

The Phoenix Rises: Remaking the Bank for An Ecosystem World

McKinsey Global Banking
Annual Review 2017



Global Banking Practice

The Phoenix Rises: Remaking the Bank for An Ecosystem World

McKinsey Global Banking
Annual Review 2017

Executive Summary Executive Summary		2
Introduction Introduction		5
The State of the Industry The State of the Industry		7
Digital Productivity: Banking's \$350-Billion Opportunity Digital Productivity: Banking's \$350-Billion Opportunity		17
Finding Growth in an Ecosystem World Finding Growth in an Ecosystem World		33



Executive Summary

The global banking industry shows many signs of renewed health. The recovery from the financial crisis is complete, capital stocks have been replenished, and banks have taken an ax to costs. Yet profits remain elusive. For the seventh consecutive year, the industry's return on equity (ROE) is stuck in a narrowly defined range, between 8 percent and the 10 percent figure that most consider the industry's cost of equity. At 8.6 percent for 2016, ROE was down a full percentage point from 2015. Further, banks' shares are trading at low multiples, suggesting that investors have concerns about future profitability. Several regions and business lines have done better, and some institutions are outperforming due to strategic clarity and relentless execution on both their core businesses and their efforts to improve.

In the 2017 edition of the McKinsey Global Banking Annual Review, new research suggests why performance is trending sideways and how banks can change it for the better. Key findings include:

- The variations in banks' valuations continue to be substantial, but the reasons for the variation have shifted dramatically. In 2010, 74 percent of the difference in valuations was due to geography: banks with operations in hot markets were valued more highly. In 2017, geography accounts for just 39 percent of the difference. The rest is due to the business model and its execution, strategy, well-aligned initiatives, and the other levers that banks command.
- In our 2015 review, we estimated the impact of the digital threat. In this report, we update the estimate to account for a faster pace than we anticipated. As interest rates recover and other tailwinds come into play, the industry's ROE could reach 9.3 percent in 2025. But if retail and corporate customers switch their banking to digital companies at the same rate that people have adopted new technologies in the past, the industry's ROE, absent any mitigating actions, could fall by roughly 4 points, to 5.2 percent by 2025.
- Banks cannot afford to wait any longer to extract the potential of digital to industrialize their operations. As an essential first step, banks that have not

yet fully digitized must explore the new tools at their disposal and build the skills in digital marketing and analytics that they need in order to compete effectively. If most of the industry were to do this, and not compete too much of it away, we estimate that banks would add about \$350 billion to their collective bottom line.

This gain from digitization would lift the average bank's ROE by about 2.5 percentage points — not enough to fully offset the 4-point drop. But no bank can afford to forego the benefits of digital, and individual banks can do much better than the average. A full-scale digital transformation is essential, not only for the economic benefits, but also because it will earn banks the right to participate in the next phase of digital banking.

"Platform" companies such as Alibaba, Amazon and Tencent are reshaping one industry after another, blurring sector boundaries as they seek to be all things to all people. If this integrated economy begins to emerge in a bank's market, it could be an opportunity for those banks that have built digital skills and rapid reflexes. Banks that successfully orchestrate a basic "ecosystem" strategy, by building partnerships and monetizing data, could raise their ROE to about 9 to 10 percent. Banks that can go further and create their own platforms might capture a small share of some non-banking markets, which would elevate their ROE to about 14 percent — far above the current industry average.

The ecosystem strategy is not open to every bank; nor is it the only option. Banks could also find success, though less profit, with two other business models: a white-label balance sheet operator, or a focused or specialized bank. But should the integrated economy develop in the way that many expect, a successful ecosystem strategy could be the key to a bright digital future for a number of banks.



Regardless of a bank's views on the ecosystem economy, a comprehensive

digital transformation is a clear “no-regrets” move to prepare for a digital and data-driven world. As banks move from their traditional focus on products and sales to customer-centric marketing, they should re-confirm that their source of distinctiveness is still potent, design and deliver an extraordinary customer experience, and build the digital capabilities needed not just for the next few years, but for the longer term. With those assets in hand, banks will be ready when the ecosystem economy arrives.



Introduction

Banks are striving to ensure that they are in the right products, the right customer segments and the right distribution channels. But perhaps the leading strategic question of the day is how far and how fast to digitize the bank, in light of both pressure from digital competitors and customers' deepening interest in digital banking. Our previous research identified two major effects from new digital entrants: the loss of the customer relationship and margin erosion across retail segments. We see new evidence of those trends — and they are happening faster than we expected. Margins continue to fall worldwide. In China, for example, they dropped 35 basis points in the past two years, shaving 6.7 percentage points off ROE. In North America, margins tightened by 46 bps, lowering ROE

by 4.1 percentage points. Banks are also losing share in some products, especially in emerging markets. And there is a new heavyweight competitor in town. “Platform” companies such as Amazon, Alibaba and Tencent — all experts at the digital experience — are staking a claim to banks’ customers and the revenues and profits they represent.

It is a commonplace to observe that digitization is both a threat and opportunity. But it is still true. Banks have yet to fully deploy the vast digital toolkit that is now available. Harnessing the new powers of data-driven marketing, a digital workbench for sellers, robotic process automation, the cloud, APIs and apps, and all the other tools now available is an essential step for most banks. But even this will not be sufficient for many banks in rapidly digitizing markets. Nor will it necessarily fulfill customers’ now-stratospheric expectations of their digital providers. The platform companies are hastening the creation of “ecosystems,” in which they provide customers with intuitive and pleasing ways to shop for a wide range of products and services through a single access gateway. It is early days, but much of the global economy may eventually be reshaped by these ecosystems. Naturally, mileage may vary: ecosystems will not spring up at the same pace, or to the same degree, in every market. But where they do, banks will be in the platform companies’ crosshairs.

This will place banks at the next strategic crossroads: with ecosystems coming to life, should banks beat ‘em or join ‘em? The odds are seemingly against banks’ ability to get the jump on the world’s most advanced tech companies. But they have some things going for them. When it comes to customers’ decisions about where to place their money, research shows that banks enjoy greater trust than tech firms. And they have exclusive access — for now — to mountains of incredibly valuable customer data. Already we are seeing early success stories from around the world, as banks start to develop platform capabilities. It is not too far-fetched to imagine a day when banks will offer a range of services, reach a vastly larger customer base, and succeed at their digital rivals’ game.

About this report

This is McKinsey’s seventh annual review of the global banking industry. It is based on data and insights from Panorama, McKinsey’s proprietary banking and fintech research arm, as well as the experience of clients and practitioners around the world. The report begins with a survey of the industry’s present state, followed by a review of the rapidly evolving digital battleground and a short-term playbook that banks can use to defend their franchises. The report concludes with a discussion of the need for a long-term ecosystem strategy and the skills that banks will require for success in the new digital world.



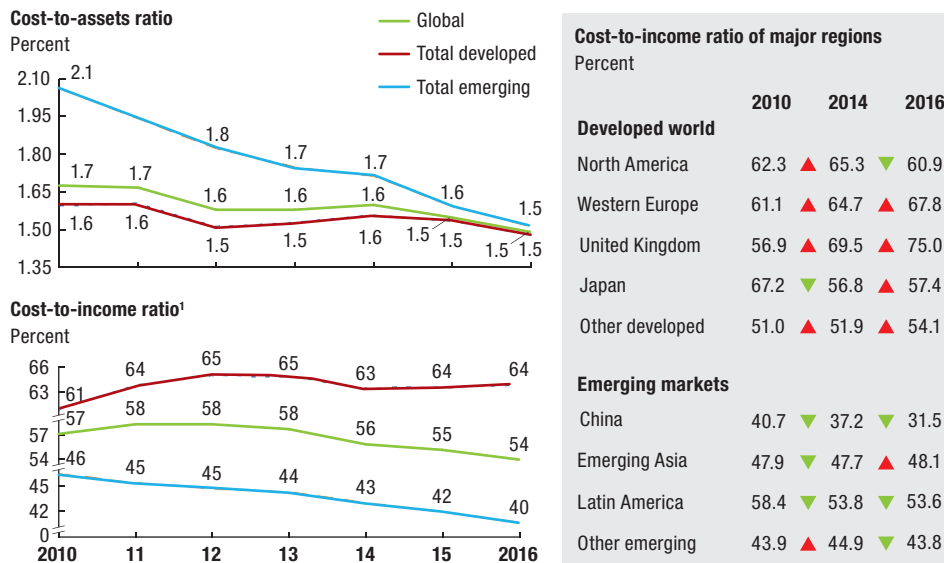
The State of the Industry

The global banking industry¹ in 2017 reminds us of an old adage. When shown a partly-filled glass of water, an optimist will say that it is half full, and a pessimist will say it is half empty. But an engineer will say that the glass has been built to the wrong specs. All three points of view are relevant to the global banking industry today.

¹ In this report, “global banking” and “the banking industry” include deposit-taking and lending institutions and other banks whose business is concentrated in investment management, servicing and processing. We do not include pure asset or wealth managers, or insurance companies.

Exhibit 1

Banks' costs have consistently dropped, and cost-to-asset ratio is converging for developed and emerging economies



¹ NOTE: Cost-to-income ratio of developed market banks increased in the last two years; however, this is due to margin erosion that could not be offset by the advance in cost efficiency

Source: McKinsey Panorama - Global Banking Pools, SNL - Based on a sample of ~1,000 largest banks in terms of assets

Half full

As a result of banks' energetic efforts over the past 8 years, many of the fundamentals underpinning the industry are in excellent shape. Banks' capital reserves are deeper today than at any time in recent memory. The industry's Tier 1 capital ratio reached a decade high 12.4 percent in 2016. The industry is awash in liquidity; worldwide, the loan-to-deposit ratio fell to 93 percent in 2016, the lowest level in decades, down from 99 percent 4 years ago and from a high of 120 percent in 2007. As evidence of the now solid foundation of U.S. banks, in June 2017 the Federal Reserve gave a passing grade to all 34 institutions that submitted stress tests. Stress tests in Europe have also gone well. The industry is clearly safer.

Perhaps most importantly, costs are under better control. The global cost-to-assets ratio dropped from 1.7 percent in 2011 to 1.5 percent in 2016² (Exhibit 1). To be sure, cost discipline varies considerably from one region to the next, and not every market is making equal headway. But by and large, the industry has made convincing progress on lowering costs.

More good news has arrived from interest rates that are, at long last, rising in many regions and promise to lift net interest income. Money-market rates in the U.S. rose from 17 bps in 2015 to 52 bps in 2016, and according to many analysts, are headed much higher. Rates are also increasing in many emerging markets.

Finally, banks have made a lot of good news for themselves in the past year. Inno-

² Note that cost-to-income has also fallen, except in developed market banks where it remained flat. Those banks were effective at cutting costs, but a fall in margins reduced income, leading the ratio to rise.

vation is on the rise. As fintechs have struggled to scale, banks have entered into a number of partnerships with them, and several are already bearing fruit. Banks have invested heavily in their customers, and many are building compelling experiences that will meet customers' needs as never before. Furthermore, a number of institutions are effectively building new cultures, turning the page on disappointing experiences over the past decade.

Half empty

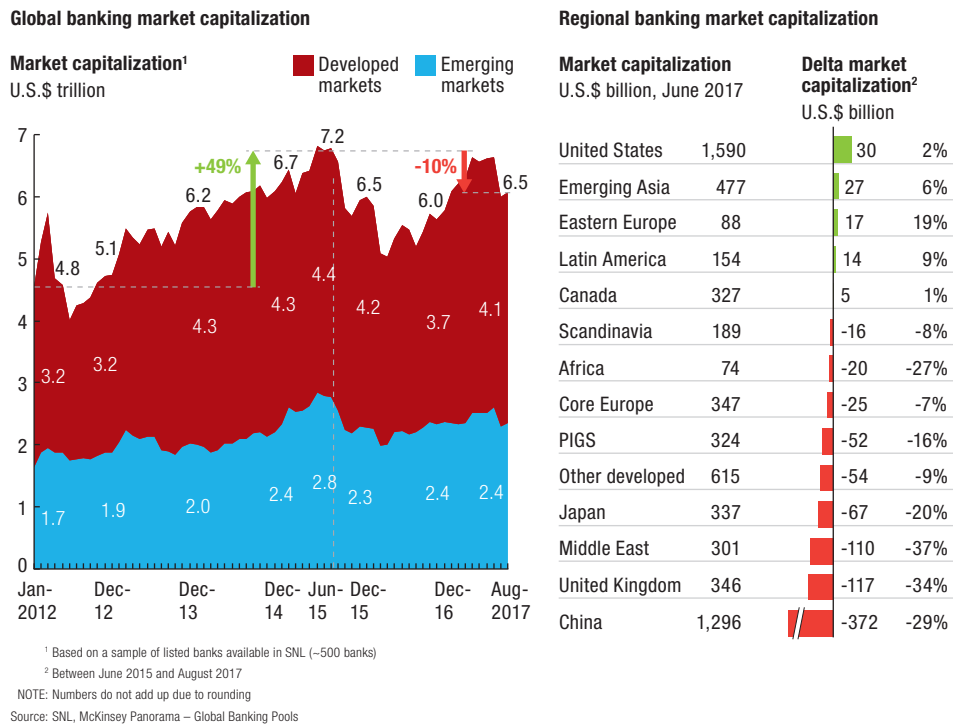
Until quite recently, the optimists had another piece of prima facie evidence: a broad-based rise in bank share prices. After touching a low in early 2016, share

prices rose considerably, as animal spirits returned to the sector. However, investor enthusiasm has waned. As of August 2017, bank share prices had retreated and were 10 percent below their June 2015 peak (Exhibit 2). At the same time, major stock markets rallied: from June 2015 to August 2017, the S&P 500 index rose 18 percent, while the FTSE 100 and the DAX each gained 10 percent.

In any event, it is probably a mistake to read too much, positive or negative, into the gyrations of the stock market. Instead, consider the fundamentals. The pessimists note that while the industry has regained much of its strength, it has yet to translate a solid foundation, strong cost

Exhibit 2

Fluctuating market cap with no significant uplift



discipline and other improvements into better results. Worldwide, banks earned an ROE of 8.6 percent in 2016, down a full percentage point from 2015 (Exhibit 3). And while share prices are higher than they were a year ago, the rise has not done much to lift the industry's price/book (P/B) ratio, which remains near historical lows for both developed markets (1.0) and emerging economies (1.2).

