



Moody's US CMBS: Presentation to Hoyt Fellows

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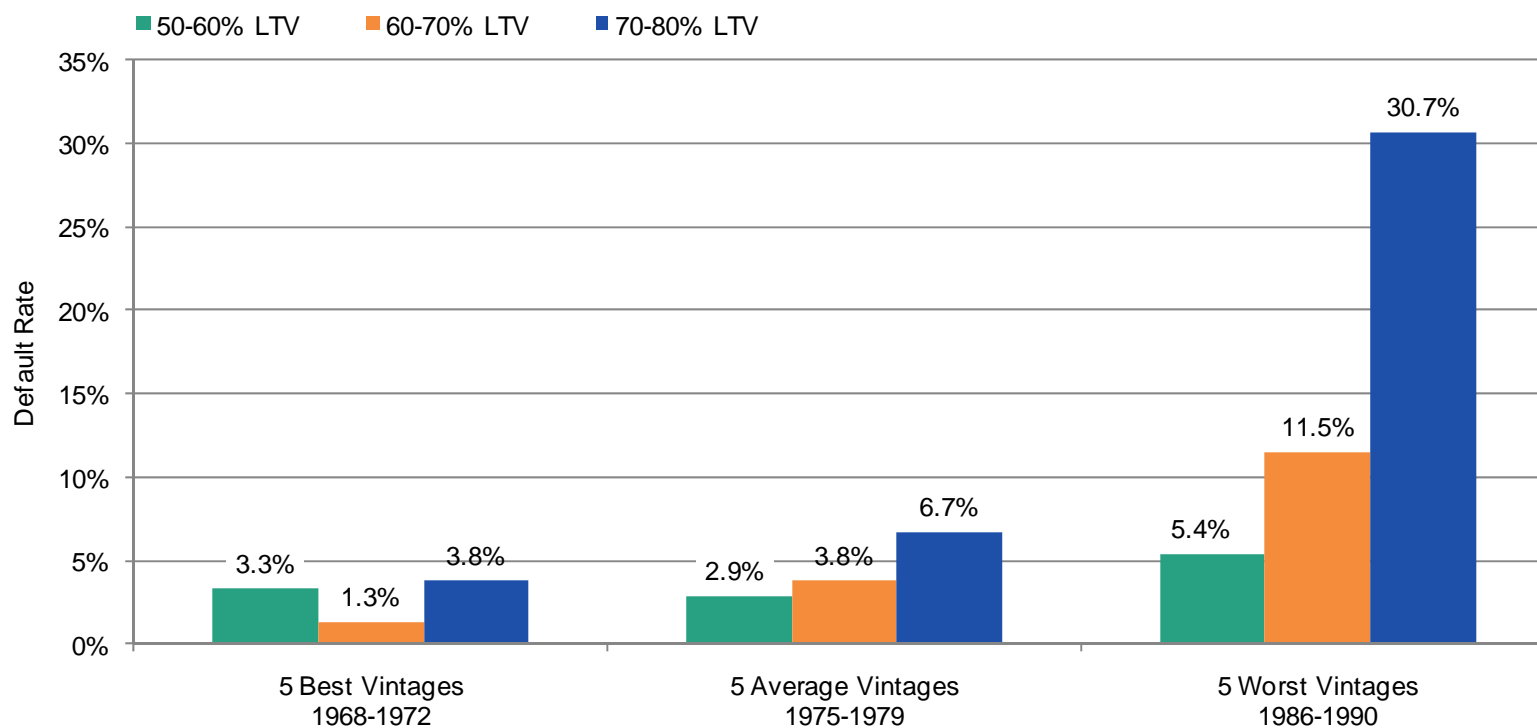
CMBS Credit Risk

- » Liquidity and Credit Risk through the Cycle
- » How Good is the “V” in Your LTV Ratio
- » Commercial Property Price Trends and CMBS Loan Performance
- » Boiling Frog Syndrome

1

Liquidity and Credit Risk Through the Cycle

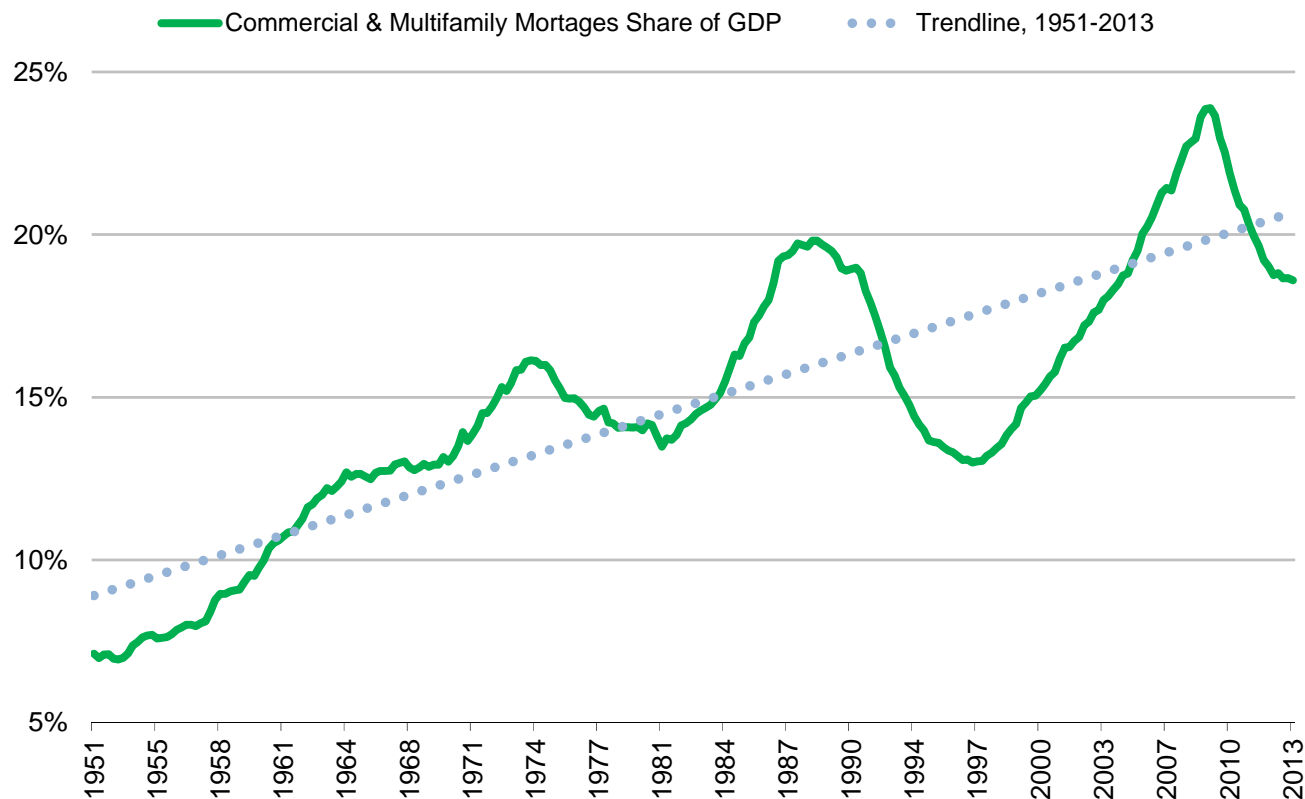
Pre-Crisis Study of Life Company Commercial Loan Default Rates and Leverage Shows Performance Compression in Good Vintages, Performance Dispersion in Weak Ones



