



Using Confidential Supervisory Data for Supervisory Monitoring, Internal Analysis and External Research

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Abstract

To support the annual Dodd Frank Act Stress Tests on the largest bank holding companies and systemically important institutions, the Federal Reserve collects data on firms' portfolios. The FR Y-14 data collection consists of 22 separate schedules at different frequency and levels of granularity, which span all aspects of firms' portfolios, balance sheets, income, and losses. The Federal Reserve has also established a range of internal policies and procedures to allow the appropriate internal use of these data to support a greater range of the Federal Reserve activities, including supervisory monitoring, internal analysis, and external research for public release. For example, Federal Reserve System economists have used the data in a range of research topics, including an examination of the differences in the underlying risk and loan performance of securitized commercial real estate loans with those held in firms' portfolios. This presentation will illustrate and discuss uses of FR Y-14 data.

Keywords: retail credit, wholesale credit, credit availability, commercial real estate.

1. Introduction to the FR Y-14 data

The FR Y-14 data collection supports (1) the Federal Reserve's assessment of the capital adequacy of large bank holding companies (BHCs) using forward-looking projections of revenue and losses, (2) supervisory stress test models and (3) continuous monitoring efforts. These data are used by staff from across the Federal Reserve System (FRS) in both the model development and the implementation of the Dodd Frank Act Supervisory Stress Tests (DFAST). Both the model results, and the FR Y-14 data itself, are also used on the Comprehensive Capital Analysis and Review (CCAR).

The first use of stress testing as a supervisory tool began with the Supervisory Capital Assessment Program (SCAP), which was conducted in June 2009. The Dodd-Frank Act, enacted in 2010, requires the Federal Reserve to conduct an annual stress test of BHCs with \$50 billion or more in total consolidated assets and all nonbank financial companies designated by the Financial Stability Oversight Council for Federal Reserve supervision. Since the SCAP, the Federal Reserve has increasingly moved towards independent modeling to support the DFAST. Understanding and modeling the effect of an adverse scenario on relevant outcomes, such as revenues or losses, requires information.

The FR Y-14 data collection was introduced in Fall 2011 to provide this information and has been subsequently expanded and enhanced.¹ The FR Y-14 data collection consists of three different sets of schedules, differing by the frequency of reporting. The annual (FR Y-14 A) and quarterly (FR Y-14 Q) schedules were implemented in the fall of 2011 and the monthly (FR Y-14 M) schedule was implemented in June of 2012. The content of the schedules have been revised over the years, reflecting feedback from the industry and improvements proposed by the Federal Reserve.

The original FR Y-14 respondents were the 19 bank holding companies participating in the SCAP. The coverage has been expanded to include any top-tier BHC (other than a foreign banking organization), that has \$50 billion or more in total consolidated assets, currently includes 32 firms.

¹ The General Instructions for the FR Y-14 collections are available on the Board's website (www.federalreserve.gov/apps/reportforms/default.aspx).



The FR Y-14A schedules form a semi-annual collection that is primarily used to collect company-run stress test results. These results include projected and planned financial data as well as regulatory capital ratios based on various macroeconomic scenarios defined by both the Federal Reserve and by respondents. The collection comprises six schedules: Summary, Scenario, Counterparty, Basel III / Dodd-Frank, Regulatory Capital Instruments, and Operational Risk. The FR Y-14Q schedules are a quarterly collection that covers loan and portfolio-level information, operational losses, regulatory capital, and other data. The portfolio information includes wholesale loans, retail loans, retail loans held for sale or held for investment under the fair value option, securities, etc. The FR Y-14M schedules are a monthly collection that covers loan and portfolio-level information for the first and second lien mortgage and credit card portfolios.

