Real Estate Capital Markets Update

presented to:

Connecticut Chapter of the Appraisal Institute

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June 15, 2011
Macroeconomic environment
Real estate space market dynamics
Property pricing & capital markets
The new regulatory environment
Lessons learned (or not)
Q & A ...
What else would you be doing tonight? ...
Setting the Stage …
U.S. Economy … the Big Picture

![Graph showing Payroll Employment and Real GDP from 2007 to 2011. The graph indicates a peak in Payroll Employment in 2008 followed by a steep decline in 2009, with a slow recovery by 2011. Real GDP shows a similar trend, with a sharp decline in 2009 and a recovery starting from 2010.](source)

Private Sector Job Growth Uneven

Source: Cornerstone Research, Bureau of Labor Statistics 5-6-2011
Not a “Typical” Recovery

The Three Legs (Stages) of Economic Recovery...

Inventory Adjustment

Consumer Expenditure

Housing Sector
Space Market Dynamics … Apartments Lead

By Property Type …

Vacancy Rate (1Q11)
Vacancy Rate (Long-Run Average)
NOI Growth (4 quarter total)

Source: Cornerstone Research, NCREIF.
Denotes equally weighted cash flow based NCREIF appreciation return component. Notes: NPI and TBI are quarterly indices through 1Q11. The dashed lines are monthly interpolations. Moody’s and Green Street CPPI’s are monthly indices through March and April 2011, respectively.

Sources: Cornerstone Research based on data from NCREIF, MIT Center for Real Estate, Green Street and Moody’s Investors Service.
Commercial Real Estate vs. Housing Prices

Broad Based Transaction Price Indices Show Similar Dynamics in the Residential and Commercial Sectors*

* Both indices are derived from repeat sales (or roundtrip transactions) of properties and both contain distressed sales.

Source: Cornerstone Research based on data from Standard and Poor's and Moody's.
Aggregate Indices Mask Divergent Pricing Dynamics

Sub-Indices of the Moody’s/REAL CPPI Since Peak

Sources: Geltner Associates LLC, Real Capital Analytics (RCA), Cornerstone.
Aggregate Indices Mask Divergent Price Dynamics

Differentiated Recovery in NCREIF Property Values …

Index 2010 Q1 = 1

- NPI Capital Index (all properties)
- Properties with Vacancy < 10%
- Properties with Vacancy > 30%

Source: Cornerstone Research, NCREIF.
Investor “Within Real Estate” Target Allocations by Strategy

Over 50% of responding investors do not set targets by real estate strategy
The “Within RE” Equity Risk-Return Spectrum

- Core
- Value-Added
- Opportunistic
- Core Plus
- REITs
The “Within RE” Equity Risk-Return Spectrum
Mortgage Market Improving But Issues Remain

Total U.S. Debt as a Proportion of GDP (left axis)
Commercial & Multifamily Mortgage Debt as a Proportion of GDP (right axis)

Securitization Revolution …

Recent recession

'90-91 recession

Mortgage Market Improving But Issues Remain

Total Debt/GDP

CRE Mortgage Debt/GDP

Sources: Moody’s Economy.com, American Council of Life Insurers.

Through to 4Q10
Source: Cornerstone Research, Federal Reserve Board.
CMBS Stress Stabilized …

Special Servicing Exposure by Unpaid Balance ($BB): January 2005 through April 2011

CMBS Delinquency Exposure by Vintage: As % of Outstanding Vintage Balance

- Jan-05, $8.55
- Jan-06, $5.57
- Jan-07, $3.74
- Jan-08, $4.53
- Jan-09, $14.38
- Apr-11, $88.23
- Jan-10, $71.83
- Jan-11, $90.53

[Graph showing the trend and delinquency exposure over time]
Mortgage Market Improving But Issues Remain

Net Mortgage Flows by Lender Type

- Commercial Bank
- CMBS
- Life Ins. Co.
- Others
- GSEs
- Savings Institutions

Source: Federal Reserve Flow of Funds

Annual data through 2010.

