

CWCapital Asset Management LLC

CWCapital Asset Management LLC (CWCAM, or the company) is a commercial real estate (CRE) asset manager and a wholly owned subsidiary of CW Financial Services LLC (CWFS). CWCAM predominately acts as special servicer for third-party clients as well as its affiliates. Historically one of the largest, active, legacy CMBS special servicers, CWCAM has been working out CMBS and CRE loans since 1995. Since its inception, the company has resolved 4,216 CMBS loans totaling \$63.5 billion.

Relative to other large legacy CMBS special servicers, CWCAM has been among the most successful in gaining third-party servicing assignments for new issue CMBS and Freddie Mac K-series transactions. In 2019, CWCAM added over \$43.5 billion in named special servicing volume across 55 transactions, up from \$29.3 billion in 38 transactions in 2018. All new special servicing assignments continue to come from third parties and remain mostly Freddie Mac K-series transactions, which represented 31 of the 55 new deals.

Headquartered in Bethesda, MD, CWCAM had 44 employees in its special servicing operation as of Dec. 31, 2019, down from 50 employees as of Dec. 31, 2018, located primarily in Bethesda. The company also has regional offices in Irving, TX and New York, NY. A select few special servicing staff and asset managers are located in each regional office, and there is a concentration of ReallINSIGHT staff in Irving and CWFS staff in New York.

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 the 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, and 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 scale of 1 to 5, with 1 being the highest rating. Within each of these rating levels, Fitch further differentiates ratings by plus (+) and minus (-) as well as the flat rating.

Ratings

Commercial Special Servicer CSS2+

Note: Affirmed April 24, 2020.

Applicable Criteria

[Criteria for Rating Loan Servicers \(February 2020\)](#)

[Criteria for Rating North American Commercial Mortgage Servicers \(January 2020\)](#)

Related Research

[Fitch Affirms CWCapital Asset Management's Commercial Special Servicer Rating \(April 2020\)](#)

Analysts

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

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

Key Rating Drivers

Company/Management: CWFS is owned by funds managed by affiliates of Fortress Investment Group (Fortress). On Dec. 27, 2017, SoftBank Group Corp. acquired Fortress, which now operates within SoftBank as an independent business. There has been no change to CWFS's immediate ownership structure. CWCAM remains an integral component of CWFS's business plan. CWCAM is mainly a third-party special servicer and gains servicing assignments for new issue CMBS transactions by providing due diligence, underwriting and surveillance duties for clients that purchase B-pieces. CWFS has, in the past, also selectively purchased B-pieces, and the transactions are specially serviced by CWCAM.

Staffing and Training: CWCAM had 44 special servicing employees as of Dec. 31, 2019, down from 50 at the last review and a peak of 160 employees in 2011. CWCAM maintains a strong management team as, collectively, 19 senior and middle managers average 27 years' experience. However, management turnover remains high at 29%, compared with 34% at the last review. Overall turnover during the past 12 months also remained high, at 28%, yet down from 43% at the last review; turnover remained above 19% at Fitch's 2018 review. Staffing departures were mostly voluntary compared to turnover at Fitch's last review, which consisted mainly of involuntary departures. Historically, turnover has been driven by voluntary departures.

Given recent resolution activity, the ratio of assets to asset managers declined to 8:1 from 10:1 at Fitch's prior review, providing some excess capacity to address expected increased consent requests associated with the coronavirus pandemic. Since Fitch's last review, the asset management group and the valuations groups were integrated and cross-trained, partially mitigating the high asset manager turnover of 50%. With the combined groups, CWCAM has eight asset managers, down from 12, who average 19 years of experience and nine years of company tenure.

Procedures and Controls: CWCAM's internal control framework is predicated on controls built into the special servicing technology and management reviews of special servicing functions. Supplementing these, CWCAM maintains a dedicated operations and compliance group, and a compliance committee monitoring exception reports from the operations and compliance group.

CWCAM began outsourcing internal audit functions in 2019, partially as a result of an external Reg AB audit finding, which indicated that the third line of defense did not demonstrate a high level of proficiency. While Fitch views positively that four quarterly internal audits were conducted during 2019 and there were no findings, the function is still relatively new with a limited history of demonstrated proficiency. Fitch will continue to monitor CWCAM's new risk management framework for stability and operational proficiency.

Technology: CWCAM is currently on two asset management systems, Commercial Asset Management System (CAMS) and RealINSIGHT, which Fitch notes has the potential to create operational inefficiencies. However, Fitch views CWCAM's dedication to developing and enhancing its special servicing technology favorably. Currently, all special servicing workouts are performed in CAMS as well as the surveillance of legacy CMBS transactions. Surveillance of new issue transactions are performed on RealINSIGHT. As the legacy portfolio winds down, CWCAM will eventually consolidate to the cloud-based RealINSIGHT platform. CAMS and RealINSIGHT are among the most robust special servicing applications and reflect the company's dedication to developing and enhancing its special servicing technology.

Defaulted/Nonperforming Loan Management: Over the past 24 months, CWCAM resolved \$4.7 billion of CMBS loans and REO assets. CWCAM maintains strong experience and technology as well as sufficient policies and procedures for key functions, such as loan surveillance; timely transfer of loans from the master servicer; timely development and execution of reasonable business plans; and REO disposition.

Financial Condition: Fitch does not publicly maintain credit ratings for CWCAM or its parent, CWFS. However, Fitch performed a financial assessment of CWFS and determined the company's short-term financial viability adequate to support the servicing platform for the next 12 months.

Company Experience Since:

CRE Loan Workout	1995
CRE Servicing	1995

Source: CWCAM.

Operational Trends

Business Plan	■	Stable business plan with steady flow of new business offsetting portfolio declines
Servicing Portfolio	▲	Greater than 10% year-over-year growth by loan count in named special servicing
Financial Condition	■	Outlook/Trend
Staffing	■	Staffing changed less than 12% +/-
Technology	▲	Best in class to improving technology, well-managed upgrades
Internal Controls	■	Stable control environment; no material audit findings
Servicing Operations	■	Stable operations, no material changes year over year

Source: Fitch Ratings.

