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FCIC Staff Memo to Commissioner regarding the Analysis of Housing Data

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M E M O R A N D U M
Financial Crisis Inquiry Commission

To: Commissioners

From: Ron Borzekowski
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Date: July 7, 2010

Re: Analysis of housing data

As is well known, the rate of serious delinquency in the mortgage market increased substantially from 2006 to 2009. The preliminary analysis discussed in this memo shows that the worst performing mortgages were concentrated in certain segments of the mortgage market, namely in securitization pools labeled Alt-A and subprime. To the extent that the worse performance of these loans reflects greater risk at the time of origination, the evidence suggests that the mortgage risk was predominantly located in these segments.

Data

According to data from the Mortgage Bankers Association, roughly 55 million first-lien mortgage loans were outstanding in the US in the years surrounding the crisis. Of this universe, the Federal Reserve has loan-level data for roughly 34-35 million loans per year, or about 60 percent. FCIC staff is in the process of getting similar and likely more comprehensive data of this sort from other data sources. In the meantime, researchers at the Fed provided to the FCIC *tabulations* of their loan-level data that detail the number of loans and the average performance of loans with various characteristics. The measure of performance is the rate of serious delinquency defined as loans 90 or more days past due or in the foreclosure process.

The tabulations include loans in various segments of the mortgage markets (the actual tabulations are discussed later); loans securitized or held by the GSEs (GSE), loans in Alt-A securitizations (ALT), loans in subprime securitizations (SUB), and loans insured by the FHA or VA (FHA).[1] We also have data for a fifth segment of the mortgage market, prime or near prime loans not held by the GSEs (NON). However, this category (NON) includes loans held on the banks' portfolios as well as loans in Alt-A securitizations. Because this segment overlaps with the ALT segment, they are omitted from this analysis.[2] One further note: the tranches of subprime securitizations and Alt-A securitizations purchased by the GSEs are not included in the GSE segment in this analysis.

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[1] The data in the GSE and NON segments are from Loan Processing Services (previously McDash) and the data for the ALT, SUB and FHA segments are from the Loan Performance (LP) securities data.
[2] Including the tabulations from this problematic category does not substantively change the results.

Table 1 summarizes the available data. The columns labeled "Data" contains the number of loans in the underlying Fed data for each segment at each date, and the column labeled "Total" contains an estimate of the total number of loans in that segment in the economy.[3] The percentage is simply the fraction of total loans for which the Fed has loan-level data.

Table 1: Summary of Data

	2006			2007			2008			2009		
Segment	Data*	Total**	%	Data	Total	%	Data	Total	%	Data	Total	%
GSE	16.7	28.8	58	18.6	30.1	62	19.4	31.1	62	18.5	31.0	60
NON	n/a	8.5	n/a	n/a	7.4	n/a	n/a	6.1	n/a	n/a	5.4	n/a
ALT	2.9	5.7	51	3.0	6.0	50	2.6	5.2	50	2.2	4.5	49
SUB	4.1	7.3	56	3.6	6.9	52	2.8	6.3	44	2.4	5.5	44
FHA	2.8	5.7	0.49	2.9	5.5	53	3.5	6.5	54	4.5	8.1	0.56
TOTAL	26.5	56.0	47	28.1	55.8	50	28.3	55.2	51	27.6	54.5	51

***Data columns reflect tabulated data provided to the FCIC from the Federal Reserve. **Totals figures are also from the Fed except for the GSE Total. Those data are from various GSE reports.**

Table 2 compares the rates of serious delinquency in the Fed data to other sources. Again, the columns labeled "Data" show the information in the data provided by the Fed. For the total mortgage market (the first two columns), we compare our data to information from the Mortgage Bankers Association National Delinquency Survey (NDS). In the next two columns, we compare our category SUB to the figures from the NDS on serious delinquencies of subprime loans.[4] In general, the Fed data shows slightly higher rates of serious delinquency. (The Fed data are based solely on securitized loans, which may explain the difference.) The last two columns compare the rate of serious delinquency for the GSE loans in the Fed data to rates of serious delinquency reported by Fannie Mae and Freddie Mac. Unlike the Total and SUB columns, which are weighted by the number of loans, for purposes of this comparison the GSE values are weighted by dollar volumes since that is how the GSEs report their data. For the GSE loans, the Fed data slightly understate the rate of serious delinquency.

