

Impact of Deleveraging in Real Estate Loan Portfolios within Banks, CMBS, RMBS, and GSE's.

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Disclaimer: The views expressed herein are those of the presenter. They are not to be construed in any way as the views of Bank of the West or its senior management.

Hypothesis Time-Table

- In March 2003, published an article in Real Estate Issues called “Deflation Risk in Income Property Loan Portfolios”. This article provided a foundation for the hypothesis that high growth in aggregate income property debt annually correlates to a high risk of income property collateral deflation risk in later years. This hypothesis was based on 10 years working out distressed income property loan portfolios in two Savings and Loans from 1987 to 97.
- At the annual CRE Conference in SF in Oct 2007, Marc forecasted as a member of the Capital Markets Panel an income property downturn in collateral values at a scale larger than the S&L crisis in the 1990’s. Marc also forecasted that CMBS markets would not resurrect for a number of years due to sustained potential investor losses in those securities.
- In March 2008, Marc backed up his forecast in a published article in Real Estate Issues called “Deflation Risk in Income Property Loan Portfolios: a 2008 update”.



Hypothesis Time-Table (con't)

- In March 2009, Marc published an article in Real Estate Issues that provided a methodology for forecasting income property loan losses by each year of origination relative to an annual natural growth debt rate correlated to the CPI index. This article also outlined concerns regarding Basel II proposed regulation for banks as it relates to real estate lending and capital reserve requirements. Marc was awarded a Ballard Award on this article for most insightful CRE article in 2009.
- In March 2010, Marc published a break through article in Real Estate Issues called “A Missed Assessment of Real Estate Debt Risk”. This article introduces an aggregate debt risk model that calculates loss probability risk on a year by year debt issuance basis. Credit rating agencies and regulators missed this risk in this past decade which has led to a world-wide financial crisis.



Speculation Risk: The Leverage Cycle

- Hypothesis: The amount of speculative in real estate collateralized loans in an economy can be quantified by determining the amount of speculation risk in aggregate real estate debt portfolios by year of origination (vintage year). The amount of speculation risk determines the risk of deflation in collateral values (prices) and the probability of losses and losses due to default in subsequent years.
- This boom in aggregate debt growth and subsequent drop in aggregate debt levels in an economy is called “The Leverage Cycle”.

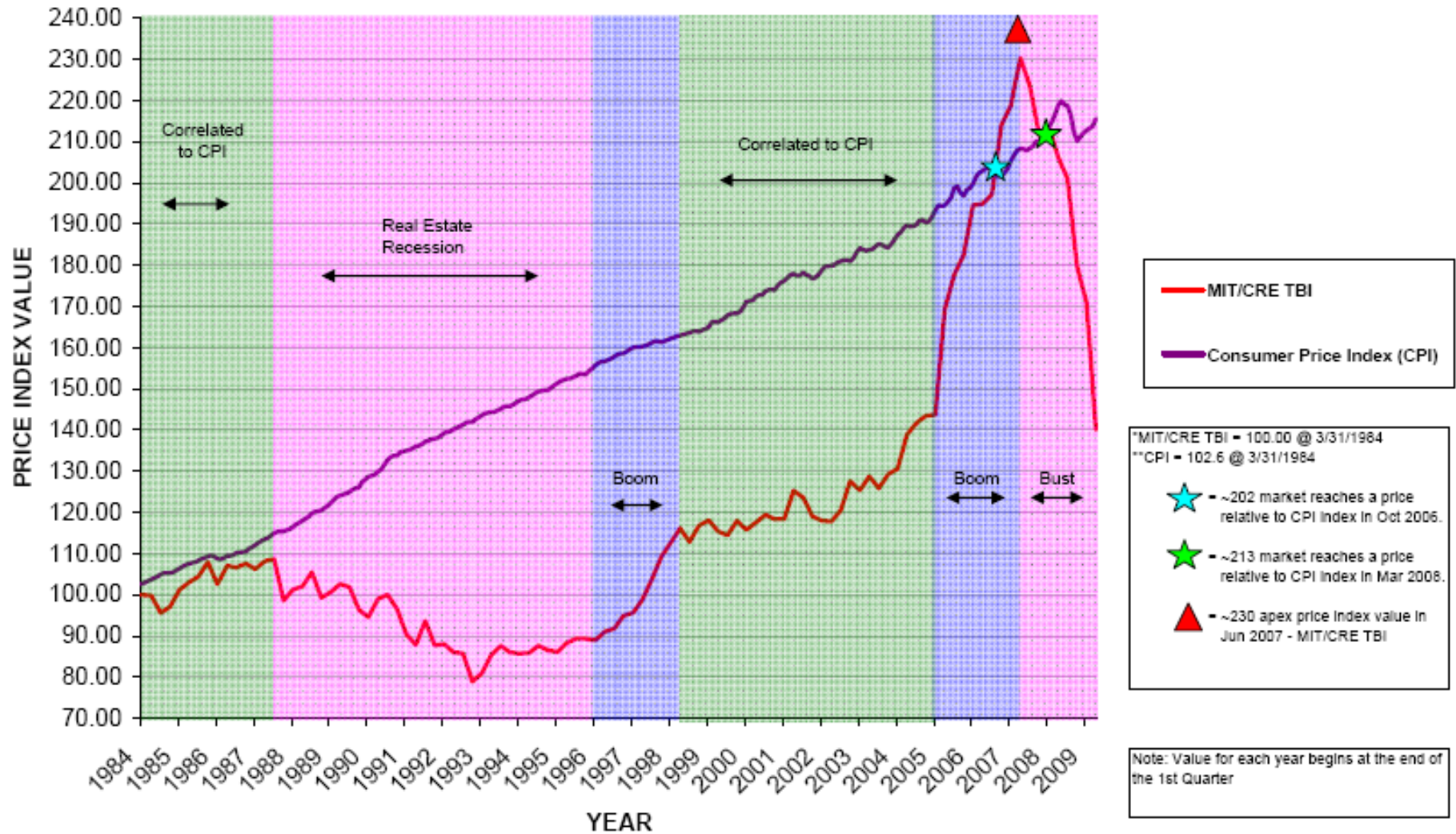


General Forecast Assumptions I

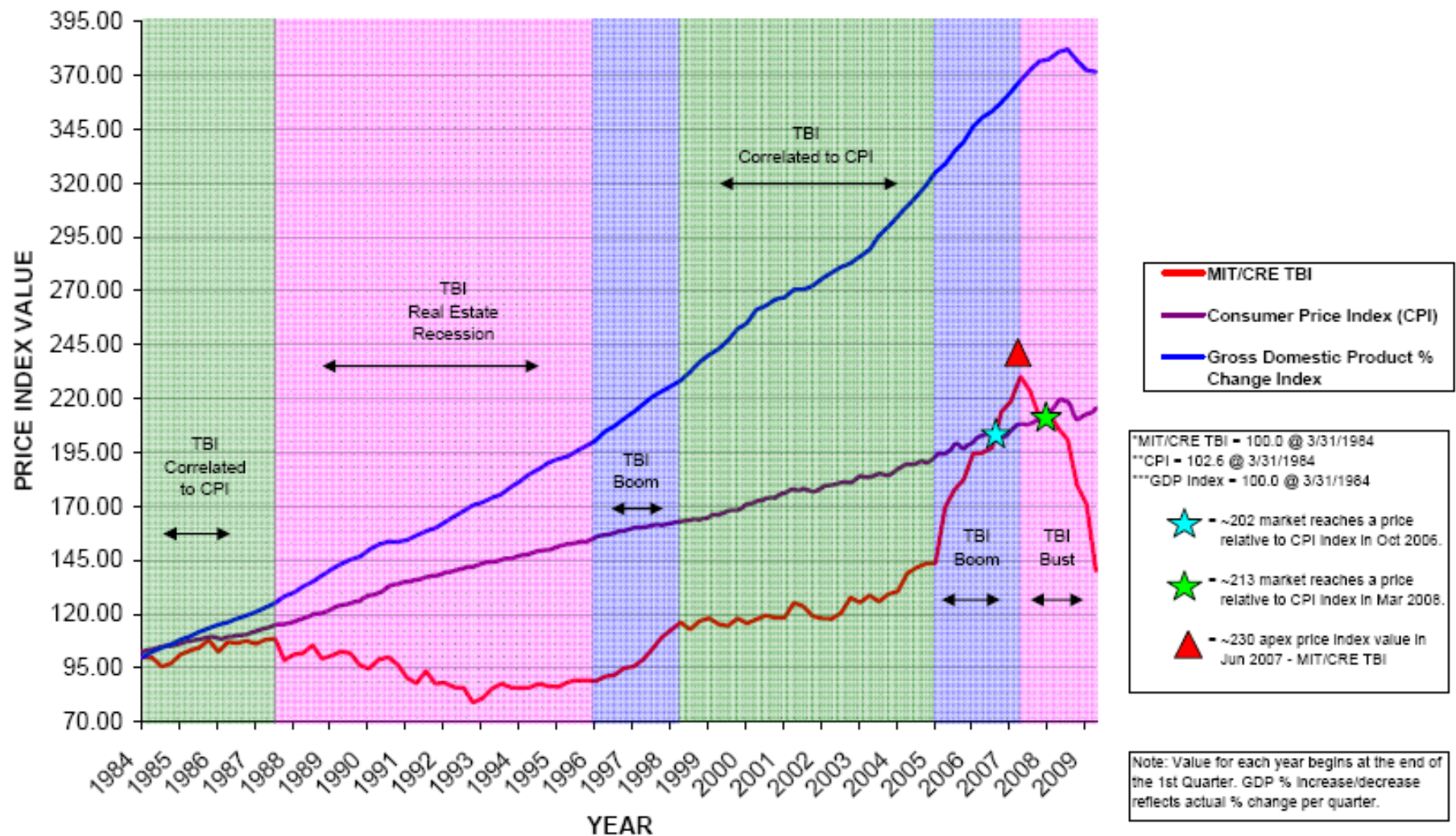
- The forecast in 2008 was based on a cascading effect whereas all participants in the marketplace froze on investment transactions accelerating the TBI Price Index fall.
- A beginning of a recovery in income property values in 2015 and 2020 for single-family homes in the most distressed sub-markets.
- The U.S. government is the largest provider of mortgages for residential income property (multi-family and senior housing) and single-family home mortgage debt.
- Assumes a disintermediation of private investors in the real estate mortgage market due to excessive mortgage losses and because of compromised investor/lender mortgage collection rights because of foreclosure moratoriums and mortgage modification initiatives.



