

# Mortgage Backed Securities Collateral Analysis Report



XYZ Bank Holding Company

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**Background:** XYZ Bank is planning to purchase a pool of loan from ABC Bank for ultimate securitization into Mortgage Backed Securities. As part of XYZ Bank's underwriting procedures, loan pools are required to be analyzed in order to ensure that the underlying loan information are complete and accurate. In addition, relevant accounting standards such as [AU Section 329](#) prescribe the use of substantive analytical procedures as risk management tools for assessing and identifying risks of financial misstatement.

**Objective:** The main objective of this exercise is to document the result of the analytical procedures performed to evaluate the loan collateral information in order to aid management's tactical and strategic decisions.

**Methodology/Approach:**

The following analytical procedures were performed in order to better understand the loan data and identify ineligible loans.

- **Categorical Analyses:** These are high-level tests performed on the loan pool in order to better understand the underlying loan characteristics and identify plausible relationships e.g. concentration risks.
- **Collateral Ineligibility Analyses:** These tests were performed to evaluate the loan pool against pre-specified eligibility conditions. Items that failed these tests were excluded from the final list of qualifying loans.
- **Sample Selection:** Finally, a sample of thirty(30) loans were selected using random sampling methodology for further substantive test of details.

**Results/Observations:**

**Categorical Analyses:**

- a) **Summary Statistics:** The following table shows the key characteristics and distribution of the loan pool.





## Categorical Analysis: Key Summary Statistics

### The MEANS Procedure

Variable	N	Mean	Minimum	Maximum	Range	Sum
OrigBankBal	1499	233005.47	13600.00	1627900.00	1614300.00	349275200.00
CurBankBal	1499	205807.22	11273.00	1555637.00	1544364.00	308505026.00
Coupon	1499	0.09	0.07	0.11	0.04	130.60
OrigTerm	1499	164.25	55.00	306.00	251.00	246217.00
RenTerm	1499	150.35	35.00	303.00	268.00	225374.00
Season	1499	13.90	1.00	36.00	35.00	20843.00
Fixed_Float	1499	2.00	2.00	2.00	0.00	2998.00
Spread	1499	0.03	0.02	0.06	0.04	51.90
ResetRate	1499	3.00	3.00	3.00	0.00	4497.00
RestPmt	1499	3.00	3.00	3.00	0.00	4497.00
LifeFloor	1499	0.07	0.07	0.07	0.00	104.93
LifeCap	1499	0.20	0.20	0.20	0.00	299.80
ResetCap	1499	0.00	0.01	0.01	0.00	7.49
ResetFloor	1499	0.00	0.01	0.01	0.00	7.49
DayCount	1499	1.00	1.00	1.00	0.00	1499.00
StatedPmt	1499	3746.21	236.46	25780.21	25543.75	5615563.03
Appraisal	1499	348298.87	20000.00	2230000.00	2210000.00	522100000.00
OrigEquity	1499	115293.40	6400.00	945000.00	938600.00	172824800.00
Current_Equity	1499	142491.64	8727.00	1060192.00	1051465.00	213594974.00
OrigYear	1499	1996.81	1995.00	1998.00	3.00	2993216.00
OrigMonth	1499	6.39	1.00	12.00	11.00	9583.00
MatYear	1499	2010.42	1997.00	2028.00	31.00	3013616.00
MatMonth	1499	6.65	1.00	12.00	11.00	9961.00
CalcPmt	1499	3745.77	6.66	25780.21	25773.55	5614903.69

### Categorical Analyses (Continued):

- b) Loan Analysis by US Region: The following table shows the loan distribution by region. The analysis is useful for testing whether or not the underlying loans are disproportionately concentrated in a particular region.

Categorical Analysis of MBS Loan Pool By Region

	OrigBankBal		
	N	Percentage (%)	Sum
Region			
West	448	30.04	\$104,934,400.00
South	464	33.83	\$118,170,900.00
NorthEast	344	21.55	\$75,276,100.00
MidWest	242	14.50	\$50,655,900.00
US Territory	1	0.07	\$237,900.00
All	1,499	100.00	\$349,275,200.00



## Categorical Analyses (Continued):

- c) Coupon Distribution: The table below shows the distribution of Coupon By Original Bank Balance. This analysis is useful for understanding the interest rate dynamics of the loan data. In performing the comparison between Coupon and Original Bank Balance we implemented a band/range in order to make the analysis readable.

### Categorical Analysis of MBS Loan Pool By Original Balance Versus Coupon

#### The FREQ Procedure

Table of OrigBankBal by Coupon

OrigBankBal	Coupon					Total
Frequency Percent	Between 7.00-7.99%	Between 8-8.999%	Between 9-9.999%	Between 10-10.99%	Between 11-11.99%	
<\$50,000	0 0.00	1 0.07	61 4.07	54 3.60	4 0.27	120 8.01
Between \$50,001 - \$250,000	16 1.07	321 21.41	580 38.69	0 0.00	0 0.00	917 61.17
Between \$250,001 - \$500,000	31 2.07	203 13.54	70 4.67	0 0.00	0 0.00	304 20.28
Between \$250,001 - \$750,000	19 1.27	66 4.40	8 0.53	0 0.00	0 0.00	93 6.20
Between \$750,001 - \$1,000,000	5 0.33	25 1.67	3 0.20	0 0.00	0 0.00	33 2.20
Between \$1,000,001 - \$1,250,000	6 0.40	12 0.80	3 0.20	0 0.00	0 0.00	21 1.40
Between \$1,250,001 - \$1,500,000	3 0.20	6 0.40	0 0.00	0 0.00	0 0.00	9 0.60
Between \$1,500,001 - \$1,750,000	0 0.00	2 0.13	0 0.00	0 0.00	0 0.00	2 0.13
Total	80 5.34	636 42.43	725 48.37	54 3.60	4 0.27	1499 100.00



