

\$1.25 Trillion is Still Real Money

Some Facts about the Effects of the Federal Reserve's Mortgage Market Investments

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The views expressed are those of the authors and do not necessarily represent the views of the Federal Reserve Bank of Boston or the Federal Reserve System.

Overview

- November 25, 2008, 8:15am: Fed announces large scale asset purchases — \$500 billion of mortgage-backed securities backed by Fannie, Freddie, and Ginnie (+ \$100bn GSE debt)

Spreads of rates on GSE debt and on GSE-guaranteed mortgages have widened appreciably of late. This action is being taken to reduce the cost and increase the availability of credit for the purchase of houses, which in turn should support housing markets and foster improved conditions in financial markets more generally.

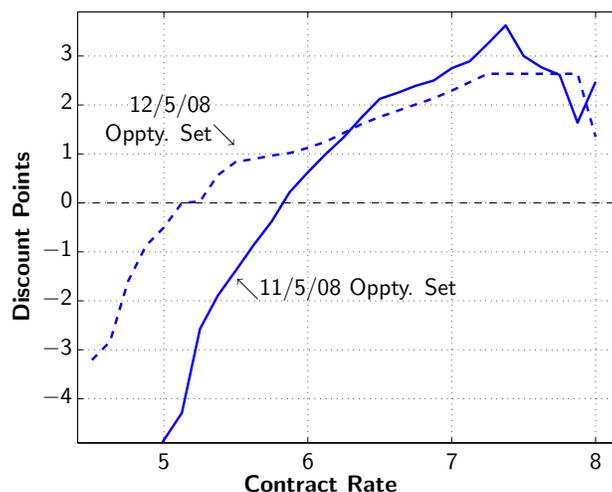
- March 19, 2009: Extension of program – purchase an additional \$750 billion of MBS
- Purchases executed between January 5, 2009, and March 31, 2010

Overview

- We consider effects of LSAPs on the primary mortgage market:
 - ① Prices – look at changes to “borrower opportunity set” using a new dataset
 - ② Quantities – explosion of refinancing but little change in purchase market
 - ③ Quantities – disproportionately flowed to highly creditworthy borrowers
- Three goals:
 - ① Policy analysis – Did LSAPs affect the housing market and the economy?
 - ② Understanding mortgage pricing
 - ③ Understanding refinancing behavior: what prevented less creditworthy borrowers from refinancing?

Prices: Borrower Opportunity Set

- For a given product, lenders offer combinations of rates and points (1 point = 1% of loan amount)
- Adjustments add or subtract points



LoanSifter Data

- We obtained data from LoanSifter, a search engine through which brokers can get mortgage quotes from lenders
- Relational database based on lender rate sheets
- Plug in

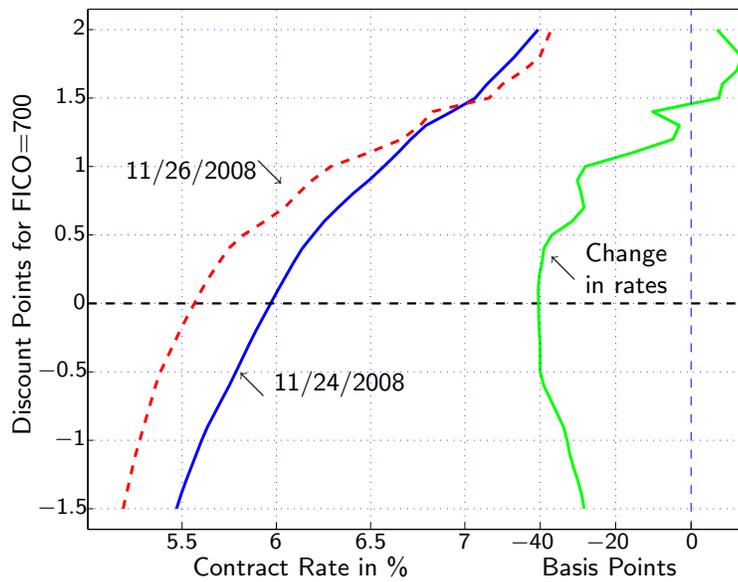
Loan amount	Loan-to-value ratio (LTV)	Cumulative LTV (all liens)
FICO	Debt-to-income ratio	Documentation type
State	Loan type (fixed, ARM, balloon)	Terms (15 years, 30 years, etc.)
Prepayment penalty	Lock period	Property type
Purpose (purchase, refi)	Owner-occupied or investment	Desired rate or desired points

- We have daily backups for Oct. 16, 2008 through Feb. 9, 2009 (except Dec. 8 to 14)
- (Also have data on actual searches – later)

