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*The IBM Institute for Business Value (IBV) develops fact-based strategic insights for senior business executives around critical industry-specific and cross-industry issues. This research is a part of an ongoing commitment by IBM Business Consulting Services to provide analysis and viewpoints that help companies realize business value.*

# The clairvoyant CRO

## Risk management that is insightful, illuminating and ingrained enterprisewide

*By Dan Latimore and Cormac Petit, IBM*

*Executive summary*

High-profile financial failures over the past decade – and an accompanying wave of new and pending regulations – have prompted a renewed focus on enterprise risk management. But how can banks manage increased credit, market and operational risk while providing sufficient transparency to maintain the confidence of their stakeholders? Has the world become riskier? Are some risks becoming more visible while others are not? Are Chief Risk Officers (CROs) really expected to be clairvoyant?

Stockholders and employees alike are counting on risk managers to be unusually perceptive about risk and diligent about managing it. But that's an increasingly difficult task.

At most banks, risk management systems are fragmented across organizational silos. Data quality is poor, and measurements are typically inadequate. With inconsistent methods and unconsolidated reporting, banks struggle to manage risk on a companywide basis. As a result, there is a real danger that risk is being inadequately factored into business strategy and capital allocation decisions.

***clair•voy•ant: unusually perceptive; discerning.***

For the most part, banks recognize the need to improve risk management capabilities and are actively addressing the situation. As described in *Risk, regulation and return: Delivering value through enterprise risk management*, banks face challenges on several fronts and are taking a more comprehensive approach to risk management.[1] For instance, many organizations worldwide have already appointed a CRO.

Unfortunately, the growing preponderance of regulation related to risk management – such as Basel II, Solvency II, International Financial Reporting Standards (IFRS) and Sarbanes-Oxley – is exerting tremendous influence on this new role and threatens to typecast the risk management function as a defensive discipline operating in highly legalized environments. How can today's CRO counteract the natural tendency toward becoming overly risk averse, and instead equip business leaders to take risks in line with business strategies? How can executives drive risk management deeper into the everyday decisions made across their enterprises and convert the risk management function into a value-added contributor to the business?

The IBM Institute for Business Value has developed a framework that can help CROs assess the current status of enterprise risk management (ERM) and guide future improvement. Our framework consists of a comprehensive group of activities that can help banks manage risk from a portfolio perspective, recognizing the diversity of risks and the mitigating or multiplicative effect they have on each other. These activities fall into three categories:

- Risk control – Policy development, risk assessment and risk monitoring
- Risk management – Reporting and risk mitigation
- Business management – Decision making and monitoring

To accomplish these activities, banks need a core set of enablers including the right organization, accurate data and the capability to capture and analyze it, effective stakeholder management and, perhaps most importantly, a corporate culture where managing risk is part of the daily routine.

Using this framework as a guide, we have constructed a series of self-assessments based on in-depth interviews with risk management executives at over 20 different financial institutions around the world. The resulting benchmark allows banks to visualize what successful enterprise risk management might look like – and determine how well they measure up against their industry peers.

Taking a holistic approach to risk management with this type of framework makes the CRO – and the rest of the organization – more clairvoyant. It provides a clearer view of the combined effect of enterprise risks and can help turn decision makers in all parts of the business into better-informed risk managers. Instead of focusing predominantly on compliance or being perceived as a hindrance that slows down business decisions, the risk management function can offer clear and balanced views of both threats and opportunities and contribute significantly to better business results.

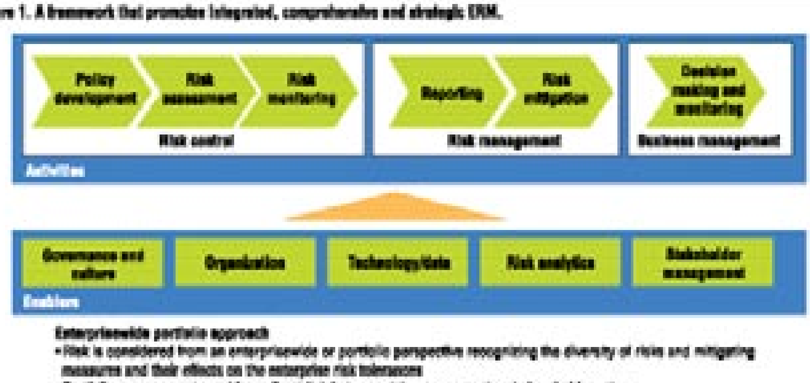
## A comprehensive approach to risk management

The financial sector was among the first to establish a top corporate position devoted to risk management. Other industries have followed suit. In a recent Economist Intelligence Unit worldwide study, nearly 70 percent of the companies surveyed have a CRO or plan to appoint one in the next two years.[2]

The focus on enterprise risk management remains intense in the banking industry where credit, market and operational risk continue to rise. Banking CROs are looking for an ERM approach that satisfies three requirements. It must be integrated (spanning all lines of business), comprehensive (covering all types of risk) and strategic (aligned with the overall business strategy).

