OFFICE of INSPECTOR GENERAL
UNITED STATES DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Insurance Status of Loans in Mortgage-Backed Securities Pools

Government National Mortgage Association

2023-KC-0001

December 5, 2022

Office of Audit | Office of Inspector General
U.S. Department of Housing and Urban Development

Date: December 5, 2022

To: Alanna McCargo
President, Ginnie Mae, T

//signed//
From: Kilah S. White
Assistant Inspector General for Audit, GA

Subject: Ginnie Mae Did Not Ensure That All Pooled Loans Had Agency Insurance

Attached are the U.S. Department of Housing and Urban Development (HUD), Office of Inspector General's (OIG) final results of our corrective action verification of Audit Report 2016-KC-0002. HUD Handbook 2000.06, REV-4, sets specific timeframes for management decisions on recommended corrective actions. For each recommendation without a management decision, please respond and provide status reports in accordance with the HUD Handbook. Please furnish us copies of any correspondence or directives issued because of the audit.

The Inspector General Act, Title 5 United States Code, appendix 8M, requires that OIG post its reports on the OIG website. Accordingly, this report will be posted at https://www.hudoig.gov. If you have any questions or comments about this report, please do not hesitate to call Patrick Anthony, Audit Director, at (716) 646-7056.

Highlights

GINNIE MAE DID NOT ENSURE THAT ALL POOLED LOANS HAD AGENCY INSURANCE | 2023-KC-0001

What We Audited and Why

In accordance with U.S. Department of Housing and Urban Development (HUD) Handbook 2000-06, REV-4, we performed a corrective action verification review of the actions taken by the Government National Mortgage Association (Ginnie Mae) to implement the recommendations cited in Audit Report 2016-KC-0002, issued September 21, 2016. The HUD Handbook places the responsibility on HUD's Office of Inspector General to perform selected corrective action verifications of significant audit recommendations when final actions have been completed. The original audit report contained two recommendations. As of July 23, 2018, final actions on the two prior recommendations were determined by HUD to have been fully implemented. Our audit objectives were to verify that Ginnie Mae had implemented the corrective actions from the report that (1) established a maximum time during which single-family loans could remain pooled without insurance and (2) established a process for requiring removal of pooled loans that remained uninsured after that time.

What We Found

Ginnie Mae had established a maximum time during which single-family loans could remain pooled without insurance and established a process for requiring removal of pooled loans that remained uninsured after that time. However, the loan-matching process used by Ginnie Mae did not ensure that pooled loans would be insured by an agency of the Federal Government as required by the Mortgage-Backed Securities (MBS) Guide. The process matched pooled loans to agency insurance files but was not adequately designed to cure unmatched loans within the timeframes established in the MBS Guide. Based on 58 of 85 loans in our statistical sample that did not match to agency insurance data files within the timeframe required, we estimate that Ginnie Mae did not have assurance that at least 3,206 loans with a principal balance of at least $903 million had agency insurance within the prescribed timeframes.

What We Recommend

We concur that it was appropriate to close out recommendations 1A and 1B from Audit Report 2016-KC-0002. However, based on the sample tested, the agreed-upon corrective actions did not resolve the issues. Therefore, we are making new recommendations. We recommend that Ginnie Mae update and synchronize its procedures. The updates should include notifications that provide issuers with unmatched loans adequate time to take corrective action to comply with the requirements of the MBS Guide.

Table of Contents

Background and Objectives

The Housing and Urban Development Act of 1968 created the Government National Mortgage Association (Ginnie Mae), a wholly owned U.S. Government corporation within the U.S. Department of Housing and Urban Development. Ginnie Mae provides a guaranty on mortgage-backed securities (MBS) secured by pools of government-insured loans. Through this program, Ginnie Mae guarantees securities backed by pools of mortgages and issued by mortgage lenders approved by Ginnie Mae. These loans are insured or guaranteed by Federal agencies, including the Federal Housing Administration (FHA); U.S. Department of Veterans Affairs (VA); U.S. Department of Agriculture Rural Development (RD); and U.S. Department of Housing and Urban Development (HUD), Office of Public and Indian Housing.