Baseline Borrower

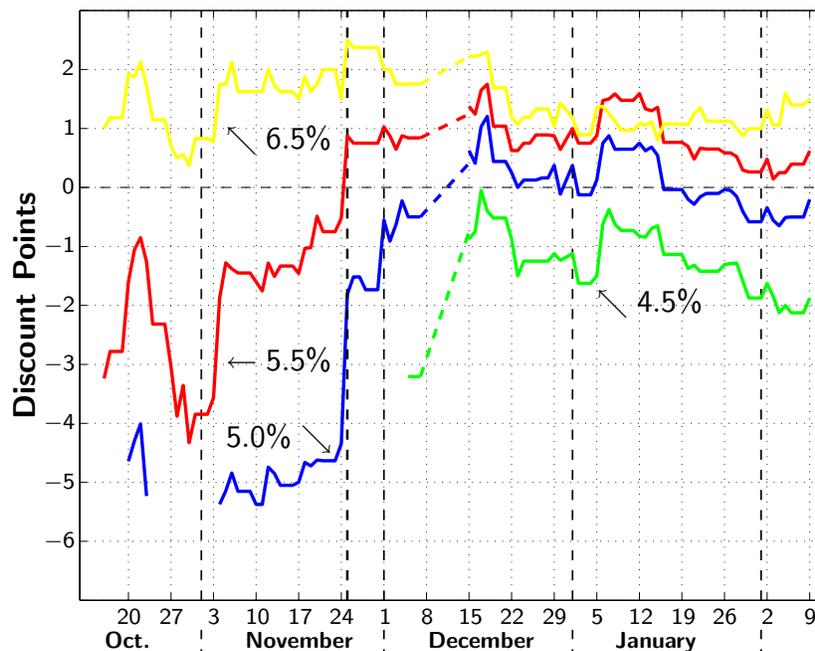
- \$300,000 mortgage
- property is worth \$375,000 \Rightarrow LTV=80%
- DTI=35%, fully documented
- owner-occupied single-family home
- FICO=700
- 30-year FRM
- 30-day lock
- Show best offer from about 40 lenders (mean and median look similar)

Shifts in the Opportunity Set around 11/25/08



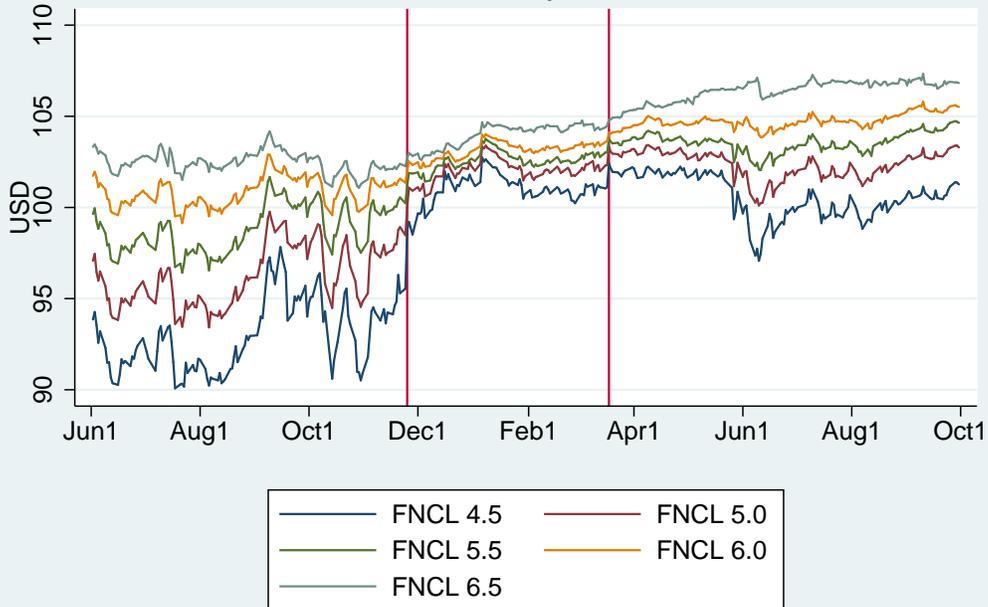
- Day before LSAP Announcement
- Day after
- Change in rates for different # of points