Source: Moody's Investors Service

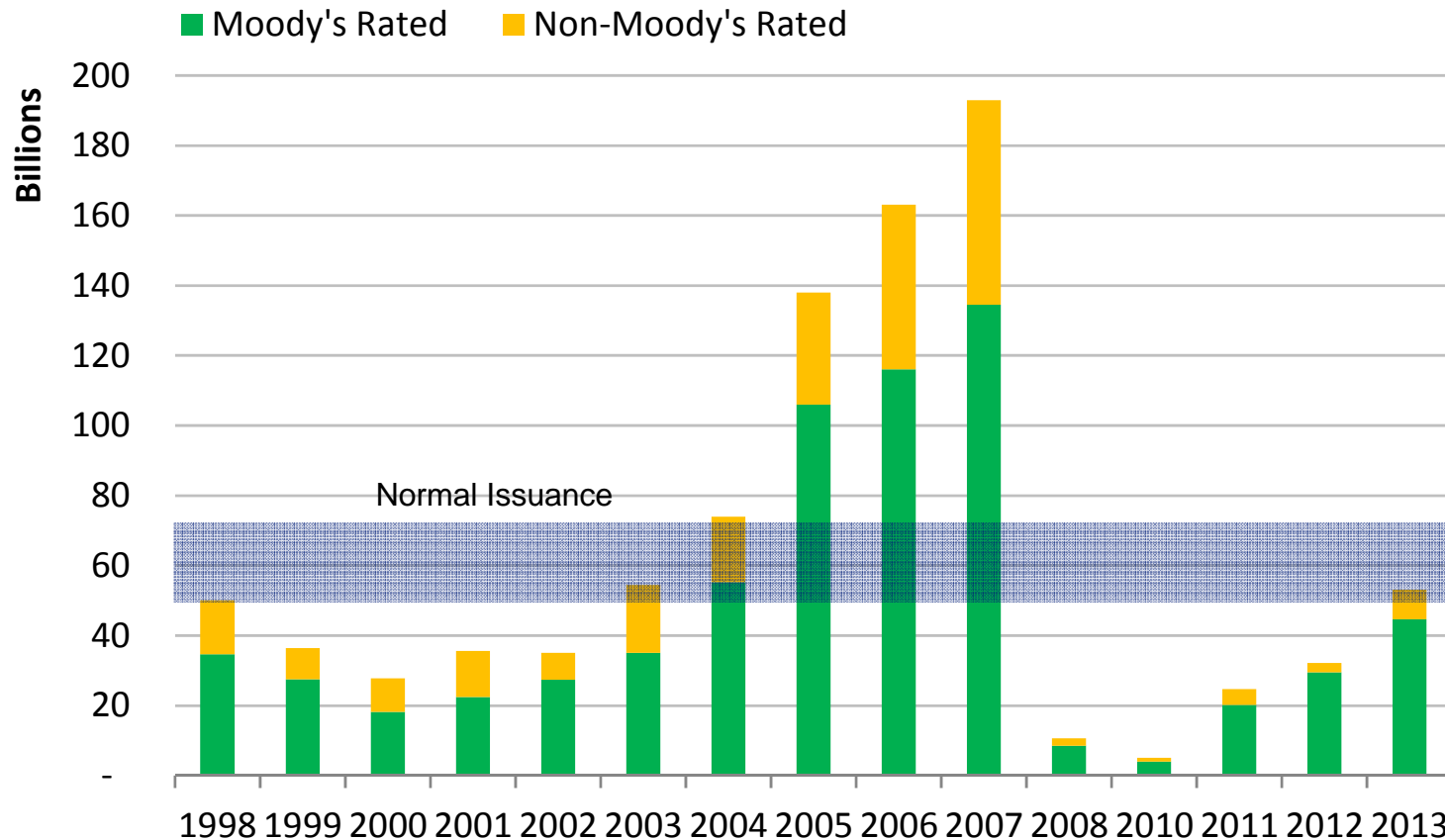
Commercial Real Estate Debt as a Percentage of U.S. Gross Domestic Product

» CRE debt: seldom in alignment with long term trend



Source: Moody's, Federal Reserve Board

“Normal” CMBS Issuance \$50-75 B (\$0-200B Range) Normal for Life Companies is \$50 B with Little Variation



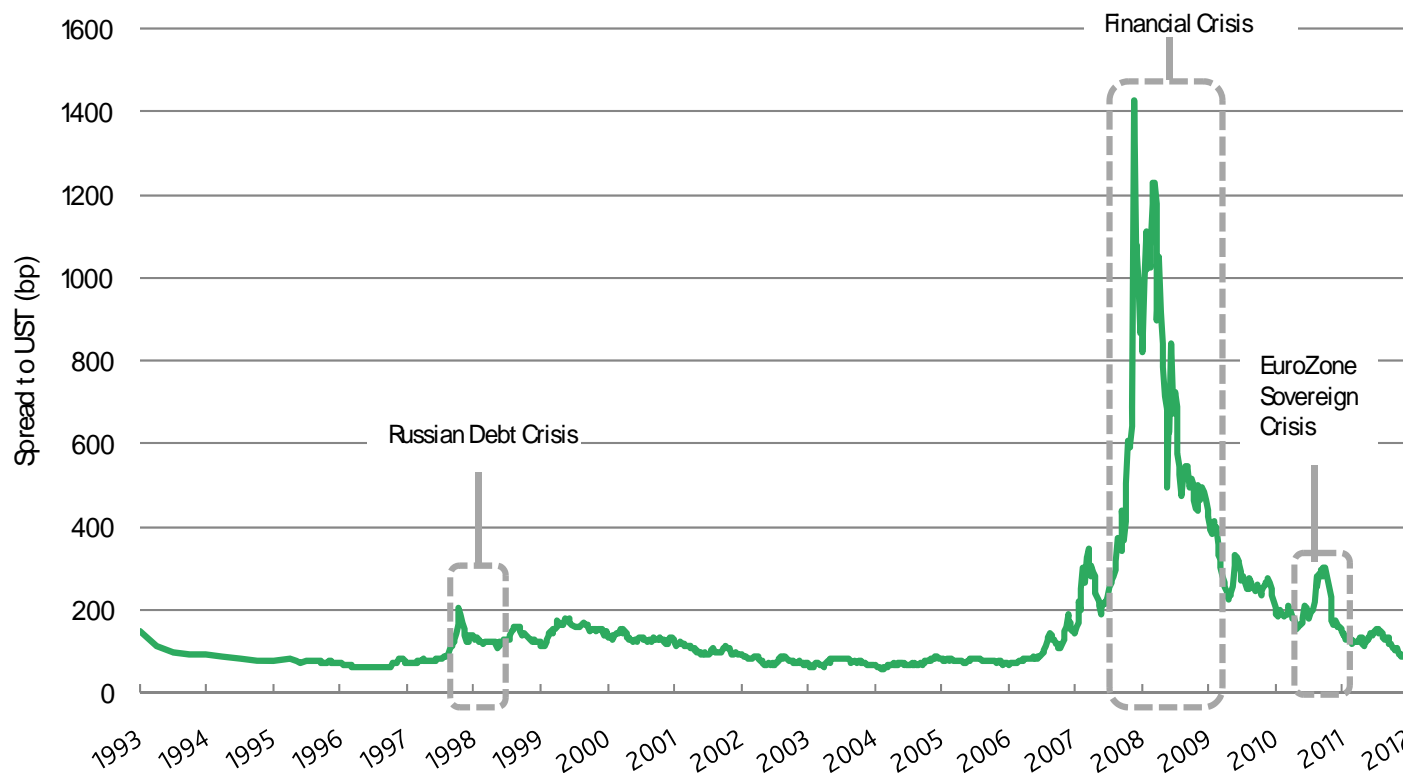
Source: Moody's Investors Service, Trepp LLC. Data includes conduit/fusion CMBS deals only.

Slide 6

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CMBS Loan Pricing and Availability Driven by CMBS Bond Spreads



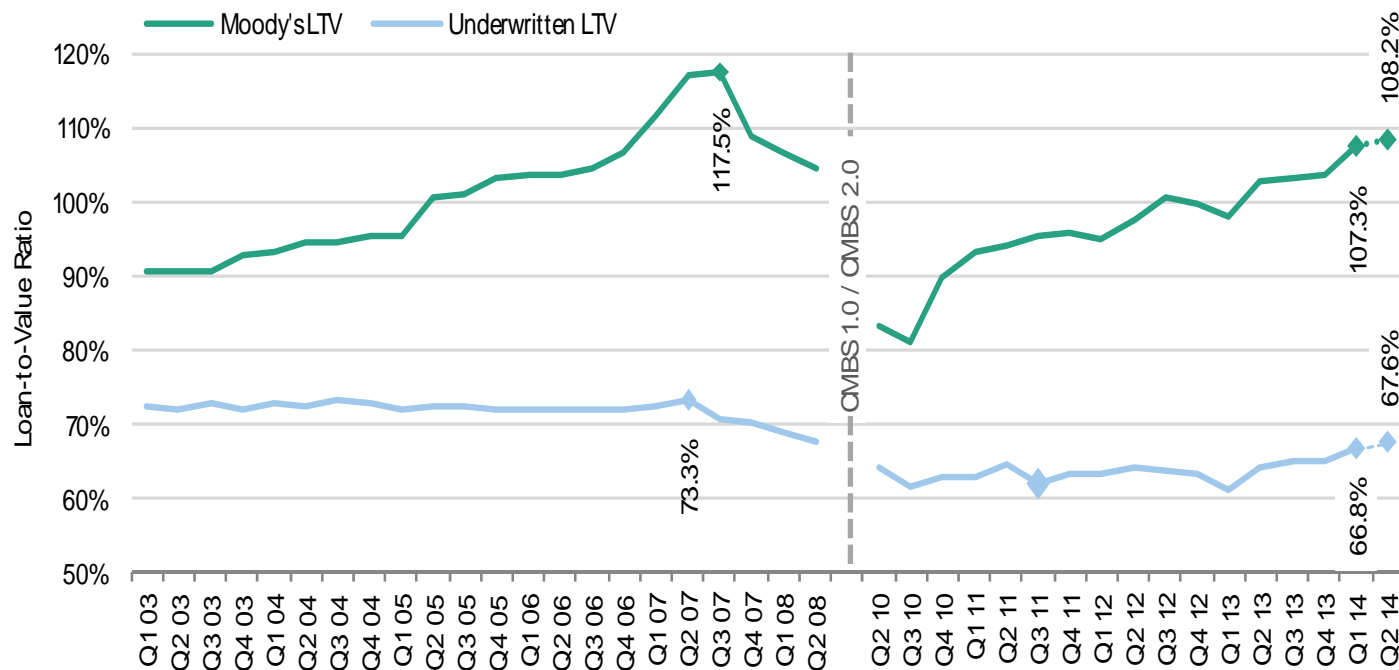
Source: Morgan Stanley (2005-2011 10-yr super senior Aaa (sf) spreads), Trepp all other)

2

How Good is the “V” in Your LTV Ratio?

