Coronavirus (COVID-19): Credit Risk Impact on Commercial Real Estate Loan Portfolios

Moody’s Analytics

April 24, 2020
Victor Calanog, PhD  
Head of Commercial Real Estate Economics  
Moody’s Analytics

Jun Chen, PhD  
Head of Commercial Real Estate Research  
Moody’s Analytics

Chris Henkel  
Business Development and Advisory Services Lead  
Moody’s Analytics
Agenda

1. Property Types & Geographic Markets: Anticipating Distress
2. Historical Credit Cycles and Key Risk Drivers
3. CRE Portfolio Analysis: Customer Case Studies
4. Questions & Answers
Property Types & Geographic Markets: Anticipating Distress
Shorter Lease Lengths = The Front Lines

Source: Moody's Analytics

Share of Leisure and Hospitality Employment

Largest WeWork Leases Relative to Metro Inventory

Source: Moody’s Analytics REIS; CompStak
Baseline expected a record high in terms of deliveries for 2020: over 300,000 new units.

Recession and protracted slump scenarios produce an increase in vacancies, but construction pullback is a countervailing effect.
Recession & Protracted Slump | New York

- For New York, we were expecting about 13,500 new units to come online by year-end 2020 (some of the highest figures since the late 1980s).
- 71% supply growth pullback for Recession, and 76% pullback for Protracted Slump means vacancies still rise, but not as much.

Source: Moody’s Analytics REIS
Protracted Slump | Queens County

Source: Moody's Analytics REIS
Office & Retail Do Not Fare as Well

Office Fundamentals | Protracted Slump

Retail Fundamentals | Protracted Slump

Source: Moody’s Analytics REIS

Source: Moody’s Analytics REIS
Concentration and Idiosyncratic Risk for Business

Source: Moody's Analytics REIS
Industrial Warehouse/Distribution Markets

Source: Moody's Analytics REIS
Historical Credit Cycles and Key Risk Drivers
CRE Loan Loss in Recent Recessions

Credit losses always a derivative of macroeconomic and commercial real estate market cycles

<table>
<thead>
<tr>
<th>Recession</th>
<th>Unemployment Rate Change</th>
<th>Real GDP Change</th>
<th>Commercial Property Price Index (CPPI) Change</th>
<th>FDIC Banks’ 3-year Total CRE Loan Charge-off Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>+ 2.1%</td>
<td>&lt; 1%</td>
<td>- 3.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>2008-2009</td>
<td>+ 5.3%</td>
<td>- 4.0%</td>
<td>- 37.9%</td>
<td>5.5%</td>
</tr>
<tr>
<td>2020-</td>
<td>+ 10% (?)</td>
<td>- 10% (?)</td>
<td>?</td>
<td>??</td>
</tr>
</tbody>
</table>

Source: Federal Reserve, FDIC
CRE Loan Performance Is Driven by the Market

Annual Delinquency Rate

Total CRE Return

Source: Moody's, NCREIF
Guiding Principles in Estimating Credit Losses

“History Repeats Itself”

» Historical episodes, data and facts
  – In particular, relevant data

» Models based on casual relationships that are logical, statistically proven and long-lasting
  – Well tested robust models are the most useful

“This Time Is Different”

» Unique nature of the downturn

» Response from the society and government to the crisis

» Changes of behavior and secular trends

» Different meanings of economic data and measurements
Key Credit Risk Drivers Proven by History

» CRE Market Indicators

Market Vacancy Rate

High

Default Rate

Low

Market Price Change

High

Default Rate

Low

» Loan-level Characteristics

LTV

DSCR

Source: Moody’s
When Will Default Rates Show Up?

Cumulative Default Rates During the Last Cycle

- Recession
- Industrial
- Lodging
- Multifamily
- Office
- Retail
- Total

Month:
- Oct 2007
- Dec 2007
- Feb 2008
- Apr 2008
- Jun 2008
- Aug 2008
- Oct 2008
- Dec 2008
- Feb 2009
- Apr 2009
- Jun 2009
- Aug 2009
- Oct 2009
- Dec 2009
- Feb 2010
- Apr 2010
- Jun 2010
- Aug 2010
- Oct 2010
- Dec 2010

Default Rates:
- 0%
- 5%
- 10%

- March 2009
- June 2009
- November 2009
- February 2020
- January 2020
A Holistic Approach to Risk Assessment

Macro and Regional Economic Trends

Local Commercial Real Estate Market

Borrower and Sponsor Character

Property, Tenancy and Loan Specific

Qualitative Overlay

» How relevant is the historical data?

