GLOBAL CAPITAL MARKETS 2016

THE VALUE MIGRATION

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Global Capital Markets 2016

THE VALUE MIGRATION

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INTRODUCTION

Unfavorable economic conditions, escalating capital requirements, and stubbornly high costs continue to depress the performance of many investment banks. Their collective 6% ROE in 2015 capped off five years of dismal revenue results.

Yet the same cannot be said for the capital markets industry as a whole—the ecosystem that includes buy-side firms, sell-side firms, information service providers, and exchanges. Indeed, even as regulation forces investment banks to retrench and hinders their ability to compete, other players remain unaffected and will even, in some cases, benefit. Over the next five years, revenues in the capital markets industry will grow by an estimated 12%, increasing to $661 billion from $593 billion in 2015.

The asset base of buy-side entities is expected to reach around $100 trillion by 2020, up from an estimated $74 trillion in assets under management (AuM) in 2014. If this transpires, the buy side will generate nearly $300 billion in fees by 2020, constituting 45% of the overall capital markets revenue pool (assuming favorable market conditions and current fee structures). However, investment banks, on the sell side, are expected to generate just over $205 billion by 2020, a decrease to 31% of the total revenue pool from 53% in 2006.

Information service providers and exchanges are poised to benefit. They will profit from increased demand for technology solutions and greater access to market information and analytics. Growth in electronic exchange trading and the use of central clearing will mean that their share of the capital markets revenue pool will grow to 19%, representing an estimated $125 billion, by 2020—an impressive rise from 8% in 2006.

Yet even as competition intensifies, opportunities for investment banks will continue to arise. Some larger or niche players will be able to absorb market share from those that are retrenching. Others will require a change in mindset and approach to explore alternative revenue opportunities beyond their traditional roles as capital raisers and market makers. Such players might consider leveraging internal data and technology systems to diversify revenues and enhance their market positions. They should build on their already mature sourcing strategies to push to the next level of operational and process efficiencies. Opportunities include leveraging utility models for nondifferentiating business processes and driving factory-like efficiency in the back office through end-to-end process redesign. These players should also leverage their remaining positions of strength across the value chain.

In particular, it is imperative that they help their clients achieve success, not only by offering high-quality products but also by providing valuable information, such as research, benchmarks, market prices, and other intellectual property. Yet they should avoid giving away this information in the hope of generating revenues through alternative channels, such as trading. Indeed, the industry as a whole is moving away from implicit charging and so-called soft-dollar arrangements. Investment banks must keep pace and consider charging explicit fees for the services that they now provide in addition to the products they supply.

Moreover, the role of capital itself is changing. Escalating capital costs, occurring simultaneously with the growth of buy-side assets and revenues, indicate that the industry is moving toward leveraging benchmarks and other index products aimed at passive investors. Both the ability to discover liquidity and the demand for risk transformation services are becoming less dependent on capital. If investment banks are to compete, they must recognize their ability to generate revenues as information companies.

Ultimately, investment banks will need to be the right size, develop the right model, and take the right approach to return to consistent profitability. Dealers must learn to compete within the critical sectors of the new capital-markets ecosystem—data and financial technology. How they fit themselves into increasingly electronic, standardized, and transparent markets will be crucial. They are losing the battle so far, but that does not mean they will lose the war.

This report, BCG's fifth annual study of the global investment banking business, emphasizes the challenges that investment banks face and examines the consequences of new and diverse players in the overall capital markets ecosystem invading their territory. Traditional revenue streams are migrating to these entities, and it is still unknown whether—or when—this trend will reverse. Either way, the investment banking industry has entered a highly dynamic, largely unpredictable era. It is time for players of all stripes to assess their current strengths and weaknesses and to plan for the future.

OVERVIEW

KEY MARKET DEVELOPMENTS

Revenues declined in 2015 for the global investment banking industry as trading in fixed income, currencies, and commodities (FICC) businesses continued to act as a drag on performance. Economic uncertainty, monetary policy change, and further implementation of bank regulations were the driving factors behind the negative change in market sentiment during the second half of the year.

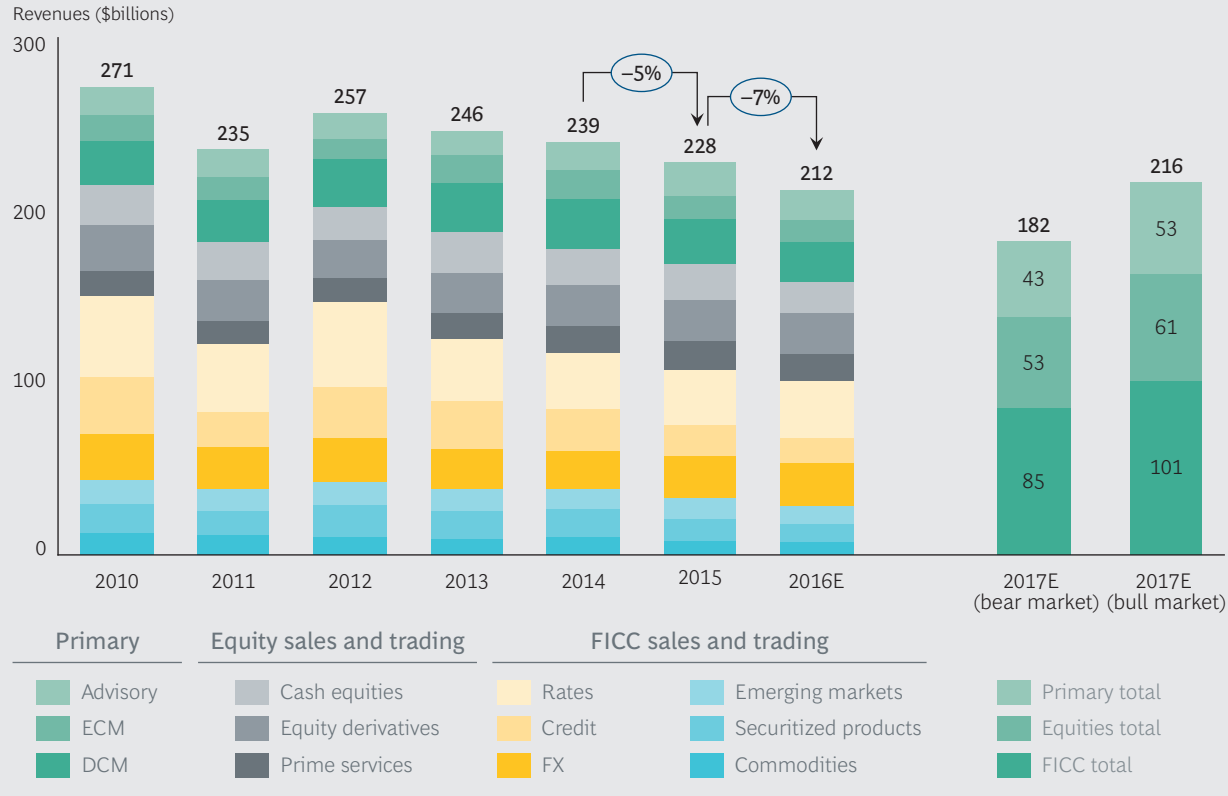
Revenues

Global investment banking revenues declined to $228 billion in 2015, down 5% from $239 billion in 2014 and 16% from $271 billion in 2010. (See Exhibit 1.) Total revenue was lower last year than at any point since 2009, as the prospect of central-bank tightening in developed markets was swamped by a severe downturn in emerging markets. As we predicted in last year's Capital Markets report, investment banking ROE fell to a 6% post-crisis low (excluding fines and litigation costs) as revenues were dragged down by relatively weak performance in secondary trading and by high business costs overall. (See *Global Capital Markets 2015: Adapting to Digital Advances,* BCG report, May 2015.)

