

# Operational Risk Assessments

## Berkadia Commercial Mortgage, LLC

### DBRS Morningstar

December 2022

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<b>Operational Classifications:</b>	Commercial Mortgage Primary, Master, and Special Servicer
<b>Rankings:</b>	Primary Servicer—MOR CS1 (Confirmed) Master Servicer—MOR CS2 (Confirmed) Special Servicer—MOR CS3 (Confirmed)
<b>Trend:</b>	All Rankings: Stable

### Rationale

DBRS, Inc. (DBRS Morningstar) confirmed its MOR CS1 commercial mortgage primary servicer ranking, MOR CS2 commercial mortgage master servicer ranking, and MOR CS3 commercial mortgage special servicer ranking for Berkadia Commercial Mortgage, LLC (Berkadia or the Company). The trends for all three rankings remain Stable.

DBRS Morningstar confirmed Berkadia’s primary servicer ranking based on the Company’s strong professional depth, effective leveraging of its well-established and well-integrated offshore operations, extensive internal audit regimen, diligent portfolio management practices covering a large and complex portfolio, and proactive borrower-centric loan administration. Aside from Berkadia’s lengthy and accomplished record as a servicer for commercial mortgage-backed securities (CMBS) transactions, the Company also demonstrates high proficiency servicing single-family rental (SFR) loans and related securitizations, a business line that has grown year over year since it launched in early 2020.

Berkadia’s excellent technology encompasses a suite of well-integrated purchased and proprietary applications, robotic and machine-learning components, and a comprehensive data security program. During the past year, the Company has continued to roll out automation and content enhancements to further advance its strong capabilities, including comprehensive workflow management, portfolio surveillance, and real estate market analysis. The platform also incorporates robust borrower and client portals for effective reporting and information exchange.

While the master servicer ranking acknowledges Berkadia’s expertise and successful performance record with CMBS trustee reporting and advancing, it also considers the Company’s modest portfolio activity involving CMBS loans with subservicers. However, Berkadia’s subservicer tracking and auditing procedures continue to be sound and commensurate with its level of required oversight. Berkadia also master services a large and growing loan portfolio involving correspondent servicers for insurance company clients.

The special servicer ranking considers Berkadia's operational scale and portfolio volume, which has remained generally modest over the past few years. Nonetheless, the Company maintains effective control practices and solid investor reporting capabilities and has been resolving loans expeditiously. The core workout team consists of a highly experienced senior vice president, who also oversees portfolio surveillance, and two other highly experienced asset managers. In addition to handling CMBS and other loan transfers, the group handles default management for government-sponsored enterprise (GSE) and balance sheet loans.

As of June 30, 2022, Berkadia's total primary and master servicing portfolio consisted of 20,892 loans with an aggregate unpaid principal balance (UPB) of \$377.22 billion. Within this total, Berkadia was the primary or primary/master combined servicer for 819 CMBS loans, 2,257 Fannie Mae loans, and 3,380 Freddie Mac loans, including 2,849 loans contained in Freddie Mac-sponsored securitized transactions. The Company was also the servicer on 806 SFR loans with a total UPB of \$3.36 billion, the majority of which were in securitizations. The CMBS master servicer-only portfolio contained 25 loans with a UPB of \$120.3 million involving four subservicers, of which one serviced 22 loans and the others serviced one loan each for Berkadia. By comparison, at YE2021, Berkadia's total servicing portfolio contained 20,122 loans with an aggregate UPB of \$337.20 billion.

As of June 30, 2022, Berkadia was the named special servicer on nine securitizations consisting of 216 loans with a UPB of \$3.98 billion. The active portfolio contained 27 loans (including one loan in forbearance) with a total UPB of \$305.2 million consisting primarily of GSE healthcare and multifamily loans.

**Trend**

The trend for the primary, master, and special servicer rankings remains Stable.

<b>Total Primary Servicing and Master Servicing Portfolio by Investor/Assignment Type</b>						
	June 30, 2022		December 31, 2021		December 31, 2020	
	<b>UPB</b>	<b>Loans</b>	<b>UPB</b>	<b>Loans</b>	<b>UPB</b>	<b>Loans</b>
	<b>(\$ Millions)</b>		<b>(\$ Millions)</b>		<b>(\$ Millions)</b>	
CMBS Primary Only	6,622.4	482	6,507.0	479	6,244.3	454
CMBS Primary/Master Combined	13,192.4	337	8,725.2	219	2,240.2	329
CMBS Master Only	120.3	25	129.3	31	146.5	37
Freddie Mac Capital Markets Execution/K Deals	52,886.4	2,849	50,372.1	2,750	43,740.1	2,453
<b>Total CMBS Primary and Master</b>	<b>72,821.6</b>	<b>3,693</b>	<b>65,733.6</b>	<b>3,479</b>	<b>52,371.0</b>	<b>3,273</b>
Fannie Mae	39,398.1	2,257	38,905.8	2,281	35,041.8	2,086
Federal Housing Administration/Ginnie Mae	10,961.5	1,247	10,808.6	1,276	10,542.0	1,313
Freddie Mac (Nonsecuritized)	7,920.8	531	6,888.0	460	6,748.6	401
<b>Total Agency</b>	<b>58,280.4</b>	<b>4,035</b>	<b>56,602.3</b>	<b>4,017</b>	<b>52,332.3</b>	<b>3,800</b>
Fee for Service (includes SFR portfolio)	216,368.9	11,364	185,306.7	10,764	174,529.6	11,376
Correspondent Life Companies	22,027.8	1,489	21,559.9	1,538	20,025.5	1,601
Warehoused	2,618.6	163	3,424.0	204	3,165.3	216
Banks/Financial Institutions	3,227.8	66	2,876.4	44	440.9	29
Commercial Real Estate Collateralized Loan Obligations	1,875.3	82	1,699.8	76	0.0	0
<b>Subtotal</b>	<b>246,118.4</b>	<b>13,164</b>	<b>214,866.7</b>	<b>12,626</b>	<b>198,161.3</b>	<b>13,222</b>
<b>Total Primary Volume</b>	<b>377,100.1</b>	<b>20,867</b>	<b>337,073.3</b>	<b>20,091</b>	<b>302,718.1</b>	<b>20,258</b>
<b>Total Primary and Master Volume</b>	<b>377,220.5</b>	<b>20,892</b>	<b>337,202.6</b>	<b>20,122</b>	<b>302,864.6</b>	<b>20,295</b>

### Company Profile and Business Overview

Berkadia, a commercial real estate finance company formed in August 2009, is a joint venture between Berkshire Hathaway Inc. and Jefferies Financial Group, formerly known as Leucadia National Corp. Its business lines include mortgage banking, investment sales, and loan servicing. The Company serves as a master, primary, and/or special servicer for commercial mortgage loans originated internally and through third-party production sources and is the largest nonbank commercial mortgage servicer. Berkadia originates loans for Freddie Mac, Fannie Mae, the U.S. Department of Housing and Urban Development (HUD), insurance companies, financial institutions, conduits, its proprietary lending program, and other correspondents at its 50-plus production and investment sales offices in the United States.

Berkadia's core primary and master servicing focus is on third-party fee for service assignments including CMBS transactions. Other clients include government-sponsored agencies (Fannie Mae, Freddie Mac, and the Federal Housing Administration/Ginnie Mae), HUD, financial institutions, life insurance companies, and other third-party investors. It also services commercial mortgage loans held on its balance sheet and commercial mortgage loan portfolios for other balance sheet lenders. The business model focuses on providing customized and flexible servicing solutions through its Servicer's Servicer Model as well as general primary and master servicing. Its fee for service loan portfolio represented approximately 58% of its total servicing by UPB as of June 30, 2022.

