

McKinsey on
Risk

Highlights



Are you prepared for a corporate crisis?



The business logic in debiasing



Risk analytics enters its prime

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McKinsey on Risk is written by risk experts and practitioners in McKinsey's Global Risk Practice. This publication offers readers insights into value-creating strategies and the translation of those strategies into company performance.

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Introduction

Welcome to *McKinsey on Risk*, the journal offering McKinsey's global perspectives and strategic thinking on risk topics. We focus on critical decision making in the key risk areas that bear upon the performance of the world's leading companies. Using our experience and expertise across sectors, we seek to illuminate pathways to savings and revenue as we help institutions transform their risk culture to support their business objectives.

The third issue of *McKinsey on Risk* appears at a moment when world events and business developments are magnifying the complexities that corporations and financial institutions must account for in their risk strategies. The climate is clouded with political discontinuities and policy changes, institutional fatigue of the regulatory burden, declining consumer tolerance for corporate missteps, and accelerating cyberthreats. Meanwhile, internal and external stakeholders are questioning control structures, which are seen as adding costs but not much perceptible value.

These factors corroborate our core belief that risk management must be based on the contextual understanding of risks, with the objective of protecting business value and strategic growth. Corporations with a reactive stance or a single-minded focus on regulatory compliance will increasingly struggle, accumulating painful inefficiencies—always worrying about the next change, never quite clearing the bar. Indeed, they may at times be caught off guard, suffering the unmitigated impact of ill-defined risks embedded in their business models and operations. Articles in this issue therefore emphasize the need for a continual, proactive drive to understand and manage risks.

We begin with a frank discussion of the many dimensions of crisis response, based on McKinsey's long experience in helping scores of companies cope with a range of challenging incidents and emergencies. A further article demonstrates how insights from psychology and behavioral science can be used to make better business decisions. It is supported by an interview with an executive whose company learned a harsh lesson before incorporating debiasing approaches into its investment strategy. The next piece considers risk analytics at a turning point—where leading banks are using their vast pools of data to extract deep insights and develop strategy. The strategic repercussions of two regulatory changes, BCBS 239 and IFRS 9, are discussed in two further articles. The issue concludes with an examination of requirements intended to ensure that corporate structures can be taken apart without radically disrupting financial markets.

We hope you enjoy these articles and find in them ideas worthy of your consideration. Let us know what you think at McKinsey_Risk@McKinsey.com. You can also view these articles and others, as well as previous issues of *McKinsey on Risk*, at McKinsey.com and on the McKinsey Insights app.



Raúl Galamba de Oliveira

Chair, Global Risk Editorial Board



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Are you prepared for a corporate crisis?

No one can predict when disaster will strike—but knowing what to expect if it does will buy precious time.

Sanjay Kalavar and Mihir Mysore

Imagine yourself as a top executive in a company hit by a major crisis within the last 72 hours. First, and most important, there may have been serious damage to the community in which you operate. Your customers may have suffered, people's livelihoods destroyed. The environment may be irretrievably damaged. Some of your employees and contractors may be injured, or worse. Your investors will be livid, and the board will be looking to assign blame. By the end of the first week, chances are your organization could be facing dozens of lawsuits, some set to become class actions over time.

Very likely, at this early stage, you will realize that verifiable facts are few and far between. Opinions and rumors abound. You will have little or no idea of the extent of any physical or financial damage or the extent to which the organization was complicit in the event. You don't even know which of your top team members you can count on. Some of them

may be implicated; others may be operationally inexperienced, unfamiliar with the political realities, or temperamentally unsuited to the new situation—filled with good intentions but uncertain what role to play.

The crisis will be manna from heaven for your organization's natural antagonists, who will seek to take advantage of your misfortune. Competitors will try to lure customers and poach employees. Activist investors may plot a takeover. Hackers may target your systems. The media will dig up every past error the company may have made.

Much of the anger, by the way, is directed at you. And it's personal. Parody Twitter accounts may appear in your name, trashing your reputation. Your family may be targeted online. Reporters may be camping outside your home at odd hours of the day and night.

In the middle of all this chaos, what exactly do you do? Do you hold a press conference? If so, what do you say when you have so few facts? Do you admit wrongdoing, or do you say that what happened is not the fault of the company? Do you point to the cap on your legal liability, or do you promise to make everything right, no matter the cost? What do you tell regulators that are themselves under pressure and demanding explanations?

The issues just described are not hypothetical. They are all real examples of experiences that organizational leaders we know have faced in multiple crises in recent years. What's really troubling is that these experiences are now far more frequent, and far more devastating, than they have been in the past.

Every crisis has its own unique character, rooted in specific organizational, regulatory, legal, and business realities. But after helping around 150 companies cope with a range of corporate disasters, we have seen some clear patterns. These can teach companies some simple best practices they can follow to prepare for a better response, in case the worst happens.

The threat is growing

Many incidents inside companies never hit the headlines, but recent evidence suggests that more are turning into full-blown corporate crises (exhibit). The total amount paid out by corporations on account of US regulatory infractions has grown by more than five times, to almost \$60 billion per year from 2010 to 2015. Globally, this number is in excess of \$100 billion. Between 2010 and 2017, headlines with the word “crisis” and the name of one of the top 100 companies as listed by *Forbes* appeared 80 percent more often than in the previous decade.¹ Most industries have had their casualties. For instance, the US auto industry recalled a total of around 53 million vehicles in 2016, up from about

20 million in 2010, while the US Food and Drug Administration sent out nearly 15,000 warning letters to noncompliant organizations in 2016, up from just north of 1,700 in 2011.

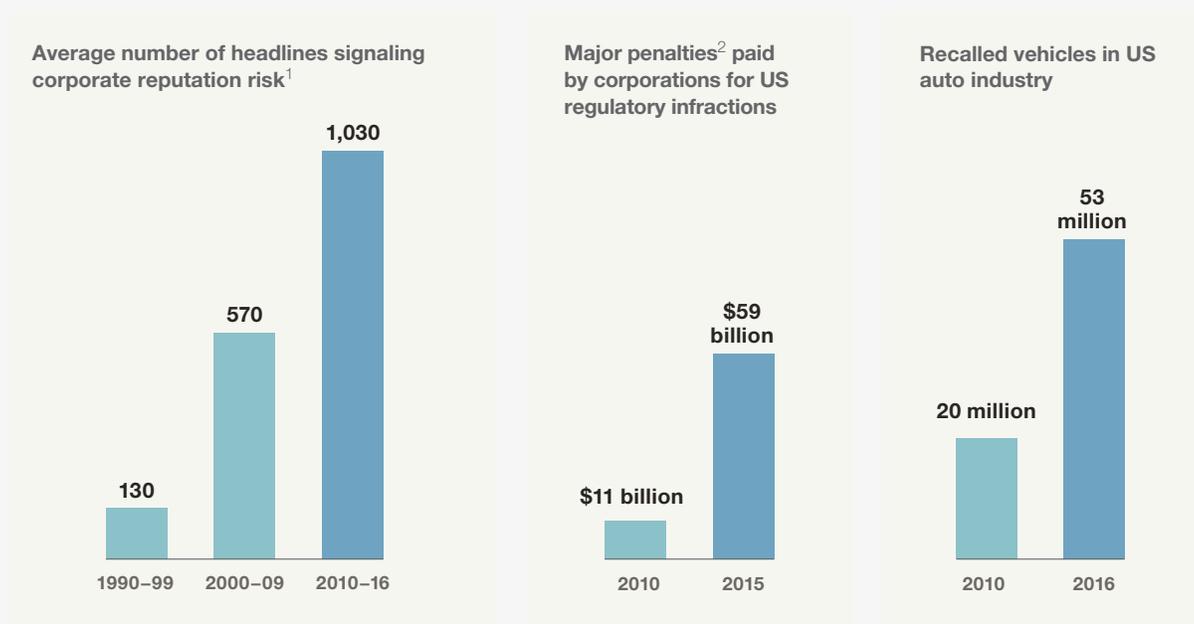
Why is this a bigger problem now than it has been in the past? First, there is the growing complexity of products and organizations. A new pickup truck today includes computer controls programmed with more than 150 million lines of computer code, while the average deepwater well is the height of seven Eiffel Towers. Goods travel thousands of miles and move through supply chains that comprise multiple intermediaries and multiple jurisdictions. A second reason for the significance of the problem is a higher level of stakeholder expectations. Customers, often in response to messages on social media, are more willing to sue or shun a company they believe is unethical. Governments are more willing to seek redress from companies they believe are breaking the law, and shareholder activism is on the rise. Third, the changing social contract is driving anxieties and mistrust in institutions, making irreversible knee-jerk reactions more likely. Finally, the raw speed of business operations—from rapid communications to shorter product-development timelines—makes crises more likely.

Understandably, companies spend more time trying to prevent crises than preparing for them. However, crisis readiness has become at least as important as risk management, takeover readiness, and vigilance over safety.

Underpreparedness has consequences and helps explain why companies engulfed by a large crisis initially underestimate the ultimate cost by five to ten times.² Senior executives are frequently shocked by how quickly a problem can turn from a minor nuisance into an event that consumes and defines the company for years to come.

Exhibit

Many company incidents remain hidden—but recent evidence suggests that more are turning into full-blown corporate crises.



¹ Reflects headlines with word “crisis” and name of one of top 100 companies in 2015 *Forbes* Global 2000 list.

² Major penalties defined as those exceeding \$20 million.

Source: Factiva; US National Highway Traffic Safety Administration; Violation Tracker, Corporate Research Project, Good Jobs First, 2017

Five parallel paths to resolution

In our experience, it helps to measure a crisis in “primary threats” (the interrelated legal, technical, operational, and financial challenges that form the core of the crisis) and “secondary threats” (reactions by key stakeholders to primary threats). Ultimately, the organization will not begin its recovery until the primary threats are addressed, but addressing the secondary threats early on will help the organization buy time.

When a crisis hits (or is about to hit), one of the first actions should be to create a cross-functional team to construct a detailed scenario of the main primary and secondary threats, allowing the company to form early judgments about which path the crisis may travel. This helps the organization set out major

decisions it needs to make quickly and is the first step toward wresting back control—improving the headlines of tomorrow, rather than merely reacting to the headlines of today.

While it is rare to get everything right at this stage, it is equally rare to get most of the second-order effects wrong. People are innately overoptimistic, of course, as we know from work on cognitive biases, but even being half right about how things will unfold is valuable at this early stage. It will provide a strong basis for tackling the five broad issues we see as critical to the outcome of a crisis: controlling the organization, stabilizing stakeholders, resolving the immediate primary threats, repairing the root causes of the crisis, and restoring the organization over time. While all five need to be addressed early,

they will likely require different levels of emphasis at different stages.

Control the organization

Normal rules for how the organization operates get torn up quickly in a crisis. Informal networks founded on trust and the calling in of favors can dominate over formal organizational reporting structures. Those previously opposed to the status quo can quickly become vocal, sparking a turf war and delaying action. Some key executives may themselves be implicated and unable to lead the response. Managers may start executing an uncoordinated set of actions with the best of intentions but incomplete or inaccurate information. No longer able to build consensus, they end up with unwieldy organizational structures that have dozens of decision makers around a table, with the result that the effort becomes dispersed and disconnected.

All this explains why an effective crisis team is central to mounting a satisfactory response. The best crisis organizations are relatively small, with light approval processes, a full-time senior leader, and very high levels of funding and decision-making authority. The team should be able to make and implement decisions within hours rather than days, draw a wall of confidentiality around the people who are responding, and protect those not involved from distraction in their day-to-day activities.

A common error is to choose an external expert as leader of the company's crisis response. External hires typically struggle to motivate and organize the company in a crisis situation. The right leader usually will be internal, well known, and well regarded by the C-suite; will have served in an operational capacity within the industry; and will enjoy strong informal networks at multiple levels in the company. He or she should possess a strong set of values, have a resilient temperament, and demonstrate independence of thought to gain credibility and trust both internally and externally.

The ideal crisis organization includes a set of small, cross-functional teams, typically covering planning and intelligence gathering, stakeholder stabilization, technical or operational resolution, recovery, investigation, and governance.

Stabilize stakeholders

In the first phase of a crisis, it's rare for technical, legal, or operational issues to be resolved. At this stage, the most pressing concern will likely be to reduce the anger and extreme reactions of some stakeholders while buying time for the legal and technical resolution teams to complete their work.

For instance, an emergency financial package may be necessary to ease pressure from suppliers, business partners, or customers. Goodwill payments to consumers may be the only way to stop them from defecting to other brands. Business partners might require a financial injection or operational support to remain motivated or even viable. It may be necessary to respond urgently to the concerns of regulators.

It's tempting and sometimes desirable to make big moves, but it is tough to design interventions that yield a tangible positive outcome, from either a business or a legal standpoint. What usually works is to define total exposure and milestones stakeholder by stakeholder, then design specific interventions that reduce the exposure.

Resolve the central technical and operational challenges

Many crises (vaccines in pandemics, oil wells during blowouts, recalls in advanced industries) have a technical or operational challenge at their core. But the magnitude, scope, and facts behind these issues are rarely clear when a crisis erupts. At a time of intense pressure, therefore, the organization will enter a period of discovery that urgently needs to be completed. Frequently, however, companies underestimate how long the discovery process and its resolution will take.

Companies' initial solutions simply may not work. One manufacturer had to reset several self-imposed deadlines for resolving the technical issue it faced, significantly affecting its ability to negotiate. Another company in a high-hazard environment made multiple attempts to correct a process-safety issue, all of which failed very publicly and damaged its credibility.

It's best, if possible, to avoid overpromising on timelines and instead to allow the technical or operational team to "slow down in order to speed up." This means giving the team enough time and space to assess the magnitude of the problem, define potential solutions, and test them systematically.

Another frequent problem is that the technical solution, mostly due to its complexity, ends up becoming a black box. To avoid this, technical and operational war rooms should have an appropriate level of peer review and a "challenge culture" that maintains checks and balances without bureaucratic hurdles.

[Repair the root causes](#)

The root causes of major corporate crises are seldom technical; more often, they involve people issues (culture, decision rights, and capabilities, for example), processes (risk governance, performance management, and standards setting), and systems and tools (maintenance procedures). They may span the organization, affecting hundreds or even

thousands of frontline leaders, workers, and decision makers. Tackling these is not made any easier by the likely circumstances at the time: retrenchment, cost cutting, attrition of top talent, and strategy reformulation.

For all these reasons and more, repairing the root cause of any crisis is usually a multiyear exercise, sometimes requiring large changes to the fabric of an organization. It's important to signal seriousness of intent early on, while setting up the large-scale transformation program that may be necessary to restore the company to full health. Hiring fresh and objective talent onto the board is one tried and tested approach. Other initiatives we've seen work include the creation of a powerful new oversight capability, the redesign of core risk processes, increased powers for the risk-management function, changes to the company's ongoing organizational structures, and working to foster a new culture and mind-set around risk mitigation.

[Restore the organization](#)

Some companies spend years of top-management time on a crisis only to discover that when they emerge, they have lost their competitiveness. A large part of why this happens is that they wait until the dust has settled before turning their attention to the next strategic foothold and refreshing their value proposition. By this stage, it is usually too late. The seeds for a full recovery need to be sown as early as possible, even immediately after initial stabilization.

