IV.   Changes to Model Assumptions

Introduction

In an attempt to improve the estimation process in this year's study, we implemented two changes to the regression and forecasting models. These changes are as follows:

- OY1995 regression variable replaces the SR regression variable in the CCR model
- Adjustment to fiscal origination year 2000 predicted CCR

OY1995 Regression Variable

Upon reviewing our current study as well as prior D&T studies, there has been a consistent under-prediction of claims for fiscal origination year 1995 and subsequent in the CCR regression model. In prior D&T studies, we included the binary SR variable in the CCR regression model to indicate whether an observation is pre- or post-introduction of the Streamline Refinance program. That is, SR takes on a value of 1 if the fiscal origination year is 1989 or later, and zero otherwise. To improve the predictive accuracy of the CCR model, we replaced the SR variable with the OY1995 variable. This variable is also a binary variable, but it takes on a value of 1 if the fiscal origination year is 1995 or later, and zero otherwise. Except for the low loan-to-value categories, the CCR regression using the OY1995 variable shows improvement over the SR variable. Table IV-1 below illustrates this comparison.

Table IV-1

Loan Type	LTV Category	Measure of Fit [1 - RD/ND]*			Improvement over SR
		2002 CCR Results	Results Using SR	Results Using OY1995	
FX30	High	0.6979	0.6995	0.7073	0.0077
	Investor	0.6080	0.5974	0.5980	0.0006
	Low	0.6626	0.6563	0.6535	-0.0027
	Medium	0.7181	0.7275	0.7291	0.0016
FX15	High	0.7049	0.7015	0.7198	0.0184
	Investor & Medium	0.5952	0.5951	0.5953	0.0002
	Low	0.7437	0.7251	0.7174	-0.0078
ARM	All	0.6044	0.6150	0.6471	0.0322
SF30	All	0.6861	0.6870	0.6911	0.0042
SF15	All	0.6651	0.6567	0.6735	0.0168
SARM	All	0.5803	0.5850	0.6140	0.0290

*Note: ND refers to null deviance and RD refers to residual deviance

A graphical comparison of the fit for the 1995 and subsequent origination years is shown on Graph IV-1.

Graph IV-1

Fixed 30 Year Loans, High Loan-to-Value Category
Conditional Claim Rate Model
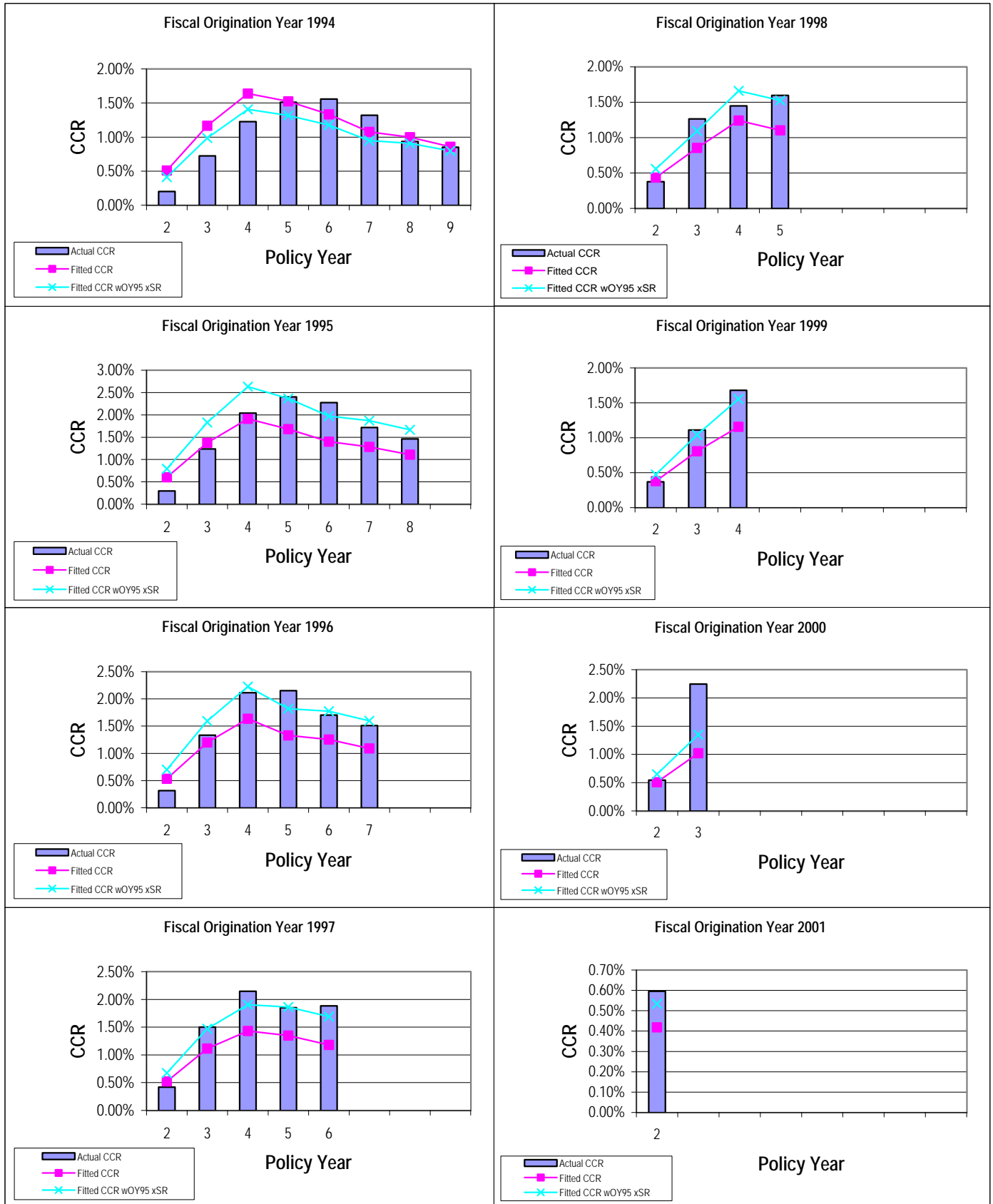
Adjustment to OY2000

