



# Real Estate Market Overview

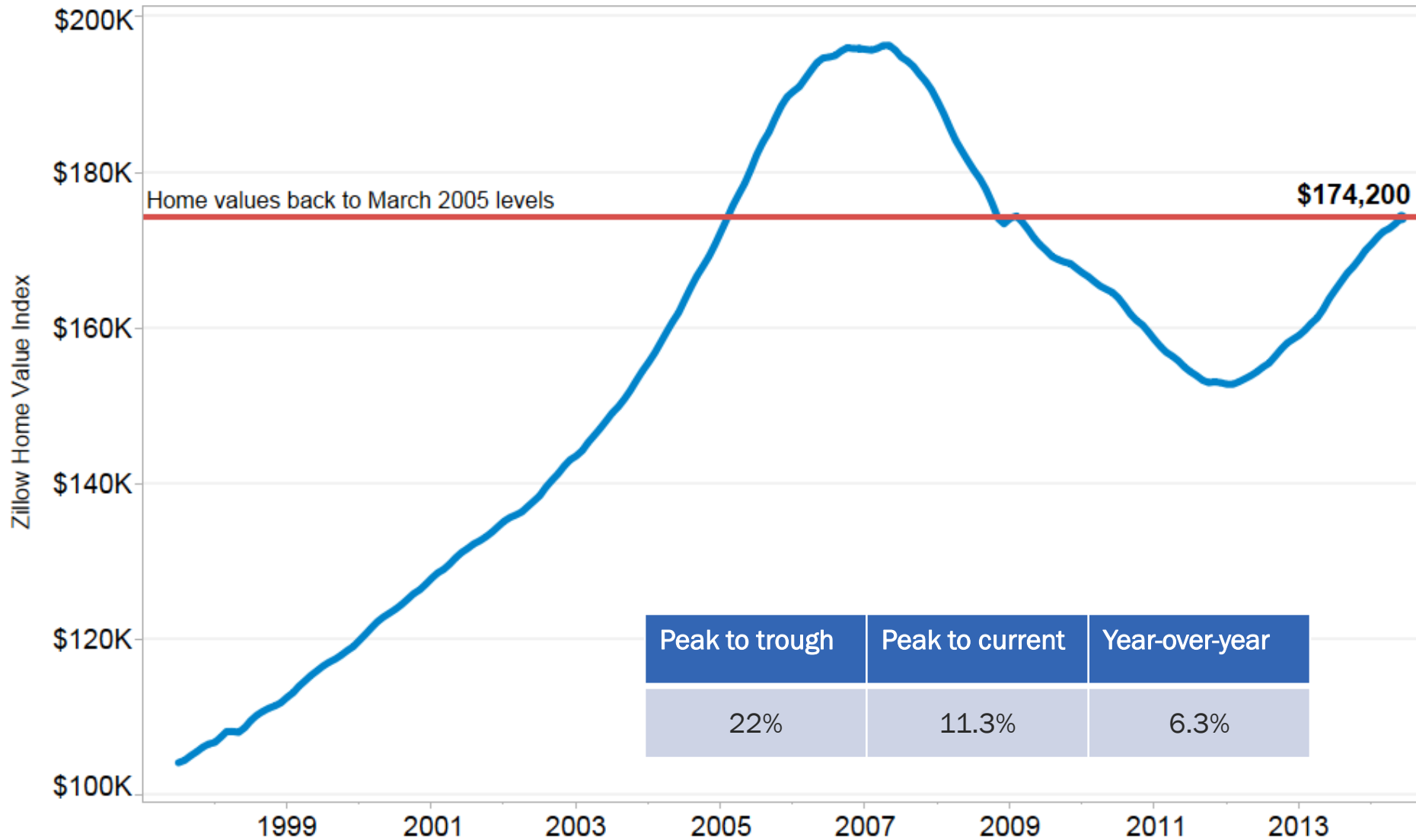
June 2014

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