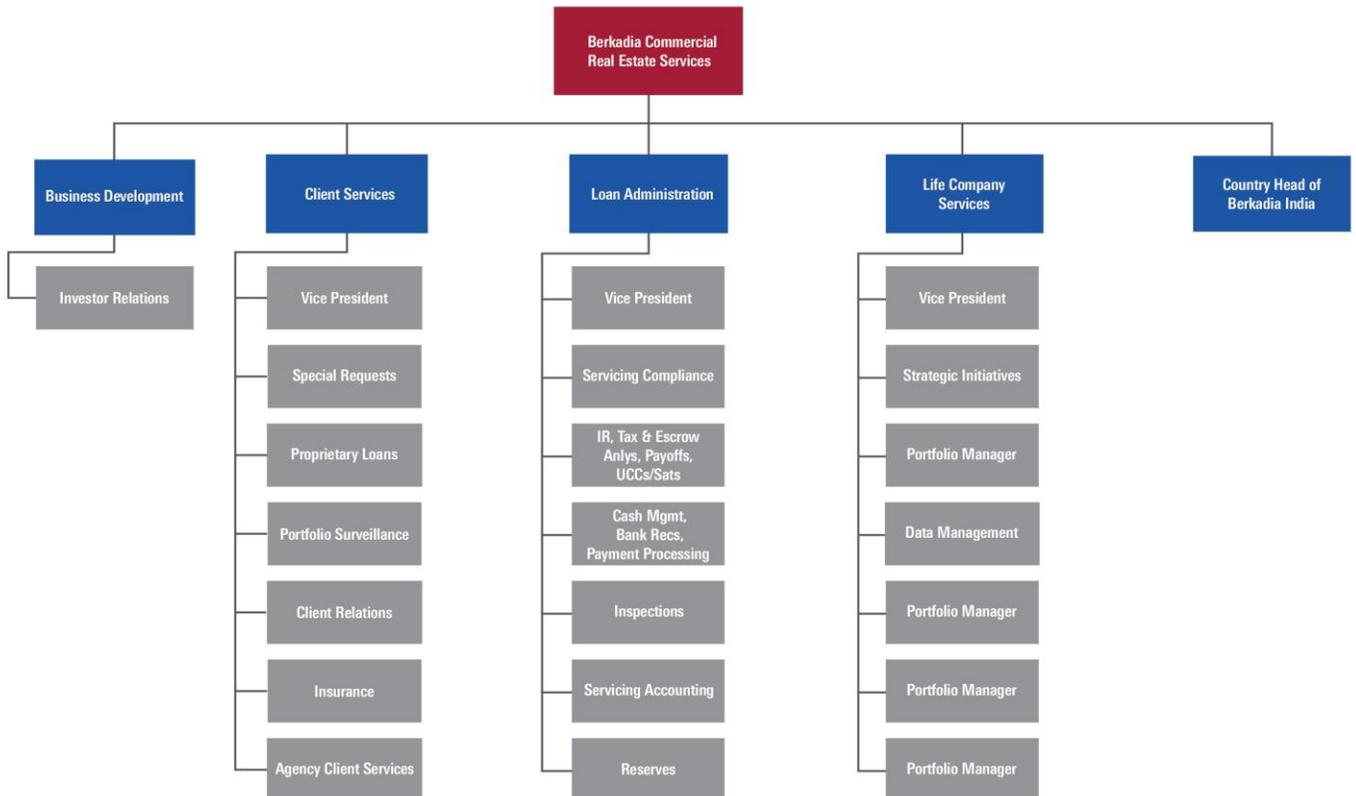
Berkadia has seven servicing locations: Ambler, Pennsylvania; New York City; Midvale, Utah; Scottsdale, Arizona; St. Louis; Irvine, California; and Hyderabad, India. Its special servicing operations are in Ambler and Irvine. A substantial segment of servicing employees and back-office operations is in Hyderabad. BSIPL, a wholly owned subsidiary of Berkadia, manages business at this location.

**Operational Infrastructure**

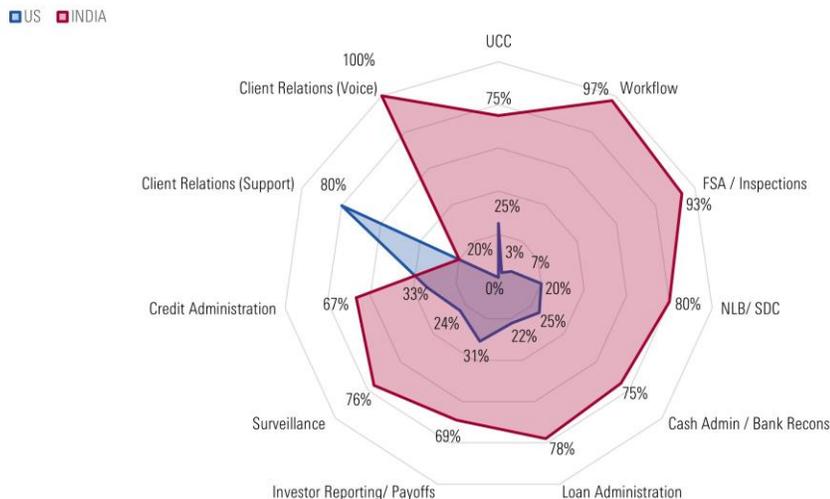
**Organizational Structure**

While Berkadia is a commercial real estate services company with multiple lines of business that essentially operates as one integrated environment, the focus of this report is its loan servicing. The servicing organizational structure combines product-specific client relations managers, who are responsible for borrower and investor contact, with subject-matter experts. The Company further aligns specific tasks by product type where appropriate. For more than 20 years, the Company has maintained the India-based BSIPL, which supports a range of servicing functions including borrower consents as volumes dictate. Berkadia uses vendors in the U.S. to assist with Uniform Commercial Code (UCC) renewals, property inspections, and tax services. Each servicing business line group is led by a senior vice president reporting to the executive vice president who also serves as the president of Berkadia Commercial Real Estate Services.

**Organizational Overview**



### Staffing Overview as of June 30, 2022



Function	Staff: U.S.	Staff: India	Total
Loan Administration	43	152	195
Client Relations (Support)	128	32	160
Financial Statement Analysis/Inspections	7	100	107
New Loan Boarding/ Servicing Data Center	11	44	55
Investor Reporting/ Payoffs	13	29	42
Credit Administration	14	28	42
Workflow	1	37	38
Cash Administration	9	27	36
Surveillance	4	13	17
UCC Administration	1	3	4
Client Relations (Voice)	0	4	4
	231	469	700

Source: Berkadia.

### Management and Staff Experience

Experience levels among professional staff, portfolio management staff, and middle and senior management remain high. The Company maintains a succession plan, and management states it will continue its tradition of promoting from within to fill any succession needs.

**Average Years of Experience (U.S. Operation)**

	June 30, 2022		December 31, 2021		December 31, 2020	
	Industry	Company Tenure	Industry	Company Tenure	Industry	Company Tenure
<b>Primary/Master Servicing</b>						
Senior Management	33	23	33	23	27	17
Middle Management	22	16	25	17	24	15
Staff	15	9	16	10	17	10
Portfolio Management Staff Only*	26	11	23	10	22	15
<b>Special Servicing</b>						
Senior Management	n/a	n/a	n/a	n/a	n/a	n/a
Middle Management	25	13	32	24	31	23
Professional Staff	18	9	24	17	26	21
Asset Managers	23	10	22	18	24	17

\*Servicing positions involving credit, collateral performance, and borrower request analysis.

**Management and Staff Turnover**

For the six-month period ended June 30, 2022, the primary/master servicing turnover rate (net of intercompany transfers) among U.S. employees was 4.4% and the similar offshore rate was 12.6%. On an annualized basis, U.S. rates were trending lower than full-year results for 2021 while the offshore rate increased. Special servicing recorded no turnover in either the first half of 2022 or full-year 2021.

