When are Modifications of Securitized Loans Beneficial to Investors?

Internet Appendix

This appendix is divided into two sections. The first section provides a list of the relevant events for determining the servicer identity of a loan at the time of delinquency. The second section provides supplementary tables and figures.

A. Relevant events for determining the servicer when a loan becomes delinquent

Jul 2006. Centex Home Equity becomes Nationstar Mortgage.

Dec 2006. Merrill Lynch acquires First Franklin (from National City).

May 2007. Carrington acquires servicing rights from New Century.

Sep 2007. CitiMortgage acquires ACM Mortgage Services (which also owns Argent and Ameriquest).

Apr 2008. JP Morgan acquires Bear Sterns (which also owns EMC Mortgage).

Apr 2008. American Home Mortgage acquires Option One.

Jul 2008. Bank of America acquires Countrywide.

Sep 2008. JP Morgan acquires Washington Mutual.

Sep 2008. PNC Mortgage acquires National City.

Sep 2008. Barclays acquires Lehman Brothers (Aurora Loan Services later transfers servicing rights to Nationstar on Jul 2012).

Oct 2008. Bank of America acquires Merrill Lynch.

Dec 2008. Bank of America acquires GreenPoint Mortgage.

Jan 2009. Wells Fargo acquires Wachovia.

Mar 2009. OneWest Bank acquires IndyMac.

Mar 2010. IBM acquires Wilshire Credit Corporation.

Sep 2010. Ocwen acquires HomeEq Servicing (from Barclays).

Sep 2011. Ocwen acquires Litton Loan Servicing (from Goldman Sachs).

B. Additional tables and figures

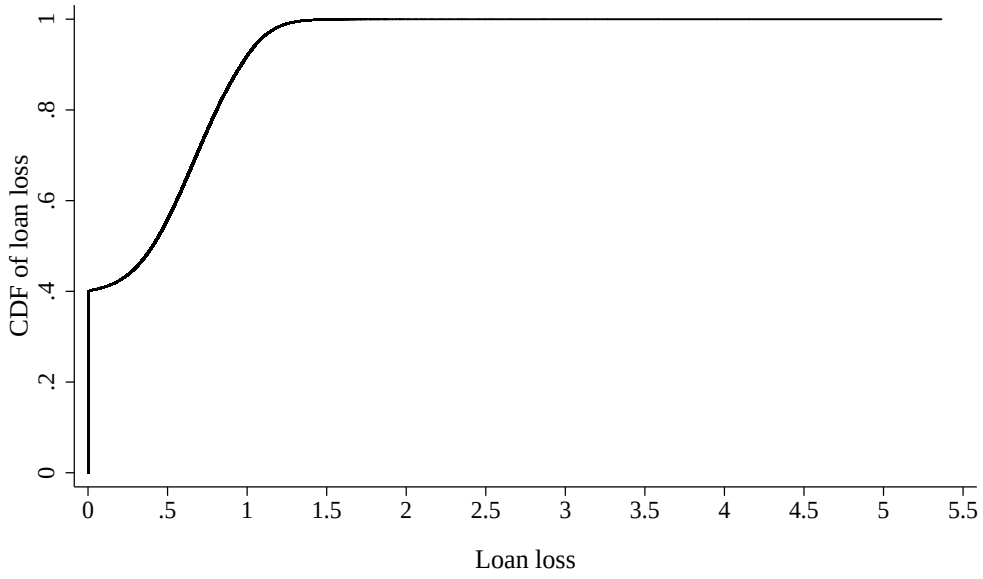
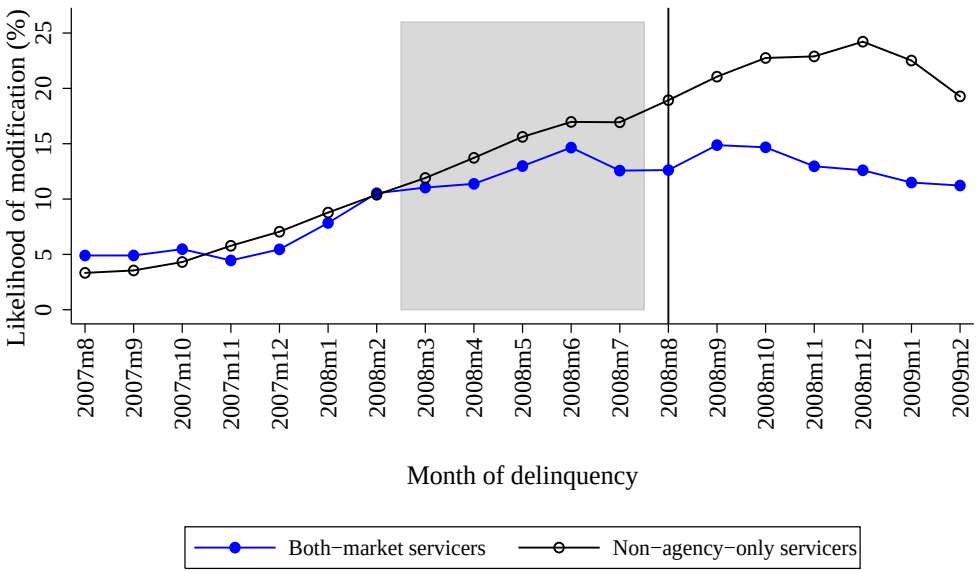


Figure IA.1
Cumulative distribution function of loan losses
This figure shows the cumulative distribution function of loan losses before dropping the the 0.5% of the loans that have the largest losses, as described in the sample selection section.