Company Overview

In 2005, CWFS acquired Allied Capital Corporation's (Allied Capital) CMBS bond portfolio. In 2006, an affiliate of CWCAM merged with CRIIMI MAE Inc. (CRIIMI MAE), whose servicing platform was founded in 1995, and the special servicing operations were consolidated into CWCAM. CWCAM is the special servicing subsidiary of CWFS, representing a core business central to CWFS's operations. CWFS is wholly owned by funds managed by affiliates of Fortress, which purchased all of the membership interest in CWFS from Otéra Capital in 2010, a wholly owned subsidiary of Caisse de dépôt et placement du Québec.

Servicing Portfolio Overview

	12/31/19	% Change	12/31/18	% Change	12/31/17
Special Servicing – Named					
UPB (\$ Mil.)	121,730.7	32	91,974.4	23	74,968.1
No. of Loans	6,472	24	5,233	3	5,069
Special Servicing – Active^a					
UPB (\$ Mil.)	992.0	(62)	2,601.5	(21)	3,276.0
No. of Loans	65	(44)	117	(37)	186

^aIncluding REO.
Source: CWCAM.

CWFS maintains a suite of wholly owned subsidiaries that support CWCAM on a fee basis:

- CWCAPITAL INVESTMENTS LLC (CWCI): a registered investment advisor that acts as collateral manager on commercial debt obligation (CDO) transactions for which CWCAM is generally the special servicer for any underlying CMBS transactions.
- REDS: a CWFS affiliate broker that manages the sale of CWCAM loan and REO assets as co-broker with third-party brokers. Currently, 100% of loan and REO asset sales are managed by REDS, which works at the direction of CWCAM.
- CWFS INSIGHT LLC (DBA ReallNSIGHT): the developer of the company's special servicing application.
- ConvergentRisk: provides consulting and advisory services regarding insurance coverage.
- CWCAPITAL MARKETS LLC (CWCM): CWCM acts as an intermediary placing capital into transactions and earns fees from capital investors or borrowers of capital.

CWCAM's business plan is focused on servicing CMBS loans, and the company's special servicing portfolio initially consisted of CMBS portfolios acquired from Allied Capital and CRIIMI MAE, which owned the controlling classes. However, the company has become one of the largest third-party special servicers gaining servicing assignments for new issue CMBS transactions by providing due diligence, underwriting and surveillance duties for clients who purchase B-pieces.

A majority (91% by transaction, up from 81% and 73% at Fitch's last two reviews) of the company's current CMBS assignments are on behalf of third parties. CWCI or affiliates act as the controlling class representative (CCR) for 8% of CWCAM's special servicing portfolio; however, if CDO transactions, for which CWCI manages or acts as disposition consultant, are removed, affiliates of CWCAM act as controlling bondholders for 1% of CWCAM's special servicing portfolio. CWCI managed or served as disposition consultant on a total of 18 CDO transactions totaling approximately \$410 million in collateral principal balance as of Dec. 31, 2019.

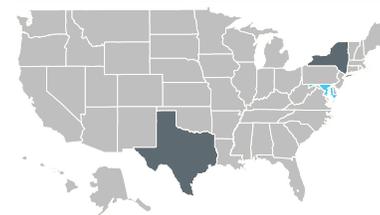
CWCAM has been actively resolving legacy CMBS assets. In the last 12 months, CWCAM resolved 86 CMBS loans totaling \$2.2 billion, of which 87% by count and 92% by balance were legacy CMBS loans. CWCAM's CMBS active special servicing portfolio declined 65% by loan count since 2017 to 61 specially serviced assets (including REO) totaling \$865.2 million.

Servicing Portfolio



Note: Active special servicing includes REO.
Source: CWCAM.

Office Locations



Primary Office: Bethesda, MD

Historically, REDS worked exclusively for CWCAM; however, beginning in 2017, REDS closed several deals on behalf of third parties and currently has 35 third-party clients (up from 26 at the last review).

While historically not an active investor in CMBS B-pieces, CWFS may elect to purchase controlling bonds from time to time. In 2016, CWFS purchased CMBS B-pieces from a third-party client exiting the business. CWCAM recently created and filled the position of CIO - debt as the company explores strategically purchasing portions of controlling bonds in CMBS transactions. CWCAM has not purchased any interests in B-pieces.

As legacy CMBS loans were resolved and transactions were collapsed, CWCAM has been successful in gaining servicing assignments for new issue CMBS transactions as a third-party special servicer. CWCAM added over \$89.5 billion in named special servicing volume across 112 transactions from 2019-2017.

Exposure to legacy CMBS transactions has declined as a result, and, as of Dec. 31, 2019, 20% of the company's 182 named CMBS transactions were securitized before 2009.

Headquartered in Bethesda, MD, CWCAM had 44 employees in its special servicing operation as of Dec. 31, 2019, down from 50 employees as of Dec. 31, 2018, located primarily in Bethesda with regional offices in Irving, TX and New York, NY. A select few special servicing staff and asset managers are located in each regional office, and there is a concentration of ReallNSIGHT staff in Irving and CWFS staff in New York.

Financial Condition

Fitch does not publicly maintain credit ratings for CWCAM or its parent, CWFS. However, Fitch performed a financial assessment of CWFS and determined the company's short-term financial viability adequate to support the servicing platform for the next 12 months.

Fitch's assessment highlighted the company's scale and track record in legacy CMBS special servicing as well as its balance sheet that consists of minimal debt obligations and limited to no default risk under its current capital structure. Since the last review, CWFS experienced deterioration in EBITDA and revenue trends from 2017 to 2019.

In anticipation of continued material declines in special servicing revenues, CWFS increased diversity through ancillary business segments that should allow a smoother transition through a less profitable period of CMBS servicing. As the portfolio declines, CWFS is continuing to manage labor costs.