Some specifics are as follows:

- FICC revenues fell by 8% year over year (YOY), from $117 billion to $107 billion, reflecting a further decline in credit, commodities, and structured products. FICC profitability has fallen from 70% ($59 billion) to 44% ($26 billion) of the total profit pool over the past three years. Continued pressure on dealers' ability to warehouse assets drove down revenues in credit, commodities, and securitized products by between 20% and 25% YOY. Foreign exchange (FX) and rates have been bright spots, benefiting from volatility related to changes in central-bank policy. Event-driven volatility in FX—specifically with regard to the Swiss franc, the Russian ruble, and the Chinese renminbi—has also presented dealers with an opportunity to reprice larger transactions, widening spreads to regain ground on their loss-leading businesses in smaller-ticket, highly electronic, major currency pairs. The introduction of mandatory derivatives clearing under the European Market Infrastructure Regulation has been a precursor to wider market change in the region. As we have seen in the US, trading venues and alternative liquidity providers will likely emerge to challenge investment banks and reduce margins. Generally speaking, the regulatory burden has fallen hardest on FICC, dramatically slowing a traditional driver of revenues.
- Equities revenues, driven by stock market volatility, rose by 3%, to $62 billion. Cash

EXHIBIT 1 | Investment Banking Revenues Are at Their Lowest Levels Since the Financial Crisis



Sources: Company financial statements; Expand Research; BCG analysis.
Note: Based on a sample of 35 banks. Because of rounding, not all numbers add up to the total shown.

trading volumes increased during the first half of 2015, while equity derivatives and prime services flourished in the second half as both hedging and speculative flows increased. A stock market devaluation in the third quarter forced banks to take major write-downs on inventory and proprietary positions, further testing the top line and demonstrating that banks are still vulnerable to swings in asset prices.

- Primary market revenues fell by 6%, to $58 billion, erasing gains made in 2014. The fall was precipitated by a 13% YOY decline in revenues for equity capital markets (ECM) and debt capital markets (DCM), both down from solid performances during the previous year. Revenue performance in M&A was strong, rising by 14% and building on gains made the previous year. The first quarter of 2015 was the strongest since 2009, with many banks reporting record profits from advisory services. Fees in the US rose by 28%, driven both by the deployment of record levels of private equity activity as well as by consolidation in the media and health care sectors. This strength was short-lived as revenues tailed off in the second half of the year. Overall, investment banks maintain strong control of the primary market, where they face lower competition from technology firms and the regulatory burden is less intense. The average primary market ROE for a sample of nine investment banks, for example, was roughly 20%, according to our estimates. Primary markets represented 37% of investment banking profits in 2015, compared with 20% in 2012.

Balance Sheets

Investment banks have struggled to rationalize their balance sheets in the face of increasing capital costs and leverage ratio requirements. In terms of capital consumption, a minimum leverage ratio of 3%, as well as an enhanced leverage ratio for global systemically important banks (G-SIBs), will increase the

cost of doing business relative to the size of assets held. US banks continue to be relatively better positioned than their European peers, which struggle with legacy, illiquid, long-dated instruments on their balance sheets. In Europe, the publication of final margin rules for uncleared derivatives means that additional funding in the form of initial margin will increase by €200 billion to €420 billion, according to analysis by the European Banking Authority.

The introduction of revised rules for market risk (the fundamental review of the trading book, or FRTB) will present new challenges to risk-weighted asset (RWA) optimization programs. The FRTB imposes a new approach to calculating risk. Banks using the internal-models approach will have to apply additional fees, such as an expected-shortfall measure, a default risk charge, and charges related to nonmodeled risk factors. Banks using the standardized approach (SA) will face significantly higher capital charges in the form of a default-risk charge as well as a residual-risk add-on fee for exotic products. Depending on the composition and complexity of their portfolios, banks can expect a sizable increase in capital costs.

In addition, counterparty credit risk (CCR) and credit value adjustment (CVA) are two measures that require banks to set aside capital in order to mitigate counterparty credit risk exposure, especially for uncollateralized exposures. Furthermore, the introduction of minimum levels of capital requirements, or capital floors, on the basis of the SA will present additional hurdles. Capital floors will affect not only loan books but also trading books, pushing banks to calculate their RWAs according to a minimum equivalent to the SA. The proposal for credit risk, for example, is to mandate that banks calculate the capital set aside against RWAs at 60% to 90% of the total required under the SA.

We estimate that the new regulations will lead to a 28% increase in investment banks' RWAs. If we assume a base-case revenue projection of about $200 billion in 2017 (a decline of 13% from 2015), and no improvement in the current cost base, the increase in RWAs resulting from regulation could drive down ROE for investment banks from 5.7% to 3.4%. Given a cost of capital of 10% to 15%, an ROE of just 3.4% would mean that banks would fail to cover their cost of capital by a significant margin, necessitating further cuts to their balance sheets. Management will seek to deleverage, rather than increase the share of their balance sheet dedicated to capital markets. That said, mitigation efforts have generally struggled to keep pace with both the regulatory agenda, which has raised the bar significantly on risk management, as well as the rate of revenue deterioration. In 2015, banks managed only a 3% reduction in RWAs, to $3.8 trillion (net of FX adjustments).

Major investment banks are benefiting from successful cost reduction programs.

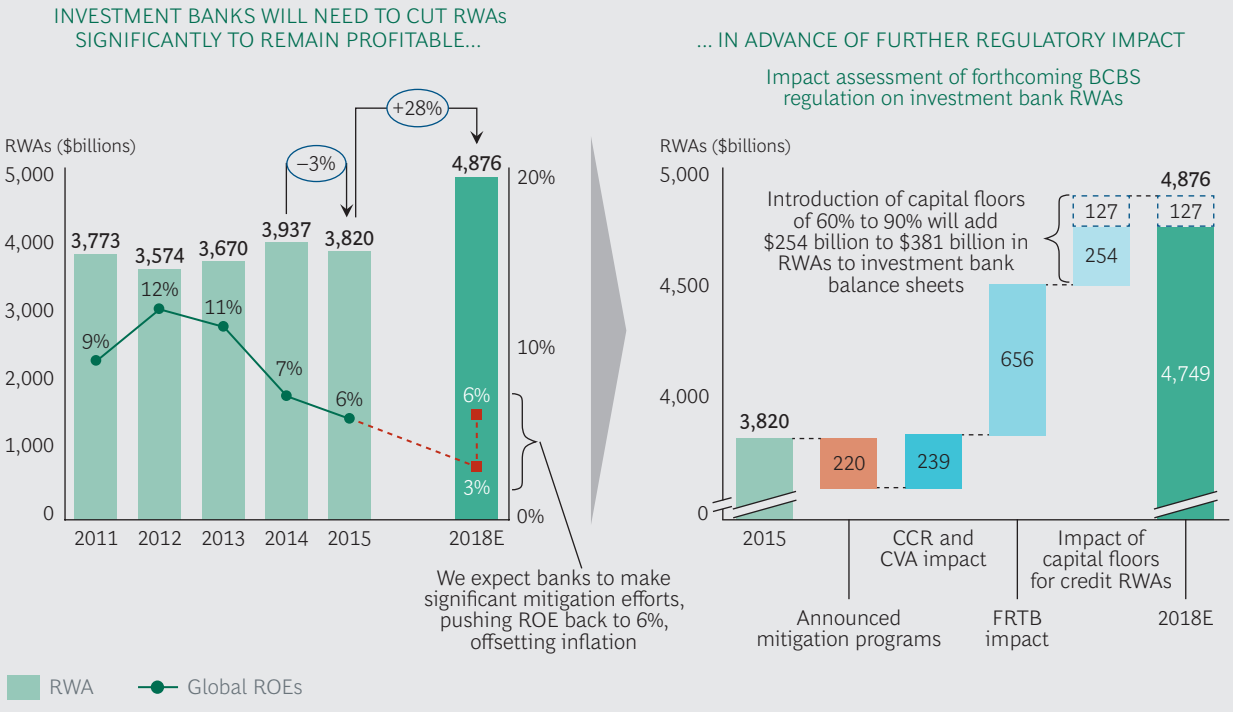
We expect these regulations to incrementally increase the size of RWAs for the industry. Despite announced mitigation efforts of $220 billion in 2015, RWAs for a sample of 16 banks increased by between $1.1 trillion and $1.3 trillion, according to our estimates. This breaks down to $239 billion as a result of CCR and CVA, $656 billion resulting from the introduction of FRTB, and between $254 billion and $381 billion stemming from the proposed percentage range for capital floors applied to credit RWAs. (See Exhibit 2.)

