

Coming Attractions in the FRS Corporate Model

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Summary

- Our current models reflect the legacy of our original data collection for the 2011 CCAR
- Ongoing evolution will improve both the consistency and macro sensitivity of our estimates
 - Enhanced consistency: estimates will be more comparable across banks and align better with other measures of risk
 - Enhanced macro sensitivity: estimates will be more stress-focused, showing greater responsiveness to the specifics of our scenarios

Scope

- The models discussed here exclude lending to purchase and carry securities, loans backed by farmland and FVO loans
- Otherwise they apply to everything reported on the FR Y-14Q H.1 Corporate Loan schedule
- Comments are limited to the PD model

In the beginning...

- The first year the Fed generated its own stress test results, 2011, we collected corporate exposures aggregated by banks' concordance-mapped ("common scale") ratings, industry and domicile
- This data structure motivated a parsimonious modeling framework centered around those three risk factors

The Model Framework

- There are two distinct components to the corporate PD model: a starting point and a macroeconomic conditioning
 - Starting point: a concise and consistent characterization of a loan's credit risk at a point in time
 - Macroeconomic conditioning: a model that describes how a loan's risk evolves given a set of macroeconomic factors
- The starting point derives directly from a loan's concordance-mapped rating, industry and domicile
- We condition that starting point on a small group of macroeconomic factors using coefficients from a series of regressions calibrated to data aggregated by industry, domicile and segment of the credit quality distribution
 - Loan's are assigned to "credit quality segments" based on their pre-stress concordance-mapped rating, industry and domicile

Through the years...

- The simple framework performs reasonably well
 - It produces results that align with historical charge-offs
 - The post-stress paths and cross-sectional distributions are largely consistent with priors
- Since 2011 we have improved upon aspects of the specification but have left the basic framework unchanged

Coming Attractions

- While the current model performs reasonably well, it could be better
- Improved consistency
 - Heavy reliance on banks' ratings implicitly introduces bank-specific effects meaning the results may not be as comparable as we would like
 - We could improve consistency by reducing or eliminating reliance on banks' ratings
- Improved sensitivity
 - Reliance on a parsimonious set of macroeconomic factors may mean our results are less stress-focused than they could be
 - We could improve sensitivity by incorporating a greater number of macroeconomic factors and by allowing that sensitivity to vary across the post-stress credit distribution

Improving Consistency: Motivating Question

- A given concordance-mapped rating may not mean the same thing at every bank
- Yet bank ratings may provide valuable private information as to the credit risk associated with a given loan
- Can we make use of the private information content in bank ratings without implicitly incorporating bank-specific effects?

Improving Consistency: Root Causes

- Why would a rating mean different things at different banks?
- Expected sources of variation
 - Observable: Fundamentally different portfolios or different pricing structure
 - Unobservable: Different rating methodologies, different use of expert judgment
- Unexpected, “random,” sources of variation
 - Varying degrees of influence from non-credit-risk factors, e.g. policy choices, levels of experience

Improving Consistency: An Approach

- Exploit the cross-sectional richness of the 14Q data
- Specify a logit model of default on concordance-mapped ratings
- Control for observable expected differences in ratings by including additional risk drivers in the specification
- Control for unexpected differences by specifying some structure in the error term
- The coefficient on the rating in this model gives us the average, i.e. consistent, level of private information in ratings across banks

Improving Macroeconomic Sensitivity

- The current model includes relatively few macroeconomic variables in the service of simplicity
- Ongoing research shows that—without sacrificing simplicity—our model could
 - Better identify sensitivities to a wider range of risks in the macroeconomic scenarios and
 - Better capture non-linearities stemming from varying sensitivities of credit risk across the post-stress credit distribution
- The next generation model will incorporate a number of additional macro factors in a specification that allows for a more precise formulation of varying sensitivities

Conclusion

- The current corporate model grew out of early data collection
- With our enhanced data collection the model can be improved
- We intend to phase in improvements over the coming years to ensure better consistency across banks and more stress-focused results