

OPERATIONAL RISK AFTER THE CRISIS

Zsuzsanna Tamásné Vőneki

ABSTRACT

The paper summarises the regulatory background of operational risk management, from introduction of the Advanced Measurement Approach to the emergence of the latest, Standard Measurement Approach (SMA), while enumerating the criticisms of the various approaches. With regard to capital measurement the regulator has taken steps towards simplification, but has not clarified what changes it plans with regard to the qualitative risk management framework underpinning the more advanced methodologies used to date. In today's climate of uncertainty, rife with regulatory changes, the study outlines the challenges and strategies that are taking shape in the field of the operational risk management, and introduces the risk types that are now coming into focus, such as reputation, model, conduct, outsourcing or ICT risks.

JEL codes: G2, G28

Keywords: operational risk, bank, banking regulation

1. INTRODUCTION

The global economic crisis that started in 2007/2008 showed what serious real-economic and political consequences can stem from the vulnerability of the international banking system, while fundamentally calling into question the effectiveness of banks' risk management practices. The regulatory authorities were already making efforts to amend the calculation of banks' capital requirements and risk management processes during the crisis.

The past ten years have been particularly interesting in terms of the regulation and practice of operational risk management. In the European Union, banks have been required to manage operational risks systematically and set aside capital for them since the first years of the crisis; that is, from 2008 onwards, and therefore the history of this type of risk is inextricably linked to that of the crisis. It was during this period that the banks had to establish their systems for identifying, measuring and managing these risks, while also facing considerable challenges in relation to traditional forms of banking risk.

Operational risk – in terms of the distribution of capital set aside by banks for the individual risk types – is now the second most significant risk type after credit risk, having overtaken market risk in this respect (EBA, 2017).

Several studies have explored the change in the types of risks that need to be managed by banks, and the roles of the individual risk types. Most of the surveys are performed annually, and summarise the expectations of practicing professionals with regard to risk (Risk, 2018; ORX, 2018). In 2017, the Institute of International Finance polled the senior managers of 77 banks in 35 countries about risks, their management and the trends. Among those taking part in the survey, 40 of the banks were SIFIs (Systemically Important Financial Institutions); that is, institutions of key importance from a systemic risk perspective, in their respective countries. The respondents name the most important risks expected to emerge in the following year as cyber risk, the risks of regulatory changes and their implementation, the risks associated with business models, and conduct risk (IIF, 2017). Based on the analysis, the most significant bank risks all fall into the category of operational risks.

In this paper, I will explore the changes in the regulatory background to operational risks, the constant expansion of the scope of this exceptionally heterogeneous risk type, and the emergence of the latest risks to be identified. In addition to this, I will outline the changes of direction that have been taking shape with regard to the management of operational risks in the past year or two.

2. REGULATION OF OPERATIONAL RISKS

Following publication of the first consultation document (BCBS, 1998), the definition of operational risk and the banks' obligation to set aside risk capital were finally articulated in the Basel II Accord (BCBS, 2006). The 1998 consultation document describes operational risk as the potential loss resulting from the breakdowns of internal controls and corporate governance processes. The Basel II Accord gives a specific definition, according to which operational risk is "*defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.*" (BCBS, 2006:144).

Basel II primarily concentrates on ensuring that banks set aside sufficient capital to cover their risks. The regulations contain the three basic methodologies for measuring the capital to be set aside for operational risks, namely the Basic Indicator Approach, the Standard Approach and the Advanced Measurement Approach (AMA), and summarises the qualitative and quantitative requirements for use of these methodologies. The requirements for the Advanced Measurement

Approach regulate in detail the risk identification, assessment and management processes that have to be operated by the financial institutions. While the two simpler methodologies require a calculation based on gross income, the Advanced Measurement Approach allows banks to use the model that best fits their own risk profile for measuring the regulatory capital for operational risks.

The Basel II Accord provides the basis for the projects, launched at financial institutions, which have led to the emergence of an entirely new framework, permeating throughout the bank, for the mapping, assessment and management of operational risks. The emergence of the new processes, and their need to be widely supported within the organisation, is attributable to the special characteristics of operational risk, the most important of which are (*Lamanda-Vöneki, 2015*):

- heterogeneity; that is, the fact that they encompass several risk types with entirely different characteristics, such as fraud, human error, external disasters, regulatory changes, etc.
- the difficulties in defining exposures
- the difficulty of measurement
- in many cases, a lack of historical data, which makes it challenging to measure and forecast rare, but high-impact events in particular
- the diminishing forecasting power of historical data, due to changes in technology and the environment

