Operational Risk Assessments

Midland Loan Services, a division of PNC Bank, N.A.

DBRS Morningstar
November 2022

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Michael S. Merriam
Senior Vice President, Operational Risk
North American CMBS
+1 203 929-4007
michael.merriam@dbrsmorningstar.com

Richard Carlson
Managing Director
North American CMBS
+1 312 332-9451
rich.carlson@dbrsmorningstar.com

Operational Classifications:	Commercial Mortgage Primary Servicer, Master Servicer, and Special Servicer
Rankings:	Primary Servicer—MOR CS2 (Confirmed) Master Servicer—MOR CS2 (Confirmed) Special Servicer—MOR CS1 (Confirmed)
Trends:	Primary Servicer—Positive Master and Special Servicer—Stable

Rationale

DBRS, Inc. (DBRS Morningstar) confirmed its MOR CS2 commercial mortgage primary servicer and master servicer rankings and its MOR CS1 commercial mortgage special servicer ranking for Midland Loan Services (Midland or the Company), a division of PNC Bank, N.A. DBRS Morningstar confirmed the rankings based on the following factors:

Primary and Master Servicing

- **Organizational Depth and Structure:** The Company has well-experienced managers and solid professional depth. After leadership changes and some functional realignments in 2021, Midland more broadly reorganized its operating structure, which entailed additional functional realignments and reporting line changes. Most of the reorganizing involved internal promotions and redeployments of well-tenured managers. Concurrently, Midland, which is based in Overland Park, Kansas, opened offices in Dallas and Birmingham, Alabama. The Company expects its retooled structure and new servicing locations to increase productivity by aligning similar processes within the same teams, facilitating managerial oversight, promoting career development, and expanding its hiring reach. To support portfolio management tasks, Midland also uses several vendors including a core vendor with offshore staff.
- **Employee Turnover and Workload Levels:** Midland, as with many other servicers, has been challenged with increased employee turnover over the past 18 months. However, Midland has managed to decrease its workload ratios for primary/master servicing to within industry norms, largely via new and proactive hiring mandates and staff redeployments after some servicing assignments concluded.
- **Technology:** Midland has effective technology. The core application is the Midland-owned *Enterprise!*℠ Loan Management System (Enterprise!), which the Company licenses to other servicers through hosting arrangements that may include shared servicing. It continues to progress in moving Enterprise! to a cloud-based computing environment. Midland's suite of other integrated applications includes investor web portals and a recently revamped borrower portal. In collaboration with PNC Bank's resources, Midland continues to roll out other significant technology enhancements, including further refinement and expansion of robotic processes and automated programming interfaces (APIs). Through PNC Bank-supported data centers, Midland has sound data backup and data protection practices.

- **Internal Audit and Compliance:** Midland's comprehensive audit and compliance functions include Regulation AB audits, PNC Bank's internal audits, Department of Housing and Urban Development (HUD) audits, and Type II Service Organization Controls (SOC 1 and SOC 2) reports. A risk, compliance, and quality-assurance (RCQ) team monitors compliance and conducts its own reviews. The Company has stringent compliance procedures for vendors as well. Internal audits completed since mid-2020 have been overall satisfactory albeit with a few cited exceptions, including a 2021 SOC 1 report that rendered a qualified opinion. Midland has fully resolved nearly all of the controllable audit issues, some of which were self-identified.
- **Asset Administration:** Through specialized teams, Midland demonstrates sound administrative and portfolio management practices for commercial mortgage-backed securities (CMBS) transactions, Freddie Mac-sponsored securitizations, and single-family rental (SFR) securitizations. It continues to enhance its procedures, along with rolling out new technology features, to monitor collateral performance and loan-covenant compliance and manage a high volume of consent requests.
- **Subservicer Oversight:** As a master servicer, Midland has an effective subservicer audit program managed by the RCQ team. The Company has resumed on-site audits and continues to perform desktop reviews, which it did throughout the Coronavirus Disease (COVID-19) pandemic.
- **Investor Reporting/Remitting:** Midland has sound practices for advancing and determining recoverability and is proficient with CMBS reporting requirements. The Company continues to incur an elevated number of reporting and remittance errors, including some late submissions and penalties. However, it promptly corrects them and implements retraining and procedural adjustments in response. The frequency of occurrences also is still low relative to total processing volume.
- **Training:** Midland has a solid training function with an extensive formalized curriculum. Earlier this year, the Company also added a dedicated training manager from parent PNC Bank. The program emphasizes procedural compliance, cross-functional skill building, and ad hoc training directed at control-point and audit-related issues.

Special Servicing

- **Staffing Depth:** Midland has well-experienced leadership for special servicing. Asset managers' average experience also has remained solid and toward the higher end of the range among special servicers. The Company maintains reasonable workload levels as well.
- **Achievement Record:** Midland has continued to perform as an adept CMBS special servicer that has consistently obtained solid asset recovery results.
- **Asset Resolution Practices:** Midland has sound procedures governing asset-management workflow, analytics, and resolution approvals, including real estate owned (REO) property management and sales. The Company also has addressed one self-identified exception item in the 2021 SOC 1 report regarding managerial verification of closed matters.
- **Technology:** The Company's integrated asset management application has robust capabilities to support special servicer functions and reporting. The Company also operates with a surveillance module it revamped in 2020, to monitor loans for which it is the named special servicer.

Primary/Master Servicing Volume

As of June 30, 2022, Midland's total servicing portfolio, including shared-servicing arrangements, consisted of 25,353 loans with an aggregate unpaid principal balance (UPB) of $627.65 billion. It was a CMBS primary and/or master servicer on 560 transactions containing 8,628 loans with an aggregate UPB of $178.86 billion. The Company's master and primary servicing included 1,174 SFR loans (242,980 properties) with an aggregate UPB of $43.73 billion, which included 75 securitizations with a UPB of $41.55 billion and 1,131 loans. Midland also serviced nine collateralized loan obligation (CLO) transactions and one collateralized debt obligation (CDO) collectively containing 201 loans with an aggregate $6.29 billion UPB.

Special Servicing Volume

As of June 30, 2022, Midland was a named special servicer on 517 transactions that collectively contained 7,561 loans with a UPB of approximately $230.24 billion and included CMBS, Freddie Mac, SFR, CLO, CDO, and asset-backed transactions. It also serves as the special servicer for some balance sheet lenders. Midland's assignments as a named special servicer for SFR loans covered 72 securitizations containing 856 loans with an aggregate UPB of $42.92 billion.

As of June 30, 2022, Midland had 190 specially serviced assets (187 in securitizations) consisting of 182 loans (five non-real estate) and eight REO assets with a combined UPB of $4.56 billion. SFR loans accounted for approximately 9% of the active loan portfolio by count.

Trend

The trend for the primary servicer ranking remains Positive and the trends for the master and special servicer rankings remain Stable.

The Positive trend for the primary servicer ranking recognizes Midland's completed and ongoing technology advancements, lower workload ratios, and overall improved audit results. The recently reworked organizational structure and related managerial changes, as they further gel, should bode well for the Company to realize increased operating synergies and efficiencies. DBRS Morningstar further acknowledges the Company's efforts to refortify and expand its workforce while contending with higher employee turnover. DBRS Morningstar will monitor Midland's performance as a master servicer over the next year to demonstrate fewer issues with investor reporting/remitting accuracy and timeliness.

As a special servicer, Midland should remain highly effective for CMBS and other third-party assignments based on its staffing depth, performance, procedural controls, and technology capabilities.

Company Profile and Business Overview

PNC Bank is a wholly owned subsidiary of The PNC Financial Services Group, Inc. (PNC) and Midland is a core component of PNC Bank's real estate finance business. As of December 31, 2021, the Mortgage Bankers Association ranked PNC Real Estate/Midland as the second-largest commercial mortgage master/primary servicer by dollar volume and loan count, including a PNC Bank portfolio and some commercial finance and asset-backed transactions. As a Freddie Mac servicer, Midland was the third-largest by dollar volume and the fourth-largest by loan count.

The Company's commercial loan servicing and asset management business includes institutional and specialty-finance clients, shared-servicing assignments, and SFR transactions (Midland is the largest-volume servicer for SFR securitizations and has been shifting this business line to single-borrower transactions), in addition to CMBS (principally through purchased mortgage servicing rights) and government-sponsored entity (GSE) transactions. In the years preceding 2020, it had been a large-volume contract servicer for government agencies as well. While Midland principally services real estate-oriented portfolios, it services other transaction types secured by telecommunications tower leases, outdoor advertising, equipment leases, franchise fees, retail brand licenses, and media and intellectual property rights.

Midland, and through PNC Bank, has three principal lines of business: loan servicing; real estate solutions, which encompasses special servicing, due diligence, and other asset management assignments; and technology as a provider of Shared Servicing® and Enterprise!, which Midland licenses to third-party clients on a hosted basis. In nearly all cases, Midland serves as a third-party service provider.

In 2021 and through Q1 2022, Midland added 140 transactions consisting of 2,289 loans with a $109.3 billion UPB in new commercial servicing rights, which excludes loans received on a flow basis from other client contracts. Among these new transactions, 108 were CMBS and other structured transactions and 30 were SFR.

Midland has a substantial presence as a named CMBS special servicer predominantly through relationships with third-party B-piece holders. For the 15 months ending March 31, 2022, Midland was selected as the special servicer on 94 new securitized transactions with outstanding balances of approximately $65.3 billion. As of June 2022, Midland's 517 assignments as a named special servicer included 29 Freddie Mac-sponsored securitizations.

As of June 30, 2022, Midland employed 447 people for primary/master servicing and 43 for special servicing (within its real estate solutions group), compared with 420 and 41 people, respectively, as of June 30, 2021. Most personnel are in Overland Park, Kansas, although the Company opened Birmingham, Alabama and Dallas offices in the past year and has servicing personnel at those locations. The technology team for Enterprise! is based in Little Rock, Arkansas, and in Pittsburgh.

Financial Position: DBRS Morningstar maintains a Long-Term Issuer Rating of A (high) on PNC, the publicly owned parent bank holding company. As noted in DBRS Morningstar's November 2022 rating report, PNC is the sixth largest U.S. bank, with an extensive regional branch footprint covering the Mid-Atlantic, Southeast, Southwest, and Midwest. The rating reflects PNC's overall strong capitalization, liquidity, risk profile, and earnings power. PNC demonstrates a strong commitment to third-party commercial mortgage servicing based on its allocation of personnel, technology, and other resources for Midland.