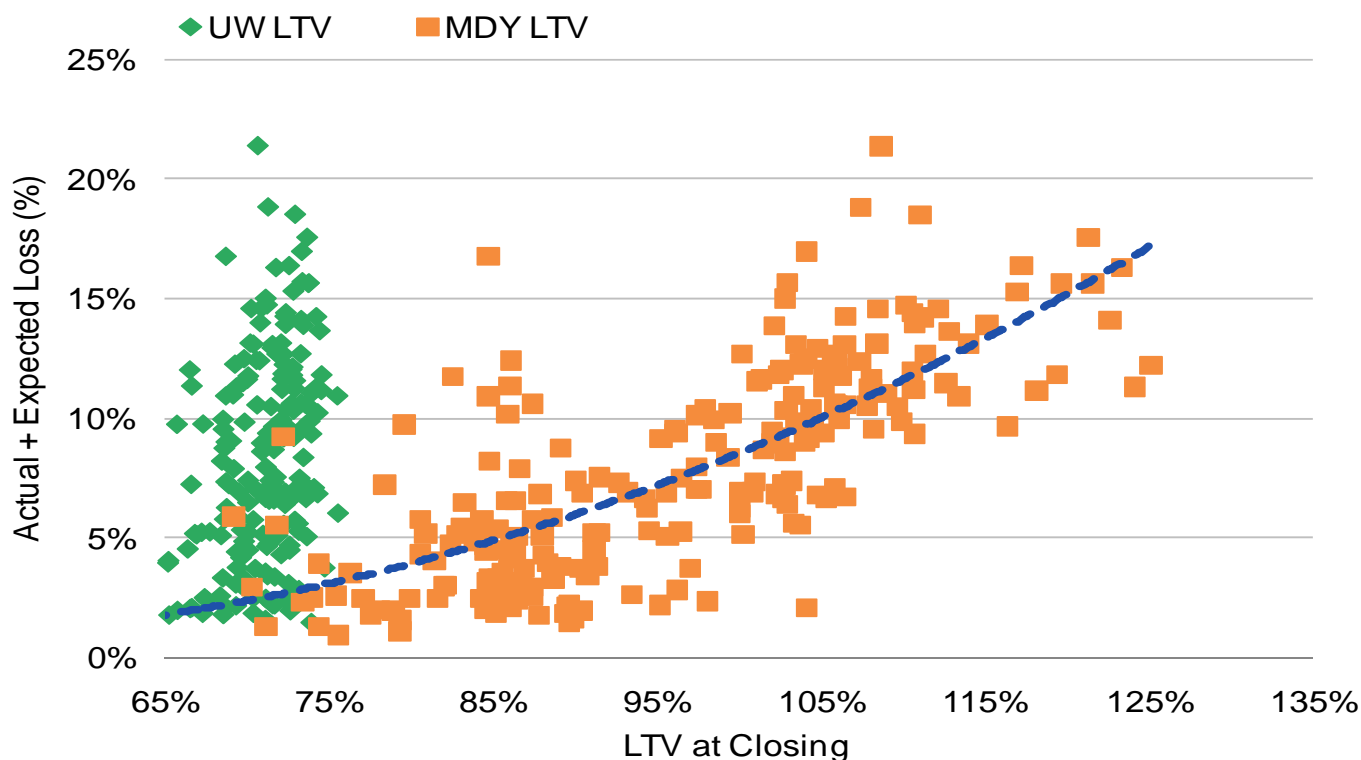
The “V” in Moody’s LTV Helps Flag Risk

- » Based on sustainable cash flow and through the cycle cap rates, it is a proxy for the “intrinsic” value available to support debt
- » The “V” from appraisals reflects point in time value, may not address cyclically high rents or low cap rates from a credit perspective



MLTV Correlated with Expected Losses Underwritten LTV had Little Explanatory Power

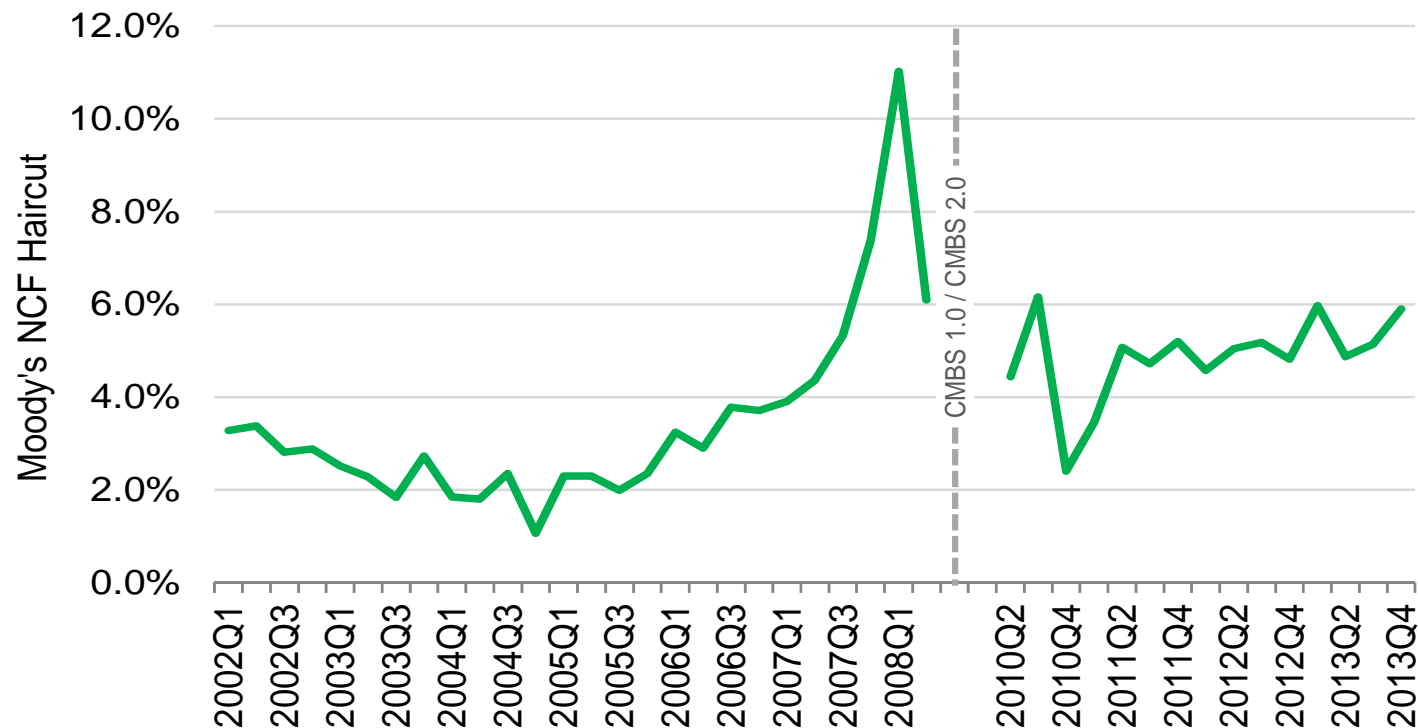
» Each pre-crisis deal is represented by two dots, a green diamond for its average underwritten LTV and an orange square for its average Moody's LTV



Source: Moody's Investors Service

Moody's Approach to Net Cash Flow

- » Uses rents and occupancy deemed sustainable, normalized cap ex and expenses
- » Identified increased use of *pro forma* underwriting at pre-crisis peak



