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Time to act
Basel III and beyond

PwC's view on key issues facing chief risk officers and their C-Suite colleagues.

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The risk specialists at PwC are equipped to cover every aspect of risk management and responding to challenges in today's Basel III world – from top-of-house governance and strategic issues, to specific modelling and compliance challenges. We discuss key themes in these six strands:

1. ***Risk and strategy:*** The future of banking and global markets remains uncertain, with opinion divided. As ever, change creates opportunities for those willing to take risk.

2. ***Risk in the business:*** The need for risk management to be an integral part of each business decision, is more pressing than ever.

3. ***Risk technology and data:*** The technology applications and systems that support core risk management processes are the foundation on which risk is managed.

4. ***Risk measurement:*** Risk methodologies have come under intense scrutiny as the result of a systemic underestimation of the inter relationship between market, credit and liquidity risk.

5. ***Risk culture and people:*** Focus on risk culture changes have delivered inadequate results to date. Firms need a clear view of the drivers of risk culture and the desired end goal.

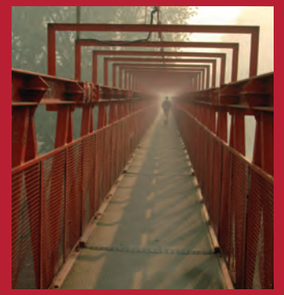
6. ***Liquidity risk management:*** New liquidity management requirements will have a significant impact on the profitability of global financial institutions that do not manage them carefully.

In places, some of the themes overlap. Organisationally, so do we: PwC specialists often find themselves working on projects which include a number of these elements, because the challenges financial institutions face do not always fit into neat boxes. Still, these six sections describe themes which come up again and again, irrespective of industry segments or the size of institutions. We think it's a good way to lay out the risk management challenges facing financial services companies today.

If you want to discuss any of the subjects raised here, please speak with your usual PwC contact, or use the list of contacts included in this publication.

Risk and strategy

The future of banking and global markets remains uncertain, with opinion divided. As ever, change creates opportunities for those willing to take risk.



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In November 2010 the G20 ratified the Basel Committee's proposals for strengthening capital and liquidity standards. In doing so, it committed the banking industry to significantly higher capital levels and a transition period that extends beyond 2020.

As the fog surrounding regulatory change begins to clear, '2020' vision is now needed for all bank strategists, capital managers and chief risk officers (CROs). In developing this vision we know that Basel III is only one component of a much wider reform agenda that will affect, for example, the structure of supervision, the relationship of banks with government and the role of central banks.

Those banks that are able to articulate their position and strategy in this uncertain and changing world will be the winners. The requirement for clear perspectives on risk, capital and funding in strategy formulation has never been stronger.

Distant deadlines have the danger of creating complacency and inaction. Leading banks recognise this threat and have no desire to suffer the same fate as the apocryphal simmering frog. The question then, is, what actions should banks be taking now?

The range of seismic change is far wider than regulation, which makes responding to it more challenging:

Dimension	Key areas of change
Regulatory change	• Stringent regulation of core banking (particularly around capital and liquidity) • Inclusion of the shadow banking sector in core regulatory reform • Basel III
External environment	• Economic uncertainty • China's impact • State interest in banks (post crisis)
Internal control	• Pay and reward • Risk, governance and control • Reducing complexity

In our experience of working with clients on these issues, well-managed banks are typically:

- Conducting ongoing impact analysis of Basel III and other changes – constantly monitoring the regulatory horizon and the competitive landscape.
- Using the strategy round to refine risk appetite for the new world.
- Assessing changes (some of them radical) to business models that will bring new business within risk appetite and achieve acceptable returns.
- Developing a 10-year view of capital and funding – including new instruments such as contingent capital.
- Setting priorities for their risk and regulation communications strategy with investors, rating agencies, regulators and supervisors.

To do all of this effectively presents major challenges to the CRO and the risk team. Key strategic imperatives for the CRO include:

- Wiring risk appetite effectively to limits.
- Upgrading stress testing across the group.
- Rolling out risk-weighted assets (RWA) optimisation programmes.
- Up-skilling the team to meet the unrelenting demands for strengthened risk management.
- Ensuring risk is priced fairly.
- Playing a much more active role in external communication.

And, of course, as the long-awaited economic recovery takes hold, the G20 needs to ensure management maintains a strong focus on risk and does not forget the errors of the past.

In the rest of the booklet we draw on our experience and specialist expertise to discuss themes which are critical to successful risk strategy execution in the world of Basel III and beyond:

- Risk in the business.
- Risk technology.
- Risk measurement.
- Risk culture and people.
- Liquidity risk management.