Note: Modification rates of both−market servicers are in the non−agency market.

Figure IA.2
Non-agency loan modifications by servicer type (weakest both-market servicers excluded)
This figure shows the likelihood of modification for each month within six months of the loans becoming 60+ days delinquent. Loans are categorized by the type of servicer holding the servicing rights at the time the loan became delinquent. The first group, "both-market servicers," includes servicers that manage loans both from mortgage-backed securities of government-sponsored enterprises (GSEs) and from non-agency mortgage-backed securities. The second group, "non-agency-only servicers," includes servicers that mostly manage non-agency loans. Those both-market servicers with Moody's servicer ratings below SQ1$^-$ are excluded from the sample. The gray area delimits when the modification rate becomes affected by the incentive fee.

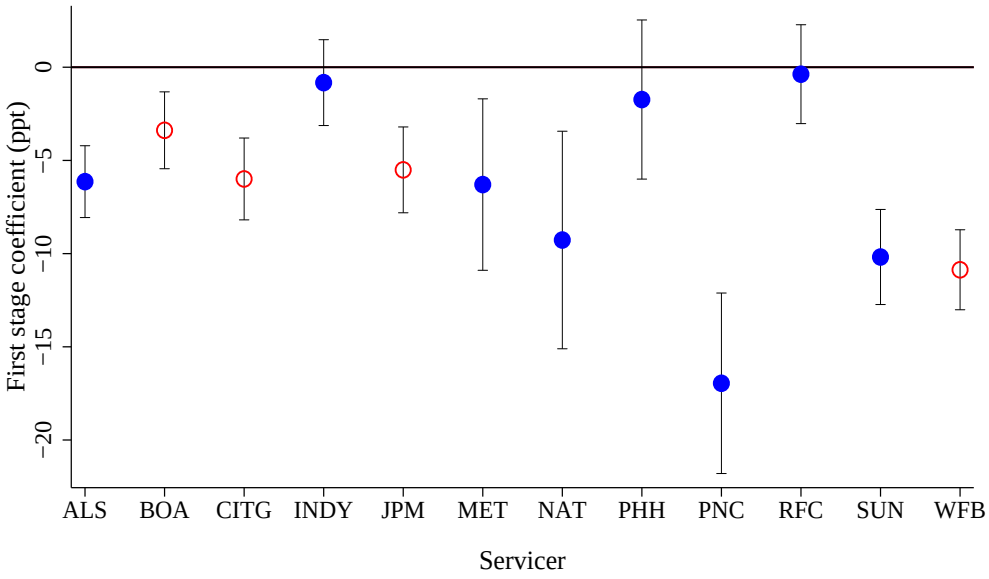
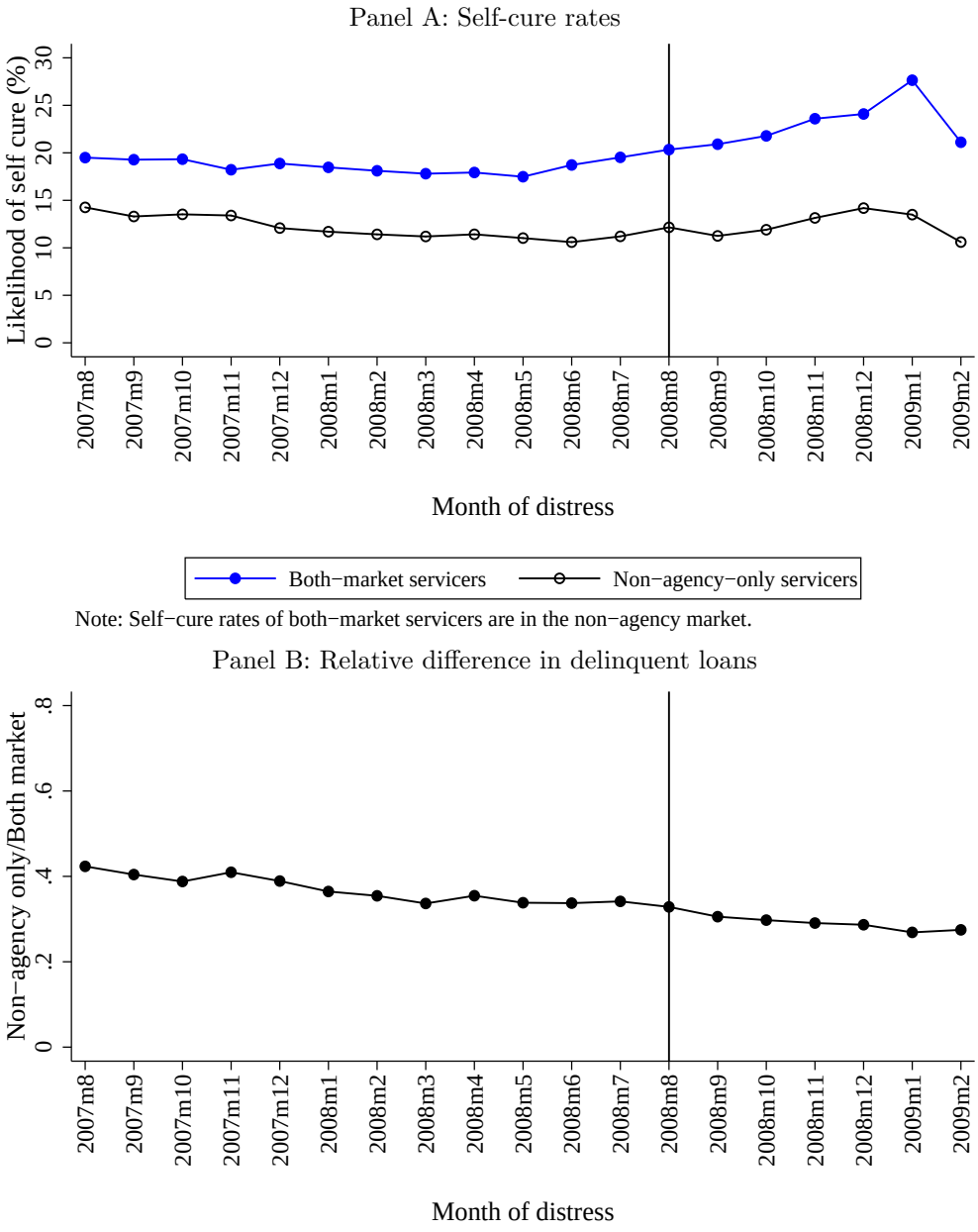