Ginnie Mae securities are the only MBS to carry the full faith and credit guaranty of the United States Government, which means that even in difficult times, an investment in Ginnie Mae MBS is one of the safest an investor can make. MBS allows for many loans to be pooled and used as collateral in a security that could be sold in the secondary market. With a guaranty for the timely receipt of principal and interest, MBS can be attractive investments for investors worldwide. The MBS supports housing finance by channeling investment capital from markets all over the globe for use in lending to support neighborhoods across the nation. In fiscal year 2021, investors purchased a record $934 billion in newly issued MBS guaranteed by Ginnie Mae. As of September 30, 2021, Ginnie Mae's MBS programs' outstanding principal balance was $2.13 trillion.

The Ginnie Mae model significantly limits the taxpayers' exposure to risk. Ginnie Mae guarantees a simple pass-through security to lenders. It does not buy loans or issue its own securities. Private lending institutions originate eligible loans, combine them, and issue Ginnie Mae MBS. As shown in the diagram below, Ginnie Mae is protected by losses by homeowner equity, government agency insurance, and corporate resources before Ginnie Mae is subject to loss. The requirement that mortgages in MBS pools must be insured or guaranteed under other Federal programs is important to limiting Ginnie Mae's risk exposure. By guaranteeing the servicing performance of the issuer — not the underlying collateral — Ginnie Mae insulates itself from the credit risk of the mortgage loans.

Source: https://www.ginniemae.gov/about_us/who_we_are/Pages/our_business_model.aspx

Previously, we audited Ginnie Mae's process for identifying and removing uninsured single-family FHA loans from MBS pools. We initiated the audit based on indications that loans that have mortgage insurance terminated are not always removed from Ginnie Mae MBS pools. We issued Audit Report 2016-KC-0002, dated September 21, 2016, which reported that Ginnie Mae allowed uninsured single-family loans to remain in its MBS pools for more than 1 year. We recommended that Ginnie Mae (1) establish a maximum time during which loans could remain pooled without insurance and (2) establish a process for requiring removal of pooled loans that remained uninsured after that time to put $49.3 million to better use. The final actions on these recommendations were completed on January 8, 2018, and July 23, 2018, respectively. Once final action has been completed, HUD Handbook 2000.06, REV-4, places the responsibility on HUD's Office of Inspector General (OIG) to perform selected corrective action verifications of significant audit recommendations to determine whether the corrective actions have been completed and satisfactorily implemented. Based on this requirement, we selected the recommendations noted above for review.

Our audit objectives were to verify that Ginnie Mae had implemented the corrective actions from Audit Report 2016-KC-0002 that (1) established a maximum time during which single-family loans could remain pooled without insurance and (2) established a process for requiring removal of pooled loans that remained uninsured after that time.

Results of Audit

FINDING: THE PROCESS USED BY GINNIE MAE DID NOT ENSURE THAT ALL POOLED LOANS WERE INSURED BY AN AGENCY OF THE FEDERAL GOVERNMENT AS REQUIRED BY THE MORTGAGE-BACKED SECURITIES GUIDE

Ginnie Mae established a maximum time during which single-family loans could remain pooled without insurance and established a process for requiring removal of pooled loans that remained uninsured after that time. However, the loan-matching process used by Ginnie Mae did not ensure that all pooled loans were insured by an agency of the Federal Government. The process matched pooled loans to agency insurance data files but was not adequately designed to cure unmatched loans within the timeframes established. Based on a review of a statistical sample of loans not matching to agency insurance data files, we estimate that Ginnie Mae did not have assurance that at least 3,206 loans with a principal balance totaling at least $903 million had agency insurance within the prescribed timeframes.

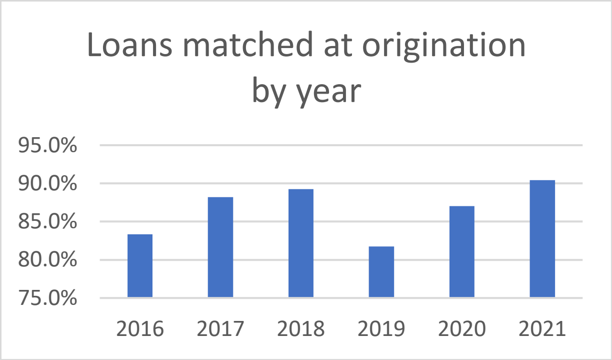
Loans Unmatched to Insurance Remained in Ginnie Mae MBS Pools

