

Who Facilitated Misreporting in Securitized Loans?

Internet Appendix

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This appendix is divided into four sections. The first section provides variable definitions. The second section describes the sample selection process. The third section provides a detailed evaluation of the matching procedure. The fourth section provides supplementary tables and figures.

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A. Variable Definitions

This section provides detailed definitions for the most important loan-level variables used in the paper’s regressions.

- *Unreported second*: Dummy variable that takes the value of one if the loan in ABSNet associated with the transaction does not disclose the existence of a second lien (i.e., $LTV = \text{combined LTV}$) but both a first and a second lien are recorded in county-level records as reflected by DataQuick.
- *Occupancy misreporting*: Dummy variable that takes the value of one if the self-reported occupancy status associated with the loan in ABSNet (using data similar to MBS prospectus documents) is marked as “owner occupied” but we estimate otherwise from DataQuick’s county-level data.
- *Appraisal overstatement*: Dummy variable that takes the value of one if the appraised value recorded before origination exceeded ABSNet’s AVM value by more than 20%.
- *Misreported*: Dummy variable that takes the value of one if one or more of the three misreporting indicators is true.
- *Delinquent*: Dummy variable that takes the value of one if the loan became 90 or more days late before July 2012.
- *Direct default*: Dummy variable that takes the value of one if the loan went into foreclosure and the borrower did not make any payments between the first payment that was missed and the foreclosure date.
- *Foreclosed*: Dummy variable that takes the value of one if the loan was foreclosed before July 2012.
- *Early delinquency*: Dummy variable that takes the value of one if the loan became delinquent within six months of the first payment date.

- *Reported second*: Dummy variable that takes the value of one if the loan is reported as having a second lien (i.e., $LTV \neq$ combined LTV).
- *Reported nonowner occupied*: Dummy variable that takes the value of one if the loan is reported as for investment property or a second home.
- *Low/No doc*: Dummy variable that takes the value of one if the loan is classified as a low documentation or no documentation loan, and zero if the loan is classified as a full documentation loan.
- *Refinance*: Dummy variable that takes the value of one if the reported loan purpose is for refinancing, and zero if the reported loan purpose is for purchase.
- *Credit score*: FICO score of the borrower at origination.
- *Loan amount*: Original balance of the loan.
- *LTV*: Loan-to-value ratio of the loan at origination.
- *Prepayment penalty*: Dummy variable that takes the value of one if the loan has a prepayment penalty.
- *Complex*: Dummy variable that takes the value of one if the loan is a negative amortization loan.
- *ARM*: Dummy variable that takes the value of one if the loan has an adjustable-mortgage rate.
- *Original interest rate*: Interest rate of the loan at origination.
- *LTV low*: Dummy variable that takes the value of one if LTV is less than or equal to 80.
- *LTV high*: Dummy variable that takes the value of one if LTV is larger than 80.

B. Sample Selection

Our transaction data begin in 2002, prior to which the subprime market was limited, and runs through the end of 2007, after which few nonagency MBS were issued. We consider first-lien loans with an initial loan amount over \$30k. Like Ben-David (2011), we drop loans with a stated loan-to-value (LTV) over 103% because values this high are often associated with data errors. To maximize data quality for special housing that may be difficult to appraise and to focus on normal loans, we also drop loans associated with the largest 1% of transaction values in each state and loans reported as having more than one unit. To check LTV and combined LTV (CLTV) accuracy, we collected our own sample of MBS prospectuses and compared loan-level data, leading us to drop all MBS deals in which all of the underlying mortgages are recorded with an LTV equal to their combined LTV.¹

We obtain a high transaction-loan matching rate in California and Florida – states with high loan origination rates – possibly due to differences in property transaction information across states. To verify that the overrepresentation of these two states in the main sample does not drive our results, we construct another sample in which we further drop loans originated in California or Florida. Finally, because of missing information, it is not always possible to compute all three misrepresentation indicators for all loans in the main sample. To facilitate comparison and as an extra check on our results, we form a “common” sample by dropping from the main sample the loans for which we do not have all three indicators.

¹We manually checked 87 free writing prospectuses and found data errors when the LTV equals the combined LTV for all the mortgages in a MBS deal. Consequently, we dropped 1,031 deals where LTV and combined LTV were always equal since they could lead to an overstatement of second-lien misreporting. For the rest of the deals in ABSNet, where the loans had different LTV and combined LTV values, the free writing prospectuses were similar to the ABSNet data.

C. Possible Mismatch Rates

While we are quite careful in our matching procedure, mismatches may still occur and inflate the reported amount of misrepresentation for second-lien misreporting and owner occupancy. We check the accuracy of our matching and its potential effect on misreporting in three ways.

First, as discussed above, second-lien misreporting drops dramatically in 2007 and only reaches 0.7% in the third quarter of 2007. If the mismatch rate were high, one would not expect the proportion of misreporting to be so low in 2007 unless the proportion of second-lien volume origination were low. However, the amount of securitized loan originations is similar (with a larger proportion of reported second liens) to that in 2002, when misreporting was 7% on average. Even if we assume that the entire second-lien misreporting in the third quarter of 2007 is due to improper matching, our results still show that only 0.7% of second-lien misreporting is due to improper matching.

Second, we check the matching accuracy using a subsample of the matched first-lien loans, where we also match the second lien associated with the same property through ABSNet (6.4% of the main sample). In particular, we compare the loan amount of the first lien with the senior loan amount information associated with the second lien, and we compare FICO scores of the first and second liens to check if they are within 20 FICO points.² Taking a conservative approach, we attribute all mismatches to the first-lien loan rather than to the second-lien loan, and find this potential mismatch percentage to be 5% in our sample.³

Third, using proprietary loan pools with actual addresses for three MBS deals, we check the accuracy of our matches and find that they are 98.2%, 98.5%, and 97.4% accurate. Some

²Of course, FICOs within 20 points could be different individuals with similar FICOs. There may also be legitimate matches where the FICO score varies by more than 20 points because FICOs from different agencies or points in time are used.

³Nevertheless, the effect on our measures is considerably smaller. Only mismatched transactions that have a second lien will contribute to inflate the *Unreported Second* indicator. Likewise, only mismatched transactions of second-home or investment properties will inflate the *Occupancy Misreporting* indicator. From DataQuick, we estimate that 29.4% of our sample has a second lien and 13.4% of the properties are second homes or investments. Hence, the overstatement rate due to mismatches is 1.47% (0.05×0.294) for second-lien misreporting and 0.67% (0.05×0.134) for occupancy misreporting.

of the mismatch could be due to differences in address reporting conventions. Nevertheless, assuming these samples are representative suggests a mismatch rate of at most 1.9%,⁴ which implies a potential overstatement rate of 0.56% (0.019×0.294) for second-lien misreporting and 0.26% (0.019×0.134) for occupancy misreporting (0.82% combined). In summary, we use three methods to examine our matching and find an upper mismatch rate bound for each confirming the high quality of our matches. If we subtract from the misreporting the 1.9% potential mismatching found in loan pools with addresses, we obtain an aggregate misreporting rate at the 20% appraisal overstatement threshold of 29.3% ($0.301 - 0.0082$).

⁴For the three deals with 98.2%, 98.5%, and 97.4% matching accuracy, the number of loans with available addresses are 1,487, 529, and 383, respectively. This gives a loan-weighted matching rate of 98.1%.

D. Additional Tables and Figures

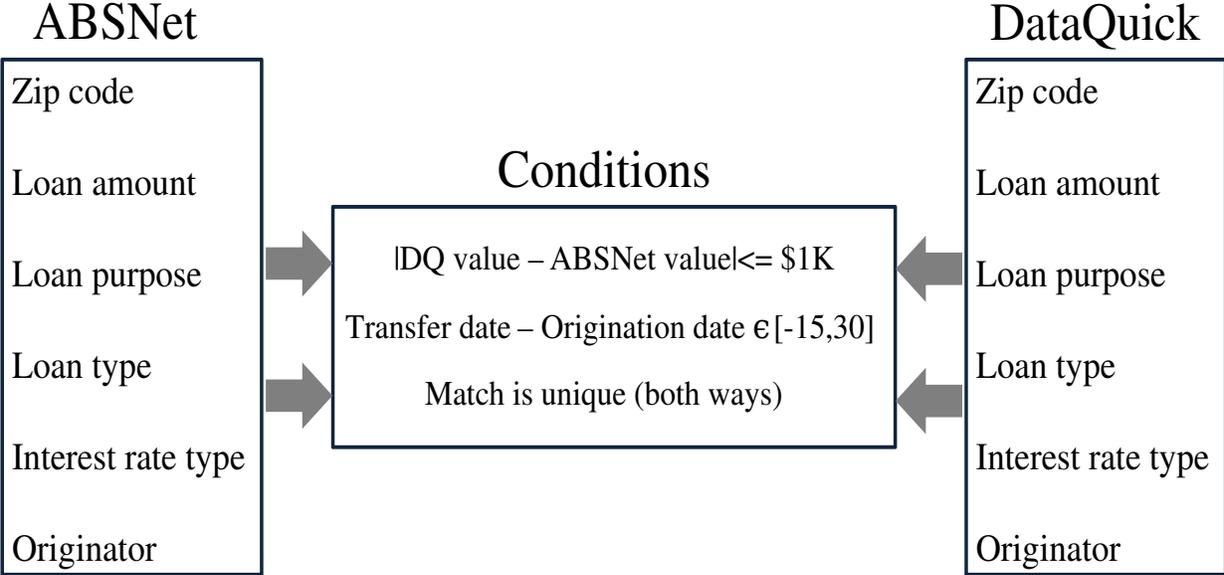


Figure IA.1
Matching procedure description

This figure describes the matching procedure. The matching procedure is applied to both first-lien loans and second-lien loans separately. Residential loans are matched with residential transactions according to their zip code, loan amount, interest rate type (fixed- or adjustable-rate mortgage), loan type (conventional, Federal Housing Administration (FHA), or veteran), originator’s name, and purpose of the transaction (refinance or purchase). Additionally, transaction prices (when available) are required to be within a \$1,000 range difference and the transfer date of the property is required to be within a [-15, 30] day interval from the loan origination date. For a transaction-loan pair to be considered a match, the loan must be the only possible match for the transaction and the transaction must be the only possible match for the loan.