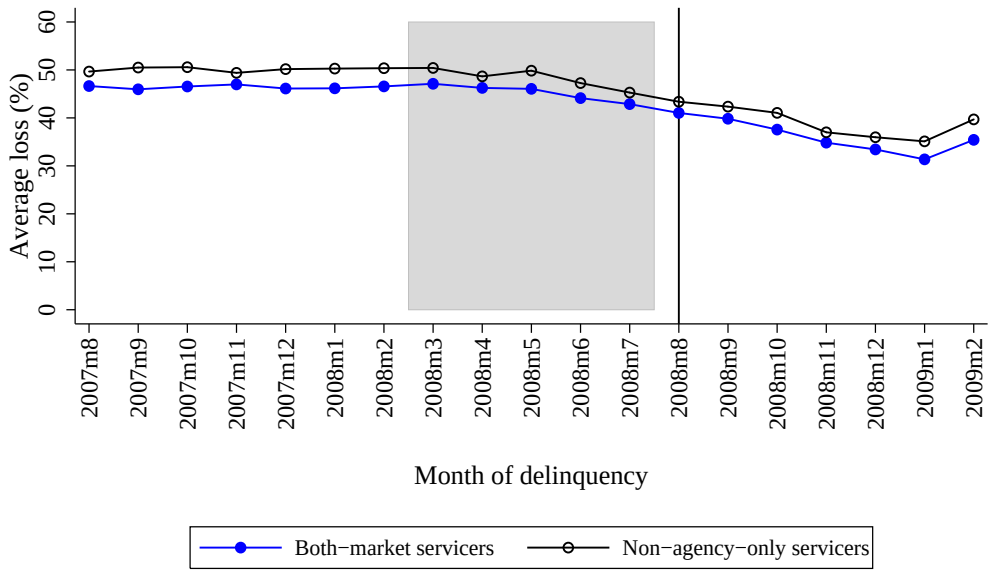
Figure IA.3
First-stage coefficients for different both-market servicers
This figure shows coefficient on *Both Markets*×*After Fee* (along with its 95% confidence interval) of first-stage regressions that include each both-market servicer alone and separately. The red hollow circles denote the coefficients from the four regressions in which the servicers are also among the top four residential portfolio lenders in 2010, as published by Inside Mortgage Finance (2012). Countrywide and EMC mortgage are not considered since they were acquired before the introduction of the incentive fee.



Note: Self−cure rates of both−market servicers are in the non−agency market.

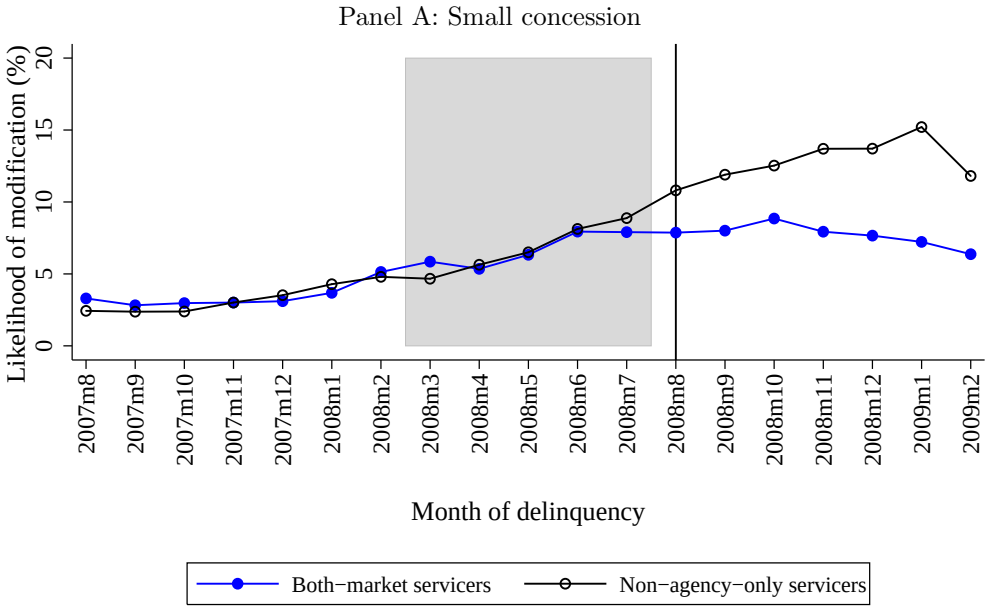
Note: Distress rates of both−market servicers are in the non−agency market.

