FitchRatings

Structured Finance

Commercial Mortgage Servicer

North America

PGIM Real Estate Loan Services, Inc.

Ratings[a]

Commercial Master Servicer	CMS2+
Commercial Primary Servicer	CPS1
Commercial Loan-Level Special Servicer	CLLSS2

[a]Last Rating Action: Jan. 19, 2022.

PGIM Real Estate Loan Services, Inc. (PGIM Loan Services, or the company), formerly known as Prudential Asset Resources, is the commercial real estate (CRE) loan servicer for PGIM Real Estate (PGIM RE). PGIM Loan Services is also a subsidiary of PGIM Real Estate Finance, LLC (PGIM REF), a wholly owned subsidiary of Prudential Financial, Inc. (PFI). PGIM Loan Services performs loan servicing primarily for loans originated by PGIM RE held in the company's general account, securitized in CRE transactions, or originated for government-sponsored entities (GSEs) or other institutional investors.

The company's commercial servicing portfolio consists predominately of nonsecuritized insurance company loans on behalf of PGIM RE and affiliates, representing 43% of the portfolio by loan count. The company also performs servicing for GSEs and institutional investors, representing 32% and 11% of the portfolio by loan count, respectively. PGIM RE and affiliates' domestic loan originations are focused on core, core+ and high-yield debt strategies, and the company began servicing PGIM RE's domestic new core debt fund, representing 47 loans totaling $683 million, in 2021. Additionally, international servicing continues to grow as a result of affiliate investments funds, the most recent being PRECap VII fund, a value-add real estate fund targeting transitional European assets. As of September 2021, PGIM Loan Services was servicing 217 loans totaling $9.4 billion across seven currencies, 8% of the total portfolio by balance.

PGIM Loan Services has a demonstrated history of supporting portfolio growth through technology investments. The company was the first Fitch-rated CRE servicer to apply optical character recognition (OCR) to review ACORD forms during annual property insurance renewals, reducing processing time more than 75%. The company, in cooperation with its vendor, will apply OCR technology to extract data from borrower-submitted operating statements in 2022. Additionally, the company released an enhanced version of its BorrowerConnect web portal in 2021. The enhanced portal offers borrowers greater access to loan information, as well as the ability to manage multiple loans, submit required documents, submit reserve disbursement requests, alter payment methods and e-mail inquiries directly to the appropriate servicing team.

Servicer Ratings

- Fitch rates primary and master servicers, which protect the interests of certificateholders in the trust by servicing and administering the mortgage loans.
- The primary servicer is responsible for day-to-day servicing functions, while the master servicer is responsible for monitoring the activities of primary servicers, investor reporting and timely remittance of funds to trustees.
- Fitch also rates special servicers, which are key to maintaining the credit quality of a pool containing nonperforming commercial mortgages and real estate-owned (REO) assets. The special servicer is responsible for working out loans, foreclosing and liquidating assets.
- In assessing and analyzing the capabilities of primary, master and special servicers, Fitch reviews several key factors, including the management team, organizational structure and operating history, financial condition, information systems, and, with respect to the special servicer, workout and asset disposition experience and strategies.
- Fitch rates commercial mortgage primary, master and special servicers on a '1' to '5' scale, with '1' being the highest rating. Within each of these rating levels, Fitch further differentiates ratings by plus (+) and minus (–), along with the flat rating.

Applicable Criteria

Criteria for Rating Loan Servicers (February 2020)

Criteria for Rating North American Commercial Mortgage Servicers (January 2020)

Related Research

Fitch Affirms PGIM Real Estate Loan Services Commercial Servicer Ratings (January 2022)

Fitch Affirms Prudential Financial's Ratings; Outlook Stable (May 2021)

Analysts

Adam Fox
+1 212 908-0869
adam.fox@fitchratings.com

James Bauer
+1 212 908-0343
james.bauer@fitchratings.com

Key Rating Drivers

Company/Management: PGIM Loan Services has been servicing CRE loans since 1898 and continues to remain active in the servicing and origination of CRE loans, particularly for the general account, affiliate investment funds and the GSEs. Servicing functions performed by the company are key to supporting the CRE originations of PGIM RE, providing a steady flow of new business. The company also continues to invest in technology to improve efficiency and the borrower experience.

The company also services the majority of CRE investments for PFI and performs servicing for affiliate CRE investment funds that include high-yield and core-plus loans on behalf of the CRE investment funds. PGIM Loan Services also services more than $9 billion of loans in seven currencies and 12 countries, one of the most diverse international portfolios of Fitch-rated servicers in North America.

Staffing and Training: PGIM Loan Services maintains staff onshore as well as offshore through an affiliate. The primary and master servicing management team of 36 collectively average 22 years of industry experience and 14 years of tenure, while 112 staff members average 16 and seven years, respectively. Turnover was limited to 15 staff-level separations, including two offshore employees, resulting in aggregate turnover of 11% domestically and 10% overall, down from the 13% domestic turnover the prior year. Special servicing consists of one senior manager, one middle manager and one staff-level employee. The middle manager is fully dedicated to special servicing, while the remaining two employees support PGIM RE and primary servicing, and are available as needed. Employees completed 30 hours of training in 2021, consistent with the prior year.

Technology: PGIM Loan Services maintains a highly integrated technology infrastructure for loan servicing anchored by McCracken's Strategy (version 19D) and supplemented by a proprietary application to support loan originations, asset management and workflow. The company also maintains propriety applications for borrower and investor communications and a data warehouse. Recent technology enhancements include modernization of the borrower portal with added functionality to allow for the submission of required documents, new bulk email capability to efficiently contact borrowers affected by significant events, updates to currency converters, the ability to store stop rates and accrual calculation enhancements.

Procedures and Controls: PGIM Loan Services has a dedicated business strategy and support (BSS) group that is responsible for measuring performance, compliance and accuracy through a comprehensive process that includes monitoring over 250 metrics. The company is also subject to an internal audit review by the parent of PGIM RE, PGIM, Inc., a subsidiary of PFI, as well as external Regulation AB (RegAB) and various third-party client audits.

Financial Condition: Fitch affirmed PFI's Long-Term Issuer Default Rating (IDR) of 'A'/Stable in May 2021. Fitch's ratings on PFI reflect the company's very strong business and financial profile, which remains in line with rating expectations. The impact of the coronavirus pandemic has been manageable in the context of PFI's overall financial performance and balance sheet metrics. The ratings also consider ongoing challenges due to low interest rates and competitive market conditions, as well as business and investment exposure to the macroeconomic environment in Japan.

Loan Administration: PGIM Loan Services' core servicing system and proprietary ancillary systems are fully integrated into a robust technology platform that performs all servicing functions and provides for key metrics to support compliance. While the company leverages both an offshore affiliate and an outsourcing vendor to perform certain servicing functions, it retains all approval authority and has the ability to perform and monitor the functions domestically. The company did not incur any tax penalties, Uniform Commercial Code (UCC) lapses, reporting errors or restatements during the 12 months ended September 2021, consistent with the highest levels of servicing proficiency.

Defaulted/Nonperforming Loan Management: PGIM Loan Services maintains well-documented procedures for resolving defaulted loans. The asset management staff comprises dedicated and shared resources that are adjusted based on the volume of loan defaults. Senior management maintains an active oversight role throughout the workout process with approvals based on delegations of authority reflecting the concentration of nonsecuritized loans.

Company Experience Since:

CRE Servicing	1898
CMBS Primary Servicing	1999
CMBS Master Servicing	2001
CRE Loan Workout	1898
CMBS Workout	2003

Source: PGIM Real Estate Loan Services, Inc.

Operational Trends

Business Plan	▲	Growth in portfolio with demonstrated sponsor support investing in servicing infrastructure
Servicing Portfolio	■	Year-over-year loan count change of approximately 10%
Financial Condition	■	Stable outlook
Staffing	■	Staffing changed less than 12% +/–
Technology	▲	Improving technology platform
Internal Controls	■	Stable control environment; no material audit findings
Servicing Operations	■	Stable operations; no material changes year over year

Source: Fitch Ratings.