Repairing the root cause of any crisis is usually a multiyear exercise, sometimes requiring large changes to the fabric of an organization. It's important to signal seriousness of intent early on.

Are you prepared for the worst?

Twenty-five questions executives should ask themselves now

Understanding threats

- What are the organization's top ten risks and, relative to these, what are the top five "black swan" threats that could destabilize the organization?
- For each black-swan threat, how might the crisis evolve, including second-order effects by stakeholders and assessments of maximum exposure?

Organization and leadership

- What will the crisis organization look like for each threat (in particular, is there a crisis-response leader with the right temperament, values, experience, and reputation), and when will that organization be activated?
- What will be your organization's governing values and guiding principles if any of the black swans hit?
- Have you defined the blueprint for a central crisis nerve center staffed by top executives, with division of roles?
- Do you have a crisis governance structure that involves the board, drives decision making, and isolates the rest of the business?
- Do you have a succession plan in case some of your mission-critical leaders need to step down because of the crisis?

Stakeholder stabilization

- Have you defined key stakeholders, including competitors and influencers, and tested how they might act in a crisis?
- Have you invested in understanding and establishing relationships with regulators and government stakeholders?
- Do you have a plan to protect employees and reduce attrition of your most talented employees?
- Have you established the portfolio of actions to stabilize stakeholders in the event of each scenario, beyond public relations?

Operational and technical

- Which critical operations can keep going, and which ones may need to slow or stop?
- Is there a blueprint for an operational or technical war room staffed with the right team and adequate peer review?
- Have you defined ways to monitor and reduce cyberthreats, including dark-web scans, during a crisis?

Investigation and governance

- How will you scope an investigation, and what level of transparency might you need to provide?
- Do you have a set of options for large governance changes you may need to make after a crisis?

Marketing, brand, and communications

- Have you established a basic communications process, tools, roles, and plan to drive key messages with stakeholders?
- Have you thought how to protect your brand during the crisis and help it recover afterward?

Financial and liquidity

- Are there financial protocols to provide crisis funding, protect liquidity, and maintain the business?
- Have you defined the broad scope of root-cause investigations and how they will be governed?

Legal, third party, and other

- Does the crisis team have a working knowledge of relevant legal provisions, case law, and protocols?
- Have you pre-identified battle-tested third parties—such as law firms and crisis-communications firms—as well as protocols for coordination and business decision making?
- Do you have a sense, based on case law, of what the overall legal pathways may be to resolve the black-swan event?
- Have you identified critical suppliers and considered how existing terms and conditions will affect you adversely in a crisis?

Readiness

- Have you rehearsed and critiqued all of your biggest crisis scenarios at least once in the past 12 months and implemented improvements to processes or other changes arising from these exercises?

This allows the organization to consider and evaluate possible big moves that will enable future recovery, and to ensure it has the resources and talent to capitalize on them.

Be prepared

Much of the crisis-management training top executives receive is little more than training in crisis communications—only one part of the broader crisis-response picture. The sidebar (“Are you prepared for the worst?”) presents the questions about preparedness that companies should be asking themselves.

Companies—and boards—should consider clearly defining the main “black swan” threats that may hit them, by conducting regular and thorough risk-identification exercises and by examining large crises in other industries as well as in their own. Once they do this, they should lay out, for each threat, what the trigger may be and how a hypothetical scenario for a crisis might unfold, based on patterns of previous crises. This allows the company to examine critically areas of weakness across the organization, and to consider what actions could offset them. For instance, should the company consider revisiting terms and conditions for key suppliers and building in a “cooling period,” rather than being forced to change the terms of accounts receivable in the heat of the moment? What other measures would provide short-term liquidity and steady the ship financially? Should the company invest in an activist-investor teardown exercise to assess key vulnerabilities that may surface in the midst of a crisis?

Once such an assessment is complete, the company should train key managers at multiple levels on what to expect and enable them to feel the pressures and emotions in a simulated environment. Doing this repeatedly and in a richer way each time will

significantly improve the company’s response capabilities in a real crisis situation, even if the crisis may not be precisely the one for which managers have trained. They will still be valuable learning exercises in their own right.



Risk prevention remains a critical part of a company’s defense against corporate disaster, but it is no longer enough. The realities of doing business today have become more complex, and the odds of having to confront a crisis are greater than ever. Armed with the lessons of the past, companies can prepare in advance and stand ready to mount a robust response if the worst happens. ■

¹ Factiva; McKinsey Crisis Response analysis; top 100 based on the 2015 *Forbes* Global 2000 list.

² McKinsey Crisis Response analysis: ratio of initial company and analyst expectations in multiple crises (as measured by initial drop in market capitalization) to final cost.

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The business logic in debiasing

Debiasing business decision making has drawn board-level attention, as companies doing it are achieving marked performance improvements.

Tobias Baer, Sven Heiligtag, and Hamid Samandari

A previous McKinsey article¹ on the future of risk management in banking highlighted six structural trends that are expected to transform the risk function's role in the coming decade. Of these, the trends relating to regulation, costs, customer expectations, analytics, and digitization are familiar, to one degree or another, to most readers. One trend that is less familiar is *debiasing*, that is, using insights from the fields of psychology and behavioral economics to help organizations take bias as much as possible out of risk decisions.

Biases are predispositions of a psychological, sociological, or even physiological nature that can influence our decision making. They often operate subconsciously and by definition are outside the logical process on which decisions are purportedly based. While we may readily acknowledge their existence, we often believe that we ourselves are not

prone to bias. (This is actually a form of bias in itself, called overconfidence.)

The business world is scarcely immune, as executives have long suspected. In a survey of nearly 800 board members and chairpersons, McKinsey found that respondents ranked “reducing decision biases” as their number-one aspiration for improving performance.² As a consequence, we have seen increasing numbers of companies provide training in unconscious biases and how they affect management actions, such as gender bias in personnel decisions.

Bias is costly. Take the effect of one kind of bias, stability bias, in one dimension of business, capital allocation, as an example. McKinsey research has shown that companies that allocate capital dynamically—rebalancing regularly according to performance—return between 1.5 and 3.9 percent

more to shareholders than companies with more static and routinized budgeting. The study suggests that companies with dynamic capital allocation could grow twice as fast as those without it. Yet in a classic example of stability bias, we found a 90 percent correlation in budget allocation year after year, for a 20-year period.³ The latest McKinsey research only underscores the relevance of these findings. A 2016 survey of nearly 1,300 executives worldwide revealed that higher-performing companies more tightly link reallocation to performance and value creation, using rigorous bias-reducing principles.⁴

Sometimes companies question least the decisions affecting their core business, such as underwriting in banks and insurance companies. These decisions and their governing processes can be so deeply embedded in the institutional culture that they might not appear to be open to question—or even recognized as decisions. The failure to take debiasing actions in these areas means that most of the potential bottom-line impact from debiasing remains unaddressed. Yet companies can shape practical, targeted debiasing interventions and achieve tangible business benefits. These can be substantial. When debiasing high-frequency decisions such as those in credit or insurance underwriting, we have seen losses reduced by more than 25 percent.

Diverse biases and business priorities

Biases affect how we process information, make decisions, and construct strategies (see sidebar “An overview of business-relevant biases”). They do not, however, always work in the same direction nor are they equally distorting in all situations. Companies have so far tapped only a small part of the potential of debiasing in business contexts. One reason is that no ready formulas exist that address the many different biases and business contexts. But corporate efforts to diagnose biases and take debiasing actions can be very effective, especially when prioritized by business need. Prioritization

involves zooming in on the handful of decisions with the greatest business impact and then, decision by decision, identifying the actions that will reduce or eliminate the biases that may be present.

No summary account can reveal the full complexity of biases, which originate in diverse human cultures, complex social interactions, and the depths of the human psyche. Biases can be predominantly psychological or social in origin. The social dimension of biases includes all cultural and organizational behavior. McKinsey research has highlighted “continuous improvement” as an important aspect of corporate culture at successful companies. Yet this advantage, which fosters internal competitiveness and rewards entrepreneurial creativity, can trigger action biases that can lead to unneeded or even harmful actions. Product launches, for example, are often the upshot of action biases. Yet three out of four launches fail to meet revenue expectations, and many result in significant losses to the company.⁵

Group psychological behavior produces some of the most powerful biases in business settings. Group dynamics can cause managers to sacrifice reasonable dissent to enhance their associations, maintain the favorable perceptions of others, and keep competitors at bay. They may recognize but choose to ignore flaws in the analyses and proposals of their allies, so these kinds of biases are not cognitive in nature—they do not relate, in other words, to the acquisition and assimilation of knowledge. Rather, they are generated by the group setting itself, in which managers almost consciously relinquish good logic as they compare and evaluate options for action.

Approaching debiasing systematically

Many good executives are aware of individual and organizational biases—yet awareness alone cannot overcome some biases, which can be embedded deep in our thought processes, almost

An overview of business-relevant biases

Business-relevant biases have been explored in the field of behavioral economics—the study of psychological and social influence on business decisions. It draws on the relationship defined in behavioral psychology between *heuristics* and *cognitive biases*. The former term describes obvious, practical methods of solving problems that yield expected results often enough for us to rely on them almost automatically. Heuristic methods are based on experience and tradition and can lead to unwarranted biases, which are unsuitable or even damaging in complex, dynamic environments.

Dozens of biases have been identified in behavioral economics. For our purposes, it will be useful to discuss five groups of biases encountered in a business context.¹

- **Action-oriented biases** prompt us to take action with less thought than is logically necessary (and prudent). These biases include *excessive optimism* about outcomes and the tendency to underestimate the likelihood of negative results, *overconfidence* in our own or the group's ability to affect the future, and *competitor neglect*—the tendency to disregard or underestimate the response of our competitors.
- **Interest biases** arise where incentives within an organization or project come in conflict—such as *misaligned individual incentives*, unwarranted *emotional attachments* to elements of the business (such as legacy products), or *differing perceptions of corporate goals*, such as misaligned weights assigned to different objectives.
- **Pattern-recognition biases** cause us to see nonexistent patterns in information. This set of biases includes *confirmation bias*, in which evidence in support of a favored belief is overvalued while evidence to the contrary is discounted; *management by example* (more accurately, subjective experience) is the tendency to overly rely on one's own recent or memorable experiences when making decisions; and *false analogies*, which are a form of faulty thinking based on incorrect perceptions and the mistaken treatment of dissimilar things as similar.
- **Stability biases** are the tendency toward inertia in an uncertain environment. These biases include *anchoring without sufficient adjustment*, which is the tying of actions to an initial value and failure to adjust to take new information into account; *loss aversion*, the familiar fear that makes us more risk averse than logic would dictate; the *sunk-cost fallacy*, which allows the unrecoverable costs of the past to determine future courses of action; and *status quo bias*, which is the preference for keeping things as they are in the absence of immediate pressure to change.
- **Social biases** arise from our preferences for harmony over conflict or even constructive challenging and questioning. These biases include “groupthink,” in which the desire for consensus disables a realistic appraisal of alternative courses of action, as well as “sunflower management”—the tendency for group members to align with the views of their leaders.

¹ For further discussion, see Dan Lovallo and Olivier Sibony, “A language to discuss biases,” *McKinsey Quarterly*, McKinsey.com.

like a childhood memory. Many would welcome a more systematic approach to debiasing business decisions, given prevailing levels of business and organizational complexity.

Executives concerned with improving the quality of decision making in key areas often turn to training. Training is helpful to create demand for debiasing but by itself cannot solve the problem. Biases are often too strong to be overcome through training exercises alone. The solution lies in designing an alternate decision process and selecting an effective debiasing strategy. The most effective strategy may not be the most obvious candidate, however, or the easiest to implement.

The choice of debiasing approaches will differ based on the type and frequency of the decisions that are being debiased. Analytical tools can be very efficient in debiasing high-frequency decisions such as those involved in credit underwriting. Analytics play an important but different role in low-frequency decision processes, providing, for example, an objective fact base for committees making quarterly decisions on recalibrating credit-rating models. Finally, for some important but infrequent decisions—such as those relating to infrastructure spending, technology transformations, or M&A—there may be a lack of sufficient data for analytical tools to be applied. Here, debiasing can be conducted by imposing specific, structured elements in group discussions and group-based decisions (such as those in board committees) to detect and counter emerging biases.

A systematic approach also requires a cultural change within the organization—one that creates demand for debiasing measures and adherence to them. Part of the cultural change involves bringing informal decision-making processes into the open by appropriately formalizing them, so that they may be subject to debiasing through explicit procedural changes.

Debiasing high-frequency decisions

In many business sectors, high-frequency decisions are often governed by formal processes. One of the most powerful techniques for debiasing process-based decision making is statistical decision systems. These are advanced models designed to discover patterns and probabilities in large data sets. For many process-based activities, decisions can be largely automated using statistical algorithms such as regression analysis, decision trees, and more advanced machine-learning algorithms. These can generate valuable insights—discovering attractive customer subsegments within otherwise less promising segments and geographies, for example.

Models are often designed to manage high-frequency process-based decisions. The decisions on calibrating the models, however, are low-frequency decisions and are not process based. Debiasing low-frequency decisions is discussed below, but it is important to remember that the development of algorithmic models entails many potentially idiosyncratic, bias-prone assumptions and decisions. Even well-constructed algorithms, when deployed on data sets full of biased observations and outcomes, can propagate and systematize biases. Designers and managers must therefore actively prevent their algorithmic models from becoming black boxes with baked-in biases. The models should be validated by an independent team and challenged in dialogue and discussions similar to those that companies have when considering new policies. Their operation must be periodically observed and the output reviewed for bias. Without such intervention, machine learning could perpetuate the biases we are trying to avoid or create new and unexpected distortions.⁶

Fortunately, analytics can also help diagnose the presence of biases. The presence of such biases as mental fatigue (sometimes called “ego depletion”) or anchoring can be tested statistically and the effectiveness of counterbalancing interventions

validated. Simulation tools even allow this kind of debiasing to be conducted without experimenting with the “live object”—that is, without interfering with a company’s actual risk decisions. In commercial lending, for example, such tools allow risk officers and relationship managers to participate in simulations of specific risk decisions and base real improvements on outcomes.

Not all high-frequency decisions can or should be automated by algorithms, however. To continue with the commercial-lending example, for larger commercial loans, a carefully debiased manual review of applications will add more value than a statistical algorithm. Algorithms cannot create

an informed view on investment plans based on customer interviews or an analysis of regulatory changes pending in the legislature. The sidebar “The Qualitative Criteria Assessment” describes one approach to debiasing judgment in high-frequency decisions.

Debiasing low-frequency decisions

Low-frequency decisions, such as those governing large investments, M&A, or organizational and business transformations, are prone to many of the same biases as process-based, high-frequency decisions. The debiasing of these high-stakes decisions proceeds along different lines, however.

The Qualitative Criteria Assessment

The Qualitative Criteria Assessment aims to debias subjective assessments, such as judgment-based credit underwriting, commercial insurance underwriting, and case prioritization by tax investigators. It replaces broad, fuzzy concepts with carefully chosen sets of specific, focused proxies from which more objective assessments can be developed. The approach uses statistical validation techniques optimized for the small sample sizes typically associated with manual data collection during the modeling stage. These techniques, which can derive generally valid results from limited data sets, were developed in scholarly disciplines such as the social sciences and have long been used in model validation.

