The Operational Risk Framework under a Retail Perspective

by Niclas Hageback

Basel II's double-counting rule may reduce the AMA capital charge for retail banks more than the regulators have expected. The purpose of this article is to encourage retail banks to better analyze their pool of loss data through a PD/LGD/EAD filter to help find the actual ratio between pure operational risk losses and credit-related operational risk losses. The goal is to be in a better position to decide on capital approach and take a more holistic view on operational risk and credit risk mitigants.

An analysis of pools of operational risk loss data has shown that a considerable number of retail-banking-related operational risk losses affect the credit risk capital charge. You might ask, "So what?" According to Basel II, such losses should be excluded from the operational risk capital calculation under Advanced Measurement Approach (AMA) to avoid "double counting." Hence, a bank with retail-related focus needs to be very aware of two points:

1. From a regulatory capital point of view, it is possible that substantial savings can be achieved if a retail bank opts for AMA instead of the Standardized Approach. This is because, given their credit-risk-related contents, the larger part of the operational risk losses that would form the basis of the historical loss distribution and the scenario analysis calculation under AMA are excluded.
2. From a practical point of view, it makes sense for a retail bank to closely coordinate and integrate the credit risk management and operational risk management functions, as operational risk mitigants can play an important part in reducing credit risk losses.

The Basel II Effect

Basel II introduces operational risk as a separate risk category with a dedicated framework that includes a regulatory capital charge based on three different calculation methodologies: 1) the Basic Indicator Approach; 2) the Standardized Approach; and 3) Advanced Measurement Approach.

The two first methodologies are based on the assumption that operational risk correlates with the size of the financial institution; the only way to lower the capital charge is by lowering the size of gross income, which is a perverse incentive for managing the risk-reward relationship. AMA assumes that the level of capital should reflect the existing risk exposures; thus, line managers have added incentive to optimize controls and mitigants.

Notwithstanding a few key constraints, AMA is a free-modelling approach. Some of these con-

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straints refer to how certain data, such as internal loss data, is used. Basel II requires operational risk losses to be categorized in eight business lines (including retail banking) and seven types of loss events.

When operational risk losses have been collated, analyzed, and classified accordingly, certain types of operational risk losses, such as collateral management failures, are likely to relate to credit risk. To avoid double-counting these losses in the regulatory capital charge calculation, Basel II stipulates that such losses will be excluded from the operational risk capital charge and only be part of the credit risk capital charge.

Analyzing Operational Risk Losses

The Basel Committee conducted an operational risk loss data collection exercise referred to as QIS2—*The Quantitative Impact Study 2—The 2002 Loss Data Collection* Exercise for Operational Risk. Eighty-nine banks participated globally, and 47,269 losses were recorded and then categorized by business line and loss event type.

Pinpointing and segregating the operational-risk-related credit losses from the QIS 2 loss data pool requires some assumptions about the characteristics of these types of losses. First, it's necessary to break down the credit risk model into its risk parameters to better understand how operational risk losses might affect the credit risk capital charge. These parameters include:

