

# MACRO MARKETS



## Real Estate Derivatives

May 18, 2007

“Derivatives 2007” NYU Stern School

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# U.S. Housing: An Incomplete Market

Until very recently...

Direct investment/hedging limited to buying/selling houses

- Transaction friction & constraints
  - Limited Liquidity
  - Costly and Slow
  - Impossible to short
  - Difficult to diversify



# Sizing-Up Housing as a Financial Market

- Scale
- Conditions
- Reliable Price Measurement
- Emerging Products
- Stakeholders



# Market Scale

## The United States at night



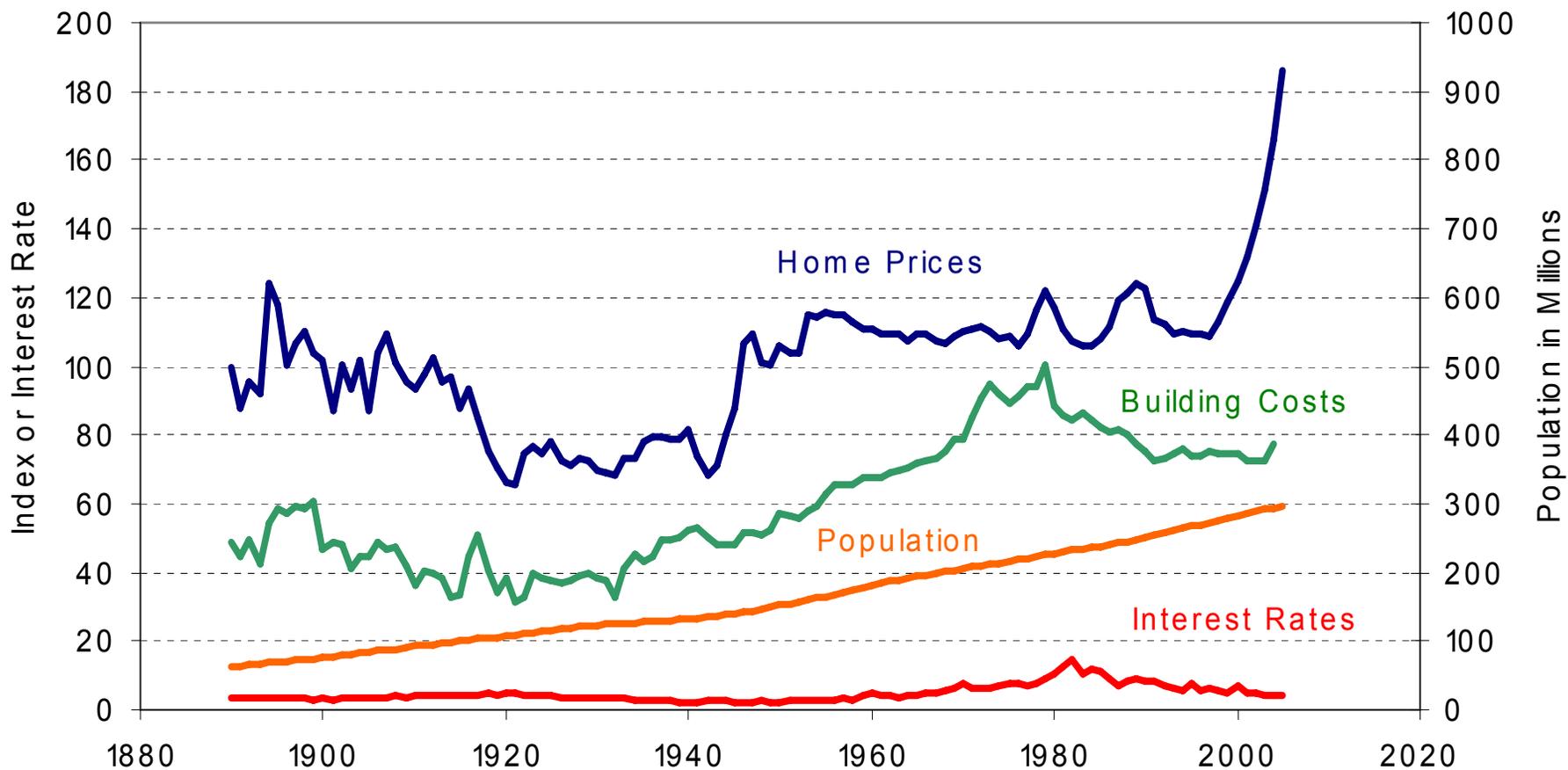
# Unique Performance: US Housing vs. Other Assets

(Quarterly, 2006)

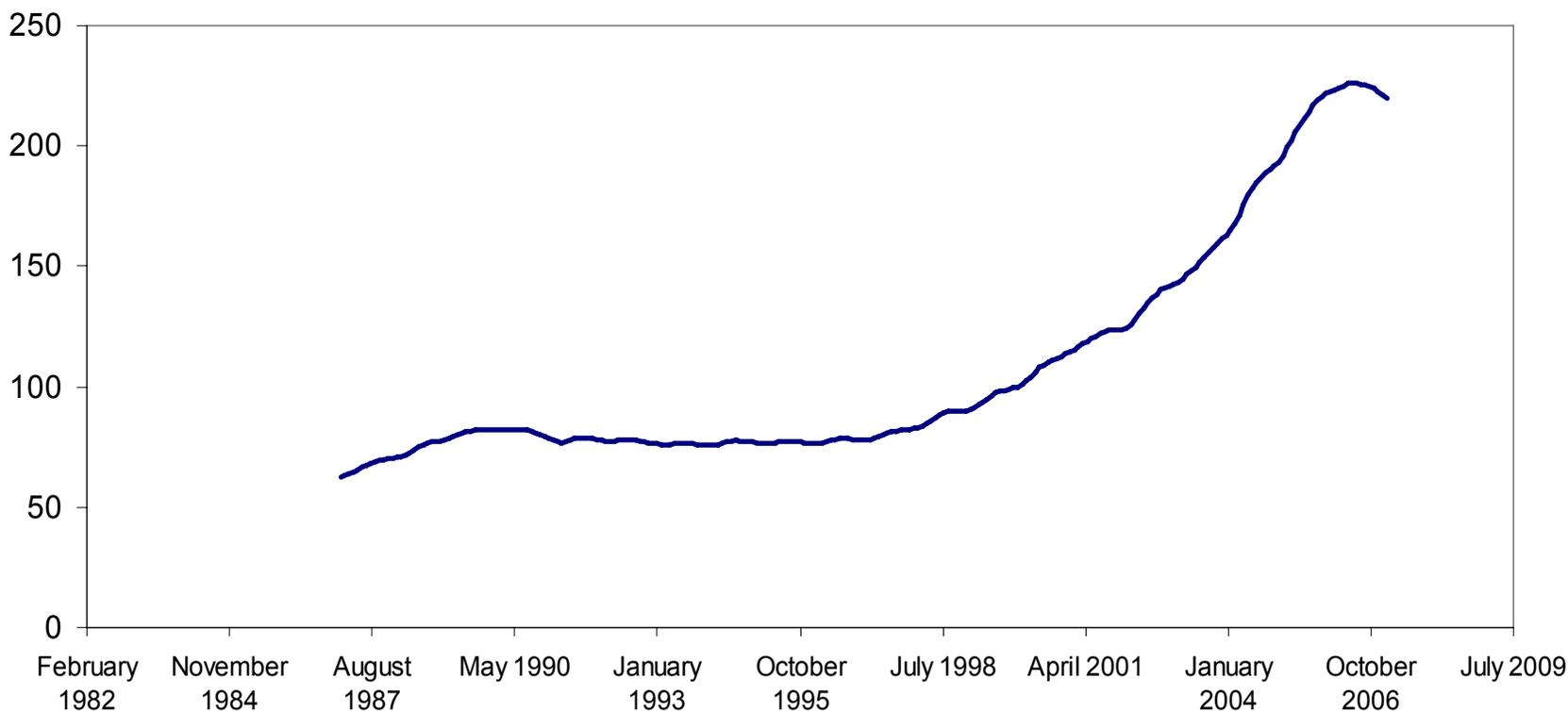
1 YEAR	Correlation	Return	Volatility	Sharpe
S&P/CSI	N/A	-0.54%	0.59%	0.41
JP Morgan Gov't Bond Index	N/A	6.01%	1.69%	0.43
GSCI Total Return Index	N/A	-15.10%	7.79%	-0.44
NARIET Price Index	N/A	22.73%	4.80%	2.29
S&P 500	N/A	11.09%	3.61%	2.47
10 YEAR	Correlation	Return	Volatility	Sharpe
S&P/CSI	1.00	129.42%	1.29%	2.20
JP Morgan Gov't Bond Index	-0.18	84.94%	2.48%	1.03
GSCI Total Return Index	0.55	59.86%	8.69%	0.35
NARIET Price Index	0.17	94.42%	6.52%	0.39
S&P 500	-0.11	81.43%	5.69%	0.32
20 YEAR	Correlation	Return	Volatility	Sharpe
S&P/CSI	1.00	202.60%	1.45%	1.05
JP Morgan Gov't Bond Index	-0.30	289.75%	2.55%	1.28
GSCI Total Return Index	0.24	514.16%	7.65%	0.51
NARIET Price Index	0.14	75.75%	6.48%	0.21
S&P 500	-0.21	410.30%	5.57%	0.58



