assessment difficult, increase the moral hazard caused by lack of transparency and reduce the effectiveness of market discipline⁵.

2. Objectives of Supervision

Systemic risk reduction – stability of the financial system

There is a widespread acceptance that regulators and central banks have an important role in promoting systemic safety and protecting against systemic risk. Their challenge is to balance the benefits of measures to achieve systemic safety with the foregone benefits or returns of the activities that are limited or eliminated by such measures.

An appropriate (and plain English) description of the systemic risk is that of Sir Andrew Large (Chairman of the UK Securities and Investments Board in 1996): 'The risk that

³ ERisk, ICFI, NetRisk, RiskNet, Reuters

⁴ Based on Contemporary Banking Theory, Working paper No 90, Basel Committee on Banking Supervision, September 2000.

⁵ Consolidation in the Financial Sector, Summary Report, Group of 10, January 2001

something which goes wrong in one firm or market will, because of the close linkages which now exist between firms and markets, spill over to affect other firms and markets.'

The failure of a major institution has always been considered one of the main sources of systemic risk. The February 1995 collapse of Barings qualified as one of the triggers capable of producing a major systemic shock. The root cause of Barings' ruin lay in its complete lack of internal controls and its demise highlighted the importance of robust risk management systems for promoting systemic safety⁶.

There is no doubt that a serious hiccup in settlement procedures, or a failure in a settlement system, could be a major source of systemic risk. The amounts at stake are huge – BIS itself estimates that the average daily turnover of global currencies in spot, outright forward and foreign exchange swap contracts is US\$1 ¼ trillion. The resulting large exposures raise significant concerns for individual banks and the international finance system as a whole.

That systemic safety can also be threatened by the failure of one small institution was demonstrated in September 1998 when the US Federal Reserve Bank organised a rescue of a hedge fund, Long-term Capital Management because it feared the fund's collapse would spark off havoc in the financial markets. LTCM had on balance sheet market exposures of over \$200 billion while its capital base was about \$4.8 billion⁷.

According to the report on the LTCM debacle, the US President's working group on financial markets notes concluded among other things that 'the principal issue arising out of the events....is how to constrain excessive leverage'. Among the recommended measures to constrain such excessive leverage are:

1. Public disclosure by public companies about their material financial exposures to significantly leveraged institutions.
2. Enhancement of the practices for counter-party risk management.
3. Improvements in the risk management systems of regulated entities.
4. Development of more risk-sensitive but prudent approaches to capital adequacy.

All of these have been incorporated in the New Basel Capital Accord and provided the regulators with additional objectives such as promotion of sound internal risk management practices, increased co-operation among regulators and central bankers in order to adapt national supervisory tools to cope with the financial giants and the development of globally-integrated safeguards, standards, transparency and systems necessary to monitor and contain risks.

'Level playing field'

Although protection of systemic safety is a primary objective of regulation, another objective is the desire to maintain competitive equality between firms operating in international markets. In fact, at the time the original Basel Accord was drafted, the prevalent international regulatory concern was about the undercapitalisation of Japanese banks. This was allowing these banks to compete for international lending business at margins that did not adequately compensate for the risks in the business. The competitive pressure on margins threatened the solvency of all other banks involved in similar international lending. Common capital standards increased the capital required for lending business and raised the cost of operating in the market for the previously undercapitalised banks and provided an increased capital buffer against insolvency.

⁶ The Board of Banking Supervision Inquiry into the Circumstances of the Collapse of Barings, BIS, 1995

⁷ Overview: Systemic Safety, IFCI, <http://newrisk.ifci.ch>, May 2000

3. Types of supervision

Lender of last resort.

The oldest proposal⁸ for supervision is via a central bank's role as lender of last resort (LLR). In order not to distort market incentives, central banks should make clear in advance their readiness to lend any amount to a bank that is having liquidity problems provided the bank is solvent. Lending should be done at a penalty rate and against good collateral. However, a bank with good collateral can borrow from the market. It is in a situation of uncertainty about its financial condition, when it cannot satisfy its liquidity needs that an LLR becomes valuable. If the LLR cannot meet the above conditions, its safety net is distortionary as it creates moral hazard.

Deposit insurance

Government deposit insurance has proven very successful in protecting banks from runs. By offering a guarantee that depositors are not subject to loss, the provider of deposit insurance bears the risk that the depositors would otherwise have borne. The cost of this arrangement however, is another market imperfection, moral hazard. Deposit insurance diminishes depositors' incentive to monitor banks and to demand an interest payment commensurate with the risk of the bank. Also, the insurance is charged at a flat rate and individual banks do not carry the full cost of risk. The bank's risk appetite increases.

There have been attempts to look to unfettered markets to manage the risk-taking incentives created by the safety net, namely privatisation of deposit insurance, disintermediation and the introduction of non-bank financial intermediaries. A serious problem with these laissez faire approaches is that they do not credibly address the potential for instability in the banking system. Policymakers and regulators have long made clear that they will come to the rescue of liability holders of the largest banks, and perhaps even smaller institutions, because of their fear of contagion and systemic instability.

The first response to the distorted incentives generated by the safety net is to regulate banks' risk taking. However, there are several reasons why regulatory and supervisory reforms cannot adequately contain moral hazard incentives.

1. Moral hazard occurs when economic agents do not bear the marginal costs of their actions. Regulation does not directly alter marginal cost.
2. The asymmetry of information between banks and regulators limits the effective use of internal bank practices to supervise banks.
3. Regulators' resources would need to be on a par with the firms they examine.

Capital regulation

The distortionary effects of deposit insurance, LLR and other regulatory reforms culminated in bank capital regulation. The 1988 Basel Accord has made an important contribution to this type of regulation. Originally, it explicitly considered only credit risk requiring international banks from G-10 countries to hold minimum capital equal to 8% of risk-adjusted assets. In 1996 it was amended to require banks to set aside capital to cover the risk of losses arising from movements in market prices. It allowed banks to use their internal models to determine the capital charge for market risk. Over time, however, conceptual limitations together with financial innovation have created incentives and opportunities for regulatory capital arbitrage and reduced its effectiveness and the pressure has increased for a revised capital adequacy framework.