The FR Y-14 data collections represent detailed data that span a significant share of the U.S. financial sector. As of 2014:Q3 FR Y-14 respondents held \$13.9 trillion in assets, accounting for 70 percent of the assets held by all BHCs, savings and loan holding companies, and commercial and savings banks.² Several of the schedules provide data at the loan or facility level, including detailed data on borrowers. The level of detail in the FR Y-14 data collection can be used to generate a clear picture of the composition of a given institution's portfolio, new originations and underwriting, and portfolio re-positioning in response to changes in perceived credit risks or competitive pressures. Many of the FR Y-14 data collection schedules include data at the loan level, including information on individual borrowers or counterparties. Given the sensitivity of this data, it is important to limit access to an as needed basis only. At the same time the FR Y-14 data can be invaluable to a wide range of Federal Reserve staff for important work supporting ongoing supervision outside of the DFAST/CCAR exercise and for external research. In order to maximize the potential of this collection the Federal Reserve has developed a carefully designed process that secures the sensitive data in the FR Y-14 while providing access to FRS staff for the use of this data for ongoing supervision outside of the DFAST/CCAR exercise and for independent external research.

2. Using the FR Y-14 in Supervisory Stress Testing

Understanding the effect of an adverse scenario on relevant outcomes, such as revenues or losses, requires information. This information includes some measure of the risk and return characteristics of the firm's various portfolios. The FR Y-14 data collection was designed to provide this information. The level of granularity and frequency of the data collection varies across different components of the banks' portfolio, reflecting both the data available and the materiality of the portfolio. This level of detail of the information, may in turn drive modeling choices. In developing the data collection, we attempted to insure that the data collected was representative of the type of asset and was consistent with what is available from external data sources for similar assets. Supervisory models are often developed incorporating external and internal data, requiring a high level of comparability between the external and internal data. The data collection also includes a process to review the quality and integrity of the data submissions. The Federal Reserve follows up with reporting firms on missing or inconsistent data in their submissions.

The supervisory stress tests models use the FR Y-14 data in a variety of ways, reflecting the differences in the level of granularity in both models and data.³ Here we discuss how the data is used for the accrual loan portfolio. Accrual loan losses are projected using detailed loan information, including borrower characteristics, collateral characteristics, characteristics of the loans or credit facilities, amounts outstanding and yet to be drawn down (for credit lines), payment history, and current payment status. Data are collected on individual loans or credit facilities for wholesale loan, domestic retail credit card, and residential mortgage portfolios. For other domestic and international retail loans, the data are

² Source: Call Report and Y9C.

³ There is a description of the methodology used in the supervisory stress tests in the annual disclosure report for the Dodd Frank Stress Tests (<http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20150305a1.pdf>).



collected based on segments of the portfolio (e.g. segments defined by borrower credit score, geographic location, and loan-to-value (LTV) ratio).

3. Using the FR Y-14 for Ongoing Supervisory Monitoring

Several groups across the Federal Reserve System have incorporated the FR Y-14 data into their ongoing supervisory monitoring. In this section we provide two examples, using the Retail and Wholesale collections respectively.

The Federal Reserve regularly monitors the development of retail credit portfolios using a combination of the FR Y-14 Q and FR Y-14 M Retail Schedules. Figure 1 presents the growth in auto lending over time by different credit quality buckets. This figure documents the recent growth in auto-loans to borrowers with lower credit quality. It would not be possible to disaggregate the growth in auto lending by credit rating using previously available supervisory reports. Using the FR Y-14 data we can now document that auto loans to lenders with higher credit scores have grown significantly since 2010Q1 but that has been far eclipsed by growth in loans to borrowers with lower credit ratings. Figure 2 reports on the timing and distribution by amortization schedule for home equity lines of credit that are hitting their end of draw and will transition to closed end amortizing loans. Research discussed in the next section has explored how such resets may be linked to higher defaults. The figure documents how the share of HELOCs hitting their end of draw is scheduled to increase over the next several years, before tapering off after 2017, and that the majority of these will be transitioning amortization periods greater than 15 years.