CMBS and Life Insurance Company Mortgage Originations

Source: ACLI, Commercial Mortgage Alert.
A Turning Point for Public CRE Debt Markets

AAA Legacy CMBS Pricing “Normalizes”
Pro-Cyclical Relaxing of Lending Standards?

Fed Survey of Senior Loan Officers

Source: Federal Reserve Board
The New Regulatory Environment

I. Dodd-Frank Wall Street Reform and Consumer Protection Act

“Create a Sound Economic Foundation to Grow Jobs, Protect Consumers, Rein in Wall Street and Big Bonuses, End Bailouts and Too Big to Fail, Prevent Another Financial Crisis”

II. Higher Global Minimum Bank Capital Standards (Basel III)

BASEL COMMITTEE ON BANKING SUPERVISION

BANK FOR INTERNATIONAL SETTLEMENTS

Cornerstone
## I. Dodd-Frank Wall Street Reform and Consumer Protection Act

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Function</th>
<th>Responsibility</th>
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<tbody>
<tr>
<td>Financial Stability Oversight Council</td>
<td><strong>Systemic risk monitor</strong>&lt;br&gt;New “super regulator” advanced warning system with powers to prevent “too big to fail” and regulate non-bank financial firms</td>
<td>Chaired by Treasury Secretary; reps from 10 financial regulators (the Fed, SEC, OCC, FHFA, CFTC … )</td>
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<tr>
<td>Securitization Risk Retention</td>
<td><strong>“Skin-in-the-game”</strong>&lt;br&gt;retention of 5% of the credit risk of any asset included in a securitization, unless the underlying loans meet standards that reduce riskiness&lt;br&gt;Mortgage exemptions?&lt;br&gt;New <strong>disclosure requirements</strong> for issuers and rating agencies</td>
<td>Fed, OCC, FDIC, SEC, HUD, FHFA</td>
</tr>
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<td>Office of Credit Ratings</td>
<td>Rating agency oversight to ensure unbiased well formulated opinion&lt;br&gt;Eliminate <strong>conflicts of interest</strong>&lt;br&gt;End “<strong>ratings shopping</strong>” by issuers and reduce investor reliance on ratings</td>
<td>New office at the SEC</td>
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</table>
I. Dodd-Frank Wall Street Reform and Consumer Protection Act

Other Components/Elements/Initiatives …

- Bank Regulation
  - Volcker Rule
- Federal Insurance Office
- Derivates Trading
- Unwinding Failed Firms
- Consumer Credit Bureau
II. Higher Global Minimum Bank Capital Standards (Basel III)

<table>
<thead>
<tr>
<th></th>
<th>Common Equity (after deductions)</th>
<th>Tier 1 Capital</th>
<th>Total Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>4.5</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Conservation buffer</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum plus conservation buffer</td>
<td>7.0</td>
<td>8.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Countercyclical buffer range*</td>
<td>0 – 2.5</td>
<td></td>
<td></td>
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</table>
What Happened?? ... “Micro Prudential” Regulation

FDIC “System” of Rating Financial Institutions *pre Credit Crisis*

Capital Adequacy
Asset Quality
Management
Earnings
Liquidity
Sensitivity to Market Risk

*Today, add* ... Concentration, Contagion, Correlation, Context

... “Macro Prudential” Regulation
Lessons that “we” should have learned

#1: Asset markets are NOT efficient
- Arbitrage is imperfect (limited) especially for newer “innovations”
- Economics, psychology meet learning and evolution

#2: Market-wide liquidity is a sentiment indicator
- Unusually high liquidity (either high or low) predicts a turning point
- Price-based risk measures (spreads, asset price volatility) provide “false” signals in market upswings

#3: Financial leverage destroys liquidity and flexibility in a downturn
- Cheap debt can be addictive and lead to bad outcomes
- Investors, lenders and regulators have to consider the macro environment (fire sale externality) when making micro level decisions
Does “Availability of Debt” Drive Pricing?