Explicit psychological guardrails are deployed to debias qualitative-assessment processes. One effective guardrail is to construct a detailed timeline for pertinent data points to help assessors

reconstruct the past more accurately. In assessing a builder, for example, an insurance company might want the full list of the general contractors the company has used, along with their tenures of service. By requesting that the information be provided in the form of a timeline, the insurer eliminates availability or selection bias and can be more confident of the reliability of the builder’s response. Likewise, a potentially significant marker for credit risk for a small or medium-size company is the number of CFOs it has had in the past several years. If asked informally, assessors might fail to recall one or two past CFOs, thus underreporting the number of CFO changes; if a timeline is provided, gaps in tenure become immediately apparent. The Qualitative Criteria Assessment is thus a means to support deeper insights and better risk assessment through the more complete recovery of past performance.

The techniques employed must take place in an environment where decision makers readily recognize their own as well as others' biases. Often enough, senior executives are prone to overconfidence when it comes to their own biases—they can see the bias in the actions of others but not in their own. Executives who learn to accept the signals of their own biases and correct for them make better and more effective decisions.

On an organization-wide level, the very data that underlie a decision process can be flawed. Without conscious, systematic probing, data selection is prone to confirmation bias—the selection of information that would tend to confirm our own expectations and business goals. Data that contradict our intentions are prone to being rejected as faulty. To understand the importance of selecting bias-free data—and indeed, of debiasing generally—we need only recall the failure of value-at-risk models in the financial crisis. Damage assessments often revealed that the assumptions and inputs for these models served to disguise rather than reveal portfolio risk. The rare model that—presciently—assigned hefty capital requirements to mortgage exposures was rejected as faulty.

Pragmatic solutions

The good news is that pragmatic solutions exist. Carefully chosen interventions can achieve a real

difference in decision making. The use of a neutral fact base, for example, can anchor decisions in objective reference points. Mental processes can be reset to a bias-free state, using such techniques as destressing exercises and initial anonymous voting to reveal concerns without the impediment of groupthink effects. Another powerful approach is the premortem analysis: for important business decisions, alternative scenarios are thereby fully explored to reveal potential implications. (French law schools were pioneers of this technique, having for decades required students to write full briefs of equal length on both sides of a case.)

Another debiasing technique is the formal challenger role, by which a devil's advocate or independent observer confronts biasing behavior actively and explicitly. In some institutions, a formal devil's advocate role is played by a team designated to challenge the main findings competitively. The effectiveness of this approach is dependent on the alertness and competence of the chosen advocates. Confidential voting—often with the aid of commercially available tools—is a way to empower every participant to challenge the group, free of any social pressure.

Textual analysis can be a more systematic approach. It involves the review—and often the scoring—of all evaluations pertinent to the topic and has been used

Executives who learn to accept the signals of their own biases and correct for them make better and more effective decisions.

in a variety of settings, including to evaluate gender bias. Many companies have introduced this (along with other debiasing procedures) into personnel decision making.

Benchmarks are another means to promote neutral evaluations. For financial analysis of proposals, for example, a requirement that financial ratios be presented with peer comparisons can foster unbiased perspectives. As discussed in the sidebar on the Qualitative Criteria Assessment, suitably complete historical data can be an effective debiasing requirement for overcoming availability bias—the tendency to base judgments on only the most memorable or available details.

In decision-making processes, several conflicting biases may arise. It will be important, therefore, to take the time to diagnose bias profiles and prioritize debiasing measures for implementation. A large utility company seeking to debias a megainvestment decision recently encountered competing biases that acted on one another, amplifying the distorting effects of each bias. Investment proposals often reflected action-oriented biases, while social and stability biases limited the degree to which the proposals were challenged in meetings. The company addressed the action bias with a vigorous premortem analysis as a mandatory element of investment proposals, while establishing a formal devil’s advocate role in committee discussions to counteract groupthink. (For a more detailed discussion of this experience, see “The debiasing advantage: How one company is gaining it,” on p. 18.)

Debiasing in action

A typical debiasing process is a learning exercise for an organization. It can take many shapes and forms but has the following actions in common:

- *Diagnose.* The actual biases affecting business decisions are discovered by analyzing recent and past individual or group decisions, especially those that have been criticized in hindsight as biased. A decision-conduct survey is taken to discover how decisions have been made: concerned individuals are interviewed by experts in behavioral science, who match the evidence with markers of specific biases.
- *Design.* In the design phase, the key biases are matched with the best debiasing strategies in light of the organizational and process context. Many interventions are available for every kind of bias and bias combination. The selection of specific measures and how they should be tailored to fit the particular decision-making context can be worked out in an off-site event with executives, committee members, and experts. The special setting also helps build awareness for cultural change. In solution design, simplicity will be an important factor for success. Better decisions emerge from a small number of carefully targeted interventions against the most critical biases, rather than a grab bag of “nice to have” best practices.
- *Implement.* This phase involves pilots and other mechanisms that are designed to maintain debiasing momentum. Change champions can be established, possibly on a permanent basis, to lead this work across the organization and to develop the approach to measuring and monitoring outcomes and impact.



In such areas as gender bias and hiring, many major organizations have already seen impact from debiasing. In certain settings, companies have begun to address the distorting effects of biases in business. In the financial sector, for example, regulatory concerns have inspired systematic debiasing, resulting in the three-lines-of-defense principle, model-validation exercises, and new accounting standards.

Above all, debiasing has a compelling business logic. For some high-frequency decisions, its bottom-line impact is substantial and easily measured. In financial services, for example, 25 to 35 percent credit-loss reductions have been achieved. The effects of debiasing on low-frequency decisions are not as easily measured, but executives in every sector should be aware of the value in probing more deeply such actions as M&A decisions and large investments. Ultimately, the best measure of debiasing's effectiveness may be the greater confidence leadership develops in rejecting, modifying, or endorsing the company's most important strategic choices. In a world of increasing volatility, where nimble decision making under uncertainty will increasingly become the main determinant of success, the value of such confidence is hard to overestimate. ■

¹ Philipp Härle, Andras Havas, and Hamid Samandari, "The future of bank risk management," July 2016, McKinsey.com.

² Chinta Bhagat and Conor Kehoe, "High-performing boards: What's on their agenda?," *McKinsey Quarterly*, April 2014, McKinsey.com.

³ The study was conducted by McKinsey's Corporate Strategy Practice and included 1,509 US companies for the period spanning 1990 to 2010. It covered all capital expenditures except M&A costs and revenues.

⁴ Tim Koller, Dan Lovallo, and Zane Williams, "The finer points of linking resource allocation to value creation," March 2017, McKinsey.com.

⁵ See Julie Hall and Joan Schneider, "Why most product launches fail," *Harvard Business Review*, April 2011, hbr.org. A degree of trial and error is of course to be expected in all business decisions—the point is about how informed and bias-free the trial is.

⁶ For more, see Nanette Byrnes, "Why we should expect algorithms to be biased," *MIT Technology Review*, June 24, 2016, technologyreview.com.

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The debiasing advantage: How one company is gaining it

After several disappointing investments, the German electric utility RWE sought to eradicate its cognitive biases. Bernhard Günther, the CFO who spearheaded the effort, describes how this works.

McKinsey: *Tell us a bit about the circumstances that motivated RWE's management to undertake a broad debiasing operation.*

Bernhard Günther: In the second half of the last decade, we spent more than €10 billion on big capital-expenditure programs and acquisitions in conventional power plants. In the business cases underlying these decisions, we were betting on the assumption of ever-rising commodity prices and ever-rising power prices. We were not alone in our industry in hitting a kind of investment peak at that time. What we and most other peers totally underestimated was the turnaround in public sentiment toward conventional power generation—for example, the green transformation of the German energy system and the technological progress in renewable generation and related production costs. These factors went in a completely opposite direction from those in our scenarios.

McKinsey: *As you analyzed the decision-making dynamics at work, what biases did you start to see?*

Bernhard Günther: What became obvious is that we had fallen victim to a number of cognitive biases in combination. We could see that status quo and confirmation biases had led us to assume the world would always be what it used to be. Beyond that, we neglected to heed the wisdom of portfolio theory, that you shouldn't lay all your eggs in one basket. We not only laid them in the same basket but also within a very short period of time—the last billion euros were committed before the construction period of the first billion had been finalized. If we had stretched this whole €10 billion program out over a longer period, say 10 or 15 years, we might still have lost maybe one or two billion, but not the amount we incurred later.

We also saw champion and sunflower biases, which are about hierarchical patterns and vertical power

distance. Depending on the way you organize decision processes, when the boss speaks up first, the likelihood that anybody who's not the boss will speak up with a dissenting opinion is much lower than if you, for example, have a conscious rule that the bigwigs in the hierarchy are the ones to speak up last, and you listen to all the other evidence before their opinion is offered.

And we certainly overestimated our own ability to deliver, due to a good dose of action-oriented biases, like overconfidence and excessive optimism. Our industry, like many other capital-intensive ones, has had boom-and-bust cycles in investments. We embarked on a huge investment program with a whole generation of managers who hadn't built a single power plant in their professional lives. There were just a few people left who could really remember how big investments were done. So we did something that the industry, by and large, hadn't been doing on a large scale for 20 years.

Bernhard Günther



Bernhard Günther joined RWE in 1999 and served as chief financial officer beginning in 2013. He is now CFO of the RWE spin-off Innogy.

McKinsey: *On the sunflower bias, how far down in the organization do you think that went? Were people having a hard time getting past their superiors' views just on the executive level or all the way down?*

Bernhard Günther: Our investigation revealed that it went much further down, to almost all levels of our organizational hierarchy. For example, there was a feeling within the rank and file who produced the investment valuations for major decisions that certain scenarios were not desired—that you exposed yourself to the risk of being branded an eternal naysayer or worse when you pushed for more pessimistic scenarios. People knew that there were no debiasing mechanisms upstairs, so they would have no champion if they were to suggest, for example, that if we looked at a “brilliant” new investment opportunity from a different angle, it might not look that brilliant anymore.

McKinsey: *So what kind of countermeasures did you put in place to tackle these cultural issues?*

Bernhard Günther: We started a cultural-change program early on, with the arrival of our new CEO, to address our need for a different management mind-set in light of an increasingly uncertain future. A big component of that was mindfulness—becoming aware of not only your own cognitive patterns but also the likely ones of the people you work with. We also sought to embed this awareness in practical aspects of our process. For example, we've now made it mandatory to list the debiasing techniques that were applied as part of any major proposal put before us as a board.

It was equally important for us to start to create an atmosphere where people are comfortable with a certain degree of conflict, where there is an obligation to dissent. This is not something I would say is part of the natural DNA of many institutions, including ours. We've found that we have to push

it forward and safeguard it, because as soon as hierarchy prevails, it can be easily discouraged.

So, for example, when making big decisions, we now appoint a devil's advocate—someone who has no personal stake in the decision and is senior enough in the hierarchy to be as independent as possible, usually a level below the executive board. And nobody blames devil's advocates for making the negative case, because it's not necessary for them to be personally convinced; it's about making the strongest case possible. People see that constructive tension brings us further than universal consent.

McKinsey: *How did you roll all this out?*

Bernhard Günther: There were two areas of focus. First, over a period of two years, we sent the top 300 of our company's managers to a two-week course, which we had self-assembled with external experts. The main thrust of this program was self-awareness—being more open to dissent, more open to a certain amount of controlled risk taking, more agile, as with rapid prototyping and so forth.

Then we also launched a training program for managers and experts, especially those involved in project work—for example, the financial controllers who have to run the models for big investment decisions. This was a combination of a training course, some desktop training you could do on your own, and some distributed materials.

This program explicitly focused on debiasing. It started with typical examples where you can show everybody how easily we fall into those cognitive traps, framing this not as a personal defect but as something that's just there. Second, it emphasized that debiasing can be done much more easily within a group because it's a collective, conscious effort. And not some kind of empty ritual, either. We taught very specific things that people could apply in their

daily practices. For example, you can do a kind of “premortem” analysis and ask your team, “Imagine we are five years into the future, and this whole project we're deciding on today has turned out to be a complete disaster. What could have happened in the meantime? What could have gone wrong?” This is something that we are now doing regularly on big projects, especially when there are uncertain environmental factors—whether macroeconomic, technological, ecological, or political.

McKinsey: *Can you give us examples of when debiasing led to decisions different from those you would have expected to make?*

Bernhard Günther: Two examples immediately come to my mind. The first one came up in the middle of 2015, when it became obvious that our company was in a strategic deadlock with the power-generation business—the cash cow of the company for years, but now with a broken business model. There was a growing awareness among senior management that trying to cure the crisis with yet another round of cost cutting might not be good enough, that we needed to consider more radical strategic options. To come up with different proposals, we established a red team and a blue team, one staffed internally and one with externals. We wanted an unbiased view from the outside, from people who were not part of our company or industry. In this case, we brought in external people with backgrounds in investment banking.

The internal team came up with the kind of solution that I think everybody was initially leaning toward, which was more incremental. And the external team came up with a more disruptive solution. But because it was consciously pitched as an independent view, everybody on the board took the time to seriously consider it with an open mind. It planted the seedling of the strategy that we adopted—to split the company into two parts, which now, a

good year later, has successfully concluded with the IPO of Innogy. If we hadn't taken this approach, maybe months later or years later somebody would have come up with a similar idea, but it wouldn't have happened that fast, with that kind of momentum.

The second example is a recent potential investment project in renewable energy that carried high reputational value for us, so there were emotional issues attached to winning the project. We were bidding for a wind park that was to be built, and the lowest bidder wins by offering the lowest electricity price. We knew it would be a very competitive auction for that project, and we had already decided, in the run-up to the decision making, that we wanted to have a devil's advocate involved.

We had the project team make the case first in the board meeting. Then we had the devil's advocate put forward an analysis of the risk–return trade-offs. All of this was done in written form, so everybody had to read it before the meeting. This certainly helped our discussion a lot and made it much easier to have a nonemotional debate around the critical issues. And we came out of it with a different, and I think better, decision than we would have if we had just taken the proposal of our internal project team at face value.

McKinsey: *Now that these new decision-making processes have taken hold, how is the organization different? What's changed?*

Bernhard Günther: Looking back at where we were three or four years ago, I'd say that this practice of awareness and debiasing has now become almost a part of our corporate decision-making DNA. But it's something you have to constantly force yourself to practice again and again, because everyone at some point asks, "Do we really need to do it? Can't we just decide?" It's a very time-intensive process, which should be utilized only for the most important

decisions of strategic relevance. About 30 percent of our board's decisions fall into this category—for example, major resource-allocation decisions—and it's similar elsewhere in the company.

Also, people's general awareness of the complex set of issues around cognitive biases has grown dramatically. Before this, things easily degenerated into blaming exercises going both ways. The naysayers were critiquing the others for wanting to push their pet projects. And the people promoting these projects were saying that the naysayers were just narrow-minded financial controllers who were destroying the company by eternally killing good business ideas. But now there's more mutual respect for these different roles that are needed to ultimately come up with as good a decision outcome as possible. It's not just about debiasing; it's given us a common language. It's now routine for somebody to say in a meeting, "I think we need some debiasing here." And then everybody can agree to this without any need to get emotional. When in doubt, we just go through the process. ■

This interview was conducted by **Sven Heiligtag**, a partner in McKinsey's Hamburg office, and **Allen Webb**, editor in chief of the *McKinsey Quarterly*, who is based in the Seattle office. A longer version, "A case study in combating bias: How one company overhauled its decision making," appears in *McKinsey Quarterly*, Number 2, 2017.

