

GLOBAL CAPITAL MARKETS 2015

# ADAPTING TO DIGITAL ADVANCES



BCG

THE BOSTON CONSULTING GROUP

The Boston Consulting Group (BCG) is a global management consulting firm and the world's leading advisor on business strategy. We partner with clients from the private, public, and not-for-profit sectors in all regions to identify their highest-value opportunities, address their most critical challenges, and transform their enterprises. Our customized approach combines deep insight into the dynamics of companies and markets with close collaboration at all levels of the client organization. This ensures that our clients achieve sustainable competitive advantage, build more capable organizations, and secure lasting results. Founded in 1963, BCG is a private company with 82 offices in 46 countries. For more information, please visit [bcg.com](http://bcg.com).



Founded in 2001, Expand Research is transforming the way the world's financial markets make business and technology decisions by providing timely decision support and research services on business and technology strategies to leading financial institutions globally. In July 2011, Expand became an independent subsidiary of The Boston Consulting Group. It has offices in London, New York, and Singapore.

GLOBAL CAPITAL MARKETS 2015

# ADAPTING TO DIGITAL ADVANCES

PHILIPPE MOREL

CHARLES TESCHNER

WILL RHODE

SHUBH SAUMYA

ANDRE VEISSID

ANTONIO RIERA

SUKAND RAMACHANDRAN

GWENHAËL LE BOULAY

# CONTENTS

3	<b>INTRODUCTION</b>
4	<b>OVERVIEW: KEY MARKET DEVELOPMENTS</b> Revenues Balance Sheets Costs
9	<b>BREAKING TO BITS: THE NEW DIGITAL DISRUPTION</b> Adapting to Advances Seizing Opportunities
18	<b>A TIME TO ACT</b>
20	<b>FOR FURTHER READING</b>
21	<b>NOTE TO THE READER</b>

# INTRODUCTION

**A**S PREDICTED IN TWO previous reports by The Boston Consulting Group, return on equity (ROE) in the capital markets and investment banking (CMIB) industry continued to fall in 2014 from already-low levels. Revenues declined, although costs did not—and leverage constraints increased. Regulation and regionalization made markets even bumpier and more brittle, with quantitative easing exacerbating market dislocations, as observed in the U.S. Treasury market in October 2014.

Long periods of low volatility have been interrupted by extreme spikes, with issuers flooding the primary market and dealers pulling out of capital-intensive businesses such as fixed income, currencies, and commodities (FICC) when the cost of warehousing assets became prohibitive. Negative interest rates in some European countries means that banks will struggle to maintain a positive overall net interest margin. This development, combined with other punitive capital requirements, has made it very difficult for banks to be in the risk capital business. Indeed, many are turning away.

As the capacity for risk absorption is reduced, liquidity dislocations will occur more frequently and to greater degrees. We expect significant asset repricing in the future. Moreover, such fundamental imbalances raise the specter of market risk losses, which would further hinder investment banking performance. Calls to shrink banks or to break up the standard integrated model have become louder as more CMIB business is either carved out, ring-fenced, systematized, or shut down.

For the institutions that remain, of course, reduced capacity should provide an opportunity to boost market share—but the challenging environment in 2014 prevented most from making any significant gains. Indeed, a bigger buy side (although itself under increased pressure from regulators) demands margin reduction in a world increasingly characterized by electronic trading, while higher capital costs and the need for more technology investment are impairing profitability. Banks have seemingly reached an impasse of sorts, with the industry's cost-to-income ratio (CIR) stubbornly remaining above 70 percent, albeit with wide variation depending on the specific business model. The industry gloom that we have been forecasting for some time is now well and truly upon us.

This year's report, our fourth annual study of the global CMIB business, emphasizes the digital domain. Our aim is to provide food for thought for senior management teams as they look to transform their organizations into lean, digitally fit, client-centric institutions.

# OVERVIEW

## KEY MARKET DEVELOPMENTS

**L**OWER REVENUES, REDUCED BALANCE-SHEET risk, and slow progress on cost-reduction initiatives were themes of the CMIB industry in 2014. But a closer look at each area reveals nuances that may have a significant impact in the future.

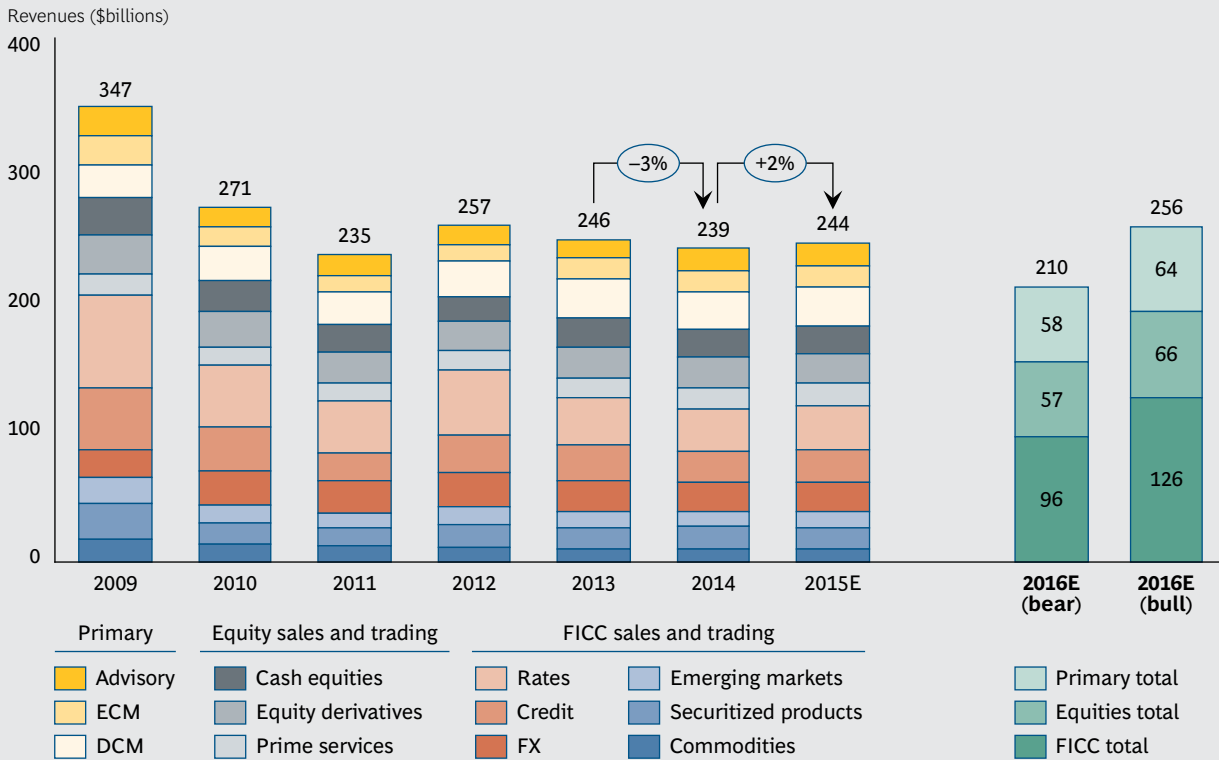
### Revenues

Global CMIB industry revenues declined once again in 2014 to \$239 billion, down 3 percent from \$246 billion in 2013 and down 12 percent from \$271 billion in 2010, as cyclical and structural headwinds continued to pressure the top line. (See Exhibit 1.) Quantitative easing has depressed interest rates for an extremely long period—dampening volatility, suppressing trade activity, compressing spreads, and narrowing net interest margins.