Source: Moody's Investors Service

Moody's Cap Rates Help Address Refinance Risk

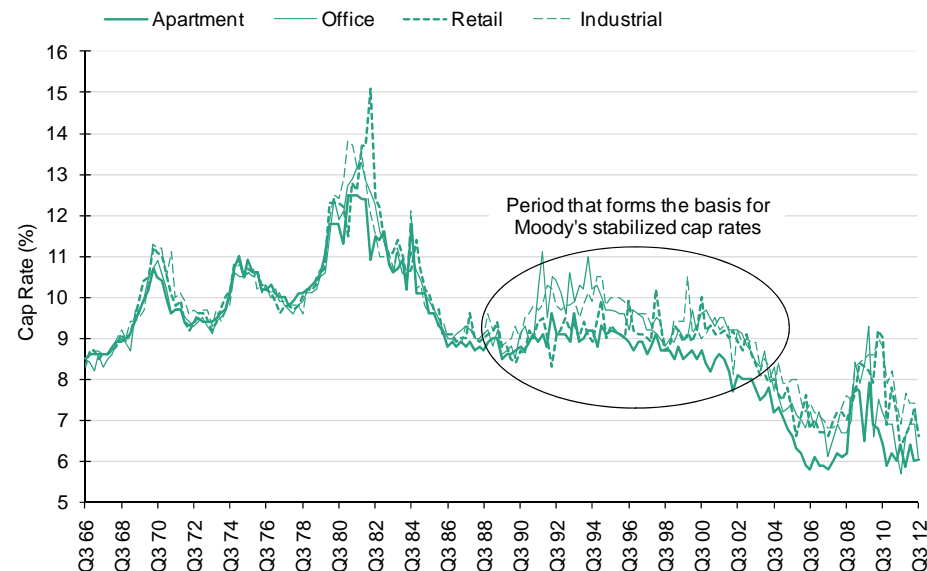
» Moody's Value vs. Market Value

- Moody's value approaches constant through cycles, differential to market value varies

» Process:

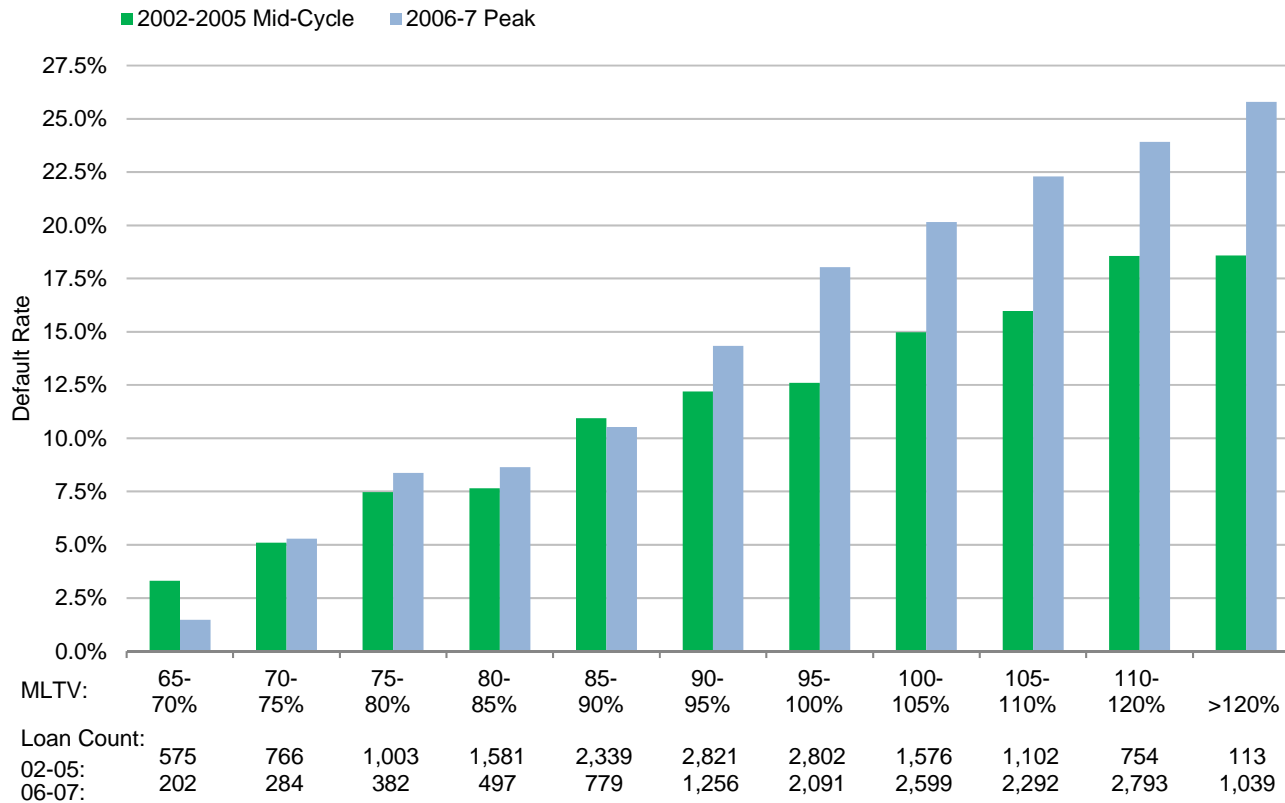
- **Property grade** assigned: based on number of factors, including location, tenancy, and the construction quality of the building
- **Moody's stressed cap rate** assigned: using long-term, historically stable cap rates
- **Moody's LTV** = Loan balance / (NCF / Moody's cap rate)

Property Quality Grade	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Multifamily	7.5%	8.0%	8.5%	9.0%	9.5%	10.0%	10.5%	11.5%	12.5%
Mobile Home Park	7.5%	8.0%	8.5%	9.0%	9.5%	10.0%	10.5%	11.5%	12.5%
Regional Mall	7.75%	8.25%	8.75%	9.25%	9.75%	10.25%	10.75%	11.75%	12.75%
Industrial	8.0%	8.5%	9.0%	9.5%	10.0%	10.5%	11.0%	12.0%	13.0%
Self Storage	8.0%	8.5%	9.0%	9.5%	10.0%	10.5%	11.0%	12.0%	13.0%
Anchored	8.0%	8.5%	9.0%	9.5%	10.0%	10.5%	11.0%	12.0%	13.0%
Office	8.5%	9.0%	9.5%	10.0%	10.5%	11.0%	11.5%	12.5%	13.5%
Mixed Use	8.5%	9.0%	9.5%	10.0%	10.5%	11.0%	11.5%	12.5%	13.5%
Unanchored	9.0%	9.5%	10.0%	10.5%	11.0%	11.5%	12.0%	13.0%	14.0%
Movie Theatre	9.5%	10.0%	10.5%	11.0%	11.5%	12.0%	12.5%	13.5%	14.5%
Assisted Living	9.5%	10.0%	10.5%	11.0%	11.5%	12.0%	12.5%	13.5%	14.5%
Full Service Hotel	9.5%	10.0%	10.5%	11.0%	11.5%	12.0%	12.5%	13.5%	14.5%
Limited Service Hotel	10.0%	10.5%	11.0%	11.5%	12.0%	12.5%	13.0%	14.0%	15.0%
Skilled Nursing	11.5%	12.0%	12.5%	13.0%	13.5%	14.0%	14.5%	15.5%	16.5%



