

‘No Creditor Worse Off’: Resolution Mechanisms Update

Also in this issue

- Black Swans Mean Business (Part II)
- OTC Clearing Evaluation (Part II)
- Your Internal Audit: Is it Delivering For You?
- Understanding Model Validation
- Islamic Finance: Unique Risk Management Challenges and the Impact of Basel III
- The New Basel III Rules and its Implications for US Banks

Dear Subscriber

Sentiment is a word still on everyone's lips. Are we seeing optimism for the future or disappointed thinking past problems still haunting us? The recent crisis in Cyprus has highlighted that solutions to the global debt crisis remain far off and are hard to achieve. That Cyprus, a relatively minor economy, was able to bring the entire global financial community into potential stress highlights why systemic risk remains a major issue for everyone. What the Cyprus affair also demonstrated was a stunning lack of maturity at key global and European bodies, allowing solutions to be proposed which fundamentally undermine the banking industry to the detriment of the global market.

Will there be a solution to the crisis? It is clear to us that a 'growth' agenda combined with a carefully orchestrated 'austerity' programme directed towards reducing the size of the public sector is the only real solution. Investing in growth will enable debts to be sustainable and represents possibly the only real solution.

In this issue of the GRU the importance of resolving banks is considered in an article by Spanish risk management specialist Flora Preto on resolution mechanisms. (In the US new rules have also been produced on this subject – GRU subscribers: please ask us for these available free of charge.) The second article is Part II in a series contributed by Anglo-Sri Lankan Atula Abeysekera on White Swans where he recommends the use of financial risk management principles into civil and national security risk management within the UK government; it is followed by Belgian Michel Dorval's insightful review of OTC clearing. As to the latter, we remain concerned at the impact on the market of these new requirements could result in firms stopping hedging key risks at exactly the time when they are increasing in importance. In our view the OTC rules being proposed (and also the rules that derivatives that are not OTC cleared will also need collateral) both create additional systemic risk and also increase the cost of traditional hedging rendering it no longer cost effective. This will create the next crisis as interest rates rise.

Two key risk areas receiving increased attention are internal audit and models. In an article looking at internal audit itself I report on some key IA issues recently 'discovered' during internal audit projects among banks in EMEA, USA and Asian markets. CEOs, Audit Committee Heads and Heads of Internal Audit may well consider these findings rather more than just interesting and no doubt will start questioning their own approaches. Models are a particular concern. In their co-authored article Canadian Mark Dougherty and Russian Yan Fischman consider the aspects of models, model risk and model validation as a required mitigant to risk and that using a bad model to confirm a bad model is not model validation.

As I write Islamic finance is gaining new acceptance and incorporation by acts of national legislation this year in Egypt, Morocco and Turkey. Dutch risk and Islamic specialist Dr Natalie Schoon's article on the unique nature of risk management of Islamic finance is therefore timely. She purports that perceived barriers such as lack of historic loss data and balance sheet size will no longer be challenges in the near term due to, among other changes, the increased Islamic finance sector activity and possible shared databases.

Do you have an article you would like to submit to the GRU for publication? If so do contact us at Editor@riskrewardlimited.com (original work previously unpublished and from the authors only please.) I hope you enjoy this issue and look forward to receiving your comments.



Dennis Cox BSc, CFSI, FCA
Chief Executive Officer

Index

PAGE

'No Creditor Worse Off': Resolution Mechanisms Update	3
Black Swans Mean Business (Part II)	6
OTC Clearing Evaluation (Part II)	9
Your Internal Audit: Is it Delivering For You?	13
Understanding Model Validation	17
Islamic Finance: Unique Risk Management Challenges and the Impact of Basel III	21
The New Basel III Rules and its Implications for US Banks	25



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‘No Creditor Worse Off’: Resolution Mechanisms Update

Author Flora Prieto, a senior risk management specialist based in Madrid, contributed this update on the state of play concerning the development and implementation of resolution mechanisms amongst various organizations particularly the BCBS, the FSB, the European Union and the ECB.

The current economic crisis in which banking institutions' failures have played such an important role is being accompanied by significant transformations at the level of regulatory frameworks. The globalization trend so prevalent in areas like banking supervision with Basel II and III (or accounting with IFRS) is also stepping in when dealing with resolution mechanisms.

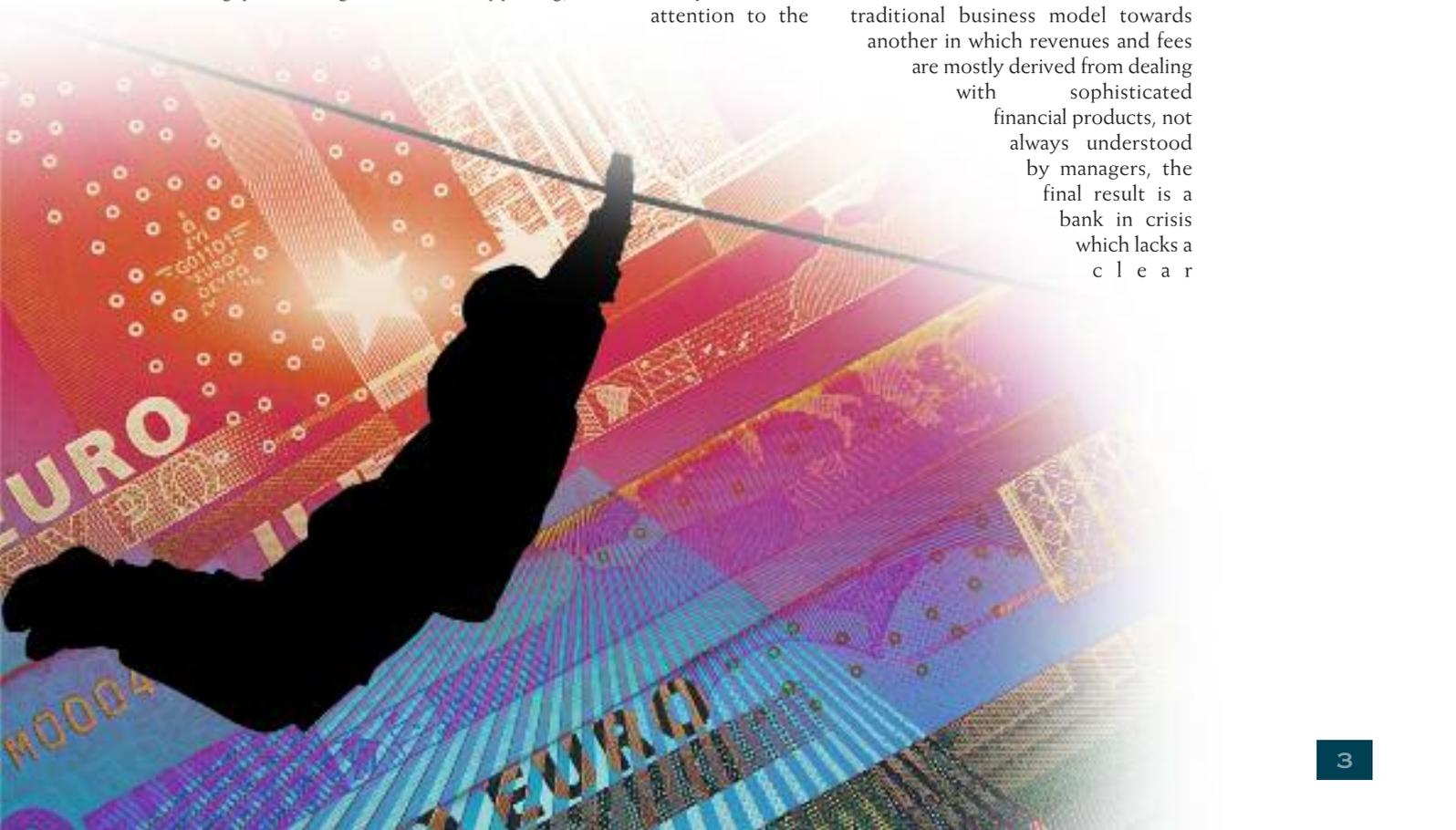
It is interesting to see how the efforts to provide prompt responses made by individual countries to the new demands imposed by the financial crisis are taking place alongside the

initiatives promoted by supranational institutions. The overall result is an evolving legal framework: the UK Banking Act (2009), the US Dodd-Frank Act (2010) and the German Bank Restructuring Act (which came into effect in 2011). Similar laws in other countries have just been enacted in 2012, such as in Spain and Portugal, and it is envisaged that this trend will continue to develop and be implemented over the coming months in other jurisdictions.

Systemic Risk

In order to understand what is happening, it is necessary to call the attention to the

systemic nature of this crisis. The IMF, in different papers and reports, has highlighted the increasing systemic risks imposed on the financial systems as a consequence of the huge size acquired by some of these financial institutions with international presence in financial markets and extensive linkages with other cross-border ones. The economic reasons which historically justified the need for this type of financial institution such as achieving economies of scale and the need for competing in a global environment were not accompanied by similar transformations in terms of regulation and supervision. If one adds to this the abandonment of a traditional business model towards another in which revenues and fees are mostly derived from dealing with sophisticated financial products, not always understood by managers, the final result is a bank in crisis which lacks a clear



'No Creditor Worse Off': Resolution Mechanisms Update

strategic direction and which does not have enough resources to cope with the new circumstances. An analysis of the responses given by different governments confirms the seriousness of this crisis as well as its characterisation as a systemic one: due to being applied, extensively, three out of the five commonly crisis resolution policies: liquidity support, restructuring, asset purchases, significant guarantees and nationalisations.

The BCBS and Its Ten Recommendations

The critical year in the development of resolution mechanisms was 2010. In March of that year, the Basel Committee on Banking Supervision (BCBS) issued ten recommendations which have served as basic stepping stones for all further developments. Essentially, they insisted on the need for any country of being capable of managing a crisis situation in any type of financial institution, emphasising the definition of frameworks which would allow for a coordinated resolution process. This would be reflected in lower levels of complexity of the operations and in the reinforcement of risk mitigation mechanisms. Due to the significant

amount of cross-border activities undertaken by these institutions, it was deemed advisable to merge national resolution measures and in turn increase cooperation and information sharing. The pursued goal should be a planned and well-organized resolution process as the final intention is that feasible parts of the business would 'come back' to be subject to market discipline.

The FSB's 3 Resolution Regimes

The Financial Stability Board has been the institution taking the lead in this field. Concerned with the Too-Big-To-Fail issue, has been paying a lot of attention to G-SIFIs (Global Systemically Important Financial Institutions), asking in October 2010, when it made public the FSB-SIFI recommendations, for an assessment of each country's capabilities for managing resolution situations.

Up to then, there were three main types of resolution regimes:

- Special ones which allowed authorities to take control of banks before or upon insolvency.
- Special administration or management regimes which allowed banking supervisors or authorities to appoint special officials in charge of implementing resolutions, getting into forced liquidation if necessary and, finally,

- mixed regimes which combined features of the other two but with less power.

