

# Managing Risk in Income Property Loan Portfolios

*Relative Index Methodology: A Proposal to Enhance Basel II Regulations on Income Property Lending and Assess Risk Positions in Income Property Loan Portfolios*

BY MARC THOMPSON, CRE, FRICS, CCIM

**Note:** *The views expressed herein are those of the author. They are not to be construed in any way as the views of Bank of the West or its senior management. This article was prepared by a practicing real estate finance banking professional for consideration by regulators, academics and real estate researchers to further develop, debate and possibly amend Basel II regulations to hedge speculation risk from real estate mortgage portfolios.*

## INTRODUCTION

The purpose of this article is to propose Basel II regulation to significantly reduce the risk of another real estate boom-bust cycle threatening the viability of the U.S. financial system. This proposed Basel II regulation identifies speculation risk and better manages portfolio risk using a relative index methodology within regulated financial institutions. The methodology could also be applied to Commercial Mortgage-Backed Securities (CMBS). The author contends that the recent boom-bust cycle could have been prevented through appropriate regulation and risk management.

## BASEL II: CORE COMMERCIAL BANK CAPITAL ADEQUACY REGULATION

Basel II is a worldwide regulation framework describing a comprehensive measure and minimum standard for capital adequacy that national supervisory authorities are now working to implement through domestic rulemaking and adoption procedures. Core banks (the biggest multi-national banks, e.g., BNP Paribas) must adhere to the highest standards and already began implementation as early as 2006. The U.S. officially adopted the framework into its regulation policy in April 2008, although banks have the option to adopt a less stringent standardized approach approved by U.S. regulators. The Basel II

implementation submittal deadline for review by U.S. bank boards of directors was Oct. 1, 2008. The approved Basel II implementation plan is to be implemented in a three-stage process over a three-year period, utilizing a parallel approach to the bank's existing risk management and capital adequacy measurements.

All multi-national banks are in the process of implementing the highly complex and advanced measurements of the Basel II regulations. However, Basel II may have a flaw that can be mitigated by U.S. banks and all banks governed under the Bank of International Settlements—using the CPI-adjusted TBI price value methodology. A similar type of price value index that tracks changes in prices on a quarterly basis could be created for all other countries. William M. Isaac,

## About the Author



**Marc Thompson, CRE, FRICS, CCIM,** has been a member of *The Counselors of Real Estate* for 11 years. He currently serves as senior vice president of Bank of the West, Walnut Creek, California, where he manages lending operations for senior housing and care properties. Thompson has served on many industry association boards and continues to be an active writer. He describes himself as a real estate investment risk assessment professional, and studies complexity science to enhance his understanding of complex systems, social networks and economics. Thompson has a master's in business administration and served as an adjunct professor of financial management studies at California State University, East Bay.

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chairman of the Federal Deposit Insurance Corp. from 1981–1985, explains its potential negative impact in an opinion piece published in the *Wall Street Journal* on Sept. 19, 2008, as follows: “Basel II requires the use of very complex mathematical models to set capital levels in banks. The models use historical data to project future losses. If banks have a period of low losses (such as in the mid-1990s to the mid-2000s), the models require relatively little capital and encourage even more heated growth. When we go into a period like today where losses are enormous (on paper at least), the models require more capital when none is available, forcing banks to cut back lending.”

Mr. Isaac certainly understands regulatory changes and its impact on lending markets. Once the probability of loss and loss severity estimates are set for income property in all institutions, the Basel II regulated financial institutions will pursue those lending opportunities that best fit its credit risk profile. Most likely, a herd mentality will cause bank officers to seek those opportunities identified as lower risk. Such behavior would lead banks to overshoot the market, creating market speculation risk leading to higher realized loan defaults and losses than would otherwise be projected, based on historical loan default and loss data. If the credit decision process becomes more systematic and complex, the system will create its own systemic credit related losses—perhaps with a worse outcome than exists today.

At HSH Nordbank, a Basel II Risk Adjusted Return of Capital (RAROC) system was implemented between 2005 and 2007. As RAROC was applied in practice at the field level, it may have been manipulated to meet loan underwriting and management goals. In addition, RAROC did not factor into its system a relative index methodology to determine how much market speculation risk it was taking on the collateral for its loans at the high market price levels. This version of RAROC did not manage risk but proliferated the taking of more risk since it applied a system-dependent risk management evaluation as opposed to a more simplistic inflation-adjusted relative index methodology. What financial institutions do not need today is more complex regulatory processes and procedures that may result in less control over their destiny. If the president of the bank does not understand how the capital allocation system works within his/her own bank, this regulation policy is prone to engender systemic losses, loss of control over its performance and increase the probability of bank failure.

Another major potential issue related to Basel II is that capital will be allocated within banks on the probability of loss and loss severity on a specific asset class as experienced by the entire industry. It does not reward those financial institutions that, due perhaps to conservative underwriting standards, experienced a better default and credit loss recovery than the average financial institution.