Based on our experience in this industry, IBM has developed a framework for developing such risk management systems and capabilities (see Figure 1). The ERM framework consists of both activities and enablers. Activities are performed by a centralized risk management function as well as by the business units themselves, and range from top-level strategy development to everyday decision making. The enablers are supporting elements that allow the business to accomplish the desired activities. They include both tangible and intangible elements.

Figure 1. A framework that promotes integrated, comprehensive and strategic ERM.




*Source:* "Enterprise Risk Management Framework," Exposure Draft, Committee of Sponsoring Organizations of the Treadway Commission, July 2003; "Enterprise Risk Management, From Incentives to Controls," James Lam, Wiley Finance, 2003; IBM Business Consulting Services Risk and Compliance Practice and IBM Institute for Business Value analysis.

***A portfolio perspective considers the diversity of risks and the mitigating or multiplicative effect they have on each other.***

Along with this framework, we created an assessment tool to help banks evaluate their current ERM practices and envision potential improvements. To gain a glimpse into the maturity of ERM within the banking industry, we conducted in-depth interviews with risk management executives at over 20 different financial institutions around the world, using the assessment tool as a guide. The results from this benchmark allow banks to compare their own capabilities in each ERM area against those of industry peers.

## Begin with a risk management strategy

To address ERM holistically, banks first need to establish an overall strategy for how they will control risk. It should include baseline policies and expectations on how risk will be managed, how risk will be assessed comprehensively and how risk will be monitored on an ongoing basis.

For ERM to become an integral part of business operations, the firm's risk management strategy must align with and actively support its business strategy. For example, risk management should influence which customer segments are targeted and how particular segments are served. Although this linkage between customer relationship management and risk has not been fully established in all firms and lines of business, some banks use sophisticated risk management techniques in specific business areas such as pricing mortgage loans. Taking into account the full credit risk correlation between different customers across their portfolio allows the bank to boost profitability because it can provide more competitive prices for some of its target loan products while still achieving the required overall return on capital.

Leading firms take an unambiguous position on ERM, establishing clear policies that are visibly supported by senior management (see Figure 2). Their policies outline the methods, procedures and tools that will be used across the organization. Adopting an enterprisewide view allows the bank to establish parameters for overall risk appetite, risk tolerance and capital costs and allocations, providing decision-making guidance to the business units (BUs).

After mapping out the policies and scope of its ERM effort, a bank needs to establish formal methods for identifying and classifying all the different types of risk it intends to manage (see Figure 3). A comprehensive taxonomy of risks and risk mitigation measures helps reduce residual risk (i.e., the remaining potential for harm after all possible efforts to reduce predictable hazards have been made).

Assessing risk involves not only estimating the likelihood and impact of a potential risk – but evaluating its correlation with other events, causal relationships and the cumulative impact of different groups of events occurring at once. Using techniques such as scenario analysis and stress testing on a regular basis, banks can better forecast the actual impact of potential risk scenarios.

**Figure 3. Where does your performance fall? Take a moment to rank your risk assessment capabilities.**

| | Base level 1 ← | 3 | → Best practice 5 |
|---|---|---|---|
| **Identification** | Events identified on unstructured or ad hoc basis or within context of BU only. | Methods/ techniques being developed and events and risks identified for most important parts of the business. | Methods/ techniques standardized. Relevant events and risks identified and reviewed regularly on enterprise basis for all parts of the business. |
| **Classification and mapping** | (As yet) no risk taxonomy established. Concept of residual risk underdeveloped. | Some (not yet comprehensive) classification done for most important parts of business – not (yet) standardized across whole enterprise. | Comprehensive risk taxonomy used on regular basis in classification of identified events and risks at enterprise level. |
| **Assessment and measurement** | Risk assessment methods not (yet) established or on unstructured or ad hoc basis or within context of BU only. Little/no data available to support objective risk assessment. | Methods being developed. Risks assessed for most important parts of business – not necessarily standardized across whole enterprise. Some data collected to support risk assessment. | Qualitative and quantitative methods in place. Used regularly to assess risks for whole enterprise. Comprehensive data collected on ongoing basis to support objective risk assessment and measurement. |
| **Correlation assessment and causal analysis** | Correlation assessment, causal analysis on unstructured or ad hoc basis or within context of BU only. | Assessment of correlation within risk categories done for most important parts of business – not necessarily standardized across enterprise. Some causal analysis performed. | Assessment of correlation done across risk categories and regularly reviewed for all parts of the enterprise. Causal analysis is performed. |
| **Stress testing and event risk analysis** | Stress testing and event risk analysis on unstructured or ad hoc basis or within context of BU only. | Stress testing done for most important parts of business – not necessarily standardized across whole enterprise. | Stress testing of events done on regular basis for all parts of the enterprise. Standard event risk scenarios are provided firmwide for all risk classes. |
| **Scenario analysis** | Scenario analysis on unstructured or ad hoc basis or within context of BU only. | Scenario analysis done for certain risk classes / most important parts of business – not necessarily standardized across whole enterprise. | Scenario analysis done on regular basis for all risk classes and all parts of the enterprise. |
| | 1 Lowest | 3 | Median Leader 5 |