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Risk analytics enters its prime

All the ingredients are in place for unprecedented advances in risk analytics. Now it's up to banks to capture the opportunities.

Rajdeep Dash, Andreas Kremer, Luis Nario, and Derek Waldron

With the rise of computing power and new analytical techniques, banks can now extract deeper and more valuable insights from their ever-growing mountains of data. And they can do it quickly, as many key processes are now automated (and many more soon will be). For risk departments, which have been using data analytics for decades, these trends present unique opportunities to better identify, measure, and mitigate risk. Critically, they can leverage their vast expertise in data and analytics to help leaders shape the strategic agenda of the bank.

Banks that are leading the analytical charge are exploiting both internal and external data. Within their walls, these banks are integrating more of their data, such as transactional and behavioral data from multiple sources, recognizing their high value. They are also looking externally, where they routinely go beyond conventional structured information, such as credit-bureau reports and market information, to

evaluate risks. They query unconventional sources of data (such as government statistics, customer data from utilities and supermarket loyalty cards, and geospatial data) and even new unstructured sources (such as chat and voice transcripts, customer rating websites, and social media). Furthermore, they are getting strong results by combining internal and external data sets in unique ways, such as by overlaying externally sourced map data on the bank's transaction information to create a map of product usage by geography. Perhaps surprisingly, some banks in emerging markets are pioneering this work. This is possible because these banks are often building their risk database from scratch and sometimes have more regulatory latitude.

The recent dramatic increases in computing power have allowed banks to deploy advanced analytical techniques at an industrial scale. Machine-learning techniques, such as deep learning, random forest,

and XGBoost, are now common at top risk-analytics departments. The new tools radically improve banks' decision models. And techniques such as natural-language processing and geospatial analysis expand the database from which banks can derive insights.

These advances have allowed banks to automate more steps within manual processes—such as data capture and cleaning. With automation, straight-through processing of most transactions becomes possible, as well as the creation of reports in near real time. This means that risk teams can increasingly measure and mitigate risk more accurately and faster.

The benefits—and challenges—of risk analytics

Banks that are fully exploiting these shifts are experiencing a “golden age” of risk analytics, capturing benefits in the accuracy and reach of their credit-risk models and in entirely new business models. They are seeing radical improvement in their credit-risk models, resulting in higher profitability. For example, Gini coefficients of 0.75 or more in default-prediction models are now possible.¹ Exhibit 1 lays out the value that analytics can bring to these models.

Some banks are expanding their risk models to new realms. A few have been able to automate the lending process end to end for their retail and small-and-medium-size-enterprise segments. These banks have added new analytical tools to credit processes, including calculators for affordability or preapproval limits. With this kind of straight-through processing banks can approve up to 90 percent of consumer loans in seconds, generating efficiencies of 50 percent and revenue increases of 5 to 10 percent. Recognizing the value in fast and accurate decisions, some banks are experimenting with using risk models in other areas as well. For example, one European bank overlaid its risk models on its marketing models to obtain a risk-profitability view of each customer. The bank thereby improved

the return on prospecting for new revenue sources (and on current customers, too).

A few financial institutions at the leading edge are using risk analytics to fundamentally rethink their business model, expanding their portfolio and creating new ways of serving their customers. Santander UK and Scotiabank have each teamed up with Kabbage, which, using its own partnership with Celtic Bank, has enabled these banks to provide automated underwriting of small-business loans in Canada, Mexico, and the United Kingdom using cleaner and broader data sets. Another leading bank has used its mortgage-risk model to provide a platform for real-estate agents and others providing home-buying services.

Realizing the potential

For many banks, the advantages of risk analytics remain but a promise. They see out-of-date technology, data that are difficult to clean, skill gaps, organizational problems, and unrelenting regulatory demands. The barriers seem insurmountable. Yet banks can get things moving with some deliberate actions (Exhibit 2).

Perhaps the most salient issue is that risk analytics is not yet on the strategic agenda. Bank leaders often don't understand what is really at stake with risk analytics—at times because the analytics managers present highly complex solutions with a business case attached as an afterthought. Lagging banks miss out on the benefits, obviously, and also put other programs and activities at risk. Initiatives to grow revenue and optimize pricing can founder if imprecise risk assessment of customer segments leads to poor choices. In lending, when risk models underperform, banks often add business rules and policies as well as other manual interventions. But that inevitably degrades the customer experience, and it creates an opening for fintechs to capture market share through a better experience and more precise targeting. Taken to its logical conclusion,

it is conceivable that banks might be relegated to “dumb pipes” that provide only financing.

Some nimble risk groups are finding ways through these problems, however. Our analysis suggests these teams have six common behaviors:

- **Take it from the top**, lifting risk analytics to the strategic agenda. For example, four out of ten strategic actions that HSBC Bank laid out in 2015 rely heavily on risk analytics.
- **Think big and apply analytics** to every material decision. Capital One is well known for applying

analytics to every decision that it makes, even when hiring data scientists.

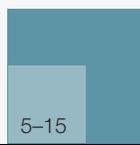
- **Go with what you have**. If data are messy or incomplete, don’t wait for better versions or for a “data-lake nirvana.” Use the data you have, or find a way to complement them. When Banco Bilbao Vizcaya Argentaria (BBVA) wanted to lend to some clients but lacked information, it partnered with Destacame, a utility-data start-up, to provide data sufficient to support a way to underwrite the customers.

Exhibit 1 Analytically enhanced credit models can improve banks’ returns in four ways.

Higher interest income from loan business

- Increased loan volume through sales campaigns, with lower turnaround rate due to better customer preselection and cross-selling
- Increased margin and loan volume by gradually introducing risk-differentiated offers (eg, packages or prices) and cross-selling of higher-margin products

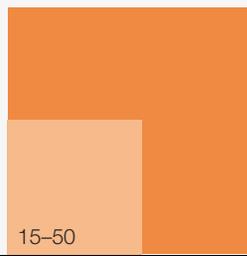
Typical impact,¹ %



Higher revenues

Lower sales and operating costs

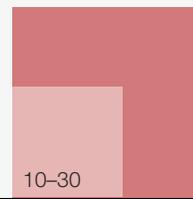
- Targeted and effective origination process (eg, risk prescreening, policy prefilters)
- More efficient underwriting process (eg, digital channels, risk-based differentiated process across products)



Greater productivity

Reduction of relative risk costs

- Better selection of risks, (eg, with combined risk scores, risk clustering of customer segments)
- Improved risk monitoring and early warning across product categories



Fewer loan losses

Improved capital efficiency

- Better calibration and refinement of the models, leading to reduced risk-weighted assets
- Better data cleanliness to accurately represent risk measures and mitigants



Fewer risk-weighted assets

¹ Impact not additive and depends on the bank’s portfolio.

Source: McKinsey analysis

Exhibit 2

Several factors keeping banks from realizing the potential promise of risk analytics should be reexamined.

Strategic agenda



Perceived barrier

- Risk analytics is disconnected from business strategy and often seen as only a technology or regulatory-compliance initiative

A better way to think about it

- Risk analytics is at the heart of many strategic topics (eg, digital, capital productivity, loan-book health, market entry)

Data and technology



- Unclean, unmatched data means waiting for that never-ending, “nearly complete” data transformation

- The data available can generate high value, often in combination with external data

- Technological landscape is so complex that a simplification and upgrade is required before doing anything

- The “art of the possible” can produce high-value projects

Skills and organization



- IT group doesn’t have the authority to enforce data-management policies

- The business can take responsibility for data quality, integrity, and access, supported by a strong IT organization

- Building analytics means hiring scarce, expensive data engineers and scientists

- Banks can move quickly through inorganic growth and partnerships

Regulations



- Regulatory burden does not allow us to focus on anything else, including analytics

- Analytics business cases can tease out surprising synergies between regulatory needs and business aspirations

- Regulators would not agree with use of advanced models and more advanced data

- Sophisticated, value-generating models can be built even within constraints established by the Basel Committee and the European Union

Change



- Building a model is relatively easy and can be done any time

- Digital economy has winner-takes-all economics; first movers have a huge advantage

Source: McKinsey analysis

- *Accumulate skills quickly*, through either rapid hiring or acquisitions and partnerships. Then retain your talent by motivating people with financial and nonfinancial incentives, such as compelling projects. Banks such as BBVA, HSBC, Santander, and Sberbank have launched funds of \$100 million and more to acquire and partner with fintechs to add their market share, sophisticated technologies, and people.
- *To succeed, be willing to fail and iterate quickly* through a series of minimum viable products (MVPs) while also breaking down traditional organizational silos. One bank building a fully digital lending product went through six MVPs in just 16 weeks to get to a product it could roll out more broadly.

- **Use model validation to drive relentless improvement.** Validation teams can be the source of many improvements to risk models, while preserving their independence. The key is for teams to style themselves as the guardian of model performance rather than the traditional activity of merely examining models.

If banks can master these elements, significant impact awaits. Risk analytics is not the entire answer. But as leading banks are discovering, it is worthwhile in itself, and it is also at the heart of many successful transformations, such as digital risk and the digitization of key processes such as credit underwriting.

Risk-analytics leaders are creating analytic algorithms to support rapid and more accurate decision making to power risk transformations throughout the bank. The results have been impressive. An improvement in the Gini coefficient of one percentage point in a default prediction model can save a typical bank \$10 million annually for every \$1 billion in underwritten loans.² Accurate data capture and well-calibrated models have helped a global bank reduce risk-weighted assets by about \$100 billion, leading to the release of billions in capital reserves that could be redeployed in the bank's growth businesses.

Leveraging the six successful behaviors

Nothing succeeds like success. The behaviors we have observed in successful risk-analytics groups provide the guidance.

Take it from the top

Stress testing and regulatory oversight following the 2008 financial crisis have vaulted risk management to the top of the management agenda. Nine years later, and after significant investment, most big banks have regained a handle on their risks and control of their regulatory relations. However,

leading banks, recognizing the value from risk analytics, are keeping these programs at the top of their strategic plans, and top leaders are taking responsibility.

Top-management attention ensures commitment of sufficient resources and removal of any roadblocks—especially organizational silos and the disconnected data sets that accompany these divides. Leaders can also keep teams focused on the value of high-priority use cases and encourage the use of cross-functional expertise and cross-pollination of advanced analytical techniques. Good ideas for applications arise at the front line as people recognize changing customer needs and patterns, so banks must also build and maintain lines of communication.

Think big and apply analytics

For some time, analytics has played an important role in many parts of the bank, including risk, where a host of models—such as the PD, LGD, and EAD³ models used in the internal ratings-based approach to credit risk—are in constant use. What's new is that the range of useful algorithms has greatly expanded, opening up dozens of new applications in the bank. Many small improvements to material decisions can really add up. An obvious example is algorithmic trading, which has transformed several businesses. Already by 2009, for example, it accounted for 73 percent of traded volume in cash equities. An expansion of automated credit decisions and monitoring has allowed banks to radically improve customer experience in residential mortgages and other areas. Banks in North and South America are using advanced-analytics models to predict the behavior of past-due borrowers and pair them with the most productive collections intervention.

These and other important examples are shown in Exhibit 3. What's important is that leading banks are putting analytics to work at every step of these and many other processes. Any time a decision

Exhibit 3 Rapid innovation in eight use cases is powered by advanced analytics.

Credit risk	Description	Use cases
1	Underwriting	Make better underwriting decisions by using deep-learning algorithms to process vast amounts of data and more accurately quantify the risk of default
2	Credit-line management	Reduce charge-off losses by offering to each client an optimal line that is determined by machine-learning algorithms using the latest information about the client (eg, credit score) and local market (eg, home values)
3	Collections	Increase recoveries by making the right offer, at the right time, and through the right channel, with a recommendation engine and decision flow powered by 4 machine-learning algorithms
Operations risk		
4	Payment-fraud detection	Identify and review high-risk payments before they are executed by using input from fraud investigators to tune powerful machine-learning algorithms that pinpoint the highest-risk transactions
5	Anti-money laundering	Quickly suspend money-laundering operations by using a longitudinal view of payment pathways to identify the patterns most indicative of money laundering, and accelerate reviews with powerful investigative tools
Trading risk		
6	Contract compliance	Automate the extraction and storage of data from millions of trading contracts for regulatory compliance by using leading-edge image-recognition and machine-learning algorithms
7	Trade surveillance	Identify high-risk traders by monitoring their behavior with sophisticated natural-language-processing algorithms that recognize themes in trader communications that are markers of conduct risk
Model risk		
8	Model validation	Apply rigorous and efficient model-validation processes for traditional and advanced models that meet regulatory expectations and adhere to industry benchmarks for model risk management

Source: McKinsey analysis

needs to be made, these banks call on risk analytics to provide better answers. Even as they expand the applications of risk analytics, however, leading banks also recognize that they need to strengthen their model risk management to deal with inherent uncertainties within risk-analytics models, as these make up the largest share of risk-related decisions within banks.

Go with what you have

Messy, repetitive, and incomplete databases are a reality—but need not be an excuse. Rather than waiting for improvements in the quality, availability, and consistency of the bank’s systems and the data they produce, leading risk-analytics teams ask what can be done now. This might involve using readily available data in the bank to immediately build a

core analytic module, onto which new modules are integrated as new data sources become available. Alternatively, integrating two or more of the data sets on hand can generate significant value. These approaches hasten new analytical models to market while at the same time helping the bank gather information as it forms a credit relationship with customers.

Furthermore, leading banks supplement their resources with external data—once they have established that this offers clear additional value. Some US fintechs, for example, obtain customer permission to comb financial data and create a sanitized database that banks can use to make accurate risk decisions based on cash-flow patterns. A bank in Central America built a credit-approval system for unbanked customers based on data collected from supermarket loyalty cards. The bank used data such as frequency of shopping and the amount that customers typically spent per visit to estimate customers' ability to repay debt. Even better for banks, many external data are free. In some markets, micromarket information such as house prices by postal code or employment by district is available and can be mined for insights into creditworthiness of customers, especially small businesses. Conducting geospatial analytics on this information can also provide valuable insights (for example, proximity to a coffee-chain outlet would reveal foot traffic for a retail shop). Banks have also started analyzing unstructured data sets, such as news articles, feedback sites, and even social-network data.

Leading banks apply two tests before acquiring external data: Will it add value, typically through combination with other data sets? And does it conform with the bank's regulatory and risk policies? Consumer-protection regulations restrict the type of data that banks can use for risk-analytics applications, such as lending and product design.

While the practices outlined here will yield fast impact from messy, repetitive, and incomplete databases, most banks would still benefit from establishing sound data governance in parallel (and sometimes are required to do so under data regulations such as BCBS 239).

Accumulate skills quickly

Strong risk-analytics teams use several roles to develop solutions and integrate them into business processes (Exhibit 4).

