

Things My Mortgage Broker Never Told Me: Escrow, Property Taxes, and Mortgage Delinquency

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Two Disclaimers

- 1 The views in this presentation do not reflect those of the Federal Reserve Board or its staff.
- 2 Work in progress.

Background & Motivation

- 75% of subprime loans do not have escrow accounts for property taxes & insurance
- → Subprime borrowers face large, arguably unanticipated, semi-annual property tax bills
 - \$2,099 = median annual property tax payment
 - 140% of median monthly housing cost (=\$1,464)
 - 2.9% of median household income (=\$73,408)
- Subprime borrowers have demonstrated inability to make loan payments
- Since mid-2006, subprime borrowers have defaulted at an alarmingly high rate

Property Taxes & Escrow Accounts

- Property taxes are the primary lien on a property.
- Property taxes are tied to a property not to a person. Thus, the current owner is always liable, never a previous owner.
- Upon loan origination, lender may establish escrow deposit account for the buyer
- Buyer makes an initial deposit into account at closing & makes equal, fixed monthly payments.
- Escrow manager pays property tax bills out of escrow deposit account
- Monthly payments may be changed each year. Legal limits on escrow balances. Most do not pay interest.
- Failure to pay property taxes results in forfeiture of property

To Escrow or Not to Escrow

- Why Escrow?
 - Lenders: Monitor borrower tax payments (avoid forfeiture)
 - Borrowers: Smooth tax payments with monthly mortgage payments
 - Borrowers: Some insurance against property tax increases
 - Borrowers: Record-keeping and technical advice on tax matters
- Why Not Escrow?
 - Lowers closing costs and monthly payments
 - Most Escrow accounts are not interest bearing
 - Lax underwriting: originate more mortgages if taxes “ignored”

Limited Empirical Evidence on Households with Escrow Accounts

Table 1: Evidence on Escrow Accounts in the 2001, 2004, and 2007 Survey of Consumer Finances

	2001	2004	2007
% Homeowner	68.6	69.1	68.6
% w/Mortgage	42.0	44.5	44.7
Among Those w/Mortgage, Payment Includes:			
Property Taxes	61.2	63.1	54.4
Homeowners Insurance	56.2	60.0	51.1
PMI	34.5	26.3	22.4
Property Taxes & Homeowners Insurance	53.2	57.0	48.6
Property Taxes or Homeowners Insurance	64.2	66.1	56.8
Property Taxes or Homeowners Insurance or PMI	71.3	70.7	63.0
Median Mortgage Payment (monthly)	\$810	\$920	\$1,000
Sample Size	4,442	4,519	4,418

Note. Median mortgage payment amounts are not adjusted for inflation.

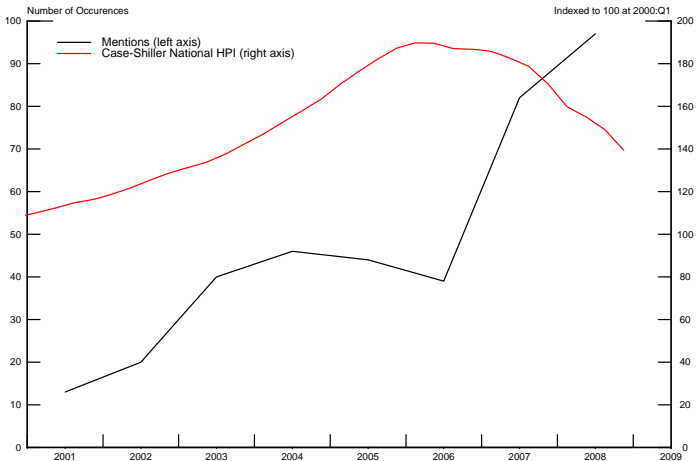
Escrow Accounts: Prime vs. Subprime

- For conforming loans, GSEs do not require escrow, but strongly recommend.
“we do not recommend waiving escrows for a borrower who has a blemished credit record because the borrower may find it difficult to maintain homeownership if he or she is faced with the need to make lump-sum payments for taxes and/or insurance.”
-Fannie Mae Servicing Guide
- Washington Mutual (now JP Morgan Chase) began requiring escrow accounts on all new subprime loans beginning in July 2007.