Table 2: Comparison of Serious Delinquency in Sample

	Total		SUB		GSE	
	Data*	NDS**	Data	NDS	Data	GSE***
2006	2.22%	2.21%	8.73%	7.83%	0.49%	0.55%
2007	4.01%	3.62%	17.14%	14.37%	0.80%	0.83%
2008	7.03%	6.30%	26.26%	23.16%	2.03%	2.18%
2009	10.71%	9.67%	35.61%	30.61%	4.80%	4.82%

***Data figures are computed from the Federal Reserve tabulations. **NDS figures are taken from the Mortgage Bankers Association delinquency survey. ***GSE figures are from Fannie Mae and Freddie Mac.**

[3] The estimates from the total columns are taken from the Federal Reserve. It is our understanding that some of their data is from the Mortgage Bankers Association and from GSE reports.

[4] The NDS is based on a survey of roughly 120 mortgage servicers that voluntarily submit data to the MBA. These servicers self-identify themselves or some of their loans as subprime.

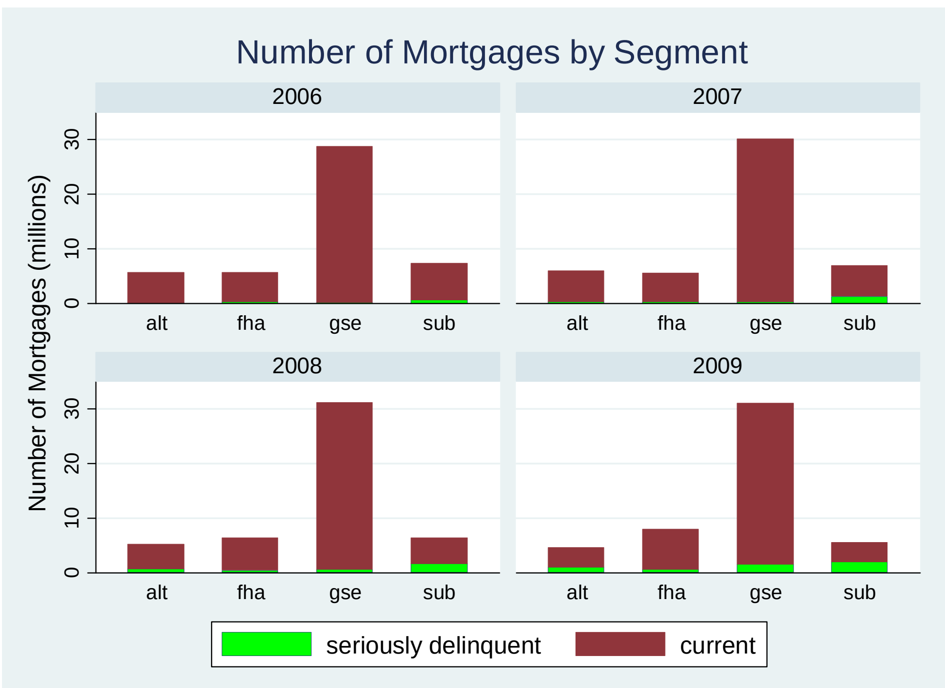
For all of the various segments of the mortgage market (GSE, SUB, ALT and FHA), the loan data from the Federal Reserve are tabulated in groupings defined by eight ranges of FICO scores, six LTV ranges and three size categories. In total, this yields 576 groupings for which we have tabulated data (4 segments x 8 FICO ranges x 6 LTV ranges x 3 size ranges) at each of the four dates: December 31, 2006, 2007, 2008 and 2009.[5] Again, for each of these 576 groupings, the tabulations from the Fed show the number of loans in the grouping and the average rate of serious delinquency for that grouping.

Results

Extrapolating from our data to the entire market (using the data in Table 1), Figure 1 shows the number of loans that are current and that are seriously delinquent loans in each segment; the relatively low delinquency rates, especially in 2006 and 2007 make the chart a bit hard to read. Figure 2 shows the number of loans seriously delinquent in each year and Table 3 provides the numbers, in tabular form, of current and seriously delinquent mortgages in each segment.

