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: Ratings affirmed Feb. 28, 2023.

Rating Outlook[b]

Stable

[b]Rating Outlook assigned Feb. 28, 2023.

Applicable Criteria

Criteria for Rating Loan Servicers (December 2022)

Criteria for Rating North American Commercial Mortgage Servicers (December 2022)

Related Research

Fitch Affirms PGIM Real Estate Loan Services Commercial Servicer Ratings (February 2023)

Fitch Affirms Prudential Financial's Ratings; Outlook Stable (December 2022)

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PGIM Real Estate Loan Services, Inc. (PGIM Loan Services, or the company), formerly known as Prudential Asset Resources, is the CRE loan servicer for PGIM Real Estate (PGIM RE) and is 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 that are held in the company's general account, securitized in CRE transactions or originated for government-sponsored entities (GSE) or other institutional investors.

The company provides critical loan servicing functions supporting the global CRE investment portfolios of PGIM RE and PGIM REF, as well as support for third-party clients. PGIM Loan Services affiliates originated approximately $22.4 billion of CRE loans in 2021, reflecting core ($9.2 billion), GSE ($7.3 billion), agriculture ($2.9 billion), core-plus/value add ($2.9 billion) and other ($5.9 billion) investment strategies. Servicing for non-affiliate third-party clients (including GSEs) represents approximately 54% of the servicing portfolio by loan count. As of September 2022, the company serviced over 4,700 loans totaling $123.8 billion, including 240 international loans representing seven currencies.

PGIM Loan Services has been servicing CRE loans for over 100 years, among the longest and most experienced of Fitch-rated servicers. The company has a long history of demonstrating the highest standards of primary servicing through well planned and executed growth in the portfolio.

Previously a named special servicer for securitized transactions, PGIM Loan Services now provides special servicing support exclusively for more than 2,700 affiliate balance sheet, agency and other loans totaling $78.8 billion. The active special servicing portfolio, which currently comprises only four loans, has declined yoy; however, it remains supported by a dedicated asset manager with additional support available throughout the enterprise. Commensurate with its long history of servicing CRE loans, the company has also demonstrated high performance in resolving defaulted loans across all asset types, including highly structured loan participations.

Servicer Ratings

- Fitch rates primary and master servicers, which protect the interests of the 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.

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 includes high yield and core-plus loans on behalf of the CRE investment funds. PGIM Loan Services also services more than $7.9 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 maintained a master and primary servicing staff of 153 employees as of September 2022, up slightly from 148 employees as of Fitch's prior review. Thirty-six servicing employees are located in Letterkenny as part of PGIM Ireland Limited and report directly to managers in Dallas. The special servicing team comprises one dedicated resource and four shared resources from primary servicing, up from two the prior year.

Turnover among domestic master and primary servicing employees increased to 17%, from 11% the prior year, and impacted all experience levels, consistent with the highly competitive employment market. Notwithstanding turnover, employee experience and tenure remains high. Seven senior managers average 28 years of industry experience and 17 years of tenure while 29 middle managers average 22 years and 14 years, respectively. The number of offshore employees increased despite 17% turnover as of September 2022. Turnover among employees allocated to special servicing was 25% during the same period due to one senior managerial departure; however, the number of employees available to support special servicing increased from three to five. Employees completed 51 hours of training in 2022, 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 robust propriety applications for borrower and investor portals and a data warehouse. Recent technology enhancements include adding a new warehouse debt line module to LoanConnect, implementing Jira for project tracking and reporting, new functionality to reconcile and report daily cash logs and additional treasury tools to support loan level tracking of cash for client credit facilities. Future technology enhancements include implementing third-party tools to extract data from rent rolls, upgrading Strategy to version 20, continued buildout of the PGIM RE database and dashboards and modernizing LoanConnect to support deployment to a cloud environment.

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' with a Stable Rating Outlook in December 2022. Fitch's ratings on PFI reflect a review of current operating results, including a previously announced statutory reserve charge associated with the company's guaranteed universal life product, and Fitch's view that PFI's capital position will not be materially impacted on a net basis, as a result.

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. PGIM Loan Services has not had any instances of missed tax payments or reporting restatements during the past three years. At three days, PGIM Loan Services maintains one of the fastest financial statement analysis processing times among Fitch-rated primary servicers.

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 Rating 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

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. The company resolved six nonsecuritized loans totaling $242.9 million during the 12-month period ended in September 2022, with one loan paid in full and five loans modified and returned to performing status. Four of the loans were secured by multifamily properties and two were secured by large hotels. While PGIM Loan Services has had limited REO assets for several years, it has experience in foreclosing and selling CRE assets nationwide and generally sells assets through receivership.

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.

