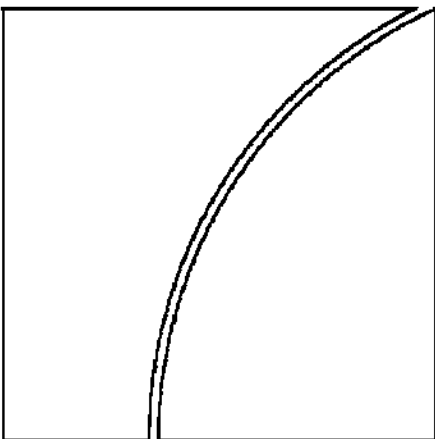


Basel Committee
on Banking Supervision



**Recognising the risk-
mitigating impact of
insurance in operational
risk modelling**

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Recognising the risk-mitigating impact of insurance in operational risk modelling: A discussion of the issues and clarification of bank supervisors' expectations

Executive summary

Under the Basel II Framework,¹ banks using an Advanced Measurement Approach (AMA) to operational risk are permitted to recognise the risk mitigating impact of insurance, subject to specified limitations and criteria. This paper seeks to clarify supervisory expectations for the recognition of the risk mitigating impact of insurance in an AMA. The paper raises a number of key considerations and complexities in the recognition of insurance mitigation in AMAs, including concerns surrounding the quantification of a capital reduction for insurance. Particular emphasis is given to the extent to which operational risk can be identified and transferred outside a bank through the use of insurance, and to what extent other risks (eg strategic, reputational, counterparty) are created as a result.

Banking supervisors, banks, insurance brokers and insurance providers have called for additional clarity and consistency in the recognition of insurance mitigation in AMA, and in the requirements the banking supervisors place on the use of insurance across jurisdictions. The Basel II Framework also specifically indicated that the Basel Committee on Banking Supervision intended to continue an ongoing dialogue with the industry on the use of risk mitigants for operational risk and, on the basis of experience, may consider revising the criteria for and limits on the recognition of operational risk mitigants.² A small number of jurisdictions have approved banks to recognise insurance in their AMA capital calculations. It is understood that there are variances in the approval criteria and the range of practice in relation to these approvals.

A bank's ability to reflect the risk mitigating effects of insurance in the Basel II Framework depends on its adherence with supervisory standards. This reflects the clear need to address numerous complexities in the calculation of AMA capital requirements.

In addition to the banks approved to recognise insurance mitigation, other banks have made progress in integrating insurance into their operational risk management frameworks. Independent of any capital reduction resulting from insurance mitigation, these banks have realised benefits in risk management, understanding and culture. The Basel Committee believes that elements of this paper will be of interest to banks that are not seeking to reflect the impact of insurance in their AMA calculations. The intention of this paper is not to dispute or discourage enhancements in the use of insurance within an operational risk management framework. However, the use of insurance raises concerns that it might be relied upon as a replacement for risk management, and potentially as a replacement for capital.

¹ "Basel II Framework" and "Basel II", which are used interchangeably in this paper, refer to the Basel Committee paper *International Convergence of Capital Measurement and Capital Standards: A Revised Framework – Comprehensive Version (June 2006)*.

² See Basel II Framework, footnote 110: "The Committee intends to continue an ongoing dialogue with the industry on the use of risk mitigants for operational risk and, in due course, may consider revising the criteria for and limits on the recognition of operational risk mitigants on the basis of growing experience."

Accredited banks are expected to pursue the recognition of insurance within their AMA frameworks when calculating their minimum operational risk regulatory capital charge. Banks and insurance companies are collaborating to expand the use of insurance to take advantage of an improved understanding of operational losses and to evolve products in line with the mitigation expectations outlined in the Basel II Framework. This paper emphasises, however, that in order for banks to recognise insurance mitigation as a reduction to AMA capital, they must establish and maintain a robust process that appropriately integrates the role of insurance into operational risk measurement and management systems.

In consideration of further developments in operational risk insurance products, the views and expectations of banking supervisors are likely to change over time. The Basel Committee's Standards Implementation Group Operational Risk subgroup (SIGOR) will therefore consider how it will engage with the industry to stay abreast of developments in the markets for operational risk mitigation products.

1. The Basel II Framework

The Basel II Framework allows banks using an AMA to recognise the risk mitigating impact of insurance in the calculation of operational risk regulatory capital. These provisions contain a number of approval criteria that insurance products, insurance providers, and AMA banks must satisfy, and the maximum reduction allowed is limited to 20%³ of the total operational risk capital charge calculated under the AMA.

While the incorporation of insurance into an AMA model would generally have the impact of reducing the capital estimate, the contribution of insurance to the reduction of insurable operational risks comes from its role as a risk mitigant. Insurance must be recognised as a risk mitigant, and not as a substitute for capital. Accordingly, the use of insurance cannot be recognised through a simple ex-post offset or haircut to AMA capital. The timing and amount of potential insurance recoveries cannot be known with certainty, and may vary in practice. One factor that may lengthen the time to receipt of a claim for payment from an insurer is the nature of the insurable event and the amount of loss cover claimed by the insured. As a result, if banks are permitted to incorporate insurance into AMA models, this should be done in a manner that appropriately reflects the actual availability of the insured loss reimbursements relative to the operational risk capital that must otherwise be held by the banks.

The relevant provisions of the Basel II Framework are restated below:

(iv) Risk mitigation

677. Under the AMA, a bank will be allowed to recognise the risk mitigating impact of insurance in the measures of operational risk used for regulatory minimum capital requirements. The recognition of insurance mitigation will be limited to 20% of the total operational risk capital charge calculated under the AMA.

678. A bank's ability to take advantage of such risk mitigation will depend on compliance with the following criteria:

³ This limit is discussed further in Section 5.

- The insurance provider has a minimum claims paying ability rating of A (or equivalent).
- The insurance policy must have an initial term of no less than one year. For policies with a residual term of less than one year, the bank must make appropriate haircuts reflecting the declining residual term of the policy, up to a full 100% haircut for policies with a residual term of 90 days or less.
- The insurance policy has a minimum notice period for cancellation of 90 days.
- The insurance policy has no exclusions or limitations triggered by supervisory actions or, in the case of a failed bank, that preclude the bank, receiver or liquidator from recovering for damages suffered or expenses incurred by the bank, except in respect of events occurring after the initiation of receivership or liquidation proceedings in respect of the bank, provided that the insurance policy may exclude any fine, penalty, or punitive damages resulting from supervisory actions.
- The risk mitigation calculations must reflect the bank's insurance cover in a manner that is transparent in its relationship to, and consistent with, the actual likelihood and impact of loss used in the bank's overall determination of its operational risk capital.
- The insurance is provided by a third-party entity. In the case of insurance through captives and affiliates, the exposure has to be laid off to an independent third-party entity, for example through re-insurance, which meets the eligibility criteria.
- The framework for recognising insurance is well reasoned and documented.
- The bank discloses a description of its use of insurance for the purpose of mitigating operational risk.

679. A bank's methodology for recognising insurance under the AMA also needs to capture the following elements through appropriate discounts or haircuts in the amount of insurance recognition:

- The residual term of a policy, where less than one year, as noted above;
- A policy's cancellation terms, where less than one year; and
- The uncertainty of payment as well as mismatches in cover of insurance policies.

2. Background and objective

The integration of insurance into the AMA framework has potential benefits for both banks and insurers: banks can improve the alignment of insurance cover to their risk profile, and insurers may benefit from increased transparency about the risks they underwrite and the ability to better understand and price their products. While the number of banks that have

obtained approval to use insurance as an operational risk mitigant is currently limited, it is evident to SIGOR members that banks whose insurance departments and operational risk teams work closely together are better positioned to understand the linkages between insurance cover and their operational risk profiles.

However, the quantification of insurance mitigation within an AMA capital calculation remains a challenge. Industry participants have expressed concerns that the approval criteria applied by banking supervisors to date allow too wide a range of practice, which has led to inconsistencies in expectations for the recognition of insurance mitigation within an AMA.

The SIGOR has agreed that a robust process that appropriately integrates the role of insurance into operational risk measurement and management systems is needed if insurance mitigation is to be recognised as a reduction to AMA capital, and that this expectation could be emphasised and communicated to the industry through the release of this paper for comment. Accordingly, the consultative paper was shared with interested parties in late 2009, and all comments received have been considered.