A review of these metrics shows clearly that the recovery from the crisis has been tepid, rather like the broader economy to which banking is closely tied. In fact, as our colleagues first mentioned in the 2015 edition of this report, the industry is bogged down in a flat and uninspiring performance rut (Exhibit 4). At the time, we

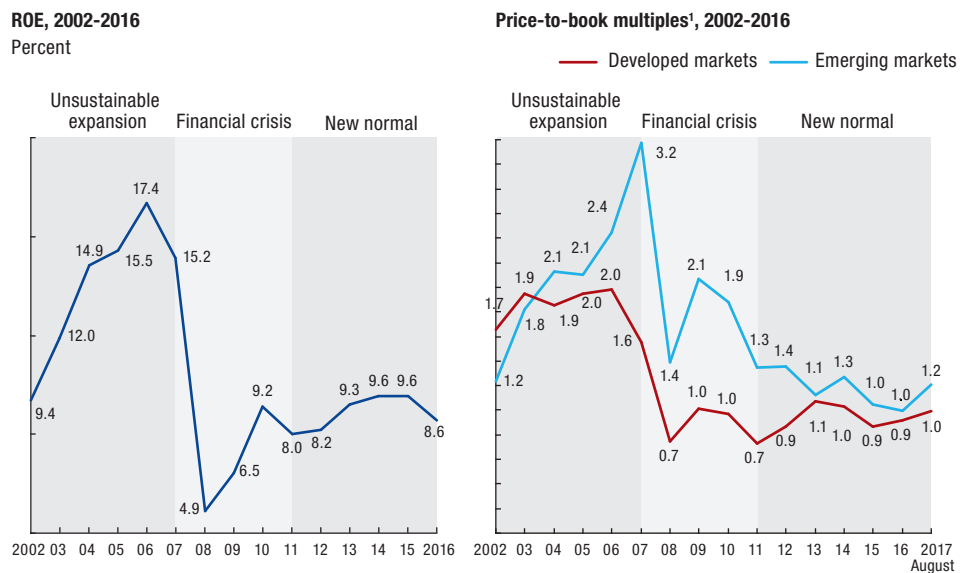
called it a “new reality;” a few years later, with a string of these lackluster performances under the industry’s belt, we have to conclude that the reality is here to stay.

Why is performance proving so hard to budge? Several factors are responsible, starting with a slowdown in revenue growth. While the trend line in Exhibit 5 shows a nicely upward slant, the fact is that revenue growth has slowed dramatically, with 2016’s 3 percent rate — half that of the previous 5 years.

A long-running compression of margins could be even more significant than slowing revenue growth. Globally, revenue margin declined by about 4 percent over the past three years, from 286 bps in 2014

Exhibit 3

ROE and price-to-book are trending sideways



¹ Based on a sample of listed banks with >\$2 billion in assets
 NOTE: Book value does not exclude goodwill, as the data is available for only ~60% of covered banks
 Source: Bloomberg, Compustat, Datastream, OECD, SNL, Thomson Reuters, McKinsey Panorama – Global Banking Pools

Exhibit 4

A new reality is firmly in place

	Unsustainable expansion (2002–07)	Financial crisis (2008–11)	New reality (2012–15)	What's next? (2017-2020)
	Robust growth, high ROE, high multiples	Slow growth, ROE below COE, low multiples	Slow growth, plateaued ROE and multiples around 1, improved costs	Same as now plus innovation drives growth
Average ROE	14.0%	7.3%	9.0%	▶
Revenue growth¹	16.8%	3.9%	5.3% ²	▶
Emerging markets' share of revenue growth¹	26.9%	69.0%	70.8% ²	▲
Tier 1 Ratio	10.5%	12.1%	12.4%	▶
Loan/deposit	Developed	124.6%	128.8%	▲
	Emerging	75.6%	81.1%	
Price/book value	Developed	2.2	1.0	▲
	Emerging	2.2	1.7	
Percent of banks trading below book value	Developed	28.4%	66.0%	▼
	Emerging	19.2%	27.9%	
Primary driver of economic growth	Volume	Risk cost	Operational efficiency	Entering new non-traditional banking markets/businesses

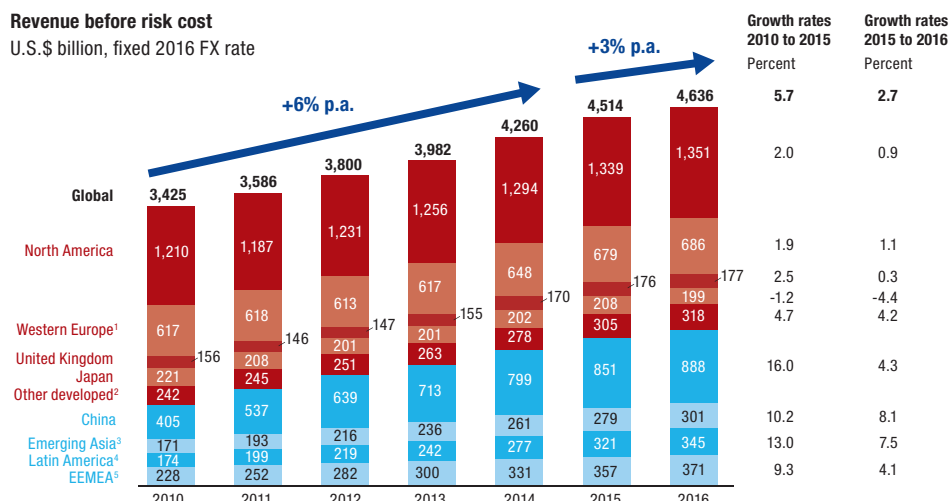
¹ Revenues before risk cost

² Fixed conversion rate, \$ 2016

Source: Thomson Reuters, SNL, McKinsey Panorama – Global Banking Pools

Exhibit 5

Global revenue growth rate slowed to 3% in 2016



¹ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, rest of Western Europe

² Australia, Canada, Hong Kong, Japan, Korea, Singapore, Taiwan

³ China, India, Indonesia, Malaysia, Thailand, Vietnam, rest of Asia

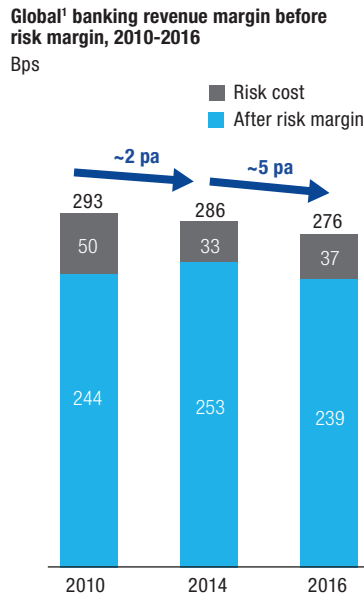
⁴ Argentina, Brazil, Chile, Columbia, Mexico, Peru, rest of Latin America

⁵ Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Serbia, Slovakia, Slovenia, Ukraine, Morocco, South Africa, Kuwait, Qatar, Saudi Arabia, UAE, Israel, Turkey, rest of Eastern Europe, rest of Sub-Saharan Africa, rest of North Africa, rest of Middle East

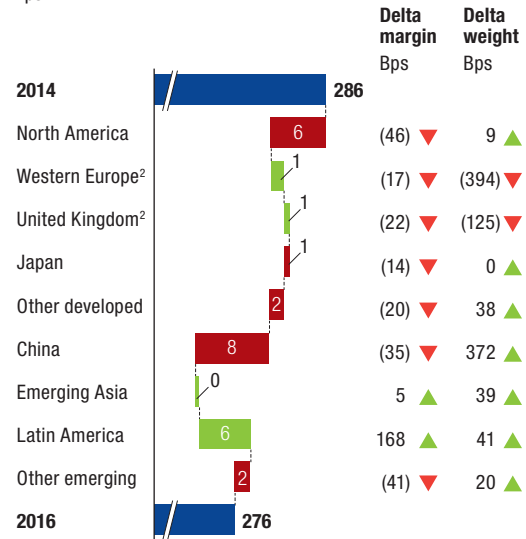
Source: McKinsey Panorama – Global Banking Pools

Exhibit 6

The pace of margin decline more than doubled in the past two years



Margin contraction by region, 2014-2016
Bps



¹ Based on a sample of ~1,000 largest banks in terms of assets

² Positive impact of Western Europe and United Kingdom is due to composition effect: the weight of these low margin markets in overall banking market decreases, pushing the global margin upward

Source: Bloomberg, Compustat, Datastream, OECD, SNL, McKinsey Panorama – Global Banking Pools

to 276 bps in 2016 (Exhibit 6), which lowered ROE by 1.5 percentage points. Margins fell the most in China and North America; Latin American banks were able to buck the trend and expand margins due primarily to increases in high-margin businesses like consumer lending. In North America, the main drag on margins was likely the cost of replacing older securities and loans with new ones at a time when money-market rates climbed. In China, interest-rate deregulation and digital competition were primarily responsible for the shrinkage.

Previous editions of this report have documented the potential for fintechs and digital platform companies to erode banks'

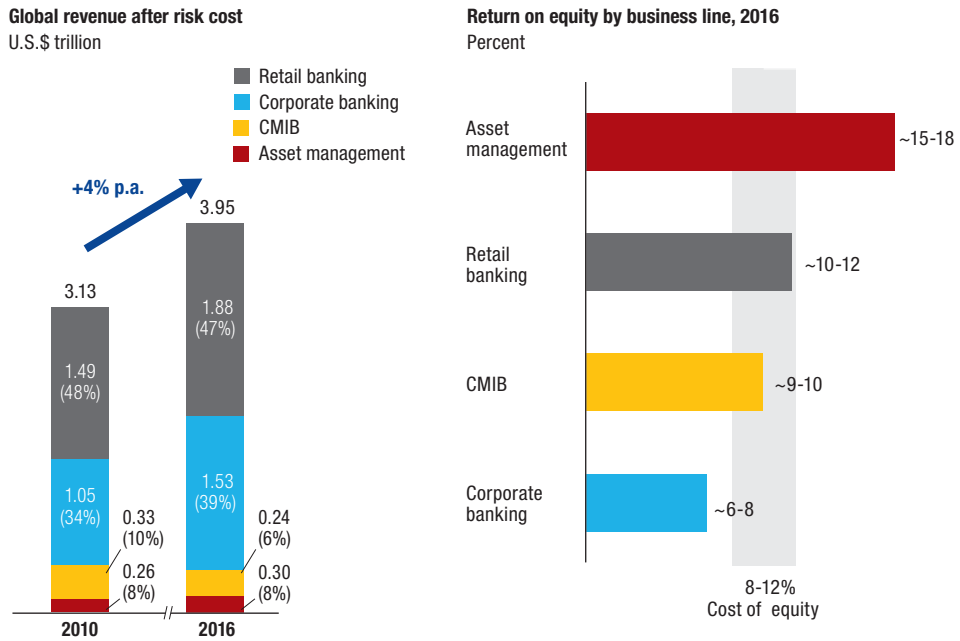
margins. One area where we are seeing radical compression is in remittances — a profit center for banks worldwide. New firms such as Azimo, TransferWise and TransferGo have built superior technology and are able to price their services as much as 78 percent below incumbents. As they struggle to compete, incumbents' margins are taking a pounding.

A third factor behind banks' tepid performance is increasing risk costs, which increased from 33 bps to 37 bps between 2014 and 2016, cutting ROE by 0.6 percentage points.

Looking at individual lines of business, the situation is much the same (Exhibit 7). Retail businesses are holding up and returning

Exhibit 7

Growth remains healthy, but ROEs vary widely for major business lines



Source: McKinsey Panorama – Global Banking Pools

about 10 to 12 percent. Corporate banking has expanded nicely in recent years, and growth is likely to continue over the next 8 years through 2025. However, corporate banking suffers from thinner margins than retail (222 bps in 2016 versus 426 bps for retail), and its ROE is about 400 basis points lower, making it difficult for the sector to create substantial additional value.

Asset management remains a strongly profitable business and will likely maintain its growth. We estimate that the share of total revenue that banks earn from asset management will be flat through 2025.

Profits in capital markets and investment banking (CMIB) could continue to shrink in a difficult environment, especially if volatility

stays low. Electronification has sliced margins in cash equities and many other businesses. The Markets in Financial Instruments Directive (MiFID II) will only add more pressure. And much of fixed income remains a balance-sheet-intensive business. We estimate the CMIB industry’s ROE at 9 to 10 percent. Even if CMIB did better, it is too small (together with asset management, it makes up 14 percent of industry revenues) to drive substantial improvement in the industry’s revenue growth or profits.

Management and business model now more important than geography

“Geography is destiny,” as the old saying goes. And in banking, regional variations clearly explain a lot of the differences in

performance (see “A closer look at the major regions”). But they do not explain everything. Our research shows significant differences in P/B ratios among banks in every market (Exhibit 8, page 16). In North America, they range from 1.0 to 2.1 among the listed banks we studied. In Continental Europe, the range is 0.2 to 1.6. In India, the best banks command a 3.4 P/B ratio — far above the laggards’ 0.4.

We analyzed the deviation in banks’ valuations as of Q1 2017, using a standard regression model, and found that their primary business location explains about 40 percent of the variation. Other factors, including management, strategy, operations and all the other levers that banks command, accounted for about 60 percent. That is a huge change from 2010, when the proportions were reversed: then, the region a bank operated in accounted for three-quarters of the difference in performance, and other factors just one-quarter.

This shift is also evident in the slowdown in financial globalization. Since the global financial crisis began in 2007, gross cross-border capital flows have fallen by 65 percent in absolute terms and by four times relative to world GDP.³ Half of that decline has come from a sharp contraction in cross-border lending, particularly in Europe. The result of the U.K.’s referendum vote in 2016 could prompt a further reduction in banking claims between the U.K. and the Eurozone. The largest U.K. banks have reduced their foreign bank assets by one-quarter since 2007.

A closer look at major regions

As always, the global picture does not do justice to the considerable differences in regional markets. Exhibit A shows the regional changes in margins, costs and capital that took place from 2014 through 2016.

