

POINT OF VIEW

# BEYOND AMA

PUTTING OPERATIONAL RISK MODELS TO GOOD USE

## **AUTHORS**

Ramy Farha, Principal

Tom Ivell, Partner

Thomas Jaeggi, Principal

Evan Sekeris, Partner

A long history of incidents, ranging from rogue trading to IT breakdowns to mis-selling of products and services, testifies to the dangers that lie beyond financial risk taking within financial services. Alongside credit and market risk, such operational risks were among the risk types to be capitalized under the Basel 2 framework.<sup>1</sup> Under the framework, banks were allowed to use internal models to estimate operational risk capital, referred to as the Advanced Measurement Approach (AMA). The AMA was usually calibrated to the historical losses of the bank, and was expected to provide an accurate picture of operational risk exposure. Over the last decade, AMA has become the *de facto* standard for measurement of operational risk across much of the financial sector and the approach was used for a myriad of purposes beyond capital calculations.

On March 4, 2016, the Basel Committee<sup>2</sup> released for consultation the new Standardized Measurement Approach (SMA), which is intended to replace all previous approaches including the AMA to calculating how much capital banks must set aside to cover operational risks.

We believe the SMA consultation release presents an opportunity for banks. Since banks will need to continue to quantify operational risks, the quantification may now use approaches that best meet business needs and achieve more objectives than just capital calculations. Such approaches are likely to look very different from both the AMA and the proposed SMA.

## THERE IS MORE NEED FOR MEASUREMENT, NOT LESS

Despite progress made over recent years, there are significant operational risks that remain poorly understood and deserve better measurement. A prominent example is cybercrime – an area in which banks struggle to make the right cost/benefit trade-offs.

Operational risk considerations are increasingly inserted into business decision making, whether around new products, projects, outsourcing decisions or insurance purchasing. Banks will require tools to support those decisions.

Lastly, regulators will continue to ask for operational risks to be measured. We expect larger, complex institutions to be asked to continue to measure operational risk to inform internal capital planning and capital allocation. Furthermore, regulators are increasingly including operational risk in stress testing, through CCAR in the US<sup>3</sup> and most recently in Europe where operational risk has become a mandatory component of both the UK PRA<sup>4</sup> and the EBA<sup>5</sup> stress testing requirements.

1 Basel Committee on Banking Supervision, "Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework Comprehensive Version", June 2006

2 Basel Committee on Banking Supervision, "Standardised Measurement Approach for operational risk consultative document", March 2016

3 Section 165(i)(2) of the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act"), Comprehensive Capital Analysis and Review

4 Bank of England, "Stress testing the UK banking system: guidance for participating financial institutions and building societies", March 2015

5 European Banking Authority, "EU-wide stress test 2016-Draft methodological note", November 2015

## NEITHER THE AMA NOR THE SMA WILL DELIVER ON WHAT BANKS NEED

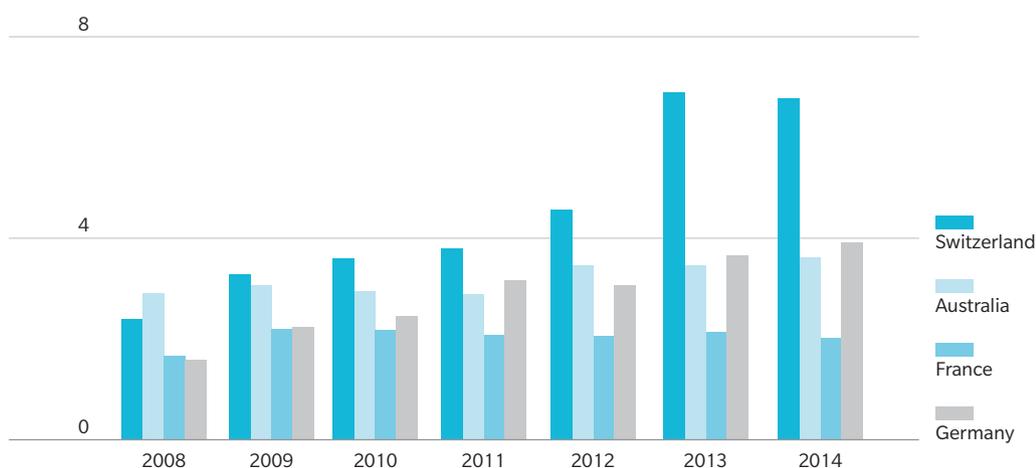
A good risk model must strike a balance between responsiveness and stability, provide reasonable estimation accuracy and be intuitive and easy to understand for stakeholders who depend on the output. The model should also support business decisions for which risk is a consideration.