Policy Environment

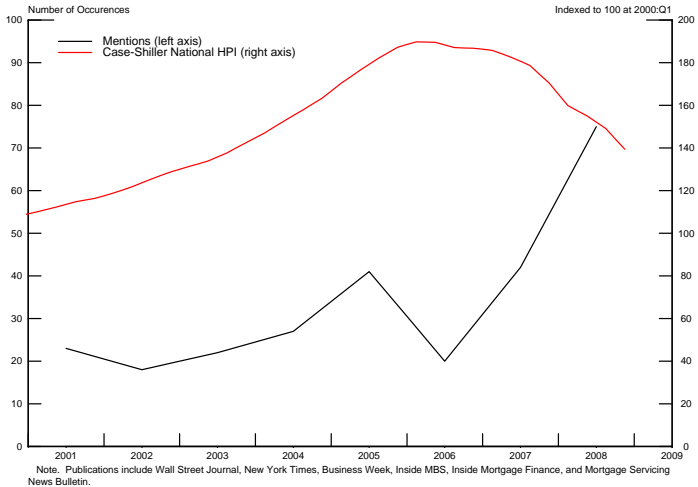
- Surveys of homeowners show property taxes contribute to delinquency (Gramlich)
- Home Ownership Protection Equity Protection Act (HOEPA) revised: “Fourth, creditors are required to establish an escrow account for property taxes and homeowner’s insurance for all first-lien mortgage loans. This addresses the concern that the lack of escrows in the subprime market increases the risk that consumers’ borrowing decisions will be based on misleading low payment quotes that do not reflect the true cost of their homeownership obligations. The rule preserves some consumer choice by permitting creditors to allow consumers to opt-out of the escrow account after 12 months.”

Number of Occurrences of "Escrow" & "Mortgage" in News Media



Note. Publications include Wall Street Journal, New York Times, Business Week, Inside MBS, Inside Mortgage Finance, and Mortgage Servicing News Bulletin.

Number of Occurrences of "Property Taxes" & "Mortgage" in News Media



Focus of This Paper

- 1 Apply a theoretical model to characterize how property tax bills influence mortgage delinquency/default decisions
- 2 Exploit random timing of property tax due dates relative to when loans are originated to answer:
 - Are households able to make their mortgage payments when faced with (exogenous) large, semi-annual financial obligations (aka “payment shock”)?
 - Identification may allow us to answer whether “trigger events” contribute to the likelihood a homeowner will default
- 3 Discuss the likely effect of the lack of an escrow on mortgage outcomes

Theoretical Model of Default with Property Taxes

What happens when property taxes are due?

- With escrow or dedicated savings, household is prepared
⇒ nothing happens
- With no escrow or dedicated savings, lump-sum tax bill is due
 - Revelation of true costs of home ownership (surprise!?)
 - Household must re-optimize ⇒
 - Reduce consumption or borrow
 - Decide which bills to pay
 - Re-optimization takes into account:
 - Relative magnitude of delinquency penalties
 - Costs of borrowing to pay taxes and/or mortgage

Implications for Cumulative Delinquency/Default

- In general, cumulative delinquency/default function is increasing over time (income shocks, trigger events, negative equity)
- When property taxes are due, increase in financial obligations triggers more delinquency/default than would otherwise occur
- If households borrow more to meet financial obligations, strained households may be more susceptible to trigger events and negative equity
- In this case, in periods after property taxes are due, cumulative delinquency/defaults continue to increase at a higher rate

Empirical Specification

- Apply event study framework (Jacobson et al. 1993):

$$Y_{it} = \sum_{j=-8}^8 \beta_j * 1(\text{RelTime} = j)_i + \gamma X_{it} + \alpha Z_i + \delta_t + \epsilon_{it}$$

