

# THREE FACTORS ENTRENCHING BIG DATA IN FINANCIAL SERVICES



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## Introduction

The definition of Big Data is rapidly changing within the financial services industry—pivoting from a measure of volume, variety, and velocity to an evaluation of systems-enabled strategy. Whereas most of the discussion has revolved around the challenges of managing petabytes of unstructured data-in-motion, in practical terms, the most important questions relate to the potential of analyzing full data sets spanning multiple silos: the option to combine many data formats and structures in a single project, delivering much faster speed to insight and greater iterative flexibility.

“The only way as a firm we really can compete—what is our fundamental differentiator—is our intellectual capital.”<sup>1</sup>

MORGAN STANLEY

The most successful information-driven firms are using a modern infrastructure to go beyond future-proofing the data center against larger operational efficiency demands. They are also advancing the business case for Big Data to attack line-of-business questions tied to the largest corporate objectives:

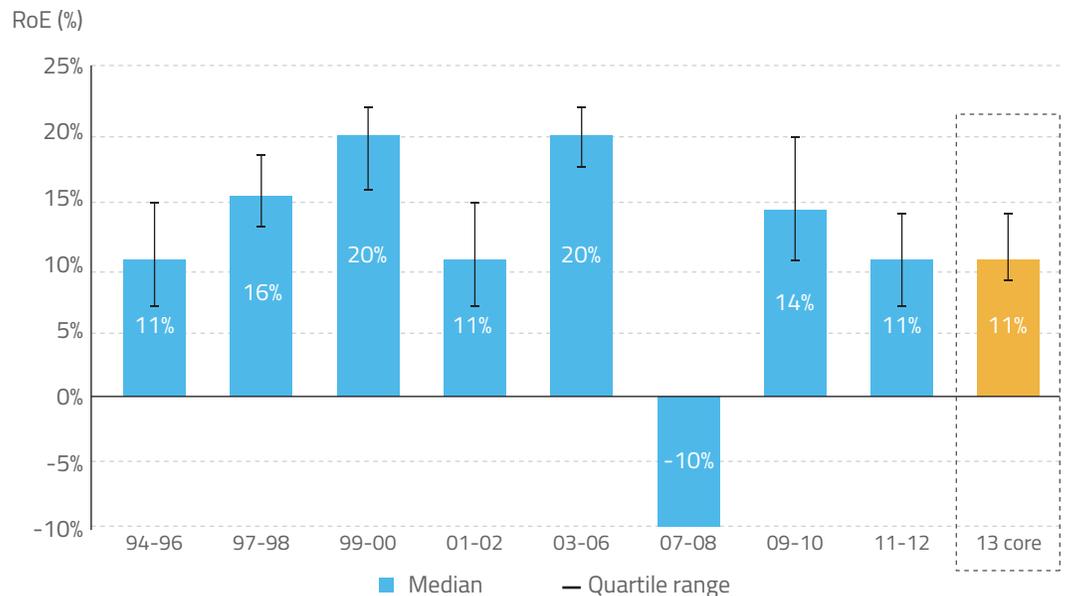
- > Prioritization and competitive advantage
- > Regulatory compliance and recession recovery
- > Customer profiling and segmentation

### Towards Competitive Advantage: Consolidation around High-Return Opportunities

According to a 2013 report by Morgan Stanley Research and Oliver Wyman, technology and competition are forcing wholesale banks to prioritize core competencies and market fit in order to build on their strengths for scope and scale. New models are emerging and, more than ever, operating leverage and the ability to deal with regulation are impacting the delta between winners and losers. In the short term, consolidation is likely and will lead to greater divergence in strategy and positioning.<sup>2</sup>

Information is at a premium as investment banks optimize along different paths and narrow their focus on strategic growth opportunities. The median return for investment banks is leveling off and the range of returns is narrowing. Banks will need to have more and clearer data on their capabilities and concentrations, in addition to diverse market information, to identify and capture competitive advantage.<sup>3</sup>

### Historical spread of wholesale bank returns are around the average



Source: Morgan Stanley Research & Oliver Wyman

<sup>1</sup> Boulton, Clint. “Morgan Stanley Smith Barney Betting Big on Analytics,” *The Wall Street Journal* CIO Journal Blog, 16 September 2012.  
<sup>2</sup> Morgan Stanley Research and Oliver Wyman. *Wholesale & Investment Banking Outlook 2013: Global Banking Fractures: The Implications*. 11 April 2013.  
<sup>3</sup> Morgan Stanley Research and Oliver Wyman. *Wholesale & Investment Banking Outlook 2013: Mis-allocated Resources: Why Banks Need to Optimise Now*. 20 March 2014.