## Categorical Analyses (Continued):

- d) Coupon Distribution By Key Loan Balances: The table below shows the distribution of Coupon By Original Bank Balance, Current Bank Balance and Current Equity. This analysis is useful for understanding the interest rate dynamics of the loan data.

Categorical Analysis of Key Loan Balance By Coupon

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	CurBankBal			OrigBankBal	Current_Equity
	N	% CurBankBal	Sum	Sum	Sum
Coupon					
Between 7.00-7.999%	80	11.88	\$36,649,104.00	\$40,307,000.00	\$22,890,896
Between 8-8.999%	636	59.58	\$183,817,164.00	\$207,355,900.00	\$126,792,836
Between 9-9.999%	725	28.04	\$86,510,994.00	\$99,750,700.00	\$62,649,006
Between 10-10.999%	54	0.48	\$1,466,133.00	\$1,787,700.00	\$1,213,867
Between 11-11.999%	4	0.02	\$61,631.00	\$73,900.00	\$48,369
All	1,499	100.00	\$308,505,026.00	\$349,275,200.00	\$213,594,974

**NOTE:** We limited the categorical loan analyses to four(4) as shown above. However, the analyses can be extended to cover a wider range of parameters depending on business needs.

**Collateral Ineligibility Testing:** These tests are designed to identify loans that do not meet XYZ Bank's underwriting and securitization standards. While a host of ineligibility tests can be performed in order to wean out ineligible loans from a portfolio, we have limited our analyses to three(3) for the purpose of this presentation.

- a) Exceeds Maximum Loan-To-Value (LTV) Ratio: XYZ Bank's maximum LTV is 0.78. Therefore, any loan with an LTV ratio greater than 0.78 must be rejected. See result below:





Exceeds Maximum LTV Ratio			
Obs	LTV	CurBankBal	Total
1	0.79319	\$126,911	\$126,911
2	0.78608	\$165,076	\$291,987
3	0.78646	\$180,886	\$472,873

The three(3) loans above representing a total sum of \$472,873 or 0.15% of the total outstanding balance exceeds the maximum LTV and will therefore be rejected.

- b) Excluded State or Geographic Region: Loans on properties in US Territories such as the Virgin Islands are ineligible for the purpose of this securitization. One loan failed this test as documented below.

Excluded State or Geographic Region			
Obs	State	CurBankBal	Total
1	VI	\$235,837	\$235,837

- c) Stated Payment Not Equal To Calculated Payment: Loans whose stated payments are not equal to their calculated payments are deemed ineligible. One item was identified as follows:

Stated Payment Not Equal Calculated Payment			
Obs	Stated Pmt	Calc Pmt	CurBankBal
587	666	6.66	\$38,202

**NOTE:** Other ineligibility conditions not included in this report are as follows: (i) Minimum/Maximum Remaining Term (ii) Minimum/Maximum Original Term (iii) Minimum/Maximum Original Balance (iv) Minimum/Maximum Current Balance (iv) Unacceptable Floater Indices/Spread (v) Inconsistent Original versus Remaining Term (vi) Inconsistent Original versus Remaining Balance (vii) Unacceptable Gross Coupon.

**Sample Selection:** After the ineligible collaterals were excluded from the loan population, a sample of thirty(30) loans (based on the underwriting department's sampling methodology) were randomly selected for verification, validation and confirmation. The total outstanding balance of the samples selected is \$75 million representing 24% of the final eligible loans. A subset of the samples selected for further testing is shown below:

Random Samples				
Obs	State	Appraisal	CurBankBal	Coupon
1	NY	\$290,000	\$170,842	0.0900
2	CA	\$140,000	\$76,015	0.0900
3	TX	\$840,000	\$458,837	0.0825
4	NC	\$200,000	\$106,224	0.0900
5	MO	\$240,000	\$121,127	0.0825

**Conclusion/Recommendation:** In this analysis, we performed categorical analyses of the loan data in order to develop a high-level understanding of the collateral. In addition, we subjected the loan pool to the company's collateral ineligibility criteria and found items that do not meet XYZ Bank's underwriting criteria. After the exclusion of the ineligible loans, the total outstanding balance of the loan pool fell from \$308,505,026 to \$307,758,114.

Finally, we selected a representative sample from the final list of eligible loans for further substantive test of details. We recommend that the underwriting department immediately communicate our position on the ineligible loans to the counterparty. Further, adequate test of details should be performed on the samples selected in order to ensure the validity, accuracy and completeness of the final loan data.





## ADDENDUM

**Source Data:** This analysis was created using the companion data to the textbook – *A Fast-Track to Structured Finance* ([www.wiley.com/go/vba](http://www.wiley.com/go/vba)).

**Software:** SAS Learning Edition Version 4.2