We observed that prepayment activity in fiscal origination year 2000 far exceeded* predicted activity from the regression model. As a result, we expect that the remaining pool of loans will be more likely to claim than predicted in the CCR model. This is probably the result of lower average credit quality of the remaining loans; however, no data is currently available to validate this explanation. In response to this expectation, we calculated an adjustment factor to apply to the CCR forecast model for origination year 2000 in fiscal years 2004 and subsequent. Essentially, this adjustment factor restates the predicted CCR by determining the number of claims the model would have predicted had the prepayments come in as expected. The CCR shown in the forecast is the ratio of this number of claims to the "actual" survival counts, i.e. the survival counts reflecting the higher-than-expected prepayment activity. Table IV-2 below shows the adjustment factors used by loan type and loan-to-value category.

Table IV-2

Loan Type	LTV Category	OY2000 CCR Adjustment Factor
FX30	High	1.494
	Investor	1.324
	Low	1.361
	Medium	1.494
FX15	High	1.162
	Investor	1.146
	Low	1.194
	Medium	1.271
ARM	All	0.961
SF30	All	1.199
SF15	All	0.960
SARM	All	0.577

We tested the cumulative claim and prepayment rates before and after this adjustment. Table IV-3 below summarizes the cumulative rates at policy year 30 by each loan type and loan-to-value category.

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*Note: This applies in total and for every loan type except ARM, SARM and SF15.

Table IV-3
OY 2000: Impact of Adjustment to CCR for High Prepay Activity

Loan Type	LTV Category	Before Adjustment		After Adjustment	
		Cumulative Claim Rate	Cumulative Prepayment Rate	Cumulative Claim Rate	Cumulative Prepayment Rate
FX30	High	6.85%	91.08%	7.94%	90.24%
	Investor	5.62%	92.41%	6.19%	91.99%
	Low	2.16%	94.54%	2.55%	94.24%
	Medium	4.52%	93.17%	5.34%	92.55%
FX15	High	3.47%	88.69%	3.68%	88.58%
	Investor	1.35%	94.23%	1.47%	94.15%
	Low	0.62%	91.41%	0.64%	91.40%
	Medium	3.15%	92.27%	3.42%	92.10%
ARM	All	6.41%	91.20%	6.30%	91.28%
SF30	All	3.92%	93.97%	4.18%	93.77%
SF15	All	1.31%	85.35%	1.28%	85.36%
SARM	All	6.23%	89.82%	5.17%	90.55%
Total	All	6.30%	91.45%	7.17%	90.77%