The introduction of the Advanced Measurement Approach triggered a heated debate in both professional and academic circles. *Cope et al. (2009)* proved, with calculations, that the operational risk measurement models are too sensitive to extreme data points, and their reliability is low; and therefore they lull regulators into a false sense of security about banks' capital. In addition to this, the modelling uncertainties result in an uneven distribution of capital between the banks. *Jobst* also highlights the wide range of usable methodologies, and thus the impossibility of consistent supervisory monitoring (*Jobst, 2007*). The banks' capital requirement for operational risks is becoming dependent on a number of factors: the complexity and size of banking operations, the quality of collected loss data, and the methodologies used for the identification and measurement of risk. In his 2008 paper, *Moosa* reviews in depth the criticisms raised with regard to the AMA, placing the literature and main arguments against the approach into three categories: the range of applicable methodologies is obscure, with banks able to choose between statistical methods; the data are unsuitable for statistical modelling; introducing the methodology is too complex and expensive (*Moosa, 2008*). *Sherwood* also highlights the modelling difficulties, the problems of gathering data and the diversity of such data (*Sherwood, 2005*), while *Danielsson et al. (2001)* also draw attention to the shortage of modelling data.

In 2011, the Basel Committee decided that the time had come – based on the experiences of the crisis – to supplement the regulations with expectations relating to responsible corporate governance, the risk management environment and public disclosure, through the publication of the document entitled “*Principles for the Sound Management of Operational Risk*” (BCBS, 2011). Similar guidance on the management of operations risks had already been published in 2003; however, by 2011 – due to the requirements of the Basel II Accord – operational risk management practices had changed radically, so new guidelines were needed with regard to the risk culture and corporate governance.

This duality has always accompanied the regulation of operational risk. On the one hand, the regulator sets out to isolate the risk and substantiate the capital allocation using mathematical and statistical tools, while on the other it tries to create effective and crisis-proof risk management processes through a strengthening of risk culture and the commitment of management teams. In the interest of achieving the latter objective, the AMA’s qualitative requirements include the continuous briefing of senior management, incorporation of the results of risk measurement and assessment into business processes, the operation of a key risk indicator system, and determination of the risk appetite.

The next turning point in the development of the regulations was the wave of documents issued from 2014 onwards, which attempted to refine the capital measurement methodologies and the framework built up around the more advanced methodologies.

First the simple (basic indicator and standard) approaches were criticised (BCBS, 2014a) on the grounds that capital measurement methodologies which depend on the size of the bank do not satisfactorily reflect the changes in risk exposure.

In 2014 a review of the 2011 document summarising the operational risk management principles was also published, containing the results of a study of 60 systemically important banks (SIBs) operating in 20 different legal jurisdictions, with the intention of eliminating the flaws revealed in that study. The document primarily sheds light on the problems associated with the identification and measurement of risks, change management, risk appetite and public disclosure (BCBS, 2014b).

After this, more criticisms of the Advanced Measurement Approach (AMA) were expressed, principally emphasising the complexity of the model, the limited comparability of bank models, and the difficulties of controlling (BCBS, 2016b). PWC’s study, meanwhile, warns that the AMA model is built on historical loss data; and therefore, due to the rapid changes in technology and the environment, they do not reflect the institution’s latest risk profile (PWC, 2015).

In the first round, the Committee set the target of standardising the Advanced Measurement Approach, reflecting on the arguments that criticised the wide

range of chosen methods and the banks' individual solutions. Consultations were still in progress between banks and stakeholder organisations regarding the standardisation of the Advanced Measurement Approach and the use of stricter parameter-setting, when a newer, uniform capital measurement method replacing both the simple and advanced methodologies, the Standardised Measurement Approach (SMA), emerged (BCBS, 2016a) and was then incorporated into the European regulations (BCBS, 2017). The new capital measurement approach, which is based on controlling data and only takes the development of operational loss data into account in the case of large banks, will be introduced from 2022. With respect to the transitional period, however, the Committee has not left the earlier methodologies unchanged; at the beginning of this year it published its previously agreed requests for changes relating to the AMA (EU, 2018).

