Stress Testing Residential Mortgages

Andreas Lehnert

Stress Testing Model Symposium

September 14, 2012

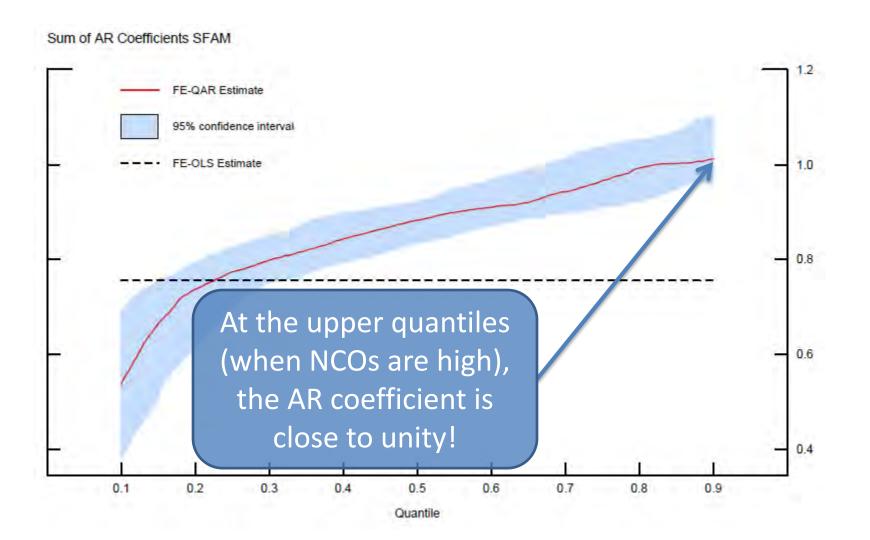# Mortgages in a stress environment

1. What are some ways to get robustness?
- In general?
- Specific—how best to model…
2. ..performance of loans in mod programs?
3. …presence of "silent seconds"?
4. …payment shocks on HELOCs?

A lesson of the crisis

- Model net charge offs on real estate loans at large commercial banks using a quantile model

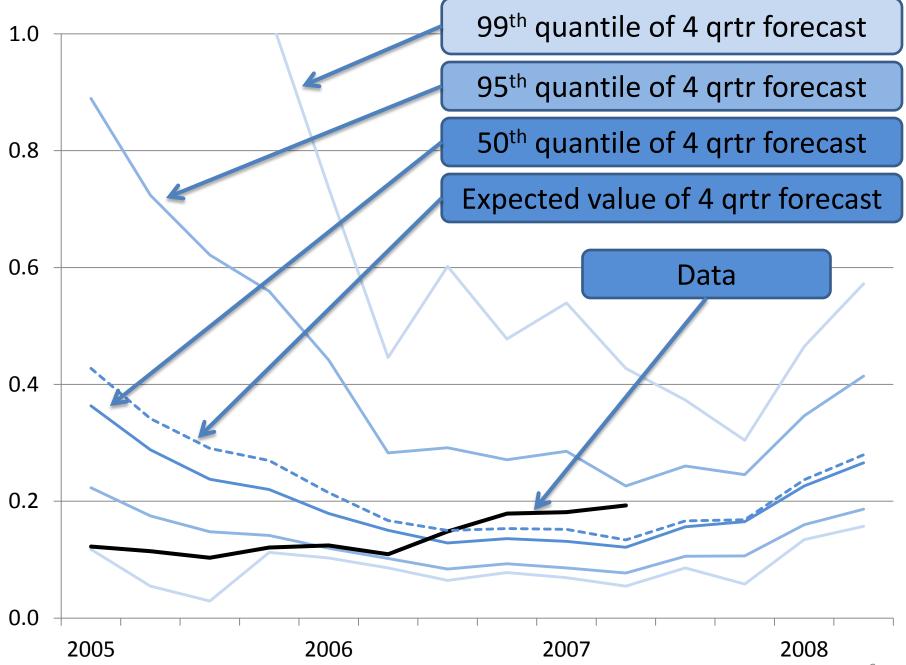- Seek robustness by looking at the 5% or 1% quantile

