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**Summary Report of Issues Identified in the Commission Staff's Examinations  
of Select Credit Rating Agencies  
By the Staff of the Securities and Exchange Commission  
July 3, 2008**

**I. Summary**

In August 2007, the Securities and Exchange Commission's Staff initiated examinations of three credit rating agencies -- Fitch Ratings, Ltd. ("Fitch"), Moody's Investor Services, Inc. ("Moody's") and Standard & Poor's Ratings Services ("S&P") -- to review their role in the recent turmoil in the subprime mortgage-related securities markets. These firms registered with the Commission as nationally recognized statistical rating organizations in September 2007 (collectively, the firms examined are referred to in this report as the "rating agencies" or "NRSROs"). These firms were not subject to the Credit Rating Agency Reform Act of 2006 or Commission regulations for credit rating agencies until September 2007. The focus of the examinations was the rating agencies' activities in rating subprime residential mortgage-backed securities ("RMBS") and collateralized debt obligations ("CDOs") linked to subprime residential mortgage-backed securities. The purpose of the examination was to develop an understanding of the practices of the rating agencies surrounding the rating of RMBS and CDOs. This is a summary report by the Commission's Staff of the issues identified in those examinations.<sup>1</sup>

In sum, as described in Section IV of this report, while the rating agencies had different policies, procedures and practices and different issues were identified among the firms examined, the Staff's examinations revealed that:

- there was a substantial increase in the number and in the complexity of RMBS and CDO deals since 2002, and some of the rating agencies appear to have struggled with the growth;
- significant aspects of the rating process were not always disclosed;
- policies and procedures for rating RMBS and CDOs can be better documented;
- the rating agencies are implementing new practices with respect to the information provided to them;
- the rating agencies did not always document significant steps in the rating process -- including the rationale for deviations from their models and for rating committee actions and decisions -- and they did not always document significant participants in the ratings process;

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<sup>1</sup> This is a report of the Commission's Staff and does not include findings or conclusions by the Commission. This report also includes a description of the examinations conducted and current regulatory requirements for NRSROs (in Section II) and a description of the ratings process (in Section III).

- the surveillance processes used by the rating agencies appear to have been less robust than the processes used for initial ratings;
- issues were identified in the management of conflicts of interest and improvements can be made; and
- the rating agencies' internal audit processes varied significantly.

This report also summarizes generally the remedial actions that the NRSROs have said they will take as a result of these examinations. In addition, this report also describes the Commission's proposed rules, which, if adopted, would require that the NRSROs take further actions.<sup>2</sup>

In conjunction with the Staff's examinations of the three rating agencies, the Staff of the Office of Economic Analysis ("OEA Staff") reviewed the processes used by these firms with respect to rating RMBS and CDOs that held subprime RMBS securities. The purpose of the OEA Staff's review was to gain insight into the conflicts of interest in the rating process for RMBS and CDOs, and to gain an understanding of the ratings methodologies employed by the rating agencies so that the Staff could better evaluate the extent to which conflicts of interest may have entered into and affected the ratings process. Section V of this report summarizes conflicts of interest that are unique to these products and provides a factual summary of the models and methodologies used by the rating agencies. This information is provided in this report solely to provide transparency to the ratings process and the activities of the rating agencies in connection with the recent subprime mortgage turmoil. The Staff does not make recommendations or seek to regulate the substance of the methodologies used.<sup>3</sup>

## **II. Background**

### **A. The Examinations**

Beginning in 2007, delinquency and foreclosure rates for subprime mortgage loans in the United States dramatically increased, creating turmoil in the markets for residential mortgage-backed securities backed by such loans and collateralized debt obligations linked to such loans (collectively "subprime RMBS and CDOs"). As the performance of these securities continued to deteriorate, the three rating agencies most active in rating these instruments downgraded a significant number of their ratings. The rating agencies performance in rating these structured finance products raised questions about the

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<sup>2</sup> Prior to being registered as NRSROs, Fitch, Moody's and S&P were designated as NRSROs pursuant to No-Action Letters issued by the Staff of the Division of Trading and Markets. *See* Release No. 34-55857 (June 18, 2007).

<sup>3</sup> In conducting these examinations, the Commission was expressly prohibited from regulating "the substance of the credit ratings or the procedures and methodologies" by which any NRSRO determines credit ratings. 15 U.S.C. §78o-7(c)(2).

accuracy of their credit ratings generally as well as the integrity of the ratings process as a whole.

On August 31, 2007, the Staff in the Commission's Office of Compliance Inspections and Examinations ("OCIE"), Division of Trading and Markets ("Trading & Markets") and Office of Economic Analysis ("OEA Staff") (collectively "the Staff") initiated examinations of Fitch, Moody's, and S&P with respect to their activities in rating subprime RMBS and CDOs.<sup>4</sup> Specifically, key areas of review included:

- the NRSROs' ratings policies, procedures, and practices, including gaining an understanding of ratings models, methodologies, assumptions, criteria and protocols;
- the adequacy of the disclosure of the ratings process and methodologies used by the NRSROs;
- whether the NRSROs complied with their ratings policies and procedures for initial ratings and ongoing surveillance;
- the efficacy of the NRSROs' conflict of interest procedures; and
- whether ratings were unduly influenced by conflicts of interest related to the NRSROs' role in bringing issues to market and the compensation they receive from issuers and underwriters.

The examinations also include a review of whether the examined rating agencies had policies and procedures to detect and address ratings determined to be inaccurate as a result of errors in ratings models used. Initial observations as a result of this aspect of the examinations are also included in this report.

The examination review period generally covered January 2004 through the present. The firms under examination became subject to regulation as NRSROs when they registered with the Commission as NRSROs in September 2007. Although these rating agencies were not subject to legal obligations applicable to NRSROs during most of the review period, the Staff nonetheless sought to make relevant factual findings and observations with respect to the activities of these firms in rating subprime RMBS and CDOs during the period, as well as to identify possible areas for improvement in their practices going forward.

The examinations included extensive on-site interviews with the rating agencies' staff, including senior and mid-level managers, initial ratings analysts and surveillance analysts, internal compliance personnel and auditors, personnel responsible for building, maintaining and upgrading the ratings models and methodologies used in the ratings process, and other relevant rating agency staff.

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<sup>4</sup> Over 50 Commission Staff participated in these examinations.

In addition, the Staff reviewed a large quantity of the rating agencies' internal records, including written policies, procedures and other such documents related to initial ratings, the ongoing surveillance of ratings, the management of conflicts of interest, and the public disclosures of the procedures and methodologies for determining credit ratings. The Staff also reviewed deal files for subprime RMBS and CDO ratings, internal audit reports and records, and other internal records, including a large quantity of email communications (the rating agencies produced over two million emails and instant messages that were sorted, analyzed and reviewed using software filtering tools). Finally, the Staff reviewed the rating agencies' public disclosures, filings with the Commission and other public documents.

## **B. Current Regulatory Requirements and Proposed New Rules and Rule Amendments With Respect to Credit Rating Agencies**

The Rating Agency Reform Act was enacted on September 29, 2006. The Act created a new Section 15E in the Exchange Act, providing for Commission registration of NRSROs if specific requirements are met. Section 15E also provides authority for the Commission to implement financial reporting and oversight rules with respect to registered NRSROs. The Rating Agency Reform Act amended Section 17(a) of the Exchange Act to provide for Commission authority to require reporting and recordkeeping requirements for registered NRSROs, as well as examination authority with respect to ratings activity conducted by the NRSROs. The Rating Agency Reform Act expressly prohibits the Commission from regulating "the substance of the credit ratings or the procedures and methodologies" by which any NRSRO determines credit ratings. The Commission voted to adopt rules related to NRSROs on June 18, 2007, which became effective on June 26, 2007.

Under the new law and rules, NRSROs are required to make certain public disclosures, make and retain certain records, furnish certain financial reports to the Commission, establish procedures to manage the handling of material non-public information, and disclose and manage conflicts of interest. The Commission's rules additionally prohibit an NRSRO from having certain conflicts of interest and engaging in certain unfair, abusive, or coercive practices.

In order to increase transparency in the ratings process and to curb practices that contributed to recent turmoil in the credit market, on June 11, 2008 the Commission proposed additional rules with respect to NRSROs.<sup>5</sup> The Commission was informed by, among other things, the information from these then-ongoing Staff examinations. In sum, the Commission proposed to:

- Prohibit an NRSRO from issuing a rating on a structured product unless information on the characteristics of assets underlying the product is available, in

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<sup>5</sup> *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, June 16, 2008, <http://www.sec.gov/rules/proposed/2008/34-57967.pdf>. The comment period for the proposed rules is through July 25, 2008.

order to allow other credit rating agencies to use the information to rate the product and, potentially, expose a rating agency whose ratings were unduly influenced by the product's sponsors.

- Prohibit an NRSRO from issuing a rating where the NRSRO or a person associated with the NRSRO has made recommendations as to structuring the same products that it rates.
- Require NRSROs to make all of their ratings and subsequent rating actions publicly available, to facilitate comparisons of NRSROs by making it easier to analyze the performance of the credit ratings the NRSROs issue in terms of assessing creditworthiness.
- Prohibit anyone who participates in determining a credit rating from negotiating the fee that the issuer pays for it, to prevent business considerations from undermining the NRSRO's objectivity.
- Prohibit gifts from those who receive ratings to those who rate them, in any amount over \$25.
- Require NRSROs to publish performance statistics for one, three, and ten years within each rating category, in a way that facilitates comparison with their competitors in the industry.
- Require disclosure by the NRSROs of whether and how information about verification performed on the assets underlying a structured product is relied on in determining credit ratings.
- Require disclosure of how frequently credit ratings are reviewed; whether different models are used for ratings surveillance than for initial ratings; and whether changes made to models are applied retroactively to existing ratings.
- Require NRSROs to make an annual report of the number of ratings actions they took in each ratings class.
- Require documentation of the rationale for any material difference between the rating implied by a qualitative model that is a "substantial component" in the process of determining a credit rating and the final rating issued.
- Require NRSROs to differentiate the ratings they issue on structured products from other securities, either through issuing a report disclosing how procedures and methodologies and credit risk characteristics for structured finance products differ from other securities, or using different symbols, such as attaching an identifier to the rating.

### **III. The Ratings Process**

The general processes used to create and rate RMBS and CDOs is described below.

#### **A. The Creation of RMBS and CDOs**

The process for creating a RMBS begins when an arranger, generally an investment bank, packages mortgage loans -- generally thousands of separate loans -- into a pool, and transfers them to a trust that will issue securities collateralized by the pool. The trust purchases the loan pool and becomes entitled to the interest and principal payments made by the borrowers. The trust finances the purchase of the loan pool through the issuance of RMBS to investors. The monthly interest and principal payments from the loan pool are used to make monthly interest and principal payments to the investors in the RMBS.

