



CWCapital Asset Management LLC
Commercial Mortgage Servicer / North America

June 2018

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Servicer Summary



CWCapital Asset Management LLC (CWCAM, or the company) is a commercial real estate (CRE) asset manager and is 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. CWCAM remains one of the largest legacy CMBS special servicers as 46% of the named special servicing portfolio was securitized before 2009. Consistent with its peers, CWCAM continues to face significant portfolio runoff as legacy deals wind down and assets are resolved. By loan count, the company's active CMBS portfolio declined 40% since 2016.

Relative to other large legacy CMBS special servicers, CWCAM has been the most successful in gaining third-party servicing assignments for new issue CMBS and Freddie Mac K-series transactions partially offsetting these declines. In 2017, CWCAM added over \$16.7 billion in named special servicing volume across 19 transactions. All new special servicing assignments were from third-parties and 13 of the 19 deals were Freddie Mac K-series transactions.

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 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 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+
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Related Research

- [Fitch Affirms CWCapital Asset Management LLC's Commercial Special Servicer Rating \(April 2018\)](#)

Related Criteria

- [Criteria for Rating Loan Servicers \(February 2017\)](#)
- [Criteria for Rating North American Commercial Mortgage Servicers \(February 2017\)](#)

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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.

Staffing and Training: As the active special servicing portfolio has declined, the ratio of assets to asset managers declined to 8:1 from 14:1 at Fitch Ratings' prior review reflecting a continued trend. While asset manager turnover increased to 40% from 26% at Fitch's last review, the company still maintains a highly experienced group of asset managers who average 25 years of experience. Additionally, overall turnover was down to 19% from 28% previously and management turnover declined to 13% from 24% at the last review.

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, a compliance committee monitoring exception reports from the operations and compliance group and an internal audit group focused on quarterly Reg AB testing.

Technology: CWCAM's asset management system, Commercial Asset Management System (CAMS), is among the most robust special servicing applications and reflects the company's dedication to developing and enhancing its special servicing technology. CWCAM recently changed its disaster recovery and business continuity practices to more of an emphasis on remote access following the transition of its technology infrastructure to a cloud-based platform and the closure of externally hosted disaster recovery sites.

Defaulted/Nonperforming Loan Management: CWCAM resolved \$4.4 billion of CMBS loans and real estate owned (REO) in the past 12 months. Since year-end 2016, the active CMBS special servicing portfolio, including REO, has declined by 40% by loan count as legacy CMBS transactions continue to be resolved and resolutions exceed new loan defaults.

Company Experience Since:

CRE Loan Workout	1995
CMBS Workout	1995

Operational Trends

Business Plan	Stable business plan with steady flow of new business offsetting portfolio declines	■
Servicing Portfolio	Less than 10% year-over-year growth by loan count or run-off in the portfolio	▼
Financial Condition	FCS Trend/ Public Outlook	■
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	■

Company Overview

In 2005, CWFS acquired Allied Capital Corporation's (Allied Capital) CMBS bond portfolio and, 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.

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 RealiINSIGHT): 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.
- CWFS also owns a minority noncontrolling interest in Ten-X (formerly Auction.com). CWCAM last sold assets through Ten-X in March 2017.

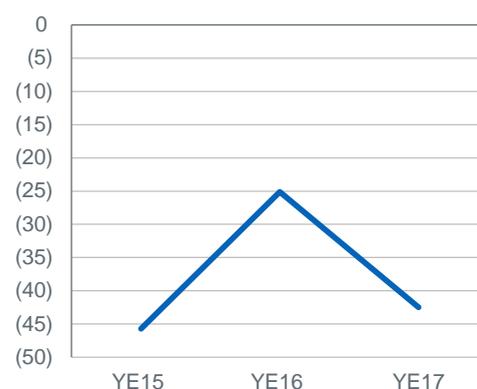
Servicing Portfolio Overview

	2017	% Change	2016	% Change	2015
Special Servicing — Named					
UPB (\$ Mil.)	78.9	(3)	81.1	(19)	100.6
No. of Loans	5,376	(13)	6,186	(16)	7,357
Special Servicing — Active^a					
UPB (\$ Mil.)	3.3	(42)	5.7	(25)	7.6
No. of Loans	186	(40)	308	(19)	380

^aIncluding REO. UPB — Unpaid principal balance. Note: Years ended December 31.
Source: CWCapital Asset Management LLC.