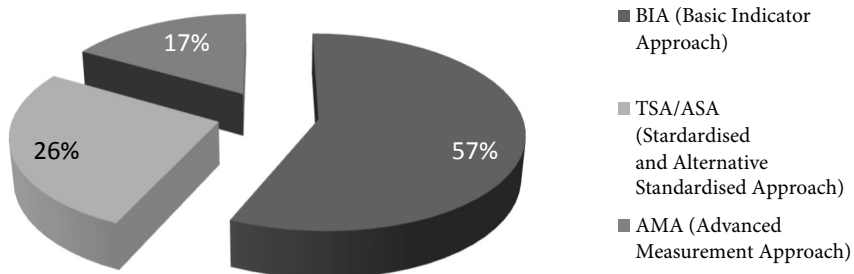
These two documents clearly show the two possible strategies for measurement of the operational risk capital requirement:

- 1) Standardising the AMA models and ensuring their controllability
- 2) Discontinuing the internal models and replacing them with a simpler calculation

In the long term, the regulator has chosen the second option, but nevertheless expects the AMA to be standardised in the transitional period.

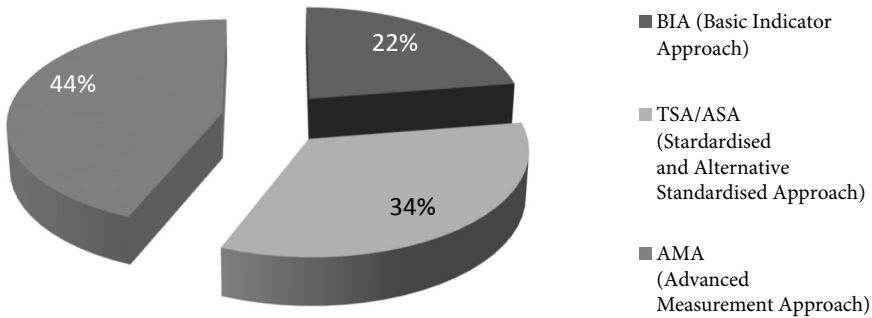
Figure 1 shows the distribution of the number of credit institutions in Hungary based on the chosen capital measurement methodology. *Figure 2* shows the same distribution, but in terms of the amount of capital set aside for operational risk.

Figure 1
Distribution of the number of financial institutions in Hungary,
based on the chosen capital measurement approach
(operational risks, based on 2016 data)



Source: EBA, 2018

Figure 2
Distribution of capital allocated to operational risk,
based on the chosen capital measurement approach
(Hungary, based on 2016 data)



Source: EBA, 2018

The transition to the Standardised Measurement Approach (SMA) affects all the banks, but it creates the most uncertainty for banks that use the advanced approach, which account for 44% of allocated capital in Hungary.

Just like the AMA more than a decade before, the SMA has also triggered a debated in professional and academic circles. *Peters et al. (2016a)* seriously criticise the introduction of the SMA on the grounds that the SMA does not ensure the stability of the capital requirement, is not sufficiently risk-sensitive, and is super-additive; in other words the capital is higher at group level than if it were calculated for individual banks, and this could have a negative impact on the development of systemic risk. Other authors see the disadvantage of introducing the SMA in the fact that it does not follow the changes in the bank's risk profile, and does not differentiate between banks of varying risk profile (*Mignola, 2016*).

The new methodology will also have an effect on the total amount of the banks' capital. Based on a survey of its own members by ORX, three quarters of the banks expect to see a rise in capital. The greatest increase in capital can be expected by the European banks, where the capital set aside for operational risk will be on average 63% higher than it is at present (ORX, 2016).

The regulations do not, at present, offer any reference point with regard to which qualitative requirements will remain in place for the banks following the introduction of the single SMA methodology, or with regard to how the expectations relating to responsible corporate governance, risk appetite and risk awareness will develop. The banks have invested considerable money and resources in the development and operation of their risk management processes. The new SMA

methodology eliminates the connection, and the motivation that this provides, between the management's risk management efforts and the capital set aside (Mignola, 2016). The crisis has highlighted that the management of risks is inadequate without the appropriate risk-awareness and management focus, and this inadequacy can have a serious impact that spills over into the real economy. Knowing this, it is hard to predict what will happen if the regulator phases out the capital measurement methodology that forces market participants, through the data requirement of the models and through enhanced supervisory controls, to maintain refined operational risk management systems.