HISTORICAL TBI PRICE INDEX TO CONSUMER PRICE INDEX GRAPH



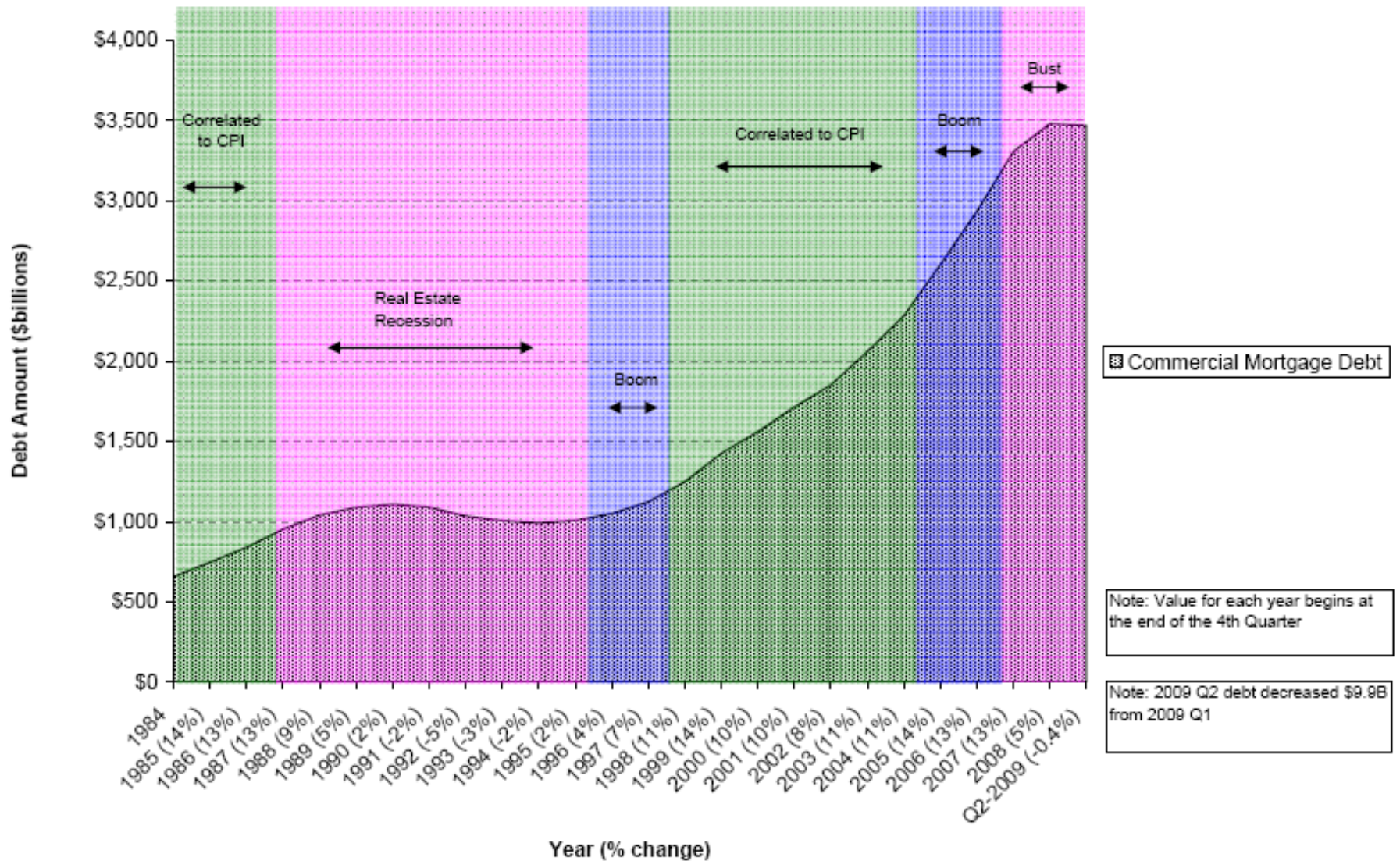
HISTORICAL TBI PRICE INDEX // CONSUMER PRICE INDEX // GDP % CHANGE INDEX GRAPH



Source: <http://inflationdata.com>
<http://web.mit.edu>
<http://www.bea.gov/National/index.htm>