Risk in the business

A fragile recovery in the financial services market, a desire to convincingly outperform peers, and relentless expectations from regulators have made the requirement for efficient and effective risk management more pressing than ever. Firms that look at risk functions in isolation to provide this are missing the point. Risk management should be an integral part of each business decision.

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The holy grail of banks is to have risk management fully embedded in the business. This involves bringing risk information and insight to bear on every decision an organisation takes, from acquisitions and divestments to new product launches and transaction pricing – indeed wherever decisions are taken in the business. It's about taking a functionally siloed discipline and ingraining it in the way an organisation thinks and the way it works.

To achieve this transformation, people at all levels of the organisation need to understand their responsibility for risk and a culture should be promulgated whereby raising risk issues is regarded as a strength. Evidence would lie in the full involvement of risk in strategic decisions, business planning, etc. Many businesses still struggle with this concept and see the risk function as being responsible for the management of risks.

One of the ways to clarify this is to have a defined operating model for risk that is well understood by all stakeholders and that reinforces the way in which risk management activity permeates throughout the business. This would start with the articulation of a vision and design principles for risk management that address the risk functionality across the business.

A clearly defined service model helps to identify stakeholders dependent on the risk management activity. Combined with a functional model that specifies interaction with stakeholders it helps to articulate specific roles and responsibilities across the three lines of defence (3LOD).

Whilst the diagram below sets out the principles of the 3LOD model, many banks have found it helpful to articulate for each material risk the specific risk management activity carried out by first line and second line. This helps to set out roles and responsibilities and to clarify delegation and escalation processes.

For example, credit risk is managed on a transactional level by the relationship managers and the sanctioning teams, as well as at a portfolio level by the credit risk teams at divisional and group level.

Market risk is managed by dealers, back office confirmation clerks and treasury teams that hedge risks as much as by the specialist functions that would challenge concentrations and model assumptions.

Many areas of operational risk are managed through support functions such as HR, Operations and IT security. Setting out activities clearly helps to identify areas where oversight may be duplicated, for example by HR and finance functions and IT security.

This also helps to set out key areas of control for internal audit to focus on.

PwC has assisted many clients in strengthening their target operating model for risk management, articulating risk management responsibilities across the 3LOD. We have also assisted many clients in the integration of finance and risk functions and the optimisation of internal audit focus.

Governance structure, including the board and risk committee		
Management	**Oversight**	**Assurance**
Management Ownership, accountability and responsibility for risks inherent in business processes	**Risk management functions** Providing the framework and infrastructure to facilitate risk management across organisations including oversight and challenge	**Assurance** Independent assessment by internal/external audit
Executive management	**Risk function**	**Internal audit**
Business operations	**Compliance function**	**External audit**

Risk technology and data

Underpinning the ability of an organisation to apply an effective risk management framework is the ability to give people the information required to make informed decisions. The technology applications and systems that provide this information, that implement quantitative models, and that support core risk management processes are the foundation stones on which risk is actually managed.

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Most, if not all financial services organisations struggle to address the data and technology needs of risk managers. The unique perspective taken by risk, which can span business lines, geographies and management structures, and range from consolidated portfolio views down to individual transactions, presents unique challenges. To meet these challenges, risk technology and technologists must tackle fundamental issues outside their direct control, and forge co-operative partnerships with owners of data and systems across the organisation to address issues at source, rather than compensate for them in isolation.

Risk management is critically dependent on data. Indeed if there is a data issue somewhere in an organisation, then there is likely to be a risk manager impacted by it. Yet most of the data used by risk is owned by someone else. Firms that have successfully addressed these issues have done so by developing a comprehensive and consistent definition of the data requirements for risk, along with clear ownership and governance models for each type of data. This, combined with moving towards common views of data across functions, will result in improvements in data completeness, timeliness and quality, and ultimately allow risk managers to make better-informed decisions.

Quantitative risk models are a key component of a risk management framework, and the application of models is highly dependent on the underlying high-performance technology platforms. The ongoing development of new technologies is providing a rapidly increasing capacity for computationally intensive models, yet this

Key risk processes including risk reporting and limit management are enabled by technology, such as business intelligence tools and workflow packages.

technology needs to be understood, and models implemented appropriately to take advantage of this capacity. In addition, the requirements of quantitative modellers responsible for developing, validating and back-testing models are distinct from those of a production environment, yet cannot be considered separately. Indeed, models must be developed with full knowledge of exactly what data is and is not available, and how those models will be implemented and used in practice.

Key risk processes including risk reporting and limit management are enabled by technology, such as business intelligence tools and workflow packages. Selecting the right solution can play an important role in process automation and control improvement, and in providing the right information to the right person at the right time.