Banking supervisors need to ensure that sufficient capital is maintained for operational losses under an AMA, yet also support the development of risk mitigation tools as the insurance industry moves toward products designed to mitigate more granular and well rationalised portfolio risks. In addressing the challenges, banking supervisors must address some fundamental questions surrounding the recognition of insurance mitigation:

- (i) How can the insurance cover be appropriately mapped to the operational risks of the bank?
- (ii) What assumptions and methodologies should be used to quantify the risk mitigating impact of the insurance?
- (iii) How should an insurer's ability and willingness to pay operational risk claims be quantified and reflected by an AMA bank?
- (iv) How long will it take for a claim payment to arrive, and what is the impact of any delay in the receipt of payment?
- (v) Is it prudent to recognise insurance mitigation within an AMA minimum capital requirement?

The issues presented in this paper are by no means exhaustive, and the intention of the SIGOR is not to prescribe a solution to each and every issue raised. The views that are expressed in the paper will potentially develop further as insurance products and operational risk modelling approaches evolve, and will be informed by both academia and observed industry practice. The SIGOR is receptive to maintaining an ongoing dialogue with interested parties to ensure product evolution reflects effective industry practice and regulatory expectations.

3. Insurance industry supervision

From a macro perspective, any reduction in a bank's operational risk exposure as a result of the transfer of risk to the insurance industry may result in some increase in the level of capital and/or provisions held by the insurance industry in accordance with local regulatory requirements. Banking supervisors should be knowledgeable about the regulatory capital regimes in place in their respective jurisdictions that are applicable to insurers and to any

concerns of insurance supervisors relative to concentration of risk arising as a result of operational risk transfer from multiple banks to one or a small number of participating insurers. Concentration of insurer exposure to bank operational risks is likely to be seen initially, as the number of insurers developing products responsive to the needs of AMA banks is still relatively small, and it may take time for other insurers to become willing to participate in insuring or reinsuring these risks.

Where appropriate, bank supervisors may seek to ensure that insurance supervisors are aware of any unique or material concentrations of risk that may arise as a consequence of insurers taking on the loss exposure and financial impact of insurable operational risks from the banking industry.

4. Banking supervisors' assessment processes

To facilitate increased harmonisation and consistency within the regulatory community, the following discussion sets forth practices for banking supervisors in the assessment of the risk mitigating impact of insurance within individual bank AMAs. In the assessment processes, banking supervisors must undertake a holistic assessment of the impact of insurance, focusing both on effect on operational risk measurement and management systems, as well as on the regulatory capital requirements generated by the AMA. Additionally, banking supervisors must effectively communicate expectations and requirements on the use of insurance as a risk mitigant to supervised institutions.

The extent to which insurance risk expertise is involved in the assessment of banks' AMAs is likely to differ among jurisdictions. Some jurisdictions have banking and insurance supervisors as separate bodies, whereas others have integrated bodies. Regardless of the supervisory structure, banking supervisors must employ a broad array of skill sets and expertise to fully assess a bank's request to recognise the risk mitigating impact of insurance within an AMA. Specifically, banking supervisors utilise personnel having expertise in the following areas:

- Insurance risk: For assessing the nature and cover of the policies and the response of the insurance contracts;
- Operational risk: For assessing how banks' operational risk profiles are linked to the purchased insurance cover; and
- Technical modelling: For assessing the extent to which banks' methodologies for incorporating insurance mitigation are sound and capable of addressing uncertainties in an appropriate manner.

Bank supervisors may also decide to appropriately involve external parties in their assessment of insurance mitigation. Aside from AMA banks, parties involved in an assessment could include insurance providers, insurance brokers, insurance supervisors and independent reviewers. However, all parties should bear in mind that the onus is on an applicant bank to provide the required evidence to support a reduction in the operational risk capital charge.

Bank supervisors expect that material changes to a bank's risk measurement methodology, such as the initial incorporation of insurance mitigation, would be subject to independent review by appropriate technical and experienced experts. The same applies if there is a material change to the insurance policies being recognised within a bank's AMA. For example, a bank could expect review of new or materially modified policies when there are significantly different characteristics relative to previously recognised contracts. Bank

supervisors' AMA guidelines should specify the expectations for quantitative and qualitative disclosures related to model changes, including relevant time frames, and define the situations where a supervisory assessment of a model change is necessary

Bank supervisors will also need to determine the information they will require as part of the assessment process. To require the collection and review of all of a bank's policy contracts is a potentially burdensome task for bank supervisors, particularly if there are a large number of applicants in a jurisdiction. Alternatively, supervisors could request a self assessment from applicant banks of their compliance with the criteria for recognising insurance mitigation. These self assessments may be subject to independent review by a party appointed by the bank and acceptable to the supervisor, as well as challenge from the supervisor during the assessment process. It is the applicant bank's responsibility to robustly demonstrate the extent to which its insurance portfolio mitigates its operational risk exposure.

Insurance contract certainty is enhanced with evidence of and full documentation for cover as regards the coverage terms, conditions, and commencement dates. Banks could reduce exposure to contract certainty issues and the associated legal risks by obtaining completed insurance policies by the dates of inception of their insurance coverages, or very shortly thereafter. This becomes particularly important when several insurers are participating in insurable risk programs for one type of insurable peril. Banking supervisors have become increasingly focused on contract certainty over the past decade because of the unintended risks and costs associated with such high severity losses as the property claims arising from the 11 September 2001 terrorist attacks in the United States. In particular, the absence of final completed contracts covering the New York City World Trade Center properties led to disputes among participating insurers concerning the extent of policy coverage and the appropriateness of property settlements, which took several years to resolve.⁴

4.1 Capital arbitrage

As part of any application to recognise the risk mitigating impact of insurance, bank supervisors should expect banks to provide a well documented and well reasoned assessment of the way that the insurance cover maps to a bank's operational risk profile. Bank supervisors should carefully review the bank's empirical analysis, and other supporting materials, of the actual risk mitigating impact of their insurance cover. To restrict possible capital arbitrage, a bank should demonstrate to its supervisor that its recognition of the risk mitigating impact of insurance reflects the insurance cover in a way that is consistent with the likelihood and impact of the losses that the institution may potentially face. Before granting approval for the bank to recognise a capital reduction, bank supervisors will need to be convinced that the expected mitigation is consistent with the operational risk profile of the bank.

⁴ In December 2004, the UK Financial Services Authority challenged the UK insurance industry to take steps to improve practices related to insurance contract documentation. The market responded by developing contract certainty principles and industry guidance, which was issued in a June 2007 Contract Certainty Code of Practice. This guidance pertains to how FSA-regulated insurers and insurance intermediaries are expected to achieve complete and final agreement of all terms between an insured and its insurers at the time of policy inception, with documentation provided promptly thereafter. See also State of New York Insurance Department Circular Letter No 20 (October 2008) regarding the complete and final agreement of all terms to an insurance policy or reinsurance contract by date of inception, and the issuance and delivery of the policy or contract before, at, or promptly after inception.

4.2 Demonstrating performance

Supervisors will need to obtain assurance that insurance products will perform in the manner envisaged and provide the appropriate degree of protection. The SIGOR has considered the establishment of an 'experience requirement' for banks applying to recognise operational risk mitigation in their AMA. Under such a requirement, bank supervisors would require risk mitigation structures to be operational for a period before requests for a reduction in the capital requirement were considered. Such an approach would also have the advantage of enabling banks and insurance providers to establish a history of performance that the regulator could take into account when considering banks' requests to recognise insurance as a reduction to their AMA capital. An experience requirement also effectively creates an opportunity to parallel run a bank's AMA model calculations of the impact of insurance.

The SIGOR recognises, however, that an 'experience requirement' may provide only limited additional information for certain insurance coverages. In particular, policies with high deductibles or covering low frequency, high impact, events, may provide few additional observations to evaluate the effectiveness of the insurance cover in mitigating operational risks. Thus, even after the expiration of any experience requirement period it is important to appropriately reflect the uncertainty associated with expected claim payments in the determination of required capital. SIGOR has therefore concluded that, while an experience requirement may help to instil confidence that "traditional" insurance products will perform in the manner envisaged, such a requirement is unlikely to prove effective when new specific operational risk insurance solutions are being proposed.

One possible solution for bank supervisors seeking "performance demonstration" could involve a supervisory assessment based on whether:

- the bank can demonstrate that its insurance risk mapping process is conducted with integrity;
- it periodically re-examines its risk mapping process;
- it employs the appropriate expertise;
- the process assigns the appropriate weight to the past and expected performance of insurance through a thorough assessment of the components of contract certainty; and
- the process obtained formal approval from the appropriate risk body or committee.