CWFS is ultimately owned by entities with finite lives. Capital allocation decisions such as the timing and sizing of dividends to the parent or further investment in the company may be determined by CWCAM's ability to generate returns and cash distributions.

Employees

CWCAM employs 44 special servicing employees as of Dec. 31, 2019, including eight asset managers (down from 12 and 22 at the last two reviews) who contribute to other company initiatives such as borrower consent processing and underwriting due diligence services.

Employee Statistics

	2020				2019			
	No. of Employees	Average Years Industry Experience	Average Years Tenure	% Turnover	No. of Employees	Average Years Industry Experience	Average Years Tenure	% Turnover
Special Servicing								
Senior Management	9	33	10	0	8	32	11	33
Middle Management	10	21	11	48	15	24	11	29
Servicing Staff	25	11	8	27	27	10	7	53
Total	44	—	—	28	50	—	—	43

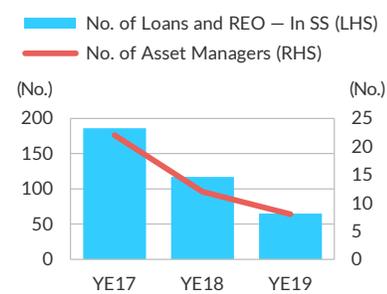
Source: CWCAM.

CWCAM maintains an experienced senior management team over special servicing functions as nine senior managers average 33 years of experience and 10 years of company tenure. The company maintains solid management depth as 10 middle managers average 21 years of experience and 11 years with the company; two middle managers lead the asset management and valuations (including B-piece underwriting) groups and average 13 years of experience. CWCAM recently hired a new CIO-debt who has over 37 years of experience.

CWCAM's special servicing asset managers are structured into two teams and manage borrower requests as well as the workout process from cradle to grave. While there is no separate REO team, CWCAM maintains several property specialists focusing on multifamily, hospitality, office and industrial properties. The property specialists work closely with loan asset managers in developing collateral values, choosing receivers and monitoring property operations, and REO properties in these asset classes typically funnel to these employees.

Since Fitch's last review, the asset management group and the valuations groups were integrated and cross-trained, partially mitigating the high asset manager turnover of 50%. With the combined groups, CWCAM has eight asset managers, down from 12, who average 19 years of experience and nine years of company tenure. Fitch counts as asset managers employees with three years or more experience who are assigned assets; CWCAM has another six employees who were not assigned assets but who remain as resources should defaults rise.

SS Loan and Employee Counts



SS – Special Servicing.
REO – Real estate owned.
Source: CWCAM.

Asset managers are generally supported by an analyst, administrative assistant and/or portfolio administrator.

In addition to integrating with the asset management group, the valuations team is responsible for CWCAM's underwriting assignments for third parties as well as providing support in the modeling and development of values for loans and REO assets with a UPB greater than \$20 million. The valuations team is also responsible for fair market-value determinations, where required, irrespective of the loan's UPB.

REDS, formed in 2012 within CWCAM and subsequently separated into an affiliate company, provides support and co-brokerage duties for loan and REO asset sales.

Overall turnover during the past 12 months remained high at 28%, yet down from 43% at the last review; turnover remains above 19% at Fitch's 2018 review. Departures encompassed 13 employees and were concentrated in the asset management and valuations groups. The mainly voluntary departures were evenly split between the staff and middle management layers; there was no turnover among senior management. Previously, turnover consisted mainly of involuntary departures concentrated among administrative staff due to proactive management of staff. Historically, turnover has been primarily driven by voluntary departures and represented 64% of all departures at Fitch's 2018 review.

Training

CWCAM has a training committee composed of representatives from the various departments within the company. The purpose of the committee is to organize, plan and continuously enhance training programs for the company, ensuring that targeted topics are covered and minimum training hours are met. CWCAM's training program is conducted by a mix of in-house and outside professionals, and topics chosen are determined by the committee members by polling employees.

The company's CWUniversity program focuses on a continuing goal of conducting companywide training sessions on policies and procedures. These training sessions included CMBS 2.0 PSA guidelines, cash management policies, nonrecoverable determinations, property budgets, data protection and underwriting. Other sessions included senior management and asset managers leading an on-site property inspection seminar.

CWCAM special servicing personnel averaged 40 hours of training in 2019, slightly below 41 hours at the prior review and consistent with other highly rated Fitch special servicers.

Operational Infrastructure

Outsourcing

Fitch considers outsourcing to include core servicing functions performed outside of the rated servicer. CWCAM generally does not outsource core special servicing functions until an asset has been foreclosed, in which case, REO asset disposition, as well as note sale functions, are performed by REDS, an affiliated company. Functions performed by REDS as co-broker include:

- negotiating the listing agreement and listing the asset for sale;
- collecting due diligence materials;
- managing the marketing process;
- obtaining purchase bids;
- reviewing competing bids and presenting results to the CWCAM asset manager;
- coordinating and managing negotiation and execution of a purchase and sale agreement under the direction of CWCAM;
- managing the due diligence phase; and
- coordinating and overseeing the closing process with CWCAM and legal counsel.

In early 2020, CWCAM began using Accenture to provide support to analysts and asset managers. Accenture is used for loading data into RealINSIGHT, surveillance support (market

CWCAM maintains a strong management team as collectively, 19 senior and middle managers average 27 years experience and 11 years with the company. However, management turnover remains high at 29% compared to 34% at the last review.

Fitch notes that functions performed by REDS are usually managed by the special servicer itself and not outsourced. CWCAM stated that because REDS is affiliated with the company it has access to CAMS, which enhances the process flow and timing.

and valuation research), as well as loan agreement reviews. The annual contract contains three one-year extension options and is only cancellable by CWCAM.