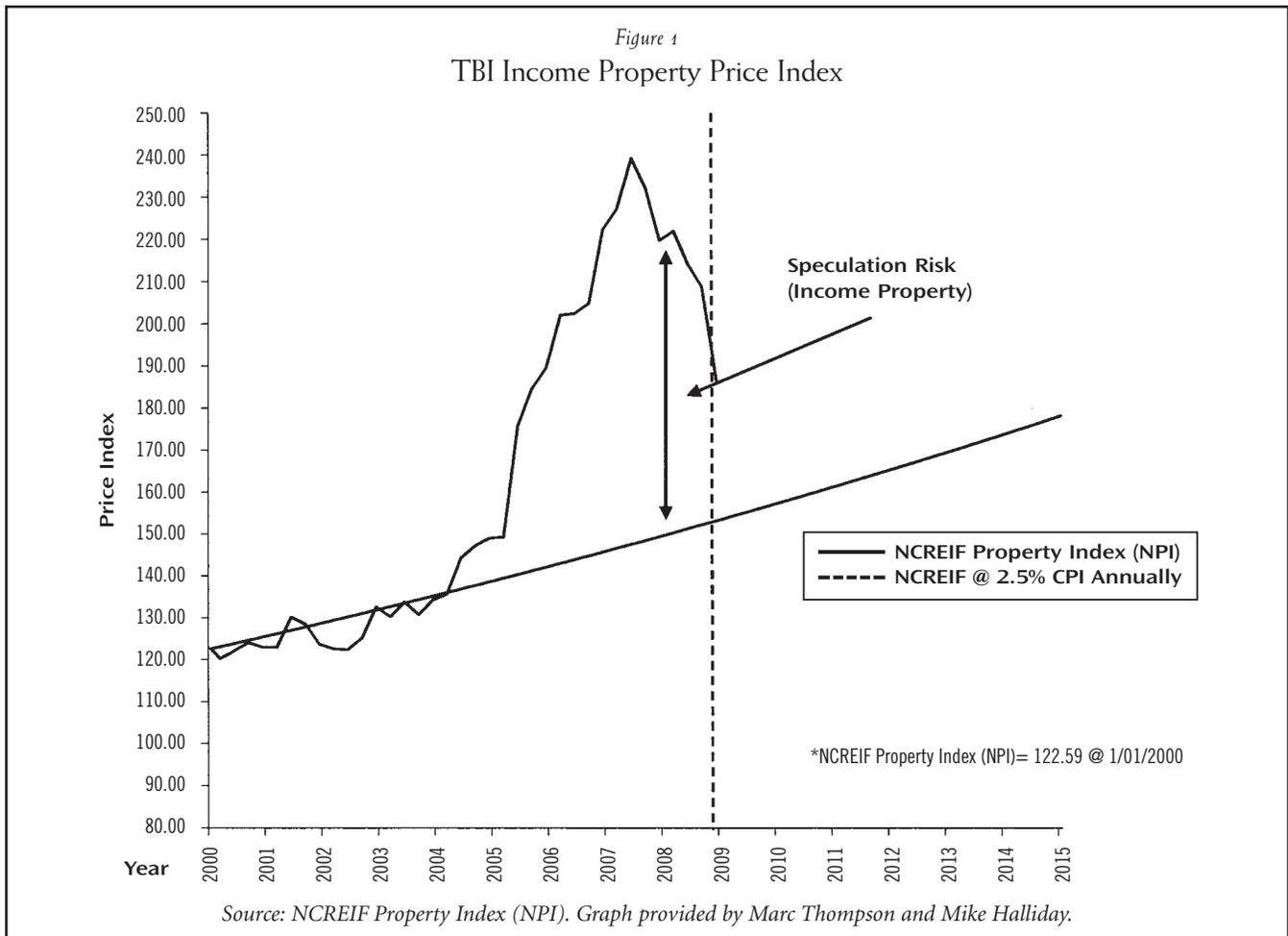
A commercial bank’s incurring a high probability of loss and loss severity on real estate loans is not a sustainable and viable function of its business model. One enhancement of Basel II policy would identify market speculation risk in new loan applications and existing income property loan portfolios via a relative index methodology. This relative index methodology would create a lending system that identifies all lending risk simply and transparently enough to be relatively easy to implement and regulate. Such a methodology should provide a higher degree of confidence to the marketplace by reducing the probability of loss and loss severity on loans originated by worldwide regulated institutions.

A major advantage of the spirit of Basel II is that this worldwide commercial banking regulation proposed by the Bank of International Settlements is adaptive to product and system innovations. Basel II has introduced the use of Advanced Measurements Approaches for capital adequacy regulation and risk management. The relative index methodology proposed for incorporation with Basel II regulation was developed to appropriately assess the probability of loss and loss severity in existing income property loan portfolios. This relative index methodology also will help investors and credit rating agencies to correctly determine risk ratings within tranches of CMBS issuances for each vintage year.

### DEFINING MARKET SPECULATIVE RISK AND RELATIVE INDEX RISK

This article defines “market speculative risk” and “relative index risk” on income property real estate investments. A previous article by this author in *Real Estate Issues*<sup>1</sup> explored why the credit rating agencies, conduit underwriters, investment banks, commercial banks and investors “did not know what they did not know” in assessing probability of loss and loss severity to determine the appropriate amount of leverage and tranche amounts in CMBS loans from 2004–2007. The objective of this article is to restore confidence in both commercial banks and CMBS investors, and thus restore the non-functioning banking and CMBS markets to healthy and growing lending markets.

