US RMBS Origination PD Regression

Model Summary Document (MSD)

1. Model Purpose and Description

The model generates loan-level lifetime probability of default for Fitch prime and Fitch Alt-A loans based on attributes at origination using logistic regression.

2. Model Assumptions

The model applies the assumptions in the US RMBS rating criteria. The model also tests the assumptions for linear regression such as multicollinearity and linearity relationship between variables and outcome.

3. Model Inputs

The table below summarizes all variables and their transformations in the final model.

	Variable	floor/cap	missing flag	interaction with pool type	use of spline	total coefficients
1	***c LTV***	✓			✓	2
2	***fico score***	✓	✓	✓	✓	3
3	***economic risk factor***	✓			✓	2
4	***debt to income***	✓	✓			2
5	***property value ratio***	✓	✓	✓	✓	4
6	***full document***					1
7	***number of borrowers***					2
8	***channel***					5
9	***amortization term***					4
10	***occupancy type***					3
11	***property type***					4
12	***purpose***					3
13	***Self employment***					1

14	***Fitch sector***	1

4. Model Development Data

The development sample is composed of loan-level information of 48 million agency loans originated during 1999 ~ 2011 from *Freddie Mac* and *Fannie Mae*, 1.5 million prime loans and 2.4 million Alt-A loans originated during 1991 ~ 2011.

All data cleaning, data analysis and modelling are performed with R statistical software.

5. Model Limitations

The model is only intended to be used to evaluate US RMBS transactions.

The variable self-employment has some missing values. GSEs have not provided self-employment data, and there are many missing values in historical self-employment data for PLS loans from Pre-2012, which is considered as a data limitation. But rating team can mitigate the missing values in downstream models.

6. Material Changes

This is the v1.0.0, any future changes will be reflected here.

Contact Information

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