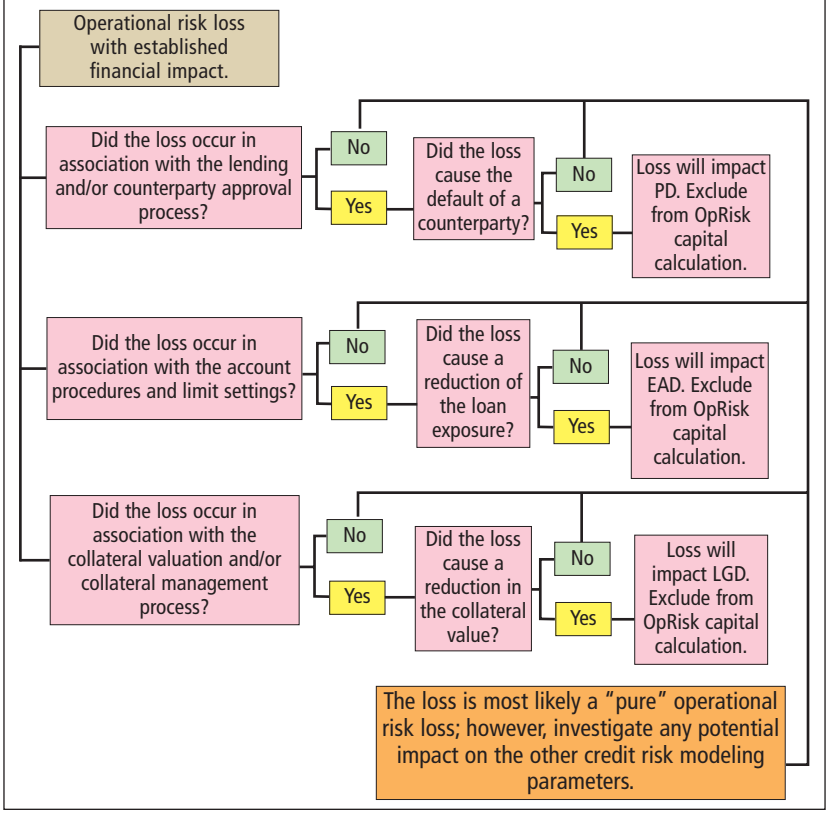
- Probability of default (PD)—operational risk cause(s) leading to a counterparty default. This can, for example, be due to external fraud or errors in the rating model, through human, system, or process errors.
- Exposure at default (EAD)—operational risk cause(s) leading to the reduction of the loan amount. This could typically be due to fraud or negligence or errors in adhering to limits and account management.
- Loss given default (LGD)—operational risk cause(s) leading to a lower than expected value of collaterals which can be triggered due to events such as fraud, management and/or process failures.

After determining the parameters that will trigger an impact on the credit risk capital charge, a filter can be developed as depicted in Figure 1.

When trying to apply the PD/EAD/LGD filter on the QIS 2 pool of loss data, the categorization by loss event types can be used as a crude divider. When examining the loss event types, we realize that some are more likely than others to affect the credit risk parameters, for example:

- Internal fraud.
- External fraud.
- Employment practices and workplace safety.
- Clients, products, and business practices.
- Damage to physical assets.
- Business disruption and system failure.
- Execution, delivery, and process management.

Figure 1



The larger part of the "external fraud" loss event type—with the possible exception of bank robberies—could affect any of the credit risk parameters. The same goes for "execution, delivery, and process management," where a majority of failures in retail-related processes—such as the underwriting, servicing, and closing of accounts—will affect PD, EAD, or LGD. For the other loss event types, any conclusive statements are difficult to make. "Employment practices and workplace safety" is probably the only definitive exclusion from any impact on the credit risk charge. (See Figure 2.)

Let's establish a rough estimate of the percentage of retail bank operational risk losses that could be excluded from the AMA calculation given their credit risk capital impact. We'll assume that up to 100% of "external fraud" and "execution, delivery, and process management" and 0% of other loss event types can be allocated to the credit risk charge. We then arrive at the following numbers:

- With regard to "total gross loss amounts," 53% of the losses need to be excluded.
- With regard to "number of losses," 77% of the losses need to be excluded.

Unfortunately, the data does not lend itself to a more granular analysis, given the level of details recorded during the collation phase. The uncertain assumptions concerning the allocation of loss event types make us cautious about drawing any conclusions. However, just a macro-level review of the numbers indicates that a large part of retail bank operational risk losses might have to be excluded from the AMA capital calculation.

For a retail bank aiming to properly configurate the ratio between "pure" operational risk losses and operational risk losses belonging in the credit risk capital charge, further dimensions need to be included, like capturing the process in which the loss took place. This analysis should be conducted at the individual loss level to ensure accuracy.

Even if this study focused solely on the retail banking business line, a reasonable hypothesis is that a similar analogy could be drawn for the commercial banking business line, because strong links between operational and credit risk losses should exist there as well.

Is there a corresponding application for operational-risk-related market risk losses? The answer is no, because Basel II prescribes that such losses should be included in the AMA capital calculation as well as in the value-at-risk calculation for market risk. Theoretically, this might be viewed as an inconsistency, because it constitutes a clear case of double counting. Why, then, aren't these losses excluded as well? The likely reason is that the impact of these types of losses on the market risk capital charge is brief because of the short time span of included data; the burden of going through the exercise of excluding them from the operational risk charge has not been considered worthwhile.