**Primary and Master Servicing — Employee Turnover Rates**

	First-Half 2022				2021			
	U.S.		Offshore		U.S.		Offshore	
	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)
Employees—Beginning of Period	203	-	437	-	186	-	416	-
Voluntary Management Departures	0	0.0	0	0.0	1	0.5	0	0.0
Involuntary Management Departures	0	0.0	0	0.0	0	0.0	0	0.0
<b>Total Management Departures</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>1</b>	<b>0.5</b>	<b>0</b>	<b>0.0</b>
Voluntary Staff Departures	11	5.4	56	12.8	18	9.7	58	13.9
Involuntary Staff Departures	0	0.0	1	0.2	0	0.0	5	1.2
<b>Total Staff Departures</b>	<b>11</b>	<b>5.4</b>	<b>57</b>	<b>13.0</b>	<b>18</b>	<b>9.7</b>	<b>63</b>	<b>15.1</b>
<b>Total Turnover</b>	<b>11</b>	<b>5.4</b>	<b>57</b>	<b>6.5</b>	<b>19</b>	<b>10.2</b>	<b>63</b>	<b>15.1</b>
<b>Turnover Net of Intercompany Transfers</b>	<b>9</b>	<b>4.4</b>	<b>55</b>	<b>5.8</b>	<b>16</b>	<b>9.7</b>	<b>49</b>	<b>4.3</b>
New Management Hires	2		0		0		0	
New Staff Hires	37		89		35		103	
<b>Total New Hires</b>	<b>39</b>		<b>89</b>		<b>35</b>		<b>103</b>	
Other Adjustments	0		0		1		(19)	
Employees—End of Period	231		469		203		437	
<b>Total Employees—End of Period</b>	<b>700</b>				<b>640</b>			

### **Staffing Workload Ratios**

The India-based personnel represent employees who work solely for Berkadia through its subsidiary BSIPL. As of June 30, 2022, Berkadia did not use any vendor-provided personnel to supplement its staffing.

#### *Primary/Master Servicing*

DBRS Morningstar calculated that Berkadia had a roughly 90:1 ratio of loans per U.S. employee for its primary/master servicing portfolio as of June 30, 2022, representing a decrease from the approximately 99:1 ratio at YE2021. When including its India-based staff, the ratio dropped to roughly 30:1 as of June 30, 2022, down from approximately 31:1 as of December 31, 2021. In DBRS Morningstar's view, the U.S.-based staffing ratio is higher compared with that of some other servicers because of the India operation. However, the overall ratio may be below the industry average.

#### *Special Servicing*

DBRS Morningstar calculated that Berkadia's assets-to-asset manager ratio (based on two asset managers and one administrator in Irvine) was 14:1 as of June 30, 2022, and in line with results as of December 31, 2021. Two additional employees in the special requests group focus primarily on assumptions and borrower-initiated requests. The special servicing group also manages nonperforming loans held on Berkadia's balance sheet. Overall, Berkadia has had modest special servicing activity since it transferred its legacy CMBS portfolio to KeyBank in July 2013.

**Assessment:** Berkadia's organizational structure is unique compared with other servicers DBRS Morningstar reviews because it uses its offshore platform (roughly 67% of total servicing head count) for its own business needs as well as for third parties. The Company uses economies of scale to efficiently provide specialized servicing functions for other servicers and to address complex servicing portfolio requirements. Berkadia workload ratios for primary/master servicing appear reasonable and reflect the Company's ability to leverage efficiencies through its BSIPL personnel. Berkadia had modest asset manager workload levels for special servicing as of midyear 2022.

### **Training**

Berkadia provides formalized training activities for its servicing personnel. Its Development and Advancement (DnA) team, working with Servicing leadership, continuously evaluates and manages training and development efforts. The team curates a full menu of offerings, including interpersonal training sessions and LinkedIn Learning; the Company also maintains an electronic library for employees. The DnA and business teams create and deliver training programs, workshops, and "lunch & learn" events throughout the year. DnA engages outside vendors and works with each servicing department to support training initiatives. The Center of Learning team, comprising individuals from across the Berkadia enterprise, meet monthly to collaborate and discuss training initiatives, including conferences. Additionally, servicing employees are encouraged to participate in the Mortgage Bankers Association's training offerings focused on commercial real estate.

Employee training participation (and hours completed) is formally tracked (along with external training credits, conference attendance, and cross-training opportunities) in the Company's Learning Management System. Targets for yearly training hours per employee (below) vary based on company tenure and levels of industry experience.

<b>Berkadia Training-Hour Matrix</b>					
<b>U.S.-Based Employees</b>					
Company Tenure/Industry Experience	Years	0 to 3	3 to 7	8 to 15	15+
Required Minimum	Hours	50	40	25	15
<b>India-Based Employees</b>					
Company Tenure/Industry Experience	Years	0 to 3	3 to 7	8 to 15	15+
Required Minimum	Hours	50	45	35	30

In addition to industry-focused training, Berkadia supplies significant training resources for offshore personnel, covering its servicing process groups, and provides cross-training across a range of functions. Moreover, U.S.-based subject-matter experts, many of whom directly manage complex products and assets, provide live training with case studies and provide quality assurance and guidance to offshore staff for employee development and process improvement.

Berkadia continues to support its Relentless Employee Development program across the platform, which embodies the Company's commitment to continual growth and development. The program fosters a learning culture that embraces forward-looking development through feedback, coaching, and related skills. Training sessions and workshops help boost competence in these areas, with managers and work opportunities further supporting these initiatives.

**Assessment:** Berkadia has a well-structured and effective training function as indicated by its dedicated personnel and other resources, well-developed curriculum, and high degree of employee participation.

#### **Audit, Compliance, and Procedural Completeness**

An independent risk, compliance, and control unit manages the Company's documented policies and procedures and coordinates all auditing activities within Berkadia. It submits an annual plan to the audit committee (which reports to the board of managers) for approval. The Company tracks any material control weaknesses or significant control deficiencies, and the progress of the corresponding remediation plans, and reports them to the audit committee.

Berkadia undergoes several operational audits each year. The servicer annually undergoes platform-wide Uniform Single Attestation Program and Regulation AB attestations, which have cited no exceptions for the year ended December 31, 2021. The Company's System and Organization Controls (SOC) 1 and SOC 2 audits, both covering the period of October 1, 2020, to September 30, 2021, were satisfactory. The Company's internal audit unit conducts operational audits throughout the year with the most recent dated October 26, 2022.

Berkadia supplements audits with an automated daily dashboard and metrics reporting process to ensure that each group and individual analyst delivers timely and accurate work against established performance standards. Performance metrics note any exceptions related to problems with procedures or applications, which management monitors for prompt resolution. The Company's transformation team is heavily involved in helping management use the dashboards, diagnose issues, and oversee operational quality.

**Assessment:** Berkadia undergoes frequent, detailed audits by external parties and by an independent internal audit department that reports to an audit committee and ultimately to the board of managers. The servicer has significant dedicated resources and initiatives to reduce operational risks by improving processes, reducing errors, and testing security access protocols through its SOC 2 audit. Berkadia's internal audit function is effective when considering its annual platform-wide Regulation AB examination as well as its ongoing daily self-administered compliance and performance metrics tracking process.

#### **Legal Liability and Corporate Insurance**

Berkadia noted that it or its affiliates are occasionally parties to lawsuits and other legal proceedings that, individually or in the aggregate, should not have a material adverse effect on its business or its ability to function as a servicer. The servicer reported that it has directors and officers, errors and omissions, and mortgage impairment insurance coverage as well as a separate cybersecurity policy. As a servicer or special servicer, the Company reported that it had not received notices of pooling and servicing agreement (PSA) defaults.

**Assessment:** The Company's fidelity bond and errors and omissions coverage amounts meet the insurance minimum set forth by the Fannie Mae Delegated Underwriting and Servicing seller/servicer guidelines. Based on Berkadia's representations, DBRS Morningstar is not aware of any legal proceedings that would negatively affect the servicer's operations.

#### **Technology, Disaster Recovery, and Cybersecurity**

Berkadia uses McCracken Financial Solutions' Strategy servicing system (Strategy) via a remote-hosted application service provider. Strategy, widely used in the commercial mortgage servicing industry, provides loan-level transaction processing and accounting for the serviced portfolio. Berkadia interfaces the system with its general ledger and a data warehouse for specialized queries and reporting. Management reports that the migration from Strategy version 17.6 to Strategy version 20 was completed in December 2022. Version 20 includes system functionality for the Secured Overnight Financing Rate. In addition to Strategy, Berkadia operates with a variety of supplemental systems designed for specific purposes. These include the following:

- **Asset Surveillance 2.0:** This proprietary system is used to track financial statement analysis, property inspections, and rent roll analysis. It also includes an Investor Matrix module that stores details from servicing agreements pertaining to the requirements for collecting, analyzing, and distributing operating statements and inspections. The system is integrated with Strategy, leveraging the application's controls to simplify the user experience and streamline system administration.