In percentage terms, across all years, the SUB and ALT segments are clearly the worst performing. The GSE segment contains a substantial number of seriously delinquent loans by 2009, however this primarily reflects the large number of GSE loans rather than poor performance within this segment. As shown in the remainder of this memo, the distribution of performance is in fact better for the GSE segment than for any of the others.

Figure 1



[5] Some groupings do not have any loans. For example, the GSE segment does not have loans above $417,000. In 2006, 559 of the 720 groupings have at least one loan.

Figure 2

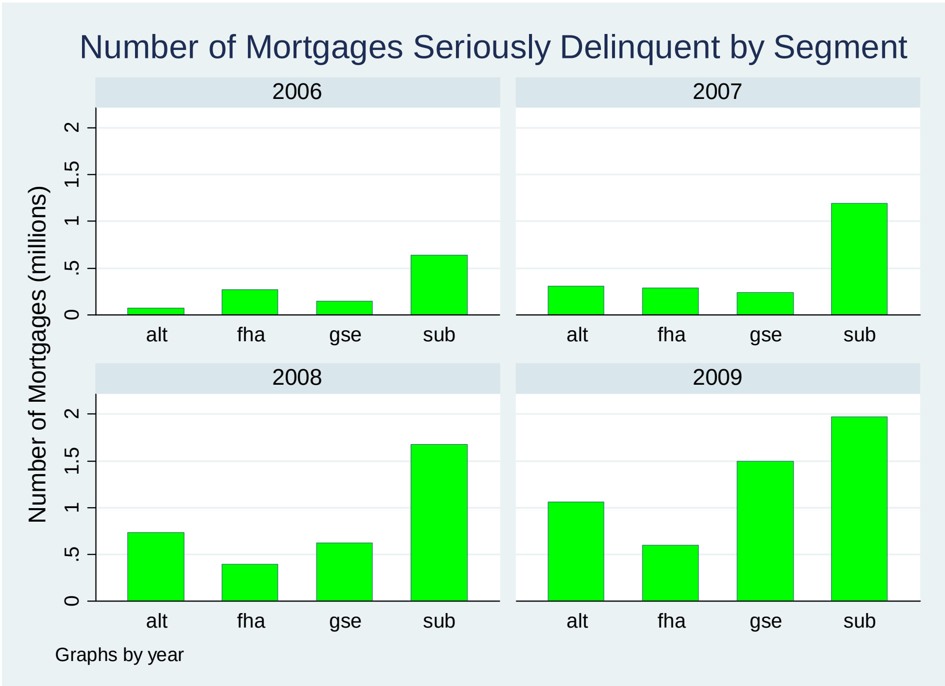


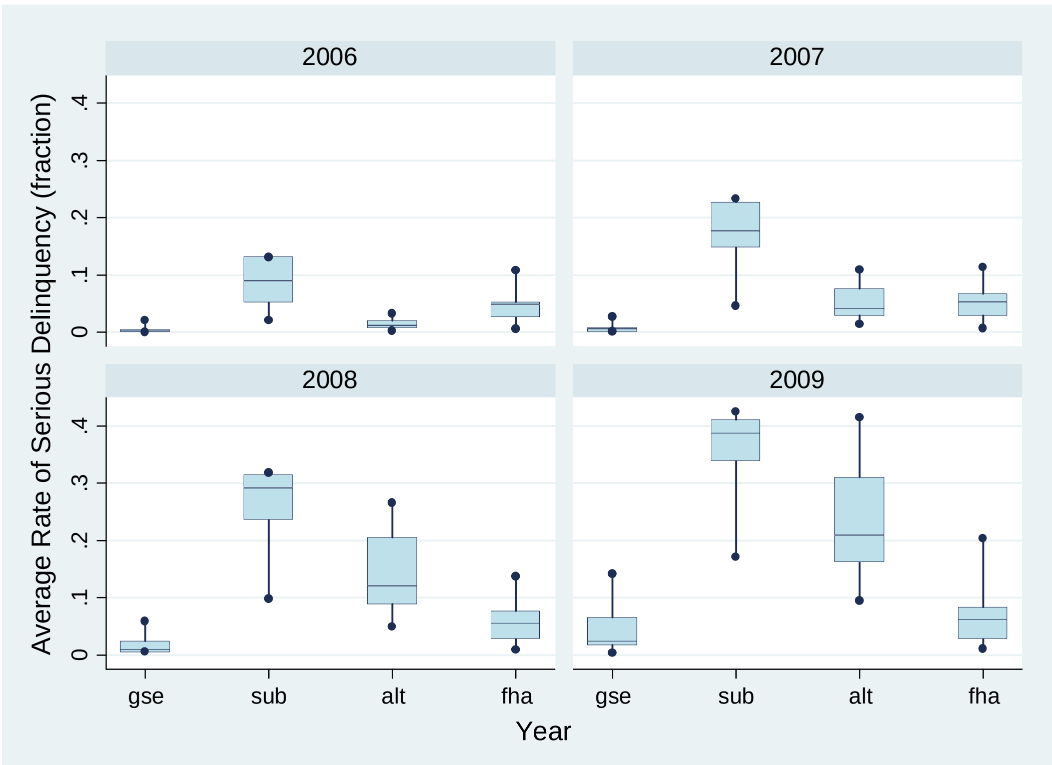
Table 3: Number of Current and Seriously Delinquent Mortgages by Segment (Millions)

	2006		2007		2008		2009	
Segment	Seriously Delinquent	Current	Seriously Delinquent	Current	Seriously Delinquent	Current	Seriously Delinquent	Current
GSE	.15	28.57	.24	29.84	.63	30.55	1.5	29.53
ALT	.07	5.61	.31	5.71	.73	4.49	1.06	3.51
SUB	.64	6.67	1.19	5.76	1.68	4.71	1.97	3.56
FHA	.27	5.43	.29	5.29	.39	6.05	.60	7.42

The average serious delinquency rate in a grouping is a good proxy for its riskiness. As an example, in the tabulations from the Fed, GSE loans with a balance below $417,000, a FICO score between 640 and 659, and an LTV between 80 and 100 percent have an average serious delinquency rate of 0.8 percent in 2006. In contrast, ALT loans with a balance below $417,000, a FICO score between 640 and 659, and an LTV between 80 and 100 percent have a substantially higher average serious delinquency rate of 1.5 percent. Treating this worse performance as an imperfect proxy for risk, we treat the latter grouping as being `riskier' than the former.

In Figure 3, the box and whisker plot, each panel shows the distribution of the average serious delinquency rates for a different year. Within each panel, the boxes show the distribution for each segment. For example, the last panel shows the distribution for all four segments in 2009. The vertical axis shows the average rate of serious delinquency in each year. The box marks the range of average serious delinquency between the 75th percentile (the top of the box) and the 25th percentile (the bottom of the box) for the labeled grouping.