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

To: Commissioners

From: Ron Borzekowski
Wendy Edelberg

Date: August 9, 2010

Re: Analysis of housing data and comparison with Ed Pinto's analysis

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Our July 7, 2010 memo to Commissioners with the subject "Analysis of housing data," provided a summary of the performance of various segments of the mortgage market during the crisis. In this memo, we present additional analysis that more directly compares our results to the analysis provided to the commission by Mr. Ed Pinto in his "Triggers" memo. In his memo, Pinto describes his own classification system for what constitutes subprime and Alt-A loans. Using this system, Pinto finds that 27 million, or nearly one-half of all mortgages, were subprime or Alt-A at the onset of the mortgage crisis. Our analysis finds that these 27 million mortgages comprise a very heterogeneous group, where many of these loans perform notably better than others.

Defining subprime and Alt-A loans

Within the mortgage industry, the definitions for subprime and Alt-A loans are imprecise. For example, a loan is typically considered subprime based upon the marketing efforts, origination channel and servicing needs for the loan. Subprime loans are advertised to less creditworthy and somewhat lower income borrowers than prime borrowers. They are often made by firms specializing in serving those borrowers, and these loans demand a greater degree of effort to service, once the loan is made. For example, in 2001, Federal regulators put out interagency guidance stating:

> The term "subprime" refers to the credit characteristics of individual borrowers. Subprime borrowers typically have weakened credit histories that include payment delinquencies, and possibly more severe problems such as charge-offs, judgments, and bankruptcies. They may also display reduced repayment capacity as measured by credit scores, debt-to-income (DTI) ratios, or other criteria that may encompass borrowers with incomplete credit histories. "Subprime loans" are loans to borrowers displaying one or more of these characteristics at the time of origination or purchase. Such loans have a higher risk of default than loans to prime borrowers. Generally subprime borrowers will display a range of credit risk characteristics that may include one or more of the following:
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> •Two or more 30-day delinquencies in the last 12 months, or one or more 60-day delinquencies in the last 24 months;
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> •Judgment, foreclosure, repossession, or charge-off in the prior 24 months;

•Bankruptcy in the last 5 years;

•Relatively high default probability as evidenced by, for example, a credit bureau risk score (FICO) of 660 or below (depending on the product/collateral), or other bureau or proprietary scores with an equivalent default probability likelihood; and/or

•Debt service-to-income ratio of 50% or greater, or otherwise limited ability to cover family living expenses after deducting total monthly debt-service requirements from monthly income.

This list is illustrative rather than exhaustive and is not meant to define specific parameters for all subprime borrowers. Additionally, this definition may not match all market or institution specific subprime definitions, but should be viewed as a starting point from which the Division will expand examination efforts.

This imprecise distinction led the industry, and many analysts, historically to define subprime loans based on which company or division of a company makes the loan. Beginning in 1993, HUD maintained a list of subprime lenders for exactly this purpose: to identify loans that are offered to subprime borrowers. Other analysts have identified loans as subprime if they have a sufficiently high interest rate or if they are securitized into pools labeled subprime.

The term Alt-A generally refers to mortgages made to borrowers with strong credit scores but which have characteristics that make the loans riskier than prime loans. For example, the loan may have no or limited documentation of the borrower’s income, a high loan-to-value ratio (LTV), or may be for an investor-owned property. Typically, loans are identified as being Alt-A by virtue of being in a securitized pool that is labeled Alt-A.

As underwriting standards declined during the housing boom, the definitions of prime, subprime, and Alt-A loans may have blurred. For example, in 2007 and 2008 the GSEs began for the first time labeling certain mortgages in their book of business subprime and Alt-A.

In his recent detailed analysis, Ed Pinto, consultant to the mortgage-finance industry and chief credit officer at Fannie Mae in the 1980s, defines loans as subprime if they are in a securitized pool labeled subprime or if they have a FICO score below 660. In addition, he defines loans as Alt-A if they are in a securitized pool labeled Alt-A, if they have non-standard loan features – such as being interest-only for some period, or if they have original loan-to-value ratio, or LTV, (including a 2nd lien) greater than 90%.

More specifically, Pinto, using data from the Mortgage Bankers Association National Delinquency Survey (NDS), first estimates the total number of outstanding first mortgages as of June 30, 2008 to be 55 million.[1] Using his definitions of subprime and Alt-A, he finds that roughly 27 million of these mortgages were subprime or Alt-A. As shown in Table 1 below, the 27 million loans include 6.7 million loans in subprime securitizations (line s1) and another 2.1 million loans in Alt-A securitizations

[1] Pinto computes his estimate using outstanding first-lien mortgage data from the NDS from the first quarter of 2008 to the third quarter of 2009. Over this period, the MBA reports covering about 80-85% of outstanding first-lien mortgages. Using a midpoint of 82.5% coverage and the 45.4 million first mortgage loans covered by the second-quarter 2008 survey, Pinto derives the total number of first lien loans to be 55 million.

