Global Risk 2020

It's Time for Banks to Self-Disrupt

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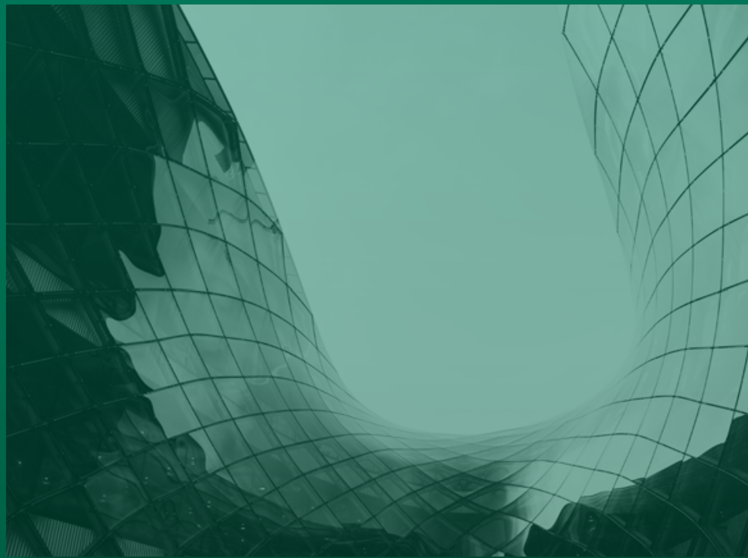

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IT'S TIME FOR BANKS TO SELF-DISRUPT

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OVERVIEW

Disruption does the most damage when it meets resistance. Although banks have risen admirably to the surge of demands imposed upon them in the aftermath of the 2007–2009 financial crisis, most have continued to fight back within the bounds of their existing business and operating models rather than yield and adapt to the systemic shifts underway.

As this year's report makes plain, that approach hasn't worked. Economic profitability is down globally, with returns shrinking in nearly every market. Income growth is lackluster, and despite continued efforts to rein in costs, most banks still have not been able to sustain the performance gains needed to secure their future. The current COVID-19 crisis, the strongest test that the global financial system has faced since 2007–2009—and whose long-term effects are still unknown—may make the challenges that much more difficult.

In addition to the sobering public health repercussions, the swiftness and severity of the outbreak have shuttered businesses the world over—for weeks and, in some cases, months, at a time. On a sectoral basis, we expect widespread and heterogeneous impacts. Banks will likely see margin and volume compression owing to lower interest rates and a dampening of client activity and investment. Credit risk is a particular threat as clients come under increased liquidity pressures. Deteriorating credit quality among counterparties could result in ratings downgrades, greater default rates, and increased pressure on profitability and regulatory capital. Banks are pivotal in helping companies to bridge liquidity shortages. Thanks to massive central bank intervention, volatility in the short-term funding market for banks is starting to subside. In the long run, however, banks might face higher funding spreads and might need to adjust their funding strategies.

Most analysts think we'll see some form of recession, though the severity is uncertain. What's clear is that the more prolonged the crisis, the greater the economic risk. Between the first few weeks of "firefighting" and the long-term new normal, we will experience a hybrid stage that will last for at least three to six months, potentially much longer. To manage this transition effectively, here's what banks need to do now.

Reinforce Essential Activities

Effective crisis response will require banks to:

- **Maintain strong liquidity and funding mechanisms.** This step is clearly crucial—both for banks and for the broader economy. The

support measures from governments and central banks will help a lot with this, but banks need to ensure that these measures reach affected functions and clients efficiently.

- **Shore up credit risk management.** Although all industries will be impacted by the COVID-19 crisis, the effects will vary by sector and client. Risk drivers specifically related to the COVID-19 outbreak are not currently captured by credit-ratings systems. Banks, therefore, need to ensure that they understand their positions and can mitigate issues quickly.

- **Update compliance priorities.** Compliance teams should assess projects on the basis of the bank's risks and commitments and determine what effort will be required to deliver appropriate compliance. Compliance officers must also assess the resilience and adaptability of their operating models and understand how COVID-19 may impact the delivery of different processes. For example, as regulatory bodies like the European Banking Authority have stressed, banks should pay close attention to how the shift to remote working and the potential pressure for banks to make up for lost volumes could test a bank's anti-money-laundering (AML) and market conduct practices.

Anticipate Downstream Impacts

We currently see a supply shock, demand shock, and oil price shock at the same time, and for the first time all regions worldwide are affected. The impacts will be different across industries. Gauging those effects will require banks to invest in detailed scenario planning, differentiated by industry sector.

Banks must also revisit their business continuity plans—looking not just at near-term impacts but at the wider ripple effects over the next 12 to 18 months. That planning must also extend to the operating model to ensure that banks have sufficient controls around processes like cybersecurity, anti-money-laundering, payments and liquidity, and credit.

Accelerate Digitization

Arguably, one of the most pernicious risks facing banks globally is not external volatility as much as it is a reluctance to shake up institutional practices and norms at their core. The tactical improvement efforts that banks have made haven't delivered the transformation needed. Last year, we wrote that digitization is the key to resilience in the banking segment. This year, the unprecedented challenges posed by the COVID-19 outbreak make the digitization imperative all the more urgent.

Risk, treasury, and compliance functions can help banks respond to the present crisis and lay the groundwork for banks' long-term success. By using AI, machine learning, and other advanced technologies and practices, they can improve bank steering; deliver predictive, real-time insights; and execute faster and more efficiently. Yet suc-

cess requires a willingness to see disruption not as a threat, but as a lifeline.

Our thesis is straightforward: banks interested in reducing the risks to their business, enabling integrated balance sheet management, and modernizing compliance must develop a clear digital strategy, redesign core processes, and establish the right digital enablers. This report lays out the path to digitization and presents concrete examples of what that transformation looks like and the results it can achieve.

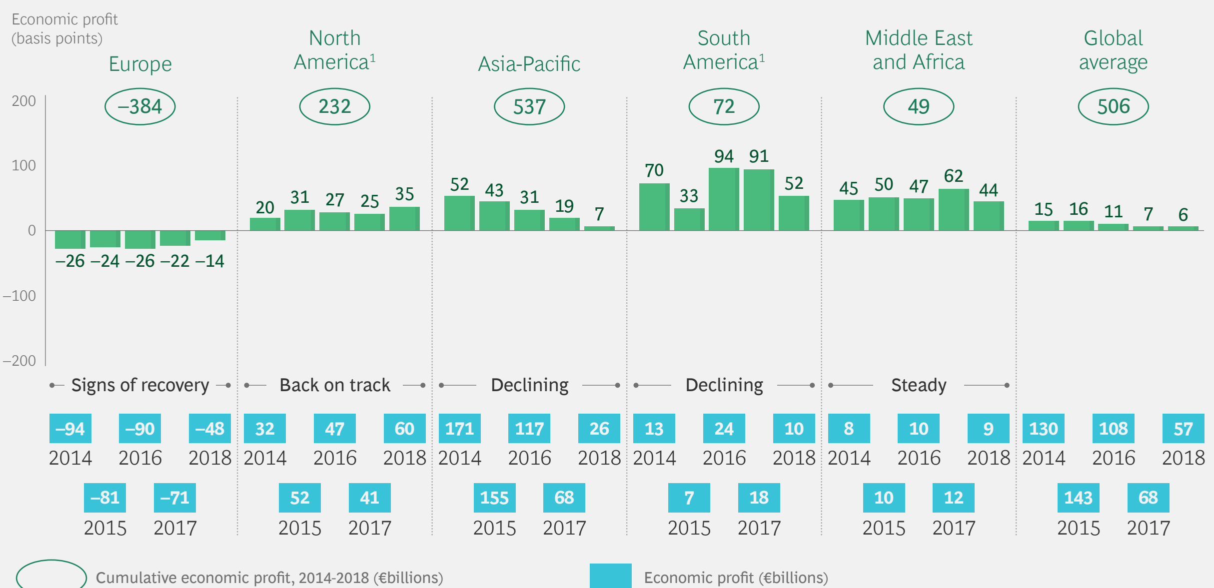
FIVE YEARS OF DECLINING PROFITABILITY

Even before COVID-19, bank profitability was on the wane. Since 2014, total economic profit, which adjusts for both risk and capital costs, has fallen by over half, from 15 bps to just 6 bps in 2018. (See Exhibit 1.)