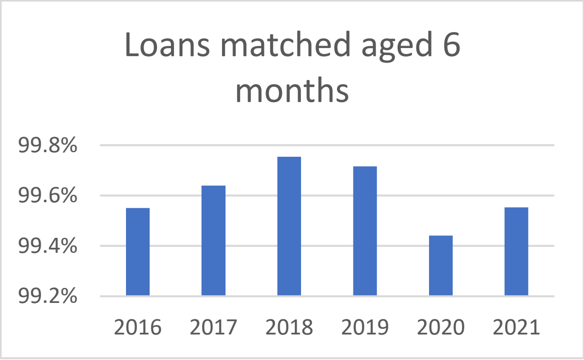
Ginnie Mae had established a maximum time during which single-family loans could remain pooled without insurance. The MBS Guide requires that all pooled loans have the applicable Federal agency's insurance or guarantee by the final certification date, 12 months after pooling. Lenders must submit a buyout request for uninsured loans no later than the final certification due date or 30 days from discovery of the defect. (See appendix C.)

In addition, Ginnie Mae had established a process for requiring removal of pooled loans that remained uninsured after the maximum time. The process matched pooled loans to agency insurance files. The matching and followup processes were controlled by two procedures, one of which was implemented in response to the 2016 audit. Ginnie Mae ensured that loans had an agency's insurance or guarantee by matching pooled loans to FHA, VA, and RD databases. If a loan was not matched to the data elements, Ginnie Mae did not have assurance that the loan was insured or guaranteed. Ginnie Mae provided issuers with information on loans flagged during the matching process using the Reporting and Feedback System (RFS) and by followup notifications when results fell outside certain thresholds.

However, our review found that loans unmatched to insurance remained in Ginnie Mae MBS pools. By testing a statistical sample, the results indicated that the process used by Ginnie Mae did not ensure that all pooled loans were insured by an agency of the Federal Government within the timeframes established by the MBS Guide. We used Ginnie Mae's systems to identify a universe of 5,779 loans with an unpaid principal balance of $1.56 billion in Ginnie Mae MBS pools that were flagged as unmatched to insurance data files. We selected a statistical sample of 85 loans totaling $29.6 million from this universe of loans. (See Scope and Methodology.) We found that 58 of the loans in the statistical sample were flagged as unmatched to agency insurance data files more than 12 months after pooling. A flag does not always indicate a lack of agency insurance but, rather, may indicate a problem with the data in either the Ginnie Mae or agency data files. As a result, an issuer may resolve a flag by obtaining an agency's insurance or guarantee, buying the loan out of the pool, or addressing underlying data issues. However, Ginnie Mae lacked assurance that loans flagged as unmatched past the certification date had the appropriate insurance or guarantee.

While the unmatched loans persisted, overall, insurance-matching trends in Ginnie Mae MBS pools had shown improvements since 2016. The percentage of loans in Ginnie Mae MBS pools matched to insurance at origination had improved from 83.4 percent in 2016 to 90.4 percent in 2021. The percentage of loans in Ginnie Mae MBS pools aged 6 months matched to insurance had improved from 99.6 percent in 2016, following our initial audit, to 99.8 percent but fell back to 99.6 percent in 2021.





The Process Was Not Adequately Designed

Ginnie Mae's process matched pooled loans to agency insurance files but was not adequately designed to cure unmatched loans within the timeframes established in the MBS Guide.

The matching and followup process was controlled by two procedures that were not synchronized: a matching procedure, which primarily guided the Ginnie Mae contractor's actions, and a standard operating procedure (SOP), which primarily guided Ginnie Mae's actions. This distinction was significant to our audit because the two procedures handled notifying issuers with aged loans unmatched to insurance differently. The matching procedure required quarterly notification to all issuers with one or more loans aged 6 months or greater that did not match to insurance. The matching procedure also gave the issuers until the conclusion of two monthly reporting cycles to provide proof that these loans were insured or to repurchase the loans from the pools. The SOP required issuer notification at 6 months only if the issuer had an increase in the number of unmatched loans for 3 consecutive months. When using the SOP, if an increase was not noted in the number of uninsured loans, the issuer was not notified until the uninsured loan had been pooled more than 12 months. During meetings with Ginnie Mae, it was stated that the triggers in the SOP had superseded the quarterly reports noted in the matching procedure.

We also noted during our review that our universe of loans did not include any VA terminated loans. Ginnie Mae did not have an agreement in place with VA to receive notification of terminated loans. Ginnie Mae stated that FHA and RD provided records monthly regarding terminated loans.