*Source: IBM Institute for Business Value analysis.*

**Figure 2. Where does your performance fall? Take a moment to rank your policy development capabilities.**

| | Base level 1 ← | 3 | → Best practice 5 |
|---|---|---|---|
| **Strategic alignment** | Risk management is (still) standalone, initiated by risk manager – no authority to influence business objectives. | ERM strategy being developed but not (yet) integrated. ERM function sets own objectives, reports to business in "push"–model. Firmwide risk appetite not clearly defined. | ERM strategy fully integrated with business strategy. Business management recognizes risk management as integral part of BU responsibilities. Risk appetite established and reviewed – guides resource allocation. |
| **Risk management philosophy** | Management does not recognize value of risk management. Pays little attention to it. Risk management takes place within BUs. | Management believes risk management has value but does not/ cannot express it. Some decisions are influenced by ERM. | Management appreciates and expresses value of ERM. Actively encourages employees across enterprise to incorporate ERM in their work. |
| **ERM policy** | Risk Management done on unstructured or ad hoc basis within BUs. Procedures largely undocumented. | ERM policy is being established. Methods, tools used or being developed but may not (yet) be standardized. | ERM policy is clear and communicated to all BUs. Methods, procedures and tools are known, standardized and used across the enterprise. |
| **Risk metrics** | Risk metrics determined on unstructured or ad hoc basis. No firmwide definitions. | Metrics developed by BU as required. | Coherent and standardized metrics developed, communicated and commonly used at BU and enterprise levels. |
| **Compliance** | Compliance with external requirements left to individual BUs. No firmwide policy. | Compliance Officer appointed and is developing policy and guidelines which may already be adopted by some BUs. | Compliance is well-developed process – clear policies and guidelines deployed across all BUs. |
| | 1 Lowest | 3 | Median Leader 5 |

*Source: IBM Institute for Business Value analysis.*

Knowing the types of risks it needs to monitor, a bank can then put processes and measurements in place to track risk indicators enterprisewide (see Figure 4). Traditionally, risk has been managed – and measured – in organizational silos. Measuring risks at the business unit level often results in methodologies and formats applicable only to the business unit. Senior management and the board is left with individual pieces of the puzzle, not the full picture. This disjointed view can also be deceiving since risks are highly interdependent. Risk measurement and reporting needs to acknowledge this portfolio effect and present a net view of enterprise risk.

**Figure 4. Where does your performance fall? Take a moment to rank your risk monitoring capabilities.**

| | 1 Base level | 3 | Best practice 5 |
|---|---|---|---|
| Risk indicators | Risk indicators and limits mostly not determined or have been determined within the context of BU only. | Some risk indicators and limits determined for the most important areas of the business but may not always be incorporated into business processes or integrated at enterprise level. | Risk indicators and limits determined for all areas of the business and various levels of aggregation at the enterprise level; part of normal business review and reporting procedures. |
| Measurement | No regular measurement made of risks for the enterprise or measurements made within the context of BU only. | Risk indicators measured for most important business units – not necessarily aggregated on an enterprise basis. | Risk indicators for the enterprise measured and evaluated on a regular basis and compared against limits. |
| Business | Risk management procedures are not regularly reviewed or audited for relevance, results or improvement. | Most important procedures and processes are reviewed from time to time. Suggestions for improvement may be incorporated. | All risk management procedures and processes regularly reviewed and audited to validate effective operation and optimize results at the enterprise level. |
| | 1 Lowest | 3 | Median Leader 5 |

*Source: IBM Institute for Business Value analysis.*

Firms also need to establish internal audit procedures to validate that the business units are regularly assessing the selected risk indicators – and responding to abnormalities.