Figure IA.4
Non-agency self-cure rates and relative difference in delinquent loans by servicer type
Panel A of this figure shows the likelihood of self-cure by month of 60+ days delinquency. Loans are categorized by the type of servicer holding the servicing rights at the time the loan became delinquent. The first group, "both-market servicers," includes servicers that manage loans both from mortgage-backed securities of government-sponsored enterprises (GSEs) and from non-agency mortgage-backed securities. The second group, "non-agency-only servicers," includes servicers that mostly manage non-agency loans. Panel B shows the ratio between the number of 60+ days delinquent loans in the sample furnished by the two types of servicers. Each month the number of delinquent loans from non-agency-only servicers is divided by the number of delinquent loans from both-market servicers. The vertical line indicates the month during which Fannie Mae and Freddie Mac increased modification incentives in the GSE market.

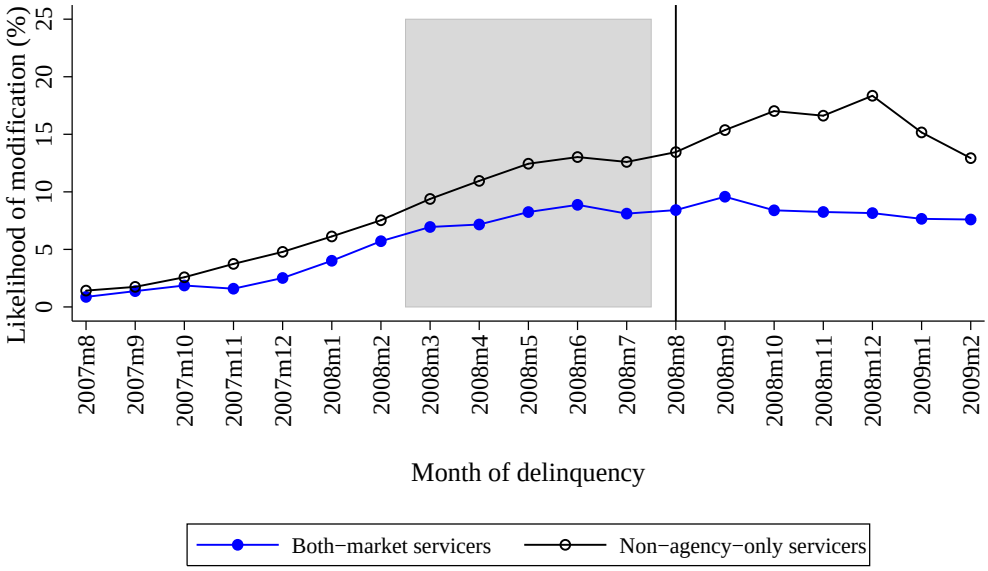


Note: Losses of both−market servicers are in the non−agency market.

Figure IA.5
Losses of non-agency loans by servicer type
This figure shows the average losses of the two servicer types in the loan sample, by month of delinquency. Loans are categorized by the type of servicer holding the servicing rights at the time the loan became 60+ days delinquent. The first group, "both-market servicers," includes servicers which manage loans both from government-sponsored enterprises (GSEs) mortgage-backed securities and from non-agency mortgage-backed securities. The second group, "non-agency-only servicers," includes servicers which mostly manage non-agency loans. The vertical line indicates the month when Fannie Mae and Freddie Mac increased modification incentives in the GSE market. The gray area delimits when the modification rate starts being affected by the incentive fee.



Note: Modification rates of both−market servicers are in the non−agency market.



Note: Modification rates of both−market servicers are in the non−agency market.

Figure IA.6
Non-agency loan modifications by servicer type and concession size
This figure shows the likelihood of modification for each month within six months of the loans becoming 60+ days delinquent. Loans are categorized by the type of servicer holding the servicing rights at the time the loan became delinquent. The first group, "both-market servicers," includes servicers that manage loans both from mortgage-backed securities of government-sponsored enterprises (GSEs) and from non-agency mortgage-backed securities. The second group, "non-agency-only servicers," includes servicers that mostly manage non-agency loans. The vertical line indicates the month during which Fannie Mae and Freddie Mac increased modification incentives in the GSE market. The gray area delimits when the modification rate becomes affected by the incentive fee. Panel A considers those modifications whose concessions have a value below the median concession while Panel B considers the remaining modifications (i.e., those whith larger concessions).