Graph provided by Marc Thompson and Mike Halliday

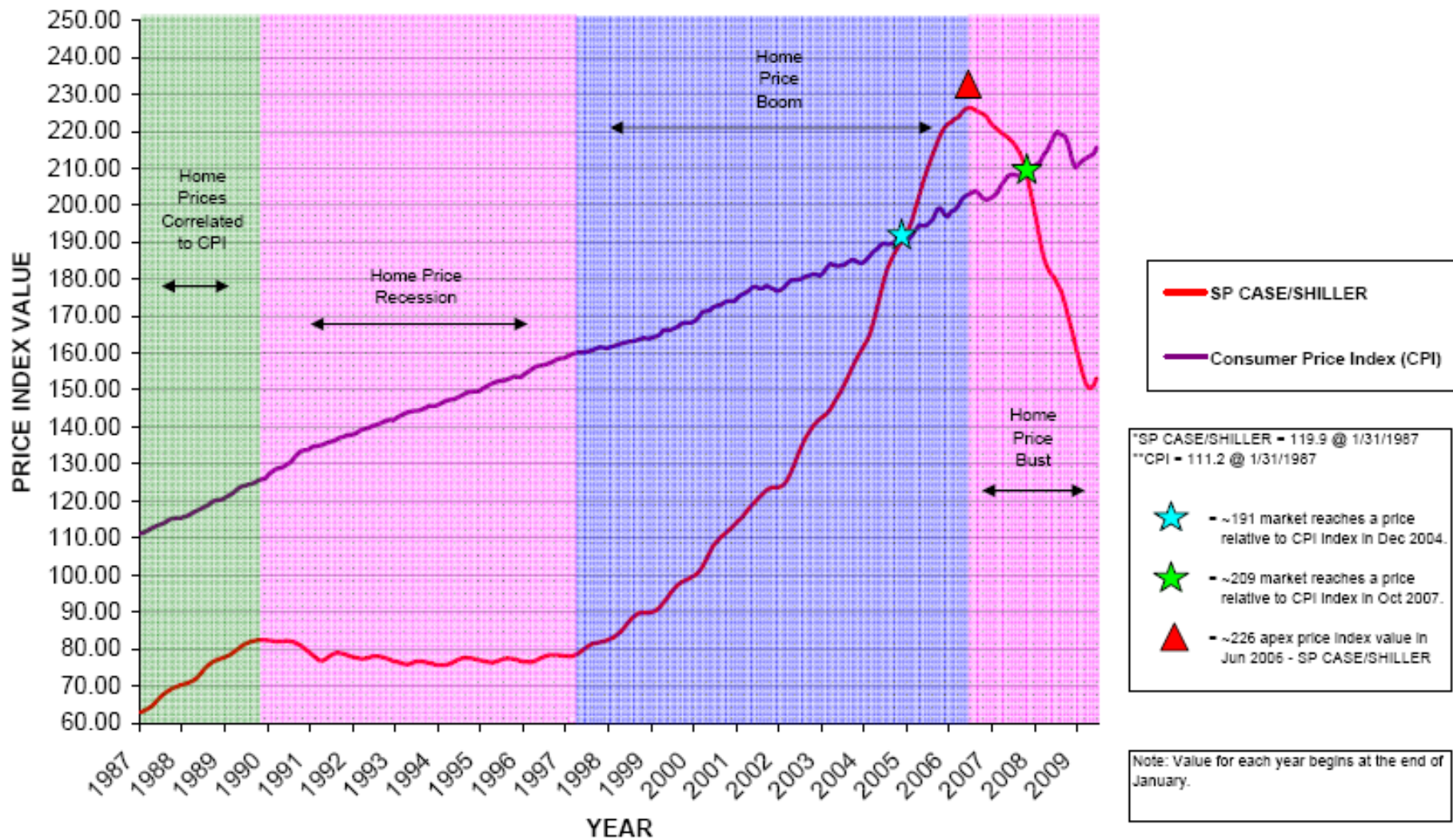
Commercial Mortgage Debt Outstanding



Source: Flow of Funds Accounts, Federal Reserve Board of Governors

Graph provided by Marc Thompson and Mike Halliday

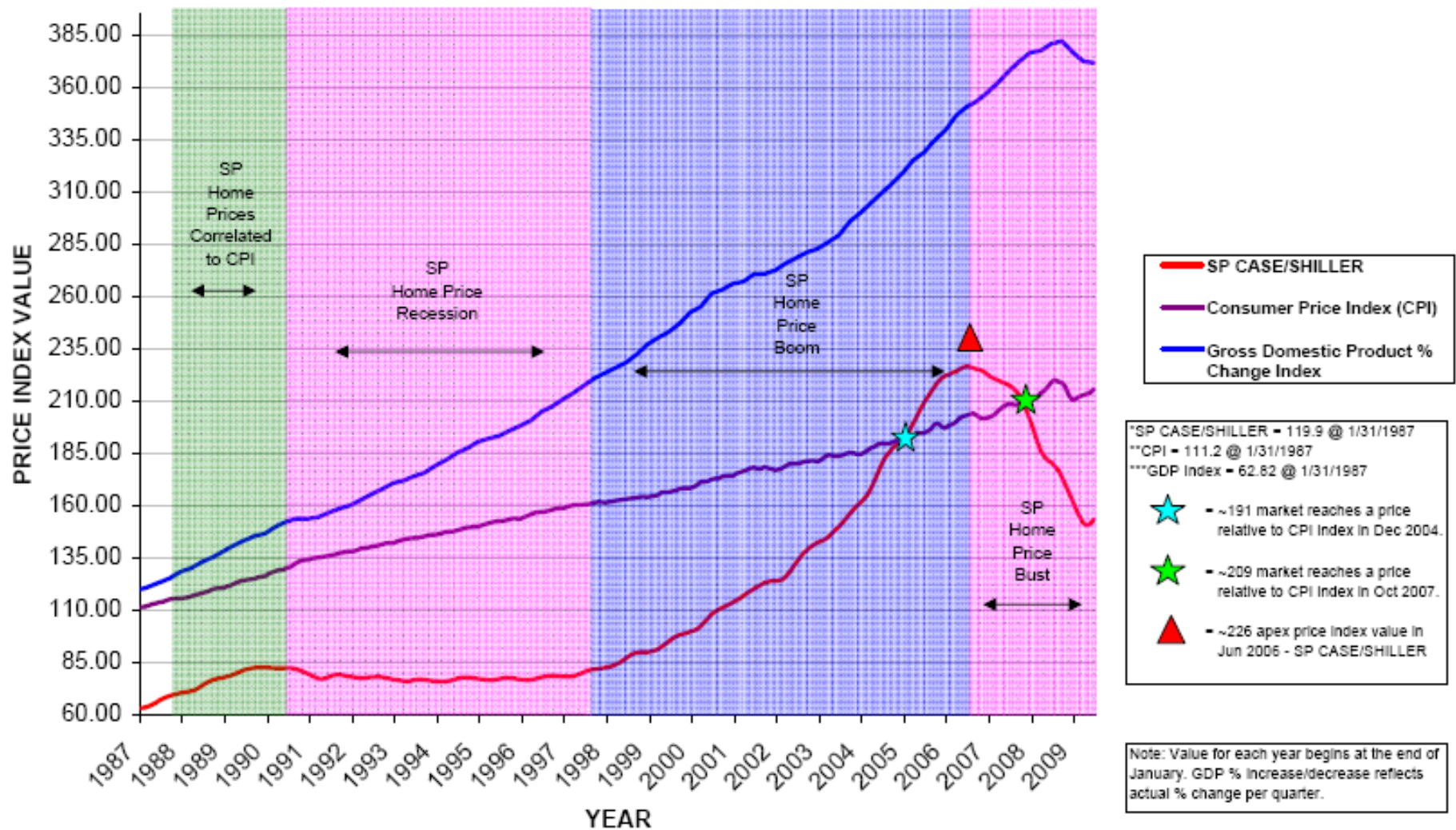
HISTORICAL SP CASE/SHILLER PRICE INDEX TO CONSUMER PRICE INDEX



Source: <http://inflationdata.com>
<http://www2.standardandpoors.com>

Graph provided by Marc Thompson and Mike Halliday

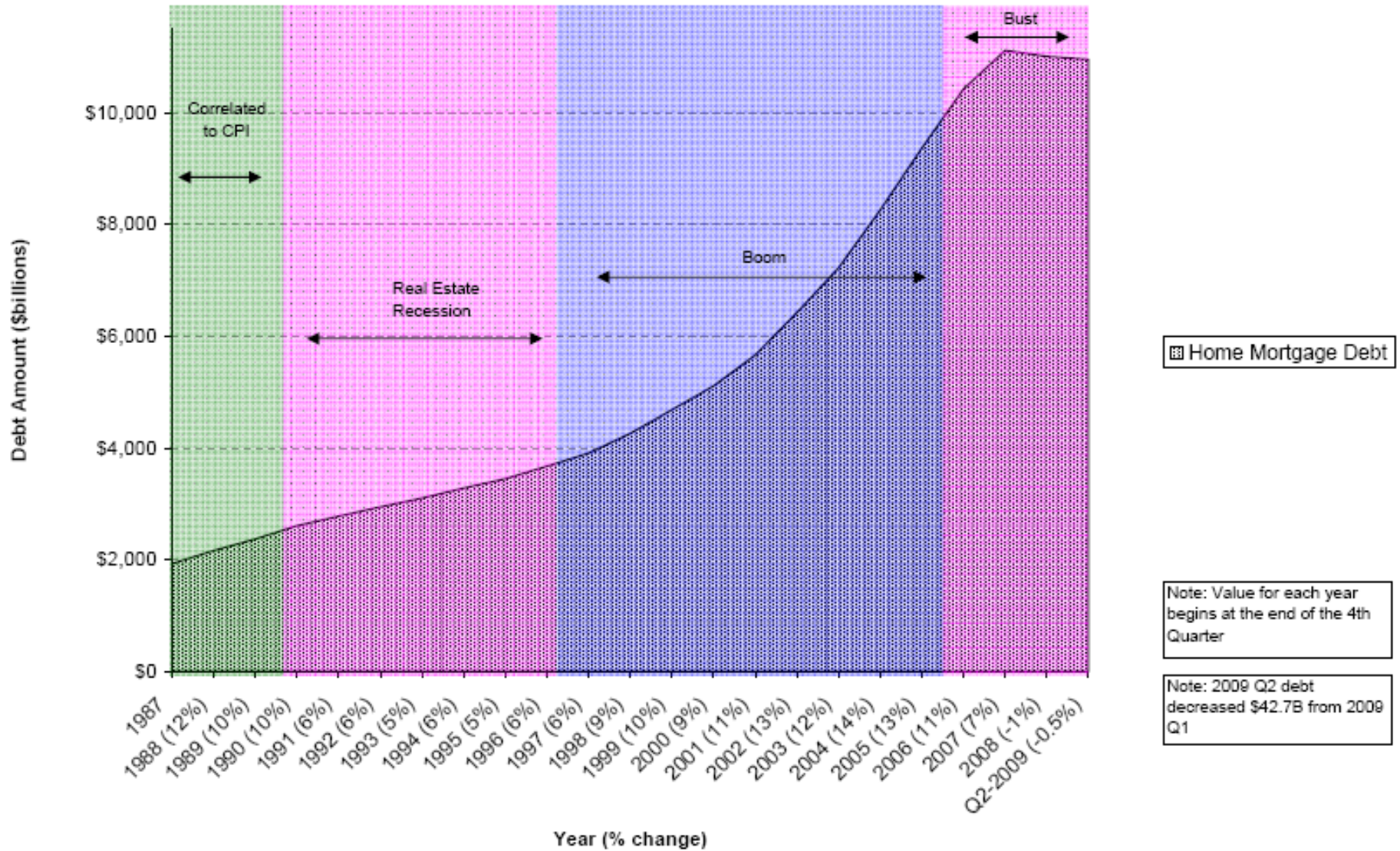
HISTORICAL SP CASE/SHILLER PRICE INDEX // CONSUMER PRICE INDEX // GDP % CHANGE INDEX GRAPH