Some specifics are as follows:

- FICC, which made up 55 percent of all revenues in 2010, has seen its share of the total fall to 49 percent (\$117 billion in 2014). Unusual volatility patterns and low client flows have been the primary reasons for poor performance, although structural issues have also plagued the market. High capital costs have affected banks' ability to warehouse assets as well as to make markets in ultralong derivatives and illiquid corporate credit, for example.
- New regulations that limit proprietary trading, such as the Volcker Rule in the U.S. and ring-fencing in the U.K., will undermine the ability of investment banks to act as market makers in the years ahead. Two extraordinary periods of extreme volatility—the first in October 2014 in U.S. Treasuries, and the second in January 2015 when the Swiss National Bank removed the Swiss franc's three-year-old cap against the euro—caught some off guard, leading to sizable losses. The introduction of the Dodd-Frank Act in the U.S. is also hurting investment banks, driving volume toward new types of intermediaries such as swap execution facilities (SEFs), introducing less profitable modes of agency execution, allowing alternative market-making entities to gain a toehold, and fragmenting liquidity into regional pools.
- Derivatives regulation is set to come online in Europe over the next two years, further intensifying pressure on the traditional operating model. Several institutions exited the commodities trading business in 2014, continuing an exodus that began two or three years ago, and the few remaining players have gained revenues and market share as a result. But FICC businesses remain prohibitively expensive to run, with high front-office, technology, and operating

## EXHIBIT 1 | CMIB Revenues Continued to Decline in 2014



Sources: Company financial statements; Expand Research; BCG analysis.

Note: Based on a sample of 35 banks.

costs. In foreign exchange (FX), more firms will continue to consider exiting the business or sourcing from other parties such as larger banks, as liquidity in the G-4 currencies becomes further concentrated among the leading firms.

- Stock market highs, solid volume growth, and a resurgence in corporate listings did not provide investment banks with correspondingly strong equity revenues, which declined slightly to \$60 billion in 2014 after improving in 2013. Scrutiny of dealer-operated dark pools (private markets) did not help investment banks, as clients directed flow away from these channels. Meanwhile, thanks in part to critics of the U.S. equity market structure, two new alternative trading systems were launched—one designed to thwart the influence of high-frequency trading and the other a buy-side-only dark pool. The CMIB industry will face further headwinds in 2015 as the U.S. Securities and Exchange Commission implements one of the most substantial rules in recent

memory—Regulation Systems Compliance and Integrity (Reg SCI), which will attempt to minimize the technology outages that have beset trading markets over the past five years. Depressed volatility hurt the shift toward equity derivatives in 2014, with revenues falling 4 percent to \$22.8 billion.

- On a more positive note, primary revenues grew 4 percent to \$62 billion in 2014, driven primarily by very strong M&A revenues, which grew 14 percent to \$16.5 billion, the strongest growth in five years. We can expect 2015 to be another good year given the cyclical nature of M&A, which tends to follow five-to-seven-year cycles. Equity capital markets (ECM), which included the biggest IPO in history—a \$22 billion listing by China's e-commerce company Alibaba on the New York Stock Exchange—also performed well. Debt capital market (DCM) revenues expanded on previous gains as corporate clients and financial institutions continued to take advantage of the low-inter-

est-rate environment to issue debt, easing fears that cash-rich corporations would stop tapping the debt market.

First-quarter results in 2015 were above historical averages in primary markets and equity and showed strength in FICC. We expect a modest improvement in full-year earnings in these areas compared with 2014. However, overall revenues will continue their post-2010 trend, remaining below the highs of the 2009 government-induced credit and FICC boom. In a best-case scenario, we see the favorable first-quarter conditions persisting, with increases in market volatility translating into higher volumes and revenues across rates, FX, and credit, as well as in emerging markets. If primary-market confidence continues, with a cyclical spike driving origination as well as sales and trading income, industry revenues could reach \$256 billion in 2016.

Alternatively, sustained low interest rates and low volatility may continue to impair trading revenues. The fundamental review of the trading book (FRTB) and the ongoing move toward Basel IV may force banks to scale back from derivatives market-making, further

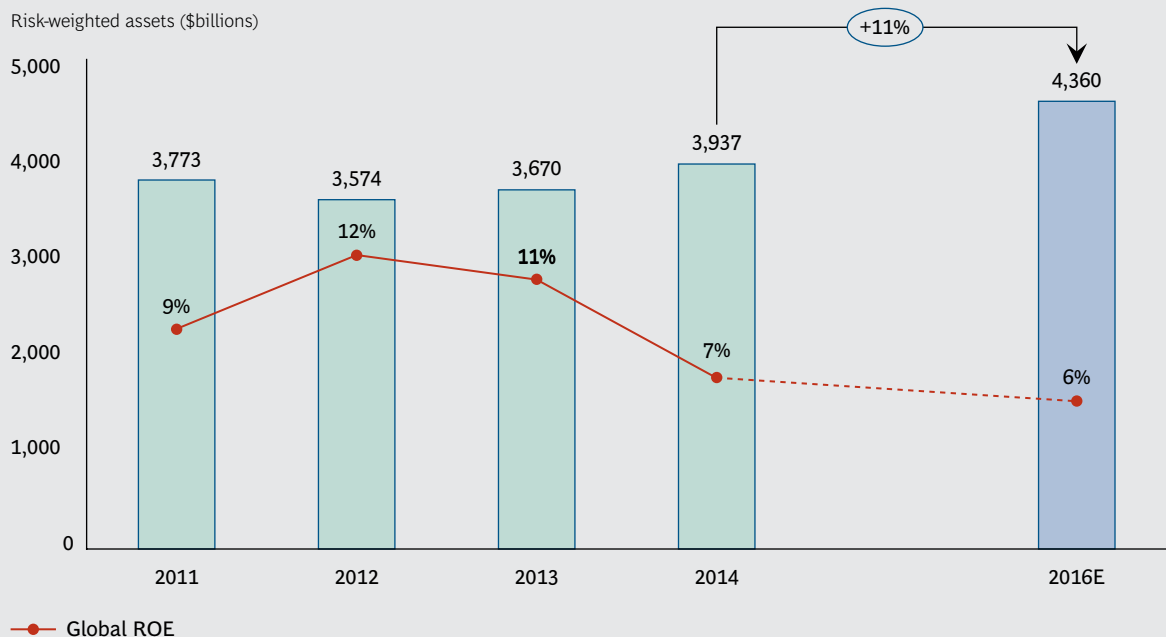
damaging FICC revenues. Equity revenues could continue their long-term deterioration, while primary markets may see the issuance boom draw to a natural conclusion. In this more bearish scenario, industry revenues in 2016 could be as low as \$210 billion.

## Balance Sheets

Banks have primarily responded to the revenue and regulatory challenge by lowering risk. Reducing the size of derivatives portfolios has been a particular focus, given that Basel III imposes a credit valuation adjustment (CVA) charge to address counterparty credit risk. The more punitive treatment of risk-weighted assets (RWA) under Basel III has obscured CMIB balance sheet reduction programs. In 2013, for example, banks reduced RWA significantly—but new standards meant that reported RWA remained more or less the same as in the previous year. Indeed, this was the intent. Banks want neither to reduce RWA excessively for fear of shrinking the bank nor to lag behind new standards, which hurts ROE.

In 2014, RWA showed the most significant increase since 2011. (See Exhibit 2.) This rise,

**EXHIBIT 2 | Risk-Weighted Assets Are Poised to Rise 11 Percent Despite Mitigation Efforts**



**Sources:** Company financial statements; Basel Committee on Banking Supervision; BCG analysis.

**Note:** Based on a sample of 17 banks, and calculated according to the Basel Committee's fundamental review of the trading book. Estimated RWA for 2016 assumes final publication of capital requirements by year-end 2015, with full implementation in 2016 and constant inventory levels; ROE in 2016 is estimated on the basis of 2014 net income.



combined with the negative revenue climate and the challenges in cost reduction, caused industry ROE to fall to just 7 percent. The low ROE may have been due in part to the continued “raising of the bar” by the Basel Committee. Alternatively, investment banks may have started to reinvest in less risky RWA in an effort to resize and rescale.