The Federal Reserve also monitors the developments in wholesale credit portfolios using the FR Y-14 Q Corporate and CRE schedules. Figure 3 maps how the distribution by industry type of the corporate loan portfolio has changed over time. It shows how the largest banks, those in the LISCC portfolio, are far more active in lending to other financial institutions than the smaller banks. The next largest segment of banks, the first tier of the LBOs, have larger exposure to retail trade that is seen in the other segments. This analysis also allows us to monitor shifts in credit between different industries over time, both in the aggregate and by firm. Figure 4 reports the distribution by property type new CRE originations. It decomposes these between extensions of existing loans and originations of new loans. This allows us to more accurately identify where banks see future growth and are growing their portfolios. The figure documents how much of the recent growth, in particular in the second and third tier of firms, represents new construction loans, with the second largest category loans on multi-family properties.

These types of analysis provide valuable insights into the changing composition of the credit markets. It can also be repeated by institution, allowing supervisors to identify issues at specific institutions.

4. Using the FR Y-14 for External Research

The FR Y-14 data is also used by the Federal Reserve for external research projects. External research is defined as the publishing of analysis, generally quantitative in nature, in a public forum (e.g. from blogs, to working papers to referred academic journals) where authors make attribution that their work represents only their views and not the views of the Federal Reserve. Staff must get prior approval for the research project before working with the supervisory data. Analysis presented in such work must be at a sufficient level of aggregation that a reader will not be able to identify, either directly or indirectly, a specific firm or individual borrower.

Examples of research that has been presented over the last year at various academic conferences include.

Abdymomunov (2014) uses the FR Y-14 Q Operational Loss schedule to study the linkage between macroeconomic factors and operational losses at banks. The author proposes a new method of transforming operational losses that makes them more comparable across banks. Using the transformed data he is able to better depict the relationship between operational losses and real GDP growth.



Black et. al (2015) identifies a subset of firms that are both participants in the FR Y-14 Q CRE collection and are active originators of securitized commercial mortgages. They combine the supervisory data with data on securitized commercial mortgages from Morningstar to examine differences between securitized and portfolio loans. They find significantly more loan extensions in the bank loans, suggesting that banks have a comparative advantage in funding risky assets with contracts that may require flexibility in the event of distress.

Epouhe and Hall (2015) use the FR Y14 M 2nd lien schedule to paper examine the impact of payment shock in home equity lines of credit at the end of their draw period, when the loans become amortizing. They relate default and prepayment to the timing and size of payment increases. They find that the approach of end-of-draw stimulates rising prepayment which peaks immediately after end-of-draw.

Sarama and Calem (2014) use the FR Y-14 M Address Matching schedule to link loans in the FR Y-14 M 1st and 2nd lien schedules. This allows them to identify pairs of mortgages collateralized by the same property. They use this information to examine why some borrower continue making payments on one mortgage while allowing the other to become delinquent. They hypothesize that this is driven by different incentives to two different types of borrowers. Some face moderate or temporary liquidity shocks with stable equity positions and have an incentive to enter mismatch and subsequently cure. Those facing severe financial stress in combination with negative equity have an incentive to default on both contracts.