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The U.S. has gone through an interesting period in which investors purchased a variety of “innovative” types of debt securities. Income property investors were caught up and benefited from it, as did commercial banks and other financial intermediaries. Although the CMBS system has its flaws, including missed risk assessments by credit rating agencies, conduit loan underwriters, investment banks and investors, it can be fixed with the appropriate use of the proposed CPI-adjusted relative index approach. This methodology combines an index, such as the MIT Center for Real Estate Transactions-Based Index (TBI),<sup>2</sup> proposed underwriting policies, five-year minimum time scales and an oversight board. Adding a relative debt service constant index to assess market speculation risk provides stability to the country’s financial system. Within the next three to five years, CMBS issuances in the 2005, 2006 and 2007 vintages will be subject to probability of loss risks in the 23–34 percent range. It is possible to hedge risks that are well identified.

It is expected that the thesis, recommendations and probable loss estimates described here will be controversial to many credit rating agencies, investors, lenders and bank regulators. It is important to be aware of the potential ramifications of implementing this relative index methodology in CMBS pricing and, for that matter, the estimated value of most debt secured by income property on the balance sheets of commercial banks. The bubble, or over-leverage, can be estimated to be \$750 billion to \$1.1 trillion on the loan underwriting amount on income property debt held by all financial intermediaries and investors. If this relative index methodology were applied to single-family mortgage portfolios, the impact would be much higher, given that the scale of that debt bubble is \$3.5–\$5 trillion.

Although the implementation of a relative index methodology would be negative to the economy, if fully integrated as a regulation today, it would best be

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integrated gradually and phased into Basel II regulation for U.S. banks over a three-year period. At the end of this period (Jan. 1, 2012), the negative impact should not be as severe and would provide a discipline for lending from that time forward. Although the over-leverage bubble estimates stated here may be high, the estimates of probability of loss and loss severity using a relative index methodology on real estate secured portfolios are sound and will stand the test of time.

### RELATIVITY TO INDEX VALUE METHODOLOGY DEFINED

One of the critical reasons for error in assessing probability of loss and loss severity by the credit rating agencies is that the agencies are conditioned by the U.S. capital markets to assess all types of risk on varying investment classes on both a quarter-over-quarter and year-over-year time scale. But, the overall risk in providing debt on income property real estate can be assessed only in longer time scales. As a consequence of not incorporating a longer time scale in CMBS overall risk assessment models, the probability of loss and loss severity on income property portfolios is likely far greater than credit rating agencies have concluded. This has serious consequences for the U.S. and world economies for years to come. Real estate cycles are much longer than other investment cycles, such as those for the more liquid stock and bond investment segments. Because of this time issue and the enormous amount of over-leveraged real estate in the U.S., in a best-case scenario, U.S. income property real estate prices, in aggregate, will begin to appreciate in 2015. It will take at least that long to clear the market of over-leveraged real estate; for loan foreclosures that depress prices to cease from occurring; and for lenders to once again become confident about lending in mass. This assumes collateral deflation risk has dissipated from the markets. If inflation rapidly increases within this period, recovery could come sooner than 2015.

In the meantime, the U.S. and world economies must develop a Basel II regulation that mitigates the likelihood of another real estate bubble and bust. The following sets forth the case for a CPI-adjusted TBI price value methodology regulation to be phased into Basel II regulations from Jan. 1, 2009 through Dec. 31, 2011, and to be fully implemented beginning Jan. 1, 2012.

### THE MISSED ASSESSMENT OF MARKET SPECULATIVE RISK

In the context of this article, speculation risk can generally

be defined as the type of risk in a market segment taken by participants in anticipation of pricing above the CPI inflation rate. Generally, speculative risk was taken by investors in first lien mortgages without their knowledge since credit rating agencies had not uncovered it. If prudent underwriting criteria using a CPI-adjusted TBI price value methodology had been followed to uncover such exposure, the risk of owning first lien mortgages would have been mitigated. Speculation risk should be taken only by equity investors or by unregulated debt providers.