Table IA.1
Table 5 without implied modifications

	Full Sample		Ex Low-Rated BM Servicers
	(1)	(2)	(3)
Modification	-13.04**	-14.22**	-11.51**
	(-2.11)	(-2.17)	(-2.18)
Credit Score<600 (d)	-3.80***	-3.85***	-3.27***
	(-8.56)	(-8.67)	(-6.73)
600≤Credit Score<660 (d)	-1.27***	-1.27***	-1.18**
	(-2.97)	(-2.95)	(-2.32)
660≤Credit Score<720 (d)	-0.42	-0.44*	-0.34
	(-1.65)	(-1.79)	(-1.07)
60≤CLTV<70 (d)	9.64***	9.64***	10.07***
	(9.30)	(9.20)	(10.35)
70≤CLTV<80 (d)	18.07***	18.04***	18.19***
	(14.86)	(14.73)	(15.31)
CLTV=80 (d)	23.90***	23.87***	23.99***
	(16.68)	(16.64)	(16.48)
80<CLTV<90 (d)	22.54***	22.49***	23.23***
	(16.79)	(16.65)	(16.64)
90≤CLTV<100 (d)	24.99***	24.91***	25.86***
	(17.92)	(17.94)	(17.41)
CLTV≥100 (d)	26.95***	26.84***	27.05***
	(19.79)	(19.80)	(19.49)
Interest Rate (%)	-0.61***	-0.59***	-1.14***
	(-3.31)	(-3.05)	(-6.97)
Unpaid Balance (×$10,000)	-0.21***	-0.21***	-0.22***
	(-12.69)	(-12.85)	(-12.75)
Adjustable (d)	3.62***	3.63***	3.08***
	(10.97)	(10.78)	(7.90)
Non-Owner Occupied (d)	10.18***	10.03***	9.89***
	(10.79)	(10.56)	(10.32)
Low/No-Doc (d)	1.98***	1.94***	2.33***
	(4.95)	(4.91)	(6.39)
Prepayment Penalty (d)	0.94***	0.98***	1.01***
	(3.21)	(3.30)	(2.95)
ZIP code×Origination month FE	yes	yes	yes
Servicer FE	yes	yes	yes
Delinquency month FE	yes	no	no
CBSA×Delinquency month FE	no	yes	yes
Observations	787,412	786,450	510,373
R^2	0.40	0.41	0.42
First Stage			
Coefficient on Both Markets×After Fee	-5.27***	-5.17***	-7.57***
	(-5.22)	(-5.19)	(-7.96)
F-statistic	27.3	26.9	63.3

This table shows estimates similar to those in Table 5 after dropping implied modifications from the sample. The excluded variables are *Credit Score≥720* and *CLTV<60*. Dummy variables are denoted by (d) and estimates are in percentage points. The main coefficient of interest from the first stage along with the F-statistic are also reported at the bottom of the table. Reported t-statistics in parentheses are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA. ***p<0.01, **p<0.05, *p<0.1.

Table IA.2
Servicer ratings

Both-market servicers		Non-agency-only servicers	
Servicer	Rating	Servicer	Rating
Countrywide	SQ1-	Ocwen	SQ2-
Wells Fargo	SQ1	Option One	SQ2
CitiMortgage	SQ2	HomEq (Barclays)	SQ1-
JP Morgan	SQ1	Litton (Goldman)	SQ2/SQ1-
WAMU	SQ2	Saxon (Morgan)	SQ2+
Bank of America	SQ1-	American Home	N/A
RFC - GMAC	SQ2/SQ3+	SPS (CSFB)	SQ2-
IndyMac	SQ3-	Carrington	N/A
National City	N/A		
PHH Mortgage	N/A		
SunTrust	N/A		
Aurora (Lehman)	SQ2-/SQ4+		
EMC (Bear)	SQ1-		
PNC Mortgage	N/A		
Metlife	N/A		

This table reports Moody's subprime servicer ratings in 2008. Moody's Investors Service rates servicers of subprime loans based on their view of the servicer's ability to prevent or mitigate loan losses. The rating scale ranges from SQ1 (strong) to SQ5 (weak), with "+" or "-" modifiers to denote a servicer's relative servicing capability within each category. The rating for Bank of America was imputed from that of Countrywide, since Bank of America was not rated as a subprime servicer, and since it inherited most of their subprime loans from Countrywide after acquiring it in July 2008.

Table IA.3
Falsification test

	Full Sample		Ex Low-Rated BM Servicers
	(1)	(2)	(3)
Both Markets×After Fee False (d)	-0.79	-0.90	-0.45
	(-1.29)	(-1.50)	(-0.65)
Credit Score<600 (d)	-0.87*	-0.89*	-1.10**
	(-1.85)	(-1.88)	(-2.05)
600≤Credit Score<660 (d)	0.22	0.21	0.19
	(0.69)	(0.65)	(0.49)
660≤Credit Score<720 (d)	-0.07	-0.07	-0.00
	(-0.34)	(-0.30)	(-0.02)
60≤CLTV<70 (d)	0.49	0.52	0.61
	(0.81)	(0.85)	(0.79)
70≤CLTV<80 (d)	0.94*	0.94*	1.02*
	(1.78)	(1.76)	(1.87)
CLTV=80 (d)	1.07	1.07	1.40*
	(1.49)	(1.47)	(1.72)
80<CLTV<90 (d)	1.20*	1.16	1.48
	(1.69)	(1.56)	(1.61)
90≤CLTV<100 (d)	0.88	0.86	1.11
	(1.35)	(1.27)	(1.39)
CLTV≥100 (d)	0.94	0.93	1.12
	(1.31)	(1.27)	(1.32)
Interest Rate (%)	1.56***	1.57***	1.82***
	(6.27)	(6.31)	(6.89)
Unpaid Balance (×$10,000)	0.03***	0.03***	0.02***
	(4.96)	(5.14)	(2.91)
Adjustable (d)	0.65**	0.64**	0.66*
	(2.27)	(2.24)	(1.76)
Non-Owner Occupied (d)	-2.12***	-2.08***	-2.02***
	(-10.08)	(-9.54)	(-8.41)
Low/No-Doc (d)	-2.06***	-2.08***	-2.16***
	(-8.91)	(-9.19)	(-8.24)
Prepayment Penalty (d)	1.60***	1.61***	1.46***
	(5.99)	(5.83)	(3.96)
ZIP code×Origination month FE	yes	yes	yes
Servicer FE	yes	yes	yes
Delinquency month FE	yes	no	no
CBSA×Delinquency month FE	no	yes	yes
Observations	286,290	285,497	180,344
R^2	0.31	0.32	0.35