The technology and data needs of risk managers are broad, complex and multi-faceted. Understanding these requirements and helping you identify and achieve the right solution is the focus of our Risk Technology and Data team. Whether your need is defining requirements, identifying and evaluating internal or external solution options, specification and design of solutions, or defining and managing delivery and migration programmes, we have the depth of experience to help.

Risk measurement

Risk methodologies in the financial services industry have come under intense scrutiny as a result of the systemic underestimation of market, credit (in particular counterparty credit) and liquidity risks that have materialised since 2007. Considerable focus has been placed by regulators on this area and firms have had to extend their use of scenario and stress testing and upgrade risk models to incorporate elements of risk not sufficiently covered.

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How are firms addressing the issue?

Financial firms and supervisors alike have been developing new techniques in the last two years to restore the credibility of risk models, but much of this work has to date seen the incorporation of conservatism buffers and the adoption of new, severe-case stresses through techniques such as integrated and reverse stress testing. This work needs to be codified and, where appropriate, shared across the industry to capitalise on the benefits of new techniques and create a new 'industry standard'.

Firms have focused on capturing risk elements which were missed prior to the crisis and are aiming to achieve a more 'forward-looking' focus for risk models. PwC has been assisting clients in a number of areas as described below:

Minimising model risk

As models undergo significant development, the importance of robust model governance has never been so great. This has manifested itself through increased regulatory requirements and regulators are looking for institutions to quantify model risk and understand the balance sheet implications under the headline 'prudential valuation'. Institutions are reviewing model governance, from the development of new models through to independent validation and ongoing monitoring.

Exotic price testing methodologies

The credit crisis left a number of leading financial institutions with significant exotic derivative portfolios with little or no continued trading flow and an associated lack of price transparency. PwC has been assisting

clients with assessing market and consensus data and improving methodologies to capture uncertainty.

Refining VaR methodologies

Increased capital requirements and identified weaknesses in the risk capture of value at risk (VaR) models, requires institutions to spend considerable effort on reviewing, improving and validating their VaR methodologies and supporting infrastructure. Significant effort is required to focus on elements such as liquidity adjustments, better risk capture such as volatility skew, implied correlations, basis, CVA and cross risks.

Credit valuation adjustments

The accurate capture of counterparty risk within trade pricing can lead to competitive advantage in trade pricing and better pricing of transactions. Banks are faced with organisational and infrastructure issues that conflict with a centralised view of counterparty risk, and solving these issues under the developing capital regime will become increasingly important to competitive advantage.

Ongoing development of risk models, data and systems

In addition to specific methodology developments, the onerous capital requirements place increasing pressure on risk functions to measure risk more accurately to optimise capital, support more accurate risk-based pricing and identify deterioration in the risk profile at an earlier stage.

The effectiveness of quantitative analysis is also heavily dependent on the quality and availability of data, and the flexibility and functionality of the systems that support it. Building an effective technical capability in some cases requires significant improvements to systems and data. These aspects can be included in the development scope, or at least, understood in terms of the potential limitations on risk measurement, aggregation and monitoring capabilities.

How can PwC help?

PwC's Risk Measurement team is able to support firms in the ongoing development of their risk methodologies or in validating firms' approaches against developing industry practice. From identifying and capturing data required, building or improving existing models, validation and (more refined) calibration; to performance monitoring, PwC can help you to ensure that you establish and maintain the appropriate infra-structure and governance to manage your models and to ensure regulatory compliance. Then, working together, we can help you to derive the maximum value from them, integrating them not only into your credit processes but also into your pricing, stress testing and capital management.

Risk culture and people

The concept of strengthening risk culture has been long been heralded as a key area of focus, but in reality has received somewhat ineffective focus. This is because firms have been trying to tackle a complicated issue with lack of clarity over the key drivers of risk culture, the desired end goal and how to approach cultural change. This raises the question of whether risk culture is sufficiently high on firms' agendas.

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We believe that an effective risk culture is vital and an implicit component of change in risk management, whether driven, for example, by Basel III, Solvency II or by changes in firms' risk appetite. The failure to establish an appropriate risk culture and mindset can undermine a sound reputation and risk operating model. If firms' reform agenda to strengthen risk management is to be sustained and change secured, it must be accompanied by sustainable change in risk culture.

Firms', regulators' and policymakers' efforts are focusing on driving cultural change, principally through compensation, to align interests of key risk takers with those of shareholders and customers. It is questionable whether this alone will drive the step change in risk culture required in the post-crisis world.

Understanding and influencing risk culture

Culture means simply a universal understanding and acceptance of 'the way things are done around here'. Risk culture is the result of history, leadership, organisational values and the external environment. It is fundamentally important because it results in the behaviours that underpin management's risk decision making.

