 By Jamie Woodwell

Leverage

One of the key takeaways from the recent financial crisis has been that firms throughout the U.S. economy were "overleveraged." What we mean by that is they took on too much debt relative to the underlying values of their firms.

This argument has been extended to commercial and multifamily mortgages as well. Some analysts and others have argued that during the market boom of 2006 and 2007, the use of mortgage debt to leverage commercial real estate properties grew significantly.

Analysis of available information suggests that many mortgage lenders mirrored other market participants in using aggressive assumptions and valuations during the boom; however, industrywide mortgage leverage levels (in terms of the ratio of mortgage debt to the underlying values of the properties) remained relatively flat during the period.

Measures of concern

The case that mortgage leverage increased dramatically in commercial real estate during the mid-2000s tends to focus on two measures that purport to show a run-up. The first of these is the "stressed loan-to-value (LTV) ratios" calculated by rating agencies as a part of their review of loans included in commercial mortgage-backed securities (CMBS) deals. The second is the relationship between the level of mortgage debt outstanding (MDO) and the country's gross domestic product (GDP).

Both of these measures have characteristics that make them unreliable gauges of mortgage leverage at best—and misleading at worst.

Stressed LTVs

When rating agencies review loans included in CMBS, a key part of their analysis is applying a stress test to see how the loans would perform in adverse market conditions. Based on data from New York–based JPMorgan Chase & Co. on currently outstanding CMBS loans, the "stressed" LTVs of loans that New York–based Moody's Investors Service rated grew from approximately 84 percent in the 2002 cohort to 112 percent in the 2007 cohort. Many have taken this to be evidence of increasing mortgage leverage among CMBS loans.

A key part of the rating agency stress test, however, is ignoring current market conditions—particularly contemporaneous property values—and imposing estimated stressed values based on historical averages. This makes a great deal of sense in the context of rating loans and pools of loans, but does little to provide insights into leverage levels.

The Moody's/REAL Commercial Property Price Index (Moody's/REAL) shows property values rising 81 percent between the end of 2001 and the end of 2007. The growth in stressed LTVs over the period can be seen to have been driven by the growing divide between rising contemporaneous market valuations and more stationary rating agency stressed values.

While the Moody's stressed LTVs on the 2007 cohort were 112 percent, underwritten LTVs on those loans average 69.7 percent—up just slightly from 2002's 68.1 percent. This generally matches numbers from the American Council of Life Insurers (ACLI), Washington, D.C., which showed average LTVs of life insurance companies' loan commitments remained essentially constant at 65 percent to 66 percent through the period 2005 through 2007.

Values and underwritten cash flows were clearly growing aggressively during the period, but mortgage leverage ratios were relatively flat.

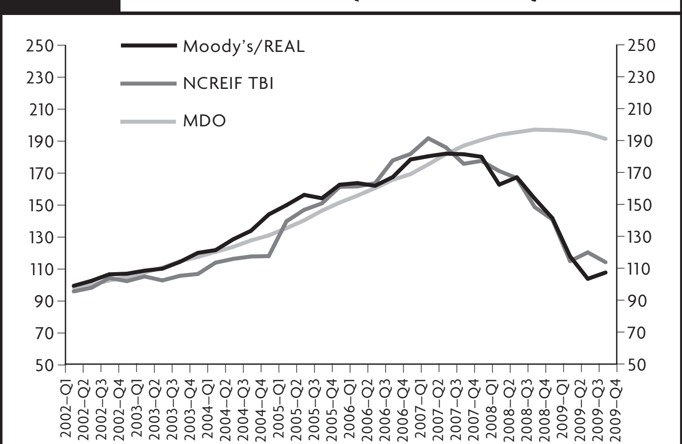
MDO to GDP

Another data series often looked to as evidence of growing leverage in commercial and multifamily mortgages is the relationship between commercial and multifamily mortgage debt outstanding and the gross domestic product. The growth in this ratio is purported to show that leverage of commercial and multifamily properties has been growing. However, there are two major drawbacks to drawing this conclusion from the series.

First, the measures are incompatible, in that GDP measures production, or additions, while MDO measures the stock outstanding. A better relationship to look to than MDO as a percent of GDP would be the *change* in MDO as a percent of GDP, as both of these measures track changes in the stock. Comparing GDP with the change in MDO is a more nuanced story than comparing it with the total level of MDO.

But even this improvement does not provide insights into the amount of leverage in the system. GDP includes such a

Figure **1** **Indexes of Commercial Real Estate Prices and MDO (2002 Q1 = 100)**



Moody's/REAL = Moody's/REAL Commercial Property Price Index
NCREIF TBI = National Council of Real Estate Investment Fiduciaries (NCREIF) Transaction-Based Index
MDO = Mortgage Debt Outstanding

SOURCES: Moody's Investors Service, MIT Center for Real Estate, Federal Reserve Board

broad range of outputs that its relationship to MDO, and even changes to MDO, is distant at best, and it provides little meaningful information about leverage in the system. While an interesting curve, and one that matches many of our experiences of ups and downs in commercial real estate, the specific implications of the line are less than clear.

MDO growth to price growth

A far better gauge of the level of mortgage leverage in the system would be a comparison of the relationship between mortgage debt levels and overall property values.

Comparing the Moody's/REAL commercial property price index or the National Council of Real Estate Investment Fiduciaries' (NCREIF) Transaction-Based Index to mortgage debt outstanding shows a remarkable symmetry between the growth in property values and the growth of MDO (see Figure 1). The clear implication is that during the early and mid-2000s, the level of mortgage debt outstanding was rising nearly in lockstep with increases in property values, and that industrywide mortgage leverage, measured as the ratio of mortgage debt to property value, did not increase during the market boom of the early and mid-2000s.

Takeaways

The credit crunch and recession of the late 2000s has spawned a great deal of conventional wisdom. One key piece is that increasing leverage was pervasive. In terms of commercial and multifamily mortgage debt, however, the data appears to show that increases in commercial/multifamily mortgage debt outstanding tracked increases in property values—not increases in mortgage leverage.

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