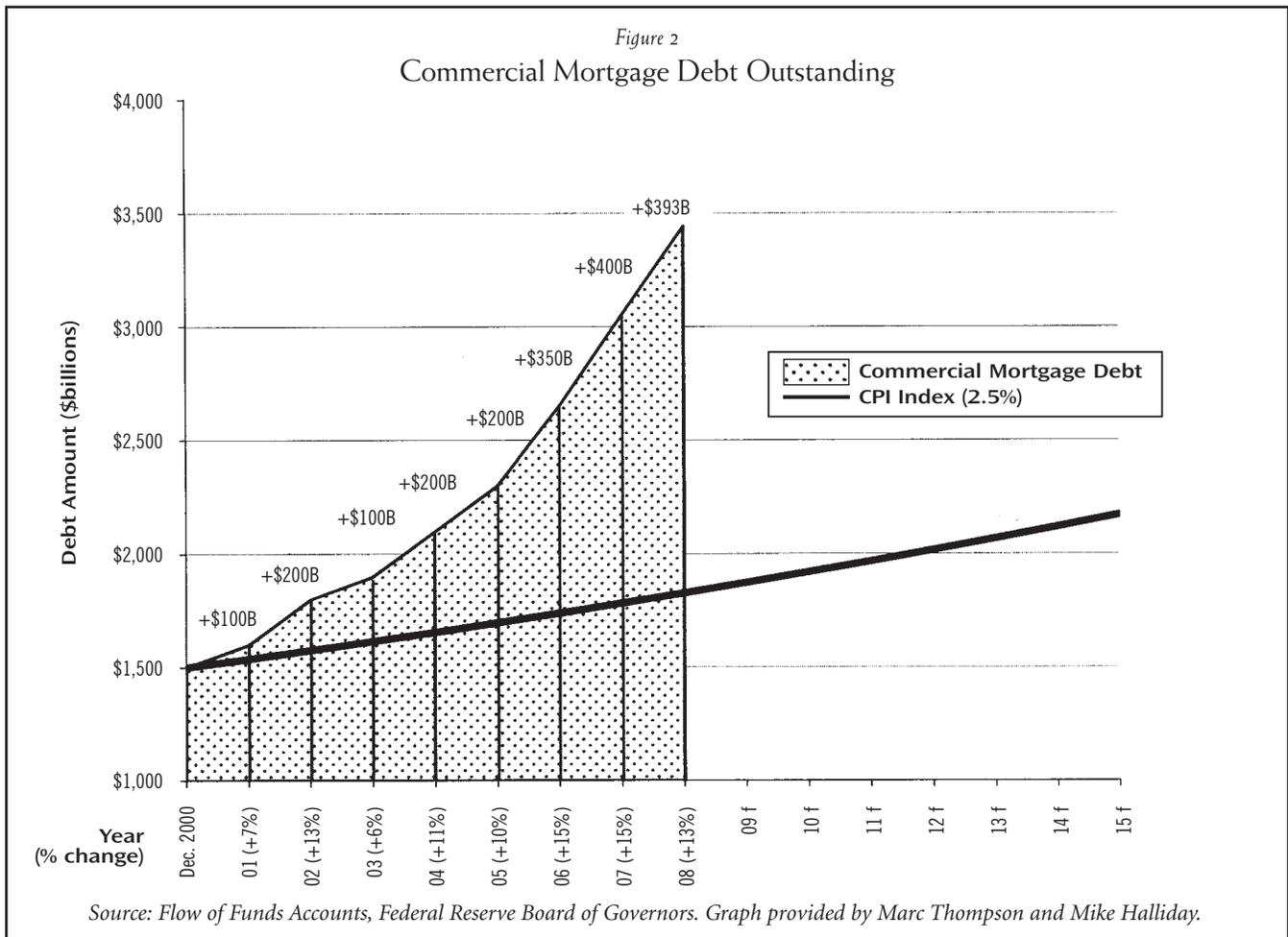
With this general description of speculation risk in mind, the biggest threat to the CMBS market is the missed assessment of speculation risk on CMBS issuances over a six-year time period (2002–2007) by the credit rating agencies, conduit underwriters, investment banks and investors. Using the TBI as a basis for analysis, it appears there was a significant error rate in risk models used to assess probability and severity of loss, with the most severe error rates beginning in the CMBS origination years of 2005–2007, when CMBS issuance reached unprecedented levels.

There were a number of factors contributing to growth of high speculation risk in income property loans, with the most prevalent being systemic “hustle and flow” CMBS conduit loan production processes. The result was easy and low-cost loans that artificially increased income property values in the high CMBS issuance years of 2004–2007. This artificial increase in income property values created high speculation risk positions on permanent loan portfolios. CMBS debt increased an average of 28 percent after 2002. Given this CMBS growth, banks also inflated lending amounts for income properties on their balance sheets. Speculation risk should be appropriately recognized and removed from non-recourse permanent long-term income property lending with an equivalent AAA probability of loss and loss severity credit rating.

### MIT CENTER FOR REAL ESTATE TRANSACTIONS-BASED INDEX (TBI) PRICE INDEX

The TBI is a quarterly measure of private market transactions—mainly by private and public pension funds—on income property real estate, and is based on data received by MIT on a quarterly basis from the National Council of Real Estate Investment Fiduciaries (NCREIF). NCREIF requires members to contribute transaction information (for various income property types, bought or sold) and valuations prepared either internally or externally, on a quarterly basis. The TBI is based only on the transactions

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data supplied by the NCREIF members. However: “The TBI is a hedonic price index that uses the recent appraised values of the properties as a composite hedonic variable. Appraisals are used only to control for cross-sectional differences in properties, not to influence the longitudinal price changes tracked by the index. The TBI price index represents movements in transaction prices in closed deals in the market.”<sup>23</sup> MIT Center for Real Estate (MIT/CRE) indicates that the TBI can often provide a more up-to-date or precise picture of movements in the real estate market than other types of commercial real estate indices, and is being provided for research purposes by MIT/CRE as a service to the industry and academic research communities. For these reasons, the TBI price index is applied to determine relative TBI price values against a CPI-adjusted TBI price value on a quarterly basis. The product types included in the TBI index are office, retail, hotel, warehouse/industrial and multi-family.

The formation of the NCREIF index was begun in

January 1977 by pension consultant Frank Russell Company, and reached its current form on Jan. 1, 1995. NCREIF’s data contributing members are among the nation’s largest public and private pension funds. They report combined portfolio assets of nearly \$1.0 trillion.