Recognizing that they might not have the time to build the whole arsenal of skills, leading banks have acquired companies, outsourced some analytical work, invested in fintechs, and entered into formal partnerships with analytics houses. JPMorgan Chase has partnered with OnDeck to lend to small businesses; Bank of America has committed \$3 billion annually to fintech investment and joint innovation. Other leading banks have entered into partnerships with digital innovators to better understand customer behavior and risk profiles. Even when leading banks have acquired talent at scale in these ways, they still work to define roles and build skills in the risk-analytics team.

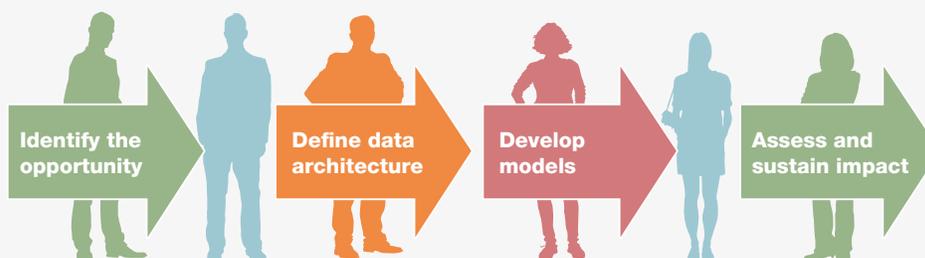
To succeed, be willing to fail and iterate quickly

Speed is as important as completeness in realizing value from risk analytics. A winner-takes-all dynamic is emerging in the race to better serve customers. Banks, fintechs, and platform companies are getting better at locking in customers quickly with highly personalized and desirable offerings. The offerings are dependent on customer data, which get richer and deeper with every new development of risk-analytics capabilities.

To reach and exceed the speed at which this race is moving, leading banks rely on quick, narrowly defined experiments designed to reveal the value (or

Exhibit 4 Strong risk-analytics teams are using these roles to develop solutions and integrate them into business processes.

Structuring a strong risk-analytics team



Data engineers and data scientists
 These roles are already common. What is new is that they encompass new techniques beyond traditional statistics and econometrics. Analytics teams now use such methods as graph theory to analyze supply-chain risk or machine learning to develop highly sensitive early-warning systems.

Translators
 This new role requires a keen business sense and an understanding of the rationale behind the models. It also requires an entrepreneurial spirit to promote risk analytics throughout the bank.

Business leaders and experts
 Business leaders and experts are also involved in developing solutions, taking responsibility for embedding the risk model in current practices.

Source: McKinsey analysis

the futility) of a particular hypothesis. When they succeed, they constitute a minimum viable product—something good enough to take to market, with the expectation that it will be soon improved. These experiments take weeks to conduct, rather than the more traditional months-long efforts commonly seen in risk-analytics functions (and that’s not even considering the validation process). One form such experiments have taken are “hackathons”—coding sessions with analysts and others that have produced promising applications in compressed time-frames.

Use model validation to drive relentless improvement

The banks that are developing a competitive edge through analytics constantly improve their current models, even as they build new ones. They make full use of their independent model-validation

framework, moving beyond providing regulatory and statistical feedback on risk models every year to a more insightful and business-linked feedback loop. Validation departments can achieve this without losing their independence by changing from a mind-set of “examiners of models” to “guardians of model performance.”

To introduce a degree of experimentation into model validation, leading banks incorporate business and model expertise into bursts of rapid development and testing and accept that not all results will be as expected. In this way, the model benefits from a continual 360-degree review, rather than being buried in the risk-modeling team and understood only by the model owner. To be sure, as they do this work, banks must also respect regulatory

constraints and explain to supervisors how they are utilizing advanced techniques. But leading institutions do not use regulatory oversight as an excuse not to move forward in an agile fashion. As shown by the multiple examples in this article, even large banks can make significant changes to improve outcomes and customer experience.

Getting started

We have outlined the reasons leading banks see considerable near-term promise in improved risk analytics, as well as the behaviors and principles that are distinguishing more successful players from the rest. This raises a logical question about what comes next: How can banks develop and execute a long-term bankwide risk-analytics strategy?

While a full discussion is beyond the scope of this article, we see five immediate actions for the chief risk officer (CRO) to maximize the value of existing investments and prioritize new ones. These actions are all consistent with the six successful behaviors discussed above but distilled into immediate high-payoff steps.

- Assess the current portfolio of risk-analytics projects, assets, and investments and take a hard look at any that cannot answer the following questions satisfactorily:
 - Is the initiative business driven? Does it address one of the biggest business opportunities and define an analytics use case to deliver it? Or is the initiative a hammer looking for a nail?
 - Does the initiative have a clear plan for adoption and value capture? Or is it only a “model building” project?
 - Is the initiative structured to generate quick improvements as well as longer-term impact?
- Make an inventory of your talent, teams, and operating model for each initiative. Success requires multidisciplinary co-located teams of

data engineers, data scientists, translators, and business experts. Prioritize actions to find the talent you need, rather than stretching the talent you have to the point of ineffectiveness.

- List your data and technology choke points—the weakest links in the system. Then determine the work-arounds you can develop to get high-priority initiatives moving (such as using external or alternative internal data or vendor solutions). Where no work-around is possible, ensure that precious resources do not lay idle waiting for resolution.
- Explain what you are doing to senior leaders, including business heads, the chief operating officer, and the chief investment officer. Work with them as needed to adjust priorities and redirect the program but then proceed full steam ahead.

In our experience, risk leaders can take these steps quickly, given the right level of determination and focus. CROs should not hesitate to pull critical people into the exercise for a couple of weeks—it’s typically a worthwhile investment that pays off in the redirection of a much larger body of work toward maximum impact. ■

¹ Gini coefficients measure variation or randomness in a set of values, where 0 is completely random and 1 is perfectly ordered. In a model that predicts default, a Gini coefficient of 0 would indicate that the model is no better than a coin toss, and 1 would indicate that the model’s output perfectly predicted the eventual defaults.

² Assuming a base Gini coefficient of 0.50 and an observed default rate of 5 percent.

³ Probability of default, loss given default, and exposure at default.

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Living with BCBS 239

The most recent McKinsey–IIF survey on risk data and technology revealed that while banks struggle with the rising regulatory bar, leaders are actually finding business value.

Holger Harreis, Tony Ho, Jorge Machado, Peter Merrath, Kayvaun Rowshankish, and Asin Tavakoli

In 2016, McKinsey and the Institute of International Finance conducted their fourth Global Risk Data and Technology Benchmarking Survey.¹ The context for the 2016 survey is the regulatory environment for risk data aggregation and reporting defined by the Basel Committee on Banking Supervision regulation 239 (BCBS 239). The compliance deadline of January 2016 came and went, with most G-SIBs engaged in ongoing risk data transformations.

BCBS 239 has set a standard for regulators globally and thus D-SIBs and other non-G-SIBs have sought to conform as well. The survey revealed that in the past several years, banks have made significant investments in the data capabilities needed to meet rising regulatory demands—yet they are still struggling to keep pace. According to banks' own quantified self-assessments, overall compliance levels have actually declined since 2015.

At the top of the list of regulatory-related challenges are the increasing scrutiny that banks expect in the near future and the rising levels of investment needed in data and technology capabilities. The dilemma can be resolved, however, if banks are able to create value from data as they tackle the regulatory agenda. This implies that the data vision and strategy banks deploy to meet regulatory needs and contribute to overall safety and soundness also support business goals. While banks remain primarily focused on risk data compliance, a few have begun to use data strategically to support business growth, through advanced analytics and digitization.

Despite investment, compliance levels are decreasing

In recent years, banks have invested significantly in their data and technology programs. These largely support remediation for regulatory initiatives

such as BCBS 239. Survey respondents revealed that the programs are mostly led by the risk and finance functions and run centrally. Two-thirds said that they are aligning their programs with an overarching data vision and strategy. The immediate focus is on getting the basics right: improving operations and IT, enhancing risk management, and better supporting the business. Many banks are also deepening senior-management accountability to improve program governance and data-quality awareness, as these are key topics for regulators. In developing a culture of data-quality awareness in their business and support functions, banks have also begun to tackle the question of data ownership, seeking to harmonize overlapping functions and increase collaboration among risk, finance, and treasury.

Investments in fundamental data capabilities have varied. Value-added efforts such as automation are mostly in the beginning stages or are scheduled for a later date.

- **G-SIBs.** Most G-SIBs have focused on documentation and selective remediation. About one-third are documenting data lineage up to the level of provisioning data elements and including data transformation—though several are questioning the value of data lineage in the context of broader data controls. Most banks are working on enabling specific IT systems rather than particular use cases or business capabilities. All US and most European and Asian G-SIBs have conducted an independent validation. To ensure an independent perspective on the state of remediation, the validation is usually conducted by an internal team reporting to the chief risk officer. Several banks are complementing their internal validation with external support to build capabilities in their second-line function.
- **D-SIBs.** European and Asian D-SIBs are accelerating their remediation programs, as

evidenced by rising investment levels. Three levels of maturity have been identified. At the highest level are D-SIBs adhering to the G-SIB timeline—such as Canadian banks, due to a stronger push by local regulators. A second group of D-SIBs began working on risk data and technology early on but have not yet finalized their programs. The last group are the late starters, which have only recently begun to work on risk data and technology.

Despite the data and technology investments, however, overall BCBS 239 compliance levels have declined since 2015 (Exhibit 1). Our respondents' self-assessment is supported by the latest Basel Committee progress report on risk data aggregation and risk reporting, which finds that banks' overall level of BCBS 239 compliance remains unsatisfactory. In fact, local supervisors have concluded that only one bank can be considered in alignment with the principles. Highlighted in the Basel Committee report is the regulators' assessment that, based on the current state of BCBS 239 remediation, banks that began the process in 2013 will need an average of five to six years to complete it.²

A few factors have conspired to produce the more conservative compliance assessments. Through discussions with regulators and the sharing of industry best practices, banks now have a deeper understanding of the technical requirements for compliance. Through independent validation, many banks developed a better understanding of their own capabilities and discovered previously unknown gaps in coverage. A further contributing factor has been that banks have expanded the scope of their regulatory programs beyond risk and finance to include data for management and regulatory reporting, operational processes, and material business decisions.

The rising regulatory bar

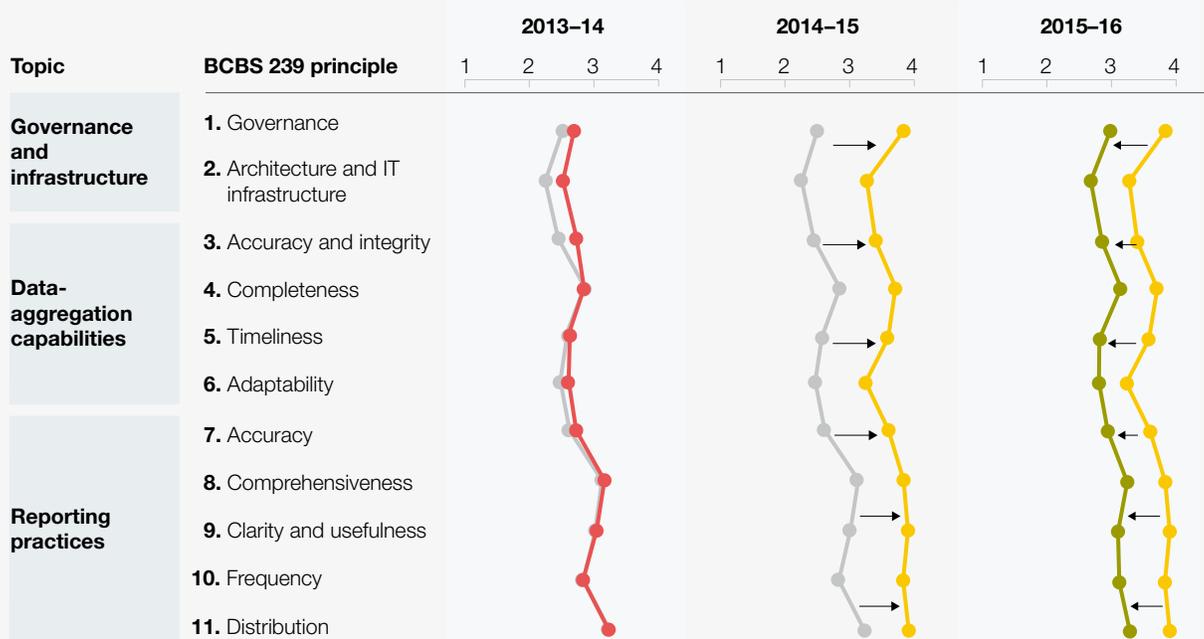
Around the globe, most bank executives believe regulators will continue to increase requirements for data capabilities. The present regulatory

Exhibit 1 Global self-reported compliance ratings show apparent progress to 2015 giving way to realism in 2016.

Average self-reported compliance rating, 2013–16

■ 2013 ■ 2014 ■ 2015 ■ 2016

1 = noncompliant 2 = materially noncompliant 3 = largely compliant 4 = fully compliant



Note: 2013, n = 34; 2014, n = 47; 2015, n = 15; 2016, n = 44

Source: Fourth McKinsey–IIF Global Risk Data and Technology Survey, 2016

environment is thus viewed as only the starting point (Exhibit 2). The scope of regulation is expected to widen, with thickening coverage for risk metrics, reports, data, and legal entities. One result is that some banks, especially in Europe, have chosen to be “constantly materially compliant,” a status just shy of full compliance, because of ongoing long-term remediation programs.

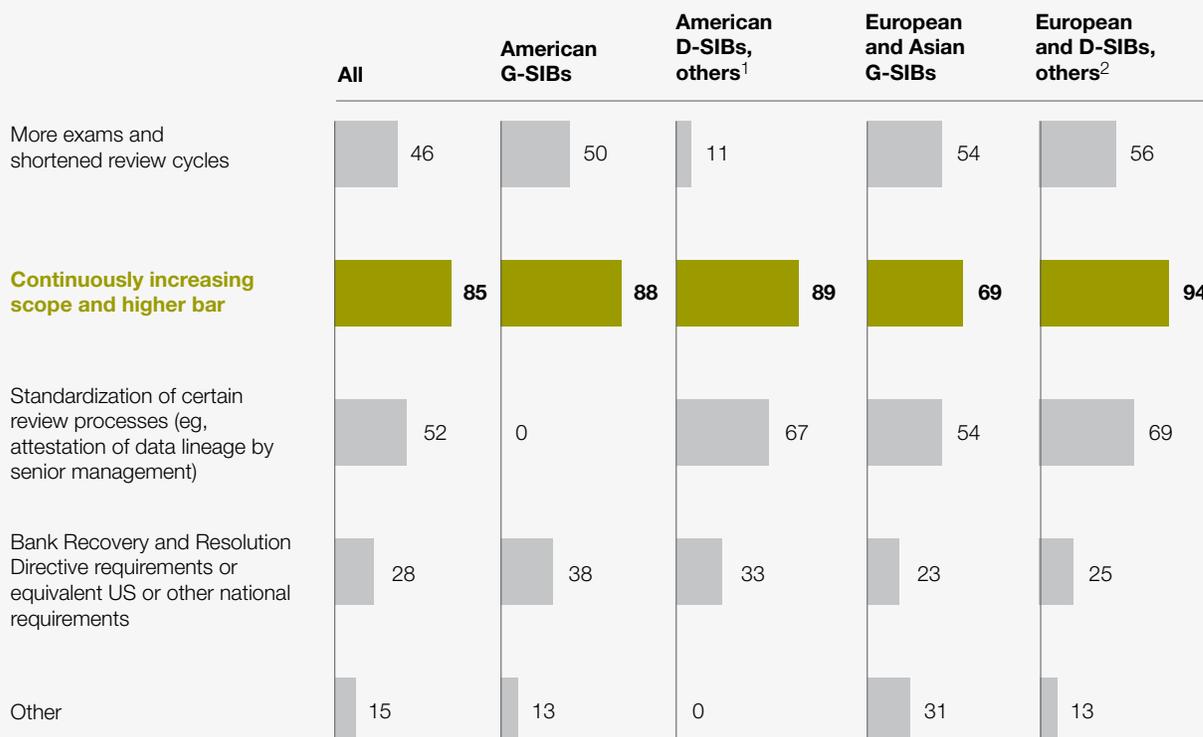
More frequent regulatory exams also are expected. Many regulators have already begun targeted reviews, such as the European Central Bank’s thematic review of BCBS 239 compliance for G-SIBs. They are also doing more live testing, through CCAR (in the United States) and other regulatory

stress tests. Almost all G-SIBs and about 40 percent of D-SIBs across geographies have conducted an independent validation of their BCBS 239 capabilities, to meet a regulatory requirement and prepare for further discussions with regulators. Respondents indicate that US regulators have been the most assertive; in Europe regulators are issuing further standards to improve consistency, while in Asia the regulatory climate is less intense. The regulatory environment will thus continue to tighten, with a cluster of regulations relating to risk data and technology, including BCBS 239, CCAR, FRTB, GDPR, and RRP, posing capability challenges for the largest banks.³

Exhibit 2 On regulation of data capabilities, most banks expect an ever-rising bar.