PGIM REAL ESTATE FINANCE

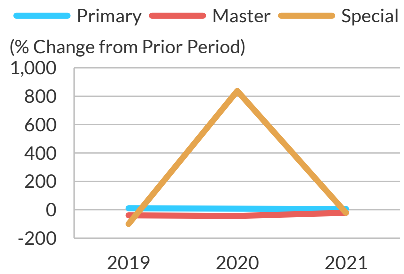
Company Overview

Servicing Portfolio Overview

	9/30/22	% Change	12/31/21	% Change	12/31/20
Total Servicing					
UPB ($ Mil.)	123,805.5	2	121,658.9	6	115,223.6
No. of Loans	4,751	–1	4,813	–1	4,849
Primary Servicing					
UPB ($ Mil.)	123,782.3	2	121,611.6	6	115,141.2
No. of Loans	4,743	–1	4,800	–1	4,832
Master Servicing					
UPB ($ Mil.)	23.2	–51	47.3	–43	82.4
No. of Loans	8	–38	13	–24	17
Special Servicing — Named					
UPB ($ Mil.)	78,732.1	–8	85,853.2	2	84,467.9
No. of Loans	2,795	–6	2,974	–3	3,081
Special Servicing — Active[a]					
UPB ($ Mil.)	399.2	22	326.7	–22	416.7
No. of Loans	4	–43	7	–22	9

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

Servicing Portfolio



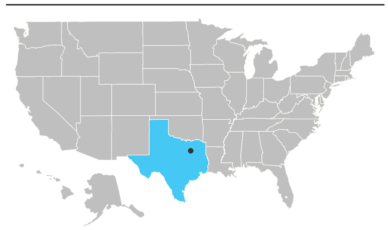
Note: Special servicing includes loans actively in special servicing (including REO). Total excludes special servicing.
Source: PGIM Real Estate Loan Services, Inc.

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 $1.2 trillion in total assets under management (AUM) as of December 2022. PGIM comprises seven business lines covering real estate debt and equity, public fixed income, public equity and private fixed income and equity investments.

As of September 2021, PGIM Loan Services' total servicing portfolio comprised 4,751 loans totaling $123.8 billion. Of this amount, approximately $12.8 billion (65 loans) is securitized, the majority of which is in Freddie Mac K-series transactions. 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 800 CRE loans totaling $22.4 billion in 2021, up from 750 loans totaling $19.6 billion the prior year.

Office Locations



Primary Office: Dallas

PGIM RE expects 2022 originations to be generally in line with prior years, although the platform notes actual figures face potential downside pressure given interest rate volatility in 2H22. While the number of loans serviced has increased 1% since 2019, the average balance of loans serviced has increased 17% 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.

PGIM Loan Services provides servicing for approximately $7.9 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.

The majority of the company's servicing portfolio for affiliates consists of core, core-plus and high yield strategies. The affiliate core/core-plus/value-add portfolio represents roughly $69.8 billion, while the agricultural portfolio includes $6.1 billion in affiliate servicing and $1.5 billion for third-party clients.

PFI announced the sale of its full service retirement business to Empower Retirement in July 2021. The sale of the business line, closed in 2022, did not negatively impact PGIM Loan Services' portfolio as it retained responsibility for servicing the loans, converting the portflio to a third-party account.

Recent originations focused on fixed-rated debt for industrial and multifamily assets, as well as agricultural assets. The third-party core/core-plus portfolio, which the company services on behalf of 25 third-party clients, including 14 investment management clients and two debt funds, totaled $20.5 billion as of September 2022. Affiliate servicing includes the PGIM RE U.S. core debt fund, which totaled $860.0 million (49 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 (56 loans totaling $4.4 billion), an open-ended general account fund (16 loans totaling $626.0 million) and a third-party institutional lending program focused on construction lending (seven loans totaling $11.0 million).

The GSE portion of the company's servicing portfolio consists of 2,090 loans on behalf of Freddie Mac, Fannie Mae and Ginnie Mae for multifamily, healthcare and hospital assets, including 261 affordable housing loans.

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 the number of international commercial loans serviced by over 10% annually. As of September 2022, the company had serviced 240 loans from the Dallas office totaling $7.9 billion, comprising loans denominated in seven foreign currencies across 12 countries.

Financial Condition

Fitch affirmed PFI's Long-Term IDR at 'A' with a Stable Rating Outlook on Dec. 16, 2022.

Key Rating Drivers

Very Strong Company Profile: PFI is one of the world's largest insurance organizations, with market-leading positions in several major life insurance segments in the U.S. and Japan. This provides major competitive advantages to PFI, including significant operating scale, strong asset origination capabilities, diversified product and distribution strength and a strong brand name.

Very Strong Earnings Profile: PFI's very strong earnings profile reflects strong diversification, driven by the company's U.S. and international life insurance businesses, and continued growth in asset management. Earnings rebounded in 2021 following lower returns in 2020 due to coronavirus pandemic-related impacts while also benefiting from very strong alternative asset returns. Earnings moderated somewhat in 2022, with the company reporting an operating income-based return on equity (ROE) of 8.9% as of Sept. 30, 2022.