[6] The line in the middle of the box is the median rate of average serious delinquency for the specific grouping. Using ALT loans in 2009 as an example(the third box and whisker in the 2009 panel), the median loan in that segment is in a tabulated grouping that has an average serious delinquency rate of 21 percent; the 25th and 75th percentiles are 16 percent and 31 percent respectively. The dots at the ends of each figure denote the average rates of serious delinquency for the 5th and 95th percentiles, respectively. Again, for ALT loans, the 95th percentile tabulated grouping – the most risky shown – has an average delinquency rate of 41 percent in 2009. The 5th percentile tabulated grouping – the least risky shown - has an average delinquency rate of 10 percent in 2009.

Figure 3



In each year, the GSE loans have the lowest average rates of serious delinquency (among the four segments) and securitized subprime loans have the highest. There is virtually no overlap in these distributions. For example, in 2009 the 5th percentile tabulated grouping for SUB loans has an average delinquency rate of 17 percent. In contrast, the 95th percentile tabulated grouping for GSE loans has an

[6] The 75th percentile is the rate of serious delinquency where 75 percent of the loans have a rate at that level or lower. The median is the rate at which one-half of the loans have higher rates and one-half of loans have lower rates of serious delinquency.

average delinquency rate of 14 percent. Only a very small percentage of GSE tabulated groupings have average serious delinquency rates that match the average serious delinquency rates of the SUB tabulated groupings. Alt-A loans perform at rates between these two groups. For example, the median grouping of Alt-A loans has an average serious delinquency rate of 21 percent in 2009.