The trust typically issues different classes of RMBS (known as “tranches”), which offer a sliding scale of coupon rates based on the level of credit protection afforded to the security. Credit protection is designed to shield the tranche securities from the loss of interest and principal due to defaults of the loans in pool. The degree of credit protection afforded a tranche security is known as its “credit enhancement” and is provided through several means, each is described below.

The primary source of credit enhancement is subordination, which creates a hierarchy of loss absorption among the tranche securities. For example, if a trust issued securities in 10 different tranches, the first (or senior) tranche would have nine subordinate tranches, the next highest tranche would have eight subordinate tranches and so on down the capital structure. Any loss of interest and principal experienced by the trust from delinquencies and defaults in loans in the pool are allocated first to the lowest tranche until it loses all of its principal amount and then to the next lowest tranche and so on up the capital structure. Consequently, the senior tranche would not incur any loss until all the lower tranches have absorbed losses from the underlying loans.

A second form of credit enhancement is over-collateralization, which is the amount that the principal balance of the mortgage pool exceeds the principal balance of the tranche securities issued by the trust. This excess principal creates an additional “equity” tranche below the lowest tranche security to absorb losses. In the example above, the equity tranche would sit below the tenth tranche security and protect it from the first losses experienced as a result of defaulting loans.

A third form of credit enhancement is excess spread, which is the amount that the trust’s monthly interest income exceeds its monthly liabilities. It is comprised of the amount by which the total interest received on the underlying loans exceeds the total interest payments due to investors in the tranche securities (less administrative expenses of the trust, such as loan servicing fees, premiums due on derivatives contracts, and bond insurance). This excess spread can be used to build up loss reserves or pay off delinquent interest payments due to a tranche security.

The process for creating a typical CDO is similar to that of an RMBS. A sponsor creates a trust to hold the CDO's assets and issue its securities. Generally, a CDO is comprised of 200 or so debt securities (rather than mortgage loans that are held in RMBS pools). The CDO trust uses the interest and principal payments from the underlying debt securities to make interest and principal payments to investors in the securities issued by the trust. Similar to RMBS, the trust is structured to provide differing levels of credit enhancement to the securities it issues through subordination, over-collateralization, excess spread, and bond insurance. In addition to the underlying assets, one significant difference between a CDO and an RMBS is that the CDO may be actively managed such that its underlying assets change over time, whereas the mortgage loan pool underlying an RMBS generally remains static.

In recent years, CDOs have been some of the largest purchasers of subprime RMBS and the drivers of demand for those securities. According to one NRSRO, the average percentage of subprime RMBS in the collateral pools of CDOs it rated grew from 43.3% in 2003 to 71.3% in 2006. As the market for mortgage-related CDOs grew, CDO issuers began to use credit default swaps to replicate the performance of subprime RMBS and CDOs. In this case, rather than purchasing subprime RMBS or CDOs, the CDO entered into credit default swaps referencing subprime RMBS or CDOs, or indexes on RMBS. These CDOs, in some cases, are composed entirely of credit default swaps ("synthetic CDOs") or a combination of credit default swaps and cash RMBS ("hybrid CDOs").

## **B. Determining Credit Ratings for RMBS and CDOs**

A key step in the process of creating and ultimately selling a subprime RMBS and CDO is the issuance of a credit rating for each of the tranches issued by the trust (with the exception of the most junior "equity" tranche). The credit rating for each rated tranche indicates the credit rating agency's view as to the creditworthiness of the debt instrument in terms of the likelihood that the issuer would default on its obligations to make interest and principal payments on the debt instrument.

The three examined rating agencies generally followed similar procedures to develop ratings for subprime RMBS and CDOs. The arranger of the RMBS initiates the rating process by sending the credit rating agency a range of data on each of the subprime loans to be held by the trust (e.g., principal amount, geographic location of the property, credit history and FICO score of the borrower, ratio of the loan amount to the value of the property, and type of loan: first lien, second lien, primary residence, secondary residence), the proposed capital structure of the trust, and the proposed levels of credit enhancement to be provided to each RMBS tranche issued by the trust. Upon receipt of the information, the rating agency assigns a lead analyst who is responsible for analyzing the loan pool, proposed capital structure, and proposed credit enhancement levels and, ultimately, for formulating a ratings recommendation for a rating committee composed of analysts and/or senior-level analytic personnel.

The next step in the ratings process is for the analyst to develop predictions, based on a quantitative expected loss model and other qualitative factors, as to how many of the



loans in the collateral pool would default under stresses of varying severity. This analysis also includes assumptions as to how much principal would be recovered after a defaulted loan is foreclosed. To assess the potential future performance of the loan under various possible scenarios, each rating agency generally uses specific credit characteristics to analyze each loan in the collateral pool. These characteristics include the loan information described above as well as the amount of equity that the borrowers have in their homes, the amount of documentation provided by borrowers to verify their assets and/or income levels, and whether the borrowers intend to rent or occupy their homes.

The purpose of this loss analysis is to determine how much credit enhancement a given tranche security would need for a particular category of credit rating. The severest stress test (i.e., the one that would result in the greatest number of defaults among the underlying loans) is run to determine the amount of credit enhancement required for an RMBS tranche issued by the trust to receive an AAA rating. The next severest stress test is run to determine the amount of credit enhancement required of the AA tranche and so on down the capital structure. The lowest rated tranche (typically BB or B) is analyzed under a more benign market scenario. Consequently, its required level of credit enhancement -- typically provided primarily or exclusively by a subordinate equity tranche -- is based on the number of loans expected to default in the normal course given the lowest possible level of macroeconomic stress.

The next step in the ratings process is for the analyst to check the proposed capital structure of the RMBS against requirements for a particular rating. Typically, if the analyst concludes that the capital structure of the RMBS does not support the desired ratings, this preliminary conclusion would be conveyed to the arranger. The arranger could accept that determination and have the trust issue the securities with the proposed capital structure and the lower rating or adjust the structure to provide the requisite credit enhancement for the senior tranche to get the desired AAA rating. Generally, arrangers aim for the largest possible senior tranche, i.e., to provide the least amount of credit enhancement possible, since the senior tranche -- as the highest rated tranche -- pays the lowest coupon rate of the RMBS' tranches and, therefore, costs the arranger the least to fund.

The next step in the process is for the analyst to conduct a cash flow analysis on the interest and principal expected to be received by the trust from the pool of subprime loans to determine whether it will be sufficient to pay the interest and principal due on each RMBS tranche issued by the trust. The rating agency uses quantitative cash flow models that analyze the amount of principal and interest payments expected to be generated from the loan pool each month over the terms of the RMBS tranche securities under various stress scenarios. The outputs of this model are compared against the priority of payments (the "waterfall") to the RMBS tranches specified in the trust legal documents. The waterfall documentation could specify over-collateralization and excess spread triggers that, if breached, reallocated principal and interest payments from lower tranches to higher tranches until the minimum levels of over-collateralization and excess spread were reestablished. Ultimately, the monthly principal and interest payments derived from the

loan pool need to be enough to satisfy the monthly payments of principal and interest due by the trust to the investors in the RMBS tranches as well as to cover the administrative expenses of the trust. The analyst would also reviews the legal documentation of the trust to evaluate whether it is bankruptcy remote, i.e., isolated from the effects of any potential bankruptcy or insolvency of the arranger.

Following these steps, the analyst develops a rating recommendation for each RMBS tranche, and then presents it to a rating committee composed of analysts and/or senior-level analytic personnel. The rating committee votes on the ratings for each tranche and usually communicates its decision to the arranger. In most cases, an arranger can appeal a rating decision, although the appeal is not always granted (and, if granted, may not necessarily result in any change in the rating decision). Final ratings decisions are published and subsequently monitored through surveillance processes. Typically, the rating agency is paid only if the credit rating is issued, though sometimes it receives a breakup fee for the analytic work undertaken even if the credit rating is not issued.

The rating agencies' process for assigning ratings to subprime CDOs is similar and also involves a review of the creditworthiness of each tranche of the CDO. As with RMBS, the process centers on an examination of the pool of assets held by the trust and an analysis of how they would perform individually and in correlation during various stress scenarios. However, this analysis is based primarily on the credit rating of each RMBS or CDO in the underlying pool (or referenced through a credit default swap entered into by the CDO) and does not include an analysis of the underlying asset pools in the RMBS.

CDOs collateralized by RMBS or by other CDOs often are actively managed. Consequently, there can be frequent changes to the composition of the cash assets (RMBS or CDOs), synthetic assets (credit default swaps), or combinations of cash and synthetic assets in the underlying pool. As a result, ratings for managed CDOs are based not on the composition of the pool but instead on covenanted limits for each potential type of asset that could be put in the pool. Typically, following a post-closing period in which no adjustments can be made to the collateral pool, the CDO's manager has a predetermined period of several years in which to adjust that asset pool through various sales and purchases pursuant to covenants set forth in the CDO's indenture. These covenants set limitations and requirements for the collateral pools of CDOs, often by establishing minimum and maximum concentrations for certain types of securities or certain ratings.

In developing a rating for a CDO, the analyst uses the CDO's indenture guidelines to run "worst-case" scenarios based on the collateral that is permitted under the indenture. In preparing a rating for that CDO, an analyst will run the rating agency's models based on all possible collateral pools permissible under the indenture guidelines, placing the most weight on the results from the weakest potential pools (i.e., the minimum permissible amount, 10%, of AAA-rated securities and the lowest-rated investment grade securities for the remaining 90%). As with RMBS ratings, the analyst compares the model results against the capital structure of the proposed CDO to confirm that the level of subordination, over-collateralization and excess spread available to each tranche provides

the necessary amount of credit enhancement to sustain a particular rating. The process is the same as for an RMBS rating, the analyst makes a recommendation for a rating to a ratings committee, which votes on the rating for each tranche and usually communicates its decision to the arranger.

#### **IV. The Staff's Examinations: Summary of Factual Findings, Observations, and Recommendations**

The Staff's general factual findings, observations, and recommendations from the examinations are summarized below. This is a general summary of the issues identified, and the practices, policies and procedures varied among the firms examined.<sup>6</sup> Not all of the issues described below were found at each rating agency. The Staff notes that the rating agencies cooperated with the Staff's examinations. Each of the rating agencies examined has agreed to implement the Staff's recommendations, though individual firm(s) may not have agreed with the Staff's factual findings giving rise to the recommendation.