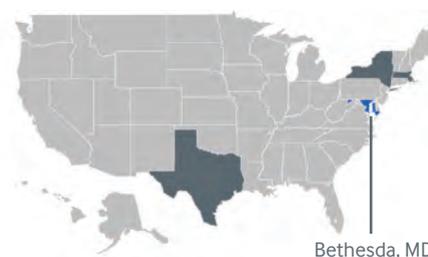
Special Servicing Portfolio

(% Change from Prior Period)



Note: Active special servicing includes REO.
Source: CWCapital Asset Management LLC.

Office Locations



■ Primary office

Note:

Historically, REDS worked exclusively for CWCAM; however, beginning in 2017, REDS closed several deals on behalf of third parties and currently has 11 third-party clients.

Company Overview *(Cont'd)*

As of Dec. 31, 2017, CMBS made up 96% of CWCAM's total special servicing portfolio by loan count. The company's special servicing portfolio initially consisted of CMBS portfolios acquired from Allied Capital and CRIIMI MAE who owned the controlling classes. While not an active investor in CMBS B-pieces, CWFS has purchased controlling bonds in the past, most recently in 2016 from a third-party client exiting the business. CWFS has no plans to raise funds or purchase additional CMBS B-pieces. CWFS is not an active CRE lender, having sold its lending and primary servicing operations in 2012.

As one of the largest third-party special servicers, CWCAM gains servicing assignments for new issue CMBS transactions by providing due diligence, underwriting and surveillance duties for clients who purchase B-pieces. The majority (73% by transaction, up from 61% at Fitch's last review) of the company's current CMBS assignments are on behalf of third parties. CWCI or affiliates act as the controlling class representative (CCR) for 32% 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 26% of CWCAM's special servicing portfolio. CWCI manages 17 CDO transactions totaling approximately \$1.1 billion in collateral principal balance.

Special servicers with heavy concentrations in pre-2009 vintage transactions share the challenge of a declining portfolio with the maturities and resolutions of legacy vintage transactions. CWCAM's CMBS active special servicing portfolio has declined by 40% and the named special servicing portfolio has declined by 10% by loan count since 2016. With 46% of the company's 139 named CMBS transactions securitized before 2009, CWCAM continues to face significant portfolio runoff as legacy deals wind down and assets are resolved.

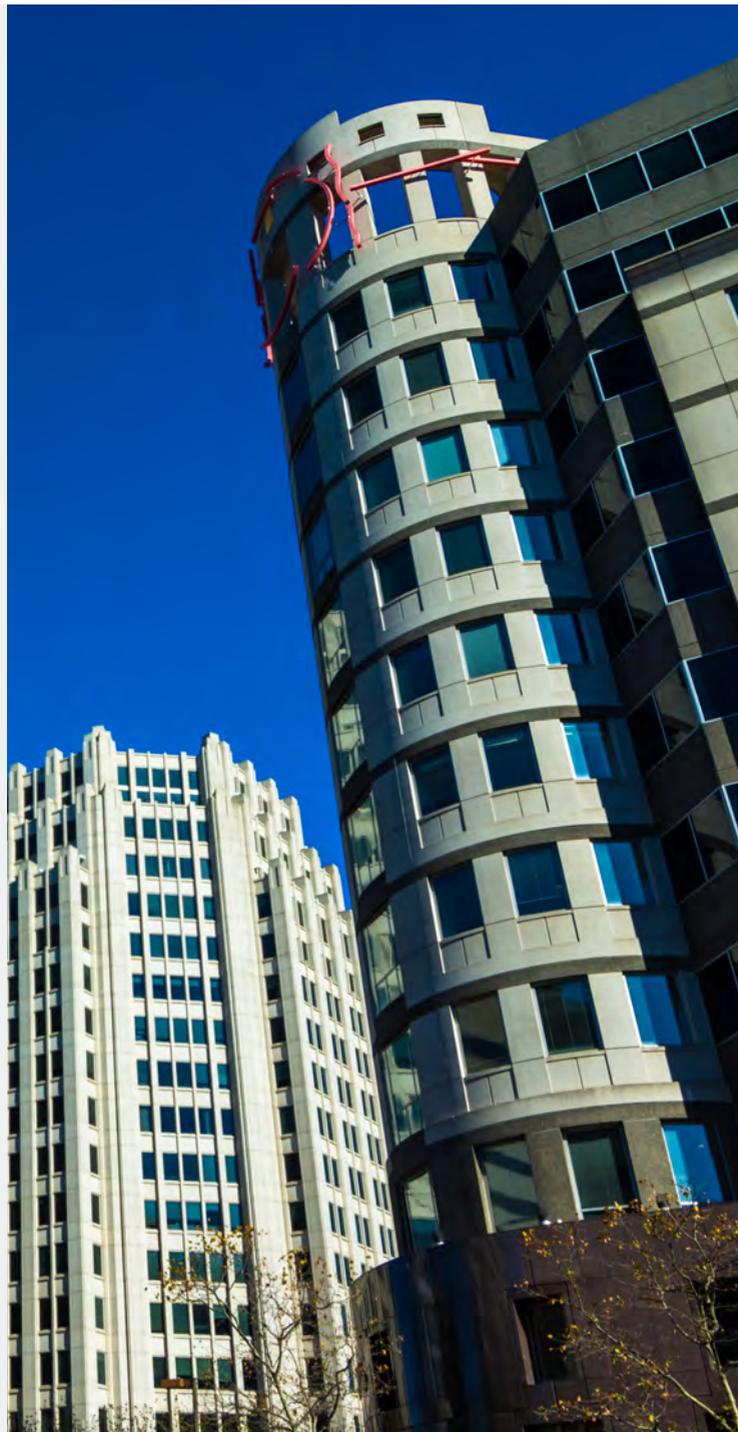
Headquartered in Bethesda, MD, CWCAM had 70 employees in its special servicing operation as of Dec. 31, 2017, down from 79 employees as of Dec. 31, 2016, located primarily in Bethesda with regional offices in Baltimore, MD, Irving, TX, Newton, MA, and New York, NY. A select few special servicing staff and asset managers are located in each regional office and there is a concentration of ConvergentRisk staff in Newton, ReallINSIGHT staff in Irving and CWFS staff in New York.