One way or the other, however, investment banks must still reduce RWA to meet new standards. Stress tests, leverage and net-stable-funding ratios, FRTB, and global systemically important financial institution (G-SIFI) capital charges, as well as ring-fencing in the U.K. and intermediate holding company reform in the U.S., will all continue to pressure the balance sheet and, in turn, ROE.

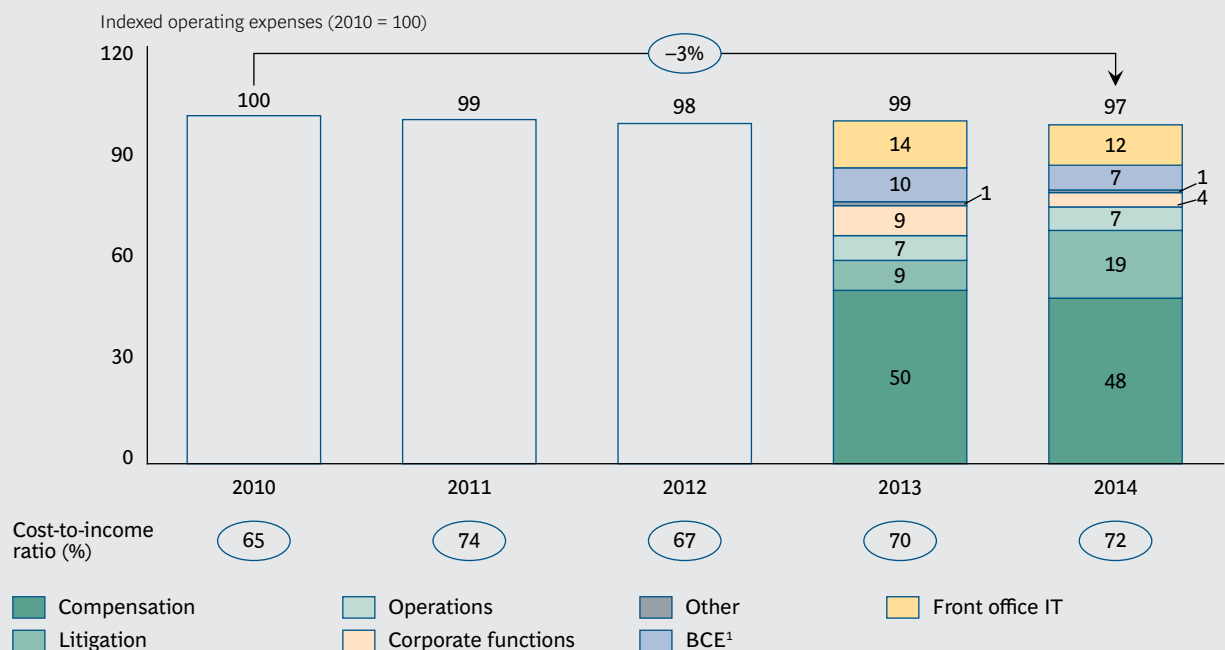
FRTB hits CMIB institutions hardest, imposing stricter internal risk models on derivatives and securitized assets, and further increasing the regulatory capital required. We estimate that FRTB will value today’s current inventory of RWA at an 11 percent premium in 2016, placing additional downward pressure on ROE. We expect investment banks to respond, as in previous years, with balance

sheet mitigation programs designed to keep pace with the regulatory agenda. In the absence of any such programs, FRTB would depress ROE to 6 percent in 2016, based on 2014 revenues. In short, with the ongoing regulatory schedule and the move to Basel IV, investment banks will be constrained in their ability to reduce equity as an effective lever for lifting ROE.

### Costs

CMIB players continued to make slow progress on a number of cost-reduction programs in 2014, but total costs nonetheless remained fairly flat. (See Exhibit 3.) Compensation costs fell by less than 1 percent (and have declined by only 3 percent since 2010), despite ongoing staff redundancies and a decrease in average compensation. Non-compensation costs (excluding litigation) have been relatively stable since 2010. But banks are experiencing cost-reduction fatigue, with efforts to reduce head count and compensation stymied by rising litigation expenses. The need for major investments in technology in several important markets means that investment banks are faced with stubbornly high CIRs. In

**EXHIBIT 3 | Increased Litigation Has Offset Cost Reduction in the CMIB Industry**



Sources: Financial statements; Expand Research; Y-9 forms for U.S. banks; brokerage reports; BCG analysis.

Note: Based on a sample of 35 banks. Estimates for CMIB litigation expense as a share of total litigation expense are from brokerage reports and bank financial statements for a sample of ten banks and extrapolated out to the full sample.

<sup>1</sup>Brokerage, clearing, and exchange.

cash equities and commodities, for example, CIRs are running dangerously close to 100 percent. Under the additional weight of not only research costs but also high brokerage, clearing, and exchange fees (relative to other asset classes), cash equity profits have been severely eroded, bordering on breakeven in most years.

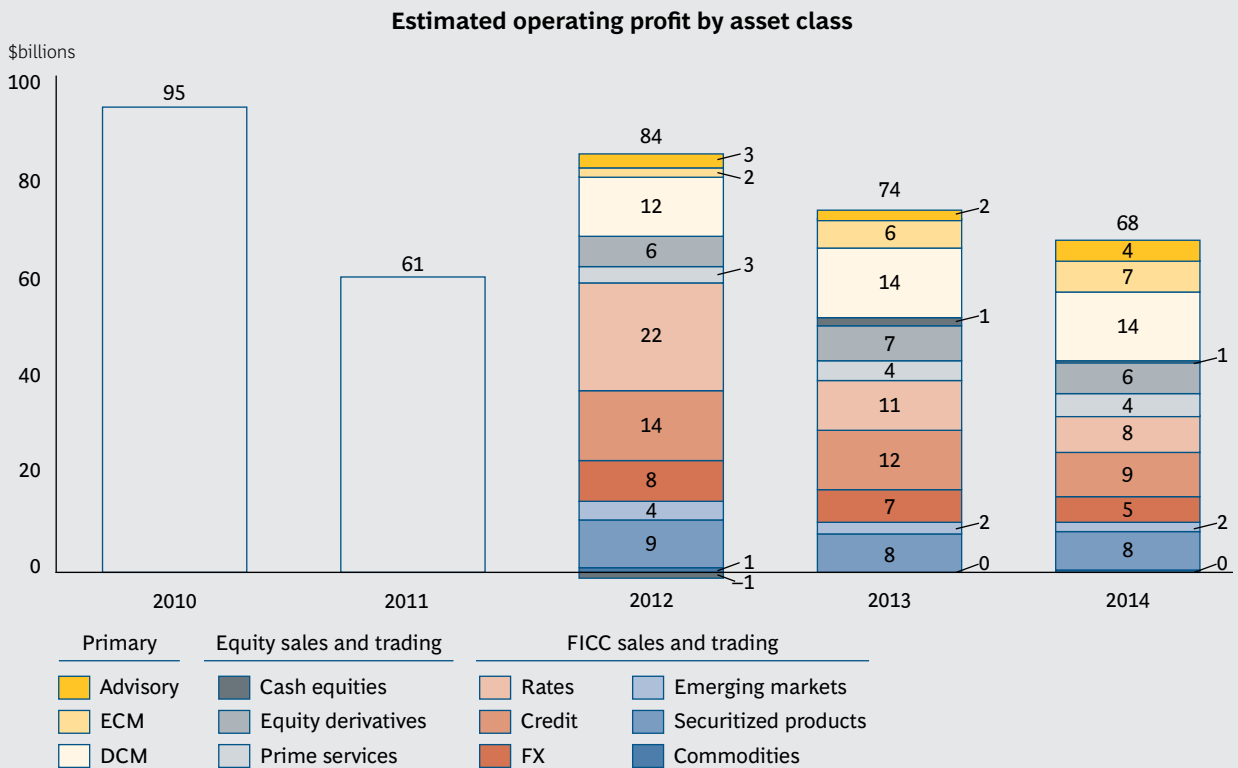
Indeed, industry operating profits are at historical lows across the board, down 28 percent since 2010 to just \$68 billion in 2014. (See Exhibit 4.) ECM, DCM, and M&A are the only bright spots, buoyed by strong issuance thanks to low interest rates. On the other hand, rates trading has suffered the largest decline, falling 64 percent to just \$8 billion in 2014, down from \$22 billion in 2012.