Source: Moody's Investors Service

Moody's LTV – The Track Record So Far

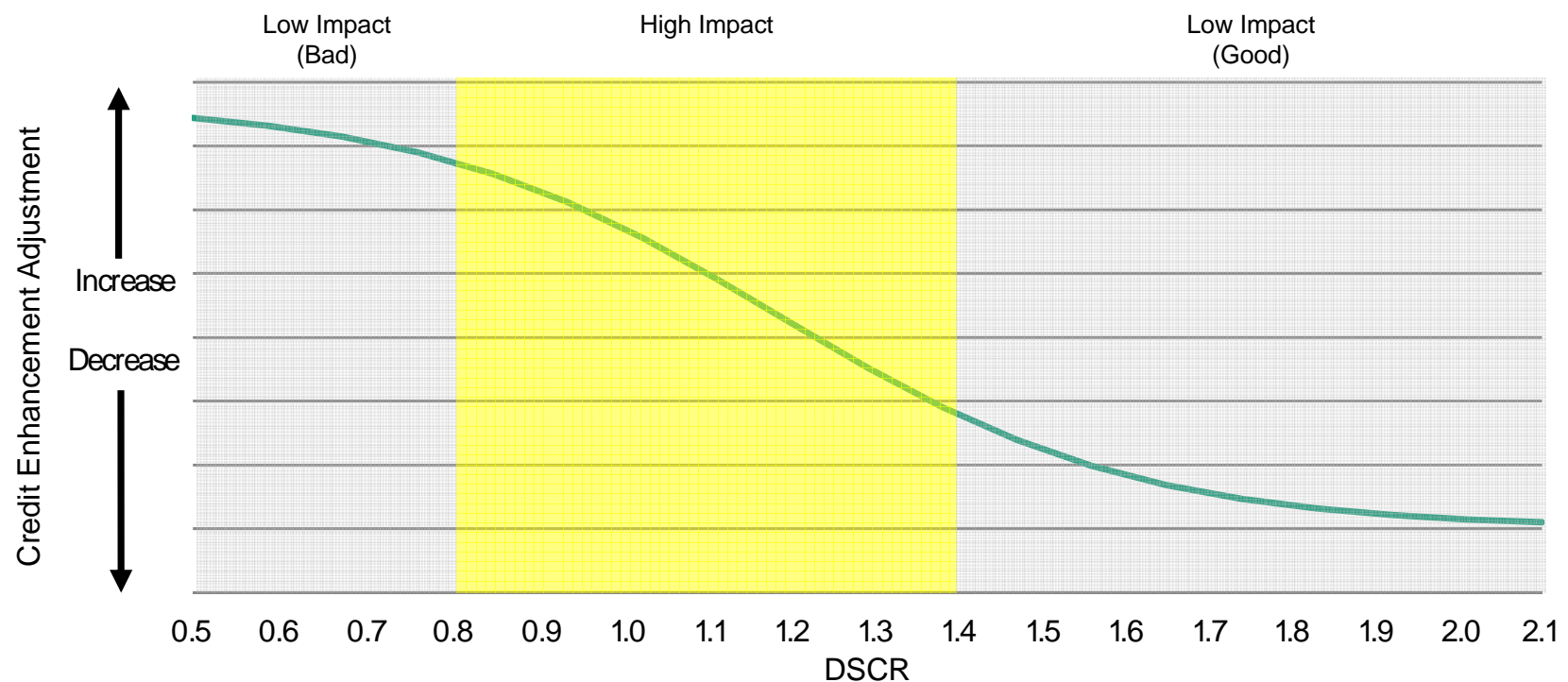


Source: Moody's Investors Service

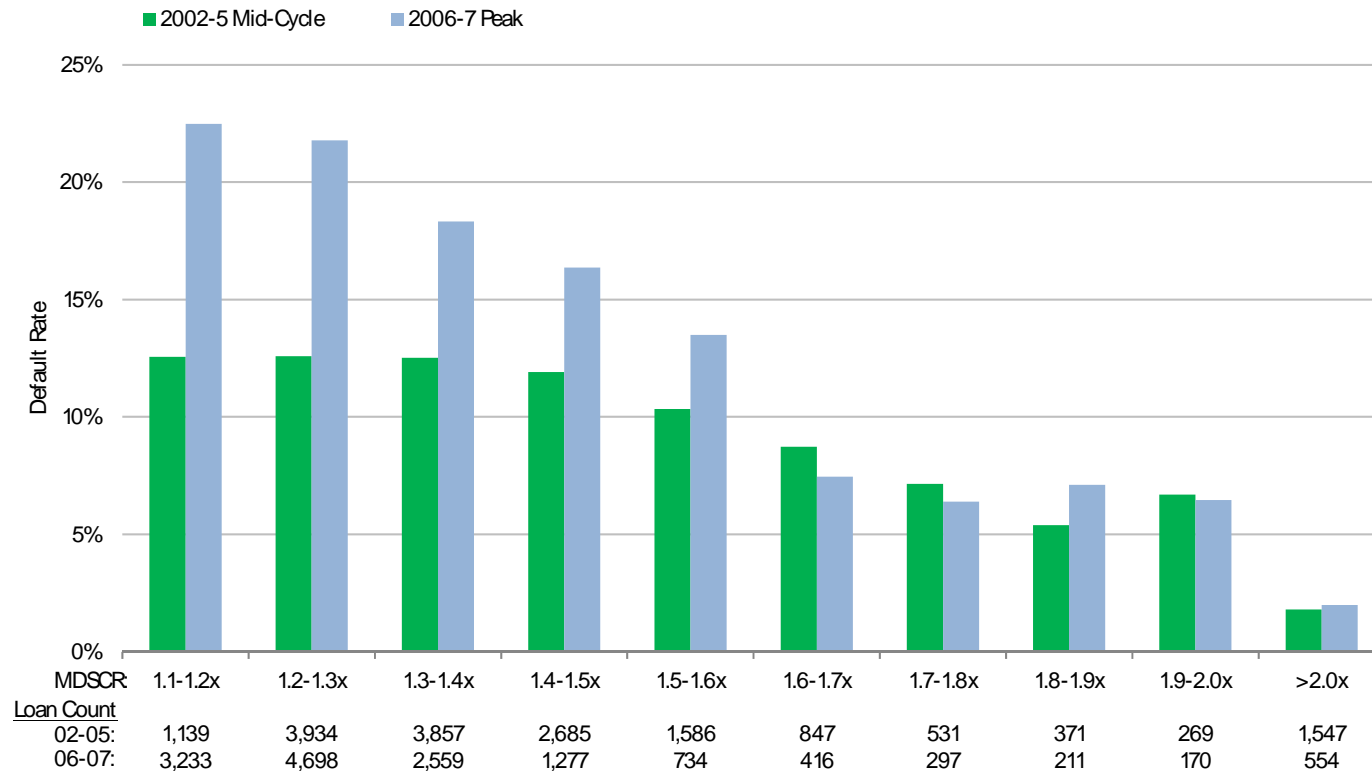
Moody's DSCR – Indicator of Term Default Risk

» Moody's DSCR

- Actual Moody's DSCR: based on Moody's Net Cash Flow and actual loan constant (P&I)
- Default curve has three distinct zones, no “cliff”



Moody's DSCR – The Track Record so Far



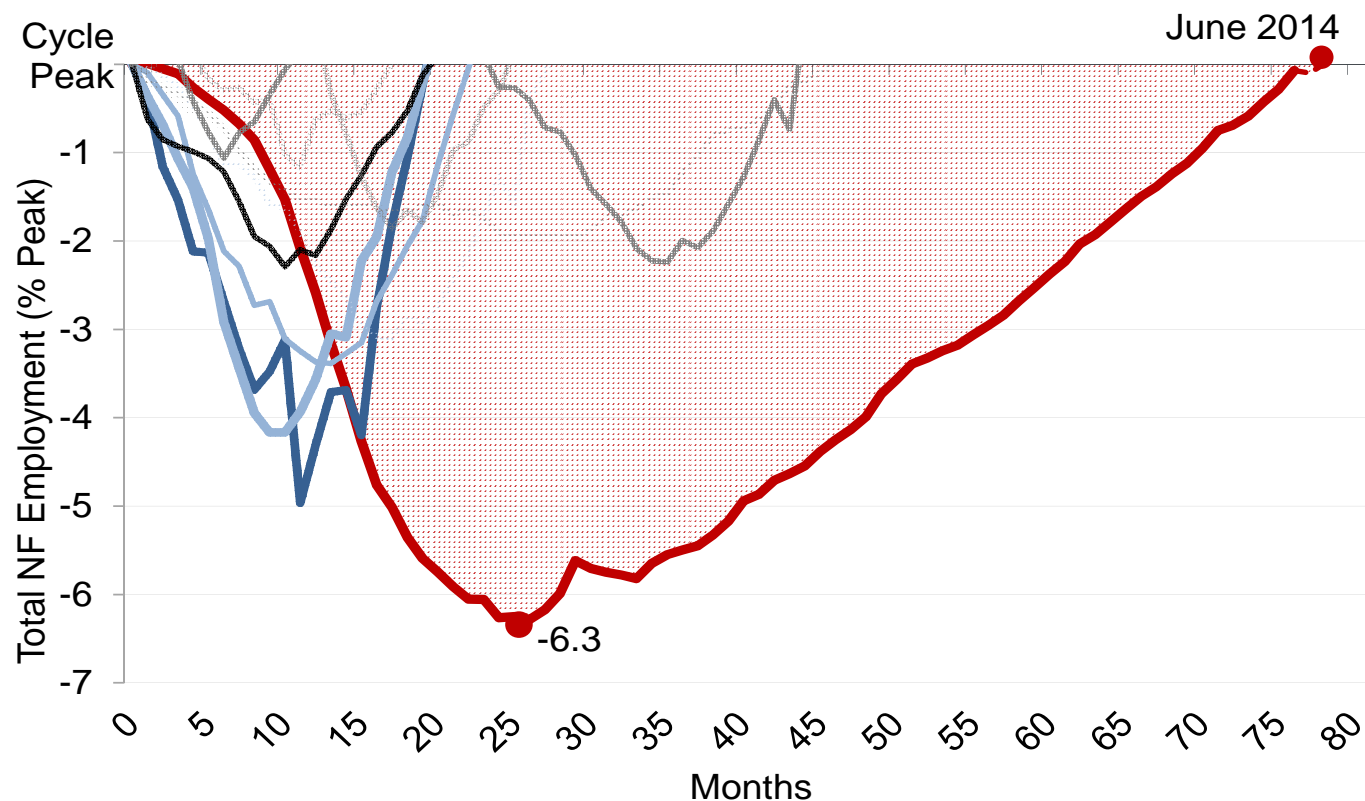
Source: MIS. *Note: Default rate excludes disposed loans with losses <2% of original balance.