“For our advanced analytics projects [using Cloudera], we’ve been able to look back at more historical files and achieve more accurate and more detailed predictive modeling while identifying more salient variables... For certain projects across all 50 states plus Canada and other territories, we’ve achieved a 500-time speedup on reports, and we see even faster times with Impala.”

ALLSTATE

Simultaneously, competition around data is increasing as third-party research and analytics organizations proliferate and technology firms intermediate between consumers and traditional financial services institutions. Incumbents have an early lead on data collection, but investment and focus are required to advance the strategy and maintain control. Where the technology required to manage, secure, and access petabyte-scale and complex data sets was historically seen as a luxury afforded by only the largest banks, Big Data infrastructure has become table stakes throughout the industry. Competition, strategic prioritization, and differentiation rely on a complete view of the market, no matter where you fit into the financial services landscape.

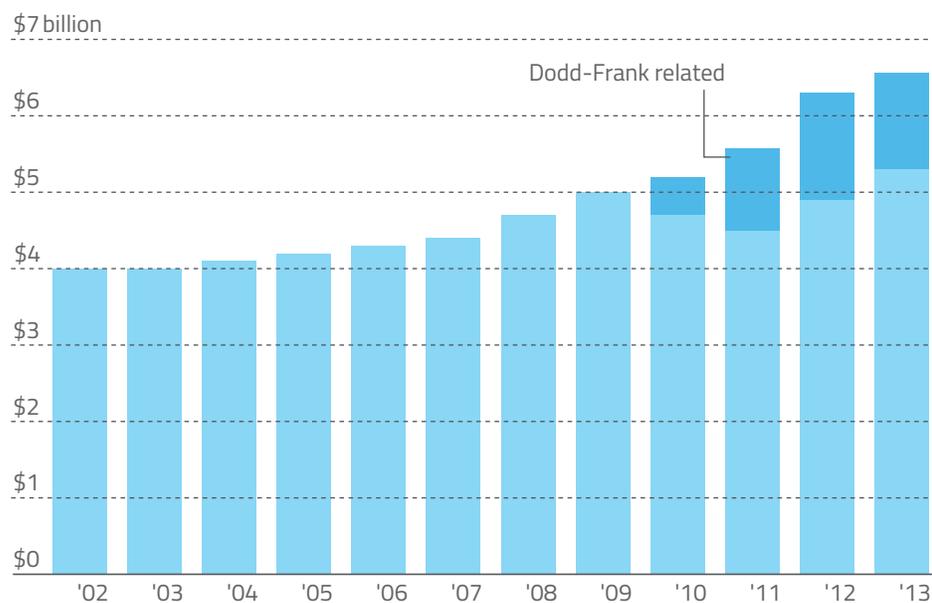
Providing evidence of the rate at which profits have shrunk due to competition and the high demand for information infrastructure, Oliver Wyman finds that, during the past 20 years, the margins on deposits and cash equities have declined by 33% to 50% while the need for computing power in the financial services industry has grown 200% to 500% faster than revenue.<sup>4</sup>

Ultimately, the ability to cost-effectively manage and scale data systems will not only enable the speed at which trades are executed and the premium services offered to different customer types, but will also inform the entirety of banking strategy. Competitive advantage in financial services will be derived from the amount of work done by—the compute workloads deployed on—a single, central, massive data store that is fully governed and can accommodate many different users and profiles in real time.

**Recovering from 2008: Growth in a Stringent Regulatory Environment**

Although the industry policies and technology regulations that have emerged in the aftermath of the most recent global economic downturn carry significant new costs for implementation and compliance, they were developed to serve the interests of the customer, the economy, and, eventually, the firms themselves. Safeguards and increased transparency both require more complete data management, analysis, and reporting, but help curtail risk and prevent the trends that led to the last financial crisis in hopes of avoiding future crises.