The measures developed by the FSB have enjoyed the explicit support of the G-20. In the annual meetings held by the superior authorities of these countries as well as in the periodic meetings of their finance ministers and Central Bank governors, since 2010, they have continuously endorsed the works undertaken by the FSB which have been recently extended to include the D-SIBs (Domestic Systemically Important Banks).

In October 2011, the Financial Stability Board issued one of the most important documents in this area of resolution mechanisms. It defined the key attributes of effective resolution regimes for financial institutions of which two are its main contributions: (1) it identifies up to twelve aspects which any resolution regime should deal with. They comprise the scope, resolution authority and resolution powers, setting-off, netting, collateralisation and segregation of client assets, safeguards, funding of firms in resolution, legal framework conditions for cross-border cooperation, crisis management groups, institution specific cross-border cooperation agreements, resolvability assessments, recovery and resolution planning and access to information and information sharing; and (2) it characterises an effective resolution regime as that in which there is no severe systemic disruption, taxpayers are not exposed to a loss and the hierarchy of claims is respected.

The FSB document insists on the importance of applying the "no creditors worse off" principle. This translates, firstly, in the respect of the creditors' hierarchy. Equity would absorb losses first and senior debt holders would assume losses once subordinated debt has been entirely written-off. Secondly, if creditors do not receive the minimum which would have corresponded to them under the national insolvency regime, they would have the right to a compensation (known as the "no creditor worse off than in liquidation" safeguard).



'No Creditor Worse Off': Resolution Mechanisms Update**The European Union Recovery and Resolution Framework**

The latest developments in the international arena have been undertaken by the European Union. In June 2012, The European Commission made public its Proposal for a Directive aimed to establish a framework for the recovery and resolution of credit institutions and investment firms. In this document, emphasis is placed upon the development of a framework which would consist of three main pillars: preparatory and preventive measures, early intervention and, finally, resolution powers and tools. It is convened that by acting early, the escalation of the problems may be avoided. The proposed scheme of intervention relies to a great extent in the decisions adopted by resolution authorities. They may request the implementation of specific actions such as, for example, the separation of functions, setting limits on exposures or imposing restrictions on new business lines or products, if these contribute to the resolvability of these

institutions. The idea is that resolution would take place if there is no other alternative and reasons of public interest justify it.

This EU document considers four different resolution mechanisms: sale of business, bridge institution, bail-in and asset separation. This last one is the only which, compulsorily, should be applied in conjunction with the others, in order "to minimize competitive distortions and risks of moral hazard". The basic principle respected by this scheme is the "no creditor worse off".

Current Consultation Period

Different opinions have been requested from EU bodies about this proposal of directive. The European Central Bank (ECB) in November 2012 expressed its desire for a quick adoption of it, as it advocates the creation of a single European Resolution mechanism. Despite this, it insisted on the need for further clarifications, mainly oriented to insist on the fact that resolution purpose

should be the continuity of the essential functions performed by the entity, not its continuance as a failing organization. The ECB called for the definition of the competent authority which should be in charge of determining if the bank has failed or is likely to fail. The other relevant opinion issued to date corresponds to the European Economic and Social Committee which in December 2012 expressed some concerns, particularly in the areas of recourse to some resolution measures not tested before when dealing with a systemic crisis, the need for maintaining confidentiality about recovery plans and a clearer definition and stricter regulation of the powers granted to resolution authorities, in order to avoid potential conflicts with judicial ones.

Editor's Note: for more information about the issues and organizations referenced above please post your queries on the GLOBAL RISK FORUM on LinkedIn or email Dennis Cox at DWC@riskrewardlimited.com

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Black Swans Mean Business (Part II)

A Commercial Approach to Managing Civil and National Security Risks

In this second part of a 2-part article series on Black and White Swans, risk expert Atula Abeysekera seeks to ensure principles of financial risk management are taken up by the UK Government as it reviews current civil and national security risk management. Originally published as a White Paper the Editors agreed that the nature and in our view strong, good risk policy recommendations herein warranted making this available to GRU subscribers as articles. We hope you agree.

White Swans

The key objective for managing risks in an uncertain world is to reduce the risk of the ‘unknown’ risks in a cost effective way so that the ‘unknown’ tail becomes a more manageable phenomenon, as shown in Fig. 1 below.

An holistic governance structure and an enterprise-led risk management culture are urgently required by government to proactively manage ‘unknown-unknown’ risks. This can, occasionally, create an opportunity from knowledge gained.

Government made a start by formulating their thinking in the Corporate Governance Good Practices Code for central Government Departments in July 2011. Unfortunately, much more needs to be done and the world of business is not a bad place to look for inspiration. We propose that the Government implement the following changes to (i) the way risk management systems are overseen and (ii) the quantitative capabilities of the UK Government in managing risk.

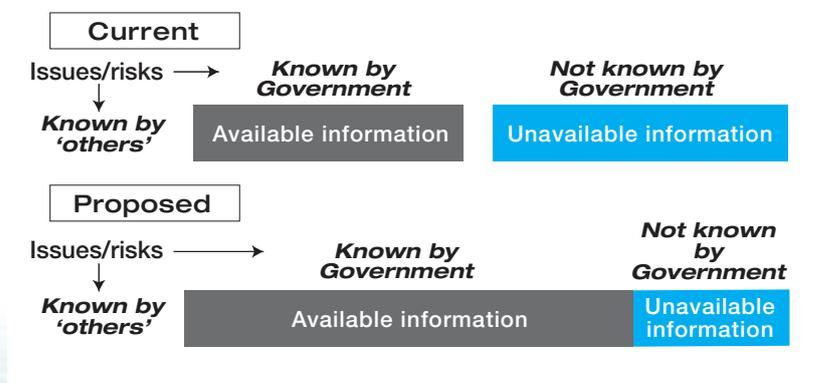
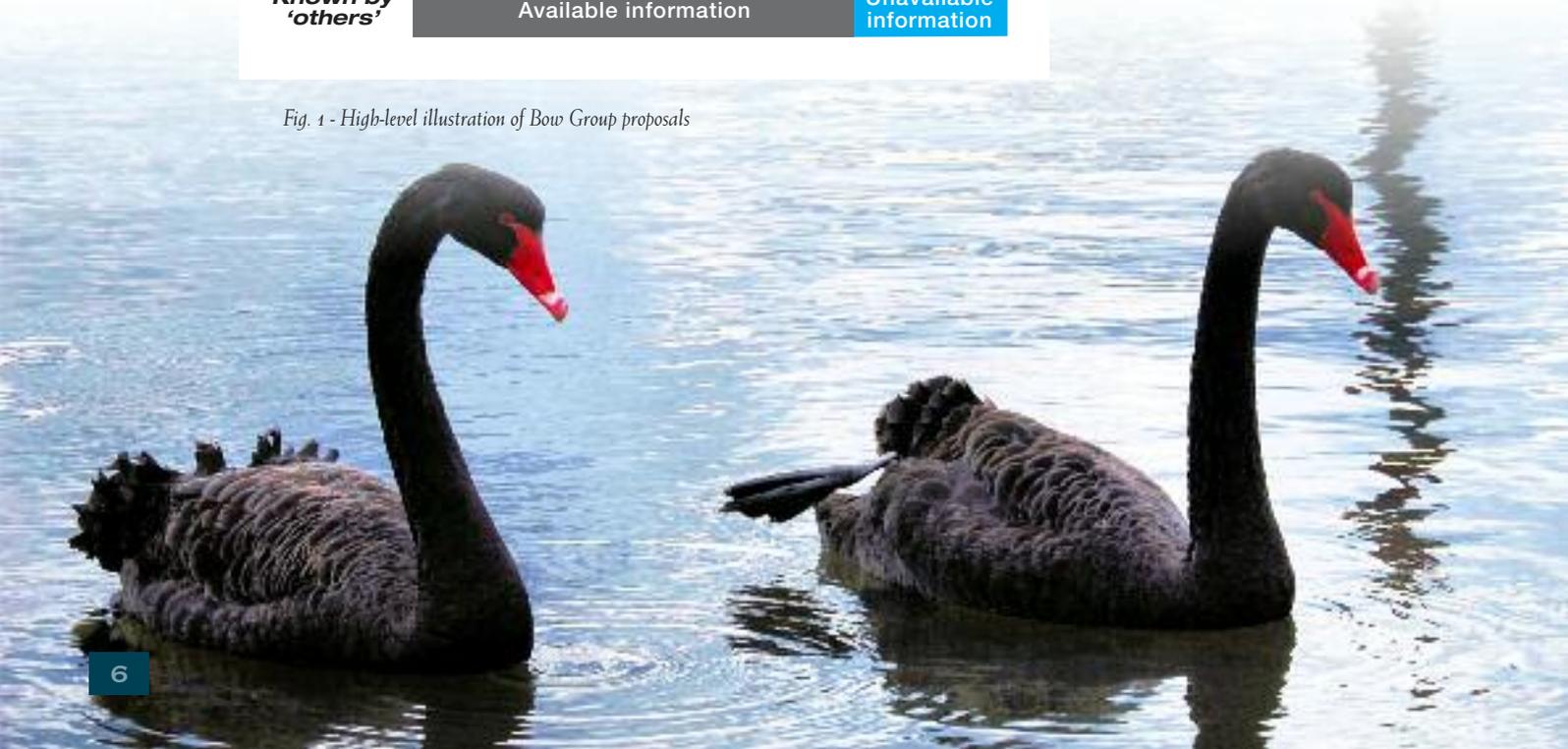


Fig. 1 - High-level illustration of Bow Group proposals



Black Swans Mean Business (Part II)

I. Independent Oversight

The Office for Risk Management

To more proactively manage civil and national security Black Swan risks, the Government's risk assessment process needs to be challenged and overseen to a far greater extent than it is currently. Such an ambition could be fulfilled by the creation of an independent office, which we will call the 'Office for Risk Management' ('ORM') with external expertise. This should be adjoined to the Cabinet Office. The ORM should be chaired by a senior independent person with skills in risk management and corporate governance and experience in Government and Business. It should consist of subject matter experts representing key disciplines. The ORM's fundamental roles would be to challenge the risk management at the heart of the Government and provide an advisory role to the Prime Minister and the Cabinet. The model for the ORM should be similar to the new Office of Budget Responsibility (OBR) created by the Coalition Government. The oversight of ORM can be by the Public Accounts Committee and the budget would be similar to that of OBR – by our estimations, a grant aided flat cash funding allocation of £2 million per annum should be sufficient.

Within the ORM, in accordance with best practice, specialist subgroups should be created. Each sub group should be responsible for challenging Governments' risk assessments and providing independent feedback to the Prime Minister and the Cabinet. The ORM should produce an annual report on risk management performance of the Government. The sub groups can be created to broadly mirror the NSC's own sub committees such as cyber security; counter terrorism; hazards; resilience and contingencies; nuclear; emerging powers; economic and current hot spots (Syria, Afghanistan etc.). Following the model used in Business, the ORM should be able to instruct the Cabinet Office to perform specific stress tests on predefined Black Swan events and independently assess their resilience. The ORM should also perform independent incident reviews on the activities of COBR(A).