North America. In the U.S., there is an air of optimism, and multiples are improving. The regulatory environment seems likely to ease. The national economy is expected to grow at about 2 percent annually in coming years. Interest rates are on the way up. Revenues could grow as deposit margins widen. A rise in mortgage loan originations might also boost revenues. In Canada, growth is expected to be slightly slower than in the U.S. Interest rates in Canada are also moving higher, but this might wind up hurting consumption, if the housing market stalls. Canadian banks continue to enjoy high margins compared to other developed countries, but we expect margins to moderate, slowing revenue growth.

Western Europe and the U.K. While expectations have picked up recently and the optimism of business leaders is high,⁴ the region is still mired in a relatively slow-growth environment. Interest rates remain historically low, as central banks continue to expand the money supply. However, many banks (particularly those in the southern European countries) have managed to improve their asset quality and reduce impairments. Should recent trends continue, the economy would recover slowly, resulting in some lending growth. In the U.K., the continuing uncertainty about the terms of the exit from the European Union could have an impact on lending growth rates.

Japan. While the government urges companies to increase investment and raise wages, seeking to boost demand, stimulate the economy and escape deflation, the pace of improvement remains subdued. A negative interest-rate-driven monetary push may not be successful, as Japan faces the twin challenges of an ageing population and huge public debt.

Other developed markets. The biggest story is Australia, where the central bank’s protracted low-interest rate pol-

³ Susan Lund, Eckart Windhagen, James Manyika, Philipp Härle, Jonathan Woetzel, and Diana Goldshtein, “The new dynamics of global financialization,” McKinsey Global Institute, September 2017, mckinsey.com.

⁴ Jacques Bughin, Eric Labaye, Frank Mattern, Sven Smit, Eckart Windhagen, Jan Mischke, and Kate Bragg, “The brightening mood of European business — and what it means for investment,” McKinsey Global Institute, May 2017, mckinsey.com.

Exhibit A

Margins are falling in most regions; costs have improved

ROE, 2014–16¹
Percentage points

	2014 ¹ Percent	Margin	Risk cost	Cost efficiency	Taxes	Fines and other	Capital		2016 ² Percent
		+	+	+	+	+	+	=	
Global	9.6	-1.5	-0.6	1.6	0.0	0.1	-0.6	▼	8.6
Developed									
North America	8.6	-4.1	-0.5	4.4	0.0	0.9	-0.4	▲	8.8
Continental Europe	4.2	-1.3	2.4	-0.4	-0.5	-0.4	-0.3	▼	3.7
United Kingdom	3.8	-1.3	-0.7	-0.9	-0.5	1.4	-0.2	▼	1.6
Japan	7.1	-2.2	-0.6	1.1	0.5	0.3	-0.3	▼	5.9
Other developed	10.6	-2.7	-0.2	0.7	0.6	-0.8	-0.1	▼	8.1
Emerging									
China	18.1	-6.7	-2.5	4.8	1.5	-0.1	-0.9	▼	14.2
Emerging Asia	14.6	0.0	-5.5	-0.2	1.1	-0.2	-0.4	▼	9.5
Latin America	22.0	17.6	-3.9	-9.2	-4.9	-0.8	1.5	▲	22.4
EEMEA	12.6	-3.7	2.0	2.1	0.1	-0.6	-0.2	▼	12.3

¹ Based on a sample of ~1,000 largest banks in terms of assets

² Numbers do not add up to the ROE level of 2016 due to rounding

Source: SNL, McKinsey Panorama – Global Banking Pools

icy has fueled credit growth. Interest-only mortgages, often sold to investors, have pushed housing prices in big cities to what seem to be unsustainable highs; the government has moved to constrain these. It has also instituted a deposit tax on banks. In the future, as the national economy shifts away from a reliance on mining to more balanced growth, new avenues for credit growth may open.

China. Banking sector growth has slowed considerably and is expected to stabilize for the next few years at a slower rate than the past several years. In recent years, the government has encouraged banks to provide credit, and wholesale lending volumes have expanded. However, margins have plummeted of late. China now plans to cut corporate debt, which will reduce banks' lending volumes.

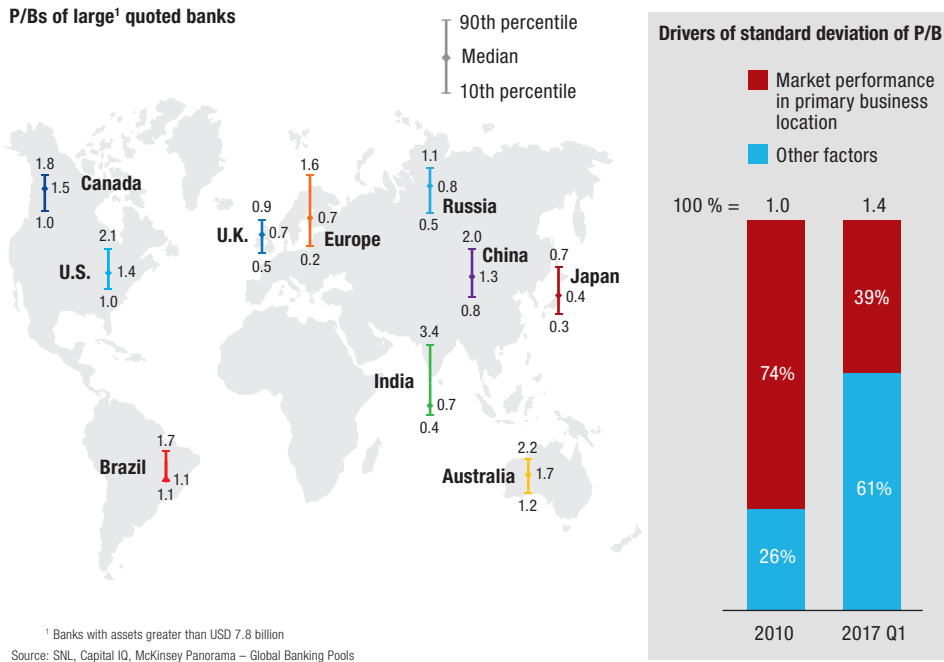
Emerging Asia. The region (which includes India, Indonesia, Malaysia and Thailand) is battling increasing risk costs, as growth slows in China (the dominant econ-

omy by far) and rates rise. While India and Indonesia are fast-growing countries with significant reservoirs of domestic demand, growth in Thailand has been affected by a slowdown in global demand for electronics, as well as government instability. Malaysia's economy has been hurt by a fall in oil prices. Across the region, risk costs increased in 2016 and may increase further, as anticipated Fed rate hikes might hurt debtors' ability to roll over loans.

Latin America. Brazil generates half of the region's banking revenues; its economy contracted by almost 4 percent in 2016. The country is headed for positive growth this year, but over the long term, growth potential seems to be around 2 percent annually — not very high for an emerging market economy. The second biggest market is Mexico where uncertainty is high as the country begins to renegotiate regional trade treaties.

Exhibit 8

Wide range of price/book within markets; impact of geography on banks' performance has declined



Whether because of slowing globalization or other factors, geography is no longer the major driver of destiny for banks today.



We have detailed the views held by the optimists and pessimists. But what about the engineers? In some ways, their perspective might be the most illuminating of all. In the remainder of this report, we will examine the idea that traditional banking

constructs are “off spec” and no longer fit for purpose. While banks have slimmed their operations, most have yet to take full advantage of the potential of digital tools to get closer to customers and industrialize their work. And for some banks, a new vessel — a digital company, designed to succeed in banking as well as a host of other related businesses — might be the best solution in a world where banks' profits remain under intense pressure.



Digital Productivity: Banking's \$350 Billion Opportunity

Two years ago, our colleagues analyzed the threat to banks from digital competition. We estimated that in five major retail businesses (consumer finance, mortgages, SME lending, retail payments and wealth management), between 10 and 40 percent of revenues would be at risk by 2025, depending on the business, and that between 20 and 60 percent of profits might be lost. The main threat to retail banking, as we saw it, was margin compression. As digital entrants enticed customers with low-cost, easy-to-use offerings, banks would be forced to cut prices. We saw far less erosion in corporate and transaction banking.

Today, we remain comfortable with our projections, although we may have underestimated the speed of the change. Two developments that we did not fully anticipate are accelerating the pace: the platform companies are emerging as a powerful threat and customers are adopting new technologies more quickly, causing shifts in market share that exceed our expectations.

In China's unsecured consumer lending market, digital attackers' share has ballooned from 1 percent in 2013 to 25 percent in 2016, while in mutual fund sales, attackers came out of nowhere to claim 12 percent of the market within 3 years.

Over the past two years, in markets around the world, digital entrants and new analytical firms have gained a foothold, and banks' margins are indeed falling — despite their prodigious cost-cutting efforts. But while we noted the presence of the platform companies lurking in the shadows in 2015, we thought that fintechs would provide the chief digital threat. Instead, banks have been able to parry many of the fintechs' moves and have joined forces with them in several cases — while the platform companies are emerging as a formidable force.

The shifts in market share have been impressive. In the China payments market, for example, digital attackers have already surpassed incumbents. They managed \$6.5 trillion in transactions in 2015 (up from \$1.2 trillion in 2013), which exceeds the \$6 trillion in offline POS transaction volume of traditional banks. Similarly, in China's unsecured consumer lending market, digital attackers' share has ballooned from 1 percent in 2013 to 25 percent in 2016, while in mutual fund sales, attackers came out of nowhere to claim 12 percent of the market within 3 years. In India, meanwhile, Paytm, an electronic payment and e-commerce company, now has 220 million users, up from 22 million in 2014, and credit card growth has slowed to a crawl. Even in the less digitized U.K. and U.S. markets, attackers are steadily gaining share in unsecured lending.

What's happening? Lots of gears are clicking into place to accelerate the pace and extent of digitization. Start with technology, where data is growing inexorably at 40 percent per year, and advanced analytics, particularly machine learning, are increasingly able to make use of it. Meantime the cost of computing is dropping rapidly, from \$100 per gigaflop in 2003 to \$0.08 in 2016. Application programming interfaces (APIs) and microservices are aiding in the creation of new digital services — and are at the forefront of European banks' agenda, due in part to the Revised Payment Services Directive (PSD2). Demand is growing too. Customers are

piling into digital banking — new McKinsey research shows that in 2015, digital channels overtook physical branches in many countries⁵ — with expectations of the kind of outstanding service and experience that is now common online.

Fintechs are also making
strides in capital markets
and investment banking,
especially advisory — although
here, the emphasis is more
on enabling traditional
business processes, rather than
disrupting them.

The digital entrants are changing too. With most retail businesses (except investing) already fully explored, at least for now, fintechs are moving into commercial and corporate banking. McKinsey's Panorama FinTech database, which tracks over 1,000 financial start-ups, shows that one of the fastest-growing segments is payments solutions for large companies. The spate of alliances and acquisitions between retail banks and fintechs has helped to solidify the notion that the land grab is over. Now it is corporate banking's turn, with collaborations between Standard Chartered and GTC, RBS and Taulia, and Barclays and Wave showing that when innovation meets scale, there is potential for good things to happen. Fintechs are also making strides

in capital markets and investment banking, especially advisory — although here, the emphasis is more on enabling traditional business processes, rather than disrupting them.

The rise of platform companies

The fintech threat to retail banking might be receding. But the new strategies adopted by the platform companies are even more challenging for incumbent banks. By creating a customer-centric, unified value proposition that extends beyond what users could previously obtain, digital pioneers are bridging the value chains of various industries in order to reduce customers' costs, increase convenience, provide them with new experiences, and whet their appetites for more.⁶ Not only do they have exceptional data that they exploit with remarkable effectiveness, but, more worrisome for banks, they are often more central in the customer journeys that include big financial decisions.

Consider Rakuten Ichiba, Japan's single largest online retail marketplace. It provides loyalty points and e-money usable at hundreds of thousands of stores, virtual and real. It issues credit cards to tens of millions of members. It offers financial products and services that range from mortgages to securities brokerage. And the company runs one of Japan's largest online travel portals — plus an instant-messaging app, Viber, which has some 800 million users worldwide. Likewise, Alibaba is not just an enormous e-commerce company, but now also a large asset manager, a lender, a payments company, a B2B service, and a ride-hailing provider.

⁵ Klaus Dallerup, Filippo Delzi, Eric Grunberger, Amaia Noguera Lasa, and Zubin Taraporevala, "The future of customer-led retail banking distribution," September 2017, mckinsey.com.

⁶ Venkat Atluri, Miklos Dietz, and Nicolaus Henke, "Competing in a world of sectors without borders," *McKinsey Quarterly*, August 2017, mckinsey.com.

Tencent is making similar advances, from a chat-service base. And Amazon continues to confound rivals with moves into cloud, logistics, media, consumer electronics, even old-fashioned brick-and-mortar retailing — and SME lending and factoring.

Such companies are blurring traditional industry boundaries. With their superior customer experience, they can sell an ever-wider range of products to their loyal customers. The manufacturing end of many businesses is fading from view, as the platform companies increasingly dominate the distribution end of multiple businesses, providing a wide range of products and services from a single platform.

We calculated the value at stake for global banking should platform companies suc-

cessfully split banking in two (Exhibit 9), and found that “manufacturing” — the core businesses of financing and lending that pivot off the bank’s balance sheet — generated 53 percent of industry revenues, but only 35 percent of profits, with an ROE of 4.4 percent. “Distribution,” on the other hand — the origination and sales side of banking — produced 47 percent of revenues and 65 percent of profits, with an ROE of 20 percent. As platform companies extend their tentacles into banking, it is the rich returns of the distribution business they are targeting. And in many cases, they are better positioned for distribution than banks are.