The insurance risk mapping process provides a natural interface between the functions of operational risk capital estimation and management of insurable risks within a bank and can be employed to calculate the risk mitigation effect provided by insurance. Each institution has the responsibility to develop its own approach to mapping its insurance coverages to the exposures in its operational risk profile and ensure that the process is appropriate to its legal and regulatory environment. The insurance risk mapping process is similar to the scenario analysis approach used by many banks to evaluate the impact of potential operational risk events. Both methodologies rely on expert opinion, informed by past experience. In the case of insurance risk mapping the process is employed to assess the performance of insurance in the event of an operational risk loss.

The essence of insurance risk mapping is that the bank – for all pertinent losses –, generates an estimate of the probability of insurance recovery and the possible timeframe for receipt of payments by insurers. This would be based on the experience of its insurance risk management team, if necessary supported by appropriate external expertise such as claims counsel, brokers and carriers. As well as having in-house expertise in their risk management team, banks may also engage brokers, attorneys, loss adjusters and other specialists in the field of evaluating and presenting claims to insurers. These experts could provide estimates

of the likelihood of a claim going to litigation, the length of that process and current settlement rates and terms. The use of external estimates is subject to the ability both of the banks using them and also of their external expertise, to provide all the supporting information required by bank supervisors. This information may include the detailed methodology used, the data base of historical losses used – at the most granular level of individual losses – and all the documented calculations and estimations.⁵

The insurance risk mapping process can be designed to assess the insurance response for all relevant loss and/or scenario data being entered into the capital model. This will assist the bank in meeting the requirement that its operational risk model is capable of evaluating the risk mitigation provided by insurance on a gross and net basis. Bank supervisors will need to ensure that banks appropriately reflect the uncertainty associated with expected claim payments in the determination of required capital.

Consideration of the ‘performance demonstration’ should not be confused with a supervisory requirement for a parallel run. Bank supervisors will require banks to undertake a parallel run to test the impact on the bank’s AMA model calculations of the insurance adjustment

4.3 Approval of insurance contracts

The determination as to whether a specific insurance policy qualifies as an operational risk mitigant cannot be made in a vacuum. Rather, the approval to use insurance mitigation to offset operational risk involves an assessment of not only the relevant insurance policies, but also a bank’s methodology for incorporating the risk mitigation into its measurement model. Additionally, consideration should be given to estimates of the probability and timing of insurance claim payments.

Based on the contextual nature of this assessment, bank supervisors should not provide broad-based approval or confirmation to insurers that their products will qualify banks for an AMA capital reduction. Bank supervisors, by solely reviewing the insurance policies, are not able to adequately assess if the capital reduction from insurance mitigation is appropriate.. The degree of insurance mitigation provided by an insurance policy and the methodology used to quantify the mitigation are both inextricably linked to the recognition of insurance mitigation in the AMA capital calculation. The two components cannot be assessed for compliance in isolation.

4.4 Reliance on AMA approval

Some brokers and insurers have placed strong emphasis on bank supervisors’ AMA approval processes, and ongoing bank supervision, in place of conducting their own review of model adequacy and operational risk management in banks. This could potentially result in legal and reputation issues for the bank supervisors. The SIGOR strongly recommends that insurers and insurance brokers involved in underwriting operational risks of banks perform their own assessment of the relevant risks of the prospective insured parties. Insurers and insurance brokers should not rely on the AMA approval of the banking supervisors to assess bank methodologies and risk management processes.

⁵ As banks and supervisors gain more knowledge and experience of the use of external expertise, SIGOR may supplement these guidelines with more specific criteria for the use and recognition of external expertise.

4.5 Revoking approval for recognising insurance mitigation in capital

As the modelling approaches for incorporating insurance mitigation into AMAs continue to evolve, bank supervisors anticipate that the sophistication of banks' modelling approaches will move in line with supervisors' expectations, industry practice and academic research. This is consistent with the expectations for advancements in banks' AMA measurement methodologies in general.

Supervisors may face situations where a bank has already been approved to recognise insurance mitigation, but the methodology is not in line with current practice or supervisory expectations. Supervisors should expect banks to stay abreast of continuing developments in operational risk modelling, and provide an indication to any banks that may need to revise their methodology.

Individual bank supervisors may decide to suspend, revoke approval or reduce the extent of an approval to recognise insurance mitigation. These actions may arise if the supervisor has decided:

- that the bank's modelling approach falls below an acceptable range of practice;
- a material change has occurred in the financial profile of the insurer in question, perhaps in the form of a rating change;
- that prevailing economic circumstances have changed (eg an insurance industry crisis or systemic failure of insurance companies) such that it is no longer prudent to allow insurance mitigation;
- to introduce more stringent qualifying requirements whereby current approvals will be revoked until such time that they have satisfied the new criteria;
- that the form and structure of approvals in a jurisdiction will be modified (eg particular technical modelling aspects may be required, or the allowable degree of mitigation may be restricted to a cap lower than 20%); or
- that significant amendments to the insurance contracts – or significant conditions of the contract – (eg the scope of insurance, exclusions and limits) have taken place.

5. Maximum 20% operational risk capital charge reduction

The recognition of insurance is currently limited to 20%⁶ of the total operational risk capital charge calculated under the AMA. The 20% level is intended as a cap, not as a benchmark, or the typical amount by which insurance might reduce capital requirements in reality. In practice, the actual degree of insurance mitigation is likely to be much smaller than 20%. Supervisors should, therefore, be cautious in assuming that 20% is an appropriate reduction to the total AMA capital, and should only allow a bank to recognise this degree of mitigation if appropriately justified.

Results from the 2008 Loss Data Collection Exercise for Operational Risk (LDCE) indicated that only a few North American and European banks had calculated the impact of insurance

⁶ The 20% cap should be interpreted to include mitigation arising from insurance and/or other risk transfer mechanisms collectively.

on their AMA capital.⁷ Of those banks that incorporated insurance mitigation in the AMA capital calculation, only one-quarter calculated the impact of insurance to be more than 3.7% of AMA capital excluding insurance. However, the recognition of insurance mitigation was in its early stages of development for the 2008 LDCE, and models are being developed (by banks, insurers and brokers) that define insurance portfolios to achieve a target of the 20% capital reduction. Supervisors need to ensure that the modelling choices and assumptions regarding risk mitigants are subject to appropriate sensitivity analysis, challenge and validation. This is critical for assumptions regarding the insurance cover of tail events, which are likely to have a large impact on the capital calculation.

6. Modelling methodology

The methodologies that have emerged for quantifying operational risk vary significantly among AMA banks, both within and across jurisdictions. Bank supervisors should ensure that a bank's methodology for incorporating insurance into the measurement model is consistent with its AMA. Supervisors should question the validity of highly simplified approaches at AMA banks. Supervisors should ensure that the bank has carefully considered the financial strength of the insurer involved in underwriting the loss event cover, as well as their past history on payouts of similar type events. Banks should provide support to substantiate assumptions relating to recoveries used in their models. This is particularly important if banks are assuming insurance recoveries for losses in the tail, where data is likely to be limited, but the impact on capital may be significant. Modelling methodologies are discussed in more detail in Section 8.5.

7. Traditional and proposed insurance policies

The types of events that are included within the scope of operational risk are diverse and have traditionally been covered by a range of peril-specific insurance policies. Among others, these include:

- the bankers' blanket bond, or fidelity cover;
- property insurance;
- business interruption insurance;
- professional indemnity insurance;
- directors and officers' liability;
- electronic/computer crime;
- general liability; and
- employment practices liability.

However, loss events covered by these peril-specific insurance policies are not neatly aligned with the seven Basel II event types. Some banks have developed their own versions of the event type/business line matrix for internal use. As a result, there are often gaps and

⁷ Further, no bank participating in the 2008 LDCE reported using any risk mitigant other than insurance.

overlaps when a bank tries to map its operational risk profile to the cover provided by its insurance policies. In addition to matching by event type, there are also exclusions and limitations in the amount of cover that insurers are willing to offer for the different event types. In some cases it may depend upon the impact of the event, and not simply the event type (eg litigation versus goodwill claims) in order to determine if a loss would be covered, and under which policy.