This table shows estimates similar to the ones in Table 3 where the incentive fee is assumed to start in January 2008. The period in which the regression is estimated goes from August 2007 to July 2008 (just before the incentive fee was implemented). All regressions are estimated using OLS. The excluded variables are *Credit Score≥720* and *CLTV<60*. Dummy variables are denoted by (d) and estimates are in percentage points. Reported t-statistics in parentheses are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA. ***p<0.01, **p<0.05, *p<0.1.

Table IA.4
Changes in observable characteristics

Dependent variable	Mean value of variable	Effect of the incentive fee	t-statistic	Effect relative to the mean (%)
Credit Score	651.9	0.92	1.87	0.14
CLTV (%)	86.3	0.52	3.35	0.60
Interest Rate (%)	7.78	-0.01	-0.38	-0.13
Unpaid Balance ($)	268,359	2,034.3	2.33	0.76
Adjustable (%)	73.8	-0.03	-7.36	-0.04
Non-Owner Occupied (%)	14.4	-0.001	-0.30	-0.004
Low/No-Doc (%)	59.4	0.03	5.84	0.05
Prepayment Penalty (%)	52.5	-0.03	-4.14	-0.06

The difference-in-differences estimation in Table 3 is repeated using each original loan-level characteristic as the dependent variable. The coefficient of the variable *Both Markets*×*After Fee* (i.e., the effect of the incentive fee) is reported (t-statistics are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA).

Table IA.5
Table 3 with interactions

	Full Sample		Ex Low-Rated BM Servicers
	(1)	(2)	(3)
Both Markets×After Fee (d)	-2.22**	-2.10*	-2.79**
	(-2.01)	(-1.93)	(-2.49)
Loan-Level Controls	yes	yes	yes
ZIP code×Origination month FE	yes	yes	yes
Servicer FE	yes	yes	yes
Delinquency month FE	yes	no	no
CBSA×Delinquency month FE	no	yes	yes
Observations	834,834	834,139	549,712
R^2	0.26	0.27	0.31

This table presents regressions similar to those in Table 3, in which the control variables are also interacted with *After Fee* (a dummy variable that takes the value of 1 if the loan became 60+ days delinquent after the incentive fee in the GSE market was introduced, and 0 otherwise). Due to the large number of variables included in the regressions, only the coefficient on $Both\ Markets \times After\ Fee$ is reported. Dummy variables are denoted by (d) and estimates are in percentage points. Reported t-statistics in parentheses are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA. ***p<0.01, **p<0.05, *p<0.1.

Table IA.6
The effect of the incentive fee on self-cure rates

	(1)	(2)
Both Markets×After Fee (d)	2.02***	2.18***
	(5.04)	(5.47)
Credit Score<600 (d)	2.51***	2.45***
	(6.80)	(6.61)
600≤Credit Score<660 (d)	1.02***	0.98***
	(4.20)	(4.19)
660≤Credit Score<720 (d)	0.63***	0.63***
	(4.71)	(4.76)
60≤CLTV<70 (d)	-12.50***	-12.47***
	(-13.61)	(-13.64)
70≤CLTV<80 (d)	-18.22***	-18.18***
	(-18.07)	(-17.84)
CLTV=80 (d)	-21.04***	-21.04***
	(-17.29)	(-16.98)
80<CLTV<90 (d)	-21.06***	-21.06***
	(-18.90)	(-18.77)
90≤CLTV<100 (d)	-22.38***	-22.35***
	(-20.06)	(-19.59)
CLTV≥100 (d)	-23.13***	-23.09***
	(-19.02)	(-18.69)
Interest Rate (%)	-1.68***	-1.67***
	(-9.55)	(-9.40)
Unpaid Balance (×$10,000)	0.04***	0.04***
	(3.53)	(3.68)
Adjustable (d)	-2.39***	-2.36***
	(-8.26)	(-8.25)
Non-Owner Occupied (d)	-0.49	-0.51
	(-1.36)	(-1.41)
Low/No-Doc (d)	-0.04	-0.07
	(-0.20)	(-0.31)
Prepayment Penalty (d)	-2.34***	-2.37***
	(-8.67)	(-8.61)
ZIP code×Origination month FE	yes	yes
Servicer FE	yes	yes
Delinquency month FE	yes	no
CBSA×Delinquency month FE	no	yes
Observations	834,834	834,139
R^2	0.32	0.33

The dependent variable is an indicator for whether the loan self-cured (i.e., returned to a current status) before September 2012. The explanatory variable of interest is *Both Markets×After Fee*, the interaction of *Both Markets* (a dummy variable that takes the value of 1 if the servicer managing the loan services loans both from government-sponsored enterprises (GSEs) mortgage-backed securities and from non-agency mortgage-backed securities, and 0 otherwise) and *After Fee* (a dummy variable that takes the value of 1 if the loan became delinquent after the incentive fee in the GSE market was introduced, and 0 otherwise). All regressions are estimated using OLS. The excluded variables are *Credit Score≥720* and *CLTV<60*. Dummy variables are denoted by (d) and estimates are in percentage points. Reported t-statistics in parentheses are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA. ***p<0.01, **p<0.05, *p<0.1.