Group think

The ORM would help to avoid 'group think' by bringing in multidisciplinary external expertise from outside of Government; a useful catalyst for encouraging outside-the-box thinking and for generating new ideas. The point was highlighted by the Science and Technology Select Committee in 2011, when they expressed concern over the exclusion of Government's Chief Scientific Adviser (GCSA) in the National Risk Assessment (NRA) strategy, stating: "we consider that science should be at the heart of the NRA process and have recommended that the GCSA have greater involvement. We urge the Government to do better at embedding scientific advice and an evidence-based approach in risk assessment and policy processes before emergencies occur".

Risk Culture

One of the mandates of the ORM would be to promote and issue guidance on a new risk culture among civil servants. The culture should encourage the capture and escalation of emerging risks at grass root level from departments, their agencies and other public bodies, to better identify potential and emerging Black Swans. This could be achieved by the 'right' policies, procedures, training, remuneration and incentives to promote best practice risk behaviour and at the same time encouraging creative and entrepreneurial risk decision-making by civil servants.



Fig. 2 - The Targeted Approach

2. Quantitative Process Changes

Three Lines of Defence

We propose that the Government adapts best practice used in multinational companies where a sound risk framework should have three lines of defence, as described above and represented in Fig. 2. From a UK Government perspective, this would look like the following. The 1st level of defence (illustrated as the red ring in the fig. 2, above) is the Government department where the risk originated and is responsible for managing that risk. The 2nd level of defence (the white ring) is the Civil Contingencies and National Security Secretariat's efforts on risk mitigation, which would likely operate out of the Cabinet Office. The 3rd level of defence (the blue ring) is the responsibility of the Prime Minister and his Cabinet, supported by the newly formed independent ORM. As with the Business approach, the risk crystallises if all three levels are breached.

Cause

Horizon scanning is a methodical way of identifying opportunities and threats that are starting to emerge. The UK's Foresight Horizon Scanning Centre, currently based at the Department of Business Innovation and Skills, is a good starting point to gather information on and quantitatively analyse emerging Black Swans. We believe

Black Swans Mean Business (Part II)

that the Foresight Horizon Scanning Centre should be expanded, given its strategic importance, and moved permanently to the newly-formed ORM. This will ensure that the study of emerging risks is joined-up and coordinated centrally.

Effect

We recommend that the UK Government could do more to improve quantitative methodologies for aggregating risks across the country. Expertise needs to be gained to understand correlations between risks, stress test modelling and scenario testing. Modelling techniques used by Business, such as 'value at risk' and 'GARCH with dynamic conditional correlation' could contribute to a better understanding of risk interactions quantitatively.

In addition, a robust stress-testing program is needed to simulate extreme events involving UK's civil and national security risks. The point of this exercise would be to design, using simulated scenarios of events that could significantly impact the country, effective contingency plans to mitigate the effect of these risks. Such a programme could help the Government to prepare better for risks and create an opportunity to allocate resources in a more effective way.

Conclusions and Recommendations

Managing its civil and national security risk is one of the greater challenges facing any government. Since, 2010 the UK Government has made some strides to firm up the way it predicts and manages these risks. However, there is a great deal more it can be doing.

The world of Business, and in particular, the financial world, has seen considerably more progress than the public sector in this respect. But rather than lament this point, the Government should actively seek to replicate best practice techniques in risk management, which could have an enormous value impact on both the UK's finances and the life of the nation. As a starting point for this process of reform, we make the following policy recommendations:

1. Setting up of an Office for Risk Management (ORM). This would be structured as an enlarged base for the UK's Foresight Horizon Scanning Centre.
2. Bringing in external experts to advise the ORM, which

should have the effect of reducing 'group think' within the Government's risk management processes.

3. Encouraging a 'risk culture' across Government Departments by introducing training in risk management from outside practitioners.
4. Introducing 'best practice' risk management structures from Business, including the 'three lines of defence' approach.
5. Introducing quantitative risk modelling strategies to both the ORM and Government Departments. These techniques are currently widely used by banks, with startling results, and should be replicated by Government in managing Black Swan risk. It is essential that the Government acts to reform its risk management framework. The policy proposals put forward in this paper and summarised above are a pragmatic and cost effective way of achieving meaningful results for the country. The Government must act swiftly, as what is at stake is nothing short of the life of the nation and the security of our citizens.

Essential Reading

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OTC Clearing Evaluation of the EMIR and Dodd-Frank Regulations – The US versus Europe

Michel Dorval is a global market specialist at Misys and leads the thought leadership team. In this second article concerning OTC Clearing he delved deeper into the differences between the EMIR regulation and the Dodd-Frank Act and also possible impact on IT.

As described in the previous issue of Global Risk Update, politicians in the US and Europe took note of the G-20 Pittsburgh Summit by creating the Dodd-Frank Act and the European Market Infrastructure Regulation (EMIR) respectively.

The approach in the US was to pass a complex reform law (now referred to as the Dodd-Frank Act) in Congress. Having approved the Dodd-Frank Act, the two major regulators, the Securities and Exchanges Commission (SEC) and the Commodities and Futures Trading Commission (CFTC) have

been busy turning what was a 2,300 page law, into practical rules to be implemented by banks and financial institutions.

Similarly, in Europe the political process has just ended and the final text of EMIR will be published soon. As in the US, this must then be translated into practical rules by the European Securities and Markets Authority (ESMA).

It is worth noting that EMIR and MiFID II together set out the EU's regulatory approach to derivatives contracts. EMIR covers the clearing obligations for OTC derivatives, as well



OTC Clearing Evaluation of the EMIR and Dodd-Frank Regulations – The US versus Europe

as the reporting of all derivatives contracts to trade repositories, while MiFID II covers the obligation to ensure that only derivatives with an appropriate level of liquidity are traded on trading venues

Asian regulators, meanwhile, have been slower to rule on implementing OTC Clearing, so it is technically possible for financial institutions to avoid stricter regulation in Europe and the US by moving a portion of their business to Asia, given the global nature of OTC derivatives, even though this goes against G-20 guidelines.

This chapter explains the different components of OTC clearing and compares Europe with the US approach.

Timetable

Given the tight timeframe (in particular in the EU with ES MA’s advice due to be presented only three months before the end of 2012), firms that will be affected need to prepare (if they have not already done so), for the new regulatory regime that will shape the OTC derivative markets for the years to come.

REGULATOR: Time-line

EMIR	Dodd-Frank Act
The obligation to comply with the rules from ES MA is intended to be in force from January 1st 2013	The obligation to comply with the rules from the CFTC and SEC is intended to be in force by the end of September 2012

Clearing obligation: Scope

In general terms, in both the US and Europe the clearing obligation will apply across the five main derivative asset classes (interest rate, equity, credit, commodity and foreign exchange).

REGULATOR: Scope

EMIR	Dodd-Frank Act
OTC derivatives: credit, interest rate, foreign exchange, equity from January 1st 2013 and commodities.	OTC derivatives: credit, interest rate, foreign exchange, equity to be in force by the end and commodities.

Clearing: Exemptions

During the clearing process, product and participant exemptions can occur. The differences between US and European regulators are noted below. Unlike the US, the EU (EMIR) does not expressly provide exemption for foreign exchange derivatives or options on equity.

Regarding participants, both Dodd-Frank and EMIR have identified specific instances for exemptions.

REGULATOR: Product exemptions

EMIR	Dodd-Frank Act
No product exemptions	OTC options on equity, foreign exchange, derivatives like FX swaps and FX forwards.

Trading venue

In the US, there is as yet not much guidance about how the SEF requirement will work. Current CFTC proposals will require transactions to be executed through an order book or ‘request for quote’ system. In Europe, EMIR and MiFID II are not aligned as regards the trading venue.

REGULATOR: Trading venue

EMIR	Dodd-Frank Act
Trading venue can be regulated markets (e.g. the London Stock Exchange); multilateral trading facilities (MTFs), such as BATS/Chi-X; and organized trading facilities (OTFs) – a new kind of trading venue introduced in MiFID II)	Trading on a swap or security-based swap execution facility (SEF)

Margin requirements

Neither the US nor the EU provides transparency as to how margin requirements are calculated. With regards to EMIR, it is possible that only cash and government bonds will be eligible as collateral for such purposes; not corporate bonds or equity.

REGULATOR: Cleared OTC derivatives

EMIR	Dodd-Frank Act
Initial margin as well as daily variation margin requirements. This will be done by CCP.	Initial margin as well as daily variation margin requirements. This will be done by CCP.

REGULATOR: Un-cleared OTC derivatives

EMIR	Dodd-Frank Act
Daily margin calculation and segregated exchange of collateral mark-to-market (or where this is not possible, mark-to-model)	Calculation of initial and variation margin, although no regulatory proposal to hold collateral from the swap dealer.

OTC Clearing Evaluation of the EMIR and Dodd-Frank Regulations – The US versus Europe

Reporting to trade repositories

To address concerns that regulators do not have a full picture of the exposure of the firms they regulate, and about the possible systemic implications that these may pose, a number of trade repositories have already been established, with others in the process of doing so.

These essentially form a central database, where information on positions is collected. Both US and EU proposals require reporting of full trade data within one day of execution. This could result in compressed time periods for negotiating trade confirmations.

REGULATOR: Reporting to trade repositories	
EMIR	Dodd-Frank Act
All derivatives need to be reported. This includes OTC and exchangetraded instruments.	All swaps need to be reported. This includes OTC and exchange-traded instruments.
All transactions, modifications and terminations to all EU counterparties fall within scope.	All transactions, modifications and terminations to a US -controlling parent entity, or entity in the US are in scope.
The details of these transactions must be reported no later than the working day after the conclusion, modification or termination of the contract.	The time gap for transactions that need to be reported varies between 15 minutes and one day.

mapping to handle data that does change (such as third parties, floating rates and so on), error handling (technical and business errors, recovery...) and reconciliation.

Connectivity also means the ability to connect to different sources for position and trade information in order to capture all the data points that have a bearing on how the instrument is traded. This part of data management definitely has an impact on the ability to accurately calculate risk exposure, profit and loss and to carry out reporting.

For clearing members in particular, connectivity also means the requirement to connect to CCPs. This is crucial for the exchange of various flows, such as a request for collateral or for valuation details.

Flexible and advanced calculation engine

Clearing members and CCPs are required to calculate initial margin (IM). In the case of banks, it is very difficult to re-compute the IM requirement.

The following process must therefore be followed:

- The IM requirement is calculated and sent by the clearing member/clearing broker to its clients
- The client receives a report (FP ML, XML, FI X...) and is asked to settle the collateral required to cover the IM
- The client can cover the IM in cash or securities. It is technically very difficult (if not impossible) for the banks to re-compute the IM requirements; but the client can simulate the initial margin by using the tools provided by the clearing houses.