For our purposes, TBI price value changes begin after January 2000 and are relative to the CPI-adjusted TBI price value of 120 as of that date. The TBI price value of 120 is inflated by an average estimate of CPI of 2.5 percent from January 2000 through Q3 2008. For example: if the TBI price value is 219 for office buildings in the San Francisco MSA in December 2007, the prices for similar office buildings in this MSA increased 99 percent since January 2000. On a quarterly basis, MIT/CRE provides a TBI report indicating the changes in various income property prices from the previous quarterly reporting date. For example: the MIT/CRE Web site reported 4Q 2008 results that show a 10.6 percent decline in prices compared to the previous quarter for

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properties sold from the NCREIF database, placing the price index 21.9 percent below its 2Q 2007 peak. MIT/CRE advises users to consult the Moody's/REAL Commercial Property Price Index for quarterly sectoral index updates based on a larger property population since the NCREIF database limits its data gathering to only institutional owners of income property.

**Note:** The Moody's/REAL index was not available for review for consideration as a primary source of data in the proposed relative index methodology for lending regulation purposes. Given this index's broader scope, including the NCREIF database and other transaction databases, it might prove to be an index more reflective of price changes in various product types within more MSAs. However, like Standard & Poor's SPCREX index which possessed these broader database qualities, Moody's may choose to no longer support its income property price index. NCREIF appears to be the only income property database that stands the test of time, independent from commercial interests, and independent from ownership interests that may influence quality and sustainability over time.

### CPI-ADJUSTED TBI RELATIVE INDEX VALUE DEFINED

An "advanced measurement risk management" approach in Basel II regulation monitors the CPI-adjusted TBI relative price value against actual sales prices to help determine speculation risk in the market. It provides a basis to lend on a specific property based on its value given the CPI-adjusted TBI relative price value on January 2000. The value of a specific property can be adjusted to the date of the loan risk assessment date or lending date.

The variance between these two value measurements of actual price relative to CPI-adjusted TBI relative price value can be considered speculation risk. This risk can be shifted to investors buying at prices above the CPI-adjusted TBI relative price value for the property type calibrated for quality, location and amenities from 2000, adjusted to the date of the loan application. In the proposed regulation, the buyer would be required to invest more equity capital into the price above the appropriate CPI-adjusted TBI relative price value, as determined by a trained appraiser using this methodology. The value of the property may be higher than the CPI-adjusted TBI relative price value, but the U.S. financial system would not incur significant additional market speculation risk or the negative consequences of a bubble in prices and leverage such as that observed in the income property markets. By

applying this CPI-adjusted TBI relative price value methodology, the amount of debt on income properties would not rise to potentially high bubble market levels. Debt levels would only increase at the CPI-adjusted TBI relative price value levels beginning from the base of Jan. 1, 2000. In times of excess demand for property and prices above the CPI-adjusted TBI relative price value, the loan amounts available for purchase financing would be only those at the CPI-adjusted TBI relative price value amount. For example, if CPI is 2.5 percent and the property value has increased 10 percent per year for the past three years, the price above the CPI-adjusted TBI relative price value would be contributed by an income property investor as cash equity or possibly by debt provided by a non-regulated financial intermediary.

### TBI PRICE VALUE OBSERVATIONS

Extensive examination of the probability of loss and loss severity risk on specific income property loans suggests that CMBS loans were erroneously underwritten above the CPI-adjusted TBI relative price value of 120 beginning in January 2000 through 2007. This has led to the following:

1. Values of commercial real estate from 1996 (when the market improved for virtually all parts of the sector) through March 2001 (when the dot-com boom ended) experienced a significant run-up in year-over-year relative prices. Most income properties peaked in price level in January 2001. Therefore, the base Jan. 1, 2000 CPI-adjusted TBI price value of 120 included most of these already historically high income property prices. Paradoxically, national TBI price values relative to income property prices continued to remain stable through 2003 and began aggressively increasing beginning in 2004 through 2007, even though rents had not yet reached the previous TBI price value peak of January 2002.
2. In 2006, income property rents had only begun to approach the highs of January 2002 in some MSAs, and in many other MSAs and product types, rents continued to remain below 2000 and 2001 levels, yet net operating income available for debt service had declined because of rising expenses at or above the CPI.
3. Among all property types from 2002–2007, CMBS loans were being underwritten more aggressively, with a high reliance on the market comparable approach to value. This valuation methodology utilized capitalization rates that dropped 280 basis

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points on average on all product types from 2002–2006. In addition, CMBS loan underwriting reflected the lowest interest rates in 40 years.

4. CMBS conduit loan production grew rapidly during this time, increasing from \$94 billion in 2004 to \$202 billion in 2006. In 2007, prior to the collapse of the CMBS market beginning in August, CMBS issuances were more than \$230 billion.
5. With high CMBS growth rates and increased competition among CMBS conduit lenders and commercial banks, underwriting standards deteriorated. This continued a “hustle and flow” loan production process driven by fee generation. An example of lower underwriting standards is the high (57%) interest-only composition of all outstanding CMBS loans as of June 30, 2008. These interest-only loans have no amortization for the entire term, or amortization begins to occur at a future date prior to the maturity date of the loan. In 2007, 86 percent of all loans originated in CMBS had interest-only payment features.