The recent flurry of moves by leading platform companies across the world shows their strategy in action. Witness

Exhibit 9

Origination and sales — the focus of non-bank attackers — account for ~65% of global banking profits

Global banking revenues and profits by activity, 2016

U.S.\$ billions

		Balance-sheet provision	Origination/sales
Core banking	Lending ¹	1,153	281
	Current/checking account	596	149
	Deposits	216	54
Fee-based businesses	Investment banking ²	120	162
	Transactions/payments ³		620
	Asset management and insurance ⁴		605
Total revenues		2,085 (53%)	1,871 (47%)
Total after-tax profits		404 (35%)	748 (65%)
ROE		4.4%	20%
		Credit disintermediation	Customer disintermediation

¹ Loans to retail and corporate clients (overdrafts, specialized finance, credit card, trade loans)





² Corporate finance, capital markets, securities services

³ Retail and wholesale payments transactions, including cross-border payments and remittances

⁴ Asset management includes investment and pension products. Insurance includes bank-sold insurance only

Exhibit 10

The four horsemen of the e-pocalypse

				
Description	Disintermediation Banks are losing access to customers as people switch to non-banking channels/sources.	Unbundling Banking products and services are being unbundled, as consumers can choose from single service providers.	Commoditization Banks are struggling to differentiate themselves as consumers compare banking products online with greater transparency.	Invisibility Banks are losing brand awareness and becoming invisible as consumers can access financial services without knowing the brand.
Examples of retail attackers	Consumers can borrow money online without reaching out to banks e.g., Lending Club.	Deposit and payment are unbundled as consumers leverage third-party payment solutions, e.g., PayPal.	Consumers can compare different deposit products from different banks and choose the one with highest interest rate, e.g., SavingGlobal.	Consumers can access unbranded micro-loans via social networks, e.g., WeChat Welidai.

Source: McKinsey & Company analysis

Apple Pay; Tencent's and Alibaba's service expansions; Amazon's decisions to (among other things) launch Amazon Go, acquire Whole Foods, and provide online vehicle searches in Europe; and the wave of announcements from other digital leaders heralding their entry into new areas. Also expanding are telcos, including Telstra and Telus (each now entering healthcare). We have also seen platform-expanding combinations such as Google's acquisition of Waze and Microsoft's purchase of LinkedIn.

Down but definitely not out

Bankers are alive to the challenges the platform strategy is unleashing. As one says, "there might be a time in the future where I might turn to my two kids and say ... 'Who are you banking with at the moment?' And they say [that the] money's with HSBC but I really like using the Amazon front end for this, that, and the other. Those are the kind of possibilities we might have to face."⁷

Banking executives, like their counterparts in retail, grocery, media, power generation, and other sectors, recognize the threat from what one might term, with only slight exaggeration, the "four horsemen of the e-pocalypse" (Exhibit 10). First, and most obviously, banks are being disintermediated from their customers. Second, banks have long offered an integrated service, providing some products, such as checking and savings accounts, below cost to subsidize more lucrative services, such as lending. But now bank products and services are becoming unbundled, in ways that cause problems for the traditional business model. A third effect is commoditization, the result of greater price transparency and highly similar offerings. Finally, banks are struggling with invisibility as customers increasingly fail to connect with bank brands or even to remember which bank provides their services.

These trends pose a profound test for traditional banks, which can struggle to match

⁷ CNBC Transcript: Interview with Chris Clark, Global Head of Marketing at HSBC, CNBC, August 12, 2016, cnbc.com.

the costs of digital banks, let alone digital attackers. Many digital banks are able to acquire customers for half the cost of traditional banks, and even less in some circumstances (acquisition costs in China, for example, are often a fifth of traditional banks). Moreover they can scale much faster. There are countless stories of digital companies going from a cocktail-napkin sketch to hundreds of millions of customers in just a few years. Kakao Bank, a digital-only bank in Korea, says it attracted KRW 535 billion (\$470 million) worth of business in deposits and loans in the first four days after its launch. By the fifth day, it had over one million accounts.

Banks are at a momentous fork in the road. We estimate that on the present course, with the benefit of rising interest rates and other tailwinds, the industry's ROE would

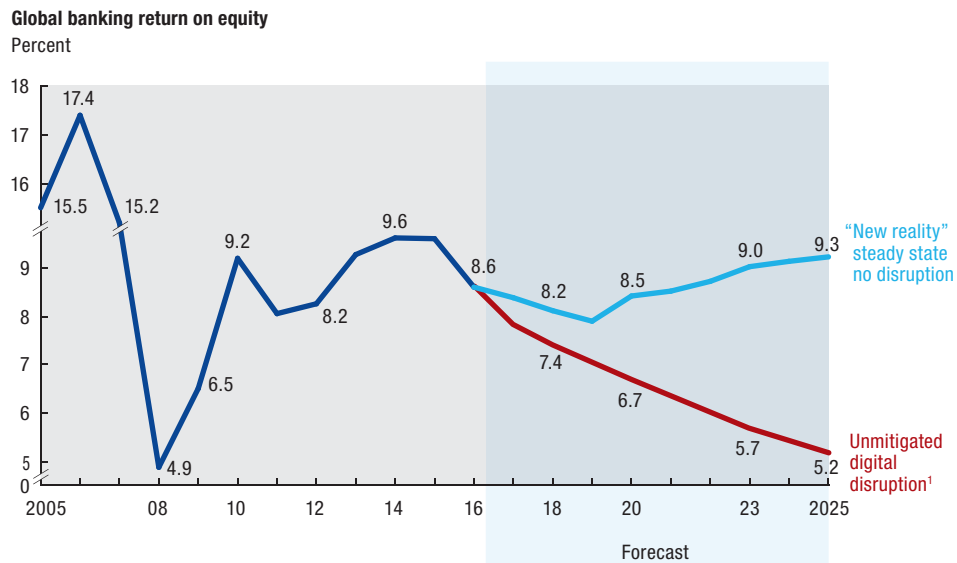
reach 9.3 percent by 2025 — just slightly higher than today's figure. But if the full effect of digital disruption materializes as we now expect and banks take no mitigating actions, ROE would fall to 5.2 percent (Exhibit 11). Most of that would come from margin compression in retail, payments and asset management; corporate banking would be only slightly affected.

Digital at industrial scale: the new imperative

The threat from platform companies is real and must be addressed. We do not think, however, that it is existential for the global banking industry. The long history of banking strongly suggests that there will always be a need for financial intermediation and a profit to be made by providing capital to others, although it may take many years for the industry to return to

Exhibit 11

Two scenarios for ROE in 2025



profitability in a global economy that is undergoing profound change. (For more, see “The future of financial intermediation” on page 26.)

As a first step, banks can take advantage of a range of actions over the next 3 to 5 years to reclaim their rightful ownership of the customer relationship, improve productivity, and industrialize their operations using digital tools. In essence, banks can deploy some of the same technologies that digital companies are using against them. These steps can lift revenues, improve capital usage, and, especially, cut costs. Our analysis suggests that if the industry as a whole were to adopt these measures it could reduce the industry's cost/income ratio from 54 percent today to 38 percent in 2025, as a result of productivity improvements worth roughly \$700 billion. This would translate into an improvement in ROE of 5 percentage points for a bank that is average in its digitization today and successfully executes a full digital transformation.

Note that the \$700 billion is an estimate of the full potential. It is unlikely that every bank will make the necessary changes; furthermore, some of the productivity gains will undoubtedly be competed away. Accordingly, we discount the estimate by 50 percent and suggest that for the industry, an additional \$350 billion of annual income is at stake by 2025.

Technology is expanding the art of the possible, offering banks a chance to retool their core offerings for the digital age. The opportunities are vast and spread across the entire enterprise. We focus

here on seven that offer the most potential for most banks. In our experience, the average bank is capable of improving productivity by 40 to 60 percent in each of these areas:

- Build digital marketing skills
- Reshape the distribution architecture
- Use digital tools and analytics to enhance sales productivity
- Industrialize operations through automation and artificial intelligence
- Reimagine underwriting, using data and analytics
- Embrace cloud computing, open APIs, and other essential technologies
- Create an agile organization

Below, we review each of these seven initiatives and offer thoughts on how to structure them into a program that produces a digital transformation.

Build digital marketing skills

Given the rise of the importance of digital in the way customers research and purchase financial products, excellence in digital marketing has become a core foundational capability. Banks need to take radical steps to improve their customers' experience. Despite all the genuine progress in banks' websites and mobile apps, many institutions still sport low customer satisfaction scores. The customer experiences banking (indeed, every business) as a journey, rather than isolated interactions. Banks should digitize with these journeys in mind, rather than the organizational siloes they use today. Our re-

search⁸ and experience suggest that a customer-journey approach leads to 160 percent higher cross-sell, 200 percent greater online conversion through better search-engine marketing, up to 10 point increases in customer satisfaction scores, a two-third reduction in acquisition costs, and many other benefits.

Propensity models and other tools not only enhance revenues, they also save on customer acquisition.

Here we will touch on just a few of the many digital-marketing levers available to banks. Leading retail and corporate banks are using their rich stocks of data to improve customer acquisition. Search-engine marketing and optimization can drive traffic to the website and improve the bank's position in customers' consideration set. Landing-page optimization can ensure that customers see clear, simple information that encourages the next click. Buy-flow design helps to increase conversion rates and reduce "leakage" from the purchasing funnel. One bank conducted A/B tests to improve the user experience and improved the content on its site, including video and other media. The website saw a 25 percent higher completion rate on product application forms, and the bank sold 40 percent more credit cards through online applications. Another bank rethought its search-engine optimization and improved its conversion rate by a factor of 10, a gain that was worth about \$70 million.

Digital-forward banks go much further than others to personalize their outreach to potential customers. They use analytics to identify the likely next product customers will buy for thousands of micro-segments. Propensity models and other tools not only enhance revenues, they also save on customer acquisition. Analytics also help banks improve client profitability through better pricing. A U.S. private bank used machine learning to study the discounts its private bankers were offering to customers. Bankers claimed that they offered them only to valuable clients that more than made up for the discounts with other, high-margin business. The analytics showed something different: patterns of unnecessary discounts that could easily be corrected. After the unit adopted the changes, revenues rose by 8 percent within a few months.⁹

New digital-marketing capabilities are a prerequisite for the changes in distribution we describe next. So too is a review of the product portfolio. As they digitize their marketing, many banks find it helpful to simplify their product offering. A few pioneering banks have successfully withdrawn more than half of their product variants without affecting customers. Most banks offer more (and more complex) products than customers need. Maintaining all these products generates significant costs, particularly in IT and operations. Eliminating or consolidating less popular products gives IT teams extra capacity they sorely need and can even boost revenues, as the choices offered to customers are clearer.

⁸ Joao Dias, Oana Ionuțiu, Xavier Lhuier, and Jasper van Ouwkerk, "The four pillars of distinctive customer journeys," September 2016, mckinsey.com.

⁹ Amit Garg, Davide Grande, Gloria Macias-Lizaso Miranda, Christoph Sporleder, and Eckart Windhagen, "Analytics in banking: Time to realize the value," April 2017, mckinsey.com.

Reshape the distribution architecture

Banks are using digital to reshape their distribution to create a true multichannel experience.¹⁰ As customer preferences shift to digital and remote advisory, banks need to optimize their branch formats and networks. This journey will typically have five main thrusts:

- Reducing the total number of branches and employees that provide transactional sales and service

The need for greater efficiency and effectiveness in the sales force is an age-old problem, and digital offers extraordinary new solutions.

- Closing branches on main streets and opening new ones in lower-cost locations that are easier for customers to access
- Fully automating branches with a complete set of tools — ATMs, cash deposit machines (CDMs), coin machines, iPads for digital banking, cash pick-up stations, and so on
- Pushing branches to become either one-stop shops or specialists in a single segment or activity (e.g. advisory, affluent, service-only).
- Exploiting the opportunity in every customer interaction to gather data and offer advice and product information when appropriate. The digital-marketing skills described above will help, as will a

shift in emphasis at call centers, which can become a primary sales channel and providers of advice.

Optimizing the branch network successfully requires an understanding of customer demand in every micro market, indeed at every branch, and the economics of making changes to every branch. Leading banks are using algorithms to optimize customer satisfaction with the branch network. The algorithm takes into account specific criteria, including customers' willingness to travel, the size and location of branches, the potential for modular branch concepts, and forward-looking metrics to produce a blueprint for network optimization. A Northern European bank recently conducted such an exercise. As a result, it dramatically lifted the rate at which key services were provided digitally: customer onboarding went from 30 to 50 percent, the provision of complex needs and advice from 30 to 50 percent, and simple services from 80 to 91 percent.

Use digital tools and analytics to enhance sales productivity

Leading retail and especially corporate banks are equipping their relationship managers (RMs) with a digital workbench. The need for greater efficiency and effectiveness in the sales force is an age-old problem, and digital offers extraordinary new solutions. RMs sometimes have trouble remembering details about the client and what they talked about in a previous meeting. They spend too much time looking for research reports that might be relevant to the client. And connecting clients

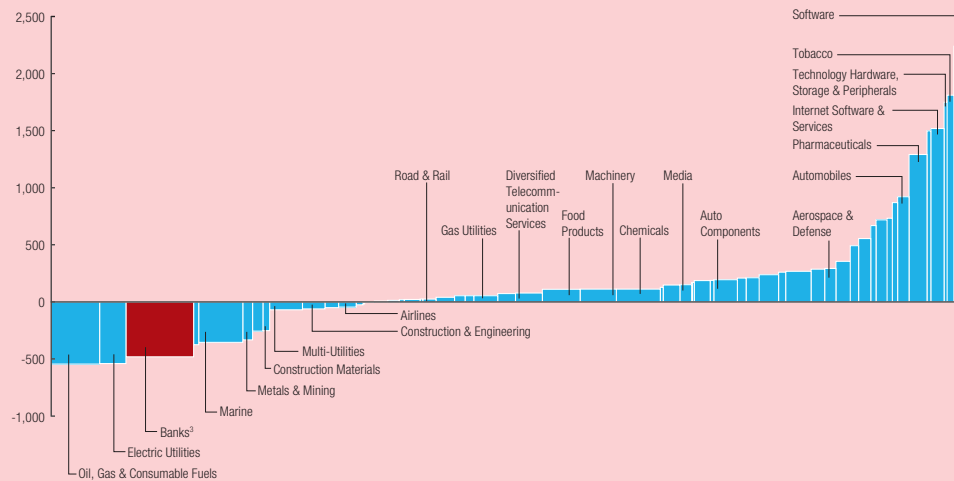
¹⁰ "The future of customer-led retail banking distribution," September 2017, mckinsey.com.

The future of financial intermediation

Exhibit B

Banking is not creating economic profit

Average economic profit¹ earned by companies in major global sectors, 2012–15
U.S.\$ millions, N=2,595²



¹ Economic profit by sector divided by number of companies

² Global top 2595 companies. Companies with revenues greater than \$1.5 bn

³ Includes 194 banks with revenues greater than \$1.5 bn

Source: McKinsey Strategy Practice and Corporate Performance Analytics™

As an industry, banking currently has a difficult time generating economic profit (that is, profit in excess of its cost of capital). A small number of institutions create all the value in the industry, while hundreds of others either create none or actually destroy it. Banking does worse than most other sectors (Exhibit B).