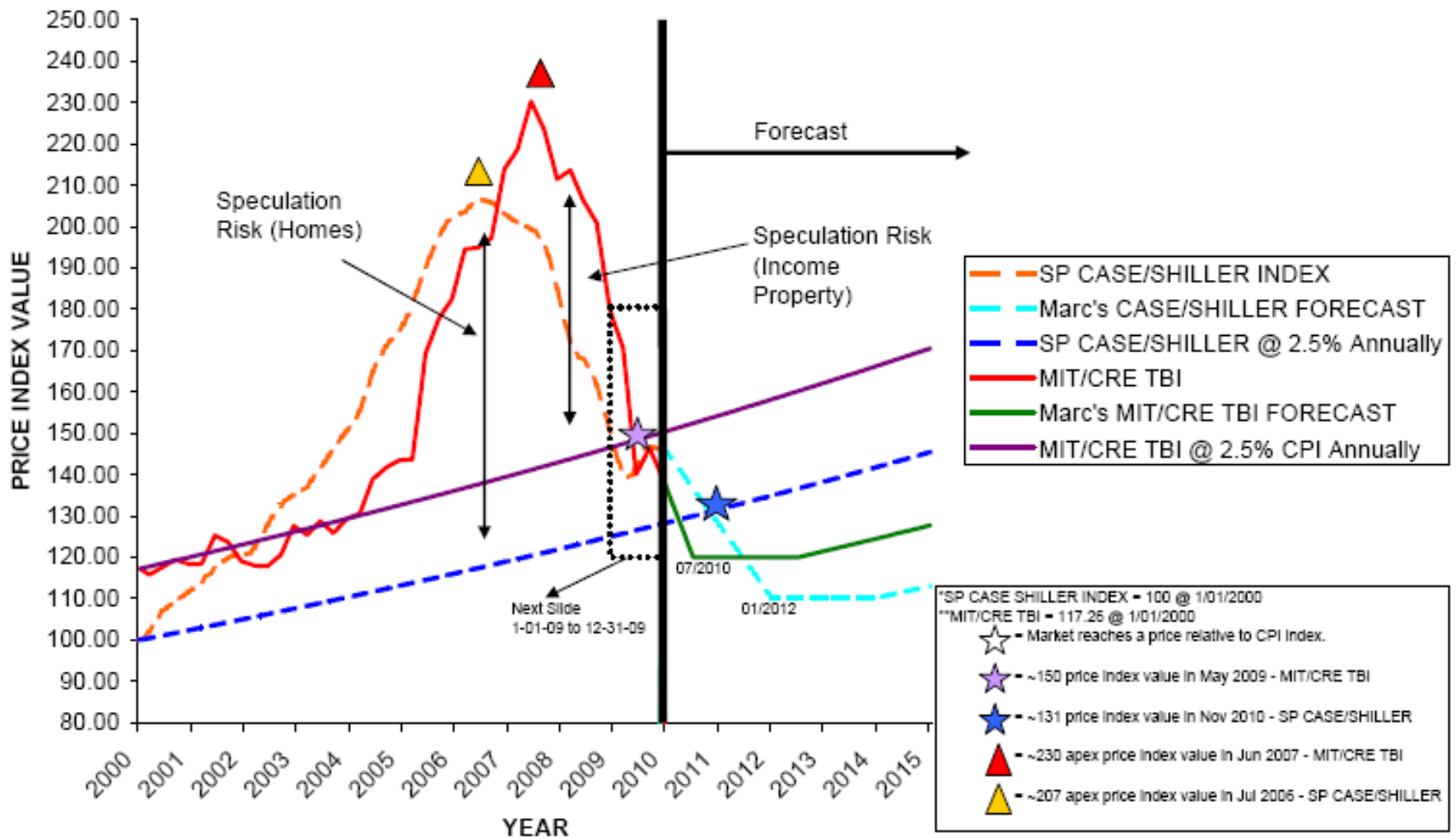
Source: <http://inflationdata.com>
<http://www2.standardandpoors.com>
<http://www.bea.gov/National/index.htm>

Graph provided by Marc Thompson and Mike Halliday

Home Mortgage Debt Outstanding



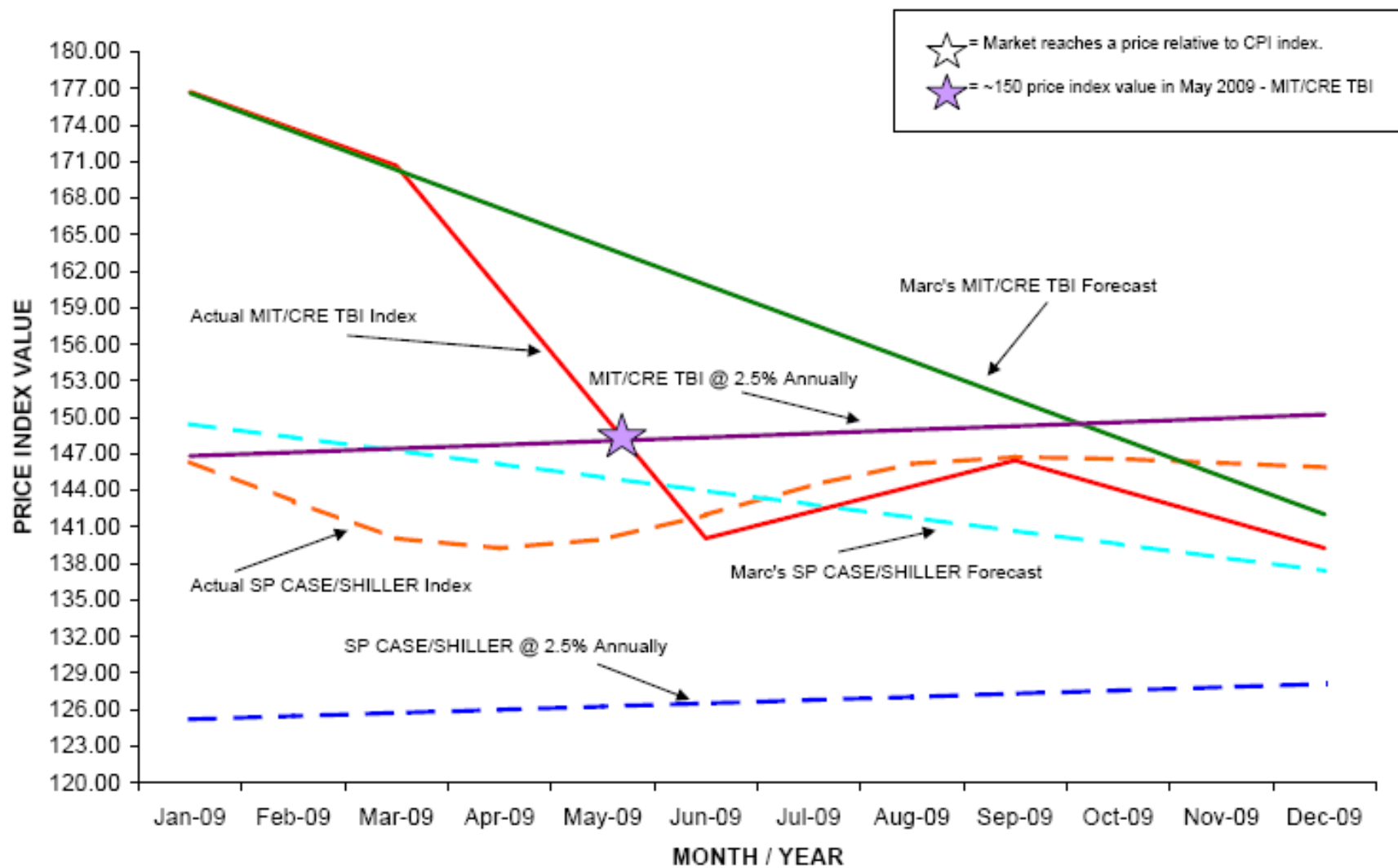
PRICE INDEX FORECAST



Source: <http://www2.standardandpoors.com>
<http://web.mit.edu>

Graph provided by Marc Thompson and Mike Halliday

PRICE INDEX ACTUAL vs FORECAST FROM 1-1-09 to 12-31-09



Real Estate Price Forecast Results 12-31-09

- The negative slope rate of both price indexes forecasted supported the forecasting methodology through December 31, 2009. The actual results compared to the forecast indicated a much steeper slope or a higher deterioration in price index than forecasted.
- With a higher deterioration in both price indexes than forecasted in December 2008, the longer range forecast appears to be more certain of being realized. In any event, after receiving feedback from actual results, no changes have been made to the December 2008 forecast.



Key Points up to this Stage of Presentation

- The CPI line over time provides a good measure against both price and aggregate debt growth to estimate the amount of speculation risk in real estate debt markets.
- The reversion to the CPI line in this analysis has occurred on prices and has begun to occur in aggregate debt levels for both real estate debt markets.
- There is a natural correlation of real estate prices and CPI growth over 11 years of time (1996 – 2005) when measured after a real estate recession.



Key Points up to this Stage of Presentation

- Since 2000, there is similarity in the behavior of both single family and income property debt markets even though growth drivers for each are not directly correlated.
- Since 2000, the Case/Shiller (SFR Prices) and MIT TBI Income Property) price indexes both increased approximately 110% while aggregate debt amounts for both debt markets increased approximately 340%.
- Since 2000, the only difference between the peaks in both prices and aggregate debt amounts was 15 to 18 months between the two real estate debt markets.