**Technology spending by Wall Street banks and asset managers for compliance with government regulations**



Source: *The New York Times*

<sup>4</sup> Oliver Wyman. *The State of the Financial Services Industry 2013: A Money and Information Business*. January 2013.

After a half-decade leveling-off period following the first Wall Street crash of the early-2000s, the cost to the United States wholesale banking sector for technology to comply with government regulations has increased by more than 40%. According to estimates by the CEB TowerGroup published in *The New York Times*, more than 85% of that increase (not the year-over-year increase, but the total lift over the 2009 baseline) can be accounted for by spending related to the Dodd-Frank Wall Street Reform and Consumer Protection Act that became law in mid-2010.<sup>5</sup>

The mandatory use of data also adds rigor to tests of new financial instruments and compels banks to plan for scale as their models take advantage of and become more reliant on larger data sets. Over time, the most proactive financial institutions driving strategy from Big Data will consider IT and infrastructure spend for regulatory compliance and reporting an option-value play, enabling downstream capabilities like predictive analytics and anomaly detection, rather than a source of opportunity cost.

As evidence, Accenture found in a 2013 survey of financial services and resources industry executives from North America and Europe that, despite half of respondents anticipating spending at least \$50 million for compliance, 83% agreed that Dodd-Frank regulations will benefit their own company’s customers, and 64% believed the spending on technology to comply with the new requirements will ultimately strengthen their competitive positioning.<sup>6</sup>

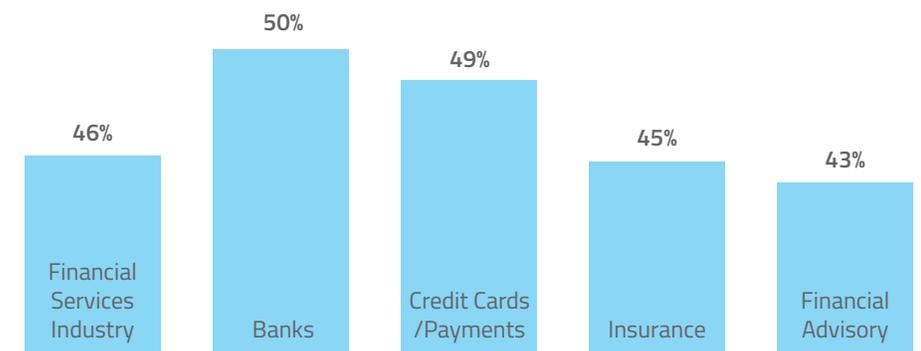
**Mass Personalization: Tailoring Products and Services across the Value Chain**

Retail and commercial banking contribute the largest portion of revenue to the financial services industry, but weakened loan demand, widespread skepticism over fee structures, and scrutiny of new products have squeezed margins and increased competition to acquire and retain customers.

Due to a series of widely publicized missteps in recent years by some of the largest retail banks as they cope with new industry policies—most notably Bank of America’s maligned five-dollar debit card fee in 2011—Edelman PR finds that financial services is the least-trusted industry in the world, rebounding to only 46% trust among U.S. consumers (47% globally, 29% in Europe) in 2013, following an all-time low of 25% in 2011 and a high of 68% in 2007.<sup>7,8,9</sup>

**No Sector of the Financial Services Industry is Trusted**

In the U.S., insurance sector is most trusted; credit cards least trusted



Source: Edelman PR

<sup>5</sup> Dash, Eric. "Feasting on Paperwork," *The New York Times*. 8 September 2011.

<sup>6</sup> Accenture. *Coming to Terms with Dodd-Frank*. 15 January 2013.

<sup>7</sup> Edelman PR. *Edelman Trust Barometer 2013: Financial Services Industry Findings*. April 2013.

<sup>8</sup> Edelman PR. *Edelman Trust Barometer 2012: U.S. Financial Services and Banking Industries*. March 2012.

<sup>9</sup> Edelman PR. *Edelman Trust Barometer 2007*. February 2007.