Only banks in North American countries had been building a sustainable recovery. Although European banks saw EP gain some ground from 2017 to 2018, the overall results have been mired in negative territory. Meanwhile, the soaring growth that many banks in Asia-Pacific, South America, and the Middle East and Africa region enjoyed during the middle part of the last decade has foundered.

EXHIBIT 1 | North America and Europe Show Growth in Economic Profit, but APAC Slides Further

ECONOMIC PROFIT GENERATED BY GLOBAL BANKS, RELATIVE TO TOTAL ASSETS, 2014–2018



Sources: BankFocus; annual reports; BCG Risk Team database; Bloomberg; BCG analysis.
Note: Exchange rates from 2018 are used for comparability.
[1]Total assets are lower than in Europe because of local and US generally accepted accounting principles.

Eroding returns combined with the deep uncertainty around the long-term impacts of the COVID-19 outbreak heighten banks' vulnerability. Although other sectors prospered over the past decade, most banks have struggled to reset. Few have been able to adapt their business and operating models sufficiently to address the cumulative impact of risk, capital, and compliance costs.

These are among the findings of BCG's tenth annual study of the overall health and performance of the global banking industry. The study assessed the EP generated from 2014 through 2018 by more than 350 retail, commercial, and investment banks, covering over 80% of the global banking market. Because EP weighs refinancing, operating, and risk costs against income, it provides a comprehensive measure of a bank's financial health and serves as a useful gauge to determine the impact of ongoing regulatory, technological, and competitive pressures on bank performance.[1]

Regional Returns Highlight Shared Challenges

Banking may still be a multispeed world, but the global engine is slowing down. Looking regionally, we see a few bright spots, though also some areas of concern. (See Exhibit 2.)

On the plus side, banks in European countries gained a bit of breathing room in 2018. A slight improvement in trading income combined with a reduction in provisioning requirements and average capital costs elevated EP by 8 bps over the prior year to –14. These gains were not enough to overcome a rise in refinancing costs, however. As a result, net interest and dividend income dropped 4 bps from 2017 to 2018.[2] Operating costs also spiked. These factors depressed average EP, keeping totals underwater for most European banks.

High nonperforming-loan (NPL) ratios continue to be a problem. Whereas banks in the US lowered NPL ratios from an average of 5.0% in 2009 to just 0.9% in 2018, NPL ratios in the Euro area were more than three times higher in 2018 (2.9%).

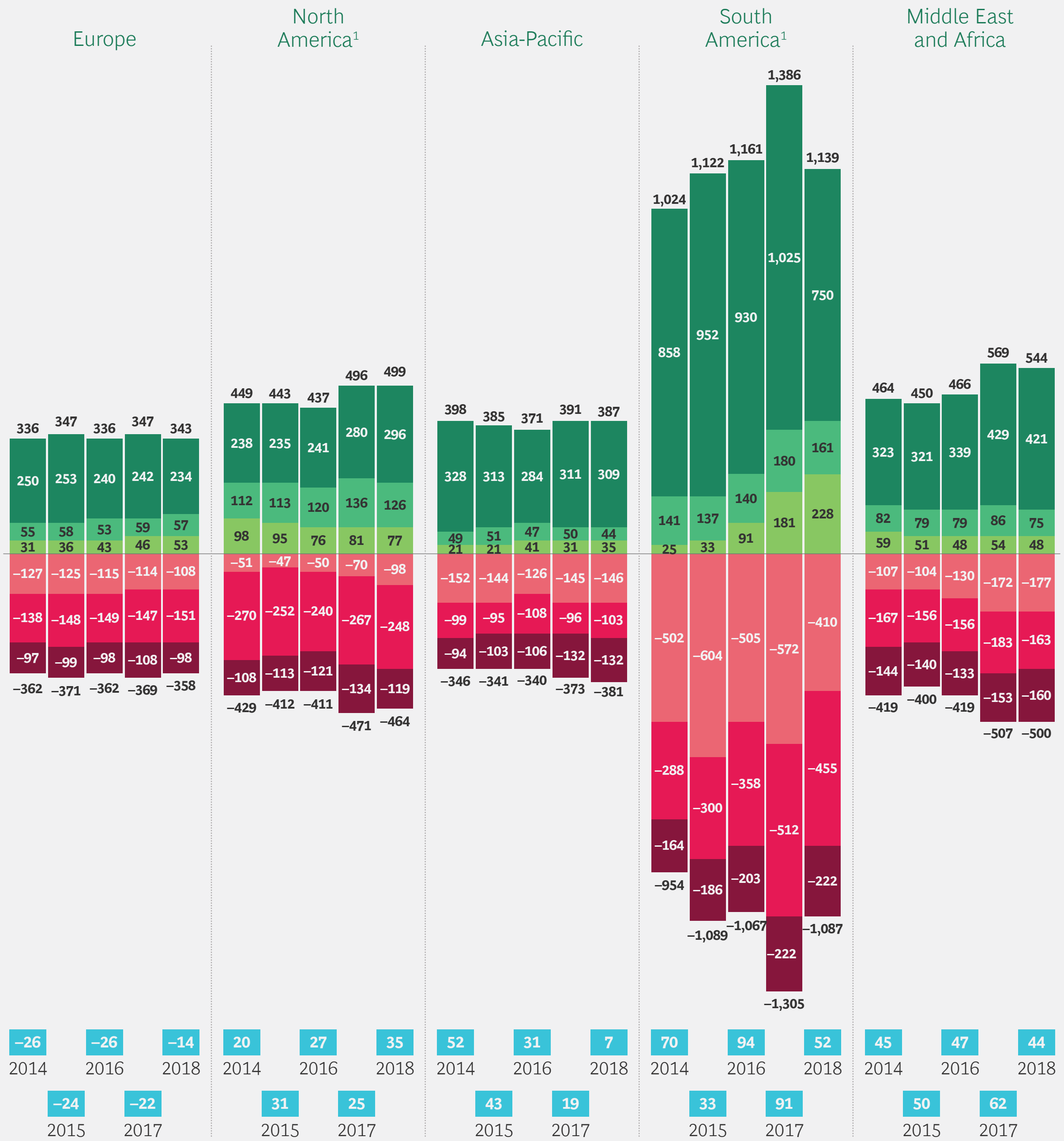
Inconsistent regulatory standards are yet another issue. Differing rules and reporting requirements across jurisdictions saddle European banks with additional compliance complexity as well as cost. The creation of a European banking union and capital markets union would help to provide a more level playing field for institutions in the region.

North America, by contrast, saw EP leap to a five-year high of 35 bps in 2018. The 10-point rise from the year before was buoyed by lower capital costs as well as a drop in loan loss provisions and operating costs across banks in North America. Refinancing charges took some of the edge off this growth, however. Despite higher gross income and dividends, net interest and dividend income fell from 210 bps in 2017 to 198 bps in 2018. Fees, commissions, and trading income also softened.

