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Commercial Mortgage Loans

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Executive Summary

- Commercial mortgages represent a significant portion of U.S. insurers' investment portfolios, matching long-lived, secured assets with stable, predictable cash flows with similar liabilities. For this reason, the greatest proportion by far of commercial mortgage loans are held by life insurance companies.
- Commercial mortgage loans amounted to approximately 9% of life companies' total invested assets.
- This primer represents an introduction to commercial mortgages, analysis of individual mortgages, and explanation and analysis of commercial mortgage portfolios.

Generally, What Is a Commercial Mortgage?

A commercial mortgage is essentially a private bond transaction between an insurance company and a borrower. The borrower may be a corporate entity (either private, limited liability company (LLC), non-public or public corporation) or individual. The borrowing is secured by a mortgage (or deed of trust), which pledges a property as collateral for the borrowing. The mortgage may be taken by the lender and sold at foreclosure to satisfy repayment of the debt in the event of default (nonpayment) by the borrower. The properties thus securing the transaction are generally commercial, income-producing properties, such as apartment, industrial, office, retail and hospitality (hotel) buildings. For insurance companies, they are typically high-quality, completed, well-located and operating stabilized.

Types of Commercial Mortgages and Insurance Company Commercial Mortgage Portfolios in CRE Lending

Commercial mortgages made by life insurance companies are a distinct subset of the overall commercial real estate financing market. The overall commercial real estate (CRE) market is estimated at \$4.1 trillion outstanding as of 2Q2018, of which \$471 billion (11.5%) is held by life insurance companies (LICs). The major share of commercial mortgages, \$2.2 trillion (52.7%), is held by commercial banks, with commercial mortgage-backed securities (CMBS) and government-sponsored entities (GSEs) at \$375 billion and \$306 billion, respectively, and certain other minor sources.

It is important to understand that LIC commercial mortgage portfolios are selectively composed of the best quality commercial mortgage in terms of construction, location, leasing and operational status, and general desirability. Their loans are selected for these qualities in order to support their generally long-dated maturities with a minimum of disruption. Since they are the highest quality commercial mortgages and thus the most desirable, there is intense competition for these loans. This competition drives their pricing, i.e., coupon rate of interest, lower; thus, the coupons of LIC commercial mortgages may be seen as a floor for interest rates on other riskier commercial mortgages. The quality of the LIC commercial mortgage portfolios is demonstrated by their significantly lower default rates over time.

Commercial banks, on the other hand, are ubiquitous and serve a wide commercial real estate clientele, both national and local. They can underwrite local properties, properties under a range of development, properties of an unusual or unique nature, and the borrowers and their capabilities to support the loan out of other sources. Thus, commercial banks can make other types of commercial mortgage (property-based) loans that may or may not have the established cash flow of properties suitable for LICs:

- Land acquisition and development.
- Property acquisition, development and construction.
- Property transition.
- Small commercial mortgage loans.
- Homebuilder loans.
- Unusual property types: golf courses, farms and ranch, restaurant and small hospitality.
- Shorter term loans.
- Loans for these property types secured by recourse to the borrower.

Accordingly, these loans generally will carry higher interest rates than LIC commercial mortgage loans to account for the increased risk. They often are floating rate to reflect the commercial

banks' funding costs, and they often require recourse to and/or financial guarantees of the borrower.

Also, there is a range of "secondary financing" such as:

- Second and third mortgages on a specific property.
- Blanket mortgages (covering multiple properties).
- Cross-collateralization and cross default of multiple properties and loans.
- Mezzanine financing (wherein the security for the loan is a pledge of ownership interests rather than a lien on the property).

LICs may make some of these loans from time to time as market conditions dictate, but these are not "bread and butter" LIC commercial mortgage transactions.

Commercial Mortgage Definition

Although "commercial mortgage" is the common terminology, a commercial mortgage is technically two contemporaneous documents: 1) a promissory note that evidences the borrowing; and 2) either a mortgage or deed of trust, either of which provides the lender access to the security collateral in the event of default by the borrower. The note contains the following terms:

- Date of loan.
- Amount of the loan, initial and subsequent fundings, if any.
- Interest rate; fixed rate or floating, including index, spread above index, reset dates, etc.
- Terms of amortization period or interest only.
- Maturity date of loan and provision for extension, if any.
- Prepayment penalties.
- Recourse to the borrower, if any.
- Payment specific terms.