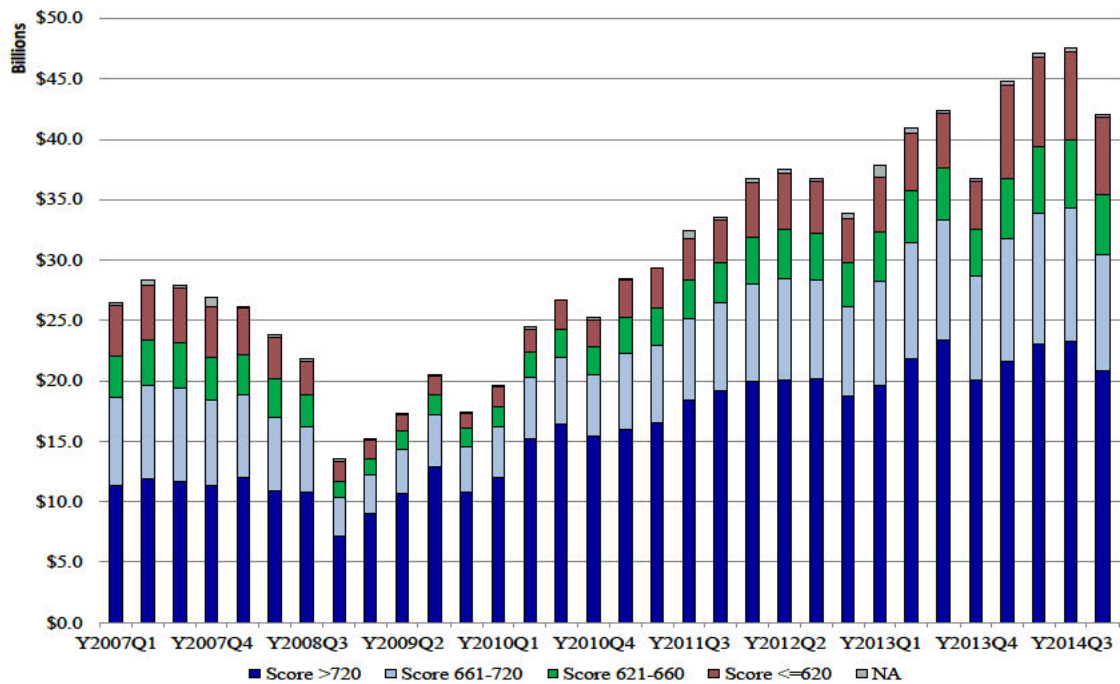
5. Conclusions

The collection of detailed information on the assets and liabilities of financial institutions is an essential element in more quantitative driven supervision, such as stress tests. This collection provides information on the distribution of portfolios by a wider range of risk drivers not previously available in regulatory reports, including the credit rating of individual borrowers, industry of corporate borrowers, patterns in new lending, and many others. These risk drivers are invaluable in developing and producing supervisory stress tests, performing ongoing surveillance, and supporting cutting edge research. However the collection of this data requires significant investment in resources both by the supervisor collecting the data and at the participating financial institutions. Firms participating in the FR Y-14 data collection have reported making significant investments in their internal MIS systems in order to satisfy the reporting requirements. The cost and benefits of the additional granularity of the data collection is made on a portfolio by portfolio basis within the FR Y-14 collection, resulting in some being collected at the loan level and some at a portfolio-segment level. These costs and benefits are consistently reviewed as the collection develops over time.

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**Figure 1. Analysis using FR Y-14 Q Auto
Auto Originations by Origination Credit Score**