Costs

On the positive side, several major investment banks are finally benefiting from successful cost reduction programs. Business line transformations, strategic exits, and rationalization have begun to filter through to the bottom line. Operating expenses YOY fell by 2%, driven primarily by reductions in head count, operational spending, and lower litigation expenses. Yet since 2010, and despite cuts of roughly $8 billion in operating expenses, the overall cost of doing business for investment banks has risen by 4%. (See Exhibit 3.)

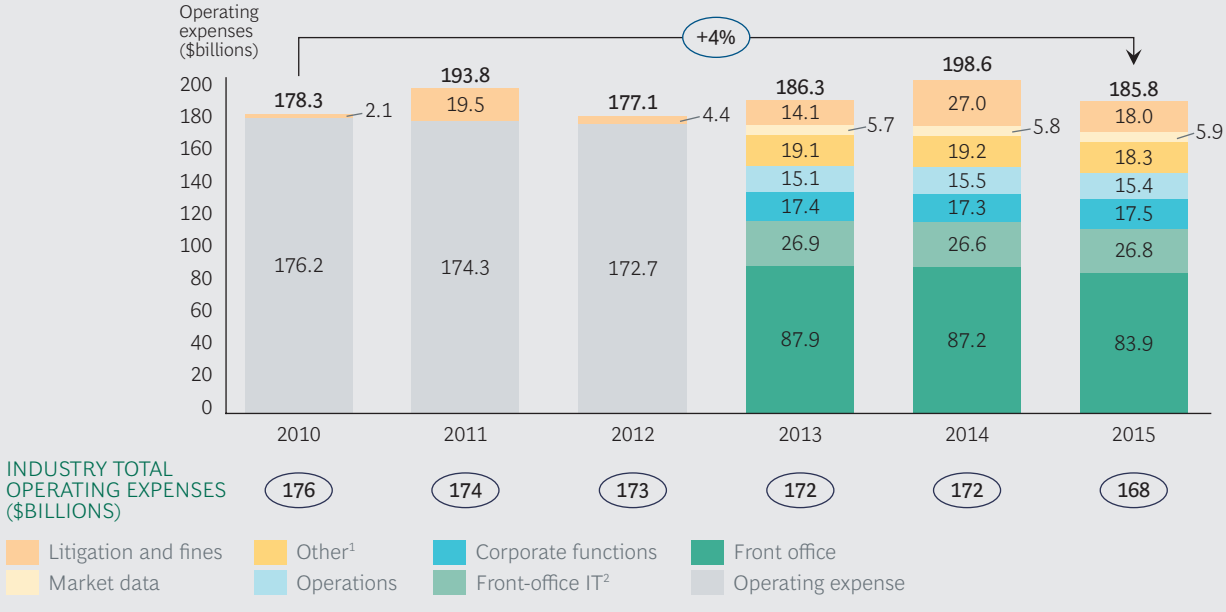
Of course, the cost of compliance and technology in the industry remains high. In 2015,

Exhibit 2 | Regulation Has Offset the Benefits of Balance-Sheet-Reduction Programs



Sources: Company financial statements; Basel Committee on Banking Supervision (BCBS); BCG analysis.
Note: Based on a sample of 16 banks. Estimated RWA for 2018 assumes final publication of capital requirements by year-end 2017, with full implementation by January 2019 and constant inventory levels. ROE in 2018 is estimated on the basis of 2017 base-case revenues with constant CIRs and tax rates. CCR and CVA impact is based on a sample of 14 banks, excluding banks with large corporate banking divisions. FRTB impact is based on a sample of 16 banks and BCBS *Fundamental review of the trading book: interim impact analysis*, November 2015 and subsequent revision. Minimum capital requirements for market risk, January 2016. Capital floors impact is based on a sample of 9 banks and assumes that proposals in BCBS reducing variation in credit risk-weighted assets and constraints on the use of internal model approaches, March 2016, are fully adopted at 60% and 90% for credit RWAs.

Exhibit 3 | The Cost of Doing Business Has Risen Despite Cuts in Operating Expenses



Sources: Expand Research; BCG analysis.
[1]Includes costs allocated to management, HR, communications and marketing, and corporate real estate.
[2]Includes brokerage commissions and exchanges.