The new Accord has three mutually reinforcing pillars that make up the framework for assessing capital adequacy in a bank. Pillar 1 is the minimum regulatory capital charge, which includes both the standardised approach and the new internal rating and internal measurement approaches. The idea is to make capital charges more risk-sensitive. By allowing banks to use their own internal measurement practises (credit and operational risk models), the capital charge should reflect the bank's specific risk profile and

⁸ Bagehot, 1873

motivate banks to improve their internal measurement and control practices to achieve a reduction in the capital charges.

It is yet to be demonstrated whether the new proposal provides adequate incentives for institutions to move beyond the standardised approach to the internal measurement approaches and whether the new regulation would promote better risk management, rewarding better or best practices while penalising less effective processes. It is also not certain that the cost of implementing more sophisticated models will be offset by sufficient reduction in the capital charge. Banks will need more than the possibility that such a reduction may be the case in due course, once the measurement and control mechanisms are established, since the investment needed, not only in financial terms but also in terms of information disclosure, data sharing and strategic planning will be tremendous.

From a brief overview of the types of supervision and their evolution, it appears that supervision/regulation compounds market imperfections by removing one set of distortions and creating another. Even with the improvement of supervisory review and fine-tuning of the regulation, there is a danger that by stepping up supervision and by dedicating more resources to an increasingly complex supervisory framework, the result will be a burdensome body of regulations that will inhibit development of the banking industry's greatest assets – innovation, flexibility and speed. There are several reasons for this:

1. The 'conflicting or opposing' position of banks and regulators – a bank's objective to increase returns differs from those of the regulator to safeguard the financial system.
2. Banks' risk/return maximisation and resource allocation creates incentives to find new ways of bypassing regulation (cherry picking, credit derivatives, regulatory capital arbitrage).
3. Regulators' resources are unlikely to match those of the banking industry – regulators are inevitably one (or more) step behind the market players.

The conflict inherent in the relationship between the regulator and the regulated can be overcome by making the banks' incentives compatible with achievement of the regulators' objectives in a fashion that simulates market forces. It is pointless to expect banks to have the same incentives as regulators – there would be no need for regulations in the first place – but to build into the regulatory framework mechanisms that would motivate banks to comply with the regulation while pursuing their own interest. The next section deals with a method that could underpin the regulatory framework with the necessary market forces.

Cost and capacity for operational losses

One of the reasons the operational risk charge was introduced into the new framework is the amount and size of the potential losses. Operational risk is viewed as a major source of losses that can seriously destabilise a financial institution and pose a threat to systemic safety. Out of the total of \$200 billion operational losses over the last 20 years there were at least 30 cases of individual firm's losses over \$1 billion⁹.

There are concerns about the viability of operational risk measurement, calculation of the capital charge and fears that even if such calculations are possible, the buffer capable of absorbing unexpected and even catastrophic losses will take a large portion of the bank's equity. The problem is two-fold, concerning both the amount and cost of capital. Only capital recognised by regulators may be used – at least half of the measured capital has to be in Tier 1 form. Traditionally, certain operational exposures are covered by insurance but the coverage is patchy, and conditional on certain triggers, covering specific perils and the limits too low to provide any really meaningful source of funding.

It is this lack of and need for sufficient capacity to cover operational losses that can be used to bring banks' interest in line with supervision. By finding (or creating) a source of capital that banks can use to substitute their own capital (provided the regulators are satisfied as to its quality and liquidity), the onus of proof will be on the banks to do all

⁹ Operational Risk, Test your knowledge of Op Risk, ERisk, 2000

they can to identify and adjust their risk profile. The incentive to minimise their capital support requirements and optimise their risk management practices will be economic, driven by return maximisation.

The next section explores securitisation as the source of the capital and suggests how the financial markets can deliver the necessary capacity and market discipline.

Section II – Securitisation

“Securitisation was born to a greater extent out of a need for capital than out of the desire for a lower price of capital. Its ability to make capital available at a time of funds shortages provided the impetus for its expansion into new fields.”¹⁰

There is a need for new, non-traditional sources of risk capital to cover potential operational losses due to:

- a) Size of operational losses – traditional capacity (equity or risk transfer) is inadequate
- b) Cost of capital to cover operational losses – equity too expensive and traditional markets too volatile
- c) Regulatory framework - regulatory capital arbitrage discouraged and increasingly difficult
- d) Inadequacy of alternative risk transfer methods meeting regulatory requirements or banks risk transfer needs;

The basic concept of securitisation may be applied to almost any asset that has a reasonably ascertainable value, or that generates a reasonable predictable future stream of income. It has been extended to a range of less traditional assets, such as insurance receivables, obligations, commercial bank loans, health care receivables, future rights etc.

The intended goal and effect of a securitisation is to isolate the financial assets that support payment on the related ABS. This ensures that payments on the ABS are derived exclusively from the performance of a segregated pool of financial assets (and any related credit or liquidity enhancements), rather than from the entity that originates or holds the assets. It is necessary to structure the asset in this manner to allow investors to make a meaningful evaluation of the cash flow in the form of a financial instrument (security and its yield) and to open the door to an alternative source of financing.

Benefits of securitisation in general:

1. Increase in liquidity and capital funding.
2. Removal of assets from the balance sheet of the originator for accountancy and bankruptcy purposes – frees up regulatory capital.
3. Transfer of the risk element inherent in the underlying assets to the investors (the assets are sold to the special purpose vehicle).
4. Creation of investment products that respond to specific and unique investor needs.
5. Secondary securitisation markets can reduce geographical and regional disparities in the availability and cost of credit through a particular jurisdiction by linking local credit extension to national and global capital markets systems.
6. More efficient allocation of capital by subjecting the credit-granting activities of individual financial institutions to the pricing and valuation discipline of the capital markets.

Comparison of traditional asset-backed securitisation, insuratisation and OpBonds.

There has always been a connection between capital markets and insurance markets and in recent years (since 1992) the new trend has been the direct participation of the

¹⁰ The Securitisation of Commercial Property Debt, Steven P. Baum, Primer on Securitisation 1998

capital markets in underwriting risk through insurance derivatives and catastrophe bonds. These instruments are usually described as securitisation of insurance risk. The comparison below will attempt to establish the difference between transactions where underwriting risk has been placed into capital markets using financial instruments and the type of securitisation proposed in this paper for Operational Risk Portfolios (OpBonds).