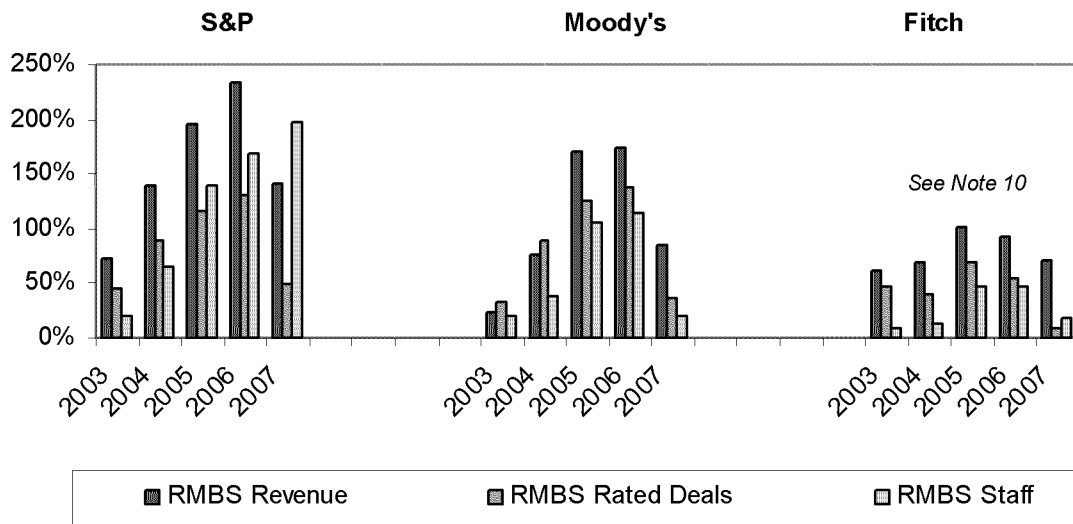
##### **A. There was a Substantial Increase in the Number and in the Complexity of RMBS and CDO Deals Since 2002, and Some Rating Agencies Appeared to Struggle with the Growth**

From 2002 to 2006, the volume of RMBS and CDO deals rated by the rating agencies examined substantially increased, as did the revenues the firms derived from rating these products. As the number of RMBS and CDOs rated by these agencies increased, each rating agency also increased, to varying degrees, the number of staff assigned to rate these securities. With respect to RMBS, each rating agency's staffing increase approximately matched the percentage increase in deal volume. With respect to CDOs, however, two rating agencies' staffing increases did not appear to match their percentage increases in deal volume. (*S&P and Moody's*)

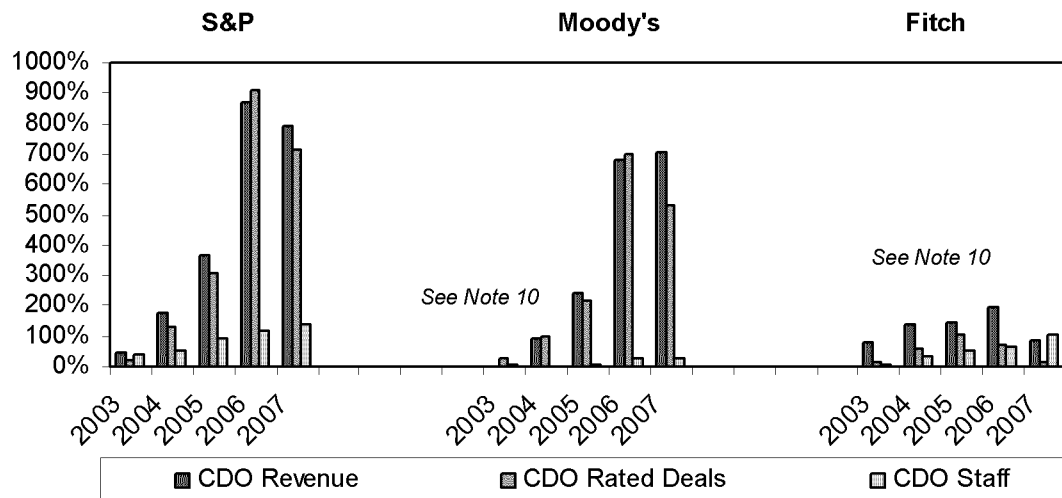
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<sup>6</sup> Because Commission Staff examinations of specific firms are non-public in nature, this public report provides a summary of the issues found. It does not, however, identify any particular rating agency. Firm identifications are made only with respect to information that is already public. The Staff provided each rating agency examined with the opportunity to explain or clarify its internal documents, including emails (and in particular, the emails cited in this report). In some instances, a rating agency may disagree with the Staff's characterization of the emails or other documents referred to in this report.

**Percentage Change Comparison from 2002 versus 2003 - 2007 in RMBS Revenue, Rated Deals, and Ratings Staff**



**Percentage Change Comparison from 2002 versus 2003 - 2007 in CDO Revenue, Rated Deals, and Ratings Staff**



The structured finance products that the rating agencies were asked to evaluate also became increasingly complex, including the expanded use of credit default swaps to replicate the performance of mortgage-backed securities. Further, the loans to retail borrowers being securitized into RMBS, particularly subprime RMBS, became more complex and less conservative.

- **Internal documents at two of the rating agencies appear to reflect struggles to adapt to the increase in the volume and complexity of the deals.**
- One rating agency appears to have issued ratings notwithstanding that one or more issues raised during the analysis of the deal remained unresolved.<sup>7</sup> (*Moody's*)
  - Internal communications between employees of another rating agency express worry about the risk in the deals rated: (*S&P*)
    - Analytical Staff A: “btw - that deal is ridiculous”
    - Analytical Staff B: “I know right...model def does not capture half of the rish (sic)”
    - Analytical Staff B: “risk”
    - Analytical Staff A: “we should not be rating it”
    - Analytical Staff B: “we rate every deal" "it could be structured by cows and we would rate it”
    - Analytical Staff A: “but there's a lot of risk associated with it - I personally don't feel comfy signing off as a committee member.”<sup>8</sup>
  - An analytical manager in the same rating agency’s CDO group writes to a senior analytical manager that “Rating Agencies continue to create and [sic] even bigger monster – the CDO market. Let’s hope we are all wealthy and retired by the time this house of cards falters.;o).”<sup>9</sup> (*S&P*)
  - Resource issues appear to have existed in other structured finance groups outside of the RMBS and CDO areas. For instance, at one rating agency, an analytical manager in the firm’s real estate group states that “[o]ur staffing issues, of course, make it difficult to deliver the value that justifies our fees”<sup>10</sup> and in another email that “[t]ensions are high. Just too much work, not enough people, pressure from company, quite a bit of turnover and no coordination of the non-deal ‘stuff’ they want us and our staff to do.”<sup>11</sup> (*S&P*)

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<sup>7</sup> For example, documents in a deal file state, regarding an issue related to the collateral manager: “We didn’t ha [sic] time to discuss this in detail at the committee, so they dropped the issue for this deal due to timing. We will need to revisit in the future.” Another document describes an outstanding issue as “poorly addressed – needs to be checked in the next deal” and addresses the question of weighted average recovery rate by writing “(WARR- don’t ask ☺).” (Deal File Documents 1 & 2).

<sup>8</sup> Email No. 1: Analytical Staff to Analytical Staff (Apr. 5, 2007, 3:56 PM). Ellipses in original.

<sup>9</sup> Email No. 2: Analytical Manager to Senior Analytical Manager (Dec. 15, 2006, 8:31 PM).

<sup>10</sup> Email No. 3: Senior Business Manager to Senior Business Manager (Apr. 27, 2007, 1:13 PM).

<sup>11</sup> Email No. 4: Senior Business Manager to External Consultant (May 3, 2006, 10:20 AM).

- Similarly, an email from an employee in the same firm’s asset backed securities group states that “[w]e ran our staffing model assuming the analysts are working 60 hours a week and we are short on resources. . . . The analysts on average are working longer than this and we are burning them out. We have had a couple of resignations and expect more. It has come to my attention in the last couple of days that we have a number of staff members that are experiencing health issues.”<sup>12</sup> (*S&P*)

**Remedial Action:** The Staff has recommended that each NRSRO examined evaluate, and evaluate periodically, whether it has sufficient staff and resources to manage its volume of business and meet its obligations under the Section 15E of the Exchange Act and the rules applicable to NRSROs. Each NRSRO examined stated that it will implement the Staff’s recommendation.

## **B. Significant Aspects of the Rating Process Were Not Always Disclosed**

The rating agencies stated to the Staff that, prior to being registered as NRSROs, they disclosed their ratings process.<sup>13</sup> It appears, however, that certain significant aspects of the rating process and the methodologies used to rate RMBS and CDOs were not always disclosed, or were not fully disclosed, as described below.

- **Relevant ratings criteria were not disclosed.** Documents reviewed by the Staff indicate the use of unpublished ratings criteria. For example:
  - At one rating agency, the firm’s employees discussed the firm’s unpublished criteria in separate email communications, excerpted below: (*S&P*)
    - “[N]ot all our criteria is published. [F]or example, we have no published criteria on hybrid deals, which doesn't mean that we have no criteria.”<sup>14</sup>
    - “As I pointed out, there is [sic] many pieces of criteria that has [sic] not yet been published. Does that mean it is not criteria? No.”<sup>15</sup>
    - A criteria officer in the Structured Finance Surveillance group noted “our published criteria as it currently stands is a bit too

<sup>12</sup> Email No. 5: Analytical Manager to Senior Analytical Manager (Dec. 3, 2004, 11:10 AM).

<sup>13</sup> Prior to being registered as NRSROs, the rating agencies did not have a regulatory requirement to disclose their methodologies.

<sup>14</sup> Email No. 11: Analytical Manager to Issuer/Banker (Aug. 31, 2006, 12:04 PM).

<sup>15</sup> Email No. 12: Senior Analytical Manager to Issuer/Banker (Dec. 15, 2006, 12:08 PM).

unwieldy and all over the map in terms of being current or comprehensive. It might be too much of a stretch to say that we're complying with it because our SF [structured finance] rating approach is inherently flexible and subjective, while much of our written criteria is detailed and prescriptive. Doing a complete inventory of our criteria and documenting all of the areas where it is out of date or inaccurate would appear to be a huge job - that would require far more man-hours than writing the principles-based articles.”<sup>16</sup>

- Another rating agency, from 2004 to 2006, reduced its model's raw loss numbers for second lien loans based upon internal matrices. The raw loss outputs from the model were adjusted to set numbers from the matrices depending on the issuer and the raw loss numbers. The rating agency did not publicly disclose its use of matrices to adjust model outputs for second lien loans. (*Fitch*)
- This rating agency also maintained a published “criteria report” that was no longer being used in its ratings process. The criteria report stated the rating agency conducted an extensive review of origination and servicing operations and practices, despite the fact that the RMBS group no longer conducted a formal review of origination operations and practices. This rating agency identified this discrepancy in its internal audit process and corrected it. (*Fitch*)
- At a third rating agency in certain instances there was a time lag from the date at which the firm implemented changes to its criteria and the date at which it published notice of these changes to the market.<sup>17</sup> Additionally, the Staff discovered emails indicating that the firm's analysts utilized an unpublished model to assess data.<sup>18</sup> (*Moody's*)

➤ ***Rating agencies made “out of model adjustments” and did not document the rationale for the adjustment.*** In certain instances, the loss level that was returned by application of the rating agency's quantitative model was not used, and another loss level was used instead. These decisions to deviate from the model were approved by ratings committees but in many cases the rating agency did not have

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<sup>16</sup> Email No. 13: Senior Analytical Manager to Senior Analytical Manager (Mar. 14, 2007, 6:45 PM).