This distrust has not only affected banks' ability to do business, but has also bottomed out entrenchment and forced down switching costs, requiring banks to absorb more of the price of gaining and keeping new customers. According to a CorePROFIT research study, average customer acquisition costs U.S. retail banks more than \$350 and requires each customer to carry an average balance of nearly \$10,000 for the bank to just break even.<sup>10</sup> In an atmosphere of lower margins, higher costs, and less loyalty, banks seek methods to build a more complete picture of the customer and restore profits.

The consumerization of the retail banking industry through online and multimedia channels has increased the quantity of customer data that can be used to better segment the market, tailor products to target profiles, and create more marketing occasions. Mobile, app-based, and remote banking generate much more user information that, even when anonymized, can be paired with unconventional data sets, including ethnographic research, social media trends, and public utility usage, to build a rich platform for advanced analytics that lead to deeper insights and more sales opportunities.

The Deloitte Center for Financial Services summed it up in its *2014 Banking Industry Outlook*: "Delivering high-quality differentiated customer experiences will likely be critical in driving revenue growth... Banks that better leverage advanced analytics to translate Big Data into valuable insights could be better positioned to meet customer needs, offer a superior customer experience, and simultaneously deepen their product relationships with better cross-selling."<sup>11</sup>

### Big Data and an Enterprise Data Hub

When information is freed from silos, secured, and made available to the data analysts, engineers, and scientists who answer key questions about the market—as they need it, in its original form, and accessed via familiar tools—everyone in the C-suite can rest assured that they have a complete view of the business, perhaps for the first time. For financial services firms, overcoming the frictions related to multi-tenancy on compliant and secure systems is the gateway to advanced Big Data processes: machine learning, recommendation engines, security information and event management, graph analytics, and other capabilities that monetize data without the costs typically associated with specialized tools.

Today, the introduction of an enterprise data hub built on Apache Hadoop™ at the core of your information architecture promotes the centralization of all data, in all formats, available to all business users, with full fidelity and security at up to 99% lower capital expenditure per terabyte compared to traditional data management technologies.

The enterprise data hub serves as a flexible repository to land all of an organization's unknown-value data, whether for compliance purposes, for advancement of core business processes like customer segmentation and investment modeling, or for more sophisticated applications such as real-time anomaly detection. It speeds up business intelligence reporting and analytics to deliver markedly better throughput on key service-level agreements. And it increases the availability and accessibility of data for the activities that support business growth and provide a full picture of a financial services firm's operations to enable process innovation—all completely integrated with existing infrastructure and applications to extend the value of, rather than replace, past investments.

<sup>10</sup>Andera and CorePROFIT. *The Future of Account Opening 2011*. June 2011.

<sup>11</sup>Deloitte Center for Financial Services. *2014 Banking Industry Outlook: Repositioning for Growth*. February 2014.

However, the greatest promise of the information-driven enterprise resides in the business-relevant questions financial services firms have historically been unable or afraid to ask, whether because of a lack of coherency in their data or the prohibitively high cost of specialized tools. An enterprise data hub encourages more exploration and discovery with an eye towards helping decision-makers bring the future of their industries to the present:

*How do we use several decades worth of customer data to detect fraud without having to build out dedicated systems or limit our view to a small sample size?*

*What does a 360-degree view of the customer across various distinct lines of business tell us about downstream opportunity and risk?*

*Can we store massive data on each customer and prospect to comply with regulatory requirements, secure it to assure customer privacy, and make it available to various business users, all from a single, central point?*

### About Cloudera

Cloudera is revolutionizing enterprise data management by offering the first unified Platform for Big Data, an enterprise data hub built on Apache Hadoop™. Cloudera offers enterprises one place to store, process and analyze all their data, empowering them to extend the value of existing investments while enabling fundamental new ways to derive value from their data. Only Cloudera offers everything needed on a journey to an enterprise data hub, including software for business critical data challenges such as storage, access, management, analysis, security and search. As the leading educator of Hadoop professionals, Cloudera has trained over 40,000 individuals worldwide. Over 800 partners and a seasoned professional services team help deliver greater time to value. Finally, only Cloudera provides proactive and predictive support to run an enterprise data hub with confidence. Leading organizations in every industry plus top public sector organizations globally run Cloudera in production. [www.cloudera.com](http://www.cloudera.com).