1. Catastrophe bonds (Cat Bonds) are high-yield debt securities. A bond is issued on which annual interest is paid and at the end of the bond's term, the principal is repaid. The principle of this instrument is substituting the risk of the return on capital (i.e. the risk that the assets will be managed sufficiently to generate the promised return) for the risk of a catastrophic event (hurricane, earthquake, flood etc). Arguably, Cat Bonds are preferred to other high-yield bonds by investors, as they do not contain the same level of moral hazard (inherent in the unobservable behaviour of asset managers). A special condition says that if the issuer (i.e. insurance or reinsurance company) suffers a particular pre-defined catastrophe loss, then payment of interest and/or repayment of principal is either deferred or completely forgiven.

Case study: Yasuda Fire & Marine reinsurance agreement with Munich Re using Yasuda Japanese windstorm catastrophe bond. A special purpose vehicle (Pacific Re) was established to issue bonds in the amount of \$80 million in the form of floating rate notes. The term was five years extendable to seven and the coupon was LIBOR plus 370 and 950 bps for the first and second events respectively. These were rated investment grade by Moody's and Fitch. Important for our comparison with traditional ABS are the triggers. The contract was based on an event attachment point of a pre-determined amount. The actual attachment points were reset each year in line with the latest exposure data, using a model to maintain a consistent risk ratio to bond holders. Administration (claims handling, close out payment) and 5% co-insurance was Munich Re's role. Pacific Re issued and paid the bonds and provided fully collateralised security.

An important point to remember is that since the capital retained by the SPV (Pacific Re) was not exposed to any risk other than Yasuda's typhoon losses (i.e. fully collateralised) the only 'return' on it was LIBOR plus the premium (rate on line of 3.7% and 9.5% paid by Yasuda Fire & Marine). Because this arrangement was specific to Yasuda, there was no aggregation of similar risks, no potential for diversification or portfolio management and further potential for an increase in capital return. The premium (the rate on line) was determined mainly on the basis of the cost of the capital in the financial markets and the rate's attractiveness to investors. There was a degree of catastrophe risk modelling based on geographical and historical data to determine and annually revise the attachment points. Such data is widely available not only from the insureds/insurers relationship but also from other sources such as geographical and meteorological research as well as loss data from carriers. What made this type of deal possible in the first place was the availability and accessibility of the data about catastrophe events. It was possible to create the full picture of their impact and enabled quantitative modelling of such exposures. (We will return to this issue later in the section on Disclosure below.)

2. Catastrophe Equity Puts (CatEPut) can be described as a contingent equity transaction under which the buyer has the option to secure additional share capital (equity) at predetermined rates following the occurrence of defined catastrophic events such as earthquakes, hurricanes and floods. This is a put option that works as a reverse of securitisation. The return on capital (option premium) to the investor is realised first, without any capital outflow, and cash is delivered only when a pre-defined event occurs. Further 'value' in the contract is preferred shares that are given in exchange for equity. In fact, an agreed commitment to purchase shares/raise equity within a given period at a pre-determined rate. Preferred shares are then converted into common shares at a specified conversion date (or dates).

A feature of Cat Bonds and CatEPut is that both involve the transfer of underwriting risk to investors. This may potentially limit the demand for such securities as it contains an additional risk that investors may not feel comfortable with. Perhaps with increased familiarity the constraints on demand could be overcome, however, it would require sufficient momentum to reach this critical point. However, in order for the capital

capacity accessed via securitisation to qualify for the status of replacement of regulatory capital, there must be sufficient demand for the bonds to allow for immediate liquidity and capacity after an operational loss event occurs.

3. Operational risk bonds (OpBonds) would combine some of the features of Cat Bonds and CatEPuts with traditional asset-based securities. It will include the feature of a catastrophe bond, compared to any other corporate bond, which adds a special condition that if the issuer suffers a catastrophe loss, then payment of interest and/or repayment of principal is deferred or forgiven. However, OpBonds would not be just high-yield bonds since they must be more liquid. They will, therefore, need credit enhancement. As with corporate bonds the moral hazard is present. The management of liabilities on the firm level is currently unobservable so the purpose of a new rating system would be to reduce, if not eliminate it by monitoring and rating the company's internal risk management framework and practices. Risk can then be further reduced by portfolio management (diversification) at the carrier level.

Portfolio management of operational risk

The Firm level

Active portfolio management is a pre-requisite of efficient securitisation. The return on equity in a firm is produced by its business activities and the efficiency of its asset management. The management of its liabilities should be equally important since by reducing potential liability via efficient risk management, return on equity is further enhanced. This relationship needs to be measured and applied to both strategic planning and risk management.

Because the relationship has not yet been properly modelled and quantified, there has been no direct way to link the return on the asset side to the losses on the liability side before they get onto the balance sheet. The traditional methods of 'protecting' the assets and return have been reserves, provisions, and capital adequacy. And the traditional way of managing liability has been risk transfer, insurance, captives, internal control and risk mitigation etc.

Capital adequacy regulations are concerned with insolvency and bankruptcy and the potential effects on systemic stability, but do not necessarily have much to say about efficient return on assets. A balance sheet capital 'buffer' is 'efficient' (i.e. results only in a minimum reduction in return on capital caused by diverting capital from return generation to survival purposes) only if used for bankruptcy prevention, not for portfolio management of assets and liabilities. This assumes, of course, that the capital is determined correctly. Risks from different business lines are measured, aggregated and their covariance established for meaningful portfolio diversification and management. The equilibrium relationship or efficient frontier position between the expected return on assets in business units and their risks has to be determined. Hence, the firm's assets and liabilities are managed as a portfolio with returns as a premium for the risks taken.

At the firm level a portfolio of assets consists of categories of assets with their respective returns. Risk-based allocation can be used to set a minimum floor of capital for the survival of the assets/business line. The return/risk profile for each business line, which is defined according to the manner the return is generated and the value added, can be calculated as a RAROC measure. Overall capital allocation is then determined according to the risk-adjusted returns of each business line. Diversification on the firm level will be possible between the different business lines. Also, identifying the correlations between sources of operational risk should help avoid the cumulative effects of exposures. It is at this level that minimising risk exposures by risk monitoring and risk mitigation (internal control, security, procedures etc) should play its role in improving the firm's risk profile.