<sup>17</sup> Email No. 14: Analytical Manager to Analytical Manager (Nov. 29, 2007, 20:08 GMT). Also email No. 15: Senior Business Manager to Senior Analytical Manager (Apr. 24, 2007, 18:50 GMT). Also email No. 16: Analytical Manager to Senior Analytical Manager (Feb. 7, 2007, 20:54 GMT). Also email No. 17: Analytical Staff to Analytical Staff (Nov. 15, 2006, 19:10 GMT).

<sup>18</sup> Email No. 18: Analytical Staff to Senior Analytical Manager (Sept. 24, 2007, 18:26 GMT).

documentation explaining the rationale for the adjustments, making it difficult or impossible to identify the factors that led to the decision to deviate from the model. Two rating agencies frequently used “out of model” adjustments in issuing ratings.

- One rating agency regularly reduced loss expectations on subprime second lien mortgages from the loss expectations output by its RMBS model, in some cases reducing the expected loss. While the rating agency’s analysts might have discussed the adjustment with issuers in the course of rating a deal, it appears that the firm did not publicly disclose the practice of overriding model outputs regarding loss expectations on subprime second liens. (*Fitch*)
- Another rating agency indicated to the Staff that its ratings staff, as a general practice, did not adjust its collateral or cash flow analysis based upon factors that were not incorporated into the firm’s models. However, the Staff observed instances in the firm’s deal files that demonstrated adjustments from the cash flow models as well as instances where the firm implemented changes to their ratings criteria which were utilized prior to disclosure or used before being incorporated into their models. (*S&P*)

***Current Regulatory Requirements:*** The Exchange Act and rules applicable to NRSROs specifically address the importance of disclosure (the firms examined became subject to these rules in September 2007). An NRSRO is required to disclose in its application for registration the procedures and methodologies that the applicant uses in determining ratings.<sup>19</sup> An NRSRO is required to include a description of the procedures and methodologies it uses (but is not required to include each such written procedure or methodology) on its registration form (Form NRSRO). The instructions to the form require that the description must be sufficiently detailed to provide users of credit ratings with an understanding of the processes the applicant or NRSRO employs to determine credit ratings. The instructions also identify a number of areas that must be addressed in the description, to the extent they are applicable.<sup>20</sup>

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<sup>19</sup> Section 15E(a)(1)(B)(ii) of the Securities Exchange Act. 15 U.S.C. 78o-7(a)(1)(B)(ii).

<sup>20</sup> Specifically, the instructions require an NRSRO to provide descriptions of the following areas (as applicable): policies for determining whether to initiate a credit rating; a description of the public and non-public sources of information used in determining credit ratings, including information and analysis provided by third-party vendors; the quantitative and qualitative models and metrics used to determine credit ratings; the methodologies by which credit ratings of other credit rating agencies are treated to determine credit ratings for securities or money market instruments issued by an asset pool or as part of any asset-backed or mortgaged-backed securities transaction; the procedures for interacting with the management of a rated obligor or issuer of rated securities or money market instruments; the structure and voting process of committees that review or approve credit ratings; procedures for informing rated obligors or issuers of rated securities or money market instruments about credit rating decisions and for appeals of final or pending credit rating decisions; procedures for monitoring, reviewing, and updating credit ratings; and procedures to withdraw, or suspend the maintenance of, a credit rating.



**Remedial Action:** The Staff has recommended that each NRSRO examined conduct a review of its current disclosures relating to processes and methodologies for rating RMBS and CDOs to assess whether it is fully disclosing its ratings methodologies in compliance with Section 15E of the Exchange Act and the rules applicable to NRSROs. Further, the Staff has recommended that each NRSRO examined review whether its policies governing the timing of disclosure of a significant change to a process or methodology are reasonably designed to comply with these requirements. Each NRSRO examined stated that it will implement the Staff's recommendations.

**Proposed Rules and Rule Amendments That Would Address These Issues:** The Commission has proposed to require enhanced disclosures about the procedures and methodologies that an NRSRO uses to determine credit ratings.<sup>21</sup> The Commission also proposed to add additional areas that an applicant and a registered NRSRO would be required to address in its description of its procedures and methodologies in its Form NRSRO. Disclosure would be enhanced regarding the actions that an NRSRO is, or is not taking, in determining credit ratings. The additional areas proposed to be required to be addressed in its Form NRSRO would be:

- How frequently credit ratings are reviewed, whether different models or criteria are used for ratings surveillance than for determining initial ratings, whether changes made to models and criteria for determining initial ratings are applied retroactively to existing ratings, and whether changes made to models and criteria for performing ratings surveillance are incorporated into the models and criteria for determining initial ratings;
- Whether and, if so, how information about verification performed on assets underlying or referenced by a security or money market instrument issued by an asset pool or as part of any asset-backed or mortgage-backed securities transaction is relied on in determining credit ratings; and
- Whether and, if so, how assessments of the quality of originators of assets underlying or referenced by a security or money market instrument issued by an asset pool or as part of any asset-backed or mortgage-backed securities transaction play a part in the determination of credit ratings.

**C. Policies and Procedures for Rating RMBS and CDOs Can be Better Documented**

Each of the rating agencies has policies that emphasize the importance of providing accurate ratings with integrity. Upon their registration as NRSROs in September 2007, each of the rating agencies examined became subject to a requirement to make and retain certain internal documents relating to their business, including the procedures and

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<sup>21</sup> *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, June 16, 2008, <http://www.sec.gov/rules/proposed/2008/34-57967.pdf>.

methodologies they use to determine credit ratings.<sup>22</sup> The Staff noted that the rating agencies' improved their policies and procedures during the examination period, particularly in connection with their registration as NRSROs.

- ***None of the rating agencies examined had specific written procedures for rating RMBS and CDOs.*** One rating agency maintained comprehensive written procedures for rating structured finance securities, but these procedures were not specifically tailored to rating RMBS and CDOs. (*Fitch*) The other two did not have comprehensive written procedures for the structured finance ratings process. (*Moody's and S&P*)
- ***The written procedures of two rating agencies did not address all significant aspects of the RMBS and/or CDO ratings process.*** For example, written materials set forth guidelines for the structured finance ratings committee process (including its composition, the roles of the lead analyst and chair, the contents of the committee memo, and the voting process) but did not describe the rating process and the analyst's responsibilities prior to the time a proposed rating is presented to a ratings committee. (*Moody's and S&P*)

The lack of full documentation of policies and procedures made it difficult for the examination Staff to confirm that the actual practice undertaken in individual ratings was consistent with the firm's policies and procedures. This lack of full documentation could also impede the effectiveness of internal and external auditors conducting reviews of rating agency activities.

In addition, the Staff is examining whether there were any errors in ratings issued as a result of flaws in ratings models used. While this aspect of the examinations is ongoing, as a result of the examination to date, the Staff notes that:

- ***Rating agencies do not appear to have specific policies and procedures to identify or address errors in their models or methodologies.*** For example, policies and procedures would address audits and other measures to identify possible errors, and what should be done if errors or deficiencies are discovered in models, methodologies, or other aspects of the ratings process (e.g., the parameters of an investigation, the individuals that would conduct the investigation, the disclosures that should be made to the public about errors, and guidelines for rectifying errors).

***Current Regulatory Requirements:*** An NRSRO is required to make and retain certain records relating to its business and to retain certain other business records made in the normal course of business operations.<sup>23</sup> Among the records required to be kept is a

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<sup>22</sup> Rule 17g-2 under the Exchange Act. 17 CFR 240.17g-2.

<sup>23</sup> Rule 17g-2 under the Exchange Act. 17 CFR 240.17g-2. The rule also prescribes the time periods and manner in which all these records must be retained.

record documenting the established procedures and methodologies used by the NRSRO to determine credit ratings.<sup>24</sup> These rules applied to these rating agencies in September 2007.

**Remedial Action:** The Staff has recommended that each NRSRO examined conduct a review to determine whether its written policies and procedures used to determine credit ratings for RMBS and CDOs are fully documented in accordance with the requirements of Rule 17g-2. Each NRSRO examined stated that it will implement the Staff's recommendation.

#### **D. Rating Agencies are Implementing New Practices with Respect to the Information Provided to Them**

There is no requirement that a rating agency verify the information contained in RMBS loan portfolios presented to it for rating. Additionally, rating agencies are not required to insist that issuers perform due diligence, and they are not required to obtain reports concerning the level of due diligence performed by issuers. The observations in this section are included in the report to describe how the rating agencies approached due diligence during the review period, and how they have stated that they intend to approach it in the future.

The Staff notes that each rating agency publicly disclosed that it did not engage in any "due diligence" or otherwise seek to verify the accuracy or quality of the loan data underlying the RMBS pools they rated during the review period. Each rating agency's "Code of Conduct" (available on each rating agency's website) clearly stated that it was under no obligation to perform, and did not perform, due diligence. Each also noted that the assignment of a rating is not a guarantee of the accuracy, completeness, or timeliness of the information relied on in connection with the rating. The rating agencies each relied on the information provided to them by the sponsor of the RMBS. They did not verify the integrity and accuracy of such information as, in their view, due diligence duties belonged to the other parties in the process. They also did not seek representations from sponsors that due diligence was performed.

- ***All of the rating agencies examined have implemented, or announced that they will implement, measures that are designed to improve the integrity and accuracy of the loan data they receive on underlying RMBS pools.***
  - One rating agency began conducting "Enhanced Originator/Issuer Reviews" for all subprime transactions in January 2008. These reviews involve a more extensive review of mortgage originations and their practices, including a review of originator/conduit/issuer due diligence reports and a sample of mortgage origination files.<sup>25</sup> (*Fitch*)

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<sup>24</sup> Rule 17g-2 under the Exchange Act. 17 CFR 240.17g-2(a)(6).

<sup>25</sup> The same rating agency conducted an internal review of 45 loan files and reported that it found the appearance of fraud or misrepresentation in almost every file.

- Another rating agency recently announced that for transactions closing after May 1, 2008, it is requesting updated loan level performance data from issuers on a monthly basis. In addition, it intends to incorporate the quality of an originator's fraud tools and detection policies into its ratings criteria by mid-year 2008. (*S&P*)
- In addition, as reported in press accounts of a May 2008 agreement with the New York State Attorney General, the rating agencies examined each agreed to develop and publicly disclose due diligence criteria to be performed by underwriters on all mortgages comprising RMBS, and to review those results prior to issuing ratings.<sup>26</sup>

***Proposed Rules and Rule Amendments That Would Address Verification:*** The Commission proposed to add two additional areas that an NRSRO (or an applicant to become an NRSRO) would be required to address in its descriptions of its procedures and methodologies in Form NRSRO.<sup>27</sup> These disclosures would provide information about how the NRSROs treat due diligence in the NRSROs' rating process. The additional proposed disclosures would include:

- Whether and, if so, how information about verification performed on assets underlying or referenced by a security or money market instrument issued by an asset pool or as part of any asset-backed or mortgage-backed securities transaction is relied on in determining credit ratings; and
- Whether and, if so, how assessments of the quality of originators of assets underlying or referenced by a security or money market instrument issued by an asset pool or as part of any asset-backed or mortgage-backed securities transaction play a part in the determination of credit ratings.