Vendor Management

Most vendors are managed by each of the business areas (i.e. legal department manages attorney engagements, operations group manages third-party report providers and CWCAM asset managers manage REDS, which manages co-broker engagements). Ordering of third-party reports is centralized in the operations group, with vendors selected from an approved list and use of any vendor not included on the list requiring the approval of the appropriate managing director. Property managers are discussed, reviewed and selected by the asset manager from CWCAM's approved vendor list, as well. Asset managers monitor property manager performance and any property manager failing to meet obligations is removed from the approved vendor list. CWCAM also performs random audits of property managers for each property type each year.

The company also uses third parties for financial statement entry and classification and for real estate tax services. Both have contracts that auto-renew annually. Additional products and vendors employed by CWCAM include third-party reports, co-broker/property manager and legal counsel.

Information Technology

CWCAM is currently on two asset management systems as the company works to migrate legacy CMBS data into RealINSIGHT after the company's legacy portfolio winds down. Currently, all special servicing workouts are performed in CAMS as well as the surveillance of legacy CMBS transactions. CAMS remains the system of record for required external reporting on specially serviced assets. RealINSIGHT contains internal data for new issue CMBS transactions as well as Freddie Mac K-series transactions and data from the proprietary CMBS data-warehouse. Surveillance of CMBS 2.0 and Freddie Mac K-series transactions and the underwriting of CMBS B-pieces are done in RealINSIGHT. Once legacy loans are resolved and the system is customized to CWCAM's specifications, CWCAM will use RealINSIGHT exclusively.

CAMS is used for special servicing and asset management functions and is capable of tracking assets from loan origination through disposition. CAMS was developed by a vendor that was acquired by CWFS and now operates as the subsidiary, RealINSIGHT. Over the past few years, the company has developed a cloud-based version of CAMS, which is also named RealINSIGHT and is marketed to and used by third-party clients.

CWCAM has customized CAMS to meet its specific needs, including servicing requirements as detailed in its pooling and servicing agreements (PSAs), as well as its internal policies and procedures. CAMS includes the ability to track abstracted PSA requirements, spread financial statements, generate OSARs, track appraisals, and generate, import and export the applicable CREFC investor reporting package reports. CAMS also provides a platform for asset managers to perform pro forma analyses of various disposition strategies and then to create and generate business plans. CAMS is integrated with Argus, a third-party CMBS data provider, and Excel for data import as well as with Excel, Word and Adobe Acrobat for data export and reports.

Fitch recognizes CWCAM's technology platform as a core operational strength and views its dedication to developing and enhancing its special servicing technology favorably. Major enhancements to RealINSIGHT in the past 12 months included the implementation of a consents module, updates to the business plan model, new alerts and messaging features, and expansion of surveillance functionality. CWCAM has also continued to focus on refining the quality of data coming through various sources such as the Annex A, prospectuses, and CREFC standard files and other data sources.

CAMS contains a variety of preset reports based on specific data sets within the system. There is also an overview area within CAMS, which displays stratified information based on preset data fields, which can also be filtered, printed or exported for a review of key statistics. In addition, CWCAM has an ad-hoc report writer to create reports not immediately available within CAMS.

Fitch notes maintaining two asset management systems has the potential to create operational inefficiencies. Additionally, with the heavy reliance on system-driven controls in CAMS, there remains a potential for some controls to be omitted during the conversion to RealINSIGHT.

There are no major planned enhancements for CAMS in 2020 aside from making any necessary changes to stay in compliance with CREFC IRP reporting requirements as CWCAM continues to migrate from CAMS to the newest release of RealINSIGHT. Since the last review, CAMS has been updated to include fully automated CREFC reporting. Custom reporting in CAMS was also expanded and additional CREFC reporting fields were added into the system. RealINSIGHT updates have included rolling out new features like a consents module and messaging and alerts; however, recently CWCAM has been focused on expanding the system's surveillance capabilities in response to the coronavirus pandemic.

CWCAM developed and maintains a proprietary data-warehouse integrated with CMBS transaction data from a third-party data provider. Data feed from the data warehouse into CAMS and are used to automatically populate the CREFC watchlist, bond file, property file and financial file.

Systems support is provided by four CWFS IT employees responsible for infrastructure and software development and helpdesk support.

Disaster Recovery/Business Continuity Plan

CWCAM operates in a cloud-based platform for its technology infrastructure, which benefits application speeds and has data replication abilities limiting potential data loss. CWCAM's disaster recovery and business continuity practices rely on remote access with the cloud-based platform; however, the company maintains a contract with Agility Recovery for a facility that can sit up to 10 people. Agility has over 40 locations in the D.C. metro area and, upon declaration, CWCAM will be provided an address for a relocation site. Sites vary in distance and some are as close to the company's headquarters as across the street.

CWCAM's first response is for employees with electrical power and internet access to work remotely via a virtual desktop that enables full systems access. The second response is to use the new Agility Recovery location for a select group of employees, and the third option is to send employees to other offices in New York and Dallas.

CWCAM uses various geographical regions available within the cloud-based third-party platform, and primary data backups are performed on a standard schedule. These backups are performed in the production region and are then also replicated to the disaster recovery region for additional protection. Critical systems may also have more frequent snapshot backups taken throughout the workday and employ replication technologies limiting expected actual data loss to 15 minutes or less.

The recovery time for special servicing is generally between four hours and two days, dependent on the function's criticality. CAMS is considered a critical system and is expected to be recovered within four hours. The most recent test occurred at the Bethesda home office and Dallas office in September 2019. The test was considered successful.

Internal Control Environment

CWCAM's internal control framework is predicated on controls built into the special servicing technology and management reviews of special servicing functions. Supplementing these, CWCAM maintains an operations and compliance group as well as a compliance committee, which reviews weekly exception reports generated from CAMS by the operations and compliance group, which are asset-level focused and focused on deadlines established under PSAs and/or the company's policies and procedures.

CWCAM's internal audit function is outsourced to a third party engaged to perform internal audits on a quarterly basis for Reg AB and annually for the CAMS system's compliance. Another third-party audit firm is engaged to perform quarterly property management audits and related cash management reviews for REO properties.