Elsewhere, regions once synonymous with rapid growth faced challenges. Banks across Asia-Pacific faced the fourth straight year of major declines. Since 2014, EP has collapsed, shedding 45 bps to rest at just 7 bps in 2018. Although trading revenues notched modest advances, banks saw their two largest income streams drop to five-year lows. Cost pressures also grew more acute. Across the region, operating costs jumped 7 bps year on year. The EP gap between top-performing banks in China and those in other countries narrowed in 2018, with institutions in Japan and India benefiting from lower capital costs and loan loss provisions.

The falling EP theme was also repeated in South America and in the Middle East and Africa. In South America, EP fell from 91 bps in 2017 to 52 bps to 2018, ending what had been a period of strong recovery. Net interest and dividend income fell by 113 bps year on year. Although cost performance improved, with notable reductions in refinancing and operating expenditures, these savings were not enough to offset the steep declines in income. In the Middle East and Africa, banks faced a parallel hit as revenues fell in every income category while capital and risk costs rose. As a result, EP sank to a five-year low of 44 bps.

EXHIBIT 2 | Economic Profit Varied by Region in 2018



Income components per asset (basis points) — Interest and dividends; Fees and commissions; Trading and other sources

Cost components per asset (basis points) — Risk costs; Operating cost; Refinancing

Economic profit per asset (basis points)

Sources: BankFocus; annual reports; BCG Risk Team database; Bloomberg; BCG analysis.
Note: All values are per asset—that is, the total value in euros divided by the total assets in euros, then expressed in basis points. Because of rounding, some values do not add up to the totals shown. The order of the regions reflects a focus on Europe and North America; the remaining regions are sorted according to total assets. Exchange rates from 2018 are used for comparability.
[1]Total assets are lower than in Europe and Asia-Pacific because of local and US generally accepted accounting principles.

COVID-19 Injects New Uncertainty

Although banking leaders are familiar with the vagaries of the business cycle, none have seen economic productivity come to a crashing halt as it has in response to the COVID-19 crisis. As the outbreak has accelerated, markets have started to price in epidemic-related risks. Equity markets have posted some of the biggest daily declines since the financial crisis. Valuations of less risky assets, meanwhile, have reached record levels, amid significant uncertainty. It will take time for the full effects of the pandemic to be fully understood.

While the disruption is serious, it may not be permanent, however. The majority of past epidemics saw a temporary shock to the economy followed by a rebound. If that pattern holds, we might see a similar V-shaped recovery once the COVID crisis stabilizes. But more pessimistic scenarios could result, depending on the length and severity of the outbreak and the effectiveness of government and market interventions.

Crucially, several central banks have taken action to instill continued confidence in the financial system and help offset an economic slowdown. For example, the European Central Bank (ECB) announced that banks can make full use of their liquidity buffers and operate temporarily below the minimum level of the liquidity coverage ratio. Banks can also get relief on their capital requirements—for example, they can make use of hybrid capital instruments that do not qualify as common equity tier 1 (CET1) capital, such as additional tier 1 or tier 2 instruments to meet Pillar 2 requirements that are set to come into effect starting in January 2021.

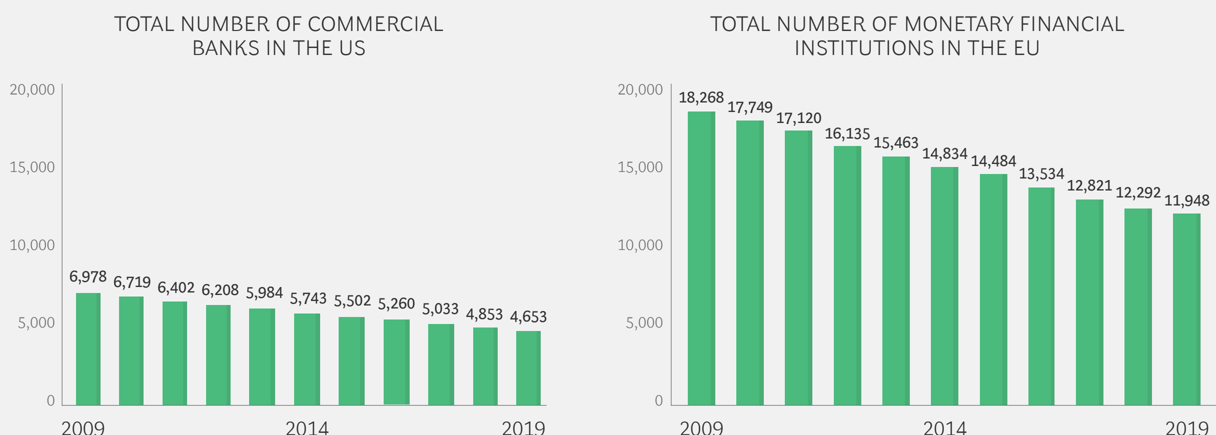
The US Federal Reserve has also stepped in to backstop banks, purchase commercial paper, and shore up financial markets more generally. As part of these interventions, the Federal Reserve has announced that it will offer a new Primary Dealers Credit Facility, which will allow banks to get the short-term loans they need to buy and hold securities including corporate bonds.

To respond effectively to the crisis, banks and other essential sectors must do their part.

The Crisis Will Accelerate the Need for Deeper Changes

Global banking is a large arena with diverse players. Individual market characteristics also vary. But while some institutions are prospering, many more have proved unable to generate the cost and efficiency gains needed to offset sluggish revenue performance. Banking consolidation has been on the rise for the past ten years, with the US leading the way. (See Exhibit 3.) The absolute number of banks in the EU is still 2.5 times higher than in the US. This suggests that we're likely to see consolidation pick up pace in Europe over the next several years, especially given the intensifying margin pressures.

EXHIBIT 3 | Banking Consolidation in the US Is Further Advanced Than in the EU



Sources: Statista; St. Louis FRED; ECB.

Improving EP—and sustaining those gains—will require risk, treasury, and compliance to operate faster and more incisively, backed by real-time data, predictive analytics, and end-to-end automation. But these functions often do not have the data and analytics needed to advance business and customer outcomes. Common challenges include:

- **Outdated Modeling Tools.** Most banks lack the simulation and analytics tools that are required to maintain a stable net interest income (NII) over time. A lack of computational power leaves teams to rely on preliminary and approximated values instead of more accurate pricing and risk management models.

- **Unwieldy Legacy Architectures.** Patches and workarounds made to accommodate bank growth over the years have strained many legacy IT systems, making them harder and more costly to maintain.

- **Visibility Gaps.** Inefficient data management often results in blind spots that can prevent banks from making the necessary risk management decisions at the right time—for example, only 50% of bank treasurers have daily insight into their entire banking book. Redundant data, nonstandardized risk calculations, and decentralized end-user applications generate inconsistent results and increase time, cost, and errors.

- **Manual Analyses and Reports.** A lack of interoperability and disparate flows of data force many risk, treasury, and compliance teams to input and manipulate data manually. For example, market risk teams often have to create the specialized analyses they need by hand in order to address supervisory findings.

Responding to these challenges requires more than surface-level fixes. Banks need to anticipate how their market is likely to change over the next three to five years, pinpoint areas where they have the permission and expertise to lead, and highlight areas where they are most vulnerable to disruption. Risk, treasury, and compliance can help drive that change. But that starts with putting aside the traditional playbook and imagining how digitization can reinvent bank steering.

NOTES

1. A bank's EP equals its gross income minus refinancing and operating costs, loan loss provisions (LLPs), and capital charges (common equity multiplied by the cost of capital). LLPs and capital charges are barometers of macroeconomic and regulatory conditions that, taken together, represent the risk costs that banks incur.