Beware of economists bearing correlations!!

Source: Cornerstone Research based on NCREIF, Bureau of Economic Analysis and Federal Reserve data
Leverage and the “Minsky Meltdown”

“The externalities to high leverage are greater than they appear, because on most days everything runs smoothly. But as we have seen time and again, in the instances where it really matters the liquidity that is supposed to justify the leverage will disappear with a resulting spiral into crisis.”

The CRE Leverage Cycle

✓ a positive feedback loop between commercial real estate capital appreciation, liquidity and commercial mortgage capital supply.

- Individual investor decisions (micro) vs. aggregate (macro) or market-wide impacts
- Optimal micro decisions not necessarily socially optimal
  ⇒ potential for excess debt

Procyclical Leverage ...

⇒ Ignoring the Fire Sale Externality?

** Role of Appraisals **
Linking *Ex Ante* Total Asset Required Returns with Debt and Equity Costs of Capital …

\[ IRR_p = IRR_E \left( \frac{E}{V} \right) + IRR_D \left( \frac{L}{V} \right) \]

In theory with financing separate \((2^{nd})\) after the investment/valuation decision …

\[ IRR_E = IRR_p + (IRR_p - IRR_D) \frac{L}{E} \]
Risk and Return Impacts of Financial Leverage ...

\[ IRR_E = IRR_p + (IRR_p - IRR_D) \left( \frac{L}{E} \right) \]

\[ RP = 6\% \]

\[ IRR_p = 8\% \]

\[ IRR_D = 6\% \]
Risk and Return Impacts of Financial Leverage …

\[ IRR_E = \frac{IRR_p - IRR_D \cdot LTV}{1 - LTV} \]

- \( RP = 6\% \)
- \( IRR_p = 8\% \)
- \( IRR_D = 6\% \)
Moving from Theory to “Practice”…

Asset Cash Flows and Valuation

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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</thead>
<tbody>
<tr>
<td><strong>PBTCFs</strong></td>
<td>1.38</td>
<td>1.2336</td>
<td>1.476</td>
<td>1.476</td>
<td>17.548</td>
</tr>
</tbody>
</table>

Market Going in IRR

0.08

\[ PV\{PBTCF \text{ in years 1 through 5} \ @ \text{market required (unlevered) return}\} \]

\[ $16.53 \]
## Equity (Investor) Cash Flows

<table>
<thead>
<tr>
<th>LTV</th>
<th>65%</th>
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<tbody>
<tr>
<td>I/Y</td>
<td>6%</td>
</tr>
<tr>
<td>Loan</td>
<td>$10.75</td>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>PBTCFs</th>
<th>-DS</th>
<th>EBTCF</th>
<th>Required Return on Equity (Equity IRR)</th>
<th>PV of Equity CFs</th>
<th>Equity+Loan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>1.38</td>
<td>0.6449</td>
<td>0.7351</td>
<td>11.7143%</td>
<td>$5.80</td>
<td>$16.54</td>
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<tr>
<td>2011</td>
<td>1.2336</td>
<td>0.6449</td>
<td>0.5887</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2012</td>
<td>1.476</td>
<td>0.6449</td>
<td>0.8311</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1.476</td>
<td>0.6449</td>
<td>0.8311</td>
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<td>2014</td>
<td>17.548</td>
<td>0.6449</td>
<td>6.1555</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\text{PV of Equity CFs} = 8\% + (8\% - 6\%) \times \frac{65}{35}
\]
Thanks for your attention!

Questions?

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Disclosure Statement

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This analysis does not make any recommendation about your investments, and should not be considered investment advice. Any opinions expressed herein reflect our judgment at this date and are subject to change. Certain of the statements contained herein are statements of future expectations and other forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements.