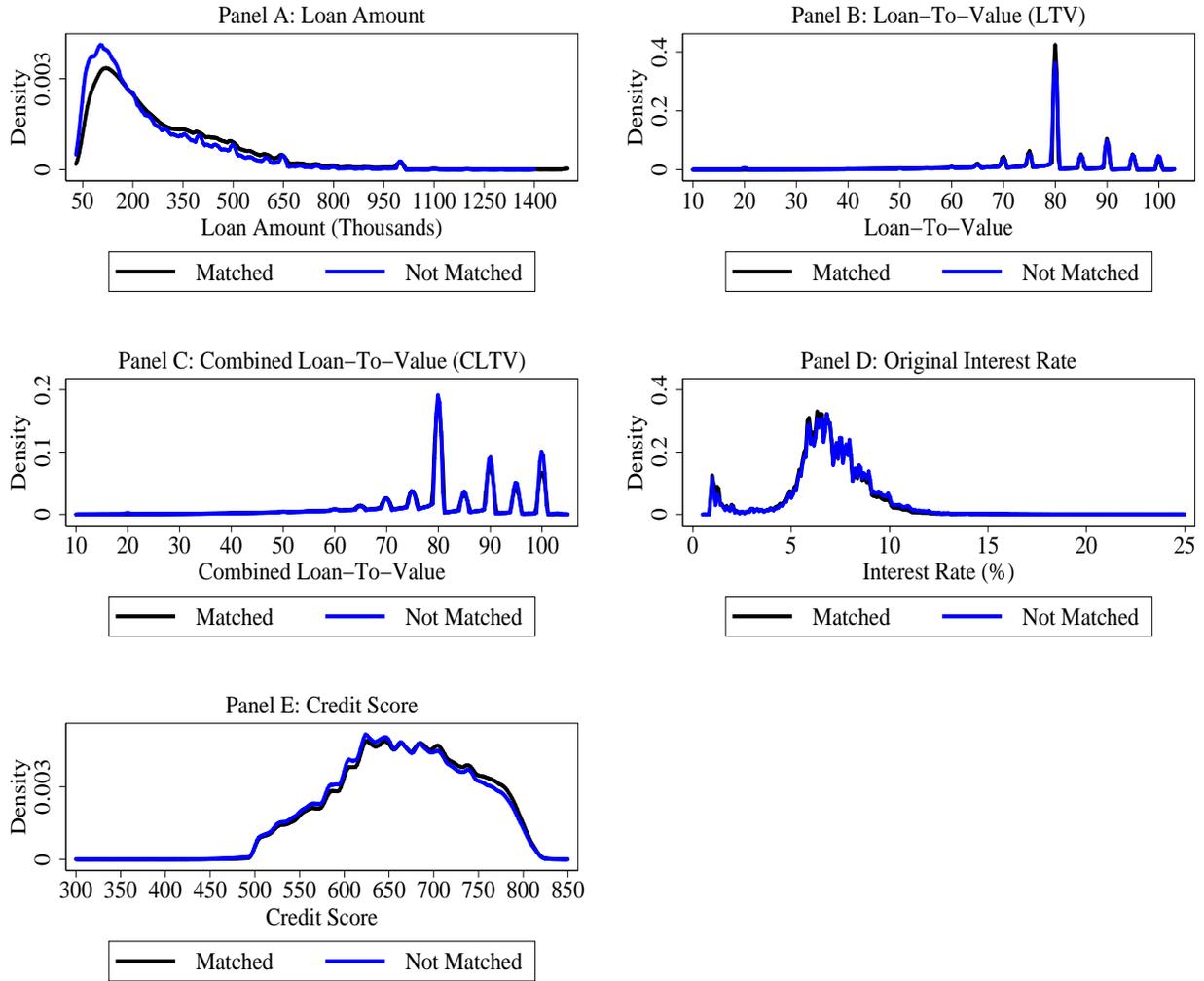


Figure IA.2

Epanechnikov kernel densities for matched and non-matched loans

This figure compares the Epanechnikov kernel densities of different variables that characterize both the first-lien loans in ABSNet that were matched with the property transactions in DataQuick and the first-lien loans that were not matched. Panels A through E present the densities of the loan amount, LTV, combined LTV, interest rate at origination, and credit score, respectively

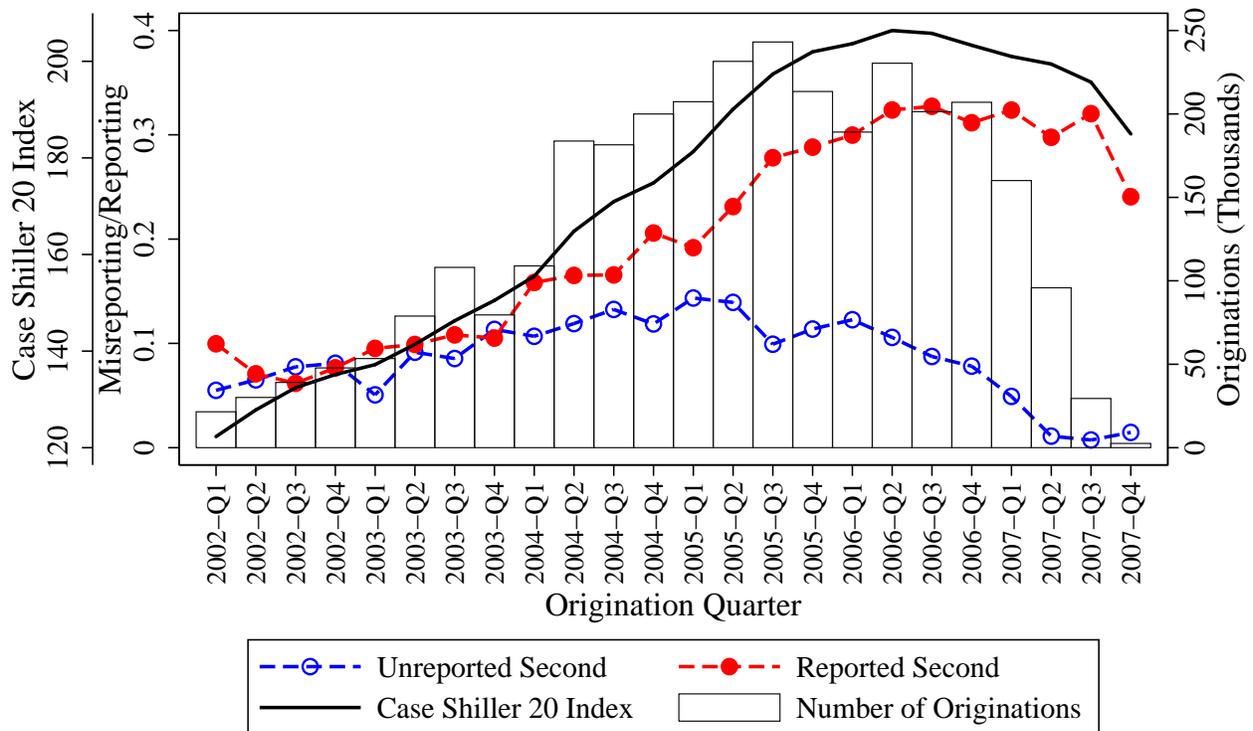


Figure IA.3
Unreported and reported second liens by quarter

This figure shows the quarterly evolution of the proportion of unreported second liens and reported second liens (both indicators are defined in Internet Appendix A). The bars represent the number of first-lien loan originations in each quarter and the black line shows the evolution of housing prices (as captured by the Case Shiller 20 Index).

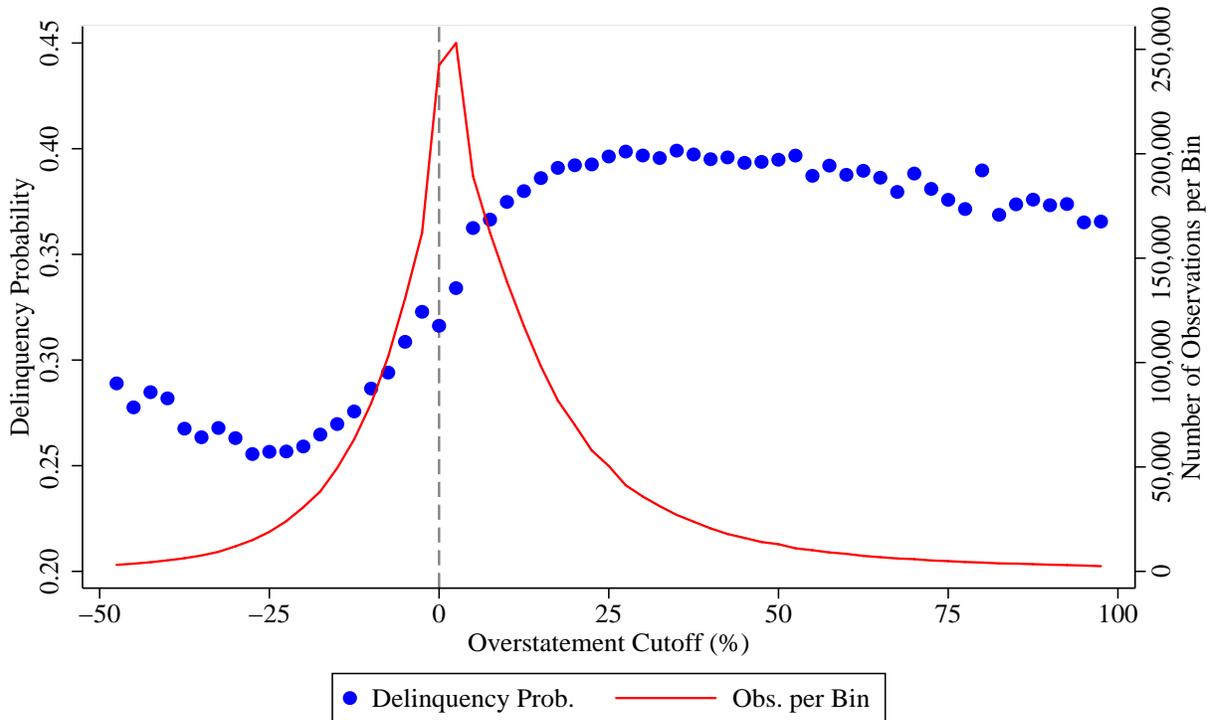


Figure IA.4

Delinquency rates by appraisal overstatement bin

This figure shows the probability of delinquency by appraisal overstatement bin. The overstatement is calculated as the percentage difference between the appraised value of the property and Lewtan’s AVM at origination. Each overstatement bin has a size of 2.5%. The circles show the probability of delinquency and the line show the number of loan originations per bin.

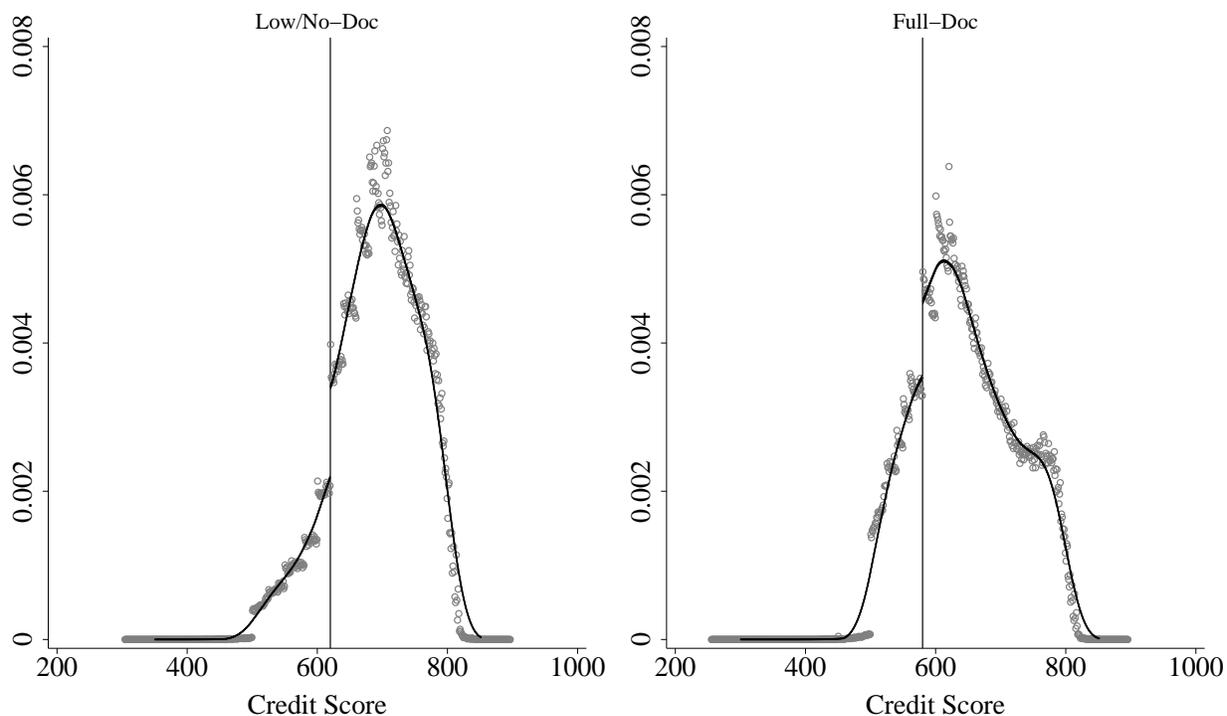


Figure IA.5

Discontinuity around credit score thresholds

This figure shows the distribution of credit scores in our sample. The figure highlights a discontinuity at a credit score of 620 for low/no-documentation loans and a discontinuity at a credit score of 580 for full-documentation loans (note that for full-documentation loans we find the discontinuity at 600 shown in Keys et al. (2010), but the discontinuity in our sample is larger at 580). The graphs are generated using Justin McCrary's code (see McCrary (2008) for details).