The current process did not include quarterly reports noted in the matching procedure. The triggers alone in the SOP did not require issuers to act in time to comply with the requirements of the MBS Guide. While monthly e-notes were sent to certain issuers, the e-note did not stipulate a deadline by which the issuer was required to fix its matching problem. Additionally, as noted previously, the issuer might not receive quarterly notification of uninsured loans until the loan had been pooled for more than 12 months. Even if the issuer took immediate action, the loan could be pooled for more than 1 year without insurance before being cured.

An additional weakness in the process was that these notifications required manual intervention by

Ginnie Mae, which heightens the risk of delays when volume surges. Loan originations for pooling had increased from 2.4 million in 2016 to 3.2 million in 2021.

At Least $903 Million in Pooled Loans Was Unmatched to Insurance

Based on 58 of 85 loans in our statistical sample not matching to agency insurance data files within the timeframe required, we estimate that at least 3,206 loans with a principal balance of at least $903 million were pooled beyond the certification date and not matched to agency insurance data files. Because Ginnie Mae relied on the Federal guarantee of insured loans to prevent or limit losses when loans defaulted, not knowing whether a loan was insured increased the risk of financial loss. This would be especially true if Ginnie Mae took action to extinguish a lender. In the case of extinguishment, Ginnie Mae would become responsible for investor payments in the case of a borrower's default if the loan did not obtain or maintain Federal insurance. Also, loans that were not matched to Federal insurance increased the risk of prepayment. If the issuer was not able to obtain Federal insurance, the issuer would be required to buy out the loan when the loan reached the final certification date. This early return of principal to investors would devalue the MBS pools. Finally, an additional impact of this issue is that unmatched loans required manual intervention by Ginnie Mae. The Monitoring and Asset Management Division is responsible for engagement with the issuer and sending notifications informing an issuer that Ginnie Mae has identified data discrepancies that require the issuer to initiate corrective actions. In severe cases, the mortgage banking analyst might consider taking further action, which could include the issuance of a notice of violation or civil money penalty. Ginnie Mae did not use automation in these notifications. Therefore, the actions were labor intensive.

Conclusion

Ginnie Mae had established a maximum time during which single-family loans could remain pooled without insurance and established a process for requiring removal of pooled loans that remained uninsured after that time. However, there were aspects of the process that might have allowed loans unmatched to insurance to remain in Ginnie Mae MBS pools. The process Ginnie Mae implemented matched pooled loans to agency insurance data files. The process was controlled by two procedures. Some aspects of these procedures were not aligned, and in some cases, issuers were not notified of deficiencies in time to take action to comply with MBS requirements. The process did not ensure that loans were insured or removed from pools as required by the MBS guide. As a result, at least 3,206 pooled loans with a principal balance of at least $903 million were not matched to agency insurance data files before the certification date.

Based on the cited deficiencies, the agreed-upon corrective actions did not resolve the issues. Therefore, we are providing two new more detailed recommendations.

Recommendations

We recommend that the Ginnie Mae President

1A. Update and synchronize the SOP and the matching procedure. The updates should include notifications that provide issuers with unmatched loans adequate time to take corrective action to comply with the requirements of the MBS Guide to put $903 million to better use by ensuring that the appropriate agency insurance or guarantee is in place.

1B. Ensure that all necessary information regarding terminated VA loans is included in the matching process.

Scope and Methodology

We performed our audit work between March and September 2022. We did not conduct onsite fieldwork for this audit. Our audit period covered August 2021 through April 2022.

To accomplish our objective, we

- reviewed relevant Ginnie Mae guidance,
- interviewed Ginnie Mae staff to gain an understanding of relevant monitoring controls, and
- selected and reviewed a statistical sample of potentially uninsured loans to determine whether the issuers resolved the insurance status of these loans according to the requirements in the MBS Guide.

We used data maintained in Ginnie Mae's RFS during our audit. RFS is a centralized data collection and processing system for all Ginnie Mae postsettlement accounting related to the MBS program. The sources we identified for use in our audit within RFS included Ginnie Mae Portfolio Analysis Database System, Matching and Suspense System (MAS), Pool Accounting-Exception Feedback, and E-Notification. Although we did not perform a detailed assessment of the reliability of the data, we judged the data to be reliable for the purpose of meeting our objective.