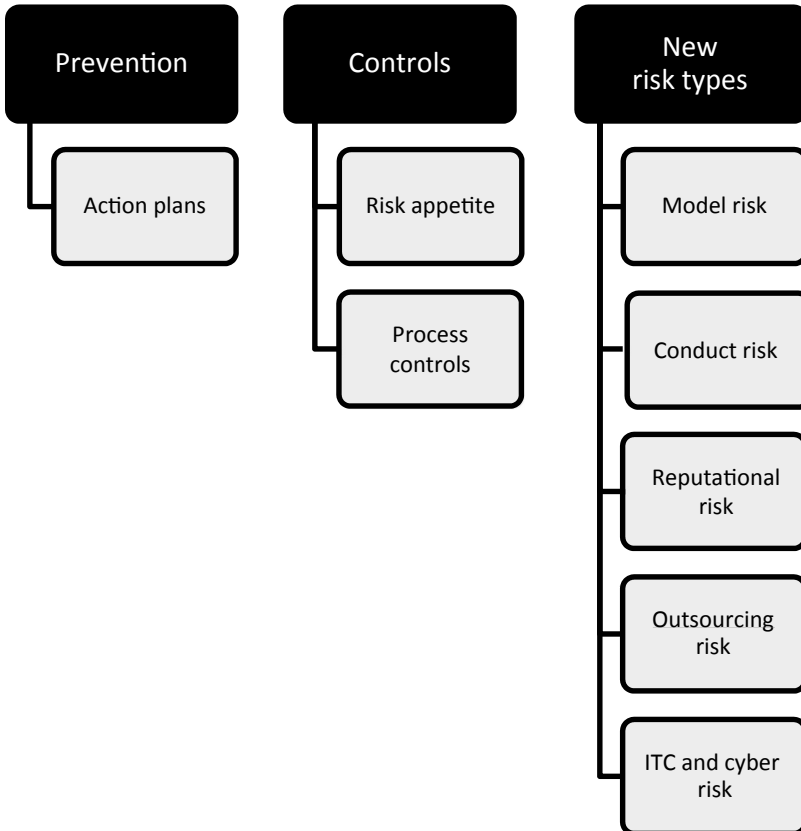
3. NEW RISKS AND TRENDS

The multiple changes of direction by the Basel Committee are indicative of the kind of uncertainty that surrounds the future tasks relating to operational risk management. Besides the prevailing regulations, it is also worth paying attention to the talks given at professional debates and conferences, and to the focus points of annual audits by bank regulators, which augment the regulatory requirements and often presage the forthcoming changes in regulations.

Following the introduction of the requirements relating to operational risk management in 2008, supervisory audits concentrated on the establishment of loss data gathering and verifying the presence of the qualitative framework. As a growing number of banks started using the Advanced Measurement Approach, a far-reaching process of developing/fine tuning and examining the models – requiring sophisticated statistical and mathematical knowledge – also got under way.

As the crisis drew to a close and the announced regulatory changes took effect, a change of direction was observed both in the focus of the audits and in professional discourse. Supervisory authorities' expectations shifted away from the setting aside of sufficient capital and the operation of the framework system, to prevention and the most widespread possible establishment of control functions. In addition to this, new risk types emerged, some of which had previously been managed by the financial organisations as a part of operational risk, but now had to be addressed separately.

Figure 3
Focus points of operational risk management



Source: compiled by author

3.1. Emphasis on prevention

The primary purpose of identifying and assessing risks is to define a capital requirement that is suitable given the institution's risk profile, so as to avoid a situation in which unexpected losses might endanger the bank's capitalisation. While retaining that objective, in the course of the audits, there is a strong expectation that the institution should be making substantial efforts to mitigate the risks that are identified, and to prevent the re-occurrence of losses that have already been suffered.

To make it possible to determine which measures can be used to avoid the recurrence of losses that have materialised, it is necessary a detailed analysis must be

conducted to explore the incident and uncover the causes of the problem (case study). The key risk indicator system and annual risk self-assessments create the opportunity for risks to be eliminated before the loss materialises. Risk reducing measures must cover every pillar of operational risk management. The banks have to draw up action plans after significant loss events, in the event of a limit breach of key risk indicators, and when necessary in order to reduce the risks that are revealed in the course of the self-assessments and scenario analyses and found to be unacceptable to management.

3.2. Strengthening control functions

The risk management function serves as an important control, representing the organisation's second line of defence under the internal lines of defence concept (EBA, 2017). An integral part of the operational risk management framework is the Risk and Control Self Assessment, which goes some way to fulfilling the regulator's expectation that the operational risk management unit should assess, evaluate and test the functioning of the controls.

Another control function that deserves a separate mention is the operational risk appetite framework, which is not only a means of developing a bank's risk culture, but also a controlling tool that the bank's management uses to determine the acceptable level for each individual risk type, monitor the utilisation of limits, and intervene where necessary (Lamanda-Vöneki, 2015). Another means of controlling is the key risk indicator system, which permits the monitoring of trends relating to the individual risks, and the implementation of measures in response.