(line a1), for a total of 8.8 million mortgages in subprime or Alt-A pools. These he calls "self-denominated" subprime and Alt-A, respectively.

To these, Pinto adds another 8.8 million loans with FICO score below 660 which he labels "subprime by characteristic" (line s2). He also adds 6.3 million loans at the GSEs that are either interest only loans, negative amortization loans, or loans with an LTV—including any second mortgage—greater than 90% (line a2 + line a3), which he collectively refers to as "Alt-A by characteristic." The last additions include an estimated 1.4 million loans insured by the FHA and VA with an LTV greater than 90% - out of a total of roughly 5½ million FHA and VA loans (line a4) - and 1.3 million loans in bank portfolios that are inferred to have his defined "Alt-A characteristics" (line a5).

Table 1: Excerpt of Pinto's Table 1, "Overall market exposure to subprime and Alt-A loans as of 6.30.08"

Subprime and Alt- A Loans	Number of loans in millions (net of any overlap)
Subprime	**15.5**
Self-denominated (s1)	6.7
Subprime by Characteristic (s2)	8.8
Alt-A	**11.2**
Self-denominated Alt-A Private MBS (a1)	2.1
Fannie Alt-A of all types (a2)	3.7
Freddie Alt-A of all types (a3)	2.6
FHA/VA Alt-A (a4)	1.4
Other conventional Alt-A (a5)	1.3
Total	**26.7**

Source: Pinto, "Memorandum Sizing Total Exposure to Subprime and Alt-A Loans in U.S. First Mortgage Market as of 6.30.08". Totals do not add due to rounding. Line numbers added.

However, loan level data—tabulated for the FCIC by the Federal Reserve—demonstrate that loans defined by these metrics show dramatically different performance; the 8.8 million mortgages in subprime or Alt-A private-label securitizations (line s1+ line a1), what Pinto calls "self-denominated" subprime and Alt-A, perform much worse than the additional 17.9 million mortgages in his tabulation (line s2 + lines a2, a3, a4 and a5), those he calls subprime or Alt-A "by characteristic". To show this, the analysis below focuses first on loans with FICO scores below 660 and then on loans with LTV above 90%. In each case, we show that the GSE loans Pinto re-labels as subprime or Alt-A perform substantially better than loans in private label securitizations labeled by investors as subprime or Alt-A. These results demonstrate that the 27 million loans that Pinto groups together is a heterogeneous group.

The tabulated data used in this memo are described in detail in a July 7, 2010 memo sent to Commissioners with the subject "Analysis of housing data." For all of the various segments of the mortgage market, loan in the GSEs portfolios or in GSE guaranteed pools (GSE), loans in subprime securitizations (SUB), loans in Alt-A securitizations (ALT) and FHA/VA guaranteed loans (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.

Comparison of loans with FICO score below 660

As mentioned above, the defining characteristic of the 8.8 million loans Pinto calls "subprime by characteristic" (Table 1, line s2) is that they are loans made to borrowers with FICO scores below 660 but not initially categorized by lenders and securitizers as subprime.[2] Of these loans with a FICO score below 660, 4 million are either held in the GSEs portfolios or guaranteed by the GSEs. Data received from the Federal Reserve shows the different performance of these GSE loans with FICO scores under 660 with loans in subprime securitizations with the same threshold.[3]

Figure 1 plots the performance of outstanding loans as of 12/31/2008 with FICO scores below 660, comparing the performance of those that Pinto labels as subprime "by characteristic" with those that he calls "self-denominated" subprime.[4] The height of each bar shows the number of loans in groupings with the average rate of serious delinquency shown on the horizontal axis. The color denotes whether the loans are GSE loans or loans in subprime securitizations. As shown by the dashed lines, the GSE loans in the Federal Reserve data have an average rate of serious delinquency of 6.2%; among loans in private securitization pools labeled subprime that had FICOs below 660, 28.3% were seriously delinquent.[5] There is little overlap in the two distributions. Only about 3% of the GSE loans with FICO scores below 660 are in loan groups with serious delinquency rates equivalent to those seen in subprime securitizations.