***When risk is only measured at the business unit level, senior management is left with individual pieces of the puzzle, not the full picture.***

## Toward more transparent risk management

Developing an ERM strategy is important, but to be effective, a bank must actively manage risk in accordance with that strategy during the normal course of business. Transparency is key; executives cannot manage what they cannot see. Decision makers at the enterprise and business unit levels need ready access to information and the ability to respond appropriately to threats and opportunities as they arise.

Compliance should be visible. Leading banks do not limit formal reporting to regulatory compliance; they also demonstrate adherence to their own internal ERM policies (see Figure 5). Management information systems that track risk indicators in a day-to-day operational setting allow managers to monitor risk levels continuously.

A key part of risk management is mitigation – identifying and selecting appropriate responses to potential risks. Industry leaders develop a well-planned repertoire of mitigation strategies including standard policies for transferring risk. There are many techniques for transferring risk – from simple insurance and derivative use to alternative risk transfer (ART) products that bundle various risks to achieve cost savings.

***Transparency is key; executives cannot manage what they cannot see.***

It is important to recognize "natural hedges" within the portfolio – offsetting exposures that reduce overall risk. When such hedges do not exist naturally, a firm may want to originate a desirable (or counterbalancing) risk or purchase it in order to balance the portfolio.

Banks frequently evaluate risks and mitigation techniques individually, but mitigating risk on a portfoliowide basis helps the bank maintain residual risk within tolerance levels while optimizing overall results for the firm. In fact, some risks may not be recognizable at a business unit or country level because they are a result of a cumulative effect. For instance, the combined exposure to the same client in a number of countries may be unacceptable, but this risk might not be detected when measuring country by country.

**Figure 5. Where does your performance fall? Take a moment to rank your reporting capabilities.**

| | 1 Base level | 3 | Best practice 5 |
|---|---|---|---|
| Formal reports | Reporting is limited to what is necessary for compliance with regulatory requirements and within the context of BU. | Some reports – over and above regulatory requirements – are produced. Usage of these reports is not monitored. | Relevant risk indicators reported to all stakeholders, providing the information needed to make decisions at business unit and enterprise levels. |
| MIS | Management reports are produced on an ad hoc basis usually in response to management requests. | Some reports – over and above regulatory requirements – are produced. Usage of these reports is not monitored. | Standardized management reports produced for all levels of management focusing on information needed to make decisions at the business unit and enterprise levels. The content of these reports is reviewed regularly. |
| Communications | Any communication on ERM is unstructured or on an ad hoc basis or within the context of BU only. | Some communication of ERM strategy, policy and risk indicators takes place on an irregular basis or only to larger business units. | ERM strategy, philosophy, policy and risk indicators are communicated on a regular basis to all levels of the organization. Workshops and training program established. |
| Compliance | Limited reporting on compliance with external requirements by BUs as required. Local regulatory reporting. | Limited external reporting and some business units also report on compliance issues in line with internal policies. | Compliance reporting well-developed and deployed across all BUs. Extensive and comprehensive disclosure as required by regulations. Consolidated regulatory reporting to home and host country regulators as required. |
| | 1 Lowest | 3 | Median Leader 5 |

*Source: IBM Institute for Business Value analysis.*

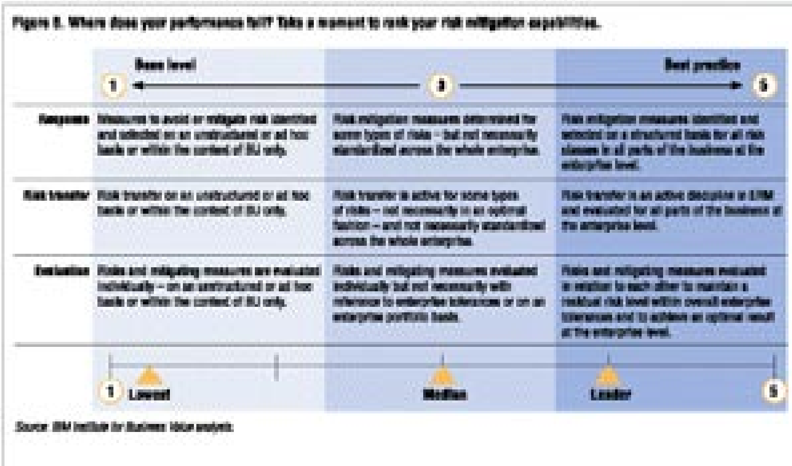


Figure 6. Where does your performance fall? Take a moment to rank your risk mitigation capabilities.