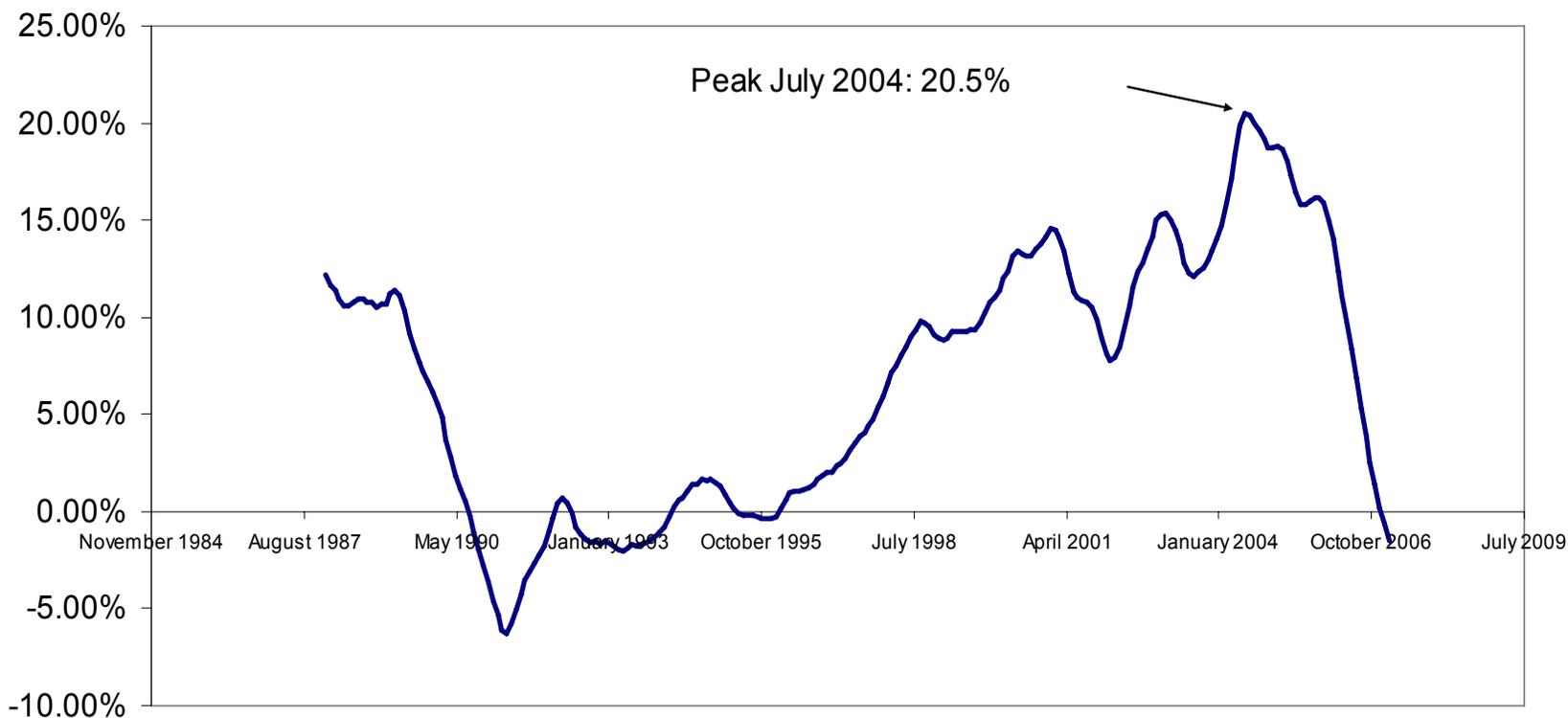
# U.S. Housing: Historical Perspective (1890 - 2005)



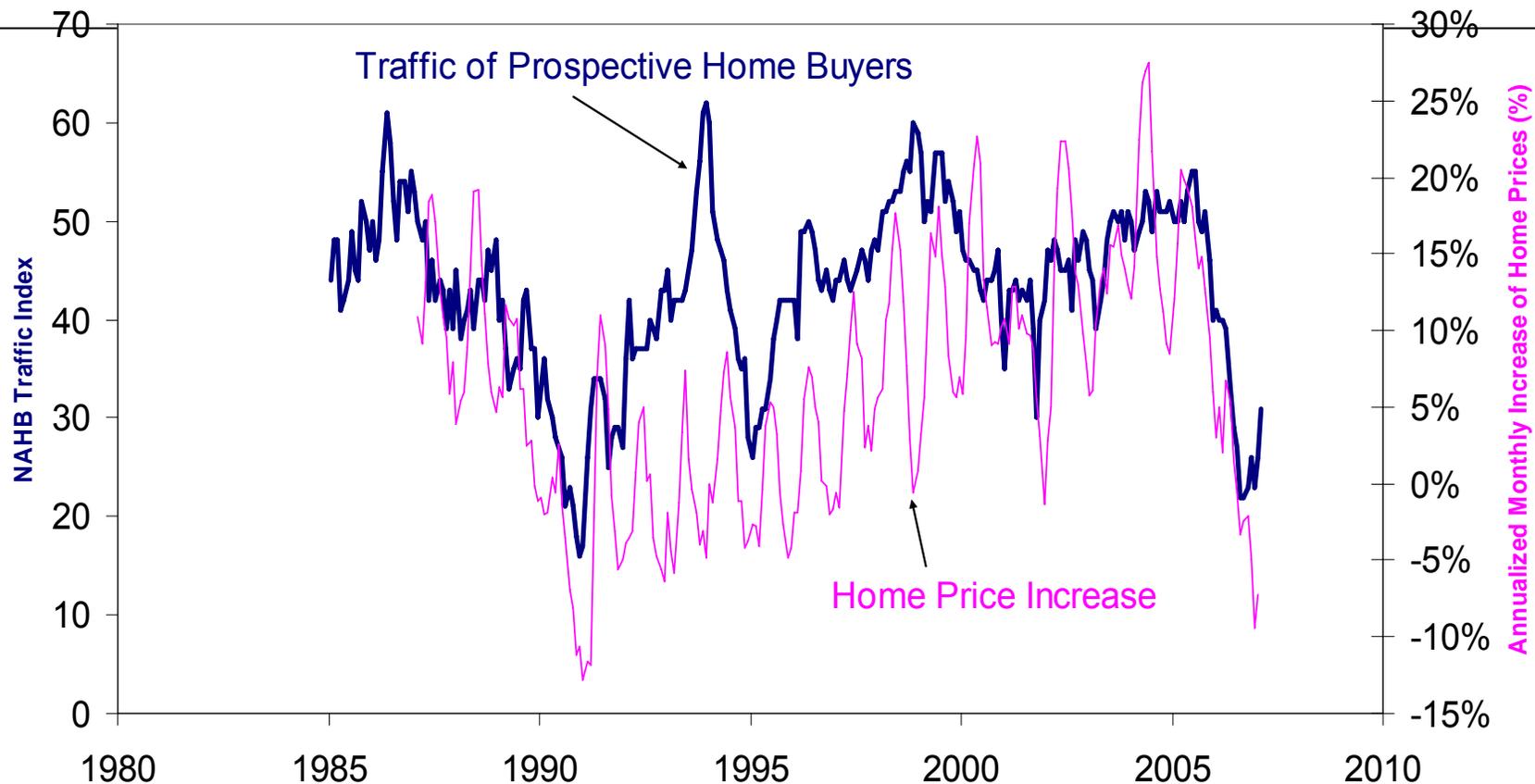
# S&P/Case-Shiller Composite (10-City) Home Price Index Jan 1987-Feb 2007



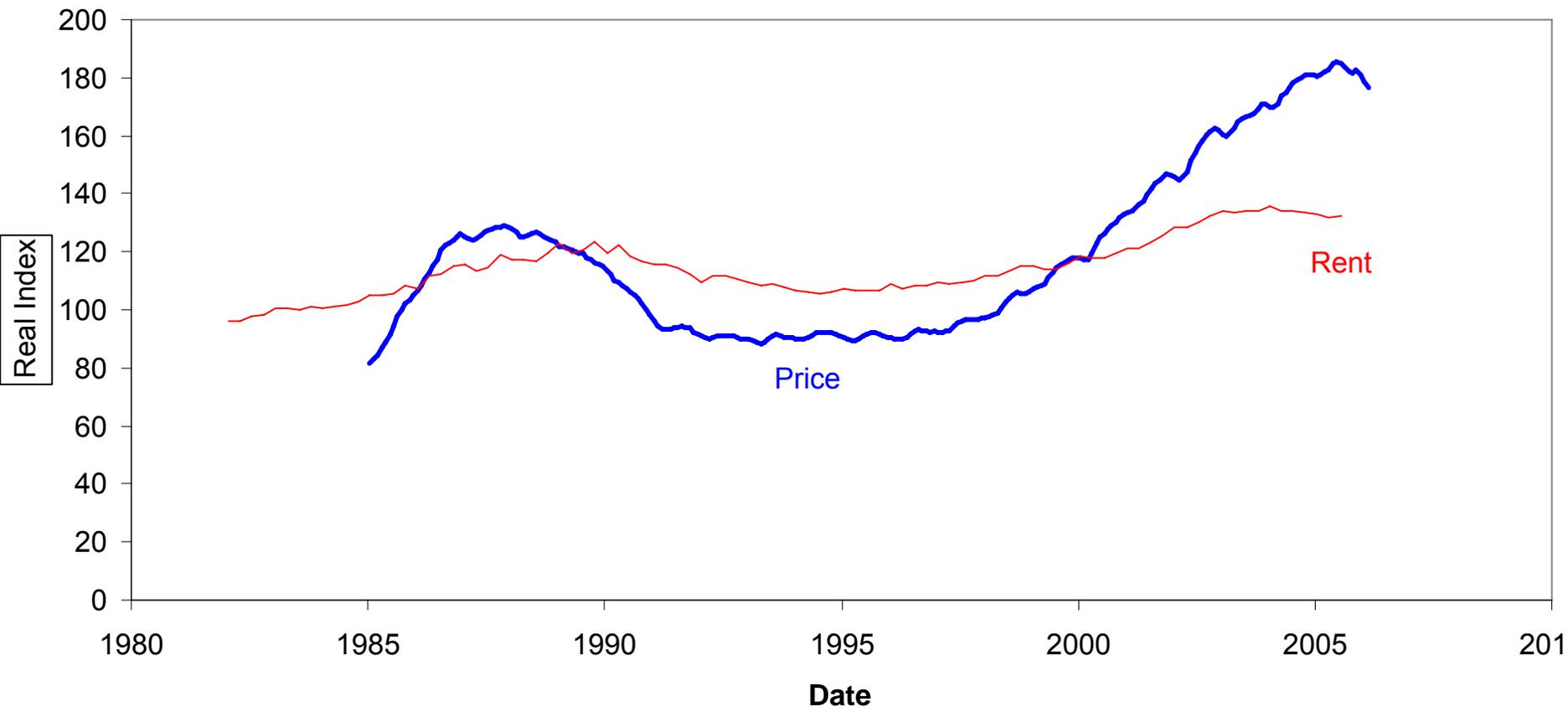
# S&P/Case-Shiller 12-Mo. Growth Rate of Home Prices Jan 1988 to Feb 2007