Strong Statutory Capitalization: PFI's statutory capitalization is strong with regulatory capital ratios well in excess of regulatory minimums in both the U.S. and Japan. PFI's U.S. insurance subsidiaries reported a risk-based capital (RBC) ratio of 458% as of YE21, and Fitch expects PFI's Japanese insurance subsidiaries to maintain solvency margins above 800%. The U.S. insurance subsidiaries' capital adequacy based on Fitch's Prism capital model scored in the 'Strong' category in 2021; this is somewhat below rating expectations but in line with prior years. Further, Fitch does not expect capital to decline materially on a net basis due to the previously announced guaranteed universal life charge.

Japanese Exposure: PFI's Japanese life insurance business accounts for 52% of consolidated company earnings, providing strong earnings and diversification for the combined organization. However, the business is exposed to challenging macroeconomic conditions. Exposure to Japan includes the company's investment concentration in Japanese government bonds, which are vulnerable to changes in Japan's sovereign rating. Fitch affirmed Japan's sovereign rating at 'A' and revised the Rating Outlook to Stable from Negative on March 25, 2022.

Strong Liquidity and Financial Flexibility: PFI maintains a strong liquidity profile at both the holding company and the operating company. Holding company liquidity benefits from an increasingly diversified stream of cash flows sourced from domestic and international insurance operations, as well as asset management.

Recent Transactions: In April 2022, PFI completed the sale of its standalone, full service retirement business to Great-West Lifeco Inc., as well as the sale of approximately USD31 billion of its legacy variable annuity (VA) block of business to Fortitude Re. Fitch believes these transactions will have a longer-term positive impact on PFI's business risk profile but may modestly reduce earnings in the short term.

Rating Sensitivities

Factors that could, individually or collectively, lead to positive rating action/upgrade:

- Reduction in financial leverage to 20% or below.
- A GAAP fixed-charge coverage ratio in the 12.0x–14.0x range.
- Regulatory capital ratios in the U.S. and Japan remaining near current levels.
- A Prism capital score of 'Very Strong' and a total financing and commitment (TFC) ratio at or below 0.8x.

Factors that could, individually or collectively, lead to negative rating action/downgrade:

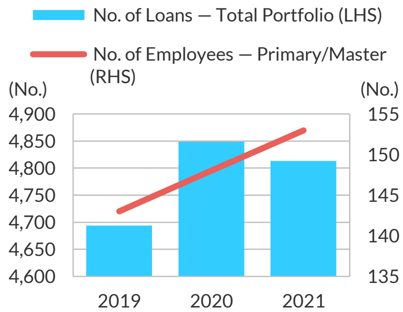
- A GAAP ROE below 10%.
- Financial leverage above 30%.
- A TFC ratio above 1.5x; a stated National Association of Insurance Commissioners (NAIC) RBC ratio below 350% and a Japan solvency margin ratio below 700%.
- A Prism capital score below 'Strong' and a GAAP fixed-charge coverage ratio sustained below 8.0x.
- Deterioration in the creditworthiness of PFI's Japan-based business.

Employees

As of September 2022, PGIM Loan Services maintained a master and primary servicing staff of 153 employees, up slightly from 148 employees as of Fitch's prior review. Thirty-six servicing employees are located in Letterkenny as part of PGIM Ireland Limited and report directly to managers in Dallas. The special servicing team comprises one dedicated resource and four shared resources from primary servicing (up from two the prior year). While the number of special servicing employees is small, it remains appropriate for the limited number of loan defaults. The company actively monitors potential defaults with the intention of transferring key primary servicing employees to special servicing in response to increased defaults. Additionally, several employees with the origination team have workout experience and are available to supplement existing staff should there be a significant increase in defaulted loans.

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.

Loan and Employee Counts



Source: PGIM Real Estate Loan Services, Inc.

Employee Statistics

	2022				2021			
	No. of Employees	Avg. Years Industry Experience	Average Years Tenure	% Turnover	No. of Employees	Avg. Years Industry Experience	Average Years Tenure	% Turnover
Domestic Primary/Master Servicing								
Senior Management	7	28	17	18	4	33	15	0
Middle Management	29	22	14	14	27	22	14	0
Servicing Staff	81	16	8	20	86	19	8	15
Total	**117**	—	—	**17**	**117**	—	—	**11**
Offshore Primary/Master Servicing								
Senior Management	0	—	—	—	0	—	—	0
Middle Management	6	17	13	0	5	15	13	0
Servicing Staff	30	8	4	11	26	8	4	8
Total	**36**	—	—	**9**	**31**	—	—	**7**
Cumulative Total	**153**	—	—	**17**	**148**	—	—	**10**
Special Servicing								
Senior Management	0	—	—	100	1	32	8	0
Middle Management	3	29	12	0	1	36	19	67
Servicing Staff	2	**23**	**4**	0	1	13	10	0
Total	**5**	—	—	**25**	**3**	—	—	**29**

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. Employees cross-train across functions such as loan setup, payoffs and customer service to provide additional capacity during peak volume periods. Given the limited number of master servicing duties as a result of continued loan maturities, there is no dedicated master servicing staff; rather, 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.