Best Offers Before and After 11/25



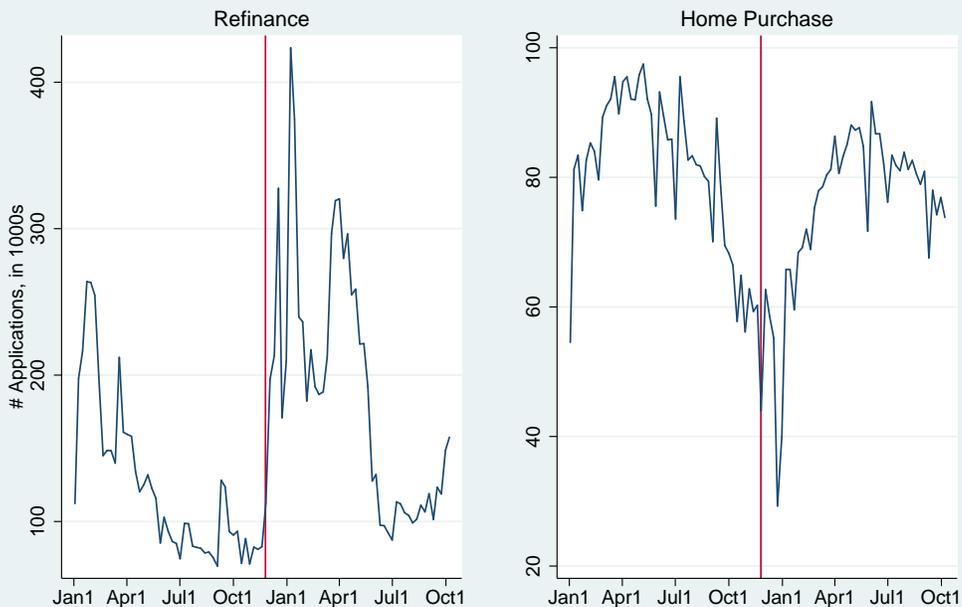
MBS Prices

Price of 30-year Fannie Mae MBS with Different Coupons June 2008 to September 2009



Quantities: Activity after 11/25/08 (HMDA)

Weekly Mortgage Application Volume, Jan. 2008 to Oct. 2009

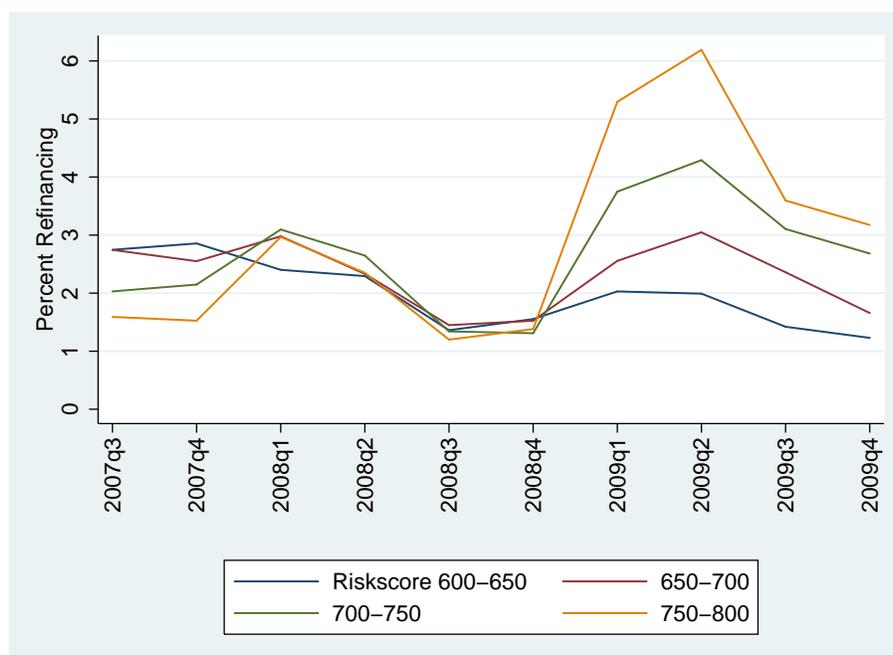


Refinancing Activity around Nov. 25, 2008

Compared to week before announcement, on and after Nov. 25...

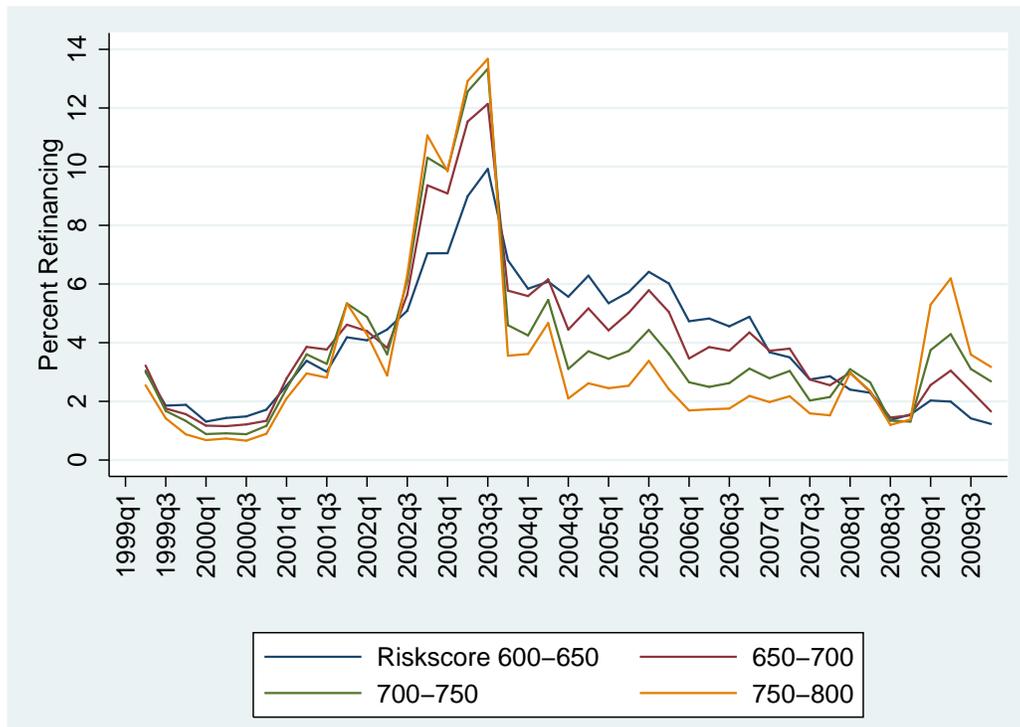
- LoanSifter: Refi search activity increases by about 300%
- HMDA: Refi applications and originations go up by about 200%
- No similar effects for purchase mortgages
- Originations skewed towards high FICO borrowers:
Applications leading to originations...
 - Roughly double for FICO < 700
 - Increase seven-fold for FICO > 780
 - (Effect ~monotonically increasing in between)

