

Owner Occupancy Fraud and Mortgage Performance

Ronel Elul

Sebastian Tilson

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Overview

- We use a matched credit bureau and mortgage dataset to identify occupancy fraud in residential mortgage originations- borrowers who misrepresented their occupancy status as owner occupants rather than residential real estate investors.
 - *Why* would borrowers do this? To obtain better terms – e.g. lower interest rates, larger loans, as we show.
- In contrast to previous work, we demonstrate that such fraud was broad-based, appearing in the GSE market and loans held on bank portfolios as well.

- Borrowers who misrepresented their occupancy status performed worse than otherwise similar owner occupants and declared investors, defaulting at a more than 50% higher rate.
- These defaults are significantly more likely to be *strategic* – their bank card performance is better and utilization is lower, they are more sensitive to house prices.

Economic Context

- Recent work by Adelino, Schoar and Severino (2016), and Foote, Loewenstein, Willen (2016) has suggested that the prime sector played a larger role in the increase in mortgage debt in the house boom and subsequent defaults during the bust
- Also known that investors represented a large share of the increase in mortgage debt , especially late in the housing boom and in “Bubble States”. Made up an outsize share of defaults (Bhutta, 2015)

- Our work

- More than doubles the size of the effective investor population.
 - We show most of these were prime borrowers.
- They account for a significant share of defaults for originations in this period
- These fraudulent borrowers' default decisions were particularly sensitive to house price declines

- Policy response has been very modest...
- New private sector tools to identify fraud – some use similar methodology
- Some signs occupancy fraud continues, albeit at lower levels...

Previous Literature

- Broad interest in mortgage fraud, in as much as it may have contributed to housing bubble and bust, default rates
- Mortgage Fraud – generally associated w/elevated default risk
 - Garmaise (2015): personal asset misreporting
 - Mian and Sufi (2015): income misstatement
 - Griffin and Maturana (2015): unreported second liens, appraisal overstatements, owner occupancy misreporting
 - Piskorski et al (2015): “silent seconds”, owner occupancy mis-reporting
- Investors
 - Haughwout, Lee, Tracy, and van der Klaauw (2011)
 - Chinco and Mayer (2016)

Data Description

- Use a matched credit-bureau-mortgage dataset (CRISM)
 - Mortgage data from LPS: detailed mortgage characteristics used to assess default risk, etc.
 - Credit-bureau data from Equifax: other mortgages, address information, performance on other liabilities (esp. bankcards)
- Our sample: 146,425 *purchase* (first) mortgages originated from June 2005- Dec 2007