2. Net interest and dividend income equals gross interest and dividend income minus refinancing costs.

RESPONDING TO THE COVID-19 CRISIS

COVID-19 MAY BE INDISCRIMINATE, but the most effective risk mitigations are not. Banking institutions that take a structured, targeted approach can minimize their near-term exposures, plan for downstream volatility, and respond with swift and orderly precision during an otherwise disordered time.

We have prepared the following recommendations to assist risk, treasury, and compliance leaders in marshaling an effective response to the challenges and uncertainties posed by the COVID-19 outbreak. Our focus is threefold: safeguarding liquidity and funding, applying a new lens to credit risk management, and adapting compliance to the new environment.

Safeguarding Liquidity and Funding

CFOs, treasurers, and CROs need a clear understanding of how liquidity management and the treasury operating model may be impacted. Using this four-step approach can help executives take crucial near-term actions and anticipate longer-term needs:

- **Vulnerability Analysis.** As an immediate crisis response, most banks assessed how changes resulting from the COVID-19 crisis, such as remote working, would impact liquidity and funding operations.

  In addition to cataloguing these changes, banks also assessed the risks they pose; for example, fragmented teams could hinder communication and interfere with the smooth running of the trading desk. Similarly, most banks have reprioritized or descoped noncritical activities to free resources and minimize complexity—although banks will need to review these changes in due course given the potential regulatory implications.

- **Scenario Design.** In addition to the tactical measures that banks have implemented to sustain day-to-day activities, institutions now need to assess the potential medium- to long-term impacts of the COVID-19 crisis. Scenario modeling can help leaders gauge potential risks to the operating model and the bank's liquidity and funding positions. Given the importance of speed, we recommend that banks start with a limited number of high-level scenarios, then translate these into treasury-specific subscenarios, such as modeling what would happen to the liquidity buffer if credit portfolios deteriorated and loan defaults rose or if the interbank and repo markets dried up and quality collateral became scarce—and indeed, what would happen to the bank's own credit quality, rating, and funding structure if conditions worsened.

- **Impact Assessment.** On the basis of this modeling, banks then need to identify the potential repercussions. Under business activity, banks can use deterministic or stochastic simulations and stress testing to estimate the revenue and earnings disruption from a potential decline in sales or trading volumes. Under the treasury operating model, banks should gauge what it will take to sustain operations in the short term and how critical functions could be affected during the crisis. Banks need to ensure that they have sufficient controls around processes like cybersecurity, anti-money-laundering, payments and liquidity, and credit.

- **Trigger-Based Actions.** After weighting the probability and severity of these impacts, banks need to prepare appropriate contingency actions. This should include identifying clear performance indicator thresholds that would serve as triggers, to be monitored daily. Operating-model stability actions could include diversifying key treasury activities (including on a geographic basis and within buildings), tracking contact among employees responsible for critical functions, governance changes (like bringing money market and repo desks fully under treasury control), and—if not already done—purchase and deployment of technologies to support remote working. Structural-funding stability actions could include a strategic review of risk appetite limits to weather market volatility, as well as reviewing liquidity buffer size and liability structure to cover short-term and structural liquidity under all relevant scenarios. Potential triggers for increasing spread levels would also lead to market timing questions around management of the liquid asset buffer (beyond central bank support) and issuance of longer-term debt.

Applying a New Lens to Credit Risk Management

Although governments and central banks around the world have taken aggressive measures to provide individuals and businesses with needed liquidity, the economic impacts of the COVID-19 crisis will invariably result in deteriorating credit, ratings downgrades, and higher default rates for some bank clients.

To understand which clients are likely to be most affected, banks need to take a new approach to credit risk management in order to anticipate declining credit quality more quickly and intervene proactively.

The revised approach requires banks to conduct granular analysis on an industry basis to understand how the COVID-19 crisis could impact a sector's supply- and demand-side economics. Stress testing can allow banks to model potential liquidity impacts and gauge which industries are likely to be hardest hit.

Banks then need to review their portfolios to see which clients in affected industries are most at risk. Analyzing the EBITDA margin, free cash flow, and cost structure can help banks assess the intrinsic "fragility" of a company's balance sheet. They should also review leading financial and liquidity indicators, such as cash conversion cycle, days payable and days sales outstanding, net financial position, and interest coverage ratio.

> Banks need to assess which clients are most at risk during this crisis.

Examining a client's transaction history can be an additional lens to spot deteriorating liquidity conditions. Studying changes in inflows and outflows and shifts in traditional transaction patterns by geographic area could help credit risk teams get an early view on potential supply chain risks. Scenario and sensitivity analyses can help banks simulate how client risk rankings would shift under different conditions, such as whether they would move from a stage 1 risk level to stage 2 or 3. Being proactive can also help banks look for ways to help clients mitigate their liquidity pressures—for example, by leveraging government measures intended to support financial institutions, banks may be able to provide greater lending support.

Taking a new lens to credit risk management would allow banks to do the following:

- Gain a forward-looking view on the creditworthiness of each customer to support IFRS9 provisioning decisions such as staging and expected credit loss (ECL). Predictive analyses would also help banks avoid unnecessary reclassification of exposures, such as in cases where clients are experiencing only temporary distress (in keeping with the suggested regulatory and supervisory flexibility on the IFRS9 requirements application).

- Quantify the degree and gauge the timing of impacts on the bank's provisioning and capital levels under each scenario.

- Fine tune credit actions on the basis of identified client vulnerabilities and the quantification and timing of impacts. Credit actions could combine levers such as moratoria, government-backed financing (for new or expiring lines), and new credit lines to clients facing short-term cash shortages. They can also include other forms of debt restructuring, such as maturity revision, interest-only payments, and the conversion of short-term debt into long-term. In addition, banks should consider sharing the results of this exercise with their clients to aid discussions and enhance the client experience.

Finally, banks need to revise their credit policies to align with their updated credit risk approach. Crucially, banks must ensure that their credit origination process is fully industrialized (capable of managing fast-track reviews, with dedicated committees in place, and predefined credit assessment criteria) in order to accommodate a likely increase in credit application volumes.

Adapting Compliance to the New Environment

In the short term, chief compliance officers (CCOs) should reprioritize projects according to the bank's risks and commitments and determine what effort will be required to deliver appropriate compliance. Risks and commitments may include the bank's risk exposure to project postponement or cancellation, commitments to the ECB or other authorities and to internal stakeholders such as the board of directors, risk committee, or internal audit.

Given the delicate nature of compliance projects, which usually entail mandatory regulation and close interaction with regulatory authorities, banks should implement robust risk assessment with clear and objective performance indicators, rating scales, and other information that can be used and referred to later to explain any change of plans.

Crucially, banks must ensure that their credit origination process is fully industrialized.

We see four main actions as a result of such a risk assessment:

- **Maintain current activities and deadlines** if risk/commitment and maturity/flexibility are high (for example, an ECB remediation plan on governance that can be delivered remotely).

- **Extend deadlines** if maturity/flexibility is high and risk/commitment is low (for example, a new set of GDPR controls that can be delivered over a longer timeframe).

- **Reshape and potentially postpone initiatives** if risk/commitment is high but maturity/flexibility is low (for example, a new IT tool deployment).

- **Put initiatives on standby** if risk/commitment and maturity/flexibility are both low (for example, an efficiency project on compliance activities within the function).

Some actions require a proactive dialogue with authorities, as well as the board and audit function. From our experience, regulatory and banking authorities are usually ready to start a dialogue, even during significant remediation cases. But being proactive is key.