Refi Propensity By Riskscore Bin (Equifax – MA, CT, RI only)



- Similar pattern in LPS data

Refi Propensity Since 1999

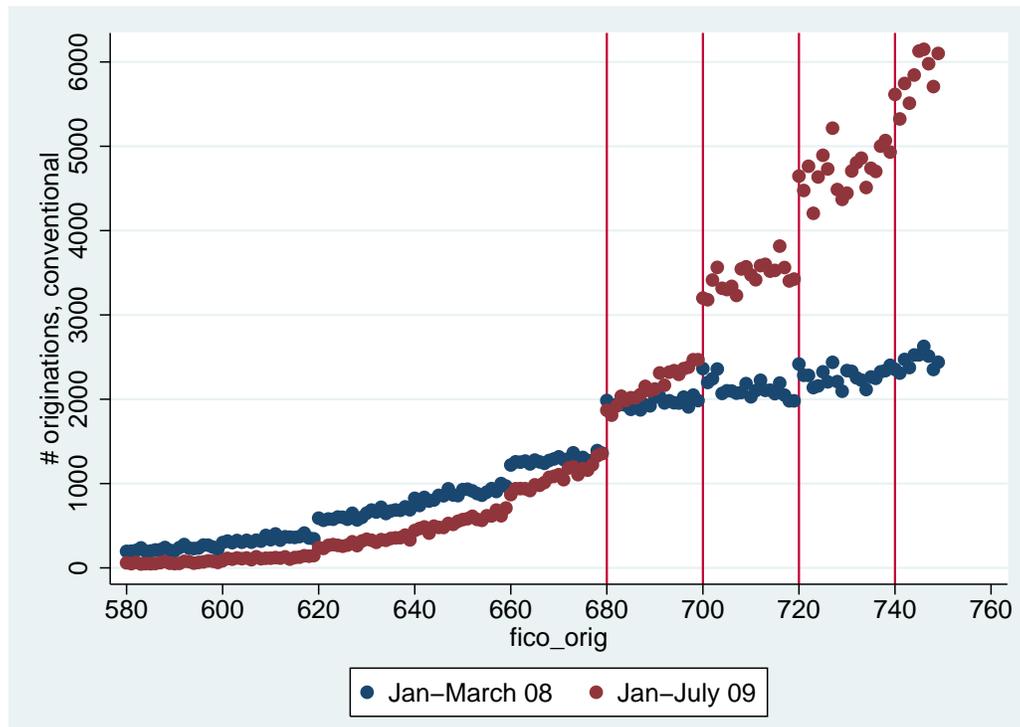


Why Did Only Few Low-FICO Borrowers Refinance?

Different hypotheses:

- ① Tight underwriting standards — applications get denied
 - Can look at HMDA – no FICO but income
 - Denial rates went down after Nov 2008 for all income categories
- ② More likely to be underwater (or nearly so)
 - People who live in towns that have experienced large HP declines are less likely to refinance
 - But preliminary analysis suggests that even after controlling for that, still get strong FICO-Refi relationship in 2009
- ③ Something correlated with FICO
 - Maybe low-FICO borrowers don't pay attention / lack sophistication
 - LoanSifter search data: searches for highest FICO category go up about twice as much as for FICO <700

Refi Originations by FICO (LPS)