Table IA.7
Table 5 with alternative definition of modification

	Full Sample		Ex Low-Rated BM Servicers
	(1)	(2)	(3)
Modification	-22.34*	-23.11**	-20.45**
	(-1.92)	(-1.99)	(-2.21)
Credit Score<600 (d)	-2.86***	-2.88***	-2.35***
	(-4.58)	(-4.49)	(-3.59)
600≤Credit Score<660 (d)	-0.19	-0.18	-0.04
	(-0.26)	(-0.24)	(-0.05)
660≤Credit Score<720 (d)	0.09	0.06	0.13
	(0.25)	(0.18)	(0.30)
60≤CLTV<70 (d)	9.89***	9.87***	10.07***
	(8.98)	(8.79)	(10.09)
70≤CLTV<80 (d)	18.53***	18.49***	18.55***
	(13.93)	(13.74)	(14.96)
CLTV=80 (d)	24.18***	24.13***	24.16***
	(16.70)	(16.58)	(16.77)
80<CLTV<90 (d)	23.05***	23.00***	23.67***
	(16.43)	(16.18)	(16.78)
90≤CLTV<100 (d)	25.11***	25.01***	25.92***
	(18.50)	(18.46)	(17.93)
CLTV≥100 (d)	27.28***	27.14***	27.50***
	(20.44)	(20.39)	(20.18)
Interest Rate (%)	0.21	0.24	-0.29
	(0.37)	(0.42)	(-0.62)
Unpaid Balance (×$10,000)	-0.22***	-0.22***	-0.23***
	(-13.02)	(-13.17)	(-12.80)
Adjustable (d)	4.43***	4.42***	4.10***
	(8.05)	(8.03)	(6.82)
Non-Owner Occupied (d)	9.00***	8.84***	8.86***
	(6.69)	(6.50)	(7.46)
Low/No-Doc (d)	1.10	1.05	1.39**
	(1.51)	(1.46)	(2.07)
Prepayment Penalty (d)	1.91***	1.95***	2.05***
	(2.93)	(3.00)	(3.28)
ZIP code×Origination month FE	yes	yes	yes
Servicer FE	yes	yes	yes
Delinquency month FE	yes	no	no
CBSA×Delinquency month FE	no	yes	yes
Observations	834,834	834,139	549,712
R^2	0.39	0.40	0.41
First Stage			
Coefficient on Both Markets×After Fee	-3.07***	-3.06***	-4.43***
	(-2.83)	(-2.82)	(-3.98)
F-statistic	8.0	7.9	0.0

This table shows estimates similar to those in Table 5, but uses an indicator for whether a loan was modified within one year (instead of six months) of becoming 60+ days delinquent. The excluded variables are *Credit Score≥720* and *CLTV<60*. Dummy variables are denoted by (d) and estimates are in percentage points. The main coefficient of interest from the first stage along with the F-statistic are also reported at the bottom of the table. Reported t-statistics in parentheses are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA. ***p<0.01, **p<0.05, *p<0.1.

Table IA.8
Sensitivity analysis for the concession estimation

	Expected additional loan life after modification			
Discount Rate	3 years	5 years	7 years	9 years
Pre-modification rate	-15.02**	-14.02*	-13.19*	-12.50*
	(-1.98)	(-1.87)	(-1.78)	(-1.69)
Pre-modification rate + 100 bps	-15.04**	-14.09*	-13.31*	-12.67*
	(-1.98)	(-1.88)	(-1.79)	(-1.71)
Pre-modification rate + 200 bps	-15.07**	-14.15*	-13.42*	-12.83*
	(-1.99)	(-1.89)	(-1.80)	(-1.73)

This table shows the sensitivity of the second stage coefficient in Table 5 to the discount rate and the average loan life used to compute the value of the modification concession for interest rate and payment reductions. Estimates are in percentage points. Reported t-statistics in parentheses are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA. ***p<0.01, **p<0.05, *p<0.1.

Table IA.9
Correlation matrix of the variables used in Table 7

	High Income	Jumbo Loan	Large Income Drop	Large House Price Drop
High Income	1			
Jumbo Loan	0.2679	1		
Large Income Drop	0.2961	0.0268	1	
Large House Price Drop	-0.1869	-0.0763	0.0798	1

This table shows the correlations between the different potential sources of heterogeneity in modification outcomes explored in Table 7.