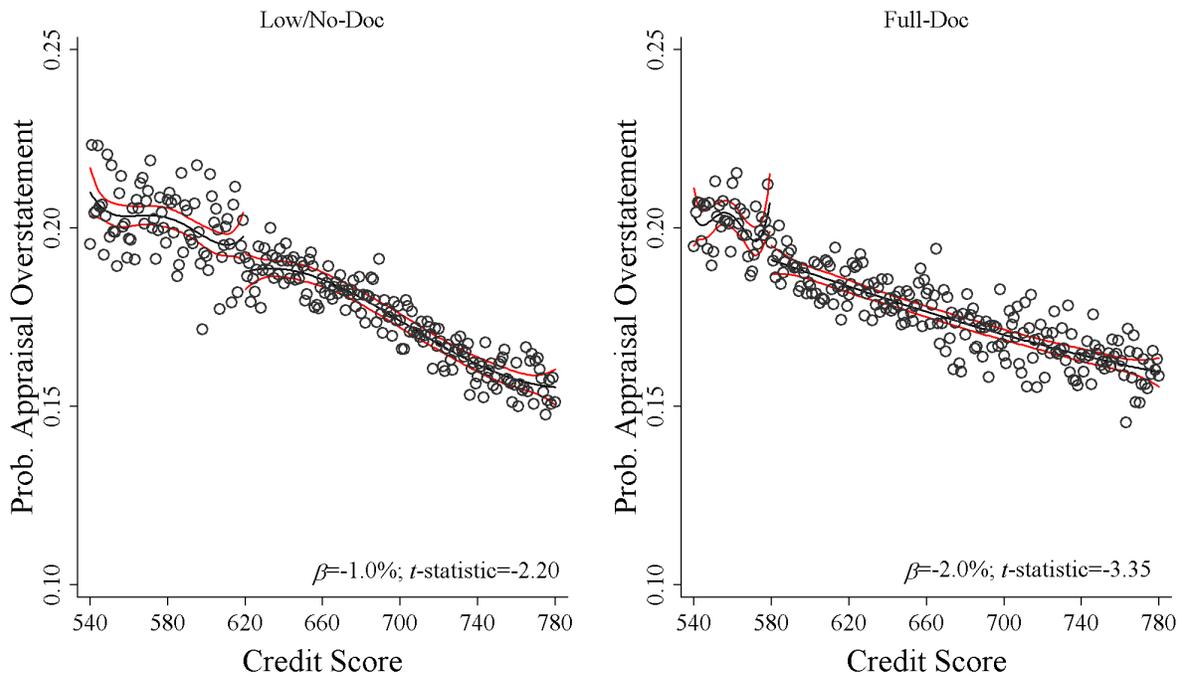


Figure IA.6

Appraisal overstatement around credit score thresholds

This figure shows the probability of having appraisal overstatements for low/no-documentation loans and full-documentation loans by credit score. The hollow circles represent the probability of misreporting. The black line fits a fourth-order polynomial approximation at both sides of the credit score threshold (620 for low/no-documentation loans and 580 for full-documentation loans). The light lines delimit the 95% confidence level interval for the approximation. The exact magnitude of the jumps at the discontinuities (β) along with their t -statistics are reported in the graphs. The corresponding regression results are also shown in Table IA.7.

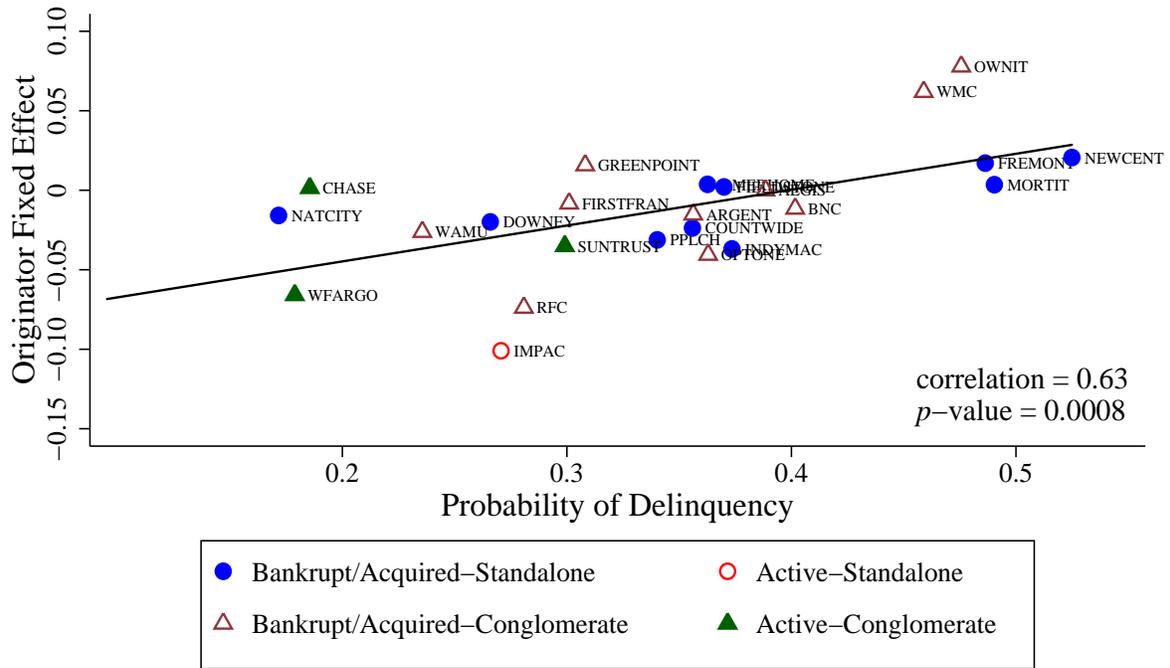
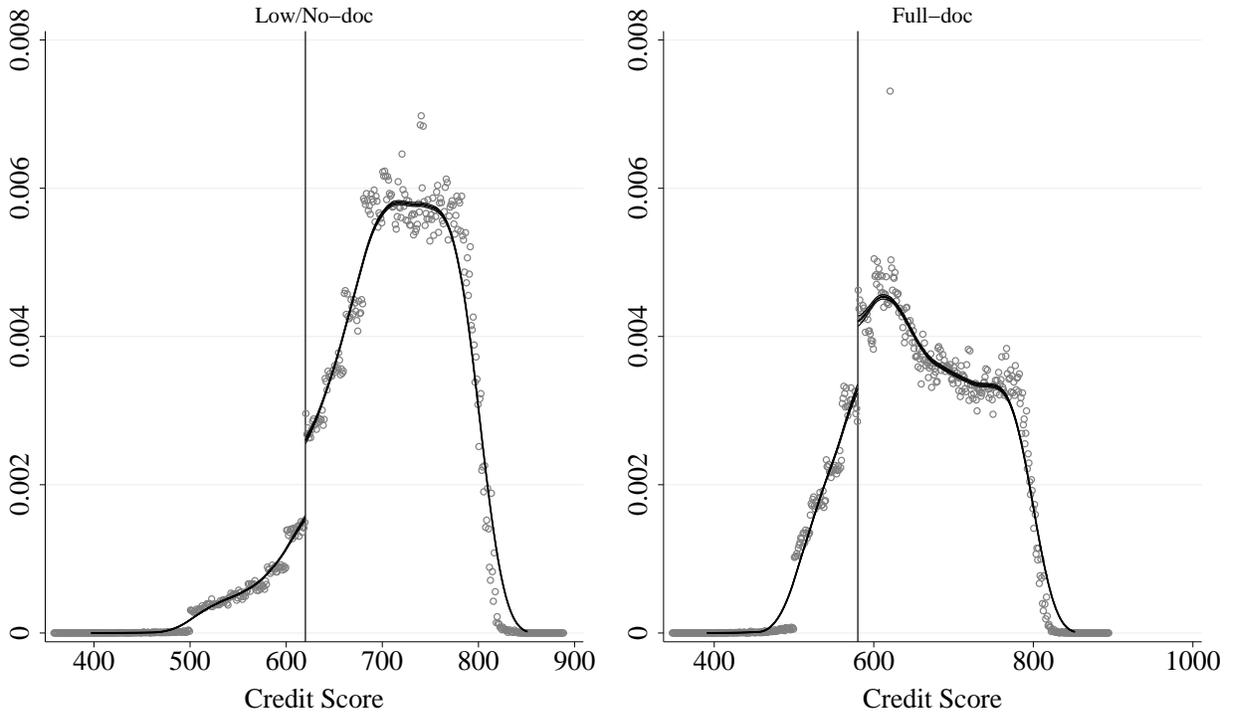


Figure IA.7
Delinquencies by originator

We estimate an OLS regression where the dependent variable is the delinquency dummy and the explanatory variables are the set of loan-level controls, CBSA×quarter fixed effects, and originator fixed effects. This figure shows the relation between the originator fixed effect estimates and the average delinquency rate by originator. Solid circles represent originator fixed effects/probability of delinquency pairs of standalone originators that went bankrupt or were acquired during or soon after the recent financial crisis. Hollow circles correspond to standalone originators that are still active in business. Hollow triangles correspond to originators related to a large bank or conglomerate that went bankrupt or were acquired during or soon after the recent financial crisis. Solid triangles correspond to originators related to a large bank or conglomerate that are still active in business. The black line fits a linear regression and the correlation is shown at the bottom of each graph. Table IA.13 lists the names that correspond to each originator’s abbreviation.

Panel A: Best performers



Panel B: Worst performers

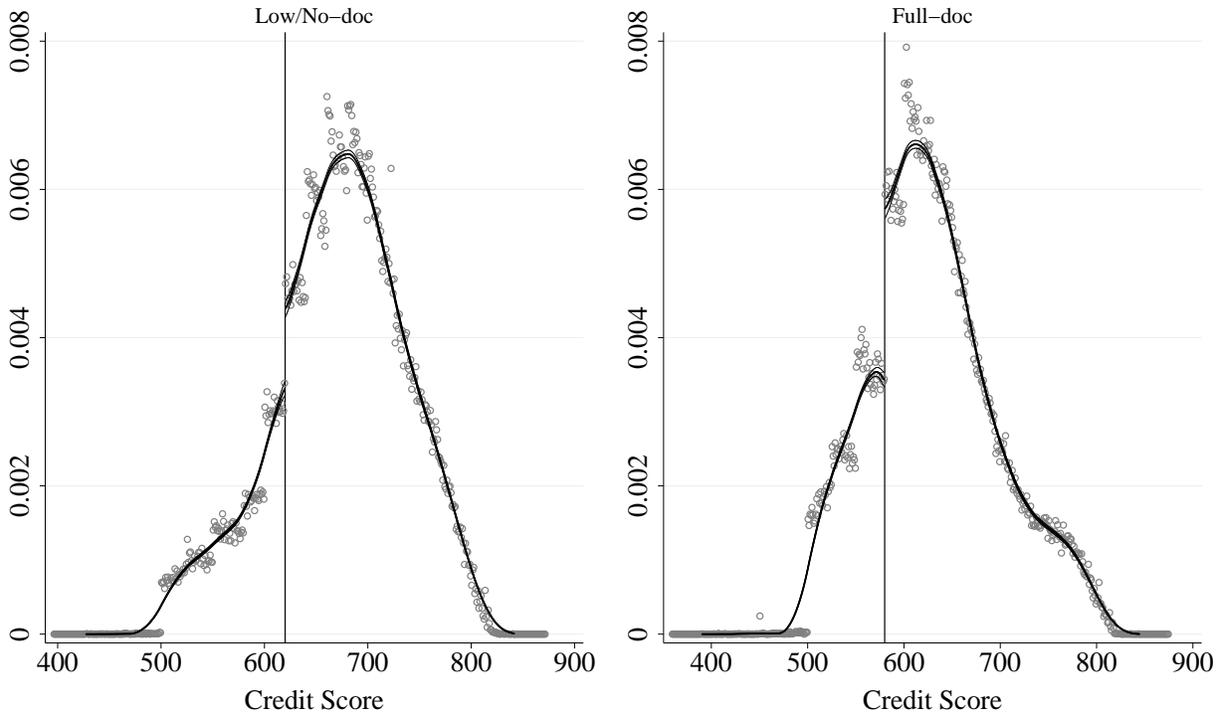
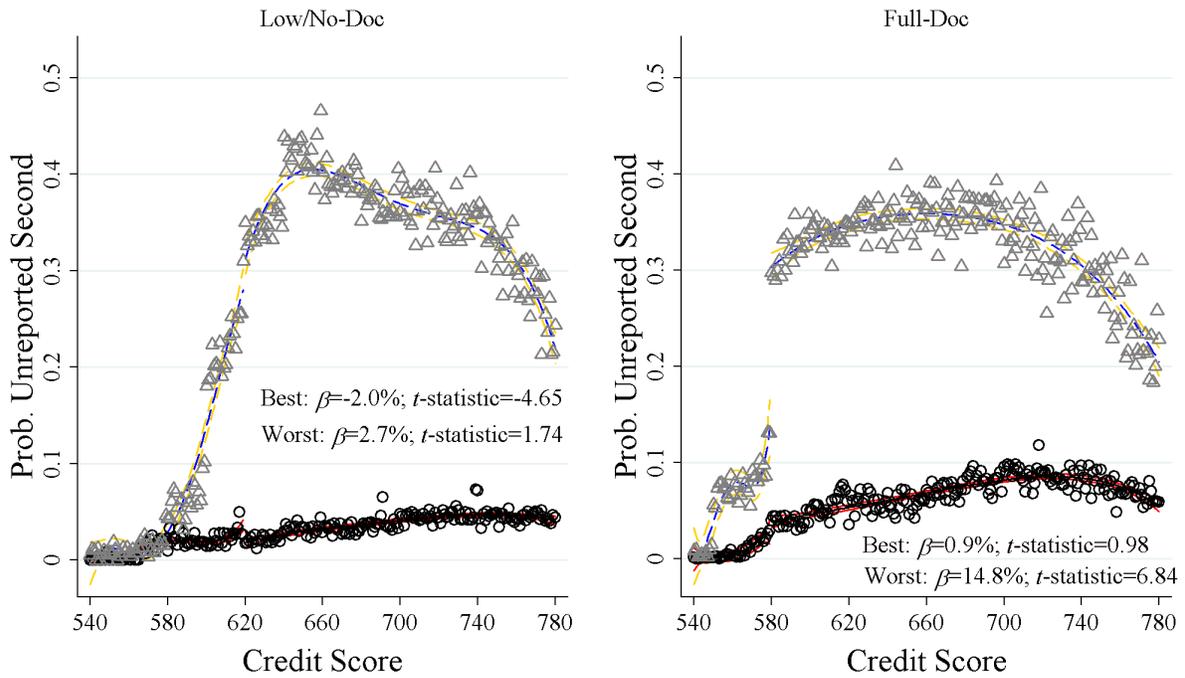