Policies and Procedures

CWCAM maintains a thorough and complete policies and procedures manual that is available to all employees online via a shared network directory as well as on the company's intranet site. The policy and procedures manual is reviewed and updated throughout the year as needed to reflect changing business practices, regulatory demands or general business practice refinements. New policies are reviewed and approved by CWCAM's compliance committee. CWCAM documents specific processes in a workflow chart that details step-by-step instructions and includes names of personnel assigned to each task and the owner of each process, typically a senior-level employee responsible for compliance with policies and procedures. Currently, 13 workflow charts covering various functions have been created, with the goal of creating workflow charts for each critical special servicing function.

Compliance and Controls

Workout timelines and determination of disposition methods are developed by the asset manager and presented to senior management informally via discussion in monthly asset

Fitch reviewed CWCAM's policies and procedures manual and found them to be detailed in scope and providing a general description of each special servicing and REO process followed by step-by-step instructions. While sufficient, the manual is less detailed than those found at other highly rated special servicers who include embedded exhibits and workflow charts instead of lists. Recent updates to policies and procedures reflect new roles and responsibilities stemming from personnel changes.

review meetings and formally via business plans presented at credit committee meetings. Management-level reviews of all assets are made no less than quarterly during meetings in which workout strategies, status and compliance issues are discussed.

CWCAM relies heavily on CAMS to automate, as much as possible, asset management functions around its policies and procedures. Work is performed within CAMS where possible allowing the company to measure compliance and expected time frames for completing tasks. Asset managers are presented with system-generated daily ticklers, which are set up based on time frames stated in PSAs or dictated in the policy and procedure manual.

CWCAM maintains a dedicated operations and compliance group consisting of two employees who are responsible for generating weekly exception reports, performing new loan transfers on CAMS, coordinating inspection reports and following up on actions to ensure completeness of documentation and timing for items such as modifications and foreclosures.

In addition to the operations and compliance group, CWCAM also maintains an internal risk assessment function led jointly by the managing director of legal and the managing director of industry relationships. Together, along with the compliance committee and legal department staff, they are responsible for identifying risks in the business and reviewing internal processes to ensure they address perceived risks. The function reviews and abstracts all servicing agreements, highlighting the company's required duties and obligations as special servicer and capturing key reporting dates. The PSA abstracts are incorporated into CAMS by CWCAM's conversion team and are then reviewed by various groups, including accounting, insurance and asset management, to ensure that key requirements are correctly reflected. The senior manager dedicated to internal risk assessment departed the company and was replaced internally.

The managing director in the legal group oversees the operations and compliance group of two; the manager has over 29 years of experience and 18 years with CWCAM, and serves as the chair of the compliance committee. The compliance committee meets bi-weekly, with additional meetings as warranted, and includes the managing director - legal, CFO, managing director of internal risk assessment and relationship management, senior vice president of special servicing, senior vice president of reporting and managing director of corporate operations.

Internal Audit

CWCAM's internal audit function was outsourced to two external accounting firms in 2019. One firm performs quarterly Reg AB audits as well as annual audits for the CAMS application compliance. Given that automated controls in CAMS, such as triggers, serve as the basis for internal controls, CWCAM performs an annual CAMS audit, which verifies that triggers were properly set up and functioning in the system. Additionally, CWCAM outsources quarterly property management audits and related cash management reviews for REO properties to a separate audit firm.

The partner of the audit firm responsible for the design and development of CWCAM's quarterly Reg AB audits has over 41 years of audit experience and is supported by senior managers, managers, senior associates and staff associates. Previously CWCAM had two employees responsible for internal audit. Quarterly testing for Reg AB compliance began in 2019 and was retroactive to first-quarter 2019. Fitch reviewed four quarterly internal Reg AB audits, which did not contain any findings.

Fitch also reviewed an internal audit on CAMS, the first performed by the new audit vendor, which tested a sample of active loans to ensure PSAs were accurately reflected in CAMS's compliance module; verify new transfers into special servicing triggered appropriate PSA reporting requirements in CAMS and that the requirements were met; verify that REO loans triggered accurate ticklers regarding excess cash procedures; verify that active REO and REO dispositions were consistent with the workout strategy and that loan comments were updated monthly; and verify that the approval of consents for performing loans were documented in CAMS. The audit did not contain any material findings.

Fitch notes that CWCAM's compliance committee membership functions independently of special servicing and continues to meet regularly. Fitch was provided copies of minutes of recent meetings, which included topics discussed and management reports generated from CWCAMs to track key timelines dictated by servicing agreements.

CWCAM began outsourcing internal audit functions in 2019 partially as a result of an external Reg AB audit finding, which indicated that the third line of defense did not demonstrate a high level of proficiency. While Fitch views positively that four quarterly internal audits were conducted during 2019 and there were no findings, the function is still relatively new with a limited history of demonstrated proficiency. Fitch will continue to monitor CWCAM's new risk management framework for stability and operational proficiency.

External Audit

CWCAM is subject to annual Reg AB and USAP audits on its special servicing portfolio. Fitch reviewed the Reg AB letter issued by Cohn Reznick on Feb. 25, 2020, which did not note any instances of material noncompliance with the applicable servicing criteria. Fitch also reviewed the USAP letter issued by Matthews, Carter & Boyce on Feb. 26, 2020, which noted no findings.

Special Servicing

Special Servicing Portfolio

As of Dec. 31, 2019, CWCAM was the named special servicer on 6,396 loans in 181 CMBS transactions, with a UPB of \$121.4 billion. The named special servicing portfolio has grown 37% by transaction count and 31% by loan count since year-end 2017. During 2019, the company was appointed as a third-party special servicer on 55 new issue CMBS deals, compared with 19 appointments during 2017; 31 of the 55 new transactions were Freddie Mac K-series deals. Additionally, the company is named special servicer on 76 non-CMBS loans with a UPB of \$323.9 million, which are primarily assets owned by CDOs managed by CWCI, nonsecuritized Fannie Mae assets and assets owned by Fortress affiliates.