Some banks have already started to implement this kind of approach to managing the project portfolio:

- Following the COVID-19 travel ban in Europe, a large EU-based bank initiated a dialogue with authorities to review upcoming onsite visits, developing a variety of contingency options in terms of timing, location, and working modalities.
- Another large EU bank discussed its remediation plan with the ECB following the Supervisory Review and Evaluation Process (SREP) and the onsite inspections, with a view to adapting deadlines and action points to reflect the impact of remote working.

Beyond optimizing their project portfolio, in the medium and long term, CCOs need to understand the implications that COVID-19 might have on their operating model and respond appropriately. To streamline that review, we recommend that banks sort processes into three categories according to their importance and relative risk: those critical for the compliance function and the business (such as financial-sanctions screening on names and payments), those critical for compliance (such as risk assessment and compliance planning), and those that are useful but not critical (such as general advisory or training).

For example, within the first category, CCOs should consider that pressure to make up for lost client activity and volumes could heighten the risk of business shortcuts, such as expediting account openings, that could increase the bank's exposure to financial-crime violations. Anticipating such increases in risk exposures and adapting processes and controls would allow compliance officers to continue to safeguard banks with a forward-looking perspective.

In addition, CCOs need to assess the resilience of their operating model and how COVID-19-related shifts could impact execution. To make that assessment, CCOs should consider the following:

- The feasibility of shifting a critical mass of compliance personnel to remote working
- Where remote working is not possible, the feasibility of concentrating full-time employees in one physical space
- The ability to cluster (rather than fragment) activities across geographic areas, which can reduce operational risk
- The reliability of backup plans, such as alternative methods for screening payments
- The degree of dependence on specific suppliers and suppliers' ability to react to the COVID-19 crisis

Putting These Changes into Action

Banks are dealing with massive complexity and worried clients. To help streamline execution, institutions should consider creating two types of teams: rapid-response teams charged with overseeing crisis management activities, and business continuity teams focused on helping banks carry out their essential activities over the medium and longer terms.

In addition, the crisis will require banks to increase investment in certain areas. These include tools to enable remote working, dashboards and enablers to help facilitate client communications, and perhaps even digital branches that allow clients to conduct their banking activities virtually or "touchless" kiosks that can help them feel more comfortable accessing ATM machines and other services.

At the same time, disruption can also create opportunities. Firms with strong cash flow could use this period to accelerate their growth through strategic mergers and acquisitions. Others could use the recommendations laid out here to innovate their operating model, introducing such things as a new permanent virtual working model that could give banks and their employees greater flexibility.

UNDERSTANDING THE ART OF THE POSSIBLE

Even before the COVID-19 outbreak, banks were facing a different type of disruption, as digitization and fast-moving digital natives threatened to upturn long-standing business and operational norms. But while some institutions have adapted, many more have been slow to make the root-level changes needed. They can no longer wait. Committing to a full digital transformation now will allow banks to become significantly more responsive, lean, and adaptive—precisely the qualities they need to overcome current system shocks and future competitive ones.

Digitizing the risk, treasury, and compliance function will enable banks to anticipate disruptive events and their potential implications earlier and act on those insights faster. To get a sense of what that future look likes, consider that in ten years, leading banks will have entirely different capabilities at their fingertips. Big data analytics, machine learning, AI, service-based IT architectures, application programming interface (API) layers, and centralized data storage will provide risk, treasury, and other functions with transparency into the banking and trading book, allowing teams to anticipate changes in the broader markets in real time. Productivity will improve as digitally redesigned processes automate work cycles, improve compliance, cut manually induced errors, and free up resource capacity. Sophisticated modeling will give managers the confidence-weighted insights that they need to protect the bank's interests, boost performance, and generate value.

BCG's experience shows that digitization can remake risk, treasury, and compliance activities in profound ways. Here's how.

Digitizing the Risk Function

A truly digital chief risk officer (CRO) could become both a nucleus and a force multiplier for bankwide digital transformation. Data visualization, big data analytics, and AI will dramatically improve model performance, allowing teams to run source data through concurrent simulations, select the most accurate ones, and use the time saved to address other important business questions. Reporting tasks will become highly automated, giving personnel more time to devote to specialized analyses. Machine-learning algorithms and centralized incident libraries will help teams predict and prevent operational risk (OpRisk) events. Instead of traditional unit-based self-assessments, data-driven, risk-based classifications can aid the bank in determining the most appropriate preventive measures and surveillance to employ across the bank in order to avoid costly incidents.

As regulatory reporting becomes largely automated, the CRO will be able to focus more time on risk management decision making,

providing predictive insights to guide C-level discussions and assist other stakeholders. Using advanced modeling techniques, for example, the CRO could create an early-warning system. Pattern analysis tools would comb customer transaction data and external information, such as online ratings or satellite data, looking for signals and triggers that would allow risk managers to take effective countermeasures. BCG's experience suggests that a fully automated system could predict a negative event in time to send an early-warning signal as much as 18 months in advance.

Digitizing Market Risk Management

In many respects, the market risk department is a bank's nerve center. It manages risk to the bank's trading book from changes in equity prices, interest rates, credit spreads, and other financial indicators. Fulfilling those responsibilities successfully requires the team to make sense of enormous amounts of data—a task that has become considerably more challenging in recent years. Although market risk professionals are well versed in applying mathematical and statistical techniques to calculate risk, many are reaching the limits of what they can do with the tools they have today.

Many market risk professionals are stuck trying to generate state-of-the-art analytics from an aging, outmoded IT infrastructure.

As trading products become more sophisticated and the number of risk factors that employees need to manage grows, valuation models have become increasingly complex. Regulatory requirements have ratcheted up the pressure further, forcing market risk teams to develop multiple simulation approaches and analyses, an exercise that often requires significant manual effort to complete. With new valuation adjustments (such as XVA) becoming standard, banks are also being pushed to develop more sophisticated and computationally intensive risk and pricing models.

The problem for many market risk professionals, however, is that they are stuck trying to generate state-of-the-art analytics from an aging and outmoded IT infrastructure. Banks and market risk leaders can begin to address these issues by embracing platform models. Built on modular architectures that take advantage of the cloud, platforms simplify the task of data management. A centralized data layer gathers, cleans, and validates data from multiple sources and houses it in one location. Tools embedded in the platform allow teams to generate ad hoc analytics, with dynamic reporting that makes it easy to share the results. Instead of spending hours scrubbing and manipulating data, they can spend their time modeling and using the results to improve trading-book performance. (See the sidebar, "Build a Next-Generation Market Risk Platform.")

Digitizing Credit Processes

Numerous digital solutions lend themselves to more efficient credit processes, from APIs that help banks collect data to custom applications that can price risk more accurately all the way to programs that can be integrated directly into client systems.

In the front office, digital customer interfaces and document exchanges can enable a more responsive and informed sales funnel. Shared platforms can ensure that customers, relationship managers, and risk functions can access the same loan application information and communicate across a single interface. Workflow tools such as digital workbenches can help relationship managers spend less time on paperwork and more time on customer relationship management.

Digitization can also transform risk management, allowing banks to automate risk reviews for lower-risk clients and projects (about 80% of the typical bank portfolio), freeing risk management personnel to concentrate on higher-risk clients and more complex deals.

BUILD A NEXT-GENERATION MARKET RISK PLATFORM

Most risk, treasury, and compliance functions lack a comprehensive and centralized data model that can support relevant underwriting, disbursement, and booking activities. Modern analytics platforms that take advantage of cloud computing and microservices are becoming a core requirement. These platforms are capable of ingesting structured and unstructured data from a variety of sources. Housing data in a centralized location creates a single point of truth, increasing the accuracy of the resulting analytics. Calculation tools embedded in platforms allow teams to run routine and complex scenarios quickly.