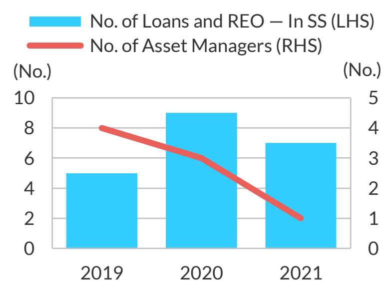
The primary and master servicing group experienced 18% turnover at the senior management level during the 12 months ended in September 2022 due to the departure of one manager, up from no turnover the prior year. Turnover among domestic middle managers also increased during the same period, to 14% from 11%, as four middle managers departed. The company backfilled management departures through internal promotions. Servicing staff level turnover also increased during the 12 months ended in September 2022, to 20% from 14% the prior period, reflecting aggressive hiring in the Dallas market. Aggregate turnover among offshore employees, who did not experience any departures in 2021, rose to 9% due to three employee separations. Average employee industry experience and tenure have not materially declined as a result of turnover.

The senior management team is led by seven managers, up from four the prior year, who average 28 years of industry experience and 17 years of tenure. Four middle managers, responsible for asset management, servicing and international servicing and asset management, were elevated to senior management following the departure of the former senior manager of asset management. Twenty-nine domestic middle managers average 22 years of industry experience and 14 years of tenure, while six offshore managers average 17 years and 13 years, respectively. PGIM Loan Services maintains an experienced and tenured domestic combined management team of 36, providing sufficient depth and support to the group's 81 domestic staff level employees, while there is also one offshore middle manager for every five offshore staff employees.

Domestic staff level employees average 16 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 an effort to create efficiency and promote cross-training, the company consolidated its core-plus and international servicing teams and investor reporting team from three product-specific teams into one in 2022.

SS Loan and Employee Counts



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

Special Servicing

The special servicing group consists of three middle managers and two staff level employees. One middle manager, who is the primary asset manager and has 37 years of industry experience, is fully dedicated to special servicing, while the remaining four employees support PGIM RE and primary servicing and are available as needed. Fitch notes that PGIM Loan Services has a deep bench of experienced staff with workout experience to draw upon should default volume increase. While the special servicing 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 servicing/primary servicing and PGIM RE.

PGIM Loan Services has demonstrated proficiency in adjusting staffing needs relative to market conditions. During times of increased defaults, the company has expanded 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.

The special servicing group experienced 25% aggregate turnover during the 12 months ended in September 2022 due to the departure of the group's senior manager, whose primary responsibility was primary/master servicing. As a result of the departure, middle managers within special servicing report up to senior managers responsible for primary/master servicing and the head of PGIM Loan Services. The special servicing team has historically had limited turnover among management employees, and Fitch notes that while the special servicing group is small and draws upon support from master/primary servicing employees, middle and asset managers have remained largely consistent for several years.

The group's three middle managers average 26 years of industry experience and 12 years of tenure, while two staff level employees average 23 years and four years, respectively. There has been no turnover among middle managers or staff level employees since Fitch's prior review. Fitch calculated an assets-to-asset manager ratio of 4:1 for the group's dedicated asset manager, which is low compared to other Fitch-rated special servicers.

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.

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.

PGIM Real Estate recently appointed a chief diversity, equity and inclusion (DEI) officer supported by two fulltime employes. DEI training and events are held throughout the year. Employees are required to attend the DEI session Understanding Racism and Anti-Racism, Microinequities and Being and Upstander and Effective Ally.

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. The myLearning application monitors all training, including soft skills, servicing-specific topics, business processes, employee electives and external learning opportunities. Training is provided via a variety of methods, including web-based training, vendor-sponsored webinars and outside instructor-led training. Training curriculums focus on improving individual skillsets, developing leadership competencies and departmental cross-training opportunities.

Compliance training is administered through the Axonify platform under the direction of the compliance group. Axonify is a third-party platform that applies 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-day period, which is accomplished through micro-training sessions and assessments. Fitch notes that PGIM's approach to compliance training is 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, among others.

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 assessments every 30 days.

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 receive monthly reports of completed training hours for direct reports and are provided suggested curriculums each year to help promote developments.

PGIM Loan Services expanded training opportunities for employees through the Mortgage Bankers Association in 2022 with the addition of 40 self-paced, CRE-specific training courses and access to additional instructor-led training opportunities. Recent training topics included unconscious bias, LIBOR transition, adapting to a changing CRE landscape, Fannie Mae green lender and borrower training and the evolution of servicing, among others. In addition to formal training opportunities, the company offers financial support to employees for undergraduate and postgraduate 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 51 hours of training in 2022, consistent with the prior year.

Operational Infrastructure

Offshore Operations

PGIM Ireland Limited is a captive offshore affiliate 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, which allows PGIM Loan Services to extend its workday by five hours.

The commercial loan servicing team includes 36 offshore employees who report to managers in Dallas and are fully integrated with the servicing group.

