No Shopping in the U.S. Mortgage Market: Direct and Strategic Effects of Providing More Information

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The views expressed are those of the authors and do not necessarily reflect those of the Consumer Financial Protection Bureau or the United States.
Residential mortgages in the U.S

The second largest (after the house) purchase a consumer would make

About 45 million households have a 1st lien mortgage outstanding

About 10 trillion dollars outstanding in 1-4 family mortgage loans

Mortgages are complicated, but there are federally-mandated disclosures

Consumers have plenty of incentives to shop
Competitive landscape

A 30 year fixed rate, conforming mortgage is a homogeneous product

10,000+ creditors, mostly <<1% market shares

Equal access to the secondary market: most mortgages are insured by government and securitized at common rates

Consumers can easily access lenders: most lenders can be reached by phone or online

Conclusion: A pretty good candidate for perfect competition
Dispersion in posted prices is substantial

Conventional loan
State = MA
Loan size = $400K
FICO = 760,
LTV = 80%
October 31, 2014

Normalized market share

Interest rate at zero points

Source: Informa retail ratesheets.
Findings from the raw data

Market for conventional 30 year fixed rate purchase loans

A competitive market with a homogeneous product

Up to 50bps price range even for prime borrowers.

Savings from going actual to lowest price: $292 per mortgage per year

Close to 50% of borrowers did not shop before taking out a mortgage
Findings from the equilibrium search model

Reduce search costs enough to make 20% of consumers make an extra search attempt

Direct effect: better deal for shoppers
Indirect effect: lower prices for all

Expected savings of $83 per mortgage per year
90% of it – indirect effect!
Related literature – some of it...

**Mortgages**

- Woodward and Hall (AER 2012) – dispersion in broker fees;
- Allen, Clark, Houde (AER 2014) – search and bargaining for mortgages in Canada;
- Lacko, Pappalardo (AER 2010) – testing mortgage disclosures

**Search literature generally (very incomplete list!)**

- Koulayev (RAND 2014) – identification of search costs with differentiated products;
Why don’t people shop for mortgages?

Evidence from the national survey of mortgage borrowers
How many different lenders/brokers did you seriously consider before choosing where to apply for your mortgage?
Do you agree or disagree with the following statement: “Mortgage lenders would offer me roughly the same rates and fees”
An equilibrium search model of the mortgage market
Searching for a mortgage: primitives

- Borrower type: Application Date x FICO x LTV x Loan Size x State
- Loan type: 30 year conforming loan, no option of not getting a loan
- Utility by consumer $i$ from lender $j$

$$u_{ij} = -\alpha P(r_{ij}, L_i) + \delta_{ij} + \epsilon_{ij}$$

- The search set = “competition set”
- Search cost:

$$c_i \sim F(c)$$
Searching for a mortgage: search protocol

How would you like to search?

- Non-directed search: a random draw of lenders from the “hat”
  - Learn $u_{ij}$ of the lender drawn

- Directed search: contact a known lender, from the awareness set
  - Know $\delta_{ij}$, but learn $p_{ij}, \epsilon_{ij}$

Optimal search behavior: Rank search alternatives by declining reservation value and continue until the next reservation value falls below status quo
Two types of consumers

- Unobserved consumer type:
  1. (40%) Informed consumers know the price distribution
  2. (60%) Uninformed consumers think prices are the same, but they might be searching for non-price characteristics
- All consumers can compare two price quotes, once they see them.
Competition and awareness sets

All lenders that made at least one sale in a given county in 2014

Lenders that belong to top 30 national
Lenders that are in top 3 in that state
All other lenders as one aggregate

“competition set”

Awareness set
HAT
Data combination

- Rate sheets for 30+ lenders **NEW**
- National Survey of Mortgage Borrowers **NEW**
- HMDA
- Strategic Business Insight marketing survey **NEW**
- CoreLogic (source of FICO, LTV values)
## Awareness sets

<table>
<thead>
<tr>
<th>Lender</th>
<th>Awareness frequency</th>
<th>National rank in sales</th>
<th>National 2014 sales</th>
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<tbody>
<tr>
<td>WELLS</td>
<td>38%</td>
<td>1</td>
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<tr>
<td>JPM</td>
<td>14%</td>
<td>2</td>
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<td>BOFA</td>
<td>12%</td>
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<td>QUICKEN</td>
<td>11%</td>
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<td>5401</td>
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<td>USBANK</td>
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<td>PNC</td>
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<td>53RD</td>
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<td>50</td>
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<td>RBS</td>
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<td>611</td>
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<tr>
<td>STATEFARM</td>
<td>1%</td>
<td>103</td>
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</table>
Price dispersion in this market is substantial

Among 221,000 purchase, 30 year fixed conforming loans made by Informa lenders...

1. Median consumer who bought from an Informa lender has picked a lender ranked #10
2. Only 4% picked the lowest priced Informa lender
3. Average range between lowest priced and highest priced lender is 50 basis points
Estimation

- Likelihood of individual loans + Likelihood of observed search intensities

- 1,123 parameters: lenders, lender-state fixed effects, interactions between consumer types and lenders

- Brand fixed effects are identified from market shares

- Search costs are identified by matching to known aggregate search intensities
Counterfactual: 20% of consumers search one more time

Direct effect: savings from searching more: 9 dollars per year

Indirect effect: savings from lower prices: 75 dollars per year

Total effect: savings of 83 dollars per year, for each loan

Times 45 million loans outstanding...
Conclusions

- Significant price dispersion and substantial dollar gains from search
- Search costs and non-price preferences prevent consumers from shopping more
- Making it easier to shop even for a minority of consumers is likely to have a significant externality for the whole market
- A novel model of search and choice that is suited for markets with large number of sellers