- **CertInView:** Berkadia's proprietary insurance compliance monitoring tool, CertInView, allows insurance specialists to input and manage investor specific insurance requirements at the loan, property, and building levels and perform detailed compliance reviews using those requirements. CertInView also automates the process of generating expiration and noncompliant letters, minimizing coverage lapses and deficiencies.
- **Investor Query:** This system provides investors, rating agencies, and other interested parties with reports, documents, data, and general information pertaining to Berkadia's CMBS transactions.
- **LoanView:** Berkadia's mobile-friendly borrower website providing access to loan-level information, related documents, electronic billing, online bill pay, and alert functionality. LoanView allows borrowers to upload financial statements and other documents including insurance policies and reserve requests, as well as set up automatic payments on days within their respective contractual grace periods.
- **InvestorView:** This portal provides portfolio-level dashboards as well as loan- and property-level views and reporting with customizable export capabilities for third-party servicing clients.
- **Investor Reporting Information System (IRIS):** A CMBS deal-level database and advance tracking application that stores deal information, indicators, and parameters for both the servicer's Investor Reporting and Surveillance groups. Its advance module stores advance parameters, tracks loan-level advances (principal and interest (P&I) and escrows), and calculates advance interest where applicable.
- **Be Berkadia:** An intranet-based platform providing employees with access to information about the Company and its businesses, including policies and procedures, employee benefits, and other human resources-related matters, and Berkadia University, the Company's in-house training and development department.
- **LiveHelp:** This customer-service tool is designed to enhance borrower communication, allowing users to chat with client service representatives in real time while viewing their loan information, documents, and/or transaction histories.
- **SmartView:** A third-party tool that has been highly customized by Berkadia, SmartView represents a combination of the servicing platform's data warehouse and IBM Cognos Business Intelligence tools that aggregates and extracts data used for operational and management reporting, along with customized reporting.
- **Enterprise Document Management/Enterprise Productivity Management (EPM):** EPM is a proprietary document-imaging system that creates loan documents as images and makes them available to Berkadia staff for viewing, faxing, and printing. EPM is also used to facilitate approval of cash transactions (within both servicing and corporate functions). EDM, which is also proprietary, contains electronic loan files, servicing agreements, and related documents. The systems are integrated, resulting in a seamless user experience and using an electronic queuing system to facilitate movement of funds from requester to approvers. This electronic flow provides an audit trail for all funds moved.
- **Asset Information Management System (AIMS):** A proprietary asset-management system, AIMS supports Berkadia's special servicing platform. Its user interface includes a fully integrated business plan module to create and evaluate resolution alternatives and borrower proposals and lets users submit cases and business plans for approval. AIMS provides a PSA-driven compliance module featuring an expanded tickler system that includes specific actions and required notifications. Users are notified of pending items upon logging into the system and managers and compliance officers have access rights to view action items.

- **Mega Workflow:** This proprietary application is designed for automating workflows, managing work requests, tracking turnaround times, and providing real-time status updates on outstanding requests to borrowers and investors.
- **FA App:** A financial analysis application built by Berkadia to modernize its financial review process by incorporating optical character recognition, machine learning, and proprietary algorithms.
- **Microsoft Power BI:** This is used to create interactive reports and dashboards from internal data sources. Berkadia has created a delinquency and servicer advance report that is auto-generated daily, displaying data by investor and property type.

Berkadia's technical staff continues to pursue a broad reaching and aggressive technology initiative to optimize operating efficiencies and create a single repository for data. The evolving automation enhancements, developed using the agile process, include advances in workflow management, portfolio surveillance, real estate market data capture and analysis, and borrower/client information exchange. The program leader is Berkadia's chief innovation officer.

Berkadia maintains its primary data center at a Tier 3 data center in Norristown, Pennsylvania, TierPoint, LLC. An additional Tier 3 data center in Philadelphia and operated by SunGard Availability Services provides a hot site. Although the centers are not on separate power grids and are less than 25 miles from Berkadia's Ambler headquarters, they both operate with 2N power configurations and N+1 backup generators to provide a significant level of reliability.

Business-recovery testing occurs every six months, and disaster-recovery testing takes place annually. The most recent disaster-recovery test was successfully completed in October 2022. Berkadia replicates Strategy system data on a real-time mirrored basis to alternate servers at the Company's backup and recovery sites, and disaster-recovery capabilities enable it to restore core servicing processes within 24 hours. All employees may perform tasks remotely via a virtual private network connection. The Company provides employees with a mobile application for communication if a major business disruption happens.

An additional office in Bangalore, India, serves as BSIPL's disaster-recovery site and eliminates dependence on a third-party vendor. The site has 86 dedicated workstations and eight laptop stations with a maximum of 94 seats available per shift. Additionally, in Hyderabad, plug-and-play contracted coworking spaces are available as needed. Like the U.S.-based operations, BSIPL undergoes annual disaster-recovery testing.

Infiltration detection mechanisms are arranged to continually scrutinize Berkadia's network, and a third-party vendor also performs annual penetration testing. Prevention against phishing attempts is a priority, and employee education programs are held to highlight security awareness. Separately, Berkadia's Comprehensive Information Security Program (CISP) committee meets regularly to review current industry information security policies, review trends, and make recommendations to the Company's management committee regarding security policies that may require updates or modification. Among its objectives, the CISP recommends changes to Berkadia's cybersecurity risk policies and procedures,

analyzes cyber risk mitigation and reduction undertakings, and examines efforts to further educate employees on topics related to security awareness.

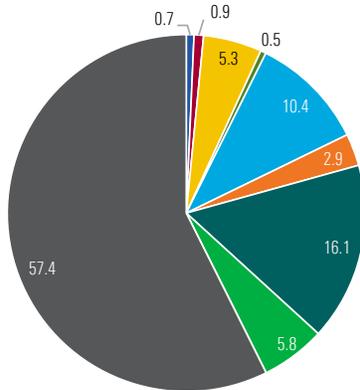
Berkadia’s additional information security measures include using role-based access control to deploy network access based on the roles of individual users, as well as the increasing use of data encryption across requisite facets of its business.

**Assessment:** Berkadia has dedicated significant resources for its technology platform. Its servicing system and various supplementary system components also benefit from ongoing development and maintenance efforts. Berkadia’s IT platform provides for proactive loan- and portfolio-level management. In addition, AIMS effectively provides special servicer asset tracking, analysis, and reporting to address CMBS and other investor requirements. Having backup power services for the data centers mitigates some of the proximity risk, although a greater distance would be preferable. Management sustains a strong focus on system stability and security, with annual SOC 2 audits, penetration tests, Tier 3 data centers, and thorough disaster- and business-recovery testing.

**Primary and Master Servicing Administration**

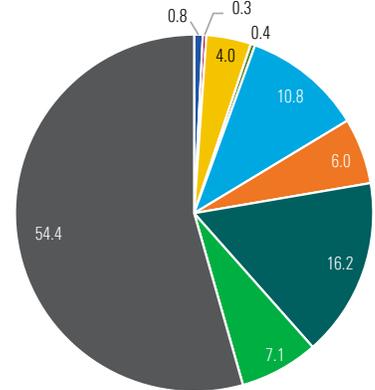
**Total Servicing by Investor Type (% by UPB)\***

- Balance Sheet
- Banks/Financial Institutions
- CMBS
- CRE-CDO
- Fannie Mae
- FHA/Ginnie Mae
- Freddie Mac
- Life Insurance
- Single-Family Rental
- Third Party Investors

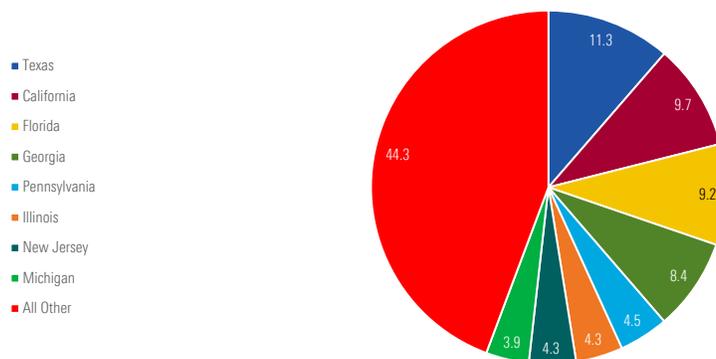


**Total Servicing by Investor Type (% by Number of Loans)\***

- Balance Sheet
- Banks/Financial Institutions
- CMBS
- CRE-CDO
- Fannie Mae
- FHA/Ginnie Mae
- Freddie Mac
- Life Insurance
- Single-Family Rental
- Third Party Investors



\*As of June 30, 2022.