Ultimately, we do not see this downward ROE trend reversing, and we see ROE remaining below 10 percent unless major restructuring

occurs. We also believe that it is no longer possible to be all things to all people. Banks can hold key relationships with some clients and source products as necessary, and they can also maintain a competitive or pole position in other products. But the days of being both a relationship leader and a product leader in multiple products are over.

Indeed, it is better for investment banks to commit to a few product lines in which they can gain the pole position and succeed in today's scale-driven, electronic, winner-takes-all environment, rather than competing in too many areas and achieving only low, loss-leading market shares.

#### EXHIBIT 4 | Operating Profits Are at Historically Low Levels



Sources: Company financial statements; Expand Research; BCG analysis.  
 Note: Based on a sample of 35 banks.

# BREAKING TO BITS

## THE NEW DIGITAL DISRUPTION

**I**N A COMMODITIZED INDUSTRY such as financial markets, it has been critical for investment banks to control all aspects of the value chain—from origination to distribution to dealing—in order to maintain a competitive edge. Proprietary access to information placed the balance of power in their hands. But increases in processing power and bandwidth have allowed information to flow more easily and cheaply, particularly in the world of securities pricing and supply, but also in the field of research and information-based investing. With increased electronic trading in some over-the-counter (OTC) asset classes such as rates and FX, in which dealers are being forced to supply prices on a request-for-stream (RFS) basis without the benefit of last-look, the information advantage is shifting to the clients, who can see just as many (or more) prices as the dealer.

As a result, the entire competitive landscape is changing. For example, the market-making universe has expanded to include high-frequency trading firms, hedge funds, and even (depending on the asset class) asset managers. OTC markets are being forced onto exchanges, with new execution venues such as SEFs further undermining the banks' monopoly on the price-discovery process. In the case of securities inventory and supply, dealers have withdrawn from markets in which it is too expensive to warehouse, and assets have shifted from dealer balance sheets into buy-

side accounts held at securities-services firms and trust banks, providing these players with critical insight into secondary-market flows.

Simultaneously, primary markets are being penetrated by large asset managers, boutique investment banks, regional banks, and private-equity firms. Some large asset managers want to ensure that corporations are issuing the securities they want to invest in, rather than the securities that banks want to structure. Securities deal terms and conditions have long been logged and registered with third-party providers, and these data assets are today being acquired by nonbank entities that want to gain leverage in the origination market. Finally, information-services firms are looking to digitally deliver a spectrum of data and analytics, workflow tools, and information-based products to a broad audience.

Rapid advances in information technology are enabling more entities to gain access to larger amounts of rich information at lower cost, and the impact has been felt across numerous industries. CMIB is no exception. The last two years have witnessed a data explosion, and the amount of data is expected to grow another tenfold in the next six years. A sevenfold increase in mobile penetration over the past four years is also having a profound effect.

This acceleration in innovation comes at a time when the CMIB industry is most vulner-

able. Traditionally, investment banks have been shielded by their regulatory status, their unique ability to deploy risk capital, their unrivaled understanding of and ability to serve clients, their ability to attract the best talent, and the universal belief that they are the trusted agents of a complex global financial system. But these foundational pillars are beginning to crumble. Regulatory advantage has turned to disadvantage as sustained pressure continues to take its toll on the traditional operating model. Risk capital now comes at a punishing price. Cost-cutting, unbundling, and ring-fencing undermine the ability to serve clients. The global financial crisis and subsequent scandals have damaged banks' reputations as trusted institutions.

In short, the information advantage that investment banks have traditionally enjoyed is being eroded at the very moment when information technology is entering a new evolutionary phase. Digital advances are facilitating the flow of information away from banks and into new channels. These advances are also allowing data to be created and controlled by nonbank entities. Some CMIB firms see the handwriting on the wall and are im-

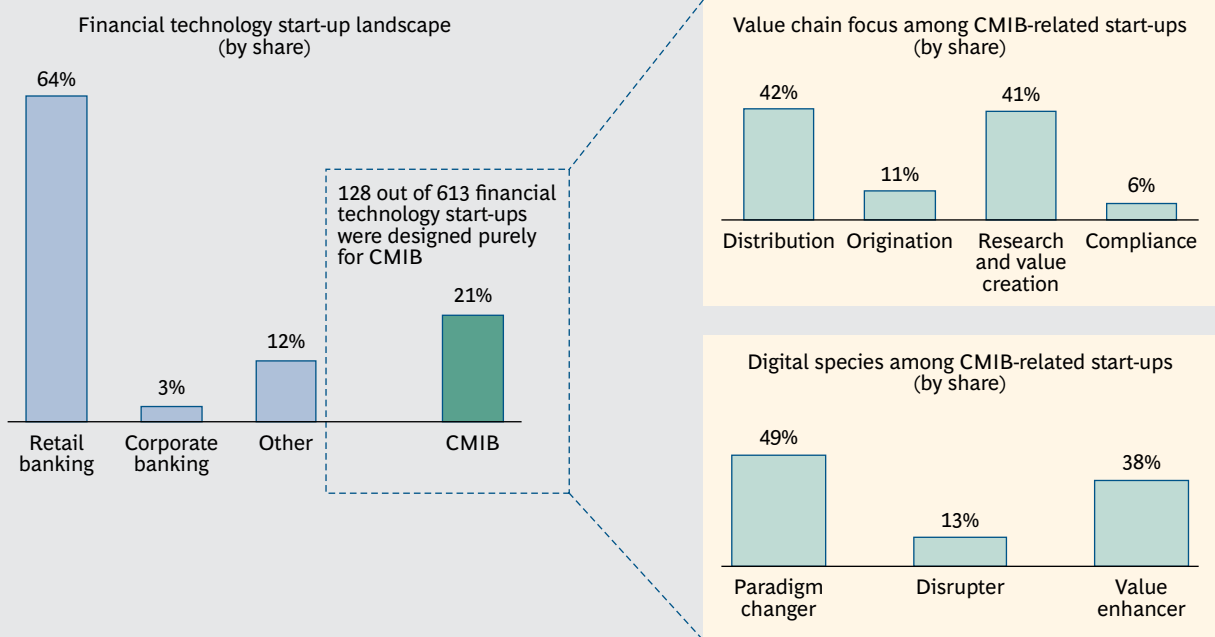
plementing measures to stay ahead of the curve. For example, they are leveraging their unique networks and ability to standardize disparate sources of OTC market data to offer agency-like execution services to clients who want access to diverse pools of liquidity.

Other firms are adapting too slowly, if at all. Investment banks will need to choose where on the value chain they wish to focus. But with digital advances come digital opportunities.

### Adapting to Advances

Digital advances have spurred venture capital investment in start-ups, especially in the financial services industry. We analyzed more than 600 start-ups in the U.S. and Europe with technology offerings that enable or deliver financial services. This sample is sufficiently broad to capture key themes and accurately identify which areas are attracting the most interest. For example, it is very evident that venture capital is being directed at companies focused on the investment community and the peer-to-peer (P2P) space, although a portion, 21 percent, is targeted at the CMIB industry as well. (See Exhibit 5.)

#### EXHIBIT 5 | Twenty-one Percent of Financial Technology Start-Ups Are Targeting the CMIB Industry



Sources: CB Insights; FT Partners; <http://www.mindmeister.com/488176466/fintech-landscape>; press reports; BCG analysis.