Source: IBM Institute for Business Value analysis.

Mitigating risk is seldom easy, as evidenced by the fact that even the leading firms we interviewed did not score particularly well (see Figure 6). Based on our study, it is clear that some aspects of risk mitigation are particularly important:

- The ability to respond quickly and across business functions to emerging issues (e.g., by implementing a "rapid-response team")
- Evaluation and prioritization of potential improvements through, for example, cost/benefit analyses and readiness assessments
- Having business unit incentives, which are aligned with and derived from enterprise goals, to monitor and improve risk (such as reduced cost of capital)
- Understanding and addressing root causes of risk occurrences and the associated ability to respond and focus corrective action on those root causes.

Although reporting is more likely to occur in a centralized fashion, factoring risk into business decisions should happen largely within the business units (see Figure 7).

Figure 7. Distribution of activities between centralized risk management function and business units.

Source: IBM Institute for Business Value analysis.

Whether risk reduction and avoidance actions are implemented at the business unit or enterprise level, decisions should be based on the combined portfolio impact. At every level of the organization, controls must be in place to make sure that action is taking place on identified risks – and that mitigating responses are tracked to ascertain effectiveness. All of the firms that we spoke to during this study indicated that it was difficult to establish a culture that incorporates risk management into everyday business decisions (see Figure 8). Building a true partnership between the risk management function and the business units – where both work together to manage risk and meet their respective goals – was an ongoing challenge.

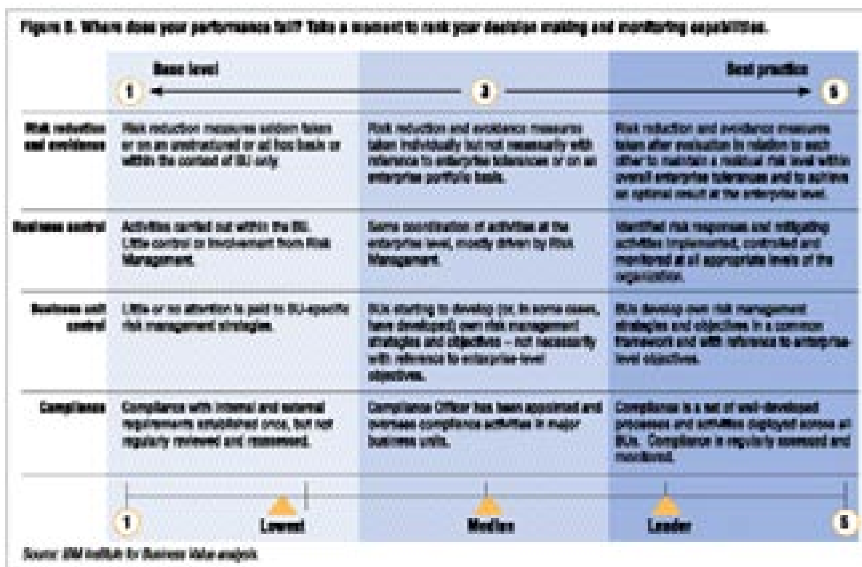


Figure 8. Where does your performance fall? Take a moment to rank your decision making and monitoring capabilities.

Source: IBM Institute for Business Value analysis.

In addition to complying with external regulations and enterprisewide policies, some units may need to establish custom (but complementary) risk management objectives and approaches to address the nuances of their particular lines of business or local geographies. For example, at some banks, it may be beneficial to have a dual-level approach to risk management – augmenting the quantitative approach used centrally with local judgment. In this sort of configuration, local business units can provide second-order intelligence that includes time-sensitive information and knowledge specific to the geography such as a point of view on local macroeconomic trends and insight into local market practices.

***Firms indicated that it was difficult to establish a culture that incorporates risk management into everyday business decisions.***

This hybrid approach may work better than pure quantitative techniques, particularly in situations where there is not a large database of available information, such as with operational risk. Although easy to note in retrospect, many catastrophes exhibit a common pattern: failure to appreciate and process information that does not "fit" within the habitual channels of risk data processing (e.g., gossip).

Too often, risk management is viewed as only backward looking, with no ability to *predict* accurately. A combined approach to risk appreciation (based on a blend of quantitative analysis and local judgment) is possibly the best way to integrate risk management into decision making within the business units.