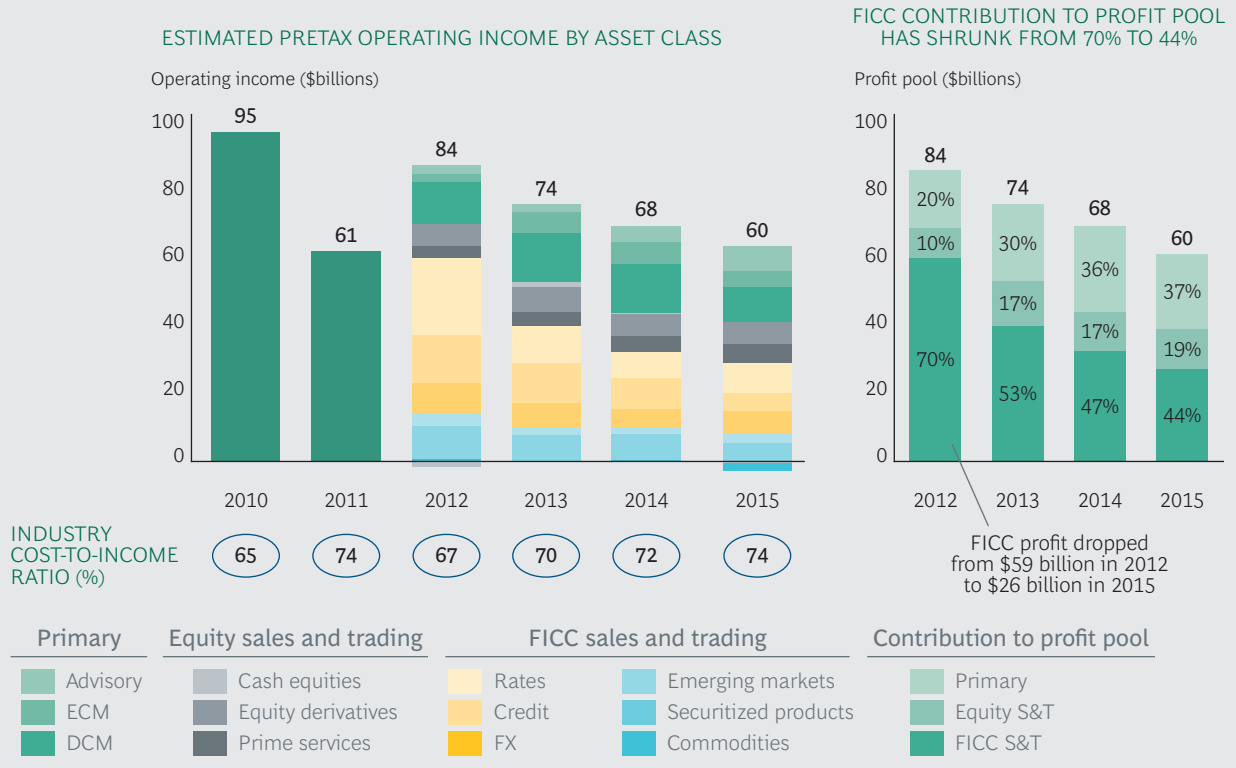
cost-to-income ratios (CIRs) increased by two percentage points, to 74%, matching 2011 highs. Some cost benefits can be gained by moving to electronic and centralized trading. However, it still costs about five times more to process an interest rate swap than an FX option, even as swaps are being migrated to electronic platforms. Legacy architectures of banks remain complex, weighed down by a series of bolt-on solutions and spaghetti systems. FICC sales and trading IT budgets have nearly doubled since 2012. Moreover, adding to business-unit costs are group costs, such as those for risk and cybersecurity, which increased by approximately 10% during the same period. Group costs are allocated across the businesses, investment banking being no exception, weighing further on CIR.

As a result, the overall profit pool for investment banking fell from $68 billion in 2014 to $60 billion in 2015. (See Exhibit 4.) The downturn was driven by a combination of declining revenues and escalating CIRs, with each percentage point rise in the CIR costing the industry, on average, about $3.7 billion in profit.

Of course, CIRs vary dramatically by business line. At one end of the spectrum, the CIR for commodities—which posted a revenue loss in excess of $2 billion in 2015—ranges from 90% to 110%. Highly electronic markets, such as cash equities, also have a CIR that can exceed 100%. Indeed, despite the increase in cash equities revenues in 2015, the business line did not manage to break even. DCM and M&A were among the most lucrative business lines in 2015, posting profits of $10 billion and $7 billion, respectively. Primary markets have some of the lowest CIRs in the industry.

Overall, declining revenues and difficulties in achieving consistent reductions in costs have eroded banks' ability to return value to shareholders. Regulatory headwinds have compounded this problem. The need for a comprehensive and surgical assessment of business lines and client coverage continues. The greatest opportunity for ROE improvement lies with the institutions that have a clear strategy for reducing their overall costs, optimizing their balance sheets, and deepening their client relationships.

EXHIBIT 4 | Investment Banking Profitability Continued to Decline in 2015



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

VALUE SHIFTS IN THE ECOSYSTEM

THE CAPITAL MARKETS ECOSYSTEM, as a whole, thrived in 2015. (See Exhibit 5.) New pools of value are emerging, and opportunities abound amid ever-intensifying competition. Yet the sharp focus on investment banking performance over the past five years has masked a broader truth: banks are not the only players competing for revenue. Asset managers, hedge funds, high-frequency traders, exchanges, information service providers, clearing-houses, infrastructure firms, and custodians, for example, all have critical roles.

As banks retrench and relinquish control of the value chain, this broader set of industry participants is now being presented with an opportunity to compete for revenues that, traditionally, might not have been considered up for grabs. It is no coincidence that the past two years have been among the most active in the history of capital markets M&A. And firms today are moving strategically to capture as much as of the future revenue opportunities as possible.

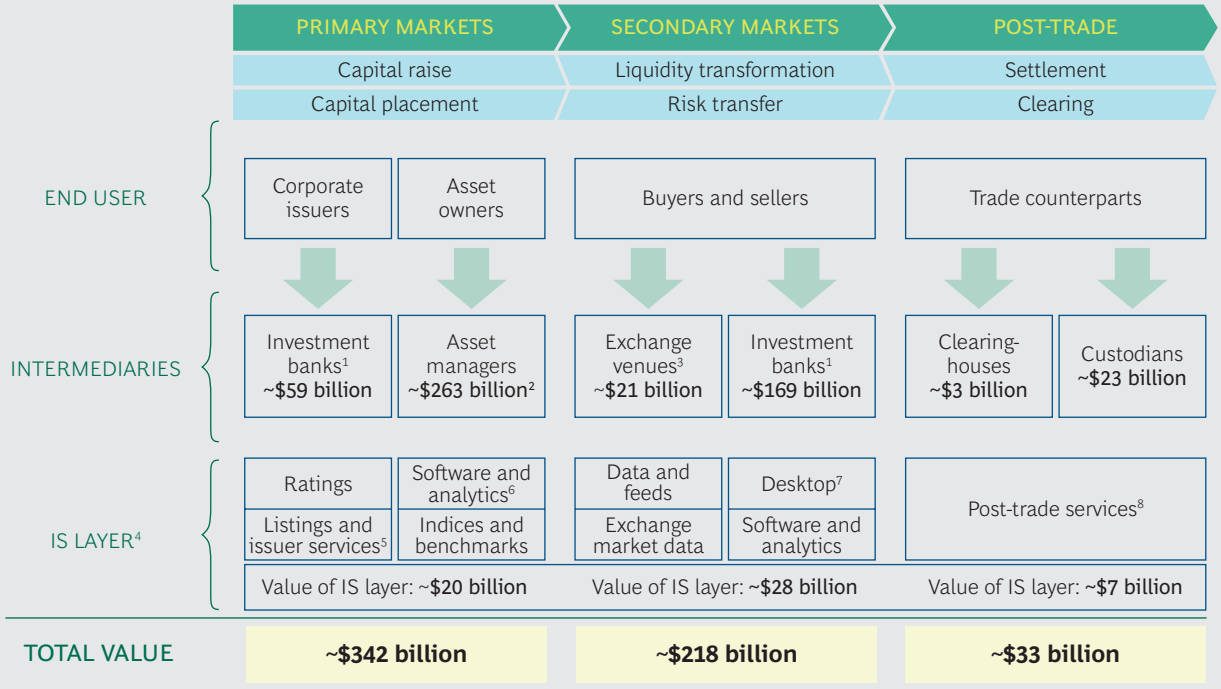
Secular Trends

A distinct and unique set of secular trends is driving change in the capital markets industry and altering the competitive landscape. Revenues and costs may shift, and in some instances will erode or be destroyed. New pools of value will also emerge. Information service firms and exchanges may compete directly, and new market constituents may emerge. The secular trends in play today can be broadly described as follows:

- **Cost Mutualization.** Exchanges, information service providers, and infrastructure firms derive their revenues from the cost base of the sell side and the buy side. While it would seem logical to assume that their fortunes would therefore run in parallel, the need to mutualize costs means that, in fact, third-party providers now have an opportunity to accelerate their growth. Utilities and industry consortia are offering outsourced solutions for duplicated middle- and back-office post-trade processes that add little value. They have expanded into trade identification, trade reporting, and client onboarding functions, such as Know Your Client and anti-money-laundering measures. Other market-related functions, such as trade surveillance and benchmark administration, are also being actively considered.

