Bank failures in the US
Selling failed banks

- FDIC sold 467/492 banks in receiverships from 2007 to 2013 (~ 95%)

- Deposit Insurance Fund costs ~ $90 billion
  - Negative balance of $21 billion in 2009 (Davison and Carreon, 2010).

- Also large recipients of government programs
  - Failed banks in our sample received ~ $50 Billion
What to do when banks are failing?

- What to do with failing banks?
  - Bail-out
  - Liquidate
  - Sell
  - Other?

- Selling attractive, preserves:
  - Human capital
  - Relationships etc.

*John Cochrane: “In the great depression, restrictions on branches and interstate banking did that [generate frictions]. The process is, fortunately, much swifter now that the assets of a small local bank can be swiftly bought up by other banks even out of state.”*
Selling failed banks: What are the facts?

- Selling failed banks prevalent, and *theoretically* attractive
- ...But, what are the empirical facts?
- Look at data
  - Who acquires failed banks
  - Relationship of allocation decision to FDIC costs
Selling failed banks: Empirical facts

- Who acquires failed banks?
  - (Very) local banks
  - Banks in similar lines of business
  - Well capitalized banks

- These forces interact
  - Low capitalization of local/similar potential acquirers
    - Failed banks sold further off
    - Failed banks sold to less similar acquirers
  - Larger FDIC costs

- Interpretation: facts consistent with fire sales
Process

- Information gathered and failed bank marketed
  - E-mail inviting prospective buyer to secure data-room
  - Confidentiality agreements
  - Information about failed bank and P&A transaction
  - On-site due diligence (very limited and swift)

- Bidding and Selling
  - Mandate: limit losses to Deposit Insurance Fund
  - FDIC selects winning bidder using “least-cost” test
Fact 1
Banks Sales & “Distance”
Banks Sales & “Distance”

- 33% of failed banks sold to a bank with branch within the same zip code
- 54% of failed banks sold to a bank with branch in the same county
- 84% of failed banks sold to a bank with branch in the same state
Banks Sales and "Distance"
Banks Sales and “Distance”

![Graph showing the relationship between banks sales and distance. The x-axis represents different ranges of distance, and the y-axis represents the percentage of winning acquirers. The graph shows a decreasing trend as distance increases.]
### Banks Sales and "Distance"

<table>
<thead>
<tr>
<th></th>
<th>(1) Pr(acquisition)</th>
<th>(2) Pr(acquisition)</th>
<th>(3) Pr(acquisition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td>-0.6177*** (0.095)</td>
<td>-0.6788*** (0.102)</td>
<td>-0.5454*** (0.089)</td>
</tr>
<tr>
<td>Observations</td>
<td>3,208,591</td>
<td>93,666</td>
<td>9,231</td>
</tr>
<tr>
<td>Failed Bank Fixed-Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Potential-Acquirer Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Potential-Acquirer Fixed-Effects</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Potential-Acquirer/Quarter Fixed-Effects</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Banks Sales and “Distance”

- Bank sales are extremely local
  - 100 mile more distant bank, likelihood of acquisition 13.6 pp lower

- Why local?
  - Soft information
  - Economies of scale
  - Market power
Soft information

- Soft information
  - Difficult to formalize and transmit
  - Deteriorates over physical distance
    - If acquired by distant bank, more soft information loss

- How precise are public assessments of real-estate values (Garmaise and Moskowitz, 2004)
  - COD-coefficient of dispersion
  - High value → public assessments not informative
What does “Distance” represent?

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pr(acquisition)</td>
<td>Pr(acquisition)</td>
</tr>
<tr>
<td>Distance</td>
<td>-0.4754***</td>
<td>-0.3574**</td>
</tr>
<tr>
<td></td>
<td>(0.092)</td>
<td>(0.139)</td>
</tr>
<tr>
<td>High COD×Distance</td>
<td>-0.2382**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.095)</td>
<td></td>
</tr>
<tr>
<td>COD×Distance</td>
<td></td>
<td>-0.0173*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.010)</td>
</tr>
<tr>
<td>Publicly Traded×Distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large×Distance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Observations: 6,635
- Failed Bank Fixed-Effects: Yes, Yes
- Potential-Acquirer/quarter Fixed-Effects: Yes, Yes
Fact 2
Banks Sales & “Asset Specificity”
Banks Sales and “Asset Specificity”

- Substantial heterogeneity in failed banks
  - Commercial real estate loans
    - Mean=58%, St. dev = 20 pp
  - Residential real estate loans
    - Mean=24%, St. dev = 18 pp
  - 11% fiduciary
  - 21% insurance
  - 14% brokerage
  - 10% leasing

- Are failed banks bought by banks with similar portfolio composition & services?
Bank Sales and Asset Specificity: Lending Composition

% Winning Acquirers

Absolute Difference CRE Loan Share

[0,10.8] [10.8,22.1] [22.1,34.5] [34.5,49.6] [>49.6]
Banks Sales and “Asset Specificity”

- Dimension important in allocation of failed banks
  - CRE share $\rightarrow$ 10pp lower probability of acquisition
  - Residential share $\rightarrow$ 9pp lower probability of acquisition
  - Insurance $\rightarrow$ 5pp lower probability of acquisition

- Failed bank assets “specific”
  - Specialized to the type of lending and services provided
  - Cannot costlessly redeploy failed bank’s assets & human capital to different activities
Fact 3
Banks Sales & Capitalization
Capitalization

- Financial health of potential acquirers
  - Low ability to pay for failed bank even if value is high

- Do low capitalized banks acquire?