# NAHB Traffic of Prospective Buyers and S&P CSI Composite Home Price Increase

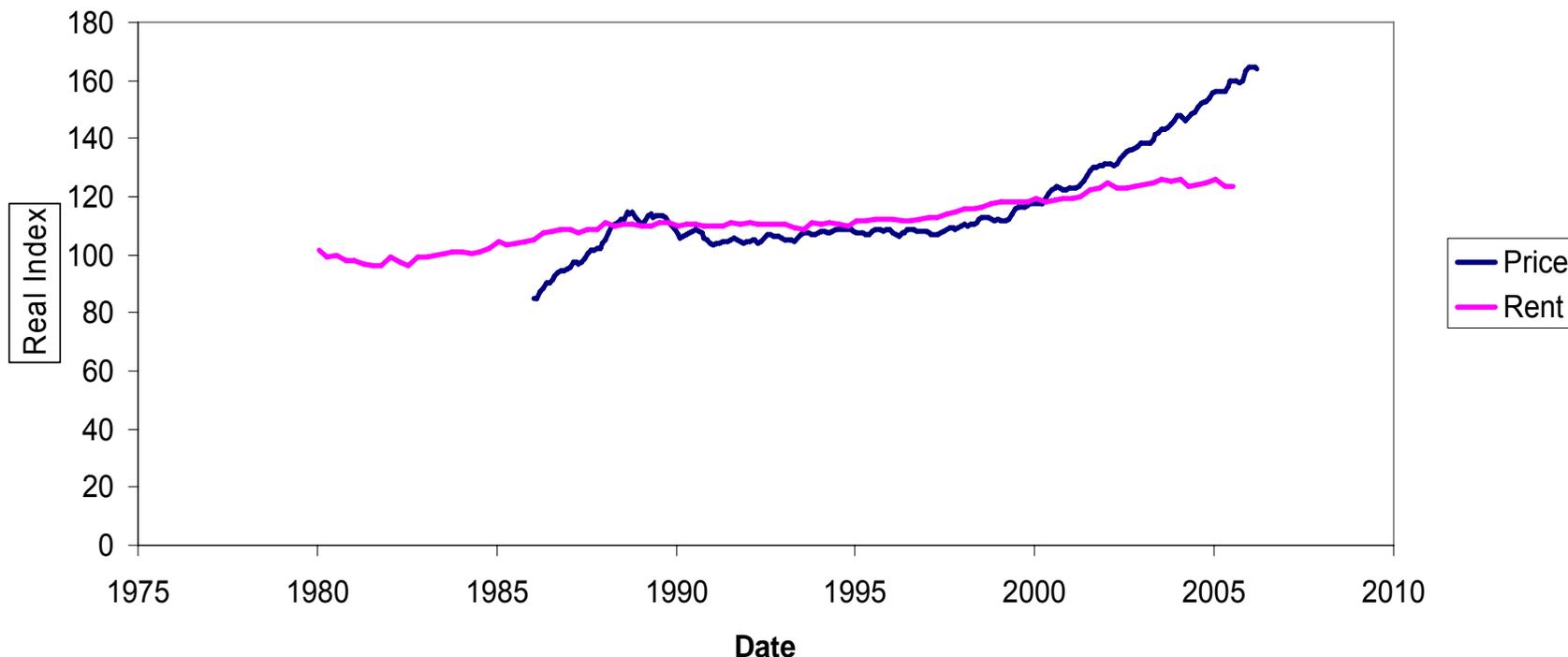


# Boston: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence Index



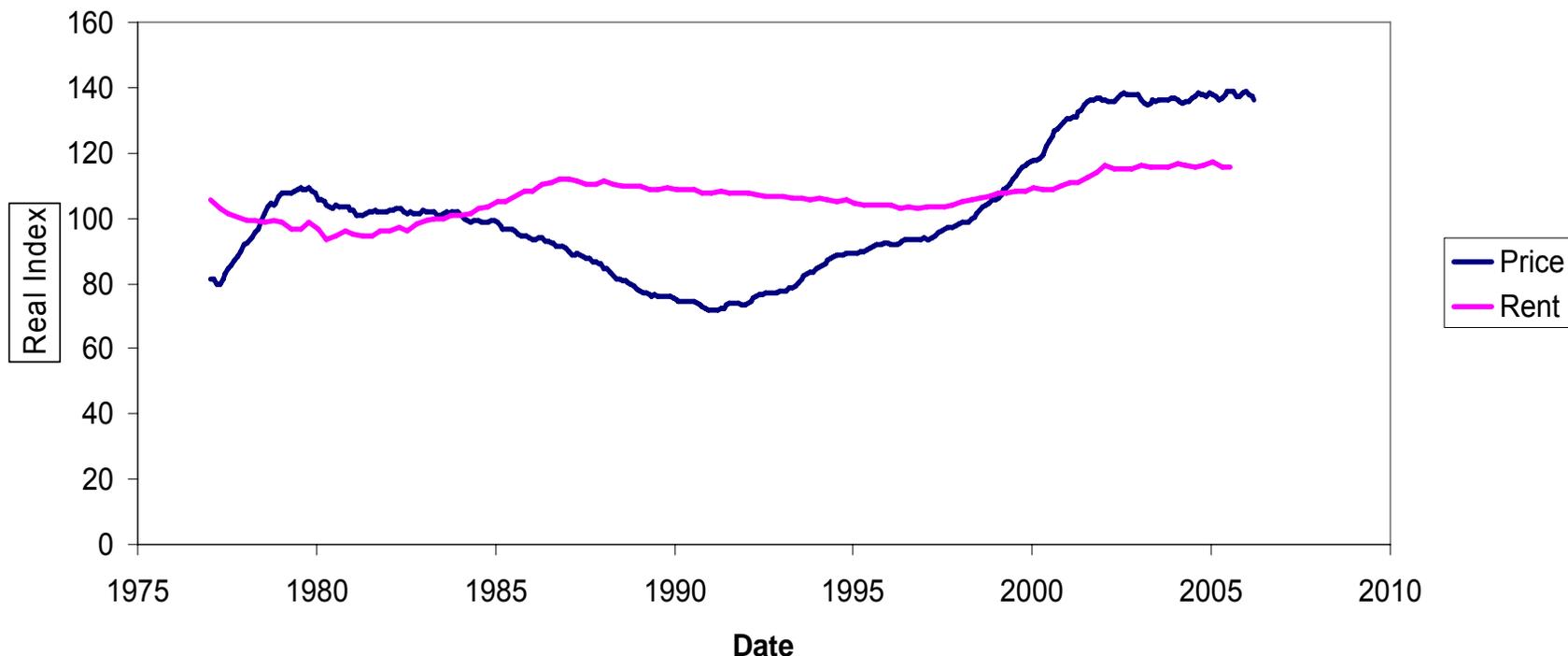
# Chicago: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence

Chicago Homes



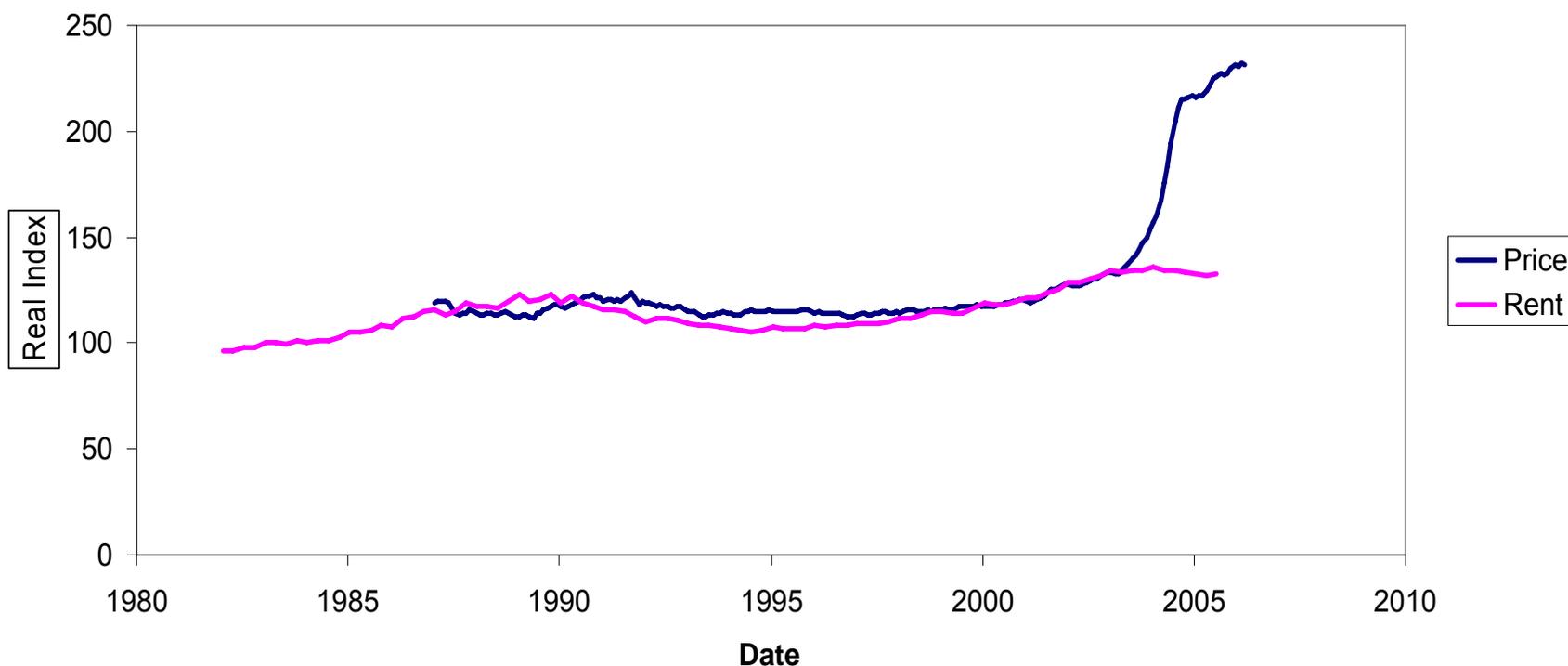
# Denver: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence Index

Denver Homes



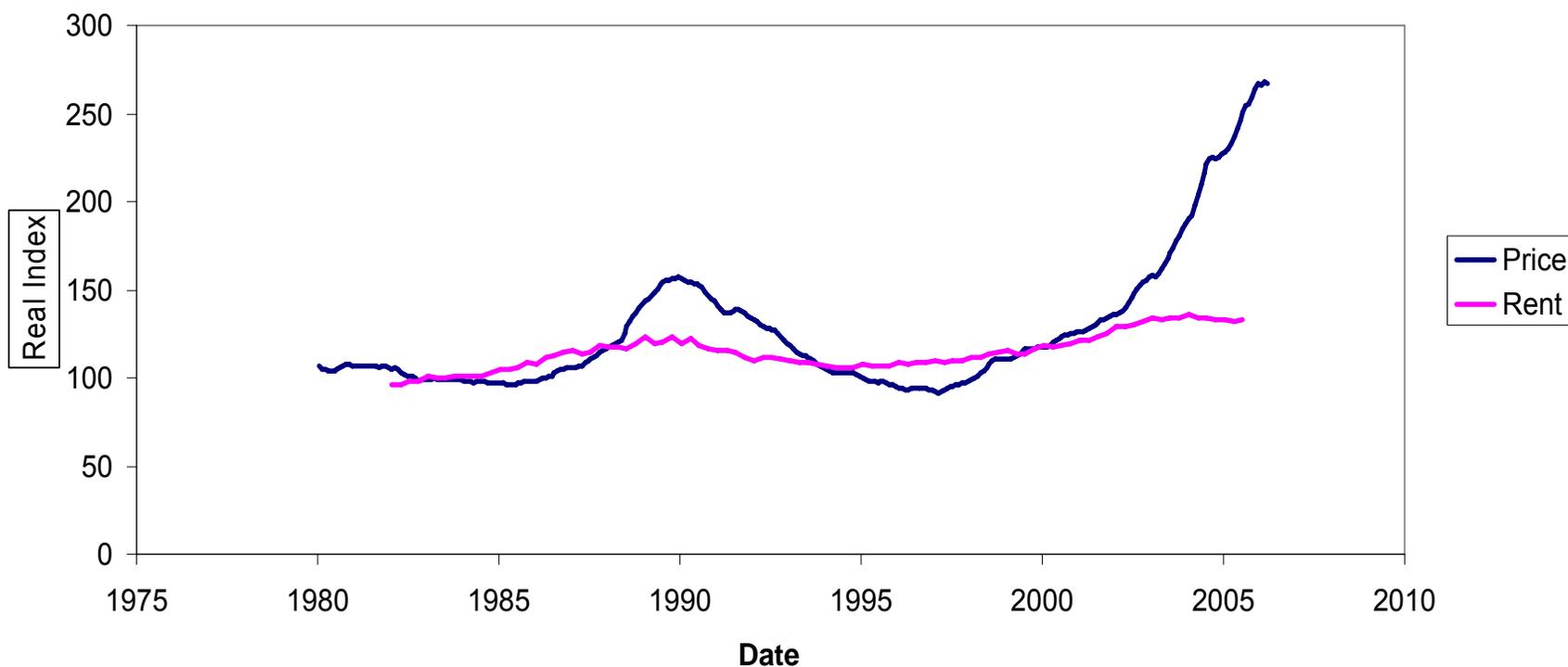
# Las Vegas: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence

Las Vegas Homes



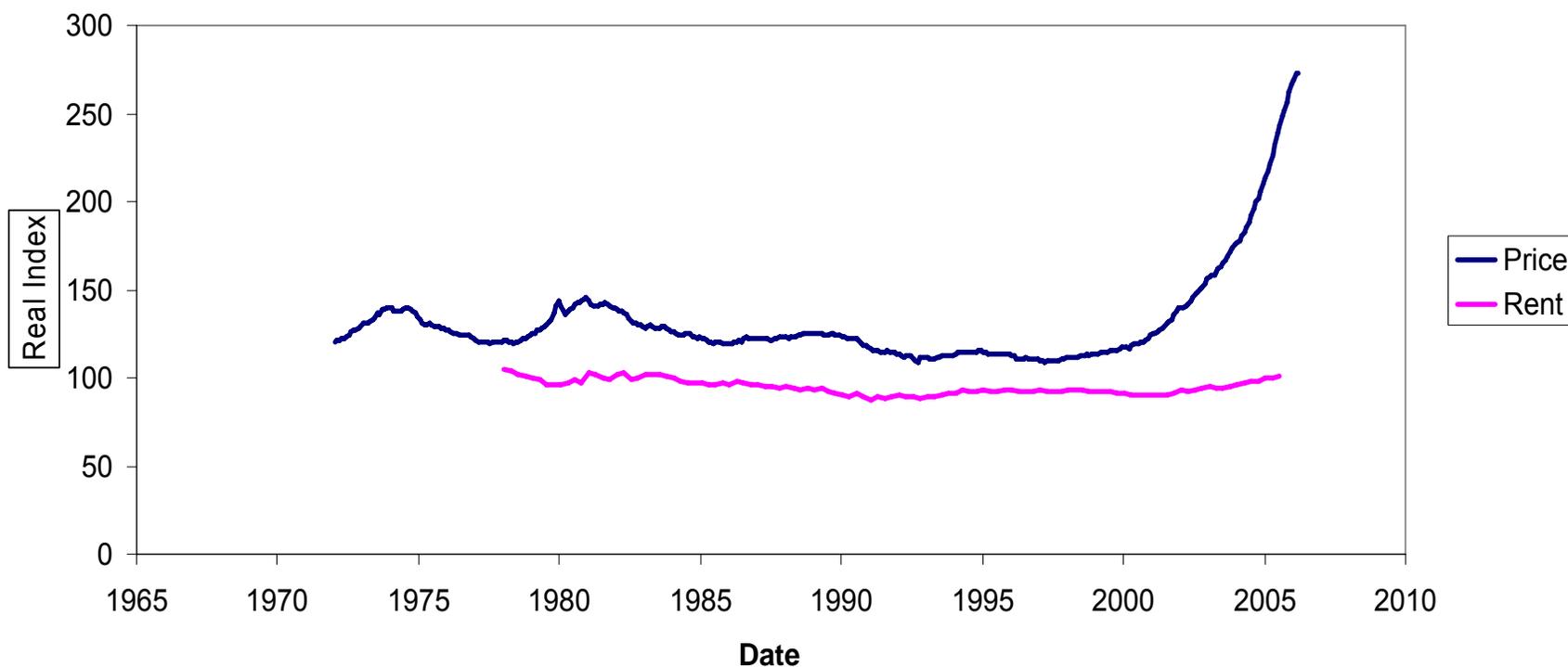
# Los Angeles: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence

Los Angeles Homes



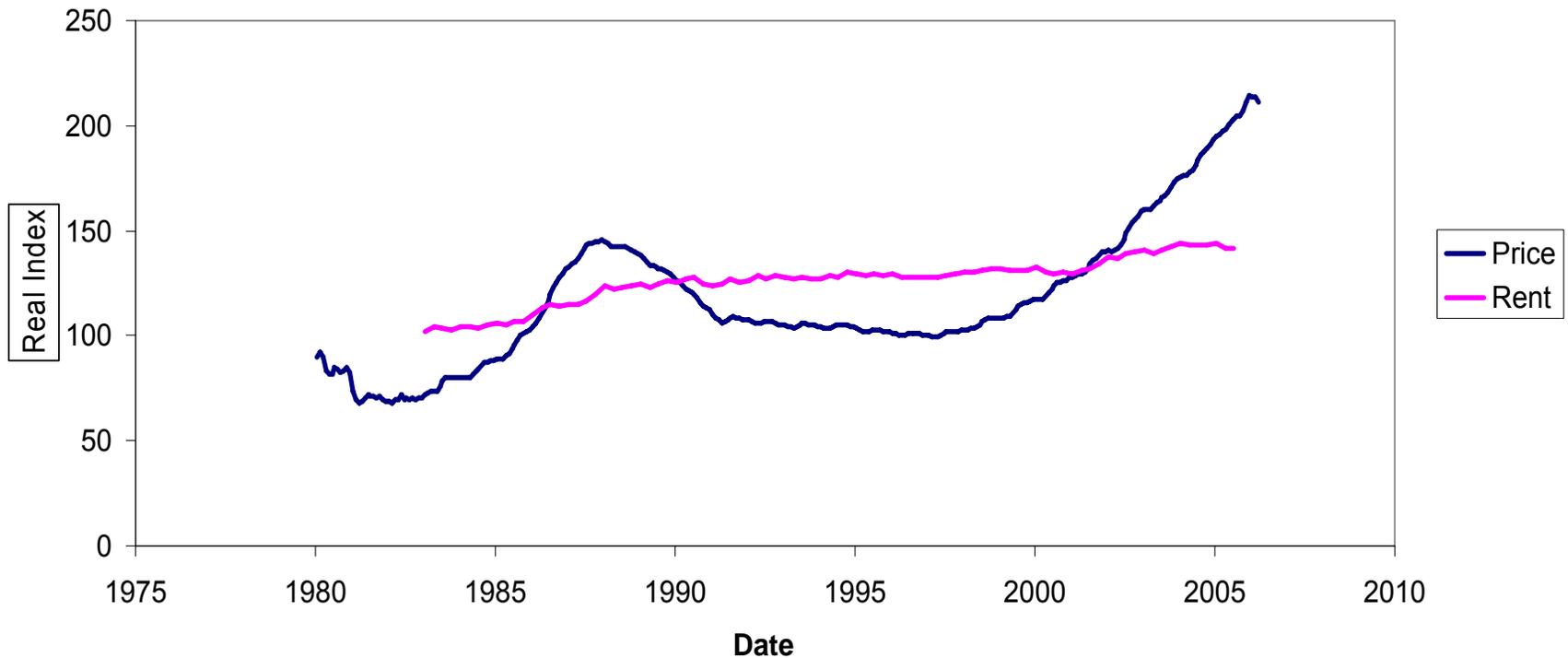
# Miami: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence Index

Miami Homes



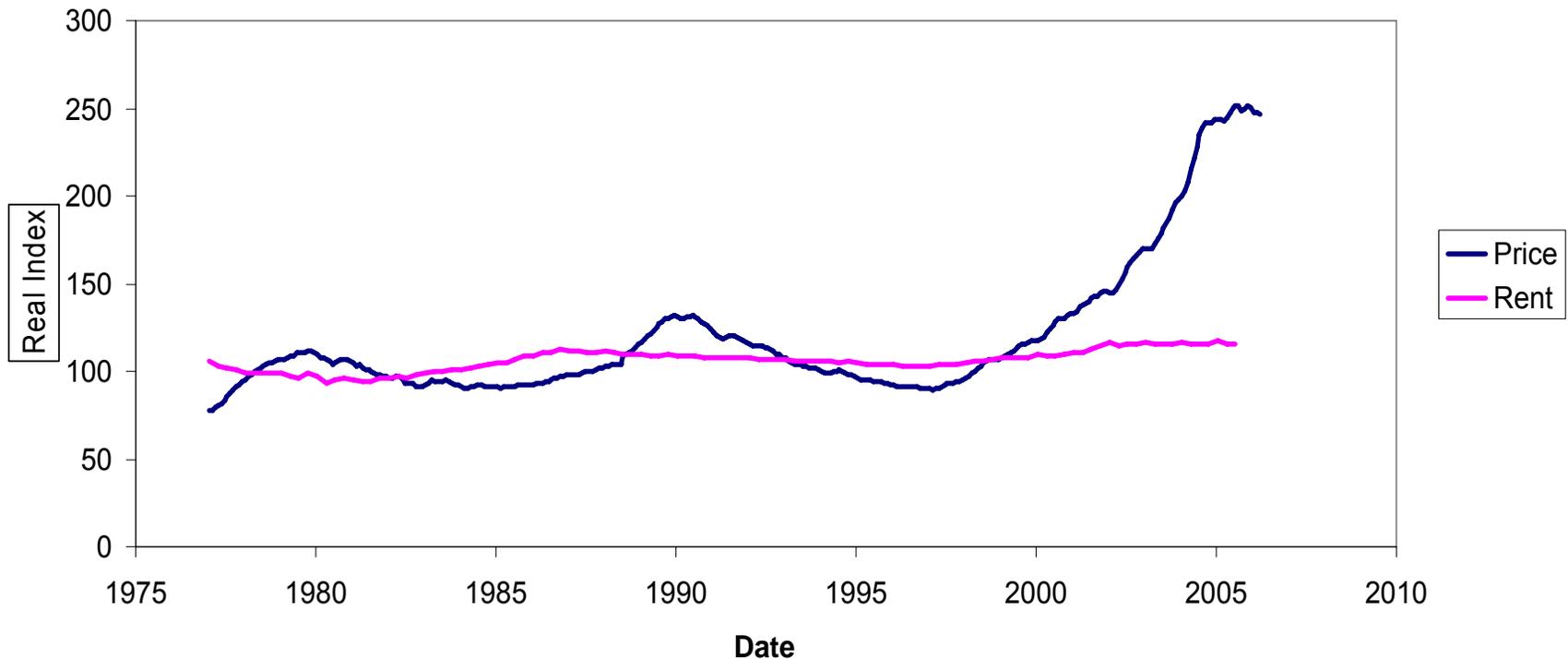
# New York: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence Index

New York Homes



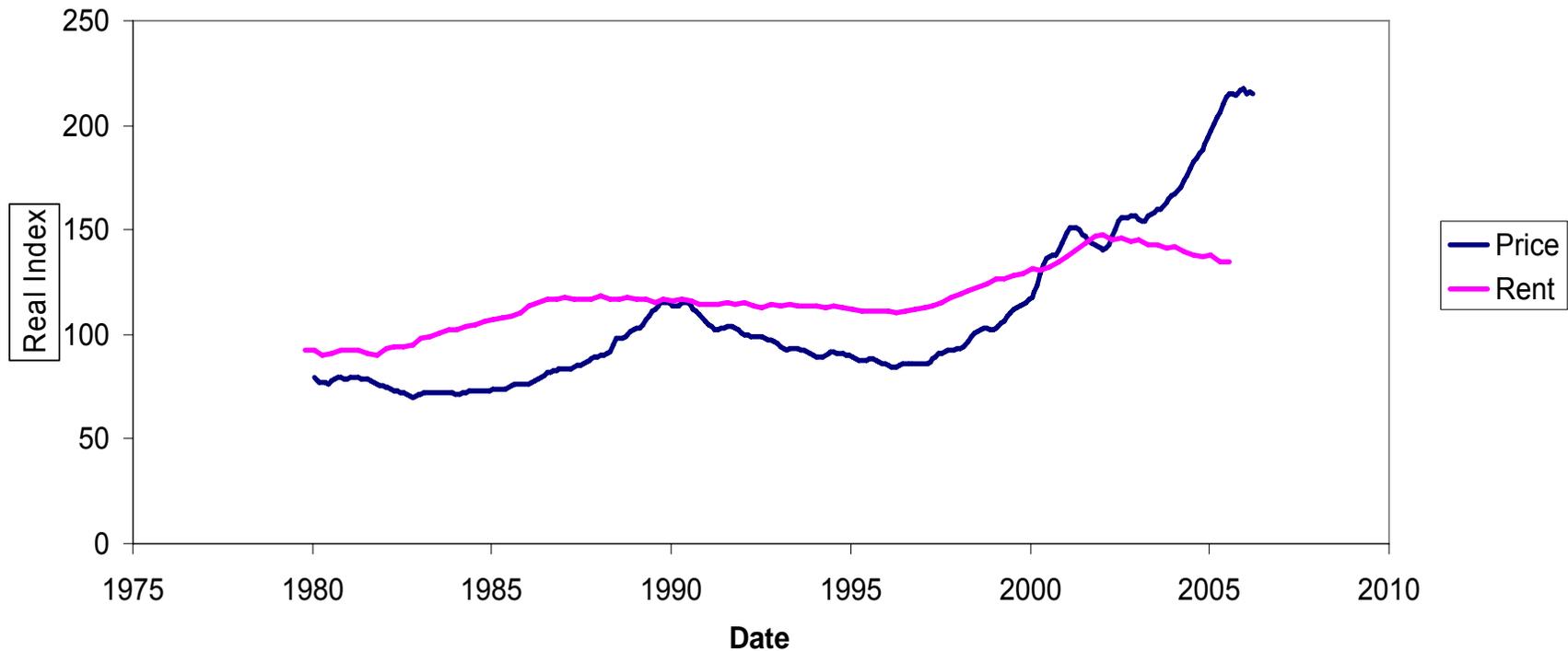
# San Diego: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence Index