The security for the loan is provided by either a mortgage or deed of trust. In both cases, the document pledges the specific property(ies) securing the payment of the note, which may be taken by foreclosure and sold to satisfy payment of the debt. There are technical differences between a mortgage and a deed of trust. Deeds of trust are considered to be a more expeditious means of taking the property. However, deeds of trust are only used in 16 states, as other states consider deeds of trust equivalent to a mortgage.

Analysis of Commercial Mortgages I

Analysis of a commercial mortgage occurs at origination of the mortgage and throughout its life. The focus of the analysis is on the capacity of the operation of the property to: 1) generate the income necessary for the ongoing payment of the mortgage; and 2) maintain the value of property sufficient to insure repayment of the outstanding balance of the commercial mortgage at loan maturity (since commercial mortgage loans are usually not long enough to fully amortize).

The debt coverage ratio (DCR) is the key metric to measure the capacity of the operation of the property to generate the income necessary for the ongoing payment of the mortgage and is the first metric calculated. This is calculated by taking the annual rental income of the property and subtracting expenses to arrive at net operating income (NOI):

$$\text{(Eq. 1) Debt Coverage Ratio} = \text{Net Operating Income} / \text{Annual Debt Service}$$

or, $\text{DCR} = \text{NOI/ADS}$ (or = NCF/ADS)

A further step is to subtract certain other expenses such as allowance for capital improvements and leasing commissions to generate net cash flow (NCF). Then annual debt service (ADS) is calculated by calculating the monthly mortgage payment (given loan amount, interest rate and amortization period) and multiplying by 12 (months per year). The $\text{DCR} = \text{NOI/ADS}$ (or = NCF/ADS). A DCR greater than 1 indicates excess capacity to pay the debt; a DCR less than 1 indicates insufficient capacity to service the debt. The higher the DCR above 1, the greater the capacity to absorb fluctuations in cash flow (i.e., loss of revenue from tenants.) For the most part, lenders look for a DCR well above 1, typically 1.2 or more. LICs will lend lower (i.e., more conservative) amounts in order to generate DCRs of ~1.5 and above, despite their generally lower interest rates.

The loan-to-value (LTV) is the second key metric calculated and indicates the margin of safety of recovery of principal (i.e., outstanding loan balance) in the event the borrower defaults. That is, upon foreclosure, could the property be sold for enough to pay off the debt? It is calculated by dividing the outstanding loan balance by the value of the property, or $\text{LTV} = \text{loan balance} / \text{property value}$:

$$\text{(Eq.2) Loan to Value Ratio} = \text{Outstanding Loan Balance} / \text{Property Value}$$

or, $\text{LTV} = \text{OLB} / \text{Value}$

The loan balance at any point in time is readily calculable. Thus, the question is that of property value. The value may be provided by an appraisal, which is calculated by comparison of replacement (construction) costs, comparison of comparable properties sold and income capitalization. For income-producing properties, the latter approach is considered the most

reliable, as it relates cash flow to current valuation of that cash flow in the market. The calculation is:

$$\text{(Eq. 3) Value} = \text{Net Operating Income} / \text{Capitalization Rate}$$

or, $\text{Val} = \text{NOI} / \text{CR}$

The capitalization rate is derived from the sales price or valuations of comparable properties and their cash flows, adjusted for perceived differences. Although LTV ratios span the range depending on the type of loan, type of property, borrower, etc., generally lenders look for ratios below 1, indicating that there is sufficient value in the property to cover the outstanding loan balance; LTVs in the range of 70% to 80% may be considered reasonable. LICs prefer the safest, most conservative loans, so their LTVs are more usually in the 60% to 70% range. (Note also that the lower LTV requires less debt service, so lower LTVs generally result in higher DCRs.)