Note: Retail banking start-ups include those related to the investment community, marketplaces, and payments; other start-ups include those related to enterprise financial software, API/connectivity, and insurance.

The relative lack of CMIB-focused start-ups is due in part to the high level of complexity as well as the regulatory requirements associated with the industry. It is not easy to replicate the functions of an investment bank, and significant amounts of venture capital are required in order to be successful. That said, digital innovation is allowing new value propositions to emerge, particularly in the realm of sales and trading. Forty-two percent of the CMIB-related financial technology start-ups in our sample are targeting the distribution end of the value chain. Another 41 percent are targeting the research and value-creation process, 11 percent have offerings in origination, and a small portion cover topics such as compliance and surveillance.

---

Digital innovation is allowing new value propositions to emerge in sales and trading.

---

Continued electrification across capital markets is both enabling and accelerating the evolution of what we call digital species, which is one reason why so many start-ups are targeting distribution. For example, we see probabilistic fuzzy matching logic, similar to the technology used by digital dating agencies, being deployed to help match buyers and sellers in the illiquid, off-the-run corporate bond market. There are currently three principal types of digital species:

- *Value enhancers* help investment banks overcome a traditional structural impediment or workflow challenge. Examples include customer relationship management (CRM) tool providers, “matching” agencies for bonds, and open-source initiatives that allow banks to develop their own apps, use analytics to monitor employees (in light of recent conduct challenges), and discover cybersecurity risks. Thirty-eight percent of the start-ups in our sample fall into this category.
- *Paradigm changers* look to apply major digital trends such as mobile communication, social media, and big data to the

world of CMIB. The scope is broad, with just over half the firms we analyzed falling into this category. Examples include those that deploy data encryption tools for secure financial market messaging across multiple channels, HTML5 technology for the development of mobile-enabled trading applications, and Web crawler technology to glean evidence of client behavioral patterns. Such niche players have the long-term potential to pose a true challenge to incumbents in certain areas. (See the sidebar “Desktop Real Estate: A Fight for Survival.”)

- *Disrupters* look to disintermediate banks through new technology or tools that enable traditional clients to act more independently from investment banks. Examples include providers of data and analytics that allow for independent valuations of structured credit, electronic networks that allow hedge funds to attract accredited investors, and cognitive intelligence that lets investors make their own trading decisions.

And this is only the first stage. As digital technology continues to evolve and as the CMIB industry struggles to find a firmer footing, more financial technology start-ups will likely look to be challengers rather than helpers. The CMIB industry will be increasingly buffeted by digital disruption, just as other, easier-to-access areas of banking are already being affected.

In securities origination, for example, we currently see book-building software being deployed to help investment banks reduce long proof-of-concept lead times to facilitate the IPO process. But a recent bout of private-equity investment in the area has raised questions about possible future uses by alternative intermediaries. Indeed, the IPO process could evolve from conventional book-building toward targeting segmented investor communities and pricing new issues through electronic auctions in order to generate maximum interest and subscription.

Blockchain technology is a digital phenomenon that clearly has the potential to change the financial market paradigm. It could be de-

## DESKTOP REAL ESTATE A Fight for Survival

In the digital CMIB world, what is often called desktop real estate—a comprehensive screen presence across a range of devices from desktop terminals to smartphones and tablets—is going to be even more important than it is today. Currently, each investment bank approaches the problem individually. But it is a challenged model. Institutional investors cannot realistically afford to have every investment bank portal open on their desktops. Meanwhile, the prevailing trend is to make trading anonymous, particularly in OTC markets. The ability of banks to facilitate price discovery and serve clients is predicated on their ability to know whom they are trading with. Indeed, the level of price and service that clients receive depends on a number of factors, including credit quality, institution type, size, and relationship.

Central limit order book (CLOB) trade protocols offer open markets and allow for two-way trading among a wide variety of players. In February 2015, for example, U.S. regulators proposed plans to ensure anonymity for traders in the \$700 trillion market for swaps. Meanwhile, post-trade initiatives such as central clearing and the introduction of legal entity identifiers (LEIs) for trade reporting have essentially put clients into an anonymous digital format.

In their drive to reduce costs, investment banks are also becoming less inclined to give away research and other rich information assets, such as benchmarks, in order to attract trade flow. Coupled with the advent of self-research, independent research, and a potential unbundling of research from commissions (in Europe), banks are finding it more difficult to serve clients through the traditional cross-subsidization model. The role that they have played in the value creation process is being undermined, and the glue that has traditionally bound them to the client is losing its stickiness.

Meanwhile, information service providers and exchanges are looking to enhance the value creation process by offering a spectrum of information-based tools that allow traders to come to their own conclusions about how and where they want to trade. They are acquiring or developing indices and benchmark assets for information-based products such as exchange-traded funds (ETFs), futures, or volatility contracts, which now account for an ever-larger share of market volumes. As the intellectual property that is central to so much trading activity migrates away from investment banks to other intermediaries, value is shifting into a range of new areas. We expect banks to compete with alternative providers that can use their control of data and analytics to change market shares and market structure. Indirect, nontransparent revenue models will give way to new revenue streams and expand the capital markets ecosystem to include innovative types of players and services—and create winners and losers among the incumbents.

Ultimately, investment banks will need to collaborate if they are to compete for desktop real-estate. They may consider combining the value-added services that they offer in their individual single-dealer platforms (SDPs) into one aggregated platform—in other words, an industry-wide, multidealer platform. Combined with their additional digital initiatives, a single industry desktop offering would be a powerful competitor to counter the acceleration of information-based trading on exchanges. Such coordinated self-cannibalization might seem counterintuitive. But to borrow from Steve Jobs, the former CEO of Apple, “If you don’t cannibalize yourself, someone else will.”

ployed to simplify and accelerate banking processes, such as settling a wide range of real-world financial transactions using a distributed ledger that is verifiable without the need for a third party. We may begin to see the emergence of so-called smart contracts or cryptosecurities, whereby stocks become digital records that can be both issued and traded on the Internet, considerably reducing transaction costs—especially if issued directly into the market. A digital stock system could also allow small and medium-size companies to raise public funds more easily and at lower cost.

At its core, blockchain technology represents an opportunity to recreate the financial system that we know today in a parallel, Internet-based universe that is both transparent and secure. The same principles that govern securities—issuance, trading, clearing, and settlement—would continue to apply. But they would operate on the network architecture of the Internet, instead of on the complex myriad of trading, clearing, settlement, and depository venues that have been created over time across multiple asset classes.

We have not addressed crowdfunding, P2P networks, or payments in our capital markets analysis, but there are indications that institutional investors have already started to use crowdfunding websites to gain stakes in new businesses, such as in the real estate sector. One website, for example, enables crowdfunders to pool their capital and compete with institutional investors or coinvest with venture capital funds. There is a perceived threat that more buy-side firms will tap crowdfunding sites. And as more institutional investors start to recognize the opportunities that crowdfunding websites provide, there could be an emerging threat to parts of the CMIB industry, such as the private placements market or the corporate and investment banking payments world.

In sum, the line between paradigm changers and disrupters is not well defined in these early stages. But if investment banks react creatively to the new digital dimension, they can find ways to turn potential disruption and disintermediation into real opportunity and competitive advantage. (See the sidebar “Co-Innovate to Assimilate.”)

## CO-INNOVATE TO ASSIMILATE

Banks should be ready to navigate the financial technology world and identify winning propositions ahead of the pack. It will be important for investment banks to co-innovate alongside the start-up industry in order to ensure that their organizations are among the disrupters rather than the disrupted.

By actively engaging both business and IT capabilities within the start-up environment, investment banks can better understand the kind of disruptive technologies that are emerging—and build test-drive environments to learn which forms of adoption can be injected into the product and service portfolio. Some banks are moving away from consuming software toward producing it, arranging in-house computer programming festivals (often known as hackathons) in addition to pioneering new open-source initiatives.