Income Property Debt Forecast Assumptions

- Banks and CMBS investors employ a strategy to modify most defaulted loans to wait-out the depressed market and/or postpone losses.
- Actual losses on all income property loans exceed new originating debt gains beginning in the first quarter of 2009.
- The aggregate debt level decreases accelerate after loan modifications begin failing in 2010 through 2014 due to continued deteriorating income property fundamentals of excess capacity (high vacancy rates). NCREIF forecasts deteriorating NOI through 2011 on all property types it tracks.
- In 2015, most of the overleveraged income properties have cleared the market. Investors begin to forecast an opportunity of higher occupancy, rent growth, and increased cash flow resulting in appreciation on most property types from low trough price levels.



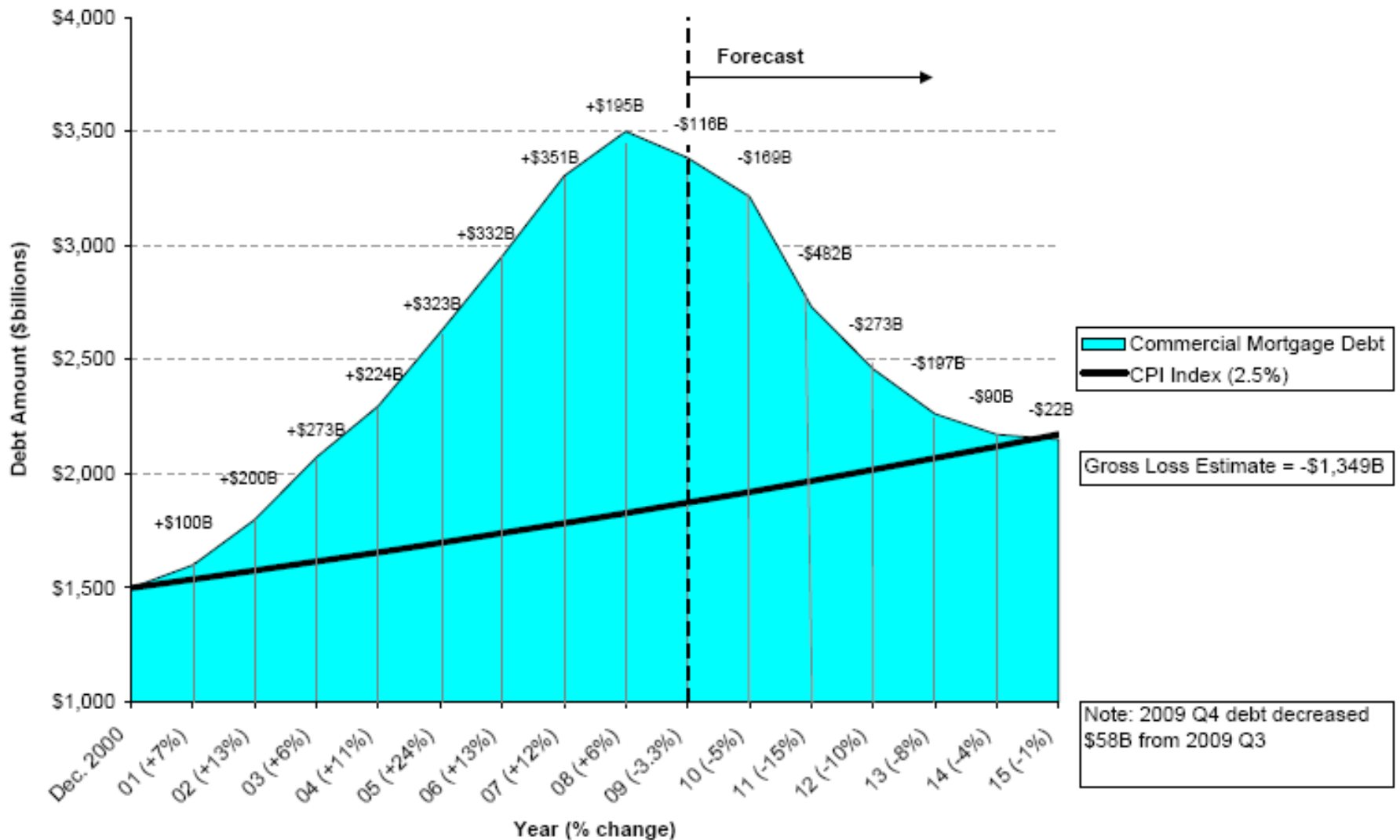
Income Property Debt Forecast Results Through 12-31-09

Actual losses on all income property loans for 2009 increased at a higher rate than forecasted at \$116B through 12-31-09 relative to the forecast at \$43B for the entire year.

- The forecast is expected to have aggregate debt level decreases accelerate to \$170B in 2010.
- The December 2008 forecast is expected to hold over the long-term even though losses in aggregate loan outstandings are currently forecasted to occur at a higher rate than forecasted.



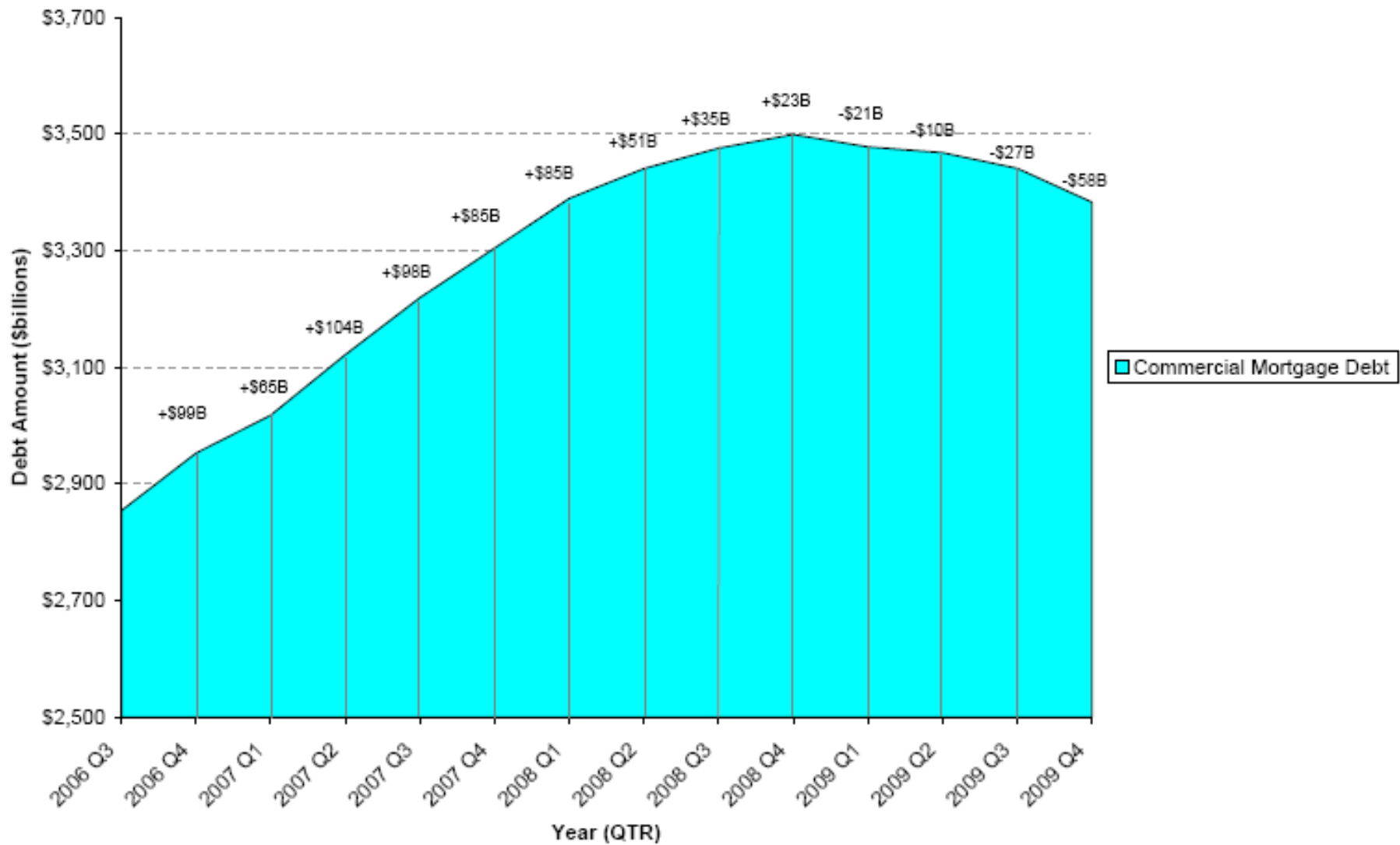
Commercial Mortgage Debt Outstanding and Forecast



Source: Flow of Funds Accounts, Federal Reserve Board of Governors

Graph provided by Marc Thompson and Mike Halliday

Commercial Mortgage Debt Outstanding From 2006 Q3 to 2009 Q4



Source: Flow of Funds Accounts, Federal Reserve Board of Governors

Graph provided by Marc Thompson and Mike Halliday

Debt Loss Model: Accumulated Aggregate Debt Loss Probability Rate Calculation for Income Property Debt

- Accumulated Aggregate Debt Loss Probability Rate (Accum ADLPR) model was developed to understand the relative scale of real estate debt risk over time. It was also developed with the purpose of quantifying risk on a vintage year issuance basis. The Accum ADLPR would be added to another risk identification models specific to the composition of the CMBS issuance or Bank credit risk assessment models.
- The model's thesis and implementation is provided in a paper I wrote published by Real Estate Issues in March 2010 called "A Missed Assessment of Real Estate Debt Risk".