» What’s truly different this time?
  – New factors to be considered
Scenario Analysis Is the Best Approach in Today’s Uncharted World

» The purpose here is to make informed and educated guesses, not a precise predication – appropriate given the high uncertainty today

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Unemployment Rate Change</th>
<th>Real GDP Change</th>
<th>Commercial Property Price Index (CPPI) Change</th>
<th>3-year Total CRE Loan Expected Loss (EL) Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Case (Late March)</td>
<td>+ 5.1%</td>
<td>-5.5%</td>
<td>- 15.4%</td>
<td>1.7% *</td>
</tr>
<tr>
<td>S3</td>
<td>+ 9.5%</td>
<td>- 10.1%</td>
<td>- 26.2%</td>
<td>5.9% *</td>
</tr>
<tr>
<td>S4</td>
<td>+ 13.4%</td>
<td>- 14.1%</td>
<td>- 31.4%</td>
<td>8.8% *</td>
</tr>
<tr>
<td>Base (April)</td>
<td>+ 9.0%</td>
<td>- 10.5%</td>
<td>- 23.7%</td>
<td>4.7% *</td>
</tr>
<tr>
<td>CCAR/DFAST 2020 (Severely Adverse)</td>
<td>+ 6.5%</td>
<td>- 8.0%</td>
<td>- 35.0%</td>
<td>6.9%</td>
</tr>
</tbody>
</table>

* Incorporated part of the stimulus impact
CRE Portfolio Analysis: Customer Case Studies
## What We’re Hearing

### Frequently Asked Questions

1. Where are the greatest risks and opportunities?
2. Where are things headed?
3. How bad could it get?

### A Sensible Strategy

1. Quantify the “hot spots” with forward-looking estimates.
2. Translate forecasts into projections of credit risk measures.
3. Make adjustments. Look to non-traditional measures for support.
NOI & Value Growth Forecast (FY 2020)

Source: Moody's Analytics REIS | Baseline scenario as of EOM March 2020 | n=2,179 submarkets
NOI & Value Growth Forecast (FY 2020)

- **Market:** San Diego, CA
  - Submarket: Downtown
  - NOI Growth: -8.3%
  - Value Change: -0.9%

- **Market:** Dallas, TX
  - Submarket: Oak Lawn
  - NOI Growth: -9.8%
  - Value Change: -8.7%

- **Market:** Louisville, KY
  - Submarket: South/Airport
  - NOI Growth: -10.3%
  - Value Change: -11.9%

Source: Moody’s Analytics REIS | Baseline scenario as of EOM March 2020
Example: Multifamily Property
Oak Lawn Neighborhood in Dallas, TX
## Example: Multifamily Property
Oak Lawn Neighborhood in Dallas, TX

### Unit Mix

<table>
<thead>
<tr>
<th>Floorplan</th>
<th>Rent/Mo</th>
<th>No. Units</th>
<th>Monthly Income</th>
<th>Annual Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bedroom</td>
<td>$2,040</td>
<td>44</td>
<td>$89,760</td>
<td>$1,077,120</td>
</tr>
<tr>
<td>2 Bedroom</td>
<td>$2,530</td>
<td>39</td>
<td>$98,670</td>
<td>$1,184,040</td>
</tr>
<tr>
<td>3 Bedroom</td>
<td>$3,239</td>
<td>17</td>
<td>$55,063</td>
<td>$660,756</td>
</tr>
</tbody>
</table>

### Property Income and Value:
- **Gross Scheduled Income:** $2.92 Million
- **Net Operating Income (NOI):** $1.57 Million
- **Property Value:** $26.14 Million