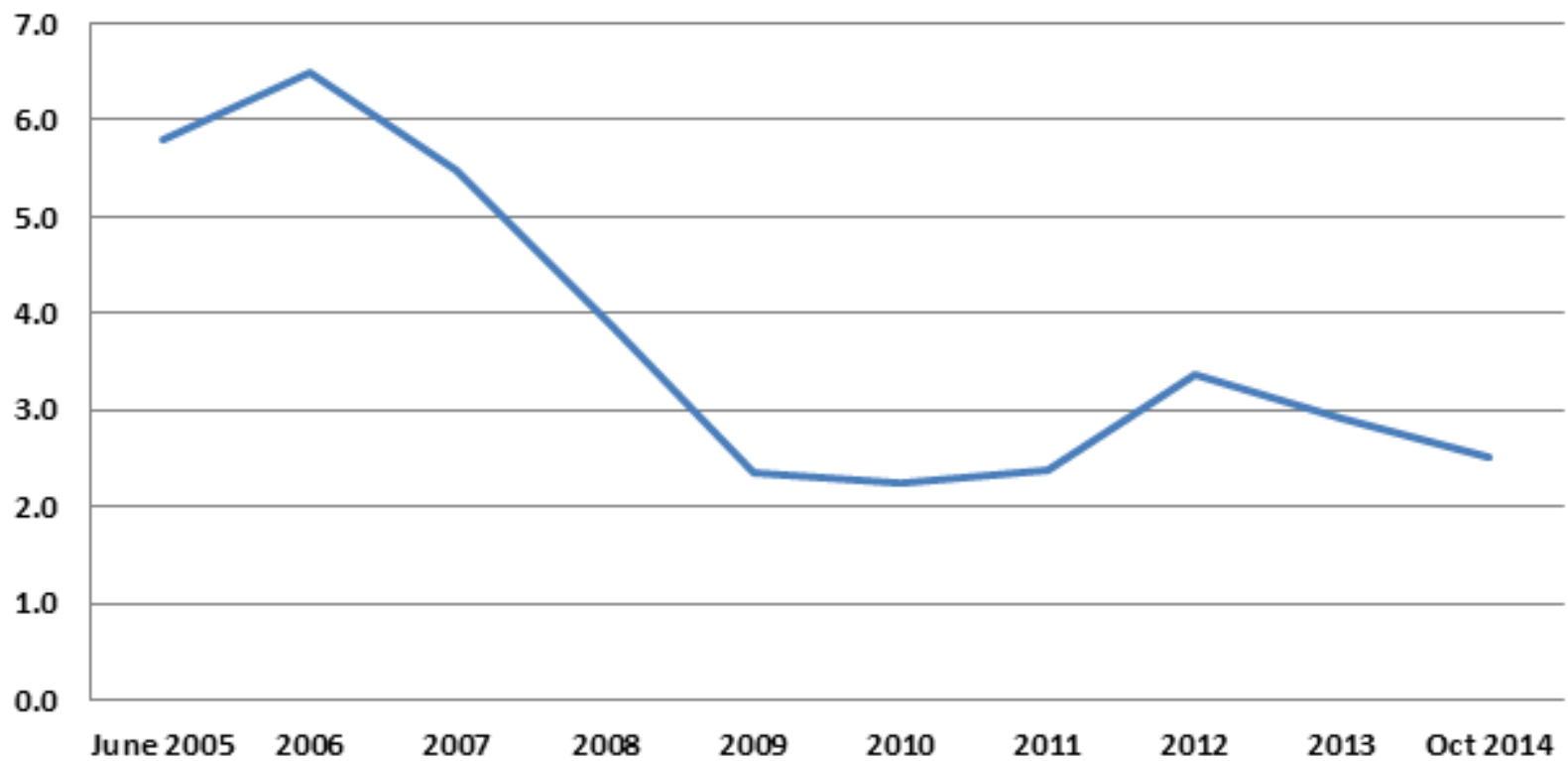
Data, cont.

- McDash:
 - Approx. 2/3 of all mortgages. Somewhat overweights large lenders.
 - Mortgage characteristics at origination: LTV, FICO, investor, interest type, appraised house value, purchase/refi, etc.
 - Dynamic mortgage variables: principal balance, performance, interest rate
- Equifax
 - Other mortgages: first and second (important)
 - Bank card: utilization and performance
 - Scrambled address (important)
- Also calculate updated LTV using Corelogic zip code level house price index
- County unemployment rates from BLS