Opinions and estimates offered herein are subject to change without notice, as are statements of market trends, which are based upon current market conditions.
CRE VALUE AND TRANSACTION PRICE INDICES & OTHER MACRO DATA

- **National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index (NPI)**
  - quarterly property level return series of properties held by tax-exempt institutional investors; valuation component is appraisal-based.
  - [www.ncreif.org](http://www.ncreif.org) - click on “Data and Products” to get to the benchmark historical return series and also the relatively new family of fund indices, both open-end core (the “ODCE” index) as well as closed end fund (value added and opportunistic) produced with real estate consultant Townsend.
  - click on news to obtain “flash reports” on the NPI and ODEC with more detail on recent returns

- **Investment Property Databank (IPD)**
  - British firm that now provides appraisal-based return indices for 22 countries, including the US, as well as a global index. US index was initially annual but is now quarterly indicator.
  - [www.ipd.com](http://www.ipd.com) – select a country and click on “go” to get most recent results and some history.

- **Transaction-Based Index (TBI)** [derived from sales of properties from the NPI)]
  - developed and produced by the MIT Center for Real Estate to help provide more timely information about market pricing. Available for download at [http://web.mit.edu/cre/research/credl/tbi.html](http://web.mit.edu/cre/research/credl/tbi.html)
  - in addition to the main TBI there are also separate “Demand” and “Supply” indices that aim to track movements in buyer valuations and seller reservation prices separately and provide a liquidity measure.
  - Also, each quarter look at the press release – usually has commentary [http://web.mit.edu/cre/](http://web.mit.edu/cre/)

- **Moody’s/REAL Commercial Property Price Index (CPPI)**
  - a repeat sales transaction price index derived from property transactions tracked by Real Capital Analytics (RCA). More broad based than the MIT TBI, given that RCA’s transaction database includes all property sales of $5m and greater. National index is produced monthly.
  - index data and a monthly report are available at [www.moodys.com](http://www.moodys.com); you have to register for access to free stuff and then find your way to “real estate”. Indices are also available at the MIT Center for Real Estate website – they developed the technology for this index too – and at [www.realindices.com](http://www.realindices.com)

OTHER POTENTIALLY USEFUL DATA AND INFORMATION SOURCES

**Real Capital Analytics** [www.rcanalytics.com](http://www.rcanalytics.com) Tracks trends and details for transactions of properties 5m and greater. Also provides average cap rates as well as the composition of buyers and sellers; ability to look at (search) transaction level data. Now also tracks “Distressed Property”.

**Realpoint** [www.realpoint.com](http://www.realpoint.com) – provides valuation and credit risk analysis of CMBS bonds (advisory services) for investors. Recently recognized as an official rating agency for CMBS. You can obtain free monthly research about CMBS delinquencies and loans transferred to special servicing.

**Trepp** [www.trepp.com](http://www.trepp.com) – similar to Realpoint in some aspects… data on CMBS delinquency and pricing (spreads). You can sign up for access to market level data and a free newsletter.

**Commercial Mortgage Alert** [www.cmalert.com](http://www.cmalert.com) – click on “The Marketplace” and then “Market Statistics” to obtain (macro) data on CMBS issuance and pricing as well as mortgage spreads.

**Fitch Ratings** [www.fitchratings.com](http://www.fitchratings.com) One the 4 rating agencies … puts out a lot of useful market level CMBS information. CMBS is in the “Structured Finance” section. You have to register.

**Industry Groups:** NAREIT [www.reit.com](http://www.reit.com) ; PREA [www.prea.org](http://www.prea.org) ; CRE Finance Council [www.crefc.org](http://www.crefc.org/)
Financial Leverage and Risk
Property-Level and Marketwide (Systemic) Perspectives

“The externalities to high leverage are greater than they appear, because on most days everything runs smoothly. But as we have seen time and again, in the instances where it really matters, the liquidity that is supposed to justify the leverage will disappear with a resulting spiral into crisis. … Liquidity allows for ready leverage, but it also creates the means for crises. … It is in the froth of liquidity that profits are made and demons are spawned.”