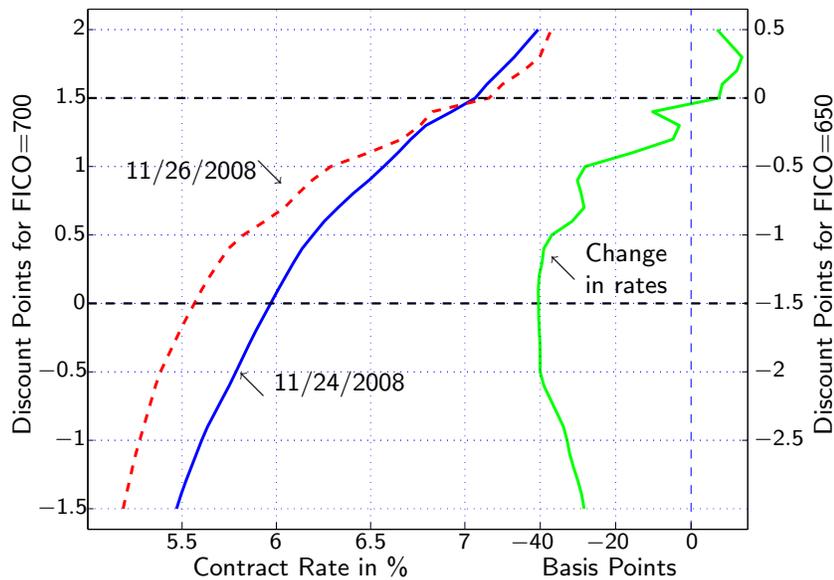
Explanation 4: Higher Upfront Costs

- In the fall of 2007, FNMA and FHLMC introduced surcharges
 - Loan-Level Price Adjustments (Fannie Mae)
 - Post-Settlement Delivery Fees (Freddie Mac)
- For LTV between 75 and 80 percent:
(fee in percent of loan amount)

<i>Announcement Number</i>	07-16	08-04	08-18R	08-38
<i>Date Announced</i>	November 6, 2007	March 6, 2008	August 11, 2008	December 29, 2008
<i>Date Effective</i>	March 1, 2008	June 1, 2008	November 1, 2008	April 1, 2009
FICO score ≥ 740	0	0	0	0
720-739	0	0	0.25	0.25
700-719	0	0.5	0.75	0.75
680-699	0	0.5	1	1.5
660-679	0.75	1.25	1.75	2.5
640-659	1.25	1.75	2.25	3
620-639	1.75	2.5	2.75	3
<620	2	2.75	2.75	3

- Additional LLPAs if mortgage classified as cash-out

LLPAs and Rate Changes



- What effect do LLPAs have in this figure?
- What if we consider a borrower with FICO=650?
- Right axis – everything shifts up 1.5 points

Policy

- Did LSAPs affect house prices?
 - No increase in purchase mortgage activity
 - Little evidence that it changed distribution of buyers
- Did LSAPs boost consumption?
 - Refis go to people *least* likely to spend it
 - Looking at Equifax to get a better sense of that
- Are there things we should do differently?
 - To what extent did LLPAs prevent borrowers from refinancing?
 - (Now capped at 2% for “Refi Plus” / “Relief Refi” (HARP))
 - A wider MBS “stack” might have helped

THE END – THANK YOU!

Additional Material

November 2008

- Fed Funds rate at 1%.
- Economy in free-fall
 - October NFP change (revised): -554,000
 - November NFP change (revised): -728,000
- October 28-29 FOMC Meeting:

"[Some members] maintained that the possibility of reduced policy effectiveness and the limited scope for reducing the [Fed Funds] target further were reasons for a more aggressive policy adjustment; an easing of policy should contribute to a beneficial reduction in some borrowing costs, even if a given rate reduction currently would elicit a smaller effect than in more typical circumstances, and more aggressive easing should reduce the odds of a deflationary outcome."
- Chairman Bernanke on the zero lower bound in 2002:

Yet another option [to stimulate the economy] would be for the Fed to use its existing authority to operate in the markets for agency debt.

LSAPs

- \$500 billion

- FNMA
- FHLMC
- GNMA

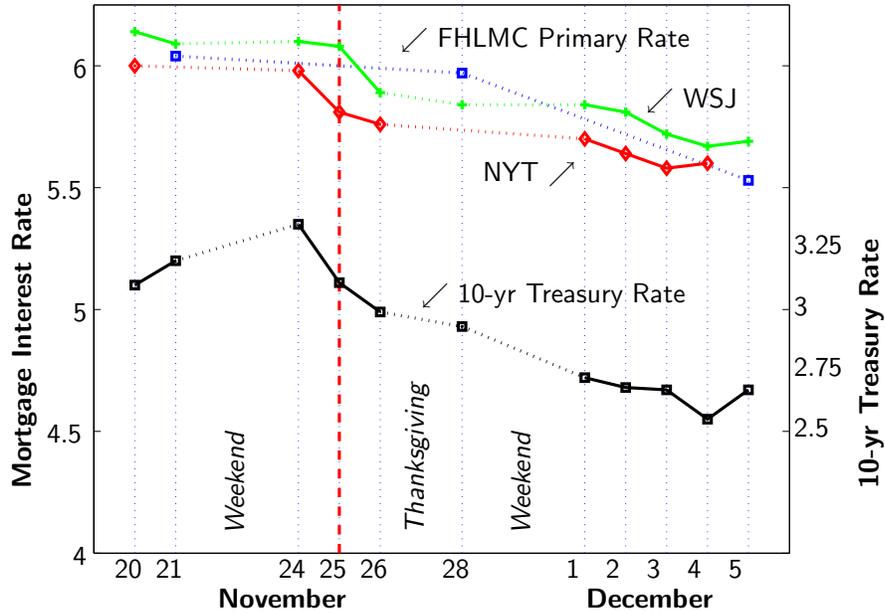
- Goals according to...