Also as of Dec. 31, 2019, the company was actively working out 30 CMBS loans totaling \$320.9 million and 31 REO assets totaling \$544.3 million. Additionally, CWCAM was actively special servicing three non-CMBS loans with a UPB of \$107.8 million and one REO with a UPB of \$19 million.

Special Servicing Portfolio Overview

	12/31/19	% Change	12/31/18	% Change	12/31/17
CMBS					
No. of Transactions — Special Servicer	181	25	145	9	133
UPB — Special Servicer (\$ Mil.)	121,406.8	33	91,196.3	23	74,153.5
No. of Loans — Named Special Servicer	6,396	25	5,101	5	4,876
UPB — Actively Special Servicer (Non-REO) (\$ Mil.)	320.9	(64)	899.3	(50)	1,795.8
No. of Loans — Actively Special Servicer (Non-REO)	30	(23)	39	(58)	92
UPB $\frac{3}{4}$ REO Assets (\$ Mil.)	544.3	(66)	1,605.9	16	1,380.9
No. of REO Assets	31	(55)	69	(15)	81
Non-CMBS					
UPB — Named Special Servicer (\$ Mil.)	323.9	(58)	778.1	(4)	814.6
No. of Loans — Named Special Servicer	76	(42)	132	(32)	193
UPB — Actively Special Servicing (Non-REO) (\$ Mil.)	107.8	19	90.9	3	88.2
No. of Loans — Actively Special Servicing (Non-REO)	3	(40)	5	(50)	10
UPB — REO Assets (\$ Mil.)	19.0	100	5.4	(52)	11.2
No. of REO Assets	1	(75)	4	33	3

Source: CWCAM.

Loan Administration

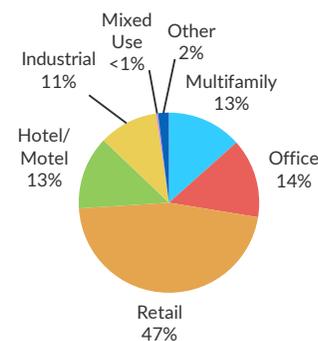
CWCAM's surveillance group is responsible for identifying and monitoring sub- and nonperforming loans before they are transferred to special servicing. CWCAM's surveillance group works with master servicers throughout the month as needed but most formally through monthly calls to review the watchlist and other assets and to determine which assets have or may transfer to special servicing.

CWCAM maintains and analyzes watchlists to identify probable and possible loan transfers to special servicing. Key criteria in determining watchlist loans include the borrower's financial condition, property condition issues, and lease rollover or tenant issues. Surveillance uses a loan rating system classifying watchlist loans as possessing low, medium, high, possible transfer (high risk with possible transfer within 90 days to six months) or probable transfer

Fitch finds CWCAM to be proactive in its surveillance of performing loans before potentially problematic loans transfer to special servicing.

Active CMBS Special Servicing Property Type

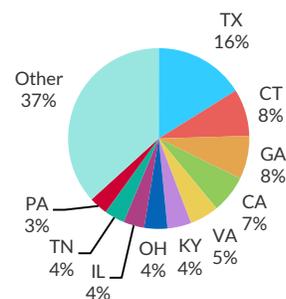
(As of Dec, 31, 2019)



Source: CWCAM.

Active CMBS Special Servicing Geographic Distribution

(As of Dec, 31, 2019)



Source: CWCAM.

(high risk with probable transfer in less than 90 days) risk. Surveillance staff obtains data and information from a variety of sources, including trustee reports, master servicer data files and conference calls, and online research databases. Data are used to risk rate loans and request the early transfer of loans, as allowed by the transaction documents, that the company believes would benefit from immediate special servicer intervention.

Master servicers provide CWCAM notification of borrower requests and consent matters via a centralized e-mail inbox. An analyst enters the request into CAMS and is responsible for updating CAMS as the request moves through the review process from the analyst reviewing the request through approval in accordance with CWCAM's delegations of authority, which authorizes team leaders to approve certain actions up to a certain loan threshold/dollar limit. The delegations of authority cover actions such as leases, nonstandard requests (partial releases, addition of collateral, etc.), assumptions and expenditures. Management reviews the consents-in-process list to ensure requests are being processed timely.

Defaulted/Nonperforming Loan Management

The surveillance department transitions loans to special servicing through a debriefing process with the assigned asset manager. Once a loan transfers to special servicing, the asset manager conducts a preliminary assessment of the asset, which includes reviewing the applicable PSA and loan files, assessing, if any representations or warranties were breached and making certain that all loan documents and assignments are present.

An asset status report (ASR) is generally prepared and distributed within the first 30 days of the asset's transfer to special servicing. Once completed, the ASR is reviewed and approved by the managing director of the legal department. Once approved, a compliance analyst is notified, who then delivers the ASR to appropriate PSA parties. Following the preparation of the ASR, the asset manager is responsible for preparing a business plan for each loan asset that is transferred to special servicing, generally within 90 days of the asset's transfer to special servicing.

Once the loan transfers to special servicing, the asset manager performs Internet searches on the borrower and reviews internally available resources, especially where the company has had prior experience with the borrower/sponsor. In addition, CWCAM requests up-to-date property financials and budgets and interviews the property manager and/or property management company to accurately determine the sources and uses of property cash flow.

Site inspections are performed within 45 days of an asset's transfer to special servicing and at least annually thereafter. Asset managers inspect all assets prior to taking title via foreclosure or deed-in-lieu proceeding; however, in the event the asset manager cannot travel to the site within the first 45 days, a contracted inspection may be obtained. In all cases prior to taking title, CWCAM will obtain a phase I environmental report, a property condition report and additional studies as required by the PSA.