3

Commercial Property Price Trends and CMBS Loan Performance

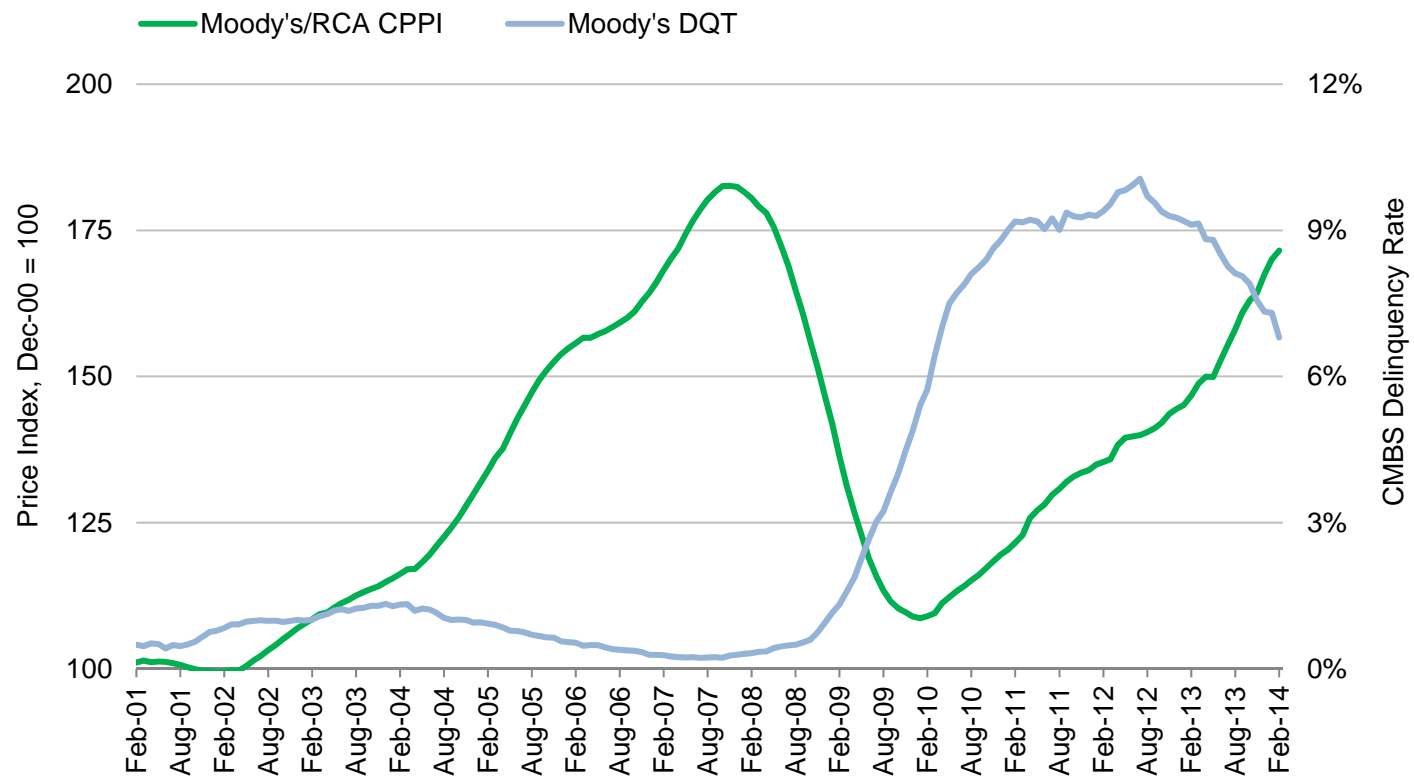
Post Financial Crisis Employment Recovery

- » Each line represents job loss and recovery in post depression era recessions
- » Financial crisis recovery the most protracted, only now nearing pre crisis levels



Source: Moody's Analytics, Federal Reserve Board

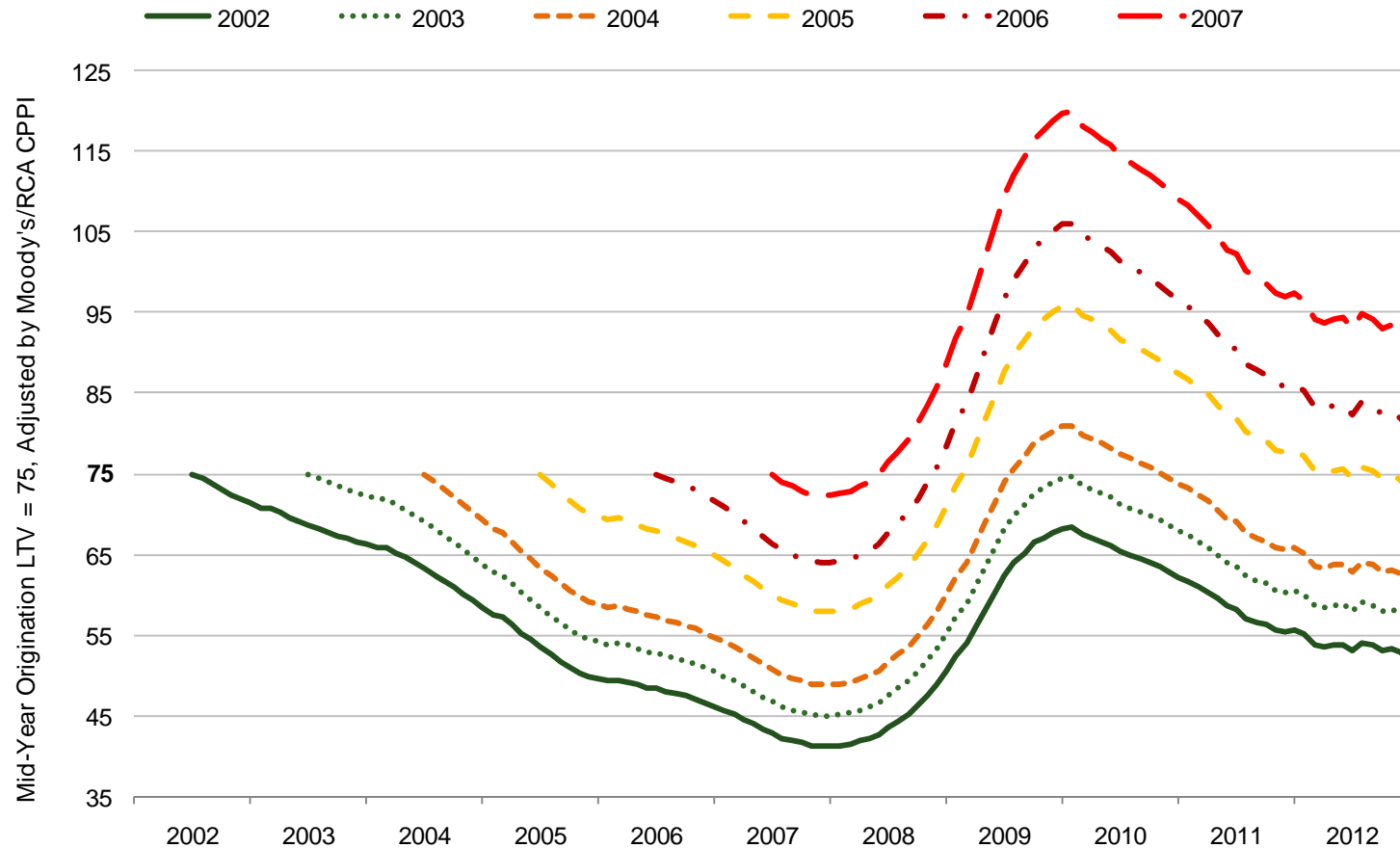
CMBS Delinquencies Rose as Property Prices Fell



Source: Moody's Investors Service, Trepp LLC, Real Capital Analytics, February 2014

Peak-Trough Price Decline Erased Equity Behind 75% Underwritten LTV Loans from 2006-2007 Vintages

» 2002-2003 vintages built substantial cushion during pre-crisis price appreciation