To start the process of change, firms need a candid appraisal of their existing culture. This can be difficult to do – it is very hard to stand back and form an objective view of the culture of which one is part. Such an appraisal may well result in the stark realisation that there are major shortcomings.

Some examples that we have observed when working with clients on this issue, include:

- Business planning dominated by the pursuit of growth or improved profitability without regard to economic, macro-economic or operational/reputational risks.
- Entrenched silos with limited willingness to challenge risks, whether within a particular risk class, across business lines or between functions.
- Wider risk management responsibilities failing to take root as a result of highly centralised, isolated risk control functions.

In performing a self-appraisal firms will need to analyse their organisation across the broad range of behavioural factors that influence risk culture. The significance of these factors will vary by firm, business line and function but in our experience there are certain factors that need to be considered: Leadership, Governance, Motivation, People and Infrastructure.

To describe the desired risk culture and behaviours clearly, there are some core principles that we believe firms should aim to institutionalise:

- Consideration of risk is demanded as an integral part of decision making.
- Risk is placed in the context of the risk/return profile commensurate with strategy.
- Continuous understanding of key risks, recognising interactions and impacts across business lines, functions and risk classes.
- Focus on action, not analysis.
- Clear expectations of the risk behaviours expected from senior personnel both within, and outside, the risk function.

Factors that influence risk culture

Areas	Key drivers
Leadership and strategy	• Strategically aligned objectives • Cross risk class and process view of risk
Governance and responsibilities	• Clearly defined accountabilities • Prominence of risk in key decisions
Motivation	• Risk disciplines part of all employees' recognition • Compensation aligned to shareholder interests • Collective mentality and appreciation of all interests
People	• Risk competencies and skills embedded in all personnel • Respect and willingness to commit to risk management • Stable workforce with loyalty and commitment
Infrastructure	• Balanced between risk technology and expert judgement • Sustainable backing for change programs and delivery

Approach to driving change

Achieving change is not straightforward and many firms continue to be frustrated by the lack of demonstrable change in risk culture. One approach that we have used with clients is to focus on the key risk/value events, for example in the strategic planning process, and to define the core behaviours required to deliver appropriate outcomes at these critical points.

The three-step process of:

- Focusing on identifying the key risk events.
- Defining the core behaviours required.
- Tracking the cultural change that emerges.

is an approach that provides a practical basis to achieve success.

Liquidity risk management

The financial crisis and high-profile failures have highlighted the importance of effective liquidity management and triggered the development of onerous new liquidity rules. These rules include minimum standards for liquidity management and quantitative requirements that will have a significant impact on the profitability and business models of financial institutions.

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The planned regulations under Basel III will require banks to hold significant liquidity reserves that, as the rules are rolled out globally, may lead to local regulators requiring significant pools of liquidity to be held in their respective territories. These could disrupt the global funding arrangements operated by many banks and lead to trapped pools of liquidity in the major territories in which a given bank operates.

Linked to these quantitative requirements, banks will be required to significantly improve their funding and liquidity management framework – measuring, monitoring and managing liquidity more proactively.

What do banks need to do?

Many banks have been focusing on the development of their treasury and liquidity management approaches, but many of the improvements to date have been tactical in nature, aimed at satisfying requirements put in place by regulators such as the UK FSA that have led the development of new rules. As these regulations are 'globalised' through Basel III, banks will need to make a significant effort to translate these tactical fixes into longer term solutions. These will include the following areas of focus:

- Embedding funding and liquidity forecasting into strategy and business planning.
- Improvements to liquidity stress testing to reduce the need for 'compensating conservatism' that leads to excessive liquidity reserves – this will include the linkage of liquidity risk measurement to related risk types such as credit and market risk that drive liquidity flows under stress.

Working with us brings to bear a breadth of industry and regulatory experience that can be employed to anticipate the challenges of this work and accelerate liquidity risk management programmes.

- Alignment of global regulatory reporting requirements with internal liquidity monitoring and reporting.
- Development of day-to-day liquidity risk processes and controls focusing on key liquidity drivers such as intra-group, intra-day and cross-currency risks.
- The development of funds transfer pricing frameworks to ensure that funding and liquidity costs and benefits are transparently allocated to the appropriate businesses.

How PwC can help

PwC is a leading provider of funding and liquidity management advice and has assisted leading firms in enhancing their liquidity risk management frameworks to respond to the new rules and the increased emphasis on liquidity. Our services cover all of the above areas and also specific regulatory requirements (such as Individual Liquidity Adequacy Assessments in the UK).

Working with us brings to bear a breadth of industry and regulatory experience that you can employ to anticipate challenges and accelerate liquidity risk management programmes.

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