DCR and LTV are point in time calculations. Competent lenders (and equity investors) will develop a projected discounted cash flow (DCF) analysis to calculate these ratios annually throughout the life of the loan (or investment), typically 10 years or more. The DCF should incorporate the current level of leasing of the property (and vacancy) and the income generated, projected leasing and rental rate increases, additional income generated, current and projected market leasing, vacancy and rental rates in comparison to the subject property, the current and projected state of the real estate cycle, etc., thus generating projected DCR and LTV at each year through the life of the loan. Especially important is the projection of the capitalization rate used to value the income stream at mortgage maturity. Any potential source of refinancing the current mortgage will look to the then current income and valuation of the property for viability of refinancing. Unduly optimistic assumptions could jeopardize not only the current mortgage, but also its ultimate payoff. Optimally, throughout the life of the loan, the DCR should be increasing as income increases in relation to debt service, and the LTV should be decreasing as value increases (capitalized income increases) and loan balance is amortized.

A further measure of commercial mortgage loan performance is debt yield (DY). DY has become a more popular measure of an outstanding mortgage loan's capacity to be refinanced, as it relates income available to service the debt to the amount of debt to be refinanced. Theoretically, this should be increasing over time as operating income of the property increases and the loan balance declines with amortization. DY is calculated as:

$$\text{(Eq. 4) Debt Yield} = \text{NOI} / \text{Outstanding Loan Amount}$$

or, $\text{DY} = \text{NOI} / \text{OLA}$

Analysis of Commercial Mortgages II

In recent years, more sophisticated analytical tools have been developed. These take the form of probabilistic computer simulations of commercial mortgage performance under a variety of different scenarios. The scenarios may be externally specified, or user-generated but specify probabilistic distributions of growth rates in NOI and value of the property, which are applied to the NOI and value of the subject property over the life of the commercial mortgage loan. Depending on the scenario specified, the projected performance of the income and value of the property may be better or worse than that assumed in the DCF analysis.

At each point in time over the anticipated life of the loan, using multiple (1,000+) random draws from the specified distribution of growth rates, distributions of DCR and LTV are calculated. Each set of DCR and LTV is fed into an empirically derived econometric equation that generates:

- Probability of default (PD), a percentage from 0% to 100% that measures how likely there will be a “credit event.”
- Loss given default (LGD), if a “credit event” should occur, what percentage of the value loan will be lost, given that LTV.
- Exposure at default (EAD), the outstanding loan balance.
- Expected loss (EL), multiply PD (%) x LGD (%) x EAD (\$), to summarize, expressed either in dollars, or in basis points of the loan. When expressed as basis points of the loan, it may be converted to an annualized percentage measure and considered yield degradation (YD) of the expected return of the loan.

When multiple draws are performed, a statistical distribution of each of these measures at each point in the life of the loan and at maturity is developed. This includes both the mean of each measure (the expected value) and the standard deviation (the variability). It should also be noted that Debt Service Coverage (DSC) and LTV can substitute for each other in certain circumstances. For instance, a temporary decline in NOI may be compensated for by a conservative LTV such that a default does not necessarily occur when DSC drops below 1. However, value is ultimately a result of income generation, and an extended decline may be unrecoverable.

Depending on the scenario specified, the results of this analysis may provide more insight as to riskiness of the loan. For instance, if the scenario specified is that of the macro market for the property type and location, this may be more conservative than the assumptions going into the DCF. Thus, the more statistically driven approach might result in a more conservative view of the transaction. Also, different markets by property type and location may have different economic drivers, resulting in different growth rates. A careful examination of the pattern of NOI and LTV growth may reveal the riskiest points in the life of the loan. Finally, different types

of loans (e.g., LICs vs. CMBS vs. bank loans) may have different default characteristics owing to the relative risk appetites, investment horizons, etc., of the respective lenders.

Analysis of Commercial Mortgage Portfolios

Because of the specialized knowledge necessary for effective, cost-efficient commercial mortgage lending, commercial mortgage investors, to include LICs, generally invest in portfolios of commercial mortgages, which may range from hundreds to thousands of individual mortgages, and in value amount from the tens of millions to billions of dollars. These portfolios are ongoing enterprises with portions of the portfolios continually maturing and being paid off and new originations being added to the portfolio. As this process takes place, the investor is adjusting the investment program to achieve an optimal return vs. risk profile.