Note:

As an active third-party special servicer, CWCAM has been successful in gaining servicing assignments for new issue CMBS transactions to partially offset portfolio runoff. In 2017, CWCAM added over \$16.7 billion across 19 transactions in named special servicing volume. All new special servicing assignments were from third parties and 13 of the 19 deals were Freddie Mac K-series transactions.



“CWCAM remains one of the largest legacy CMBS special servicers, as 46% of the special servicing portfolio was securitized before 2009, down from 66% at Fitch’s 2016 review.”

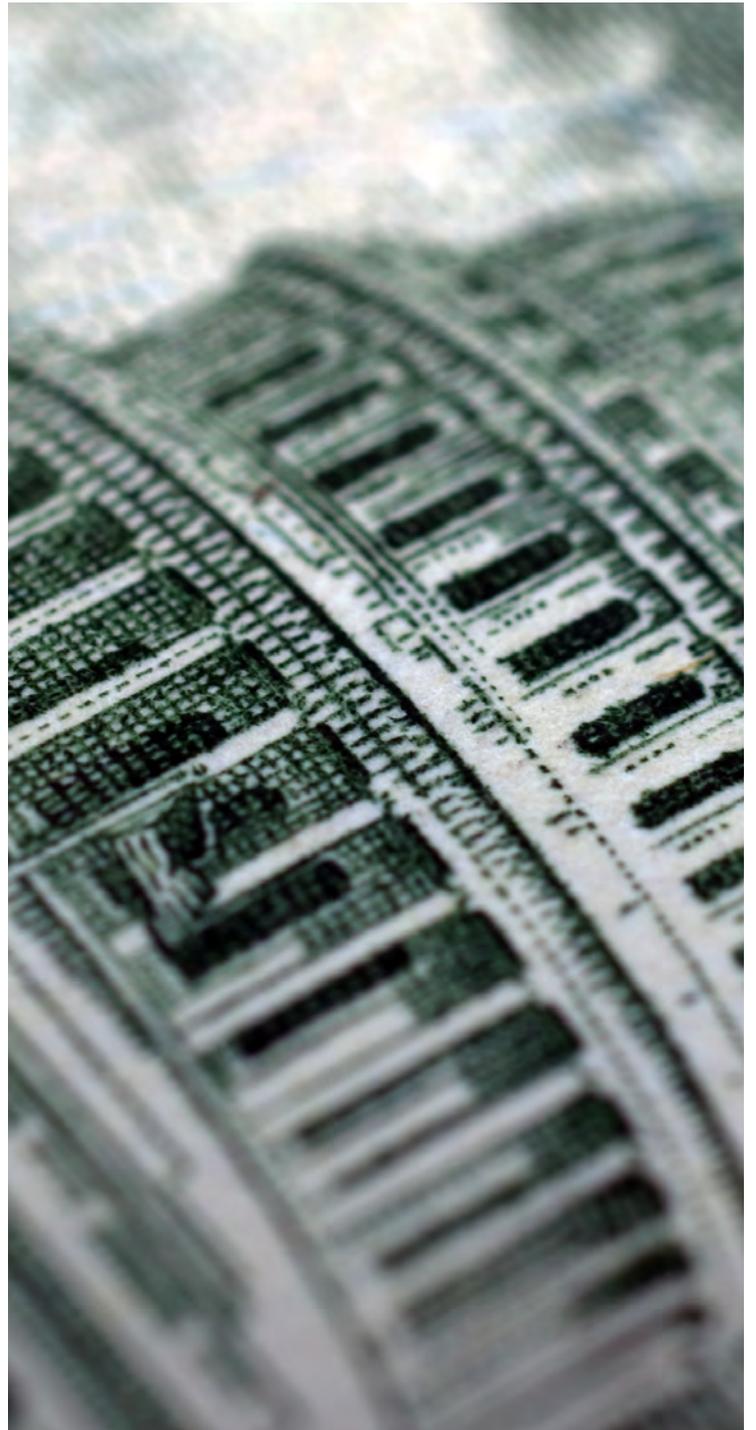


Financial

Fitch does not publicly maintain an Issuer Default Rating 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 no recourse debt obligations eliminating default risk under its current capital structure. In anticipation of material declines in special servicing revenues, CWFS achieved some diversity through ancillary business segments that should allow a smoother transition through a less profitable period of CMBS servicing.

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 had 70 special servicing employees as of Dec. 31, 2017 (down from a peak of 160 employees in 2011), including 22 asset managers who contribute to other company initiatives such as borrower consent processing and underwriting. The decline in overall staff year over year is consistent with the decline in active specially serviced assets, a trend that Fitch expects to continue through 2018. CWCAM maintains an experienced core senior management team over special servicing functions, with the president, managing director of special servicing (including consents) and the managing director of legal (to whom the compliance, operations and reporting groups report to) averaging 30 years of experience in the industry.

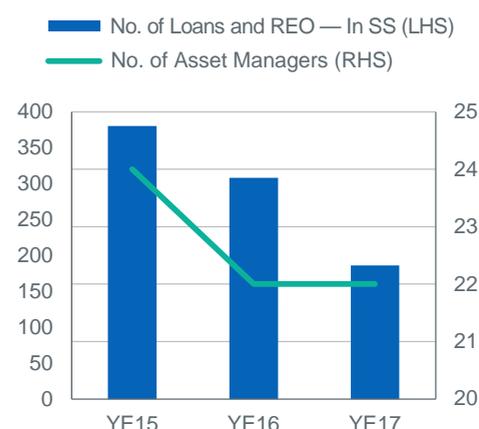
CWCAM's special servicing staff is structured into three teams and asset managers typically manage the workout process from cradle to grave. While there isn't a separate REO team, CWCAM maintains several property specialists focusing on multifamily, hospitality, office and industrial properties. The 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.