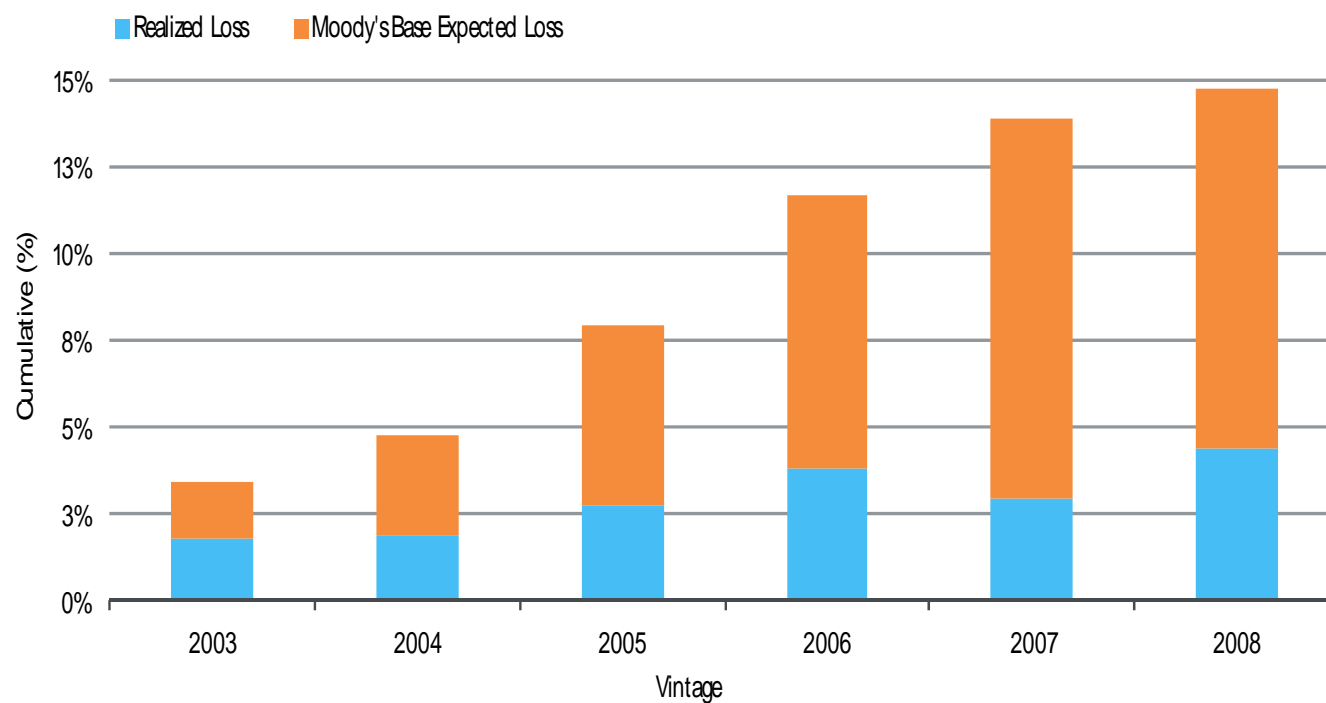


Source: Moody's Investors Service

Outlook for Losses By Vintage

- » Consistent with peak MLTV and CPPI, 2007-2008 vintages expected to realize biggest losses

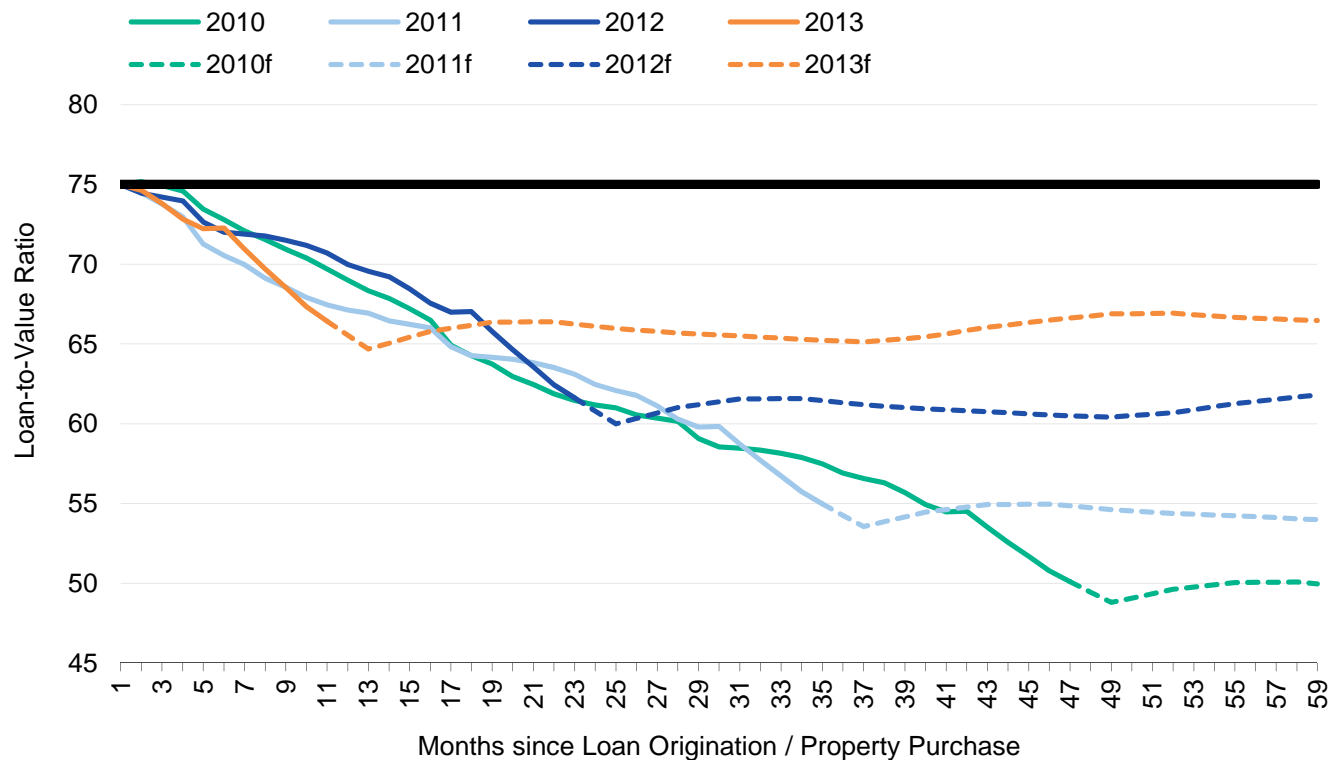
Realized Losses & Moody's Base Expected Loss by Vintage (Share of Original Balance)



Source: Moody's Investors Service and Trepp, LLC

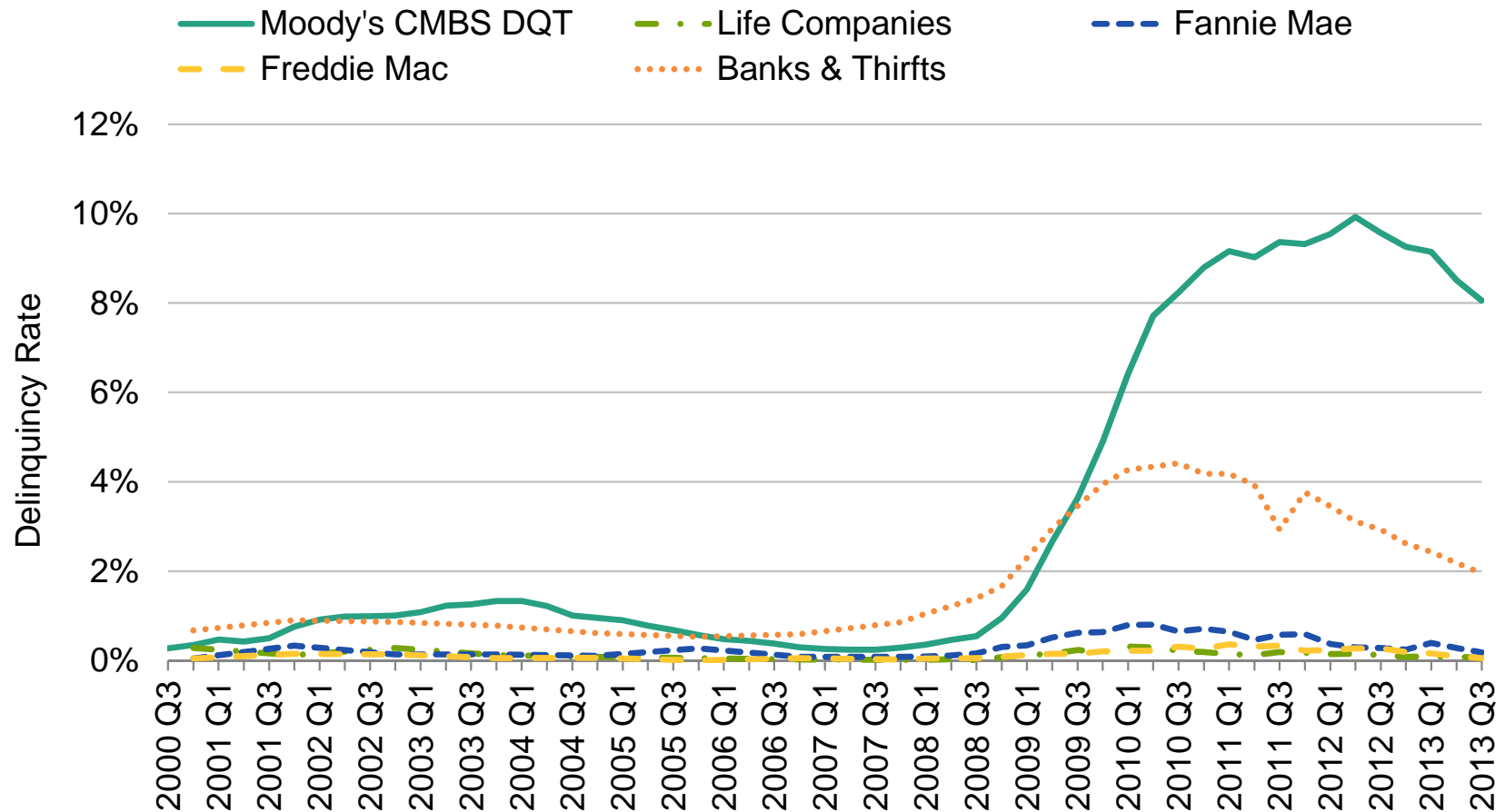
Post Crisis Vintage Loans Built Up Equity Cushions