PGIM REAL ESTATE FINANCE

Company Overview

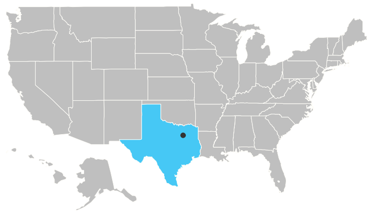
Servicing Portfolio Overview

	9/30/21	% Change	12/31/20	% Change	12/31/19
Total Servicing					
UPB ($ Mil.)	119,896.1	4	115,223.6	9	106,164.4
No. of Loans	4,924	2	4,849	3	4,694
Primary Servicing					
UPB ($ Mil.)	119,896.1	4	115,223.6	9	106,164.4
No. of Loans	4,924	2	4,849	3	4,694
Master Servicing					
UPB ($ Mil.)	66.1	10	59.9	(42)	103.6
No. of Loans	15	(12)	17	(15)	20
Special Servicing — Named					
UPB ($ Mil.)	85,896.9	2	84,485.0	10	76,758.1
No. of Loans	3,102	1	3,084	3	2,982
Special Servicing — Active[a]					
UPB ($ Mil.)	327.8	(21)	416.7	836	44.5
No. of Loans	7	(22)	9	80	5

[a]Includes REO assets. UPB – Unpaid principal balance.
Source: PGIM Real Estate Loan Services, Inc.

PGIM Loan Services provides services for a diversfied mix of issuers, including domestic and international affiliate funds, PGIM RE balance sheet loans, GSEs and third parties, all of which continue to contribute to growth in the servicing portfolio.

Office Locations



Primary Office: Dallas.

PGIM Loan Services is the commercial mortgage servicing entity of PGIM, Inc., a wholly owned subsidiary of PFI. PFI is one of the world's largest financial services organizations, with operations in the U.S., Asia, Europe and Latin America, and over $1.5 trillion in total assets under management (AUM) as of June 2021. PGIM comprises seven business lines covering real estate debt and equity, public fixed income, public equity and private fixed-income and equity investments.

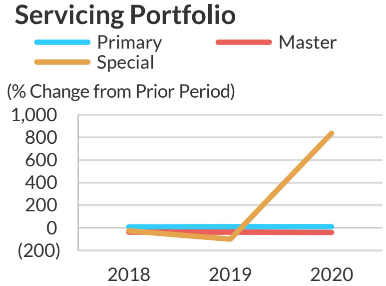
PFI announced the sale of its full-service retirement business to Empower Retirement in July 2021. The sale of the business line, which is expected to close during the first half of 2022, is not expected to negatively affect the PGIM Loan Services portfolio as it expects to retain servicing after converting the portflio to a new third-party account.

As of September 2021, PGIM Loan Services' total servicing portfolio consisted of 4,924 loans totaling $119.9 billion, of which approximately $11.2 billion (640 loans) is securitized. PGIM Loan Services retains all primary servicing responsibility for loans originated by PGIM RE, as well as special servicing for nonsecuritized loans. The company also retains servicing responsibility for loans originated by PGIM RE for international clients seeking debt financing products outside the U.S.

PGIM Loan Services' commercial servicing operations continue to focus on loans originated by PGIM RE for the general account, GSEs (e.g. the Federal Housing Administration [FHA], Fannie Mae and Freddie Mac) and other third-party investors. PGIM RE originated approximately 750 CRE loans totaling $19.6 billion in 2020 and expects 2021 originations to meet or exceed the prior-year level. While the number of loans serviced has increased 8% since 2018, the average balance of loans serviced has increased 25% over the same period, reflecting larger loans offsetting maturities. In addition to CRE servicing, PGIM Loan Services performs general ledger accounting, transfers, debt valuations and total return reporting for insurance company loans, new loan forecasts, loan quality ratings and loan fee accounting for PGIM RE.

The majority of the company's servicing portfolio for affiliates consists of core, core+ and high-yield strategies. The affiliate core/core+ portfolio represents approximately $62.9 billion, consisting of

Servicing Portfolio



Note: Special servicing includes loans actively in special servicing (including REO). Total excludes special servicing.
Source: PGIM Real Estate Loan Services, Inc.

$58.7 billion CRE and $4.2 billion of agricultural loans. Recent originations focused on fixed-rated debt for industrial and multifamily assets as well as agricultural assets. The third-party core/core+ portfolio, which the company services on behalf of 25 third-party clients, including 14 investment management clients and two debt funds, totaled $10.7 billion as of September 2021. Affiliate servicing includes the PGIM RE U.S. debt fund, which totaled $3.2 billion (53 loans), non-investment management clients including two PGIM RE capital funds (VI and VII) and PGIM RE's bridge financing program. The company also provides servicing support for high-yield loans on behalf of an affiliate U.S. debt fund (53 loans totaling $3.2 billion), an open ended general account fund (five loans totaling $257.2 million) and a third-party institutional lending program focused on construction lending (two loans totaling $28.0 million).

PGIM Loan Services provides servicing for approximately $9.4 billion of loans in seven currencies and 12 countries, representing one of the largest and most diverse international portfolios of Fitch-rated servicers in North America.

Principal servicing operations and the majority of the servicing staff are located in Dallas, with offshore servicing staff located in Letterkenny, Ireland, through an affiliate company, PGIM Ireland Limited (PFI's offshore captive platform). PGIM Loan Services has consistently expanded international commercial loan servicing YoY by over 10%. As of September 2021, the company had serviced 217 loans from the Dallas office totaling $9.4 billion, comprising loans denominated in seven foreign currencies across 12 countries.

The GSE portion of the company's servicing portfolio consists of 951 Fannie Mae loans totaling $22.9 billion and 560 Freddie Mac loans totaling $11.1 billion as of September 2021.

Financial Condition

Fitch affirmed PFI's Long-Term IDR at 'A'/Stable on May 10, 2021.

Fitch's ratings on PFI reflect the company's very strong business and financial profile, which remains in line with rating expectations. The impact of the coronavirus pandemic has been manageable in the context of PFI's overall financial performance and balance sheet metrics. The ratings also consider ongoing challenges due to low interest rates and competitive market conditions, as well as business and investment exposure to the macroeconomic environment in Japan.

PFI's very strong business profile considers the company's market-leading positions in several major life insurance segments in the U.S. and Japan, which provide major competitive advantages including significant operating scale, strong asset origination capabilities, diversified product and distribution strength, and strong brand name.

Continued business growth in recent years has improved the diversification of PFI's business risk profile. Mortality-based earnings and cash flow from Japan and other non-U.S. insurance markets, and continued growth in asset management provide an offset to the company's more capital market-sensitive businesses in the U.S. insurance market, including its large variable annuity (VA) business.

Fitch views PFI's financial profile as very strong and key credit metrics remain in line with rating expectations. While the pandemic has modestly affected the company's underwriting results over the past year, overall financial performance remains in line with rating expectations. Likewise, insurance company capital adequacy metrics were somewhat affected by bond portfolio rating migration and general business growth over the past year but remain in line with rating expectations.

Employees

As of September 2021, PGIM Loan Services maintained a master and primary servicing staff of 148 employees, up slightly from 143 at Fitch's prior review. Thirty-one servicing employees are located in Letterkenny as part of PGIM Ireland Limited and report directly to managers in Dallas. The special servicing team consists of one dedicated resource as well as two shared resources from primary servicing. While the number of special servicing employees is small, it is appropriate for the limited number of loan defaults. Additionally, several primary servicing employees have workout experience and are available to supplement existing staff should there be a significant increase in defaulted loans.

At 11% total turnover, PGIM Loan Services has had less employee seperations than other Fitch-rated servicers, which have had a material increase in turnover through 2021. The lack of management departures was also contrary to elevated management turnover observed at other servicers.

Senior management monitors staffing levels on a monthly basis. Senior managers proactively manage recruitment relative to turnover to ensure staffing levels remain adequate to meet servicing obligations. Employee performance is monitored with midyear and annual performance appraisals, 360-degree peer feedback, mentoring programs, customer survey feedback and ongoing staffing discussions.

