Advertising Expensive Mortgages

Umit Gurun, Gregor Matvos and Amit Seru

UT Dallas, Chicago Booth, and NBER
Wise. Lending.
Specializing in the 1% Mortgage.

$200,000 Mortgage = $529.69 per Month
$400,000 Mortgage = $1,059.38 per Month

$600,000 Mortgage = $1,589.07 per Month

Available for Purchase or Refinance on 1st, 2nd Homes and Investment Properties

No Income Verification
No Asset Verification
Credit Repair Services
Interest Only Loans
40 & 50 Year Loans!!!
Reverse Mortgages
Damaged Credit OK

Lowest Payments Around

Lowest Fixed Rates Available!
Close in the comfort of your own home

100% Financing Available
800-901-2366
191 Hamburg Turnpike
Pompton Lakes, NJ 07442
Call for a FREE Consultation

Loan Officers Wanted, Call Ext. 109

DCG Mortgage
For Home Loan Information

Equal Housing Lender. ©2006 DCG Home Loans, Inc. All DCG Mortgage, licensed by the New Jersey Department of Banking and Finance. Registered Mortgage Broker. NYS Banking Department. Rates and programs subject to change. Not available in all states. This is not a commitment to lend. Restrictions apply. 1% mortgage (3/31/2022).

NEW LOWER MORTGAGE RATES AT CMC!

Option ARMs as low as 1%
= $253 per $100k loan amount

5 Year Fixed payment as low as 4.25%
= $434 per $100k loan amount

Purchase · Refinance · Cash-Out
Continental Mortgage Corp
HOME OF THE EXPRESS MORTGAGE
(703) 891-4200 · (301) 762-6200 · (540) 347-5363
Approvals by Phone or On-Line www.cmcln.com
Perception: advertising is hurting consumers

Response: litigation

- ARM resets not clear (marketed as fixed):
  - The Office of the Attorney General’s Consumer Protection Section in Colorado sued or settled with 16 lenders
  - Arizona Office of Attorney General v Wells Fargo Bank
  - FED and DOJ v Wells Fargo ($260 million fine)

- Targeting minorities
  - State of Illinois v Countrywide Financial Corporation/Bank of America
  - ACLU against Morgan Stanley
Perception: advertising is hurting consumers
Response: advertising regulation

- FED: Regulation Z
- FTC: Mortgage Acts and Practices Advertising rule
  - Advertising confuses people about interest rates
  - ARM / FRM choice
- Congress: Dodd-Frank
  - Consumer Financial Protection Bureau (CFPB)
Is advertising bad for consumers?

- We have anecdotes, examples...
Is advertising bad for consumers?

- We have anecdotes, examples...

- How do you tell good (informative) advertising from bad (persuasive)?
  - How do you tell a “bad” choice?
- Example:
  - Advertising of apples increases apple consumption relative to oranges
  - Is eating apples worse for the consumer than eating oranges?
Roadmap

- Focus on ARM reset rates
  - Subject of litigation & regulation
- Framework to compare mortgage choices across borrowers
  - Finding dominated choices
- Advertising apples v oranges
  - Higher prices are bad for consumer all else equal
  - Find consumers who are overpaying for same product
- Relate relative mortgage expensiveness to mortgage advertising
- Additional support in advertising content
Data

- Mortgage Data
  - Subprime, securitized, 90% of market

- Advertising Data
  - TNS Media Intelligence (TNSMI)
    - Use local media spending
    - Outlets: Network TV, cable, national newspapers, local newspapers
  - Mintel
    - Advertising content
    - Outlets: print, direct mail

- Sample 2002 - 2007
Measuring relative loan “expensiveness”

- A loan is “expensive” if the reset rate, $y$, is high relative to borrower observables $X$

$$y_{ijtk} = \beta_{ijlt} + \alpha_t + \alpha_l + \Gamma X_{ilt} + \varepsilon_{ijlt}$$

- Observables of borrower $X_{ilt}$: FICO, size, ltv, low documentation,
- Observables of applicant county: race, median income, percentage poor, education etc.
- Other: quarter, $t$, DMA, $l$
- Initial interest rate $i_{ijlt}$

- Residual measures “excessive” reset rate $y - \hat{y}$
Loan expensiveness

Figure 3.a
Evaluate the size of dispersion
Back of the envelope

- Mean mortgage $200k
- Mean 95-5 percentile interest rate difference $\approx 3\%$
- $6000$ per year
Do advertisers charge more?