  This trend is still in the initial stages; growing regulatory and compliance requirements will drive further demand for utilities. Regulatory audits will increase the need for standardized models and data as a service. Indeed, utilities deliver so-called regulatory cover,

EXHIBIT 5 | The Capital Markets Ecosystem Thrived in 2015



Source: BCG analysis.
[1]Investment bank total revenues of $228 billion.
[2]Based on updated 2015 GAM benchmark.
[3]Includes price and size discovery, routing, matching, and execution.
[4]IS = information services; this layer serves both end users and intermediaries.
[5]Includes trade-processing compression, settlement, and collateral management.
[6]Includes equity and fixed-income research and portfolio analytics.
[7]Includes communication tools such as IM.
[8]Includes book building and deals intelligence.

meaning that authorities are more likely to accept standards that have been adopted by the industry as a whole than those pursued by an individual firm on its own path toward compliance. We estimate that the cost mutualization revenue opportunity will exceed $6 billion over the next five years.

- **Growth of the Buy Side.** Growth in AuM, combined with demand for investment management services, represents the single biggest revenue opportunity in the capital markets ecosystem. Investment management revenues are set to grow at a compound annual growth rate of 3%, to $300 billion, by 2020. While this trend is not new per se, growth in buy-side AuM will introduce new dynamics to price discovery, risk transfer, and liquidity realization. This in turn will drive increased demand for buy-side connectivity. Indeed, as a result of the increase in the flow of funds, there are more highly skilled buy-side players today than there were five years ago. Investment managers hold the majority of inventory and often have access to better pricing and general market information than their dealer market makers. As a result, the buy side is looking toward trade execution environments that enable them to trade with other buy-side firms, hedge fund replicators, and even online wealth-management services.

  The buy side is also seeking new ways to realize independent revenues. The trend toward passive investing over the past five years has resulted in enormous growth in index-based trackers, exchange-traded funds, and other "smart" beta instruments. Issuing such products has opened up an additional means of growth for some asset management firms. The shift to low-cost passive investing has also

created heightened demand for benchmarks, indices, and reference information. While sell-side firms were previously able to capture liquidity and new customers through their unique ability to deploy capital, new sources of liquidity that gravitate toward intellectual property are emerging. Exchanges owning benchmarks that are protected by intellectual-property law will be able to both command market liquidity and benefit from additional trading activity.

Big data will shift emphasis away from the traditional sell-side research model.

- **Digital and the Importance of Data.** Electronification continues to compress prices and erode sell-side margins, a trend that not only destroys revenue but also allows other players—such as high-frequency-trading firms—to compete. This development can create an environment in which only the largest players will have the scale to succeed. What's more, investment banks that retrench will, in turn, accelerate the move to agency business models and the migration of over-the-counter products onto exchanges. We estimate that more than $5 billion in market-making revenue has migrated to alternative firms, such as high-frequency-trading players. This amount will grow over the next five years as more asset classes are traded electronically.

  Electronic markets also reduce the need for human labor, undermining the requirements for individual desktop software, terminals, and other graphical-user-interface products. This development increases the relevance of other layers in the technology stack, such as security, data centers, communication protocols, and physical networks. Electronic markets require both straight-through processing (STP) and the streamlining of the trade life cycle to reduce operational risks—in turn creating new opportunities for other technology-related services, particularly for post-trade products.

  Electronic markets lead to higher volumes and a proliferation of market data as well, presenting new opportunities in mining, packaging, and redistributing actionable information as quickly as possible. Exchanges and information service providers, which enjoy extensive control of market data, will be able to increase prices in order to generate additional revenues. The proliferation of big data will shift emphasis away from the traditional sell-side research model. Buy-side players—armed with large volumes of reported trade data, inventory information, economic indicators, market news, and other forms of data—will increasingly adopt an independent approach to the investment-decision-making process.

  Furthermore, greater access to historical data and statistical analysis will enable investment managers to increase their effectiveness and efficiency as well as use machine-learning algorithms to discover clearer market entry and exit signals. They will be able to answer natural-language questions about the impact of events on asset prices, as well as derive structured data from unstructured sources, such as the Internet, social media, and text published by newswires. Technologies such as cloud, distributed computing, and mobile will also increase operating leverage, while improving both the customer experience and the overall technology revenue footprint in the capital markets ecosystem.

  Finally, for investment banks, financial technology (fintech) can be a useful, low-cost alternative to expensive bolt-on legacy IT architectures, which are difficult to manage and to maintain, inflicting high costs. By commingling electronic market data with diverse sources to analyze real-time and historical data, banks can also develop an internal view on client profitability. Startups can both threaten bank revenues as well as enable banks wishing to move into new areas of financial services to gain a foothold.

Industry Convergence

Regulation and technological innovation are fundamentally changing the capital markets industry. By 2020, these forces will cause the broader capital markets ecosystem to produce revenue growth of about 12%—increasing from $593 billion to an estimated $661 billion—with revenue migration driven largely by ongoing electronification, big data, cost mutualization, and growth in AuM. (See Exhibit 6.)

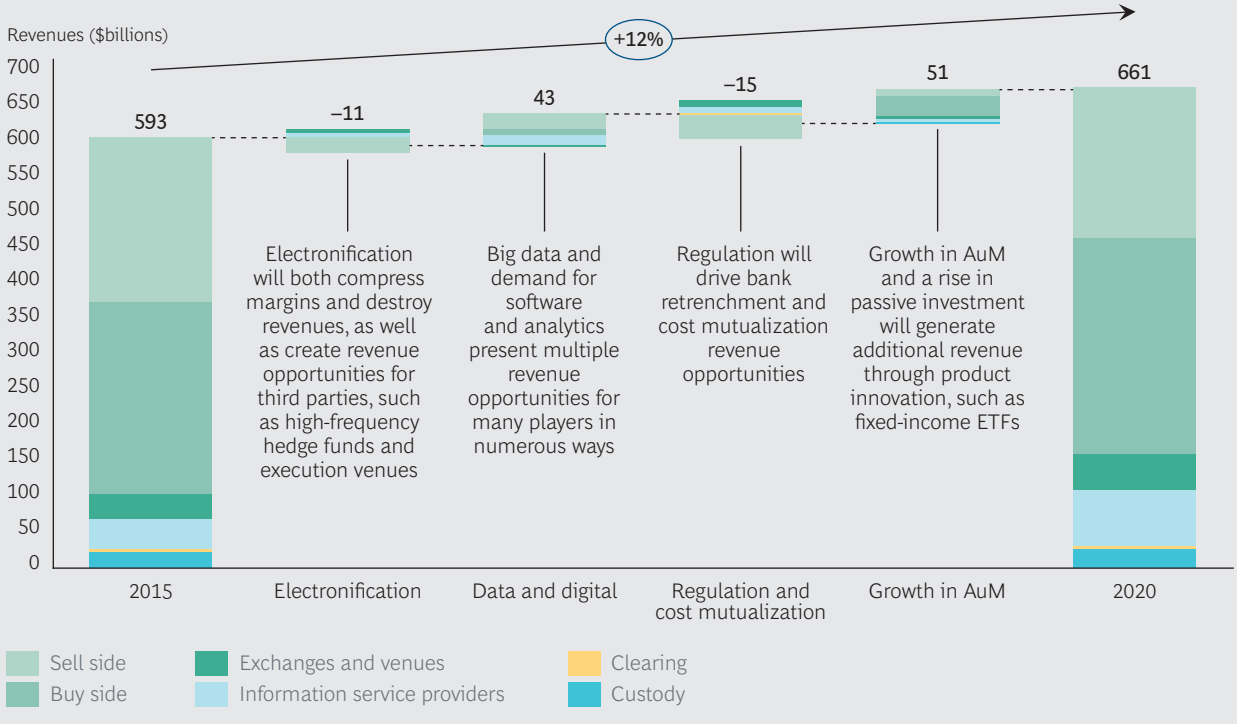
Information service providers and execution venues will compete for a growing portion of the revenue pool, increasing their market share to 19% from 14% in 2015. In addition, the buy side will generate and retain more of the available share of wallet than the sell side and increase its market share by 6%, to 45%. By contrast, we expect that sell-side revenues will constitute just 31% of the overall revenue pool in 2020, down from 54% in 2006.