Employee Statistics

	2021				2020			
	No. of Employees	Average Years Industry Experience	Average Years Tenure	% Turnover	No. of Employees	Average Years Industry Experience	Average Years Tenure	% Turnover
Domestic Primary/ Master Servicing								
Senior Management	4	33	15	0	4	32	14	0
Middle Management	27	22	14	0	25	21	14	11
Servicing Staff	86	19	8	15	84	19	7	14
Total	**117**	—	—	**11**	**113**	—	—	**13**
Offshore Primary/Master Servicing								
Senior Management	0	—	—	0	0	—	—	0
Middle Management	5	15	13	0	5	14	12	0
Servicing Staff	26	8	4	8	25	8	4	0
Total	**31**	—	—	**7**	**30**	—	—	**0**
Cumulative Total	**148**	—	—	**10**	**143**	—	—	**10**
Special Servicing								
Senior Management	1	32	8	0	1	31	7	0
Middle Management	1	36	19	67	2	24	13	0
Servicing Staff	1	13	10	0	1	17	9	50
Total	**3**	—	—	**29**	**4**	—	—	**25**

Source: PGIM Real Estate Loan Services, Inc.

Primary/Master Servicing

The primary and master servicing team is organized functionally across servicing, asset management, investment operations, and the business strategy and support group. Given the limited number of master servicing duties as a result of continued loan maturities, there is no dedicated master servicing staff, as master servicing duties are integrated across the functional teams. Servicing teams are generally staffed at the associate, analyst and senior levels to provide advancement opportunities and cross team support.

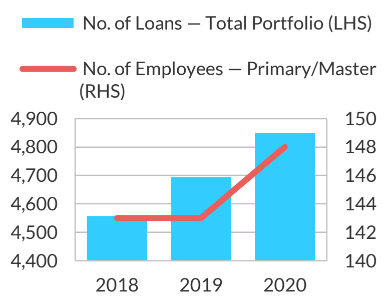
The primary and master servicing group experienced no management turnover during the 12-months ended September 2021. Turnover was limited to 15 staff-level separations, including two offshore employees, resulting in aggregate turnover of 11% domestically and 10% overall, down from 13% domestic turnover the prior year. Employee departures include four retirements and one internal transfer. Average employee industry experience and tenure were not negatively affected by turnover.

The senior management team is led by four managers who average 33 years of industry experience and 15 years of tenure, consistent with the prior year. There are 27 domestic middle managers who average 22 years of industry experience and 14 years of tenure, as well as five offshore managers who average 15 years and 13 years, respectively. PGIM Loan Services maintains an experienced and tenured domestic combined management team of 31, providing sufficient depth and support to the group's 85 domestic staff-level employees.

Domestic staff-level employees average 19 years of industry experience and eight years of tenure, which compares favorably to highly rated Fitch servicers. Offshore staff-level employees average eight years of experience and four years with the company, and are solely dedicated to servicing.

In 2020, PGIM Loan Services was named servicer for two PGIM RE European Value Add funds that, in addition to ongoing international debt investments, have grown the company's international portfolio to approximately $8.0 billion. The international loan servicing team, which added a London-based team leader in 2020, now comprises 13 employees across Dallas, Ireland and London.

Loan and Employee Counts



Source: PGIM Real Estate Loan Services, Inc.

Special Servicing

The special servicing group consists of one senior manager, one middle managers and one staff-level employee. The middle manager is fully dedicated to special servicing, while the remaining two employees support PGIM RE and primary servicing, and are available as needed. Fitch noted that PGIM Loan Services has a deep bench of experienced staff with workout experience to draw upon should the volume of defaults increase. While the special servicing management team is small and presents potential key-person risk, Fitch believes these risks are mitigated by the depth of experience and tenure of the entire group, as well as the resources available within master/primary servicing and PGIM RE.

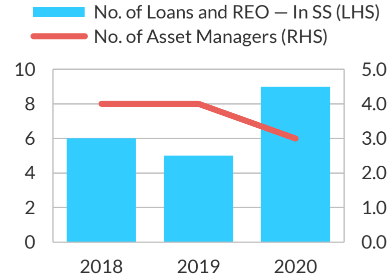
The special servicing group is led by a senior manager with 32 years of industry experience and eight years of company tenure. The manager has prior asset management and servicing experience within PGIM Loan Services and is also responsible for certain master/primary servicing functions. The middle manager, who is also the group's primary asset manager, has 36 years of industry experience and 19 years of tenure. The group's staff-level employee averages 13 years of industry experience and 10 years with the company. Currently, all special servicing employees are shared resources given the minimal level of loan defaults.

The special servicing group experienced one staff-level departure involving a shared resource in 2021, resulting in 29% aggregate turnover for the group. Turnover is high as a function of the small size of the group. The special servicing team has historically had limited turnover among management employees, and Fitch noted that while the special servicing group is small and draws on support from master/primary servicing employees, middle and asset managers have remained largely consistent for several years.

PGIM Loan Services does not maintain a separate REO group due to its limited number of REO assets. However, the asset manager is responsible for foreclosure and REO management functions. As is common among non-third-party special servicers with low loan defaults, the special servicing team includes both employees dedicated to special servicing and employees who perform other asset management functions for PGIM Loan Services and PGIM RE.

PGIM Loan Services has demonstrated proficiency in adjusting its staffing needs relative to market conditions. During times of increased defaults, the company has increased the size of the special servicing team by drawing experienced real estate professionals from other areas within PGIM RE, such as originations. In addition, as PGIM RE has expanded geographically, PGIM Loan Services has placed asset managers in PGIM RE offices within highly distressed regions.

SS Loan and Employee Counts



SS – Special servicing. REO – Real estate owned.
Source: PGIM Real Estate Loan Services, Inc.

Training

PGIM Loan Services maintains a tiered training requirement structure. Employees with less than three years of tenure are required to complete 40 training hours annually, while employees with greater than three years of tenure must complete 30 hours annually.

Employee training and development is facilitated through the myLearning platform, which is managed by the BSS group. The departmental training curriculum is directed by a training committee comprising the departmental representative and the BSS group vice president, who serves as committee chair. All training for servicing employees is delivered and tracked by the company's myLearning application, which PGIM Loan Services adopted in 2020. myLearning monitors all training, including soft skills, servicing-specific topics, business processes, employee electives and external learning opportunities. Training is provided through a variety of methods, including Web-based training, vendor-sponsored webinars and outside instructor-led training. Annual training curriculums focus on improving individual skillsets, developing leadership competencies and departmental cross-training opportunities.

PGIM Loan Services utilizes myLearning to facilitate traditional employee training and development as well as Axonify for compliance-related training. Axonify is a games-based approach to compliance training whereby employees earn points by completing courses and asssessments every 30 days.

Compliance training is administered through the Axonify platform under the direction of the compliance group. Axonify is a third-party platform that applied a game-based approach to training through which employees accumulate points by completing various forms of training and ongoing assessments. Under this unique approach, employees are required to maintain a set number of reward points over a 30-days period, which is accomplished through micro training sessions and assessments. Fitch noted PGIM's approach to compliance training as unique among Fitch-rated servicers, as it focuses on continuous learning engagements rather than annual courses. Axonify contains most compliance and required PGIM training courses, such as conflicts of interest and anti-harassment.

Annually required training courses/topics for PGIM Loan Services employees include a corporate policy refresher, ethics training, anti-bribery/anti-corruption, and privacy and information security awareness. Managers are provided monthly reports of completed training hours for direct reports and are annually provided suggested curriculums to help promote developments. Recent training topics include Libor transition, inspections, ESG, OFAC and AMLU, as well as borrower structures

The company introduced a new training curriculum for managers and staff in 2021 consisting of over 30 hours or courses across sectors and functions.

and multiple-servicing process training. In addition to formal training opportunities, the company offers financial support to employees for undergraduate and post-graduate studies and professional certifications. Employees are also encouraged to earn Level 1 and/or Level 2 certifications from the Mortgage Bankers Association.

PGIM Loan Services employees responsible for both primary and special servicing functions averaged 29 hours of training for the 12 months ended September 2021, consistent with the prior year.

Operational Infrastructure

Offshore Operations

PGIM Ireland Limited is a captive offshore affiliate located in Letterkenny, Ireland that supports various Prudential-affiliated companies. In November 2020, PFI entered into a strategic relationship with Tata Consultancy Services (TCS) through which the majority of PGIM Ireland Limited employees transitioned to TCS but continued to support various PFI business lines. PGIM Loan Services retained PGIM Ireland Limited employees dedicated to supporting the commercial servicing platform allowing for PGIM Loan Services to extend its workday by five hours.

