5. The Link Between Business Continuity Management and Economic Capital

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The purpose of economic capital is to finance the business and serve as a buffer against future, unexpected losses that a financial institution might be exposed to. Some of these unexpected losses might stem from operational risk events, such as IT system breakdowns, fires and other types of disasters. Business Continuity Management (BCM) aims to reduce and mitigate the severity of these types of losses.

A link between economic capital and BCM is therefore logical, and effective business continuity arrangements should be deducted against any economic capital set aside, mainly operational risk capital, but also business, credit and market risk capital, as it will help to reduce the severity of these types of losses and in some instances also reduce their frequencies.

When investing in BCM, a cost/benefit analysis should recognise the reduction in economic capital, as well as potential reductions in insurance premiums. In addition, the cost/benefit analysis should also account for improved assessments of the firm made by third parties, such as rating agencies and equity analysts.

This article will outline the function of economic capital and the way BCM solutions can be embedded into a holistic risk management framework and quantified to fit into an economic capital programme. It begins with a detailed explanation of economic capital in order that you may understand how it relates to business continuity management.

THE ROLE OF ECONOMIC CAPITAL

To better understand the relative profits (or losses) of a financial institution, it is necessary to consider the capital it is consuming. That capital is referred to as economic capital.

Economic capital is defined as the amount of capital that a business line or transaction requires in order to cover eventual unexpected losses and still remain solvent over a certain time horizon, usually 1 year, and with a level of certainty, such as 95%, 99%, etc.

The amount of capital that a company should hold is therefore directly related to the amount of risk that it faces. A financial institution that experiences volatile revenues, expenses, or losses/claims needs to set aside significant capital even if it is quite profitable on average. The amount of capital that an organisation needs is also dependent on its desired safety level (or target credit rating). A financial institution that wishes (or is forced by regulators) to be perceived as extremely secure, therefore needs an especially large amount of capital relative to the risk it faces.

Economic capital should address all risk types consistently across all business lines of a financial institution. Usually these categories are:

- market risk
- credit risk
- operational risk
- business risk.

Economic capital is used for a number of purposes. Some of the key areas that are of interest from a BCM perspective are:

Risk-Adjusted Performance

Measuring a business line's return versus the economic capital it consumes can help compare returns between different business lines and various types of products and services and, for instance, against benchmarks such as the risk-free rate. The risk-adjusted performance can be encapsulated in the Risk-Adjusted Return on Capital (RAROC) formula, where the net return is relatively measured against economic capital.

Risk Budgeting

Another key function of economic capital is to enhance a financial institution's decisions regarding the strategic direction of its activities such as retaining, growing or shrinking business lines. RAROC again will serve as the key measure to facilitate in this decision-making.

Risk-Adjusted Pricing

Economic capital can give a financial institution a relative pricing or selection advantage. Financial institutions that are using risk-based pricing methodologies are able to "cherry pick" and structure the most profitable products and services by pricing accurately and providing a fair value.

The RAROC calculation permits an institution not only to determine, for example, whether it is pricing an individual loan correctly, but also whether its overall loan portfolio is priced correctly for the risk that it is carrying.

Risk-Adjusted Capital Allocation

Capital by definition is a scarce resource and thus should be allocated effectively. Economic capital provides a basis for attributing capital to all activities.

Economic capital methodologies allow a capital allocation mechanism based on Economic Value Added (EVA) per unit of scarce resource by assessing the risk adjusted return against a set hurdle rate. It ranks those activities by their marginal shareholder value added per unit of economic capital.

If proper BCM arrangements are in place, the economic capital set aside for these types of losses will be reduced given a methodology that reflects an institution's true risk exposures. This should be recognised in the cost/benefit analysis. BCM arrangements can also support an institution's claim for lowered insurance premiums for matching insurance policies. All things being equal, it should also improve rating agencies' views on the institution as well as those of equity analysts, due to the potentially lowered earnings volatility it can bring about.