San Diego Homes



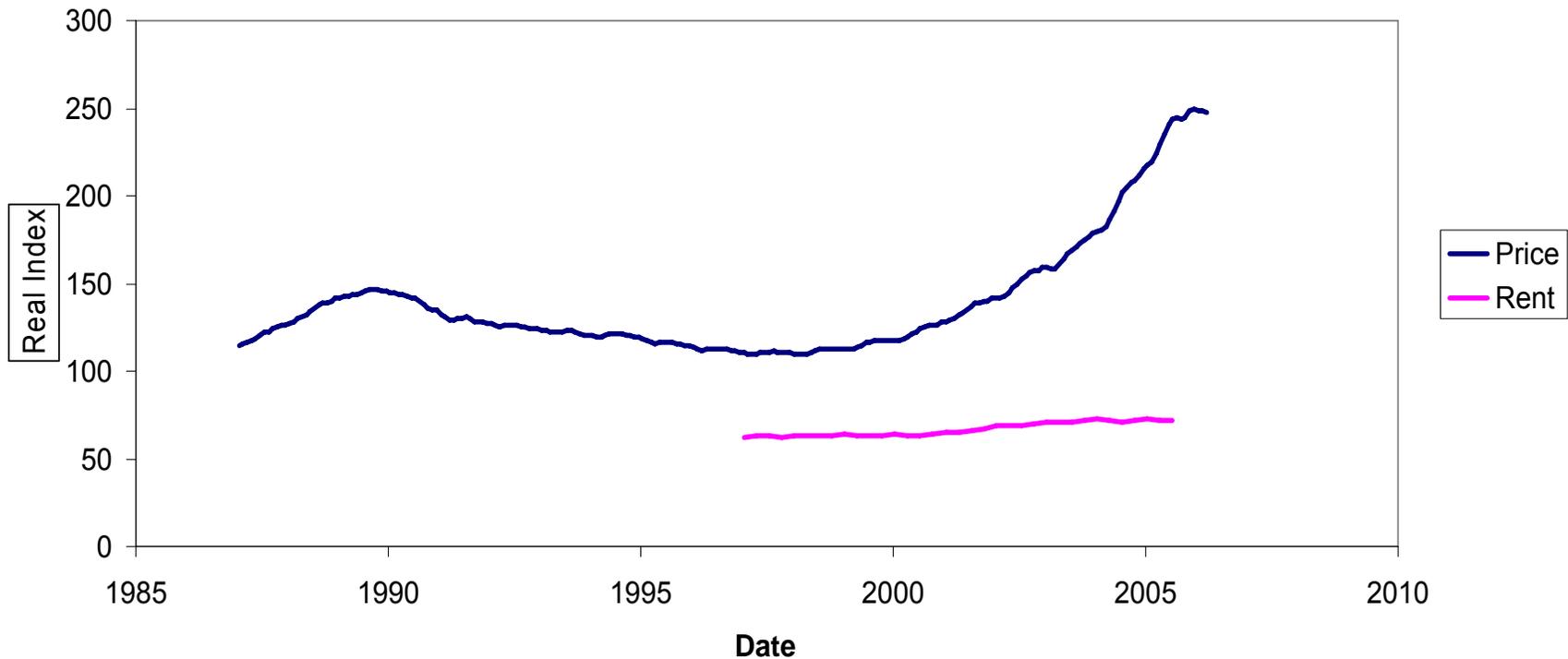
# San Francisco: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence Index

San Francisco Homes



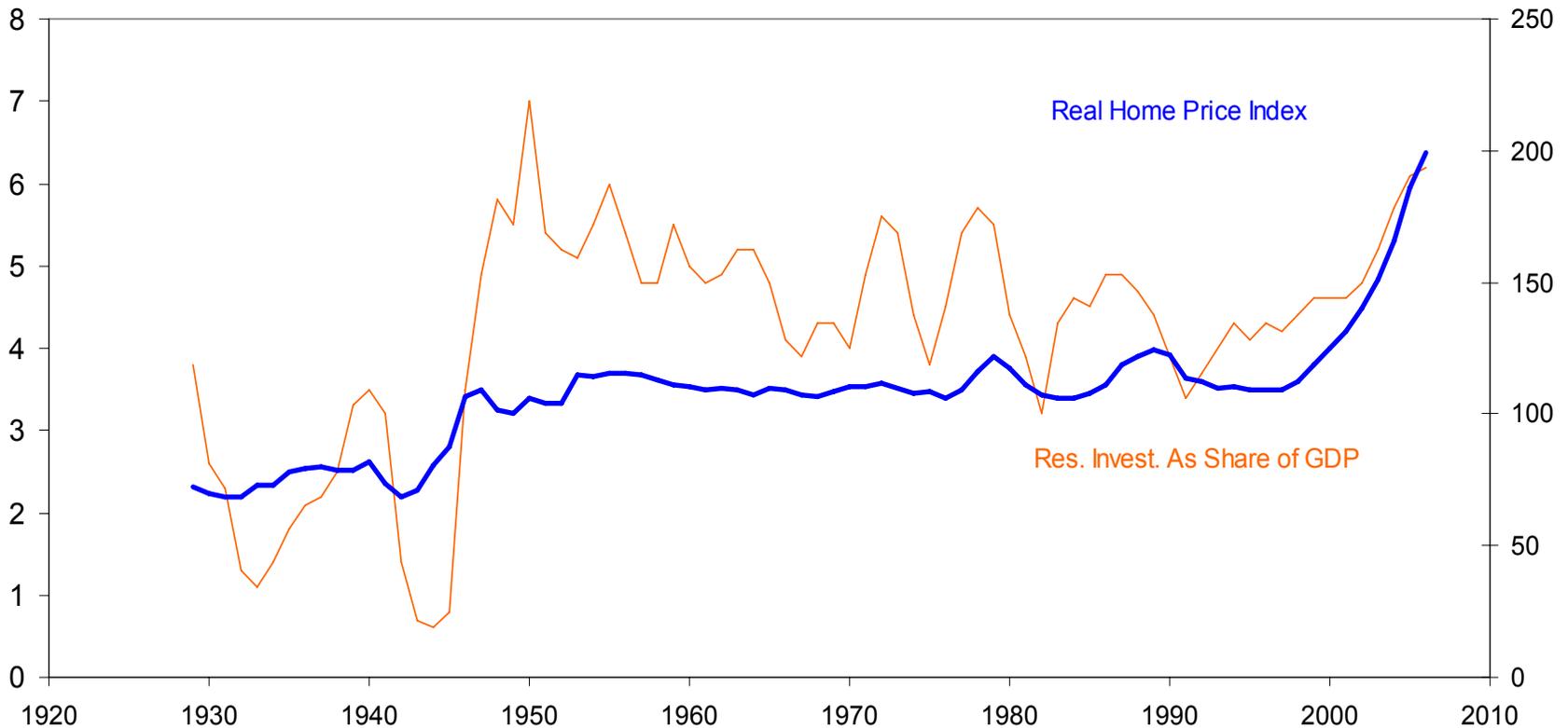
# Washington DC: S&P/Case-Shiller Home Price Index And BLS Rent of Primary Residence Index