(Forthcoming paper by Francisco Covas, Bernard Rump and Egon Zakrajsek of the Federal Reserve Board)
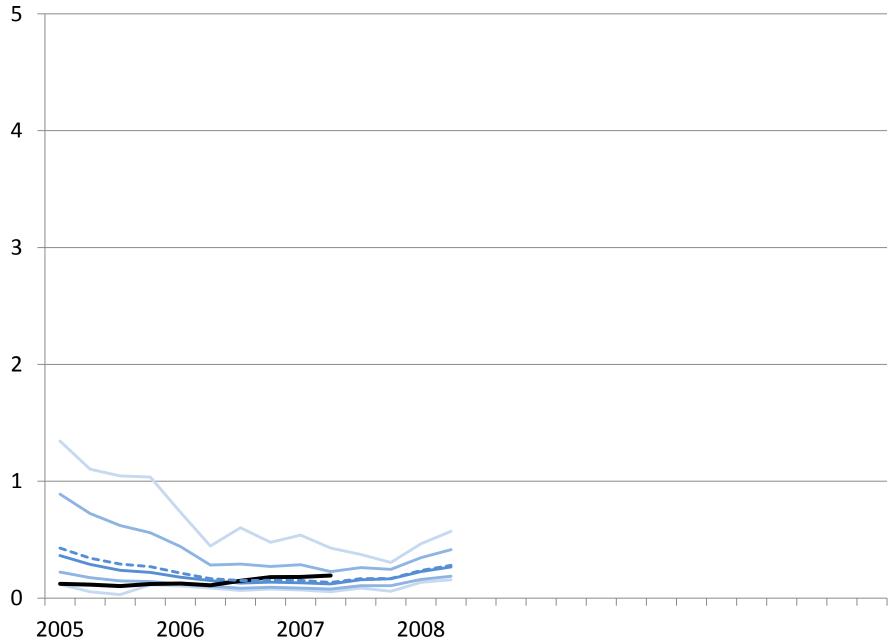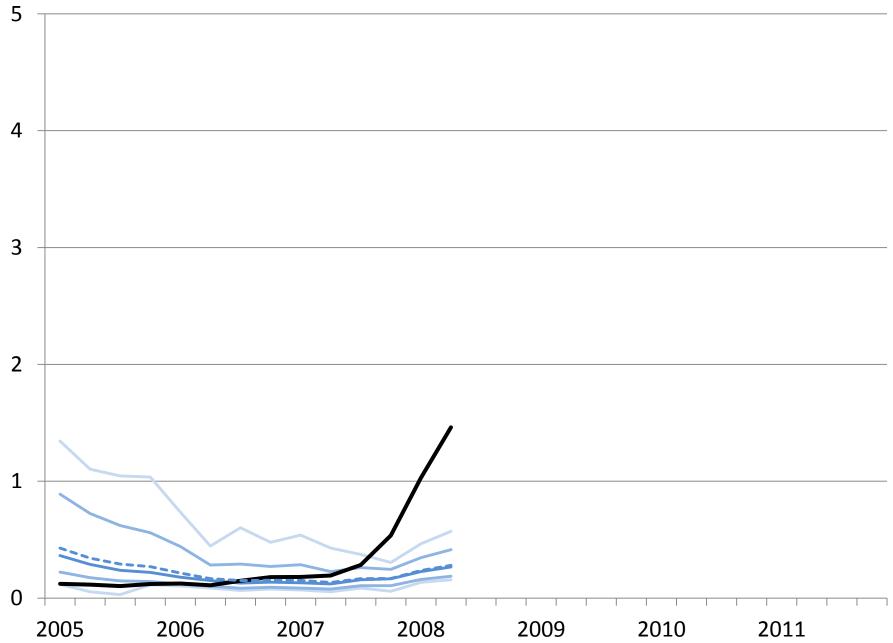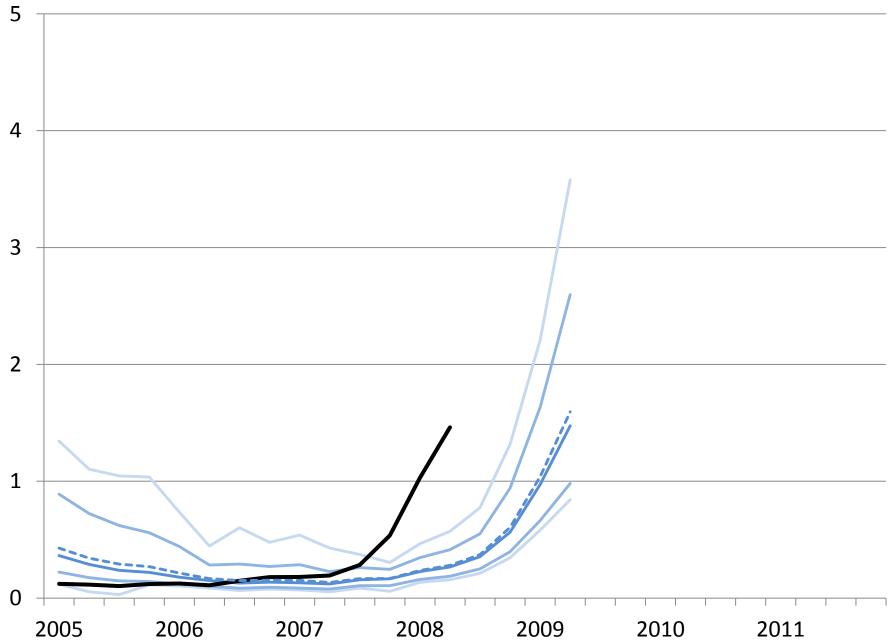
In bad times, NCOs are persistent