Figure IA.8**Discontinuity around credit score thresholds, best and worst originators**

This figure shows the distribution of credit scores of the loans originated by the best-performing originators and the worst-performing originators. The best performers correspond to the tercile of originators with the smallest fixed effect estimates from a regression of the delinquency dummy on loan-level controls, CBSA \times quarter fixed effects, and originator fixed effects. The worst performers correspond to the tercile of originators with the largest fixed effects. The figure highlights a discontinuity at a credit score of 620 for low/no-documentation loans and a discontinuity at a credit score of 580 for full-documentation loans. The graphs are generated using Justin McCrary's code (see McCrary (2008) for details).

Panel A: Unreported second (liens by same lender)



Panel B: Unreported second (liens by different lenders)

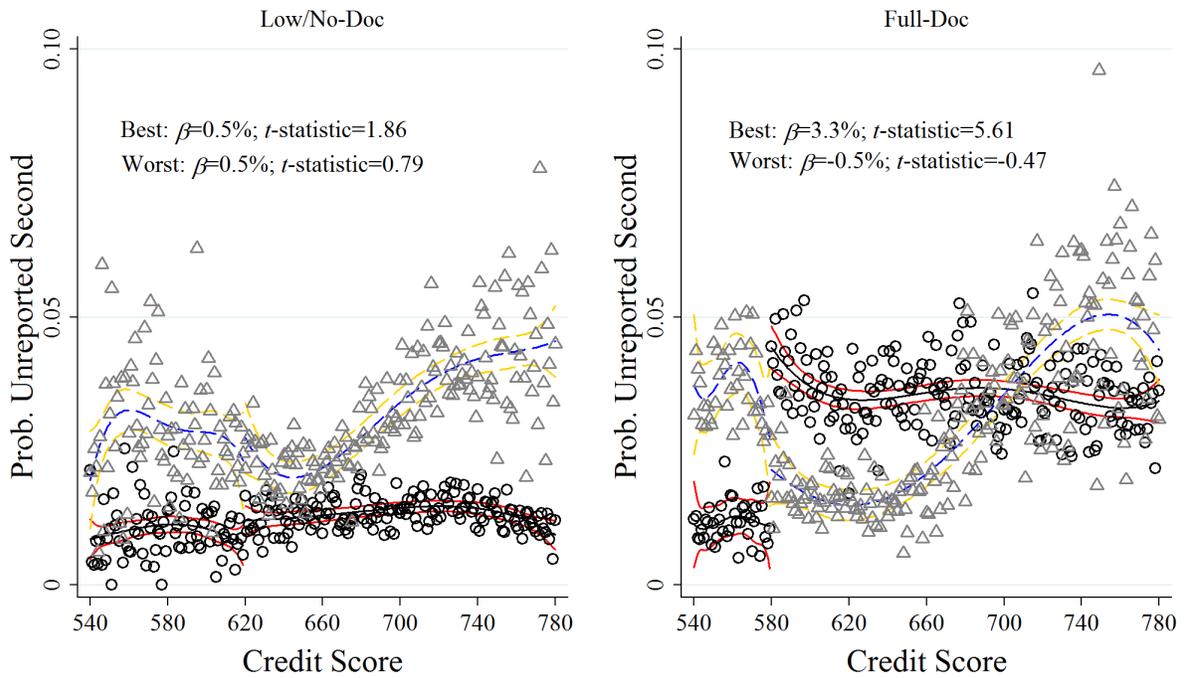
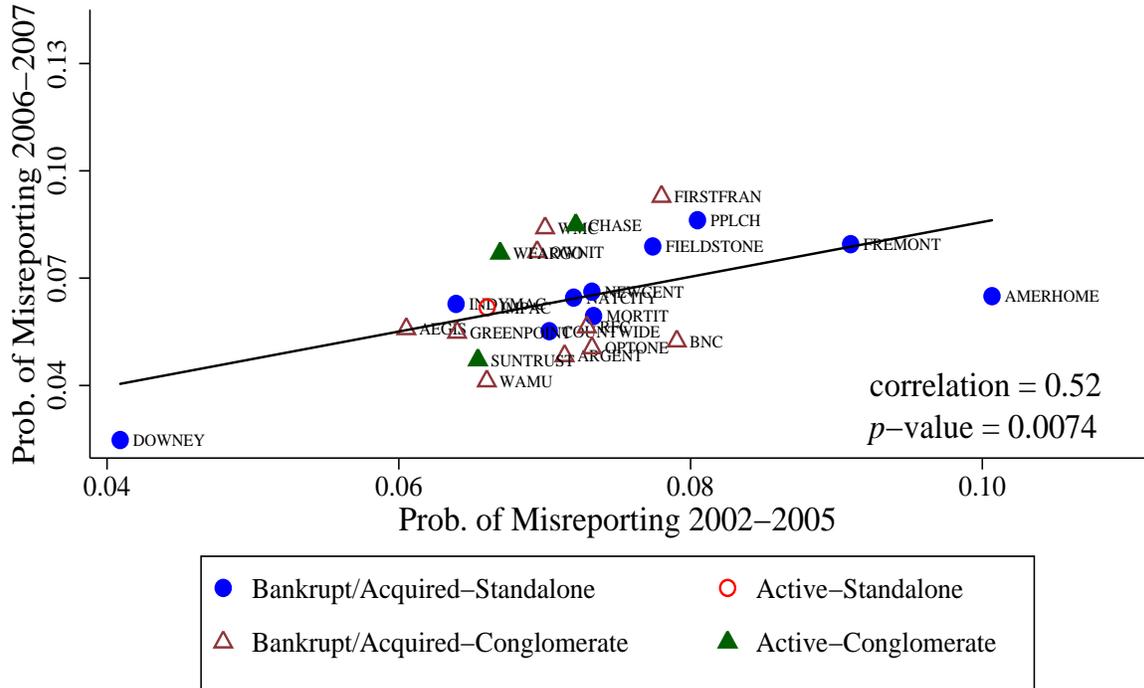


Figure IA.9**Misreporting around credit score thresholds, best and worst originators**

This figure shows the probability of second-lien misreporting by credit score for the subset of loans originated by the best-performing originators and the worst-performing originators. The best performers correspond to the tercile of originators with the smallest fixed effect estimates from a regression of the delinquency dummy on loan-level controls, CBSA \times quarter fixed effects, and originator fixed effects. The worst performers correspond to the tercile of originators with the largest fixed effects. The hollow circles represent the probability of second-lien misreporting of the best performers. The black line fits a fourth-order polynomial approximation at both sides of the credit score threshold (620 for low/no-documentation loans and 580 for full-documentation loans). The light lines delimit the 95% confidence level interval for the approximation. The hollow triangles represent the probability of second-lien misreporting of the worst-performing originators. The dashed line fits a fourth-order polynomial approximation at both sides of the threshold. The dashed light lines delimit the 95% confidence level interval for the approximation. Panel A shows the probability of second-lien misreporting when the first-second lien pair was originated by the same lender. Panel B shows the probability of second-lien misreporting when the first-second lien pair was originated by different lenders. The exact magnitude of the jumps at the discontinuities (β) along with their t -statistics are also shown in the graphs. The corresponding regression results are reported in Table IA.8.

Panel A: Occupancy misreporting



Panel B: Appraisal overstatement

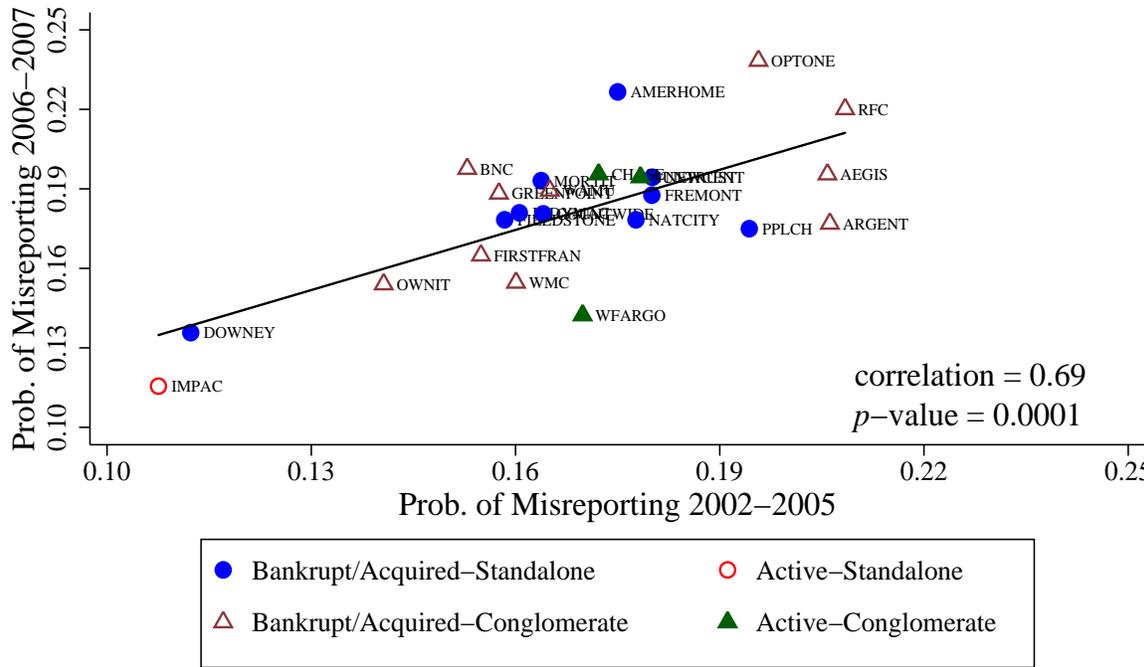


Figure IA.10**Originator fixed effects and misreporting persistence**

This figure shows the persistence of misreporting over time. Panels A and B show the relation between the amount of misreporting by originator during the 2002 to 2005 period and the amount of misreporting by originator during the 2006 to 2007 period for occupancy misreporting and appraisal overstatements, respectively. Solid circles represent originator fixed effects/probability of misreporting pairs of standalone originators that went bankrupt or were acquired during or soon after the recent financial crisis. Hollow circles correspond to standalone originators that are still active in business. Hollow triangles correspond to originators related to a large bank or conglomerate that went bankrupt or were acquired during or soon after the recent financial crisis. Solid triangles correspond to originators related to a large bank or conglomerate that are still active in business. The black line fits a linear regression and the correlation shown at the bottom section of each graph. Table IA.13 lists the names that correspond to each originator's abbreviation.