Among its provisions, the LDCE requested that banks indicate which losses in their internal loss data were covered by insurance. The LDCE indicated that a number of banks may have had some difficulties mapping available insurance cover to individual loss events. Further, banks, insurers and insurance brokers have faced difficulties in mapping policy cover to the Basel II event types at different event type levels. In particular, defining cover at Event Type Level 1 may be too broad, but at Level 3 problems can arise with unidentified categories.⁸

In response to the Basel II criteria, some banks and insurance industry participants have proposed the development of a 'basket' operational risk policy, such as an overlay, to fill in the gaps arising from traditional insurance cover. Overlay or basket operational risk policies (eg specific operational risk insurance solutions or all-risk insurance) might allow insurance companies to supply additional types of cover, thus providing benefits from diversification. However, bank supervisors should be cautious as to how these policies might work in practice. For example, some proposed policies might offer to cover loss events that have not traditionally been covered. There are often good reasons why certain cover is not already offered,⁹ and the emergence of new types of cover may create additional uncertainty relating to the responsiveness of the policies or the behaviour of the insured, and may also be of concern to the insurance industry supervisors. Such insurance contracts could also contain limits, retentions and exclusions, which may differ between risk types. These must be reflected within AMA models. Further, banks need to ensure that credit and market risk related to operational risk it is consistent with their AMA calculation.

Overlay policies can be designed to have high deductibles to complement, rather than replace, existing insurance portfolios. Depending on the level of granularity at which the covered events are defined (eg one of the Basel II event type levels), there may be contractual ambiguities, which may obscure whether currently unidentified events would be covered. Further, where deductibles are set very high, bank supervisors should consider whether the policy is actually being used for the purposes of risk mitigation, or to take advantage of potential capital reduction. This assessment can be informed by considering the mapping of insurance policies to the operational risk profile.

Another concern with overlay policies is that of divisibility. Insurers may avoid liability under a policy for one area of cover because of a breach of the duty of disclosure in another related to the claim event, for example. It may, therefore, be more efficient for banks to have multiple insurers providing cover in different areas as opposed to a single insurer providing blanket cover. It remains to be seen how effective these basket or overlay policies might be in matching a bank's operational risk profile and whether they can be provided at a price that is cost efficient for the bank.

Insurance innovations to take advantage of operational risk mitigation permissible under Basel II are resulting in the development of longer term policies for operational risks.

⁸ See Basel II Framework, Annex 9: "Detailed Loss Event Type Classification".

⁹ For example, insurance may not be offered if the premium would be unaffordable, the loss is not fortuitous, or the loss or circumstances leading to the loss would not be calculable or verifiable.

Because some of these policies have a fixed premium, determined at the outset, there may be concerns regarding the ability of the insurer to increase the premium if necessary. Alternatively, some of these policies stipulate significant increases in premiums after a one year period if the bank does not agree to be subject to the underwriting process in order to renew the policy. In such cases, bank supervisors should be cautious that the premium increases do not violate other insurance requirements in that jurisdiction. Any uncertainty about whether the cover will be available from the second year must be appropriately reflected in the model. Supervisors and banks should be rigorous in their analysis and take full account of any uncertainty surrounding these new policies, particularly if, for example, they have not been legally vetted or well supported with acceptable methodologies.

8. Criteria for recognising insurance mitigation

As noted above, the Basel II Framework (paragraph 678) states that a bank's ability to take advantage of insurance mitigation depends on its compliance with the specified criteria. These criteria are restated below for ease of reference. In some cases, the degree of compliance with these criteria is required to be quantified using discounts or haircuts to the allowable degree of mitigation, while other criteria serve purely as a minimum standard that should be met.¹⁰

8.1 “The insurance provider has a minimum claims paying ability rating of A (or equivalent).”

The insurance provider should meet a minimum claims paying ability rating. However, the minimum rating applied in the standards may differ from jurisdiction to jurisdiction from that suggested in the Basel II Framework.¹¹ As a result, there is an inconsistency among jurisdictions in recognising insurance providers that will qualify for potential recognition of a capital reduction.

One way in which this inconsistency could be reduced is for banks to incorporate the claims paying ability rating of the insurers into the modelling methodology. While the Basel II Framework does not explicitly mention that the claims paying ability risk should be included as a haircut, supervisors should expect the claims paying ability risk to be taken into account in the model. For example, defaults could be explicitly simulated or included in the uncertainty of payment haircut. This could provide a more risk sensitive estimate of the impact of insurance, and would allow for the recognition of insurers with different claims paying ability ratings. Further, banks that do not include a haircut for claims paying ability risk are effectively assuming that the default risk is zero. Supervisors may consider this inappropriate assumption. The industry has experienced the potential for defaults even with ratings of A (or equivalent) during the recent financial crisis. Therefore, even though insurance companies are required to hold technical provisions for risks taken (generally as separate funds), supervisors may require that the recognition of the counterparty claims paying ability be applied as a haircut in banks' modelling methodologies.

¹⁰ Discounts and haircuts are discussed in Section 9.

¹¹ For example, the European Capital Requirements Directive (CRD) specifies a minimum Credit Quality Step 3, in lieu of using the insurer claims paying ability ratings that are published by the eligible ratings agencies. See Appendix A for a table mapping the credit assessments of ratings agencies to the credit quality steps.

8.2 “The insurance policy must have an initial term of no less than one year. For policies with a residual term of less than one year, the bank must make appropriate haircuts reflecting the declining residual term of the policy, up to a full 100% haircut for policies with a residual term of 90 days or less.”

This criterion recognises that operational risk capital is calculated over a one-year holding period. In order to avoid a haircut for a residual term, the policy must have a term of at least 12 months at any given point in time. An example of a continuous insurance policy (of no less than one year) is a “rolling” policy, where the contract is renewed on a rolling basis such that the residual term is always greater than 12 months. In some instances the cost of cover in subsequent years is determined at the time the initial policy is undertaken. Clearly, the cost of cover for subsequent years may have an impact on the desirability of this cover. Supervisors should be alert to the debate over whether substantial increases in premiums in subsequent years should be viewed as appropriate pricing or a strong incentive to replace the policy.

8.2.1 *Renewable and equivalent cover*

Some banks and insurers have questioned the need for the residual term haircut since it can be reasonably expected that a policy would be renewed as usual on the policy renewal date. The underlying assumption is that the contract can be replaced by an equivalent contract, so that in effect, the cover is continuous.

Banks and supervisors need to be cautious about making an assumption that policies can always be renewed with equivalent terms, conditions and cover. Experience has shown that insurance premiums can, at times, increase to excessively high levels, and insurers may decide to reduce or remove the amount of cover they are willing to offer for certain risk types. Examples of this include the liability insurance crisis in the United States in the 1980s and in Australia in the early 2000s. In addition a bank’s or banking group’s own claim and event profile may also affect the cost and availability of cover. Also of note is the worldwide increase in reinsurance costs after the World Trade Center attack on 11 September 2001, and a reduction in the availability of cover for terrorism insurance.

The cost and availability of insurance is also linked to competitive pressures in the insurance industry, trends in litigation and the amount of compensation awarded in legal proceedings, the returns and value of assets and investments, and systemic effects arising from major events. Banks should recognise that certain types of insurance may not always be available or affordable (eg Directors’ and Officers’ Liability cover). Episodes of hard insurance markets are often cyclical, and, as we have seen recently, may coincide with times of more widespread financial distress. This is not to say that the AMA capital should change to reflect the insurance market cycle, but rather to highlight the shortcomings of assuming that cover will always be replaceable and equivalent.

For some types of insurance contracts, banks may have a sufficient period of experience with holding and renewing the policy. Further, some types of cover can be assumed to be reasonably available over different cycles, and hence the ability to renew the contract, while maintaining similar features and price, is potentially more certain for some contracts than others. Further, banks will typically calculate AMA capital, including insurance mitigation, on a semi-annual or quarterly cycle, and may have a fairly reliable outlook as to whether insurance will be available for the next capital period when performing each calculation. In such cases, bank supervisors may accept that the cover can be assumed to be renewable and equivalent.

A bank should always be prepared to increase its AMA capital to a gross-of-insurance mitigation level, or replace the relevant policy, should its insurance cover unexpectedly be

terminated for any reason. This requires that AMA banks calculate capital on a gross- and net-of-insurance basis for each capital calculation, and possibly at a level of granularity such that the termination of any one policy could be immediately recognised for its effect on capital.

8.2.2 Claims bases

Continuity of insurance cover is not solely dependent on the residual term of the policy. Banks and supervisors should consider additional characteristics including whether the policies are claims-made or claims-incurred. For a further discussion of this issue, see Appendix B. Supervisors should ensure that banks have considered the underlying claims basis for each of their policies, and that they have treated this aspect appropriately in their modelling.