- Y_{it} : indicator for whether i is delinquent in period t or earlier
- X_{it} : vector of time-varying covariates
- Z_i : vector of time-invariant loan characteristics (underwriting)
- δ_t : calendar time fixed effects
- ϵ_{it} : error term
- β_j : cumulative mortgage delinquency rate j periods before/after first property tax due date
- Outcomes: 30- & 60- & 90-day cumulative delinquency rate; cumulative foreclosure (start) rate

Data & Sample

- Loan-level data from First American Loan Performance (LP)
 - Loans that are securitized
 - Variables include loan origination characteristics, monthly tracking of loan performance (does not include escrow status)
 - LP data cover 70% subprime securities and 95% alt-A securities
- Property tax due dates
 - Obtained from U.S. Master Property Tax Guide, internet resources, contact with state/local government officials
 - Have dates from 1994 to 2008 for most of U.S.
- Primary estimating sample includes purchase and refinance subprime and alt-A loans originated in 41 states between 2000 and 2007
 - 20% random sample \implies over 17 million loan-month observations

Outline of Results in Paper

- Compare origination characteristics of loans originated close to and far away from property tax due dates
- (Cumulative) Mortgage delinquency outcomes as loans age
- Event study analysis around 1st property tax due date
- Trend break model

$$Y_{it} = \mu_0 + \mu_1 RelT_{it} + \mu_2 Post_{it} + \mu_3 RelT_{it} * Post_{it} + \gamma X_{it} + \alpha Z_i + \delta_t + \nu_{it}$$

California Property Taxes

State	Installment Due Dates (Delinquency Dates)	Penalty	Forfeiture Proceedings
CA	Nov 1 st (Dec 10 th) and Feb 1 st (April 10 th)	Fees plus 10% of delinquent installment amount. After June 30 th , 1.5% per month of entire tax bill plus fees.	As soon 90 days (Mello-Roos Districts), but more typically 5 years. Lender has rights to auction proceeds net of taxes and fees.
State	Assessment Cycle	Median Property Tax (2007)	
CA	Property assessed only at change in ownership.	\$3,116	

Minnesota Property Taxes

State	Installment Due Dates (Delinquency Dates)	Penalty	Forfeiture Proceedings
MN	May 15 th (May 16 th) and Oct 15 th (Oct 16 th)	Depends on property classification, but increases as each month passes from 2% to 14% of delinquent amount.	Homestead 5 years; Non-Homestead 3 years. Lender has no right to auction proceeds.
State	Assessment Cycle	Median Property Tax (2007)	
MN	Assessments updated January 2nd of each year.	\$2,042	

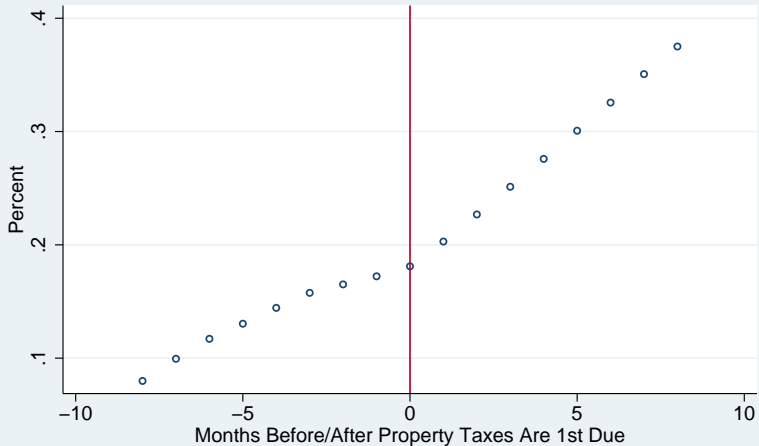
Maryland Property Taxes

State	Installment Due Dates (Delinquency Dates)	Penalty	Forfeiture Proceedings
MD	Sept 30 th (Oct 1 st) and Dec 31 st (Jan 1 st)	Fees plus between 1% and 2% per month on the unpaid balance (varies by county and muni).	As soon 9 months after first delinquency. Lender has rights to auction proceeds net of taxes and fees.
State	Assessment Cycle	Median Property Tax (2007)	
MD	Not reassessed at change in ownership. Maintain a 3 year cycle.	\$2,517	