**Total Servicing by State (% by Number of Properties)\***

\*As of June 30, 2022.

**Total Primary and Master Servicing Volume by Property Type (June 30, 2022)**

Property Type	UPB (\$ Millions)	UPB (%)	Avg. UPB	Loans	Loans (%)	Change from YE2021	
						UPB (\$ Millions)	Loans
Multifamily	193,056.3	51.2	17.1	11,275	54.0	18,365.5	461
Office	51,965.7	13.8	40.6	1,280	6.1	5,293.3	105
Retail	31,727.8	8.4	21.4	1,484	7.1	681.9	(53)
Industrial	28,952.2	7.7	32.9	880	4.2	7,292.4	9
Mixed Use	13,390.1	3.5	33.7	397	1.9	2,190.1	85
Lodging	11,252.0	3.0	34.9	322	1.5	1,664.2	27
Defeased Loans	9,312.3	2.5	12.8	726	3.5	1,105.7	76
Healthcare	8,210.8	2.2	17.7	465	2.2	910.1	(13)
Mobile Home Park	4,792.8	1.3	10.0	478	2.3	(26.1)	19
Self-Storage	4,059.3	1.1	14.8	274	1.3	1,221.6	13
Single-Family Rentals	3,361.0	0.9	4.2	806	3.9	496.0	139
Warehouse	1,336.4	0.4	47.7	28	0.1	483.6	15
Other	15,803.7	4.2	6.4	2,477	11.9	339.6	(113)
<b>Total</b>	<b>337,220.5</b>	<b>100.0</b>	<b>377.2</b>	<b>20,892</b>	<b>100.0</b>	<b>40,017.9</b>	<b>770</b>

**Loan Boarding, Hedge Agreements, Letters of Credit (LOCs), and UCC Administration**

During the first six months of 2022, Berkadia boarded roughly \$66.69 billion of new loan balances, consisting of approximately 2,239 primary (or primary/master combined) serviced loans. Approximately 60% of all new loans boarded during the first half of 2022 came from Berkadia's own loan origination and production channels.

For the first half of 2022, Berkadia averaged seven days to board new loans with data necessary to conduct payment processing and investor reporting. During the boarding phase, the Company creates and then centrally maintains summaries of deal-specific critical servicing and related PSA requirements. The Company's loan origination application is not interfaced with its servicing system. 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 two days of closing. It also tracks borrower compliance items, covenant triggers, and missing documents, although some supplemental applications also support these tasks. Berkadia reported that as of June 30, 2022, no new loans boarded during the year had incomplete or missing file documentation.

Berkadia makes use of a negotiated transactions team that reviews drafts of PSAs for upcoming securitizations. The team is responsible for the dissemination of new transaction information across the servicing platform and coordinating the integration of any new loans to ensure PSA compliance.

The servicer's practices address the reboarding of loan modifications received from external special servicers. The servicer reported that, at an average of 26 days, modification boarding times during the first six months of 2022 remained fairly consistent with boarding times during the second half of 2021 at an average of 27 days.

Berkadia services loans with interest rate cap agreements as well. It also services loans with LOCs as supporting collateral, which are stored on site in a fire-proof safe. It centrally tracks counterparty ratings and LOC expirations. It reported tracking 99 LOCs as of June 30, 2022, none of which required renewal processing during the first six months of 2022. BSIPL staff use the servicing system to track UCC filing expiration dates, and Berkadia uses a third-party vendor to file and track UCC continuation statements. As of June 30, 2022, roughly 6.5% of loans at the Company required UCC filing statements. Berkadia reported that no lapsed UCCs occurred during the first half of 2022, and, as a master servicer, it monitors UCC filing compliance through quarterly reports that its subservicers submit.

**Assessment:** Berkadia's loan-boarding practices are efficient and controlled. The Company's stated practice of boarding new loans within 10 days of closing and averaging six days is consistent with industry best practices. Berkadia has sound practices for hedge agreements, LOCs, and UCC filings.

### **Payment Processing**

Berkadia stated that, as of June 30, 2022, it received, deposited, and system posted electronically (via a lockbox, wire, or an automated clearing house) virtually 100% of loan payments, including subservicer remittances. Payments are first deposited to a central clearing account and then automatically swept to investor custodial accounts, unless flagged as a suspense item. The lockbox connects to the servicing system. Payment posting, depositing, and system balancing tasks are segregated among the staff. The servicing system reconciles payment receipts daily for management's review. Berkadia routinely validates rate indexes, and it maintains current balances and paid-to dates of subserviced loans on its servicing systems.

As of June 30, 2022, Berkadia reported no unreconciled items older than two days in its clearing account nor any non-special servicing-related suspense items older than 60 days. As of the same date, the servicer held 57 loan payments in suspense (roughly \$99.4 million) in connection with specially serviced loans pending directions or resolution from the corresponding external special servicers. This compares

with 70 suspense items (approximately \$87.8 million) associated with specially serviced loans as of YE2021. DBRS Morningstar recognizes that special servicer-related suspense balances are not in the direct control of a primary servicer to resolve.

<b>Primary Servicing Floating-Rate and Cash-Managed Loans</b>						
	June 30, 2022		December 31, 2021		December 31, 2020	
	<b>UPB (\$ Millions)</b>	<b>Loans</b>	<b>UPB (\$ Millions)</b>	<b>Loans</b>	<b>UPB (\$ Millions)</b>	<b>Loans</b>
Floating-Rate Loans	71,305.4	2,610	55,027.4	2,308	35,249.6	2,014
Component of Primary Servicing (%)	19.6	13.0	17.0	12.0	12.2	10.8
Cash-Managed Loans*	14,975.8	398	15,134.8	433	13,492.8	412
Component of Primary Servicing (%)	4.1	2.0	4.7	2.3	4.7	2.2

\*Active hard lockbox agreements.

**Assessment:** Berkadia has strong controls over payment processing as demonstrated by its clear Regulation AB attestations and internal audits and the lack of any aged suspense items for non-special servicing-related matters. It has highly automated payment-processing functions.

### **Real Estate Tax and Insurance Administration**

As of June 30, 2022, approximately 47.4% of all primary serviced loans were escrowed for real estate taxes and, as of the same date, Berkadia had incurred roughly \$136,000 in non-reimbursable tax penalties involving 19 loans. Tax payments are generally remitted within early-pay discount periods. 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 non-escrowed loans. For non-escrowed loans, Berkadia sends a delinquent tax notice to the borrower and tracks the delinquent tax until paid. The servicing system does not automatically generate tax notices. As a master servicer, Berkadia reviews tax payment exception reports from subservicers quarterly.

As of June 30, 2022, approximately 42% of all primary serviced loans were escrowed for insurance. Berkadia administers insurance in house and uses external insurance consultants to assist with policy reviews on the front end. Berkadia tracks insurance requirements at the loan, portfolio, property, building, and policy levels via CertInView. The tool tracks compliance on a requirement level; issues letters for expiration and noncompliance; and feeds the Company's data warehouse, providing customized reporting. All insurance compliance reviews and follow-up communication with agents are performed by Berkadia staff (at both U.S. and India offices). Insurance agents and borrowers are contacted via phone and email to resolve any identified compliance issues. Should issues of noncompliance remain, Berkadia will commence force-placed insurance coverage.