Identifying Occupancy Fraud

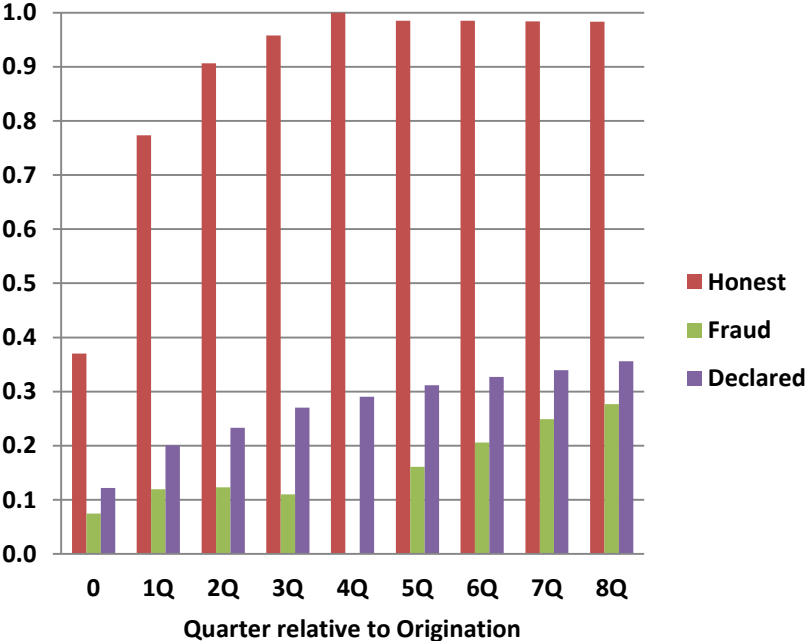
- Declared investors: from McDash occupancy type
- Second homeowners: from McDash occupancy type
- Fraudulent Investors :
 - McDash occupancy type: claimed *owner occupied*
 - *But* no change in Equifax scrambled addresses within one quarter before and four quarters after their matched McDash mortgage originated
 - More than one first-lien mortgage on their credit bureau files on year after origination
- Honest Homeowners: reported owner-occupied; address changes across origination