— From A Demon of Our Own Design: Markets, Hedge Funds, and the Perils of Financial Innovation, by Richard Bookstaber

The use of debt is widespread in real estate investment, and there is good reason for this. Real estate assets are big-ticket, lumpy and capital intensive, and hence many investors require debt financing to get in the game, especially if they want to be able to acquire enough properties to gain meaningful diversification benefits. However, investors also are drawn to debt at times not because they need it but because they believe that it changes the nature of the return-risk structure of their equity investments in their favor. In this case, investors use fixed-cost mortgage debt financing in the hopes of leveraging up or magnifying the returns to equity invested above those generated by the property (asset) based on total capital invested; debt is used to juice returns. The major debt overhang the sector is dealing with today is a stark reminder that investors — and lenders — can take this too far with disastrous ramifications.

As part of the so-called global “wall of capital,” aggregate commercial and multifamily mortgage debt surged during the past decade, growing from slightly more than $1 trillion in 1997, as the sector finally emerged from the early 1990s downturn, to $3.4 trillion in the third quarter of 2008. With this spike in activity, the size of the mortgage market jumped from just under 14 percent of national GDP to nearly 25 percent, topping the 1980s peak that was just shy of 20 percent of GDP (see “Commercial Real Estate Leverage and Property Value Cycles,” page 32). Much of the increase in mortgage debt was attributable to unbelievable growth in commercial mortgage-backed security (CMBS) issuance that in 2006 and 2007 was characterized by increasing complexity in security design and funding sources, and weak underwriting by, and/or overconfidence on the part of, both lenders and bond rating agencies. The result was a proliferation of ever-riskier high-leverage loans on frothy property valuations backing oversold CMBS bonds. The fallout helped push the commercial property sector into a painful period of deleveraging and balance sheet repair—induced illiquidity and value decline.

This was not supposed to happen again. The lessons about too much debt and rose-colored glasses in property pro forma projections, each dangerous enough on their own, but lethal when combined, were believed to have been well taught by the property downturn of the early 1990s. Moreover, if some investors did not learn these lessons, or maybe were not in the real estate game in the previous downturn to learn them, it was not supposed to matter on the margin because the securitization revolution that brought commercial real estate back from the ashes of the previous downturn had integrated the sector with broader capital markets, thereby, in theory, enforcing a discipline on real estate market capital flows that would prevent a reoccurrence of the late 1980s/early 1990s boom/bust episode. The emergence of a large and important CMBS market in particular was widely viewed as a more efficient source of debt capital that helped improve the liquidity and transparency of commercial real estate, and would act as a regulator of mortgage flows.

By their very nature, public markets reprice quickly. Hence with more commercial real estate debt coming from public markets, large shifts in spreads can have sudden, real affects on the real estate sector. Prior to the recent credit crisis, the textbook example of this was provided by the now-famous spike in credit risk spreads in August 1998 when Russia defaulted on its international bonds, triggering a financial crisis and a flight to quality and liquidity. This

Executive Summary

◆ At the top of the cycle, investors paid insufficient attention to financial leverage risk and the impact on risk-adjusted discount rates and property valuation.

◆ If enough investors are under adjusting required returns for financial leverage risk, it will become a systemic issue as it will be reflected in overall lower property returns and lower cap rates.
coincided with a period in which some real estate market observers were expressing concern about another overbuilding phase on the horizon. The sharp rise in CMBS spreads curtailed the flow of capital into the real estate debt sector in the fall of 1998, deterring new construction that otherwise might have taken place.

The speed and magnitude of the cutoff of capital flow in 1998 was impressive and unfamiliar, reflecting the new connection to the public capital markets. While impressive at the time, the spike in AAA spreads in 1998 barely registers when compared to the magnitude of spread increase witnessed in the latest credit crisis. The complete shutdown of the CMBS market resulted in a sharp reduction in the availability of debt capital for acquisitions and refinancing, which helped dry up transaction liquidity and drive a repricing of commercial property.