Table: Assessing the Validity of the Event Study: Comparison of Under-writing Characteristics of Subprime Purchase Loans Observed in Months Before and After Property Tax Due Dates

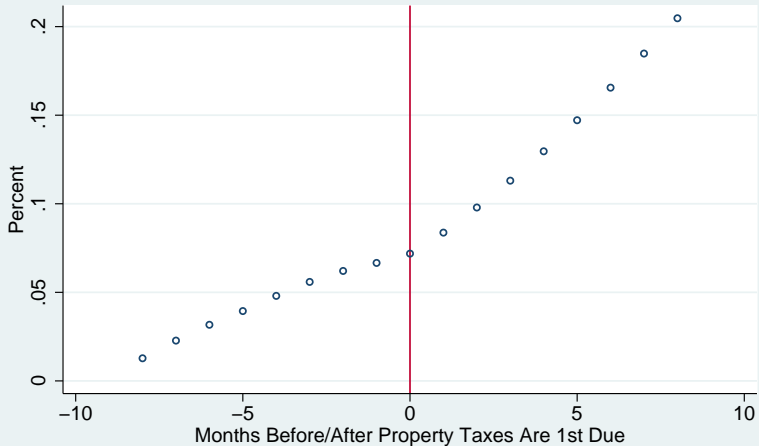
	Relative Time				
	# Months Before or After 1st Property Tax Due Date				
	-8 to -5	-4 to -1	0	1 to 4	5 to 8
Sale Price	130,908	142,919	144,117	146,982	145,874
Fico	633	636	636	637	637
CLTV	91.8	91.9	91.9	91.7	91.8
% w/Full Documentation	.631	.617	.615	.609	.614
% w/PP Penalty	.806	.788	.788	.786	.794
Initial Interest Rate	8.138	8.025	8.013	7.981	7.987
% ARM	.848	.859	.86	.862	.857
% Originated in: 2000	.028	.031	.032	.032	.035
2004	.175	.191	.189	.188	.182
Sample Size	137,233	329,769	379,427	445,882	423,945

Cumulative 30-day Delinquency Rate



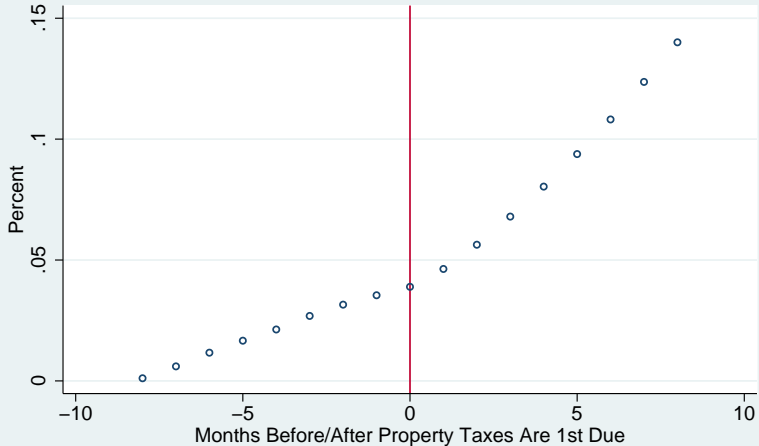
Source: First American Loan Performance.
Sample includes subprime, purchase loans.
Results are not adjusted for covariates.