Given their understanding of the intricacies of capital markets, banks may be better equipped to become technology innovators than one might think. Securities pricing and supply, client behavior and data, and a unique understanding of the idiosyncratic nature and complexities of capital markets put investment banks in a strong position to become information technology companies, as compared with technology companies that would like to become banks.

In our view, there are five main strategic approaches to fostering innovation within the CMIB organization, as depicted in the exhibit on the next page:

- *Business incubation (and acceleration)* can provide support of and cooperation with start-up companies in early stages. It effectively outsources the R&D function, while providing wider corporate growth options and investment opportunities

## CO-INNOVATE TO ASSIMILATE (continued)

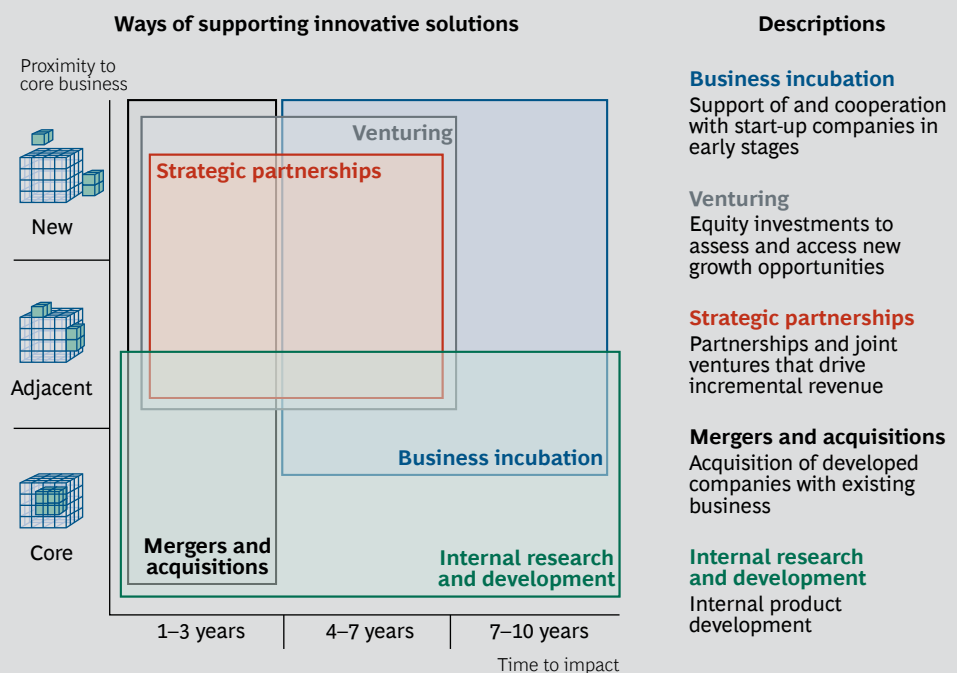
as well as enhanced employee recruitment and retention. As a result, banks gain “first pick” potential in the case of a promising start-up.

- *Venturing* allows banks to make equity investments in order to assess and access new growth opportunities, as well as to participate in strong growth and profit potential. It also provides portfolio extension, especially in advanced technologies and products.
- *Strategic partnerships* allow banks to explore joint ventures that drive incremental revenue and extend market potential. They help close the intellectual-property gap between the traditional investment bank and the new wave of Silicon Valley innovation. They also allow banks to reduce investments in noncore corporate capabilities and help create competitive advantage in the new world.

- *Mergers and acquisitions* can be fast-to-market solutions that allow investment banks to acquire developed companies with existing business in order to gain a toehold in the fast-moving digital universe.
- *Internal research and development* has a significantly longer lead time and a considerably higher total cost of ownership, but it allows banks to maintain full control.

While we are seeing various banks make meaningful moves in many of these areas, the innovation arena is one in which considerably more progress needs to be made.

### There Are Five Key Innovation Models in CMIB



Source: BCG analysis.



## Seizing Opportunities

Investment banks have the option to try to embrace digital technology and become new types of intermediaries. But they must first conduct a systematic review of all areas where the business model can be upgraded through cost reduction, better distribution that lifts revenues, and improved capital usage at the transaction level.

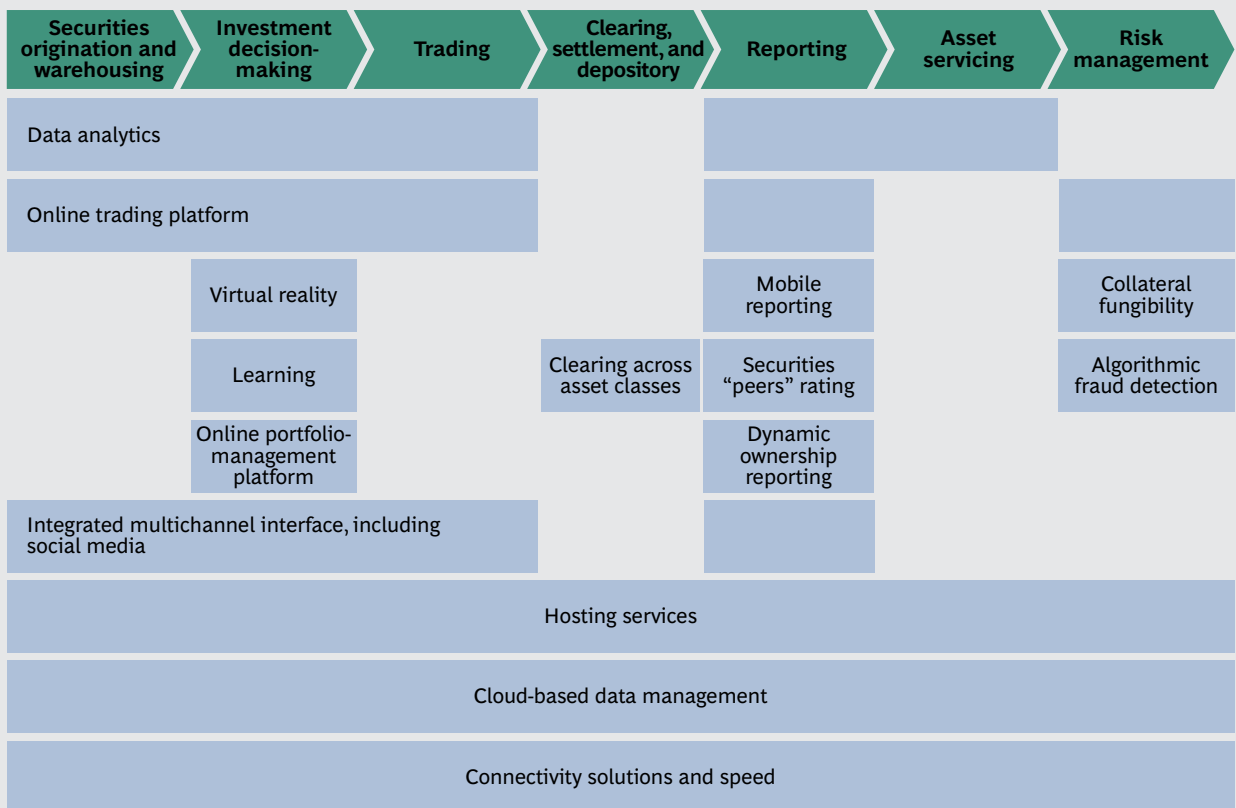
Partnerships will play a key role, and these can occur all along the value chain. (See Exhibit 6.) For example, we may see investment banks partnering with competitor firms to create industry utilities and achieve fresh efficiencies. Such accords will only be possible within a digital context. Similarly, they may partner with traditional technology vendors to outsource industrial functions, or with new start-ups in an effort to unlock value, realize latent opportunities, and leapfrog advances that cannot be managed in-house.