As guarantees, credit derivatives and limits are used as risk mitigants and hedges for credit risk, and various hedging strategies and limits are used likewise for market risk, BCM arrangements will serve as a risk mitigant for operational risk. Hence, the link between a financial institution's operational risk exposures, BCM programme, matching insurance policies and quantitative techniques needs to be integrated and accounted for when assessing net risk exposures and economic capital.

OPERATIONAL RISK

The most advanced and risk-sensitive quantification techniques for the various risk types exist for credit and market risk. However, due to regulatory pressures, e.g. Basel 2, and a number of incidents, such as the World Trade Center disaster, operational risk has come to be recognised as one of the largest risks an institution can be exposed to. History has shown us that it is operational risk incidents that have been "corporate killers", which is why efforts to quantify operational risk are on the increase. The first key obstacle has been to define operational risk.

Operational risk has been defined by the Bank of International Settlement (BIS) as:

"the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events".

This has now become the "official" regulatory definition of operational risk. To facilitate the understanding and quantification of operational risk, the regulators have worked with the industry to provide a categorisation of loss events. This categorisation forms the basis of data collection for operational risk and has been adopted for economic capital purposes by a number of financial institutions.

Internal fraud – Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy (excluding diversity/discrimination events) which involve at least one internal party.
External fraud – Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party.
Employment practices and workplace safety – Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity/discrimination events.
Clients, products and business practices – Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product.
Damage to physical assets – Losses arising from loss or damage to physical assets caused by natural disaster or other events.
Business disruption and system failures – Losses arising from disruption of business or system failures.
Execution, delivery and process management – Losses from failed transaction processing or process management, from relations with trade counterparties and vendors.

Some of these loss event types are of particular interest when linking economic capital with a BCM programme, such as 'damage to physical assets' and 'business disruption and system failures'. As part of a regulatory capital or an economic capital programme, losses can be collected and mapped against these loss event categories.

A BCM programme will not only affect the level of economic capital set aside for operational risk, but it will also indirectly affect credit and market risk capital calculations and policies, such as limits, scenario analysis, liquidity issues. This needs to be taken into consideration when setting policies and assessing capital for these risk types as well.

LINKING A BCM FRAMEWORK WITH AN ECONOMIC CAPITAL PROGRAMME

The first key step when quantifying and linking a BCM framework with economic capital is to have an understanding of the institution's actual risk exposures and how they relate to each other. This is the process of risk identification and assessment.

Once the risks have been identified and thoroughly analysed, the next step is to assess their potential financial impact by estimating, as in the case of operational risk, their severity and frequency. This process of risk assessment will facilitate the comparison and ranking of various types of risk.

With a better understanding of its risk exposures and their potential financial impact, an institution is better prepared to decide what to do about its risks; accept the risk or engage in activities to reduce them to an acceptable level. Three key questions need to be answered:

1. Can this risk be reduced and if so how?
2. How much will the risk-reduction activity cost?
3. Will it be cost-effective?

This is the process of risk mitigation or risk reduction.

When assessing the financial impacts of risks that an institution is exposed to, the decision to reduce the risk exposure must also include an assessment of how effective that reduction will be, i.e., the financial benefit of having it in place versus the cost of implementing it. This cost/benefit analysis will facilitate the decision-making process. For certain risk types, such as credit and market risk, this type of risk reduction activity is quite straightforward, as hedging risks can mostly be done through standardised financial instruments and the cost/benefit relationship can be fairly accurately calculated.

However, for operational risk this process is not as straightforward. As described in the previous section, operational risk is a very heterogeneous risk type, hence any risk-reducing activity often needs to be uniquely tailored to cater for special needs, due to complex business activities and technology infrastructures. For certain operational risk event types, such as 'damage to physical assets' and 'business disruption and system failures', BCM arrangements should be assessed as a whole against the identified risk exposures.