- (1) the FOMC: *"This action is being taken to reduce the cost and increase the availability of credit for the purchase of houses, which in turn should support housing markets and foster improved conditions in financial markets more generally."*
- (2) Don Kohn: *"Our purchases of longer-term Treasury, agency, and agency-guaranteed mortgage-backed securities were undertaken to support aggregate demand."*
- (3) "man on the street" : *"If you don't have to send \$1,000 a month to your mortgage lender but only \$900, you've got \$100 a month to go stimulate the economy," Gumbinger said. "That's probably as, if not more important, than stimulating home buying."*

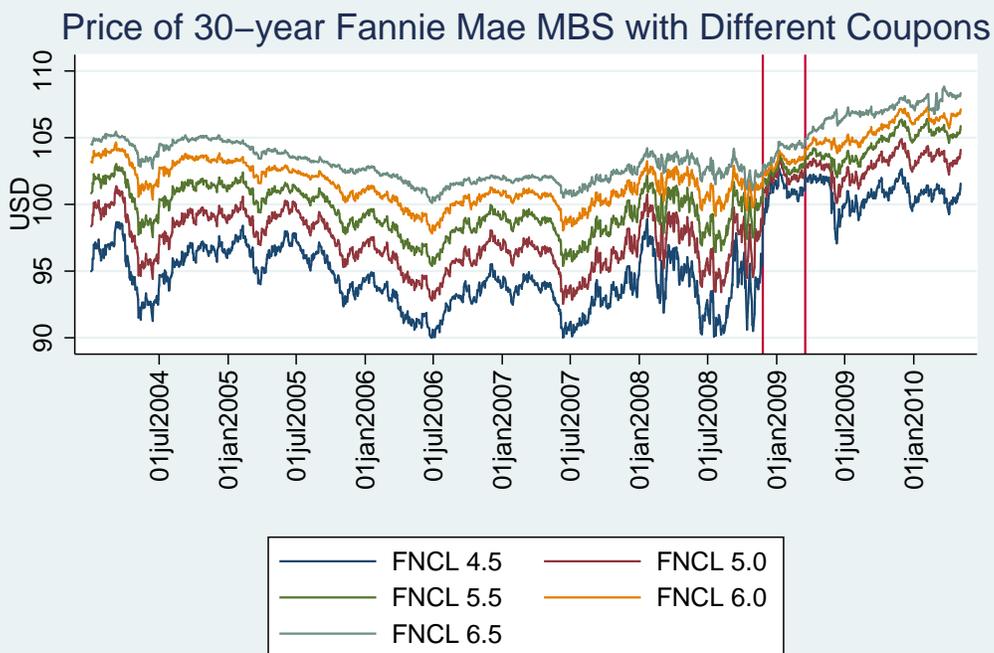
Timeline

Date	Event
November 25, 2008	Initial LSAP announcement in which the Federal Reserve stated it would purchase up to \$100 billion in agency debt, and up to \$500 billion in agency MBS.
December 1, 2008	Chairman Bernanke's speech, in which he stated that in order to influence financial conditions, the Federal Reserve "could purchase longer-term Treasury securities in substantial quantities."
December 5, 2008	Labor Department reports that nonfarm payroll employment fell by 533,000 jobs, the worst showing since 1974 and far more than the 350,000 that economists expected.
December 16, 2008	FOMC Statement: "The Committee is also evaluating the potential benefits of purchasing longer-term Treasury securities."
December 30, 2008	The Federal Reserve Bank of New York issues details of the LSAP program and announces that "purchases are expected to begin in early January, 2009."
January 5, 2009	The New York Fed makes its initial purchase of agency MBS.
January 28, 2009	FOMC Statement: "The Committee also is prepared to purchase longer-term Treasury securities if evolving circumstances indicate that such transactions would be particularly effective in improving conditions in private credit markets."
March 18, 2009	FOMC intends to buy "additional \$750 billion of agency mortgage-backed securities, bringing its total purchases of these securities to up to \$1.25 trillion this year, and to increase its purchases of agency debt this year by up to \$100 billion to a total of up to \$200 billion" and "to purchase up to \$300 billion of longer-term Treasury securities over the next six months."

Interest rates over the period immediately before and after the 11/25/2008 announcement of the LSAP.