Debt Loss Model: Accum ADLPR Calculation for Income Property Debt Thesis I

- Accumulated Aggregate Debt Loss Probability Rate (Accum ADLPR) model's hypothesis is that risk rises in subsequent debt issuance years as the Leverage Cycle fuels excessive speculation in prices of real estate.
- The increase in real estate price speculation fuels excessive growth in aggregate debt amounts if interest rates shift lower and the debt underwriting standards loosen.
- This excessive growth is measured above the moving average of Gross Domestic Product (GDP) and the Consumer Price Index (CPI) measured on an annual basis.
- The rate of excessive aggregate debt growth above the moving average of GDP and CPI matters in determining the aggregate debt loss probability rate for a specific year of debt origination.



Accum ADLPR Calculation for Income Property for 2006 Page One

- Economic Growth Rate for 2006 calculation:
 - Real GDP prior year (2005) + CPI prior year (2005) / 2 = 3.2%
- Aggregate Debt Growth Risk Rate:
 - 13.8% increase in prior year 2005 aggregate debt less 3.2% Economic Growth Rate = 13.8% - 3.2% = 10.6% Aggregate Debt Growth Risk Rate

Aggregate Debt Growth Risk Factor:

ADGRR < 0% =	(62%)	Very Low Aggregate Debt Growth Risk
0% <= ADGRR < 5% =	5%	Normal Aggregate Debt Growth Risk
5% <= ADGRR < 8% =	20%	High Aggregate Debt Growth Risk
ADGRR >= 8% =	38%	Very High Aggregate Debt Growth Risk

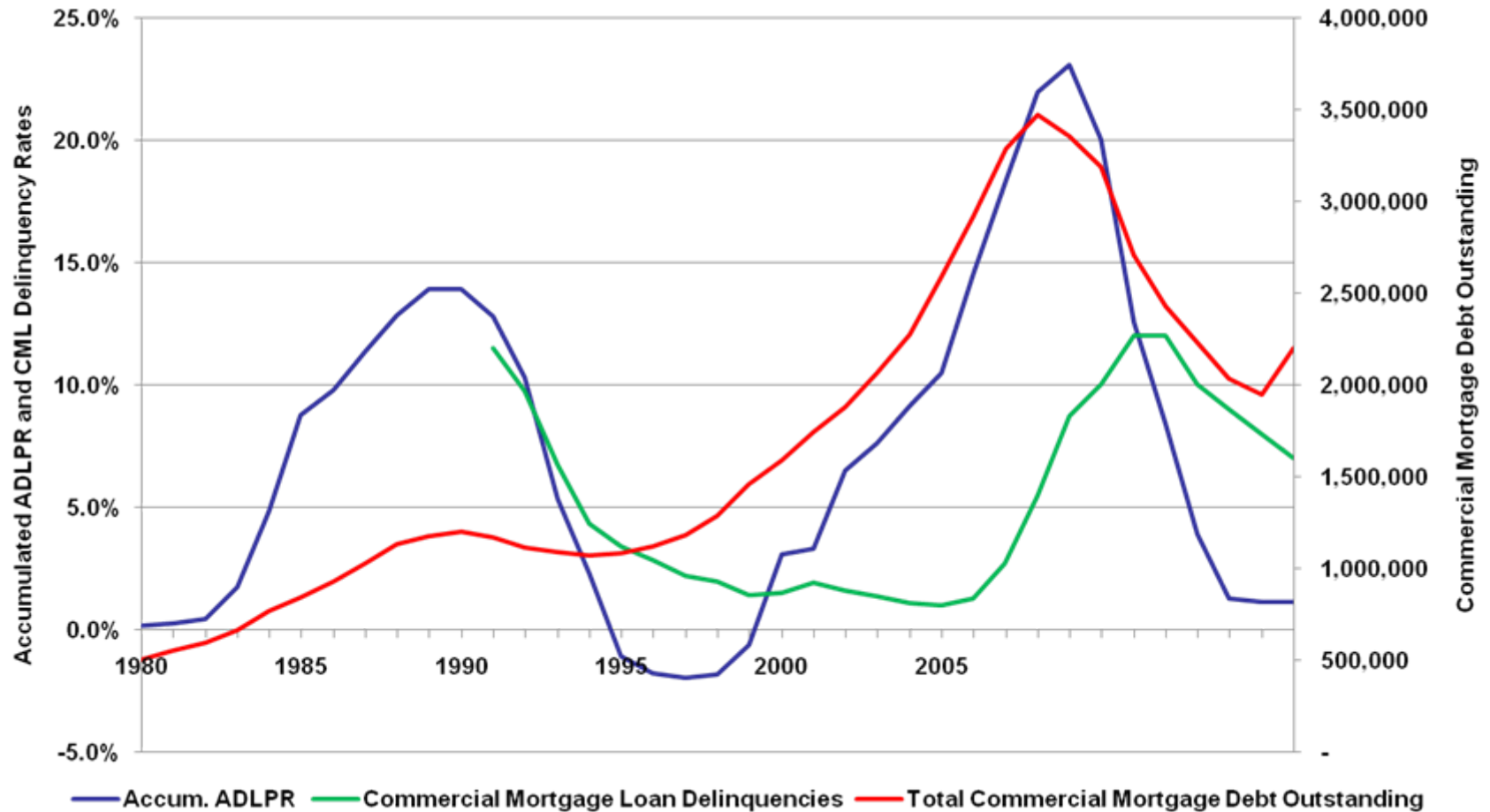


Accum ADLPR Calculation for Income Property for 2006 Page 2

- Aggregate Debt Loss Probability Rate for 2006:
 - Aggregate Debt Growth Risk Rate of 10.6% X the Aggregate Debt Risk Factor of 38% = $10.6\% \times 38\% = 4.0\%$
- The Aggregate Debt Loss Probability Rate of 4% is added to prior years Accumulated Aggregate Debt Loss Probability Rates:
- The Accumulated Aggregate Debt Loss Probability rate for 2005 is 10.2%. This means that there was a 10.2% Accumulated Debt Loss Probability Rate on the loans originated in 2005. This loss estimated increased to 14.2% in 2006 approaching the peak of the Leverage Cycle. It approached a high of 22.8% in 2009.
- It will take years to prove out this thesis from actual observations in the market. If this risk assessment methodology was in place, AAA tranches would have been much smaller in proportion to the amount aggregate debt issued in 2006.

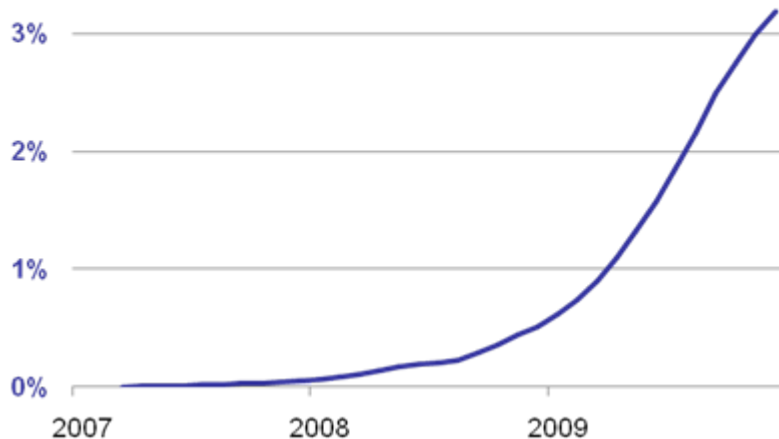


Income Property Debt Risk has a 39% Higher Probability of Delinquency than S&L Crises 87 to 97



CMBS Real Estate Price Declines

3.2% of CMBS Loans had an Appraisal Reduction



Type	Appraisal Reduction (Trepp)	CPPI Peak to Trough (MIT/RCA)	Realized Loss (Trepp)
Office	51%	-36%	-33%
Apartment	46%	-40%	-64%
Retail	52%	-29%	-41%
Hotel	58%	N/A	-62%
Industrial	52%	-37%	-22%

City	State	Reduction	# Deals
Houston	TX	-45%	98
Dallas	TX	-52%	59
Las Vegas	NV	-50%	57
Phoenix	AZ	-52%	49
Columbus	OH	-46%	38
Orlando	FL	-49%	36
Atlanta	GA	-51%	27
Tallahassee	FL	-43%	26
Memphis	TN	-52%	25
Detroit	MI	-63%	23
Cincinnati	OH	-43%	22
Fort Worth	TX	-49%	22
Cleveland	OH	-52%	21
Mesa	AZ	-50%	20
Tampa	FL	-56%	20
Indianapolis	IN	-49%	19
Brooklyn	NY	-43%	19
Tucson	AZ	-54%	19
Chicago	IL	-51%	18
San Antonio	TX	-40%	18
Irving	TX	-48%	17
Colorado Springs	CO	-49%	17
Richmond	VA	-47%	16
Fort Myers	FL	-59%	16

CPPI is a same-property price change index based on data from Real Capital Analytics, Inc compiled by MIT Center for Real Estate.

