



Summing It Up: A Brief History of the Economy, Regulations, and Bank Data

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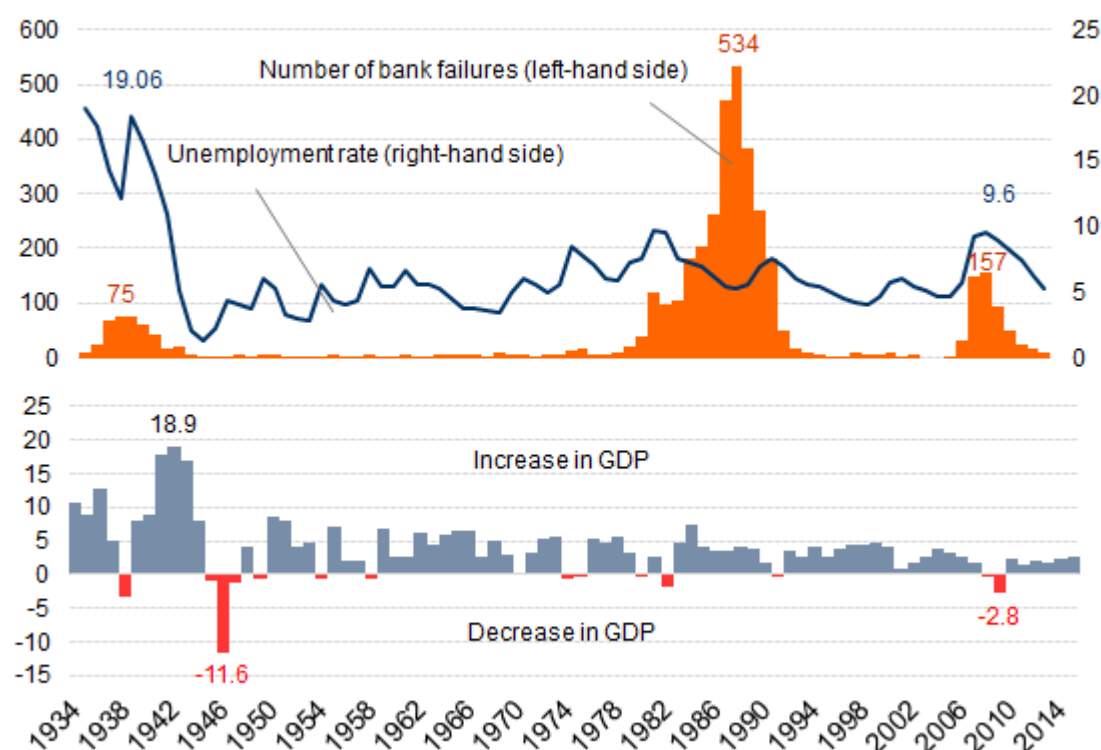
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The Great Recession of 2007 significantly disrupted the U.S. economy and its banking sector. It is often compared to the Great Depression as an example of its severity, and with two years of negative year-over-year gross domestic product (GDP) growth (2007 and 2008), around 500 bank failures over a six-year period (2008–13), and an unemployment rate reaching an annual average of 9.6 percent (2010), comparisons to the Great Depression seem appropriate (see the chart).

Number of Bank Failures, Unemployment Rate, and Changes in GDP (1934-2014)



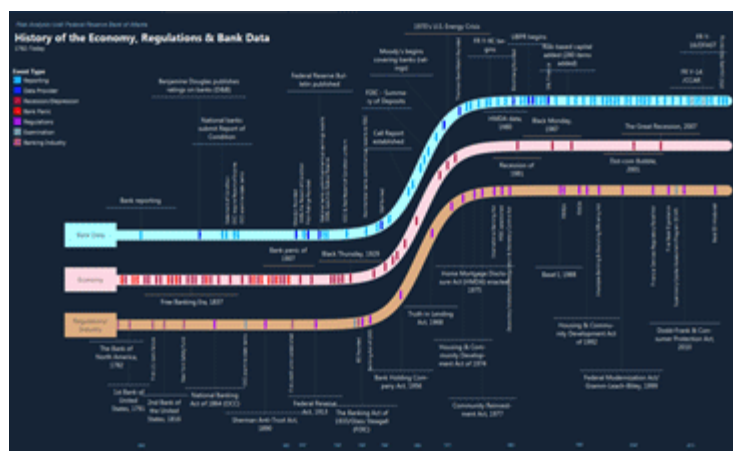
Source: fred.stlouisfed.org

As a result of the recent crisis, both governmental and supervisory agencies have enacted new laws and regulations in an

attempt to help mitigate risks of another crisis-like event. Additionally, banks—especially large banks with \$50 billion or more in total assets—must now provide additional details on their various holdings and operations. Although the relationship among the economy, regulations, and bank data may seem novel and uneven, a long history actually exists among them.