The commercial loan servicing team includes 31 offshore employees who report to managers in Dallas and are fully integrated with the servicing group.

Offshore employees perform and/or participate in payment processing, CMBS surveillance, investor reporting, loan accounting, lease consents, repair monitoring, reserve disbursements, and treasury and servicing functions for international loans. Organizationally, offshore employees report directly to managers in Dallas who utilize key performance indicator reports to monitor multiple performance metrics around servicing functions and track volume, productivity and quality. In addition to day-to-day interfaces, PGIM Loan Services formally holds approximately 20 knowledge exchanges between Dallas and Letterkenny, either in person or through videoconferences.

Outsourcing

PGIM Loan Services outsources limited servicing functions to a third-party vendor in Gurgaon, India and a second vendor in Chennai, India. The Gurgaon vendor performs data entry for rent rolls and financial statement data entry spreading within PGIM Loan Services' LoanConnect application, along with bank reconciliations, loan quality ratings and various other data entry functions. The vendor in Chennai inputs insurance policy data within LoanConnect. The work product of both vendors is reviewed by PGIM Loan Services, which also maintains the ability to perform both functions internally if needed.

The vice president of the BSS group oversees third-party vendors with the goal of continuous process improvement to further leverage offshoring opportunities, intended to maximize efficiency of the overall platform. Fitch noted that PGIM Loan Services' internal key metric report contains multiple measures of work performed by vendors.

Similar to other CRE servicers, PGIM Loan Services engages third parties for tax payment and reporting, UCC filings and property inspections. Fitch does not view the current level of outsourcing as material given its limited scope, and the company retains the expertise to perform the functions in-house.

Vendor Management

Vendor management is the responsibility of Prudential's enterprise vendor governance office (EVGO), which comprises employees from legal, compliance, audit, risk management and the individual business lines. EVGO maintains processes for selecting and engaging vendors, and it analyzes the financial condition, capabilities and controls around outsourced functions, along with performing a risk rating analysis of the vendor. Additionally, PGIM Loan Services' BSS team is responsible for working with the EVGO and the PGIM RE risk management group on behalf of PGIM Loan Services to ensure vendors are monitored and assessed for the appropriate risk level.

Prior to engaging a vendor, a performance monitoring plan is developed that includes monthly, quarterly and annual reporting. Additionally, the BSS team actively solicits feedback from PGIM Loan Services line managers to confirm ongoing monitoring and identify any material changes that may impact the risk assessment of the vendor. Managers are responsible for monitoring and validating the work of their teams, including quality control (QC) testing. The vice president of the BSS group is responsible for monitoring the performance of offshore vendors. Vendor performance is also tracked by the servicing function in PGIM Loan Services' Key Indicator Report, which contains multiple metrics to monitor each servicing function.

Information Technology

PGIM Loan Services uses McCracken's Strategy, version 19D, as its primary system for all loans, including loans for non-U.S. collateral. In addition, the following secondary systems and applications are integrated with Strategy:

- LoanConnect, a proprietary asset management and workflow application.
- BorrowerConnect, a proprietary borrower website.
- DataConnect, a consolidated data warehouse.
- InvestorView, a proprietary investor website.
- PruXchange, a website for document exchange.
- IBM Content Manager, a third-party document imaging and content management system.
- Argus (version 13), a third-party property valuation system.
- The MIAC (Mortgage Industry Advisory Corporation) system, used for third-party servicing portfolio valuation.
- PRIDE/AMLS, a third-party check production and Office of Foreign Assets Control (OFAC) verification application.
- Oracle, a third-party general ledger.

Approximately 70% of loans serviced by PGIM Loan Services have an active user of the company's borrower portal. Additionally 16% of borrowers have transitioned to paperless billings. Fitch expects recent enhancemenets to the company's web portal will increase usage and ultimately improve the borrower experience by offering more self-service capabilites.

Nightly data feeds from Strategy are used to populate DataConnect for reporting purposes and LoanConnect. Microsoft Power BI is the primary report writer for DataConnect and LoanConnect. Additional reporting is available through preprogrammed reports in Strategy, along with ad hoc reporting through Crystal Reports and the AS400 query tool. Robot Reports is used to schedule, distribute and store all key reports.

Recent technology enhancements include modernization of the BorrowerConnect website and added functionality to allow for the submission of required documents, new bulk email capability to efficiently contact borrowers impacted by significant events, enhancements to currency converters, and the ability to store stop rates and accrual calculation enhancements. The company has also recently employed API capabilities to exchange UCC data with its vendor and a new banking platform allowing for more integration into LoanConnect, which will support future remittance automation.

PGIM Loan Services has a demonstrated history of investment in technology to drive efficiency and enhance controls around servicing processes. Future technology initiatives include automated financial statement data extraction, automated payoff and prepayment calculations for international and agriculture loans, automated daily account reconciliations, and additional automation tools for the treasury group to monitor bank accounts and track money movements across multiple applications.

PGIM Loan Services is testing the implentation of an automated OCR-based financial statement spreading tool with its vendor. The new tool, which is expected to be fully adopted in 2022, is expected to reduce the processing time for financial statements between 40% and 80%, depending on complexity of the statement.

PGIM Loan Services is one of few Fitch-rated servicers utilizing OCR technology to collect data from ACORD 25 forms. This tool reduced processing time to review the form by more than 75% and increased data accuracy.

The company reported no significant cybersecurity incidents during the 12 months ended September 2021. PGIM Loan Services' technology environment is monitored continuously by a network operations control center and a cyber security operations center using a variety of tools supplemented by annual penetration testing.

Application and technology support is provided by a team of 24 IT professionals located in Dallas, Atlanta and Newark, NJ. Additionally, the company is able to utilize TCS IT resources to support development and data analysis needs. Network and desktop support services are provided by the Prudential Global Technology support groups. Security administration and oversight are provided by PGIM REF's business security office.

Disaster Recovery/Business Continuity Plan

PGIM Loan Services maintains a business continuity plan that is distributed to senior management and disaster recovery teams annually. The business continuity plan relies on a work-from-home strategy, use of a third-party vendor for check printing functions and support from servicing employees in TCS. The company previously also had an alternative Prudential office equipped with IT hardware located roughly 20 miles from the main office in North Dallas but discontinued use of the facility given the demonstrated success of working remotely. Business continuity strategies that rely on remote working can be impacted by regional power or internet connectivity outages, which is partially mitigated by the availability of offshore servicing employees.

Business-critical associates are equipped with laptops, allowing remote access to all critical Prudential systems. The plan includes information cards and a call tree listing critical phone numbers, contact information and meeting places that are distributed to all employees. In addition to the formal business continuity plan for U.S. operations, PGIM Loan Services is able to leverage PRIM Ireland Limited to perform critical servicing functions such as cash processing.

The Strategy loan servicing system is hosted by McCracken in its Billerica, MA data center. The data center has a redundant power supply along with a disaster recovery contract with SunGard for 24-hour recovery. The vendor, in consultation with PGIM Loan Services, performs annual MIMIX failover testing. McCracken is responsible for data backups that occur both nightly and monthly with PGIM Loan Services receiving a copy of monthly downloads, which are retained for seven years. LoanConnect is classified as a mission-critical application with an expected recovery time of four hours or less.

All other PGIM Loan Services applications are hosted by Prudential's primary data center in Fort Washington, PA, which also has a redundant power supply. In addition, Prudential maintains a secondary geographically separate production data center that can become the primary production site within a few hours of a failure at the primary data center. The most recent disaster recovery/data center failover test occurred in January 2021 with successful results. The company expects minimal data loss in the event of a power loss due to ongoing data replication between its data centers. Additionally, the corporate infrastructure group of Prudential performs annual recovery tests of the company's IBM content management system with the most recent test occurring in June 2021 with successful results.

PGIM Loan Services did not conduct a business continuity test in 2021 given the majority of employees has been working remotely since March 2020, a common trend among Fitch-rated services.

Internal Control Environment

PGIM Loan Services maintains a very strong, multifaceted internal control environment. Controls are established through formal policies and procedures, and compliance is actively monitored by dedicated QC resources, largely through comprehensive metrics for accuracy and timeliness. The company is also subject to annual internal audit reviews by PGIM, a subsidiary of PFI whose coverage includes PGIM RE and PGIM Loan Services, as well as external, RegAB and third-party client audits.