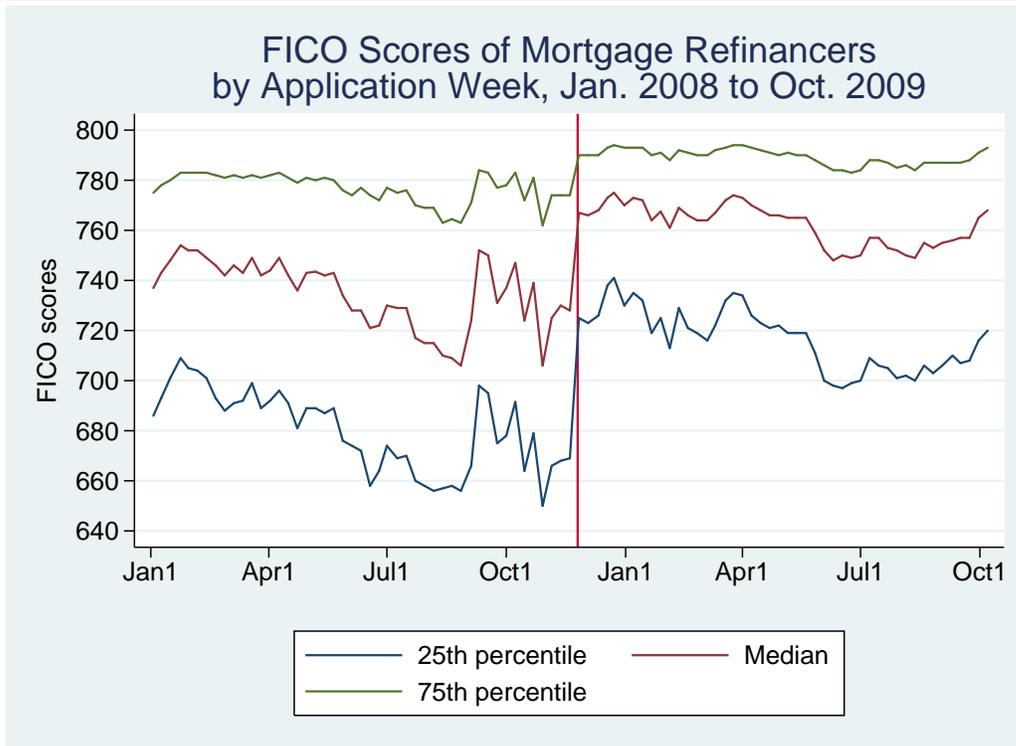


Compression was unprecedented

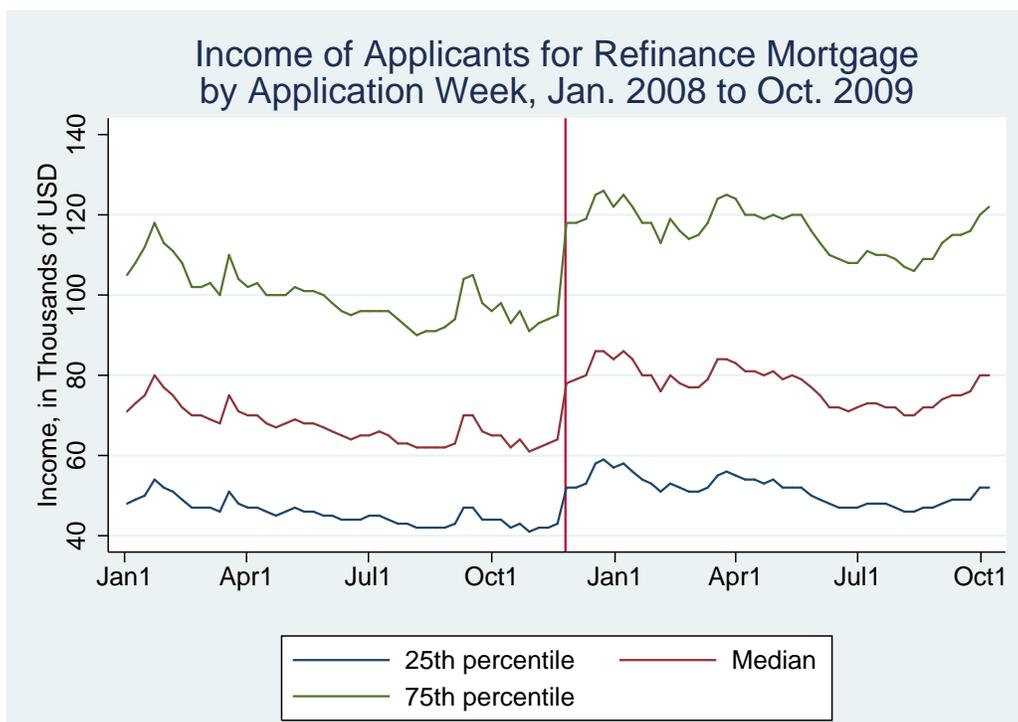


Source: Bloomberg

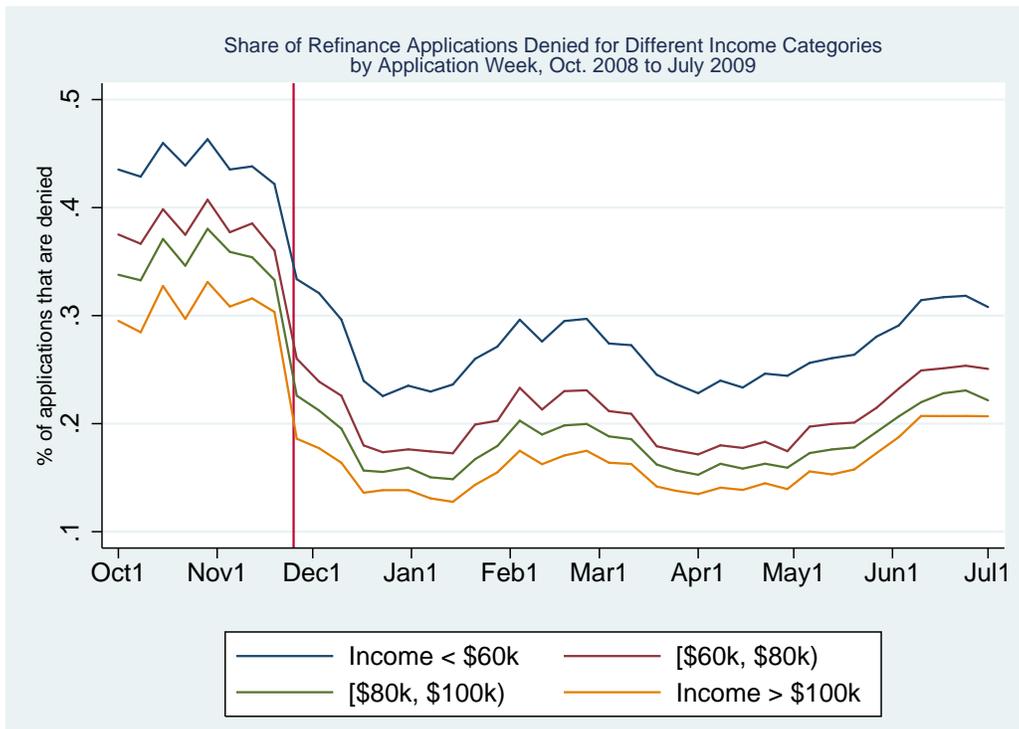
FICO Scores of Originated Mortgages (LPS/HMDA)