AMA, given how the framework was designed and implemented, did not deliver on these dimensions. The assessment is not driven by an intrinsic inability to model operational risk. Rather, we believe failure by regulators and industry to promote convergence led the sector to the current position. Contrary to the more prescriptive approaches used for credit and market risks, the AMA framework left banks to develop a range of unique methodologies. These methodologies led to, in the words of the Basel Committee,<sup>6</sup> “excessive variability in risk weighted assets and insufficient capital levels for some banks”.

Regulators had exacerbated the problem by placing selective and often strict restrictions on methods that could have mitigated model sensitivity and fragility.<sup>7</sup> By taking a hard line on any approach perceived to allow “gaming”, such as incorporation of scenarios, treatment of outliers or weighting of data, regulators removed viable levers for reducing variability and volatility of internal models.

The result is an often unacceptable level of variability, not only observable across banks but also for the same bank over time. Exhibit 1 shows an example of the Operational Risk RWAs variability under the AMA modeling framework for different banks across different geographies. While not all observed variation is inappropriate, the variations between jurisdictions and within a jurisdiction over time are significant.

Exhibit 1: Operational Risk RWA as % of Total Assets Across Geographies



Note: All data is from Q4 of each year

Source: Oliver Wyman analysis

<sup>6</sup> Basel Committee on Banking Supervision, “Reducing excessive variability in banks’ regulatory capital ratios, A report to the G20”, November 2014

<sup>7</sup> Mark Ames, Til Schuermann, and Hal Scott, “Bank capital for operational risk: A tale of fragility and instability”, *Journal of Risk Management in Financial Institutions*, March 2015, 8:3, pp. 227-243

As banks grappled to control the volatility of the internal models, ever more statistical wizardry was applied, which came at the cost of making models ever harder to govern, audit, and explain to all stakeholders interested in making informed risk/return trade-offs. While operational risk, more than any other type of risk a bank faces, has to be managed by each and every staff member within the bank, in most institutions only a handful of statisticians understood how operational risk was being measured.

Lastly but importantly, the AMA framework was poorly designed to support the advent of stress testing,<sup>8</sup> given an inherent inability to identify underlying drivers of risk. The AMA was built on assumptions (data homogeneity and time invariability of frequency/severity independent of macroeconomic factors) that are hard to reconcile with the very purpose of macroeconomic stress testing. Indeed, recent SR 15-18 guidance<sup>9 10</sup> issued by the FRB to CCAR banks in the US explicitly discourages the use of AMA models in stress testing for these reasons.

The SMA is intended primarily as a step forward for regulators, not banks, and provides a simple framework for setting minimum capital requirements for banks globally. The impact assessment, to be conducted in Q2 2016, will undoubtedly highlight substantive changes in capital requirements for individual banks. Such outcome is intentional as the SMA removes the current disparity in model outcomes illustrated in Exhibit 1.

However, the SMA does not deliver on any of the other dimensions cited above as critical for a good risk model. The loss data component is intended to increase risk sensitivity, but only does so crudely, leading to potentially significant volatility as historical loss observations enter and exit the defined 10 year calculation window. Banks conducting preliminary sensitivity analyses of the new SMA are experiencing variations in estimated capital requirements of up to 30% year over year.

Moreover, the approach is backward-looking, is not designed to understand the behavior and drivers of risk, and does not reflect risk mitigating business decisions such as insurance. With losses remaining part of the historical data for 10 years, the impact of reduced losses on the regulatory capital requirements due to improved risk management practices will come with a long lag.

From the perspective of banks, the SMA cannot be viewed as sufficient for promoting sound risk management and an understanding of operational risks.

## A NEW KIND OF MODEL

With the constraints of AMA lifted, the industry is now free to explore new modeling approaches more appropriate to serving the needs of banks. The focus must be to better support business decisions, promote risk awareness and understanding, and set the right incentives for staff.

<sup>8</sup> Ramy Farha, Tom Ivell, and Evan Sekeris, "Operational Risk Stress Testing: Emerging Best Practices", November 2015

<sup>9</sup> Federal Reserve Board, "SR 15-18: Federal Reserve Supervisory Assessment of Capital Planning and Positions for LISC Firms and Large and Complex Firms", December 2015

<sup>10</sup> Federal Reserve Board, "SR 15-19: Federal Reserve Supervisory Assessment of Capital Planning and Positions for Large and Noncomplex Firms", December 2015

We believe future operational risk models will better address the needs of banks through six attributes, summarized below.