Occupancy Fraud Share for the June 2005 - Oct. 2014 Vintages

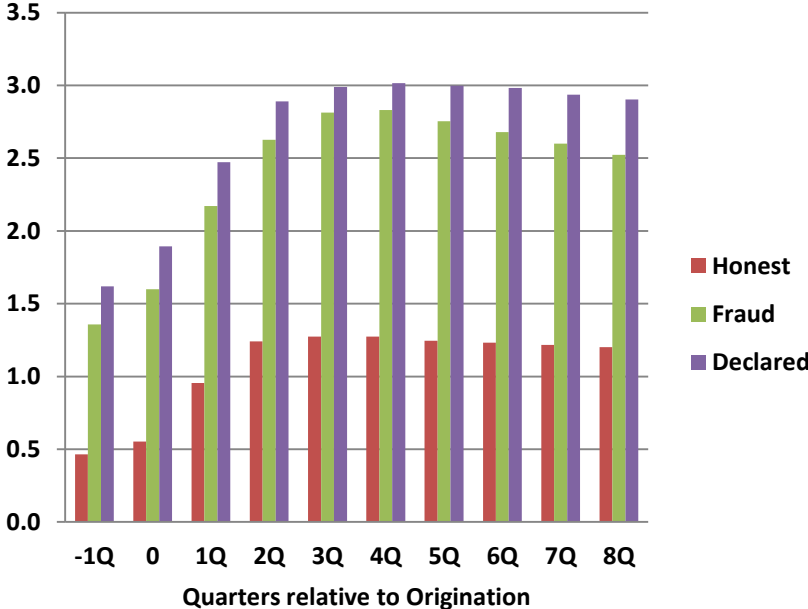


Clean Distinction Between Types

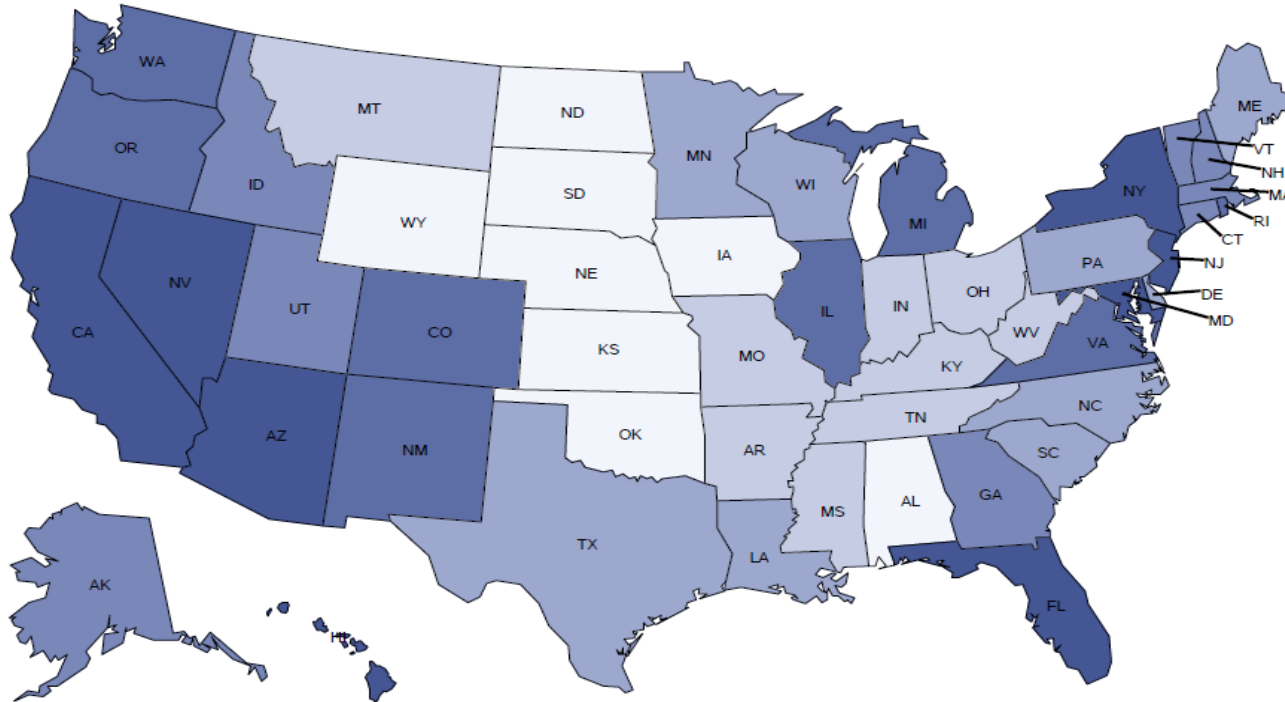
Prob. of Address Change



Number of First Liens



Incidence of Fraud



Our contributions

- Show occupancy fraud widespread: also present in GSE and portfolio loans, which made up over 50% of the market.
 - Also show fraud common within zip codes
- Careful study of default risk of fraudulent loans
 - Fraudulent loans made up 18% of all defaults for originations in this time period
 - Can separate effect of fraud from multiple liens, investor type, etc.
- Fraudulent investors' defaults likelier to be “strategic”

Summary Statistics

Characteristic	Honest Owner Occupant	Fraudulent Investor	Declared Investor	Second Homeowner
Number Loans	128,494	8,717	9,255	5,988
Share	84.3%	5.7%	6.1%	3.9%
Share by Origination Dollars	84.1%	7.4%	4.5%	4.0%
Share of Delinq/Defaults – Count (through Dec. '08)	77.6%	13.5%	6.4%	2.5%
Share of Delinq/Defaults - \$ (through Dec' 08)	74.7%	17.7%	5.0%	2.6%
Serious Delinq/Default (60+ DPD) Through Dec '08	9.7%	25.4%	11.4%	6.4%
Serious Delinq/Default (60+ DPD) Through July 2015	26.8%	49.4%	27.3%	22.8%
Equifax Zip (+4Q) = McDash Zip Code	89.8%	28.0%	26.5%	18.8%
Equifax MSA (+4Q) = McDash MSA	96.0%	69.4%	59.8%	28.4%
Multiple First Liens	20.4%	100.0%	70.0%	52.9%
Bubble State	18.3%	42.0%	27.5%	30.0%
Subprime	26.0%	18.9%	10.3%	7.5%
FICO Score (Origination)	705.8	711.0	728.4	739.6
LTV Ratio (Origination)	81.8%	78.7%	75.7%	75.8%
CLTV Ratio (Origination)	86.3%	92.2%	104.2%	88.9%
LTV > 80% or LTV = 80 + 2nd lien near origination	44.4%	34.2%	29.3%	29.5%

Summary Stats, cont.