A Checklist for Compliance with OTC Clearing

In this chapter we will analyze in more detail the requirements for banks to integrate their existing front-to-back solution to other platforms. In the OTC Clearing framework, this involves connecting with new intermediaries, such as banks, clearing members/brokers and CCPs.

Connectivity to key players

An affirmation platform in the OTC clearing model provides post-trade execution functionality such as trade matching, affirmation, confirmation and trade reconciliation. These platforms also send trades to CMs and CCPs, as well as to TRs, where necessary. It is therefore crucial that each bank builds an interface between their capital markets solution and an affirmation platform.

This interaction is dynamic in the sense that the interface needs to follow up possible post-release processes, such as amendments and cancellations, in the capital markets solution. The data mapping required includes static mapping for trade economic data that doesn't change, and dynamic



OTC Clearing Evaluation of the EMIR and Dodd-Frank Regulations – The US versus Europe

Clearing members and CCPs need a system to calculate IM on an intra-day basis, based on a VaR methodology where all cleared transactions are included in the IM calculation, and a separate collateral service to assess the collateral available. The difference is calculated to derive a margin call instruction or novation.

In the case of the End of Day (EOD) process, the workflow is just the same. Clearing members and CCPs are required to calculate EOD, although this is not mandatory for banks who are allowed to simply import the EOD:

- The EOD report is calculated and sent by the clearing member/clearing broker to their clients;
- The client receives a report (FP ML, XML, FI X...) and is requested to settle the EOD netting flow.

A 'trade offset' is the process being developed by the CCP to reduce the overall number of trades being transacted with the same counterparty. This process should identify trades that can be compressed. All participants verify the proposed trades. Once the 'unwind' proposal is accepted by all parties involved, the CCP calculates the margin impact and, where necessary, asks for additional margin cover. Once satisfied, the CCP declares the trades terminated and processes any deletions.

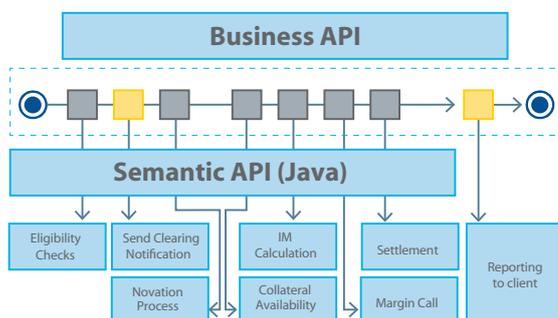
Configurable, rules-based workflow

To ensure a smooth integration between internal and external services, a configurable rules-based workflow is required. A graphical representation of the workflow-based rules will make it easier to maintain this configuration (figure 6).

Monitoring dashboards and blotters can help to identify exceptions when they occur. These should also be flexible enough to perform controls such as eligibility checks. Flexibility is required because deal data comes from every CCP and evolves over time. For clearing members it is quite a challenge to incorporate this level of flexibility into the control definition.

- If all controls are passed, the trade is accepted for clearing and the CCP proceeds with the novation
- If one of the controls fails, the trade is not accepted for clearing or follows a different workflow (a clearing consent request to the CMs, in some cases)

Figure 6: Configurable, rules-based workflow



Reporting

Reporting is a cornerstone of the OTC Clearing Reform; it is fundamental to achieving the transparency being sought. The system must deliver the ability to report on all data points, captured at a contract, trade and positional level.

An open relational database schema is required to allow for flexible reporting requirements that will potentially change over time. It should be possible to run all reports in real-time to reflect the most up to date view of positions and trades within the system; so these can be linked to margin and cost of carry reports.

Conclusion

The credit crunch certainly exposed the weak points in the OTC derivative markets: lack of transparency, counterparty credit risk and operational risk.

The initial reaction of the politicians, followed by the regulators, was to push standard OTC derivative contracts to an exchange or electronic trading platform, to be cleared through central counterparties (CCPs).

The effect of this will be that bilateral clearing will gradually disappear, to be replaced by a CCP that will intervene between the two counterparties in a transaction designed to manage the counterparty risk.

Different players have a role in the CCP workflow to finalize the derivative transaction: the affirmation platform that provides post-trade execution functionality; the trade repository that makes it possible to see a firm's underlying position and exposure from a central vantage point; and the clearing members that act as a liaison point between buyers and the CCP for all post-trade functions, including daily margin management.

With the implementation of OTC Clearing reforms at different stages in different regions, this paper focused specifically on Europe (EMIR) and the US (Dodd-Frank), to show the overlaps and highlight some differences in approach, for example in exceptions, time-line and reporting requirements.

The challenge facing the different players now is how to integrate these requirements into their business systems, where topics like connectivity, calculation engines, configurable rule-based workflow and specific reporting requirements are top of the agenda for organizations needing to comply with the OTC clearing framework.

Above all, it is a question of time. This transformation of the capital markets is happening at speed. With a deadline set by the G-20 of 31 December 2012, the players involved need to have their preparations well under way to be part of the new regime.

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Your Internal Audit: Is It Delivering for You?

Global Risk Update Editor in-Chief Dennis Cox in this article looks at the key challenges that face internal audit and considers why it is important to review the function on a regular basis.

Banking and other regulations are always looking for more things for the internal auditors to do. Internal audit is the third line of defence and even has its own paper from the Bank for International Settlements (BIS). Generally the bank's Board and financial regulators rely upon the internal audit function to provide independent assurance as to the operations of the firm, notifying where there are weaknesses and ensuring that management design and implement appropriate solutions.

These days many CEOs and Heads of Audit Committees are questioning whether their internal audit function actually is any good. Does it do what the Board and regulators expect them to do? Do they do it well? Is this function being independently assessed? Who is auditing the auditors?

The Objectives of an Independent IA Assessment

An independent assessment of internal audit will provide senior management with the assurance that the internal audit function actually achieves its objectives; that it conducts its work with rigour and understanding efficiently and competently; that it reports appropriately and provides the independent assurance that is required; and that it is up to date and has the skills that it needs to achieve its objectives.

Of course your IA function achieves this, you say. However our experience has been that in many cases audit functions, even of major firms, could be significantly improved and could deliver a better, more complete and more efficient service. This is not a sales pitch – the regulators are putting the pressure on the banks and financial institutions and results are not being achieved to their satisfaction. An independent review of the internal audit function is an imperative to commercial viability these days, too.

The real question for any firm is what should such a review focus on? If it needs to add value to the business it needs to do a thorough and efficient job. Many internal audit functions are still only partly embracing the risk based approach and few fully appreciate the value that they could add. Some of the problems are common and these could easily be addressed by a thorough review of the function.

These include ensuring the following:

Completeness of the Audit Universe

There is an obligation on internal audit to audit the entire institution and all of its subsidiaries, yet we often find that significant gaps in the audit universe occur. Audit universes have generally been built over a period of time. They are historic documents added to from time to time but not always systematically updated to ensure it is aligned to the prevailing structures and business of the firm.

The audit universe needs to cover all of the operations of the business, all of its structures and committees and all of its outsourced relationships. The failure to ensure that all



Your Internal Audit: Is It Delivering for You?

committees are addressed in the audit universe is a common weakness. Another interesting area is finance. Many internal audit functions work in the mistaken belief that they do not need to review finance since that is the role of the external auditors. This in some cases springs from a misunderstanding of the role of the external auditor by the internal auditor.

External audit undertakes work to establish that the accounts of the firm show a true and fair view of the business. To better appreciate the issue we should perhaps say fairly fair and fairly true since there is no requirement to profess accuracy. The auditors look at the annual reporting process and how the financial statements are prepared and then conduct such work as they require to achieve the level of assurance that is needed. They do not look at people's roles or the efficiency of systems, nor do they look at accounting procedures leading to reporting at period ends other than the year end unless requested to do so. Since the preparation of the annual accounts is an exercise that is very different to the monthly cycle of financial reporting they can provide the Board with almost no assurance relative to internal financial reporting processes performed throughout the year.

It is therefore important that the internal auditors work in this area.

They will need to know the controls over accounting that operate throughout the year, not just at the year end. They will need to verify management accounting systems and controls as well as budgeting and capital management. That these matters are either not addressed or are only receiving limited attention is clearly a concern.