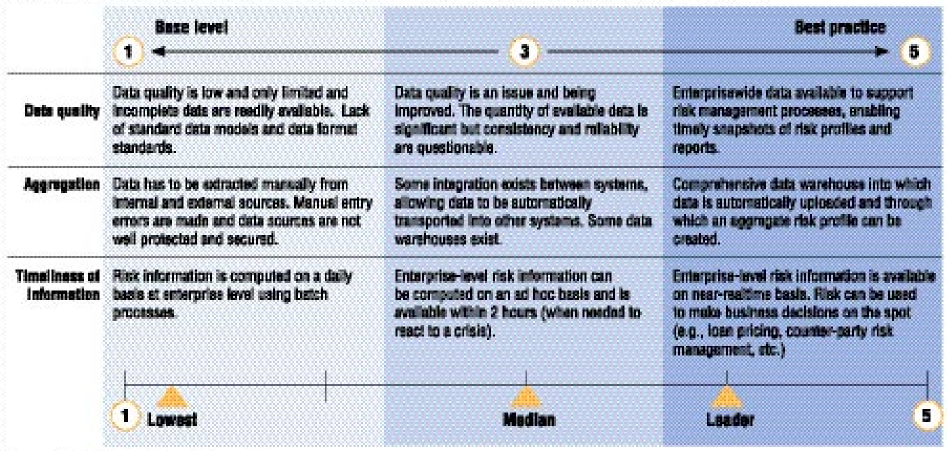
## An enabling infrastructure

To accomplish all the activities required for successful ERM, banks need the right information and analytical capabilities to discern and evaluate potential threats and opportunities – but also an effective organizational makeup to act on that knowledge.

To manage risk in a portfolio fashion, banks need information that is accurate and aggregated enterprise-wide (see Figure 9). Systems must be integrated and facilitate automatic collection and consolidation of data to help prevent errors and improve currency. Standard data models and data formats can help banks achieve the consistency required for reliable decision making.

However, implementing these standards is not simple – and can be very expensive as many banks have

**Figure 9. Where does your performance fall? Take a moment to rank your data and technology capabilities.**




*Source: IBM Institute for Business Value analysis.*

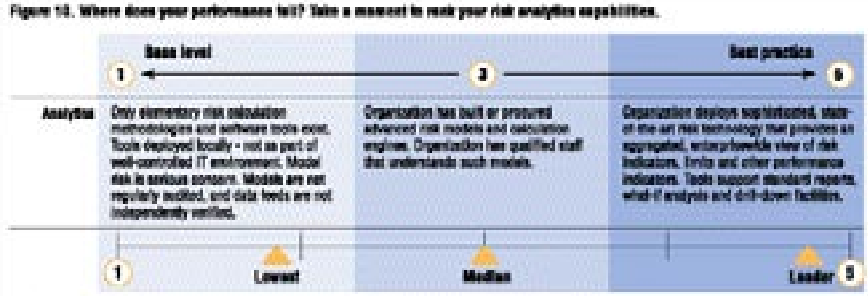
found. Successful banks tend to break the problem down into manageable chunks. Instead of implementing one central, all-encompassing data warehouse with a single standard system interface (which is intellectually appealing, but more difficult to do), some firms choose to implement a series of mini-warehouses or data marts – each specialized in the data required for a single function. Although this approach increases the number of interfaces and introduces the need to reconcile data across data marts, reliable tools exist to synchronize data and prevent erroneous information from ever entering the database in the first place.

With an aggregated and accurate situational snapshot available, banks can use advanced risk analytics to better quantify and measure credit, market and operational risks (see Figure 10). This type of "what if" analysis support also allows firms to test various mitigation strategies such as risk transfer products. Decision support tools based on net present value (NPV) or economic value added (EVA) can help banks incorporate the cost of risk into their decision-making processes.

Managers and external stakeholders are increasingly demanding clearer – and more standardized – reporting in order to better understand the risks and compare levels of risk across business units or different firms. As technology advances, the possibilities increase:

- Because of its ubiquity, the Internet can provide better and faster ways of disseminating information and risk analysis and conducting risk transfer transactions.
- Increased computing power and continually declining storage costs make more refined analytics possible and more practical, which opens sophisticated risk models to mid-sized and smaller companies.

