Motivation/1

- Significant increase in the Fed supervisory staff post crisis
- How is staff employed in terms of supervisory hours?
  - Many hours are employed in the large BHCs, but **not** in proportion of assets (except for very large BHC)
  - Over the years, large banks have received increasingly **more attention** relative to small banks, so the gap has reduced

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<td>Total Assets ($ tn)</td>
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<td>1049</td>
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<td>Total Yearly Hours (thousands)</td>
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<td>347</td>
<td>100</td>
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<td>Total Yearly Hours / Total Assets ($ bn)</td>
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<td>96</td>
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<td>σ(ROA) (%)</td>
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<td>0.80</td>
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<tr>
<td>Probability of Failure (%)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.66</td>
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Motivation/2

- Small and large banks have different risk profiles
  - Large banks are riskier before and during the crisis
  - But less risky after the crisis

- These observations suggest some relationship between size, risk and supervisory hours

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<td>σ(ROA) (%)</td>
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<td>0.66</td>
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3
The paper

- Novel data set containing supervisory hours at the FED
- Main questions
  - What determines supervisory hours?
  - What is the impact of supervision?
  - How are supervisory resources allocated?
Approach of the paper

- It needs a “model”/conceptual framework
- Resource allocation analyzed in different steps
  - One bank in isolation – bank risk and size as determinants of supervisory hours
  - Multiple banks – structural model, two steps approach to study impact of supervision on risk and aggregate resource allocation
- Note: in the model a default externality is introduced – large for banks with assets above $10bn after 2008
Main answers

- Hours spent supervising banks increase with size and risk
  - Size elasticity less than one - potential scale economies
  - “Break” at $10 bn assets – very large banks are special
  - Riskier banks receive more attention – percentage increase smaller for larger banks

- Large sensitivity of bank risk to supervisory effort
  - Supervision has a significant impact in reducing risk

- More attention on very large banks (> $10 bn) post crisis
  - Higher dispersion/scarcity across districts
**General comments**

- Very important (and different) research question
  - We know much too little about supervision
  - We ought to know, also because of post crisis staff increase and current “political climate”
- Novel data set on amounts of hours spent by supervisors doing their job
- Analysis and results can be pushed further
  - The research question
  - Some observations on model and results
The research question

- Two main questions
  - What is the impact of supervision?
  - How are resources allocated?

- Alternative/complementary questions
  - What is the optimal supervisory arrangement?
    - How large should $\alpha$ and $\sigma$ be?
  - Is the observed supervisory arrangement optimal?
    - Are large/small banks supervised enough?
    - Is supervision effective enough?

- Can you find a “counterfactual” to use as benchmark?
  - Or even a way to calculate “optimal” supervision
Some observations on model and results

- Key parameters $\sigma$ and $\alpha$ are constant across type of banks/districts
  - Is this the right assumption?
  - Can you test it?
    - E.g. $\alpha<1$ may suggest larger $\sigma$ for larger banks

- Size elasticity less than 1: economies of scale
  - Where do they come from (e.g., different information extraction problem in small and large banks)?
  - Can it be something else, such as intentional reduction of supervisory hours at large banks, maybe for political risk?
  - How do economies of scale square with the result that impact on risk smaller at larger banks?
Some observations on model and results/2

- First step – baseline specification for supervisory hours
  - Estimates elasticity of hours to bank size $\alpha$

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<tr>
<td>Log(Hours)</td>
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<tr>
<td>Log(Assets)</td>
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<td>0.68***</td>
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</tr>
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<td>0.23***</td>
<td>0.15**</td>
<td>0.15**</td>
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- Estimating model parameter
  1. Treat $\mu$ as a fixed effect $\Rightarrow$ obtain reduced form $\hat{\beta}$
     - Note that $\mu(\beta(\sigma, \alpha, n_i))$
  2. Compute $\hat{\mu}$ from $\hat{\beta}$’s $\Rightarrow$ estimate $\hat{\beta}_\mu$ and $\hat{\sigma}$
  3. From $\hat{\sigma}$ $\Rightarrow$ $\hat{n_i}$ and $\hat{\alpha}$

- $\alpha$ goes from 0.68 to 0.55
- $\sigma$ goes from 1 but 2 with IV

How shall we interpret these (different) numbers?
Conclusions

- Very important topic
  - We know too little about it
  - Authors have to be praised for the idea and the effort
- Difficult paper to write – where to start from?
- Try and push questions and analysis further
  - Clarify research questions
  - Look for some “optimality” criteria/benchmarks
- Policy implications?
Addition slide: The model

- Probability of default of bank $I$
  \[ PD(R_i, s_i) \propto \frac{r(R_i)}{s_i} \]

- Supervisory hours needed for intensity $s_i$
  \[ h(s_i, A_i) = s_i A_i^{\alpha} \]

- Optimal hours for bank $i$ given total hours $\tilde{H}$
  \[ H_i = \frac{(r(R_i) n_i)^{1+\sigma} A_i^{\alpha+1}}{\sum_k (r(R_k) n_k)^{1+\sigma} A_k^{\alpha+1}} \tilde{H} \]

- Lagrange multiplier on budget constraint ($\mu$)
  \[ \mu \frac{1}{1+\sigma} = \frac{1}{\tilde{H}} \sum_i (\sigma r(R_i) n_i)^{1+\sigma} A_i^{\frac{\alpha+1}{1+\sigma}} \]