More evidence of banking's structural weaknesses can be seen in investors' views: banking lags all the other major sectors on both price/book (by 53 percent on average) and price/earnings ratios (by 48 percent) (Exhibit C). Both those gaps have widened in the past seven years.

We have detailed some of the industry's structural and per-

formance challenges. But the elephant in the room is digitization. Our research in this report demonstrates the negative effect that the digital economy is having on ROE and valuations.

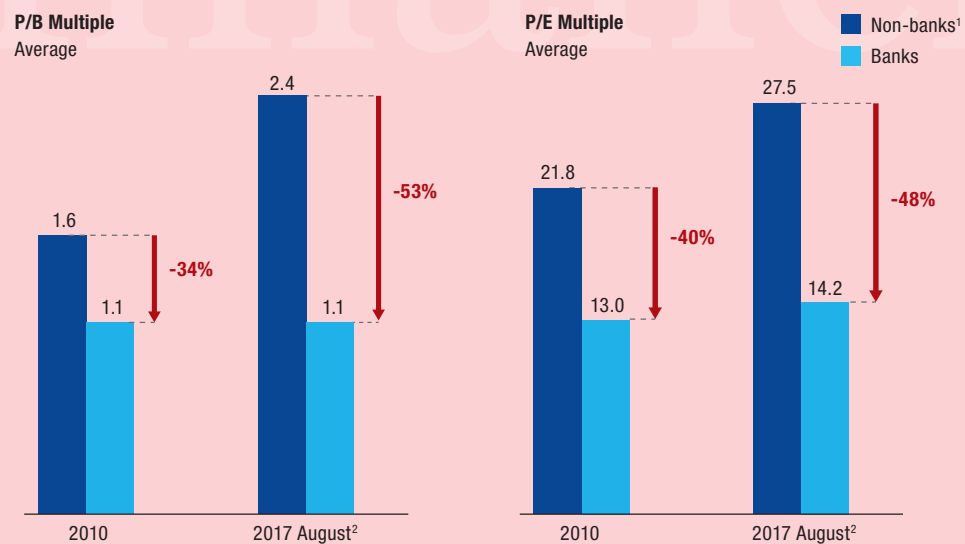
Others go further. Several observers have said that digital companies might displace banks altogether.¹¹ In our view, the digitization of the global economy will not remove the need for the fundamental services that banking provides — financing, lending and transactions. (Neither will distributed ledgers or the demise of cash, in our view, at least for some time.) But digitization does pose three questions that banks must answer.

The first concerns the customer. Are banks doing everything they can to justify their continued ownership of the customer

¹¹ See for example Ryan Browne and Arjun Kharpal, "Ex-Barclays chief says banking could face its own 'Kodak moment,'" CNBC, June 26, 2017, cnbc.com.

Exhibit C

Banking lags other industries in value creation and the gap is widening



¹ Includes Energy, Materials, Industrials, Consumer Discretionary, Consumer Staples, Healthcare, Information Technology, Telecommunication Services, Utilities, Real Estate, Other Financials (excluding banks)

² Market capitalization data as of August 15, 2016; end-of-year equity and earnings data used

Source: Capital IQ

relationship? We argue that banking, like many other industries, is poised to split into two halves, manufacturing and distribution. Today, the real prize is distribution; manufacturing is less attractive. That may change over time. But for now, the question is: will banks be able to keep their customer relationships and thrive in the world to come?

Another is about costs: How can banks cut costs further? A third question is about risk: Banking has always been a business of risk intermediation. Are banks utilizing all the data they have to produce better risk-related decisions?

As we suggest in the digital agenda outlined in this chapter, many steps are needed before banks can answer “yes” to these questions: they must offer a delightful, omni-channel cus-

tommer experience, a brand and value proposition that resonates with their customers, exceptionally fast decision-making powered by data, fully automated processes wherever practical, and so on. All of these are “no-regrets” moves that banks need to act on decisively.

Other questions are more difficult to answer. Perhaps the most significant has to do with profits. Even in a world with a surplus of savings, and interest rates that hover near zero, we think that capital managers like banks will still be able to charge for the use of their assets. But it is an open question whether the returns they earn will provide an economic profit and how long it will take to achieve. What is not debatable, however, is that preparing the bank for the digital age will hasten its progress on that quest.

to product specialists often takes days. Digital and analytical tools can help. Portfolio overviews, event alerts, risk-monitoring tools, prospect trackers, client action planners, pitch libraries, financial simulators, and dozens of others can be installed on a tablet, putting everything RMs need at their fingertips. One bank that recently developed a digital workbench saw the number of leads generated per conversation jump four-fold, while RMs' administrative time fell by half. As RMs need less time for client servicing they can spend more time selling, thus productivity rises.

In capital markets businesses, new ideas in sales and trading include client profitability dashboards that calculate the fully-loaded cost of coverage, including capital consumption and allocated operations costs, as well as new tools that track inventories more closely to better match buyers and sellers in illiquid asset classes and suggest the next product to buy. As banks ponder these ideas and others, they must think through the complex relationship between client needs, costs and competition. Many banks have made major forays into various electronic trading platforms, only to quietly pull the plug some time later. To avoid these problems, banks need to look in the mirror. Only the largest and best resourced banks can go "all in" on several digital trading efforts at once. These banks should be pursuing further investments in pricing, agency execution, and market-making algorithms in asset classes that are highly electronic, with the twin goals of winning the latency "arms race" and integrating more closely into clients' enterprise systems. Banks may

also have to move upstream in the investing business system, where they can offer risk management and other advisory services. Smaller banks, on the other hand, would be far better served by focusing tightly on protecting client franchises and reducing operating costs. They should avoid big bets on unproven technologies in a rapidly evolving marketplace. In many cases, they will realize that for them, technology is not a competitive advantage, and will outsource heavily.¹²

Finally, in a related move some leading corporate banks are digitizing their customer interfaces. Most large corporations in Asia, for example, have been operating in a fully electronic environment for several years, conducting all payments electronically and managing accounts, payments and liquidity through treasury modules integrated with enterprise resource planning systems. Banking technology is a priority for these companies, with 80 percent of corporate treasurers citing technology platforms — especially cash management, particularly mobile cash management — as a key factor in selecting a bank.¹³

No discussion of the digitization of payments would be complete without some mention of blockchain (or distributed ledger) technology. European payments leaders McKinsey surveyed expect that the technology will likely transform the business model for core cash management services, including domestic payments (in particular real-time payments, closed-loop or "on-us" payments, and domestic cash pooling) and cross-border payments.¹⁴ Other activities seen as a good fit for dis-

¹² Llywelyn Ap Gwilym, Fuad Faridi, Denis Francis, and Jared Moon, "Two Routes to Digital Success In Capital Markets," *McKinsey Working Papers on Corporate & Investment Banking*, No. 10, October 2015, mckinsey.com.

¹³ Chris Ip, Pine Kyaw, and Akash Lal, "Payments in Asia: At the vanguard of digital innovation," *McKinsey on Payments*, Volume 8, Number 22, October 2015, mckinsey.com.

¹⁴ Alessio Botta, Nunzio Digiacomo, and Raffaella Ritter, "Technology innovations driving change in transaction banking," September 2016, mckinsey.com.

tributed ledgers include trade finance, cross-border transactions, repurchase agreements, OTC derivatives, and fraud prevention.

Artificial intelligence and cognitive technologies are also having an impact on operations.

Industrialize operations through automation and artificial intelligence

Leading banks are digitizing their operations through software robots — programs that automate repeatable tasks. Robotic process automation (RPA) is already demonstrating great potential in the middle office of capital-market operations, where it makes brisk work of routine tasks like data extraction and cleaning. In trading-risk calculations, robots now download, validate and analyze the bank's positions. Some banks have cut the resources needed for the process by 95 percent and reduced the time required from 10 days to 20 minutes. Liquidity risk calculation is also proving to be amenable to help from robots.

Producing reports for money-market clients has already been automated at many banks, but some pioneering banks are going further. Robots can download and consolidate transaction data from different money-market desks and upload it into a web application for clients. The work is now completely automated.

In fact a wide array of activities — in operations, risk, finance, legal and other do-

mains — can be safely turned over to robots for greater speed, efficiency and reliability. Australia and New Zealand Bank deployed robots at-scale across the back office and achieved 40 percent cost savings on average. Barclays used robots to automate the process of bad-debt provision in its finance function, saving almost \$100 million annually. One major European payments processor developed machine-learning algorithms to “follow the money” across multiple banks, as it passed through various entities, accounts and geographies. The approach allowed investigators to identify the paths used by ‘mule accounts,’ greatly reducing the cost of money-laundering fraud detection.¹⁵

Artificial intelligence (AI) and cognitive technologies are also having an impact on operations. McKinsey Global Institute research suggests that 60 percent of all occupations have at least 30 percent of activities that are technically automatable.¹⁶ While the strategic and implementation challenge is particularly complex, three cognitive technologies are either ready to roll out or are already in pilots (and some can be used also in the front office):¹⁷

- **Machine learning:** Advanced algorithms can examine large data sets to identify patterns, helping make decisions in areas such as product control and trade surveillance. A major North American bank developed a machine-learning algorithm to better detect credit-card fraud. The algorithm was 80 percent more predictive than the bank's previous methods and 50 percent faster. More than 100,000 cus-

¹⁵ Stuart Breslow, Mikael Hagstroem, Daniel Mikkelsen, and Kate Robu, “The new frontier in anti-money laundering,” *McKinsey on Risk*, October 2017, mckinsey.com.

¹⁶ “A future that works: Automation, employment, and productivity,” *McKinsey Global Institute*, January 2017, mckinsey.com.

¹⁷ “Cognitive technologies in capital markets,” *Global Corporate and Investment Banking Insights*, Number 1, January 2017, mckinsey.com.

tomers annually received a higher-quality experience.

- *Natural language processing:* Machines can turn speech and text (including legal documentation and chat transcripts from call centers) into structured, searchable data that can be used to create customized email responses.
- *Cognitive agents:* Cognitive agents can combine machine learning and natural-language generation to build a virtual workforce, capable of executing tasks, communicating, learning from datasets and even making decisions based on “emotion detection.” Such remote advisors can also interact with bank workers, for example in employee service centers or help desks and in other internal contact centers.

Reimagine underwriting, using data and analytics

Digital pioneers are building truly data-driven underwriting processes and capabilities. Digital tools can reduce risk-weighted assets, shorten process times by making them up to 15 times more efficient, and avoid up to 30 percent of operational and credit losses.

A recent example from Europe illustrates what banks are doing. A mid-size bank with more than five million customers set out to digitize its mortgage underwriting.¹⁸ At the outset, processes were bedeviled by multiple loops of data entry (many involving the customer), repetitive verifications in different locations, disparate data systems with non-reconciling records, low performance credit engines requiring sub-

stantial manual adjustment, and legacy IT systems that could not produce a customer-pleasing digital interface.

Convinced by the business case, the bank built a modular credit engine, reusing and revamping existing analytics. Tools pull information from various sources to formulate a complete credit profile of the customer and determine whether the customer has sufficient cash flow. The bank built a digital fraud model and replaced simple fraud rules (such as location checks, as well as the volume and frequency of transactions) for opening and managing accounts. The model automatically estimates the key credit metrics of a mortgage and compares it with the bank’s business and policy rules derived from the risk-appetite statement.

In just six months, the bank went from nearly 95 percent manual decision making to 70 percent straight-through processing. The new process is not only less resource intensive, but also provides a better customer experience. Redundant data requests were eliminated and the previous two- to three-day approval time is now often less than a minute for most loans.

While many banks are digitizing their underwriting, the paragon is still the fintechs. Ant Financial has used big-data techniques to provide working capital to small merchants that were rejected by traditional banks; it has made \$117 billion in loans in four years and broke even after 12 months. Such fast growth would not be possible without a scalable, highly-automated system.

¹⁸ *The Future of Risk Management in the Digital Era*, The International Institute of Finance and McKinsey & Company, Inc., October 2017, iif.com and mckinsey.com.

Embrace cloud computing, open APIs, and other essential technologies

While the number of digital tools is expanding rapidly, some critical technologies are delivering outsized impact. Cloud computing is transforming data architecture and the IT “stack,” with the potential for up to 85 percent of the workload to be managed in the cloud. Together with established tools like DevOps and agile software development, cloud is rapidly accelerating time-to-market of new products and apps. McKinsey research finds that cloud and related technologies together can drive down run-the-bank IT costs by more than 30 percent.

Banks are also reorganizing their product and delivery teams, both to make these ideas a reality and to get the most out of them once they are up and running.

APIs and microservices are the heart of open banking, and many banks are feverishly building them. APIs are protocols that, among other things, enable third-party app developers to leverage a company’s aggregated data or selected services. European banks are creating open APIs in anticipation of PSD2, which will require them to share their customer data with fintechs and others.

Through APIs, banks can work around the challenges of their tightly coupled, monolithic legacy IT architecture and flexibly re-

spond to emerging customer needs. The shift to APIs should include the creation of a library of microservices — a set of small independent modules, loosely paired with clear interfaces, that provide individual services, such as looking up the next product a customer is likely to buy. BBVA has recently built a suite of APIs and microservices and calculates it has saved 10,000 hours in its product development process. One read-only API that BBVA built for its transaction data has enticed third-party developers to build 144 apps in 19 countries to use the data.

In compliance and other areas, shared digital utilities (a third essential tool) are helping banks lower costs by 40 to 50 percent. By cooperating with other banks in areas with little competitive advantage but major cost implications, such as know-your-customer compliance, vendor risk management, and market surveillance, banks can take out considerable costs.

Create an agile organization

Banks are also reorganizing their product and delivery teams, both to make these ideas a reality and to get the most out of them once they are up and running. Agile organizations are both stable (resilient, reliable and efficient) and dynamic (fast, nimble and adaptive). To master this paradox, banks must design structures, governance arrangements and processes with a relatively unchanging set of core elements — a stable backbone. At the same time, they must also create looser, more dynamic elements that can be adapted quickly to new challenges and

opportunities. In 2015, the Dutch banking group ING embarked on such a journey, shifting its traditional organization to an agile model, inspired by companies such as Google, Netflix and Spotify. With about 350 nine-person “squads” in 13 so-called tribes, the new approach at ING has improved time-to-market, boosted employee engagement, and increased productivity.¹⁹ At a leading U.S. consumer bank, nearly 90 percent of application development and maintenance is now done in an agile way.