**E. Rating Agencies Did Not Always Document Significant Steps in the Rating Process -- Including the Rationale for Deviations From Their Models and for Rating Committee Actions and Decisions -- and They Did Not Always Document Significant Participants in the Ratings Process**

Following their registration as NRSROs in September 2007, the rating agencies became subject to a requirement to retain their internal records, including non-public information and workpapers, which were used to form the basis of a credit rating they issued. Prior to being registered as NRSROs, all of the rating agencies examined had established policies and procedures generally requiring documentation of the ratings committee process and its key deliberations.

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<sup>26</sup> [http://www.oag.state.ny.us/press/2008/june/june5a\\_08.html](http://www.oag.state.ny.us/press/2008/june/june5a_08.html).

<sup>27</sup> *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, June 16, 2008, <http://www.sec.gov/rules/proposed/2008/34-57967.pdf>.

The Staff notes, however, that the rating agencies examined did not always fully document certain significant steps in their subprime RMBS and CDO ratings process. This made it difficult or impossible for Commission examiners to assess compliance with their established policies and procedures, and to identify the factors that were considered in developing a particular rating. This lack of documentation would similarly make it difficult for the rating agencies' internal compliance staff or internal audit staff to assess compliance with the firms' policies and procedures when conducting reviews of rating agency activities. Examples include:

- ***The rationale for deviations from the model or out of model adjustments was not always documented in deal records.*** As such, in its review of rating files the Staff could not always reconstruct the process used to arrive at the rating and identify the factors that led to the ultimate rating. *(Fitch and S&P)*.
- ***There was also a lack of documentation of committee actions and decisions.*** At one rating agency, the vote tallies of rating committee votes were rarely documented despite being a required item in the "addendum" to a rating committee memo; in addition, numerous deal files failed to include those addenda and/or included no documentation of the ratings surveillance process. *(Moody's)*. At two of the rating agencies, there were failures to make or retain committee memos and/or minutes as well as failures to include certain relevant information in committee reports. *(Fitch and S&P)*

The Staff noted instances where the rating agencies failed to follow their internal procedures and document the ratings analyst and/or ratings committee participants who approved credit ratings. For example:

- ***There was sometimes no documentation of committee attendees.*** At one rating agency, about a quarter of the RMBS deals reviewed lacked an indication of the chairperson's identity, and a number lacked at least one signature of a committee member. *(S&P)* At another rating agency, an internal audit indicated that certain relevant information, including committee attendees and quorum confirmation, were sometimes missing from committee memos, though the Staff noted improvements in this area during the review period. *(Fitch)*

***Current Regulatory Requirements:*** An NRSRO is required to make and retain certain records relating to its business and to retain certain other business records made in the normal course of business operations.<sup>28</sup> An NRSRO is specifically required to make and retain certain records, including records with respect to each current credit rating that indicate: (1) the identity of any credit analyst(s) that participated in determining the credit rating; (2) the identity of the person(s) that approved the credit rating before it was issued; (3) whether the credit rating was solicited or unsolicited; and (4) the date the

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<sup>28</sup> Rule 17g-2 of the Exchange Act. 17 CFR 240.17g-2. The rule also prescribes the time periods and manner in which these records must be retained.

credit rating action was taken.<sup>29</sup> These rules applied to these rating agencies in September 2007.

**Remedial Action:** The Staff has recommended that each NRSRO examined conduct a review of its current policies and practices for documenting the credit rating process and the identities of RMBS and CDO ratings analysts and committee members to review whether they are reasonably designed to ensure compliance with Rule 17g-2 and to address weaknesses in the policies or in adherence to existing policies that result in gaps in documentation of significant steps and participants in the credit rating process. Each NRSRO examined stated that it will implement the Staff's recommendations.

**Proposed Rules and Rule Amendments That Would Address These Issues:** The Commission proposed an amendment to its rules that, if adopted, would require that if a quantitative model is a substantial component of the credit rating process, an NRSRO would be required to keep a record of the rationale for any material difference between the credit rating implied by the model and the final credit rating issued.<sup>30</sup>

#### **F. The Surveillance Processes Used by the Rating Agencies Appear to Have Been Less Robust Than Their Initial Rating Processes**

While NRSROs are not required under the law to perform surveillance, a rating agency will generally monitor the accuracy of its ratings on an ongoing basis in order to change the ratings when circumstances indicate that a change is required. This process is generally called "monitoring" or "surveillance," and each rating agency charges issuers, upfront or annually, ratings surveillance fees. Performing adequate and timely surveillance is important, particularly when issuers of structured products do not make publicly available their due diligence information and underlying loan performance information, which would enable independent analysis by investors and third parties.

Each of the rating agencies examined conducts some type of surveillance of its ratings. The Staff notes that weaknesses existed in the rating agencies' surveillance efforts, as described below:

➤ **Resources appear to have impacted the timeliness of surveillance efforts.**  
For example:

- In an internal email at one firm, an analytical manager in the structured finance surveillance group noted: "I think the history has been to only re-review a deal under new assumptions/criteria when the deal is flagged for some performance reason. . . . The two major reasons . . . (i) lack of sufficient personnel resources and (ii) not having the same

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<sup>29</sup> Rule 17g-2 of the Exchange Act. 17 CFR 240.17g-2(a)(2).

<sup>30</sup> *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, June 16, 2008, <http://www.sec.gov/rules/proposed/2008/34-57967.pdf>.

models/information available for surveillance to relook (sic) at an existing deal with the new assumptions (i.e., no cash flow models for a number of assets).”<sup>31</sup> (*S&P*)

- At the same firm, internal email communications appear to reflect a concern that surveillance criteria used during part of review period was inadequate.<sup>32</sup>
- ***There was poor documentation of the surveillance conducted.*** One rating agency could not provide documentation of the surveillance performed (copies of monthly periodic reports, exception reports, and exception parameters), though it asserted that such surveillance was conducted. Internal communications by the surveillance staff indicate awareness of this issue.<sup>33</sup> At this firm, the Staff was unable to assess the information generated by the surveillance group during the review period. (*S&P*) Another rating agency did not run monthly “screener reports” required by its own procedures for three months during the review period. It stated that the entire vintage of high risk subprime RMBS and CDOs were under a targeted review for two of the months. As a result, Staff could not assess the information generated by the rating agency’s surveillance staff for those months. (*Fitch*)
- ***Lack of Surveillance Procedures.*** Two rating agencies do not have internal written procedures documenting the steps that their surveillance staff should undertake to surveil RMBS and CDO bonds. (*Moody’s and S&P*)

***Current Regulatory Requirements:*** Under the Exchange Act and the rules applicable to NRSROs, an NRSRO is required to disclose publicly the procedures and methodologies it uses in determining credit ratings. Further, the Commission may censure, limit the activities, functions, or operations of, suspend, or revoke the registration of an NRSRO that fails to maintain adequate financial and managerial resources to produce credit ratings with integrity (the provisions of the Act applied to the rating agencies examined upon their registration in September 2007).<sup>34</sup>

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<sup>31</sup> Email No. 20: Analytical Manager to Senior Analytical Manager (July 11, 2005, 8:09 PM). A similar email from the Senior Analytical Manager of RMBS Surveillance noted similar issues: “He asked me to begin discussing taking rating actions earlier on the poor performing deals. I have been thinking about this for much of the night. We do not have the resources to support what we are doing now.” “I am seeing evidence that I really need to add to the staff to keep up with what is going on with sub prime and mortgage performance in general, NOW.” Email No. 21: Senior Analytical Manager to Senior Analytical Manager (Feb. 3, 2007, 12:02 PM).

<sup>32</sup> Email No. 22: Senior Analytical Manager to Analytical Manager (June 15, 2007, 9:05 AM).

<sup>33</sup> “If I were the S.E.C. I would ask why can [sic] you go back and run the report for each of the months using the same assumptions? In theory we should be able to do this.” Email No. 22: Senior Analytical Manager to Analytical Manager (June 15, 2007, 9:05 AM).

<sup>34</sup> Section 15E(d) of the Exchange Act.

**Remedial Action:** The Staff has recommended that each NRSRO examined conduct a review to determine if adequate resources are devoted to surveillance of outstanding RMBS and CDO ratings. This review should include, for example, whether the rating agency maintains adequate staffing and has adequate expertise dedicated to performing ongoing surveillance. The Staff has also recommended that the NRSROs ensure that they have comprehensive written surveillance procedures. Finally, the Staff has recommended that all appropriate surveillance records be maintained. Each NRSRO examined stated that it will implement the Staff's recommendations.

**Proposed Rules and Rule Amendments That Would Address These Issues:** The Commission has proposed to enhance disclosures about the procedures and methodologies that an NRSRO uses to determine credit ratings.<sup>35</sup> Among other things, the Commission proposed to require an NRSRO to disclose how frequently credit ratings are reviewed, whether different models or criteria are used for ratings surveillance than for determining initial ratings, whether changes made to models and criteria for determining initial ratings are applied retroactively to existing ratings, and whether changes made to models and criteria for performing ratings surveillance are incorporated into the models and criteria for determining initial ratings.

#### **G. Issues Were Identified in the Management of Conflicts of Interest and Improvements Can be Made**

Each of the rating agencies examined has established its own policies and procedures to address and mitigate conflicts of interest. Generally, the Staff notes that the rating agencies enhanced their procedures at the time they sought registration as NRSROs. The Staff reviewed these policies and procedures in the following areas: procedures to address the "issuer pays" conflict of interest; and procedures to address conflicts of interest due to personal financial interests by analysts and other firm employees. Each area is summarized below.

##### **1. The "Issuer Pays" Conflict**

Each of the NRSROs examined uses the "issuer pays" model, in which the arranger or other entity that issues the security is also seeking the rating, and pays the rating agency for the rating. The conflict of interest inherent in this model is that rating agencies have an interest in generating business from the firms that seek the rating, which could conflict with providing ratings of integrity. The Commission's rules specify that it is a conflict of interest for an NRSRO being paid by issuers or underwriters to determine credit ratings with respect to securities they issue or underwrite.<sup>36</sup> They are required to establish, maintain, and enforce policies and procedures reasonably designed to address and

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<sup>35</sup> *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, June 16, 2008, <http://www.sec.gov/rules/proposed/2008/34-57967.pdf>.