3.3. The emergence of new risk types

The EBA's annually published risk assessment of the European banking system highlights those risks, categorised among operational risks, that receive special attention from the senior risk management officers of banks. Based on the survey published in 2017, ICT (Information and Communication Technology) risks, cyber risk, outsourcing risk (especially with regard to IT outsourcing), legal and reputational risks have made it onto this list (EBA, 2017). Based on a survey by ORX, conduct risk, cyber risk and traditional fraud occupy the first three places (ORX, 2018). A survey by Risk.net also highlights outages in IT systems, breaches of data security and regulatory risks (Risk, 2018).

The risk categories receiving special attention from the regulator are consistent with the survey results. They include model risk, conduct risk, outsourcing risk and reputational risk. The latter is not deemed to be a part of operational risk

under the Basel II definition, but during its audits of banks the regulator nevertheless deals with reputational risk in the context of operational risks, treating it as a consequential risk of these. These risks also feature in the ICAAP manual as factors that deserve special attention (MNB, 2018).

3.3.1. *Model risk*

In the financial institutions sector, the use of models has become extremely widespread in the past twenty years, with a growing number of decisions based on some kind of statistical-mathematical model. This phenomenon has been accompanied by the emergence of model risks. Model risks are defined as the risk of “losses resulting from errors in the model’s input data, parameter-setting or use, including the operational risks arising in the course of running and applying the model” (Vöneki–Báthory, 2017:103). The banks are expected to elaborate and operate a model management framework in order to reduce the risk of erroneous decisions made on the basis of the models.

3.3.2. *Conduct risk*

The clearest example of conduct risk, and also the most painful for the Hungarian banking sector, was foreign currency lending (the exchange rate cap and conversion of loans to forint) and the losses related to this. Based on the definition applied by the EBA (European Banking Authority), conduct risk means the current or prospective risk of losses to an institution arising from inappropriate supply of financial services including cases of wilful or negligent misconduct (EBA, 2014). These risks are treated as a priority within operational risks; in the course of preparing for the EBA stress test, banks have to make separate estimates of the potential loss arising from conduct risks. The risk is difficult to determine, and the supervisory authority believes that the way of keeping this risk type under control is primarily through products and the training courses associated with them (Szendrey et al., 2018).

3.3.3. *Reputational risk*

In most cases, reputational risks arise as a consequential risk of operational risks. A serious reputational risk we could mention is the British Petroleum scandal of 2010, when an explosion on an offshore drilling rig took 11 lives and resulted in an inestimable environmental disaster (*The Guardian*, 2010). The principal tool for managing these risks is crisis management, and the establishment of a crisis communication framework. The measurement of reputational risks is made possible within the system of operational risk management by the key risk indicators and the risk appetite framework.

3.3.4. Outsourcing risk

The significance of outsourcing risks lies in the outsourcing of IT systems and processes to external service providers. The banks' control systems established to deal with operational risks have difficulty transcending the organisation's boundaries, although the standard of the service provided to the final consumer can be profoundly affected by the availability of purchased services. Outsourcing risks are further complicated by the tightening of regulations relating to data processing and data security (EU, 2016).

3.3.5. ICT and cyber risks

As the cited surveys show (EBA, 2017; ORX, 2018; Risk, 2018; IIF, 2017), the operational problems of IT systems and cyber risks represent the greatest threat to the operation of today's credit institutions. The biggest system crash so far took place at the Royal Bank of Scotland in 2012, affecting more than 6 million customers and resulting in a fine of 56 million pounds for the banking group on top of the compensation it had to pay. (*Financial Times*, 2015). Among the cyber-attacks, I would like to highlight the WannaCry and Petya ransomware viruses that appeared within barely two months of each other in 2017, with the former infecting some 230,000 computers in 150 countries (*The Guardian*, 2017).

The assessment and quantification of cyber and other risks affecting IT systems also causes problems for banks, but with advances in digitalisation it is imperative to confront these sources of danger.

4. CONCLUSIONS

In this paper, I outlined the regulatory changes relating to operational risks, and the uncertainty being observed on the part of the regulators, supervisory authorities and professionals. With regard to capital measurement, we are moving towards a methodology that is simpler, but does not conform to the bank's risk profile; and for European banks this will result in a significantly larger capital requirement. An indisputable benefit of the Advanced Measurement Approach, which received a lot of criticism at its introduction, is that the banks have put a great deal of energy into establishing a comprehensive risk management system and raising the risk-awareness of their organisations. The future of the established qualitative framework is presently uncertain. Experience of supervisory audits leads to the conclusion that the need to prevent losses and improve the control functions concentrated in the hands of risk management, as well as the presence of a number of key risks, will require further efforts on the part of the banks.

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