Exhibit 1 Midland Historical Servicing and Active Special Servicing Volume

	June 30, 2022		December 31, 2021		December 31, 2020		December 31, 2019	
	UPB ($ Millions)	**Loans**	**UPB ($ Millions)**	**Loans**	**UPB ($ Millions)**	**Loans**	**UPB ($ Millions)**	**Loans**
Primary Servicing*	501,052.8	20,116	470,507.3	19,983	464,401.6	24,470	516,240.3	35,797
Master Servicing**	126,594.6	5,237	119,042.9	4,987	95,874.7	4,142	76,819.0	3,423
Total Servicing Portfolio	627,647.4	25,353‡	589,550.2	24,970‡	560,276.3	28,612‡	593,059.3	39,220
Loans in Special Servicing	8,736.3	425	10,220.9	537	13,500.6	734	3,837.3	324
Special Servicing Portfolio	4,556.5	190	6,674.9	290	9,454.2	405	2,062.9	132
Active Loans Only	4,377.4	182	6,510.8	282	9,217.6	395	1,904.0	124
REO Properties Only	179.1	8	164.1	8	236.6	10	158.9	8

* Shared-servicing volume included in primary servicing. ** Includes only loans subserviced by others. ‡ Loans with active forbearance agreements (in repayment or deferral): 94 as of June 30, 2002; 86 as of December 31, 2021; and 57 as of December 31, 2020.

Operational Infrastructure

Organizational Structure

During the first half of 2021, Midland completed several management changes. These were generally in response to retirements and other departures. All changes involved managers elevated from other roles and/or transferring between departments. Among these management realignments, Midland established a new chief operating officer (COO) position led by a well-tenured senior manager.

In March 2022, Midland announced broader organizational structure changes for its servicing operations and real estate solutions departments. The Company implemented the new structure and various underlying team realignments in an effort to better match similar processes and functions within the same teams, facilitate managerial oversight (fewer direct reports per team leader), facilitate collaboration, and promote career pathing and staff retention. The corresponding managerial changes in both departments mostly involved tenured Midland managers elevated to higher-level positions along with some redeployments across functional areas. Midland also created a learning and development manager position reporting to the COO and filled by a former PNC Bank consultant serving in a similar role.

The principal changes for servicing operations involved consolidating it from two departments to a single department led by a one senior manager overseeing five distinct, and generally functionally driven, units each with a senior manager. As part of restructuring servicing operations over the past two years, Midland moved covenant administration and reserve management to the real estate solutions group.

Midland did not alter the structure of its technology services department and a client solutions department, which handles business development/client relationship management, including Midland as a shared-servicing and technology provider.

Midland's RCQ group, which reports directly to the PNC Real Estate COO, coordinates Midland's auditing activities, conducts its own control testing of Midland, and audits Midland's subservicers. Midland also has a legal department, which reports to PNC Real Estate's managing chief counsel.

Servicing Operations

As noted, the reconstituted servicing operations department has five teams each with several sub-teams. Servicing operations covers investor reporting, accounting, and treasury; general borrower administrative services, borrower relationship management; insurance, tax, and document management; and loan boarding/conversions, including rate adjustment monitoring, and payoffs.

Midland aligns its borrower relationship teams by investor/product types with specialized teams for CMBS transactions, large or especially complex loans, shared servicing assignments, GSEs, insurance companies, and SFR transactions. Earlier this year, besides retaining a general customer service telephone number, Midland enhanced its handling of CMBS loan relationships by having a dedicated analyst assigned to every borrower. As part of its department reorganizing, Midland moved its subservicer oversight staff under the CMBS team and moved the special servicer liaison team to real estate solutions.

Real Estate Solutions

This department covers all special servicing and credit management services. Real estate solutions includes performing-loan asset management groups, which have staff for borrower consent requests. It also has a servicing liaison group to coordinate special servicing loan transfers from external primary/master servicers. In early 2021, the collateral surveillance team moved from an operations department to real estate solutions to align surveillance with the broader credit-related work of real estate solutions. As noted, Midland moved the covenant management and reserves functions from operations into real estate solutions for similar reasons.

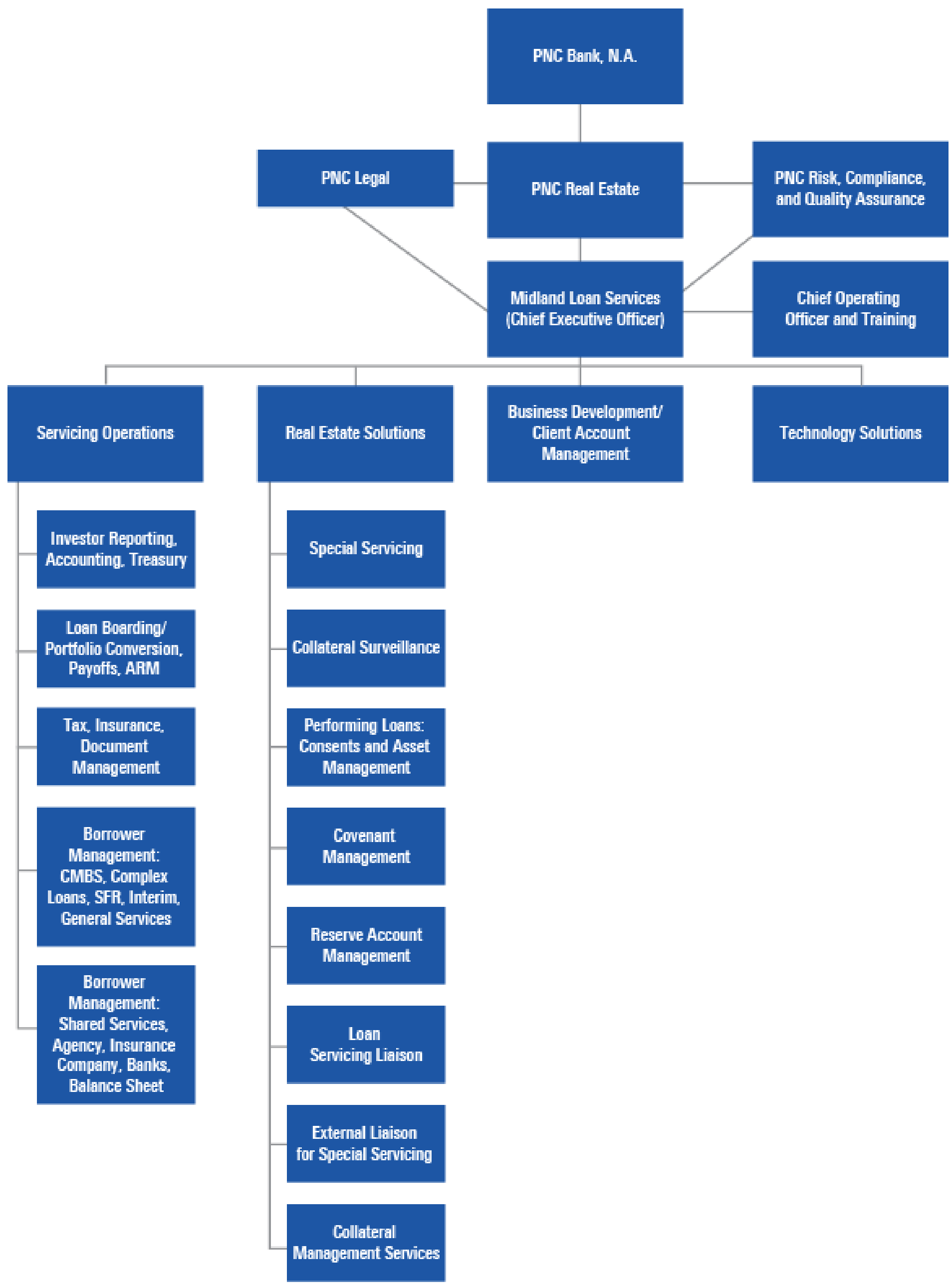
Vendor Support

Although all Midland employees are U.S.-based, the Company has expanded its use of vendors over the past two years to support various administrative/data entry work. For all vendors, Midland retains responsibility for quality control (work samples are rechecked for data accuracy) and approval authority over credit-related decisions and process execution.

Since early 2020, Midland has been using a global services vendor with dedicated offshore staff to support property financial statement and rent roll data entry/spreading. Midland noted that because the vendor continues to demonstrate proficiency and perform well, it is expanding the vendor's work scope to include SFR partial releases/paydown calculations and may look to add other tasks. It continues to use another vendor mainly to assist with insurance administration, lien releases, and review/data entry of subservicers' inspection reports. Midland's other vendors for inspection services include one specifically for SFR properties.

Midland has another vendor that assists with a variety of functions including covenant administration, borrower consent requests, assumptions and leasing requests, inspections, and waterfall loan setup.

Exhibit 2 Midland Loan Services Organizational Structure



Source: Midland Loan Services.

Management and Staff Experience

The average experience for primary/master servicing managers remains high. The average experience for senior managers also has increased over the past year. The average experience for staff-level personnel is solid and highest among those in portfolio management positions, although the average experience of portfolio management personnel has decreased since year-end (YE) 2019.

Fluctuating between 14 years and 16 years over the past few years, asset managers' average experience has remained solid and toward the higher end of the range among special servicers.

Exhibit 3 Midland Management and Staff: Average Years of Experience

	June 30, 2022		December 31, 2021		December 31, 2020		December 31, 2019	
	Industry*	**Company Tenure**	**Industry***	**Company Tenure**	**Industry***	**Company Tenure**	**Industry**	**Company Tenure**
Primary/Master Servicing								
Senior Management	27 (4)	20	26 (5)	21	19 (4)	19	25	19
Middle Management	21 (72)	17	21 (70)	17	21 (76)	17	20	18
Staff	8 (371)	6	8 (342)	6	7 (356)	6	7	6
Portfolio Management Only	16 (33)	9	16 (35)	10	17 (34)	11	22	22
Special Servicing								
Senior Management	20 (3)	20	20 (3)	19	34 (3)	26	29	24
Middle Management	20 (8)	14	20 (8)	13	23 (11)	19	22	18
Asset Managers	15 (21)	8	14 (22)	7	16 (24)	9	14	9

* Figures in parentheses are the number of people.

Employee Turnover and Hiring

Reflecting the tight labor market conditions affecting the entire industry, Midland continues to face employee hiring and retention challenges. Additionally, the Company's location in Overland Park, Kansas is an especially competitive hiring environment for mortgage servicing employers. Accordingly, Midland's employee-turnover rates for primary/master servicing, after receding in 2020, sharply increased over the 18 months ending June 2022. Excluding internal transfers, the rates were better, albeit still elevated. The management-level turnover rate has been generally low over the years although it also increased in 2021.

Within special servicing, Midland also had much higher employee turnover in 2021, after it receded to a normal level in 2020. Some of this did involve people transferring to other roles because of easing portfolio volume. Turnover remained elevated in H1 2022, although much lower compared with 2021 when annualized.

Fueled by employee turnover and portfolio growth, Midland hired 140 people in its master/primary servicing area during the 18 months ending June 2022, which equated to nearly one third of its YE2020 head count. Since the end of 2018, it has hired more than 300 people for primary/master servicing, which equated to more than 75% of its YE2018 headcount. However, because of turnover, Midland had only a 12% net gain in total employees over this period.