Policies and Procedures

PGIM Loan Services' policies and procedures are available to all employees electronically through the company's internally developed LoanConnect application. Unless business needs require a change, policies and procedures are formally reviewed once every two years by the respective department director, the BSS vice president and the responsible team director. The policies and procedures reflect the original implementation date and the date of the most recent revision. There were no material updates to policies and procedures during the 12-month period ended in September 2021, reflecting PGIM Loan Services' mature servicing platform.

Policy and procedure training occurs during new employee orientation and for all employees throughout the year as needed. The BSS group coordinates training for material policy or procedure changes.

In addition to policies and procedures, LoanConnect contains pooling and servicing agreements (PSAs) and PSA abstracts for all transactions where PGIM Loan Services is the named master servicer. Fitch reviewed a sample of Prudential's policies and procedures and found them to be complete, with step-by-step instructions and illustrations for servicing tasks. The policies and procedures sampled by Fitch had variable last review dates; however, they had all been reviewed within 24 months, pursuant to the company's policy.

Compliance and Controls

The BSS team is responsible for measuring performance, compliance and accuracy through a comprehensive metric process that includes monthly and quarterly testing. This process includes over 250 key performance metrics to track accuracy and timeliness on a monthly basis. The team comprises seven members (down from 10 the prior year), including the BSS vice president, who reports directly to the president of PGIM Loan Services. The BSS group also regularly performs independent testing of various processes, including new loan setup, adjustable-rate loans and payoffs. Exception reports are automated in LoanConnect or DataConnect and monitored by the BSS team.

PGIM Loan Services is subject to multiple internal and external audits annually. The most recent internal audit, which Fitch noted had a broad scope and contained detailed sample testing, identified only minor operational findings, which management addressed through remediation plans.

Examples of internal controls monitored by the BSS team and reported monthly include investor report timeliness as specified in the servicing agreement, financial statement collections, outstanding property inspections, UCC lapses and LOC lapses, among others. Fitch reviewed the September 2021 Key Indicator Report used to monitor performance in areas such as advancing, bank account reconciliation, monthly cash activity, investor reporting, collateral monitoring, insurance, asset management and surveillance functions, among others. Fitch found the report, which included prior-month results and prior YE averages, to be a highly effective tool to monitor compliance and servicing performance. The report, which Fitch views as best in class among highly rated servicers, did not contain any material negative findings or trends that were not sufficiently addressed.

In addition, the BSS team prepares quarterly QC reports for FHA-insured and Ginnie Mae loans, which are provided to and countersigned by senior management. Fitch also reviewed a QC report for FHA loans as of 2Q21, which sampled 14 loans for compliance with servicing terms. The report contained no material findings.

The company's monthly Key Indicator Report, which is used to monitor operational compliance across servicing functions, is a highly effective monitoring tool with well-defined metrics and risk tolerances for each function.

A dedicated compliance team with PGIM oversees the compliance activities of PGIM Loan Services with support from the BSS group. The compliance team is part of the broader Prudential Financial compliance organization that reports to the chief compliance officer of PFI. Compliance examinations occur annually across the enterprise given PGIM's designation as a registered investment advisor.

Additionally, PGIM Real Estate maintains a risk team, comprising 10 employees, responsible for performing periodic risk and control self-assessments of PGIM Loan Services.

Internal Audit

PGIM has a separate audit team of approximately 25 auditors at the corporate level, with employees allocated to PGIM RE and PGIM Loan Services based on the scope of the internal audit. The team performs annual audits of PGIM Loan Services servicing functions with varying scopes based on annual risk assessments of each function, along with other audits in a given year and annual Sarbanes-Oxley (SOX) audits.

PGIM Loan Services is considered a medium-risk entity subject to a full internal audit every two years to three years, and it receives process- or product-specific, limited scope reviews in between full scope audits. There has been no change in PGIMs internal risk rating of PGIM Loan Services for several years.

The internal audit group performed two engagements in 2021 that included PGIM Loan Services, both of which occurred during the second half of the year. The scope of the first audit engagement reviewed SOX controls, loan quality risk ratings and watchlist loan administration. The audit did not contain any findings or guidance for process enhancements. PGIM Loan Services was also included as part of a PGIM RE-wide security administration audit reviewing user access and entitlements. The audit resulted in several findings with medium issue ratings; however, the company performed a secondary review to confirm negative events occurred as a result of unnecessary user access. PGIM Loan Services subsequently corrected user access errors and undertook a full review of access for all users and entitlements. While the findings have been

PGIM Loan Services' internal audit of security administation contained material findings; however, there was no impact to loans serviced. Secondary controls also mitigated any potential impact. The company immediately undertook corrective measures and continues to update procedures to prevent future findings.

remediated, the company will continue to develop procedures to enhance its review of user access through 2022.

External Audit

PGIM Loan Services is also subject to annual RegAB audits for its servicing portfolio. Fitch reviewed PricewaterhouseCoopers LLP's (PwC) 2020 RegAB audit of PGIM Loan Services, issued in February 2021. The audit confirmed PGIM Loan Services' compliance with servicing criteria and contained no negative findings. PGIM Loan Services does not undergo a Uniform Single Attestation Program (USAP) audit; instead, a RegAB audit is conducted for its entire portfolio. The company's 2021 RegAB audit is expected to be completed in February 2022, and there have been no preliminary negative findings reported to date.

In addition to the RegAB audit, PGIM Loan Services was subject to either desktop or full reviews by two CMBS master servicers, operational reviews by Freddie Mac and Ginnie Mae and four targeted audits by PwC for specific products or processes in 2021. None of these external reviews or audits resulted in unsatisfactory ratings or material findings, according to the company.

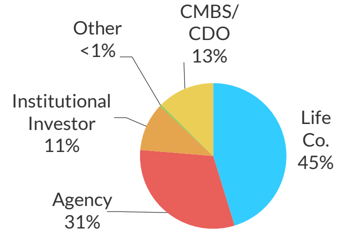
PGIM Loan Services did not incur any tax penalties, UCC lapses or reporting errors or restatements during the 12-month period ended in September 2021, consistent with the highest levels of servicing proficiency.

Primary Servicing

As of September 2021, PGIM Loan Services' commercial loan portfolio comprised over 4,900 loans totaling approximately $120.0 billion. Of this portfolio, 4,281 loans totaling $108.7 billion are nonsecuritized balance sheet loans serviced on behalf of affiliates (50% by loan count), GSEs (37%) and institutional investors (13%). The remaining 643 loans were originated by PGIM affiliates and have been contributed to legacy CMBS and Freddie Mac transactions. The company stopped contributing loans to CMBS transactions in 2016; however, it services more than 186 Freddie Mac CME transactions containing loans originated by affiliates. Since 2018, the number of loans serviced by the company has increased 8% by loan count but 25% by balance, reflecting higher balance new loan originations as the primary driver of growth.

Primary Servicing Product Type

(As of Sept. 30, 2021)



Note: Percentages based on number of loans.
Source: PGIM Real Estate Loan Services, Inc.

Primary Servicing Portfolio Overview

	9/30/21	% Change	12/31/20	% Change	12/31/19
CMBS					
No. of Transactions — Primary Servicer	225	9	207	11	186
UPB — Primary Servicing ($ Mil.)	11,170.0	11	10,071.3	11	9,034.3
No. of Loans — Primary Servicing	643	5	610	7	569
Non-CMBS					
UPB ($ Mil.)	108,726.1	3	105,129.7	8	97,130.0
No. of Loans	4,281	1	4,239	3	4,125

UPB – Unpaid principal balance.
Source: PGIM Real Estate Loan Services, Inc.

PGIM Loan Services' current portfolio includes 267 floating-rate loans totaling $11.0 billion indexed to Libor. The majority of loans has fallback language to transition to a new index and the company services more than 50 floating-rate loans indexed to SOFR.

New Loan Setup

PGIM Loan Services works closely with PGIM RE's regional offices to set up newly originated loans. Loan closers in regional offices enter required data elements into LoanConnect, which are then transferred to Strategy via an automatic feed once the loan has closed. While PGIM Loan Services maintains the ability to set up loans in bulk, it does this infrequently as most new loan servicing assignments are sourced exclusively from regional offices.