We accessed the MAS within Ginnie Mae's enterprise portal. We obtained the October 2021 Ginnie Mae aged monthly insurance matching reports for FHA, VA, and RD loans and the aged terminated matching reports for FHA and RD loans and identified pooled loans flagged since before August 2021. We identified a universe of 5,779 potentially uninsured loans. We determined that the October 2021 unpaid principal balance for 5,779 loans in the universe was more than $1.56 billion.

We used a sample projection to determine the effectiveness of corrective actions taken to close recommendations related to Audit Report 2016-KC-0002. We selected a statistical sample of 85 loans from the universe of loans. We reviewed information for each loan to determine whether the loan remained flagged beyond the final certification date or for more than 30 days for the sampled loans initially flagged after the final certification date. We also analyzed whether Ginnie Mae followed its established remediation procedures during the audit period of August 2021 through April 2022 for the sampled loans. We considered a sample item to be an exception if the flag was not resolved within the established timeframes. We used the results of our sample review to project the number and amount of loans unmatched to insurance beyond the established timeframes. (See appendix D for documentation of our sampling plan.)

The scope of our internal control testing included (1) Ginnie Mae's controls to ensure a maximum time during which single-family loans could remain pooled without insurance and (2) Ginnie Mae's controls to ensure removal of pooled loans that remained uninsured after that time. We also met with appropriate personnel within Ginnie Mae's Office of Issuer and Portfolio Management responsible for internal controls within the Insurance Matching Standard Operating Procedures.

We conducted the audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective(s). We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendixes

APPENDIX A – SCHEDULE OF FUNDS TO BE PUT TO BETTER USE

Recommendation number	Funds to be put to better use 1/
1A	$903,085,334
Totals	$903,085,334

1/ Recommendations that funds be put to better use are estimates of amounts that could be used more efficiently if an OIG recommendation is implemented. These amounts include reductions in outlays, deobligation of funds, withdrawal of interest, costs not incurred by implementing recommended improvements, avoidance of unnecessary expenditures noted in preaward reviews, and any other savings that are specifically identified. In this case, if Ginnie Mae implements our recommendation, it will ensure that pooled loans either match to agency insurance files or are liquidated from the MBS pools, removing the possibility of uninsured loans remaining in MBS pools beyond the final certification date.

APPENDIX B - AUDITEE COMMENTS AND OIG'S EVALUATION

Ref to OIG Evaluation – Auditee Comments

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Ginnie Mae
Our Guaranty Matters

425 3rd Street, SW, Fifth Floor
Washington, DC 20024
(202) 708-1535

DATE: November 8, 2022

MEMORANDUM FOR: Kilah S. White, Assistant Inspector General for Audit, GA

FROM: Leslie M. Pordzik, Senior Vice President
Office of Issuer and Portfolio Management (OIPM), TS

SUBJECT: Discussion Draft Audit Report – Insurance Status of Loans in Mortgage-Backed Securities Pools

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We appreciate the opportunity to review the latest draft audit report (Insurance Status of Loans in Mortgage-Backed Securities Pools) and offer the following comments for your consideration:

Comment 1 >

1) Ginnie Mae continues to make strides in reducing the levels of uninsured loans based on how the percent of insured loans has increased since the publication of APM 18-01 which was one of the two recommendations noted the 2016 Audit Report Number: 2016-KC-0002 (Mortgage-Backed Securities Secured by FHA Loans). Ginnie Mae released APM 18-01 updating Guide requirements to include the mandatory buyout of loans missing federal agency insurance or guarantee. Issuers have up to 12 months from pool issuance to work with the respective insuring agency to obtain insurance endorsement. If this cannot be secured, Issuers are required to repurchase the loan from the Ginnie Mae pool as a defective loan. Over 90% of loans at the time of issuance into Ginnie Mae securities are insured by FHA, VA and USDA. However, we have found that there are instances where the issuer, the insuring agency and Ginnie Mae's matching process are still a work-in progress that is going beyond the prescribed 12-month timeframe. Ultimately, Ginnie Mae's loan portfolio will never reflect 100% insured by virtue of new loans being issued every month and timing delays when reconciling multiple data sources. Ginnie Mae records show that the 99% insured loan threshold is quickly reached 3 months after issuance.