The special servicing group has had a net gain of 17 people, or a 65% increase, since YE2018. Despite easing active volume since the pandemic-triggered surge, Midland's growth in special servicing personnel may be attributable to increased consent processing and other activity corresponding to new special servicing assignments, still elevated portfolio volume, and hiring to offset employee turnover.

Exhibit 4 Midland Primary and Master Servicing: Management and Staff Turnover Rates*

	H1 2022	**2021**	**2020**	**2019**
Total Employees—Beginning of Period	417	436	438	400
Total Turnover Rate (%)	9.8 (19.7 annualized)	19.5	10.3	21.8
	41 Positions	85 Positions	45 Positions	87 Positions
Involuntary (%)	0.5	0.9	1.14	4.0
Voluntary (%)	9.3	18.6	9.13	17.8
Management Only (%)	1.0	4.8	1.14	1.3
Staff Only (%)	8.8	14.7	9.13	20.5
Total Turnover Excluding Internal Transfers (%)	8.2 (16.3 annualized)	14.7	8.7	20.8
New Hires (# of Positions)	69 (4 Managers)	71 (6 Managers)	44 (2 Managers)	126 (4 Managers)
Adjustments (#)**	2	(5)	(1)	1
Total Employees—End of Period	**447**	**417**	**436**	**438**

Exhibit 5 Midland Special Servicing: Management and Staff Turnover Rates*

	H1 2022	**2021**	**2020**	**2019**
Total Employees—Beginning of Period	43	44	31	26
Total Turnover Rate (%)	9.3 (18.6 annualized)	38.6	9.7	42.3
	4 Positions	17 Positions	3 Positions	11 Positions
Involuntary (%)	0	0	3.2	0
Voluntary (%)	9.3	38.6	6.5	42.3
Management Only (%)	0.0	13.6	0.0	1.3
Staff Only (%)	9.3	25.0	9.7	41.0
Total Turnover Excluding Internal Transfers (%)	9.3	27.3	9.7	34.6
New Hires (# of Positions)	5 (All Staff)	15 (4 Managers)	17 (2 Managers)	14 (All Staff)
Adjustments (#)**	(1)	1	(1)	2
Total Employees—End of Period	**43**	**43**	**44**	**31**

* Turnover rates equal departures divided by the number of people at the beginning of the period. ** Adjustments may reflect departures/returns of part-time staff or staff on leave of absence,

To enhance its ability to recruit more effectively, Midland noted that it has added internal hiring resources this year. In addition to resources at PNC Bank, Midland now has a dedicated recruitment team, which includes a Dallas-based recruiter and other staff for sourcing and screening not only for external candidates but also for facilitating internal staff transfers. In late 2021, Midland also began using a panel interview format in an effort to streamline the process especially if a candidate is a possible fit for multiple jobs.

Workload Ratios

Primary/Master Servicing

Midland's loans-per-employee (LPE) ratio further decreased to 57:1 as of June 30, 2022, from 69:1 as of June 30, 2021. It had much higher ratios of nearly 90:1 at YE2019, 92:1 at YE2018, and 77:1 at YE2017.

Midland's decreasing LPE ratio may reflect that the portfolio contains fewer small-balance loans and loans secured by non-traditional/non-real estate assets than in past years. Other contributing factors are Midland's net increase in headcount over the past three years and a large portfolio transfer to another servicer in 2020 in which Midland retained and redeployed most of the associated staff.

While Midland's LPE ratio is still somewhat higher than that of some peers, it may reflect the shared-servicing arrangements in which Midland provides only selected services. The Company's non-real estate portfolios and increased use of vendors to support some tasks also can allow for a higher ratio.

Special Servicing

As most of the active portfolio consists of loans rather than REO properties, Midland does not usually separate loan and REO management functions among the asset managers.

As of June 30, 2022, Midland had 18 asset managers for an assets-to-asset manager ratio of approximately 10:1. By comparison, as of YE2021, Midland had 21 asset managers for an assets-to-asset manager ratio of approximately 14:1, and, as of June 30, 2021, the ratio was about 18:1 based on 22 asset managers. Based on related loans tied to the same collateral and/or sponsor, the ratios were somewhat lower.

The active special servicing portfolio includes some SFR loans, non-real estate assets, and small-balance loans. These asset types, along with Midland having relatively few REO properties, typically can permit more assets per asset manager. In 2020, Midland also elected to subcontract some of its special servicing on a few multi-borrower SFR loans. The workload ratios at YE2020 and YE2021 exclude the vendor's staff. Because Midland has been steadily shifting its SFR business to larger, single-borrower transactions, it ended the vendor contract for its remaining multi-borrower SFR portfolio.

In addition, the real estate solutions group has other managers, loan administrators, and analysts (eight analysts as of June 30, 2022) to support special servicing work and consent reviews on performing loans. As needed, the group also redeploys associates from other business lines to assist with special-servicing work.

Assessment: Midland's revamped organizational structure and reporting lines, in which it moved and consolidated certain functions and promoted/redeployed some senior managers, should solidly address the Company's myriad servicing requirements, and presumably yielding a greater degree of operating efficiencies and synergies as intended. Although Midland has made several management changes over the past two years, along with the noted organizational realignments, its average experience levels among managers remain high. Midland's ability to conduct most of its managerial changes internally is a testament to the Company's professional depth. Despite increased turnover over the past 18 months, experience levels among staff and especially those in credit/portfolio management roles, also remain solid. DBRS Morningstar will continue to monitor the Company's performance and ability to curtail employee turnover as the retooled operating structure gels and gains more traction.

DBRS Morningstar also recognizes Midland's significantly lower workload ratios for primary/master servicing. As a special servicer, Midland demonstrates reasonable workload levels in line with many of its peers.

Training

Midland provides formalized training for all servicing personnel. A full-time manager, who transferred from PNC's corporate training division and reports to Midland's chief operating officer, oversees all internal learning and development activities. This includes the Company's core curriculum, which is known as the Midland Employee Enrichment Training, or MEET, program. The MEET curriculum has bronze-, silver-, and gold-level course requirements and self-guided personalized training plans for senior-level employees at the platinum level. The training function includes access to the PNC University curriculum of required and elective courses. Midland noted that it continues to add podcasts and other virtual content to the training curriculum.

During 2020, Midland reinstated interdepartmental forum meetings, which review servicing/special-servicing topics, procedural issues, client requirements, and suggestions for process improvement. Servicing employees also participate in courses and many have achieved industry certifications available through the Mortgage Bankers Association. Special servicing training includes postmortem workout reviews and seminars from vendors, law firms, and other service providers.

Through a purchased, intranet-accessible portal, which is integrated with PNC's learning management system, employees can register for online classes, gain access to training materials, complete courses offered through internal and several external sources, and track completed training. The portal contains a growing number of featured providers of learning material and a multitude of wide-ranging courses. The Company currently tracks MEET program and certain external training activities outside of the learning portal, but eventually plans to have a single platform to manage all training activities.

During 2021, Midland changed from a strictly minimum-hours method to a points-based method to track employee training participation. Under the points system, the Company still expects employees to achieve approximately 30 hours of training per year excluding conferences. For employees with less than three years' experience, the expected annual minimum is 40 hours. In the first half of 2022, the Company stated that primary/master servicing employees' averaged about 35 training hours and employees for special servicing averaged about 27 training hours.

Assessment: Midland maintains an effective training function based on its broad and expanding curriculum, expanding use of online tools, dedicated staffing, and formalized tracking process. DBRS Morningstar also recognizes the Company's continuing efforts to conduct ad hoc coaching and increase procedural/client-specific compliance training to improve accuracy and timeliness, especially as it relates to investor reporting and remitting.

Audit, Compliance, and Procedural Completeness

Midland maintains policies and procedures governing all essential servicing and special servicing functions. Policy and procedural updates are regularly updated, centrally managed, and accessible to servicing personnel in read-only formats on a shared network drive.

Midland's first line of defense for servicing controls and compliance centers on various metrics and performance monitoring activities in the business line itself, which includes the independent RCQ team. RCQ, which has expanded from 13 to 17 people over the past year, manages certain Midland policies and procedures, oversees issue resolution and validation of remediation activities, liaises with PNC Bank and external auditors, oversees year-end contract compliance work for securitized transactions, audits subservicers, leads technology-risk and business-continuity efforts, conducts control testing to verify compliance, and oversees the reporting of key risk-indicator metrics. RCQ works with the Midland management team to maintenance the control environment and conduct any applicable remediation resulting from business initiatives, regulatory changes, or other events. RCQ, which uses purchased software to track audit results and open items, monitors more than 400 control items each year.

PNC Bank's independent risk management (IRM) team serves as a second line of defense. IRM monitors business line risks, scrutinizes the implementation of risk-management practices, and reports issues or exceptions. IRM's responsibilities include designing the Company's enterprise-level written risk and governance framework and policies. IRM also may intervene by modifying and developing first line of defense risk processes and controls.

Midland's third line of defense is PNC Bank's independent internal audit department, which reports to a PNC Bank audit committee. The audit program follows a three-year cycle to examine a range of processes. However, the auditors generally issue multiple reports each year and routinely examine cash controls, investor reporting, and technology security, along with selected servicing/asset management functions.

Additionally, Midland annually undergoes a Regulation AB audit, Type II SOC 1 and SOC 2 reviews as well as GSE-conducted and HUD-commissioned audits. Midland also adheres to HUD's required quarterly quality control program.

Recent Audit Results

To avoid previous and potentially any new audit exceptions, Midland has continued to revise some of its procedures and provide additional employee training. The Company's various technology enhancements, noted later in this report, also should serve to strengthen operating controls.

- The 2020 and 2021 Regulation AB audits were free of exceptions. The two prior Regulation AB audits had cited a material instance of noncompliance relating to Midland's required Schedule AL (asset level) filings. Midland addressed the issue through procedural changes and automated technology solution.
- Midland's SOC 1 covering October 2020 through September 2021 cited three exceptions, which Midland has taken steps to remediate. The prior SOC 1, covering October 2019 through September 2020, while overall satisfactory, also contained a few exceptions that Midland has addressed. The SOC 2 reports covering the same testing periods and especially focused on technology had no exceptions. The Company expects its next SOC reports, to be issued toward YE2022, to be overall satisfactory.
- The most recent PNC Bank audits of Midland, issued as four reports between May 2021 and March 2022, all had Satisfactory ratings although collectively containing a few exceptions of mostly medium to low risk, including some that were Midland self-identified. As of June 30, 2022, all cited exceptions except for one were remediated and closed.
- The latest HUD-commissioned audit, issued in March 2022, contained one exception, which Midland has addressed. The previous HUD audit, issued in March 2021, was satisfactory with no exceptions.