The article explores the historical relationship between the economy, banking regulations, and bank data in order to highlight how one relates to the others. Additionally, as regulators increase their focus on data-driven supervision, this article also discusses the role of banking data in the supervisory process.

The timeline (below) shows key banking, economic, and regulatory events from 1782 to today. The light blue timeline represents events related to bank data and includes key bank reporting milestones along with banking data providers and examples of bank rating coverage by nationally recognized statistical ratings organizations (NRSROs). The light red timeline focuses on the U.S. economy and highlights periods of recession or depression, along with banking crises. The light brown timeline highlights key banking regulations, examinations, and industry events.



[Download](#) a high-resolution JPEG of this timeline.

A full examination of each event is beyond the scope of this article. However visualizing the various events using this timeline indicates the data tend to fall into roughly three sometimes overlapping periods that, for the purposes of this article, we'll call the Crises Era, the Regulatory Era, and the Bank Data Era.

The Crises Era (1782–1930)

The history of the U.S. banking system arguably began with the very first chartered bank of the United States, the Bank of North America. Founded by the national government toward the end of the American Revolution, the Bank of North America opened in 1782 in Philadelphia and provided credit to the newly formed government. The creation of the bank came at a time of extreme economic uncertainty, however, as the war's disruption of commerce and the nation's increased debt load caused concerns about government's ability to meet its debt obligations.

The post–Revolutionary War period was also marked with multiple economic recessions and banking crises. Attempts to establish a permanent central bank failed after the First, and then the Second, Bank of the United States charters were allowed to expire. This period was known as the Free Banking Era, a time of extremely loose banking regulations where a formal banking charter was unnecessary to establish a bank (banks also issued currency/notes typically secured by bonds issued by the state in which the bank was located).

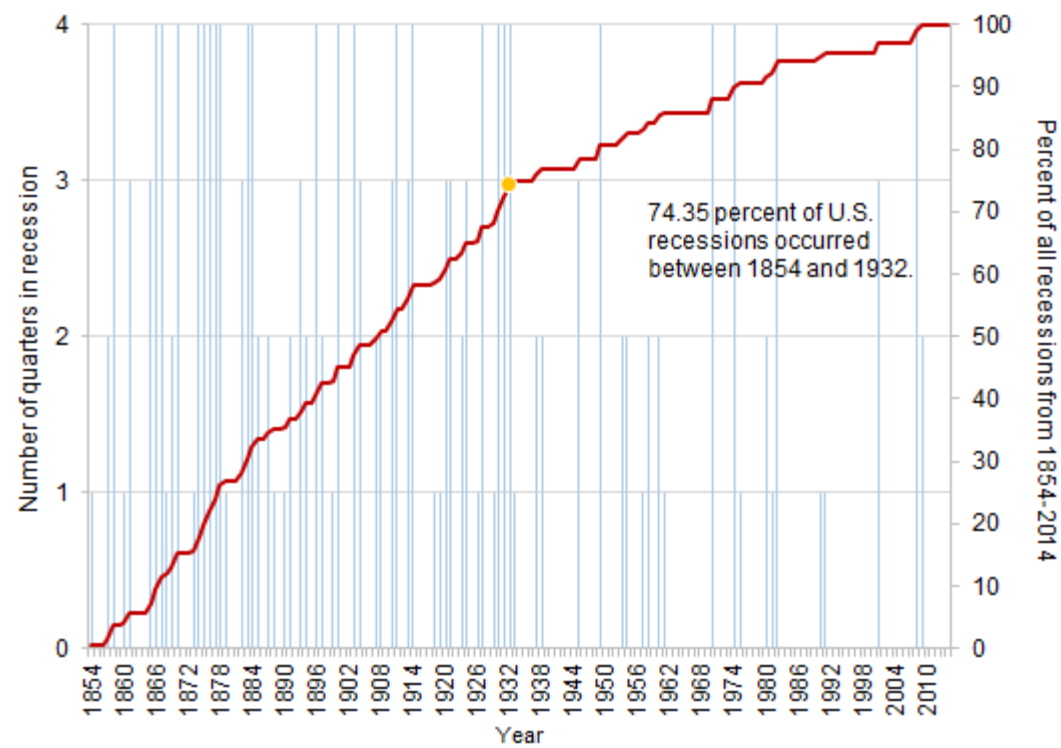
During this time, bank data were very sparse. Beginning in the early 1800s, banks were required to provide a one-time report on certain balance sheet items. By 1832, Congress passed a resolution that allowed the Treasury to collect an annual state of condition from banks. Many states were already collecting this data on an annual basis as the states were majority stakeholders of the banks.