Appraisal Reduction and Realized Loss data compiled from Trepp.

Single-Family Residence Debt Forecast Assumptions I

- Banks, RMBS servicers, and Federal and State governments employ a strategy to modify most defaulted loans to wait-out the depressed market, to keep people in their homes, and/or postpone losses.
- Collection and lender remedy rights are subordinated to the public interest to “save the economy from financial collapse”. This is in the form of foreclosure moratoriums for example passed by the California legislature.

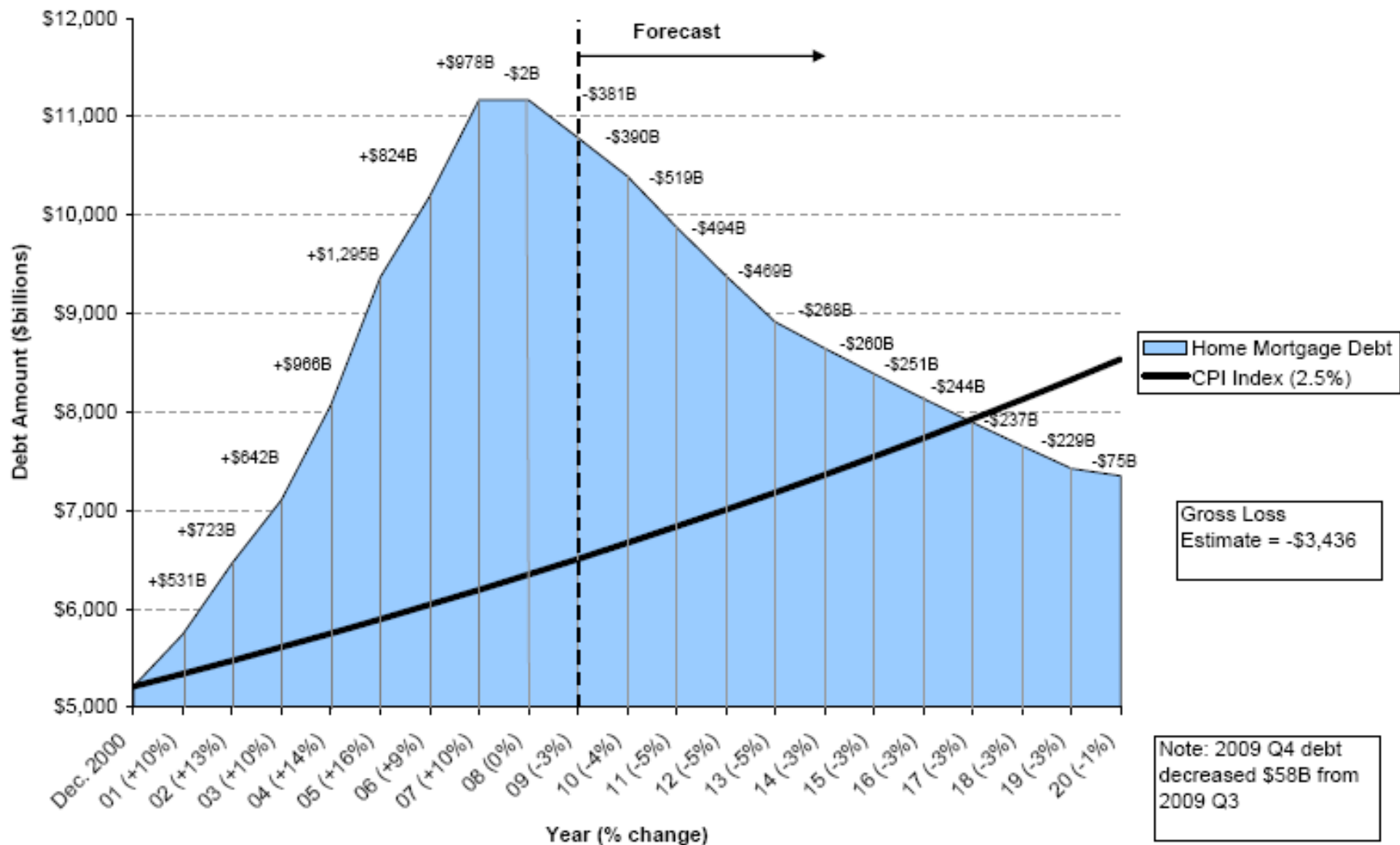


Single-Family Residence Debt Forecast Assumptions II

- Actual losses on mortgages exceed new loan originations lowering the aggregate debt level beginning in the 2nd Qtr of 2008. Actual losses accelerate after unsustainable loan modifications begin failing in 2008 and continue through 2020.
- Home prices remain unstable through 2020 given that a consistent amount of foreclosed homes continue to be sold at low auction prices by sellers offering no representations or warranties on the home auctioned for sale.
- In 2020, over-leveraged SFR's have cleared the market and private mortgage investors begin investing back into the market.



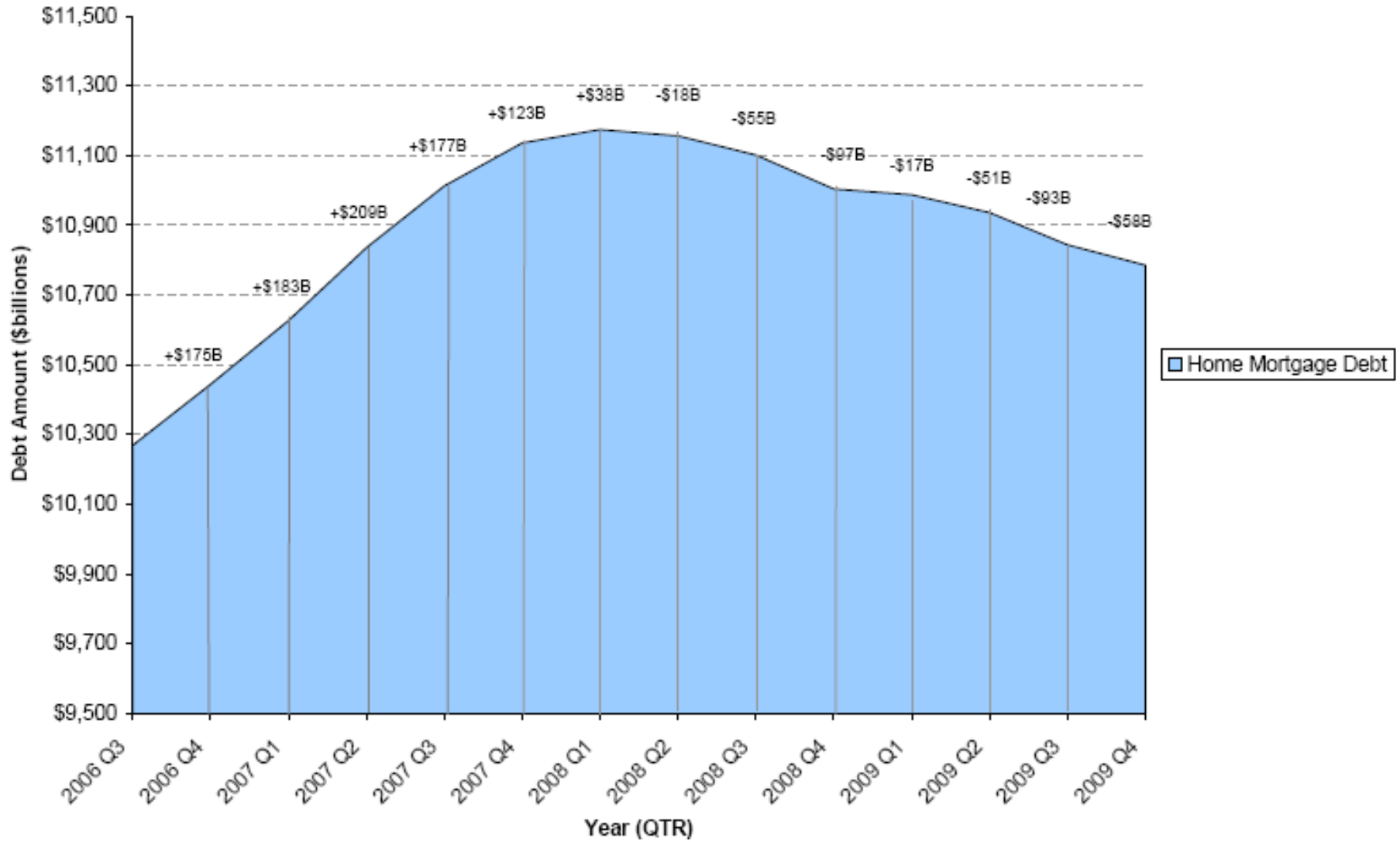
Home Mortgage Debt Outstanding and Forecast