While there were no major changes to the staffing structure during Fitch's most recent review, staffing has been fluid during previous reviews as the portfolio continued to decline. The asset management staff was organized in 2012 into teams focusing on small- and medium-size loan balances, special/large assets and REO; in 2013, the teams were eliminated due to the changing composition of its portfolio and declining volume of assets. In 2014, CWCAM organized staff by client/CCR and eliminated separate REO teams, creating a habitation REO team; in 2015, the habitation team was folded into newly organized special servicing teams and asset managers were no longer organized by client/CCR. During 2016, CWCAM folded its separate consents and assumptions team into the three asset management teams due to a decline in the level of such requests and the increasing number of maturity transfers.

The three special servicing team leaders average 19 years of experience and seven years with CWCAM. Asset managers total 14, including the managing director of special servicing, and average 25 years of industry experience and are generally supported by an analyst, administrative assistant and/or portfolio administrator.

Other support provided to the asset managers comes from the valuations team as well as REDS. The valuations team, reporting to the managing director of valuations and underwriting, is responsible for providing support in the modeling and development of values for loans and REO assets with a UPB greater than \$20 million, as well as fair market-value determinations, where required, irrespective of the loan's UPB. The valuations team is also responsible for CWCAM's underwriting assignments for third parties. REDS, formed in 2012 within CWCAM and subsequently separated into an affiliate company, provides support for and co-brokerage duties for loan and REO asset sales.

SS Loan and Employee Counts



Note: SS – Special Servicing. REO – Real estate owned.
Source: CWCapital Asset Management LLC.

Note:

Senior managers average 31 years of industry experience and middle managers provide sufficient management depth averaging 23 years of experience.

Employee Statistics

	2017				2016			
	No. of Employees	Avg. Years Industry Experience	Avg. Years Tenure	% Turnover	No. of Employees	Avg. Years Industry Experience	Avg. Years Tenure	% Turnover
Special Servicing								
Senior Management	10	31	12	9	12	30	11	18
Middle Management	20	23	11	15	19	22	10	27
Servicing Staff	40	12	8	23	48	12	8	30
Total	70	—	—	19	79	—	—	28

Source: CWCapital Asset Management LLC.