Vendor Management

Business line managers are required to engage and oversee vendors according to PNC's third-party management program, which has comprehensive policies and procedures governing selection, contract negotiations and templates, compliance monitoring, and termination. A PNC-managed intranet portal tracks all vendor engagements and performance metrics/issues. To be approved and comply with Midland/PNC's ongoing compliance requirements, vendors must satisfactorily provide procedures and complete questionnaires covering areas such as technology/data security, regulatory compliance, and offshore operations. Vendors must also provide their third-party audits as applicable. Additionally, vendor monitoring controls and compliance are tested as part of Midland's annual SOC 1 audit.

Assessment: Midland's policies and procedures are suitably detailed, soundly address its myriad servicing duties, and are effectively managed to control revisions. The Company also demonstrates stringent vendor oversight and related quality control practices. Based on the frequency and scope of its various audits, including its own independent compliance program, Midland has a thorough and closely monitored audit regimen. DBRS Morningstar recognizes Midland's better and overall satisfactory audit results since mid-2020 but will continue to monitor the Company's ability to maintain satisfactory outcomes and limit audit exceptions through another review cycle. Although not directly noted in the audits, DBRS Morningstar also will continue to monitor Midland's ability to demonstrate fewer investor reporting/remitting errors.

Legal Liability and Corporate Insurance

Midland reported that it was not involved in any pending litigation that would materially and adversely affect its servicing operations. The Company reported that it did not receive any notices of servicing-agreement default. It has directors and officers, errors and omissions, and mortgage impairment insurance coverage. Midland has network security and privacy liability (cybersecurity) coverage as well.

Assessment: The Company's fidelity bond and errors and omissions coverage amounts meet the insurance minimum set forth by GSE seller/servicer guidelines. Based on the Company's representations, it is not involved in any material lawsuits related to, or which could negatively affect, operations.

Technology, Disaster Recovery, and Data Security

Staffing and Applications

Midland's technology team handles user support, application development, data backup, and data-recovery testing. The team is part of PNC Bank's technology department, which has nearly 150 people. The Midland/PNC technology teams continue to collaborate on various platform, servicing system, and other application enhancement projects.

The core application is an upgraded version (2018.0) of Enterprise!, which Midland also owns and licenses to other servicer clients and supports through an application service provider-hosted environment. The upgraded Enterprise! includes enhancements for transaction processing and approvals; regulatory updates; data security; portfolio analytics, with more user-driven data-validation and tickler alerts; and updates to facilitate compliance with the CREFC IRP, Schedule AL filing requirements, and Fannie Mae reporting. It also addresses the changeover in 2023 to the Secured Overnight Financing Rate (SOFR) from Libor for applicable floating-rate loans. For its own servicing, Midland connects the system with its general ledger and a data warehouse used for queries and reporting.

For special servicing, Midland uses the servicing system in conjunction with a proprietary asset-management application, AM Insight™ (AM Insight), which Midland continues to enhance. The application is integrated with Enterprise! and other applications and built on a web-accessible operating structure. AM Insight addresses CMBS reporting requirements, and its features include automated asset status report/business case creation, integrated net present value modeling, and workflow and approval management.

The technology suite includes integrated proprietary and vendor-supported applications for bank reconciliations, cash-managed loans, investor remitting/reporting, internal document management, notices and correspondence, document exchanges with investor clients, automated treasury/cash movement, and automated clearing house (ACH) requests with embedded approval controls.

As extensions of the servicing system, Midland offers borrowers and investors (one for CMBS and one for portfolio lenders) respective web portals. During 2022, Midland rolled out an enhanced borrower portal with expanded navigation and self-service features (including a chat feature) and reserve account draw request functionality as well as improved integration with the servicing system's workflow management tools, which Midland also has been enhancing. Future enhancements to the borrower portal include a fuller capability for document exchanges to facilitate consents and other requests.

Technology Enhancements: Completed and in Process

PNC Bank has been making significant capital investments in Midland's technology capabilities. Using agile software development methods, Midland continues to complete various phases of its initiatives to expand Enterprise!'s functionality as well as move it to a public cloud-based environment. In addition to the retooled borrower portal, some of Midland's other notable technology projects during the past two years include the following:

- A new Enterprise! insurance module.
- A retooled covenant compliance module, with expanded quality control and approval tracking mechanisms. The full rollout is expected by mid-2023.
- A new automated investor reporting application, which calculates and validates remittance and fee amounts, tracks money movements, and has an interface with the servicing system to address CMBS and a range of other transaction types.
- A new surveillance module, which also monitors all loans for which Midland is the named special servicer.
- Enhanced workflow management functions in the servicing system.
- Development of more APIs for Midland's own clients and third-party users of Enterprise!.
- Document automation advancements, including new quality control techniques, in its use of robotic processing automation, which it launched in 2020 initially for rent rolls and property operating statement analyses. Midland is expanding robotics to assist in various other tasks.

Data Backup, Security, and Disaster-Recovery

PNC Bank manages Midland's data backup and security through the bank's three data centers, which are vendor owned and hosted. These are relatively newer facilities and have undergone various upgrades in the past few years. The data centers are appropriately distanced and operate on separate power grids. PNC Bank manages system access, physical security, and other technology risks for Midland and other PNC Bank business areas through a centralized cybersecurity program. Midland continues to enhance its data protection practices.

Midland replicates data in almost real time from the primary data center to the backup centers. Midland stated that its data recovery protocols require restoration of cash management functions within six hours and all servicing functions within 24 hours. It noted that any exposure to data loss should be limited to only a few minutes based on its data-mirroring and backup procedures. Midland conducts disaster recovery testing on an annual basis. The latest test was successfully conducted in April 2022. The Company issued an updated business continuity plan in May 2022.

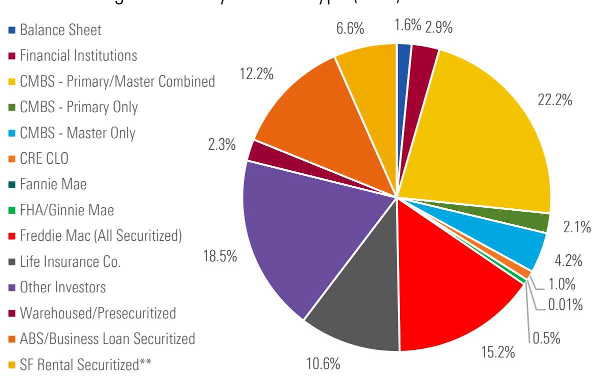
Although Midland's technology platform is not in a public cloud-computing environment, PNC Bank, in collaboration with Midland, is moving toward that goal for certain components of the platform. As part of that initiative, Midland expects to convert Enterprise! to a public cloud-based environment (hosted through Microsoft Azure).

Assessment: Midland's technology provides a high and expanding degree of process automation, centralized data management, and functionality to address its servicing and special servicing duties for CMBS and other investors. DBRS Morningstar recognizes Midland's substantial achievements in the past two years and its continuing work to advance its technology capabilities. The Company's security and backup practices indicate that it has sound capabilities for data recovery and monitoring threats. Midland's applications-recovery times in its recent tests are acceptable, although other servicers have noted faster recovery results.

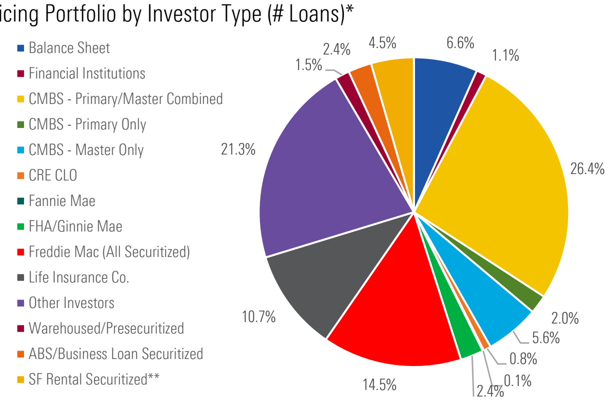
Primary and Master Servicing Administration

As one of the largest commercial mortgage servicers, Midland manages a diverse portfolio based on property types, geography (all 50 states, Washington, D.C., and U.S. territories), transaction structures, and investor clients.

Exhibit 6 Servicing Portfolio by Investor Type (UPB)

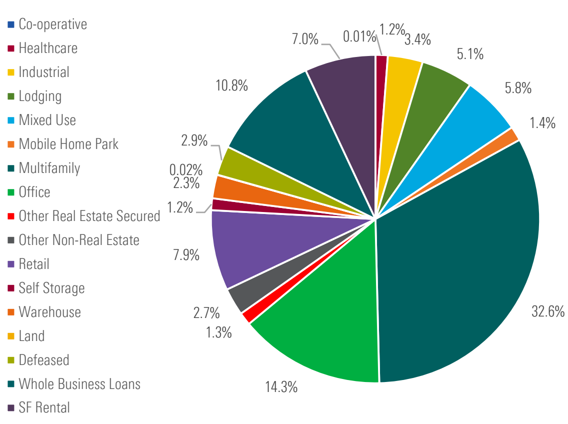


Servicing Portfolio by Investor Type (# Loans)*

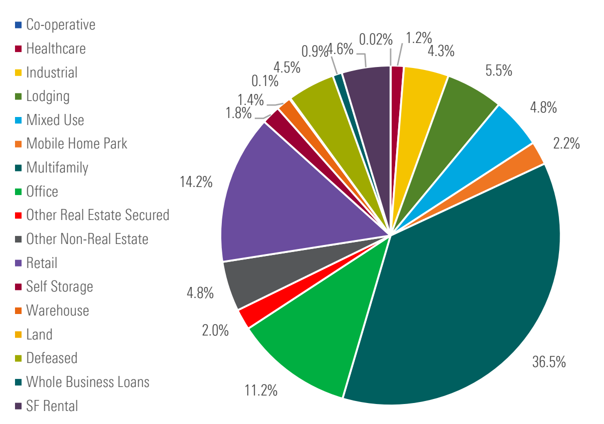


* Total primary and master servicing as of June 30, 2022. Figures may not sum to 100% because they are rounded. ** Includes a small portion of non-securitized loans.

Exhibit 7 Servicing Portfolio by Property Type (UPB)*



Servicing Portfolio by Property Type (# Loans)*



*Total primary and master servicing as of June 30, 2022. Figures may not sum to 100% because they are rounded. The portfolio contained 58,701 commercial properties, 242,980 SFR properties, plus Treasury securities for 1,143 defeased loans.

Loan Boarding

Through H1 2022, Midland, as a primary or primary/master servicer across all investor types, boarded 2,620 loans with a total $26.67 billion UPB. During 2021, Midland boarded 3,919 loans with a total $149.59 billion UPB. By comparison, during 2020, Midland boarded 4,529 loans with a total $125.32 billion UPB.