<sup>36</sup> Exchange Act Rule 17g-5(b)(1).



manage conflicts of interest.<sup>37</sup> Such policies and procedures are intended to maintain the integrity of the NRSRO's judgment, and to prevent an NRSRO from being influenced to issue or maintain a more favorable credit rating in order to obtain or retain business of the issuer or underwriter.<sup>38</sup>

Each of the NRSROs has policies that emphasize the importance of providing accurate ratings with integrity. To further manage the conflicts of interest arising from the "issuer pays" model, each of the NRSROs examined established policies to restrict analysts from participating in fee discussions with issuers. These policies are designed to separate those individuals who set and negotiate fees from those employees who rate the issue, in order to mitigate the possibility or perception that a rating agency would link its ratings with its fees (e.g., that an analyst could explicitly or implicitly link the fee for a rating to a particular rating).

➤ ***While each rating agency has policies and procedures restricting analysts from participating in fee discussions with issuers, these policies still allowed key participants in the ratings process to participate in fee discussions.***

- One rating agency allowed senior analytical managers to participate directly in fee discussions with issuers until early 2007 when it changed its policy. (*Fitch*)
- At another rating agency an analyst's immediate supervisor could engage in fee negotiations directly with issuers. The firm changed its procedure in October 2007 so that analytical staff (including management) may no longer engage in fee discussions with issuers; only business development personnel may do so. (*Moody's*)
- One rating agency permits an analytical manager to participate in internal discussions regarding which considerations are appropriate for determining a fee for a particular rated entity. (*S&P*)
- Only one rating agency actively monitors for compliance with its policy against analysts participating in fee discussions with issuers, and, as a result was able to detect and correct certain shortcomings in their process. (*Fitch*)

***Proposed Rules and Rule Amendments That Would Address These Issues:*** The Commission has proposed amendments to its rules that would address the conflict created by NRSRO employees being involved in both fee discussions and ratings decisions by prohibiting an NRSRO from having the conflict that arises when a person within an NRSRO who has responsibility for participating in determining credit ratings, or for

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<sup>37</sup> Section 15E(h) of the Exchange Act .

<sup>38</sup> See Release No. 34-55857 and Exchange Act Rule 17g-5.

developing or approving procedures or methodologies used for determining credit ratings, participate in any fee discussions or arrangements.<sup>39</sup>

- ***Analysts appeared to be aware, when rating an issuer, of the rating agency's business interest in securing the rating of the deal.*** The Staff notes multiple communications that indicated that analysts were at the very least aware of the firm's fee schedules, and actual (negotiated) fees.<sup>40</sup> There does not appear to be any internal effort to shield analysts from emails and other communications that discuss fees and revenue from individual issuers.<sup>41</sup> In some instances, analysts discussed fees for a rating. Examples are set forth below:
- At one firm, an analyst writes to his manager asking about whether the firm would be charging a fee for a particular service and what the fee schedule will be.<sup>42</sup> (*Moody's*)
  - At another firm, a business manager in the RMBS group writes to several analysts: “. . . if you have not done so please send me any updates to fees on your transactions for this month. It is your responsibility to look at the deal list and see what your deals are currently listed at.”<sup>43</sup> (*S&P*)
  - At two rating agencies, there were indications that analysts were involved in fee discussions with employees of the rating agency's billing department.<sup>44</sup> (*Moody's and S&P*)

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<sup>39</sup> *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, June 16, 2008, <http://www.sec.gov/rules/proposed/2008/34-57967.pdf>.

<sup>40</sup> In one instance, a Senior Analytical Manager in the RMBS group distributed a negotiated fee schedule and a large percentage of the recipients were analytical staff. Email No. 23: Senior Analytical Manager to Analytical Manager (Dec. 29, 2005, 5:29 PM). In another instance, analytical staff is copied on an email communication to an issuer containing a letter confirming the fees for a transaction. Email No. 24: Research Staff to Issuer/Banker copying Analytical Staff (Mar. 27, 2007, 4:02 PM). Also email No. 25: Senior Analytical Manager to Analytical Manager (Dec. 19, 2005, 1:08 PM).

<sup>41</sup> An email communication from a senior analytical manager to at least one analyst requests that the recipient(s): “Please confirm status codes as soon as possible on the below mentioned deals. Additionally, any fees that are blank should be filled in. All issuer/bankers should be called for confirmation.” In the same email chain, this request is reinforced by a senior Analytical Manager who states “It is imperative that deals are labeled as to Flow or Pending, etc as accurately and timely as possible. These codes along with the fee and closing date, drive our weekly revenue projections . . .” Email No. 26: Senior Analytical Manager to Senior Analytical Manager (Aug. 24, 2005, 3:53 PM).

<sup>42</sup> Email No. 28: Analytical Staff to Senior Analytical Manager (May 7, 2006, 13:38 GMT).

<sup>43</sup> Email No. 29: Business Manager to Analytical Manager (Jan. 31, 2007, 9:33 AM).

<sup>44</sup> Email No. 30: Analytical Staff to Business Manager (Aug. 23, 2007, 23:10 GMT). Email No. 31: Analytical Staff to Analytical Staff (Mar. 15, 2007, 1:37 PM).

➤ ***Rating agencies do not appear to take steps to prevent considerations of market share and other business interests from the possibility that they could influence ratings or ratings criteria.*** At one firm, internal communications appear to expose analytical staff to this conflict of interest by indicating concern or interest in market share when firm employees were discussing whether to make certain changes in ratings methodology. In particular, employees discussed concerns about the firm’s market share relative to other rating agencies, or losing deals to other rating agencies. While there is no evidence that decisions about rating methodology or models were made based on attracting or losing market share, in most of these instances, it appears that rating agency employees who were responsible for obtaining ratings business (i.e., marketing personnel) would notify other employees, including those responsible for criteria development, about business concerns they had related to the criteria.

- For instance, a senior analytical manager in the Structured Finance group writes “I am trying to ascertain whether we can determine at this point if we will suffer any loss of business because of our decision [on assigning separate ratings to principal and interest] and if so, how much?” “Essentially, [names of staff] ended up agreeing with your recommendations but the CDO team didn’t agree with you because they believed it would negatively impact business.”<sup>45</sup> (*S&P*)
- In another example, after noting a change in a competitor’s ratings methodology, an employee states: “[w]e are meeting with your group this week to discuss adjusting criteria for rating CDOs of real estate assets this week because of the ongoing threat of losing deals.”<sup>46</sup> In another email, following a discussion of a competitor’s market share an employee of the same firm states that aspects of the firm’s ratings methodology would have to be revisited to recapture market share from the competing rating agency.<sup>47</sup> An additional email by an employee states, following a discussion of losing a rating to a competitor, “I had a discussion with the team leaders here and we think that the only way to compete is to have a paradigm shift in thinking, especially with the interest rate risk.”<sup>48</sup> (*S&P*)
- Another rating agency reported to the Staff that one of its foreign ratings surveillance committees had knowledge that the rating agency had issued ratings on almost a dozen securities using a model that

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<sup>45</sup> Email No. 32: Senior Analytical Manager to Senior Business Manager (Nov. 9, 2004, 12:11 PM).

<sup>46</sup> Email No. 33: Senior Business Manager to Senior Business Manager (Aug. 17, 2004, 6:14 PM).

<sup>47</sup> Email No. 34: Senior Analytical Manager to Analytical Manager (Sept. 25, 2006, 6:50 PM).

<sup>48</sup> Email No. 35: Senior Business Manager to Senior Business Manager (May 25, 2004, 12:08 PM).

contained an error.<sup>49</sup> As a result, the committee was aware that the ratings were higher than they should have been. Nonetheless, the committee agreed to continue to maintain the ratings for several months, until the securities were downgraded for other reasons. Members of the committee, all analysts or analytical managers, considered the rating agency's reputational interest in not making its error public. (*Moody's*)

***Current Regulatory Requirements:*** An NRSRO is required to establish, maintain, and enforce policies and procedures reasonably designed, taking into consideration the nature of its business, to address and manage conflicts of interest.<sup>50</sup> An NRSRO is further prohibited from having certain conflicts unless it has disclosed the type of conflict of interest, and has implemented policies and procedures to address and manage it.<sup>51</sup> Included among these conflicts is being paid by issuers or underwriters to determine credit ratings with respect to securities or money market instruments they issue or underwrite.<sup>52</sup> These requirements applied to these firms in September 2007.

***Remedial Action:*** The Staff recommended that each NRSRO examined review its practices, policies and procedures for mitigating and managing the “issuer pays” conflict of interest. In particular, the Staff recommended that each NRSRO examined consider and implement steps that would insulate or prevent the possibility that considerations of market share and other business interests could influence ratings or ratings criteria. Each NRSRO examined stated that it would implement the Staff's recommendations.

***Proposed Rules and Rule Amendments That Would Address These Issues:*** The Commission proposed rules that would prohibit a credit rating agency from issuing or maintaining a rating on a structured product unless information on assets underlying the product was disclosed.<sup>53</sup> The intent of the disclosure is to create the opportunity for other credit rating agencies, including those not registered with the Commission as NRSROs, to use the information to rate and monitor the rating of the instrument as well. Any resulting “unsolicited ratings” could be used by market participants to evaluate the ratings issued by the rating agency hired to rate the product and, in turn, potentially expose a rating agency whose ratings were influenced by the desire to gain favor with the product sponsor in order to obtain more business. The proposal also is designed to make it more difficult for product sponsors to exert influence on the rating agencies. Specifically, by opening up the rating process to greater scrutiny, the proposal is designed to make it easier for the hired rating agency to resist pressure from the product sponsors by

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<sup>49</sup> The affected securities, while structured products, were not RMBS or CDOs.

<sup>50</sup> Section 15E(h)(1) of the Exchange Act. 15 U.S.C. 78o-7(h)(1).

<sup>51</sup> 15 U.S.C. 78o-7(h)(1).

<sup>52</sup> 17 CFR 240.17g-5(b)(1).

<sup>53</sup> *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, June 16, 2008, <http://www.sec.gov/rules/proposed/2008/34-57967.pdf>.

increasing the likelihood that any steps taken to inappropriately favor the product sponsor could be exposed to the market.

## **2. Analysts' Compensation**

Each of the rating agencies examined has a similar policy with respect to compensating their analysts. These policies generally provide that an analyst may not be compensated or evaluated based upon the amount of revenue that the rating agency derives from issuers or issues that the analyst rates, or with whom the analyst regularly interacts. The internal compensation guidelines reviewed by the Staff indicated that analysts' salaries generally were based on seniority and experience, and bonuses were determined both by individual performance and the overall success of the firm. The Staff's review did not find indications that rating agencies compensated analysts in a manner contrary to their stated policies.

## **3. Securities Transactions by Employees of Credit Rating Agencies**

To minimize the possibility that an analyst's objectivity could be compromised by the analyst's individual financial interests, each of the rating agencies examined prohibits persons with significant business or any economic ties (including stock ownership) to a rated entity from participating in the rating process for that issuer. Each rating agency also monitors and restricts the securities trading activity of employees (particularly with respect to rated issuers).

Each rating agency examined has adopted policies prohibiting employees (and their immediate family members) from owning any security that is subject to a credit rating by a team on which the employee is a member.