Overall risk weighting of the firm's operational risk portfolio would be aggregated from the risk-adjusted returns of business units and would reflect the firm's operational risk profile. It would be a result of the internal risk model supported/verified by the external risk-rating agency. It would serve as a basis for inclusion into a pool of operational risk sub-portfolios managed as a portfolio by a carrier.

Operational risk (as opposed to market, interest rate and partially liquidity risk) is an alpha type risk, i.e. firm specific, and therefore may be diversified away through portfolio adjustments. It is unsystemic and as such not rewarded by the market. The diversification would be done on the carrier level where other firms' operational risk sub-portfolios are aggregated.

The Carrier level

By aggregating similarly originated sub-portfolios (individual firm's operational risk portfolios) into a sufficiently large pool, the frequency of individual firms' loss events and the severity of loss events are reduced by their absorption in the Operational Risk Portfolio. Collection and aggregation of dissimilar (i.e. non-correlated sub-portfolios) will result in further diversification of the risk and securities backed by the aggregated cash flows from the diversified portfolio will carry a significantly lower marginal risk to the investor than the risk of holding a simple (non-diversified) pool of individual sub-portfolios. It will also be obviously far lower than the risk associated with a single sub-portfolio (individual firm's operational risk).

An Operational Risk Portfolio (ORP) at the carrier level would consist of operational risk sub-portfolios of individual firms. The two key informational inputs for further diversification are the operational risk weightings of individual firms and the correlations between the individual firms. This is where the current lack of data will pose a challenge. However, all other approaches and models proposed so far are facing the same difficulties. The data necessary for risk profiling are no different than required for other approaches and the same type of data can be used.

A diversification strategy for the Operational Risk Portfolio (ORP) will have to be determined. Identifying relevant correlations between individual firms' risk weightings will be crucial. It is likely that the Operational Risk Portfolio will be homogeneous in terms of the sector (financial institutions) and countries (US, UK or other countries with high correlations). An important task, therefore, will be to identify a different source of correlations (negative or low positive), such as categories of banks, financial institutions with low correlations as to their markets, business strategy etc.

Finally, a properly managed and diversified Operational Risk Portfolio will be rated by an external rating agency for the purposes of securitisation. The objective of the procedure described above is to reduce the risks posed by individual firms to the Operational Risk Portfolio to the greatest possible extent, and so maximise the quality of cash flow to be securitised.

Mechanism for securitisation of OpBonds

The OpBonds securitisation process would be different to the creation of asset based securities (ABS). The cash flow for OpBonds will be the 'premium' paid by banks in the ORP. This will be based on the price of their individual operational risks as well as the contingent capital they require. In this scenario the risk investors are taking on is not of default where the yield on securities and/or the principal suffer because the underlying debt is not repaid but of an operational loss event where the 'yield' is paid out but the principal may not be returned.

The capital raised from the securitisation will be managed by an SPV and any excess, for example accumulated interest, can be used to improve SPV cash flows, for a liquidity facility or for further credit enhancement of the securities. This can be decided according to the requirements of the regulators for greater liquidity or investors' demand and appetite for securities of particular ratings.

Incentives argument

The advantages of the approach outlined above are:

1. the improvement of internal risk management of financial institutions
2. dispersion of the cost of operational losses to the financial markets
3. efficient management of Operational Risk Portfolios

4. avoidance of duplicating costs in developing individual internal operational risk models
5. concentration of resources on internal risk management and not on designing expensive internal models
6. access to sufficient risk capital
7. separation of operational and underwriting risks from investment risk.

Financial institutions will have the option to reduce their regulatory capital by not only managing their operational exposures but also transferring the burden of providing the capital to cover operational losses to the financial markets. Access to these markets will be conditional upon attaining the required standards of risk profile and risk management. This will act as a powerful economic incentive for financial institutions to implement the necessary rules and standards. These standards will be set, monitored and certified by underwriters and rating agencies to satisfy financial markets as to the soundness of the risk transferred to them.

Section III – Measurement and modelling

This section will deal with some issues related to the modelling of operational risk. The list is by no means exhaustive, as its place in the central argument of this paper does not depend on solutions to the technical problems currently debated by modelling experts, analysts and statisticians. The conclusions drawn here are to support the incentive-compatibility argument. The main assumption is that the cost of modelling for individual banks may be too high and more importantly, even an appropriate and approved model may not guarantee that potential savings in the capital charge will sufficiently offset the investment for individual banks. If regulators hope for a development similar to the market risk model RiskMetrics (i.e. one institution will develop a workable model and the methodology which will be accepted by the regulators and subsequently adopted by other financial institutions), there are three points to be made:

- 1) differences in the nature of market and operational risks may make it impossible for a single institution (i.e. without co-operation from others) to achieve this, the main obstacle being the lack of operational loss data
- 2) a model that will be used (among other things) to price operational risk is more likely to capture the risk profile accurately thereby revealing the bank's true capital requirements
- 3) any operational model will require significant data sharing and there is no immediate incentive for banks to disclose these correctly and accurately; collective efforts to produce an operational model and the methodology enabling banks to gain access to capital to replace or supplement their capital charges will contain a powerful incentive to build the necessary database (more on this in the section on disclosure).

The objectives of operational risk modelling are:

1. risk identification and profile
2. risk mitigation and control
3. risk pricing
4. risk rating and certification
5. risk monitoring
6. capital optimisation (efficient allocation of economic capital RoE and provision for losses)

The previous section on Securitisation hinted at how the risk profile of a financial institution may be identified. A combination of RAROC with a bottom up approach is envisaged. The measurement of risk and estimation of operational losses will be based on a Capital at Risk method, however, with different distributions used for different parts of the final probability distributions. The bottom up approach will mean that business activities are identified and each business line will produce its own measure of risk-adjusted capital.

Operational risk models have to be predictive and a RAROC approach has been criticised for being too dependent on historical data. However, forward-looking features can be built in. The loss distribution fits will contain a certain degree of predictive elements as well as risk-monitoring systems that should be based on predictive factors. Predictive factors indicate the potential operational risk losses resulting from specified indicators, for example, the amount of investment in IT or the level of network security should indicate the frequency and severity of losses resulting from IT systems failures.