Table IA.1
Loan sample characteristics

Panel A: Loan characteristics (mean values)

	Not Matched	Matched	Main Sample	Common Sample
Original Loan Amount	246,539.8	294,137.6	292,721.6	297,230.9
Loan-To-Value	80.6	79.8	76.7	76.2
Combined Loan-To-Value	83.4	82.2	79.8	79.3
Credit Score	663.8	668.6	671.5	670.7
Original Interest Rate	6.9	6.7	6.6	6.6

Panel B: Loan characteristics (%)

	Not Matched	Matched	Main Sample	Common Sample
<i>Asset Type</i>				
Prime	13.2	16.4	16.4	16.4
Subprime	53.8	51.7	47.6	47.0
Alt-A, NegAm, Other	33.0	31.9	36.0	36.6
<i>Loan Purpose</i>				
Purchase	42.9	42.1	43.8	38.1
Refinance	57.1	58.0	56.2	61.9
<i>Interest Rate Type</i>				
Adjustable	63.5	67.0	67.4	67.1
Fixed	36.5	33.0	32.6	32.9
<i>Documentation Type</i>				
Low/No	43.3	47.3	55.8	56.1
Full	45.1	41.9	44.2	43.9
Other/Unreported	11.6	10.8	-	-
<i>Reported Occupancy Status</i>				
Owner Occupied	85.4	87.3	87.0	87.7
Investment/Second Home	14.6	12.7	13.0	12.3
<i>Prepayment Penalty</i>				
No	67.5	67.0	38.4	41.2
Yes	32.5	33.0	61.6	58.8

Panel C: Loan performance (%)

	Not Matched	Matched	Main Sample	Common Sample
Delinquent	31.9	32.3	33.1	35.2
Foreclosure	23.9	24.6	26.1	27.9
Direct Default	7.5	7.9	8.2	8.9
Early Delinquency	3.2	2.9	2.2	2.2

Panel D: Distribution by state (%)

	Not Matched	Matched	Main Sample	Common Sample
California	22.17	32.27	33.71	38.42
Florida	8.38	12.51	12.56	14.12
New York	5.06	1.56	1.42	1.55
Texas	4.69	5.29	4.87	4.44
Georgia	4.13	0.74	0.76	0.31
Illinois	3.65	4.66	4.38	4.86
Michigan	3.53	1.46	1.35	1.53
Arizona	3.49	3.85	3.96	4.31
Virginia	3.39	2.07	2.28	1.09
New Jersey	2.97	2.84	2.8	3.33
Maryland	2.80	2.95	2.84	2.42
Pennsylvania	2.40	1.71	1.57	1.76
Ohio	2.22	2.54	2.31	2.45
Minnesota	2.15	0.34	0.32	0.36
North Carolina	2.15	1.21	1.25	1.25
Nevada	2.13	2.08	2.25	2.52
Colorado	2.09	2.69	2.62	2.99
Washington	2.09	3.31	3.28	3.54
Indiana	1.65	0.49	0.43	0.38
Other	18.86	15.43	15.04	8.37

This table describes the sample of first-lien loans from ABSNet that were not matched with DataQuick records by the matching algorithm, the matched first-lien loans, the main sample (after applying the filters described in Internet Appendix B), and the sample of first-lien loans for which the three misrepresentation indicators are non-missing (the common sample). Panels A and B present mean values for the loan characteristics, Panel C summarizes different measures of loan performance, and Panel D summarizes the geographic distribution of the loans.

Table IA.2
Correlation matrix of misreporting indicators

Panel A: Main sample

	Unreported Second	Misreported Occupancy	Appraisal Overstatement
Unreported Second	1		
Misreported Occupancy	0.0509*	1	
Appraisal Overstatement	-0.0325*	0.0052*	1

Panel B: Common sample

	Unreported Second	Misreported Occupancy	Appraisal Overstatement
Unreported Second	1		
Misreported Occupancy	0.0540*	1	
Appraisal Overstatement	-0.0336*	0.0052*	1

This table presents the correlations of the misreporting indicators for the main sample (Panel A) and the common sample (Panel B). Each indicator is defined in Internet Appendix A. * Indicates statistical significance at the 1% level.

Table IA.3
Complete results for Table 3

Panel A: Unreported second

	Main Sample	Main Sample ex CA, FL	Common Sample	Purchases	Refinances
Unreported Second	1.97*** (50.26)	1.97*** (46.50)	2.13*** (54.38)	2.03*** (39.90)	1.81*** (40.99)
Reported Second	2.14*** (90.00)	2.10*** (61.29)	2.06*** (88.55)	2.63*** (72.93)	1.65*** (59.84)
Reported Non-Owner Occupied	1.23*** (17.87)	1.36*** (26.69)	1.24*** (17.80)	1.05*** (3.16)	1.48*** (33.42)
Low/No-Doc	1.62*** (41.14)	1.63*** (37.48)	1.64*** (39.80)	1.54*** (31.15)	1.65*** (46.07)
Refinance	1.10*** (8.14)	1.12*** (9.50)	0.99 (-0.98)		
Credit Score	0.60*** (-62.14)	0.58*** (-71.90)	0.61*** (-55.32)	0.56*** (-60.77)	0.62*** (-57.17)
Original Loan Amount	1.01 (1.41)	1.03*** (4.11)	1.02* (1.66)	0.93*** (-5.61)	1.08*** (9.12)
Loan-To-Value	1.69*** (42.48)	1.55*** (44.14)	1.74*** (40.47)	1.66*** (42.18)	1.71*** (42.94)
Prepayment Penalty	2.10*** (57.15)	1.92*** (50.48)	2.01*** (51.68)	2.23*** (59.19)	1.96*** (45.38)
Complex	1.53*** (21.60)	1.74*** (29.98)	1.50*** (19.37)	1.57*** (18.89)	1.56*** (21.51)
Adjustable	1.03** (2.28)	1.04** (2.30)	1.02 (1.61)	1.22*** (11.68)	0.87*** (-12.17)
Original Interest Rate	1.46*** (32.51)	1.62*** (42.88)	1.41*** (26.23)	1.88*** (32.29)	1.26*** (20.18)
Interest Rate×Adjustable	0.89*** (-10.21)	0.87*** (-10.32)	0.90*** (-8.22)	0.72*** (-17.03)	1.01 (1.03)
Constant	0.04*** (-100.48)	0.07*** (-92.30)	0.04*** (-82.60)	0.02*** (-92.04)	0.07*** (-152.35)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	3,140,472	1,687,283	2,306,331	1,371,552	1,764,505
Pseudo R^2	0.26	0.21	0.26	0.28	0.25

Panel B: Occupancy misreporting

	Main Sample	Main Sample ex CA, FL	Common Sample	Purchases	Refinances
Occupancy Misreporting	1.08*** (7.18)	1.14*** (9.99)	1.08*** (6.67)	1.06*** (5.00)	1.05*** (3.38)
Reported Second	1.84*** (79.34)	1.78*** (49.02)	1.78*** (78.89)	2.00*** (62.13)	1.60*** (55.47)
Reported Non-Owner Occu- pied	1.15*** (10.43)	1.30*** (19.97)	1.16*** (11.35)	0.93*** (-3.99)	1.46*** (30.60)
Low/No-Doc	1.60*** (38.09)	1.60*** (34.84)	1.61*** (38.63)	1.50*** (27.74)	1.64*** (42.56)
Refinance	0.96*** (-3.69)	0.97** (-2.11)	0.87*** (-10.09)		
Credit Score	0.62*** (-54.45)	0.59*** (-60.71)	0.62*** (-52.87)	0.57*** (-55.47)	0.63*** (-50.03)
Original Loan Amount	1.00 (0.17)	1.03*** (3.43)	1.00 (0.46)	0.90*** (-7.57)	1.08*** (8.18)
Loan-To-Value	1.67*** (36.52)	1.49*** (35.77)	1.71*** (37.24)	1.50*** (32.07)	1.74*** (39.75)
Prepayment Penalty	2.09*** (53.03)	1.88*** (47.46)	2.00*** (51.68)	2.22*** (56.70)	1.94*** (40.63)
Complex	1.40*** (17.69)	1.59*** (23.69)	1.40*** (17.50)	1.36*** (12.87)	1.49*** (19.24)
Adjustable	1.10*** (7.09)	1.13*** (6.80)	1.09*** (5.77)	1.34*** (15.85)	0.89*** (-9.00)
Original Interest Rate	1.48*** (30.91)	1.66*** (40.55)	1.43*** (27.82)	1.91*** (31.33)	1.25*** (17.80)
Interest Rate×Adjustable	0.86*** (-12.10)	0.84*** (-12.44)	0.88*** (-10.24)	0.69*** (-18.11)	1.00 (0.42)
Constant	0.03*** (-97.90)	0.10*** (-82.72)	0.04*** (-80.61)	0.07*** (-84.37)	0.07*** (-128.93)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	2,807,954	1,391,821	2,306,331	1,252,643	1,551,027
Pseudo R^2	0.25	0.20	0.25	0.27	0.25

Panel C: Appraisal overstatement

	Main Sample	Main Sample ex CA, FL	Common Sample	Purchases	Refinances
Appraisal Overstatement	1.34*** (46.57)	1.36*** (43.33)	1.34*** (43.30)	1.50*** (31.51)	1.23*** (31.66)
Reported Second	1.78*** (82.05)	1.74*** (54.43)	1.78*** (79.53)	1.91*** (59.08)	1.62*** (57.16)
Reported Non-Owner Occupied	1.14*** (11.63)	1.24*** (18.60)	1.14*** (10.57)	0.90*** (-6.48)	1.42*** (30.75)
Low/No-Doc	1.61*** (40.67)	1.60*** (38.78)	1.61*** (38.59)	1.54*** (32.22)	1.63*** (43.25)
Refinance	0.85*** (-12.99)	0.87*** (-11.94)	0.84*** (-12.87)		
Credit Score	0.62*** (-58.52)	0.60*** (-66.37)	0.62*** (-53.18)	0.56*** (-59.60)	0.63*** (-53.36)
Original Loan Amount	0.99 (-1.38)	1.01 (0.71)	0.99 (-1.24)	0.88*** (-9.77)	1.06*** (6.34)
Loan-To-Value	1.71*** (40.07)	1.54*** (40.64)	1.72*** (37.57)	1.59*** (37.08)	1.75*** (41.70)
Prepayment Penalty	2.01*** (56.06)	1.85*** (48.88)	2.00*** (51.62)	1.98*** (50.54)	1.96*** (44.41)
Complex	1.42*** (19.10)	1.60*** (23.87)	1.40*** (17.39)	1.39*** (14.50)	1.50*** (19.95)
Adjustable	1.06*** (4.85)	1.06*** (4.05)	1.08*** (5.57)	1.35*** (17.26)	0.88*** (-11.04)
Original Interest Rate	1.42*** (30.35)	1.56*** (38.94)	1.42*** (27.26)	1.90*** (30.93)	1.23*** (17.42)
Interest Rate×Adjustable	0.89*** (-10.02)	0.88*** (-9.71)	0.89*** (-9.77)	0.69*** (-18.29)	1.02** (2.13)
Constant	0.06*** (-80.88)	0.11*** (-82.90)	0.04*** (-82.49)	0.01*** (-88.84)	0.09*** (-121.37)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	2,576,423	1,334,103	2,306,331	949,997	1,622,278
Pseudo R^2	0.25	0.20	0.25	0.27	0.25

Panel D: Misreported

	Main Sample	Main Sample ex CA, FL	Common Sample	Purchases	Refinances
Misreported	1.51*** (64.50)	1.53*** (62.09)	1.49*** (59.57)	1.69*** (46.33)	1.30*** (43.59)
Reported Second	1.98*** (90.70)	1.93*** (59.32)	1.89*** (88.26)	2.35*** (77.63)	1.63*** (59.19)
Reported Non-Owner Occupied	1.20*** (15.55)	1.32*** (24.42)	1.20*** (14.96)	1.05*** (2.74)	1.44*** (32.63)
Low/No-Doc	1.59*** (40.36)	1.60*** (36.44)	1.61*** (38.98)	1.51*** (30.53)	1.63*** (45.47)
Refinance	1.02 (1.59)	1.03*** (3.14)	0.91*** (-6.75)		
Credit Score	0.61*** (-61.95)	0.58*** (-71.74)	0.61*** (-54.55)	0.56*** (-60.86)	0.63*** (-56.38)
Original Loan Amount	0.98* (-1.88)	1.00 (-0.15)	0.99 (-1.30)	0.90*** (-8.04)	1.06*** (6.66)
Loan-To-Value	1.69*** (41.27)	1.54*** (43.06)	1.74*** (38.83)	1.59*** (39.82)	1.73*** (43.17)
Prepayment Penalty	2.09*** (57.25)	1.92*** (51.33)	2.00*** (51.94)	2.21*** (58.05)	1.95*** (45.41)
Complex	1.47*** (20.40)	1.67*** (28.20)	1.43*** (18.21)	1.48*** (16.61)	1.53*** (21.15)
Adjustable	1.06*** (4.39)	1.06*** (4.08)	1.06*** (3.90)	1.26*** (13.71)	0.88*** (-11.17)
Original Interest Rate	1.46*** (32.35)	1.61*** (42.25)	1.41*** (26.13)	1.87*** (32.26)	1.25*** (20.04)
Interest Rate×Adjustable	0.89*** (-10.63)	0.87*** (-10.67)	0.90*** (-8.69)	0.72*** (-17.49)	1.01 (0.82)
Constant	0.04*** (-102.55)	0.06*** (-97.43)	0.03*** (-85.04)	0.01*** (-90.89)	0.07*** (-151.16)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	3,141,156	1,687,666	2,306,331	1,371,613	1,765,126
Pseudo R^2	0.25	0.21	0.26	0.28	0.25