- ***While each rating agency has policies and procedures with respect to employees' personal securities holdings, the rating agencies vary in how rigorously they monitor or prevent prohibited transactions, including personal trading, by their employees from occurring.***
  - Two of the rating agencies require employees to have duplicate copies of brokerage statements sent to the rating agency (*Fitch and Moody's*), and the third (*S&P*) requires its ratings staff to either have an account with a brokerage firm that has agreed to provide the firm with reports of the employee's transactions or to manually report transactions to the firm within ten days of execution.
  - One rating agency reviews requested transactions by employees against a list of prohibited securities before clearing the proposed transactions for execution (*S&P*); the other rating agencies employ exception reports to identify restricted transactions after execution. (*Moody's and Fitch*).

- Only one rating agency employs a third-party service to identify undisclosed brokerage accounts, thus monitoring whether employees are submitting complete information about their brokerage accounts. (*Fitch*)
- Two rating agencies do not appear to prohibit structured finance analysts from owning shares of investment banks that may participate in RMBS and CDO transactions.<sup>54</sup>
- The Staff discovered indications that an employee of one rating agency appears to have engaged in personal trading practices inconsistent with the firm's policies.

**Current Regulatory Requirements:** An NRSRO is required to establish, maintain, and enforce policies and procedures reasonably designed to address and manage conflicts of interest.<sup>55</sup> An NRSRO is prohibited from having certain conflicts relating to the issuance of a credit rating unless it has disclosed the type of conflict of interest, and has implemented policies and procedures to address and manage it.<sup>56</sup> A conflict is created when persons within the rating agency directly own securities or have other direct ownership interests in issuers or obligors subject to a credit rating issued by the rating agency.<sup>57</sup> In addition, an NRSRO is prohibited from having certain conflicts -- regardless of whether it discloses them or establishes procedures to manage them. Among these absolute prohibitions is issuing or maintaining a credit rating, when the rating agency, a credit analyst that participated in determining the credit rating, or a person responsible for approving the credit rating, directly owns securities of, or has any other direct ownership interest in, the person that is subject to the credit rating.<sup>58</sup>

**Remedial Action:** The Staff has recommended that each NRSRO examined conduct a review of its policies and procedures for managing the securities ownership conflict of interest to determine whether these policies are reasonably designed to ensure that their employees' personal trading is appropriate and comply with the requirements of Rule 17g-5. Each NRSRO examined stated that it will implement the Staff's recommendation.

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<sup>54</sup> One of these rating agencies is currently reviewing this policy. (*Moody's*)

<sup>55</sup> Section 15E(h)(1) of the Exchange Act. 15 U.S.C. 78o-7(h)(1).

<sup>56</sup> Rule 17g-5 of the Exchange Act and Section 15E(h)(1) of the Exchange Act. 17 CFR 240.17g-5(b)(6) and 15 U.S.C. 78o-7(h)(1).

<sup>57</sup> Rule 17g-5 of the Exchange Act. 17 CFR 240.17g-5(b)(6).

<sup>58</sup> Rule 17g-5 of the Exchange Act. 17 CFR 240.17g-5(c)(2). In adopting the rule, the Commission stated that the prohibition applied to "direct" ownership of securities and, therefore, would not apply to indirect ownership interests, for example, through mutual funds or blind trusts. See Adopting Release, 72 FR at 33598.

## H. Internal Audit Processes

The rating agencies each maintained internal audit programs that were designed to provide verification that the firm and its employees were complying with the firms' internal policies and procedures. Internal audit programs are an important internal control used by many organizations. In general, internal auditors conduct routine and special reviews of different aspects of an organization's operations, and report results and recommendations to management. A firm's internal audit staff generally operates in an organizational unit that is independent of the firm's business operations.

The Staff reviewed each rating agency's internal audit programs and activities related to its RMBS and CDO groups for the time period January 2003 to November 2007. The Staff concluded that the rating agencies' internal audit programs varied in terms of scope and depth of the reviews performed.

- ***The internal audit program of one rating agency appeared adequate in terms of assessing compliance with internal control procedures.***
  - One rating agency maintained an internal audit program that appeared to be adequate during the entire examination period. It regularly conducted both substantive audits of ratings business units (e.g., RMBS or CDOs) as well as functional reviews across units for particular concerns (e.g., email, employee securities trading and issuer requested review of rating). In addition, these internal audits produced substantial recommendations that were responded to in an adequate manner by management. (*Fitch*)
  
- ***The internal audit or management response processes at two rating agencies examined appeared inadequate.***
  - At one rating agency, its internal audits of its RMBS and CDO groups appeared to be cursory. The reviews essentially constituted a one-page checklist limited in scope to evaluate the completeness of deal files. The rating agency provided only four examples where the reviewer forwarded findings to management and no examples of management's response thereto. (*S&P*)
  - Another rating agency's internal audits of its RMBS and CDO groups uncovered numerous shortcomings, including non-compliance with document retention policies, lack of adherence to rating committee guidelines, and most significantly, the failure of management to formally review/validate derivatives models prior to posting for general use. The rating agency did not provide documentation demonstrating management follow-up. (*Moody's*)

***Current Regulatory Requirements:*** NRSROs are required to maintain internal audit plans, reports and related follow-up documents, including internal audit plans and reports, documents relating to audit follow-up measures, and documents identified by auditors as

necessary to audit an activity relating to the NRSRO's business as a rating agency.<sup>59</sup> Retention of these records will identify the rating agency's activities that its internal auditors had determined, raised, or did not raise, and compliance or control issues. In addition, this requirement is also meant to assist the Commission in determining whether the rating agency is complying with its methods, procedures, and policies.

**Remedial Action:** The Staff has recommended that two of the NRSROs examined review whether their internal audit functions, particularly in the RMBS and CDO ratings areas, are adequate and whether they provide for proper management follow-up. Each of these NRSROs stated that it will implement the Staff's recommendation.

With respect to the NRSRO that maintained an adequate internal audit program, Staff recommended that it continue to conduct appropriate audits and periodically review whether improvements are warranted. That NRSRO committed to do so.

## V. Observations by the Office of Economic Analysis

In conjunction with the Staff's examinations of the three rating agencies, the Staff of the Office of Economic Analysis ("OEA Staff") reviewed the processes used by these firms with respect to rating RMBS and CDOs that held subprime RMBS securities.

The purpose of the OEA Staff's review was to gain an understanding of the ratings methodologies employed by the rating agencies. The review assists the Staff to better evaluate the extent to which conflicts of interest may have entered into and affected the ratings process. Review of the models helped provide a base-line for understanding the processes used by the NRSROs. This type of review can also assist the Staff in its assessment of whether the processes used in developing the models, their application, any adjustments made, and their upkeep may have been potentially subject to conflicts of interest.

In conducting this review, the Staff, including OEA Staff, was mindful that the Commission is expressly prohibited from regulating "the substance of the credit ratings or the procedures and methodologies" by which any NRSRO determines credit ratings.<sup>60</sup> The Staff does not make recommendations or seek to regulate the substance of the methodologies used.

Described below are conflicts of interest that are inherent, and in some cases unique, to these products and a factual summary of the models and methodologies used by the rating agencies. This information is provided in this public report solely to provide transparency to the ratings process and the activities of the rating agencies in connection with the recent subprime mortgage turmoil. The following description does not draw any

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<sup>59</sup> Rule 17g-2(b)(5) under the Exchange Act.

<sup>60</sup> Section 15E(c)(2) of the Exchange Act.



conclusion as to whether conflicts of interest affected the ratings methodology or surrounding processes.

#### **A. Conflicts of Interest**

As the Commission noted in its recent release, some observers have indicated that while conflicts of interest due to the “issuer pays” model exist with respect to all asset classes that receive ratings, the conflicts created from the “issuer pays” model in rating structured finance products, particularly RMBS and related-CDOs, may be exacerbated for a number of reasons. First, the arranger is often the primary designer of the deal and as such, has more flexibility to adjust the deal structure to obtain a desired credit rating as compared to arrangers of non-structured asset classes. As well, arrangers that underwrite RMBS and CDO offerings have substantial influence over the choice of rating agencies hired to rate the deals.

Second, there is a high concentration in the firms conducting the underwriting function. Based on data provided by the three rating agencies examined, the Staff reviewed a sample of 642 deals. While 22 different arrangers underwrote subprime RMBS deals, 12 arrangers accounted for 80% of the deals, in both number and dollar volume. Similarly, for 368 CDOs of RMBS deals, although 26 different arrangers underwrote the CDOs, 11 arrangers accounted for 92% of the deals and 80% of the dollar volume.<sup>61</sup> In addition, 12 of the largest 13 RMBS underwriters were also the 12 largest CDO underwriters, further concentrating the underwriting function, as well as the sources of the rating agencies’ revenue stream.

Achieving accuracy in ratings in a fast-changing market for a relatively new security may require frequent updating of the models used to produce the ratings, leading to quickly-changing ratings processes. The combination of the arrangers’ influence in determining the choice of rating agencies and the high concentration of arrangers with this influence appear to have heightened the inherent conflicts of interest that exist in the “issuer pays” compensation model. One area where arrangers could have benefited in this context is in rating process itself. In discussions with OEA Staff, the ratings agencies indicated that arrangers preferred that the ratings process be fast and predictable. For instance, arrangers and their employees are generally compensated, at least in part, by the volume of deals completed and the total dollar volume of those deals. We understand that at least one rating agency allowed deals that were already in the ratings process to continue to use older criteria, even when new criteria had been introduced.

Pressure from arrangers could also come in the form of requiring more favorable ratings or reduced credit enhancement levels. Such outcomes would reduce the cost of the debt for a given level of cash inflows from the asset pool. This benefit is particularly valuable to an arranger when it also serves as the sponsor of the RMBS or CDO trust. Such

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<sup>61</sup> For a sample of 650 subprime RMBS deals issued with a par value of \$650 billion and 375 CDOs of RMBS issued with a par value of \$310 billion during 2006 and 2007.

pressure could influence the rating agencies' decisions on whether to update a model when such an update would lead to a less favorable outcome.

High profit margins from rating RMBS and CDOs may have provided an incentive for a rating agency to encourage the arrangers to route future business its way.<sup>62</sup> Unsolicited ratings were not available to provide an independent check on the rating agencies' ratings, and the structures of these securities were complex, and information regarding the composition of the portfolio of assets, especially prior to issuance, was difficult to obtain for parties unrelated to the transaction.