Practical Implications for Retail Banks

AMA versus Standardized Approach. Estimating the capital charge by using the Standardized Approach or the Alternative Standardized Approach is fairly uncomplicated: a size proxy multiplied with an externally given multiplier.

On the other hand, the approximation of the AMA capital hinges on a number of factors and is not a straightforward process. One of the key drivers behind the AMA capital charge is the bank's historical internal operational risk

Figure 2

Total Gross Loss Amounts (Euro, millions)

Business Line	Internal Fraud	External Fraud	Employment, Practices & Workplace Safety	Clients, Products & Business Practices	Damage to Physical Assets	Business Disruption & System Failures	Execution, Delivery & Process Management	No Event Type Information	Total
Retail Banking	331.9	787.1	340.0	254.1	87.5	26.5	424.5	37.4	2,289
% Retail Banking	14%	34%	15%	11%	4%	1%	19%	2%	100%

Number of Individual Losses

Business Line	Internal Fraud	External Fraud	Employment, Practices & Workplace Safety	Clients, Products & Business Practices	Damage to Physical Assets	Business Disruption & System Failures	Execution, Delivery & Process Management	No Event Type Information	Total
Retail Banking	1,268.0	17,107.0	2,063.0	2,125.0	520.0	163.0	5,289.0	347.0	28,882
% Retail Banking	4%%	59%%	7%	7%	2%	1%	18%	1%	100%

Source: *The 2002 Loss Data Collection Exercise for Operational Risk,* The Basel Committee on Banking Supervision.

losses. All else being equal, fewer operational risk losses will lead to a lower regulatory capital charge. Therefore, as indicated from the analysis of QIS 2 loss data, there should be significantly lower AMA capital if the majority of operational risk losses actually belong to the credit risk charge. Other input data—such as external loss data and key risk indicators—needs to be factored in as well; however, if that data is associated with the same processes and causes as the excluded internal losses (because of a credit risk connection), it should be excluded. Additionally, the correlation factor is another item that needs to be considered; if correlation can be empirically proved, Basel II recognizes its potential diversifying impact, which would further reduce the aggregated capital charge.

Any comparison between the Standardized Approach and AMA in terms of regulatory capital size is, given the constraints, not possible on the macro level, so it can be determined only on an individual basis. Therefore, it is difficult to provide advice on what this will mean for a specific bank and its decision whether the additional investments for compliance with AMA are justified versus using the Standardized Approach. Internal losses have a key role in the calculation of AMA capital; if filters exist that indicate exclusion because of a relationship between operational risk causes and credit risk losses, anecdotal evidence suggests that considerable capital savings can be achieved by complying with AMA rather than the Standardized Approach.

Mitigants

AMA sets stringent requirements on the types of mitigants that are allowed to reduce the levels of regulatory capital. Insurance is the only acknowledged mitigant, and there are limitations on the types of insurers and insurance policies that can be used. In addition, the recognition of mitigants is limited to 20% of the total AMA capital charge.

However, similar restrictions do not apply for the credit risk capital charge. Hence, operational-risk-related credit risk losses will be under a different capital regime than that of AMA, and with that follows a different treatment of its mitigants, such as no stated restriction of the deductible portion of insurance. Other types of mitigants, such as credit derivatives, can be introduced as well to cover some of the operational risks.

Subsequently, we need a holistic approach to considering the existing mitigant framework and to optimize any additional investments in mitigants if we want to avoid unnecessary costs through overlapping operational and credit risk mitigants covering the same risk exposure. Operational risk controls and risk transfer mechanisms can be applied to get a more comprehensive recognition of their impacts on the credit risk capital charge. A holistic approach also should trigger more innovative development of bespoke solutions of bundled insurance and credit derivatives products that can segregate the operational risk and credit risk components and ensure maximum reduction of regulatory capital.

Summary

Basel II's categorization of operational risks and its stipulated relationship between operational and credit risk losses could have major practical implications for retail banks. As shown, on an aggregate industry level, the majority of operational risk losses seem to belong to the credit risk capital charge; retail banks complying with AMA would therefore end up with a possibly significantly reduced operational risk capital charge compared to inapplicability of the double-counting exclusion.

Further, a more granular analysis of the causes of operational-risk-related credit risk losses will promote a more holistic approach to the management of credit and operational risk, including the upgrading and fine-tuning of mitigants and other risk management tools. ❐

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