These systemic income property inflation patterns indicate significant price deflation risk in almost all property types in almost all MSAs beginning in 2008, and likely continuing for many years. Had not interest rates dipped to a 40-year low and aggressive loan underwriting not taken place, income property values would have increased much more in line with CPI-adjusted TBI price values during the period beginning in January 2002.

If the index methodology described below had been used by credit rating agencies, conduit loan underwriters, investment bankers and investors in their modeling to hedge year-over-year systemic market speculation risk, the existing high leverage in CMBS 2004–2007 vintages would not have occurred. In fact, the real estate debt bubble and consequent worldwide financial system risks might not have occurred.

### THESIS: CPI-ADJUSTED TBI PRICE VALUES

Income property TBI price values since January 2000 is referenced to begin at 120. The TBI price values rose to a high of 239 as of June 30, 2007, or 119 percent in a nearly eight-year period. By comparison, the TBI price value in 1Q 1984 was 103. It wasn't until 2Q 1997 that the TBI price value again reached 103—a 13-year span. Based on the above observations of the market, there is significant risk of deflation or reversion to the TBI price value of 120, adjusted by the CPI year-over-year rate from the January 2000 start date. However, this does not necessarily indicate

the reversion will naturally go back to the CPI-adjusted TBI price value line. Depending on the rate of inflation, the vacancy rate in a market, the unemployment rate and amount of devaluation of the dollar, the TBI price value could be higher for a specific property if the optimal conditions for each of these factors occur at the same time.

It is difficult to predict the future. However, in reflecting upon the past, and given the conditions in the market since January 1984 and the data available for review from the MIT Center for Real Estate Web site, it makes sense, for risk analysis purposes, to inflate the TBI price value at CPI, given that all long-term leases are also inflated at CPI. Thus, the 1Q 2000 TBI price value of 120 is inflated at a 2.5 percent annual rate through the end of 2008, resulting in a CPI-adjusted TBI price value of 146.

### TWO EXAMPLES OF HOW SPECULATION RISK IN INCOME PROPERTY LOAN PORTFOLIOS ARE PROPOSED TO BE ASSESSED

#### ONE: RELATIVE INDEX METHODOLOGY

To determine the market speculation risk and the resulting probability of loss and loss severity embedded in specific CMBS loan vintages or within bank portfolio origination years, the TBI price value on the collateral for the income property loan originated at the peak of prices in June 2007 can be adjusted as follows:

1. The inflation-adjusted index value from the base year of 2000–2008 is 146.
2. Reducing the TBI price value of 239 in December 2008 from the CPI-adjusted TBI price value of 146 for Jan. 1, 2009, results in a preliminary estimate on a TBI price value basis of market speculation risk of 93.
3. Reduce the estimated inflation-adjusted index value of the property by 20–25 percent to account for the investors' equity contribution.

Example: More simply put, think of the TBI price value as a square foot value in the following example:

1. A retail property was financed in June 2007, based on a purchase price at a TBI price value of 239.
2. The CMBS loan was underwritten at 80 percent loan-to-value, indicating a loan-to-TBI price value of 191 in June 2007.
3. The market speculation risk assessed for this property is calculated as follows:
  - a. The CPI-adjusted TBI price value for retail as of

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June 2007 is 146, less 20 percent equity contributed by an investor, resulting in a CPI-adjusted TBI lending value for the retail property of 117.

- b. The difference between the TBI June 2007 TBI price value of 239 and the CPI-adjusted TBI price value of 144 is 95, or 40 percent lower than at origination, which is classified as the market speculation risk.
- c. The difference in the amount of TBI leverage value financed in June 2007 at 191 and the amount proposed to be financed at 117 is 74, or 39 percent of the debt amount, is also subject to being classified as market speculation risk and carries a high probability of loss risk at this time.

Figure 3

### Speculation Risk Calculation

TBI Index Value Retail June 2007	239
Leverage Ratio	80%
TBI Leverage Amount	191
CPI-Adjusted TBI Retail Price Value (TBI base at 2.5% annual inflation rate from 2000 through June 2007)	144
Leverage Ratio	80%
Inflation-Adjusted Retail Index Value Leverage Amount	117
Estimated CMBS Loan Speculation Risk Assessment	74 (38%)

### TWO: CMBS FINANCING USING AN INFLATION-ADJUSTED INDEX APPROACH

The borrower wants to buy an office building in San Francisco in December 2008 for \$600 per square foot. The base period for the index is 1Q 2000 for a high quality office building sold, at that time, for \$334 per square foot. The aggregate mean inflation rate for office buildings as provided in the specific referenced index is 2.5 percent annually. Taking \$334 per square foot and compounding at a 2.5 percent annual inflation rate indicates a 2008 inflation-adjusted index value of \$406 per square foot. The CMBS loan originator would underwrite out the top 20 percent as equity and recommend financing the balance of \$325 per square foot. The credit rating agency would then rate the CMBS issuance on a risk tranche level, determining the amount of the total debt that qualifies as AAA up to the 80 percent debt to index level.