The predictive elements of operational risk models are based on simulations while risk/reward assessment is calculated from actual historical data. Operational risk models should have the ability to de-couple/separate these two functions, both for conceptual and practical reasons. Although connected and interdependent, they will be used for different purposes. Initially, simulations such as scenario analysis and stress testing will be used to determine capital support and generally for strategic business purposes. Post-processing risk/reward assessment will reveal the actual historical risk profile of the institution and provide an invaluable source of data for future and increasingly accurate risk profiling and capital allocation.

Any models designed for and used as an integral part of a financial institution's access to an alternative source of funding will have to satisfy the objectives of the regulators and the models' underlying principles must be relevant to these objectives:

1. the development of methodologies that increasingly reflect an individual bank's particular risk profile
2. a reward of increasing levels of sophistication of risk management and precision of measurement methodology with a reduction in the regulatory operational risk capital requirement¹¹.

Loss Distribution Approach

This is currently the most advanced version of the internal methodology. A bank is allowed to use its internal data for two probability distributions – single event impact and event frequency for one year. These are then used to compute the probability distribution of the cumulative operational loss and the capital charge is the sum of the VaR for each business line. The structure of business lines is determined by the bank itself. Unexpected losses are assessed directly and there is no gamma multiplier. This requires sufficient internal data as well as correct assumptions used in determining the probability distributions. For this and other reasons it is not anticipated that the approach would be available when the New Accord is introduced.

We believe that the advanced stage of modelling would be achieved faster by concentrating the resources of a large section of the industry and by effective collaboration than by a gradual evolution of models based on the separate efforts of individual banks.

One of the main challenges for operational risk modelling is the lack of historical data for the kind of loss distribution analysis as is possible for market and credit risk. The lack of data is two-fold: 1) lack of internal data about individual bank's losses, near misses, exposures etc and 2) lack of industry wide data that could be used to supplement internal data to model operational risk.

The current trend is to find an operational risk measurement methodology based on the same principles as market risk models – VaR, Value-at-Risk - that would estimate bank's CaR, Capital at Risk. However, financial markets provide data of sufficient quality and quantity for market risk modelling and every day managers can see their value at risk and the exposure of their capital to external market forces. Credit risk and operational risk are risks specific to the bank and cannot be measured by reference to an external index (e.g. stock exchange indices) that is publicly available. Event losses are

¹¹ Operational Risk, Consultative Document, BCBS, January 2001

rare and discrete which requires a significantly longer time horizon in order to collect sufficient data for a meaningful statistical analysis.

Operational loss events are also less homogeneous than market or credit losses as operational losses have more varied sources as well as impact. Various terms used to describe types of operational losses include expected, unexpected and catastrophic losses, high frequency -low severity; low frequency - high severity losses. These definitions make sense within a VaR framework. The expected loss is the mean annual aggregate loss, and the unexpected loss is the annual aggregate loss in excess of this mean, up to a particular confidence level (95 or 99% confidence). A catastrophic loss is any loss above the specified confidence level.

The mean (expected), the VaR (unexpected) losses are ex-ante measures and can be predicted based upon specified ex ante probability distributions. The catastrophic loss is an ex-post measure in that the loss has to be experienced in order to determine the level of catastrophic loss that has taken place. A VaR model will only capture the unexpected losses (the amount that a cautious manager might think the business would lose in a very bad year in excess of the budgeted expected amount). The measurement of catastrophic loss exposure will need to be based on Extreme Value Theory, using a different distribution 'fit'¹².

The capital adequacy framework extends to unexpected losses and requires capital reserve to cover them. It seems however that it is caught between a rock and a hard place (or rather putting financial institutions there): setting aside capital sufficient to cover low frequency high severity events may seriously affect a bank's return on capital/equity, on the other hand it is operational loss events on a catastrophic scale that represent the gravest danger to a financial institution. Moreover, it is not only individual banks that face a threat to their existence, the stability of the whole system can be threatened (for example in the case of Barings or LTCM).

What makes operational risk transferable is the fact that although large-scale operational losses may be random they usually result from risks that can be mitigated, controlled or even eliminated. Barings' lack of internal control, the financial industry's blind spot for LTCM in their credit and leverage rating, these could both have been prevented, provided certain standards of risk control had been adhered to. This will obviously have to be explored further and will be one of the most important conceptual issues for the modelling of operational risk used for assessing financial institutions and their inclusion in the Operational Risk Portfolio.

This brings us back to the Operational Risk Portfolio where access to the portfolio will be controlled by certification or external rating of a bank's risk management practices. The operational risk model employed will provide a risk profile (measurement and assessment); the Capital at Risk; ongoing monitoring and system of controls that will be implemented and continually assessed to maintain the transparency of the bank's risk profile.

As a result, the capital necessary to protect a bank from unexpected and/or catastrophic losses will be calculated on a standardised basis consistent across a range of financial institutions. It will be based on appropriate models that will have to be viable and convincing enough for a carrier to take on the operational risk of financial institutions. The need for the carrier to understand exactly how much risk is being transferred to the Operational Risk Portfolio will drive the modelling requirements to higher standards. At the same time, the model output should provide good quality data for the bank's risk adjusted capital management as well as satisfy regulators not only as to the adequacy of the capital charge but also the market discipline imposed on the banks involved.

¹² Steps in Applying Extreme Value Theory to Finance: A Review, Younes Bensalah, Bank of Canada Working Paper 2000-20, November 2000;
Also: Extreme Value Theory: Potential and Limitations as an Integrated Risk Management Tool, Paul Embrechts, Dept of Mathematics, ETH Zurich, 2000

The incentive for a bank to implement sophisticated models for operational risk measurement and effective risk mitigation and control procedures will be the ability to transfer that risk and gain access to capital other than its own equity, sufficient to cover operational losses and with regulatory approval.

Section IV – Disclosure, transparency and collaboration

Market Discipline

Pillar 3 of the New Accord deals with market discipline, which is to be encouraged by developing a “set of disclosure recommendations and requirements which will allow market participants to assess key pieces of information on the scope of application, capital, risk exposures, risk assessment and management processes, and hence the capital adequacy of the institution.”¹³

Earlier papers of the Basel Committee have discussed in detail the arguments for encouraging market discipline through disclosure, namely *Enhancing Bank Transparency*¹⁴. It is transparency in the banking system and of individual bank's activities that encourages the market's disciplinary mechanisms by rewarding banks that manage risk effectively and penalising those whose risk management is weak or ineffective.