Source: Flow of Funds Accounts, Federal Reserve Board of Governors

Graph provided by Marc Thompson and Mike Halliday

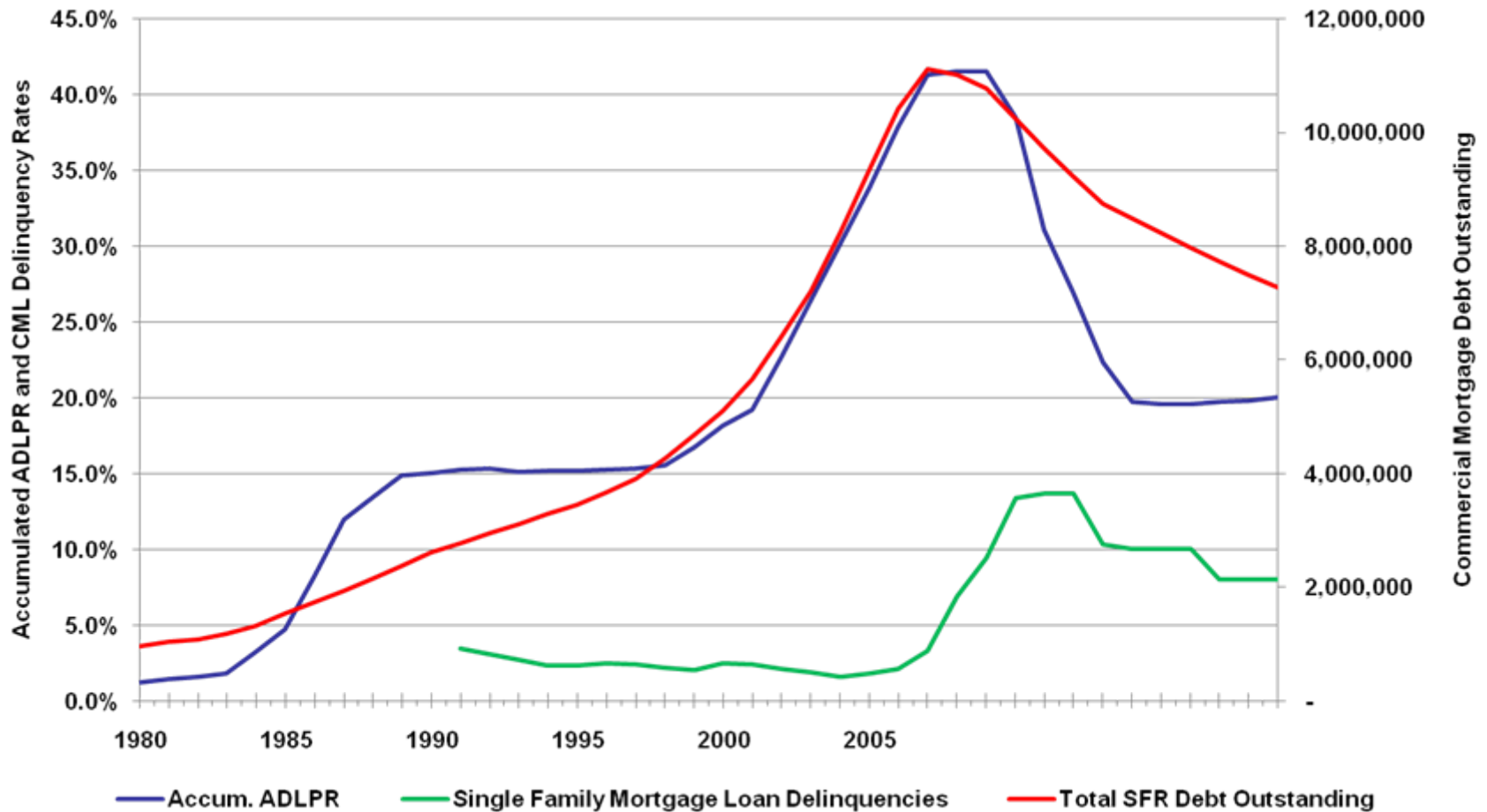
Home Mortgage Debt Outstanding From 2006 Q3 to 2009 Q4



Source: Flow of Funds Accounts, Federal Reserve Board of Governors

Graph provided by Marc Thompson and Mike Halliday

Accum ADLPR for Residential Risk was 42% in 2007 (Highest Since 1930's)



Why existing Basel II Regulation Policy for Banks will impair income property markets

- Probability of Loss and Severity of Loss amounts are ineffective rear-view mirror estimates that proliferate boom-bust cycles. When recent past history on real estate losses are high, banks would have to allocate higher capital amounts. Banks would need to charge very high rates of interest to allocate capital for these high risk new loans based on a Basel II methodology.
- The existing Basel II mathematical models are also very complex: If a Bank President cannot figure it out, neither can the marketplace.



Why Banks will continue to be challenged in making new real estate loans

- Income property Probability of Loss and Loss Severity models in banks have been too optimistic when purchasing other financial intermediaries in the past without 80% FDIC guarantee loss assistance further weakening these banks.
- The syndicated loan market between banks remains challenging given that bank syndication groups are bogged down on asset management or are in dispute among other syndication banks. Makes large loan originations above \$25MM challenging to finance.
- Bank charge-offs continue to exceed previous internal forecasts.



Why the Commercial Mortgage Backed Securities market will remain challenged.

- The income property risk assessment methodology and assumptions in existing Credit Rating Agencies remain flawed. S&P earlier this past summer 2009 tried to change its methodology and assumptions only to withdraw them after a severe backlash by investors. It is difficult to change the rules of a game when you are in the middle of playing it!
- Until a methodology and assumptions by credit rating agencies (without a current rating history of failing MBS issuances) can be relied upon by AAA investors, the loss of credibility of the existing Credit Rating Agencies will continue to impair the CMBS market's ability to function.



How to get the Commercial Mortgage Backed Securities market healthy.

- Add a debt growth risk assessment methodology into credit risk ratings for all real estate collateralized mortgages. This methodology will factor in the rate of debt growth above the CPI index year over year from a base year of 2000. This factor would increase the risk of all loans issued within a vintage year above the CPI indexed aggregate debt amount.
- Have the SEC require at least two credit agency risk assessments on newly issued MBS and related security issuances. Credit rating agency risk assessment fees remain negotiable, but must be the same paid for both credit rating agencies. This may lead to a regulated fixed fee scale set on the number of collateralized mortgages in each issuance or by some other metric.



Impact of Real Estate Deleveraging Forecast I

- Real estate investors will experience over the next five years weakness in income property prices due to the long process of clearing the market of distressed and foreclosed real estate debt.
- Most banks with large real estate loan positions on its balance sheets will be managing their existing positions in real estate loans. Most Banks will most likely not lend in the near future in order to shrink its balance sheet to preserve and stay within existing regulated capital requirements. Expect continued bank consolidations and liquidations over the next three years.
- Fannie Mae, Freddie Mac, and FHA will continue to incur losses for many years. The question is: what will Congress do with these entities incurring losses over such a long time?



Impact of Real Estate Deleveraging Forecast II

- Unless a radical shift is made within existing credit rating agencies, don't expect the CMBS market to help the income property market in any material way for a number of years. It is most likely that competent B-piece buyers will be managing the structure and growth of this real estate finance market.
- Single family mortgages will remain dominated by government sponsored entities for years since risk-rewards of private investors remain out of the market compared with single family mortgages that have a federal guarantee against loss together with federally subsidized lower interest rates.
- Federal, State, and local budgets highly dependent of housing growth in both new units and prices will continue to face higher deficits primarily due to the continued impact of deflation on real estate prices.



Impact of Real Estate Deleveraging Forecast III

- Portugal, Italy, Ireland, Greece, and Spain (PIIGS) together with the UK, European Union, Japan, and the U.S., will continue to face higher budget deficits due primarily to the ill effects of deleveraging in real estate.
- Adding the conservatorship debts of GSE's of over \$7 Trillion, brings the U.S. above 130% of GDP. Together with a budget deficit of \$1 Trillion, U.S. country risk is increasing significantly and rapidly.
- IMF bailout plans with debt for countries like Greece will not work this time around given that the scale of global debt has reached unsustainable levels compared to previous debt crisis'.



Impact of Real Estate Deleveraging Forecast IV

- According to a Reinhart & Rogoff paper called “This Time is Different: A Panoramic View of Eight Centuries of Financial Crises” dispels the false belief that domestic debt is a novel feature of the modern financial landscape. It also confirms that crises frequently emanate from the financial centers with transmission through interest rate shocks and commodity price collapses.
- Reinhart & Rogoff Rule of thumb: If country debt exceeds 90% of GDP, GDP growth potential drops 1% due to debt service.
- Country Risk is Back!



Impact of Real Estate Deleveraging Forecast V

- The world's financial markets are interdependent. Expect issues such in Greece to reveal new world financial risks.
- Greece is the European Union's first major economic test of significant scale. The European Union's future has a growing risk of collapsing as stronger countries become financially weaker bailing out financially insolvent countries.
- HOPE: The world's Commercial Banking systems will continue to be the key for solving this real estate debt crisis. Central Banks are expected to support the shift of loan losses into the future to provide enough time to have its banks increase earnings to build up enough reserves to absorb real estate losses over the next decade. Banks recognizing losses sooner will only increase the risk of collapse of banks and the economies of countries.