- Effect on allocation of failed bank
  - Distance
  - Asset specificity
Capitalization of local banks

![Graph showing capitalization of local banks]
Do low capitalization banks acquire?

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1 Capital Ratio (potential acquirer)</td>
<td>0.043***</td>
<td>0.010***</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Leverage Ratio (potential acquirer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>-0.624***</td>
<td>-0.626***</td>
</tr>
<tr>
<td></td>
<td>(0.095)</td>
<td>(0.087)</td>
</tr>
<tr>
<td>CRE Distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>3,202,315</td>
<td>3,202,315</td>
</tr>
<tr>
<td>Failed Bank Fixed-Effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Potential-Acquirer Controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Potential-Acquirer/quarter Fixed-Effects</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
## Capitalization of local banks

<table>
<thead>
<tr>
<th></th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr(acquisition)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P50 Tier 1 Capital Ratio of Local</td>
<td>-0.098***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Acquirers × Distance</td>
<td>(0.025)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Well-Capitalized Local</td>
<td>-0.380***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Acquirers × Distance</td>
<td>(0.117)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P50 Tier 1 Capital Ratio Close CRE</td>
<td>-0.005**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Acquirers × CRE Distance</td>
<td>(0.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Well-Capitalized Close CRE</td>
<td>-0.004*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Acquirers × CRE Distance</td>
<td>(0.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>-0.550***</td>
<td>-0.367***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.084)</td>
<td>(0.108)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRE Distance</td>
<td></td>
<td></td>
<td>-0.018***</td>
<td>-0.007***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.005)</td>
<td>(0.017)</td>
</tr>
<tr>
<td>Observations</td>
<td>8,924</td>
<td>8,924</td>
<td>9,343</td>
<td>9,343</td>
</tr>
<tr>
<td>Failed Bank Fixed-Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Potential-Acquirer Controls</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Potential-Acquirer/quarter Fixed-Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
What drives failed bank allocation

- Two potential channels
  - Bank choices
  - FDIC eligibility criteria

- FDIC eligibility criteria
  - Bank specific
    - CAMELS, CRA record, BHC rating
  - Relative to target
    - Size

- Restrict sample to banks who satisfy criteria
- Restrict sample to actual bidders
Fact 4
Failed Bank Allocation and FDIC Costs
Three forces affect allocation of failed banks:
- Geographic distance
- Business similarity
- Capitalization

FDIC costs of bank failures
- Substantial ~28% of assets
- Large variation ~ st.dev. of 12%

Relationship btw allocation and costs to FDIC?
Bank failures are expensive
Capitalization of local & similar banks

Resolution Cost (% Assets)

Median Tier1 Capital Ratio of Local Potential Acquirers

1  2  3  4  5

.34  .32  .30  .28  .26  .24
Alternative: Common local negative shocks

- Common local negative shocks
  - Increase FDIC costs
  - Decrease capitalization of local banks

- Need: variation in capitalization of local banks independent of local shocks
  - Real estate price decline since 2006
    - Decline in local bank’s capitalization
  - Exclude areas with failed bank branches
    - Exclude common shocks

- Find similar results when we use this variation in an IV
Other robustness

• Bid characteristics

• Alternative measures of resolution costs
  - Net discount offered by the bidder
    • Asset discount – deposit premium
Interpreting the facts

- Selling distressed assets (Shleifer, Vishny, 1992)
  - Best potential buyers have temporarily low ability to pay
  - → misallocation of distressed asset

- In the case of selling assets of failed bank
  - Best potential buyers
    - Local banks
    - Banks in similar lines of business
  - Low capitalization of best buyers → allocation to lower valuation buyers
    - Local / similar banks poorly capitalized → failed bank allocated to farther / less similar buyers
    - Substantial costs to seller (FDIC)
  - Conclusion: Frictions are not negligible
Conclusion

- Four facts:
  - Bank sales very local
  - Bank assets best used by similar potential acquirers
  - Capitalization of acquirers distorts matching
  - Costs to FDIC related to allocation decision

- Facts seem to reject that frictions in bank sales are negligible

- Open questions:
  - What are (facts) on costs or benefits of bailouts?
  - What are costs and benefits on Chapter 11 for banks?