For now, the industry is still operating very close to its core model. But by partnering

with, as opposed to simply outsourcing to, the largest and most well-established digital providers, investment banks may start to rediscover size and scale and counter the effects of regulation and changing business economics. Two areas are especially pertinent: digital trading and digital utilities.

**Digital Trading.** In trading, there are several digital opportunities. For example, Mosaic Smart Data looks to help sales and trading desks establish an external view of aggregated electronic-venue performance to see how much of the overall market wallet they are capturing. Banks often pursue electronic market share for market share's sake, which can lead to unprofitable performance. Client flows are increasingly fragmented across trading venues, which, with weakened client relationships, makes understanding client drivers difficult. By commingling electronic market data with diverse data sources and providing the event processing and visualization capabilities to analyze real-time and historical data, Mosaic Smart Data also helps

**EXHIBIT 6 | Digital Opportunities Exist Along the Entire Value Chain**



Source: BCG analysis.

banks develop an internal view on client profitability by quantifying the P&L on an individual trade basis and assessing the real value of an individual client's flow.

Cognitive intelligence and machine learning are also likely to have a significant impact in the world of algorithmic trading, especially through mining new sources of data in new ways. The buy side may leverage big data to deploy new analytical trading tools, such as by using greater access to historical data and statistical analysis to make market predictions, or using machine-learning algorithms to discover clearer market entry and exit signals. Visualization tools and virtual-reality technology also offer new ways to glean meaningful insight from data. Dealers may try to anticipate this new wave and empower the institutional buy side with trading tools that provide more parity with their own trading systems. They may also look to aggregate unstructured data sources within their own organizations, such as internal social network and enquiry systems, into a single, structured platform that can be mined by machine-learning tools for new insights on pricing and client activity.

---

## Banks should start sharing nondifferentiating operations.

---

Community-based investing is another key theme for many financial-market start-ups, with various models allowing individuals to mirror the real trades of successful or professional investors. Dealers might look to anticipate this trend by partnering with major social-media giants to offer trade execution as well as ongoing market commentary. Some are already looking to use big data to provide interactive digital tools that create value by generating answers to client- or product-specific questions that could never before be answered in a meaningful way—a Siri for financial-market investing, if you will.

Just as dealers have supplied institutional investors with algorithmic tools to help them disguise their intentions in the equities market, they may opt to do the same with the next generation of trading tools. The buy side

is pushing for standardization of securities and is looking for new networks in which to take advantage of better access to liquidity. They may want to be less reliant on banks and to use tools that enable them to act more independently. It may seem counterintuitive to develop tools that enable a more independent buy side, but by embracing change instead of denying it, the sell side could actually enhance client relationships.

**Digital Utilities.** The CMIB industry needs to reinvent itself on both the cost and revenue sides. In particular, investment banks should start sharing nondifferentiating operations, just as retail banks have done for many years in the processing of payments, credit cards, and mortgages. Digital technology is facilitating the notion of utilities in CMIB. In theory, every duplicative effort—from regulatory compliance to post-trade processing and even some middle- and front-office systems—can be digitized and managed within a common industry utility. In the digital era, there is no longer any reason for investment banks to hold on to nondifferentiating functions. Does every bank need a single-dealer platform (SDP) for G-4 currencies, for example? Since 2010, financial institutions have made a concerted effort to reduce IT costs, with infrastructure a key area for savings. Tier 1 banks spend approximately \$3.5 billion to \$4.5 billion on technology every year, of which about one-third is infrastructure related. Changes in resourcing strategies and the drive to realize synergies among internal divisions has delivered the majority of value thus far. But there are billions of dollars worth of further potential IT savings, and digital technology presents the best opportunity to realize them. (See the sidebar “Excellence in Efficiency: The Smart Service Partner.”)

Banks must also create a roadmap for simplifying the IT landscape in a way that helps to achieve digital objectives, as well as scale IT resources up and down as needed. For example, investment banks should look not only to decommission legacy systems but also to eliminate products that do not add much value and that require many supporting applications. Banks may consider two-speed IT, which employs both traditional development processes for legacy systems and agile meth-

## EXCELLENCE IN EFFICIENCY

### The Smart Service Partner

In search of efficiency, some investment banks have created large central functions across diverse activities. But these efforts have too often focused on cost savings at the expense of performance and effectiveness. We believe that the time has come to inject excellence into centralized functions by creating what we call *smart service partners*, which can bring guarantees not just on cost but also on quality and time-to-delivery. A smart service partner is a division that sits outside the investment bank but is still part of the wider organization and harnesses various collaboration models, combining them with a commercial approach. The division not only rationalizes all the disparate elements of the value chain but also fosters innovation through separate P&L accountability and its own corporate culture and standards of excellence. Monitored through joint governance, observable benchmarks, and explicit penalties (by giving the divisional customer the option to search the market for alternative suppliers), the smart service partner can help investment banks avoid many of the pitfalls and drawbacks that are commonly associated with exclusively budget-driven functional approaches.

For business-specific services, the catalogue must be very focused and aligned with strategic requirements. For instance,

in cash equities, which is highly competitive and has a high level of electronic trading, cost is an essential element of competitiveness, as is the straight-through processing (STP) rate. Meanwhile, in structured equity derivatives, cost is not submitted to the same level of scrutiny because relatively high revenues on low volumes obscure the high costs associated with the business line. Nevertheless, the ability to issue a contract on time and with a high degree of legal certainty is imperative in this segment.

In short, service-level agreements between the investment bank and the smart service partner must be simple, while focusing on what really matters for the business, as opposed to being exhaustive and hard to implement.

Budget-driven approaches validated at the CEO level as opposed to at the divisional level have been a failure. The smart service partner can encompass every digital initiative across all CMIB functions. It retains a “one firm” mindset and provides services to a key client, be it the CFO, CTO, CIO, COO, or business head, in a formalized customer-provider relationship that ensures functional efficiency without centralized ineffectiveness.

ods for digital platforms. This approach reflects the considerable differences—in orientation, demands, and required capabilities—between industrial-speed IT and digital-speed IT. Industrial-speed IT, with its primary emphasis on cost optimization rather than flexibility, is characterized by waterfall methods that assure predictability, long lead times, and functionally organized teams of individuals with specific skills. Digital-speed IT is characterized by unpredictability and places a premium on flexibility, speed, and collaboration through agile software-development frameworks that can reduce IT development cycles to weeks or months.

As for governance, awareness of how to handle digital technology should be created through coaching and training. The organization must learn how to adapt to digital technology and its quick-cycle iterations. Moreover, both the mix of resources and the operational approaches to handling digital volumes need to change. For example, talent acquisition should focus on high resilience and fail-safe digital needs rather than business knowledge alone. The most talented individuals should have a career path that leads to senior management, rather than being seen as secondary to traders.

# A TIME TO ACT

**R**OE IN THE CMIB industry continues to decrease—and the prospects for improvement are dim, given capital and regulatory pressures. The market is in turmoil and new niche entrants are entering at multiple points along the value chain, attacking the integrated model even as power shifts significantly to the buy side. Revenue growth is elusive, yet it remains a key profitability lever.

As we have said in previous reports, each institution must choose its own path on the basis of its legacy, its particular strengths and weaknesses, and its aspirations—be it to become a powerhouse, advisory specialist, relationship expert, haute couture institution, hedge fund, or utility provider. (See our 2013 report, *Survival of the Fittest*, and our 2014 report, *The Quest for Revenue Growth*, for descriptions of these models and their strategic implications.) Each choice presents tall challenges but also great opportunities for the most adept players. But no matter the business model, achieving meaningful revenue growth will require improving client centrality, building stronger client-related analytics, tapping opportunities from adjacent businesses, and attracting and retaining the right kind of talent.