Figure 5

The diagram illustrates the density distribution of reset rates for advertisers (solid line) and non-advertisers (dashed line). The y-axis represents the density, and the x-axis represents the reset rate. The red line represents advertisers, and the black dashed line represents non-advertisers.
## Panel A. ARM Loan Sample

<table>
<thead>
<tr>
<th>Advertising (all) (x100)</th>
<th>Y = Lender Expensiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) 0.0314** (0.0115)</td>
</tr>
<tr>
<td>Advertising (others) (x100)</td>
<td>0.111 (0.0816)</td>
</tr>
<tr>
<td>Advertising (newspapers)(x100)</td>
<td>0.0368*** (0.0122)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quarter Fixed Effects</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lender Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Region Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>51,895</td>
<td>51,895</td>
<td>51,895</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.139</td>
<td>0.139</td>
<td>0.139</td>
</tr>
</tbody>
</table>
### Panel A. Advertising and Expensiveness

<table>
<thead>
<tr>
<th>Minority %</th>
<th>Minority %</th>
<th>Educated %</th>
<th>Educated %</th>
<th>Poor %</th>
<th>Poor %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (1.00)</td>
<td>High (2.00)</td>
<td>Low (3.00)</td>
<td>High (4.00)</td>
<td>Low (5.00)</td>
<td>High (6.00)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Advertising (all) (x100)</th>
<th>-0.0461</th>
<th>0.0338***</th>
<th>0.0708***</th>
<th>0.00616</th>
<th>0.00246</th>
<th>0.0369**</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.06)</td>
<td>(0.01)</td>
<td>(0.02)</td>
<td>(0.01)</td>
<td>(0.02)</td>
<td>(0.01)</td>
<td></td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observations</th>
<th>25,922</th>
<th>25,973</th>
<th>26,008</th>
<th>25,887</th>
<th>26,093</th>
<th>25,802</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>R-squared</th>
<th>0.15</th>
<th>0.158</th>
<th>0.151</th>
<th>0.16</th>
<th>0.157</th>
<th>0.148</th>
</tr>
</thead>
</table>

Advertising Expensive Mortgages

Gurun, Matvos and Seru (Chicago Booth)
Alternative:

- Condition on a ton of “observables”
  - initial rate
  - FICO, LTV, loan amount
  - lender,
  - time,
  - location.

- Is this sufficient?

- Alternative:
  - Advertisers attract borrowers with *unobservably* low ability to repay / high catering costs
  - Charge higher interest rates
Ability to repay / catering costs

- Low unobservable ability to repay $\Rightarrow$ ex post low repayment
  - Observe lower delinquency for advertiser’s borrowers

- Observe catering costs for large lender
  - No differences b/w borrowers which are susceptible to ads
  - No difference b/w high/low advertising periods
IV for mortgage advertising

Craigslist

- Idea:
  - Craigslist $\uparrow \Rightarrow$ Advertising (advertisers v. non-advertisers) $\downarrow$
  - Advertising $\downarrow \Rightarrow$ Expensiveness (advertisers v. non-advertisers) $\downarrow$

Validity:
Forum for free mortgage advertising in its financial services section
Could Craigslist entry plausibly affect mortgage advertising

4.8% in Dallas, TX - 12.3% in Pittsburgh, PA

Survey responses
Job advertising in newspapers (Kroft and Pope 2012)

Exclusion restriction
Entry staggered across markets
CL does not select on borrowers' unobservable quality
IV for mortgage advertising

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  - Advertising $\downarrow \Rightarrow$ Expensiveness (advertisers v. non-advertisers) $\downarrow$

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    - 4.8% in Dallas, TX - 12.3% in Pittsburgh, PA
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  - Advertising ↓ ⇒ Expensiveness (advertisers v. non-advertisers) ↓

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  - Forum for free mortgage advertising in its financial services section
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    - 4.8% in Dallas, TX - 12.3% in Pittsburgh, PA
    - Survey responses
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- Exclusion restriction
  - Entry staggered across markets
  - CL does not select on borrowers’ unobservable quality
Craigslist entry
Staggered introduction (Figure 6)
Craigslist effect

Figure 7
Good IV?