The servicer automatically issues its first policy renewal reminder notice to borrowers at 60 days before expiration and again at 30 days prior to expiration. Insurance-carrier ratings are reviewed before renewal for compliance. As of June 30, 2022, 25 loans were on the servicer's force-placed policy, which automatically provides for 180 days of retroactive coverage. Force-placed coverage is through Great

American Insurance Co., whose A.M. Best financial strength rating is A+. Force-placement requests are reviewed for accuracy by using the appraisal, operating statements, and other third-party reports. Berkadia also reviews insurance exception reports from its subservicers annually.

**Assessment:** Berkadia's tax and insurance administration practices are highly controlled, as shown by its low incidence of tax penalties and the degree to which it facilitates the insurance renewal process as well as its extensive insurance coverage via CertInView. Its force-placed policy's automatic retroactive coverage provision is sound. As a master servicer, Berkadia follows standard industry practices by reviewing quarterly tax and annual insurance payment exception reports from its subservicers.

### **Capital Expenditure Reserve Management**

Portfolio managers work with account managers to review expenditure requests and release funds escrowed in capital reserve accounts. The Company uses the servicing system to manage workflows, track reserve funds, record disbursements, and reanalyze accounts. Before disbursement, management must approve all reserve account disbursement requests. Berkadia's reserve account management may also involve interest reserve analysis and funding on construction and/or tenant build-out projects.

Larger capital improvement/tenant build-out projects may require lien waivers and periodic inspections to verify the progress or completion of the work.

**Assessment:** Berkadia has sound oversight controls for capital expenditure funding requests and reserve account management with experience involving a range of property types and complex loan structures.

### **Investor Reporting and Accounting**

Berkadia produces the most current version of the Commercial Real Estate Finance Council (CREFC) investor reporting package for all CMBS assets through its servicing system. The servicing system includes an investor reporting module linked to a proprietary application to generate the CMBS investor reporting package. Management must approve investor remittance and reporting tasks, and the Company tracks custodial banks' credit ratings for servicing agreement compliance. The Company segregates investor report preparation, investor remittance, and account reconciliation tasks. It also requires a secondary level of review and sign off for custodial account reconciliations. Employees have online access to custodial account activity, and investor reporting and custodial bank account reconciliation processes are largely automated. Berkadia reconciles bank account activity daily, with more formal reconciliations performed at the end of each month. As of June 30, 2022, the Company reported no unidentified items in custodial accounts older than 60 days. As a master servicer, Berkadia reconciles subservicer remittances to trustee remittance reports monthly. Subservicers submit a monthly projected remittance report for Berkadia's review.

Berkadia monitors the accuracy and timeliness of investor reporting data through servicing system validations. The system also tracks PSA requirements. The investor reporting group validates realized loss and appraisal reduction calculations. As of June 30, 2022, Berkadia reported no occurrences

involving CMBS remittance recalculations and subsequent restatements of reports to trustees during the year, nor did it report any late reporting occurrences across the whole portfolio during this period.

**Assessment:** Berkadia has proactive, well-controlled practices for investor accounting and reporting functions as demonstrated by its lack of reporting or remitting errors, its high degree of automation, and its segregation of duties. Berkadia has diligent practices for accurate and timely CMBS reporting.

### CMBS Advancing and Recoverability Analysis

As a master servicer, Berkadia provides advances on CMBS transactions. It centrally tracks each loan's cumulative advances versus its current value. The Company stated that each loan advance is evaluated individually, taking into consideration variables including property type, local market conditions, and resolution strategy. As advances increase relative to value, decisions to discontinue advancing require management approval as delineated in the servicer's approval authorization matrix.

<b>Berkadia Advancing Activity</b>					
	<b>June 30, 2022</b>	<b>December 31, 2021</b>	<b>December 31, 2020</b>	<b>December 31, 2019</b>	<b>December 31, 2018</b>
Total Advances (P&I and PPA) Outstanding (\$)*	29,569,178	34,020,865	46,468,034	64,434,120	95,277,887
Total Advances (P&I and PPA) Outstanding (# Loans)	71	50	100	104	211
Average Advance Per Loan (\$)	416,467	680,417	464,680	619,559	451,554
Outstanding Advances — P&I Only (\$)	19,974,015	26,619,734	40,153,969	56,996,329	83,980,170
Outstanding Advances — P&I Only (# Loans)	36	45	70	53	109
Average Aging of First P&I Advance (Days)	448	456	354	530	502
Total O/S Advances to CMBS Servicing Volume (%)**	0.2	0.4	1.9	1.9	1.7
CMBS Servicing Volume (\$ UPB)	13,312,767,992	8,854,485,360	2,386,658,999	3,393,289,898	5,612,525,593

\* PPA = property protection advances.

\*\*CMBS Servicing Volume: UPB of primary/master combined and master only.

**Assessment:** Berkadia maintains effective, controlled advancing and recoverability determination practices. Its stated advancing threshold is more conservative than that of other master servicers. Berkadia stated that, as a rule, it avoids reimbursement of advances in a manner that may cause cash flow shortfalls to investment-grade bondholders, and that it has sometimes recovered advances in monthly increments to minimize losses to the trust. DBRS Morningstar supports such practices as it believes that master servicers should determine how their methods of recapturing advances will affect the trust cash flows before submitting their reimbursement requests in their realized loss statements and that they should make every effort to spread the repayment of advances to avoid or minimize cash flow shortfalls to the trust.

## Portfolio Surveillance

### *Financial Statement Analysis and Inspections*

BSIPL largely performs the financial statement spreading and initial review function, and the Company reported that experienced staff members make credit decisions based on financial statement analysis. They communicate directly with borrowers to obtain clarifications on submitted data. Berkadia uses the servicing system for its financial statement analysis. The Company, as a primary servicer, received and analyzed 96% of previous year-end annual financial statements by May 31, 2022. The Company reported that, as a master servicer, it reanalyzes all financials submitted from all subservicers.

Within primary servicing, outside vendors perform most property inspections. As a practice, loan originators are not permitted to inspect properties securing loans that they originated. The Company inspects all loans greater than \$2 million annually, which DBRS Morningstar views as a customary practice. As of June 30, 2022, within primary and master servicing, the Company reported 5,029 properties were due for inspection and 91.4% were received by or within 30 days of their due dates. As of the same date, 1,426 CMBS properties were due for inspection and 94.5% were received by or within 30 days of their due dates. The servicing system tracks and maintains inspection reports. It also tracks deferred maintenance issues and their resolution status. As a master servicer, the Company's policy is to review and validate 100% of inspections received from subservicers for completeness, and it stated that it will follow up with subservicers on inspection items.

As of	May 31, 2022	May 31, 2021	May 31, 2020
<b>CMBS Primary Servicing</b>			
Statements Received	98.0	98.0	98.0
Statements Spread and OSARs Reported**	100.0	100.0	100.0
<b>CMBS Master Servicing</b>			
Statements Received	98.0	99.0	98.0
OSARs Reported*	100.0	99.0	100.0

\*Based on total number of required statement submissions.

\*\*OSAR = operating statement analysis report.

### *Watchlist, Trigger Events, and Early-Stage Collections*

The portfolio surveillance and reporting group handles watchlist management. Account managers also monitor loan performance and handle any related borrower discussions. Berkadia follows CREFC guidelines for watchlist triggers based on inspection data, financial statement spreads, and other information. The Company maintains its own risk-rating system for balance sheet loans or GSE loans with loss sharing components and other watchlists for non-CMBS loans with criteria inclusive of any investor-established requirements. A watchlist committee reviews the status of watchlisted loans and pending actions. Berkadia subjects all subserviced loans to its watchlist criteria.

As of June 30, 2022, Berkadia, as a primary servicer or a primary/master combined servicer, reported 5.4% of all serviced loans on its CREFC watchlist, compared with 5.7% as of December 31, 2021. In addition to sending collections notices, Berkadia contacts borrowers directly based on daily delinquency reports. As a practice, it contacts borrowers one day after a missed due date and again after 10 days.