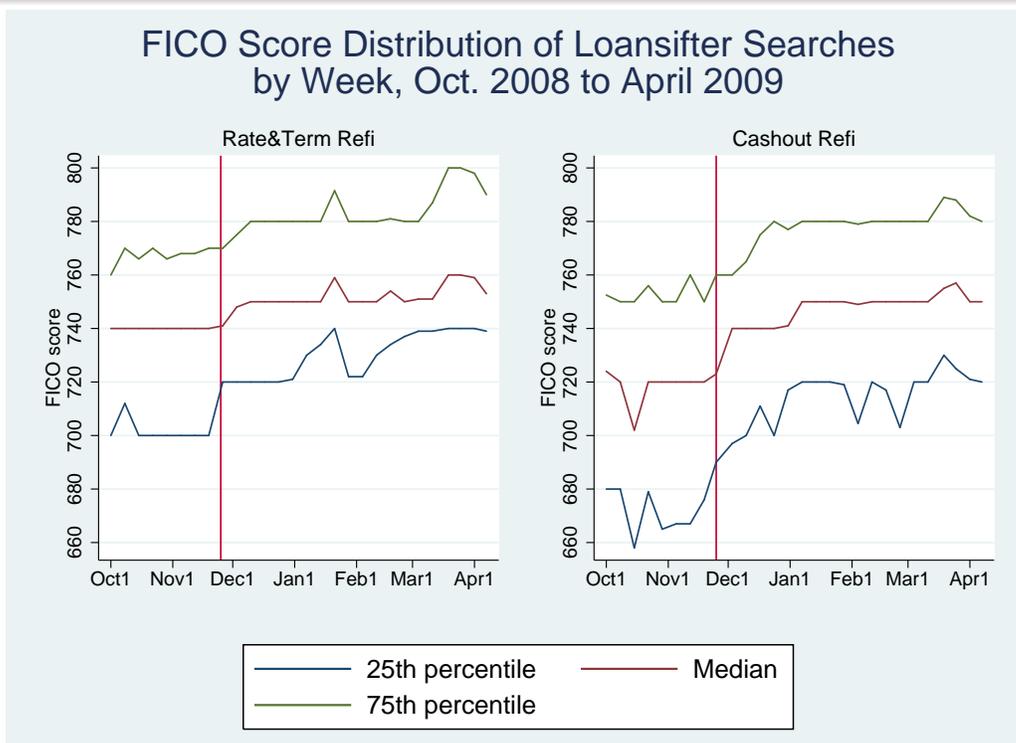
Income Distribution of Refi Mortgage Applicants (HMDA)



Denials by Income Level (HMDA)



Searches (LoanSifter)



A Lack of “Refi Experience”? (Equifax – MA, CT, RI only)