Comment 2 >

2) We understand how the $903 million figure was derived and that it represents a statistical estimation of unmatched loans as opposed to actual uninsured loans. Due to the timing and data inconsistencies, loans that are fully insured may not show as matched. Ginnie Mae records show that the number of unmatched loan decreased by 84% during the period of September 2016 to September 2022 even while the total number of loans in the MBS Program rose by 5.8%. Based on recent FY 22 data, the

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latest monthly unmatched loans that are aged 12+ months from issuance is currently around 1631 loans equating to $427M UPB. Using the same time period of September 2106 to September 2022, the number unmatched loans aged 12+ months from issuance also dropped by 86%.

Comment 3 >

3) Ginnie Mae accepts the new recommendations and has already begun efforts to pursue them. To fully implement the recommendations, OIPM will require the collaboration of two other key Ginnie Mae Offices. In addition, there are certain loans that show up as unmatched and can be attributed to nuances in the insuring agency data fields which are currently beyond Ginnie Mae's control. Ginnie Mae has identified two insuring agencies where there are opportunities to further reduce the number of unmatched loans.

2

OIG Evaluation of Auditee Comments

Comment 1	We agree that Ginnie Mae is making progress in reducing the levels of uninsured loans and the matching process is a "work-in-progress." This audit identified issues with unmatched loans going beyond the prescribed 12-month timeframe, which we acknowledge is a small percentage of the portfolio.
Comment 2	We agree with the comment that our report includes a statistical projection, and the projection would be different if we looked at a universe of loans from a different time. Likewise, we agree with the comment that the $903 million figure represents a statistical estimation of unmatched loans as opposed to actual uninsured loans. However, during testing of our sample we found unmatched loans remained after the maximum time allowed by Ginnie Mae guidance to obtain agency insurance.
Comment 3	We acknowledge that Ginnie Mae accepts the new recommendations. We look forward to working with Ginnie Mae through the audit resolution process to ensure that the recommendations are fully addressed.

APPENDIX C - CRITERIA

Ginnie Mae MBS Guide

CHAPTER 14. POOL AND LOAN PACKAGE ADMINISTRATION — GENERAL

PART 8. DELINQUENT AND DEFECTIVE LOANS

Section D. Defective Loans
Effective Date: 2018-01-05
(1) Definitions
The term "Defective Mortgage" means a mortgage or loan:
(a) that cannot be insured or guaranteed by an agency of the Federal Government named in Section 306(g)(1) of the National Housing Act;
(b) that has been refused by the insuring or guaranteeing agency;
(c) for which federal agency insurance or guaranty has been withdrawn;
(d) for which, in the case of GNMA [Ginnie Mae] MBS II Single Family Level Payment MBS and H4H [Hope for Homeowners] mortgage loans, FHA is prohibited from paying insurance benefits, whether or not the mortgage is insured; or
(e) that does not comply with the terms of the related securities, including, for example, a single family mortgage or manufactured home loan that has not been insured or guaranteed by an agency of the Federal Government named in Section 306(g)(1) of the National Housing Act.
Delinquency is not considered a defect except as provided in MBS Guide, Ch. 9, Part 2, § E or, in the case of H4H mortgage loans, to the extent that such delinquency prohibits FHA from paying insurance benefits.

(2) Issuer Responsibilities for Defective Loans

(b) Mandatory Loan Buyouts.
After the 120 day period, loan substitution is not allowed, and the Issuer (including an Issuer with a Representations and Warranties Agreement) must either cure the defect or request approval to buy the Defective Mortgage out of the pool(s) or loan package by depositing into the Central P&I [principal and interest] Custodial Account an amount, from the Issuer's own funds, that will reduce to zero the portion of the outstanding principal balance of the related securities attributable to the Defective Mortgage. The cure or buyout approval request, as applicable, must occur by the earlier of the final certification due date for the corresponding pools(s) or loan packages or thirty days from discovery of the defect. If a project or construction loan is found to be defective, regardless, of the time of discovery, the Issuer must cure the defect or buy out the loan.
(c) Notice and Approval Requirements.
The Issuer must notify in writing Ginnie Mae's Office of Issuer & Portfolio Management (see Addresses) of any mortgage found to be defective. The Issuer must receive Ginnie Mae's written approval prior to any substitution for or buyout of a Defective Mortgage from a pool. A request to buy out a Defective Mortgage must be submitted in accordance with the Form Letter for Loan Repurchase (Appendix VI-2).