Transparency is defined as ‘public disclosure of reliable and timely information that enables users of that information to make an accurate assessment of a bank's financial conditions and performance, business activities, risk profile and risk management practices’.

Disclosure

The definition of public disclosure recognises that disclosure alone does not necessarily result in transparency. In order for market discipline to work, the disclosure information must be timely, accurate, relevant - in short, sufficient to enable markets to make a proper assessment of the bank's activities and risk profile. Here the issue is whether under the New Accord banks will have sufficient incentives to disclose information in the manner that will result in transparency and so reinforce supervisory efforts to maintain a sound banking system. It is obvious from the paper on the New Basel Capital Accord that a more immediate objective of the supervisors is to employ market discipline to encourage the development of sound models and risk management practices. It has to be noted, however, that this approach is rather circular: the type of information disclosed by banks that would achieve the desired transparency will have to be based on appropriate risk measurement and models. However, these models are supposed to be an intended result of market discipline imposed through disclosure of the very same information that cannot be obtained and interpreted meaningfully without the underlying models and risk management practices.

There are two further issues in the proposal that the Committee is aware of and that are relevant to the argument in this paper:

- 1) The potential for market discipline varies both within and across countries and bank supervisors do not have the power to ensure that all incentives for market discipline are in place. (e.g. a bank may not be subject to market discipline from a fully insured depositor who has nothing at risk and, therefore, has no motive to impose discipline; or the incentive structure within a bank may not be responsive to market discipline)
- 2) Banks using the Internal Measurement Approach will need to disclose operational losses (in total or by business line). The concern is that this might serve as a disincentive to develop the more sophisticated approaches to operational risk and therefore loss data are to be a supplementary disclosure.

¹³ Pillar 3 Market Discipline, Supporting Document to the New Basel Capital Accord, Basel Committee on Banking Supervision, January 2001

¹⁴ *Enhancing Bank Transparency*, Basel Committee on Banking Supervision, September 1998

Supplementary disclosures are defined as disclosures 'important for some, but not all, institutions, depending on the nature of their risk exposure, capital adequacy and methods adopted to calculate the capital requirement'. In another part of the document, the Committee recommends that sophisticated internationally active banks make the full range of core and supplementary information publicly available. So much for softening the disincentive to disclose or develop more sophisticated models.

Most arguments against disclosure concern market risk. For example, Avinash Persaud in his prize-winning essay¹⁵ notes the disturbing interaction between herding and market-sensitive risk management practices. He argues that while the market is discerning in the long run, there is compelling evidence that in the short run, markets find it hard to distinguish between the good and the unsustainable, market participants herd and contagion is common. In a world of 'herding', market-sensitive risk management regulations and improved transparency can, perversely, create volatility, reduce diversification and trigger contagion. The underlying reason for this is that market participants behave strategically – in relation to one another – but VaR measures risk 'statically' – without strategic considerations. This means that herding behaviour creates new correlations between assets, for which the models have not accounted. The traditional stress testing is not very meaningful as it tests to see what would happen to a portfolio of positions, if past crises were repeated. It doesn't include the strategic behaviour, which can be better modelled using game theory¹⁶.

Another line of argument comes from investment powerhouses that have often argued that a certain amount of opacity is a necessary evil in their business: more disclosure means less competitive advantage and might confuse shareholders who can't tell from the statements what managers are trying to do¹⁷. Banks are taking the same tack in protesting against greater risk disclosure. Chase Manhattan's CFO, Dina Dublon, has argued that too much disclosure by banks could actually mislead investors when they come to assess an institution's riskiness¹⁸. Continually expanding disclosure requirements could confuse investors, because the rules tend to squeeze information about their approach to risk into a standardised template, which might not truly reflect the institution's philosophy and methodology. Dublon insisted that 'we need disclosures of risk that are relevant to the way that we manage our business'. Calls for a greater volume of information may be misplaced as some bank analysts concede that current disclosure requirements produce information, a large portion of which is routinely ignored.

A more fundamental/substantial basis for bank's reluctance for greater disclosure is a problem with the VaR measure – the *de facto* standard measure of a bank's exposure to routine movements in market prices and rates. When it comes to understanding the real risk exposures of an institution, it is not an appropriate tool for investors or regulators in its current form. VaR is designed to capture the losses that would be likely in normal markets, and cannot be expected to predict the total losses that could be suffered in extreme market conditions, such as the liquidity crisis of 1998.

Although this debate concerns market risk, the argument against disclosure based on VaR's shortfall in measuring a bank's exposure in the worst-case scenario is relevant as regulators envisage operational risk quantification using the same measurement methodology. This can be partially addressed by applying Extreme Value Theory to the fat tails of probability functions and incorporating this measure into the overall assessment of each bank's exposure.

However, there are two conditions of disclosure of any kind that need to be met before transparency is achieved and market discipline set in motion:

1. Consistent and standardised framework
2. Incentives and resources for disclosure

¹⁵ Sending the herd off the cliff edge, Avinash Persaud, ERisk.com, 2000

¹⁶ Risk Management with Interdependent Choice, Stephen Morris and Hyun Song Shit, Oxford Review of Economic Policy, Autumn 1999

¹⁷ Knowledge is power, Dan Mugde, NetRisk, January 2000

¹⁸ Bank Administration Institute Conference on Disclosure, October 2000

Consistent and standardised framework

Development of a set of common principles used for assessing risk and a framework for comparing across different institutions would provide:

- a) Internal consistency – applying the same criteria and the same degree of sophistication across the whole portfolio of a bank which is currently not the case. (“.... *many institutions do not have the systems to integrate positions across the whole company – the trading desk could tell you immediately what their exposures are, but it’s not so easy to overlay that onto other exposures such as the loan book.*” Edward Firth, banking analyst at Credit Lyonnais, London)¹⁹
- b) Global standards

Incentives and resources for disclosure

The article ‘The Data Dilemma’²⁰, reviews the state of data gathering at selected financial institutions and notes several comments made by their representatives (BTM, New York; Barclays, London; Dag-Helge Tronnes, Oslo; HypoVereinsbank, Munich):