'What are your regulatory expectations for data?'

% of 46 respondents, globally and by region



Note: G-SIBs are banks designated by the Financial Stability Board as “global systemically important banks”; D-SIBs are banks designated as “domestic systemically important banks.”

¹ Category includes all non-G-SIBs from the Americas.

² Includes all non-G-SIBs from Europe, Middle East, Africa, and Asia-Pacific.

Source: Fourth McKinsey-IIF Global Risk Data and Technology Survey, 2016

While no one expects to see global standards for risk data and technology, general approaches are emerging within regions and have been codified in some countries (such as Germany’s “MaRisk,” or minimum requirements for risk management). Regulators have helped recently with more transparent definitions of data quality. The European Central Bank, for example, has developed Banks’ Integrated Reporting Dictionary (BIRD), a database with technical guidelines for reporting data, and has issued reviews of the quality of submitted reports, findings, and resolutions covering common reporting, financial reporting,

the liquidity-coverage ratio, the net stable funding ratio, and others.

Challenges to compliance

While self-assessed compliance levels have dipped and greater regulatory pressure is expected, banks’ spending on risk data and technology will likely vary by region (Exhibit 3). On the one hand, American G-SIBs are expected to maintain current budgets, because of either regulatory scrutiny or an appreciation of the competitive advantage these capabilities afford. European and Asian G-SIBs and American D-SIBs, however, are expected to reduce

their level of investments by around 25 percent. Declining budgets pose significant challenges for many banks and may become a factor affecting compliance levels well into the future, as the impact of changes in investments may take several years to materialize.

Most surveyed banks are already facing challenges in improving their overall data quality. Most commonly, a lack of front-office controls is leading to poor data quality at the systems of origin (Exhibit 4). Many banks also struggle with inefficient data architecture, often in legacy systems, which create operational inefficiencies and make it harder to improve data quality. Addressing these twin challenges usually requires more, not less, spending.

At banks where budgets are shrinking, however, two factors may be at work. The value of the data transformation may be inadequately appreciated by the business, while board and senior-management support, which has been generally growing, is still relatively modest. With the regulatory bar still rising, many banks find themselves running in place, still fixing the basics after having made significant investments over the past several years. They may be losing the focus needed to get to the finish line.

Making data value a reality

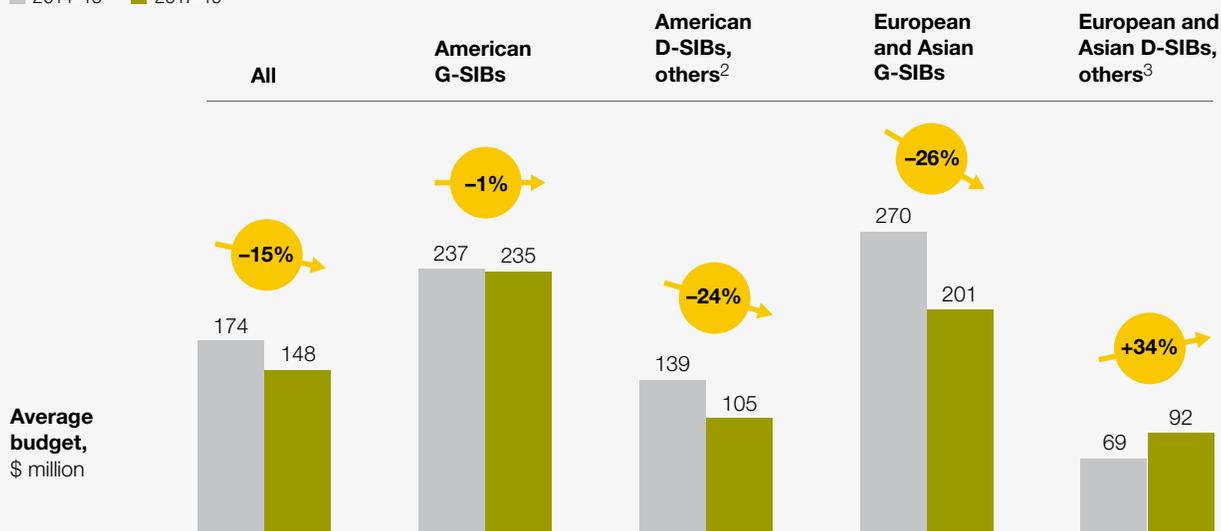
To address regulatory requirements and achieve business value, banks will have to reverse the backsliding and redouble their efforts on data. A renewed value-based effort could take shape around three principles.

Exhibit 3 Risk data and technology spending will vary by region, with notable declines for European and Asian G-SIBs and American D-SIBs.

Spending on risk data and technology initiatives for 2014–16 vs 2017–19 planned,¹

n = 21

■ 2014–16 ■ 2017–19



Note: G-SIBs are banks designated by the Financial Stability Board as “global systemically important banks”; D-SIBs are banks designated as “domestic systemically important banks.”

¹ Response accepted only when budget and planned spending were shared.

² Category includes all non-G-SIBs from North America and South America.

³ Includes all non-G-SIBs from Europe, Middle East, and Africa, and Asia–Pacific.

Source: Fourth McKinsey–IIF Global Risk Data and Technology Survey, 2016

Exhibit 4 Top challenges to improving data quality are front-office controls, data architecture, and business and senior-management attention.

Significance of challenges to improving data quality at enterprise level, ordered by number of respondents ranking challenge as no. 1 or no. 2

Number of responses, n = 41

■ No. 1 challenge ■ No. 2 challenge

Lack of front-office controls (poor quality of data entry at system of origin with no or limited validation)



Inefficient data architecture (multiple data warehouses with no common data model, legacy systems, complex lineage)



Lack of business buy-in on value of data transformation



Lack of board and senior-management attention to data transformation (data seen as IT issue, not business asset)



Lack of centralized direction to drive data transformation, with disparate business-unit-led efforts



Ineffective governance model (unclear data ownership, weak or inactive policies)



Insufficient funding and resource allocation for enterprise-wide data-transformation program



Data transformation primarily driven by regulatory-compliance needs, and data quality not a focus area



Manual intervention required for reconciliation and remediation of data-quality issues



Source: Fourth McKinsey-IIF Global Risk Data and Technology Survey, 2016

First, with full support from the business, banks should develop a business case that clearly defines and quantifies the value of the data program. Less than 40 percent of surveyed banks have done this, and many that have are not yet realizing value. One reason is that most (64 percent) of the value so far identified was set top down, rather than through bottom-up commitments from the business. The benefits, furthermore, are mostly connected to cost reduction and improved capital efficiency, rather than revenue uplift.

Second, banks should continue to make progress on their remediation programs and regulatory agenda. The orientation of these efforts should, however, begin to shift away from “change the bank” to “run the bank.” That is, banks should begin to move beyond reacting to regulatory requirements to a point where the capabilities they develop in response are embedded into the functioning of the bank. These capabilities should also be applied beyond risk and finance to include and address data used for operational processes and material business decisions.

Finally, from this foundation, banks should define a holistic data vision and strategy that creates business value. The approach is best derived from the bank’s business strategy. The end state is one in which all divisions are aligned and data requirements from all areas and for all uses are harmonized. The data environment, quality controls, and governance mechanisms established for compliance should also support business goals and create business value. As the bank meets standards for high-quality data for risk management and regulatory compliance, a coordinated effort can also be advanced to automate and digitize processes and develop advanced-analytics capabilities to enable the business.

The road ahead: Regulatory alignment and business value

Value creation through data therefore requires simultaneous progress in two dimensions of banks’

data agenda. Banks must continue the work of alignment with regulatory requirements such as BCBS 239. At the same time, they must derive business value from data with their new digital and advanced-analytics capabilities.

Regulatory alignment

In the regulatory dimension, most banks are already focusing on data governance and data quality. Regulators are now turning their attention to some of the thornier requirements for BCBS 239 compliance. A few points deserve priority attention.

- ***Developing capabilities for times of stress.*** Although many banks have adequate data-aggregation and reporting capabilities for normal times, these capabilities must also be strong enough for times of stress. To enhance data capabilities as needed, banks should develop scenarios covering all material risk areas and define scenario-specific data-aggregation and reporting requirements. The scenarios can then be used to test the bank’s capabilities during times of stress and identify potential gaps.
- ***Limiting end-user computing tools (EUCs).*** Banks should reduce their reliance on these tools, which are often used during data-aggregation and reporting processes. EUCs are typically developed and managed by end users outside a controlled environment and not subject to general IT controls. They can introduce various types of risk into the system, relating to data quality and integrity, access and security, and versioning. Banks must therefore seek to reduce significantly the number of EUCs through the automation of key processes. Banks should furthermore establish strict governance and controls over any remaining EUCs, often leveraging advanced tools for EUC identification, documentation, and management.

- Addressing data risk.** Finally, poor data quality can lead to losses and ineffective management decisions. A data-risk discipline should therefore be established within the overall risk-management framework. Its purpose is to identify, assess, and manage data risk. This will require that banks incorporate data risk as part of their risk appetite statement and develop a set of metrics to measure data risk across the organization, setting thresholds commensurate with the risk tolerance of the bank.

Business value

Many banks have begun to focus on the next data horizon by developing business-enabling digital and analytics capabilities. These can be applied to revenue-generating opportunities, such as targeted acquisition of customer segments or personalized banking at scale. They can also be used to streamline branch and back-office processes and to enhance risk management, such as for advanced fraud detection. Nearly 80 percent of respondents are piloting or have deployed business-enhancing analytics capabilities (Exhibit 5).

Exhibit 5 Banks are building skills in advanced analytics for risk data.

'Have you built advanced analytics in your current setup?'

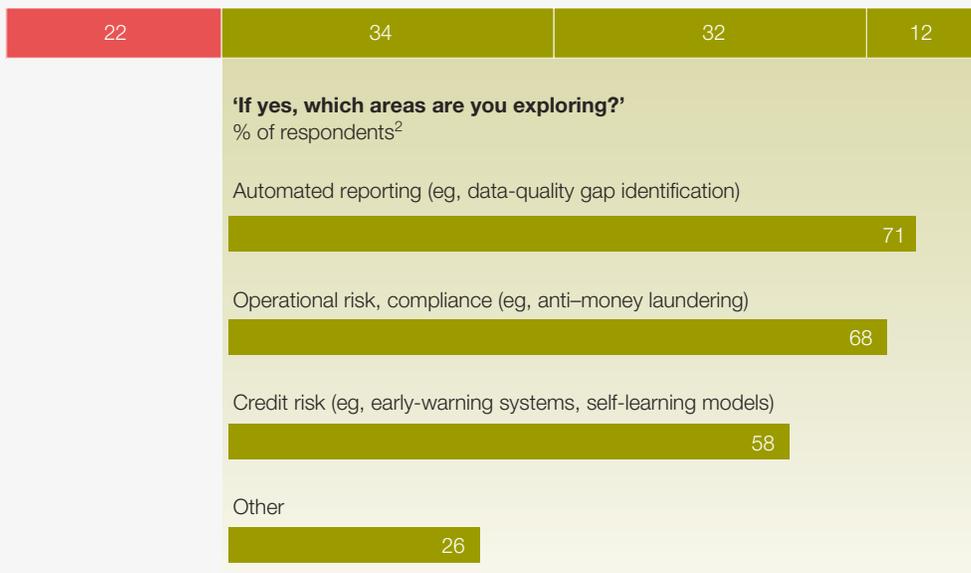
% of respondents¹

No, we have not enabled advanced-analytics capabilities

Yes, we have built in-house capabilities

Yes, we have set up early pilots of advanced-analytics capabilities

Yes, we have built capabilities, mostly by leveraging external support



¹ n = 48.

² n = 47.

Source: Fourth McKinsey-IIF Global Risk Data and Technology Survey, 2016

Most of the activity is in the areas of operational risk and compliance (such as anti-money laundering), credit risk (including early-warning systems and self-learning models), and automated reporting (such as data-quality gap identification). A large majority of respondents have focused on building forward-looking capabilities, including machine learning, predictive analytics, autodiscovery, and prescriptive analytics tools.

To support business growth with advanced analytics and digitization, however, banks must also enhance their data architecture and invest in next-generation technologies. The trend among leading banks is to adopt modern technology for their versatility and the potential to lower costs. These technologies are being applied to meet regulatory requirements for data granularity, quality, timeliness, auditability, and comprehensiveness—while also supporting advanced analytics and digital enablement to drive business growth. Implementation of such technology should be modular and agile. In this way, the long-term projects can advance toward their strategic target state while existing legacy infrastructure can be managed in a manner that generates value rapidly, according to more immediate business goals.

Data-driven synergy

The goals of regulatory alignment and business value can be pursued simultaneously. Compliance efforts are leading to enterprise-wide data-quality controls and governance established on the same data that can also be used to yield business value. Through machine learning and other advanced-analytics methods, high-quality, well-governed data will provide the basis for the insights needed to realize business value in a range of situations.

Leading banks have gone further, using BCBS 239, FRTB, and other data-related regulations as catalysts for value-based data management. These banks are seeking to streamline their responses to existing and new regulatory demands, including the digitization and automation of regulatory processes.

As capability levels rise, data and technology resources can be increasingly managed with the aid of advanced data forensics and data-management tools. These resources will also be integrated across the enterprise with other related disciplines, such as cybersecurity and operational risk.