Figure 4 shows another view of the data (the corresponding numbers are detailed in Table 4), this time detailing the number and distribution of loans by year and by average rate of serious delinquency. Again, each of the four panels is for a different year. Within each panel, each bar shows the number of loans in the tabulated groupings with an average rate of serious delinquency just below the level denoted on the horizontal axis. To make the graphs a bit more readable, the bars are not perfectly spaced – on the lower end the definitions are a bit finer than in the middle; the last bar on the right represents all loans within the groupings with a rate of serious delinquency of 21 percent or more. The colored areas of each bar shows the segment of the market where those loans reside. In this figure, it is again apparent that the average delinquency rates in the GSE groupings (green) are typically less risky than those in subprime (red) or Alt-A securities (orange).

Figure 4

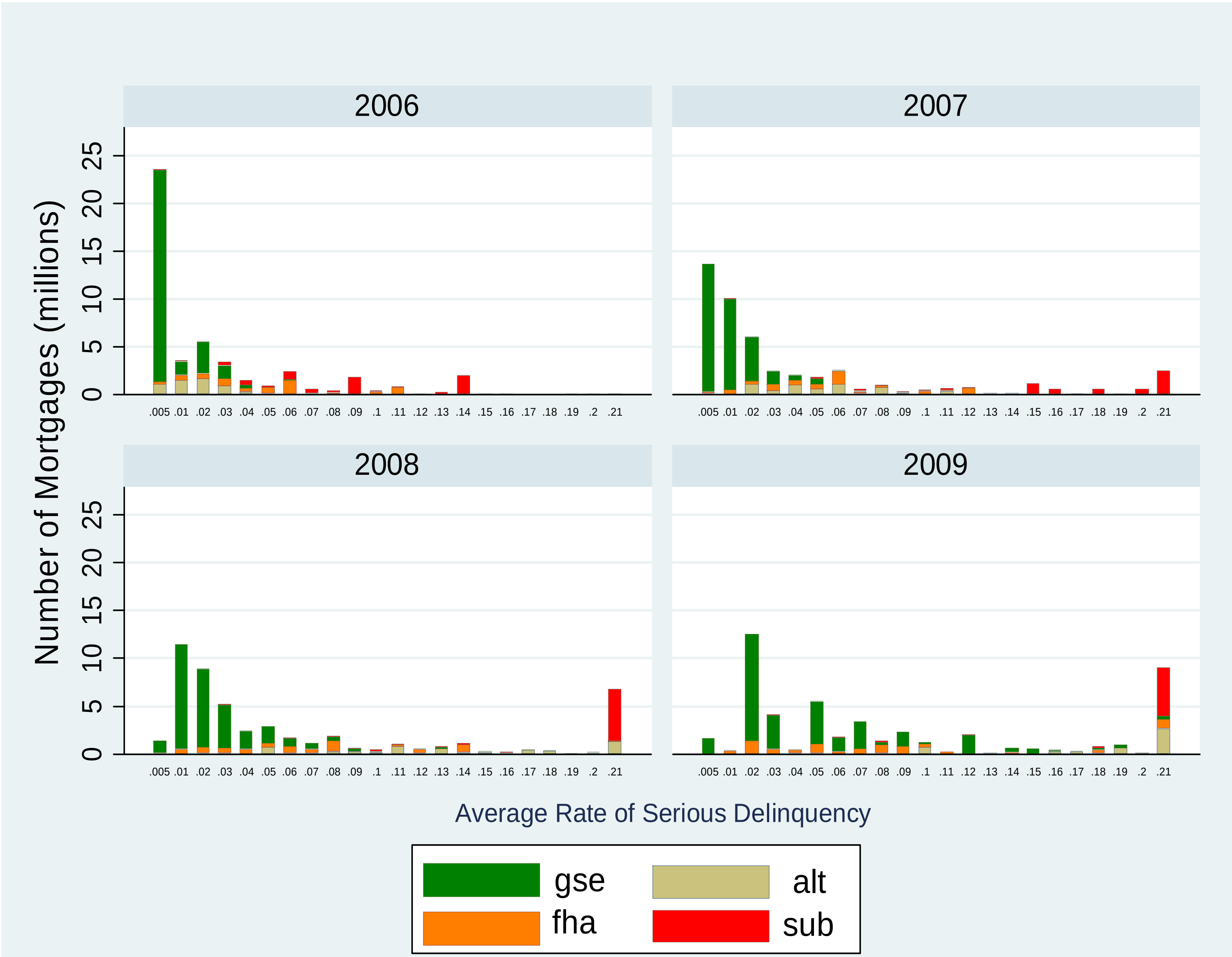

2006
2007
2008
2009
Number of Mortgages (millions)
0
5
10
15
20
25
.005 .01 .02 .03 .04 .05 .06 .07 .08 .09 .1 .11 .12 .13 .14 .15 .16 .17 .18 .19 .2 .21
Average Rate of Serious Delinquency
gse
fha
alt
sub

Table 4: Number of Seriously Delinquent Mortgages by Grouping (Thousands)

	2006				2007				2008				2009			
Serious Delinquency Rate Group	GSE	Alt-A	FHA	Subprime	GSE	Alt-A	FHA	Subprime	GSE	Alt-A	FHA	Subprime	GSE	Alt-A	FHA	Subprime