Midland averages about 15 days to board loans across all investor types. It aims to board new loans with data required to conduct payment processing and investor reporting by no later than the first reporting determination date. During the boarding phase, it creates and then centrally maintains summaries of deal-specific critical servicing and related pooling and servicing agreement requirements. PNC Bank's loan origination application has an interface with Midland's servicing system.

During H1 2022, Midland, as a primary and master servicer, boarded more than 2,600 modified/corrected loans, after handling nearly 2,900 modified/corrected loans in 2021. The Company noted that the updated loan terms were typically loaded onto the loan servicing system within five business days.

Loan boarding procedures require staff to compare system inputs with source data and include a secondary level of review. The servicing system provides exception reporting for timeliness and accuracy and issues borrower welcome letters with compliance requirements within three days of closing. Enterprise! modules track borrower compliance items, covenant triggers, and missing documents. Midland noted that it has steadily reduced its need to have supplemental applications support these tasks. Midland places an introductory call to new borrowers and the assigned account manager reviews the loan's compliance covenants and triggers with the borrower as needed.

The Company services some loans with rate cap agreements and loans with letters of credit as supporting collateral, which are stored on-site in a vault or with a custodian depending on the agreement. Midland centrally tracks the expiration dates as well as the required minimum credit ratings of the counterparties. Midland successfully renewed all 252 letters of credit that were due to expire during 2021 through H1 2022.

Midland tracks Uniform Commercial Code (UCC) filing expiration dates via the servicing system and uses a third-party vendor (mainly through its self-service website) to assist with filing UCC continuation statements. The Company had 1,793 loans in H1 2022 and 4,026 loans in 2021 requiring UCC continuations and reported that it renewed all filings without any loss of lien position, including four filings that had lapsed. As a master servicer, Midland monitors UCC filing compliance through quarterly reports submitted by its subservicers.

Assessment: Loan boarding practices are proactive and acceptably controlled. Midland's targeted time frame of boarding new loans is in line with industry norms. Its practice of issuing welcome letters within three days of closing is faster than some other servicers. DBRS Morningstar recognizes Midland's capabilities to accurately board a high volume of loans and its proactive approach for contacting new borrowers and reviewing loan document requirements with them. Midland has sound practices for managing rate cap agreements, letters of credit, and UCC filings.

Payment Processing

Midland stated that approximately 98% of loan payments are set up to be received, deposited, and system-posted electronically (lockbox, wire, ACH) and that the servicing system updates all transaction processing in real time. Through integrated treasury-management and banking applications, Midland also has largely automated mechanisms to process cash-managed loans. Lockbox payments are first deposited to a central clearing account and then automatically swept to investor custodial accounts, unless flagged as suspense items. The lockbox has an interface with the servicing system. Midland segregates payment posting, depositing, and system-balancing tasks among the staff. The servicing system reconciles payment receipts daily for review by management. Midland routinely validates rate indexes, and it maintains current balances and paid-to dates of subserviced loans on its servicing system. As noted, the Company has prepared its technology and procedures to be ready for the industry's changeover to SOFR from Libor.

As of June 30, 2022, Midland received approximately 67% of loan payments as ACH direct deposits, 14% of payments through lockbox processing, 18% as wire transfers, and the remaining 1% as online payments through Midland's borrower portal and processed by PNC Bank. Midland did not report any unreconciled items older than two days in its clearing account.

For the relatively small number of payments Midland receives at its street address, which may include payments routed from PNC Bank offices, the Company records them in a central log, uses photocopies for posting, and forwards the originals to a PNC Bank lockbox. Midland does not provide paperless billing notices either through email alerts or the borrower portal. However, in addition to sending hard-copy billing statements, Midland does post the statements to the borrower portal. A dedicated payoffs team, which handled nearly 2,500 requests in H1 2022, averaged about five days to provide the loan payoff quotes.

Exhibit 8 Primary-Servicing Floating-Rate and Cash-Managed Loans

	June 30, 2022		December 31, 2021		December 31, 2020		December 31, 2019	
	UPB ($ Millions)	**Loans**	**UPB ($ Millions)**	**Loans**	**UPB ($ Millions)**	**Loans**	**UPB ($ Millions)**	**Loans**
Floating-Rate Loans	119,896.4	2,482	99,875.4	2,411	93,717.7	4,004	99,036.4	4,781
Component of Primary Servicing (%)	23.9	12.3	21.2	12.1	20.2	16.4	19.2	13.4
Cash-Managed Loans*	128,686.3	2,639	122,517.1	2,637	103,676.2	2,256	82,515.8	1,734
Component of Primary Servicing (%)	25.7	13.1	26.0	13.2	22.3	9.2	16.0	4.8

* Loans with cash management (hard lockbox) agreements.

Assessment: Midland has a sound payment processing function based on its automated processes, controlled practices for balancing cash accounts, and overall clear audit results. The Company is well experienced in handling a high volume of loans with complex cash-management structures. For the few live checks it receives, Midland may consider electronically depositing them on-site through banking software, which is the customary practice, to expedite processing and reduce the risk of lost checks. It also may consider issuing electronic billing alerts, through its borrower portal and/or separately, which some servicers have implemented.

Investor Reporting and Accounting

As of June 30, 2022, as a primary and/or master servicer, Midland managed an average of more than 1,800 investor remittances per month, including nearly 1,100 involving CMBS transactions.

In 2021, Midland began using a retooled remittance/investor reporting application that it designed for straight-through transaction processing and automated production of the CREFC IRP. The Company also uses the application to remit funds and produce reports tailored to other investors' requirements. CMBS and other institutional investors have access to their reports and transactional performance data in downloadable formats.

The investor reporting analysts, with corresponding approvers, have assigned portfolios aligned by investor types. Between the determination and remittance/reporting dates, analysts validate transaction data to confirm remittance amounts, collection account funds availability, and other loan and property information. In November 2021, Midland enhanced its quality control process, which entails more than 40 control tests, to validate investor reporting and remittance data before receiving approval and secondary manager signoffs.

Through its teams, the Company segregates investor-report/remittance preparation, investor-remittance execution, and account-reconciliation tasks, which respectively entail secondary and/or management-level approvals. The treasury unit executes remittances using a funds-transfer request application, which has approval controls and repetitive wire instructions.

Each quarter, the investor reporting department manager also attests to the effectiveness and proper execution of various controls such as the secondary review of new portfolio setup data, the accuracy and timeliness of wire-transfer requests, the timely clearing of bank reconciliation items, and trustees' confirmations of remittance calculations. Midland also has a business analytics team to monitor the appropriate remittance and reporting protocols for a new transaction, including the remittance calculations, before transferring the portfolio to the main investor reporting team.

Investor reporting and accounting employees have online access to custodial account activity, and custodial bank account reconciliation processes are largely automated. Midland reconciles bank account activity daily, with more formal reconciliations performed at month-end. The Company also tracks custodial banks' credit ratings for servicing-agreement compliance.

Across the entire portfolio, Midland has continued to incur some reporting and/or remittance errors and restatements and some cases involving late submissions and penalties. None of the situations resulted in any bondholder impairments. Midland stated that it actively tracks errors and continues to modify procedures and technology programming and conduct staff training to address the associated causes and reduce the risk of recurrences. The Company noted that some errors have been traceable to subservicers.

Assessment: Midland has sound investor accounting and reporting functions based on its audit results, automation, segregation of tasks, and other stated control practices. Overall, the Company demonstrates timeliness and accuracy relative to its high monthly reporting and remitting volume. However, DBRS Morningstar will monitor Midland's ability to reduce occurrences of errors and/or penalties, which remain elevated compared with some other large-volume servicers.

Real Estate Tax, Insurance, and Reserve Account Administration

Real Estate Tax Administration
As of June 30, 2022, 42.9% of Midland's primary-serviced CMBS loans were escrowed for real estate taxes, up from 37.4% one year earlier. Midland incurred negligible nonreimbursable tax penalties during the past few years relative to its very high volume of account disbursements.

The servicing system tracks tax-payment due dates and the payment status for all loans, whether escrowed or not. A tax service tracks and remits payments to tax authorities for escrowed loans and reports unpaid taxes on nonescrowed loans. For nonescrowed loans, Midland sends a delinquent tax notice to the borrower and tracks the delinquent tax until paid. The servicing system also automatically generates tax notices.

Insurance Administration
As of June 30, 2022, approximately 22% of Midland's primary-serviced CMBS loans were escrowed for insurance payments, up from 20.0% one year earlier. Midland has a dedicated insurance administration team, which receives assistance from a vendor to obtain flood coverage determinations (including all SFR properties) and policy renewals. The servicing system tracks expirations, coverage requirements, and auto-generates reminder letters 30 days before policy expirations and at 15 and 45 days after expiration. Additionally, 10 days to 15 days before policy expiration, Midland engages in an email and telephone campaign to pursue evidence of renewed policies. The Company reviews insurance carrier ratings for compliance at every renewal period.

As of June 30, 2022, Midland reported 0.5% of all primary-serviced loans on its forced-placed policy. Its current forced-placed policies provide for 120 days of retroactive coverage, although its prior policies had 180 days of retroactive coverage. The forced-placed insurer is Great American Assurance Co. Lloyds underwrites Midland's forced-placed policy for flood coverage.

As a master servicer, Midland reviews tax payment and insurance coverage exception reports from its subservicers quarterly and reviews their corresponding compliance certifications annually.

Reserve Accounts

A reserve administration team, in conjunction with the operations department, reviews expenditure requests to release funds escrowed in capital reserve accounts. As noted, earlier this year, Midland moved this team to the real estate solution's collateral management surveillance area. The Company uses the servicing system to manage workflows, track reserve funds, record disbursements, and reanalyze accounts. Prior to disbursement, management must approve all reserve account disbursement requests. Midland's reserve account management may also involve interest reserve analysis and funding on construction and/or tenant build-out projects. For larger capital improvement or tenant buildout projects, Midland's procedures satisfactorily address lien waivers and periodic inspections of work progress.

Assessment: Midland's tax and insurance administration practices are sound and controlled. However, some servicers, to be extra proactive, issue their first borrower-reminder notices earlier than 30 days before policy expiration. Midland's forced-placed policy's retroactive coverage provision, although changed to 120 from 180 days, is reasonable and longer than that of some other servicers. The Company also expects the servicing system's new insurance administration module to steadily yield increased tracking and processing efficiency. Midland has effective oversight practices and strengthening technology tools to manage a high volume of reserve account disbursement requests, with experience involving a range of property types and complex loan structures.

Master Servicing: CMBS Advancing

As a CMBS master servicer, Midland advances principal, interest, and property protection expenses. It tracks each loan's cumulative advances versus its current valuation. When advances reach 50% of estimated value or liquidation proceeds, or when a pool contains only a few assets, Midland noted it will advance with extra caution or may stop advances altogether. Decisions to continue advancing require levels of approvals based on an authorization matrix. Senior managers also review advancing activity and valuation update efforts through a monthly report.