What happened to the negative feedback loop that the public debt market was supposed to provide? The search for potential explanations has focused primarily on causes related to the shift of mortgage lending to an “originate to distribute” model within the shadow banking system, and specifically CMBS loan underwriting, bond pricing and structure, commercial real estate CDOs and bond rating agency issues. While these considerations undoubtedly played important roles, particularly on the supply side of the lending sector, two somewhat more fundamental and related factors are, in my mind, at the root of the problem:

1) Insufficient attention paid to (either through a lack of understanding of or choosing to ignore) financial leverage risk and the impact on risk-adjusted discount rates and property valuation.

2) The relationship between debt financing, liquidity and asset valuation at the market level that can result in a pro-cyclical, positive feedback effect dominating the negative loop the public debt market was supposed to provide.

The first consideration relates to risk at the individual property level, while the second relates to marketwide systemic risk deriving from spillover (externality) and feedback effects of individual investor, lender and appraiser decisions. One important lesson taught by the latest downturn is that investors, lenders and regulators must take these externalities into account when assessing investment risk.

DEBT AND ASSET VALUE AT THE PROPERTY (MICRO) LEVEL

There is a fairly widespread belief among investors that financial leverage affects property pricing. When interest rates are low, the argument goes, buyers who tend to use a lot of debt capital have a significant advantage over low or non-leveraged buyers and hence can outbid them for properties. On the flip side, highly leveraged buyers can’t hold their pricing in higher mortgage rate environments. But does this make sense? To those of us who teach corporate finance, such statements are somewhat flawed and illustrate a misunderstanding of the link between financial structures and asset prices by industry participants who may not be familiar with, or may have forgotten, the capital structure theories of Nobel Laureates Franco Modigliani and Merton Miller (M&M). Of course, it also could be that the famous capital structure theory is wrong, or missing something.

The basic premise of MM Capital Structure Theory is that financial structure does not affect the value of the underlying asset; the investment/valuation decision is separate from the financing decision, at least in a somewhat hypothetical world of no taxes and no financial distress, which is not a bad approximation to the institutional world, assuming modest amounts of debt. Stabilized property is valued based on asset-level
cash flows, and then the impact of financing on the equity investor returns is considered. The *ex ante* relationship between the return to the equity investor, the asset return, cost of debt and amount of debt relative to equity is such that higher leverage increases both expected equity return and risk proportionately and does not affect the risk/return profile of the underlying real estate asset that is being valued; hence capital or financial structure does not matter (assuming debt levels are not high enough to generate an expectation of financial distress).

The graphs below, “(Theoretical) Effect of Debt Financing on Property Equity Investment Risk and Required Return,” illustrate this with a property investment that has an expected unlevered return of 8 percent (IRR$_P$). Assuming debt is riskless (i.e., no chance of financial distress) and available at 6 percent (IRR$_D$), then the upward sloping line in the graph on the left shows the expected equity return (IRR$_E$) increases above the expected property return in proportion to the spread between the property return and debt cost and the amount of leverage as reflected in the debt (or loan) to equity ratio. The incremental expected return to the equity investor above IRR$_P$ is the risk premium for added financial risk. Suppose the investor obtains a 75 percent LTV mortgage. This implies a loan to equity ratio of 3, a risk premium (RP) of 6 percent and an expected equity return of 14 percent, with no change in the property value and hence IRRP. It is easy to show that with a 75 percent LTV that standard deviation of equity investor returns is 4 times that of the standard deviation of property returns. The added risk derives only from increased variability of equity investor level cash flows and not from default risk, which to this point is not in our model. The graph on the right shows the relationship between equity and property returns with leverage measured by the loan-to-value ratio rather than the debt-to-equity ratio. It clearly shows that the risk premium on equity rises faster than linearly with respect to the LTV.