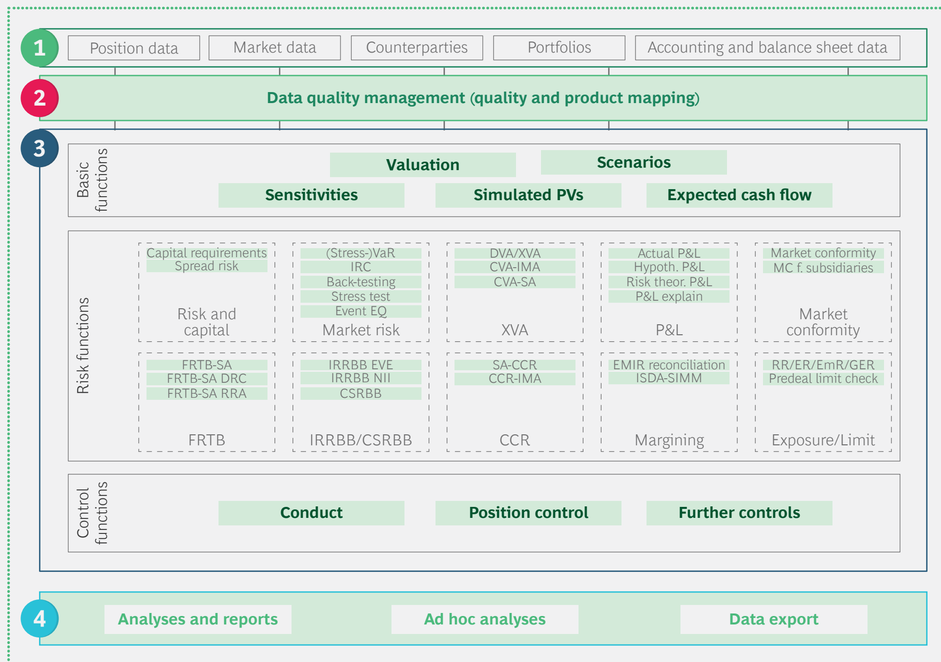
Within a market risk context, advanced data platforms can pool information from commercial data providers and publicly available repositories—as well from across the bank's own internal sources, including customer, transaction, account, and online data—and allow analysts to conduct specialized modeling in hours or minutes instead of days.

Getting the data model right can allow banks to automate at scale, feeding credit process activities from preapprovals to early-warning systems with the information and insights needed. In addition, the modern infrastructure can help organizations reduce their run costs for IT systems. By enabling teams to get the information they need more quickly in one platform, banks can see a 20% to 40% reduction in cloud use, lowering their total IT costs.

The most effective data platforms have four independent layers. (See the exhibit.)

The Data Sourcing and Data Storage Layer. Reusability and data integrity are core design principles. By centralizing data and permitting one instance of each data set, banks can establish a single point of truth and reduce redundancy and error.

The Optimal Market Risk Platform Has Four Independent Layers



Source: BCG analysis.

BUILD A NEXT-GENERATION MARKET RISK PLATFORM
(continued)

Changes in applied data sets for downstream calculations are guided solely by functional reasons to reduce fragmentation, and all old data is preserved so that it can be retrieved whenever required.

The Data Quality Management Layer. The DQM layer enables rules and procedures for data collection and management to be standardized and maintained. A highly automated data validation function preserves data stability, reduces the need for manual checks, and speeds downstream calculation processes. These capabilities help banks satisfy regulatory compliance requirements for adherence to prudent DQM (for example, "principles for effective risk data aggregation and risk reporting," as summarized under the Basel Committee on Banking Supervision 239).

The Calculation and Risk Evaluation Layer. This layer gives banks the ability to run routine and complex analyses. For maximum efficiency, companies should structure calculation and risk evaluations into three sublayers:

- **Basic Functions.** Defining and bundling core calculations into one sublayer allows basic functions to be applied and reused to feed downstream calculation processes and reduce redundancy.
- **Risk Functions.** Grouping similar risk functions together (such as the Standard Approach of the Fundamental Review of the Trading Book [SA-FRTB] and ISDA Standard Initial Margin Model [ISDA-SIMM]) fosters consistency and enables calculations from the basic functions layer to be reused and functions and calculations to be maintained independently.
- **Governance and Control Functions.** Clustering prudent operations functions (stale position identification, for example) promotes consistency and reuse.

The Analytics and Reporting Layer. Automating frequently used inputs in reporting, such as notes and references on a profit and loss statement, can improve process stability and accuracy.

In the back office, digitization can enable straight-through processing in areas such as contract drafting, loan administration, and collateral management (for example, interest rate fixing).

Banks also need to improve their analytical credit risk capabilities. To address these issues, banks need to do two things. They need to rationalize for efficiency and innovate for competitive advantage:

- **Rationalize.** Banks have a core set of scoring or rating models that address supervisory expectations and support lending decisions. These models can follow known industry-standard approaches. But many banks struggle with model suites that are overly complicated and inconsistent. Regulatory supervisors are now asking banks to simplify these models and the processes that support them. To address that requirement, banks should start by harmonizing their models. Then they can deploy a model "factory" that allows tasks to be conducted in a consistent, predefined manner. Building these capabilities is a significant, multiyear exercise.
- **Innovate.** There are numerous opportunities to measure and manage credit risk more effectively using alternative data sources and advanced analytics. Some banks have chosen to use advanced and traditional analytics in a "champion and

challenger" setup. Existing models and the related governance and decision making are retained, but analytical alternatives are deployed alongside them, without significant governance as a test. Differences in prediction are analyzed in order to understand what they imply for existing and alternative models. This helps to build experience rapidly while insulating the bank from many of the model risk issues described above (there is no risk to the bank if the alternative models are wrong). We encourage this approach.

Beyond the champion-and-challenger setup, we recommend that banks consider advanced analytics for credit issues where models currently do not exist or where the bank's model risk framework does not apply. Examples include application assessment, gray-area scoring, decision routing, and pattern recognition.

Digitizing Balance Sheet Management

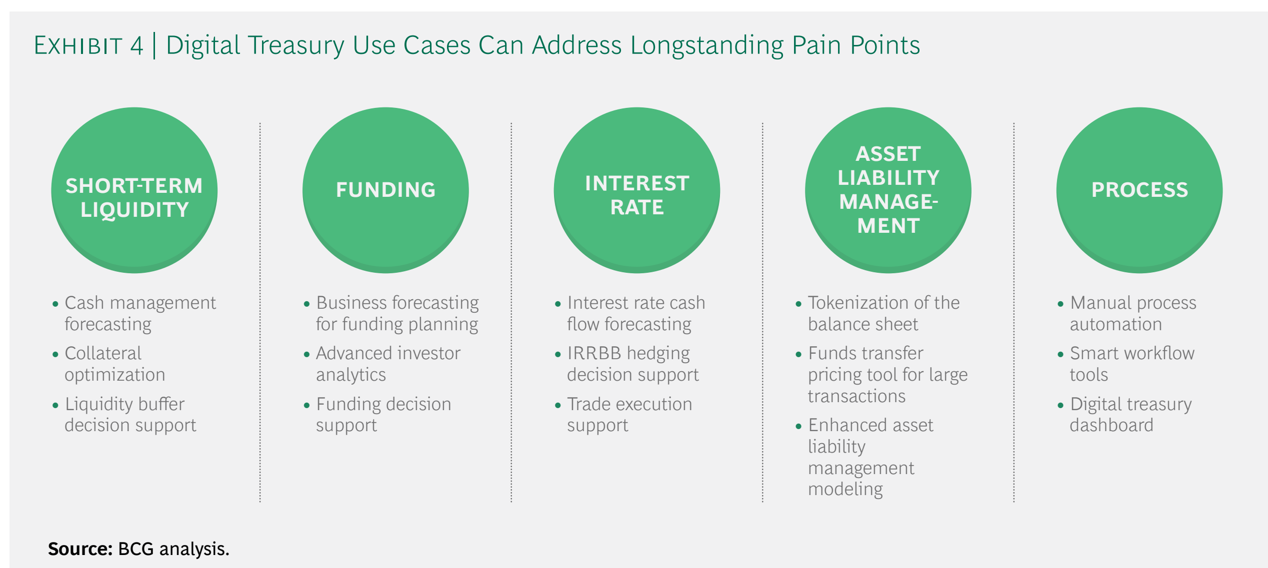
The treasury function is responsible for managing the balance sheet and the corresponding risks, yet BCG survey data shows that 70% of treasury functions lack the data, modeling, and analytical tools to address balance sheet and risk management in a meaningful way. Closing these gaps can reduce treasury operating costs by an average of 20% to 30% and increase the NII contribution by 10% to 15%.