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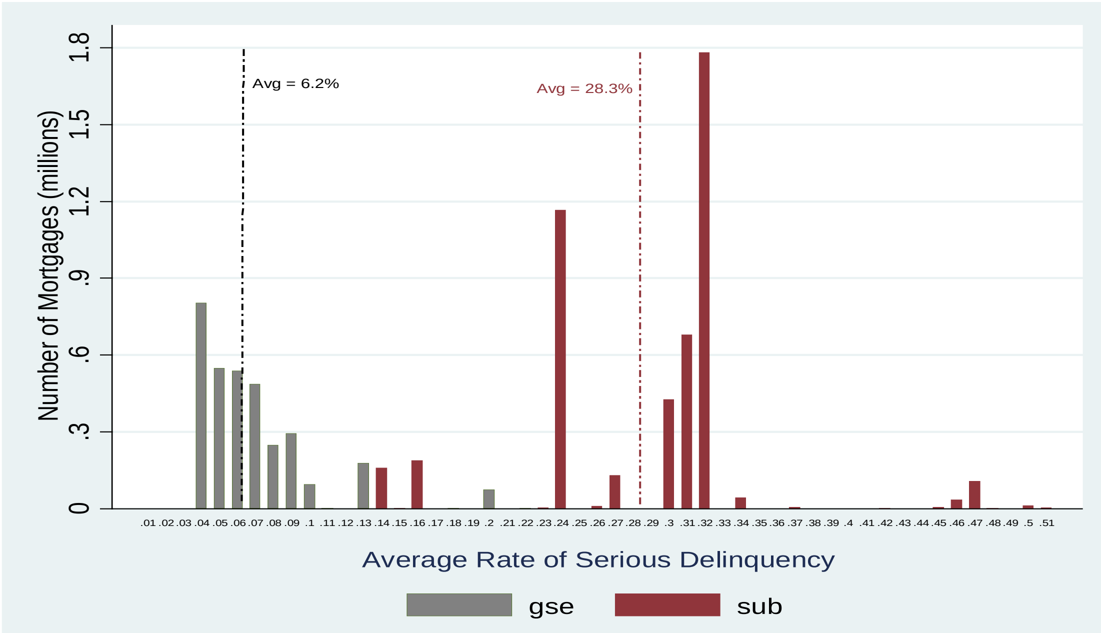
[2] Pinto's estimate of 8.8 million loans is likely overstated. The figure is based on the assumption, derived from Figure 1 in Barth et. al. (2008), that 20% of prime loans have FICO scores below 660. However, the cited figure shows prime loans *originated* in 2006, rather than the stock *outstanding* at that point in time. Data from the GSEs, the Federal Reserve, and from Equifax indicate that the percentage of outstanding mortgages labeled prime that have FICO scores below 660 is closer to 15%, which would imply 2.2 million fewer loans in this category.

[3] Note that only 75% of loans in subprime securitizations have FICO scores less than 660

[4] The data from the Federal Reserve is only available at year-end. Year-end 2008 is chosen to be closest to the 6/30/2008 date that Pinto uses. The results are similar using the end of year 2007 data.

[5] In the sample data provided by the Federal Reserve, Fannie Mae and Freddie Mac mortgages with a FICO score below 660 had an average rate of serious delinquency of 6.2% in 2008. In public reports, the GSEs stated that the average serious delinquency rates for loans with FICO scores less than 660 in their guarantee books was 6.3%.

Figure 1: Average rate of serious delinquency for loans with FICO scores below 660



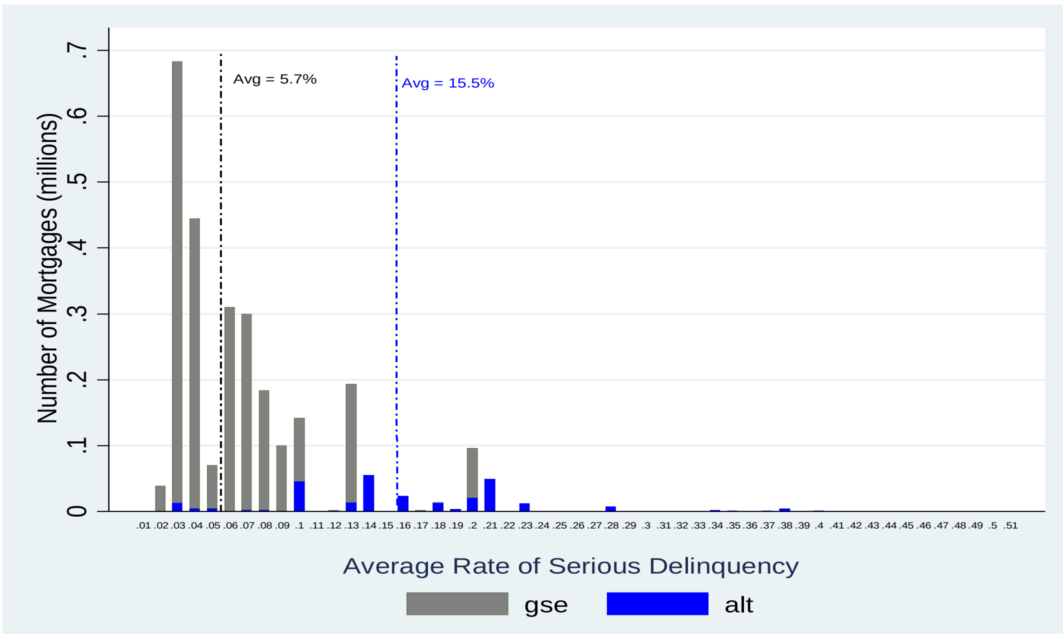
These differences in performance between the GSE loans and the loans in subprime securitizations are partly due to other observed loan characteristics that offset the effect of the lower FICO score. For example, the tabulated data from the Federal Reserve show that 58% of GSE loans with FICO scores below 660 have an original LTV below 80%, helping to offset the effect of the lower FICO score. In contrast, only 31% of loans with FICO scores below 660 in subprime securitization have an LTV under 80%. A larger percentage, 57%, has an LTV between 80% and 90%. Aside from different LTVs, the relative performance of these groups is also due to characteristics of the borrowers or the loans that may not be observable to the originator or to the secondary market buyer, e.g. the quality of the data in the mortgage file.