The Company maintains a centralized chronology of collection efforts and borrower comments on its servicing system. Client relationship managers must review their portfolios daily based on system reports.

**Assessment:** Berkadia has effective practices for financial statement analysis, property inspections, trigger events, and watchlist management. Berkadia reviews subservicer financial statement analysis and loads operating statement analysis report information into Strategy. Output reports are produced detailing variations and triggers in compliance with CREFC reporting. The Company's practice of routinely reviewing all inspections submitted from subservicers demonstrates proactive oversight. The Company effectively communicates with borrowers through its borrower website and dedicated account managers. Berkadia's stated average time frame to implement springing lockboxes also indicates a proactive process.

<b>Berkadia Primary Servicing Portfolio Delinquency Percentages</b>						
	June 30, 2022		December 31, 2021		December 31, 2020	
	<b>UPB</b>	<b>Loans</b>	<b>UPB</b>	<b>Loans</b>	<b>UPB</b>	<b>Loans</b>
30 Days	0.59	0.32	0.08	0.47	0.54	0.42
60 Days	0.01	0.06	0.06	0.04	0.78	0.47
90+ Days and REO	0.35	0.43	0.50	0.84	0.81	1.08
Total	0.95	0.81	0.64	1.35	2.12	1.96

<b>Berkadia CMBS Portfolio Delinquencies*</b>						
Delinquency Volume (USD Millions/#)	111.0	20	57.6	15	101.6	30
Delinquency Volume (%)*	0.56	2.37	0.38	2.06	1.18	3.66

\*Based on total CMBS portfolio, including master serviced-only loans.

### **Master Servicing: Subservicer Auditing and Compliance**

Berkadia has two dedicated personnel for subservicer auditing and compliance oversight. As of June 30, 2022, it monitored four subservicers, down from five as of December 31, 2021.

All subservicers are responsible for submitting annual compliance documents in accordance with the applicable Sub-Servicing Agreement (SSA) and PSA, either electronically or via hard copy. This includes the collection and review of Regulation AB and Uniform Single Attestation Program (USAP) reports, collection of evidence of proper insurance, collection of financial statements, Sarbanes-Oxley certificates, and attestations required by transaction documents. The documents are reviewed, logged, and imaged accordingly. Berkadia's Sub-Servicing Relations team follows up with subservicers for any missing documents or questions regarding compliance. A scorecard is maintained for each subservicer and focuses on springing lockboxes, consent request tracking, and other trigger events. Each functional unit gathers information to assess subservicer performance. Because of its modest subservicer exposure (and the effects of the coronavirus pandemic), Berkadia completed one desktop review in 2021 and none through June 2022. Berkadia reports that one desktop review was completed in November 2022.

On a quarterly basis and per the transaction documents, Berkadia tracks loan boarding, CREFC reporting compliance, surveillance and portfolio monitoring, and approval validations for items such as payoffs and reserve disbursements. It also receives quarterly subservicer certifications for tax and insurance

administration, reserve releases, UCC renewals, LOCs, analyzed financial statements, rent rolls, and inspections.

**Assessment:** Berkadia has a solid track record of conducting an effective servicer audit program and maintaining monthly monitoring of servicers' reporting completeness, accuracy, and timeliness. However, relatively few of its servicers have servicing volumes large enough to trigger on-site audits, and none of them perform cash processing responsibilities. Berkadia's overall servicer auditing activities are consistent with the number of servicers and the size of their portfolios.

### Borrower Consent and Requests

Berkadia has dedicated asset-management teams to underwrite and close borrower consent requests, including assumptions, leasing, subordination and nondisturbance agreement reviews, and partial property releases. It also relies on BSIPL to assist with borrower requests and has a special request team within BSIPL that re-underwrites complex requests. U.S.-based account managers serve as initial points of contact. Loan documents, as well as the PSAs for CMBS transactions, are reviewed to determine permissibility. The required documentation is then forwarded to the appropriate functional business unit for processing. A client relations manager will continue to monitor the matters progress via SmartView and correspond with borrowers, as appropriate. Procedures are in place for each type of request, detailing the process and expected turnaround times for completion.

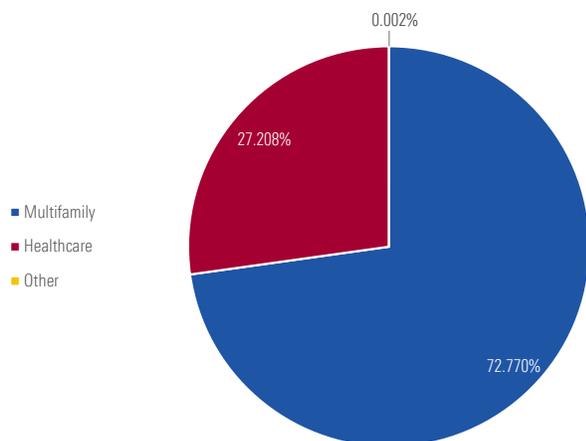
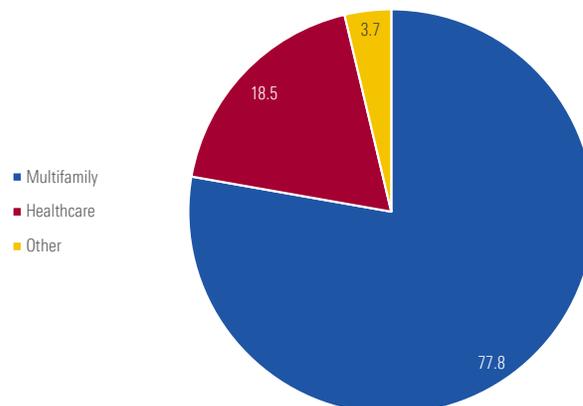
<b>Berkadia: Borrower Consent Volume and Average Processing Times (Days)</b>						
	<b>H1 2022</b>			<b>2021</b>		
	<b>Processed (#)</b>	<b>Internal Time</b>	<b>Total Time*</b>	<b>Processed (#)</b>	<b>Internal Time</b>	<b>Total Time*</b>
Assumptions	112	68	88	233	58	85
Leasing	56	24	31	223	26	44
Defeasance	22	19	21	56	22	27
Partial Releases	3	29	41	7	75	99
Property Management Changes	25	35	68	117	35	69
<b>Total</b>	<b>218</b>			<b>636</b>		

\*The servicer's internal time plus third-party review time only for those transactions requiring external party consents.

**Assessment:** Berkadia has suitable workflow practices and staffing for analyzing and approving a high volume of borrower consents. Its controls for analyzing and approving borrower consents are sound. DBRS Morningstar recognizes that processing times can often be extended by delays in receiving necessary documentation.

### Special Servicing Administration

As of June 30, 2022, Berkadia's active special servicing portfolio had a total UPB of approximately \$305.2 million and contained 27 loans and no real estate owned (REO) properties. The CMBS component of the active special servicing portfolio consisted of one loan, classified as non-real estate secured, with a UPB of approximately \$66,000. The portfolio otherwise consisted entirely of healthcare and multifamily properties.

**Active Special Servicing by Property Type (UPB)\*****Active Special Servicing by Property Type (# of Loans)\***

\*As of June 30, 2022.

### Asset Review Process

Upon the transfer of a loan to special servicing, asset managers formally notify borrowers and require them to sign pre-negotiation letters before workout discussions. Asset managers prepare loan resolution plans generally within 90 days of a loan transfer; the Company stated that such plans, or detailed asset-status reports (ASR), are required for all loans and REO assets. Asset managers submit an updated ASR or asset business plan, which includes a net present value analysis of alternative resolution strategies, to obtain approval for specific terms of negotiated resolutions. The Company's delegations of authority require a formal committee process for the approval of initial and updated business plans. Asset managers create and update asset plans directly through AIMS, the Company's asset-management system. For CMBS assets, Berkadia formally monitors master servicers' outstanding advances against property values and expected recovery amounts and consults with master servicers on their advancing decisions. In the case of loan modifications, Berkadia stated that it can usually deliver the loan modification boarding package to master servicers within two days of closing. The Company usually will not direct master servicers to place partial payments in suspense rather than having such payments applied to the loan. Before the KeyBank transaction, Berkadia had separate asset managers for loans and REO. An asset manager may now handle both loan and REO assets.