Architecting the digital transformation

As banks consider the potential and relevance of the seven initiatives laid out above, they must also consider their execution. It is possible for banks to take on one or two initiatives at a time and ramp up from there — in fact, it is likely the only option for smaller banks. They must be careful not to let these individual efforts become solely a project for the relevant function; the results will be much stronger if the bank staffs a cross-disciplinary team.

A better way forward, particularly for larger banks with more resources, is to simultaneously implement all the relevant initiatives as part of a comprehensive digital transformation across the front, middle, and back offices. Many of these banks will want to hollow out the vessel of the old bank and replace it with a new digital power plant. One big bank redesigned 10 vital customer journeys, then digitized them using a “lab” approach and agile

teams. Over five years, it cut about 20 percent of its more than \$10 billion in costs, primarily through automation. Of course, this kind of program is quite challenging and must be led from the top to ensure focus and control. But it will get the work done more quickly and have greater impact. This comprehensive approach will also provide the bank with an opportunity to drive systematic change in the organization’s structure, mindsets and culture.



The agenda outlined above will help stem the digital tide. Yet even if we assume that the banking industry fully exploits the power of digitization (an unlikely outcome) and captures \$700 billion in annual bottom-line impact, the resulting ROE of 10.2 percent would not be an attractive outcome. For most banks, that is about equal to the cost of equity. More realistically, only half of this impact will be realized, as not all banks are willing or able to pull all the levers and some of the gains will be competed away. The resulting \$350 billion in annual bottom-line impact would lift the average bank’s ROE by about 2.5 percentage points to 7.7 percent — well below the cost of equity.²⁰ And banks in many parts of the world could face a new and more urgent digital challenge — the platform companies. As we discuss in the next chapter, for these banks, not only is digital transformation essential, but the business model itself may well need an overhaul.

¹⁹ Deepak Mahedevan, “ING’s agile transformation,” *McKinsey Quarterly*, January 2017, mckinsey.com.

²⁰ These scenarios are projections of core banking trends (growth, revenues, margins, profits, and so on) by McKinsey Panorama Global Banking Pools, using macroeconomic forecasts from the Economist Intelligence Unit for each country we follow. In many cases we have made country-specific assumptions. In the unmitigated disruption scenario, we collected pricing differences between traditional banks and digital competitors, estimated the progress of digital banking penetration, and concluded that 60 percent of the pricing gap would be closed in 10 to 15 years. To determine the pace of convergence in each region, we applied an S-curve (similar to other technology adoption trends). The curve proposes that in more digitally advanced regions, digital attackers will close the gap faster.



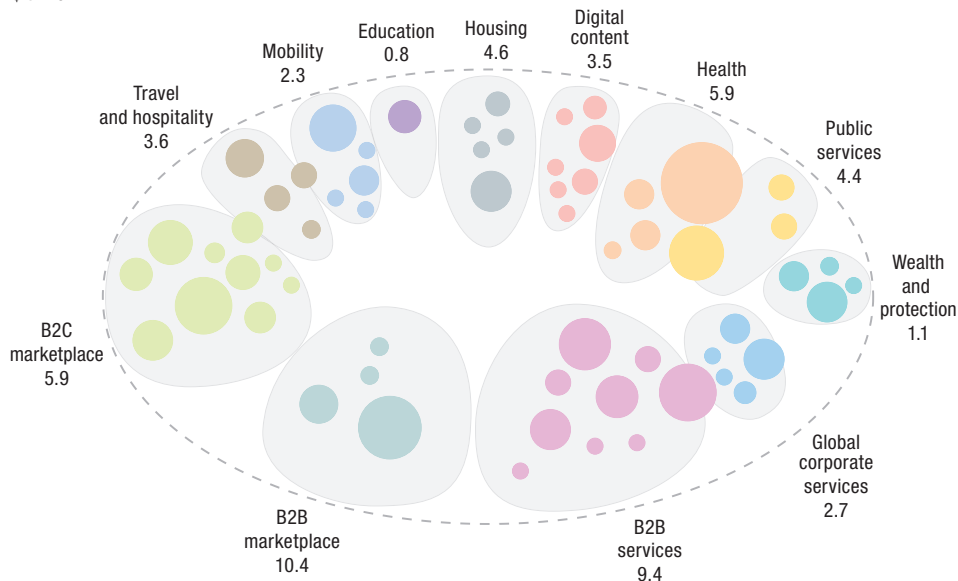
Finding Growth in an Ecosystem World

To restore profits, many banks will need to go further than the digital mitigation efforts we have outlined. The drivers of banks' economics are shifting away from the portfolio of businesses and countries in which they operate and toward the levers of management and operations. In that regard, no lever is as powerful as the choice of business model. In this chapter, we discuss the potential need to adapt the business model as economic structures change and propose several options for banks to consider. We then review the essential skills for success in the new ecosystem world.

Exhibit 12

New ecosystems are likely to emerge in place of many traditional industries

Ecosystem illustration, estimated total sales in 2025¹
\$ trillion



¹ Circle sizes show approximate revenue pool sizes. additional ecosystems are expected to emerge; not all industries or subcategories are shown
Source: IHS World Industry Service; McKinsey Panorama – Global Banking Pools, McKinsey & Company analysis

A new economic structure

We have studied the changes now unfolding as platform companies pursue their agendas. It seems quite possible that an increasing number of industries will coalesce into new, broader and more dynamic alignments: digital ecosystems.²¹ In these ecosystems, users will enjoy an end-to-end experience for a wide range of products and services through a single access gateway. Ecosystems will include diverse participants that provide digitally accessed, multi-industry solutions.

Already, nascent ecosystems are changing industry structures and shifting market power. Demand-side economies of scale (the network effect that platform companies are so adept at exploiting) are bur-

geoning, as each new user creates additional value for every other user on the platform. These economies of scale are rapidly eclipsing the supply-side economies of scale that were characteristic of the industrial age. Based on current trends, observable economic trajectories, and existing regulatory frameworks, we expect that within about a decade, 12 large ecosystems will emerge in the retail and institutional spaces. Their final shape is far from certain, but we suspect they could take something like the form presented in Exhibit 12.

Some bankers we have spoken with view our projections about an integrated ecosystem economy with a healthy dose of skepticism. Some think it is a mistake

²¹ Venkat Atluri, Miklos Dietz, and Nicolaus Henke, "Competing in a world of sectors without borders," *McKinsey Quarterly*, July 2017, mckinsey.com.

to extrapolate from what is mainly a Chinese phenomenon. We see it as a Chinese-first phenomenon that is soon to arrive elsewhere (see “First China, then the world” on page 36). And some say that the idea, while provocative, is so far removed in time and likelihood as to seem like science fiction.

Pipe dreams have become reality countless times in recent decades. Look no farther than cellphones, music and video in the cloud, the smart watch or the TV.

But pipe dreams have become reality countless times in recent decades. Look no farther than cellphones, music and video in the cloud, the smart watch or the TV. Or consider the 89 million customers now accessing Ping An Good Doctor, where on a single platform they can connect with doctors not only for online bookings, but also to receive diagnoses and suggested treatments, often by exchanging pictures and videos. What used to take many weeks and multiple providers can now be done in minutes on one app.

Another obstacle frequently mentioned by skeptics is regulation. In many jurisdictions, banks are currently prohibited from selling products and services other than those for which they are chartered. And most banks believe that regulators will prevent non-bank platform players from overtly disrupting the established banking order. If

non-banks remain simple aggregators of banking services, and stay mainly in distribution, they will face less scrutiny. But regulators' stances are changing quickly (as seen in China, Singapore and the U.K., among others) and are likely to evolve further. It is possible that the borders around banks will give way in favor of a level playing field. If non-banks are allowed to sell banking services, banks can argue that it is only fair that they be allowed to sell non-banking services. Regulators would likely agree, if they are persuaded that such a move would actually enhance the health of the financial system.

Will the global economy reconfigure into digital ecosystems, as we envision? No one knows. But as Bill Gates famously said, “We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next 10. Don't let yourself be lulled into inaction.”²² Amazon, Facebook and Apple have all made platform-expanding moves into banking. Banks should consider the possibilities and prepare.

Why banks can thrive

Banks already possess three vital ingredients for ecosystem success, starting with the customer's trust. New research shows that among the companies that are likely to be participants in the integrated economy, banks and insurers are not only near the top of the most-trusted list, but also several times more trusted than social media firms, telcos, technology companies, and retailers. In fact, even though customers in developed markets do not particularly like banks, they still trust them to

²² Bill Gates, *The Road Ahead*, Viking Penguin, 1995.

First China, then the world

The clearest and most successful examples of digital ecosystems are those created by two Chinese companies: Alibaba and Tencent. This leads some to conclude that ecosystems will be mainly limited to China. It is true that the Chinese internet is unique. China is by far the largest e-commerce market in the world, twice as large as the U.S. Online business (including banking) benefits from a highly favorable regulatory regime. The Chinese online audience is also enormous, offering rapid scale-up opportunities to entrants; already, 500 million people use online financial services. Even so, many Chinese consumers and businesses are still under-banked — leaving tremendous latent demand. And customers, especially the young, are happy to bypass traditional banks and take up online products or services.

And yet, two similarities between China and other markets outweigh the differences. The first is the nature of demand. Everywhere, consumers and businesses want the same things from their bank: ease of use, a simple experience, innovative services, and so on. For all the reasons cited, China has been faster to satisfy this demand. But other markets may soon catch up. Second, China's banks have long enjoyed hefty margins, although these have fallen recently. Margins in other markets are thinner but still attractive to the platform companies. As Jeff Bezos says, "Your margin is my opportunity."²³

Further, even some of the uniquely-Chinese features are falling away. Already, there is some convergence in regulation, as countries like India, Singapore and the U.K. loosen the restrictions on non-banks.

²³ Morgan Housel, "The 20 smartest things Jeff Bezos has ever said," *The Motley Fool*, September 9, 2013, fool.com.

provide secure services and manage their data well. Even millennials feel this way. However this advantage might be short-lived, as non-banks are better at exciting clients. Seventy-three percent of U.S. millennials say they would be more excited about a new offering in financial services from Google, Amazon, Paypal or Square than from their bank — and one in three believe they will not need a bank at all. As Dave McKay, CEO of Royal Bank of Canada, says, "Trust and security are key assets. They buy us time."²⁴

Customer data is another essential ingredient. Banks' information on customers is second to none. Most hold vast, unique data sets about both retail and corporate

clients: transactions, demographics, income, call-center notes and chat transcripts, website usage logs. And with their strong position on trust, banks can probably more consistently obtain consent to use that data than most other companies. Further, by combining their financial data with other customer data sets, banks can develop deeper insights into the preferences and behavior of consumers. Banks are keenly aware of the potential. One CEO says, "We still have one significant advantage, which is the vast array of financial and non-financial data that we accumulate. This information reveals a lot about habits, tastes, needs and aspirations. Banks need to turn it into knowledge and use that knowledge to

²⁴ Barbara Shechter, "RBC CEO warns bank is on 'collision course' with Apple and Google as mobile banking takes off," *Financial Post*, March 10, 2015, financialpost.com.

provide users with exactly what they want, precisely how and when they need it.”²⁵

Owning data is essential, but banks will also need to leverage it superbly. Data management needs to become a core competency and is something many banks still need to work on. Here, too, time is of the essence, especially in Europe as PSD2 approaches. As banks increasingly open their systems to third-party developers, the advantage of data ownership will in all likelihood fade away.

A third ingredient is regulatory experience. Due to all their regulatory work over the past decade, banks have exceptional skills. They have created stores of knowledge about compliance and built strong relationships, based on a mutual understanding, with regulators. In crucial discussions about data privacy and consent, regulatory skills could be an advantage for banks.

Early responses

Banks around the world have started to capitalize on their customers’ trust and data to build distinctive, end-to-end customer experiences in which they offer both banking and other services. Exhibit 13 (page 38) lays out the landscape; several banks are pursuing at-scale ecosystem ventures in each of the areas shaded dark blue. The ecosystems springing up around B2B marketplace, wealth and protection, B2C marketplace, and housing seem to be the most relevant for the banks that have taken these preliminary steps, and potentially the ones with immediate revenue potential. In these systems, banks can often charge

commissions or sell points in loyalty programs. Other systems may offer different advantages, such as the ability to acquire customers at low cost.

Danske Bank offers an instructive example. Its Sunday.dk platform in the housing ecosystem includes a search engine to find listings and tools to book viewings, request pre-approval for a mortgage, build a housing budget and calculate the fair price of a home based on comparables. The platform also helps with the experience after the purchase — users can get assistance with transferring television and Internet subscriptions, new furniture deliveries, and packing and moving.