Washington DC Homes

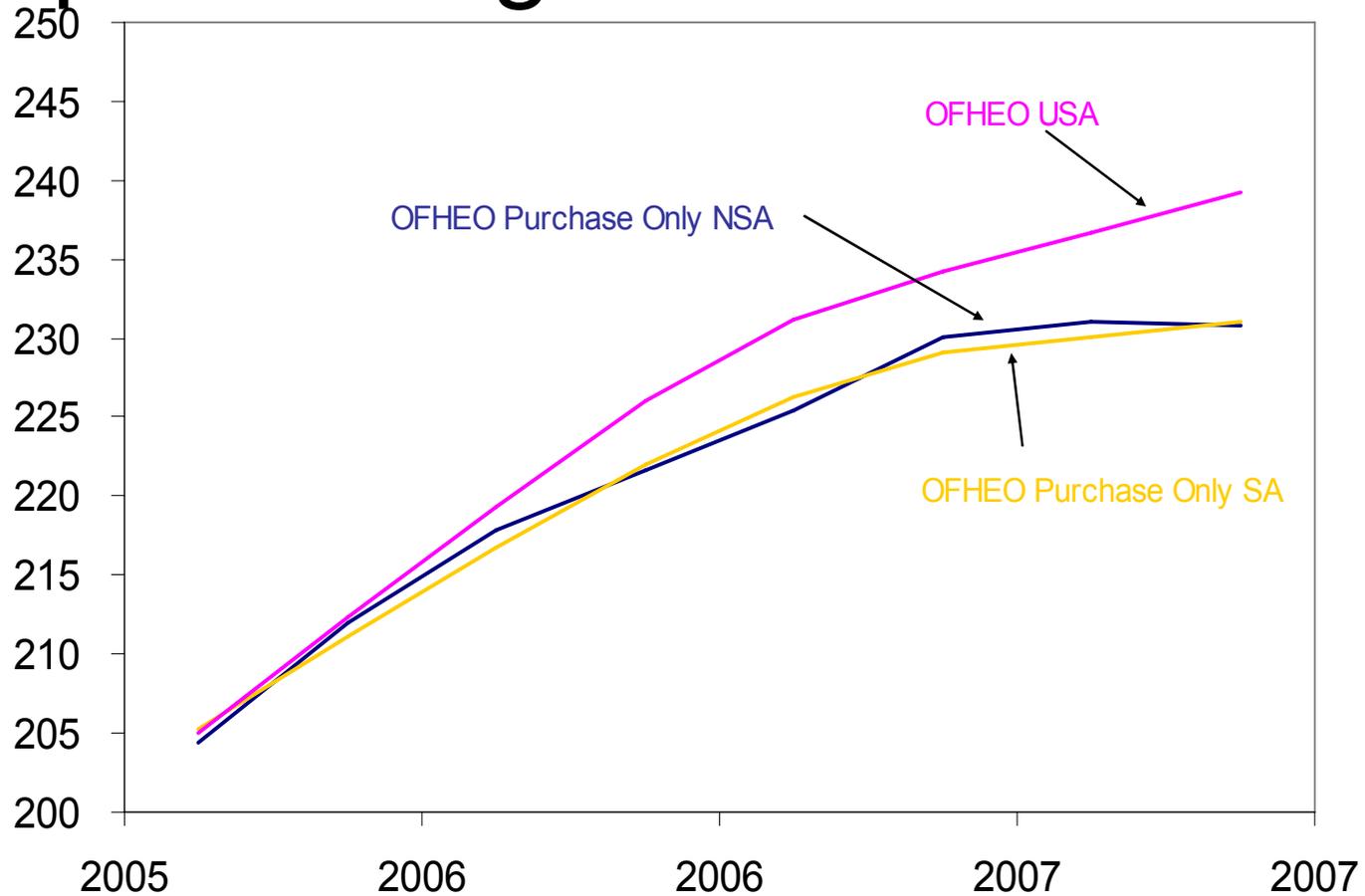


# Residential Investment/GDP (%) 1929-2006

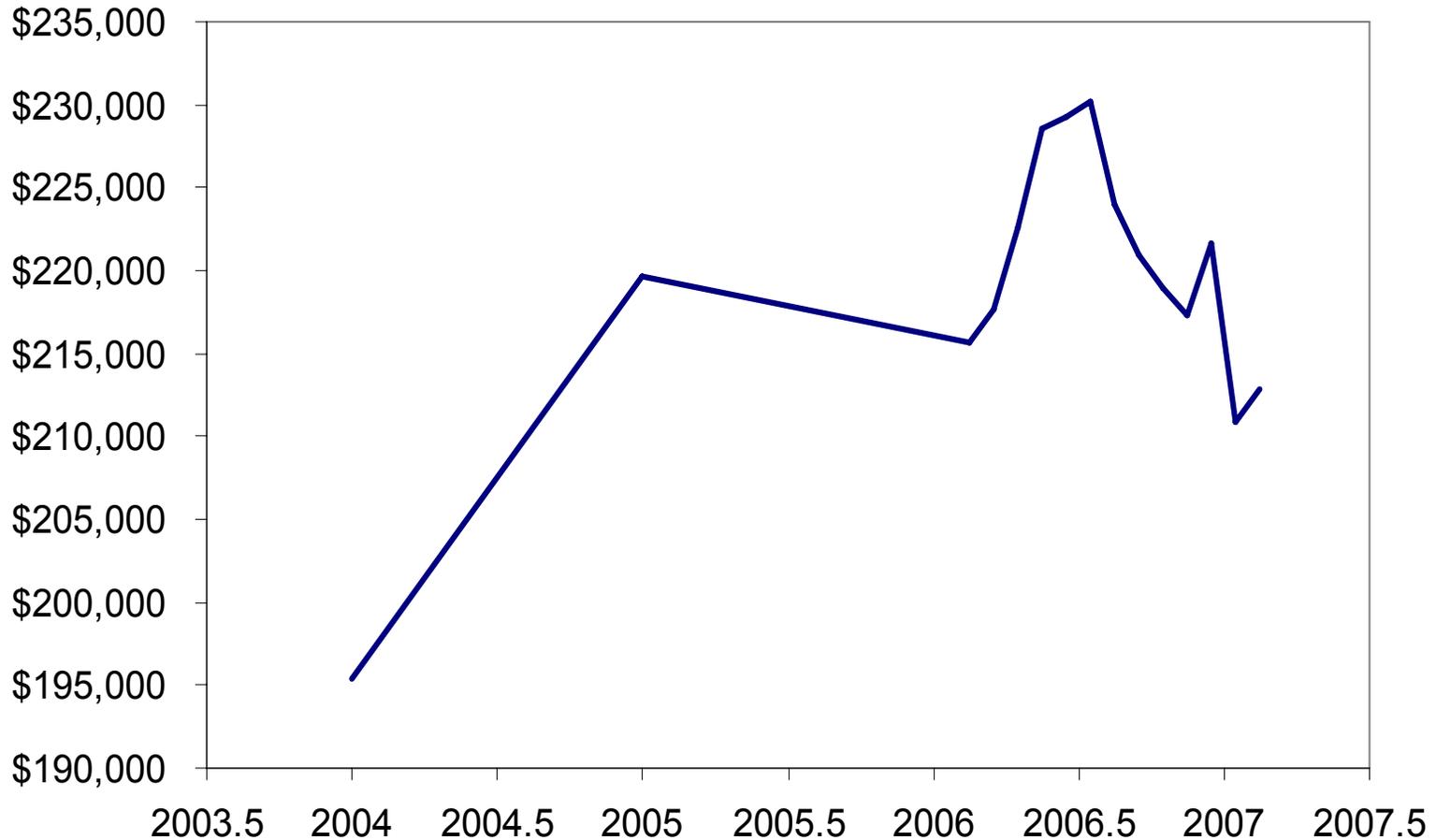
## Real Home Price Index 1929-2006



# Compare OFHEO Indices – Short Sample Ending 2006-IV



# Recent NAR Median Home Price (Ending Feb 2007)



# Market Conditions

- Mounting Supply, Cancellation Rates
- Diminishing Sales
- Tightening Loan Underwriting
- Subsiding Speculation
- Uncertain Price Appreciation
- Changing Psychology

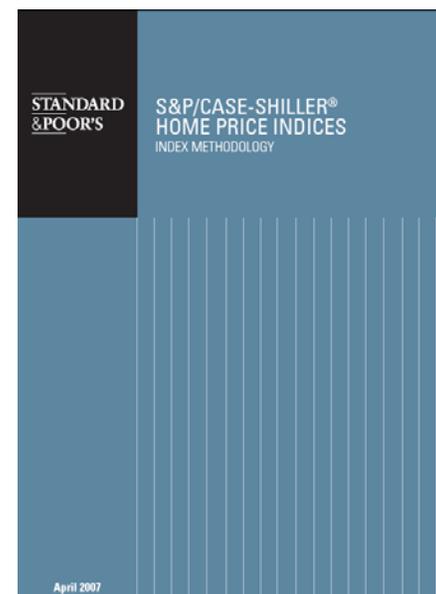
"The adverse publicity surrounding the sub-prime market has further damaged home buyers' psychology"

- Hovnanian Enterprises, May 4, 2007



# Reliable Price Measurement

## S&P / Case-Shiller<sup>®</sup> Home Price Indices



# Emerging Products: CME Housing Futures & Options

CME Alternative Investment Products

## CME Housing Futures and Options

**OVERVIEW** CME Housing futures and options are the first comprehensive financial tools that make it possible to trade U.S. real estate values. These products provide opportunities for protection or profit in up or down markets, and extend to the housing industry the same tools for risk management and investment that previous CME innovations have brought to agriculture and finance.

### CONTRACTS

Based on the S&P/Case-Shiller® Home Price Indices, CME Housing futures and options are cash-settled to a weighted composite index of U.S. real estate prices, as well as to specific markets in 10 major U.S. cities:

<b>Boston</b>	<b>Miami</b>
<b>Chicago</b>	<b>New York</b>
<b>Denver</b>	<b>San Diego</b>
<b>Las Vegas</b>	<b>San Francisco</b>
<b>Los Angeles</b>	<b>Washington D.C.</b>

### BENEFITS OF TRADING CME HOUSING

- » A new means of risk transfer to a broad range of investors
- » Low cost exposure to real estate values without direct ownership of properties
- » Access to a unique asset class
- » Opportunity to profit from a movement in housing prices
- » A way to make trading in real estate a short-term and liquid investment

### HOME PRICES VS. MORTGAGE RATES



CME Housing futures and options have the potential for fostering stability in the housing industry.

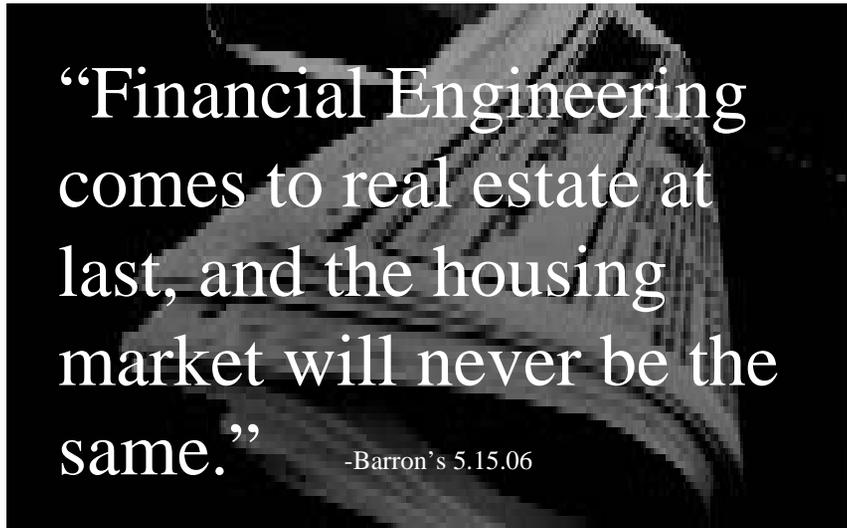
### MARKET PARTICIPANTS

Businesses whose profits or losses are related to any area of the housing industry

- » property and real estate developers
- » banks
- » mortgage lenders
- » home suppliers

Businesses seeking exposure to an uncorrelated asset class

- » hedge funds
- » commodity trading advisors (CTAs)
- » pension funds
- » foreign investors



“Financial Engineering comes to real estate at last, and the housing market will never be the same.”