Figure 4

### Basel II Debt Calculation

San Francisco Office Purchase Price Per Sq. Ft.	\$600
Inflation-Adjusted TBI Office Price Value (TBI base at 2.5% annual inflation rate from 2000 through 2008)	\$406
Leverage Ratio	80%
Inflation-Adjusted Office Index Value Leverage Amount	\$325
Speculation Risk Assessment Example:	\$275

Cash flow from the property would also need to be incorporated into the loan underwriting at the same 80 percent debt to CPI-adjusted TBI price value. Debt service coverage is based on the debt service coverage index constant of 6.5 percent using a 30-year amortization. The debt service coverage based on this index constant is required to be, at a minimum, 1.15x on a trailing twelve months basis with an outlook of stable cash flow income to pay debt service over the next three years. (Please note: lenders would have the discretion to set debt service coverages in alignment with their specific interest rates.) The outlook would be based on existing leases assessed in good standing. BBB- or lower credit rated subordination levels or tranches within the CMBS issuance would be required to be assessed on the certainty of receiving future cash flows. For example, if there is high occupancy by high credit quality tenants (over 85 percent) with long-term leases, there is a high certainty of property cash flows to support the loan's lower subordination levels of non-investment grade debt. The difference between the debt that would qualify—under an inflation-adjusted index approach—as the CMBS loan underwriting amount and the purchase price of the income property is assessed as market speculative risk. The market speculative risk debt and equity that would not be financed through a CMBS issuance under this approach would be \$275 per square foot. Only \$325 per square foot, or 54 percent of the proposed purchase, would be financed in this example.

In the event an investor believed rents were going to spike or the value would appreciate, the investor would buy the office building at \$600 per square foot. In addition, the investor would be willing to take the market speculation risk on the \$275 per square foot of equity not financed in the first lien position loan, anticipating compensation for taking this risk. This inflation-adjusted relative index

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methodology removes market speculation risk from the financial system and shifts it back to the equity income property speculator/investor in a fashion similar to equity investors in the stock and bond markets.

### CONCLUSIONS DRAWN FROM THE RELATIVE INDEX APPROACH

As indicated above, if the CPI-adjusted TBI price value methodology were used to assess the amount of market dependent speculative risk (risk to be taken by second lien, mezzanine or equity investors), 38 percent of that CMBS issuance in 2007 could have been financed as speculative risk in the CMBS first lien loan. CMBS loans in the peak production year and peak TBI price value in 2007 are subject to a high probability of loss and high loss severity in the event of a recession. When the outlook for positive outcomes in a property turns negative, the market speculative risk component of the existing debt is most at risk since the speculation risk assumed, for example, higher occupancy or higher rental rates in a higher percentage of space than existed when the loan was originated. This speculation risk exposes this portion of the loan to a high probability of loss.

### INCOME PROPERTY CMBS DEBT TRENDS

The average loan to appraised value on CMBS loans increased from 65.9 percent in 2002 to 69 percent in 2007. The most problematic aspect of this is that credit rating agencies continued to reduce subordination levels of AAA tranches (from 21 percent in 2002 to 12 percent in 2007) when market speculation risk was increasing in income property. During this same period, underwriting standards were deteriorating. This is evidenced by the alarming increase in interest-only loans as a percentage of the total volume of CMBS issuances (from 23 percent in 2002 to 86 percent in 2007).

### QUANTIFYING THE PROBABILITY OF LOSS ON INCOME PROPERTY LOAN PORTFOLIOS

To determine market speculation risk in specific CMBS years or “vintages,” the average loan to appraised value on CMBS in 2007 of 69 percent can be reduced by the average subordination level of 12 percent. This results in a 57 percent loan-to-value of average AAA tranches originated in year 2007. If the relative CPI-adjusted TBI price value is used to determine the amount of market speculation risk, the AAA tranche rises to an average loan to a relative CPI-adjusted TBI price value exposure of 70 percent. Taking this concept one step further, CMBS issuances in 2007 comprising a higher loan to CPI-adjusted TBI index value

than the 70 percent average will have AAA tranche levels exposed to higher market speculation risk or probability of loss and loss severity in a recession than will CMBS issuances in 2007 with an average loan to relative CPI-adjusted TBI price value of less than 70 percent. In assessing CMBS issuance risk, start with issuances in 2005–2007 that have loan to appraised values in excess of 69 percent together with highly market speculative risk property mixes held as collateral and with properties located in depressed markets. By determining the highest market speculation risk in CMBS issuances, one can determine the probability of loss and loss severity exposures in holdings under varying economic scenarios.

This same relative index methodology using CPI-adjusted TBI price values can be applied to bank loan portfolios, and is recommended for the same issuance years of 2004 through 2007 or 2008, if applicable. This method can be applied to property types that are non-recourse, that have significant lease turnover, below-projected stabilized occupancy levels or located in depressed markets. The same relative index methodology can also be applied to recourse loans with high lease turnover, below-projected stabilized occupancy levels, located in depressed markets. Benchmarking the market speculative performance of the property together with the bank underwriting at the inception of the loan would help to determine how much market speculation risk was taken by the bank during the year of issuance. Comparing this standard bank portfolio performance benchmark with the projection of variance to the relative index methodology, it is likely that the bank’s risk management officers would conclude that a difference in probability of loss exists *vis-a-vis* this relative index methodology values. This relative index methodology will help manage the bank’s overall lending risk on real estate collateralized loans.