- a) Information relevant to assessing operational risk such as records of major IT failures, legal disputes, personnel is not collected for risk management purposes and therefore it is difficult to relate it to a particular risk or bank activity.
- b) Banks cannot develop their operational risk strategy in isolation – once a bank has a set of data on internal losses and key risk indicators it needs to compare it with the patterns of other banks.
- c) Recording internal losses in general categories without enough contextual information may make it impossible later to drill down into the data looking for finer gradations or a regulatory model fit.
- d) Bank’s senior management needs to be convinced that there are considerable benefits from the collection of key risk indicators and a cost/benefit analysis must justify the cost.
- e) Quantification of low frequency, high severity losses will require a rich database of industry events rather than expensively gathered internal data.
- f) The main barriers to data collection are economic and cultural – not technical and methodological. Managers of business lines do not want to reveal near misses, errors, or losses.

The need for a standardised framework is perceived across the industry. However, a framework with consistency and global reach is unlikely to evolve from an initial internal data gathering by individual banks through a variety of shared databases to a framework that would ultimately satisfy the regulators and strengthen systemic stability.

Independent third parties could help in providing a platform for market discipline to take its course. Rating agencies have done that for credit risk rating and the New Accord recognises that in allowing banks to use external rating for weighting of their credit risk exposures. The question of resources remains, however, as does the ability of rating agencies to assist regulators in enforcing disclosure requirements to the desired standard, as the following quote notes:

“While investors might act on the ratings agencies’ assessments, the agencies have no power to order the banks to provide standardised risk information, much less to make them publish it. The willingness and ability of banks to provide even basic information to the agencies varies widely. When banks decline to give this information, they tend to ascribe this to confidentiality, but in reality it is often because they do not have the data available internally”. (Sam Theodore of Moody’s Investors Service, London)²¹

The objective of this section is to demonstrate that the two conditions of a consistent standardised framework and sufficient incentives and resources are most efficiently met in an environment of collaboration. A standardised framework, the internal consistency

¹⁹ The Disclosure Dilemma, ERisk Weekly Analysis, November 2000

²⁰ The Data Dilemma, Operational Risk, Netrisk.com January 2000

²¹ The Disclosure Dilemma, ERisk Weekly Analysis, November 2000

required by regulators and the meaningful disclosure of data require information sharing and sophisticated models. Without considerable resources and motivation this would be impossible for a single financial institution to provide. By providing incentives for individual banks to participate in the development of operational risk models, sufficient resources could be mobilised to build sophisticated operational risk models and move the industry along the continuum faster than regulators and banks themselves can hope for at present. In the New Accord, the regulators set a floor below which the capital charge will not fall, irrespective of the level of sophistication a bank adopts in its approach to operational risk. The limit on how much capital can be saved by reducing the operational risk exposures is the limit on incentives to invest in expensive modelling techniques. An option to access the financial markets for sufficient capacity and quality of capital to replace or supplement the regulatory capital would create a powerful motivation for financial institutions to collaborate in order to continue to improve the measurement, quantification and control of their operational risks.

Collaboration

All attempts at quantifying risk so far have required explicitly or implicitly, a common pool of data. Market risk fluctuations are recorded daily, with a large amount of data publicly available. Market risk models are based on the overwhelming amount and accessibility of such data. Credit risk models are based on data produced either by banks' internal ratings or external ratings. External ratings are a means of pooling and standardising the available data by an independent third party, providing meaningful input into credit risk models. Credit risk, although specific to the particular spread of a bank's clients, does not disclose directly information about risks specific to the bank's management.

Any disclosure of operational loss data will directly affect the bank's standing/image and ultimately its perceived value. The incentives to disclose must override the risks of losing shareholder value from releasing and sharing information about the bank's operational exposures and losses. In other words such disclosure and information sharing must not only assist in avoiding loss of shareholder value but should also help to increase the return on shareholder's equity.

In the New Accord, the regulators attempt to build in incentives for the collection of industry-wide data. The increased sophistication of Basel models and the reduction in the capital requirement can be achieved only with a large amount of loss data and the ability to produce probability distributions capturing individual risk profiles. The Internal Measurement Approach must capture exposures to both types of losses - high frequency, low severity losses and low frequency, high severity losses in order to produce a true risk profile. Internal data may be sufficient in time to quantify exposure to the first type of losses, but for the latter external data is essential as a single bank will never experience all possible low frequency, high impact events. Shared operational loss databases have emerged and are expected to provide a consistent basis for data collection and a platform for model building²².

Shared operational loss databases are already half way to addressing the problem, however, most banks do not have the data in the correct or even consistent shape and form. Banks are attempting to find their individual methods of measuring operational risk, which is likely to result in a range of inconsistent and potentially incompatible models and methodologies. Analysts, investors and regulators will not be able to compare individual risk profiles and meaningfully assess each bank's operational risk exposure and the threat it poses to the stability of the financial system. In short, the incentives built into the New Accord do not extend to full-scale collaboration or even substantial collaborative efforts or to the dedication of sufficient resources to implement the risk management practices required by the regulators.

Disclosure must directly or indirectly help to make capital allocation more efficient and reduce the average cost of capital, otherwise banks will have no incentive to share or

²² NetRisk's and Global Association of Risk Professionals MORE™ – Multinational Operational Risk Exchange, British Bankers Association Operational Loss Database.

disclose the information. Disclosure necessary for obtaining the true risk profile of a bank can be achieved, if it is also a necessary condition for obtaining capital for the bank's operational risk capital charge and losses.

Financial institutions in the Operational Risk Portfolio will be those firms that have fulfilled certain criteria. An operational risk database is an integral part of the Operational Risk Portfolio as it will be created in order to develop the operational risk model, and then to monitor and/or modify it as necessary. A constant supply of operational risk data will serve both the underlying quantification and model as well as enable an on-going elimination or mitigation of operational exposures.

Conclusion

The New Accord is rightly far-reaching and more ambitious than the 1988 Accord as the regulators face an enormous task in achieving systemic stability in an increasingly complex and interdependent financial system.