Exhibit 9 Midland: Master Servicer Advances

As of	**June 30, 2022**	**December 31, 2021**	**December 31, 2020**	**December 31, 2019**
Total Advances Outstanding ($)*	442,145,826	444,766,072	422,333,286	146,982,991
Total Advances Outstanding (# Loans)	801	885	1,585	687
Average Advanced Per Loan ($)	551,992	502,561	266,456	213,949
Total Advances to CMBS Servicing Volume (%)‡	0.27	0.28	0.29	0.12

* Principal, interest, and property-protection advances. ‡ CMBS servicing volume includes the UPB of primary/master combined and master only.

Assessment: Midland has well-delineated advancing and recoverability-determination procedures. Its stated policy of assessing the timing and cash flow impact to the trust before recapturing advances also is a customary best practice.

Master Servicing: Subservicer Auditing and Compliance

The RCQ group oversees Midland's subservicer audit program, which covered 31 subservicers (including three in Canada) as of June 2022. The investor accounting team also balances remittances and reviews compliance reports from subservicers. As part of Midland's organizational restructuring this year, it also moved its subservicer liaison/oversight team to the CMBS surveillance unit.

Midland considers a subservicer's monthly reporting and remitting performance, CMBS loan volume, loan types serviced, latest Regulation AB attestation, and other compliance certifications to determine whether a desktop or on-site audit is warranted.

In 2018, Midland expanded its subservicer audit practices so that every subservicer undergoes either a desktop or on-site audit annually. Throughout the pandemic, Midland performed only desktop-method reviews but has resumed a schedule of on-site audits this year.

Midland has some subservicers that service only CMBS transactions, although most of its subservicers with cashiering duties are on Freddie Mac deals. While Midland reviews Freddie Mac's subservicer audit reports, it does not solely rely on them. The Company also convenes with Freddie Mac annually in the first quarter to review the GSE's subservicer examination schedule and share the past year's audit results.

Subservicers complete a questionnaire before their audits, and Midland formally communicates the audit results to each subservicer. Findings are tracked for resolution. The audit scope covers all core loan administration areas including cash processing, accounting, tax and insurance, and portfolio management. RCQ noted that it investigates subservicers' data protection practices and according to Freddie Mac's guidelines. Midland also reviews subservicers' quarterly certifications for real estate tax, insurance, and UCC activity.

Assessment: Midland has sound subservicer oversight and auditing practices based on its staff resources, mandate to audit all subservicers annually, and extensive program scope. Midland's decision to conduct its own audits of Freddie Mac subservicers, while leveraging Freddie Mac's work, is a best practice among master servicers. Although Midland has resumed on-site audits this year, some other master servicers adapted their subservicer auditing practices to incorporate a virtual meeting or conference call component during the pandemic.

Portfolio Management and Surveillance

Financial Statement Analysis and Property Inspections

The collateral surveillance group manages financial statement collections, watchlist or credit-related issues, and corresponding borrower contact. As noted, Midland recently changed its approach for CMBS borrower management by assigning a performing-loan asset manager to every borrower relationship. Additionally, all borrowers can contact Midland's borrower services team through a customer service telephone number, a dedicated email box, or the web portal, which now includes a chat function.

Also, as noted, the surveillance team oversees a vendor with offshore staff, who have selective servicing system access, to assist with rent roll and financial statement data entry and preparing operating statement analysis reports (OSARs). Robotic processes also facilitate these tasks. Midland performs quality control reviews that cover about half of the vendor's work product.

Midland, as a CMBS primary servicer, has consistently obtained and been able to analyze/report 95% or more of required Q4 or annual property financial statements by May 31 for the past several years. As a CMBS master servicer dependent on subservicers' responsiveness, Midland's collection rates have consistently been high as well. As a master servicer, Midland samples source documents to confirm the reasonableness of subservicers' submitted OSARs.

Midland generally uses vendors for property inspections. The servicing system tracks inspection reports and the resolution of deferred maintenance issues. As a master servicer, Midland's practice is to review all subservicer-submitted inspection reports for potential watchlist and other issues. A few years ago, Midland expanded its inspection compliance requirements for subservicers as well.

In 2021, as a primary servicer, the Company received 94% (and nearly 100% for CMBS loans) of all required inspections by or within 30 days of their due dates. In 2020, Midland reported lower inspection timeliness rates because of the pandemic's impact and especially in the first half of that year.

Exhibit 10 Midland: Full-Year Financial Statement Collection Rates

	By May 31, 2022*	By May 31, 2021*	By May 31, 2020*
CMBS Primary Servicing Portfolio			
Statements Received	96.0 (96.9)	97.5 (98.0)	97.0 (99.0)
Analyzed and Reported	95.3 (96.4)	97.2 (98.4)	95.0 (98.0)
CMBS Master Servicing Portfolio (subserviced by others)			
Statements Received	83.4 (94.2)	91.4 (95.0)	92.0 (97.0)
Analyzed and Reported	73.2 (87.5)	77.2 (93.2)	68.0 (92.0)

* Percentages in parentheses are as of June 30.

Watchlist, Covenant Compliance, and Early-Stage Collections

The collateral surveillance group includes a team for covenant compliance and trigger-event administration. A vendor supports covenant testing and springing lockbox setups as well. To facilitate this function, Midland expects to activate an enhanced servicing system module toward year-end.

Midland receives a nightly data feed from its CMBS research vendor to produce system-generated alerts and daily reports for tracking watchlist loans, compliance breaches, and resolving actionable trigger events. The Company noted that because it performs acquisition due diligence on many of its CMBS servicing and/or named special servicing loans, it can refer to the original underwriting data as well.

Midland follows CREFC portfolio-review guidelines to issue watchlist reports based on inspection data, financial-statement spreads, and other information. Midland maintains its own risk-rating system for balance-sheet loans, GSE loans with loss-sharing components, and for clients on a subset of its CMBS pools on a contractual basis. Midland has other watchlists for non-CMBS loans with criteria, including any investor-established requirements.

Exhibit 11 Midland: CMBS Loans on CREFC Watchlists (% by Loan Count)

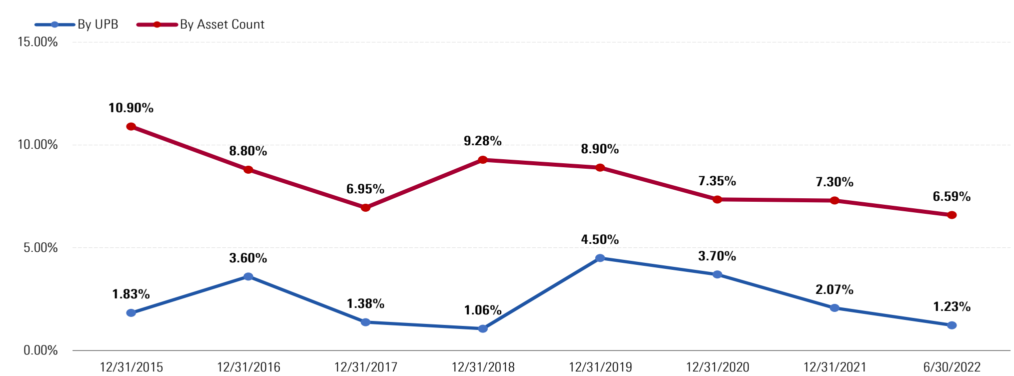
	June 30, 2022	December 31, 2021	December 31, 2020	December 31, 2019
Within Primary or Primary/Master Combined Portfolio	29.0	28.6	31.4	12.5
Within Master Servicer Only	29.0	27.9	38.8	19.6
For Entire CMBS Servicing Portfolio	29.6	28.4	32.7	13.6

During the pandemic, Midland noted a significant uptick in loan covenant failures and, correspondingly, a big increase in trigger events to activate springing lockboxes. The Company further noted that in recent months, as forbearances and other payment relief actions have ended, it has de-activated many of these cash management actions and that new activation activity has been easing. However, Midland's timeframes to complete new activations, which can be dependent on several factors including external banks' responsiveness, have been increasing.

In H1 2022, Midland, as a primary servicer (or primary/master combined servicer), reported that 210 loans had their springing-lockbox provisions triggered. By comparison, Midland had 223 loans with springing-lockbox provisions triggered in H2 2021 and 347 loans in H1 2021.

For past due payments, the Company sends automated notices to borrowers generally within one day after the grace period ends, and then at 30 days after the actual due date, based on daily delinquency reports. Midland will contact borrowers by phone within two days of a missed due date and conduct follow-up calls. The Company maintains a centralized chronology of collection efforts and borrower comments on its servicing system.

Exhibit 12 Midland Primary-Servicing Portfolio Delinquency Percentages*



* At each year-end, based on all loans 30-plus days delinquent plus REO, but excludes master-serviced-only loans. YE2017 to YE2019 rates were skewed higher by a nonperforming asset-backed portfolio. The corresponding CMBS rates were 3.1% by count and 2.9% by UPB as of June 30, 2022, 4.2% by count and 3.8% by UPB at YE2021, 6.4% by count and 5.9% by UPB at YE2020, and 1.5% by count and 2.1% by UPB at YE2019.

Single-Family Rental Transaction Management

Midland has a team dedicated for SFR securitization portfolio management and surveillance. As a business decision, the Company's SFR portfolio concentration has been shifting toward single-borrower transactions over the past year. For all its rated securitizations, Midland serves as both master and primary servicer, and is the special servicer for most as well.

Using customized templates, the Midland SFR team reviews monthly property-manager reports to track occupancy and rental activity, cash flow performance, budget variances, and capital expenditure requests at the loan and deal level. The SFR team also assists with reporting to rating agencies and addressing transaction-based questions through established communication protocols.

Assessment: Midland has overall sound practices for financial statement collections and analysis, property inspections, trigger-event and loan covenant monitoring, and watchlist management. DBRS Morningstar views Midland's move to assign a dedicated asset manager to every CMBS borrower relationship as an industry best practice, which some of Midland's peers have been doing for several years. Besides CMBS assets, Midland also demonstrates solid capabilities for SFR surveillance and portfolio management. The Company's expanded vendor support, enhanced borrower portal, and in-process rollout of a new covenant/trigger-event tracking module as well as other technology enhancements should continue to strengthen its surveillance and overall portfolio management capabilities. As a master servicer, Midland has proactive surveillance practices for its subserviced loans.

Portfolio Management: Borrower Consent Requests

The real estate solutions department has a dedicated team to underwrite borrower consent requests such as defeasances, loan assumptions, lease approvals, and partial property releases. Although it strives for cross training, Midland has some team specialists for CMBS and Freddie Mac loan consents, which are a large portion of all activity. Depending on a transaction's structure and servicer roles, Midland may or may not serve as the lead manager and underwriter on a request. To facilitate interaction with external special servicers, Midland has a liaison unit and recently added a new tracking tool for external special servicer requests.