This table presents the odds ratios (with z -statistics in parentheses) of the logit regressions summarized in Table 3 in the main text. The dependent variable is the dummy *Delinquent* (variables are defined in Internet Appendix A). Panels A, B, C, and D report the results for unreported second liens, occupancy status misreporting, appraisal overstatements, and aggregated misreporting, respectively. All continuous variables are standardized by subtracting their means and dividing by their standard deviations. Regressions include CBSA×quarter fixed effects. Standard errors are clustered by CBSA×quarter of origination. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table IA.4
Effect of misreporting on direct default

Panel A: Unreported second

	Delinquent	Direct Default			
	Main Sample	Main Sample	Common Sample	Purchases	Refinances
Unreported Second	9.74*** (26.18)	4.29*** (18.53)	5.41*** (19.46)	4.15*** (18.41)	4.56*** (18.29)
Reported Second	11.73*** (41.86)	5.40*** (31.72)	5.52*** (31.62)	6.02*** (29.83)	3.56*** (28.20)
Reported Non-Owner Occupied	2.91*** (16.33)	3.06*** (26.68)	3.17*** (25.70)	2.24*** (16.58)	4.20*** (29.24)
Low/No-Doc	6.84*** (27.82)	3.24*** (25.74)	3.42*** (25.16)	3.45*** (24.10)	2.89*** (24.35)
Refinance	1.39*** (7.01)	-0.06 (-0.69)	-0.65*** (-6.28)		
Credit Score	-6.95*** (-41.09)	0.20*** (4.05)	0.35*** (6.02)	-0.49*** (-7.27)	0.50*** (10.48)
Original Loan Amount	0.60*** (4.04)	0.05 (0.81)	0.02 (0.26)	-0.58*** (-5.60)	0.47*** (9.15)
Loan-To-Value	6.40*** (22.54)	2.69*** (22.69)	3.01*** (22.04)	2.82*** (23.47)	2.71*** (23.30)
Prepayment Penalty	14.44*** (61.51)	2.68*** (24.15)	2.36*** (21.52)	4.11*** (23.31)	1.46*** (18.32)
Complex	7.41*** (23.00)	-0.40* (-1.92)	-0.53*** (-2.42)	-2.98*** (-8.95)	1.28*** (7.36)
Adjustable	0.88*** (5.00)	1.72*** (16.64)	1.85*** (15.37)	2.02*** (15.46)	1.18*** (13.79)
Original Interest Rate	5.96*** (22.33)	0.80*** (6.98)	0.68*** (5.06)	1.69*** (9.92)	0.46*** (4.82)
Interest Rate×Adjustable	-0.58*** (-2.51)	-0.88*** (-7.21)	-0.91*** (-6.26)	-2.32*** (-13.92)	-0.46*** (-4.76)
Constant	17.54*** (49.07)	2.13*** (10.46)	3.15*** (14.58)	1.20*** (3.87)	3.40*** (31.51)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	3,140,472	3,140,472	2,306,331	1,371,552	1,764,505
Adj. R^2	0.28	0.09	0.10	0.11	0.083

Panel B: Occupancy misreporting

	Delinquent	Direct Default			
	Main Sample	Main Sample	Common Sample	Purchases	Refinances
Occupancy Misreporting	1.47*** (8.06)	0.97*** (8.95)	0.97*** (7.83)	0.76*** (6.44)	0.22** (2.20)
Reported Second	9.93*** (42.02)	4.74*** (33.42)	4.61*** (33.18)	4.81*** (31.23)	3.48*** (27.41)
Reported Non-Owner Occupied	2.06*** (10.09)	2.77*** (21.54)	2.80*** (21.46)	1.60*** (10.34)	4.30*** (28.03)
Low/No-Doc	6.75*** (26.24)	3.24*** (24.45)	3.34*** (24.71)	3.38*** (22.29)	2.94*** (23.05)
Refinance	-0.58*** (-2.74)	-0.87*** (-7.71)	-1.47*** (-11.40)		
Credit Score	-6.86*** (-38.08)	0.31*** (5.54)	0.42*** (7.05)	-0.43*** (-5.79)	0.61*** (11.43)
Original Loan Amount	0.39** (2.35)	-0.04 (-0.60)	-0.08 (-1.07)	-0.86*** (-7.20)	0.48*** (8.21)
Loan-To-Value	6.53*** (20.97)	2.83*** (21.75)	3.01*** (21.95)	2.70*** (22.56)	2.93*** (22.39)
Prepayment Penalty	14.38*** (57.14)	2.73*** (23.26)	2.38*** (21.38)	4.14*** (22.23)	1.47*** (17.20)
Complex	6.31*** (19.04)	-0.96*** (-4.15)	-0.94*** (-4.06)	-3.93*** (-10.64)	1.00*** (5.30)
Adjustable	1.81*** (9.06)	2.14*** (16.99)	2.21*** (16.58)	2.68*** (16.99)	1.32*** (13.51)
Original Interest Rate	6.07*** (20.90)	0.81*** (6.33)	0.73*** (5.35)	1.80*** (9.76)	0.37*** (3.47)
Interest Rate×Adjustable	-0.94*** (-3.73)	-1.00*** (-7.20)	-1.01*** (-6.73)	-2.58*** (-14.03)	-0.44*** (-4.08)
Constant	20.15*** (59.36)	3.18*** (17.15)	4.16*** (22.55)	2.38*** (8.53)	3.81*** (34.22)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	2,807,954	2,807,954	2,306,331	1,252,650	1,551,027
Adj. R^2	0.28	0.09	0.09	0.11	0.08

Panel C: Appraisal overstatement

	Delinquent	Direct Default			
	Main Sample	Main Sample	Common Sample	Purchases	Refinances
Appraisal Overstatement	5.20*** (40.44)	2.34*** (26.74)	2.38*** (25.35)	3.65*** (22.07)	1.55*** (20.21)
Reported Second	9.39*** (43.15)	4.45*** (33.36)	4.61*** (33.30)	4.53*** (30.75)	3.47*** (27.67)
Reported Non-Owner Occupied	1.95*** (10.78)	2.60*** (22.13)	2.63*** (21.24)	1.28*** (8.56)	3.94*** (27.07)
Low/No-Doc	6.98*** (28.16)	3.23*** (25.75)	3.31*** (24.80)	3.63*** (25.19)	2.86*** (23.34)
Refinance	-2.64*** (-12.04)	-1.67*** (-14.02)	-1.74*** (-13.65)		
Credit Score	-6.79*** (-39.00)	0.37*** (6.93)	0.43*** (7.31)	-0.37*** (-4.75)	0.59*** (11.86)
Original Loan Amount	0.09 (0.57)	-0.23*** (-3.36)	-0.24*** (-3.08)	-1.09*** (-9.12)	0.28*** (5.13)
Loan-To-Value	6.91*** (22.89)	2.89*** (23.02)	3.06*** (22.22)	2.97*** (24.88)	2.87*** (22.95)
Prepayment Penalty	13.53*** (58.80)	2.26*** (21.51)	2.32*** (20.93)	3.48*** (19.91)	1.46*** (17.85)
Complex	6.56*** (20.67)	-0.75*** (-3.44)	-0.97*** (-4.18)	-4.15*** (-11.06)	1.01*** (5.60)
Adjustable	1.30*** (7.23)	2.08*** (17.23)	2.19*** (16.57)	2.86*** (17.39)	1.30*** (14.01)
Original Interest Rate	5.45*** (20.09)	0.72*** (5.87)	0.67*** (4.94)	1.71*** (8.79)	0.35*** (3.44)
Interest Rate×Adjustable	-0.46* (-1.94)	-0.96*** (-7.12)	-0.97*** (-6.53)	-2.72*** (-13.85)	-0.43*** (-4.11)
Constant	22.10*** (67.02)	3.86*** (22.63)	4.04*** (21.63)	2.85*** (10.09)	3.37*** (29.66)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	2,576,423	2,576,423	2,306,331	949,997	1,622,278
Adj. R^2	0.28	0.09	0.09	0.11	0.08

Panel D: Misreported

	Delinquent	Direct Default			
	Main Sample	Main Sample	Common Sample	Purchases	Refinances
Misreported	6.48***	2.91***	3.05***	3.63***	1.86***
	(39.93)	(25.58)	(24.39)	(24.79)	(23.25)
Reported Second	10.84***	5.02***	5.00***	5.59***	3.45***
	(45.05)	(33.99)	(33.40)	(32.95)	(28.36)
Reported Non-Owner Occupied	2.71***	2.98***	3.03***	2.37***	4.08***
	(14.96)	(25.71)	(24.22)	(16.79)	(28.95)
Low/No-Doc	6.64***	3.15***	3.32***	3.38***	2.83***
	(27.59)	(25.74)	(25.06)	(24.12)	(24.26)
Refinance	0.41**	-0.48***	-1.12***		
	(2.20)	(-5.15)	(-9.77)		
Credit Score	-6.89***	0.23***	0.39***	-0.49***	0.54***
	(-41.33)	(4.57)	(6.70)	(-7.25)	(11.44)
Original Loan Amount	0.10	-0.17**	-0.23***	-0.77***	0.30***
	(0.66)	(-2.55)	(-2.95)	(-7.11)	(5.94)
Loan-To-Value	6.51***	2.74***	3.07***	2.76***	2.80***
	(22.93)	(22.95)	(22.24)	(24.10)	(23.55)
Prepayment Penalty	14.30***	2.62***	2.32***	4.03***	1.41***
	(60.99)	(23.74)	(21.19)	(22.89)	(17.92)
Complex	6.92***	-0.61***	-0.80***	-3.27***	1.16***
	(21.85)	(-2.85)	(-3.53)	(-9.41)	(6.64)
Adjustable	1.20***	1.86***	2.04***	2.16***	1.26***
	(6.79)	(16.94)	(16.01)	(15.90)	(14.32)
Original Interest Rate	5.83***	0.74***	0.62***	1.61***	0.43***
	(22.06)	(6.50)	(4.62)	(9.54)	(4.54)
Interest Rate×Adjustable	-0.58**	-0.88***	-0.91***	-2.30***	-0.47***
	(-2.55)	(-7.18)	(-6.22)	(-13.84)	(-4.83)
Constant	17.37***	2.03***	3.13***	0.83***	3.13***
	(50.85)	(10.32)	(14.89)	(2.71)	(27.26)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	3,141,156	3,141,156	2,306,331	1,371,613	1,765,126
Adj. R^2	0.28	0.09	0.10	0.11	0.08

This table presents OLS regressions (with t -statistics in parentheses) where the dependent variables are the dummies *Delinquent* and *Direct Default* (variables are defined in Internet Appendix A). Panels A, B, C, and D show the results for unreported second liens, occupancy status misreporting, appraisal overstatements, and aggregated misreporting, respectively. All continuous variables are standardized by subtracting their means and dividing by their standard deviations. Regressions include CBSA×quarter fixed effects. Standard errors are clustered by CBSA×quarter of origination. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table IA.5
Effect of misreporting on foreclosure and early delinquency