We have identified more than a dozen digital use cases that can help treasuries address longstanding pain points. (See Exhibit 4.) Three of these have the ability to deliver immediate, near-term impact.

Enhanced Forecasting. Data analytics allow treasuries to anticipate daily cash flow volumes and optimize intraday and end-of-day liquidity reserves. Rather than relying on historical data, treasuries can take advantage of the dynamic pattern recognition capabilities that come with machine-learning engines. Predictive analytics can tease out monthly cash flow patterns, identify seasonal variations, and anticipate the downstream impact of macroeconomic fluctuations and market stresses, giving treasuries improved visibility and deeper real-time insights into the bank's intraday and end-of-day positions. Enhanced forecasting capabilities could also help treasurers anticipate downstream funding demands from new business—a capability that would overcome a longstanding pain point between treasuries and business units and help optimize the overall funding strategy.

Superior Decision Support. Treasuries can use a variety of proven decision support systems to determine the most effective hedges, purchase the best liquid assets, and pledge the most useful collateral. Liquidity buffer "switch tools" can help treasury CIOs optimize the treasury portfolio for risk, return, and resource consumption within

EXHIBIT 4 | Digital Treasury Use Cases Can Address Longstanding Pain Points



Source: BCG analysis.

regulatory and accounting guidelines—an important capability since those portfolios can account for roughly 20% of a bank's total assets. Tools that use optical character recognition and rules-based expert systems can allow treasuries to scan documentation and quickly determine the optimal (least expensive to deliver) collateral to post.

Improved Cycle Times and Consistency. Greater automation and process integration allow treasuries to improve coordination across stakeholders. Robotic process automation (RPA) can help automate repetitive manual processes, thus speeding response times, lowering error rates, and freeing treasury personnel to focus on strategic, high-value activities. As a bridge technology, RPA can also help treasuries overcome legacy IT constraints until the bank is ready to fully automate its core processes.

Digitizing Regulation and Compliance

Compliance continues to drive a substantial share of costs for banks and has forced institutions to expend significant resources over the past decade to keep up with an onslaught of regulatory requirements. With most major new regulations now final, banks have a chance to catch their breath and focus on bringing renewed efficiency to their function. Institutions continue to face steep fines, however. From 2018 to 2019 alone, total penalties grew by $10 billion, reaching $381 billion. (See Exhibit 5.) Supervisory bodies are also becoming more active in pursuing incidents of financial crime and misconduct. Civil penalties for such actions nearly tripled in the US during the past 12 months, rising from $7 billion in 2018 to $24 billion in 2019.

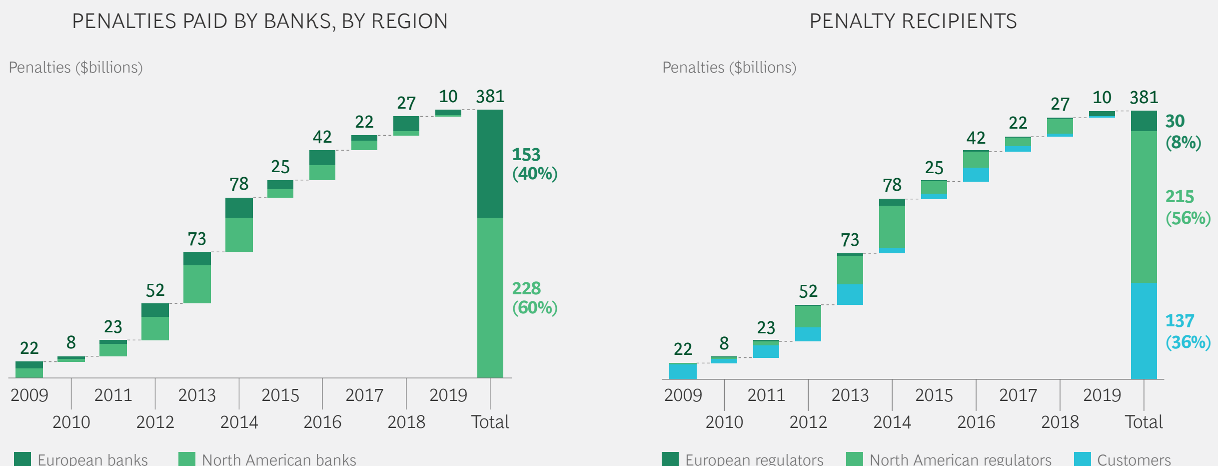
Banks can improve efficiency and lower their risk of infraction in several ways.

Enhancing Know Your Customer (KYC) Outcomes. KYC is a time-consuming and heavily manual process at most banks. Digitizing the various steps can relieve significant capacity and cost pressures in four key ways.

The first is the efficient collection of client information. Mobile apps, web-based portals, and video tools, for instance, make it easier for retail banks to collect KYC-relevant authentication information from customers. Likewise, automation technologies can help corporate institutions integrate public registers, external data providers, and KYC utilities into their KYC workflows.

Second, enhanced KYC workflow tools can boost efficiency by providing user guidance

Exhibit 5 | Financial Penalties for Noncompliance Continue but at a Slower Pace



Source: Annual reports; press reports; BCG analysis.
Note: The sample covers the 50 largest European and North American banks. Data through 2015 includes only the penalties, fines, and settlements that surpass $50 million; data since 2015 includes only the penalties, fines, and settlements that surpass $20 million. Values may not add up to totals shown because of rounding.

on policies and procedures, pooling transaction and product usage reports, archiving files from previous reviews, and highlighting relevant performance indicators in a management dashboard.

Third, advanced screening tools capable of filtering news articles can cut down on the number of alerts generated. Language-processing skills embedded in these systems can reduce the rate of false positives in name screening.

Finally, digitization would help banks move from periodic to event-based KYC reviews, especially for low-risk customer segments. Because at least 70% of customers typically fall into this segment, a more efficient digital way of screening can reduce costs significantly while decreasing risk.

Taking advantage of these digital KYC use cases requires banks to harmonize KYC standards across locations. Institutions must also identify clients with an elevated risk profile. To manage this regulatory requirement, banks need to apply dynamic client risk rating (CRR) methods that take deviations between actual and expected product use and transactional behavior into consideration.

Expediting Screening. Most screening activities suffer from high rates of false positives, requiring heavy additional staff time to review and validate. AI-based tools can sharply reduce the rate of false positives by preclassifying detected alerts and generating notes that detail why a false positive can be disregarded.

Enhancing Transaction Monitoring. Transaction-monitoring alert systems also generate many false positives that must be followed up with lengthy investigations where investigators need to gather new information, understand the context, and investigate the entities involved. An AI-based transaction-monitoring system can reduce false-positive rates in four ways: by improving data quality and enhancing detection rules, detecting behavioral patterns that improve segmentation, identifying direct and indirect connections between customers and other entities using network analysis, and streamlining reporting by incorporating evidence into a single document.