CWCAM maintains a valuations team that provides support in the modeling and development for all property values for loans and REOs with a UPB greater than \$20 million and others at management's discretion. The team is also responsible for fair market value determinations, irrespective of the loan's UPB. The valuation analyst is required to complete assumption gathering, modeling and data entry for all special servicing valuations for loans with a UPB over \$20 million and prepare a valuation plan, which supplements the workout business plan, as well as obtain approvals from the valuations committee for all fair market values as defined by the PSA.

The asset manager, in conjunction with a member of the valuation team for assets over \$20 million, reviews the most recent appraisal in detail, talks with local market contacts and brokers and reviews internal sales data of CWCAM REO and note sales. In addition, CWCAM uses online research tools such as Reis, Inc. and CoStar.

Loan workout timelines, evaluation of potential resolution methods and determination of the final strategy are developed by the asset manager and discussed with senior management informally via monthly asset review meetings and formally via presentation of a business plan as required by the company's delegation of authority matrix, up to a credit committee and the appropriate CCR. The asset manager determines appropriate actions to take to gain control of

CWCAM's credit committee consists of: the president of CWCAM (for assets with a UPB of \$100 million or greater), the CIO, the managing director of the legal department (who also reviews plans for compliance issues), and the two managers who lead the asset management and valuations groups.

the collateral's cash flow, including the appointment of a receiver, a hard lockbox or forbearance agreement that requires a monthly reconciliation of all income and expenses.

Alternative scenarios are explored by the asset manager to determine resolution strategies that maximize the trust's recovery on a net present value (NPV) basis. Business plans are updated at least annually or when a material change occurs to the asset. Approval of the business plan is per the company's delegations of authority matrix and, ultimately, a credit committee composed of senior management, including compliance.

REO Management

An REO asset manager, if separately assigned, generally becomes involved at least 30 days prior to the planned foreclosure sale and may inspect the property 30 days in advance of the expected transfer but no later than 30 days following title transfer. Outside of the property specialists, assets are assigned based on an asset manager's experience with the particular property type, knowledge of the local market and current workload.

Upon transfer of a loan to an REO asset manager, the loan asset manager completes an REO transition checklist, which ensures that the asset file contains all the information needed to transition the asset to REO and to manage the property. Asset managers are responsible for ensuring that property managers perform duties in a timely manner and within the established REO budget and also ensure that property managers and leasing agents are actively addressing tenant needs. For commercial properties, the leasing agent and/or property manager are expected to meet with each tenant immediately upon take over.

Asset managers present a business plan within the first 90 days of taking title to a property detailing property- and trust-level operating budgets. The asset plans outline operating, repositioning and liquidation strategies and associated time frames. CWCAM states that business plans are expected to produce the highest NPV recovery for the trust and include an analysis of costs, holding periods and the difference between the "as is" and "stabilized" value for each asset. The selected strategy in each business plan is based on an analysis of the property, its surrounding location and existing market conditions, and may include interviews with brokers, property managers and investors.

Once approved by senior management, business plans provide asset managers with the budget authority required to implement the plan and expenses are checked against the budget in place during asset reviews, which are conducted monthly; asset reviews are set up so that every asset in special servicing is reviewed by senior management no less than once a quarter. REO business plans are formally presented to CWCAM's credit committee at least annually.

After CWCAM has made the decision to sell an asset, the loan sale actions and REO sale process is transferred to REDS automatically through CAMS. REDS then recommends a third-party broker to market the asset and develop a proposed marketing timeline. REDS performs co-brokerage functions, including screening and qualifying potential purchasers, reviewing projected sale values, negotiating broker retention agreements and purchase contracts, and responding to purchaser due diligence inquiries, among other duties, at the direction of CWCAM.

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 influence workout strategies and the ability to select the special servicer.

The new CIO - debt currently serves on the credit committee responsible for approving loan workouts, which Fitch notes has the potential to create conflicts of interest. While CWCAM has not purchased an interest in any B-pieces, the company stated that the CIO-debt would be recused from asset-level workout decisions on loans in CMBS transactions where CWCAM owns a position.

CWCAM is a wholly owned subsidiary of CWFS, which is owned by funds managed by affiliates of Fortress. The CWFS family of companies includes CWCI, a real estate debt and investment management company focused on real estate debt products including CMBS,

Fitch reviewed a sample of eight business plans for REO assets in special servicing, noting that the business plans contained asset and market overviews presented in clear and concise layouts, as well as containing the asset manager's rationale and estimation of loss/recovery substantiated by an NPV analysis. The business plans contained NPV analyses comparing for REO, at least: "hold and sell" and "sell REO."

CDOs, mezzanine debt, B-notes and structured loans. It is a registered investment advisor that acts as collateral manager and/or disposition consultant on numerous CDO transactions.

CWCI is generally not invested in bonds in the CDO trusts or CMBS bond positions held within the CDOs but provides investment management services where it may act as the CCR on many of its deals. Owners of the CDO are not part of CWCAM's credit committee for specially serviced loans or REOs. Senior managers at CWCAM are generally aware of bond holdings in the normal course of business for identification and communication with CCRs and other bondholders as required by PSAs. Therefore, while the company has a code of conduct, the potential remains for a conflict of interest to arise, similar to other peer servicers.

As part of its regular compliance process, CWCAM calculates and distributes fair-value determinations in accordance with each PSA, which require a third-party review of the value should an affiliate elect to purchase an asset or in other cases where required by the PSA. An affiliate of CWCAM has exercised one fair-value purchase option during 2019 and the review for the purchase was performed by a consultant retained by the trustee. CWCAM expects that affiliates will continue to review the fair value purchase options and will exercise the options from time to time.

CWCAM maintains an ethical conduct section within its policies and procedures manual that states that the company adopted the practice of servicing all of its assets in a manner consistent with the industry-defined servicing standard and as contained in each PSA governing its actions. As such, the manual states the company will administer all loans in the same manner without regard to any relationship with an affiliate, ownership of the certificate or the right of the servicer to receive compensation. The manual also states that CWCAM or its affiliates shall evaluate all methods of recovery on the mortgage loans or REO assets and shall take such actions that will be reasonably likely to produce the maximum recovery as a whole to all the certificateholders on a present-value basis.