The drive behind the new framework is to make capital requirements more risk-sensitive. By allowing banks to use their own internal measurement practises (credit and operational risk models), the capital charge should reflect each bank's specific risk profile and motivate banks to improve their internal measurement and control practices to achieve a reduction in their regulatory capital requirement.

It is yet to be demonstrated that the proposal provides adequate incentives for institutions to move beyond the standardised approach to the internal measurement approaches and whether it would promote better risk management, rewarding better and best practices while penalising less effective processes. It is not certain that the cost of implementing more sophisticated models will be offset by a sufficient reduction in the capital charge. Banks will need more than the possibility that such a reduction may be the case in due course, when the measurement and control mechanisms are established since the investment will be tremendous, not only in financial terms but also in terms of information disclosure, data sharing and strategic planning.

The aim must be to introduce sufficient incentives within the regulatory framework to ensure that banks derive as direct a benefit from implementing the regulators' requirements as possible at the same time that regulatory objectives are achieved at a cost that is efficient and justifiable to both the banking sector and the regulators.

The conflict inherent in the relationship between regulator and the regulated can be overcome by making the banks' incentives compatible with achievement of the regulators' objectives in a fashion that simulates market forces. It is pointless to expect banks to have the same incentives as regulators – there would be no need for regulations in the first place – but to build into the regulatory framework mechanisms that would motivate banks to comply with the regulation while pursuing their own interest.

We believe that the search for an incentive-compatible regulatory framework should focus on financial markets as an alternative source of the regulatory capital. This will enable banks to substitute precious equity with capital of the same liquidity, at lower cost.

It is this lack of and a need for sufficient capacity to cover operational losses that can be used to bring banks' interest in line with the regulators'. By finding (or creating) a source of capital that banks can use to substitute their own capital, the onus of proof will be on the banks to do all they can to identify and adjust their risk profile. The incentive to minimise their capital support requirements and optimise their risk management practices will be economic, driven by return maximisation.

This paper dealt with issues that are still under discussion and their resolution affects implementation of the New Accord to the standard envisaged by the regulators:

1. **Regulation** is market distorting (in order to remove one market imperfection another is created) and this supports the argument for an incentive-compatible regulatory framework.
2. **Securitisation** can address the need for capacity and motivate banks to model their operational risk in order to gain access to financial markets.
3. **Modelling** has a long way to go in identifying appropriate models and achieving consistency in the measurement of operational risk, however, with sufficient economic incentive the banks are more likely to invest the necessary resources into sophisticated modelling.
4. **Disclosure** is intended to bring market discipline into the regulatory process, however, this may not work as regulators envisage since incentives not to disclose prevail. Disclosure and information sharing must be driven by a more powerful interest - the need to obtain capital for the capital charge and to meet operational losses.

An alternative proposed in this paper is an approach based on incentive-compatibility, i.e. in which all participants share interest in the end result, albeit caused/fuelled by different motives. The structure of the approach is illustrated by a flow chart in Appendix 1.

The incentive for a bank to implement sophisticated models for operational risk measurement and effective risk mitigation and control procedures will be the ability to transfer that risk and gain access to capital other than its own equity, sufficient to cover operational losses and with regulatory approval. The assumption is that the cost of modelling for individual banks may be too high and more importantly, even an appropriate and approved model may not guarantee that potential savings in the capital charge will sufficiently offset the investment for individual banks.

In the New Accord, the regulators set a floor below which the capital charge will not fall, irrespective of the level of sophistication a bank adopts in its approach to operational risk. The limit on how much capital can be saved by reducing the operational risk exposures is the limit on incentives to invest in expensive modelling techniques.

Our proposed alternative seeks to offer financial institutions the option to reduce their regulatory capital by not only managing their operational exposures but also transferring the burden of providing the capital to cover operational losses to the financial markets. Access to these markets will be conditional upon attaining the required standards of risk profile and risk management. This will act as a powerful economic incentive for financial institutions to implement the necessary rules and standards, and so comply with the regulatory requirements and objectives.

References:

Regulation

1. ***Evolution in Banking Supervision***, Ed Stevens, Economic Commentary, Federal Reserve Bank of Cleveland, March 1, 2000.
2. ***From Command and Control to Market Discipline: How Regulation Should Change With Changes in Banking***, Gary H. Stern, Federal Reserve Bank of Minneapolis, February 26, 1999
3. ***Systemic Safety Overview***, Public Policy Objective, IFCI, May 2000
4. ***Consolidation in the Financial Sector***, Summary Report, Group of 10, January 2001
5. ***Bank Capital Regulation in Contemporary Banking Theory: A Review of The Literature***, João A C Santos, BIS Working Papers No 9, September 2000
6. ***The New Basel Capital Accord***, Basel Committee on Banking Supervision, Consultative Document, Bank for International Settlements, January 2001

Securitisation

7. ***Securitisation of Insurance Risk***, Dr Alan Punter, Aon Capital Markets,
8. ***European Securitisation Resource Guide***, European Securitisation Forum
9. ***LTCM case study***, IFCI
10. ***Implementing Operational Risk quantification***, Anthony Peccia, Canadian Imperial Bank of Commerce.

Models

11. ***Building a Coherent Risk Measurement and Capital Optimisation Model for Financial Firms***, Tim Shephard-Walwyn and Robert Litterman, FRBNY Economic Policy Review, October 1998
12. ***One firm, one view***, Michel Crouhy, Dan Galai , Robert Mark of CIBC, Risk Waters Group Ltd, 2000.
13. ***Quantifying Event Risk: The Next Convergence***, Robert Ceske, José V. Hernández, Luis M Sánchez, the Journal of Risk Finance, Spring 2000.
14. ***Top down or bottom up?***, Tim Pagett, J Chris Karow and Julianne Duncan, Operational Risk Management, Risk Profesional, The Risk Management Unit, 1999

Disclosure

15. ***Rethinking the Quality of Risk Management Disclosure Practices***, Rajna Gibson, IFCI, 2000
16. ***IFCI-Arthur Andersen Risk Disclosure Survey***, 1999.
17. The Disclosure dilemma, Alan McNee, ERisk.com, 4th November 2000
18. ***Pillar 3 (Market Discipline)***, Supporting Document to the New Basel Capital Accord, January 2001
19. ***Enhancing Bank Transparency***, Basle Committee on Banking Supervision, September 1998.