*If enough investors are under-adjusting required returns for financial leverage risk, it will become a systemic issue as it will be reflected in overall lower property-level IRRs and cap rates that investors, appraisers and lenders use to value property.*

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**INDIVIDUAL DECISION SPILLOVERS AND SYSTEMIC (MACRO) RISK**

If enough investors are under-adjusting required returns for financial leverage risk, it will become a systemic issue as it will be reflected in overall lower property-level IRRs and cap rates that investors, appraisers and lenders use to value property. With higher property values,
lenders can justify higher loan proceeds, increasing the supply of commercial mortgage debt. Easier access to debt financing increases property transaction velocity and hence liquidity, which might in turn further increase property values and hence loan proceeds and hence liquidity, creating a positive feedback loop that builds on itself rather than one that is self-correcting.

Of course, all of this might be expected to increase the probability of financial distress and default, thereby causing lenders to pull back on LTV and increase loan spreads. This did not happen for a number of reasons. One possible explanation is overconfidence on the part of investors in up markets. A number of papers in the emerging academic behavioral finance literature propose that marketwide liquidity is an indicator of investor sentiment. That is, aggregate liquidity is an indicator of the relative presence of sentiment-based traders in the marketplace and therefore the divergence of asset price from fundamental value. Abnormally high aggregate liquidity is evidence of overvaluation and in fact forecasts a future downturn in asset prices. These types of models rely on both the presence of uninformed or overenthusiastic investors and limits to arbitrage, such as the inability to short sell property, that restrict the ability of sophisticated investors to enter the market and eliminate mispricing. If smart money investors believe that property is overvalued, they are either forced to the sideline or they sell into the excessive enthusiasm and wait for the opportunities when the market turns. The large number of portfolio and public REIT public-to-private transactions that transpired near the peak of the market represent innovative ways to sell into the sentiment on a large scale.

The graphic below, “How Debt Impacts Values: A Liquidity, Pricing, Leverage Feedback Loop,” summarizes the linkage and feedback between pricing, liquidity and financial leverage outlined here with a focus on the potential role played by financial leverage as the fuel that can sustain sentiment-induced trading. Starting at the left, the “post–Internet bubble/real estate is an accepted asset class” positive demand shock increased liquidity in institutional property asset markets and price increases followed. Low interest rates coupled with continued stock market volatility helped keep the capital flowing to real estate. Higher property prices (declining cap rates) and lower expected asset level returns in a low interest environment increased the demand for financial leverage to juice returns, and with an abundant supply of capital, CMBS lenders were very accommodating. Borrowers, lenders and regulators alike were all lulled into complacency as property prices rose and price-and spread-based measures of risk provided false signals (a classic “Minsky moment”) and ultimately pushed debt levels and property values to unsustainable heights.

Real estate liquidity emerged as a crucial factor that connected easy mortgage money and property values together. Given the pro-cyclical yet mean-reverting nature of private market liquidity, this should have been a signal for investors to increase risk premiums and for lenders, rating agencies and investors in CMBS and commercial real estate CDOs to demand tighter underwriting, higher levels of loss protection, and more transparent securitization structures to help reduce the amplitude of the boom and bust cycle and the magnitude of their losses in a downturn. Hopefully, with a better understanding of the impact of debt financing on the equity risk premium at the property level and a new appreciation for the potential build-up of liquidity/leverage–related systemic risk, market reactions next time will be different.

Jim Clayton is vice president – research at Cornerstone Real Estate Advisers and an adjunct professor in the school of business at the University of Connecticut.

This article is based on the author’s paper, “Debt Matters (More Than it Should): Leverage, Liquidity and Property Valuation,” Journal of Real Estate Portfolio Management (Vol. 15, No. 1, 2009). The paper received the Institutional Real Estate, Inc. award for best paper published in the Journal in 2009. The views expressed here are the opinion of the author and not necessarily those of Cornerstone Real Estate Advisers.

How Debt Impacts Values: A Liquidity, Pricing, Leverage Feedback Loop