**Figure 2. Analysis using FR Y-14 M 2nd Lien
Volume of HELOCs Hitting End of Draw by Year and Amortization Period**

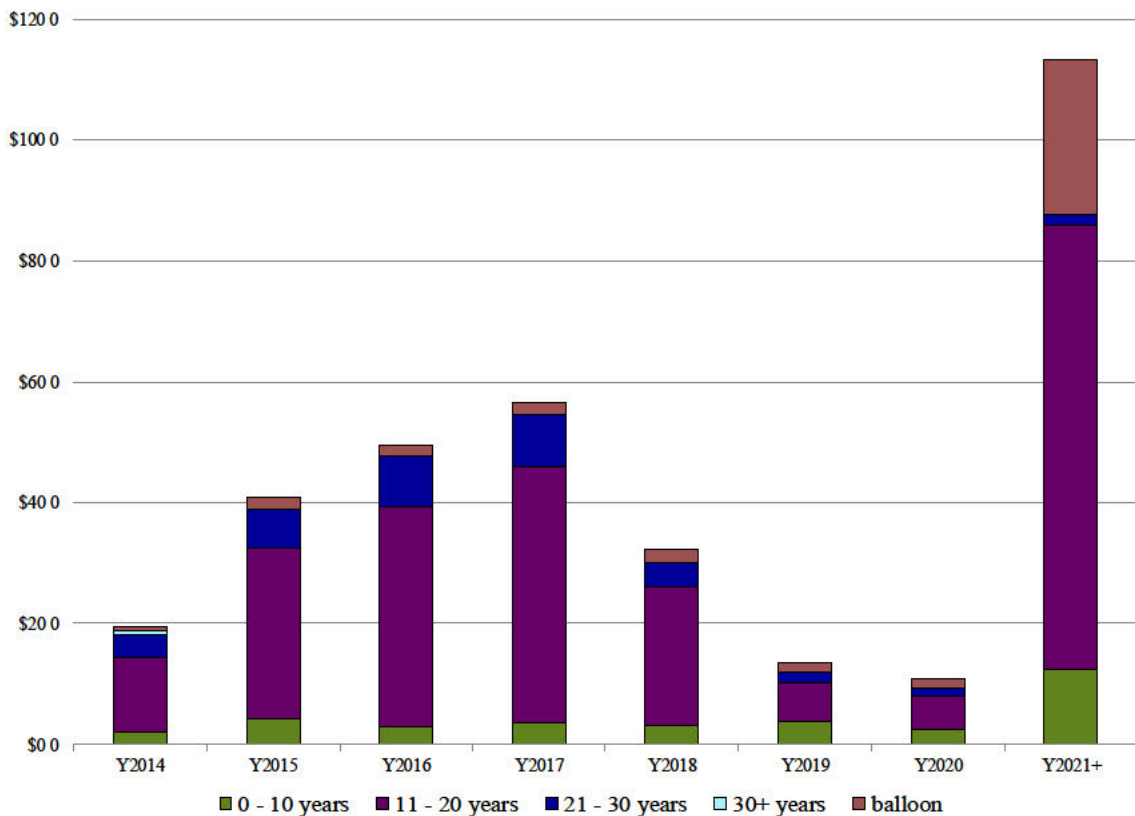


Figure 3. Analysis using FR Y-14 Q Corporate Data

Top 5 Industries

Corporate All Loans: Total Portfolio

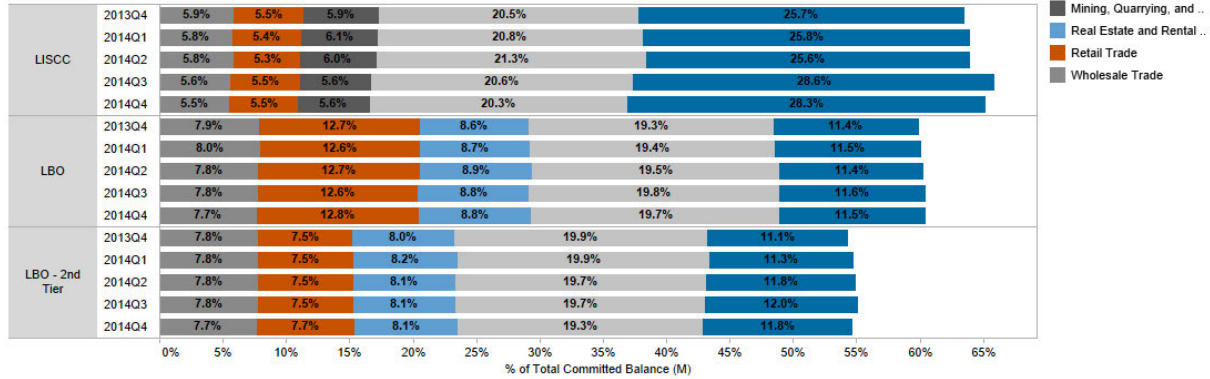


Figure 4. Analysis using FR Y-14 Q CRE Data

New vs. Extensions by Property Type

CRE All Loans: Total Portfolio