Offshore employees perform and/or participate in performing loan surveillance, investor reporting, accounting, lease consent review, repair monitoring, reserve disbursements and international treasury and servicing functions. 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 regularly holds knowledge exchanges between Dallas and Letterkenny 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, Uniform Commercial Code (UCC) filings and property inspections. The company also engages vendors to support special servicing duties such as law firms, brokers, property managers and environmental assessments. Fitch does not view the current level of outsourcing as material given its limited scope and the use of a diverse mix of vendors, 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. The 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 based on 16 risk areas. 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:

Approximately 70% of loans serviced by PGIM Loan Services have an active user of the company's borrower portal. Additionally, 17% of borrowers have transitioned to paperless billing.

- 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.
- FileNet Cloud, a third-party document imaging and content management system.
- Argus (version 14.0.1), 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.

LoanConnect asset management modules and workflow tools are used to support special servicing functions.

Nightly data feeds from Strategy are used to populate DataConnect for reporting purposes and LoanConnect, along with regular scheduled updates of key data elements throughout the day. 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.

PGIM Loan Services' BorrowerConnect portals include robust functionality, including access to detailed loan information; the ability to upload required documentation, access loan documents and billing statements and download tax and bank statements; paperless billing; and the ability to submit credit action requests and contact asset managers. The portal has in excess of 5,800 users representing approximately 4,700 loans.

Recent technology enhancements include the addition of a new warehouse debt line module to LoanConnect, implementation of Jira for project tracking and reporting, new functionality to reconcile and report daily cash logs and additional treasury tools to support loan level tracking of cash for client credit facilities. Future technology enhancements include implementation of third-party tools to extract data from rent rolls, upgrading Strategy to version 20, continued buildout of the PGIM Real Estate data lake and dashboards and modernization of LoanConnect to support deployment to a cloud environment.

In 2022, PGIM Loan Services began using an automated OCR-based financial statement spreading tool through its vendor to analyze financial statements. The company is working to expand use of the tool to include rent roll data extraction and analysis in 2023.

PGIM Loan Services is one of a few Fitch-rated servicers that utilize optical character recognition (OCR) technology to collect data from ACORD 25 forms. This tool has reduced processing time to review the form by more than 75% and increased data accuracy. The company uses a vendor-supplied OCR tool to extract and spread financial statements. PGIM Loan Services currently does not use any robotic processing automation tools but has experience with the technology.

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.

PGIM maintains a robust technology support infrastructure with multiple teams dedicated to cybersecurity. The company reported no significant cybersecurity incidents during the 12 months ended in September 2022.

Cybersecurity

Cybersecurity administration of PGIM Loan Services falls under the chief information security officer (CISO) of Prudential and individual information security officers within each business line. The CISO leads Prudential's Information Security Office, which works with the global technology group to maintain a secure technology environment.

Prudential utilizes industry-standard services for daily vulnerability and penetration testing. Servers and database management systems are reviewed weekly to ensure compliance with security measures and vulnerability scans. Prudential's central team of business information security officers leverages for testing of all externally facing and highly rated internal web-based applications.

Prudential's technology environment is continuously monitored by its operations control center and cybersecurity operations center, which leverage ongoing monitoring tools to detect, compartmentalize and eradicate signature and anomaly-based malware indicators at both the network and host levels. Additionally, Prudential maintains a documented vulnerability/patch management process that includes, but is not limited to, vulnerability assessments, a vulnerability classification scheme, test plans, pilots, rollouts, backout plans and communication plans.

The company reported no significant cybersecurity incidents during the 12 months ended in September 2022. PGIM Loan Services' technology environment is monitored continuously by a network operations control center and a cybersecurity operations center that use a variety of tools supplemented by annual penetration testing.

Disaster Recovery/Business Continuity Plan

Loan servicing employees returned to the office in September 2022 under a hybrid weekly schedule whereby employees are in the office two days and work remotely three days. This is a common scheduling format among Fitch-rated servicers.

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 and support from PGIM Ireland Limited servicing employees. Business continuity strategies that rely upon remote working can be impacted by regional power or internet connectivity outages, although this 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. In addition to the formal business continuity plan for U.S. operations, PGIM Loan Services is able to leverage PGIM Ireland Limited to perform critical servicing functions, such as cash processing and reporting, if necessary.

The Strategy loan servicing system is hosted by McCracken in its Billerica, MA datacenter. The datacenter has a redundant power supply along with a disaster recovery contract with SunGard for 24-hour recovery and has direct access lines to Prudential's primary and secondary datacenters. McCracken's most recent disaster recovery test occurred in June 2022 with no material deficiencies noted. 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 copies of monthly downloads that are retained for seven years. The maximum recovery time of all systems — including LoanConnect, which is classified as a mission-critical application — is four hours or less.

All Prudential servicers are hosted in externally located CoLo data centers in New Jersey and Virginia. The most recent PGIM disaster recovery/datacenter failover test occurred in November 2022, with successful results. The company expects minimal data loss in the event of a power loss due to ongoing data replication between its datacenters.