Following the receipt of executed loan documents from loan closers, PGIM Loan Services performs a QC review on all data points prior to releasing the loan into production. New loan boarding takes approximately one hour as a result of data feeds from LoanConnect, and the company's goal is to set up all new loans within two days of closing. Post loan boarding, a second member of the servicing team performs a formal QC review of each loan and completes a QC checklist. Additionally, the BSS team monitors loan boarding timelines through exception reports and crosschecks 20% of new loans against the original loan documents providing an additional control layer.

Throughout the loan origination process, loan covenants are captured by several groups across PGIM REF and PGIM Loan Services. Originators and loan closers are responsible for the initial input of loan covenants into LoanConnect. A QC review is performed both at the regional office where the loan was originated and by PGIM Loan Services, as it is responsible for monitoring and managing all post-closing covenant actions and boarding the loans into Strategy, which is accomplished primarily through a nightly data feed. A final review of loan covenants is performed by PGIM Loan Services within 20 business days to confirm all triggers are captured and property recorded. Internal performance metrics monitor the timely review loan covenant setup. Monthly reports and e-mail reminders are sent to responsible parties within PGIM Loan Services once loan covenants are tripped. An asset manager reviews the loan documents for lockbox covenant requirements and captures the data in LoanConnect for tracking and compliance administration.

PGIM Loan Services has not had any instances of missed tax payments or UCC continuations, or reporting restatements during the past two years.

Accounting and Cash Management

The majority of payments are received via ACH into collection accounts and wires. Payment data are reconciled using the company's Automated Payment Processing System (APPS) within LoanConnect. APPS receives bank files daily through an API and compares incoming payments to expected receivables from Strategy. The majority of payments is posted automatically with any exceptions researched and reconciled within APPS. Receipt accounts are reconciled daily outside of APPS and Strategy as an additional control.

% Payment Collections Via:

ACH	68
Lockbox	1
Wire	30
Other	1

Source: PGIM Real Estate Loan Services, Inc.

The cash management team is responsible for monitoring bank accounts, posting transactions and verifying account reconciliations daily, while the servicing team is responsible for resolving unidentified payments and suspense reconciliations. The treasury team oversees money movements, check and wire disbursements and overall checks and balances. Finally, the accounting team independently verifies all receipt account activity daily to ensure aged or unidentified receipts are resolved. PGIM Loan Services reviews all receipt and disbursement accounts daily, while all bank accounts are formally reconciled every 30 days. Reconciliations are recorded in a bank reconciliation database, and compliance is monitored monthly.

The cash management team is responsible for work with banks, borrowers and internal and external counsel to ensure cash management is timely and accurate. The team's core responsibilities include covenant monitoring, document negotiation, waterfall management and review of budgets on a loan-by-loan basis, as well as overall management and administration of the cash management process. The group also verifies bank account ratings quarterly to confirm compliance with servicing agreements. PGIM Loan Services maintains funds on behalf of securitized transactions on deposit with U.S. Bank National Association (rated AA–/F1+ by Fitch).

As of September 2021, PGIM Loan Services had serviced 239 loans with cash management agreements, of which 21 loans were being actively managed by the cash management team. For the 12 months ended in September 2021, the cash management team activated six loans with springing lockboxes.

LOCs, which may be posted as additional loan collateral, are recorded and monitored in LoanConnect. Renewal notices are sent 90, 60 and 30 days prior to LOC expiration. In the event an LOC is not renewed, the loan servicing team will make several attempts to contact the borrower before drawing on the LOC before expiration. Additionally, the compliance group monitors bank ratings for issuance of LOCs to confirm rating requirements quarterly. As of September 2021, PGIM Loan Services was responsible for monitoring 31 LOCs.

Escrow Administration

Tax and insurance escrow accounts are reviewed annually to confirm sufficient funding for the year. Reviews occur after the last tax or insurance payments are due and utilize monthly reports from the servicing system to identify loans due for updated escrow analysis. A monthly exception report identifies any lapse in a loan's annual escrow review. Tax payments for non-escrowed loans are monitored and tracked similarly to escrowed loans to ensure taxes are paid in a timely fashion, with the assistance of the company's tax vendor. Weekly tax monitoring reports are generated from the servicing system to identify all loans with either delinquent taxes or taxes due within 30 days.

% Portfolio Escrowed for:

Taxes	33
Insurance	26

Source: PGIM Real Estate Loan Services, Inc.

PGIM Loan Services did not incur any tax penalties during the 24-month period ended in September 2021 and has historically had very few instances of late payments.

Property insurance monitoring begins at loan setup, when insurance reviews are performed and requirements are documented in LoanConnect. Newly originated loans are reviewed by third-party consultants to confirm requirements and create loan-specific checklists to monitor compliance through the life of the loan. Borrowers are contacted prior to insurance expirations to remind them of the pending expirations and which coverage levels are required per the loan documents. Insurance renewals are reviewed and updated in the insurance module within LoanConnect and compared to loan document/checklist requirements. Any deficiencies are communicated directly to the borrower and, if not corrected in a timely manner, could result in forced placement insurance by PGIM Loan Services. During the 12 months ended September 2021, PGIM Loan Services placed five loans under its lender forced placed insurance policy to address lapses in coverage.

PGIM Loan Services has been using an OCR tool to review and extract data from the ACORD 25 form for approximately two years. The tool has improved accuracy and lowered the time necessary to review insurance compliance.

The loan servicing team is also responsible for UCC administration. UCC continuations are automatically generated by the servicing system six months prior to expiration and sent to a vendor for renewal. Exception reports are run weekly to identify any missing or expired UCC dates. Additionally, the BSS team runs queries to identify delinquent taxes or insurance, as well as lapsed or missing UCCs, as part of the team's monthly QC oversight. PGIM Loan Services did not have any UCC lapses during the 24 months ended in September 2021.

Investor Reporting

The investor reporting group, a subset of the loan accounting group, is responsible for monthly reporting and remittance distributions. Investor reporting analysts maintain reporting calendars for all assigned portfolios and are responsible for entering and reviewing data in LoanConnect prior to the reporting date. Analysts validate the reports, and validations receive a secondary review from an investor reporting manager prior to distribution. The majority of investor reports are generated from the loan system, with any manual inputs or adjustments verified against source documents. Investor reporting managers create a monthly compliance and reporting calendar to monitor and confirm reporting and remittance deadlines. In addition to investor reporting managers, the BSS team also tracks investor reporting metrics monthly to identify potential issues.

At three days, PGIM Loan Services maintains one of the fastest financial statement analysis processing times among Fitch-rated primary servicers.

The company has a formal process to review trustee reports once published to confirm balances, delinquencies, advances and shortfalls. The process ensures accuracy and allows the company to monitor the impact of cumulative interest shortfalls in transactions with multiple master servicers.

PGIM Loan Services reported no instances of reporting restatements, errors or late submissions during the 24-month period ended in September 2021.

Asset Administration

The servicing team monitors loan payment due dates using exception reports from Strategy. The borrower is contacted two days after the grace period, and a delinquency letter is sent when loans are 10 days past the grace period. If a payment is not received within 30 days, collection efforts are transferred to the asset management team and the loan may be transferred to special servicing. All efforts to contact the borrower are recorded in LoanConnect.

The surveillance team is responsible for collecting and analyzing borrower financial statements and rent rolls quarterly with assistance from the company's offshore vendor. Borrowers are sent e-mail reminders quarterly of financial statement and rent roll submission requirements, with additional follow-up reminders as necessary. Financial statement analysis is typically completed within two to three business days from the date all documentation is received, imaged and indexed. PGIM Loan Services reported a 97% collection and analysis of 2020 financial statements for securitized loans.

Tenant and financial statement data are entered into LoanConnect, which can be used to generate ad hoc queries and performance reports detailing tenant rollover and exposure. Detailed rent roll data for all tenants is updated quarterly for commercial properties, while summary information is recorded for multifamily properties. The surveillance team monitors the financial statement and rent roll data entry process in the workflow system and reviews the data based on an internal matrix. In addition, the system provides various checks and balances as the information is entered. Monthly management and metrics reports ensure all required information is received and available.