### 2020 Submarket Forecast (Baseline):
- **NOI Growth:** - 9.8%
- **Value Change:** - 8.9%
- **Forecast Trend:** 🔻

### Loan Structure:
- **Outstanding Loan Amount:** $20.00 Million
- **Interest Rate:** 5.00%
- **Amortization Speed:** 360 Months
- **Annual Debt Service:** $1.29 Million
- **Mortgage Constant:** 6.44%
- **Debt Service Coverage (DSCR):** 1.22x
- **Loan-to-Value (LTV):** 76.5%
### Example: Multifamily Property

**Oak Lawn Neighborhood in Dallas, TX**

<table>
<thead>
<tr>
<th>Forecast Process:</th>
<th>Current</th>
<th>Baseline</th>
<th>Downside 1</th>
<th>Downside 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOI Growth</td>
<td>--</td>
<td>- 9.8%</td>
<td>- 12.5%</td>
<td>- 20.0%</td>
</tr>
<tr>
<td>DSCR</td>
<td>1.22</td>
<td>1.10</td>
<td>1.07</td>
<td>0.97</td>
</tr>
<tr>
<td>Value Change</td>
<td>--</td>
<td>- 8.9%</td>
<td>- 15.0%</td>
<td>- 20.0%</td>
</tr>
<tr>
<td>LTV</td>
<td>76.5%</td>
<td>84.0%</td>
<td>90.0%</td>
<td>95.6%</td>
</tr>
</tbody>
</table>

**NOI Growth forecasts** are derived using our data on occupancy, rents, expenses, new construction and absorption; coupled with scenario-based forecasts of national and local economic variables.

**Value Change forecasts** are derived from our NOI Growth predictions and cap rate models, which include (among other things) observed sales transactions.

During periods where a significant decline in transaction activity is expected, changes in value are more closely tied to income trends (which generally follow the direction of the overall economy).
COVID-19 Impact Assessment Tool

https://cre.reis.com/covid-19
Thank You
CREDIT RATINGS ISSUED BY MOODY’S INVESTORS SERVICE, INC. AND/OR ITS CREDIT RATINGS AFFILIATES ARE MOODY’S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY’S COLLECTIVELY, “PUBLICATIONS”) MAY INCLUDE SUCH CURRENT OPINIONS. MOODY’S INVESTORS SERVICE DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE MOODY’S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY’S INVESTORS SERVICE CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS (“ASSESSMENTS”), AND OTHER OPINIONS INCLUDED IN MOODY’S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY’S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY’S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY’S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY’S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY’S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY’S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY’S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY’S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY’S PRIOR WRITTEN CONSENT.

MOODY’S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY’S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided ‘AS IS’ without warranty of any kind. MOODY’S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY’S considers to be reliable, including, when appropriate, independent third-party sources. However, MOODY’S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY’S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY’S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY’S.

To the extent permitted by law, MOODY’S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to, by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY’S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY’S IN ANY FORM OR MANNER WHATSOEVER.

MOODY’S Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody’s Corporation (“MCO”), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody’s Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody’s Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from $1,000 to approximately $2,700,000. MCO and Moody’s Investors Service also maintain policies and procedures to address the independence of Moody’s Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody’s Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.com under the heading “Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy.”

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY’s affiliate, Moody’s Investors Service Pty Limited ABN 84 105 136 972 AFSL 336969 and/or its Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to “wholesale clients” within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY’s that you are, or are accessing the document as a representative of, a “wholesale client” and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to retail clients within the meaning of section 761G of the Corporations Act 2001.

MOODY’S CREDIT RATINGS are opinion(s) as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody’s Japan K.K. (“MJJK”) is a wholly-owned credit rating agency subsidiary of Moody’s Group Japan K.K. which is wholly-owned by Moody’s Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody’s Japan K.K. (“MJJK”) is a wholly-owned credit rating agency subsidiary of MJK. MJJK’s credit rating is not a Nationally Recognized Statistical Rating Organization (“NRSRO”). Therefore, credit ratings assigned by MJJK are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJJK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

The independence of Moody’s and its Directors, Officers, Employees, Agents, Representatives, licensors and suppliers is made known to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY’S or any of its Directors, Officers, Employees, Agents, Representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY’S.

© 2020 Moody’s Corporation, Moody’s Investors Service, Inc., Moody’s Analytics, Inc. and/or their licensors and affiliates (collectively, “MOODY’S”). All rights reserved.