**Assessment:** Berkadia has sound and controlled asset recovery practices based on its stated policies and procedures. Though its activity is modest compared with many other special servicers, DBRS Morningstar believes that Berkadia's asset-management system serves as an effective tool to track asset-resolution activities, including CMBS-related requirements.

### REO Property Management

As of June 30, 2022, Berkadia had no REO properties in its special servicing portfolio. In the past and prospectively, Berkadia uses single trust accounts rather than separate rent collection and expense

accounts for property cash management. It receives monthly operating statements from external property managers and stores that information on the asset-management system. The Company's accounting department reconciles external property managers' REO bank accounts. Berkadia requires its own standardized engagement agreement for property managers and provides them with a set of reporting guidelines. Because of its minimal REO activity, and the latest REO asset also being land, Berkadia has not conducted any property manager audits in recent years.

**Assessment:** Berkadia has sound REO property management oversight. Having its accounting department perform REO bank account reconciliations is a best practice.

### **Vendor Oversight**

Berkadia maintains a centralized list of approved firms for appraisals, environmental and engineering assessments, legal counsel, property managers, and brokers. It also has a formal vendor performance review process. It conducts a request for a proposal bidding process for all engagements and uses its own form agreements for vendor engagements. Asset managers select prospective brokers or property managers based on their expertise and cost. Berkadia's in-house legal department engages outside counsel and uses its own standard engagement letter. Asset managers review and approve legal invoices before payment for delinquent assets because the legal charges on those assets are billed as property protection advances. For nondelinquent assets, the legal department approves legal invoices. Asset managers order appraisals and environmental reports and track pending appraisals through the asset-management system.

**Assessment:** Berkadia's process for engaging vendors is well controlled and highly centralized. DBRS Morningstar believes that Berkadia's centralized process for qualifying, engaging, and tracking vendor assignments for special servicing work, including the use of standardized forms for all vendors, adds efficiency and consistency and is an industry best practice.

### **Managing Conflicts of Interest**

Berkadia, as a special servicer, is unaffiliated with controlling class holders or B-piece buyers in the CMBS transactions it may manage. However, it does not use its affiliate as a broker on note sales or REO sales, or for property management. The Company stated that while it has infrequently collected special servicing fees from the trust and from the borrower or other sources, it does not collect fees that exceed the trust contractual fee as outlined in the related PSA. Berkadia stated that it does not use affiliates for its resolution and liquidation strategies, such as for buying assets out of the pool by exercising fair market value purchase options.

**Assessment:** Berkadia has effective controls for managing conflicts of interest for using third-party affiliates and for conducting its asset resolutions. Berkadia has sound controls for managing conflicts of interest, protecting confidential information, and passing through fees to CMBS trusts.

### Asset Resolution and Recovery Performance

As indicated in the tables below, Berkadia's special servicing volume and recovery activity remained modest during the first six months of 2022 and all of 2021. All special servicing asset management and resolution activity for the past few years has involved loans rather than REO properties.

<b>Special Servicing Loan Portfolio Activity (First Half of 2022)</b>						
	<b>Total Volume (\$ Millions)</b>	<b>Total Loans</b>	<b>Total Properties</b>	<b>CMBS Volume (\$ Millions)</b>	<b>CMBS Loans</b>	<b>CMBS Properties</b>
Loan Portfolio at Beginning of Period	300.2	27	25	0.1	1	0
<b>Loans Transferred into Portfolio:</b>						
Retransferred/Redefaulted Loans	0.0	0	0	0.0	0	0
New Nonmonetary/Imminent Default Transfers	48.6	5	4	0.0	0	0
New Monetary Default Transfers	25.4	3	8	0.0	0	0
<b>Total Transfers</b>	<b>74.0</b>	<b>8</b>	<b>12</b>	<b>0.0</b>	<b>0</b>	<b>0</b>
<b>Loans Fully Resolved:</b>						
Modified or Corrected Loans	(36.0)	(5)	(4)	0.0	0	0
Full Payoffs	(33.0)	(3)	(3)	0.0	0	0
<b>Total Resolutions</b>	<b>(69.0)</b>	<b>(8)</b>	<b>(7)</b>	<b>0.0</b>	<b>0</b>	<b>0</b>
Other Cash Recoveries	0.0	0	0	0.0	0	0
<b>Loan Portfolio at End of Period</b>	<b>305.2</b>	<b>27</b>	<b>30</b>	<b>0.1</b>	<b>1</b>	<b>0</b>
Average Loan Size at End of Period	10.4			0.1		
<b>Special Servicing Loan Portfolio Activity (Full-Year 2021)</b>						
	<b>Total Volume (\$ Millions)</b>	<b>Total Loans</b>	<b>Total Properties</b>	<b>CMBS Volume (\$ Millions)</b>	<b>CMBS Loans</b>	<b>CMBS Properties</b>
Loan Portfolio at Beginning of Period	1,371.6	94	106	0.1	2	0
<b>Loans Transferred into Portfolio:</b>						
Retransferred/Redefaulted Loans	0.0	0	0	0.0	0	0
New Nonmonetary/Imminent Default Transfers	76.5	4	4	0.0	0	0
New Monetary Default Transfers	46.3	3	3	17.4	1	1
<b>Total Transfers</b>	<b>122.8</b>	<b>7</b>	<b>7</b>	<b>17.4</b>	<b>1</b>	<b>1</b>
<b>Loans Fully Resolved:</b>						
Modified or Corrected Loans	(1,174.8)	(72)	(84)	(17.4)	(2)	(1)
Full Payoffs	(8.9)	(2)	(2)	0.0	0	0
<b>Total Resolutions</b>	<b>(1,183.7)</b>	<b>(74)</b>	<b>(86)</b>	<b>(17.4)</b>	<b>(2)</b>	<b>(1)</b>
Other Cash Recoveries	(10.5)	0	0	(0.0)	0	0
<b>Loan Portfolio at End of Period</b>	<b>300.2</b>	<b>27</b>	<b>27</b>	<b>0.1</b>	<b>1</b>	<b>0</b>
Average Loan Size at End of Period	11.1			0.1		

**Assessment:** Based on DBRS Morningstar's review of Berkadia's resolution results, the Company demonstrates a successful performance record involving a portfolio of modest volume.

### **Investor and Master Servicer Reporting**

Berkadia's procedures cover its formal reporting requirements as a CMBS special servicer for reporting property protection advances and realized losses, pursuing updated appraisals, and communicating with other master servicers on asset-management decisions. The special servicing components of the monthly investor reporting package are produced and provided to master servicers in a similar manner as Berkadia's master servicing reports, with the servicing system used to identify any PSA-specific requirements. Special servicing asset managers input fresh status comments at least monthly for investor reporting package submissions. As a CMBS special servicer, Berkadia provides its initial asset status report to the trustee, and states it subsequently releases the final asset resolution plans containing the specific terms and details of a completed workout or liquidation. The Company's procedures address its special servicer reporting responsibilities for its GSE portfolios.

**Assessment:** Berkadia is highly experienced and has effective special servicer-related reporting capabilities to address CMBS and other investor-type requirements.

### **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 that is 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 Company's operational category and role.

### **Disclaimer**

DBRS Morningstar commercial mortgage servicer rankings are not credit ratings. Instead, they are designed to evaluate the quality of the parties that service or conduct master servicing on commercial mortgage loans. Although the servicer's financial condition contributes to the applicable ranking, its relative importance is such that a servicer's ranking should never be considered as a proxy of its creditworthiness.

While DBRS Morningstar obtains information for its servicer ranking from sources it believes are reliable, DBRS Morningstar relies on the factual accuracy of the servicer's information and the servicer's own representations about its operations, practices, and business. Accordingly, the servicer ranking itself is not an audit as it does not entail examining individual asset files, testing procedures, and technology applications, or conducting any other testing that may be construed as an audit. Certain assumptions, including, but not limited to, an assumption that the information received from third parties is complete

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Note:

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

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