The answers to the three questions above, together with an assessment of the impact of different strategies on economic capital, will facilitate decision-making in respect of budgeting and execution of recommended activities, and the subsequent and ongoing management of all risk measures, including periodic reassessment.

Scenario analysis or stress testing will be key activities in enhancing the assessment effort. Scenario analysis is used to describe a variety of risk-measurement techniques which have been developed to measure the financial impact of specific risks inherent in the institution's activities. This technique examines the potential effects of extreme but plausible events on the institution's risk exposures. Different stress scenarios can be computed in order to see whether an institution's economic capital is sufficient to absorb potential losses and determine potential provision requirements accordingly. This approach leads to a better overall picture of the institution's risk profile as it combines both quantitative and qualitative input and assumptions that can be used in a proactive sense to help measure and manage operational risk exposures.

Therefore, investment in business resumption and contingency plans needs to take into account different types of plausible scenarios to which the institution may be vulnerable. They must also reflect the size and complexity of the institution's activities, especially where critical business activities could be put at risk, including those where there is dependence on external vendors or other third parties and for which rapid resumption of service would be most essential. Using the loss event categorisation will facilitate a systematic approach to capturing the key operational risk exposures. Economic capital set aside for any potential impact for identified risk exposures and corresponding risk mitigating activities can be financially offset against each other to better reflect the true risk exposures.

Financial institutions need to periodically review their business resumption and contingency plans and scenarios as part of the economic capital assessment framework, so that they are consistent with their current operational and business strategies.

SUMMARY

History has shown that many financial institutions are reluctant to channel resources into investments they hope never to use and if they do, it is usually after a major incident has occurred, such as the World Trade Center disaster. The cost/benefit analysis, when assessing investments in BCM, rarely includes the full effects of an implemented BCM solution in terms of lowering economic capital levels, reducing insurance premiums and improving views from third party assessors such as rating agencies and equity analysts. Although BCM initiatives seldom mitigate the capital loss after an event, such as destroyed buildings and IT systems (which can anyway be transferred out by using insurance), they can substantially reduce the effect of lost revenues. This is why, quantifying the effects of a BCM programme and embedding it into a holistic risk management framework, of which economic capital forms a key component, will better facilitate senior management's understanding of a financial institution's true risk exposure.

Integrating recovery sites, back-up systems and other BCM components into a risk-management and economic capital framework can follow a step-by-step process:

1) Develop scenarios of potential losses mapped against the operational risk loss event category. Estimating the severity of such losses is relatively easy, however, understanding the frequency of such incidents will, at best, be guesswork.
2) The loss scenario figures together with other modelling techniques will provide an estimated economic capital number, per business line, product, geographical area and/or firm-wide.
3) The economic capital will be estimated in gross terms; however, a net number can be derived by deducting the existing insurance policies against the loss event category and incorporating the effect of BCM arrangements that would reduce the financial effects of losses.
4) The net economic capital number will be used as input for risk budgeting, RAROC, etc.

Using the proposed loss event category both for an economic capital framework as well as for BCM, can be the bridge that helps link the two frameworks in a quantitative way. The net economic capital number should, of course, be included as part of the cost/benefit analysis when assessing potential investments in back-up systems and recovery sites, for example. This will provide financial institutions with an objective and systematic way of assessing the reduction in risk exposures that an investment in BCM can provide.

APPENDIX: A NUMERICAL EXAMPLE

Loss Event Categories	Frequency	Severity – Gross	To be deducted – Insurance	To be deducted – BCM	Severity – Net
Damage to Physical Assets Losses arising from loss or damage to physical assets or other events such as: -Terrorist bombing -Fire -Sabotage by employees -Natural disasters -Utility failure	1/20 years	**Direct Loss** £200m	£100m	£40m, as having BCM in place will reduce consequential losses	£100m
		Loss of income £150m		£120m	£30m
Business Disruption and Systems Failure Inability to conduct and manage core activities due to a catastrophic failure of: -IT infrastructure -Networks -Telecom systems -Critical IT applications -Hacker intrusion or computer viruses	1/10 years	**Direct Loss** £50m	£30m	£15m, as having BCM in place will reduce consequential losses	£20m
		Loss of income £90m		£80m	£10m
Clients, Products and Business Practices Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product.	As this loss event type is partly consequential loss from the above categories, the effect of BCM will reduce the frequency and therefore the overall severity.	**Direct Loss** £400m	£100m	(£40m + £15m) £55m	£245m