In the 2000s, Capital One pioneered the use of advanced analytics to expand its card business. Today, it is also moving into digital ecosystems. Its Auto Navigator app uses the bank’s auto-financing business as a foothold in the mobility ecosystem. The tool allows customers to browse more than 3 million cars from 12,000 dealers. It has dramatically simplified the purchase and finance process — in particular knotty, time-consuming questions about warranties and finance rates and terms.²⁶

The value at stake

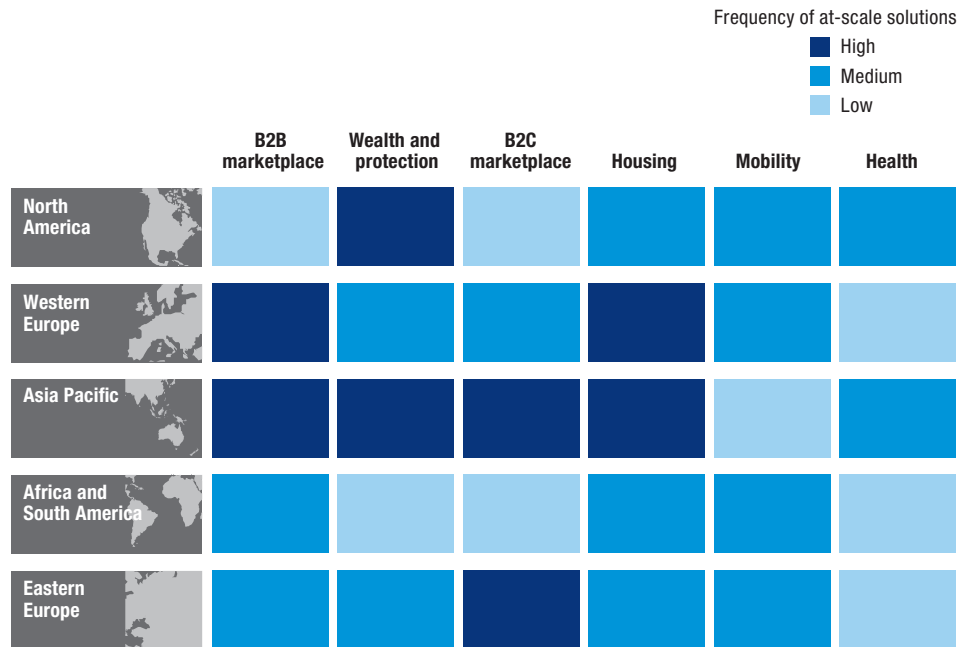
Why can the ecosystem strategy be so powerful for banks? Primarily because it puts them firmly on a path to improved profit in their core business in two ways. First, a powerful platform will help retain customers and improve cross-selling and could add 1.9 percentage points to ROE. Second, with a network of partners and a

²⁵ Francisco Gonzalez, “Banks need to take on Amazon and Google or die,” *Financial Times*, December 2, 2013, ft.com.

²⁶ Shawn Shinneman, “How an innovation at Capital One “turbo-charged” the organization,” *Dallas Business Journal*, August 22, 2017, bizjournals.com.

Exhibit 13

Banks around the world are starting to provide customers with distinctive end-to-end experiences



Source: McKinsey & Company analysis

digitally-sophisticated platform, banks can acquire customers for a fraction of the cost they are used to. Partners with big customer bases present extraordinary opportunities. With good data, banks can develop insightful underwriting strategies. Lower acquisition costs will lift ROE by 0.5 to 1.0 percentage points, in our estimate.

New non-banking revenues are less certain. It is likely that only the most successful banks will fully attain the potential. But any revenues that banks add will require little or no regulatory capital, offering high-margin returns. Moreover, it is possible that the revenues from non-banking activities will be valued by capital markets

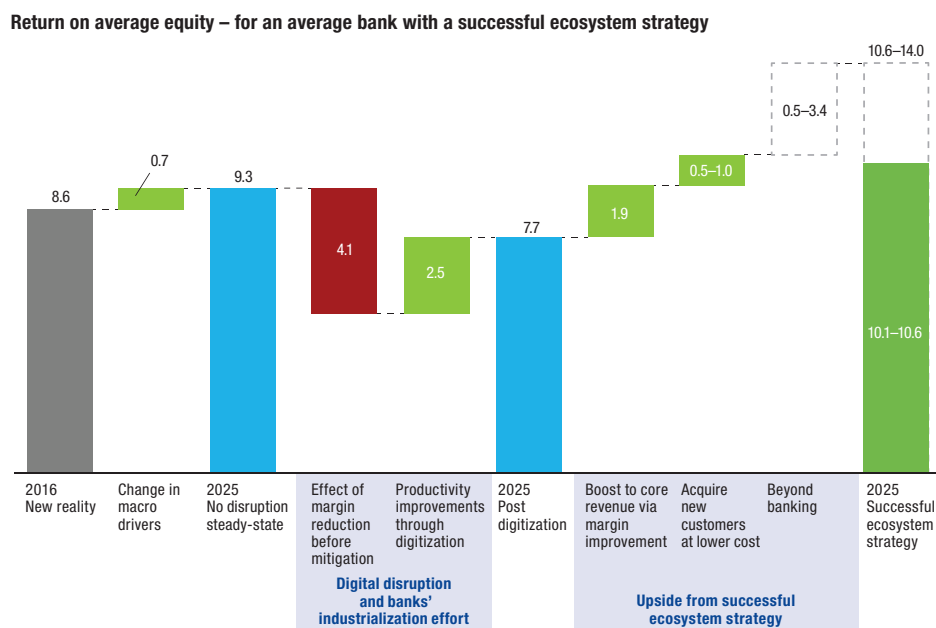
at multiples similar to those of technology companies. There is some potential for a virtuous circle, as excellence in digital banking can create a “halo effect” for other digital services and vice versa. Customers that enjoy a digitized mortgage experience, for example, might be more willing to try a bank's full suite of housing offerings. These effects are not included in our estimate, however.

We estimate that a successful ecosystem strategy including these non-banking revenues would raise ROE into the mid-teens, for the most successful banks (Exhibit 14).

No bank has done this yet, so our estimates are derived from an analysis of previous technology adoptions, the

Exhibit 14

Banks that execute a successful ecosystem strategy could restore their ROE to double digits



¹ Average results across sectors and geographies, generally more severe in consumer finance, payments, and AM/WM sectors (up to 20%+ in UK and Japan)
Source: SNL, McKinsey Panorama – Global Banking Pools

economics of digital banks, fintechs and platform companies, and interviews with bankers and McKinsey experts.

Consider what a successful ecosystem play might look like for two hypothetical banks. In both cases, we have estimated the full potential; we think it more likely that banks can achieve half that:

- A medium-sized bank chooses to participate in a single ecosystem, e.g., housing. Assume that it meets the prerequisites for success, builds the necessary skills, and executes well. It can expect to capture up to 15 percent of its ecosystem, which itself captures 15 percent of all the housing-related revenues in the region. The result would

be an additional 0.9 percentage points of ROE (Exhibit 15, page 40).

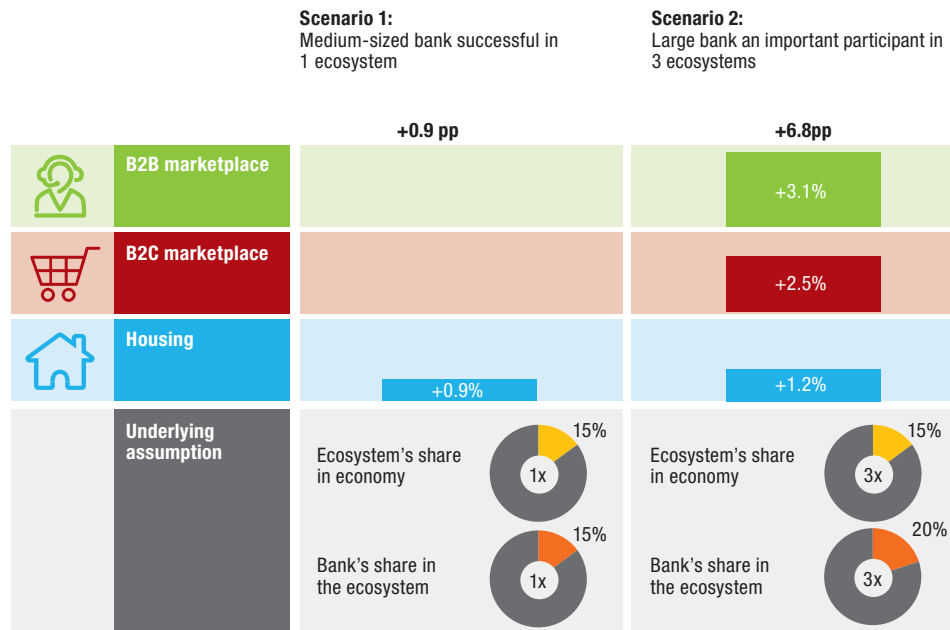
- A large bank might elect to participate in three ecosystems. If it has the right assets in place and makes the right moves, it might add 6.8 percentage points to its ROE.

The strategic choice

We do not assert that ecosystem operators will conquer every banking market. In many cases, it seems likely that banks can successfully defend their industrial borders for a few years. For example, some big national banks that offer a fairly comprehensive set of services are producing returns that exceed the cost of equity. Such banks might legitimately

Exhibit 15

Over time critical-mass ecosystem participation can create highly varied but significant revenue uptick



Source: McKinsey & Company analysis

postpone a reckoning with the platform companies and stick with their current business model for a few years longer.

In other markets, it is possible that as ecosystems develop, they will infringe only slightly or not at all on banks' products and services. And even in markets where banking comes under attack by digital companies, participating in the ecosystem may not be the best move for every institution. Many banks will not have the right starting combination of assets, including trust and customer data, and also regulatory freedom and scale. For them, two other options are available.

One, the *white-label balance sheet operator*, will see banks greatly expand their

balance sheets, as they lend to companies with stronger customer relationships. This model is narrowly focused on wholesale activities. China Industrial Bank is creating a platform to help smaller banks manage assets and liabilities, liquidity, capital, and even IT. The model is not too different from the classic asset management model of manufacture and distribution. In fact, China Industrial Bank also helps banks package their assets into wealth management products they can sell to their customers. Today, many banks are considering this option. Pricing is a concern: if banks are cut out of the primary customer relationship, can they set prices high enough to make a return? In many cases, the answer is yes. Banks

with a strong share of a region's capital can still enjoy adequate pricing power.

A second option is to become a *focused or specialized bank* that concentrates on either a business line (e.g., affluent or private banking, or investment banking), a specific segment of the banking value chain, a product category, a geography, a customer segment, or a service model, such as the stand-alone digital bank. Airbank, a Czech digital-only bank, has already reached breakeven. UBS has elected to focus on wealth and asset management. A major Chinese regional bank has zeroed in on a couple of agricultural sub-segments. Banks that choose the focused play will be stepping back from the ecosystem opportunity and will typically have to reduce their scope of activities considerably. Through a combination of moves, focused players can preserve their margins and bottom lines, though probably not their growth. Several institutions are piloting digital-only corporate banks, aiming for best-in-class service, multi-channel capability, and 24/7 availability through a virtual RM. To deliver on these aims, they are automating credit decisions below specified thresholds and innovating new products, such as a payroll solution delivered through an online self-service module.

Tiger by the tail

But for those banks that are strongly endowed with the right capabilities and the aspiration to achieve industry-leading profits, the ecosystem strategy offers the best chance of success. Banks can choose the degree to which they want to

participate. They can jump into systems created by others, or can potentially create an ecosystem from scratch. They might adopt one role in a given ecosystem and another in a different system. Moreover they might take a certain stance in one partnership and a different one elsewhere. To think through their options, banks should take stock of their assets and capabilities to see what they have to offer in each of three areas of the ecosystem: the customer interface (where strong brands and relationships are needed), intellectual property (such as outstanding customer data, bearing in mind the changes to come with PSD2, or superior technology), and operations (where skills in managing technology, loyalty systems, coupons, distributed ledgers, and other activities are paramount). These three areas correspond roughly to the traditional elements of the business system: marketing, R&D, and manufacturing.

The most basic ecosystem strategy calls for the bank to join a partner's platform as a participant, primarily to cross-sell to new customers. If the bank's back-office skills are strong, it might instead provide capital and banking services to platform players. Or it might gain a toehold by simply buying customer data and later some technology and other intellectual property. To participate successfully, banks will likely have a significant cost advantage or perhaps some unique resource (most obviously a banking license in areas where these are hard to come by). They will not need strong technology, other intellectual property, or particularly strong customer relationships.

Consider Orange Finance, the collaboration between Orange Poland, a telco, and mBank. This service makes it easier for customers to bank on mobile phones and to secure credit. It has attracted 345,000 customers, including 165,000 who have applied for credit and 85,000 who have set up a savings account. Similarly, The Siam Commercial Bank has partnered with several local taxi companies to create SCB Prompt Pay, a money-transfer service. The bank expects 10,000 taxis to join this year and sees the project as a pilot to encourage broad use of their money-transfer service.

This is the role that Tencent's Wechat platform is filling so well. Its platform covers ecosystems including mobility (through a partnership with Didi), travel (where it has joined with eLong, a top Chinese online travel agency), and dining (where FoodPanda and others provide the products, purchased on the Wechat platform).

Where banks have identified a “white space” — an unmet customer need — and no strategic partner can be found, they can create a new ecosystem. To do this successfully, banks have to build their own platform and digital services to meet the perceived needs. Ping An did this, when it developed digital services for customers to schedule doctors' appointments or swap houses during the holidays. The Chinese insurance giant also acquired some digital service providers and established a platform of services that it owns and provides. Healthcare, auto, housing and banking services are available from Ping An subsidiaries to its more than 350 million online customers.

Where banks have identified a “white space” — an unmet customer need — and no strategic partner can be found, they can create a new ecosystem.

A second and deeper strategy calls for banks to take on the difficult challenge of meshing their business system with those of partners as an orchestrator. Where high-quality partners can be found in adjacent sectors (such as telecoms or transport), banks can build a platform that connects third-party services between these sectors and banking and provides a seamless customer experience. To do this well, banks will need strong technology, customer data and other IP, and healthy relationships with customers.

Essential capabilities for success in an ecosystem world

Any bank that wants to succeed in the age of bits and bytes will want to ensure it has digital chops. But achieving success in an ecosystem world requires more. Banks need to have the speed and flexibility to change shape in response to a fluid environment.

As a first step, banks must work to inculcate a new mindset in their organizations.

There are good reasons why banks are often described as stodgy and conservative. But banks that are afraid to experiment, to stumble, to even occasionally fall cannot hope to succeed in the years to come. Drastic improvement requires drastic changes. Banks need to accelerate their pace and focus relentlessly on getting things done. Many banks think they cannot possibly do more than they are currently doing. But more is precisely what is needed.

- Modernize the bank's IT to unleash the value of data.

Organization: New structures, new mindsets

For its structure, the digital-ready bank can look to companies like Haier, the Chinese industrial firm, which has taken to heart the concepts of open innovation.²⁷ It flattened its structure, which had two main effects: streamlining decision making and making sure that everyone in the company is more closely connected to the customer. And it reconceived its business as two interconnected groups. One is the corporate platform, including all the resources that the business needs: R&D, manufacturing, finance, marketing, and so on. The other is a set of "micro-enterprises" — teams dedicated to listening closely to customers, developing products and nurturing them to sustained success. Micro-enterprise teams are entrepreneurial, as the name suggests, and use agile ways of working — much like ING does in its corporate center.²⁸ Haier set up more than 200 micro-enterprises, half of them with revenue of more than RMB 100 million (\$15 million). These structural changes had much to do with its annual revenue gains of 27 percent and annual profit increases of 20 percent, in the 11 years from 2005 to 2016.