The commercial mortgage investment portfolio is generally composed of a variety of property types in different geographic areas, and the mortgages may be of fixed or variable rate, of varying maturities, senior or subordinate position, etc. Accordingly, the portfolio may be analyzed in terms of the aggregate metrics outlined above (debt service coverage ratio [DSCR], LTV, DY, EL, PD, LGD) for each component of the portfolio, i.e., property type (multifamily, office, retail, industrial, hotel and other); geographic area (central business district vs. suburban); metropolitan area (New York, Los Angeles, etc.); primary vs. secondary vs. tertiary markets; by maturity; etc. By calculating the average (typically, value weighted) coupon vs. the DSC, or LTV, or other risk characteristic, the investor can gain insight into the types of new originations to be targeted in order to achieve the optimal risk/return tradeoff.

A further consideration is the beneficial effect on the overall risk of the portfolio of the diversification of the various investments. A full discussion of diversification is beyond the scope of this primer, but it is shown by Modern Portfolio Theory and well recognized in the investment community that investments in multiple assets whose return series are less than perfectly correlated results in a reduction of portfolio risk at no loss of aggregate return. Accordingly, the commercial mortgage investor may conduct an analysis of the portfolio holdings by type, location, etc., with respect to overall portfolio returns and risk to determine the effect of an increased focus on a particular property type and/or location on portfolio risks and returns. For instance, many large LICs have particular concentrations in commercial mortgages secured by office and retail properties, portfolios that may benefit by risk reduction from additions of multifamily and industrial properties. Also, research has shown that portfolios that are concentrated in major metropolitan areas may benefit from addition of investments in secondary and tertiary markets. However, as all commercial mortgage investors discover these benefits and focus on these investments, the benefits tend to evaporate as the prices of these assets are bid up.

To carry this analysis to its logical conclusion, the well capitalized sophisticated commercial mortgage investor, i.e., LICs, may develop or buy commercially available software to analyze every investment in its portfolio with respect to risk and return, assess the marginal effect on its portfolio of any proposed new investment, and fine-tune its portfolio by selective acquisitions and judicious “pruning” of its existing portfolio.

Key Terminology

Potential Gross Income

The total amount of rental income a property can generate if fully leased, to include both rental income and incidental additional income.

Effective Gross Income

The total amount of rental income a property will generate based on space actually leased, to include both rental income and incidental additional income.

Expenses

Costs associated with operation of the property, both direct and indirect, and fixed and variable.

Vacancy Allowance

Space not leased; or, a portion of spaced considered not leased at any given time to allow for transition for planning and projection purposes.

Net Operating Income

Total rental income plus incidental additional income less operating expenses.

Net Cash Flow

Net operating income less capital expenses, leasing commissions and certain other expenses.

Value

The numerical amount of money that could be exchanged for the property. Calculated by appraised value (estimated as the amount of money a willing buyer would pay a willing seller), capitalized value (NOI divided by capitalization rate) and discounted cash flow value (forecasted cash flows over the anticipated holding period discounted to present value at an appropriate discount rate).

Capitalization Rate

The ratio of net operating income to value of the property. Usually derived from analysis of similar properties, which is the applied to the net operating income of the subject property to calculate a “capitalized value.”

Debt Coverage Ratio

The ratio of net operating income to annual debt service. Represents the capacity of the property to support its debt.

Loan to Value Ratio

The ratio of outstanding loan balance to property value. Represents the capacity of the property to protect the lender against loss in the event of a credit event.

Probability of Default

In a statistical simulation analysis, the likelihood of a credit event as a percent out of certainty.

Exposure at Default

Loss given default. In a statistical simulation analysis, the amount of capital owed to the lender, including outstanding mortgage balance.

Expected Loss

In a statistical simulation analysis, the average percentage of the owed amount expected to not be recovered.

Yield Degradation

In a statistical simulation analysis, the expected loss expressed as an absolute percentage to be subtracted from the contract rate of interest.