8.2.3 First-party and third-party liability claims

Some banks have suggested that residual term is less relevant for third-party liability losses, as opposed to first-party direct losses. The reasoning is that third-party liability losses generally take a few years to settle. Consequently, any significant third-party losses due to be settled in the next year are generally known at the start of the year. Any new cases arising would typically incur only legal costs over the next year, as the final settlement would generally occur in subsequent years.

Some modelling methodologies have assumed that third-party losses are recovered in the year they are claimed. Others have purported to overcome the problem by assuming that the simulation of a third-party loss represents the claim rather than the event. However, this could potentially distort the correlation assumptions in AMA models that correlate the occurrence of events.

Bank supervisors should assess the way in which banks have differentiated between direct and liability losses in their models in order to determine if they have been treated appropriately. One possible solution could involve the analysis of comprehensive historical data for third-party claims to allow determination of the time elapsed between the occurrences of events and the settlement of claims. A distribution for this time period could then be incorporated as a parameter in the AMA model. The model would then be able to differentiate between losses and settlements, and there will be no impact on the calculation of event dependencies or correlation.

8.3 The insurance policy has a minimum notice period for cancellation of 90 days

One source of discrepancy in the interpretation of this requirement is whether the minimum notice period of cancellation should apply to a bank or to an insurance company. At a minimum, the cancellation period should apply to the insurer. However, the supervisor should also be notified of material changes to operational risk exposures at the bank, as the capital position of the bank may need to be reassessed. If the supervisor is not satisfied with the risk-mitigating qualities of a new insurance arrangement, it may reassess or revoke prior approvals to use insurance mitigation.

Regardless of to whom the cancellation period is applied, bank supervisors should establish guidelines for how and when they expect to receive any notice of policy cancellation. Such notification may also fall within the expectations for notification of model changes more generally.

8.3.1 Non-payment of premium

Banks must be aware of the specific contract clause and applicable law relating to non-payment of premium. In some cases and jurisdictions, the normal cancellation period specified in the contract will still be employed. In other cases and jurisdictions, the regular cancellation notification period could be waived and may in certain circumstances be voided, and the policy or liability under the policy could potentially be terminated with immediate effect. Banks must recalculate the AMA capital immediately to reflect the lack of cover.

8.3.2 Duty of disclosure requirements

A similar issue relates to a bank's duty of disclosure under the terms of the policy and national law or regulation. It is generally expected that the bank will disclose to the insurer certain material facts or changes that are relevant to the insurance cover, in line with the terms and conditions of the insurance contract and the general law. There is a risk that the bank could fail to meet this disclosure requirement, and this could affect its ability to make a successful claim. In some cases, non-disclosure would not result in the cancellation of a contract, but rather the insurer would reduce the policy liability by the amount of impact that knowledge of the fact would have had on the insurance cover offered. The liability can be reduced to zero if deemed appropriate, so the end effect could be that the bank is not able to recover any of the loss from insurance. Banks should ensure that they are fully aware of their duties in relation to disclosure requirements. Supervisors should assess the processes banks have in place in order to meet their disclosure requirements, as policy coverages may be voidable by non-disclosure. In the event that a policy is voidable by non-disclosure, banks should immediately inform their supervisor and the AMA capital should be recalculated.

8.3.3 Cancellation haircut

In addition to the minimum 90-day requirement, the Basel II Framework states that a "haircut" should be applied for policies with a cancellation period of less than one year. See Section 9.2 for a discussion of this haircut.

8.4 "The insurance policy has no exclusions or limitations triggered by supervisory actions or, in the case of a failed bank, that preclude the bank, receiver or liquidator from recovering for damages suffered or expenses incurred by the bank, except in respect of events occurring after the initiation of receivership or liquidation proceedings in respect of the bank, provided that the insurance policy may exclude any fine, penalty, or punitive damages resulting from supervisory actions."

This criterion appears to be relatively straightforward, and has not been raised as a point of contention by interested parties at this time.

8.5 "The risk mitigation calculations must reflect the bank's insurance cover in a manner that is transparent in its relationship to, and consistent with, the actual likelihood and impact of loss used in the bank's overall determination of its operational risk capital."

As discussed in Section 6 of this paper on Modelling Methodology, supervisors should expect that a bank's methodology for modelling insurance mitigation is consistent with an AMA for operational risk. It is expected that this would require a thorough investigation by banks of the uncertainties, responsiveness and characteristics of their policies, including uncertainties arising from timeliness of payment, mismatches in cover, and exhaustion of

policy limits. Supervisors should require banks to map their insurance policies to the Basel II event types and/or the banks' own loss categories as a prerequisite for applying to recognise insurance mitigation.

Modelling approaches should be able to capture the potential occurrence of one or multiple losses that may exhaust the policy limits. Simplistic quantification of capital reductions may fail to capture the various sources of uncertainty and how they interact, and as a result could overstate the mitigating impact of insurance on capital. While bank supervisors recognise that any residual model uncertainty may be significant, they may in some cases accept *minor* weaknesses within the assumptions and the modelling practices, if they are addressed through additional conservativeness. Alternatively, supervisors could impose a maximum limit, of less than the 20% limit, in response to weaknesses in the modelling methodology.

8.6 “The insurance is provided by a third-party entity. In the case of insurance through captives and affiliates, the exposure has to be laid off to an independent third-party entity, for example through re-insurance, that meets the eligibility criteria.”

Some banks insure their operational risks with their captive insurance company.¹² Supervisors need to determine to what extent they will allow a bank to recognise the risk mitigation achieved from the insurance provided by its captive. The Basel II criteria indicate that the exposure must be ceded to an independent third-party entity that meets the eligibility criteria.

Through the tranching and distribution of risks, captives may be able to provide insurance cover that is cost-efficient and tailored to the operational risk profile of a bank. In some structures, however, the ultimate liability for meeting claims remains with the captive even when it transfers the exposure through reinsurance or otherwise. In other words, as with other insurance arrangements, if a reinsurer is unable to, or refuses to pay a claim, then the onus falls back on the primary insurer (ie the captive) to make the payment. For large claims, this could put the captive at risk of insolvency. Therefore, reinsurance or other similar arrangements may not guarantee that the risk is completely transferred outside of the banking group. In these circumstances it may be inappropriate to recognise any capital reduction. Supervisors generally accept that a captive insurer may be used. However to qualify for a capital reduction, it is critical that the insurance is ceded to a third party that meets the eligibility criteria.

A related issue resulting from eligibility criteria restrictions is the use of fronting arrangements. Fronting arrangements involve a primary insurer ceding a maximum 100% of the risk to another insurer. In this case, the primary insurer does not retain any of the exposure; it is merely fronting the arrangement between the insured and another insurer. In such a situation, an AMA bank has contracted with an insurer that meets all the regulatory criteria, but then the insurance is subsequently transferred to another insurer. The bank's risk transfer to other parties could include captives, affiliates, or other insurers that do not meet the supervisory requirements. Further, through the distribution of insured risks within the reinsurance markets, some risks could potentially be re-transferred to the AMA bank. If fronting arrangements are used, then only that portion where ultimate liability rests with an eligible third party (so that the risk can be seen as being effectively transferred outside of the banking group) can be considered for risk-based capital purposes.

¹² A captive insurance company generally provides insurance only to members of the parent's group. In some cases, captive insurers are not subject to regulation or minimum capital requirements.

Insurance and reinsurance arrangements can be complex and the provision of insurance cover for the operational risks of any one AMA bank is likely to involve various insurers and possible co-insurance arrangements. This can sometimes create difficulties in identifying where a bank's risks are ultimately transferred. The transparency of these relationships is paramount in determining where the ultimate risk lies, as well as where the corresponding ability to pay resides. This is also important in the determination of insurance company capital. Banks and insurers should disclose the amount of cover that is transferred to other insurers the parties to which the risk is being transferred; and any significant changes in the insurance arrangements. Moreover, bank supervisors should consider the aggregate effect of insurance and reinsurance arrangements.

8.7 “The framework for recognising insurance is well reasoned and documented.”

Documentation outlining the framework for recognising the insurance mitigation in banks' AMA models is likely to form a critical element of the supervisory assessment process. It is up to individual supervisors to communicate to banks their expectations for documentation and rationale. This can include notification of changes in insurance programs (quantitative and/or qualitative), mappings of insurance cover to loss events, and indicators of the interactions with operational risk management and mitigation efforts.

8.8 “The bank discloses a description of its use of insurance for the purpose of mitigating operational risk.”