Employees *(Cont'd)*

Overall turnover during the past 12 months declined to 19% from 28% at Fitch's prior review. Turnover was primarily driven by voluntary departures, a consistent theme from the prior review, representing 64% of all turnover. Senior manager turnover was down at 9% from 18% and middle management turnover was down to 15% from 27%. Staff turnover was also down to 23% from 30%. While asset manager turnover increased to 40% from 26% at Fitch's last review, the company still maintains a highly experienced group of asset managers who average 25 years of experience.

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. Topics chosen were determined by the committee members by polling employees and recently included various real estate and servicing classes and system applications.

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 onsite property inspection seminar.

CWCAM special servicing personnel averaged 48 hours of training in 2017, consistent with other highly rated Fitch special servicers.

Note:

As of Dec. 31, 2017, the ratio of assets to asset managers was 8:1, a decrease from 14:1 at Fitch's prior review reflecting a continued trend as the active special servicing portfolio runs off. At 8:1, CWCAM maintains one of the lowest ratios of legacy Fitch-rated servicers, indicating the company has significant capacity for higher defaults under its current staffing plan.

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 in its role 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.

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 vendors employed by CWCAM include: third-party reports, co-broker/property manager and legal counsel.

Note:

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.

Information Technology

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, ReallINSIGHT. Over the past few years, the company has developed a cloud-based version of CAMS, which is also named ReallINSIGHT 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.

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.

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

CWCAM is currently running on two asset management systems as the company works to migrate legacy CMBS data into ReallINSIGHT 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. During 2017, internal data for new issue CMBS transactions as well as Freddie Mac K-series transactions was migrated to ReallINSIGHT and the proprietary CMBS data-warehouse was integrated to ReallINSIGHT as well. Surveillance of CMBS 2.0 and Freddie Mac K-series transactions and the underwriting of CMBS B-pieces are now done in ReallINSIGHT. Once legacy loans are resolved, CWCAM will use ReallINSIGHT exclusively.

Systems support is provided by six CWFS IT employees that are responsible for infrastructure and software development, and helpdesk support was recently moved in house as well.

Note:

Fitch recognizes CWCAM's technology platform as a core operational strength and views its dedication to developing and enhancing its special servicing technology favorably. CAMS was recently integrated with the company's CMBS data-warehouse to load all reported fields in the CREFC IRP for transactions where CWAM acts as special servicer improving reporting capabilities. Additionally, the data-warehouse was recently integrated into ReallINSIGHT and is now used in surveillance and underwriting functions as well.

Note:

CWCAM's main focus continues to be converting CWCAM's customized version of CAMS to the newest release of ReallINSIGHT.

Information Technology *(Cont'd)*

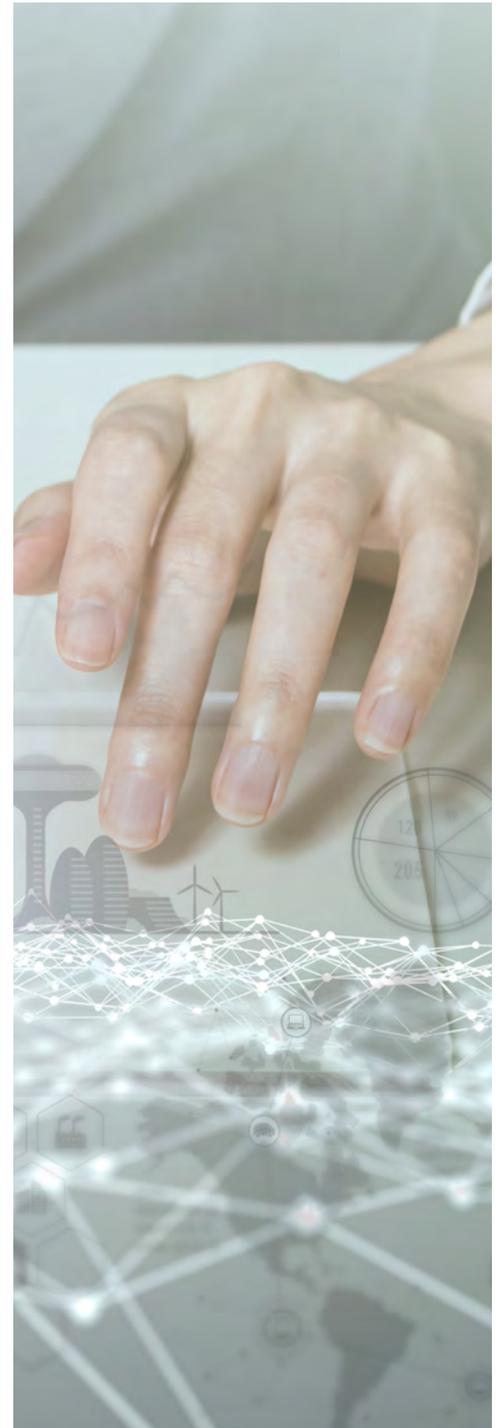
Disaster Recovery/Business Continuity Plan