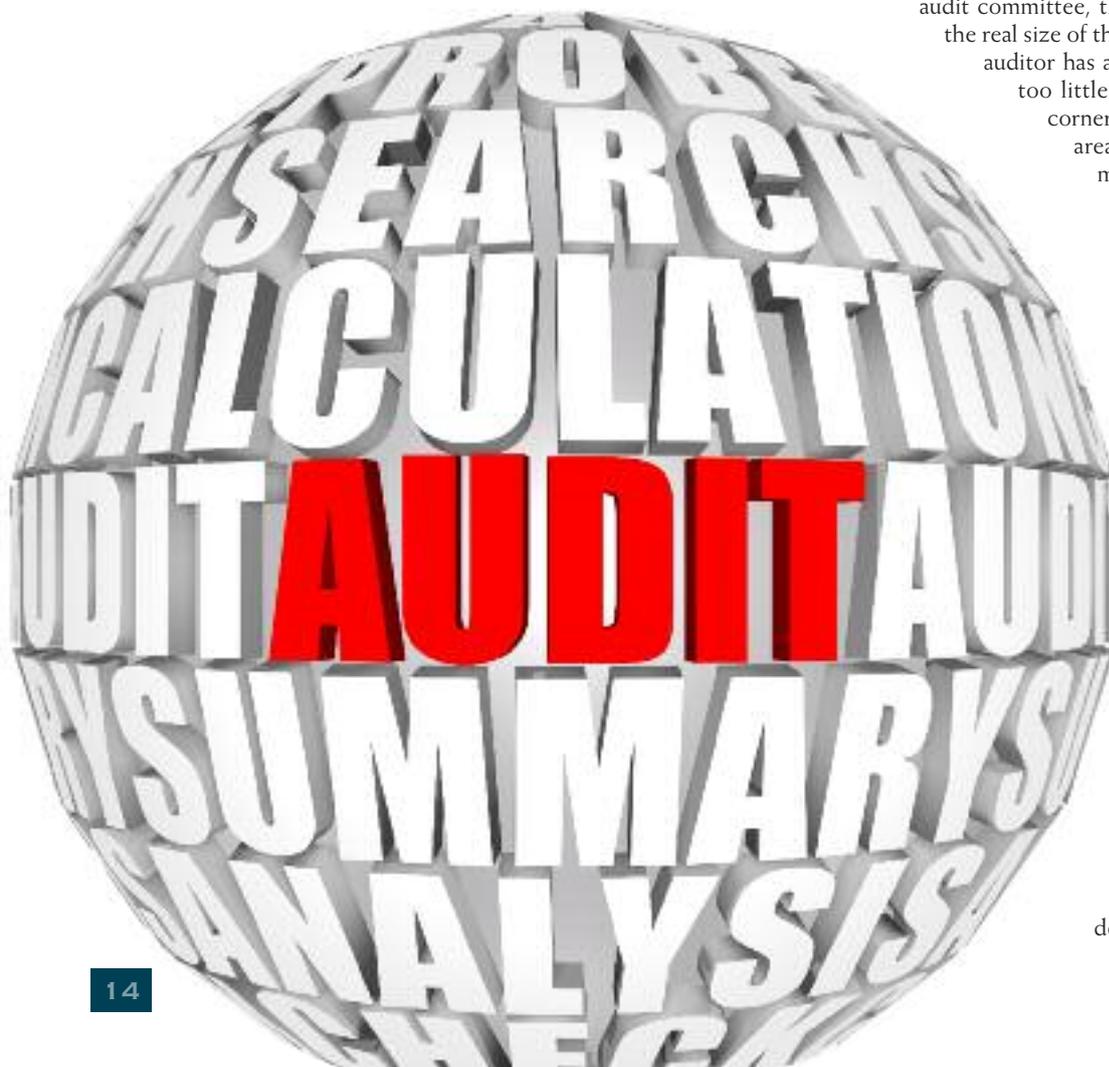
The Limited Audit Assignment Scope

There are many problems found here starting with a skills shortage: Often the internal auditors conclude that they do not have the skills to undertake certain tasks, for example, the legal department or mathematical modelling. Where this is the case we find that the internal auditors will conduct work in 'known' areas excluding all of the areas where they are not comfortable due to limited expertise. They generally do not state in their audit reports that certain areas have not been addressed with the result that the Board and its subsidiary Audit Committee will incorrectly assume that such matters have been addressed. By failing to specifically highlight the weakness in the audit approach the audit function is not letting the senior management have the opportunity to consider whether additional audit work should be commissioned or additional skilled resources acquired by internal audit.

Time: When an audit commences there is often a broad scope agreed for the assignment. This may be driven by the audit committee, the limited resources or ignorance as to the real size of the assignment. In such cases the internal auditor has a problem – too many things to do and too little time to do them. They will then cut corners or start to exclude specific areas. That areas have not been addressed is rarely mentioned in the audit report and the area does not then get addressed in a subsequent audit. It just gets forgotten.

Reporting: Too many audit functions are focussed on what might best be described as 'process auditing', that is, taking procedures from the procedures manuals and ensuring that they are complied with by the relevant staff. Such audits often ignore supervision and management focussing all activity at the lowest levels only. There is, of course, nothing wrong with doing this but it is what may be missed that is the problem.

Structure: If there is a regional structure to a multi-branch retail bank then the business is typically managed through central and/or regional management. If branch audits do not include an examination of the



Your Internal Audit: Is It Delivering for You?

centralised management functions then audit results are likely to focus on how branches are actually functioning rather than how they should be functioning. This renders the audit findings of limited benefit and results in key business areas not being properly addressed. It could even cause duplicate controls that are not cost effective to be implemented.

Process: The process-based audit rarely extends beyond a main computer system. Such audits conclude whether systems inputs are complete and accurate which is valuable information. That is not the problem. Again it is not what is done it is what is not done that is the concern. When information is extracted from a computer system and used in reporting purposes it is often manipulated in user developed tools via applications such as Word, Excel and Access. In many firms all reporting relies on such user developed applications yet the process audit fails to get to this level of detail and address possible control weaknesses and reporting errors to which such applications are prone. From our experience audit committee papers rarely have the level of rigour that senior management would expect.

Contentious Issues

The internal auditor is invariably in a difficult position. His/her role is to assess parts of the business to the best of their ability often where they are not expert. Of course they do their best but if there is a contentious issue will they really deal with it raising it to the right level and ensuring that it is dealt with effectively?

From our experience we often find relevant issues that have been identified by the auditors and appear within the audit files but are not in the final report. What happens in such cases is that the audit findings are challenged by the business unit and if the auditor is not entirely confident in the

respective subject matter, they are dropped. In other cases the finding is not one for the head of the business unit to address who asks for it to be deleted from their report never to appear again.

The Head of Internal Audit is crucial in this regard. If the auditors believe they have a relevant issue the finding should be kept in the audit report and accept business unit management's disagreement thereby enabling senior management to draw their own conclusions on the seriousness of the issue. Failing to report in this way does not enable senior management to manage and support audit as necessary. Separate sections for findings that need multiple or different levels of response is a good practice.

Auditing Judgement

Following on from the above concern is the issue of auditing the judgements exercised by management. Audit functions may decide that judgement is not within their scope, yet the Board and regulators are increasingly looking for the internal auditors to include a review of judgement in their audits.

There are many areas within a business where judgement is key to the work that the firm conducts such as credit underwriting, investing, strategy and law. Without assessing judgement the audit becomes little more than a review of the processes conducted. Of course there are always two approaches that could be taken: in the first approach the auditor seeks to establish that the person exercising judgement has reliable and complete information on which to base a decision. If they had such information then the auditor would conclude that they have achieved their objective.

Your Internal Audit: Is It Delivering for You?

The second approach is increasingly that the expectation of the Board and the regulator is that the auditor should assess the decision made, seeing that it is properly justified and appears reasonable in the circumstances. Failing to achieve this part of the internal audit scope undermines the true value of the audit. The auditing of judgement is often avoided due to the risk of the expert questioning the knowledge of the auditor. Asking the expert to justify their decision, documenting it adequately and justifying why other choices were rejected is all part of efficient management. The auditor is only asking the questions senior management would ask and the audit findings may well be illuminating.

Auditing Efficiency

We have all seen audit findings that have not been properly thought through but the cost of implementing the proposed control vastly exceeds the risk that is being addressed. Auditors may consider that they only need to focus on whether procedures are conducted and offset the risk, not whether their recommendations are really adding value to the firm itself.

Clearly the Board is seeking assurance that the procedures operated by the firm are cost effective and not an onerous and unnecessary burden. We rarely see audit functions recommending that controls that do not add value should be removed. While it is understandable that there is a degree of reticence due to the enhanced risk of being wrong, by failing to address such issues the auditors are doing themselves and the Board an injustice. Efficiency auditing should be

conducted by internal audit just as it is within other sectors and as required by the new standards promulgated by the Bank for International Settlements.

The Audit Reports

The audit report is the key document prepared by the internal audit function. It documents the improvements that the internal auditors have identified as a result of their work in the interests of the business. We find many problems in practice as described below.

Executive summaries often have little to do with the content of the audit report itself. The executive summary is not the place to introduce new recommendations. It has neither an action section nor a follow up. The summary should reflect and be referenced into the key matters within the audit report.

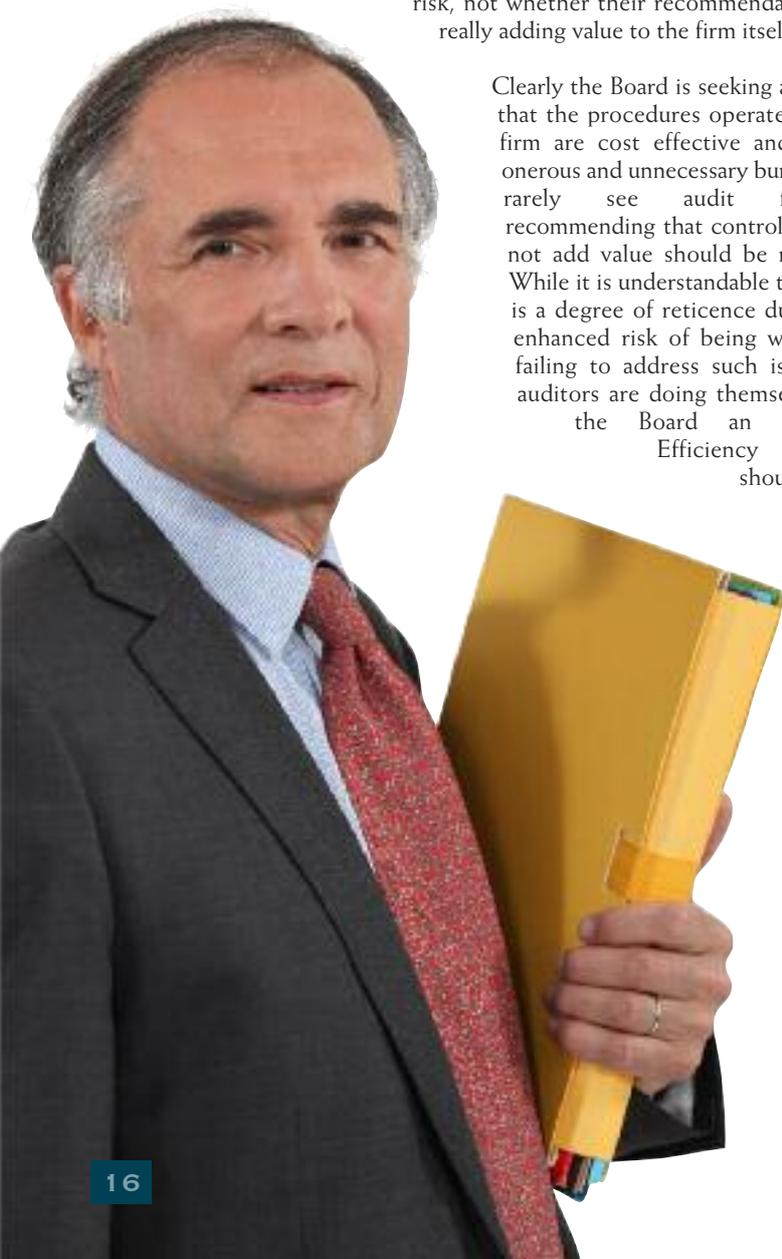
It is often all too evident that different teams have produced different sections of the report using different formats. Failure to standardise actually means that the various committees will question the quality of a function that could not even follow a standard set of processes.

The quality of an audit report is not related to its length. Voluminous background is not read by senior management and is known by the business unit, so who is it for? Making the report shorter and 'punchier' will gain greater attention and highlight internal audit's ability to focus on key matters of real importance.

These are just a few of the issues we have identified in practice, often leading to a major changes within the internal audit function being required to enhance the value it adds to the firm. Risk-based auditing is not just about reducing the level of audit work, rather it ensures that the firm gets the greatest return on the resources it invests in internal auditing. By spending more time auditing those areas where the risks are greater, the incidence of unexpected losses can be reduced and efficiency of the business improved while also strengthening the risk and control environments. The Bank for International Settlements has recommended that a firm should commission a review of the internal audit function periodically. Such a review can add tremendous value to the business and should be conducted at least every three years.

Dennis Cox, CEO, Risk Reward Ltd, was formerly Senior Audit Manager HSBC (Global) for eight years covering more than 25 country internal audits leading a 20-person team.

The author invites your comments via email to DWC@riskrewardlimited.com



Understanding Model Validation

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In this article, the authors describe the essentials needed to understand model validation as part of risk management and in particular what are the key principles and the core components of model validation, the model validation framework, key assessment criteria, tools, models and risk management systems, documentation and a reminder that it is required by regulators.