These disclosures will assist bank supervisors in assessing whether the insurance is used in line with a bank's risk management strategies, and is not used unreasonably to take advantage of an AMA capital reduction. This description may involve more focus on risk management than risk measurement, and includes the extent to which a bank's insurance portfolio is managed in line with its operational risk profile. In addition the description will include the process of insurance determination, the broad type of cover, and its impact on risk mitigation. Supervisors must be satisfied that the bank has considered the potential for moral hazard to arise from the use of insurance. Specifically, supervisors should consider whether different deductibles will influence behaviour. For example, if the deductible is too low, supervisors should question whether the budget for risk management has been inappropriately allocated to the insurance premium, rather than to the strengthening and maintaining of controls.

9. Haircuts, discounts and uncertainty

The Basel II Framework (paragraph 679) states that a bank's methodology for recognising insurance under an AMA also needs to capture the following elements through appropriate discounts or haircuts in the amount of insurance recognition:

- (i) The residual term of a policy, where less than one year, as noted above;
- (ii) A policy's cancellation terms, where less than one year; and
- (iii) The uncertainty of payment as well as mismatches in cover of insurance policies.

These haircuts are intended to account for any limitations and uncertainty arising from the use of insurance as a risk mitigant. The term 'haircut' can be misleading, as some industry observers have interpreted it to mean a percentage reduction applied as an ex-post

adjustment to the capital calculation. Others, including some bank supervisors, banks and academics, have expressed their belief that an ex post adjustment or a simple haircut approach is inadequate for capturing the relevant uncertainties in a manner that is appropriate for use in an AMA. It is essential that insurance is incorporated into AMA models using a methodology that appropriately reflects the uncertainties arising from the impact and timing of potential insurance recoveries, and does not trivialise the risks that arise that may jeopardise the transfer of risk to another party.

Bank supervisors generally accept that haircuts must be explicitly quantified and modelled separately in relation to each individual uncertainty, and should not be combined into one single haircut covering all uncertainties. This is necessary to provide transparency of assumptions, and to appropriately model the responsiveness of the cover.

9.1 “The residual term of a policy, where less than one year, as noted above;”

The residual term of a policy was discussed in Section 8.2, including the related issues of the availability, affordability and equivalence of contracts, differences between claims-made and claims-incurred bases, and the nature of direct losses and third party liability events. Bank supervisors should assess whether the haircuts for residual terms are appropriate in light of the specific characteristics of a bank's insurance policies. Insurance policy term characteristics can vary significantly, involving, among other provisions: automatic renewal clauses, forward contracts, and/or regular changes to insurance providers. Supervisors should account for differences in the use of insurance within the evaluation of the appropriateness of haircuts.

In situations where the residual term of an insurance contract is less than one year, and banks are applying a residual term haircut, supervisors need to communicate to banks how often they require them to adjust capital in line with the declining capital reduction. Supervisors generally expect capital to be adjusted on a quarterly basis to align with the regular reporting requirements.

9.2 “A policy’s cancellation terms, where less than one year;”

Issues relating to policy cancellation were discussed in Section 8.3, including the related issues of non-payment of premium and duty of disclosure requirements. The criteria in paragraph 678 of the Basel II Framework states that the minimum notification period for cancellation of a policy is 90 days. This haircut will therefore apply to policies with a cancellation notification period of between 90 days and one year. This haircut could potentially be avoided for policies with a cancellation period of more than one year.

Banks should recognise the possibility that insurance policies may be cancelled before contractual expiration. Policies with cancellation notification periods of less than one year could lead to the cover terminating before the end of the one year horizon used to calculate capital. This could affect the amount of capital required to be held if a similar insurance protection cannot be obtained, or if the supervisor would not accept the new arrangements for a capital reduction. As the decision of the bank to cancel the insurance is not a random event, this haircut should only reflect the potential for the insurer to cancel the policy.

The difficulty with the calculation of this haircut is the need to quantify the probability that insurers could decide to cancel policies before contractual expiration. It may be difficult to use data to quantify this probability, and subjective estimates may be difficult to validate. Supervisors should consider how they expect banks to account for this termination risk, and apply any haircut. As discussed above, some supervisors may waive this haircut if it can

reasonably be assumed that the cover will be renewed and continuous. Nevertheless, banks and supervisors need to be cautious about making assumption that policies can always be renewed with equivalent terms, conditions and cover. The validity of this assumption is likely to depend on the type of policy being considered. Supervisors should also consider and share with their banks, their expectations for recalculation of capital levels in the event the insurance is cancelled.

9.3 “The uncertainty of payment as well as mismatches in cover of insurance policies.”

Banks may endeavour to quantify any mismatches in cover by mapping their insurance policies to their operational risk profile. This will typically involve consideration of the array of potential underlying causes of events, policy exclusions, policy limits, different loss types and deductibles. Banks should account for all policy mismatches. Bank supervisors should require banks to map their insurance cover to Basel II event types and/or to their own loss categories as a prerequisite for applying to recognise insurance in AMA capital calculations.

Mismatches in cover are highly dependent on the specific insurance policy terms and conditions, exclusions, deductibles and limits. Consequently, it may not be appropriate to use external loss data to quantify these mismatches. (See Appendix C Case Study 7 for a related discussion.) Alternatively, some data consortia may have more reliable information, especially if the insurance contracts are standardised across a group of banks.

There are a number of factors adding to the uncertainty of payment of insurance, including, but not limited to:

- the willingness of the insurer to pay in a timely manner;
- the ability of the insurer to pay in a timely manner;
- the ability of the bank to identify, analyse and report the claim in a timely manner;
- disputes over the underlying cause of the loss, the fulfilment of necessary precautions (such as duty of disclosure expectations), disputes over the date of occurrence, the amount of the loss, and whether the loss counts as one or multiple events; and
- unknown mismatches in cover.

The underlying causes of operational risk losses are not always initially observable. It can be difficult to uncover the exact chain of events that led to the occurrence of the loss. In addition, one cause might be linked to more than one event or one event may have multiple causes (eg cascading control failures), resulting in different types of losses that could be covered by different insurance policies. There may also be challenges with verifying the severity of an operational risk loss. Legal disputes may arise, which can bring about additional delays and costs, and the amount of the final recovery can differ significantly from that expected at the time the claim was made.

Some policies require a claim to be notified within a certain fixed time period following discovery of the event. Thus, the onus is on a bank to gather the information required to make the claim within this period. While an insured party's failure to submit a claim is not a failure of the insurance contract, supervisors should consider banks' procedures for loss identification, analysis and claims processing, as these will have a bearing on the ability to receive the claim payment funds in a timely manner.

Banks are expected to investigate all underlying sources of uncertainty and how they have affected the mitigating impact of insurance on the operational risk profile in the past and how

they may affect it in the future. Supervisors will need to assess whether banks have adequately addressed these sources of uncertainty in the modelling of insurance mitigation.

Uncertainty of payment can be addressed in different ways within an AMA model. In this regard, a haircut to the assumed probability, timing and amount of cover can be applied separately to individual insurance contracts and event types (at various levels), or uniformly to all contracts. However, it should be recognised that some claims may involve more uncertainty of cover than others, and some may be subject to significant delays (eg for some business disruption claims it can take a number of years for losses to develop and to calculate the claim amount).

10. Policy limits and reinstatements

Banks should have processes in place to ensure that the exhaustion of policy limits and the purchase of reinstatements of cover are appropriately reflected in their AMA models. Bank supervisors should be aware of these issues when they assess or reassess the appropriateness of the insurance mitigation calculations.

The following examples illustrate the need for banks to consider how best to respond to the occurrence of a high severity loss that may implicate policy limits and reinstatements:

- (i) If the loss is covered by insurance, and it exhausts some or all of the cover, then it may be necessary for the bank to recalculate its insurance mitigation to reflect the reduced amount of cover. Depending on the policy, the bank may also be able to negotiate a reinstatement of the cover for the rest of the period. Some traditional policies have one reinstatement priced into the initial premium, or a reinstatement would be offered at a price determined at the outset of the policy. In addition, some new policies that have been developed for Basel II compliance do not include a provision for cover reinstatements. In particular, for overlay policies where the deductibles are high, the insurer and/or the bank do not expect to incur a loss above the threshold. Supervisors should consider whether this is captured appropriately in the bank's modelling methodology. In other words, if a large loss is simulated and the cover is exhausted, the bank should simulate the remainder of the period as holding no insurance, if it is not able to reinstate cover. Some modelling methodologies have failed to incorporate the exhaustion of limits, and the price and availability, of reinstatements.
- (ii) Regardless of whether the loss is covered by insurance, if the addition of the new loss to a bank's internal loss data results in a material increase to the capital estimate, then it may be necessary for the bank to recalculate the total AMA capital immediately, also reflecting the insurance mitigation.
- (iii) The reduction of the AMA capital due to the use of insurance must not exceed 20% of the total AMA capital.