- Largest drop in newspaper advertising

- Pre-trends / post trends on observables
  - Advertising - YES
  - FICO, LTV, pre pay penalty, low doc- NO

- Substitution of paid advertising into Craigslist
  - Scrape who advertises on CL and merge
    - Little overlap
    - Drop overlap
Magnitude

- IV coefficient = 0.0711
  - $1,000 ⇒ reset rate increase 7.1bp

Assumptions:
- Average spending $\sim$ $25,000$
- Average mortgage $\sim$ $200,000$
- 15 year ARM, reset after 2 years
- Discount at 10%

- Upper bound $\sim$ $21,000$
- Pay reset for 3 years $\sim$ $7,500$
Evidence so far supports persuasive view of advertising

- Positive correlation between advertising intensity and pricing within market

Can we say more? Advertising content analysis:

- Shrouds resets and increases salience of initial rates
- Low (negative) correlation between advertised and actual rates
- Advertising generic characteristics—not about product differentiation
Reset rates almost never explicitly advertised

Panel A. ARM Mortgage Related Advertising Campaigns

<table>
<thead>
<tr>
<th>Search Term</th>
<th>No. Campaigns</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM</td>
<td>4,238</td>
</tr>
<tr>
<td>Reset</td>
<td>13</td>
</tr>
<tr>
<td>Adjust</td>
<td>1,885</td>
</tr>
<tr>
<td>Explicit interest rate</td>
<td>4,234</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,136</strong></td>
</tr>
</tbody>
</table>

Panel B. Advertisement Displays Two Interest Rates

<table>
<thead>
<tr>
<th>Search Term</th>
<th>No. Campaigns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second rate is APR</td>
<td>11,387</td>
</tr>
<tr>
<td>Multiple products</td>
<td>1,676</td>
</tr>
<tr>
<td>Other</td>
<td>128</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,191</strong></td>
</tr>
</tbody>
</table>
Table 10

**Panel C. Phrases on Low Rates**

<table>
<thead>
<tr>
<th>Search Term</th>
<th>No. Campaigns</th>
</tr>
</thead>
<tbody>
<tr>
<td>As low as</td>
<td>3,632</td>
</tr>
<tr>
<td>Intro</td>
<td>769</td>
</tr>
<tr>
<td>Initial</td>
<td>346</td>
</tr>
<tr>
<td>Starting</td>
<td>608</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,747</strong></td>
</tr>
</tbody>
</table>
Not necessary to advertise reset rates?
APR a sufficient statistic?
Low APR → Cheap lender?

<table>
<thead>
<tr>
<th>APR</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>APR</td>
<td>-0.0205** (0.009)</td>
<td>-0.0258** (0.013)</td>
<td>-0.0105 (0.009)</td>
<td>-0.0093 (0.015)</td>
</tr>
<tr>
<td>Controls</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Quarter Fixed Effects</td>
<td>Yes</td>
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<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>807</td>
<td>807</td>
<td>807</td>
<td>807</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.222</td>
<td>0.230</td>
<td>0.421</td>
<td>0.598</td>
</tr>
</tbody>
</table>
What is advertised

- Generic mortgage characteristics
- Advertising:
  - Horizon
  - Amount
  - Name, address...

- What is *not* advertised
  - Detailed product descriptions
  - Servicing, renegotiation...
Conclusion

What are the facts:

- Dispersion in prices paid by similar borrowers
- Generic models of informative advertising have a difficult time explaining facts:
  - Within market correlation b/w pricing & advertising
  - Negative correlation between advertised prices and transacted prices
  - Generic information advertised
- Persuasive advertising:
  - Some customers not sophisticated
    - Salience / obfuscation
    - Reset versus initial
  - Heterogeneity (minority, low education and poor)