In recent years the financial services industry has become increasingly reliant on models to help manage risk. The Advanced Approach to risk analysis requires creation of models for each risk type used for the determination of capital requirements under the Basel II Capital Accord (banking and financial institutions) and for the “internal model” under the Solvency II Directive (insurance).

What is a Model? Why do we use them?

Models allow us to reason about things we do not know. The US Federal Reserve defines a model as “a quantitative method, system or approach that applies statistical, economic, financial or mathematical theories, techniques and assumptions to process input data into quantitative estimates. Some inputs to a model could be partially or wholly qualitative or based on expert judgment.” A model is a simplified picture of the real world. Or, said another way, a model makes a series of simplifying assumptions to describe the interrelationships among variables for

risk analysis purposes. A model is a deliberate and often crude simplification of reality. The ultimate goal of a model is to improve the quality of decision-making, analyze business strategies, identify and

**World is sadder
than we fancy it.
World is crazier and
more of it than we
think,
Incorrigibly plural.**

**From ‘Snow’
By Louis MacNeice
(1907-1963)**

measure risk, improve capital and liquidity planning and more importantly, creating the environment for properly meeting regulatory, financial and public disclosure reporting requirements.

While models are used for many purposes, the remainder of this article will focus primarily on models used for risk management and reserve capital determination processes.

What is Model Risk?

“Model risk” refers to the exposure that arises when a risk model is created which has embedded errors and/or limitations in one or more of its dimensions such as the underlying theory, code and/or inputs when measured against its design objectives or/and intended business uses, or when management does not interpret the results of the model correctly (misinterpretation is something that can also amplify model risk), which leads to incorrect estimates of the risk that the entity faces.

Or, said another way, the primary concern related to model risk is where the model fails to capture reality as, by their nature, models are a simplification of the real world and model risk exists where the simplifications materially impact the results of the model relative to the real world. Thus, business decisions are

Understanding Model Validation

being made based on incorrect or misunderstood outputs. Model risk increases with the degree of model complexity and with the increase in model usage inside a financial organization.

An effective solution to mitigate model risk is model validation.

“Model validation” is an independent review of both the models themselves and the governance structure surrounding them to ensure that the model is suitable for the uses to which it is put and that it functions as intended and can be demonstrated to do so. The model must be subjected to critical analysis by objective and well informed parties that can identify its limitations and capable of suggesting ways of model improvement. No part of a model should remain unchallenged.

Basel II requires model validation by way of independent reviews to validate models used within the financial institution (FI). Under the Basel II Accord, financial institutions are required to have sound, independent model validation programs. Under Solvency II, the firm must establish governance and validation processes to ensure that the ‘internal Model’ (as defined by the firm) is properly validated and used appropriately in compliance with the Directive.

Objectives of Validation of Risk and Capital Models

The primary objective of validation is to obtain ongoing affirmation (positive assertion), through testing and analysis, that the risk and capital models:

- Produces appropriate, accurate, consistent, reliable and meaningful Capital-related information, with a key focus on capital requirement (regulatory and economic) and other key uses.
- Remains appropriate and fit for purpose (i.e., on-going appropriateness of its specifications).
- Continues to be compliant to the regulatory approval for the model (i.e., capital requirements).

Key Principles in the Validation of Models

The firm must establish governance and validation processes to ensure that the risk and capital models are properly designed, developed, tested, implemented, validated and used appropriately in the FI in compliance with its authorized use.

There are a number of key principles that provide guidance in the validation of models, they are:

- The financial institution (FI) has primary responsibility for validation.

- Validation is fundamentally about assessing the predictive ability of a FI’s risk estimates and the use of ratings in credit/market/operational risk etc. processes.
- Validation is an iterative process.
- There is no single validation method.
- Validation should encompass both quantitative and qualitative elements.
- Validation processes and outcomes should be subject to independent review.

Core Components of Model Validation

The three core components of Model Validation are:

I. Conceptual and Theoretical Soundness

- Review of design objectives and intended business uses
- Review of Conceptual and Theoretical Soundness of model assumptions, inputs, outputs, functions and overall methodology.
- “Developmental Evidence” – Focus is on design and construction.
 - Can the model be expected to work as intended?
 - Consistency between model and business objectives.
 - Using statistics vs. expert judgment.
- A consistent assessment of two dimensions of model risk:
 - Model error potential (i.e. potential errors in estimation).
 - Impact of model errors (i.e. what is “bottom line” impact of errors).



Understanding Model Validation

2. Model Operations (Compliance)

- Confirmation of model operation: on-going monitoring of model and surrounding processes, which may include:
 - Key Performance Indicators.
 - Exceptions monitoring (i.e. Overrides).
 - Verification of “replicability”, appropriate use of model, data integrity.
 - Investigation in whether the effects of changes in model environment necessitate model adjustment, redevelopment or even replacement.
 - Validation of any extension of a model beyond its original scope.

3. Outcome Analysis (Performance Testing)

- Review of the IM’s historical and relative performance, including:
 - Back-testing – Predicted versus realized outcomes.
 - Benchmarking - Uses alternative models, methodology or data to draw inferences about the suitability of the predicted estimates, risk factors, or segmentations prior to observation of actual
 - Other methods
- Importance of tolerance levels and remedial action policy

Model Validation Framework

In the case of risk and capital models, the financial institution needs to have a regular cycle of model validation that will involve the assessment of many areas including the performance models, reviewing the on-going appropriateness of its methodology and for testing the results against experience. The model validation process should include an effective statistical process for validating the model that allows a demonstration that the resulting capital requirements are appropriate. A proportionate approach needs to be taken as not all validation tools will be applied to all components of the model at the most granular level. Validation should be independent from model development and use. It should be done by staff not responsible for model development and use and not having a stake in model validity.

For capital-related models, model validation should apply to the consolidated group level and for those legal entities that are subject to supervisory review by their respective local regulators.

Generally, each material component of the risk and capital models should be validated at least annually. Significant changes in the external environment may necessitate additional ad hoc checks on the validity of the model. The proportionality principle shall be observed in considering how frequently the model shall be validated. Some of the models and tools that are used as part of the model validation process may be run more or less frequently than annually.

The following are the key assessment areas for model validation:

- **Data** – Ensure that the data, used within the model, is complete, accurate and appropriate. Also, need to consider the data quality dimensions of: relevance, timeliness and consistency.
- **Assumptions** – Ensure that the assumptions, used in the model, are realistic, suitable, justifiable and appropriate. The key assumptions underlying the model are those variables which are important to the business and / or have a significant impact on the model’s results.
- **Method** – Ensure that the selected methods, used in the model, are based on adequate, applicable and relevant actuarial and statistical techniques. This includes ensuring that the written policy and procedures statements that detail the key elements of the model continue to provide the required guidance.

- **Expert Judgement** – Ensure that the expert judgement, used as input into the model, is justifiable. Expert judgement can take a number of forms, including: replacing or complementing data, deciding how to use the available data and the selection of assumptions.

- **External Models and External Data** – Ensure that the external models, where used, and their generated data, used in the model, are suitable and sufficient. As well as ensure that the external data sources, used in the model, are suitable and sufficient. External models and Data that is used within the model needs to be consistent with the standards and requirements.

- **Model outputs** – Ensure that the outputs, of the model, are complete, accurate, timely and meet the stated (e.g., regulatory) requirements. Including, ensure that the model meets the needs of its various stakeholders, with different data requirements depending on their particular area of interest and focus, and that the Management Information remains widely used, and plays an important role, in the management of the firm. The granularity of the model output needs to reflect the levels of detail in risk and capital management and decision-making processes

- **Documentation** – Ensure that the documentation effectively supports the model and is regulatory compliant. The design and



Understanding Model Validation

operational details of the model needs to be documented. The documentation also needs to provide a detailed outline of the theory and assumptions underlying the model. The documentation should provide information on the intended use of the model and define the model's operational limits.

Tools used in Model Validation

The following are some of the key tools for model validation:

- **Back-testing** – Testing of the model results against experience, including an assessment of discrepancies between the range of outputs from the model and actual realisations or justified comparable data.
- **Sensitivity Analysis** – Varying individual model parameters to assess the impact on capital.
- **Stability Analysis** – This is used to test the robustness of the model, for e.g. a change of inputs should not produce model outputs contrary to expectations or a re-run of the model with different random numbers should not produce materially different results. This is linked to Sensitivity Analysis.
- **Scenario & Stress Testing** – An assessment of the impact of a single event (stress) or combination of events (scenario) on how results may look under various conditions in order to identify possible limitations in the model.
- **Reverse Stress Testing** – Determination of the level of loss which would lead to insolvency (or failure to deliver the plan) and work backwards to determine the scenario(s) which might lead to that level of loss.
- **Benchmarking** – Comparison of a model, either in total or part, with peers and / or available academic literature and research.
- **Analysis of Change** – Analysis of how the results of the model have changed from one period to the next, including underlying drivers.
- **Thematic Reviews** – Reviews of key aspects of the model in order to gain comfort over the theoretical basis of the model. This may include the mathematical framework and whether the model reflects the correct risk drivers.

Models and the Risk Management Systems

Financial Institutions must ensure that the models they are using are supported by risk management systems that are conceptually sound and implemented with integrity. Qualitative criteria include:

- There is an independent risk unit who provide a governance role over models
- The FI's internal risk measurement and capital model must be closely integrated into the day-to-day risk management process of the institution
- Institutions should have a routine in place for ensuring compliance with a documented set of internal policies, controls and procedures concerning the risk measurement system and
- An independent review of the risk measurement system should be carried out regularly by the bank's own internal auditing process (best is once a year).

Documentation of Models

An important component of the firm's model control framework is the standards for the required supporting documentation for models.

The documentation standards include: (1) sufficient detail to understand the way in which models are validated and (2) clarity around acceptable operating thresholds of the models. Additionally, models are required to be periodically reviewed to assess their ongoing appropriateness of approach given changes in the underlying market conditions and/or generally accepted valuation methodologies and this must be documented.

Standards should include that: documentation is clear, thorough and complete, incorporating assumptions, underlying theory, test data, model structure, justifications for model and parameter selection, model results and the validation criteria for an effective model.

Other Considerations

There is a need to embed models into decision-making processes. Executive/Senior management needs to understand and support the risk

models' parameters used in the decision-making process (e.g., for provisioning, limit approval, etc.).

The use of models is an important vehicle to measure and monitor risks across the bank, enhance risk management and ultimately determine capital requirements. These need to be established (embedded) into the regular processes of the firm. .

As a component of good corporate governance, the bank should endeavour to achieve segregation of duties between model development, model operation and model validation.

Summary

The banking industry has become increasingly reliant on models (i.e., risk models) to help monitor, measure and manage risk.

The goal of a risk model is to improve the quality of decision-making, reduce the decision risk, and, more importantly, favorably influence or even shape the future internally-based environment.