The Free Banking Era ended with the National Banking Act of 1864, which established the Office of the Comptroller of the Currency (OCC). With the OCC, bank reporting starts to evolve as national banks begin reporting assets, liabilities, and income on a quarterly basis. Additionally, the OCC begins to conduct regular exams of both national and state banks. Although the establishment of the OCC was a positive step in creating a more stable banking system, it occurred during the end of the Civil War (1861–65), which presented sizable obstacles to achieving banking and economic security.

The banking panic of 1907 led to the creation of Federal Reserve in 1913 and the beginning of what we will call the Regulatory Era. In addition to its central bank duties, the Federal Reserve was charged with supervising state member banks. The combined requirements of the OCC and the Fed led to a more consistent reporting across banks of different charters. The Federal Reserve also created the Federal Reserve Bulletin which was an aggregated report of banking industry performance.

Finally, the last event of the Crisis Era—and arguably one of the most severe events—was Black Thursday (1929), which led to the Great Depression. In all, there were 79 quarterly recessions between the years 1854 and 1932, representing almost 75 percent of all recorded U.S. recessions (see the chart). With so many recessions and banking crises, in addition to the fact that for a part of that time the United States was engaged in, or recovering from, wars on its own soil, the term “Crisis Era” seems particularly fitting.

Number of Quarters in Recession per Year and Cumulative Percent of Total Quarterly U.S. Recessions, 1854-2014



Source: fred.stlouisfed.org

The Regulatory Era (1913–80)

Following the Federal Reserve Act, the next significant banking law was the Banking Act of 1933, also known as the Glass-Steagall Act. Glass-Steagall accomplished many things, including giving the Federal Reserve additional regulatory powers and prohibiting banks from engaging in investment banking activities. It also created the Federal Deposit Insurance Corporation (FDIC), which received authority to provide deposit insurance to commercial banks and supervisory oversight of state nonmember banks. In 1935, the Federal Credit Union Act, which established federal credit unions, and the Banking Act, which permanently established the FDIC as a governmental agency, were passed.

The next major set of banking laws was designed to address more consumer-oriented issues. The Truth in Lending Act (1968), for example, was established to help protect consumers from unfair credit practices. The 1970s saw passage of the Housing & Community Development Act, the Home Mortgage Disclosure Act (HMDA), and the Community Reinvestment Act (CRA), with all three laws aimed at expanding credit to potentially underserved communities.

During this time, there were many important developments in bank reporting that laid the groundwork for the growth in bank data to come. In 1959, the more modern version of the Call Report was established. (Machine-readable data also began in 1959.) In 1966, the FDIC began reporting its annual Summary of Deposits, which lists the location of a bank's branches along with branches' deposit levels. The FR Y-9C—the Call Report for bank holding companies—began in 1978. In 1980, as a result of the passage of HMDA, home mortgage disclosure data is made available.

To be sure, some recessions occurred after the Great Depression and between 1950 and 1980, but they were generally less severe, and often of shorter duration, than those witnessed during the Crisis Era. Banking panics were also essentially eliminated, primarily as a result of FDIC deposit insurance, and bank failures overall during this time averaged only five a year.

The Bank Data Era (1980–present)

The period roughly beginning in 1980 can be referred to as the Bank Data Era, and it's easy to see why. Although significant banking legislation has passed since 1980, this is a period marked by advances in bank data. Most of the light blue, unlabeled markers in the above timeline during this period represent major changes to the Call Report (typically of 100 items or more). From a bank analysis perspective, one of the more notable developments was the creation of the Uniform Bank Performance Report (UBPR) in 1984. Supervisors still commonly use the UBPR to help assess bank performance. In addition to providing a consistent and repeatable platform for analysis, another benefit of the UBPR is its public availability.