As the competitive landscape shifts, key players will reinvent themselves, creating new capabilities and converged roles. New business models may also emerge, as players today are more likely to move across the value chain in pursuit of nontraditional revenues.

Investment banks, of course, operate along multiple aspects of the value chain. They dominate the capital-raising function and act as market makers, supplying capital to facilitate both risk transfer and liquidity transformation. Banks also often provide post-trade services, such as trade settlement and clearing, to their clients. What's more, some operate asset management companies, while others act as custodians. With such a broad footprint, banks will have to consider total cost of ownership along the value chain, from the pretrade decision-making process (research), to trade execution (next-generation algorithms and market access), to post-trade efficiency (STP, settlement, and collateral management). They may even start charging customers appropriately for the full gamut of offerings, instead of giving away services in the hope of generating revenue in alternative channels.

Indeed, investment banks today have less incentive to give away valuable information

Exhibit 6 | Ecosystem Revenues Will Migrate Because of Cost Mutualization, Big Data, and Growth in AuM



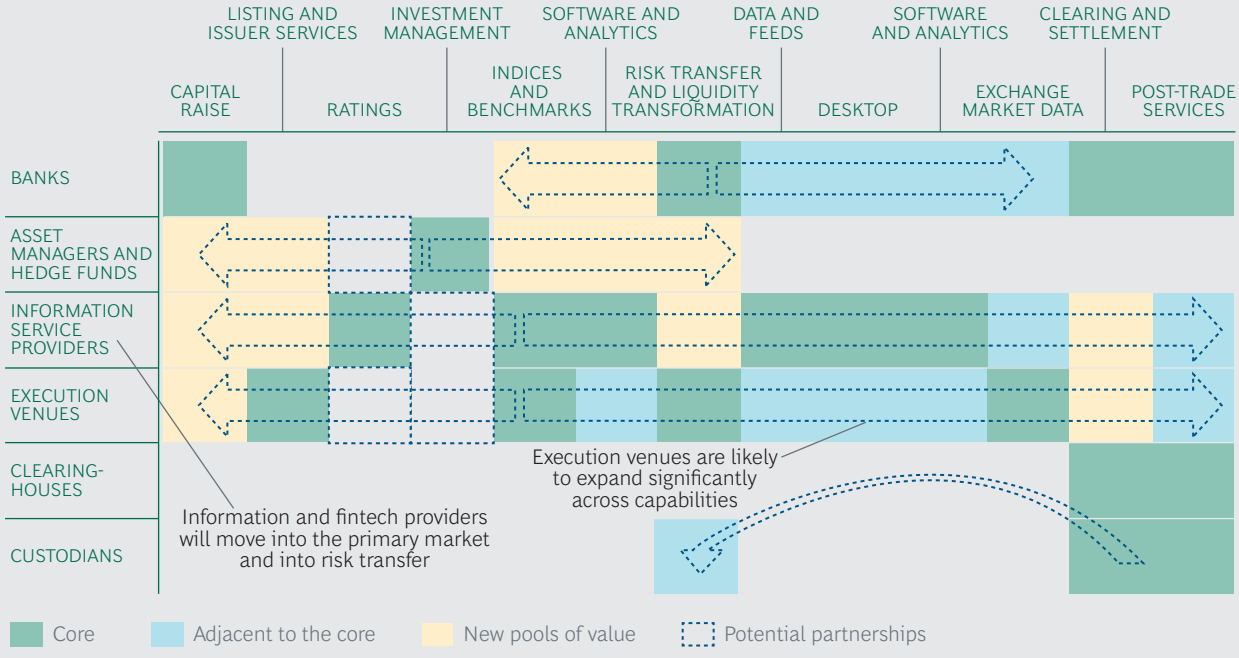
Source: BCG analysis.

assets, such as research and benchmarks, in the hope of generating revenues via spread-based products. They will increasingly embrace explicit charging models as the industry continues to move away from soft-dollar services. Some will seek to monetize their rich information sets and will explicitly charge for data, applications, and intellectual property. They may seek research utilities for financial-data models, as well as sell data from their systematic internalizers and dark pools (private markets). We can also expect banks to behave like service providers, as in electronic execution and prime brokerage, advising buy-side firms on algorithms and effective leverage, and on how best to engage with and manage their own client bases.

Meanwhile, the buy side will continue to diversify into software and analytics. Sophisticated buy-side firms are most likely to lead in terms of innovation. We already see some firms offering advisory services in securities origination as well as in risk management. New business models will emerge to allow investment managers to bypass banks when it comes to helping companies raise capital in the public markets. We expect additional strategic announcements that will enable buy-side-to-buy-side networks to facilitate risk transfer and liquidity transformation, again without depending on investment banks.

Moreover, very few elements of the value chain will be off-limits to information service providers and to exchanges. There will be a greater push for liquidity to form on trading venues such as swap execution facilities. Exchanges will focus more on bolstering intellectual-property assets and on expanding their post-trade capabilities. As the role of the human trader declines, information service providers will cease to give away desktop applications and software in the hope of generating demand for chargeable data. As machine-to-machine trading proliferates, these providers will seek out new opportunities across the technology stack. There will be a greater focus on diversifying and developing dormant intellectual property. For example, interdealer brokers are already expanding into post-trade and risk analytics as they revamp their own intermediation models. Overall, capabilities will converge and revenue opportunities will shift for all market participants. (See Exhibit 7.)

Exhibit 7 | Capabilities Will Converge, and Revenue Opportunities Will Shift



Source: BCG analysis.

BUSINESS MODEL TRANSFORMATION

Investment banks need to transform themselves to compete in tomorrow's capital markets industry.

The Six Pillars

In our view, six pillars—vision, distribution, client centricity, IT and operational excellence, organizational vitality, and financial and risk control—are critical to building a comprehensive strategy for business model transformation.

Vision. Banks must identify which parts of the capital markets revenue ecosystem they wish to participate in. They must harness the resources and potential sources of competitive advantage at their disposal, then figure out the most effective charging mechanism to optimize revenues. Leadership and vision can come only from the top, and clarity of purpose will be imperative for transformational success.

Distribution. Explicit charging models for both research and value creation are needed. Banks must also explore dynamic pricing for capital-light agency services versus balance-sheet-intensive principal-based services. Digital functionality will be needed both to improve the customer experience and to invigorate distribution. Areas of primary markets that depend chiefly on human talent—such as high-margin, low-capital-intensive M&A teams—are under less of a threat than more capital-intensive trading businesses.