PGIM Loan Services is one of the few Fitch-rated servicers that performs an annual borrower satisfaction survey, for which it consistently scores highly.

Either quarterly or upon receipt of new collateral performance information from the borrower, the surveillance group performs a compliance test as part of its property financial review and analysis process. If lockbox covenants are tripped, the surveillance group immediately notifies the cash management group. The cash management group then works through a checklist of events to ensure proper parties are notified and proper documents are executed.

PGIM Loan Services utilizes the CRE Finance Council (CREFC) watchlist criteria, which are automated within LoanConnect. The surveillance team formally reviews all watchlist loans monthly and updates commentary as appropriate. The surveillance team also reviews all flagged loans for possible escalation to special servicing.

Third-party vendors perform property site inspections for all loans serviced pursuant to loan servicing agreement requirements. PGIM Loan Services utilizes industry-standard inspection forms, which are reviewed within 30 days of receipt by the company's third-party vendor and the surveillance team. Any deferred maintenance findings are recorded in LoanConnect and elevated by an asset manager who monitors any major repair items.

The servicing team is responsible for reviewing tenant improvement and leasing escrow draw requests and distributions. Following receipt of a borrower's draw request, with proper documentation, the request is reviewed, independently approved and disbursed in accordance with the loan documents. All escrow due dates and any compliance items are tracked in LoanConnect.

Pending loan maturities are also monitored in LoanConnect by the servicing group. Borrowers are provided notice of loan maturity up to 12 months in advance, and loans are added to the watchlist six months to 12 months in advance of maturity depending on loan type. PGIM Loan Services has 242 loans, totaling $5.5 billion, scheduled to mature through September 2022, a majority of which are general account loans.

Customer Service

Borrower inquiries received by mail, a customer service line and BorrowerConnect are routed to servicing and asset management staff for resolution. Staff respond to most borrower inquiries immediately and provide payoff quotes within 72 hours. PGIM Loan Services maintains a relationship management team for large borrower relationships in an effort to improve customer service.

The company performs a formal borrower satisfaction survey for the entire portfolio annually and a survey following any credit actions, such as assumptions and lease approvals. Additionally, senior management tracks feedback against benchmarked goals and follows up on low survey scores.

Fitch received a demonstartion of PGIM Loan Services' upgraded BorrowerConnect portal. The new portal contained several enhancements to improve borrower communication and the exchange on information. Robust borrower websites that allow borrowers to self serve, submit required documents and intitate email inquiries are becoming a best practice among highly rated servicers.

Master Servicing

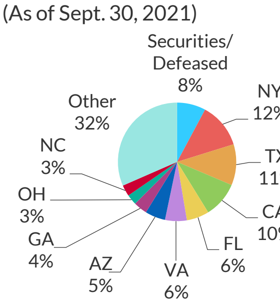
As of September 2021, PGIM Loan Services was named co-master servicer for nine legacy securitized transactions consisting of 15 loans totaling $66.1 million, down from $91.9 million YoY. PGIM Loan Services acts as co-master servicer for legacy securitized CMBS transactions up through the 2007 vintage. The company's master servicing portfolio is expected to continue to run off, as the company does not currently retain master servicing for loans contributed to new issue CMBS or agency CME transactions.

Master Servicing Portfolio Overview

	9/30/21	% Change	12/31/20	% Change	12/31/19
No. of Transactions — Master Servicer	9	(18)	11	(8)	12
UPB — Master Servicing ($ Mil.)	66.1	10	59.9	(42)	103.6
No. of Loans — Master Servicing	15	(12)	17	(15)	20
No. of Primary Servicers Overseen	0	—	0	—	0

UPB – Unpaid principal balance.
Source: PGIM Real Estate Loan Services, Inc.

CMBS Primary and Master Securitized Servicing by State
(As of Sept. 30, 2021)



Source: PGIM Real Estate Loan Services, Inc.

Primary Servicer Oversight

Although PGIM Loan Services primary services all loans in its master servicing portfolio, the company maintains policies and procedures for primary servicer oversight. Subservicers would be required to submit quarterly reports and annual USAP/RegAB attestations, as well as tax and insurance certifications. PGIM Loan Services would also conduct either a desktop or on-site audit of subservicers who service 20 or more loans. The purpose of the review is to confirm compliance with loan documents and servicing agreements. Subservicers who service fewer than 20 loans would be required to submit quarterly reports and provide annual USAP/RegAB attestations and tax and insurance certifications.

PGIM Loan Services policy as master servicer would be to shadow service all primary serviced loans by setting them up on its servicing system and recording all monthly payments, as well as tax and insurance payment status on a quarterly basis. The PGIM Loan Services investor reporting group reviews reporting and remittances on a monthly basis. Any property inspections performed by subservicers would be tracked and managed in LoanConnect, as are all deferred maintenance issues.

Advancing

All principal and interest advance requests are initiated by the investor reporting group, which is responsible for the remittance of funds, subsequent tracking of interest on advances and the repayment of advances. The investor reporting group works with PGIM Loan Services' accounting group to ensure advances are repaid in a timely manner. Advance recoverability determinations are made jointly by the vice presidents of servicing, asset management and accounting based on the total amount outstanding relative to the most recent valuation of the asset, collateral type and composition of the securitization for which the advance was made.

Outstanding advances are tracked in LoanConnect and reviewed monthly to protect PGIM Loan Services and the individual securitizations from over-advancing. Due to PGIM Loan Services' declining master servicing portfolio and its role as co-master servicer, its advancing threshold is generally lower than those of other master servicers, particularly for highly concentrated transactions in which it is the master servicer. However, loans are evaluated individually, with consideration given to the size of the entire CMBS transaction.

Investor Reporting

PGIM Loan Services adheres to the CREFC watchlist criteria with an automated process that the surveillance team manages within LoanConnect. Once the team has input the watchlist criteria, the system runs a nightly check of all loans and identifies those that have tripped the criteria. This information is reviewed by the surveillance group on a monthly basis and reported as part of the CREFC investor reporting package. PGIM Loan Services reviews and refreshes watchlist comments on a monthly basis, which Fitch views as a best practice for highly rated servicers.

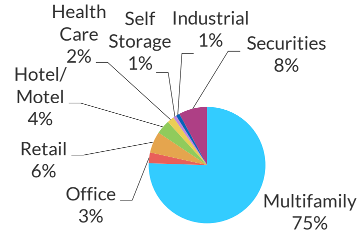
Special Servicing

Special Servicing Portfolio

As of September 2021, PGIM Loan Services was designated special servicer for 3,102 nonsecuritized commercial mortgage loans totaling $85.9 billion. Nonsecuritized special servicing and asset management duties are exclusively for PGIM RE-originated and retained CRE loans either on balance sheet or held by affiliate investment funds.

As of the same date, seven loans totaling $327.8 million were in default, none of which involved REO assets. Additionally, the company resolved nine nonsecuritized loans totaling $179.2 million during the 12-month period ended in September 2021, with two of the loans returned to performing, four loans paid off and the remaining loans resolved through a sale of the note or foreclosure sales. While PGIM Loan Services has had limited REO assets for several years, the company has experience in foreclosing and selling CRE assets nationwide and generally sells assets through receivership.

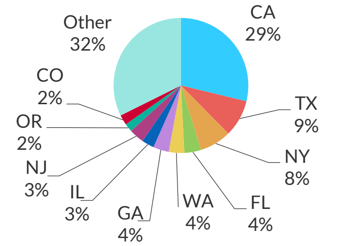
CMBS Primary and Master Securitized Servicing by Property Type
(As of Sept. 30, 2021)



Source: PGIM Real Estate Loan Services, Inc.

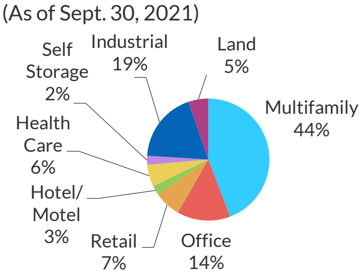
Although PGIM Loan Services maintains a small master servicing portfolio, it has demonstrated proficiency in managing advancing across multiple loan products. As of September 2021, the company had approximately $3.5 million of funds advanced for 11 loans and has not made any changes to its advancing procedures.