### PROPOSED RELATIVE DEBT SERVICE CONSTANT INDEX MONITORING REGULATION

For each commercial product type, a Relative Debt Service Constant Index (RDSCI) could be developed and compared against operating performance over time for each property type. It is feasible to obtain operating statements on each property type in the various CMBS loan pools and within commercial banks’ balance sheets to fulfill this monitoring regulation proposal. It is possible to assume that regulators would be in a good position to request operating performance data from the entities they regulate to create an operating performance index for

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each product type. If this data could be collected and pooled to increase the reliability and usefulness of this RDSCI analysis, the probability of a significant variance would be severely reduced, especially when applied to smaller markets throughout the country.

An RDSCI could be set on each product type at the same date as the TBI price values on Jan. 1, 2000. Property performance data could be derived from NAREIT for each product type from Jan. 1, 2000 through to a date on which collected operating performance reporting for a property type can be relied upon to provide integrity to RDSCI. The RDSCI comparison would monitor operating results over time relative to a constant interest rate and amortization schedule to insure that a reduction in interest rate does not create a speculative increase in leverage and, as a result, a speculative increase in real estate values. It seems reasonable that one constant be used (such as 6.5 percent using a 30-year amortization). This is simple and can be easily monitored. It would also preclude any arguments made by various investors who believe they are being discriminated against by the use of a higher constant.

### STANDARDIZED INFLATION ADJUSTED INDEX BOARD

In addition, an independent Standardized Inflation Adjusted Index Board (SIAIB) should be created with the assistance of others at the credit rating agencies. This board could be modeled after the NCREIF Index Oversight Committee (IOC). SIAIB would arbitrate proposed changes in the TBI price values and S&P/Case-Shiller indices and settle disputes regarding specific property leverage relative to a specific index recalibration claim. As the NCREIF website states, "IOC responsibilities include reviewing and recommending changes to the Board of Directors in index policies and procedures, requiring data elements, qualifying properties, quarterly index production review and the taking of any other actions deemed necessary to assure index statistical integrity."<sup>4</sup> SIAIB would be affiliated with the Bank for International Settlements or some other international organization with authority to implement international adoption of the relative index methodology within all countries. SIAIB would have the same discretion to differentiate among the quality and index values of various product types so that speculation risk will be virtually eliminated within the worldwide financial system. SIAIB also would be charged with training lenders, appraisers and investors to use the indices appropriately and consistently throughout the world. The mission of the SIAIB governing board would be, on a worldwide basis, to eliminate speculation risk associated with leveraging real estate assets.

### CONCLUSION: MARKET SPECULATION RISK AND RELATIVE INDEX RISK

Loss and loss severity in income property loan portfolios has been incorrectly determined, creating an over-leveraged income property market that will create further losses on CMBS issuances or within banks beginning in 2008 and over the next five to seven years. This was partly due to time scale issues being too short for Wall Street analysts' and credit rating agencies' orientation to evaluating quarter-over-quarter and year-over-year patterns instead of longer cycle periods relative to a CPI-adjusted TBI price value. The price paid, or the value of the property, is not the only factor in making a loan. The price must be measured against something that makes sense to prevent the uncontrolled growth in real estate prices relative to CPI inflation rates. A CPI-adjusted TBI price value index methodology from January 2000 to the period of the loan origination is recommended to be added to Basel II regulations. The purpose is to moderate speculation growth and prevent its creating a worldwide financial collapse such as was recently averted with severe and unprecedented Federal Reserve and federal government intervention in the financial markets. ■

### ENDNOTES

1. Thompson, Marc, 2008. "Deflation Risk in Income Property Investments and Permanent Loan Portfolios: a 2008 Update," *Real Estate Issues*, Vol. 33, No. 1.
2. Massachusetts Institute of Technology Center for Real Estate (MIT/CRE) Transactions-Based Index (TBI) of Institutional Commercial Property Investment Performance. See Web site [www.mit.edu/cre/research/credl/tbi.html](http://www.mit.edu/cre/research/credl/tbi.html).
3. Ibid. 2008 Quarter 4 Transactions-Based Index (TBI).
4. National Council of Real Estate Investment Fiduciaries, "Frequently Asked Questions About NCREIF And The NCREIF Property Index (NPI)," [www.ncreif.com/pdf/Users\\_Guide\\_to\\_NPI.pdf](http://www.ncreif.com/pdf/Users_Guide_to_NPI.pdf), p. 15.

### Other Resources:

NCREIF information was sourced from the NCREIF Web site [www.ncreif.org](http://www.ncreif.org).

*Commercial Real Estate/Multifamily Finance (CREF) Quarterly Data Books*, Mortgage Bankers Association. Data from 4Q 2004 through 4Q 2008. Author has interpreted this data as it has changed over time as a basis for deflation risk concerns.

Databases obtained from MIT Center for Real Estate Web site indicating the Transactions-Based Index (TBI) price index for office, industrial, retail, hotel and apartments on a national basis. The periods covered are quarterly from 1984 through 4Q 2008. This database was used to create the two graphs submitted. The S&P/Case-Shiller data for single-family housing graph representation was obtained from the Standard & Poor's Web site.