"Model risk" arises when a model is created with embedded errors in one or more dimensions such as the underlying theory, code and/or inputs or when management does not interpret the results of the model correctly, which leads to incorrect estimates of the risk that the institution faces.

This results in business decisions being made based on incorrect or misunderstood outputs.

An effective solution to help mitigate model risk is model governance and validation.

Model validation is an independent review of both the models themselves and the governance structure surrounding them.

Under the **Basel II Accord and the Solvency II Directive**, financial institutions are required to have sound, independent model validation programs in place.

The authors invite comments and feedback via email to MJD@riskrewardlimited.com

Islamic Finance: Unique Risk Management Challenges and the Impact of Basel III

Author Dr Natalie Schoon, CFA, CAMS is an internationally recognised expert in risk management and Islamic banking and finance. Her early career in Islamic finance began in Bahrain, Kuwait and Dubai in the 1990s which led to roles at Bank of London and the Middle East, Barclays Capital, ABN AMRO and Gulf International Bank. She has earned a PhD (thesis in Residual Income Models and Valuation of Conventional and Islamic Banks) a depth of technical knowledge, both Islamic products and risk, and is an accredited trainer to the Islamic Finance Qualification (Lebanon-UK). In 2010 she became a Visiting Fellow at the ICMA Centre, Henley Business School at the University of Reading (UK). This article was submitted from Kabul where Dr Schoon is consulting to develop an Islamic financial services infrastructure for an agricultural lender in Afghanistan.

The ethical framework governing Islamic Finance prohibits gambling, speculation and interest. Although at first glance this sounds like a risk manager's dream, it does not mean that an Islamic bank runs little to no risk at all.

Like other banks, Islamic banks face risks inherent to the financial industry, and they have to abide by the same rules as others for the calculation of regulatory capital. However, Islamic banks also have their own set of unique risk management challenges.

Since the Islamic financial industry is comparatively young and the balance sheet size of the average Islamic bank is relatively small, issues associated with the calculation of regulatory capital are in part similar to those faced by small, locally operating, conventional European and North American banks. However, because of the transaction structures they employ, Islamic banks face higher charges for regulatory capital under the Basel III capital accord.

There are, in fact, a few Islamic Finance-specific issues that need to be taken into consideration when contemplating the potential impact of the Basel III implementation at Islamic



banks. This article will examine those issues and will also explore other factors that distinguish Islamic banks from a risk management perspective.

Islamic Banking: History, Growth and Prohibitions

Though Islamic finance remains a relatively young industry (the Islamic Development Bank, the first Islamic Bank, was established in Jeddah in 1972), it has grown significantly and has branched out into new geographic regions. For example, there are now a total of 24 financial institutions offering

Islamic Finance: Unique Risk Management Challenges and the Impact of Basel III

Islamic Financial Products – Quick Reference

Islamic financial products work on the basis that the bank and the customer share the risk of investments on agreed terms. Profits are distributed based on negotiated terms; risk is distributed based on the share of the ownership. Islamic Financial products typically have an underlying asset that requires financing. Six of the main transaction types are specified below.

Murabaha

Deferred sale of goods at cost plus an agreed profit mark up under which a party (the seller) purchases goods at cost price from a supplier and sells the goods to another (the buyer) at cost price plus an agreed mark-up. Murabaha has a variety of applications and is often used as a financing arrangement for instance for receivables and working capital financing.

Commodity Murabaha

Deferred sale of commodities at cost plus an agreed profit mark-up under which a party (the seller) purchases commodities at cost price from a supplier and sells the commodities to another (the buyer) at cost price plus an agreed mark-up. Commodity Murabaha has a variety of applications and is often used for liquidity management purposes such as working capital financing.

Ijara

Bilateral contract allowing the transfer of the usufruct which basically equates to an operational lease in which the bank leases the asset to a client. Ijara takes on different structures depending on the specific financing requirements of the counterparty.

Musharaka

Partnership of two or more owners of a property held in common. Partners do not have to own a proportional share in the property. Any profits and losses are shared according to the terms of the contract. Ownership of the underlying property can be transferred gradually during the term of the contract (Diminishing Musharaka). The Musharaka structure is for instance used for mortgages and development financing.

Mudaraba

Partnership contract in which a capital owner (Rab al Maal) enters into a Mudaraba contract with a partner (Mudarib) to undertake a specific business or project. The Mudarib provides the labour or expertise to undertake a business or activity. Profits are shared on a pre-agreed ratio but losses are borne by the Rab al Maal only.

Sukuk

Document or certificate evidencing (part) ownership of an underlying asset. Profit is depending on the performance of the underlying asset. Typically referred to as an Islamic Bond

Islamic financial services in the UK,¹ including three UK-based banks that are wholly compliant with Sharia'a – or the principles of Islamic law.

Globally, after a fairly slow start, the Islamic Finance industry has grown at a rate of 15% to 20% per annum over the past 10 years, and is expected to continue to grow at a similar rate for some time to come. Islamic financial products are offered using three different distribution channels:

- (1) **Islamic windows of conventional banks;**
- (2) **Islamic branches of conventional banks;**
- or (3) **fully Sharia'a-compliant Islamic banks.**

Although the first two distribution channels are currently the most popular, the number of fully Sharia'a-compliant banks is increasing rapidly.

Like every other aspect of Muslim life, Islamic banking is governed by the Sharia'a and the interpretation of this law (Fiqh). Together, these provide the ethical framework outlining the essence of economic well-being and the development of individuals. This framework does not specifically apply to Islamic banks, but to life and business generally. Fairness, honesty, avoidance of hoarding and avoidance of tort are an integral part of the Sharia'a law, but so are the prohibition of riba, gharar and maysir.

In brief, these prohibitions are defined as follows:

Riba (or usury) is the predetermined interest collected by a lender, which the lender receives over and above the principal amount it has lent out.

Gharar (or gambling) is the sale of a probable item whose existence or characteristics are not certain. A traditional example of gharar is the sale of any of the animals from a herd without specifying a particular one. In the context of Islamic Finance, a more current example is advising a customer to buy shares in a company that is the subject of a takeover bid on the grounds that the share price is likely to increase.

Maysir (or speculation) is an event in which there is a possibility of total loss to one party. Maysir has elements of gharar, but not every gharar is maysir.

In the context of the Sharia'a framework, money is seen as nothing more than a means to facilitate trade (rather than a store of value). Consequently, in combination with the aforementioned prohibitions, it is not possible for Islamic banks to provide financing in a similar fashion to conventional banks. Instead, other structures are applied in which the bank often plays a much larger role in the financing structure and becomes a partner in the project to be financed – rather than just a provider of money.

As defined in the accounting, auditing and governance standards for Islamic financial Institutions,² Islamic banks are founded on the concept of profit sharing and loss bearing, which is consistent with the Islamic concept that **"profit is for those who bear risk."** Profits are distributed per a ratio defined in the contract, and any losses are distributed equally depending on the share in the project a party holds.

Islamic Finance: Unique Risk Management Challenges and the Impact of Basel III

The bank or financier partners with the company or individual seeking financing; the bank therefore holds (part) of the title to the underlying assets as well, depending on its degree of ownership.

Risks in Islamic Banks

The absence of interest in Islamic Finance means that Islamic banks are not subject to interest-rate risk. However, this does not mean Islamic banks are subject to lower levels of risk than conventional banks.

Like conventional banks, Islamic banks incur **liquidity, credit, settlement, leverage, operational and business risk**. Additionally, Islamic banks also incur risks that are not common in conventional banks, such as³:

- **Fiduciary Risk.** Specifically, risk related to the nature of the Mudaraba contract, which places liability for losses on the Mudarib (or agent) in the case of malfeasance, negligence or breach of contract on the part of the management of the Mudaraba.
- **Displaced Commercial Risk.** This risk type is related to the common practice among Islamic banks to “smooth” the financial returns to investment account holders by varying the percentage of profit taken as the Mudarib share, which can be compared to an arrangement or agency fee.

Because the Islamic Finance industry is immature and home to an increasing number of start-up banks, Islamic banks now must contend with infrastructure development challenges and other problematic issues facing banks of similar (small) size.

Capital Adequacy and Minimum Capital Requirements

Capital adequacy is a measure of the financial strength of a bank or securities firm, typically expressed as a ratio of its capital to its risk weighted assets. The Basel III capital accord provides local regulatory bodies with a framework to determine this. Banks are required to hold a minimum level of capital to prevent overlending and to ensure that every bank has sufficient funds in case any of its counterparties default without endangering depositors, the banking system or the economy.

The Basel III accord specifies a number of additions to the Basel II accord designed to limit the likelihood

and impact of a future financial crisis. It requires banks to hold more and higher quality capital against their Risk Weighted Assets than before. Furthermore, the Basel III accord looks to ensure that there is sufficient liquidity in the financial system, and in addition it introduces measures to reduce excess leverage.

Many of the conventional banks currently struggle to meet the new capital ratio, which is largely due to the fact that under the new rules a minimum of 7 per cent of the bank’s RWA needs to be core tier one capital as opposed to 2 per cent under the previous rules. This in combination with a narrowing of the definition of liabilities that can be classified as core tier one, results in significant requirements for additional capital.

Liquidity

Liquidity, or the lack thereof, is one of the common factors in a financial crisis. In order to enhance the short-term resilience to liquidity risk, the Basel III accord introduced the Liquidity Coverage Ratio (LCR). Banks need to maintain a level of unencumbered high quality liquid assets that can easily be converted into cash sufficient to meet their liquidity needs for a 30 calendar day liquidity stress scenario. Meeting the LCR is expected to be a significant challenge for banks in general, but potentially more so for Islamic financial institutions. Due to a lack of available liquidity instruments in the market, Islamic banks typically hold a large cash balance which, although it fulfils any liquidity requirements is undesirable from a profitability perspective. The limited range of liquidity instruments that is available is subject to large haircuts due to the jurisdiction of the issuers, which are typically Middle Eastern and Asian governments or government affiliated institutions. The prohibition on interest means that many of the high liquid quality assets are not accessible to Islamic banks.



Islamic Finance: Unique Risk Management Challenges and the Impact of Basel III

Balance Sheet Size and Loss Data History

Although the Islamic financial industry has grown substantially over the past decade, it remains very small when compared to the overall financial sector. Indeed, the size of an individual Islamic bank is typically not large enough to justify the investment required for the Advanced Risk Measurement approaches. As mentioned earlier, this is not a problem that is exclusive to Islamic banks, but the smallness of the Islamic financial industry makes it more difficult to lobby for changes in regulatory policy, such as Basel II.

The absence of significant amounts of loss data is one of the problems that hinder smaller sized banks that need to comply with Basel II. Islamic banks – most of which have only recently been established and which have not seen a complete economic cycle yet --don't have a long enough history and hence cannot meet the Basel II requirement for seven years of loss data.

Although this is also a problem for any other start-up bank, conventional European and North American banks have the opportunity to join one of the established data consortiums – such as the Pan European Credit Data Consortium (PECDC) or the North American Loan Loss Database (NALLD) – to gain access to a larger data set with a longer history of loss data. To date, no loss database for Islamic Finance has been established.