CMBS Primary and Master Non-Securitized Servicing by State
(As of Sept. 30, 2021)



Source: PGIM Real Estate Loan Services, Inc.

CMBS Primary and Master Non-Securitized Servicing by Property Type
(As of Sept. 30, 2021)



Source: PGIM Real Estate Loan Services, Inc.

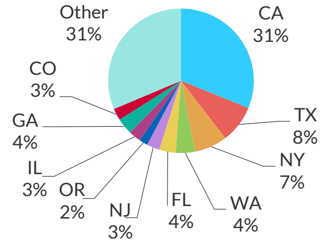
The special servicing group provides asset resolution support exclusuivly for all affiliate capital business lines secured by CRE assets and is expected to continue to add named special servicing assignments. The company currently does not pursue third-party special servicing.

Special Servicing Portfolio Overview

	9/30/21	% Change	12/31/20	% Change	12/31/19
CMBS					
No. of Transactions — Special Servicer	0	(100)	3	(0)	3
UPB — Special Servicer ($ Mil.)	0	(100)	17.1	(40)	28.6
No. of Loans — Named Special Servicer	0	(100)	3	(0)	3
UPB — Actively Special Servicing (Non-REO) ($ Mil.)	0.0	—	0.0	—	0.0
No. of Loans — Actively Special Servicing (Non-REO)	0	—	0	—	0
UPB — ¾ REO Assets ($ Mil.)	0.0	—	0.0	—	0.0
No. of REO Assets	0	—	0	—	0
Non-CMBS					
UPB — Named Special Servicer ($ Mil.)	85,896.9	2	84,467.9	7	79,072.0
No. of Loans — Named Special Servicer	3,102	1	3,081	2	3,034
UPB — Actively Special Servicing (Non-REO) ($ Mil.)	327.8	(21)	416.7	836	44.5
No. of Loans — Actively Special Servicing (Non-REO)	7	(22)	9	80	5
UPB — REO Assets ($ Mil.)	0.0	—	0.0	—	0.0
No. of REO Assets	0	—	0	—	0

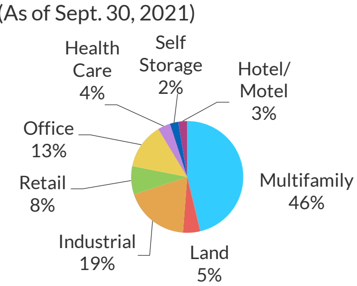
UPB – Unpaid principal balance.
Source: PGIM Real Estate Loan Services, Inc.

CMBS Named Non-Securitized Special Servicing by State
(As of Sept. 30, 2021)



Source: PGIM Real Estate Loan Services, Inc.

CMBS Named Non-Securitized Special Servicing by Property Type
(As of Sept. 30, 2021)



Source: PGIM Real Estate Loan Services, Inc.

Loan Administration

PGIM Loan Services has a shared surveillance team under the asset management group monitoring all assets serviced by the company. The portfolio surveillance team is responsible for credit monitoring the general account, Fannie Mae and interim portfolios and any securitized assets for which the company is the named special servicer. The special servicing team also has regular communication with the master servicing team regarding potential defaults.

With respect to nonsecuritized loans, the special servicing team participates in monthly and quarterly watchlist reviews with various capital sources within Prudential, and asset managers prepare a closely monitored list quarterly that serves as a watchlist of potential loan defaults across the portfolio. The vice president of special servicing is also a member of the PGIM Real Estate risk management committee, which meets quarterly to review risks by identifying problem markets, sponsors, tenants and other issues.

PGIM Loan Services resolved nine CRE loans totaling $179.2 million during the 12-month period ended in September 2021, with the return of two loans to performing status, four full payoffs, one note sale and two foreclosures sales.

Defaulted/Nonperforming Loan Management

Following the transfer of a loan to special servicing, a special servicing code is placed on the loan to notify the master servicing group of the new status. The special servicing group provides written direction to the master servicer on the application of any funds received while the loan is in special servicing.

The assigned asset manager is responsible for conducting a full loan file review, including trust documentation, to identify potential breaches of the loan sellers' representations and warranties. In addition, the asset manager performs a physical inspection of the collateral and obtains current rental, sales and comparable information from a variety of third-party research providers, along with current borrower and guarantor financial statements. In accordance with the time frame provided in the PSA or other documents, the asset manager is also responsible for drafting an asset status report upon a servicing transfer event, typically within 60 days of the transfer.

Asset status reports are approved based on established delegations of authority and contain a full collateral description that includes: improvements; a narrative discussion of the loan and circumstances surrounding the default; the anticipated foreclosure date (if applicable); appraised value and associated valuation methodology; and possible and recommended resolution strategies.

Any changes to the resolution strategy or material deviations in resolution times or budgets must be reviewed and approved according to the company's delegations of authority.

The special servicing group conducts a quarterly review of all specially serviced assets, including CMBS and non-CMBS, using detailed asset summaries that include a review of property and market performance, as well as resolution strategy status and prognosis.

Fitch reviewed a sample of three business plans provided by PGIM Loan Services for nonsecuritized loans, including active and resolved loans. Fitch found the asset strategy reports to be well documented and thorough as necessary for the action contemplated. The reports documented clear descriptions of events surrounding the default, property conditions, financial data for the borrower and property and the consideration of alternate resolution strategies, with a proposed strategy based on a net present value analysis where appropriate.

REO Management

PGIM Loan Services follows a dual-track methodology, similar to most special servicers, under which foreclosure proceedings occur simultaneously with workout discussions to protect the interest of the trust.

When a workout with the borrower is not feasible, the asset manager is responsible for performing a pre-foreclosure inspection and appraisal update, obtaining an environmental site assessment, performing a delinquent tax search and working with legal counsel to determine all liens on the property and which, if any, are senior to the subject lien. The asset manager generally solicits multiple bids from prospective property managers to ensure the proper scope of services and pricing is obtained. Property managers are required to complete annual operating budgets and provide detailed monthly operating reports to the asset manager and to PFI for independent review. Loans in the foreclosure process are subject to enhanced monitoring not only by PGIM Loan Services special servicing but also from the broader PGIM RE organization, inclusive of senior management, finance and legal.

The asset manager prepares a property strategic plan (PSP) within 60 days of title transfer to PGIM Loan Services. The PSP includes operational, capital expenditure and disposition plans for the asset and is approved by the special servicing credit committee. While assets may require lease-up or capital improvements before being marketed, asset managers generally attempt to liquidate REO assets as quickly as possible, with each asset analyzed and managed to achieve the highest possible recovery. In developing a liquidation strategy, asset managers contact multiple brokers to obtain opinions of value, additional market color and prospective marketing plans. Listing brokers are selected based on market and asset experience, as well as fees.

Governance and Conflicts of Interest

Managing Potential Conflicts

Potential conflicts of interest in special servicing arise through various forms, particularly as investors retaining controlling positions in securitizations or specific loans have influence on workout strategies and the ability to select the special servicer.

PGIM Loan Services acts as special servicer only for loans originated by PGIM RE and currently does not pursue third-party special servicing appointments. Additionally, neither PGIM Loan Services nor any other affiliate PFI companies currently invest in subordinate CMBS B-pieces or subordinate loans for which PGIM Loan Services might be appointed special servicer.

PGIM Loan Services has an information barrier policy that separates physical and electronic data from business units, including PGIM RE's investment division and certain other U.S.-based business and corporate departments. The policy includes compliance monitoring and employee training and acknowledgment of the policy. In the event that PGIM Loan Services was working out a loan where a PFI-related entity held an investment, the policy would be applied to mitigate potential conflicts and separate the decision making process.

Prudential has additional company policies to address conflicts of interest and mitigate risk. Fitch reviewed the company's policies relating to personal conflicts of interest, protection and use of material nonpublic information and vendor agreements and compliance. The policies were well documented, in Fitch's view, and demonstrate how Prudential organizationally takes conflicts of interest seriously.

Affiliate Companies

Neither PGIM Loan Services nor PGIM RE or PFI have affiliate companies that provide real estate management or brokerage services. Affiliate Prudential companies may provide CRE financing or equity investments for sponsors of securitized and nonsecuritized loans.

The ratings above were solicited and assigned or maintained at the request of the rated entity/issuer or a related third party. Any exceptions follow below.