Table IA.10
First-stage regressions in different subsamples

	High Income	Low Income	Jumbo Loan	Non-jumbo Loan	Large Income Drop	Small Income Drop	Large House Price Drop	Small House Price Drop
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Both Markets×After Fee (d)	-4.77***	-4.47***	-4.20***	-4.57***	-5.09***	-4.43***	-3.65**	-4.23***
	(-3.80)	(-4.16)	(-4.12)	(-4.33)	(-3.76)	(-4.12)	(-2.53)	(-4.04)
Credit Score<600 (d)	1.15*	2.10***	0.48	2.31***	1.81***	1.94***	0.36	2.29***
	(1.99)	(4.10)	(0.72)	(4.25)	(3.96)	(3.83)	(0.81)	(4.39)
600≤Credit Score<660 (d)	2.87***	3.49***	1.58***	3.72***	2.94***	3.45***	1.96***	3.73***
	(8.25)	(8.60)	(4.48)	(8.56)	(7.09)	(9.13)	(4.39)	(9.69)
660≤Credit Score<720 (d)	0.70***	1.60***	0.07	1.81***	0.99***	1.52***	0.78**	1.51***
	(3.41)	(7.80)	(0.29)	(8.54)	(4.55)	(8.05)	(2.61)	(7.94)
60≤CLTV<70 (d)	1.42	1.04***	-0.88	0.67***	0.38	1.44***	0.34	1.24***
	(1.54)	(4.94)	(-1.32)	(2.68)	(0.54)	(7.36)	(0.51)	(3.60)
70≤CLTV<80 (d)	2.27***	2.24***	-0.74	2.05***	1.69**	2.53***	1.86***	2.40***
	(3.31)	(7.82)	(-0.91)	(5.96)	(2.53)	(9.13)	(3.17)	(7.01)
CLTV=80 (d)	2.75***	2.69***	-0.79	2.36***	1.73**	3.13***	1.70**	2.97***
	(3.15)	(7.85)	(-0.76)	(5.15)	(2.29)	(10.09)	(2.37)	(6.76)
80<CLTV<90 (d)	2.64***	3.05***	0.23	2.35***	2.39***	3.30***	2.03***	3.16***
	(2.66)	(9.40)	(0.27)	(5.44)	(3.40)	(9.32)	(2.97)	(7.36)
90≤CLTV<100 (d)	1.79*	2.43***	-0.92	1.78***	1.13*	2.78***	1.30**	2.58***
	(1.86)	(7.88)	(-0.93)	(4.53)	(1.81)	(9.67)	(2.57)	(5.73)
CLTV≥100 (d)	2.45**	2.66***	-2.30**	2.50***	1.97***	2.97***	1.33	3.00***
	(2.53)	(5.35)	(-2.21)	(4.13)	(2.72)	(5.90)	(1.67)	(5.25)
Interest Rate (%)	2.64***	2.28***	3.02***	2.24***	2.38***	2.33***	2.30***	2.36***
	(14.40)	(15.25)	(12.93)	(15.81)	(13.58)	(14.53)	(12.04)	(15.09)
Unpaid Balance (×$10,000)	-0.00	0.03***	-0.02***	0.11***	-0.00	0.02*	0.03	0.01
	(-0.36)	(2.84)	(-4.90)	(8.28)	(-0.22)	(1.96)	(1.53)	(1.22)
Adjustable (d)	2.62***	4.31***	1.18***	4.66***	3.48***	4.10***	2.63***	4.18***
	(6.86)	(9.82)	(5.78)	(9.29)	(8.98)	(9.42)	(4.33)	(9.97)
Non-Owner Occupied (d)	-4.24***	-4.50***	-3.92***	-4.39***	-4.25***	-4.52***	-3.87***	-4.59***
	(-15.89)	(-24.05)	(-10.06)	(-24.25)	(-24.84)	(-23.96)	(-17.79)	(-24.06)
Low/No-Doc (d)	-3.98***	-3.27***	-4.07***	-3.25***	-3.62***	-3.36***	-2.93***	-3.54***
	(-8.02)	(-18.09)	(-11.70)	(-15.61)	(-8.31)	(-15.53)	(-7.74)	(-15.63)
Prepayment Penalty (d)	4.04***	4.26***	4.20***	4.07***	4.26***	4.25***	3.25***	4.48***
	(9.93)	(11.44)	(13.76)	(11.05)	(10.29)	(11.28)	(6.85)	(11.27)
ZIP code×Origination month FE	yes	yes	yes	yes	yes	yes	yes	yes
Servicer FE	yes	yes	yes	yes	yes	yes	yes	yes
CBSA×Delinquency month FE	yes	yes	yes	yes	yes	yes	yes	yes
Observations	162,376	669,014	141,155	657,397	162,738	668,716	158,187	646,925
R^2	0.30	0.26	0.30	0.29	0.25	0.27	0.21	0.29

This table shows first-stage regressions estimated using the different subsamples of loans that can be generated from the dummy variables used in Table 7. The dependent variable is an indicator for whether a loan was modified within six months of becoming 60+ days delinquent. The explanatory variable of interest is *Both Markets×After Fee*, the interaction of *Both Markets* (a dummy variable that takes the value of 1 if the servicer managing the loan services loans both from government-sponsored enterprises (GSEs) mortgage-backed securities and from non-agency mortgage-backed securities, and 0 otherwise) and *After Fee* (a dummy variable that takes the value of 1 if the loan became delinquent after the incentive fee in the GSE market was introduced, and 0 otherwise). All regressions are estimated using OLS. The excluded variables are *Credit Score≥720* and *CLTV<60*. Dummy variables are denoted by (d) and estimates are in percentage points. Reported t-statistics in parentheses are heteroscedasticity-robust and double-clustered by Servicer×Delinquency month and CSA. ***p<0.01, **p<0.05, *p<0.1.