PGIM Loan Services has not conducted a business continuity test since 2000, having adopted a hybrid working model that continuously tests remote connectively and system access.

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 audits in the form of RegAB and other 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 2022, reflecting PGIM Loan Services' mature servicing platform.

PGIM Loan Services is subject to multiple internal and external audits annually. Incremental enterprisewide audits touched some servicing functions in 2022, with no material negative findings. A full scope CRE servicing audit is expected to occur in 2023.

Policies and procedures 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 whereby 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 most recent review dates; however, most had 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 key performance metrics to track accuracy and timeliness on a monthly basis, focused on QC across servicing functions. 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. The team comprises eight members (up from seven the prior year), including the BSS vice president, who reports directly to the president of PGIM Loan Services.

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.

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 2022 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 2Q22, which sampled 13 loans for compliance with servicing terms. The report contained no material findings.

A dedicated PGIM compliance team oversees the compliance activities of PGIM Loan Services with support from the BSS group, which monitors business continuity, vendor compliance and regulatory requirements. The compliance team is part of the broader Prudential Financial compliance organization that reports to PFI's chief compliance officer. Compliance examinations occur annually across the enterprise given PGIM's designation as a registered investment advisor. There are over 200 domestic employees dedicated to compliance functions across PGIM and its affiliates.

Additionally, PGIM Real Estate maintains a risk team comprising 12 employees who are responsible for performing periodic risk and control self-assessments of PGIM Loan Services.

Internal Audit

PGIM maintains a global audit team of about 300 employees, of which approximately 30 auditors are allocated to PGIM RE and PGIM Loan Services. A new chief auditor joined PGIM in

2022, with extensive internal audit experience from an large national investment banking financial institution. The internal audit group reports to the audit committee of the Board of Directors and administratively to the vice chairman of the company.

The internal audit 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 updated its risk assessment methodology in 2022, lowering the number of criteria assessed from 22 to 14. PGIM Loan Services continues to be assessed at medium risk with recent audits driven by entry into new business lines or product types across PGIM. The results of the risk assessments and audits are centrally tracked within the Archer risk management system.

Internal audit performed two reviews of PGIM Real Estate in 2021, the scopes of which included certain PGIM Loan Services functions. Loan servicing functions were also included in the scope of four PGIM-focused audits in 2022, including derivatives accounting and reporting, data privacy and technology, among others. None of these audits led to findings specific to PGIM Loan Services.

The company is expected to be included in the scope of a commercial mortgage audit in 2023, encompassing PGIM Real Estate.

External Audit

PGIM Loan Services is also subject to annual RegAB audits for its servicing portfolio. Fitch reviewed PricewaterhouseCoopers LLP's (PwC) 2021 RegAB audit of PGIM Loan Services, issued on Feb. 24, 2022. The audit confirmed PGIM Loan Services' compliance with servicing criteria and contained no negative findings. The company does not undergo a Uniform Single Attestation Program (USAP) audit; instead, a RegAB audit is conducted for its entire portfolio.

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 2022. None of these external reviews or audits resulted in unsatisfactory ratings or material findings, according to the company.

PGIM Loan Services' current portfolio includes 189 floating-rate loans totaling $9.2 billion indexed to the Secured Overnight Financing Rate (SOFR). The company transitioned more than 30 loans from LIBOR (the London Interbank Offered Rate) to SOFR through 2022 and expects to complete the remaining transfers by June 2023.

Primary Servicing

As of September 2022, PGIM Loan Services was the named servicer for 4,743 loans secured by CRE assets totaling $123.8 billion. The majority of the servicing portfolio (86% by loan count) comprises balance sheet loans serviced on behalf of insurance company affiliates (39%), GSEs (34%) and third-party institutional investors (14%). The remaining 653 loans were originated by PGIM affiliates and contributed to legacy multiborrower and recent Freddie Mac securitizations. The company stopped contributing loans to CMBS transactions in 2016; however, it now services over 200 Freddie Mac Capital Markets Execution (CME) transactions containing loans originated by affiliates.

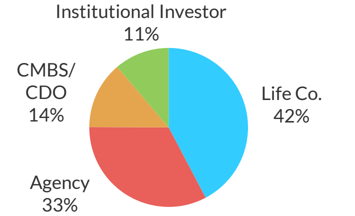
Primary Servicing Portfolio Overview

	9/30/22	% Change	12/31/21	% Change	12/31/20
Securitized					
No. of Transactions — Primary Servicer	227	3	221	13	196
UPB — Primary Servicing ($ Mil.)	12,805.2	9	11,710.8	17	10,011.5
No. of Loans — Primary Servicing	653	1	647	9	593
Nonsecuritized					
UPB ($ Mil.)	110,977.2	1	109,900.9	5	105,129.7
No. of Loans	4,090	−2	4,153	−2	4,239

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

Primary Servicing Product Type

(As of Sept. 31, 2022)



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

PGIM Loan Services' servicing portfolio includes 240 loans totaling $7.9 billion secured by assets outside the U.S., among the largest international portfolios of Fitch-rated servicers. The portfolio includes 70 loans denominated in British pounds, 63 loans in euros, 83 loans in Japanese yen, 19 loans in Australian dollars, three loans in Canadian dollars, one loan in Danish kroner and one loan in Swedish kronor. By balance, international loans represent core (85%), value-add (14%) and core stretch (1%) lending strategies.