Bank supervisors should consider the timing with which they expect the capital and the insurance reduction to be recalculated following a high severity loss, whether immediately (out-of-cycle) or at an AMA calculation date (eg quarterly, semi-annual or annual). This decision may be linked to the sensitivity of a bank's capital estimate to the addition of a large internal loss.

11. Validation and benchmarking

At this point in time it may be difficult for banks to validate their insurance modelling assumptions, due to the lack of available and reliable data, and the growing status of operational risk modelling of insurance mitigation.

Some banks have expressed a desire to share with each other more detailed information relating to insurance mitigation for the following reasons:

- to facilitate the further development of modelling approaches,
- to improve the overall reliability of insurance mitigation modelling,
- to achieve some consistency between banks across jurisdictions, and
- to allow benchmarking of the level of haircuts and overall mitigation that is recognised.

12. Partial insurance modelling

Supervisors should consider the possibility that some banks may choose to focus on a subset of operational risk events, or certain specific event policies that enable them to achieve the maximum 20% capital reduction for insurance mitigation. If supervisors allow banks to recognise the maximum 20% reduction based on only a subset of their insurance policies, there may be less incentive to model the remainder of the insurance portfolios within the calculation of the regulatory capital charges. Modelling a subset of the portfolio is likely in situations where a few of the risk events that have a large impact on capital are also the most insurable and tractable to model. This would occur if the data exists, and there is more certainty of cover. However, so far there is generally a lack of available insurance cover for tail events.

As a consequence, supervisors need to consider if they will grant the full 20% reduction to banks that have only modelled a subset of their insurance portfolio, or if banks will be required to model insurance cover across their entire operational risk profiles. The latter would ensure that the internal allocation of capital would be more risk sensitive, even if the capital alleviation would be limited to 20% of the capital charge without the recognition of insurance. The Basel II Framework does not mention a requirement for banks to model all existing insurance contracts, and banking supervisors generally accept that partial insurance modelling is acceptable at this time. However, supervisors still expect banks to map their insurance cover to their operational risk profiles.

Appendix A

Credit quality steps

Credit Quality Step	Fitch's assessments	Moody's assessments	S&P's assessments	DBRS assessments
1	AAA to AA-	Aaa to Aa3	AAA to AA-	AAA to AAL
2	A+ to A-	A1 to A3	A+ to A-	AH to AL
3	BBB+ to BBB-	Baa1 to Baa3	BBB+ to BBB-	BBBH to BBBL

Appendix B

Claims made and claims incurred policy bases

The nature of operational risk events is that they may only be discovered in a future time period, and that the time taken to analyse the impacts, causes, and other information can be lengthy, especially for large losses.

Under a '*claims-made*' policy, only losses that are claimed or notified to the insurer during the policy term are covered, so any loss that is discovered after the policy expires will not be covered by that policy. Note that claims made policies will usually include an extended discovery period, after the policy has terminated, or if the bank changes insurers, then the new insurer will sometimes agree to pay any new claims arising from previous policy periods. For a '*claims-incurred*' (or '*loss occurrence*') policy, losses that are incurred during the policy period are covered, even if they are not discovered and the claim is not lodged until after expiration of the policy.

Consider an example where a policy had eight months until expiry. A loss event occurred at time five (months), but was not discovered until time 10. A claim was notified at time 11. If the policy was on a *loss occurrence* basis, the loss would be covered by the policy since the loss was incurred during the policy period. However, if the policy was on a *claim-made* basis, the loss would not be covered by the policy, since the claim was not notified until after the policy expired, and there was no extended notification period. If haircuts are based purely on residual term, ignoring the claims basis of the policy, then in both cases the same eight month residual term haircut would apply.

Supervisors should ensure that banks have considered the claims basis underlying each of their policies, and that they have treated this appropriately in the modelling methodology.

Appendix C

Case studies in modelling insurance mitigation

These case studies do not represent an observed range of practice. They are hypothetical and have been exaggerated for the purpose of illustration.

Case 1 – Ex-post adjustment

- A bank considers that its insurance policies and insurance providers meet the regulatory criteria.
- The bank applies an ex-post adjustment to capital, by reducing the total operational risk capital calculated under the AMA by a factor of 20%.

Comments

- This ex-post adjustment approach does not reflect the bank's insurance cover in a manner that is transparent in its relationship to, and consistent with, the likelihood and impact of loss used in the bank's overall determination of its operational risk capital.

Case 2 – Deduction of insurance cover

- The bank deducts the amount of insurance cover that applies under each of its contracts from the total capital amount.

Example

Total AMA capital:	1,000 units
Property insurance cover:	150 units
Directors and officers liability cover:	<u>100 units</u>
Total mitigation provided by insurance:	250 units
Total allowable mitigation = $1,000 \times (0.20)$ =	200 units

Therefore the bank applies for the maximum allowable 20% capital reduction.

Comments

- Again, this approach does not reflect the bank's insurance cover in a manner that is transparent in its relationship to, and consistent with, the actual likelihood and impact of loss used in the bank's overall determination of its operational risk capital.

The bank's AMA model may quantify the risk exposure for property as only 100 units, but then proceed to recognise a reduction of 150 units.

- The approach may not be consistent with the AMA measurement methodology. For example if the operational risk capital is not measured as the sum of the gross operational risk exposures, it may be inappropriate to simply deduct the amount of insurance cover from the capital. Insurance cover is only available to pay claims arising from certain loss events in certain regions of the loss profile, whereas capital can be used to cover any of the operational risk loss events. So one unit of insurance is not necessarily equivalent to one unit of capital (as if they were perfect substitutes).

Case 3 – Deduction of adjusted cover by event types

- The bank calculates the gross risk exposure for each of the seven Basel II event types at the 99.9th percentile.
- The total AMA capital is the sum of the seven exposures.
- The bank has mapped its insurance policies to its risk profile, and calculated the total amount of cover under each event type.
- The bank has taken into account the residual term, cancellation period, and uncertainty of payment, and quantified a single haircut for each event type, reflecting these factors.
- An offset is applied that is the maximum of the sum of the exposures net of insurance cover and reduced by the haircuts, and 20% of the AMA capital.

Example

Event Type	Exposure @ 99.9%	Insurance cover	Haircut	Adjusted cover
Internal Fraud	150	50	30%	35
External Fraud	150	50	30%	35
Employment Practices & Workplace Safety	100	50	30%	35
Clients, Products & Business Practices	200	100	30%	70
Damage to Physical Assets	200	150	10%	135
Business Disruption & System Failure	150	100	40%	60
Execution, Delivery & Process Management	50	0	-	0
<i>Total</i>	<i>1,000</i>	<i>500</i>	<i>-</i>	<i>370</i>

Total mitigation provided by insurance = 370 units

Total allowable mitigation = $1,000 \times (0.20) = 200$ units

Therefore the bank applies for the maximum 20% capital reduction.

Comments

- Again, this approach does not reflect the bank's insurance cover in a manner that is transparent in its relationship to, and consistent with, the actual likelihood and impact of loss used in the bank's overall determination of its operational risk capital.
- The single haircut applied to each event type may not be an appropriate method for quantifying the uncertainty. It is unclear how the haircuts were calculated and whether they appropriately reflect the uncertainties of the underlying policies.
- This method may not appropriately capture the responsiveness of the policies, the potential for timeliness and liquidity concerns, and the possibility of exhausting the policy limits. This approach may not capture the case of a stream of medium sized losses compared to the occurrence of a single extreme event. It is not appropriate to simply deduct the cover from the total exposure, ignoring the underlying loss profile.
- It is unclear how the bank has dealt with overlaps between the policies and the event types. For example, if there was a policy that provided 100 units of cover, for loss events from internal fraud and external fraud equally, has the bank recognised 100 units for each event type, or split the total cover between the two? In either case, this may not be an accurate reflection of how the policies behave in practice.

Case 4 – Modelling using internal loss data

The bank captures internal loss data (ILD) and associated insurance recoveries, and fits a distribution to the ILD net of insurance recoveries.