Characteristic	Honest Owner Occupant	Fraudulent Investor	Declared Investor	Second Homeowner
Δ HPI: Origination to December 2008	-13.0%	-21.1%	-15.8%	-16.0%
Δ HPI: 1 Year before Origination	6.5%	8.2%	9.5%	10.2%
Second Liens around Origination	28.6%	50.3%	53.2%	41.8%
Interest Rate (Origination)	6.45%	6.65%	7.00%	6.43%
Brokered	19.9%	25.6%	20.2%	14.3%
ARM	22.7%	46.5%	34.1%	30.9%
Interest Only	15.2%	31.8%	19.8%	23.0%
Jumbo	10.2%	19.9%	5.6%	10.5%
Low/No-Documentation Type	16.3%	20.6%	15.3%	13.1%
Unknown Documentation Type	47.6%	53.6%	56.1%	56.8%
Investor Type: PLS	22.75%	42.3%	39.7%	22.4%
Investor Type: GSE	55.50%	43.7%	52.7%	66.9%
Investor Type: Portfolio	9.15%	12.0%	7.5%	10.7%
Bank Card Utilization (December 2008)	37.1%	37.9%	34.1%	29.0%
Bank Card Utilization >80%	19.3%	20.2%	17.3%	13.0%
Bank Card Default (December 2008)	13.5%	13.6%	11.5%	5.9%

Comparison of Terms

- With respect to some mortgage terms fraudulent investors more similar to honest homeowners than declared investors:
 - Higher origination LTVs
 - Lower origination FICO
 - Lower interest rates
- But like declared investors: more likely to have second mortgages, ARMs
- Uniquely risky: more likely to have IO's, jumbos, lowdoc, "bubble states", broker-originated

Fraud Rate Across Investor Types

	Fraud Share of Borrowers by Vintage and Investor Type				
	All	FHA	GSE	Private Securitized	Portfolio
2005 Second Half	5.8	0.9	4.4	8.3	8.1
2006 First Half	6.7	0.9	4.5	11.4	8.4
2006 Second Half	6.3	1.0	4.6	11.4	7.2
2007 First Half	5.8	1.2	5.0	11.4	6.9
2007 Second Half	5.2	1.4	5.3	7.8	8.1

- Most common for private securitized and portfolio loans, also present in GSE
 - Sharp drop in fraud rate for PLS in 2007H2, picked up by GSEs and Portfolio
- Very rare for FHA loans.
 - May be due to strict enforcement of FHA policy on owner occupancy

Default

- We find that fraudulent investors are 7.9 percentage points more likely to default, after controlling for observables, relative to overall default rate of 10%.
 - Along the lines of previous work
- About half of this can then be explained by the presence of multiple liens and second mortgages, but they are still over 3.5 percentage points more likely to default than either honest homeowners or declared investors who also have multiple first mortgages
 - Equivalent to a FICO score difference of ~35 points.

Default, cont.

- Also interact fraud indicator with investor type: no significant difference in default impact of fraud across GSE, PLS, Portfolio
- Also include declared second homeowners – these are a distinct category (much lower default risk)
- Controls: FICO, LTV @orig, lowdoc, Δ HPI, Δ unemp, interest rate, jumbo, broker, investor type, origination year, etc.

Table 5: Default	(1)	(2)	(3)	Marginals
Fraudulent	0.478*** (0.020)	0.266*** (0.022)	0.242*** (0.022)	0.036*** (0.004)
Declared Investor	0.131*** (0.024)	-0.017 (0.026)	-0.046* (0.026)	-0.006* (0.003)
Second Homebuyer	-0.051 (0.034)	-0.135*** (0.035)	-0.151*** (0.035)	-0.019*** (0.004)
Multi First Liens		0.336*** (0.014)	0.341*** (0.014)	0.046*** (0.002)
Second (Jr) Liens			0.203*** (0.013)	0.028*** (0.002)

Default, cont.