This table is an example of how BCM and insurance can be offset against a capital charge. This information is useful for senior management showing how the economic capital assessment reflects the risks of the various business activities and how investing in BCM will lower overall economic capital. In the table, economic capital has been assessed for some of the loss event categories for operational risks. These numbers would then be aggregated up to a single capital number for operational risk and also aggregated with the other risk types and allocated out to the different business units. Investments in BCM could also alter, not only the severity assessment, but also the frequency of losses occurring. Lowering the probability of a loss will, of course, also reduce the economic capital set aside for the specific loss event category. Assessing the severity and frequency of losses is normally done by modelling a combination of internal and external loss histories, scenario analysis and forward-looking components such as Key Risk Indicators (KRI) and control assessments. This is a simplified example of how these calculations would be done and would in real life include a number of additional modelling parameters and assumptions.

Biographies

KPMG

KPMG provide business continuity management and disaster recovery services to clients worldwide. Our services help organisations realise the vision to “always be there for customers” by improving the availability and reliability of their business services. KPMG is the global network of professional services firms whose aim is to turn understanding of information, industries and business trends into value. With more than 100,000 people worldwide, KPMG member firms provide assurance, tax and legal, financial advisory and consulting services from more than 750 cities in 152 countries. Our business continuity management and disaster recovery services can help organisations realise their vision to 'always be there for customers' by improving the reliability and availability of their business services.

ALICE BRETHERTON

Alice Bretherton is a manager in KPMG’s Information Risk Management practice, focusing on Business Continuity Management. She is a registered Associate of the Business Continuity Institute (ABCI).

Alice has over 5 years’ experience working on business continuity projects for KPMG, most recently project managing E2E business continuity implementation programmes for a number of large organisations. Alice has advised and guided clients on most aspects of business continuity, including devising and conducting business impact analyses and risk assessments, outsourcing business continuity and IT recovery facilities, developing and facilitating crisis management tests, and designing, implementing and testing continuity solutions. She has also given training courses on the BCM methodology within KPMG and to clients, in the UK and in Spain.

In 2000, her article ‘How to Survive When Your Business Relies on the Internet’ was published in Virtual Business magazine and a major UK newspaper, and was translated for a number of business publications Spain.

DAVID CIERA

David Ciera is a manager focusing on business continuity within KPMG’s Information Risk Management practice in London. He has over 7 years’ operational experience of all aspects of Business Continuity Management including crisis management, business impact and risk analyses, recovery strategy formulation and implementation and including the definition of recovery strategies for business and technology functions. He has also trained various organisations on the implementation of business continuity management best practice and carried out international recovery strategy testing which simulated complete loss of primary business premises.

NIKLAS HAGEBACK

Niklas Hageback is a manager within KPMG’s Financial Sector Advisory Group, based in London. His current work is on the development of an operational risk software system survey to rate the leading software providers in terms of key features, functionality and compliance with the Basel requirements for UK-based financial institutions. His responsibilities also include the development and design of an operational risk calculation methodology for the regulatory capital charge under AMA (Advanced Measurement Approach) and for economic capital programmes.

Previous experience includes working as a manager for Arthur Andersen’s Risk Management Practice in Hong Kong, where he led a risk diagnostic project to review the risk management framework of a large international Chinese bank and benchmark it against industry and regulatory best practice in the areas of operational, credit and market risk. Prior to that he worked for Credit Suisse First Boston in London as a dedicated member of the global operational risk team, where he was involved in setting up a firm-wide operational risk framework.