Of course, costs have barely moved, and this problem requires a transformative approach. All firms will need to take drastic action on the cost side, exploring which activities are

not differentiated and considering utilities, shared services, and agreements to mutualize costs. Most investment banks have been structured in silos for too long, separated from the rest of the wholesale banking business. We believe that CMIB players must actively seek synergies with other businesses, including lending, transaction banking, asset servicing, and even treasury, in order to unlock new revenue opportunities and optimize operating models, cost bases, and investments. Many banks have already taken meaningful steps down this path and have started to see benefits.

---

There is a strong need to redesign business and operating models in order to better integrate digital advantages.

---

In order for meaningful improvement to occur, however, digital technology must be higher on the senior management agenda. There is a strong need to redesign business and operating models in order to better integrate digital advantages. Moreover, it is critical that investment banks pay attention to and engage with the start-up community, particularly value enhancers and paradigm changers. Banks should designate a separate

set of resources to independently define how digital technology can reinforce the best components of the current model, or even reinvent it. Banks must also be proactive in targeting acquisitions and exploring new partnerships that can enhance their digital capabilities.

Ultimately, digital technology must be put in perspective. It can bring both great opportunities and daunting challenges. It can spur new business models as well as help to reduce costs, improve control, and enhance the client experience. It has the power to transform end-to-end processes across IT, operations, finance, risk, compliance, and HR. Yet

new digital entrants can take away parts of the value chain and potentially disintermediate the sell side completely.

The main point is that investment banks can no longer avoid embracing the power of the information technology era in which we live. The technology that has forced other industries to completely overhaul their business models is now being brought to bear on the world of investment banking. The time for digital adoption is now.

# FOR FURTHER READING

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

**Operational Excellence in Retail Banking 2015: Creating Digital Banks with a Human Touch**

A Focus by The Boston Consulting Group, April 2015

**The Bionic Bank**

A Focus by The Boston Consulting Group, March 2015

**The Look of a Winner: Global Corporate Banking 2015**

A report by The Boston Consulting Group, March 2015

**Overcoming the Digital Dilemma in Wealth Management**

An article by The Boston Consulting Group, February 2015

**The Emerging Equilibrium in Banking: A Tool Kit for Success**

A Focus by The Boston Consulting Group, December 2014

**Time for Rebalancing: Insights from BCG's Treasury Benchmarking Survey 2014**

A Focus by The Boston Consulting Group, December 2014

**Building the Transparent Bank: Global Risk 2014–2015**

A report by The Boston Consulting Group, November 2014

**Capturing the Next Level of Value: Global Payments 2014**

A report by The Boston Consulting Group, September 2014

**Lean That Lasts: Capturing the Full Potential**

A Focus by The Boston Consulting Group, September 2014

**Steering the Course to Growth: Global Asset Management 2014**

A report by The Boston Consulting Group, July 2014

**Riding a Wave of Growth: Global Wealth 2014**

A report by The Boston Consulting Group, June 2014

**Operational Excellence in Retail Banking 2014: No Compromise; Advocating for Customers, Insisting on Efficiency**

A Focus by The Boston Consulting Group, May 2014

**The Quest for Revenue Growth: Global Capital Markets 2014**

A report by The Boston Consulting Group, May 2014

**Survival of the Fittest: Global Capital Markets 2013**

A report by The Boston Consulting Group, April 2013

# NOTE TO THE READER

## About the Authors

**Philippe Morel** is a senior partner and managing director, and **Sukand Ramachandran** is a partner and managing director, in the London office of The Boston Consulting Group. **Charles Teschner** is a senior partner and managing director, **Will Rhode** is the global head of capital markets research, and **Shubh Saumya** and **Andre Veissid** are partners and managing directors in the firm's New York office. **Antonio Riera** is a senior partner and managing director in BCG's Boston office. **Gwenhaël Le Boulay** is a partner and managing director in the firm's Paris office.

## Acknowledgments

Within The Boston Consulting Group, for their valuable contributions to the conception and development of this report, our special thanks go to the core team of Valeria Bertali and William L'Heveder, as well as Andreas Bohn. In addition, Joe Cassidy, a senior advisor to BCG, and Usman Khan, chief technology officer and cofounder of Algomi, provided valuable insights and assistance.

We would also like to thank the following members of Expand Research: Raza Hussain, Tobias Lee, Damian McCarthy, Marios Tziannaros, and Franck Vialaron.

Finally, grateful thanks go to Philip Crawford for his editorial direction, as well as to other members of the editorial and production team, including Katherine Andrews, Gary Callahan, Kim Friedman, Abby Garland, Sara Strassenreiter, and Janice Willett.

## For Further Contact

If you would like to discuss with The Boston Consulting Group the challenges and opportunities facing your company, please contact one of the authors of this report.

**Philippe Morel**  
*BCG London*  
+44 207 753 5353  
morel.philippe@bcg.com

**Charles Teschner**  
*BCG New York*  
+1 212 446 2800  
teschner.charles@bcg.com

**Will Rhode**  
*BCG New York*  
+1 212 446 2800  
rhode.will@bcg.com

**Shubh Saumya**  
*BCG New York*  
+1 212 446 2800  
saumya.shubh@bcg.com

**Andre Veissid**  
*BCG New York*  
+1 212 446 2800  
veissid.andre@bcg.com

**Antonio Riera**  
*BCG Boston*  
+1 617 973 1200  
riera.antonio@bcg.com

**Sukand Ramachandran**  
*BCG London*  
+44 207 753 5353  
ramachandran.sukand@bcg.com

**Gwenhaël Le Boulay**  
*BCG Paris*  
+33 1 40 17 10 10  
leboulay.gwenhael@bcg.com

© The Boston Consulting Group, Inc. 2015. All rights reserved.

For information or permission to reprint, please contact BCG at:

E-mail: [bcg-info@bcg.com](mailto:bcg-info@bcg.com)

Fax: +1 617 850 3901, attention BCG/Permissions

Mail: BCG/Permissions

The Boston Consulting Group, Inc.

One Beacon Street

Boston, MA 02108

USA

To find the latest BCG content and register to receive e-alerts on this topic or others, please visit [bcgperspectives.com](http://bcgperspectives.com).

Follow [bcg.perspectives](https://www.facebook.com/bcg.perspectives) on Facebook and Twitter.





# BCG

THE BOSTON CONSULTING GROUP

- |              |                  |              |                |            |
|--------------|------------------|--------------|----------------|------------|
| Abu Dhabi    | Chennai          | Johannesburg | Munich         | Seoul      |
| Amsterdam    | Chicago          | Kiev         | Nagoya         | Shanghai   |
| Athens       | Cologne          | Kuala Lumpur | New Delhi      | Singapore  |
| Atlanta      | Copenhagen       | Lisbon       | New Jersey     | Stockholm  |
| Auckland     | Dallas           | London       | New York       | Stuttgart  |
| Bangkok      | Detroit          | Los Angeles  | Oslo           | Sydney     |
| Barcelona    | Dubai            | Luanda       | Paris          | Taipei     |
| Beijing      | Düsseldorf       | Madrid       | Perth          | Tel Aviv   |
| Berlin       | Frankfurt        | Melbourne    | Philadelphia   | Tokyo      |
| Bogotá       | Geneva           | Mexico City  | Prague         | Toronto    |
| Boston       | Hamburg          | Miami        | Rio de Janeiro | Vienna     |
| Brussels     | Helsinki         | Milan        | Riyadh         | Warsaw     |
| Budapest     | Ho Chi Minh City | Minneapolis  | Rome           | Washington |
| Buenos Aires | Hong Kong        | Monterrey    | San Francisco  | Zurich     |
| Calgary      | Houston          | Montréal     | Santiago       |            |
| Canberra     | Istanbul         | Moscow       | São Paulo      |            |
| Casablanca   | Jakarta          | Mumbai       | Seattle        |            |