-Barron's 5.15.06



# Emerging Products: CME Housing Futures & Options

	Implied Premium/Discount in Futures Market				
	February 2007*	May 2007	Aug 2007	Nov 2007	Feb 2008
Boston	168.28	-0.62%	-1.81%	-3.83%	-4.90%
Chicago	167.54	-0.54%	-1.25%	-2.09%	-3.16%
Denver	135.86	-1.08%	-2.71%	-3.60%	-4.64%
Las Vegas	230.52	-0.63%	-2.28%	-3.85%	-5.50%
Los Angeles	268.67	-0.54%	-2.11%	-3.09%	-4.29%
Miami	279.42	-0.51%	-1.59%	-3.73%	-4.66%
New York	211.50	-0.04%	-1.08%	-3.27%	-4.12%
San Diego	237.16	-0.74%	-2.10%	-3.88%	-5.32%
San Francisco	211.77	-0.46%	-1.32%	-3.12%	-4.17%
Washington, DC	238.05	-0.61%	-1.95%	-3.97%	-5.15%
Composite-10	220.90	-0.70%	-2.06%	-3.61%	-4.79%

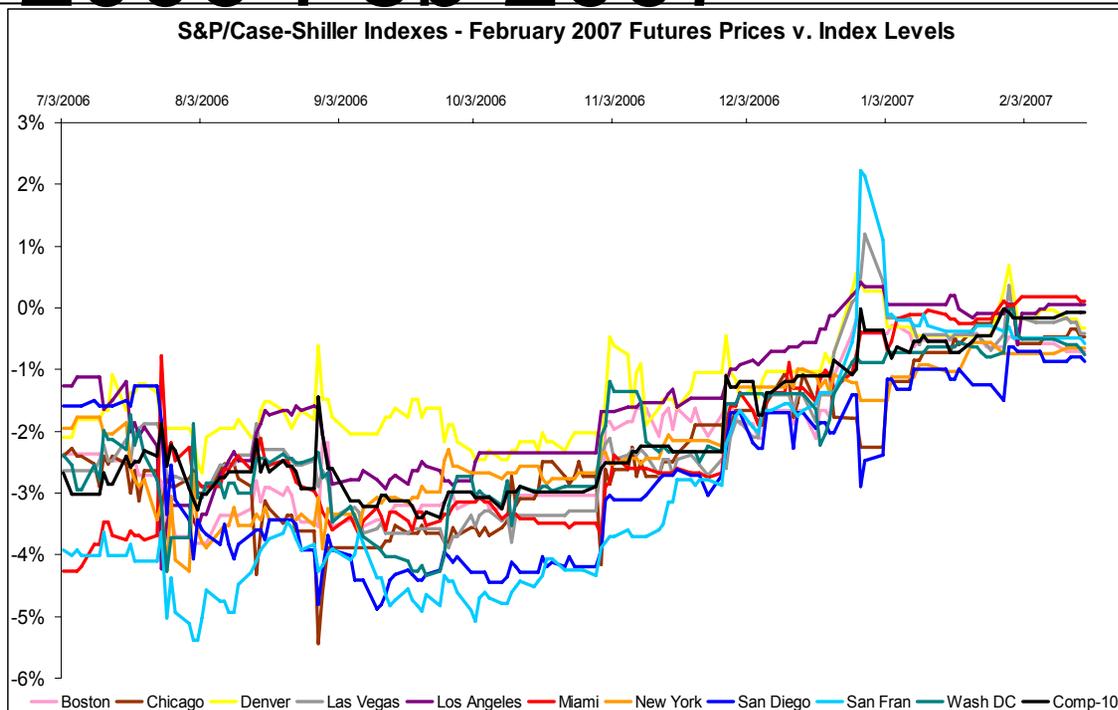
\* Released April 24, 2007

\*\* Futures Prices as of May 4, 2007



# CME Futures Discounts

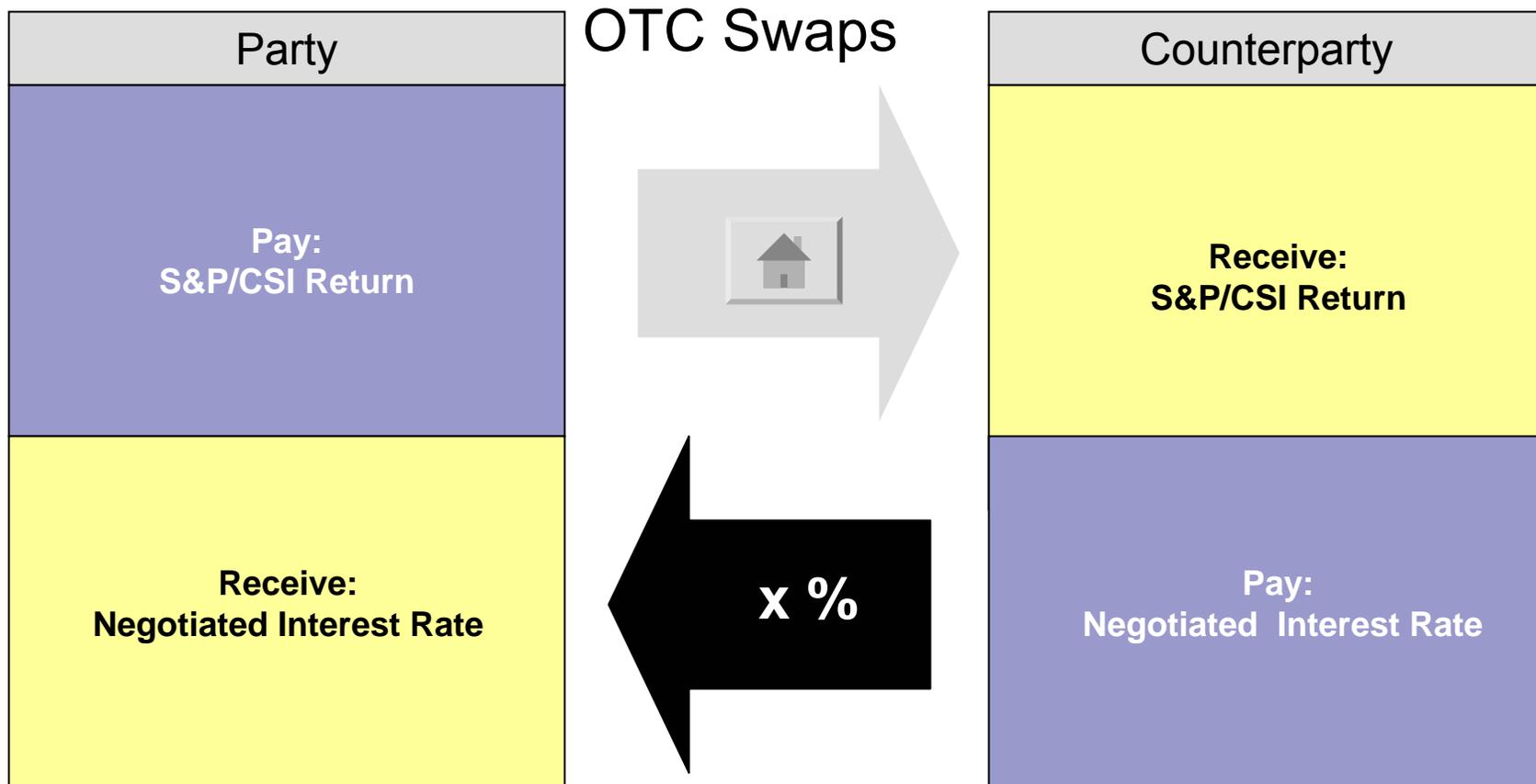
## July 2006-Feb 2007



# Emerging Products: CME Housing Futures & Options



# Emerging Products



- Hedge Housing Exposure / **Bearish Housing** View

- Gain Housing Exposure / **Bullish Housing** View



# Emerging Products

- Futures & Options
- Forwards
- Swaps
- Index-Linked Notes
- Exchange-Traded Securities
- New Mortgage Contracts
- New Insurance Contracts



# Stakeholders

## Longs

Banks

Dealers

Developers and Home Builders

Pension Funds

Hedge Funds

Individual Investors

Insurance Companies

Mutual Funds

REITs

## Shorts

Banks

Dealers

Developers and Home Builders

GSFs

Hedge Funds

Individual Investors

Mortgage Insurance Companies

Mortgage Lenders / Originators

REITs



# Stakeholders

Stakeholders will more closely monitor, re-evaluate housing stakes based upon the “news of the day”

- Building permits
- Consumer confidence
- Federal Reserve Board policy
- Home Sales - new and existing
- Housing starts
- Inflation
- Interest rates
- Job creation/unemployment
- Mortgage applications
- NAHB Housing Market Index
- NAR Pending Sales
- Housing-related company news  
(home builders, raw materials, construction equipment, etc.)
- Regional economic differences
- Sales/inventory ratios
- Tax laws



# Stakeholders

March 27 (Bloomberg) -- The U.S. currency weakened as a private survey showed the **price of homes** in 20 U.S. metropolitan areas fell in January for the first time in at least six years and a Federal Reserve report showed a regional decline in manufacturing this month.

March 28 (Bloomberg) -- Asian stocks dropped for a second day, led by companies that sell to the U.S. after consumer confidence and **home prices** declined in the region's largest export market.

“Automakers and technology companies rely on sales in North America so the current uncertainty over the U.S. economy is pushing the shares lower,” said Junichi Misawa, who oversees \$655 million at STB Asset Management Co. in Tokyo. In Japan, the Nikkei 225 Stock Average fell 0.6 percent, erasing gains of as much as 0.5 percent, while the broader Topix index slid 0.7 percent. All other markets fell, apart from in China. India's Sensitive Index slid 1.8 percent, the most in the region.

U.S. stocks posted their steepest losses in two weeks as economic reports added to concern a **housing crisis** will dent growth.



# Concluding Thoughts

## Creating Efficiency

- Price discovery in derivatives markets will have a positive effect on the cash market
- Greater efficiency in the cash market will reduce the impact of the real estate cycle on the overall business cycle
- Property derivatives will broaden investor base and add significant liquidity to the asset class