**Figure 10. Where does your performance fall? Take a moment to rank your risk analytics capabilities.**

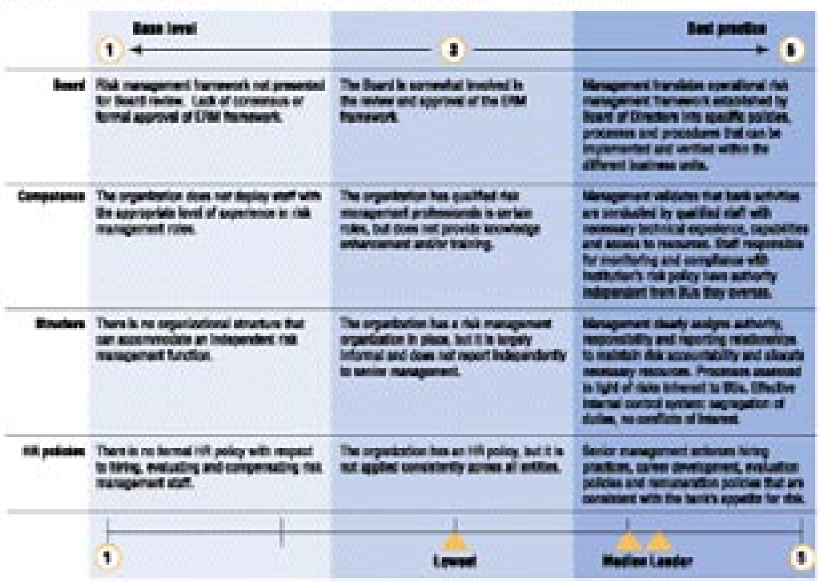



*Source: IBM Institute for Business Value analysis.*

- The same computing power also makes it possible to measure and report on risk more frequently – even in realtime. And the prevalence of hand-held and wireless devices makes communication about, and rapid reaction to, emerging problems or opportunities ever easier.

To capitalize on the insights gleaned, leading banks have established organizational structures and human resource policies that encourage effective risk management (see Figure 11). The focus on risk starts at the top, with a Board that is actively involved in constructing the firm's risk management framework. Within the organizational structure, a distinct risk management function is present and operates without undue influence from the formal reporting structure. Lines of authority and accountability are clear, and duties are segregated to avoid potential conflicts of interest. The firm equips its staff with the appropriate skills and tools – and establishes methods for continuous learning from past experience.

Figure 11. Where does your performance fall? Take a moment to rank your organizational capabilities.




Source: IBM Institute for Business Value analysis.

***Standard data models and data formats can help banks achieve the consistency required for reliable decision making.***

## The softer side of risk management

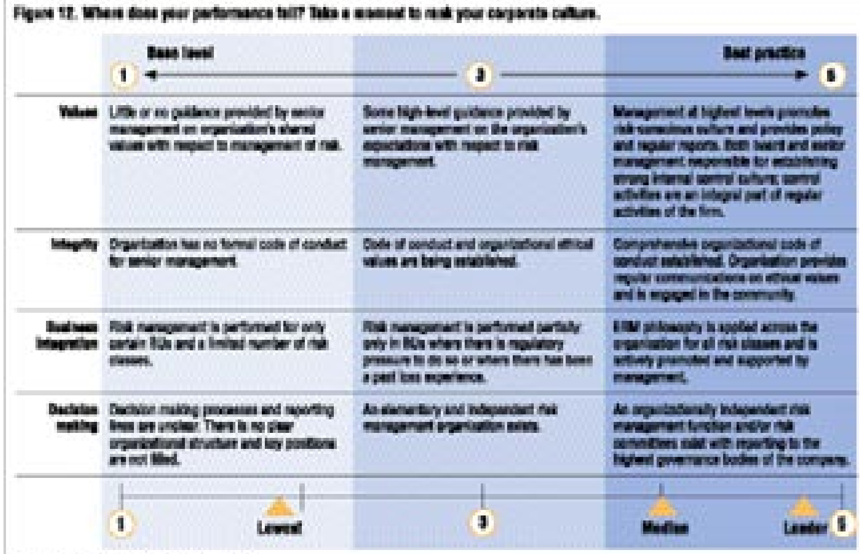
Beyond the physical constructs that can encourage enterprisewide risk management, some enablers relate more to the prevailing attitudes and conduct of the organization itself. For example, industry leaders integrate ERM into their corporate governance and promote a risk-conscious culture (see Figure 12). Employees at all levels of the organization share similar values in terms of handling risk. Risk management philosophies permeate all parts of the organization – even business units where there is no regulatory or financial pressure to do so. Control activities are an indelible part of day-to-day routines. Simply put, ERM becomes ingrained in the moral constitution of the firm.

***Industry leaders integrate ERM into their corporate governance and promote a risk-conscious culture.***

Increasingly, banks operate in glass offices where transparency is expected. Boards must be aware of major risks – and actively participate in developing policies for managing them. Disclosure done well allows regulators, analysts and the market at large to see that sound business practices are in place.