Panel A: Unreported second

	Foreclosed		Early Delinquency	
	Main Sample	Common Sample	Main Sample	Common Sample
Unreported Second	9.58*** (24.96)	11.79*** (28.17)	1.59*** (17.97)	1.78*** (16.20)
Reported Second	10.83*** (39.03)	10.70*** (38.17)	0.25*** (8.25)	0.23*** (6.76)
Reported Non-Owner Occupied	4.61*** (27.95)	4.89*** (27.71)	0.30*** (8.67)	0.31*** (7.99)
Low/No-Doc	6.63*** (27.86)	7.07*** (27.40)	0.79*** (22.75)	0.82*** (21.11)
Refinance	-0.33** (-2.30)	-2.06*** (-11.82)	-0.75*** (-19.16)	-0.82*** (-17.49)
Credit Score	-5.66*** (-34.93)	-5.74*** (-31.32)	-1.39*** (-42.22)	-1.38*** (-37.94)
Original Loan Amount	0.90*** (7.58)	0.91*** (6.47)	0.44*** (16.94)	0.46*** (15.33)
Loan-To-Value	5.29*** (21.45)	5.86*** (20.59)	0.18*** (7.83)	0.22*** (8.62)
Prepayment Penalty	12.36*** (55.08)	11.51*** (49.83)	0.39*** (8.05)	0.42*** (8.14)
Complex	5.03*** (16.41)	5.04*** (14.99)	0.74*** (6.39)	0.59*** (4.66)
Adjustable	2.61*** (16.25)	2.76*** (14.83)	0.85*** (27.83)	0.89*** (25.42)
Original Interest Rate	4.06*** (16.60)	3.75*** (13.47)	1.21*** (19.25)	1.13*** (15.71)
Interest Rate×Adjustable	0.42* (1.84)	0.50* (1.89)	-0.07 (-1.20)	-0.06 (-0.81)
Constant	11.55*** (36.14)	14.21*** (42.41)	1.13*** (24.56)	1.18*** (23.60)
CBSA×Quarter FE	Yes	Yes	Yes	Yes
Observations	3,140,472	2,306,331	3,140,472	2,306,331
Adj. R^2	0.23	0.24	0.03	0.03

Panel B: Occupancy misreporting

	Foreclosed		Early Delinquency	
	Main Sample	Common Sample	Main Sample	Common Sample
Occupancy Misreporting	1.76*** (11.00)	1.84*** (9.90)	0.53*** (10.35)	0.60*** (9.91)
Reported Second	9.09*** (39.69)	8.71*** (39.68)	-0.05* (-1.80)	-0.07** (-2.28)
Reported Non-Owner Occupied	3.83*** (21.30)	4.04*** (22.32)	0.22*** (5.76)	0.22*** (5.37)
Low/No-Doc	6.55*** (26.14)	6.90*** (26.71)	0.75*** (21.01)	0.79*** (20.60)
Refinance	-2.21*** (-12.40)	-3.88*** (-18.65)	-1.03*** (-22.04)	-1.06*** (-20.12)
Credit Score	-5.60*** (-32.54)	-5.59*** (-30.87)	-1.39*** (-40.54)	-1.36*** (-38.25)
Original Loan Amount	0.70*** (5.25)	0.69*** (4.81)	0.42*** (14.84)	0.42*** (14.25)
Loan-To-Value	5.43*** (20.10)	5.86*** (20.46)	0.19*** (7.59)	0.22*** (8.59)
Prepayment Penalty	12.33*** (51.11)	11.54*** (49.00)	0.40*** (7.91)	0.42*** (8.26)
Complex	4.00*** (12.38)	4.16*** (12.59)	0.52*** (4.26)	0.45*** (3.56)
Adjustable	3.54*** (18.46)	3.54*** (17.90)	0.99*** (27.15)	1.01*** (26.06)
Original Interest Rate	4.12*** (15.44)	3.86*** (13.77)	1.18*** (17.63)	1.15*** (15.86)
Interest Rate×Adjustable	0.17 (0.65)	0.29 (1.05)	-0.10 (-1.47)	-0.09 (-1.27)
Constant	14.00*** (48.47)	16.45*** (56.25)	1.44*** (35.07)	1.48*** (35.28)
CBSA×Quarter FE	Yes	Yes	Yes	Yes
Observations	2,807,954	2,306,331	2,807,954	2,306,331
Adj. R^2	0.23	0.23	0.03	0.03

Panel C: Appraisal overstatement

	Foreclosed		Early Delinquency	
	Main Sample	Common Sample	Main Sample	Common Sample
Appraisal Overstatement	4.56*** (38.78)	4.52*** (36.18)	0.88*** (18.84)	0.90*** (18.01)
Reported Second	8.62*** (41.02)	8.72*** (39.83)	-0.08*** (-2.66)	-0.07** (-2.26)
Reported Non-Owner Occupied	3.74*** (23.20)	3.72*** (21.90)	0.11*** (3.00)	0.13*** (3.41)
Low/No-Doc	6.76*** (27.93)	6.84*** (26.73)	0.78*** (21.91)	0.78*** (20.63)
Refinance	-4.21*** (-22.06)	-4.39*** (-21.49)	-1.17*** (-21.83)	-1.18*** (-20.66)
Credit Score	-5.48*** (-32.79)	-5.56*** (-30.85)	-1.33*** (-40.01)	-1.35*** (-38.29)
Original Loan Amount	0.38*** (2.92)	0.39*** (2.72)	0.35*** (13.48)	0.36*** (12.84)
Loan-To-Value	5.74*** (21.99)	5.95*** (20.82)	0.22*** (9.18)	0.24*** (9.19)
Prepayment Penalty	11.42*** (51.79)	11.44*** (48.72)	0.37*** (7.73)	0.40*** (7.88)
Complex	4.31*** (13.86)	4.11*** (12.47)	0.53*** (4.42)	0.44*** (3.49)
Adjustable	3.29*** (18.47)	3.51*** (17.86)	0.98*** (27.76)	1.00*** (26.14)
Original Interest Rate	3.84*** (15.05)	3.74*** (13.45)	1.17*** (17.40)	1.12*** (15.66)
Interest Rate×Adjustable	0.34 (1.40)	0.35 (1.31)	-0.09 (-1.37)	-0.08 (-1.08)
Constant	15.78*** (58.08)	16.22*** (55.24)	1.47*** (37.95)	1.46*** (35.17)
CBSA×Quarter FE	Yes	Yes	Yes	Yes
Observations	2,576,423	2,306,331	2,576,423	2,306,331
Adj. R^2	0.23	0.23	0.03	0.03

Panel D: Misreported

	Foreclosed		Early Delinquency	
	Main Sample	Common Sample	Main Sample	Common Sample
Misreported	6.08*** (36.58)	6.18*** (35.68)	1.02*** (22.04)	1.04*** (19.46)
Reported Second	9.91*** (42.21)	9.51*** (40.56)	0.10*** (3.53)	0.06** (1.99)
Reported Non-Owner Occupied	4.38*** (26.94)	4.52*** (25.90)	0.27*** (7.53)	0.27*** (6.81)
Low/No-Doc	6.44*** (27.65)	6.85*** (27.02)	0.75*** (22.46)	0.78*** (20.79)
Refinance	-1.33*** (-8.94)	-3.15*** (-17.01)	-0.92*** (-22.06)	-0.97*** (-19.52)
Credit Score	-5.59*** (-35.13)	-5.65*** (-31.22)	-1.38*** (-42.53)	-1.37*** (-38.20)
Original Loan Amount	0.42*** (3.40)	0.39*** (2.67)	0.36*** (14.59)	0.37*** (13.12)
Loan-To-Value	5.39*** (21.85)	5.98*** (20.92)	0.19*** (8.48)	0.24*** (9.25)
Prepayment Penalty	12.22*** (54.50)	11.43*** (49.30)	0.37*** (7.64)	0.40*** (7.93)
Complex	4.53*** (14.84)	4.44*** (13.36)	0.66*** (5.68)	0.50*** (3.95)
Adjustable	2.94*** (17.56)	3.19*** (16.59)	0.90*** (28.38)	0.95*** (25.88)
Original Interest Rate	3.94*** (16.24)	3.64*** (13.09)	1.19*** (18.98)	1.11*** (15.43)
Interest Rate×Adjustable	0.41* (1.76)	0.48* (1.80)	-0.08 (-1.25)	-0.06 (-0.81)
Constant	11.50*** (38.29)	14.35*** (44.80)	1.12*** (24.63)	1.16*** (23.45)
CBSA×Quarter FE	Yes	Yes	Yes	Yes
Observations	3,141,156	2,306,331	3,141,156	2,306,331
Adj. R^2	0.23	0.24	0.03	0.03

This table presents OLS regressions (with t -statistics in parentheses) where the dependent variables are the dummies *Foreclosed* and *Early Delinquency* (variables are defined in Internet Appendix A). Panels A, B, C, and D show the results for unreported second liens, occupancy status misreporting, appraisal overstatements, and aggregated misreporting, respectively. All continuous variables are standardized by subtracting their means and dividing by their standard deviations. Regressions include CBSA×quarter fixed effects. Standard errors are clustered by CBSA×quarter of origination. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table IA.6
Complete results for Table 4

Panel A: Unreported second

	Main Sample	Main Sample ex CA, FL	Common Sample
Unreported Second	0.14*** (19.35)	0.10*** (11.48)	0.14*** (15.33)
Reported Second	0.10*** (11.31)	0.06*** (7.72)	0.09*** (9.81)
Reported Non-Owner Occupied	0.35*** (53.33)	0.43*** (61.68)	0.33*** (45.96)
Low/No-Doc	0.29*** (51.44)	0.32*** (62.64)	0.27*** (40.64)
Refinance	-0.17*** (-38.07)	-0.20*** (-41.58)	-0.18*** (-34.46)
Credit Score	-0.77*** (-99.47)	-0.85*** (-137.94)	-0.77*** (-86.33)
Original Loan Amount	-0.17*** (-34.23)	-0.21*** (-51.98)	-0.15*** (-28.00)
LTV×LTV Low	0.07*** (25.13)	0.07*** (25.66)	0.07*** (21.65)
LTV×LTV High	0.66*** (120.59)	0.63*** (105.06)	0.64*** (103.84)
Prepayment Penalty	0.03*** (3.69)	0.03*** (2.89)	0.03*** (2.90)
Complex	-3.77*** (-59.65)	-3.78*** (-71.23)	-3.75*** (-52.83)
Adjustable	-0.05*** (-3.09)	0.00 (0.01)	-0.04* (-1.84)
Constant	6.71*** (483.38)	6.75*** (593.55)	6.74*** (425.97)
Controls	Yes	Yes	Yes
CBSA×Quarter FE	Yes	Yes	Yes
Observations	3,140,472	1,687,283	2,306,331
Adj. R^2	0.62	0.60	0.62

Panel B: Occupancy misreporting

	Main Sample	Main Sample ex CA, FL	Common Sample
Occupancy Misreporting	0.05*** (9.73)	0.07*** (11.19)	0.04*** (8.51)
Reported Second	0.07*** (7.48)	0.04*** (4.67)	0.07*** (7.08)
Reported Non-Owner Occupied	0.32*** (45.54)	0.42*** (54.41)	0.32*** (43.51)
Low/No-Doc	0.28*** (46.36)	0.32*** (56.61)	0.27*** (40.08)
Refinance	-0.19*** (-38.62)	-0.20*** (-33.95)	-0.20*** (-37.57)
Credit Score	-0.77*** (-90.92)	-0.86*** (-125.76)	-0.77*** (-86.34)
Original Loan Amount	-0.17*** (-32.99)	-0.22*** (-51.60)	-0.16*** (-29.14)
LTV×LTV Low	0.08*** (25.37)	0.08*** (22.74)	0.07*** (23.36)
LTV×LTV High	0.63*** (122.90)	0.61*** (106.51)	0.62*** (113.52)
Prepayment Penalty	0.04*** (4.32)	0.04*** (3.74)	0.03*** (3.14)
Complex	-3.78*** (-56.28)	-3.76*** (-64.05)	-3.76*** (-52.89)
Adjustable	-0.03* (-1.85)	0.03 (1.54)	-0.03 (-1.43)
Constant	6.74*** (428.35)	6.77*** (535.49)	6.77*** (409.81)
Controls	Yes	Yes	Yes
CBSA×Quarter FE	Yes	Yes	Yes
Observations	2,807,954	1,391,821	2,306,331
Adj. R^2	0.63	0.60	0.62

Panel C: Appraisal overstatement

	Main Sample	Main Sample ex CA, FL	Common Sample
Appraisal Overstatement	0.07*** (25.37)	0.09*** (23.82)	0.07*** (23.52)
Reported Second	0.06*** (7.26)	0.04*** (4.83)	0.06*** (7.08)
Reported Non-Owner Occupied	0.33*** (47.39)	0.42*** (56.38)	0.31*** (43.65)
Low/No-Doc	0.27*** (43.52)	0.31*** (55.68)	0.27*** (39.90)
Refinance	-0.21*** (-43.33)	-0.24*** (-42.98)	-0.21*** (-39.60)
Credit Score	-0.77*** (-94.48)	-0.86*** (-130.58)	-0.76*** (-86.57)
Original Loan Amount	-0.17*** (-31.79)	-0.21*** (-48.88)	-0.16*** (-29.32)
LTV×LTV Low	0.08*** (26.38)	0.07*** (23.90)	0.08*** (24.15)
LTV×LTV High	0.62*** (121.47)	0.61*** (105.66)	0.62*** (113.73)
Prepayment Penalty	0.02** (2.43)	0.02 (1.46)	0.03*** (2.95)
Complex	-3.77*** (-56.20)	-3.78*** (-65.82)	-3.76*** (-52.92)
Adjustable	-0.04** (-2.12)	0.02 (0.93)	-0.03 (-1.44)
Constant	6.77*** (442.92)	6.79*** (527.72)	6.77*** (412.10)
Controls	Yes	Yes	Yes
CBSA×Quarter FE	Yes	Yes	Yes
Observations	2,576,423	1,334,103	2,306,331
Adj. R^2	0.62	0.60	0.62