Comparison of loans with LTV above 90%

As mentioned earlier, Pinto also re-labels all loans with an LTV above 90% (along with interest only loans, negative amortizing loans, and some others) as “Alt-A by characteristic.” In doing so, he adds 6.3 million loans from the GSEs (Table 1, lines a2 and a3) to the 2.1 million loans that he estimates to be in Alt-A securitizations (Table 1, line a1). Of these 6.3 million GSE loans, we calculate that 3.1 million are labeled “Alt-A by characteristic” because they have LTVs above 90%. (The remaining 3.2 million GSE loans are “Alt-A by characteristic” because they have some other feature that Pinto uses to define Alt-A loans, such as being interest-only or negative amortization loans. These loans are not analyzed in our memo because we cannot identify loans with these characteristics in the Federal Reserve tabulations.)

Figure 2 plots the performance of outstanding loans as of 12/31/2008 with original LTV above 90%. Again, the height of each bar shows the number of loans in groupings with the average serious delinquency rate shown on the horizontal axis. The color denotes whether the loans are GSE loans or loans in Alt-A securitizations. As shown by the dashed lines, the GSE loans in the Federal Reserve data have an average rate of serious delinquency of 5.7%; among similar loans in private securitization pools labeled Alt-A, 15.5% were seriously delinquent.[6] While there is a bit more overlap in the two distributions compared to the loans with FICO scores below 660, it is again apparent that these two populations differ markedly.

Figure 2: Average rate of serious delinquency for loans with LTV > 90%



An overall view of the various market segments

Figure 3 shows another view of the data (repeated from the earlier memo), this time detailing the number and distribution of loans by year and by rate of serious delinquency. Each of the four panels is for a different year. Within each panel, each bar shows the number of loans in the 576 tabulated groupings at just above the average rate of serious delinquency labeled 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% or more. The colored areas of each bar shows the segment of the market where those loans reside. As shown in this figure, the average delinquency rates in the GSE groupings (green) are typically much lower than those in subprime (red) or Alt-A securities (orange).

Now, with the benefit of the performance data from the Federal Reserve (proprietary data that Pinto did not have access to when he completed his analysis), we see that Pinto's analysis takes millions of loans from the GSE (and FHA) categories that are toward the left of the distributions in Figure 3 – which are in loan groups that have performed relatively well – and groups them with the subprime and

[6] In the sample data provided by the Federal Reserve, Fannie Mae and Freddie Mac mortgages with LTVs above 90% had an average rate of serious delinquency of 5.7% in 2008. In public reports, the GSEs stated that the average serious delinquency rates for loans with LTVs above 90% in their guarantee books was 5.8%.

Alt-A securitized loans to the right of the distribution that have performed relatively poorly. For example, as discussed above, the 4 million GSE loans that have FICO scores below 660 have an average seriously delinquency rate of 6.2% in 2008. Pinto re-categorizes them as 'subprime,' grouping them with the 6.7 million loans in subprime securitizations. The 75% of loans in subprime securitizations which had FICO scores lower than 660 had an average serious delinquency rate of over 28.3% in 2008. Using the analysis provided by the Federal Reserve, which relies on propriety data, Figure 3 allows the reader to draw the line between "risky" and "non-risky" loans.

Figure 3 Distribution of rate of serious delinquency by year and by market segment