- Relative effect of occupancy fraud most striking for higher credit score borrowers

Originating FICO Score	Honest Owner Occupant (%)	Fraudulent Investor (%)	Declared Investor (%)
Deep Subprime (350–549)	32.5	40.4	75.0
Subprime (550–619)	27.1	49.1	39.5
Nonprime (620–679)	16.8	43.1	24.1
Prime (680–739)	7.8	27.5	13.7
Super Prime (740–850)	2.2	11.8	4.6

“Strategic” Default

- Show that fraudulent investors are more “strategic” in their approach to default
- Consider two measures of strategic default
 - Compare bankcard utilization in and out of default.
 - Sensitivity of default decision to house price declines vs. unemployment increases

Strategic Default, cont.

- Bankcard Utilization
 - When they *do not default*, fraudulent investors have similar bank card utilization and default rates to other borrower types
 - However, conditional on *being in default*, fraudulent investors' bank cards look significantly better: lower utilization, less likely to be in default

Bank Card Util. > 80% (Dec 2008)	No Default	Default
Honest Homeowners	16%	52%
Fraudulent Investors	15%	36%
Declared Investors	14%	43%
Second Homeowners	11%	40%

- Confirm in multivariate regressions (Tables 6a/b)
 - Also find that, conditional upon default: higher origination FICO, higher current LTV, IO, Low/no-doc, are all associated with lower utilization.
 - FHA → higher utilization. Little else significant.

Strategic Default, cont.

- Sensitivity to house price declines
 - Table 5 also shows that fraudulent investors' default decisions are *25% more sensitive* to HPI declines than honest homeowners (declared investors are *~20% less sensitive*) and that the fraudulent investors are insensitive to unemployment changes (after controlling for other covariates)

Table 5: Default	(3)	(10)
Fraudulent	0.242*** (0.022)	0.233*** (0.047)
Declared Investor	-0.046* (0.026)	0.129** (0.051)
Second Homeowner	-0.151*** (0.035)	-0.111 (0.081)
HPI Apprec.: Close to Dec'08	-2.200*** (0.072)	-2.172*** (0.076)
Chg Unemp: Close to Dec'08	0.024*** (0.006)	0.030*** (0.006)
Fraudulent # Chg Unemp: Close to Dec'08		-0.046*** (0.017)
Declared Investor # Chg Unemp: Close to Dec'08		-0.022 (0.018)
Second # Chg Unemp: Close to Dec'08		-0.020 (0.024)
Fraudulent # HPI Apprec.: Close to Dec'08		-0.624*** (0.175)
Declared Investor # HPI Apprec: Close to Dec'08		0.501*** (0.193)
Second #HPI Apprec: Close to Dec'08		-0.123 (0.271)

Were Lenders Aware?

Interest Rate Comparison

- Interest rates slightly higher than honest homeowners, on average, but much lower than declared investors
- Largest spread for Portfolio lenders: may have known/cared the most

Interest Rates, cont.

	GSE		FHA		Private Securit.		Portfolio	
Borrower Type	FRM	ARM	FRM	ARM	FRM	ARM	FRM	ARM
Honest Owner Occupant	6.36	6.15	6.34	5.45	6.73	6.97	6.31	6.11
Fraudulent Investor	6.45	6.34	6.37	4.96	6.96	6.95	6.73	6.27
Declared Investor	6.77	6.82	6.34	-	7.30	7.35	7.10	6.49
Second Homebuyers	6.30	6.22	5.25	-	6.70	6.82	6.71	6.50

- Regression model in Table 8: 14-18bp higher (FRM/ARM) for fraudulent investors, 49-59bp for declared
 - Controls for FICO, LTV, lowdoc, multiple mortgages, jumbo, state, origination month, initial hybrid ARM fixed term, unemp. @ orig., option-ARM, IO, broker

Conclusions

- We explore owner occupancy fraud, and its effect on mortgage default
- Show that fraud was widespread, associated with elevated default rates & more “strategic” behavior
- May explain contribution of prime borrowers to housing boom and bust