Leaders are demonstrating that regulatory demands themselves can spur value creation. The greater transparency obtained through stress-testing and CCAR programs can support business-planning and investment goals, while advanced-analytics and digital capabilities are increasingly used to serve the business and drive growth. The new approaches turn living with BCBS 239 today (and new rules tomorrow) into sources of value. ■

¹ Fifty banks participated, 21 of which are defined by the Financial Stability Board (FSB) as global systemically important banks (G-SIBs), representing 70 percent of all banks so designated. Many of the other 29 participants are designated as domestic systemically important banks (D-SIBs) by the FSB. The survey covered the broad data and technology agenda, including regulatory-driven efforts, the data operating model, and business-driven efforts.

² Basel Committee on Banking Supervision, “Progress in adopting the ‘Principles for effective risk data aggregation and risk reporting,’” Bank for International Settlements, fourth report, March 2017.

³ CCAR: Comprehensive Capital Analysis and Review, a regulatory framework introduced by the US Federal Reserve; FRTB: Fundamental Review of the Trading Book, introduced by the Basel Committee; GDPR: General Data Protection Regulation, an EU rule; RRP: Recovery and Resolution Planning, banking rules that are part of the Dodd-Frank legislation in the United States.

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IFRS 9: A silent revolution in banks' business models

Banks have addressed the technical requirements of the new rules, but what about their significant strategic implications? Here's how to prepare.

Filippo Maggi, Alfonso Natale, Theodore Papanides, Enrico Risso, and Gerhard Schröck

Over the past few years, European banks have been preparing for the implementation of International Financial Reporting Standard 9 (IFRS 9), a new accounting principle for financial instruments that becomes effective in January 2018. IFRS 9 will change the way banks classify and measure financial liabilities, introduce a two-stage model for impairments, and reform hedge accounting (see sidebar “What is IFRS 9?”). In preparing for the new principle, banks have dedicated most of their efforts to technical and methodological issues—in particular, how to incorporate forward-looking macroeconomic scenarios into their existing models and processes.

Essential though this work is, banks run the risk of overlooking the strategic repercussions of the new

standard. These repercussions will be so significant—requiring banks to rethink their risk appetite, portfolio strategy, and commercial policies, among other things—that we believe nothing less than a silent revolution is under way. If banks fail to grasp the importance of IFRS 9 before it comes into force, they will have to manage its impact reactively after the event, and could lose considerable value in doing so.

Why a revolution? What IFRS 9 could mean for your business

We believe banks face a number of strategic and business challenges in adapting to the new environment under IFRS 9. Addressing these challenges will require fundamental changes to their business model and affect areas as diverse as treasury, IT, wholesale, retail, global markets,

What is IFRS 9?

International Financial Reporting Standard 9 (IFRS 9) is an international financial reporting standard published by the International Accounting Standards Board in July 2014. It will replace the existing standard, IAS 39, in 2018 and will introduce important changes to accounting rules for financial instruments in three main areas:

Classification and measurement. The basic accounting model for financial liabilities under IAS 39 remains intact, with its categories of “fair value” and “amortized cost.” However, under IFRS 9, a financial instrument must meet two conditions to be classified as amortized cost: the business model must be “held to collect” contractual cash flows until maturity, and those cash flows must meet the “SPPI criterion”: solely payment of principal and interest. Financial instruments that fail to meet the SPPI criterion—such as derivatives that generate a trading profit—will be classified at fair value, with gains and losses treated as other comprehensive income (FVOCI) or through profit or loss (FVTPL). A major consequence of this change will be an increase in P&L volatility as the value of financial instruments is constantly adjusted to the current market value.

Impairment. The “current incurred loss” impairment model of IAS 39 is being replaced by an “expected loss” model that recognizes two types of performing credit exposure: stage 1 exposures that have experienced no significant change in credit quality since origination, and stage 2 exposures that have experienced significant deterioration. Stage 1 impairments will be based on a one-year expected credit loss (ECL) rather than on an incurred loss, while stage 2 impairments will be based on lifetime ECL—that is, the probability of defaulting during the whole life of the exposure, taking into account current and future macroeconomic conditions. This will require banks to make higher loan-loss

provisions on performing exposures, and the sharp rise in risk costs for stage 2 liabilities could mean that some clients or parts of the business are no longer profitable. Banks will also need to monitor fully performing exposures more closely to prevent them from migrating to stage 2.

Hedge accounting. IFRS 9 introduces reforms in hedge accounting to better align banks’ accounting practices with their risk-management activities. It increases the range of exposures that can be hedged to include derivatives embedded in financial liabilities or nonfinancial contracts, and nonderivative foreign-exchange financial instruments measured at fair value. It also recognizes changes in currency base spread in other comprehensive income. One major consequence of this change is that noncore elements of derivatives (such as the time value of options) can be excluded from hedge accounting, and fair-value changes in them will no longer affect P&L as a trading instrument but will be recognized in other comprehensive income instead. IFRS 9 also allows banks to hedge nonfinancial items, such as the crude-oil component of jet fuel.

These changes, especially the new impairment framework with its stage 2 classification, will have a substantial impact on banks. We expect to see a 20 percent increase in provisions in first-time adoption and a 30 to 40 percent P&L impairment volatility caused by the allocation and release of provisions on loans entering and exiting from stage 2 on a recurring base. This volatility will be mainly generated by commercial clients, which typically have a higher probability of default and a lower collateralization. The range of these estimates is in line with impact assessments conducted by the European Banking Authority in 2016.¹

¹ See *Report on Results from the EBA Impact Assessment of IFRS 9*, European Banking Authority, November 2016, p. 33, eba.europa.eu.

accounting, and risk management. Banks that start to plan for these changes now will have a considerable advantage over those that have yet to consider the full implications of IFRS 9 for their business. To help banks get ahead, we have identified strategic actions in five areas: portfolio strategy, commercial policies, credit management, deal origination, and people management.

1. Adjusting portfolio strategy to prevent an increase in P&L volatility

IFRS 9 will make some products and business lines structurally less profitable, depending on the economic sector, the duration of a transaction, the guarantees supporting it, and the ratings of the counterparty. These changes mean that banks will need to review their portfolio strategy at a much more granular level than they do today.

- **Economic sector.** The forward-looking nature of credit provision under IFRS 9 means that banks will need to reconsider their allocation of lending to economic sectors with greater sensitivity to the economic cycle.
- **Transaction duration.** The more distant the redemption, the higher the probability that the counterparty will default. Under IFRS 9, stage 2 impairments are based on lifetime expected credit losses—that is, those resulting from all possible default events over the expected life of the financial instrument—and will therefore require higher loan-loss provisions.
- **Collateral.** Unsecured exposures will be hit harder under the new standard. Collateral guarantees will help mitigate the increase in provisions for loss given default under IFRS 9, particularly for exposures migrating to stage 2.
- **Counterparty ratings.** IFRS 9 imposes heavier average provision “penalties” on exposure to higher-risk clients, so counterparty ratings will

have a direct impact on profitability. Industry observers expect provisioning for higher-risk performing clients to rise sharply once the new framework is in place.

This shift in structural profitability suggests that banks should, where possible, steer their commercial focus to sectors that are more resilient through the economic cycle. This will reduce the likelihood of stage 1 exposures migrating to stage 2 and thereby increasing P&L volatility. Higher-risk clients should be evaluated with greater care, and banks could introduce a plafond (credit limit) or other measures to restrict the origination of products most likely to be vulnerable to stage 2 migration, such as longer-duration retail mortgages and longer-term uncollateralized facilities, including structured-finance and project-finance deals.

Banks could also consider developing asset-light “originate to distribute” business models for products and sectors at higher risk of stage 2 migration. By originating these products for distribution to third-party institutional investors, banks could reduce their need for balance-sheet capacity for risk-weighted assets and funding, and avoid the large increase in provisions they would otherwise have to make for stage 2 migration. Pursuing such a strategy would involve developing an analytical platform that can calculate fair-value market pricing for each corporate loan and enable banks instantly to capture opportunities for asset distribution in the market.

2. Revising commercial policies as product economics and profitability change

IFRS 9 will reduce profitability margins, especially for medium- and long-term exposures, because of the capital consumption induced by higher provisioning levels for stage 2. In particular, exposures with low-rated clients and poor guarantees will require higher provisions for stage 2 migration. For loans longer than ten years, provisions for lifetime expected credit losses may be up to 15 to 20 times

higher than stage 1 provisions, which are based on expected loss over 12 months. To offset this negative impact on their profitability, banks can adjust their commercial strategies by making changes in pricing or product characteristics:

- **Pricing.** When possible, banks should contractually reach agreement with clients on a pricing grid that includes covenants based on indicators that forecast the probability of migration to stage 2, such as the client's balance-sheet ratio and liquidity index. If a covenant is breached, the rate would increase—for example, by 10 to 20 basis points to compensate for the extra cost of stage 2 for exposures between five and ten years, and by 25 to 35 basis points for exposures longer than ten years. If flexible pricing is not possible, the expected additional cost of a stage 2 migration should be accounted for up front in pricing. This cost should be weighted by the expected time spent in stage 2: for example, 3 to 5 basis points on average for exposures with a maturity of five to ten years, and 5 to 10 basis points for those longer than ten years.
- **Product characteristics.** Banks could adjust maturity, repayment schedule, pre-amortization period, loan to value, and break clauses to reduce the impact of IFRS 9 on their profitability. In particular, they should aim to reduce their maturity and amortization profile by providing incentives to relationship managers and clients to shift to shorter-term products, and by introducing new products or options that allow early redemption or rescheduling.

3. Reforming credit-management practices to prevent exposures from deteriorating

Under IFRS 9, the behavior of each credit facility after origination is an important source of P&L volatility regardless of whether the exposure

eventually becomes nonperforming. Banks therefore need to enhance performance monitoring across their portfolio and dramatically increase the scope of active credit management to prevent credit deterioration and reduce stage 2 inflows. Different approaches can be used to do that, including an *early-warning system* or a *rating advisory service*.

Forward-looking early-warning systems allow banks to intercept positions at risk of migrating to stage 2. This system would extend the scope of credit monitoring and shift responsibility for it from the credit department to the commercial network. “Significant deterioration” will be measured on a facility rather than a counterparty level under IFRS 9, so virtually every facility will need to be monitored to preempt the emergence of objective signs of deterioration, such as 30 days past due. Monitoring facility data and ensuring that information about guarantees is complete and up to date will be vital in preventing the expensive consequences of migrations to stage 2.

The commercial network should be fully involved in a structured process through which risk management flags any facility approaching migration and identifies the likely reason: for instance, a deterioration in a debtor's short-term liquidity or a problem with data quality. An algorithm—or a credit officer—then assigns possible remediation and mitigation actions, such as opening a short-term facility to solve a liquidity issue or updating balance-sheet indicators to improve data quality. Finally, the relationship manager sees the flagged position and proposed remedial actions on the system and contacts the client to discuss a set of strategies. These might include helping the client improve its credit rating through business or technical measures like those just mentioned, taking steps to increase the level of guarantees to reduce stage 2 provisioning, and adjusting timing and cash flows in the financing mix to the assets being financed so that long-term maturities are used only when necessary.

With a *rating advisory service*, banks could advise clients on ways to maintain good credit quality, provide solutions to help them obtain better terms on new facilities, and reduce their liability to migrate to stage 2. Banks could offer a fee-based service using a rating-simulation tool that enables credit officers and relationship managers to propose how clients could improve their rating or prevent it from worsening. The tool would need to include a macroeconomic outlook and scenarios to forecast how different economic sectors might evolve; a list of actions for improving or maintaining the client's rating in situations such as a drop in revenues, declining profitability, or liquidity issues; and a simulation engine to assess how ratings may evolve and what the impact of various actions could be.

Over time, the bank could build up a library of proven strategies applicable to a range of client situations.

4. Rethinking deal origination to reflect changes in risk appetite

IFRS 9 will prompt banks to reconsider their appetite for credit risk and their overall risk appetite framework (RAF), and to introduce mechanisms to discourage credit origination for clients, sectors, and durations that appear too risky and expensive in light of the new standard.

For example, if banks consider global project finance to be subject to volatile cyclical behavior, they may decide to limit new-business development

The new US standard: CECL

Banks active on both sides of the Atlantic face the additional operational challenge of managing two different standards at once when the CECL model is introduced in the United States.

The current expected credit losses (CECL) model is part of an update to the United States' generally accepted accounting principles (GAAP) standard on credit losses, introduced by the American Financial Accounting Standards Board (FASB). Like International Financial Reporting Standard 9 (IFRS 9), it marks a move from an incurred-loss model to an expected-credit-loss model. Both standards share the same objective: correcting the weakness in previous accounting requirements that led to too few credit losses being recognized at too late a stage during the financial crisis. But there are also important differences between the two standards:

Phasing in. IFRS 9 applies from 2018, CECL from 2020.

Measurement of expected credit losses. CECL foresees a single model for calculating lifetime losses; IFRS 9 sets out two models for calculating losses, with a 12-month horizon for stage 1 exposures and a lifetime duration for stage 2.

Operational and capital implications. The dual-measurement model introduced by IFRS 9 requires additional operational effort from banks to scrutinize every asset at every reporting period to determine whether it might transfer from stage 1 to stage 2 or vice versa. This activity is not required under CECL, because all credit losses are measured over the lifetime of the instrument. This approach could, however, require higher provisioning than under IFRS 9.

in such deals. To react quickly and effectively to any issues that arise, they should also adjust the limits for project finance in their RAF, review their credit strategy to ensure that new origination in this area is confined to subsegments that remain attractive, and create a framework for delegated authority to ensure that their credit decisions are consistent with their overall strategy for this asset class.

5. Providing new training and incentives to personnel to strengthen the commercial network

As banks are forced to provide for fully performing loans that migrate to stage 2, their commercial network will need to take on new responsibilities.

In particular, relationship managers will assume a pivotal role, becoming responsible for monitoring loans at risk of deterioration and proposing mitigation actions to prevent stage 2 migration, as noted above. However, most relationship managers have sales and marketing backgrounds, and though they typically originate loans, they do not actively manage them thereafter. As a result, they will need to be trained in new skills such as financial restructuring, workout, and capital management to help them deal with troubled assets effectively.

In addition to introducing training programs to build these capabilities, banks should review their incentive systems to ensure that relationship managers are held accountable for any deterioration in credit facilities in their portfolio. The relationship managers should be evaluated and compensated on an appropriate risk-adjusted profitability metric, such as return on risk-weighted assets, return on risk-adjusted capital, or economic value added, with clear accountability for how well stage 2 costs are managed.

The strategic and business implications of IFRS 9: A CEO checklist

Most banks have been busy addressing the methodological and technical aspects of IFRS 9—

but only a few have got as far as considering and acting on business implications.¹ To anticipate the far-reaching strategic impact, CEOs, chief risk officers, and heads of business will need to challenge existing IFRS 9 programs with sets of important questions in each of the five areas we have been discussing.

1. Implications for portfolio strategies

- Should we revise our credit portfolio allocation and lending policies?
- Should we reduce lending to volatile sectors with a poorer outlook? How do we reflect this in our lending policies?
- Should we weigh the financial duration of portfolios more heavily in our lending decisions and reduce lending on long-term transactions?
- Should we focus on collateralized lending portfolios to mitigate loss given default and reduce lending to unsecured exposures?
- Should we treat higher-risk clients differently in our lending decisions? Should we scrutinize lending to performing high-risk clients more thoroughly? How should we reflect this in our risk appetite?