CWCAM recently terminated its contract with SunGard effective Jan. 31, 2018 as a result of SunGard closing down its Herndon, VA facility. CWCAM previously used two SunGard facilities in Herndon, 25 miles from its headquarters for special servicing, and in Grand Prairie, TX, 20 miles from CWCAM's Irving office, for business continuity purposes. CWCAM recently transitioned to a third-party cloud-based platform for its IT infrastructure and replaced SunGard with Agility Recovery for a facility that can sit up to 10 people. Agility has over 40 locations in the 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.

Under the new disaster recovery plan, 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.

With the transition to a cloud-based IT infrastructure, CWCAM uses various geographical regions available within the 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 be near zero.

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 tests at the Bethesda home office were performed in February 2017 and September 2017 while the Dallas office conducted exercises in November 2017. The tests were all considered successful.



“While CWCAM continues to maintain a hot-site in the event of a disaster, Fitch notes that there’s more of an emphasis on remote access with the switch to cloud-based technology infrastructure and the use of a more limited disaster recovery facility.”



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 a dedicated operations and compliance group consisting of three 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.

CWCAM also maintains a compliance committee, which reviews weekly exception reports generated from CAMS by the operations and compliance group, which are asset-level focused and are focused on deadlines established under PSAs and/or the company's policies and procedures. CWCAM's internal audit function, consisting of two employees and reporting up to the CFO, provides a third layer of control and performs internal audits on a quarterly basis for Reg AB, annually for the CAMS system's compliance and quarterly for 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.

The last material update to the policies and procedures manual was in February 2017; more recent changes have centered on updated delegations of authority and approved appraisers and property manager lists. In 2014, as a result of compliance findings, CWCAM began an initiative to document 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 that is responsible for compliance with policies and procedures. Currently, 16 workflow charts covering various functions were created, with the goal of creating workflow charts for each critical special servicing function.

Compliance and Controls

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

In addition to the operations and compliance group, CWCAM also created an internal risk assessment role that is staffed by one employee, with support from other internal resources, responsible for identifying risks in the business and reviewing internal processes to ensure they address perceived risks. The internal risk assessment 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 operations and compliance group and the reporting group fall under CWCAM's legal department. The senior vice president overseeing the operations and compliance group is a highly experienced former asset manager who has 31 years of experience and over 13 years of company tenure. The vice president of reporting has 17 years of experience and over 12 years with CWCAM.

The managing director in the legal group overseeing the operations and compliance and reporting groups has over 27 years of experience and 16 years with CWCAM and serves as the chair of the compliance committee. The compliance committee meets bi-weekly, with additional meetings as

Note:

Fitch views the creation of detailed workflow charts as a best practice to help support new employees, ensure the consistent application of processes and allow for efficient compliance oversight through detailed documentation.

Note:

Fitch reviewed CWCAM's policy and procedure manual and found it to be detailed and thorough, comparing favorably with other highly rated servicers.

Note:

Fitch notes that CWCAM's compliance committee membership functions independently of special servicing; previously, servicing line managers formed the core of the compliance committee.

Internal Control Environment *(Cont'd)*

warranted, and includes: the senior vice president of operations and compliance, managing director — legal, CFO, senior vice president of internal risk assessment, managing director of special servicing, managing director of relationship management, senior vice president of reporting and the managing director of corporate operations.

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

Internal Audit

The senior manager overseeing internal audit has 33 years of experience and a CPA background and is supported by one staff member with over 12 years of experience. Internal audits occur on a quarterly basis for Reg AB, annually for CAMS system's compliance and quarterly for property management audits and related cash management reviews for REO properties. Fitch reviewed four quarterly Reg AB internal audits from 2017 and noted no material findings. Where observations were noted, they were accompanied by management's response, including remediation efforts as appropriate.

Fitch also reviewed two internal audits on fees and CAMS. The audit on fees was dated September 2017 and covered servicing fees (special servicing fees, corrected mortgage fees, liquidation fees, etc.) and ancillary fees (default interest, late fees, administrative fees, extension fees and modification fees, etc.). The audit tested a sample of active and resolved loans and examined fee setup, fee generation and billing and fee receipt and noted no material findings.

The CAMS audit tested a sample of active and resolved 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; where there were observations in the CAMS audit, management's response was documented.