Moreover, front-office head count, compensation, and technical specialization must all be aligned with client-coverage strategies and product-offering needs. With trading head count representing 30% to 50% of costs (depending on the asset class), aggressive front-office reduction will be required as markets become increasingly electronic. Distribution via electronic channels, which in turn should be consolidated with standardized connectivity, must also be pursued. Moreover, since shifts in trading execution can also impact revenue-model dynamics, serious thought will be required about whether, for certain asset classes, a move toward an agency model—as opposed to an outright exit—would be beneficial. Commitment to a few key asset classes and to building electronic scale through powerful internalization engines will be critical, as will big-data-driven customer analytics in those areas. Broker, clearing, and exchanges costs will need to be tightly controlled in order for an electronic market-making business to succeed.

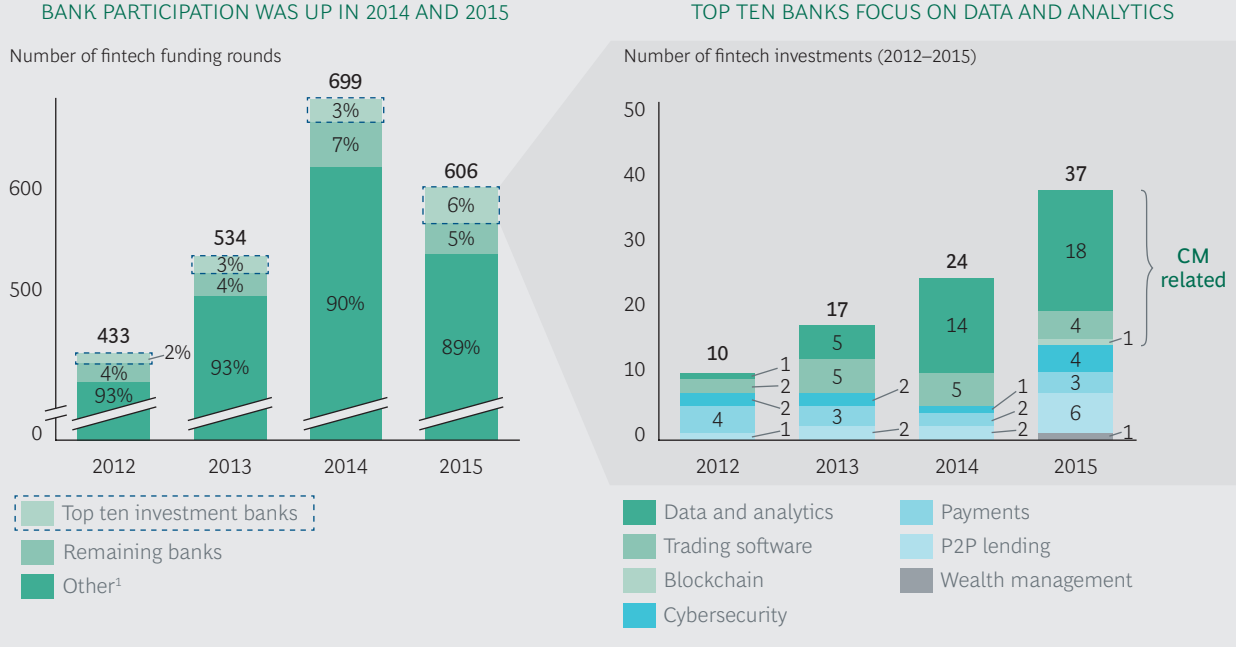
Client Centricity. An improved understanding of client profitability, share of wallet, and segmentation will significantly help firms understand the balance of trade between themselves and their customers. Banks will

have to move away from supplying products to providing services. Only by helping their clients to succeed can they expect to generate revenues.

At the same time, by focusing on how best to serve the client tail and conduct share-of-wallet analyses, firms will be able to ensure that they are being adequately rewarded for the services and resources they provide. Best-in-class banks are already implementing predictive modeling to trigger cross-selling opportunities and developing fully tailored product solutions. Further, to minimize costs, banks have started to simplify their client onboarding processes. Smooth onboarding, amid growing compliance and regulatory requirements, has become an important part of successfully serving clients.

IT and Operational Excellence. Simplifying IT, as well as exploring more advanced fintech alternatives, will enable banks to modernize their operations and reduce costs. This means streamlining legacy systems and eliminating non-value-creating complexity. Focusing on governance, location strategy, and sourcing optimization allows for more rational and efficient architectures. Many banks have complex, highly customized legacy platforms that have evolved to meet changing business requirements. Establishing a target process and technology architecture, as well as a strong governance process to make sure that new development and customization adhere to target architectural standards, can help reduce complexity and the long-term cost of ownership. What's more, utility models offer the opportunity to share the cost of new development across parties for greater efficiency and return on investment. Some players may opt to leverage a two-speed approach to IT in order to ensure that the digital agenda can still be pursued in an agile fashion alongside IT development programs that require longer lead times. Partnerships with fintech firms can offer significant efficiencies, depending on where institutions are in the process of transforming their technology operations to support the front office. The deeper this process goes, the greater the potential savings. For the moment, the focus of the industry is primarily on data and analytics, as well as on trading software and platforms. (See Exhibit 8.)

EXHIBIT 8 | Partnerships with Fintech Firms Can Offer Significant Efficiencies to Investment Banks



Sources: Quid; Expand Research; BCG Digital Ventures analysis.
Note: Because of rounding, not all percentages add up to 100.
[1]Includes VC, PE, and corporate investors but excludes initial public offerings. Data as of February 2016.

Within operations, process and organizational simplification will play a key role. Model optimization and redesign, together with a digital process layer, can improve efficiency and accuracy. With regard to structure, several banks have been aligning functions with physical locations and have become increasingly savvy on their sourcing strategies. Shared functions across the entire group are highly correlated with below-average cost per trade. Combined with significant use of utilities, firms can expect to generate IT and operational cost savings of up to 70%—currently equivalent to approximately 17% of total operating costs.

Organizational Vitality. It is also imperative that investment banks reshape their organizations according to their target operating models. Delayering across the entire organization, for example, will ensure shortened hierarchical lines. In the front office, organizational effectiveness requires a lean structure for both producers and nonproducers, as well as across electronic trading and in coverage sales. To ensure that banks attract and retain talent—particularly technology talent—they should continue to align compensation with new roles and responsibilities. A change in behavior and culture is also required. A set of smart rules must be defined and integrated into leadership, engagement, and cooperation models, as well as into rollout plans. These rules can involve training, coaching, incentives, and organizational adjustments.

Financial and Risk Control. Regulatory mandates continue to impact investment banking businesses, making it harder to develop consistent governance. Banks must also explore cost mutualization opportunities—outsourcing duplicated back-office functions that add little value—and accelerate capital mitigation efforts to offset the impact of FRTB. To be sure, investment banks have still not done enough to reduce their capital exposure. They must also achieve efficient allocation of group costs—such as litigation, finance, and cybersecurity—in order to reduce their own overhead. (See the sidebar.)

The Journey

Needless to say, transformation does not happen overnight. Banks must decide on their vision and explore initiatives that will result in quick wins to fund the journey. Medium-term success must be realized through a series of transformational steps. A leadership team that personifies the target organization and culture, combined with a sense of urgency, will ultimately enable full-scale transformation and long-term success.