The Bank Data Era is also a time where the connection between regulatory and economic events, and bank reporting, becomes more obvious. Examples of these relationships include the establishment of Basel I in 1988 and the subsequent addition of risk-based capital items to the Call Report in 1990. The savings and loan crisis of the 1980s and early 1990s resulted in the second-largest number of bank failures since the Great Depression, and because of concerns over bank exposure to mortgage lending, in 1991 the Call Report was amended to include additional details on real estate lending. More recently, the Dodd-Frank Act of 2010 led to possibly one of the largest data collection efforts by the Federal Reserve through the collection of FR Y-14 Comprehensive Capital Analysis and Review (CCAR), FR Y-16 Dodd-Frank Act (DFA), and FR 2052 Liquidity Monitoring Report data.

Next Phase: The Data-Driven Era

As we have discussed, bank data have evolved alongside both the U.S. economy and banking system. What is also interesting is that the growth in banking data is similar to the growth associated with technology and global data overall. Given this growth and the increased use of technological tools and techniques, regulators have become increasingly focused on the inclusion of data-driven analysis in supervision.

This increased attention to the role of data in the supervisory process by the Federal Reserve is highlighted in two recent SR letters. SR 12-17, [Consolidated Supervision Framework for Large Financial Institutions](#), lays out a framework for large institution supervision. Part B.4 describes using various bank data to identify risks to a firm and overall systemic risk analysis. More recently, and directly, in SR 15-16, [Enhancements to the Federal Reserve System's Surveillance Program](#), the Federal Reserve provides a brief description of its surveillance program, which uses forward-looking methodologies to help assess bank risk.

Examples of data-driven models

So what does a data-driven supervisory or bank risk model look like? The answer to that varies depending on what risk, or risks, are being evaluated. As described in SR 15-16, the Fed's SR-SABR model is a logistic regression that predicts the probability of an overall downgrade in a CAMELS (Capital, Asset Quality, Management, Earnings, Liquidity) rating. It also produces a probability of firm failure through its Viability score. Other examples of bank health models that are available in the marketplace include credit ratings from firms like S&P, Moody's, and Fitch, and other CAMELS-type assessment models from IDC, Veribanc, BauerFinancial, and Kroll.

Along with an assessment of the overall health of a bank, data-driven models can be focused on a particular area of banking risk. One such set of risk measures is the OCC's Canary Report, which seeks to identify risks related specifically to credit risk, interest rate risk, and liquidity risk. Concerning interest rate risk, just as bank management implement various interest rate risk models to manage market and repricing risk, supervisors use similar models to help with their assessment of these risks. Typically based on a bank's Call Report data, supervisors have used internally developed Earnings at Risk (EAR) and Economic Value of Equity (EVE) [models](#) for years. The growth in and availability of loan, deposit, and interest rate data have improved the performance of these models by providing model developers with better details on rate-sensitive product volumes and pricing. Additionally, improved computing power has enabled the creation of more econometric-based models that can generate a prediction of net interest margin performance based on interest rates, asset yields, and deposit costs.

The next frontier of data-driven bank analysis will certainly use big data technologies and analytics. For example, the Office of Inspector General for the Board of Governors of the Federal Reserve System and the Consumer Financial Protection Bureau hosts the [Risk Assessment, Data Analysis and Research \(RADAR\)](#) data warehouse, which stores a wide array of data on various credit-related products. The Kansas City Fed has the [Center for the Advancement of Data and Research in Economics](#), which hosts the High-Performance Computing cluster. Together with the current systems, all these data set up a foundation for big data analysis, and tools such as SAS, R, and Python are starting to help researchers mine that data for bank-specific risks and industry trends.

Summing it up

Bank data have evolved from being a one-time reporting of bank capital to being intricately integrated into bank supervision and economic analysis. The type and purpose of bank data have also historically reflected the state of the banking system, regulatory environment, and economy. If this trend continues, as we believe it will, then the tools and techniques of data-driven bank analysis will start to more closely mirror those being used for other big data analysis and will hopefully be able to mitigate risks—both at the bank level and systemically—and provide useful insight into how the banking system works.

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