There are many different stakeholders associated with an enterprise: shareholders, employees, trade unions, regulators, customers, alliance partners, communities and the media, to name just a few. Effective stakeholder management considers each of their needs

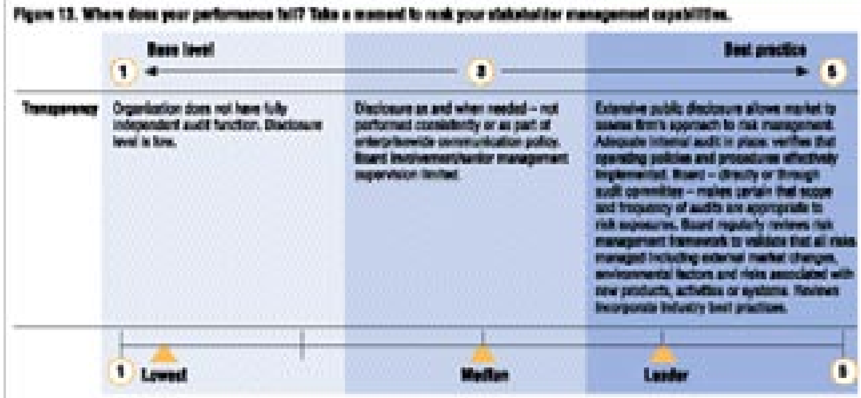
Figure 12. Where does your performance fall? Take a moment to rank your corporate culture.




Source: IBM Institute for Business Value analysis.

– along with the needs of the firm. While much can be achieved through relevant audits and transparency in reporting, the CRO clearly needs to consider the risk of the firm *not* meeting all of those needs. As we see in Figure 13, even the best firms do not rate particularly high – an indication that many CROs still find stakeholder management a challenge.

Figure 13. Where does your performance fall? Take a moment to rank your stakeholder management capabilities.




Source: IBM Institute for Business Value analysis.

## How sharp is your ERM vision?

For a snapshot of how your organization compares to leading banks in our risk management benchmark, use the scorecard in Figure 14 to plot your firm's position in each ERM area. As you review the assessment criteria in each area of the risk management framework, rate your organization's performance on a scale of one to five.

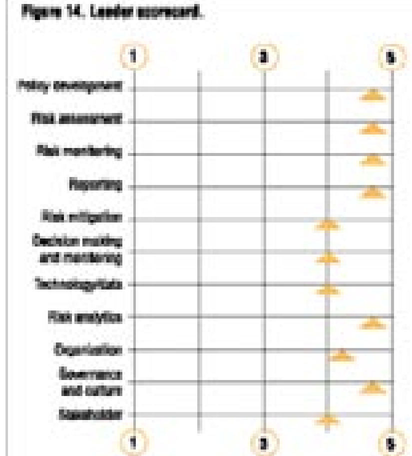
Looking collectively at your scores, where do your strengths lie? Are you successfully capitalizing on those competitive advantages? Equally important, where do you lag? The self-assessments developed as part of this benchmark not only serve to assess – they also outline a path to improved ERM.

Although the emergence of the Chief Risk Officer role is a clear sign of the importance of risk management to financial institutions, the inflation of control-based regulation is exerting a negative influence on this new function. Indeed, perhaps the biggest risk that firms face is the danger that risk management becomes a defensive discipline operating in an oppressive, legalized environment.

As more and more decisions are scrutinized and record-keeping and audit trails become dominating activities, this threat to the CRO role should not be underestimated. Decision making is always complex – and sometimes involves a measure of "gut feel" or intuition. The fear that CROs may be blamed when, in retrospect, their professional judgments turn out to be wrong can engender a risk-averse culture, with catastrophic consequences for the firm.

To rescue risk management from becoming just another control and audit function, CROs must help themselves and their organizations become more clairvoyant, building a stronger ability to mitigate threats and uncover opportunities to create value. A comprehensive risk management framework can help CROs upgrade risk management from a necessary burden to a highly-valued and well-integrated business discipline.

Figure 14. Leader scorecard.




Source: IBM Institute for Business Value analysis.

For more information about the enterprise risk management framework, please e-mail us at *iibv@us.ibm.com*. To find out what we think about other pertinent business topics, visit our Web site: ibm.com/iibv

### *Related reading*

Contact *iibv@us.ibm.com* to obtain a copy of the following related publication: *"Risk, regulation and return: Delivering value through enterprise risk management,"* IBM Institute for Business Value.

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[1] *Petit, Cormac and Daniel Latimore. "Risk, regulation and return: Delivering value through enterprise risk management." IBM Institute for Business Value. May 2005.*
[2] *The Economist Intelligence Unit. "The evolving role of the CRO." April 2005. http://www.eiu.com/site_info.asp?info_name=eiu_The_evolving_role_of_the_CRO*