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 via 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 postclosing 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 properly recorded.

Internal performance metrics monitor the timely review of loan covenant setup. Monthly reports and email 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.

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 (application programming interface) and compares incoming payments to expected receivables from Strategy. The majority of payments are posted automatically with any exceptions researched and reconciled within APPS. Receipt accounts are reconciled daily outside of APPS and Strategy as an additional control.

The cash processing 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.

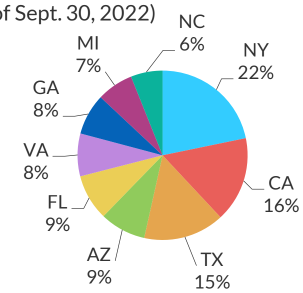
The cash management team is responsible for working with banks, borrowers and internal and external counsel to ensure cash management is timely and accurate. The team's core responsibilities include covenant monitoring, document negotiation, waterfall management and review of budgets on a loan-by-loan 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 (Fitch Rating: AA–/F1+).

As of September 2022, PGIM Loan Services had serviced 201 loans with cash management agreements, of which 19 loans were being actively managed by the cash management team. For the 12 months ended in September 2022, 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 prior to expiration. Additionally, the compliance group

Primary Servicing Securitized by State

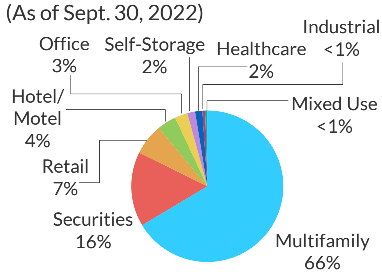
(As of Sept. 30, 2022)



Source: PGIM Real Estate Loan Services, Inc.

Primary Servicing Securitized by Property Type

(As of Sept. 30, 2022)



Source: PGIM Real Estate Loan Services, Inc.

% Payment Collections Via:

ACH	70
Lockbox	—
Wire	30
Other	—

ACH – Automated Clearing House.
Source: PGIM Real Estate Loan Services, Inc.

monitors bank ratings for issuance of LOCs to confirm rating requirements quarterly. As of September 2022, PGIM Loan Services was responsible for monitoring 25 LOCs.

Escrow Administration

Tax and insurance escrow accounts are reviewed annually to confirm sufficient funding for the year. Reviews occur after the most recent 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 assistance from 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.

PGIM Loan Services did not incur any tax penalties during the 36-month period ended in September 2022 and historically has 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 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.

% Portfolio Escrowed for:

Taxes	33
Insurance	26

Source: PGIM Real Estate Loan Services, Inc.

During the 12 months ended in September 2022, PGIM Loan Services placed 17 loans under its lender forced-placed insurance policy to address lapses in coverage, an increase from five loans the prior year. The increase is attributed to rising commercial property insurance premiums and a limited number of insurers in some markets.

PGIM Loan Services has been using an OCR tool to review and extract data from the ACORD 25 form for approximately three 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 had a single lapse during the 12 months ended in September 2022, having not had any lapses the prior two years. The lapse was the result of a procedural breakdown associated with a loan assumption that has since been corrected, and the UCC was refilled without any loss of lien position.

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

Investor Reporting

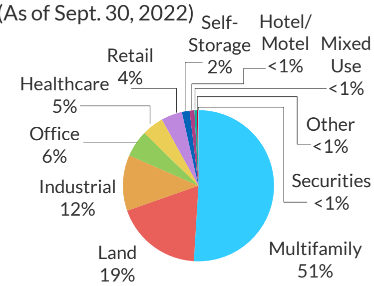
The investor reporting group, a subset of the loan accounting group, is responsible for monthly reporting and remittance distributions. Investor reporting analysts maintain reporting calendars for all assigned portfolios and are responsible for entering and reviewing data in LoanConnect prior to the 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 tracks investor reporting metrics monthly to identify potential issues.

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 36-month period ended in September 2022.

Primary Servicing Nonsecuritized by Property Type

(As of Sept. 30, 2022)



Source: PGIM Real Estate Loan Services, Inc.

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 ends, 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.

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

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 email 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 2021 financial statements for securitized loans.

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

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 are 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.

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. 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.

Similar to other Fitch-rated servicers, PGIM Loan Services outsources annual property inspections. For inspections performed during the 12 months ended in September 2022, 12% of CMBS loans and 62% of Freddie Mac loans excluded inspections of interior units due to ongoing pandemic-related concerns.