LITIGATION
A Cost of Doing Business

Fines and litigation have become persistent and onerous operating costs for banks. Fines related to capital markets activities have generated 38% of total fines over the past eight years—about $108 billion, compared with $176 billion at the group level. It appears that such charges can no longer be viewed as one-off events but must be considered as ongoing, annual costs. (See the exhibit below.)

The good news is that the amount of fines related to US mortgage activity, totaling $51 billion since 2008, has tailed off as the majority of cases have been settled. Nonetheless, a new wave of fines related to market manipulation (for example the FX and LIBOR probes), a total of $26 billion for 2014 and 2015 combined, is now likely as individual prosecutions and bank fines make their way through legal and regulatory systems.

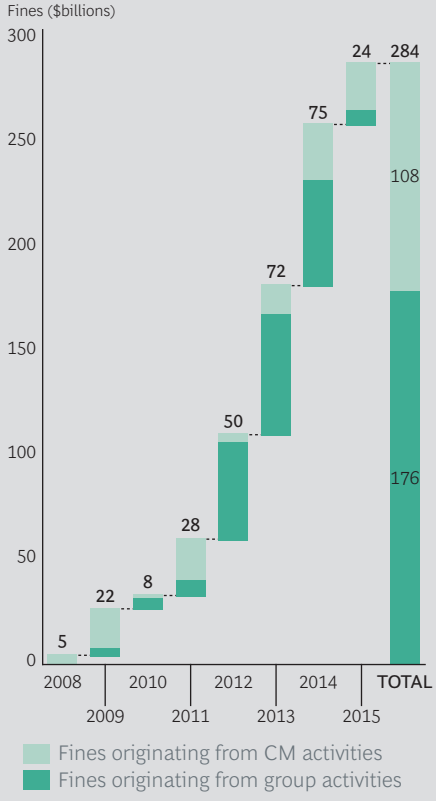
Regulatory fines related to capital markets activity remained significant in 2015, making up 10%, on average, of top-line investment banking revenues for 2014 and 2015 combined. In addition, overall costs

LITIGATION
(continued)

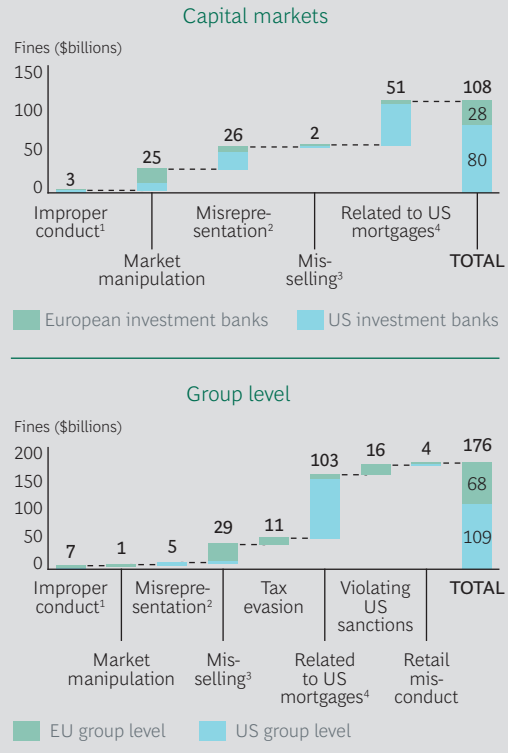
for investment banks have risen by 4% since 2010 despite a reduction of $8 billion in operating expenses. Once again, the combination of regulatory capital requirements and a renewed focus on market enforcement—including compliance, tighter oversight of trader behavior, and the like—has mitigated much of the savings achieved by investment banks.

Fines Related to Capital Markets Activities Are a Cost of Doing Business

THE COST OF FINES ARISING FROM CAPITAL MARKETS BUSINESSES SHOWS LITTLE SIGN OF ABATING



MOST FINES ARE RELATED TO US MORTGAGES



Sources: Press reports; BCG analysis.
[1]Improper conduct refers to failures in client asset segregation, bribery, and other non-market-conduct issues.
[2]Misrepresentation refers to failures to report risk levels at the entity level.
[3]Mis-selling involves failure to disclose risks to investors about products or market venues.
[4]Fines related to US mortgages in the capital markets space are associated with the distribution of securitized products.

APPENDIX

Below please find comprehensive tables for the capital markets and investment banking (CMIB) industry concerning revenues, operating expenses, and operating profit since 2010. Blank spaces indicate that data was not readily available.

TABLE 1 | Revenues

CMIB total revenue ($billions)	2010	2011	2012	2013	2014	2015	2016E
Advisory	15.4	16.2	14.9	14.5	16.5	18.8	17.7
ECM	14.8	12.4	11.7	15.3	16.3	14.2	13.0
DCM	26.4	24.6	27.3	29.6	29.1	25.2	22.6
Equities cash	23.2	21.9	19.2	22.7	21.5	21.1	18.8
Equities derivatives	26.9	23.5	22.4	23.8	22.8	24.1	22.7
Prime services	14.4	13.6	14.3	15.2	16.1	16.9	16.4
Rates	46.9	39.5	49.3	35.9	32.4	32.1	32.4
Credit	33.4	20.6	29.8	27.7	24.4	18.1	14.9
Foreign exchange	25.7	24.8	24.9	23.1	21.7	23.9	24.9
Emerging markets	14.6	12.1	13.9	12.4	11.8	12.3	11.1
Securitized products	16.3	13.7	18.0	16.1	16.4	12.4	10.0
Commodities	13.1	12.1	11.0	9.9	10.4	8.5	7.6
Total	**271.0**	**234.9**	**256.6**	**246.2**	**239.5**	**227.6**	**212.2**

Source: BCG analysis.
Note: Because of rounding, not all numbers add up to the total shown.

TABLE 2 | Operating Expenses

CMIB operating expenses ($billions)	2010	2011	2012	2013	2014	2015
Front office				87.9	87.2	83.9
Market data				5.7	5.8	5.9
Front-office IT				26.9	26.6	26.8
Operations				15.1	15.5	15.4
Corporate functions				17.4	17.3	17.5
Other costs[1]				19.1	19.2	18.3
Operating expenses	**176.2**	**174.3**	**172.7**	**172.2**	**171.6**	**167.8**
Litigation and fines	2.1	19.5	4.4	14.1	27.0	18.0

Source: BCG analysis.
Note: Because of rounding, not all numbers add up to the total shown.
[1]Includes costs allocated to management, HR, communications and marketing, and corporate real estate.

TABLE 3 | Operating Profit

CMIB total operating profit ($billions)	2010	2011	2012	2013	2014	2015
Advisory			2.7	2.2	4.3	6.8
ECM			2.0	5.6	6.6	4.7
DCM			12.1	14.4	13.9	10.3
Equities cash			–1.4	1.5	0.5	–0.2
Equities derivatives			6.3	7.2	6.3	6.2
Prime services			3.2	3.8	4.4	5.3
Rates			22.3	10.7	7.7	9.0
Credit			14.1	11.8	8.9	4.9
Foreign exchange			8.4	6.6	5.3	6.5
Emerging markets			3.8	2.5	1.9	2.7
Securitized products			9.5	7.6	7.6	5.6
Commodities			0.9	0.0	0.4	–2.1
Total	**94.8**	**60.6**	**84.0**	**74.0**	**67.9**	**59.7**

Source: BCG analysis.
Note: Because of rounding, not all numbers add up to the total shown.

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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.

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An article by The Boston Consulting Group, April 2016

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