## Exhibit 2: Desired Attributes of Future Operational Risk Models

MODEL ATTRIBUTE	METHOD	BENEFITS
Uses a stable and simple quantification approach	Simplify the methods required by using a lower confidence level given the 1-in-1000 year benchmark under AMA has proved impractical	Reduces model uncertainty given the better alignment between the available historical data and the confidence interval of the estimation and supports P&L projection, a key aspect of stress testing
Provides reasonable accuracy of estimates	Improve modeling techniques without the AMA restrictions	Improves model accuracy and allows to better leverage techniques to confirm predictive accuracy of models such as backtesting
Contains an exposure measure of risk	Bring operational risk measurement into line with financial risk modeling, where the “exposed unit” has long been central to determining the potential impact of risks	Makes models dynamic and responsive to changes in business profile and growth  Facilitates “what if” analysis for business decisions
Includes the drivers of risk	Identify key drivers of risk and connect these drivers to their frequency, exposure or impact	Allows for one model to produce unconditional and conditional estimates of risk – can fully integrate with stress testing
Recognizes risk mitigation	Reflect the benefits of controls, insurance and other risk mitigants	Facilitates business decisions on the trade-off between cost and risk, e.g. helps optimize insurance cover
Facilitates capital allocation	Allow for operational risk allocation to different business lines based on key risk drivers	Allows for informed measurement of risk/return tradeoffs

The developments listed above are already underway. Outside of banking, financial institutions already model to a lower confidence level of risk. Banks with stress testing models focused on conditional expected losses are able to conduct meaningful backtesting. Several banks have developed exposure based models in recent years. Some banks have built operational risk models that attempt to link changes in the macroeconomic environment to the projected loss. Allocation based on risk drivers is commonly used. Increasingly, insurance benefits are being incorporated within models.

As an example, CCAR in the US puts the emphasis on the concept of conditional expected loss rather than the extreme tail exposure of the bank. The shift of emphasis has led a number of US banks to build operational risk models that attempt to link changes in operational risk losses to the macroeconomic environment. While these models continue to be refined, there have been some encouraging results. As operational risk exposure is also driven by firm specific factors, some institutions have started to introduce such factors in operational risk stress testing models.

Banks cannot appropriately manage operational risk without measurement. Regardless of the SMA, the direction of travel for regulators and the industry should be to converge on a new set of modeling best practices that create a more stable and useful set of tools for operational risk measurement.

The lesson for insurers, asset managers and other financial services firms in the meantime is simple: The approach of “letting a thousand flowers bloom” prompted banking regulators to take away the internal model option. Now is the time to promote convergence of approaches, e.g. through industry bodies and loss data consortia, before the internal models are taken away.

Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation.

For more information please contact the marketing department by email at [info-FS@oliverwyman.com](mailto:info-FS@oliverwyman.com) or by phone at one of the following locations:

AMERICAS

+1 212 541 8100

EMEA

+44 20 7333 8333

ASIA PACIFIC

+65 6510 9700

ABOUT THE AUTHORS

**Ramy Farha** is a Principal in the Americas Finance & Risk Practice  
[ramy.farha@oliverwyman.com](mailto:ramy.farha@oliverwyman.com)

**Tom Ivell** is a Partner in the EMEA Finance & Risk Practice  
[thomas.ivell@oliverwyman.com](mailto:thomas.ivell@oliverwyman.com)

**Thomas Jaeggi** is a Principal in the EMEA Finance & Risk Practice  
[thomas.jaeggi@oliverwyman.com](mailto:thomas.jaeggi@oliverwyman.com)

**Evan Sekeris** is a Partner the Americas Finance & Risk Practice  
[evan.sekeris@oliverwyman.com](mailto:evan.sekeris@oliverwyman.com)

[www.oliverwyman.com](http://www.oliverwyman.com)

Copyright © 2016 Oliver Wyman

All rights reserved. This report may not be reproduced or redistributed, in whole or in part, without the written permission of Oliver Wyman and Oliver Wyman accepts no liability whatsoever for the actions of third parties in this respect.

The information and opinions in this report were prepared by Oliver Wyman. This report is not investment advice and should not be relied on for such advice or as a substitute for consultation with professional accountants, tax, legal or financial advisors. Oliver Wyman has made every effort to use reliable, up-to-date and comprehensive information and analysis, but all information is provided without warranty of any kind, express or implied. Oliver Wyman disclaims any responsibility to update the information or conclusions in this report. Oliver Wyman accepts no liability for any loss arising from any action taken or refrained from as a result of information contained in this report or any reports or sources of information referred to herein, or for any consequential, special or similar damages even if advised of the possibility of such damages. The report is not an offer to buy or sell securities or a solicitation of an offer to buy or sell securities. This report may not be sold without the written consent of Oliver Wyman.