0.0% - 0.5 %	22,186	1,141	176	7	13,468	64	173	-	1,338	-	10	-	1,617	-	3	-
>0.5% - 1.0%	1,429	1,484	563	121	9,442	14	531	7	10,968	-	504	-	25	-	278	-
>1.0% - 2.0%	3,317	1,685	468	61	4,547	1,122	323	112	8,186	56	637	7	11,163	-	1,357	-
>2.0% - 3.0%	1,336	901	753	412	1,368	397	681	12	4,442	25	645	1	3,533	-	496	6
>3.0% - 4.0%	321	271	394	494	482	1,012	531	54	1,890	8	450	116	23	47	318	-
>4.0% - 5.0%	3	137	630	172	510	636	496	197	1,744	740	375	-	4,450	11	1,000	1
>5.0% - 6.0%	80	18	1,531	786	90	1,081	1,379	7	850	37	778	12	1,474	4	234	1
>6.0% - 7.0%	50	22	-	531	95	75	218	222	670	24	454	-	2,821	-	542	-
>7.0% - 8.0%	-	24	158	234	1	794	171	5	429	200	1,153	54	267	10	978	101
>8.0% - 9.0%	-	2	-	1,829	-	149	-	209	295	239	1	1	1,430	-	830	-
>9.0% - 10.0%	-	1	285	123	81	28	328	18	97	130	1	198	149	687	349	-
>10.0% - 11.0%	-	8	733	41	-	380	123	215	5	763	209	35	-	5	198	-
>11.0% - 12.0%	-	-	-	1	1	34	618	79	1	29	403	1	1,927	-	1	1
>12.0% - 13.0%	-	-	6	294	-	130	-	81	179	508	1	25	-	20	-	58
>13.0% - 14.0%	-	1	-	1,980	-	65	-	159	-	121	819	164	516	-	130	-
>14.0% - 15.0%	1	-	1	137	-	23	-	1,155	4	172	-	20	524	-	-	-
>15.0% - 16.0%	-	-	-	27	-	7	1	623	-	27	-	205	119	254	-	28
>16.0% - 17.0%	-	-	-	-	-	3	-	-	2	419	1	-	156	178	-	-
>17.0% - 18.0%	-	-	-	-	-	2	-	636	2	335	-	32	235	66	301	195
>18.0% - 19.0%	-	-	-	14	-	-	-	74	-	3	-	19	275	666	-	-
>19.0% - 20.0%	-	-	-	1	-	-	4	601	75	42	-	76	5	1	3	21
>21.0	1	-	3	42	1	3	3	2,492	2	1,341	6	5,419	329	2,629	1,012	5,116