Sum of AR Coefficients SFAM

— FE-QAR Estimate

95% confidence interval

- - - FE-OLS Estimate

At the upper quantiles (when NCOs are high), the AR coefficient is close to unity!

Quantile

Let's backtest the model through the crisis

➢ Four-quarter ahead out-of-sample forecasts
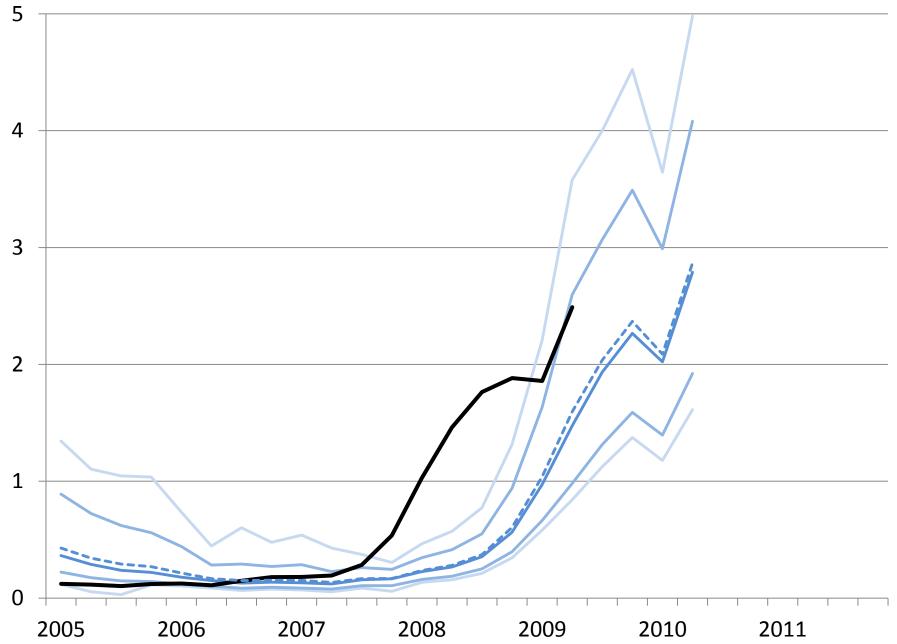
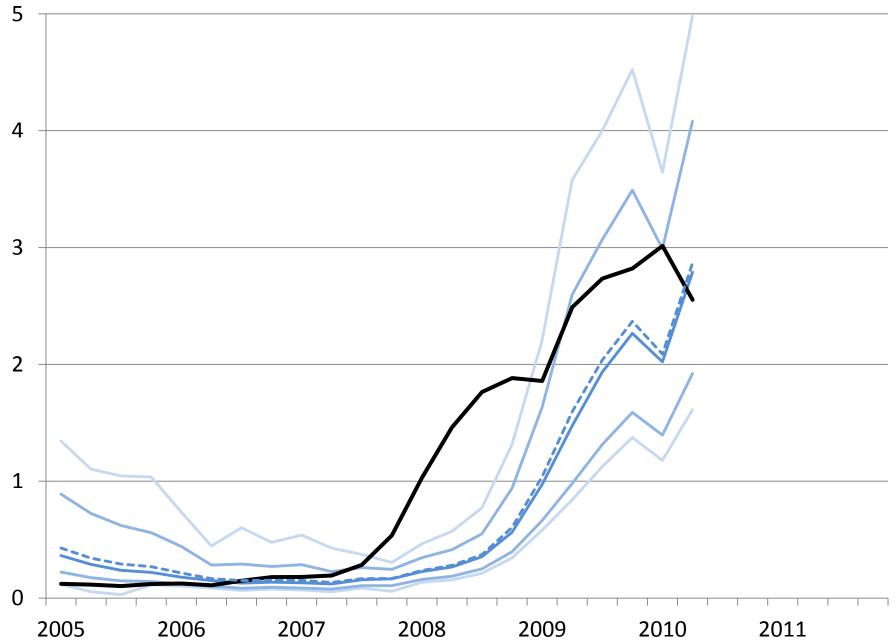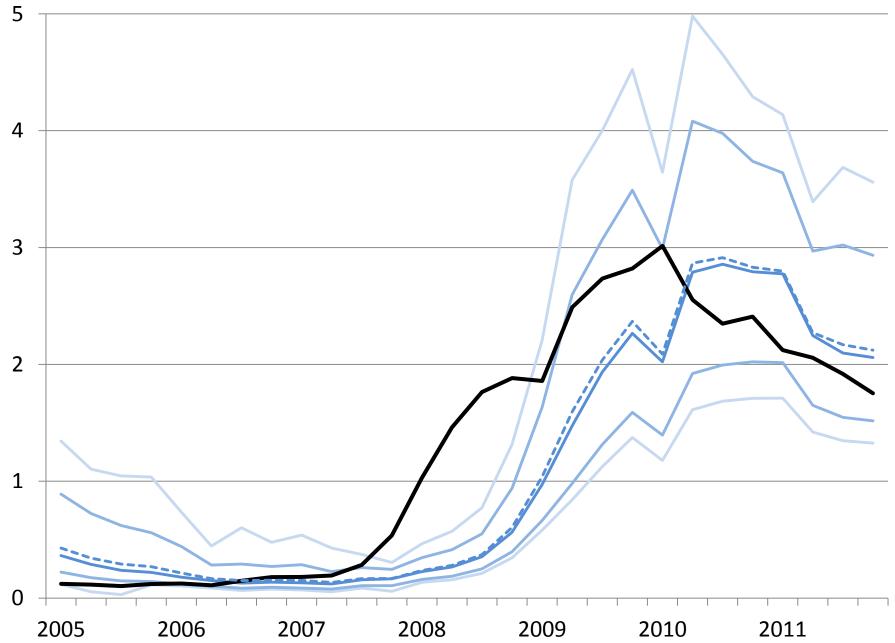➢ Do actual NCOs stay inside a range of quantiles?

99th quantile of 4 qrtr forecast

95th quantile of 4 qrtr forecast

50th quantile of 4 qrtr forecast

Expected value of 4 qrtr forecast

Data

2005   2006   2007   2008

6

Lessons

- Modeling losses in a stress event is hard

- Look deep in the tails—there are no happy accidents in stress scenarios

- Think about underlying structural changes