Asset managers submit cases, using templates for common request types, to obtain approval based on established delegations of authority. Consents involving larger loans or especially complex credit issues may include working group-style approval and input from Midland's legal staff. Midland manages approvals through the servicing system, which provides assignment-status and exception reports. To manage volume spikes, Midland noted that it can use a vendor and/or temporarily redeploy other trained staff to assist in underwriting some requests.

Exhibit 13 Midland as Primary and Master Servicer: Performing-Loan Consents Average Completion Times (Days)*

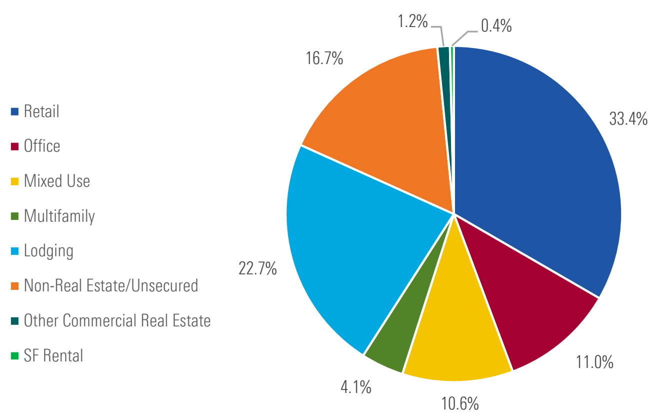
	H1 2022*			2021*		
Consent Type	**Processed (#)**	**Internal Time**	**Total Time****	**Processed (#)**	**Internal Time**	**Total Time****
Assumptions	80	24	29	185	37	55
Leasing	320	61	78	921	51	63
Defeasance	136	22	N.A.	151	22	N.A.
Partial Releases	11	62	139‡	18	32	91
Property Manager Change	70	31	198‡	111	30	134
Total	**617**			**1,386**		

*Excluding a few outliers in each consent type, the averages were much lower. **Total time equals internal time plus additional third-party review time, but only for those transactions requiring external party consents. ‡Partial Releases - one consent subject to external review in which Midland's time was 14 days. Property Manager Change – three consents subject to external review in which Midland's time averaged 168 days. N.A. – not applicable.

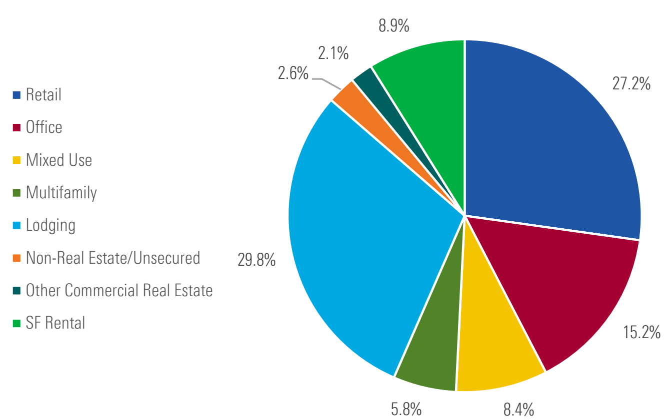
Assessment: Midland has effective practices and technology for analyzing and approving a high volume of borrower consents in its respective roles as a primary and master as well as special servicer. DBRS Morningstar recognizes Midland's stated efforts to control consent-processing time frames and ongoing focus on borrowers' satisfaction.

Special Servicing Administration

Exhibit 14 Special Servicing: Active Volume by Property Type (UPB)*



Special Servicing: Active Volume by Property Type (Asset Count)*



* Loans and REO as of June 30, 2022. The active portfolio contained assets in 32 U.S. states, with concentrations in California, Florida, Illinois, New York, and Texas. Percentages may not equal 100% because they are rounded. By comparison, by asset count as of June 30, 2021: Lodging – 37.7%, Office – 7.6% and Retail – 31.9%.

Asset Review Process

A special servicing liaison team, which Midland moved to the real estate solutions department this year, has formalized procedures to oversee incoming/outgoing loan transfers with external servicers and special servicers. As noted, Midland does not have separate loan recovery and REO departments. Its asset managers are accountable for the entire lifecycle of their assigned specially serviced assets from initial loan transfer through REO sale.

Upon the transfer of loans to special servicing, asset managers require borrowers to sign pre-negotiation letters before commencing workout discussions. Asset managers prepare loan resolution plans generally within 45 days of a loan transfer and prepare REO resolution plans within 45 days of taking title. Asset managers submit an updated asset status report, or asset business plan, which includes a net present value analysis of alternative resolution strategies, to obtain approval for specific terms of negotiated resolutions.

For most loans, the Company's delegations of authority require a working group process, which includes input from servicing management, in-house legal, and contract administration, for the approval of initial and updated asset resolution plans. Asset managers prepare their asset resolution cases directly in the asset management application, which provides for electronic approvals and tracks the status of approved and pending resolution cases. For CMBS assets, Midland monitors master servicers' outstanding advances against expected recoveries and stated that it will consult with them on advancing decisions.

Assessment: Midland has controlled and proactive asset recovery practices. The asset management system also adds efficiency to the Company's data-management, asset-analysis, and reporting capabilities. Midland's longstanding decision to usually retain the same asset manager when a loan becomes an REO property is reasonable given the Company's historically moderate volume of REO properties and its success with this approach to date.

REO Property Management

Midland generally uses single custodial trust accounts rather than separate rent collection and expense-funding accounts for property managers. The collateral management services group reviews monthly property manager reports for accuracy/variances, reconciles bank account activity, and assists asset managers and property managers with resolving issues. The RCQ department also reviews Midland's REO portfolio and oversight practices annually to identify any issues and recommend any related process improvements.

Through Midland's investor web portal, investors can view property management reports and other REO performance information. Midland engages property managers using its own form of agreement and provides them with a standard reporting procedure manual. Citing low REO volume (only eight REO properties as of June 30, 2021), its assessed risk profiles of its managed properties, and pandemic-related travel restrictions, Midland has not completed any property manager audits in the past few years. However, accounting staff have been conducting additional property manager reporting reviews.

Property sales require asset managers to prepare an REO disposition case that presents the marketing process and results, the sale terms, and a collateral value and recovery analysis. Like loan resolutions, REO sales cases require approval through delegations of authority and a working group process for most assets. Midland uses a standardized purchase and sale agreement as well.

Assessment: Midland's REO management function is soundly controlled as demonstrated by the Company's monthly reporting standards for property managers, asset managers' oversight requirements, and respective leveraging of the RCQ and collateral management services groups for REO property compliance reviews and bank account reconciliations. Although based on an asset's risk profile, DBRS Morningstar expects Midland to resume property manager audits to be consistent with best practices.

Vendor and Legal Oversight

Midland uses PNC Bank's Enterprise Third-Party Management Program (ETPM) portal to engage and monitor vendors (such as for appraisals, environmental/engineering assessments, legal counsel, property managers, tax valuation firms, UCC services, and brokers). ETPM includes a sourcing group, which Midland managers must use to engage a new vendor. Sourcing assists with the selection process and evaluating vendors' qualifications and with negotiating the contract terms. ETPM requires an in-depth risk assessment of each service provider, which is also required to provide its policies and procedures, complete technology/security questionnaires, and any audits.

In parallel with ETPM, Midland owns the ongoing monitoring and oversight of the contract relationship. Midland noted that its monitoring procedures are designed so that suppliers/vendors are adhering to the terms, standards, and any regulatory requirements of their agreements. Midland also has a seven-person legal department, including two paralegals, to coordinate law firm engagements and support asset managers with their workout strategies and analyses. For certain types of engagements, such as property management and legal services, Midland has its own form agreements to drive consistency. The asset management system also tracks vendor work orders.

Assessment: Midland's vendor oversight practices are well controlled and mostly centralized. The Company's leveraging of in-house legal resources to support asset management also mitigates risk.

Managing Conflicts of Interest

Midland serves exclusively as a third-party special servicer and does not retain any investment interests, directly or indirectly, in the securitizations for which it is the named special servicer. The Company reported that it may selectively engage in fee-sharing to obtain or retain assignments.

Midland does not have or use affiliated brokers, nor does it use affiliates or related parties for property management or for resolutions other than note sales. Its stated practices are not to collect special-servicing fees from the trust that it also collects from borrowers or other sources, and not to collect amounts that exceed the trust contractual fee as outlined in the related servicing agreement.

Assessment: As part of a regulated bank, Midland has sound conflicts-of-interest management. Its role as a third-party special servicer in all transactions also minimizes the likelihood of potential conflicts.

Asset Resolution and Recovery Performance

Volume and Disposition Methods

In H1 2022, Midland resolved 111 specially serviced loans with a total net recovery or UPB of nearly $2.4 billion through various methods, although almost 60% of these resolutions were modifications or other corrective actions enabling the loans to return to the master/primary servicer. It also sold one small-balance REO asset. Except for two loans, all resolved assets were in CMBS transactions.

In 2021, Midland resolved 161 specially serviced loans with a total net recovery or UPB exceeding $4.3 billion through various methods, although it handled more than 50% of these resolutions through modifications or other corrective actions, including some pandemic-related relief measures, enabling the loans to return to the master/primary servicer. It also sold four REO assets with average net proceeds of approximately $8.5 million per sale. Except for two loans and part of one REO sale, all resolved assets were in CMBS transactions.

During 2020, Midland resolved 108 specially serviced loans with a total balance of $2.05 billion through various methods, although nearly two-thirds were handled through modifications or other pandemic-related relief measures. It also sold four REO assets (three properties on a consolidated level) with average net proceeds of approximately $2.3 million per sale. Except for four loans, all resolved assets were in CMBS transactions.

SFR Resolutions

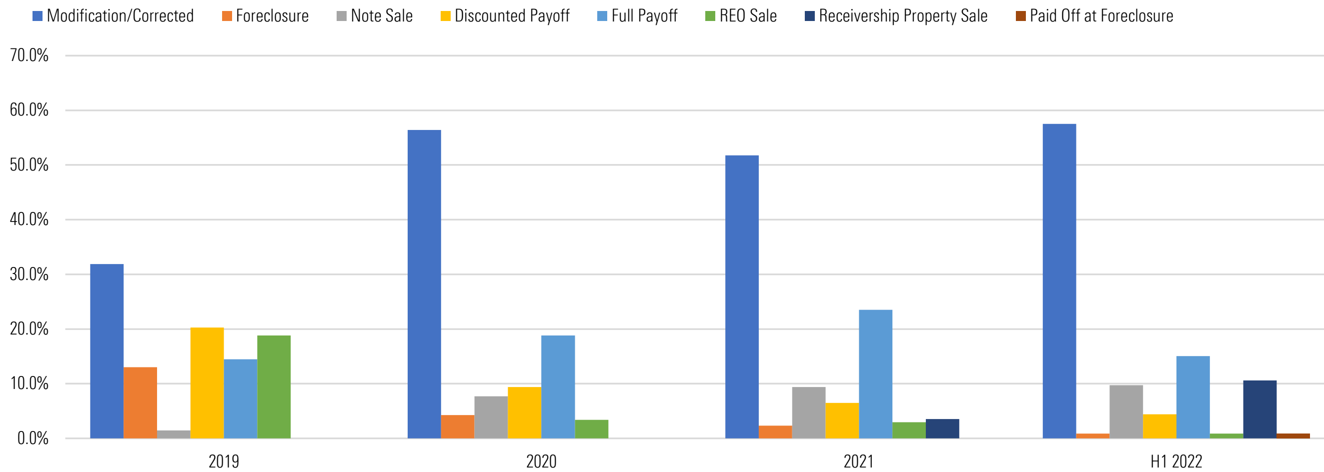
In H1 2022, Midland resolved seven troubled SFR loans. It liquidated two through note sales, one through a discounted payoff (DPO), three through full payoffs, and one through a modification/corrective action. For the note sales and DPO, Midland recovered 90% of the aggregate UPBs.