- » Leverage profile of a loan originated at 75% in a given **post-crisis** year



Source: Moody's Investors Service, CBRE-EA.

CMBS and Bank CRE Loans Most Impacted By Crisis



Source: Moody's Investors Service, Trepp LLC, Mortgage Bankers Assoc

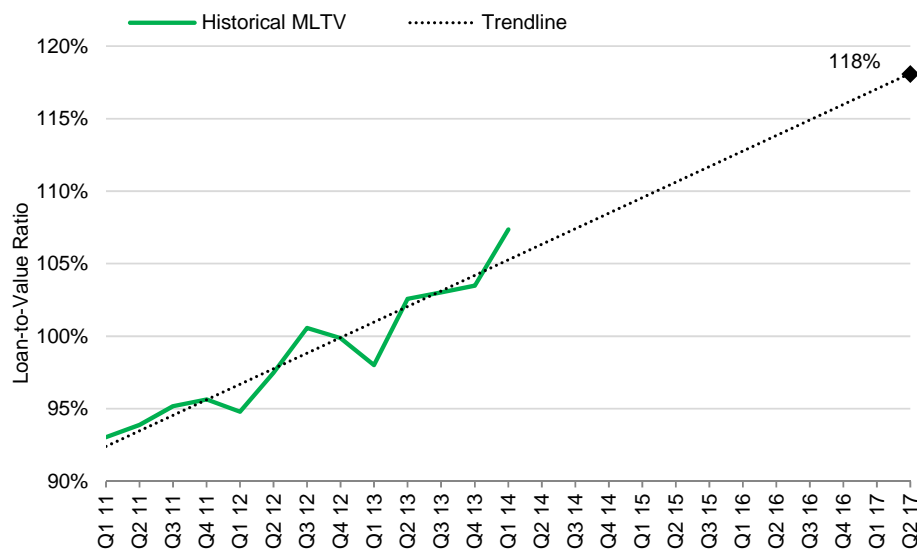
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Boiling Frog Syndrome

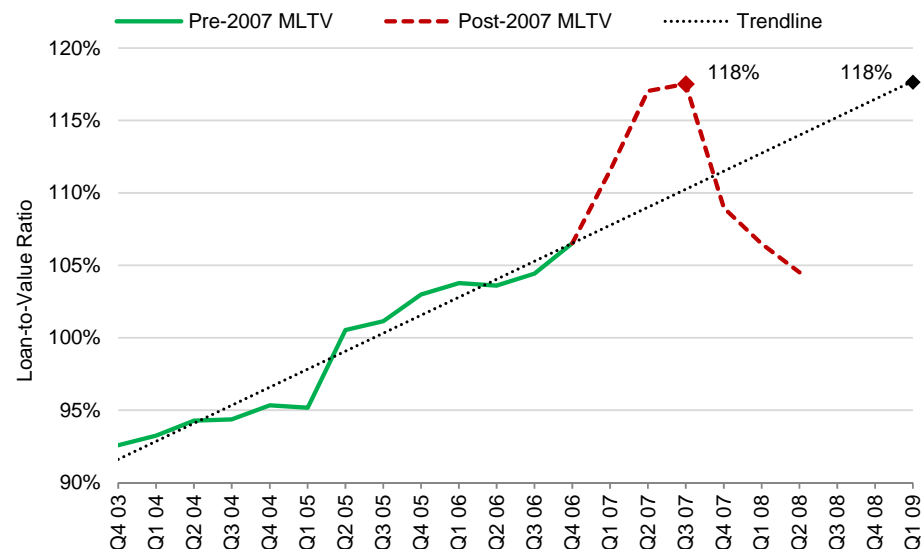
Boiling Frog Syndrome

- » Failure to react to gradual changes until unfortunate circumstances occur
- » The MLTV thermometer says the water is hot and getting hotter
- » CMBS loans will have pre-crisis peak MLTV in 2017, barring acceleration as in 2007

CMBS 2.0 – Trend Line for MLTV



CMBS 1.0 – Leverage Accelerated in 2007



Boiling Frog Syndrome

- » What will CRE capital market participants do THIS time?
- » Many intend to jump out just in time, but history suggests that few do

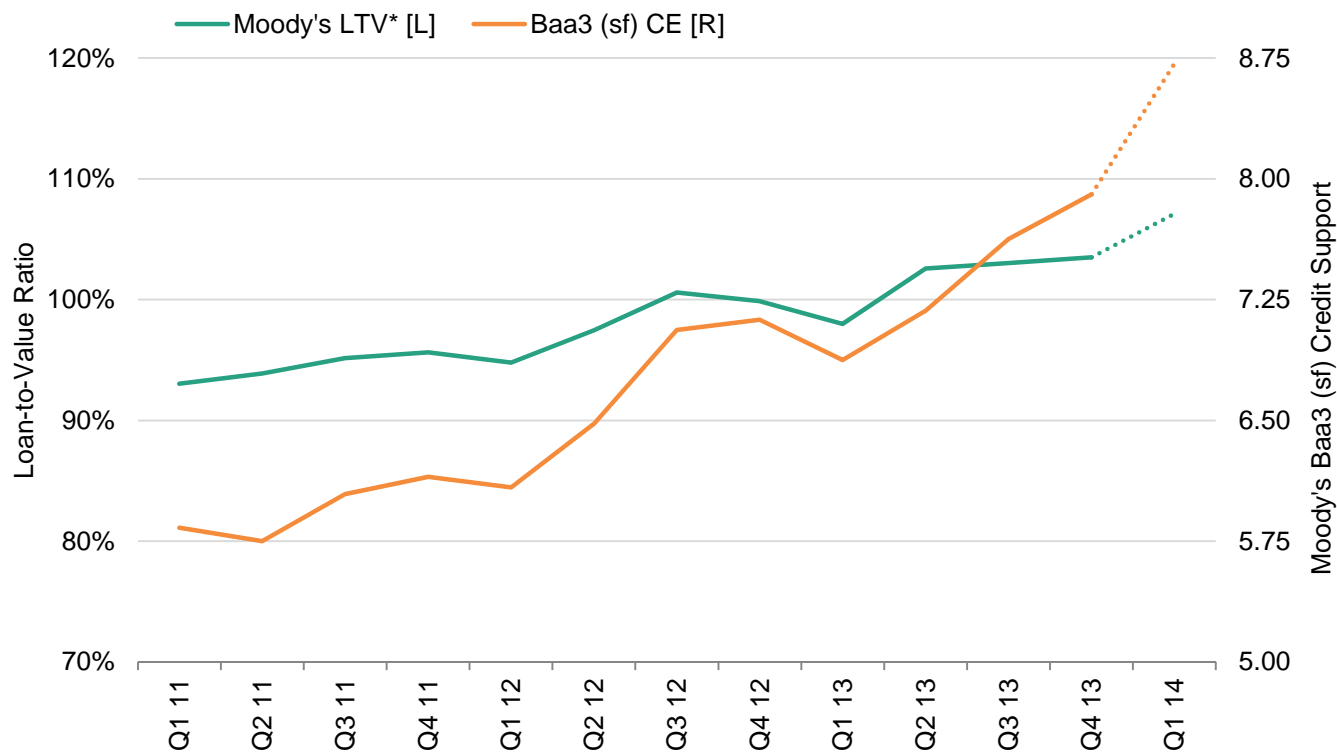
Equity Office/Blackstone



Most everyone else



Moody's Raising Credit Enhancement Levels in Response to Rising Credit Risk



Source: Moody's Investors Service