With respect to the annual internal audit program, the internal audit team proposes the annual plan to the CFO who, in turn, solicits suggestions from members of the compliance committee. Once the plan is developed, it is presented to the compliance committee for approval. The internal audit function meets weekly with the CFO to monitor the annual audit plan, discuss findings and recommendations, as well as any other developments. The CFO reports on internal audit activities in the weekly compliance committee meetings.

External Audits

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. 28, 2018, which stated that CWCAM complied with the applicable servicing criteria. Fitch also reviewed the USAP letter issued by Matthews, Carter & Boyce on March 8, 2018, which noted no findings.

Note:

CWCAM's internal audits mainly focus on RegAB requirements with testing performed quarterly. 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.

Note:

During 2017, CWCAM conducted an audit that assessed the general data quality and integrity procedures in place between CWCAM and its third-party CMBS data provider. The audit did not contain any material findings. CWCAM stated that it may elect to perform the audit periodically going forward.

Defaulted Loan Management — Special Servicing

Special Servicing Portfolio

As of Dec. 31, 2017, CWCAM was the named special servicer on 5,183 loans in 139 CMBS transactions, with a UPB of \$78.1 billion. As of the same date, the company was actively working out 92 CMBS loans totaling \$1.8 billion and 81 REO assets totaling \$1.4 billion. Additionally, the company is named special servicer on 193 non-CMBS loans with a UPB of \$814.6 million and is actively servicing 10 non-CMBS loans with a UPB of \$88.2 million and three REOs with a UPB of \$11.2 million.

Offsetting the decline in the portfolio from resolutions and maturities, the company was appointed as a third-party special servicer on 19 new issue CMBS deals in 2017, compared with 16 appointments during 2016; 13 of the 19 new transactions were Freddie Mac K-series deals. Non-CMBS assets primarily include assets owned by CDOs managed by CWCI, nonsecuritized Fannie Mae assets and assets owned by Fortress affiliates.

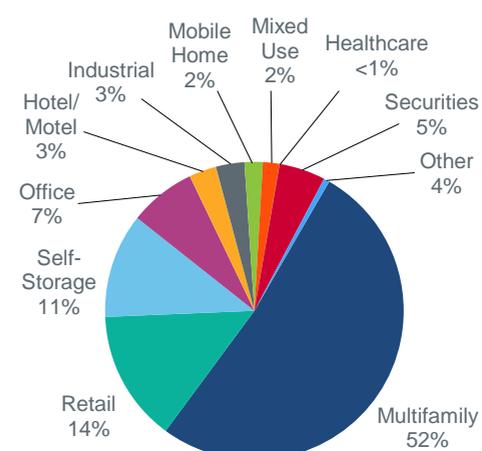
Special Servicing Portfolio Overview

	2017	% Change	2016	% Change	2015
CMBS					
No. of Transactions — Special Servicer	139	1	137	2	134
UPB — Special Servicer (\$ Mil.)	78.1	(2)	79.6	(19)	98.7
No. of Loans — Named Special Servicer	5,183	(10)	5,753	(16)	6,813
UPB — Actively Special Servicer (Non-REO) (\$ Mil.)	1.8	(49)	3.5	(7)	3.8
No. of Loans — Actively Special Servicer (Non-REO)	92	(45)	167	(1)	168
UPB — REO Assets (\$ Mil.)	1.4	(32)	2.0	(44)	3.6
No. of REO Assets	81	(33)	121	(36)	190
Non-CMBS					
UPB — Named Special Servicer (\$ Mil.)	0.81	(47)	1.53	(20)	1.91
No. of Loans — Named Special Servicer	193	(55)	433	(20)	544
UPB — Actively Special Servicing (Non-REO) (\$ Mil.)	0.09	(33)	0.13	26	0.10
No. of Loans — Actively Special Servicing (Non-REO)	10	(38)	16	(6)	17
UPB — REO Assets (\$ Mil.)	0.01	(19)	0.01	(84)	0.08
No. of REO Assets	3	(25)	4	(20)	5

REO — Real estate owned. UPB — Unpaid premium balance. Note: Years ended December 31.
Source: CWC Capital Asset Management LLC.

Named CMBS Special Servicing Property Type

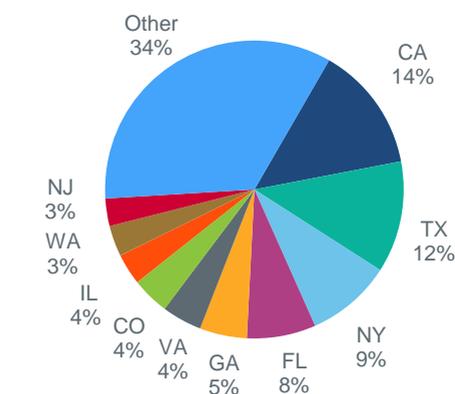
(As of Dec. 31, 2017)



Note: Fitch considers Freddie Mac K-series transactions as CMBS.
Source: CWC Capital Asset Management LLC.