Automating Alert Handling. RPA can enable more efficient alert handling. Analytics embedded in the software can help improve filtering and can facilitate documentation and reporting, reducing manual work.

HOW TO MAKE DEEP CHANGES THAT LAST

INFORMATION ASYMMETRY MAY MAKE markets, but within organizations, it can be a source of pain. That's particularly true for banks that have a larger slate of risks to manage, a growing need for integrated steering, and an equally growing need to make the most strategic use of their balance sheet resources.

Looking ahead, only a small number of banks are likely to have the balance sheet resources to serve the entire financial services value chain. Other institutions will need to reassess where and how they want to compete—whether to go for specialization or for scale. Whatever the approach, regaining and sustaining profitable growth will require banks to change how they do business in deep and substantive ways. Adopting a structured approach can help guide institutions through this process, helping them to access the opportunities that disruption can bring while keeping the transformation firmly grounded.

Prioritize High-Value Opportunities

Banks have invested heavily in digital technologies over the past several years. Rather than marshaling resources toward a unified set of strategic outcomes, however, some have seen their budgets diffused on a disparate array of programs that achieve subscale returns. The costs of underinvesting in the right areas are steep. At a time when digital leaders think in terms of "10x" returns, traditional 10% improvement approaches lead to slow, incremental changes that are too easily eclipsed, forcing banks to play a continual game of catch-up.

Instead, we recommend that banks identify a handful of priority initiatives that can deliver concrete returns in a 12- to 15-month period. Short-term wins will help fund the larger transformation journey by freeing up capital and releasing resources needed for more strategic, high-impact priorities down the road. A portfolio approach also allows banks to demonstrate progress to key stakeholders: board members, investors, and the organization.

In identifying the right set of initiatives, risk and treasury leaders should focus on competitive advantage and value creation. In our experience, banks that concentrate upfront on a maximum of two or three use cases see the best results. By focusing on a select number of high-value opportunities, institutions can reduce operational complexity, sustain needed engagement, and better manage the cultural and behavioral changes that accompany any new initiative.

Optimize Core Processes

Few banks are capable of running fully streamlined digital processes end to end. Take

credit, for example. Credit-related activities are typically divided into front-office, risk management, and back-office procedures. Integrating these actions end to end can allow institutions to conflate all credit steps into one straight-through process, backed by continually updated analytics. Digitizing the credit journey in this way can help banks speed processing, lower costs, and tailor customer offerings according to individual risk profiles.

Most banks manage hundreds of processes. Of these, only a few dozen are truly core. Rather than attempting to overhaul the entire process environment, the leaders of risk, treasury, and compliance should single out the activities that are critical to their operation, then review the steps in those processes end to end. Close analysis can help identify weaknesses, such as unnecessary manual touch points and inconsistent documentation, and flag key moments where the right combination of digital technologies can help.

A culture in which young talent feels motivated, valued, and inspired is essential.

With respect to risk monitoring, banks could create automated early-warning indicators that pull in a variety of economic, market, and customer data to identify patterns that indicate a heightened risk of default. Rather than simply automating existing processes, institutions should focus on streamlining core decision-making steps first. For example, taking the time to segment customers by loan volume, ratings class, or other criteria can help banks group lower-risk accounts together. Automation can then be employed to fast-track reviews and approvals for this segment.

Better data management, advanced analytics, and greater use of automation technologies can help banks improve the quality and speed of decision making, free up capacity, reduce errors, and foster forward-looking quantitative discussions. But process redesign doesn't have to happen in one fell swoop. Banks can start by ensuring a basic level of digitization, focusing on areas that tend to involve significant manual input, such as loan administration. Over time, they can iterate and improve process functionality with the goal of fully automating the credit and risk management process. The same approach can then be applied to core treasury and compliance tasks.

Create the Right Enablers

Organizations need to ensure that the necessary building blocks are in place and consider what type of structure will advance operational agility. Governance mechanisms must be adjusted as well to support greater collaboration between risk control, finance, and treasury while maintaining appropriate separation.

Enabling teams to develop solutions will require new metrics, incentives, and reporting practices. Different skills and talent profiles will also be essential—banks will need more business intelligence specialists, data scientists, and "business translators" who can convey the function's needs and priorities.

Given the high market demand for digital talent, savvy banks will not only ramp up their recruiting where needed but also find thoughtful and creative ways to make the most of their existing resources. Organizations can think through the capabilities that can be shared across business units, divisions, and regions and develop project-based teams whose roles can evolve to fit the contours of different digital initiatives.

Creating a culture in which newer, younger, digital-native talent will feel motivated, valued, and inspired is also crucial. Clustering teams together in collocated units, supporting rotations, and providing teams with appropriate empowerment can help banks attract and retain younger workers, who are drawn to opportunities for autonomy and creativity. And because of the flatter organization structure that comes from agile ways of working, companies can achieve superior results, faster than a traditional organization.

How banks manage the transformation also matters. While businesses can plan in three-

to five-year increments, those plans and the supporting implementation must be reviewed on an ongoing basis, with active engagement from senior leadership. Organizations need to be prepared to refresh the transformation plan in a way that will allow them to optimize on the basis of market, business, and competitor risks and opportunities. To speed the transformation, institutions should assess what parts of the digital value chain make sense for them to build in-house and where they should partner or acquire. Identifying best-of-breed providers and forming strategic partnerships with promising fintechs and "risktechs" can give banks needed talent and help fast-track innovation.

A transformation office, led by a chief digital officer, can keep up the momentum, rigorously tracking progress against detailed goals, milestones, and metrics—and signal when it's time to adjust course.

Employ Agile Ways of Working

As agile ways of working spread across industries, risk and compliance functions need to ensure that they get agile right. Leading organizations will be able to do three things:

- **Identify where the biggest risks are in the bank's agile portfolio.** The risk function needs to be involved in risk identification and assessment for agile programs throughout the organization. To do this effectively, it needs to be able to conduct dynamic, real-time monitoring. Digital tools that integrate risk assessment results into existing workflow and risk management steering systems can help. Designing the technical architecture requires a thorough understanding of the company's current technology landscape and typically includes the development of back-end systems to share, aggregate, and prioritize data among workflow tools.

- **Determine when and how risk and compliance should be involved.** Risk and compliance functions also need an efficient process for handling requests from agile project teams. Systematic risk assessment tools can make it easier for risk and compliance to understand the composition of the agile portfolio and its characteristics. Management can then prioritize according to the impact of the risk and compliance function's involvement, making sure that the right skills and expertise are allocated to maximize coverage while ensuring efficient resource utilization.

- **Employ agile risk and compliance practices to streamline collaboration.** The risk and compliance function itself then needs to go agile in order to streamline collaboration. By applying agile to business-as-usual risk processes, such as model development or stress testing, firms can realize up to 25% efficiency gains, freeing up resources to be deployed in other priority activities or simply generating bottom-line savings.

Banks that commit to making these changes can reduce risk and revitalize growth, creating a more resilient and sustainable model that can withstand the swings and opportunities that the next decade will present.

FOR FURTHER READING

Boston Consulting Group has published other reports and articles that may be of interest to senior financial executives. Recent examples include those listed here.

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A video interview by Boston Consulting Group, February 2020

For Banks, a Long Way to Excellence in Digital Sales
An article by Boston Consulting Group, February 2020

How Global Asset Managers Can Step In as China Opens Up
A Focus by Boston Consulting Group, December 2019

RBC's Dave McKay on a Future-Focused Culture
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NOTE TO THE READER

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