Troublesome Transaction Types

The Basel Committee on Banking Supervision (BCBS) has taken the stance that banks should not hold significant equity positions in companies they finance. This is troublesome for Islamic banks, because Mudaraba and Musharaka transactions that are based on profit-sharing principles are deemed to be similar to holding equity from a regulatory perspective.

The underlying principle of the BCBS's stance on equity holding is that the risk a bank takes increases when ownership and the provision of debt funding are in the same hands. As a result of this belief, banks that hold equity positions in the companies they finance (e.g., as in Mudaraba and Musharaka transactions) are heavily penalized. Specifically, under the Basel II standards on capital adequacy, transactions that are based on the profit sharing and loss bearing mode carry a rather significant risk weight of 400%.

Future Forecast

Given the strong growth in Islamic finance, balance sheet size and lack of loss data are not expected to remain issues for many banks in the long run. Moreover, ensuring the use of robust internal counterparty rating systems should have a positive impact on the risk management process and the level of capital required at Islamic banks.

The structure of Mudaraba and Musharaka transactions are capital intensive – and are therefore more expensive from the bank's perspective. Consequently, Islamic banks should

take the cost of capital into consideration when they are advising clients and when they are developing new transaction types in the future. In fact, one of the questions that must be addressed as part of the advisory function of an Islamic bank is whether the client's interest can be served equally well with structures separate from the Mudaraba and Musharaka.

Although it could be argued that the chances of default will decrease in any Mudaraba or Musharaka transaction, due to the stronger link between a bank and its counterparty, the counterargument presented by the BCBS and the resulting higher capital charge for equity products is equally valid.

The Islamic Financial Services Board (IFSB) has worked closely with the BCBS in the past and will continue to work with that committee to seek regulatory improvements for Islamic banks in the future. However, given that Basel II has only recently been finalized, no immediate changes to the accord's regulatory capital treatment of Mudaraba and Musharaka transactions are expected.

Looking at longer-term developments, problematic issues related to Islamic banks' lack of historical loss data could potentially be resolved through the development of a loss experience database, such as those set up by member banks of the EPCDC and NALLD.

While this would not resolve the issue concerning the length of time over which an Islamic bank can track data, it would at least enhance the quantity of loss history data.

Data sharing in the financial sector is a sensitive point, and such a project will need to be managed by a trustworthy third party. Following the selection of this third party is selection and the creation of a comprehensive loss database for Islamic Finance. Islamic banks will have the ability to start designing advanced risk measurement models that would otherwise remain out of reach.

By far the largest challenge, however, is the requirement for high quality liquid assets and how Islamic banks will be able to fulfil this requirement without hampering their profitability and ability to compete.

NOTES:

1. All of these firms, including the Sharia'a-compliant banks, are regulated by the Financial Services Authority, which means they must follow the same rules as every other UK bank under the FSA's "no obstacles, no special favors" policy.
2. AAOIFI (2002) *Accounting, Auditing and Governance Standards for Islamic Financial Institutions*, Accounting and Auditing Organisation for Islamic Financial Institutions, Bahrain.
3. Archer, S., and R.A.A. Karim (2006) *On Capital Structure, Risk Sharing and Capital Adequacy in Islamic Banks*, *International Journal of Theoretical and Applied Finance*, Vol. 9, No. 3 (2006) 269-280.

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The New Basel III Rules and its Implications for US Banks

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As expected this month the US Board of Governors of the Federal Reserve Board (FRB) announced its adoption of a revised version of the Basel III Accord for implementation in the United States.

The Fed believes that by using Basel III, which is the international regulatory capital framework, as a foundation and with additional supporting provisions using its own "made in the USA" rules it can build greater confidence in the banking system. (Basel III was issued by the Basel Committee on Banking Supervision which is a committee of the Bank for International Settlements (BIS)).

Basel III is an international agreement designed to

improve stability in the banking industry in the aftermath of the 2007-09 financial crisis by addressing shortcomings in capital requirements and other matters, particularly for larger, internationally active banking organizations.

The determination of capital is an important one for banks as the result of additional capital requirements means increased costs as well as limiting banks' ability for further growth. When

banks are required to hold more capital, then there is either less



The New Basel III Rules and its Implications for US Banks

money available for giving out loans or higher interest rates need to be charged to borrowers.

The Basel III capital rules bring significant changes to the US financial system by ensuring the maintenance of strong capital positions and other related enhancements.

More specifically, the FRB approved the "Final Capital Rule" (final rule) which increases bank regulatory capital requirements and implements defined elements of the Basel III capital reforms in the U.S. as well as certain other changes required by the Dodd-Frank Wall Street Reform and Consumer Protection Act (which covers derivatives, proprietary trading – the Volcker Rule-, consumer lending, etc.). Together, these requirements are in many ways tougher than those in most other jurisdictions worldwide as the combined impact of all these American regulatory changes is very significant.

The Final Capital Rule

The Federal Reserve has taken a strict oversight approach with the Big Banks by introducing new capital and risk-related requirements as part of this overriding effort to make the financial system safer. In addition, even tougher regulations are being put in place for U.S. global systemically important banks and for other large banks in America.

The Final Capital Rule includes regulations to assess risk-based capital surcharges and to impose additional specified capital requirements. The final rule establishes an integrated regulatory capital framework requiring banking organizations to hold more and higher quality capital, which acts as a financial cushion to absorb losses, while reducing the incentive for firms to take excessive risks. The goal is to ensure that banks will be better able to withstand periods of financial stress, thus contributing to the overall health of the U.S. economy.

Under the final rule, minimum requirements will increase for both the quantity and quality of capital held by banking organizations. Consistent with the third international Basel framework, the rule includes a new minimum ratio of common equity tier 1 capital to risk-weighted assets of 4.5 percent and a common equity tier 1 capital conservation buffer of 2.5 percent of risk-weighted assets that will apply to all supervised financial institutions. The rule also raises the minimum ratio of tier 1 capital to risk-weighted assets from 4 percent to 6 percent. On the quality of capital side, the final rule emphasizes common equity tier 1 capital, the most loss-absorbing form of capital, and implements strict eligibility criteria for regulatory capital instruments.

The Final Rule adopts the capital conservation buffer for all banking organizations, as well as another, known

as a "countercyclical capital buffer," for advanced approaches banking organizations (ranging between 0 to 2.5 percent). The capital conservation buffer is intended to ensure that institutions are able to absorb losses in stress periods lasting for a number of years. On the other hand, the countercyclical capital buffer's goal is to achieve the broader macro-prudential goal of protecting the banking sector and the real economy from the system-wide risks stemming from the boom-bust evolution such that a buffer is required during periods of excessive credit growth and is released in an economic downturn.

To help prevent an excessive build-up of leverage on institutions' balance sheets, the final rule introduces a new non-risk based leverage ratio to supplement the risk-based capital framework. The leverage ratio's purpose is to counter the build up of extreme on- and off-balance sheet leverage. Therefore, in addition to the risk-weighted capital rules, a minimum leverage ratio of 4 percent will apply to all banks, with a supplementary 3 percent for the "advanced approaches" firms — the largest, most internationally active banks. Thus, with the new supplementary leverage ratio, the final US-based leverage ratio is significantly higher than the minimum original Basel III leverage ratio. In addition, for the largest, most internationally active banking organizations, the final rule includes a new minimum supplementary leverage

The New Basel III Rules and its Implications for US Banks

(sometimes called gearing) ratio that takes into account off-balance sheet exposures.

The final rule also improves the methodology for calculating risk-weighted assets to enhance risk sensitivity. Banks and regulators use risk weighting to assign different levels of risk to various classes of assets--riskier assets require higher capital cushions and less risky assets require smaller capital cushions.

Applicability

The Final Rule generally applies to all U.S. banking organizations (including national and state-chartered banks, federal and state-chartered thrifts, bank holding companies, and savings and loan holding companies), subject to the a few specifically identified exceptions.

The Final Capital Rule has special provisions and timelines for community banking organizations.

Start Dates and Timetable

The final rule is effective as of January 1, 2014, with an initial mandatory compliance date of January 1, 2014 for most banking organizations subject to the advanced approaches risk-based capital rule, and January 1, 2015 for all other banking organizations subject to U.S. risk-based and leverage capital requirements.

More specifically, there are two main start dates:

January 1, 2014 – For advanced approaches banking organizations (generally those with consolidated total assets of at least \$250 billion or consolidated total on-balance sheet foreign exposures of at least

\$10 billion), this is the start date for compliance with the revised minimum regulatory capital ratios and for determining risk-weighted assets under the “advanced approach.”

January 1, 2015 – For non-advanced approaches banking organizations and covered SLHCs, this is the start date for compliance with the revised minimum regulatory capital ratios and for determining risk-weighted assets under the “standardized approach.”

Basel III generally gives banking organizations a choice between two methods for calculating risk-weighted assets, which comprise the denominator of a banking organization’s risk-based capital ratios. One is the “standardized approach” that permits them to measure credit risk using metrics and risk-weightings prescribed by regulation. Another is the “advanced approach” (or internal ratings-based approach) that allows banking organizations to use their internal models and ratings systems to measure credit risk, subject to regulatory approval. The Final Rule requires that the standardized approach will serve as the “floor” (mandated by the Collins Amendment) with respect to any leverage and risk-based capital requirements that the FSB may impose on banking organizations and non-bank

Systemically Important Financial Institutions (SIFI).

The Fed has eased the regulatory burden up on some requirements that would have been tough on community banks. Community banks will also have a longer transition period to meet the new requirements.

There are a number of different start dates and transitional arrangements in the “U.S. Basel III”.

Other Issues

Interestingly, the Fed has added more rules aimed at big US banks such that these new requirements go beyond the international Basel III requirements as many believe that the third accord by the Basel Committee did not go far enough in terms of protecting the financial system.

Importantly, the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC) and the FRB have coordinated their adoption of the US-based revised version of Basel III.

The Financial Stability Oversight Council (FSOC) has also mandated



The New Basel III Rules and its Implications for US Banks

that insurers will also be subject to the same new increased Tier 1 capital buffer where they have been designated as “systemically important”.

Conclusion

Overall, the Final Rule attempts to codify the U.S. banking agencies’ regulatory capital rules, which have previously resided in various regulations, into a single harmonized

integrated and heightened regulatory framework using the international Basel III Accord as its base.

The Final Rule replaces the general risk-based capital rules of the different banking agencies that currently apply to banking organizations with a single integrated regulatory capital framework that emphasizes not only higher capital cushions for banks to absorb losses but also more stringent criteria for what qualifies as regulatory

capital. There are also additional new standards in other areas such as leverage.

With these new requirements, the US looks to build greater confidence in its financial and banking system. All banks should review their controls, processes and business models in the light of these changes to ensure that they will be able to outpace their competitors on the opportunities and threats that will develop.

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