The NAIC's Capital Markets Bureau monitors developments in the capital markets globally and analyzes their potential impact on the investment portfolios of U.S. insurance companies. Please see the Capital Markets Bureau website at INDEX.

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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.
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> Commercial mortgage loans amounted to approximately 9% of life companies' total invested assets.
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> 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

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):

(Eq. 1)   Debt Coverage Ratio = Net Operating Income / Annual Debt Service
or, DCR = 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 DCR = 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 LTV = loan balance / property value:

(Eq.2)   Loan to Value Ratio = Outstanding Loan Balance / Property Value
or, LTV = OLB / 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:

(Eq. 3) Value = Net Operating Income / Capitalization Rate
  or, Val = NOI / CR

The capitalization rate is derived from the sales price or valuations of comparable properties

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

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.);

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.

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.