This table presents OLS estimates (with t -statistics in parentheses) of the regressions summarized in Table 4 of the main text. The dependent variable is the interest rate at origination (variables are defined in Internet Appendix A). Panels A, B, and C show the results for unreported second liens, occupancy status misreporting, and appraisal overstatements, respectively. All continuous variables are standardized by subtracting their means and dividing by their standard deviations. Regressions include CBSA×quarter fixed effects. Standard errors are clustered by CBSA×quarter of origination. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table IA.7
Probability of misreporting around credit score thresholds

Panel A: Low/No doc

	β FICO \geq 620	t-stat	# Obs	Adj. R^2
Unreported Second	0.025	2.99	241	0.96
Unreported Second (Liens By Same Lender)	0.008	1.28	241	0.96
Unreported Second (Liens By Different Lenders)	0.017	5.14	241	0.90
Occupancy Misreporting	0.008	2.44	241	0.92
Appraisal Overstatement	-0.010	-2.20	241	0.86

Panel B: Full doc

	β FICO \geq 580	t-stat	# Obs	Adj. R^2
Unreported Second	0.073	10.08	241	0.98
Unreported Second (Liens By Same Lender)	0.055	9.44	241	0.98
Unreported Second (Liens By Different Lenders)	0.019	4.70	241	0.90
Occupancy Misreporting	0.007	1.54	241	0.89
Appraisal Overstatement	-0.020	-3.35	241	0.83

We estimate the differences in the probability of misreporting (for each indicator separately) at both sides of the credit score thresholds (620 for low/no-documentation loans and 580 for full-documentation loans). A fourth-order polynomial is fit at both sides of the thresholds. The coefficient β captures the jump at the discontinuity. Panels A and B present results for low/no-documentation loans and full-documentation loans, respectively.

Table IA.8

Probability of misreporting around credit score thresholds, best and worst originators

Panel A: Low/No doc

	Best Performers		Worst Performers	
	β FICO \geq 620	t-stat	β FICO \geq 620	t-stat
Unreported Second	-0.015	-2.90	0.032	1.97
Unreported Second (Liens By Same Lender)	-0.020	-4.65	0.027	1.74
Unreported Second (Liens By Different Lenders)	0.005	1.86	0.005	0.79
Occupancy Misreporting	-0.007	-0.99	0.011	1.12
Appraisal Overstatement	-0.027	-2.32	0.006	0.44

Panel B: Full doc

	Best Performers		Worst Performers	
	β FICO \geq 580	t-stat	β FICO \geq 580	t-stat
Unreported Second	0.042	4.21	0.143	6.31
Unreported Second (Liens By Same Lender)	0.009	0.98	0.148	6.84
Unreported Second (Liens By Different Lenders)	0.033	5.61	-0.005	-0.47
Occupancy Misreporting	0.000	-0.03	0.000	-0.01
Appraisal Overstatement	-0.034	-2.70	-0.037	-1.89

We repeat the RDD analysis for the subset of loans originated by the best- and worst-performing originators. The best performers correspond to the tercile of originators with the smallest fixed effect estimates from a regression of the delinquency dummy on loan-level controls, CBSA \times quarter fixed effects, and originator fixed effects. The worst performers correspond to the tercile of originators with the largest fixed effects. We estimate the differences in the probability of misreporting (for each indicator separately) at both sides of the credit score thresholds (620 for low/no-documentation loans and 580 for full-documentation loans). A fourth-order polynomial is fit at both sides of the thresholds. The coefficient β captures the jump at the discontinuity. Panels A and B present results for low/no-documentation loans and full-documentation loans, respectively.

Table IA.9
Complete results for Table 5

	Unreported Second			Occupancy Misreporting			Appraisal Overstatement		
Low/No-Doc	-0.02*** (-16.00)	-0.02*** (-21.80)	-0.01*** (-14.71)	0.01*** (11.47)	0.01*** (11.16)	0.01*** (11.70)	0.02*** (18.90)	0.02*** (19.86)	0.02*** (18.74)
Refinance	-0.14*** (-65.60)	-0.14*** (-66.85)	-0.14*** (-67.42)	-0.10*** (-18.23)	-0.10*** (-18.16)	-0.10*** (-18.23)	0.07*** (30.57)	0.07*** (30.65)	0.07*** (30.67)
Credit Score	0.01*** (17.84)	-0.00 (-1.23)	0.01*** (19.48)	-0.00*** (-4.38)	-0.00*** (-7.14)	-0.00*** (-4.42)	-0.00** (-2.03)	-0.00*** (-6.23)	-0.00* (-1.76)
Original Loan Amount	-0.01*** (-18.72)	-0.01*** (-21.39)	-0.01*** (-17.40)	0.01*** (15.20)	0.01*** (14.84)	0.01*** (15.26)	0.07*** (45.25)	0.07*** (45.00)	0.07*** (45.01)
Loan-To-Value	-0.00 (-0.13)	0.00*** (4.94)	0.00 (0.08)	-0.00*** (-2.78)	-0.00** (-2.56)	-0.00*** (-2.74)	-0.02*** (-26.17)	-0.02*** (-25.41)	-0.02*** (-26.09)
Prepayment Penalty	-0.00 (-1.37)	0.01*** (4.59)	0.00* (1.68)	-0.00 (-1.47)	-0.00 (-0.81)	-0.00 (-1.50)	0.02*** (15.85)	0.02*** (18.99)	0.02*** (16.13)
Complex	-0.07*** (-21.44)	-0.06*** (-26.06)	-0.06*** (-19.97)	-0.01*** (-6.70)	-0.00*** (-4.26)	-0.01*** (-6.00)	0.02*** (10.97)	0.02*** (11.52)	0.02*** (10.76)
Adjustable	0.04*** (38.73)	0.06*** (40.90)	0.04*** (39.82)	-0.00* (-1.83)	-0.00 (-1.43)	-0.00* (-1.83)	0.00*** (2.76)	0.00*** (4.31)	0.00*** (2.95)
Original Interest Rate	-0.01*** (-7.94)	-0.00 (-0.04)	-0.01*** (-9.84)	-0.00*** (-3.67)	-0.00*** (-3.40)	-0.00*** (-3.76)	0.03*** (16.28)	0.03*** (17.36)	0.03*** (16.27)
Interest Rate×Adjustable	-0.01*** (-9.70)	-0.01*** (-9.35)	-0.01*** (-8.59)	0.00*** (3.08)	0.00*** (3.09)	0.00*** (3.00)	-0.02*** (-11.08)	-0.02*** (-10.79)	-0.02*** (-11.17)
Constant	0.20*** (30.57)	0.28*** (40.08)	0.31*** (35.02)	0.12*** (21.56)	0.12*** (27.98)	0.12*** (20.35)	0.13*** (23.05)	0.11*** (36.90)	0.13*** (20.24)
CBSA×Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Originator FE	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Underwriter FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Observations	1,726,075	1,726,075	1,726,075	1,726,075	1,726,075	1,726,075	1,726,075	1,726,075	1,726,075
Adj. R^2	0.15	0.13	0.17	0.089	0.087	0.089	0.086	0.085	0.086
Adj. R^2 without Originator and Underwriter FE	0.10			0.087			0.085		

This table shows the complete results for the OLS regressions summarized in Table 5 in the main text. The misreporting indicators are the dependent variables. The explanatory variables include loan-level controls and different combinations of originator and underwriter fixed effects (variables are defined in Internet Appendix A). ***p<0.01, **p<0.05, *p<0.1.

Table IA.10
Complete result for Table 6

	Appraisal Overstatement		Delinquent	
Refinance	1.74*** (39.56)		0.85*** (-12.99)	0.86*** (-12.38)
Cashout Refinance		1.81*** (42.09)		
Term/Rate Refinance		1.57*** (28.80)		
Appraisal Overstatement×LTV5				1.25*** (22.85)
Appraisal Overstatement			1.34*** (46.57)	1.16*** (15.68)
Reported Second	0.99 (-1.13)	1.00 (0.14)	1.78*** (82.05)	1.78*** (82.45)
Reported Non-Owner Occupied	1.29*** (25.67)	1.29*** (25.71)	1.14*** (11.63)	1.14*** (11.40)
Low/No-Doc	1.13*** (22.68)	1.13*** (22.84)	1.61*** (40.67)	1.61*** (40.59)
Credit Score	0.97*** (-10.10)	0.97*** (-8.90)	0.62*** (-58.52)	0.62*** (-58.49)
Original Loan Amount	1.59*** (56.57)	1.59*** (55.78)	0.99 (-1.38)	0.99 (-1.15)
Loan-To-Value	0.86*** (-22.26)	0.87*** (-21.74)	1.71*** (40.07)	1.69*** (38.90)
Prepayment Penalty	1.17*** (20.64)	1.15*** (18.83)	2.01*** (56.06)	2.00*** (56.09)
Complex	1.12*** (11.57)	1.13*** (11.65)	1.42*** (19.10)	1.42*** (19.03)
Adjustable	1.03*** (4.68)	1.03*** (4.38)	1.06*** (4.85)	1.06*** (4.62)
Original Interest Rate	1.19*** (21.99)	1.18*** (20.67)	1.42*** (30.35)	1.42*** (30.24)
Interest Rate×Adjustable	0.92*** (-11.14)	0.92*** (-10.09)	0.89*** (-10.02)	0.89*** (-9.87)
Constant	0.52*** (-45.24)	0.52*** (-44.09)	0.06*** (-80.88)	0.06*** (-80.05)
CBSA×Quarter FE	Yes	Yes	Yes	Yes
Observations	2,575,484	2,560,060	2,576,423	2,576,423
Pseudo R^2	0.09	0.09	0.25	0.25

This table presents the odds ratios (with z -statistics in parentheses) of the logit regressions summarized in Table 6 in the main text. The dependent variables are *Appraisal Overstatement* or *Delinquent* (variables are defined in Internet Appendix A). All regressions have CBSA×quarter fixed effects and standard errors are clustered by CBSA×quarter. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table IA.11
List of originators

Abbreviation	Name	Abbreviation	Name
AEGIS	Aegis Mortgage	INDYMAC	IndyMac Mortgage
AMERHOME	American Home Mortgage	MORTIT	Mortgage IT
ARGENT	Argent Mortgage	NATCITY	National City Mortgage
BofA	Bank of America	NEWCENT	New Century Financial
BNC	BNC Mortgage	OPTONE	Option One Mortgage
CHASE	Chase Bank	OWNIT	Ownit Mortgage
COUNTWIDE	Countrywide	PPLCH	People's Choice Home Loans
DOWNEY	Downey Mortgage & Financial	RFC	Residential Finance Corp.
FIELDSTONE	Fieldstone Mortgage	SUNTRUST	SunTrust Mortgage
FIRSTFRAN	First Franklin Financial	WAMU	Washington Mutual
FREMONT	Fremont Mortgage	WFARGO	Wells Fargo
GREENPOINT	GreenPoint	WMC	WMC Mortgage
IMPAC	IMPAC Mortgage		

This table lists the originators' names that correspond to the abbreviations used throughout the paper. The selected originators are the 25 largest originators in our sample in terms of issued amount.

Table IA.12
List of underwriters

Abbreviation	Name	Abbreviation	Name
BCG	Barclays Capital	JPM	JP Morgan
BOA	Bank of America	LB	Lehman Brothers
BS	Bear Stearns	ML	Merrill Lynch
CITG	Citi	MS	Morgan Stanley
CSFB	Credit Suisse	NSI	Nomura Securities Int.
CWSC	Countrywide	RFC	GMAC RFC Securities
DBS	Deutsche Bank	RGW	RBS Securities
GS	Goldman Sachs	UBS	UBS
HSBC	HSBC	WM	Washington Mutual

This table shows the underwriters' names that correspond to the abbreviations used throughout the paper.

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