Midland resolved 25 SFR loans in 2021. It liquidated seven of these loans through note sales, one as a DPO, 11 through full payoffs, and six through modification or other corrective actions. For the note sales and DPO, Midland recovered 89% of the aggregate UPBs.

Midland resolved 29 SFR loans in 2020. It liquidated three as DPOs, three through note sales, 15 through full payoffs, and eight through modification or other corrective actions. For the DPOs and note sales, Midland recovered 71% of the aggregate UPBs and approximately 84% of the estimated collateral values. For two of the note sales, it recovered well over 100% of their UPBs.

In 2019, Midland's loan resolutions included 11 SFR loans. It liquidated four of these loans as DPOs, four through full payoffs, and three through modification/other corrective actions. Midland recovered 100% of the principal balances for two of these DPOs and 91% of the estimated values for the other two DPOs.

Exhibit 15 Midland Special Servicing Resolution Methods by Asset Count (2019 – June 2022)*



*Completed foreclosures are included although they are not final resolutions,

Asset Resolution Times and Recovery Proceeds

Over the past 18 months, the Company liquidated several more loans through DPOs and note sales with overall strong results, including some in which the net recoveries exceeded the UPBs. The Company also had success liquidating several loans through receivership property sales. Midland has had only a few property sales in the past few years because of relatively moderate REO volume. However, its aggregate net recoveries relative to estimated market values have remained high year over year.

As of June 30, 2022, excluding a few non-real estate-secured loans, the average age of all unresolved specially serviced assets, based on the time Midland managed the asset, was approximately 24 months, up from 14 months as of June 30, 2021. The average age of unsold REO assets was 22 months, up from 17 months as of June 30, 2021. At midyear 2022, approximately 53% of the active portfolio was in special servicing at Midland for two years or less and 19% was at Midland for one year or less. The average age of unresolved assets has generally increased among most special servicers as they have resolved assets that entered special servicing during the pandemic.

Exhibit 16 Midland Average Asset-Resolution Times (Months)*

	H1 2022	**H2 2021**	**H1 2021**	**2020**	**2019**
Modified/Corrected Loans**	20	13	11	6	7
Individual Note Sales	25	25	7	13	20
Discounted Payoffs	19	18	26	22	27
Full Payoffs	18	14	12	5	12
Completed Foreclosures	7	23	28	25	17
Receivership Property Sale	26	24	N.A.	N.A.	N.A.
REO Sales (Time Held as REO)	33	13	8	13	16

* Rounded to nearest whole month. Based on time period Midland managed the asset. REO sales times are based only on the period Midland held the asset as an REO. **Excludes forbearances. N.A. – no activity.

Exhibit 17 Aggregate Asset Recovery Net Proceeds Versus Collateral Values and Unpaid Principal Balances

	H1 2022	H2 2021	H1 2021	2020	2019
Net Recovery Proceeds-to-Value (%)					
Individual Note Sales*	84.1‡	91.3	62.2‡	58.7‡	55.4
Discounted Payoffs*	83.1	102.7	104.8	89.1‡	91.6
Receivership Property Sale	99.1	107.3	N.A.	N.A	N.A.
REO Dispositions**	125.5	170.5	89.0	98.1	95.4
Net Proceeds-to-UPB (%)					
Individual Note Sales	89.3‡	90.4	70.0‡	88.5	120.6
Discounted Payoffs	99.9	69.8	67.1	77.9	41.6
Receivership Property Sale	86.3	82.7	N.A.	N.A.	N.A.

* 2019 DPOs included four securitized SFR loans and a nonsecuritized hotel asset B note. Midland had no recovery on the B note but recovered 121% of the corresponding CMBS A note through a loan sale. DPOs included one SFR loan in 2020, one in 2021, and one in H1 2022. Note sales included seven SFR loans in 2021 and two in H1 2022. ** Includes SFR properties released from their mortgage notes: one in 2019 and one in 2020. ‡ Excluding loans with net proceeds close to or greater than the UPB, the aggregate net recoveries to values were close to and, in some cases, greater than 100%. N.A. – no activity.

Exhibit 18 Midland Special Servicing Loan Activity (January 2019 to June 2022)

	H1 2022		2021		2020		2019	
	Volume ($ Millions)	**Loans**	**Volume ($ Millions)**	**Loans**	**Volume ($ Millions)**	**Loans**	**Volume ($ Millions)**	**Loans**
Loan Portfolio at Beginning of Period	6,510.8	282	9,217.6	395	1,904.0	124	1,801.4	88
Loans Transferred Into Portfolio:								
Retransferred/Redefaulted Loans	3.3	1	275.4	12	33.8	6	115.2	9
Pre-Existing from Another Special Servicer	0.0	0	0.0	0	204.0	6	32.1	1
New Nonmonetary/Imminent Default Transfers	390.8	12	612.3	35	8,265.9	291	765.7	43
New Monetary Default Transfers	44.3	6	507.3	40	1,203.3	92	327.7	40
Total Transfers	**438.4**	**19**	**1,395.0**	**87**	**9,707.0**	**395**	**1,240.7**	**93**
Loans Fully Resolved:								
Modified or Corrected Loans	(1,921.3)	(65)	(2,095.9)	(88)	(1,637.7)	(66)	(676.6)	(22)
Individual Note Sales	(98.9)	(11)	(120.6)	(16)	(191.4)	(9)	(21.1)	(1)
Discounted Payoffs (Excludes Note Sales)	(48.4)	(5)	(122.4)	(11)	(116.4)	(11)	(69.0)	(14)
Full Payoffs	(140.6)	(18)	(704.6)	(40)	(102.6)	(22)	(137.5)	(10)
Receivership Property Sale	(163.7)	(12)	(58.5)	(6)	0.0	0	0.0	0
Total Loan Resolutions	**(2,372.9)**	**(111)**	**(3,102.0)**	**(161)**	**(2,048.1)**	**(108)**	**(904.3)**	**(47)**
CMBS Loan Resolutions	(2,371.3)	(109)	(3,086.0)	(159)	1,900.4	104	902.7	46
Other Cash Recoveries	(100.0)	(1)	(2.2)	(2)	(201.6)	(4)	(56.2)	(2)
Completed Foreclosures	(18.7)	(1)	(55.9)	(4)	(101.3)	(5)	(150.7)	(9)
Adjustments/Charged-Offs/Loans Transferred Out	(80.2)	(6)	(941.7)	(33)	(42.4)	(7)	(26.9)	1
Loan Portfolio at End of Period	**4,377.4**	**182**	**6,510.8**	**282**	**9,217.6**	**395**	**1,904.0**	**124**
CMBS Loans at End of Period	4,368.9	180	6,498.3	278	9.183.1	388	1,733.1	117
Property Count (Total Portfolio) at End of Period		315		533		757		472

Exhibit 19 Midland REO Portfolio Activity (January 2019 to June 2022)

	H1 2021		2021		2020		2019	
	Volume ($ Millions)	**Properties**	**Volume ($ Millions)**	**Properties**	**Volume ($ Millions)**	**Properties**	**Volume ($ Millions)**	**Properties**
REO Portfolio at Beginning of Period	164.0	8	236.6	10	158.9*	8*	72.5	12
Assets Acquired as REO	0.0	0			0.0	0	8.6	1
Completed Foreclosures	18.7	1	55.9	6	101.3	5	150.7	7
REO Sold During Period	(0.8)	(1)	(34.0)**	(5)**	(9.1)**	(4)**	(37.2)	(13)
Other REO Transferred Out	0.0	0	0.0	0	(5.1)	(1)	0.0	0
Other Adjustments	(2.8)	0	(94.5)	(3)	(9.4)	2	(35.7)	1
REO Portfolio at End of Period	**179.1**	**8**	**164.0**	**8**	**236.6**	**10**	**158.9***	**8***
CMBS Properties at End of Period	178.0	7	163.0	7	184.2*	10*	106.4*	8*

* Reflects one property with CMBS and non-CMBS ownership components. ** Three REO sales in 2020 and four in 2021 based on underlying loans tied to the same property.

Assessment: Midland extended its successful asset resolution record in 2021 and the first half of 2022, with most activity involving CMBS transactions. It also has performed well through the pandemic to resolve assets expeditiously to maximum recovery potential.

Investor and Master Servicer Reporting

Midland's special servicing procedures cover its reporting requirements for property-protection advances, realized losses, appraisal subordination entitlement reductions (ASERs), and communications with master servicers on asset management decisions. As a CMBS special servicer, Midland provides initial and updated asset status reports to the trustee as required. It stated that it also provides its final asset resolution plans containing the specific terms and details of a workout or liquidation to the trustee. Year over year, Midland's CMBS reporting accuracy as a special servicer has been generally high. It had seven reporting restatements in the first year of the pandemic but only two between July 2021 and June 2022.

Assessment: Midland is well experienced with special servicer-related reporting and has sound capabilities to meet CMBS and other investor requirements. DBRS Morningstar also acknowledges the Company's increased CMBS reporting accuracy over the past year.

Ranking Scale

- **MOR CS1: Superior Quality**—Exceeds prudent loan servicing standards. Unlikely to be significantly vulnerable to future credit events.
- **MOR CS2: Good Quality**—Demonstrates proficiency in loan servicing standards. May be vulnerable to future credit events, but qualifying negative factors are considered manageable.
- **MOR CS3: Adequate Quality**—Demonstrates satisfactory loan servicing standards. May be vulnerable to future credit events.
- **MOR CS4: Weak Quality**—Demonstrates lack of compliance with one or more key areas of risk. Vulnerable to future credit events.

A servicer assigned a ranking of at least MOR CS3 is deemed to comply with what DBRS Morningstar views as the minimum prudent loan servicing standards and requirements for the servicer's operational category and role.

Disclaimer

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Note:
All figures are in U.S. dollars unless otherwise noted.

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