2. Impact on commercial policies

- Should we rethink our product offering? Should we adjust our pricing to sustain profitability?
- Should we adjust maturity and amortization to shorten product lifetimes? How can we encourage relationship managers and clients to shift to products with shorter terms or early-redemption options?
- Should we raise prices for longer-term and less collateralized products and for higher-risk clients? Would that damage our competitive position?

3. Changes to credit risk management

- Should we strengthen our monitoring of counterparty and data quality to prevent increases in expected credit losses?
- Should we improve our early-warning mechanisms to detect any deterioration in a client's lifetime credit risk?
- Should we increase our monitoring of collateral data?
- How should we flag warning signs to our relationship managers to trigger remedial actions?

4. Evolution of deal origination

- Should we adjust our credit strategy and policies to change the course of new business development?
- Should we introduce new risk limits for the clients, sectors, or products most affected by IFRS 9?
- Should we change our origination process—for example, by adopting a delegated-authority system or improving the link between our risk-appetite framework and our underwriters?

5. Impact on people management

- Should we revise our incentive and compensation schemes for relationship managers? Should we change their accountability?
- Should we change our performance metrics to reflect IFRS 9—adjusted profitability?
- Should we provide training for our relationship managers on the consequences of IFRS 9 and appropriate remedial actions?

The introduction of IFRS 9 is likely to change banks' behavior and reshape the credit landscape for some products and segments—but it may also tempt nonbanks into the market. In particular, banks should keep a watchful eye on the alternative lending sector. Credit provision by private equity, mini-bond issuers, insurance companies, and the like has grown by more than 20 percent in Europe in the past five years alone. These new competitors are governed by a less stringent regulatory framework and could pose a growing threat to banks, especially if they are slow to react to the new challenges and costs of IFRS 9.

There is little time left to prepare. To anticipate the repercussions of the new standard and control how they play out, banks must move fast. The silent revolution of IFRS 9 will affect all banks, ready or not. The effort taken to understand the new rules and put a response in place will be well spent. ■

¹ US banks have begun addressing similar issues under US regulatory changes. See sidebar "The new US standard: CECL."

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Resolution planning: How banks can tackle legal-entity rationalization in 2017

[Here's a primer on how banks can plot this year's work.](#)

Sarah Dahlgren, Merlina Manocaran, Gerhard Schröck, and Andrea Stefanucci

Eight years after the collapse of Lehman Brothers, armies of lawyers and accountants are still trying to unwind the bank's complex web of 2,985 legal entities and \$600 billion of interconnected portfolios scattered throughout 50 countries. Once bitten, twice shy: regulators around the world now require systemically important global banks to map out their structure of legal entities and business operations, understand the difficulties that would arise in resolution (for example, the risk that material entities will not have sufficient capital or liquidity to continue operations), and make a significant effort to simplify their legal-entity structure. Regulations differ by geography; Europe, the G-20, and the United States have all established varying standards and regulations to address the problem of "too big to fail."¹ But the intent of legal-

entity rationalization (LER) is everywhere the same: to ensure that the corporate structure can be taken apart in resolution without radically disrupting financial markets.

After a rocky start, banks have made considerable progress on these requirements. For example, in the United States, seven of the eight largest bank holding companies passed muster by the end of 2016. But in 2017, to meet the rising regulatory standard, banks must double down on four essential components of LER: build a robust governance framework, simplify the legal-entity structure and relationships, pave the way for transfer of liquidity and capital among legal entities while also isolating risky activities, and adjust supporting operations in keeping with the structural changes.

LER is not straightforward. Even as banks make some things simpler, other complexities arise, such as the need to ring-fence some entities and activities. For some institutions, various regulators' rules overlap, and banks are not always sure of putting their foot right. But some banks are finding a way through the complexities—not only complying fully but also deriving material benefits to the business. LER can fuel more efficient business activities as banks streamline and reorganize their operations, increase transparency, and reduce costs. Banks' fortunes have revived in certain respects, but another dose of efficiency will always be welcome in an environment of falling margins and increasing competition.

Much done, much more to do

In the United States, the Federal Deposit Insurance Corporation and the Federal Reserve have asked the eight largest domestic bank holding companies to conduct LER as a key component of resolution planning. While the focus is on the largest banks, the regulatory scope extends to the financial system as a whole. Targeted resolution plans are required for smaller bank holding companies and foreign bank organizations with global assets above \$50 billion.

In other geographies, such as Europe, where the regulatory authorities are developing resolution plans for individual banks, a similar outcome is likely. Banks whose complicated legal structures would be difficult to take apart in resolution will probably need to make significant structural changes to demonstrate that they can be easily separated.

Similar to the Comprehensive Capital Analysis and Review program that began in the United States in 2010 and reshaped the way banks view capital planning, resolution planning is driving banks to rethink their corporate structures and kick-start large-scale, transformative efforts such as legal-entity restructuring—actions that require significant attention from senior management and boards to review and approve. The largest bank holding

companies are redefining their business structures and operating models, from restructuring their ownership chains to reorganizing their supporting operations.

Yet getting LER right has been quite challenging. Many US bank holding companies struggled to obtain approval for their resolution plans. In April 2016, supervisors jointly identified deficiencies in the July 2015 plans of five banks. Banks resubmitted their plans in October 2016, and in December, regulators found that four of the five had closed their deficiencies. With that, seven of the eight banks are now focused on 2017, and specifically on the guidance provided by regulators.²

Banks have made considerable progress already—simplifying their legal-entity structures, eliminating thousands of legal entities, optimizing their geographical footprint, reducing the volume of intercompany transactions, realigning thousands of employees and other critical services, and simplifying the ownership structure of their legal entities. But not every bank is doing equally well. And they all need to keep going and show progress against the rising regulatory expectations.

In our experience, banks' achievements on LER have been hard won. Many are finding that the development of a fully credible approach remains a challenge. One difficulty is the need to integrate LER into the bank's governance structure so that business lines and legal entities can be aligned in a way that promotes resolvability. Banks must demonstrate that they can easily separate their legal entities without affecting critical services or intercompany transactions. Banks must also ensure that they can recapitalize key business units in a crisis.

While the 2017 guidance from regulators is far ranging, the same four topics that have dominated recent efforts are likely to stay in focus (exhibit). In the rest of this article, we will examine the

challenges in these four areas and the practices that leading bank holding companies are using to overcome the challenges to arrive at a battle-tested, fit-for-purpose approach to LER.

Establish a robust governance framework

With so much accomplished, the last thing banks need now is for far-flung parts of their global enterprise to create more legal entities or to make choices that will complicate the resolution plans. Resolvability must be part and parcel of all business decisions. And the legal-entity structure must align

with the business strategy. As the strategy evolves, so too should the legal-entity structure. The LER work must include an approach to governance that keeps the structure firmly in control.

Before anything else, banks should create a clear, clean, well-maintained central repository of all key legal-entity information, updated in real time as new entities are created or eliminated. With that in hand, they can go on to establish a robust governance framework with the broad involvement of business and control functions. This process involves multiple

Exhibit

Banks have made significant progress on four essential activities.

Examples of major actions taken by leading banks

<p>Establish robust governance framework</p>	<ul style="list-style-type: none"> • Introduction of 20+ legal-entity rationalization criteria to support application of overall objectives • Establishment of senior-management committee to govern legal-entity structure
<p>Simplify legal-entity structure and relationships</p>	<ul style="list-style-type: none"> • Reduction in number of legal entities by up to 65% • Reduction in branch network by 20% or more • Merger of 2 material entities in United States and planning for future elimination of material entities through merger and wind-down • Significant reduction and divestment of noncore activities • Reduction in intercompany derivative trades by 50% or more • Regrouping to put legal entities that would be sold together in resolution into the same intermediate holding company (IHC)
<p>Ease resource transfer across legal entities</p>	<ul style="list-style-type: none"> • Elimination of 5+ IHCs that complicate capital transfer across entities • Establishment of new IHC that consolidates all material entities without 3rd-party debt to mitigate creditor challenge • Separation of institutional broker-dealer from retail activities
<p>Rationalize supporting operations</p>	<ul style="list-style-type: none"> • Transfer of 3,000+ employees and 5,000+ contracts from US broker-dealers into primary US material service entity • Transfer of primary service provider to a main banking entity

Source: Banks' public filings

steps, such as creating specific LER criteria that support the LER objectives and can be applied in a coherent way.

The criteria should be specific enough to be easily understood, and they should have a clear application to the legal-entity structure. For example, to support the objective of having as few entities as possible, banks may introduce a specific criterion to allow only one of each type of entity (for instance, only one bank, one broker-dealer) in each jurisdiction.

Banks then need to write the criteria into their formal governance policies and procedures. Requests for exceptions should be reviewed periodically and challenged by senior management and subject-matter experts, to drive simplification. Some banks may find they need to either create new policies or enhance existing policies.

To establish robust governance, banks might consider an oversight committee to lead the LER effort. The committee should take an enterprise-wide view, to ensure that all LER initiatives are coherent and comprehensive, as well as to define the right balance across business and resolution priorities.

Simplify the structure and relationships

As banks expanded, they set up and acquired many legal entities across multiple jurisdictions and did not always stop to assess the hidden costs of complexity. Now one, two, or more legal entities may cover similar business activities in the same jurisdiction. Yet eliminating these redundancies is easier said than done; risks include loss of tax benefits, additional funding costs, and interruptions in liquidity flows. With considerable effort, several leading banks have already made great strides, reducing by thousands the number of legal entities in their organizations. But for ongoing success, banks must keep periodically reviewing existing legal entities for additional simplifications. They

must also evaluate closely the creation or acquisition of new legal entities, to validate the business need and assess the increase in complexity.

International branches and subsidiaries pose additional issues. As banks rethink their international footprint, they should define clearly the simplest and most rational legal-entity structure for each country, taking into account the business strategy and local regulatory requirements. This reassessment of the geographical footprint led one US bank to divest operations in more than 20 countries.

Simplifying the legal-entity structure is critical, but it is not enough. Banks should also clearly assess how unraveling one unit might unintentionally affect others. Many banks have ensured that important entities have sufficient capital and liquidity. But the tangle of business and financial ties among them could impede resolution. For example, some banks have a book of intercompany derivative transactions worth trillions of dollars that is very complicated to unwind. To address this risk, banks are doing the hard work of mapping the full set of derivative trade relationships and limiting intercompany derivative trades whenever possible. This may require them to define a limited set of entities that transact with clients and, when possible, to manage market risk in these same entities, thereby limiting the need for intercompany transactions. In cases where intercompany trades are required, they should be performed in the same manner as third-party trades, to ensure they can be replaced in resolution.

Another effort to facilitate separation in resolution is the realignment of business lines and legal entities. This may lead to regrouping entities that engage in similar lines of business in the same legal-entity chain under a common holding company.

Ease resource transfer between entities while isolating business activities

The efficient transfer of capital and liquidity is often key to a successful resolution strategy. Complex ownership structures create frictions in the transfer of capital and liquidity across entities and from a holding company to subsidiaries. For example, the recapitalization of an entity by the parent will take many steps and need multiple regulatory approvals, board-of-director approvals, and solutions for other legal and jurisdictional issues. Such complex structures may bring a business benefit (reducing taxes, for instance), but supervisors are more concerned about resolvability than allowing banks to receive multimillion-dollar tax breaks.

To address these concerns, leading banks are reassessing the need for each intermediate holding company (IHC), by comparing the business benefits of each against its risks and costs. More often than not, this analysis leads to the elimination of IHCs. At the same time, some IHCs can be beneficial to resolution preparation. A few banks are actually introducing new IHCs to further support their resolution strategy and the recapitalization of material entities. Liquid assets can be pre-positioned in a new IHC and serve as a central buffer to provide additional support to material entities in resolution. The absence of third-party creditors for such an IHC is a clear benefit.

In some cases, the creation of an IHC is intended to address regulatory requirements. In the United States, foreign bank organizations with global assets above \$50 billion are required to establish an IHC and position under it all the US operations, with the exclusion of branch offices. In November 2016, the European Commission published a legislative proposal with similar requirements for large non-EU banks. This change is intended to ensure that the EU operations of foreign banks are sufficiently

capitalized and funded so that if the group fails, there is enough capital and liquidity locally to absorb the losses of the group's European operations.

As banks develop their capital and liquidity models, they should consider how the legal-entity structure affects the allocation and transfer of these scarce resources. Elimination of entities or the simplification of the ownership structure can facilitate the transfer of resources. Closely aligning the recapitalization strategy with the LER approach can help both efforts. First, it can help banks address supervisory concerns about the feasibility of the resolution strategy, by simplifying the recapitalization path. Second, it may reduce the resources that need to be pre-positioned in each entity.

While paving the way for efficient resource transfer, banks should also ensure that risky global-markets activities—with a potential for contagion in a crisis—are isolated from retail deposits or retail activities. As part of their resolution planning, banks should both reassess the activities booked in each entity and also map and optimize the risk transfer among entities in the same ownership chain. Several banks have already begun to build and use different legal-entity chains for institutional and retail activities.

Rationalize supporting operations

Operating a network of legal entities requires support such as staff, technology, and physical assets; and intangible assets such as intellectual property and access to financial-market utilities. Rationalizing these services is the fourth key component of successful LER.

To ensure the continuity of critical services in resolution, banks should review the full networks of critical services and, when possible, relocate services to a small number of well-capitalized and well-funded service providers. These organizations

can provide critical services in the period of stabilization during the orderly execution of the preferred resolution strategy, so they are required to maintain six months of working capital.³

To support transparency and separability of supporting operations, banks should also enforce service contracts, at arm's length to the extent possible, through the use of service-level agreements (SLAs). SLAs will allow for continuity of services to entities that are sold in resolution, by allowing them to keep receiving services from the same operating company or to replace it with an external alternative provider under a contract with similar terms.



Apart from keeping the bank in compliance with regulatory requirements and meeting supervisory expectations, the work we have described here can offer genuine business benefits:

- Robust governance of the legal-entity structure allows banks to think proactively about how best to align their legal-entity structure with their business strategy and eliminate components that are irrelevant as the business strategy evolves.
- Simplifying and rationalizing relationships among entities helps banks establish discrete business operations that, when necessary, can easily be divested. For many, it will also yield cost savings and increased transparency. A leading US bank reported that its simplification work yielded a 15 percent increase in productivity.
- Segregating business activities in purpose-built entities will create discrete business lines with significantly different risk profiles, which can be managed more efficiently than if the activities were commingled.

- A rationalized support structure creates full transparency of intercompany operational relationships, volumes, and costs, thus making possible better business decisions.

With a solid foundation underneath them, banks will find that 2017 is the year when they can take decisive steps on LER and see the business benefits drop to the bottom line. ■

¹ The G-20 endorsed the Key Attributes of Effective Resolution Regimes of the Financial Stability Board in 2011. This international reference document requires member jurisdictions to establish frameworks for the orderly wind-down of large, systemically important financial institutions. As a result, in Europe, the Bank Recovery and Resolution Directive, among other rules, established cross-border resolution mechanisms in 2014. In the United States, Section 165(d) of the 2011 Dodd-Frank Act sets out resolution-planning requirements.

² FDIC and Federal Reserve, *Guidance for 2017 §165(d) annual resolution plan submissions by domestic Covered Companies that submitted resolution plans in July 2015*, federalreserve.gov.

³ Ibid.

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