Cumulative 60-day Delinquency Rate



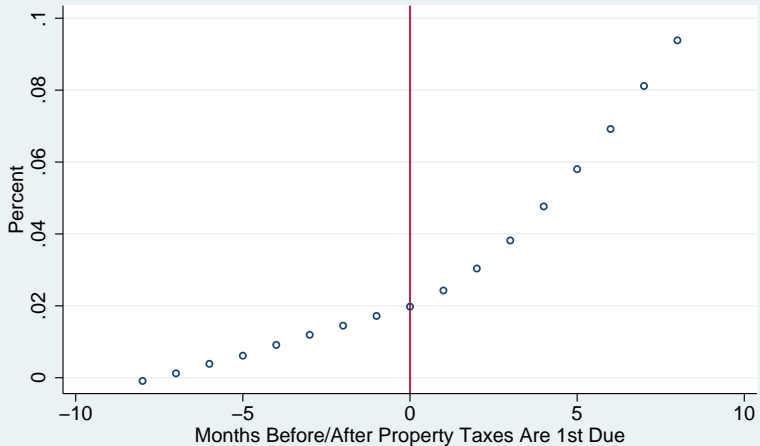
Source: First American Loan Performance.
Sample includes subprime, purchase loans.
Results are adjusted for covariates.

Cumulative 90-day Delinquency Rate



Source: First American Loan Performance.
Sample includes subprime, purchase loans.
Results are adjusted for covariates.

Cumulative Foreclosure Rate



Source: First American Loan Performance.
Sample includes subprime, purchase loans.
Results are adjusted for covariates.

Table: Effect of 1st Property Tax Due Date on Mortgage Delinquency and Default Outcomes (Standard Errors in Parentheses)

	(Cumulative) Delinquency Outcome					
	30-day (1)	(2)	60-day (3)	(4)	90-day (5)	(6)
Relative Time (in months)	0.010*** (0.000)	0.019*** (0.000)	0.006*** (0.000)	0.013*** (0.000)	0.004*** (0.000)	0.009*** (0.000)
Post	-0.009*** (0.001)	-0.015*** (0.001)	-0.009*** (0.000)	-0.014*** (0.000)	-0.008*** (0.000)	-0.012*** (0.000)
Relative Time * Post	0.014*** (0.000)	0.009*** (0.000)	0.010*** (0.000)	0.006*** (0.000)	0.008*** (0.000)	0.005*** (0.000)
Origination Characteristics?	No	Yes	No	Yes	No	Yes
Calendar Year FE?	No	Yes	No	Yes	No	Yes
Calendar Month FE?	No	Yes	No	Yes	No	Yes

Source. First American Loan Performance. Sample includes first-lien subprime loans originated between 2000 and 2007 for purchases.

Note. "Post" is an indicator for the period after which property taxes are due. Relative time is a time trend measuring the number of months before and after the property tax due date. Standard errors are clustered at the loan-level. OLS results reported for 5,134,393 loan-month observations. Underwriting characteristics include sale price, FICO score, combined loan-to-value ratio, an indicator for whether the loan was fully documented, a prepayment penalty flag, the initial interest, an adjustable rate mortgage flag, and origination year dummies.

*** denotes statistical significance at the 1% level, two-tailed test.

Table: Effect of 1st Property Tax Due Date on Mortgage Delinquency and Default Outcomes (Standard Errors in Parentheses)

	(Cumulative) Outcome FC Start	
	(1)	(2)
Relative Time (in months)	0.002*** (0.000)	0.006*** (0.000)
Post	-0.006*** (0.000)	-0.009*** (0.000)
Relative Time * Post	0.007*** (0.000)	0.005*** (0.000)
Origination Characteristics?	No	Yes
Calendar Year FE?	No	Yes
Calendar Month FE?	No	Yes

Source. First American Loan Performance. Sample includes first-lien subprime loans originated between 2000 and 2007 for purchases.

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Conclusions, Policy Implications, & Future Work

- (Preliminary) Property tax bills may accelerate the pace of mortgage delinquencies
- Escrow accounts & incorporating property taxes into measures of borrowers' "ability to pay" may make mortgage delinquency less likely among subprime borrowers
- Future Work
 - Ruthless default v. trigger event debate
 - Extensions to alt-A and prime borrowers
 - Placebo tests (but tiny standard errors)