Comments

- The recoveries associated with ILD will not always provide a forward looking perspective of the insurance mitigation. For example, if the bank has historically purchased a particular type of insurance policy, but that cover is no longer in place, then to use ILD net of historical insurance recoveries may be an inaccurate reflection of insurance recoveries in the future.
- In addition, there could be changes in the policy limits, deductibles, and exclusions, which may render historical insurance recoveries irrelevant.
- The events that are likely to have a greater impact on the capital estimate are the low frequency high impact (LFHI) events, which are generally not well represented by a bank's ILD. As a result, the effectiveness of insurance in mitigating the LFHI section of the distribution will generally not be captured by ILD.

Case 5 – Modelling using external loss data

The bank uses external loss data (ELD) to estimate percentage recoveries from insurance. This could include data from a vendor, a consortium, or a loss data collection exercise (LDCE). These percentages are applied in a Monte Carlo simulation.

Comments

- ELD has inherent biases that undermine the reliability of results such as insurance recoveries.
- Banks cannot be confident of the accuracy of the insurance recovery data contained in the ELD.
- Some biases that are specific to insurance recovery data arise from the existence of the underlying policy deductibles, limits, terms and conditions, and exclusions of a policy. These are unique to each bank and are unobservable to those using the data.
- As a result, percentage recoveries from insurance are not wholly a reflection on the effectiveness of insurance or uncertainty of payment; they are also a reflection on the characteristics of the policy that the bank has chosen to purchase.

Examples

Consider a gross loss of 200 units.

Bank A has cover from 10 units (deductible) to 500 units (limit). The insurance recovery is $(200-10) = 190$ units, which implies a rate of **95%** ($190/200$).

Bank B has cover from 50 units (deducible) to 100 units (limit). The recovery is **25%** ($(100-50)/200$).

Bank C has a deductible of 200 units. The recovery is **0%** ($0/200$).

Bank D has cover from 10 units (deductible) to 500 units (limit) but there was an exclusion in the policy for the event (not all policies contain the same exclusions). The recovery is **0%**.

Bank E had cover for 500 units, with no deductible. However, it has nearly exhausted its annual limit, with only 50 units remaining. The recovery is **25%** ($50/200$).

The average recovery rate for banks A-E is **29%**.

Bank F is using ELD to quantify its insurance mitigation haircuts. A 29% recovery rate may not appropriately reflect the deductibles, limits, terms and conditions, exclusions, availability of reinstatements etc. that are unique to the policies that Bank F has negotiated. The 29% is not necessarily a reflection of the effectiveness of insurance; it is biased by the deductibles that individual banks choose to purchase.

Case 6 – Scenario analysis

The bank incorporates insurance mitigation through the scenario analysis workshops. It takes scenario estimates, net of estimated insurance recoveries, as inputs into the capital model.

Example scenario: Office fire

Losses arising from:

- Fire damage

- Business interruption
- Cost of new equipment

Insurance cover:

- Property insurance: assumed this would cover fire damage in full
- Business interruption policies: assumed this would cover any loss of employees in full
- Industrial Special Risks (ISR) policy: this has an excess of 1 unit, so the loss would be capped at 1 unit

The total loss from this scenario would be 1 unit. This amount is input to the capital model.

Comments

- This approach has not considered that the insurance may not be recovered in full, or in a timely fashion.
- There may be an extended period for investigating the causes of the loss, disputes may arise between the insurer and the bank and the case could go to court. Legal disputes can easily extend over a period of years.
- This scenario does not account for the possibility that the event may not be covered at all. For example, it could be determined that the underlying cause of the event is an exclusion in the policy, or that the bank had failed to disclose a material fact to the insurer. For example, if the bank failed to ensure that the sprinkler system was maintained in good condition, or failed to notify an alteration to the installation, the liability of the insurer to pay the claim may be reduced or refused. If the scenarios are aiming to assess a 1 in 1000 event then this is likely to be an event that was not covered by insurance in a straightforward manner.
- The net scenario approach may be unable to account for exhaustion of policy limits over the year and to simulate the cost of reinstatements, unless this is allowed for in the simulation.
- This approach could potentially overstate the amount of insurance mitigation, and the extent to which banks can rely on insurance to act in place of capital.

Case 7 – Modelling without applying haircuts

- The bank argues that “haircuts” are too difficult to quantify accurately at this point in time; there is not enough data, and the estimates are too unreliable.
- The bank has conducted some preliminary modelling, ignoring haircuts, which indicates that their insurance policies would reduce their operational risk capital requirement by around 60%.
- The bank concludes that the application of the maximum 20% reduction to capital is thus sufficiently conservative, in comparison to their estimated 60% reduction. As a result, they do not see the value in developing a detailed methodology for insurance mitigation, and have applied for permission to use the 20% reduction.

Comments

- While it is generally accepted that there is currently limited data available to calculate haircuts with a great deal of confidence, banks should not be able to use this as an excuse to simply take the 20% offset without building a model for uncertainty. Because banks are seeking capital relief through insurance mitigation, they must demonstrate strong, documented and validated rationale.
- The modelling approach should be consistent with an AMA, which includes quantification of the uncertainties, rather than assuming that the insurance cover would always work effectively.

Case 8 – Sophisticated simulation approach

The bank uses a sophisticated simulation approach and incorporates the following:

- Explicit modelling of insurance recoveries for each loss or scenario, including appropriate haircuts based on the characteristics and uncertainties of the relevant underlying policy;
- Application of deductibles, limits per loss and per policy;
- Possibility of reinstatement, if material;
- Probability of cover, based on mapping of mismatches in cover;
- Recognising the default probability of insurer;
- Recovery rate for successful claims (<100%);
- Differentiates between direct/first party and liability/third party losses; and
- Timeliness of payment and liquidity concerns, including the time it would take for the bank to investigate and notify the claim, and the time it would take for the insurer to investigate and pay the claim, with consideration of potential for disputes and legal proceedings.

Comments

- This is an example of a methodology that is consistent with the AMA modelling methodology.
- Deductibles and limits are applied to reflect the unique characteristics of the policies, rather than purely relying on ELD.
- The exhaustion of limits and ability to purchase reinstatements can be simulated, including the possibility of reinstatement.
- The simulation approach can capture the different impacts on liquidity arising from occurrences such as:
 - a number of medium sized losses that exhausts the insurance cover, after which a high severity tail loss occurs and is not covered by insurance; and
 - a large loss that exhausts the annual insurance cover limit, after which one or more medium sized losses occur which are not covered by insurance.

- As part of the simulation process, banks will need to model sequence of claims. This modelling approach could, for example, potentially require banks to simulate an order for the annual losses. There are a number of tractable methods available to banks that wish to use such an approach.
- Alternatively, banks may model the probability of insurance payout given an insured loss has occurred by defining a “covered” and “uncovered” period. However, this must be capable of addressing exhaustion of policy limits.

Appendix D

Members of the SIG Operational Risk Subgroup

Chairman: Mitsutoshi Adachi, Bank of Japan

Australian Prudential Regulation Authority	Michael Booth
Banking, Finance and Insurance Commission, Belgium	Jos Meuleman
Banco Central do Brasil, Brazil	Wagner Almeida
Office of the Superintendent of Financial Institutions, Canada	Abhilash Bhachech
China Banking Regulatory Commission	Meng Luo
Banque de France	Jean-Luc Quémard
Deutsche Bundesbank, Germany	Marcus Haas
Federal Financial Supervisory Authority (BaFin), Germany	Frank Corleis
Reserve Bank of India	Rajinder Kumar
Bank of Italy	Marco Moscadelli
Bank of Japan	Madoka Miyamura
Financial Services Agency, Japan	Tsuyoshi Nagafuji
Surveillance Commission for the Financial Sector, Luxembourg	Didier Bergamo
Netherlands Bank	Claudia Zapp
Polish Financial Supervision Authority	Grazyna Szwajokowska
Central Bank of the Russian Federation	Irina Yakimova
South African Reserve Bank	Jan van Zyl
Bank of Spain	María Ángeles Nieto
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Financial Services Authority, United Kingdom	Khim Murphy Andrew Sheen
Board of Governors of the Federal Reserve System, United States	Adrienne Townes Haden
Federal Reserve Bank of Boston, United States	Patrick de Fontnouvelle Victoria Garrity
Federal Reserve Bank of New York, United States	Ronald Stroz
Office of the Comptroller of the Currency, United States	Carolyn DuChene Maurice Harris
Office of Thrift Supervision, United States	Eric Hirschhorn
Federal Deposit Insurance Corporation, United States	Alfred Seivold
Financial Stability Institute	Amarendra Mohan
Secretariat of the Basel Committee on Banking Supervision	Andrew Willis