Affiliate Companies

CWFS, the parent company of CWCAM, is wholly owned by funds managed by affiliates of Fortress, which on occasion provides servicing assignments to the company. CWFS owns CWCI and certain CRE-related companies including ConvergentRisk, CWFS Insight LLC (DBA RealINSIGHT), CWCM and REDS.

CWCI is a real estate debt and investment management company that provides servicing assignments to CWCAM. ConvergentRisk provides risk management and related insurance services to the company and third-party clients. CWFS Insight is the technology company that built CAMS and markets a version of the application to third parties. CWCM facilitates the flow of capital between borrowers and lenders. REDS leads, coordinates and manages all CWCAM loans, subject to PSA-dictated fair value purchase procedures and REO disposition actions as co-broker. ConvergentRisk provides clients with risk management and related insurance services in the CRE sector. ConvergentRisk does not operate as a broker for CWCAM, nor does it place insurance for CWCAM. CWCAM does not currently retain or pay for the services of ConvergentRisk, nor does it have trusts to retain or to pay for its services.

REDS does not charge additional fees to CMBS trusts, receiving a percentage of the brokerage fee or the premium paid by the buyer to the auction platform for each asset auctioned on behalf of CWCAM. To the extent REDS co-brokers a sale with a listing broker, it receives a percentage of the brokerage fee commensurate with the division of duties. To the extent an auction platform is used for an asset sale, in conjunction with a CWCAM-retained listing broker, both REDS and the applicable CMBS trust typically share the platform fee paid by the buyer.

Historically, fees charged by REDS have been at market terms compared with other servicers. The average total listing commission paid to REDS and/or its co-broker for assets liquidated in 2019 was 2.7%, compared with 2.6% for 2018.

ALL FITCH CREDIT RATINGS ARE SUBJECT TO CERTAIN LIMITATIONS AND DISCLAIMERS. PLEASE READ THESE LIMITATIONS AND DISCLAIMERS BY FOLLOWING THIS LINK: [HTTPS://FITCHRATINGS.COM/UNDERSTANDINGCREDITRATINGS](https://fitchratings.com/understandingcreditratings). IN ADDITION, RATING DEFINITIONS AND THE TERMS OF USE OF SUCH RATINGS ARE AVAILABLE ON THE AGENCY'S PUBLIC WEB SITE AT WWW.FITCHRATINGS.COM. PUBLISHED RATINGS, CRITERIA, AND METHODOLOGIES ARE AVAILABLE FROM THIS SITE AT ALL TIMES. FITCH'S CODE OF CONDUCT, CONFIDENTIALITY, CONFLICTS OF INTEREST, AFFILIATE FIREWALL, COMPLIANCE, AND OTHER RELEVANT POLICIES AND PROCEDURES ARE ALSO AVAILABLE FROM THE CODE OF CONDUCT SECTION OF THIS SITE. FITCH MAY HAVE PROVIDED ANOTHER PERMISSIBLE SERVICE TO THE RATED ENTITY OR ITS RELATED THIRD PARTIES. DETAILS OF THIS SERVICE FOR RATINGS FOR WHICH THE LEAD ANALYST IS BASED IN AN EU-REGISTERED ENTITY CAN BE FOUND ON THE ENTITY SUMMARY PAGE FOR THIS ISSUER ON THE FITCH WEBSITE.

Copyright © 2020 by Fitch Ratings, Inc., Fitch Ratings Ltd. and its subsidiaries. 33 Whitehall Street, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. In issuing and maintaining its ratings and in making other reports (including forecast information), Fitch relies on factual information it receives from issuers and underwriters and from other sources Fitch believes to be credible. Fitch conducts a reasonable investigation of the factual information relied upon by it in accordance with its ratings methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or in a given jurisdiction. The manner of Fitch's factual investigation and the scope of the third-party verification it obtains will vary depending on the nature of the rated security and its issuer, the requirements and practices in the jurisdiction in which the rated security is offered and sold and/or the issuer is located, the availability and nature of relevant public information, access to the management of the issuer and its advisers, the availability of pre-existing third-party verifications such as audit reports, agreed-upon procedures letters, appraisals, actuarial reports, engineering reports, legal opinions and other reports provided by third parties, the availability of independent and competent third-party verification sources with respect to the particular security or in the particular jurisdiction of the issuer, and a variety of other factors. Users of Fitch's ratings and reports should understand that neither an enhanced factual investigation nor any third-party verification can ensure that all of the information Fitch relies on in connection with a rating or a report will be accurate and complete. Ultimately, the issuer and its advisers are responsible for the accuracy of the information they provide to Fitch and to the market in offering documents and other reports. In issuing its ratings and its reports, Fitch must rely on the work of experts, including independent auditors with respect to financial statements and attorneys with respect to legal and tax matters. Further, ratings and forecasts of financial and other information are inherently forward-looking and embody assumptions and predictions about future events that by their nature cannot be verified as facts. As a result, despite any verification of current facts, ratings and forecasts can be affected by future events or conditions that were not anticipated at the time a rating or forecast was issued or affirmed.

The information in this report is provided "as is" without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individual, or group of individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship. Individuals identified in a Fitch report were involved in, but are not solely responsible for, the opinions stated therein. The individuals are named for contact purposes only. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed or withdrawn at any time for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US\$1,000 to US\$750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from US\$10,000 to US\$1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of the United Kingdom, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.

For Australia, New Zealand, Taiwan and South Korea only; Fitch Australia Pty Ltd holds an Australian financial services license (AFS license no. 337123) which authorizes it to provide credit ratings to wholesale clients only. Credit ratings information published by Fitch is not intended to be used by persons who are retail clients within the meaning of the Corporations Act 2001.