APPENDIX D – STATISTICAL PROJECTION – RESULTS AND METHODOLOGY

Uninsured Loans in Ginnie Mae Mortgage-Backed Securities Pools - Corrective Action Verification

Method: Stratified Neyman Optimized Allocation
Confidence Interval: One-sided 95%

Findings:

Based on a stratified systematic sample designed to minimize error, we can make the following statements:

Dollar Projection Results:

We found that in 58 of 85 loan records reviewed, there was an exception. The loan was flagged as unmatched to insurance before August 1, 2021, and was not resolved within the required timeframes. This amounts to a weighted average of $183,210.61 per loan. Deducting for a statistical margin of error, we can say - with a one-sided confidence interval of 95 percent – that this amounts to at least $156,270 per loan. In the context of this universe of 5,779 loan records, this amounts to at least $903 million in pooled loans with a deficiency related to their insurance status, and this dollar amount could be higher.

Percentage-Count Projection Results:

We found that in 58 of 85 loan records reviewed, there was a deficiency related to a Ginnie Mae loan in the MBS pool. This amounts to a weighted average of 65.16 percent. Deducting for a statistical margin of error, we can say - with a one-sided confidence interval of 95 percent - that at least 55.48 percent of the loans met this condition. Extending this percentage to this universe of 5,779 loan records, at least 3,206 loans had a deficiency related to their “must-be” insured status, and that number could be higher.

Methodology:

We employed a highly stratified random sample of 85 for reviewing among the universe of 5,779 uninsured loans in MBS Pools. We designed the strata to group sampling units by the remaining principal balance as of October 2021 for a given loan. Taken in rank order by the size of the unpaid balance, the strata were designed to encompass the following ranges by percentile: 0-10, 10-30, 30-50, 50-70, 70-90, 90-95, and 95-100th. We detail the sample counts per strata, percentile break points by unpaid balance, and sampling weights in the sample table below.

We tested the sample design with various rates of error to confirm that we could obtain a reliable projection answer with this sample design and that the confidence intervals as specified would provide an accurate probabilistic statement. Based on the testing and simulated sampling distributions, we found a stratified sample of 85 to be more than sufficient, and we selected that sample size.

The review team did not use spares. Therefore, the sampling weights did not change. The sample design table below provides details of the sample.

Sample table					
Strata label	**Remaining balance from October 2021**	**Total count in strata**	**Sample count**	**Probability of selection**	**Sampling weight**
0-10pct	> 0	577	10	0.0173	57.70
10-30pct	≥ $102,094	1,157	10	0.0086	115.70
30-50pct	≥ $173,344	1,156	10	0.0087	115.60
50-70pct	≥ $241,084	1,155	14	0.0121	82.50
70-90pct	≥ $316,780	1,157	21	0.0182	55.10
90-95pct	≥ $471,470	288	10	0.0347	28.80
95-100pct	≥ $573,524	289	10	0.0346	28.90
Total	**N/A**	**5,779**	**85**	**N/A**	**N/A**

We computed the percentage and number of counts of loans with exception based on the audit results, and we extended this result to the population using the surveyfreq procedure provided by SAS®. We estimated the lower confidence interval using a Gaussian sampling distribution, which is appropriate for error rates in this range. We extended these percentages to the 5,779 records in the universe to get the total universe count of loans unmatched to insurance in Ginnie Mae pools.

We used the surveymeans procedure in SAS® to estimate the total unpaid balance of such loans. We reduced the average amount by the margin of error (that is, the standard error with a student's t factor) associated with this sample design. For complex sample designs, such as the stratified technique used for this review, the surveymeans procedure in SAS uses the Taylor expansion method to estimate sampling errors (standard errors). We then extended this result to the 5,779 records in the universe.

The basic estimation calculations are as follows:

$$Amount_{LCL} = N * (\mu - t_{\alpha/2}\, SE_{\$})$$

$$Count_{LCL} = N * (pct - t_{\alpha/2}\, SE_{\%})$$

$Amount_{LCL}$ = Total review-finding amount after deducting a margin of error.

$Count_{LCL}$ = Total number of sampling units with the error after deducting a margin of error.

N = Total number of sampling units in the sampling frame.

μ = Weighted average value of the error per unit.

pct = Weighted percent of sampling units with the error in the sampling frame.

$SE_{\$}$ = Standard error per unit, as applies to projecting dollars.

$SE_{\%}$ = Standard error per unit, as applies to projecting proportions.

$t_{\alpha/2}$ = Student's t for projecting a one-sided confidence interval for a sample of this size.