To form these types of teams, banks could establish an "incubator" that considers proposals, allocates budget and encourages teams to draw on the platform to get what they need. One technique that both Haier and Ping An use is to set teams in competition with one another to see which team can best address a demonstrated

There are good reasons why banks are often described as stodgy and conservative. But banks that are afraid to experiment, to stumble, to even occasionally fall cannot hope to succeed in the years to come.

Beyond the change in mental models, we see four essential steps to ecosystem success:

- Organize into two main units — a platform of vital resources and an at-scale "incubator," operated as a venture-capital unit
- Create a culture that encourages transparency and entrepreneurship and align KPIs and the compensation structure accordingly
- Actively form and rigorously manage multiple partnerships across ecosystems

²⁷ Neelima Mahajan, "Haier is disrupting itself — before someone else does," *CKGSB Knowledge*, Cheung Kong Graduate School of Business, October 2016, ckgsb.org.

²⁸ "ING's agile transformation," *McKinsey Quarterly*, January 2017, mckinsey.com.

customer need. Another idea, the open workspace, can help the bank develop the kinds of informal knowledge networks that often make or break such projects. Google Hangouts are a digital way to loosely organize informal networks. Google is also a big believer in the video-conference: it says that on an average day, it holds 25,000 of them.

core business, to keep it separate from other businesses. They might want to do so anyway to limit risk exposure and because the two types of businesses will require different performance metrics. To create fertile ground for innovation, banks should look beyond ROI to consider each business's long-term potential and the contribution it makes to the customer experience.

Banks need to allocate and shift resources as circumstances change to stay ahead of a rapidly changing marketplace.

For such agile micro-enterprises to flourish, banks need to operate the incubator as venture capitalists would. Banks are expert at calculating risk to the tenth decimal point. But they are less comfortable with risks that are hard to quantify. A venture capital mindset would help them navigate these new challenges. VCs have no problem with multiple failures, so long as there are exponential winners to pay for them. Banks need to allocate and shift resources as circumstances change to stay ahead of a rapidly changing marketplace. Ping An budgets about 1 percent of group profits to invest in new ideas.

In fact, banks can go further and apply the same kind of VC-like scrutiny to their portfolio of businesses. They might start by looking separately at their regulated and non-regulated activities. Regulation might require banks to ring-fence their

People and culture: More entrepreneurs, fewer bankers

Banks' current talent pool is naturally skewed toward the skills that make for a successful banker: financial expertise, risk awareness, sales acumen. But the seismic shifts underway mean that banks need other skills, and soon. In our view, within a decade or so, two-thirds of bank employees will likely be technology and data specialists, and just one-third will be people with the traditional banking skills.

Sourcing, training and retaining this new talent will obviously be critical. This includes developers, designers and data scientists, where a supply gap has emerged and will likely endure or even grow over the next decade. But the effort should also include talented entrepreneurs, as well as experts in operations, processes and industries. Banks will be hiring for many of these roles through their partnerships and acquisitions. Once again, Google is showing the way, through its "smart creatives" approach to hiring: it looks for people with distinctive technical ability, business sense and the creative impulse to challenge the status quo.

Banks should start now to build the entrepreneurial, open culture needed to attract new talent and keep them engaged. Google helps teams align their objectives clearly through weekly and quarterly communications. It values peer feedback more heavily than managers' comments in its regular 360° performance assessments. And a "thank you" app allows peers to register their appreciation for one another — and every such acknowledgment lifts the recipient's salary by \$100.

It is unlikely that banks can get where they need to be under their own power. They will have to take on new partners and acquire digital firms to add skills in technology and in the new businesses they want to enter.

At Alibaba, a vibrant culture features tolerance for failure, an esteem for peer learning, and a collegial non-hierarchy. The company does not use names; rather, "Alipeople" choose their own nickname, many of them drawn from kung fu novels. Work schedules are voluntary and left to employees' discretion. The company uses powerful incentives to encourage the behaviors it needs. Twenty percent of stock grants are distributed to the entire workforce, not just managers. And incen-

tives are tied to a formula — 50 percent is based on performance and 50 percent on values, such as customer-centricity.

Partnerships

It is unlikely that banks can get where they need to be under their own power. They will have to take on new partners and acquire digital firms to add skills in technology and in the new businesses they want to enter. Alibaba, Baidu, Tencent — all have entered into a dozen or more partnerships, adding capabilities at every turn. In capital markets, some banks are partnering with non-bank market-makers and high-frequency traders to defray tech spend, access their algorithms, and bypass legacy infrastructure to capture their partners' cost per trade.

To do this well, banks will need to choose among a range of models, including commercial arrangements in which they buy what they need, strategic alliances involving exchanges of data and other assets, and equity-based partnerships including investments, joint ventures and acquisitions. Banks will need industrial-scale partnerships and M&A capabilities executed at high speed to reach deeply into dozens of industries to find the skills they need.

For this to work, banks must have clear partnership goals: firm ideas about what they want to do, with whom, and how to do it. We suggest a three-step process:

- **Find the right fit.** A prospective partner should be able to demonstrate a sustainable business model and finan-

cial stability. The best digital companies have an ultra-clear value proposition to their customers; this must align with the bank's core business and its planned expansions. The partner's mix of capabilities and assets should yield some easily grasped synergies. For example, an ideal partner will have a large user base within geographies and sectors that match the bank's strategic direction.

- **Execute.** Banks need to consider the partner's culture and structure and not assume that the venture needs to involve all of the partner company. Tencent, for example, focuses intently on the products it wants to add. Cultural considerations include speed of work. Digital companies move much faster than banks, which will have to learn how to match their partners' processes and ways of working.

Digital companies move much faster than banks, which will have to learn how to match their partners' processes and ways of working.

Data and technology

As a first step, banks must find ways around the problems presented by IT systems that are sometimes 30 or 40 years old. The challenge is compounded by the imminent arrival of the General Data Protection Regulation (GDPR) in Europe, which will put banks on the hook to better account for, manage and share their customers' data.²⁹ Modernizing the bank's technology is essential to capturing the efficiencies of digitization and to prepare for the ecosystem world. Modernization has three primary thrusts.

A chief concern is the operating model. Banks must shift to high-performing, cross-functional, fully agile teams. Simultaneously they must realign business and technology ownership, and funding models, with the value at stake. Second, they must lay a foundation for continuous integration and delivery, by automating the software development cycle, including automation of tests, releases, provisioning and monitoring. The third thrust concerns the data architecture. At most banks, it must be overhauled, to promote agility,

- **Develop an operating model.** Data ownership is a paramount consideration; banks will need to be clear from day one on who owns what. Another is expertise. From a distance, it is difficult to understand exactly what kinds of expertise (in digital marketing, analytics, etc.) digital partners might have. Banks will have to look closely and inventory these skills, then develop an operating model to get the most out of them. If the partnership does not yield all the desired competencies, banks should develop a back-up plan to tap other companies. Finally, banks must ensure commitment from both sides, likely by involving senior leadership early.

²⁹ Daniel Mikkelsen, Kayvaun Rowshankish, Henning Soller, and Kalin Stamenov, "Tackling GDPR compliance before time runs out," *McKinsey on Risk*, August 2017, mckinsey.com.

scalability and innovation. Two technologies are critical to these goals: cloud, and open banking.

Cloud computing is now de rigueur for most large banks and companies. The trend has been well documented. But the potential of the cloud is nowhere nearly exhausted. Digital companies that rely on the cloud are demonstrating extraordinary gains in productivity. China's Webank says that its IT costs per user are just 5 to 20 percent of competing banks. Similarly, Alipay has reduced its cost per transaction to just RMB 0.02 (or three-tenths of a U.S. cent), well below rivals' costs.

Webank's approach merits closer examination. Its hybrid cloud architecture uses open-source technologies and cloud-based hardware. Its systems are loosely coupled to avoid the systemic risks of centralization. The hybrid system is designed to meet the goals of cost efficiency, availability and risk avoidance, by exploiting the tools of scalability and modularity. The bank's team of more than a thousand people is 60 percent focused on IT; the others are general staff needed for a banking business. It deploys its staff in agile teams of 10 or so, including business analysts, software developers, analytics quants and quality-assurance managers. All work to deliver rapid, flexible solutions for the businesses they serve. Webank can expand any given service in one day and run a newly-acquired data platform on its systems within a month.

Data engineering and advanced analytics. As banks modernize their IT and revamp their architectures, they should

also lift their data management practices to the next level. Best-in-class data practices can enable the analytics that are so vital to the digital bank and unleash the full value of data.

Succeeding in an ecosystem world requires excellence across the value chain, from data ingestion, to clean-up, to quality management, and finally to the analytics tools that enable insight. Banks are making significant moves across all dimensions. BBVA is leading the way in data collection. Data Republic, a subsidiary of Westpac, is doing the same in data aggregation. It has created a data marketplace that is now producing new revenue for the bank. In analytics, Ant Financial has used big-data techniques to provide working capital to small merchants that were rejected by traditional banks; it has made \$117 billion in loans in four years, and broke even after 12 months. Taobao's Shengyicanmou (Business Advisor) service, which provides analytics service with a user-friendly dashboard to its vendors, uses transaction data analysis to provide its customers with insights on sales performance, industry macro trends, and consumer preferences. It is already providing insights to its clients on more than 6 million of their customers.

Public concerns about how organizations procure, use and ultimately own customer data are growing, and new regulation that provides consumers with privacy protections is accompanying the explosion in new data. For instance, the EU's GDPR will strengthen online privacy rights and

harmonize data-protection rules. Banks must be sure to maintain appropriate data standards and policies, as well as robust remediation programs.

In response to privacy regulations and to capture the business opportunities, leading banks are establishing enterprise-wide governance capabilities. These include councils to drive consistent decisions, accountability models to enforce natural points of ownership, common taxonomies and dictionaries to ensure transparency of data and its use, quality measures to ex-

pose deficiencies and inform remediation, and lineage and metadata to ensure authorized sourcing and use.



In the coming years, banks must continue to build digital capabilities and skills. But the rapid pace of digitization means that banks must also rethink their business models for the ecosystem era. We hope that this report provides useful ideas to bank leaders, as they seek to address the threats and capitalize on the opportunities of the digital age.

Miklos Dietz

Matthieu Lemerle

Asheet Mehta

Joydeep Sengupta

Nicole Zhou

For McKinsey Panorama: Attila Kincses, Shikha Gupta, and Miklos Radnai

Editor: Mark Staples

The authors would like to thank Gautam Chhugani, Sanjay Jain, Alan Morgan, Radboud Vlaar and Fred Wang for their contributions to the report.

The authors would also like to thank their many colleagues in McKinsey's Global Banking Practice, in particular Kushe Bahl, Raphael Bick, Szilard Buksa, Eugenia Chen, Daniele Chiarella, Ricky Choi, Violet Chung, Vito Giudici, Philipp Härle, Andras Havas, Vinayak HV, Paul Jenkins, Allison Kellogg, Somesh Khanna, Yongah Kim, Akash Lal, Joy Long, Joseph Luc Ngai, Jared Moon, Karthik Moorthy, John Qu, Pedro Rodeia, Simone Schöberl, Sha Sha, Zubin Taraporevala, Renny Thomas, Jeannie Tse, Kelvin Wei Wang and Yolanda Zonno, for their contributions to this report.

Appendix

Definition of metrics and common terms

- 1. Return on equity (ROE).** Total accounting net income after taxes divided by average total equity
- 2. Revenue before risk.** Revenues before loan loss provisions
- 3. Revenue margin.** Revenues before risk cost divided by average total assets
- 5. Risk cost (margin).** Loan loss provisions divided by average assets
- 6. Cost-to-income ratio.** Operating expenses divided by total revenue pools before annual provisions for loan losses
- 7. Capital ratio.** Tier 1 ratio, calculated as Tier 1 capital/risk-weighted assets
- 8. Loan-to-deposit ratio.** Total non-securitized customer-lending volumes divided by total customer-deposit volumes
- 9. Price-to-book value or ratio (P/B).** Market capitalization divided by average total equity less goodwill
- 10. Fintechs.** Financial technology firms/technology innovations in the financial sector, originating from start-ups, banks and non-bank players

Databases used in this study

Three primary databases were used to derive the data aggregates presented in this report.

Panorama—Global Banking Pools (GBP). A proprietary McKinsey asset, Global Banking Pools is a global banking database, capturing the size of banking markets in more than 90 countries from Kazakhstan to the United States, across 56 banking products (with seven additional regional models covering the rest of the world). The database includes all key items of a balance sheet and income statement, such as volumes, margins, revenues, credit losses, costs, and profits. It is developed and continually updated by more than 100 McKinsey experts around the world, who collect and aggregate banking data from the bottom up. The database covers the client-driven business of banks, while some treasury activities such as asset/liability management or proprietary trading are excluded. It captures an extended banking landscape as opposed to simply summing up existing bank revenues, including not only activities of traditional banks but also of specialist finance players (for example, broker/dealers, leasing companies, and asset managers). Insurance companies, hedge funds and private-equity firms are excluded. The data covered for each country refer to banking business conducted within that region (for example, revenues from all loans extended, deposits raised, trading conducted, or assets managed in the specific country). The data cover 18 years in the past (2000–17) and 7 years of forecasts (2018E–25E).

Panorama—FinTech. A proprietary McKinsey asset, Panorama FinTech is a curated multi-dimensional searchable database cataloguing financial technology (Fintech) innovations globally. The database contains more than 3,000 Fintech innovations from around the world categorized across eight dimensions relevant to banks and insurers, such as customer segment, banking product and value-chain segment. It has deep-dive profiles on more than 1,000 of these innovations, including key functionalities, distinctive features, impact potential and achievements to date. The database is developed and maintained by a team of Fintech experts and is continually expanded based on the latest research findings.

SNL Financial. A database of the key profit-and-loss, balance-sheet, and other financial metrics of big banks. Our analyses are made on aggregated figures from the top 1000 banks by assets. All banks are clustered individually into countries (based on their domicile) and regions. The data cover six years (2010–15), with a varying number of banks available in different years.