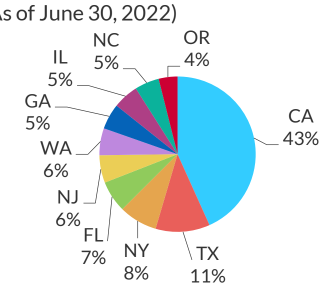
PGIM Loan Services utilizes the CRE Finance Council (CREFC) watchlist criteria, which are automated within LoanConnect. The surveillance team formally reviews all watchlist loans monthly and updates commentary as appropriate. The surveillance team also reviews all flagged loans for possible escalation 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 the loan type. PGIM Loan Services has 235 loans, totaling $4.8 billion, scheduled to mature through September 2023, the majority of which are general account loans.

Primary Servicing Nonsecuritized by State
(As of June 30, 2022)



Source: PGIM Real Estate Loan Services, Inc.

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.

Master Servicing

As of September 2022, PGIM Loan Services was named co-master servicer for five legacy securitized transactions consisting of eight loans totaling $23.2 million, down from $66.1 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 runoff, as the company does not currently retain master servicing for loans contributed to new issue CMBS or agency CME transactions.

Master Servicing Portfolio Overview

	9/30/22	% Change	12/31/21	% Change	12/31/20
No. of Transactions — Master Servicer	5	−44	9	−18	11
UPB — Master Servicing ($ Mil.)	23.2	−51	47.3	−43	82.4
No. of Loans — Master Servicing	8	−38	13	−24	17
No. of Primary Servicers Overseen	—	—	—	—	0

UPB – Unpaid principal balance
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 onsite 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 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 compared to other master servicers, particularly for highly concentrated transactions in which it is the master servicer. However, loans are evaluated individually with consideration for the size of the entire CMBS transaction.

PGIM Loan Services continues to advance payment for delinquent loans as master servicer. As of September 2022, the company had $185,000 in outstanding advances for nine loans, down from $3.4 million for 12 loans as of October 2021.

Investor Reporting

PGIM Loan Services adheres to CREFC watchlist criteria with an automated process managed by the surveillance team in 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 each month 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 2022, PGIM Loan Services was designated special servicer for approximately 2,800 nonsecuritized commercial mortgage loans totaling $78.7 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, PGIM Loan Services was actively working out four loans totaling $399.2 million that were in default, none of which involved REO assets. These actively specially serviced loans are secured by an enclosed regional mall, student housing, office property and a multifamily asset. The loans range in size from $17.4 million to $155.0 million, average less than two years in special servicing and have all had recent valuation updates.

Additionally, the company resolved six nonsecuritized loans totaling $242.9 million during the 12-month period ended in September 2022, with one loan paid in full and five loans modified and returned to performing status. Four of the loans were secured by multifamily properties and two were secured by large hotels. 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.

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

Special Servicing Portfolio Overview

	9/30/22	% Change	12/31/20	% Change	12/31/20
Securitized					
No. of Transactions — Special Servicer	0	—	0	–100	3
UPB — Special Servicer ($ Mil.)	0.0	—	0.0	–100	17.1
No. of Loans — Named Special Servicer	0	—	0	–100	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
Nonsecuritized					
UPB — Named Special Servicer ($ Mil.)	78,732.1	–8	85,853.2	2	84,467.9
No. of Loans — Named Special Servicer	2,795	–6	2,974	–3	3,081
UPB — Actively Special Servicing (Non-REO) ($ Mil.)	399.2	22	326.7	–22	416.7
No. of Loans — Actively Special Servicing (Non-REO)	4	–43	7	–22	9
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.

PGIM Loan Services resolved six CRE loans totaling $242.9 million during the 12-month period ended in September 2022, with one loan paid in full and five loans modified and returned to performing status.

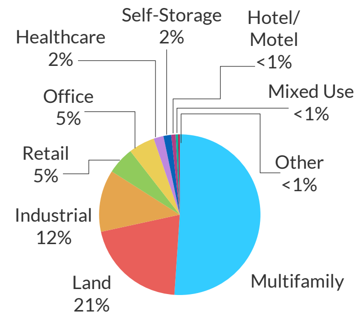
Loan Administration

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 named special servicer. The special servicing team also communicates regularly 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.

Named Nonsecuritized Special Servicing Property Type

(As of Sept. 30, 2022)



Source: PGIM Real Estate Loan Services, Inc.

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 timeframe provided in the PSA or other documents, the asset manager is also responsible for drafting an asset status report (ASR) upon a servicing transfer event, typically within 60 days of the transfer.

ASRs 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 two 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.

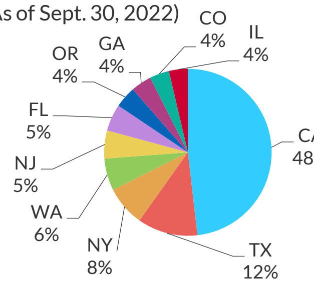
REO Management

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 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, capex 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.

Top 10 Named Nonsecuritized Special Servicing States
(As of Sept. 30, 2022)



Source: PGIM Real Estate Loan Services, Inc.

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 only acts as special servicer 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 control positions of securitized transactions 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.

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