## **B. Factual Summary of the Ratings Process for RMBS**

Subprime mortgage origination has grown substantially over the last 12 years both in terms of absolute dollar volume and as a percentage of all mortgage origination. In its recent release, the Commission noted that one rating agency reported that subprime mortgages had increased (in dollars) from \$421 billion to \$640 billion between 2002 and 2006. As a percentage of all mortgages originated, subprime mortgages grew to represent from 14% to 22% of the pool over the same period. The dollar value of originations of subprime mortgages rose from \$96.8 billion in 1996<sup>63</sup> to about \$600 billion in 2006.<sup>64</sup>

In addition to the recent growth in subprime origination, there has also been a growth in the risk factors associated with subprime mortgages. Studies indicate that the percentage of subprime loans with less-than-full documentation, high combined loan to total value (CLTVs), and second liens grew substantially between 1999 and 2006.<sup>65</sup> Notably, while 2/28 adjustable rate mortgages comprised just 31% of subprime mortgages in 1999, they comprised almost 69% of subprime loans in 2006.<sup>66</sup> Further, 40-year mortgages were virtually non-existent prior to 2005, but they made up almost 27% of the subprime loans in 2006. These data provide evidence that the majority of subprime origination occurred within the last five years, and the loans containing very high risk combinations are even more recent.

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<sup>62</sup> As some rating agencies are either private firms or parts of conglomerates, it is difficult to evaluate their rate of return. White, "The Credit Ratings Industry: An Industrial Organization Analysis," in Levich, Majnoni, and Reinhart, ed, *Ratings, Rating Agencies, and the Global Financial System* (2002) at 49 cites data that indicates that one rating agency had an average rate of return of slightly over 42% from 1995 to 2000. The Economist, "Measuring the Measurers", May 31, 2007 reports a rating agency's operating margin at 54% for 2006.

<sup>63</sup> <http://research.stlouisfed.org/publications/review/06/01/ChomPennCross.pdf>

<sup>64</sup> Adam Ashcraft and Til Schuermann, "Understanding the Securitization of Subprime Mortgage Credit", Federal Reserve Bank of New York working paper, 2008.

<sup>65</sup> Ibid.

<sup>66</sup> A 2/28 ARM is a type of mortgage that has an initial two-year fixed rate that subsequently adjusts (is reset) to a variable rate for the remaining 28 years. The fixed rate typically is lower than a comparable 30-year fixed rate; however, the reset rate is higher.

Based on publications by the ratings agencies describing their methods, as well as other studies, the OEA Staff observes that all three of the rating agencies examined used similar approaches to rating RMBS bonds. They employed three primary models: probability of default, loss severity and the cash flow model. The first two models estimate default probabilities and loss severity given default, respectively, on a loan-by-loan basis. Historical loan performance data is used to estimate the conditional relationships between loan and borrower characteristics and the default probability and the loss severity given default. The parameters from the estimation are then applied to the loans in the RMBS portfolio based on the loan and borrower characteristics specific to each loan. The parameters are re-estimated periodically using updated loan performance data.

Relying on the materials described above, the OEA Staff understands the ratings agencies used the following approaches. One rating agency used hazard rates to predict time to default, simultaneously predicting time to prepayment and using Monte Carlo simulations of macroeconomic variables to create a loss distribution. Another rating agency used a logistic regression instead of a hazard rate model, to estimate probability of default, and similarly used Monte Carlo simulation of macroeconomic variables to create a loss distribution.<sup>67</sup> The Monte Carlo method simulates a time series of macroeconomic variables in a stochastic (random) process.<sup>68</sup> A third rating agency used several different types of models to determine the effect of a factor on the probability of default, with the form of the model depending on the relationship between the factor and default probability. Some examples of factors employed are FICO scores, documentation and loan type. This rating agency's model is a static model.<sup>69</sup>

From its conversations with the ratings agencies, OEA Staff understands that prior to 2007, one rating agency did not appear to rely upon a specific subprime model, and used a combination of the output from the model used to rate prime home mortgage RMBS and credit enhancement level benchmarks of previously issued deals by the same originator. Adjustments have been described as having been made based on the perceived relative risk of the pool as compared to the previously issued pools; however, no loan-by-loan analysis was done. RMBS pools are comprised of thousands of loans whose quality could change significantly over time.<sup>70</sup>

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<sup>67</sup> A logistic regression is a model used for prediction of the probability of occurrence of an event by fitting data to a logistic curve.

<sup>68</sup> Monte Carlo Simulation is an analytical technique in which a large number of simulations are run using random quantities for uncertain variables and looking at the distribution of results to infer which values are most likely.

<sup>69</sup> According to the ratings agency, the static models used a limited number of values to represent a variable over time.

<sup>70</sup> In fact, evidence suggests that pool characteristics did deteriorate over time in the 2001-2006 period, with certain originators allowing greater slippage in pool quality than others. Yuliya Demyanyk and Otto Van Hemert, 2008, "*Understanding the Subprime Mortgage Crisis*", Federal Reserve Bank of St. Louis and New York University working paper.

## 1. Risk Variables

The default probability and loss severity models incorporate loan and borrower characteristics as well as macroeconomic variables.<sup>71</sup> Loan characteristics include information about the loan term, the interest rate, and whether the loan is for the purchase of the home as a residence or for investment purposes. Examples of borrower characteristics include FICO score, debt-to-income ratio, and income documentation levels.

Each rating agency stated to the OEA Staff that it typically made explicit adjustments for the quality of the loan servicer since each perceived that the servicer can affect the probability that the borrower will continue to make regular and full payments on the loan. The three examined rating agencies described a process where they evaluated the originator and its underwriting practices less formally. This evaluation has been described to potentially include visits to an individual originator, perceived differences in performance of loan pools created by different originators, or other anecdotal experiences with the originator. As long as the originator was determined to be of sufficient quality, no other adjustment was made.<sup>72</sup>

Studies indicate that there was a steady deterioration in the performance of subprime mortgages between 2001 and mid-year 2006, even controlling for the factors included in the agencies models.<sup>73</sup> At least one study attributes the deterioration in loan performance to be due in large part to the deterioration in the lending standards of originators.<sup>74</sup>

## 2. Use of Historical Data

According to the ratings agencies, credit raters relied upon historical data in order to predict future behavior. As discussed above, the performance history of the types of subprime mortgages that dominated many of the RMBS portfolios, for example, 2/28 ARMS and zero-downs with second liens, has been very short. Further, the performance history that did exist occurred under very benign economic conditions. These conditions included: consistent high economic growth, interest rates at historic lows, very low volatility in interest rates and a period where housing prices increased consistently year over year. Based on discussions with the rating agencies examined and documents provided by them, it appears that the parameters of the models were re-estimated by executing the model with new data infrequently.

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<sup>71</sup> Based on information provided to the Staff by the ratings agencies, the loan and borrower characteristics as well as other deal information are typically provided to the NRSRO by the arranger.

<sup>72</sup> One credit rating agency began making adjustments for originator quality in December 2006.

<sup>73</sup> Op. cit. Demyanyk and Van Hemert (2008).

<sup>74</sup> Ibid.

### **3. Surveillance of Ratings**

The ratings agencies stated publicly and to the OEA Staff that they maintained surveillance procedures to monitor for the accuracy of their ratings. The rating agencies examined did not appear to use loan-level data as part of the surveillance process. Rather, they relied upon pool level triggers to determine whether there had been significant deterioration in the credit quality of the assets used to collateralize securities. These triggers typically were based upon factors such as the amount of remaining over-collateralization after defaults. The rating agencies examined told the OEA Staff that analysts relied upon over-collateralization levels to ensure sufficient loss coverage for the various bonds. As long as a pool of assets contained collateral in excess of that necessary to meet the RMBS's obligations, the pool was deemed unimpaired.

As described to the OEA Staff, the over-collateralization test used by the ratings agencies typically relied upon the total amount of losses on the underlying loan pool measured against the total dollar value of credit enhancements.

#### **C. Factual Summary of the Ratings Process for CDOs**

The OEA Staff reviewed publications by the ratings agencies describing their methods, as well as discussions with the ratings agencies and other studies. Based on these materials, the OEA Staff observes that the process used to rate CDOs by the rating agencies examined is fundamentally similar to that used for rating RMBS. But while RMBS default probability and loss severity (recovery rate) models required 50 to 60 inputs, CDO models required only five inputs: current credit rating, maturity, asset type, country, and industry. These five inputs were used to determine the three assumptions that went into the loss model: default probability, recovery rate and asset correlation. These are described below.

The OEA Staff further observes that the default probability assumption was determined by the current credit rating and the maturity of the individual RMBS included in the pool. The rating agencies examined typically used their own rating on the underlying asset, where available. These ratings were translated into default probabilities based on the maturity of the asset. Until very recently, the rating agencies maintained that the default probabilities were consistent across asset classes; thus, the historical corporate bond rating performance was used as the probability of default for the securities in the CDO pool. Based on significant differences in the performance history of RMBS and CDOs (when compared to similarly rated corporate bonds) the rating agencies have more recently developed asset-specific default probability tables.

The rating agencies described the recovery rate assumption as determined by the asset type and country of origin. Each rating agency employed different recovery rate assumptions for subprime RMBS. These assets were assumed to have a lower recovery rate than similarly rated corporate bonds.

Asset correlations were employed to determine the likelihood that an asset would default given that another asset in the pool has already defaulted. If they are uncorrelated, then

there is no predictive power of one asset default leading to the other. Correlation does not necessarily affect the expected loss on the portfolio but it does create higher probabilities of extremely high or extremely low portfolio losses.

Once estimated, default probability, recovery rate and asset correlation were generally entered into a Monte Carlo simulation along with macroeconomic variables to simulate thousands of scenarios for defaults and recoveries. An expected loss curve was generated to determine the default hurdle rate and loss recovery for each ratings level.

The CDO modeling techniques used required few factors but with very precise measurement. For instance, the default probability was a function of the current rating on the underlying RMBS. As discussed above, recently the agencies developed asset-specific default probability tables. Finally, because the rating agencies reassessed the ratings every 12 to 18 months, if the current ratings on the underlying assets were biased upward or downward, the predicted probability of default for the portfolio would also be biased in the same direction.

Variables typically used to estimate asset correlations were trading prices, ratings migration,<sup>75</sup> and defaults; however there is little history of subprime RMBS bonds.<sup>76</sup> To estimate RMBS asset correlations, the rating agencies generally used a combination of historical corporate bond correlations and an assumption that RMBS securities are likely to have a higher correlation than corporate bonds.

All three rating agencies examined have recently stated publicly that they increased the assumed correlation among subprime RMBS bonds used in their CDO ratings models. As discussed above, correlation increases the probability of extremely high or low portfolio losses. Underestimate of this correlation is a loss to senior bondholders but a benefit to equity holders.

## **VI. Conclusion**

As described in this report, while different rating agencies had different practices and different issues were identified, each of the firms examined can take steps to improve their practices, policies and procedures with respect to rating RMBS and CDOs, and other structured finance securities, going forward. Each credit rating agency was cooperative in the course of these examinations and has committed to taking remedial measures to address the issues identified.

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<sup>75</sup> Ratings migration approximates the changing credit quality of a security measured as the path-dependent change in the ratings over the life of the security.

<sup>76</sup> In the corporate bond markets, there are decades of high quality data that are used to estimate asset correlations.