Top 10 Named CMBS Special Servicing States

(As of Dec. 31, 2017)



Note: Fitch considers Freddie Mac K-series transactions as CMBS.
Source: CWC Capital Asset Management LLC.

Defaulted Loan Management — Special Servicing *(Cont'd)*

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 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 (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 they feel 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 special servicing. 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 REO with an 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

Note:

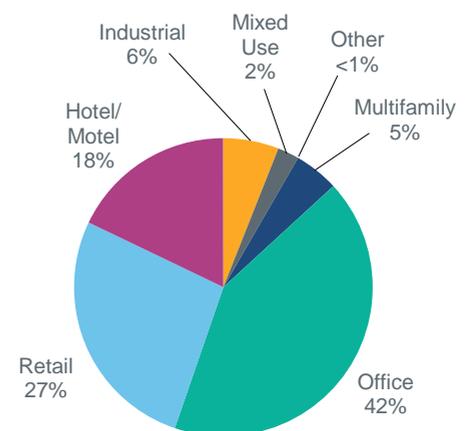
As of Dec. 31, 2017, CWCAM's named CMBS special servicing portfolio consisted of:

- 29% Freddie Mac K-series transactions; an increase from 12% in 2015.
- 46% legacy CMBS transactions (defined as pre-2009); down from 71% in 2015.
- 32% 2014–2016 vintage transactions.
- 13% 2017 vintage transactions.

Note:

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, 2017)



Note: Fitch considers Freddie Mac K-series transactions as CMBS.
Source: CWC Capital Asset Management LLC.

Defaulted Loan Management — Special Servicing (Cont'd)

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 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 controlling class representative. The asset manager determines appropriate actions to take to gain control of 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.

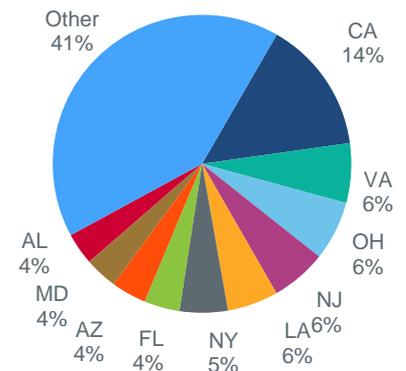
Upon transfer of a loan to an REO asset manager, the loan asset manager completes an REO transition checklist, which ensures that the asset file contains all of the information that is needed to transition the asset to REO and to manage the property. Asset managers are responsible for ensuring that property 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 timeframes. 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.

Top 10 Active CMBS Special Servicing States
(As of Dec. 31, 2017)



Note: Fitch considers Freddie Mac K-series transactions as CMBS.
Source: CWCAM Asset Management LLC.

Note:

CWCAM's credit committee consists of: the president of CWCAM (for assets with a UPB of \$100 million or greater), the managing director of special servicing, the managing director of valuations, the three special servicing team leaders, managing director of the legal department and the senior vice president of the operations and compliance group. Team leaders can approve business plans for assets with a UPB of up to \$25 million.

Note:

The number of CMBS REO assets managed by CWCAM declined by approximately 57% in 2017 from the prior year.

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.

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, 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 REO. 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 similar 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 two separate fair-value purchase options in the past year, as well as purchased four REO properties. The reviews for purchases made to date were performed by a consultant retained by the trustee. CWCAM expects that affiliates will continue to review the fair value purchase options and will exercise 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 that is 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 of the certificateholders on a present-value basis.

Affiliated Companies

CWFS, the parent company of CWCAM, is wholly owned by funds managed by affiliates of Fortress, who on occasion provides servicing assignments to the company. CWFS owns CWCI and certain CRE-related companies including ConvergentRisk, CWFS Insight LLC (DBA ReallINSIGHT), CWCM and REDS. Additionally, CWFS owns a noncontrolling 0.8% interest in Ten-X (an internet-based real estate auction service). In September 2017, CWFS sold part of its noncontrolling interest in Ten-X, reducing it from 4.7%.

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 loan (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.

Note:

Fitch reviewed a sample of 12 business plans for loans and REO 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 also contained NPV analyses comparing at least two scenarios, including, for REO, at least: "hold and sell" and "sell REO."

Governance and Conflicts of Interest *(Cont'd)*

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.

Note:

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 2017 was 2.8%.

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