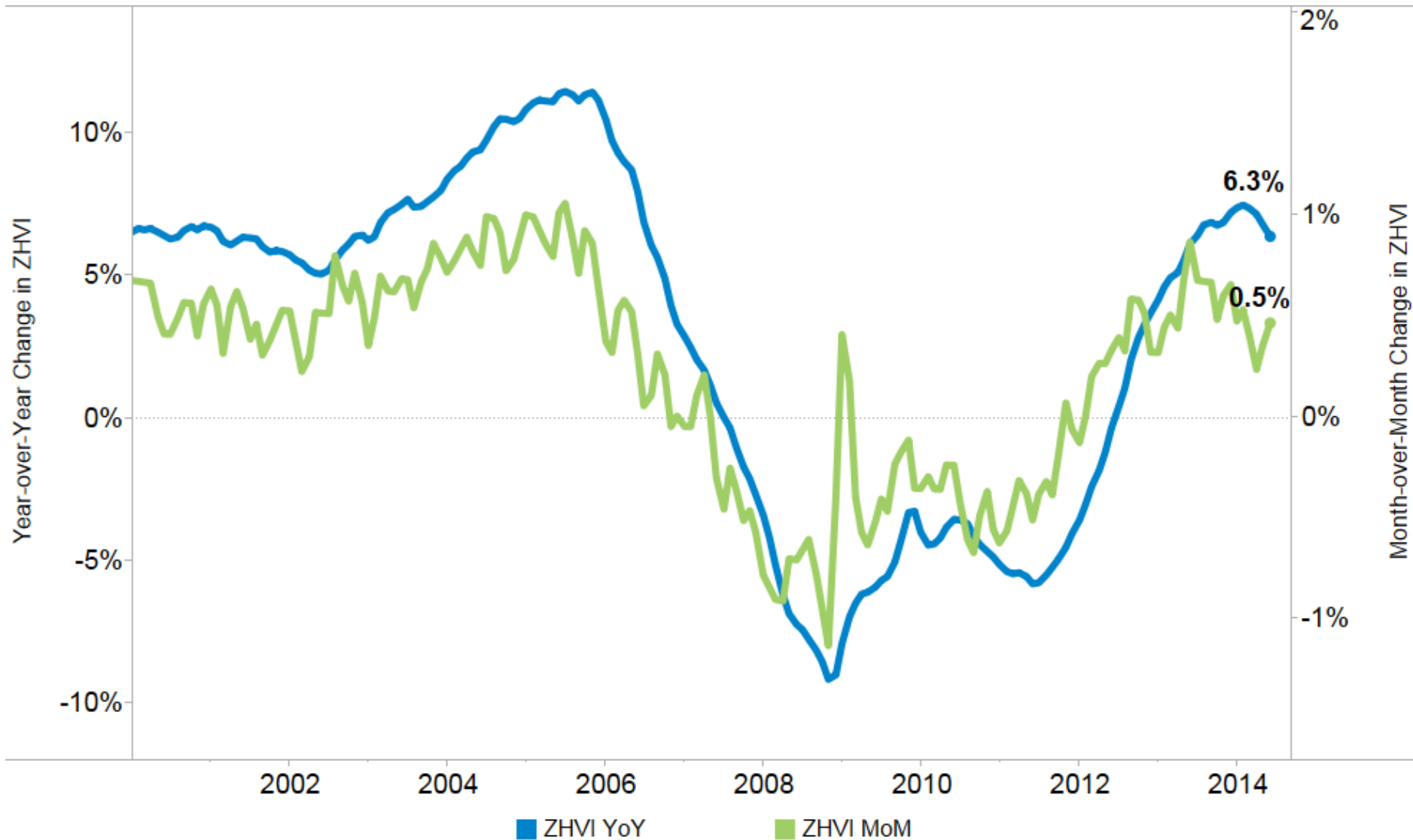
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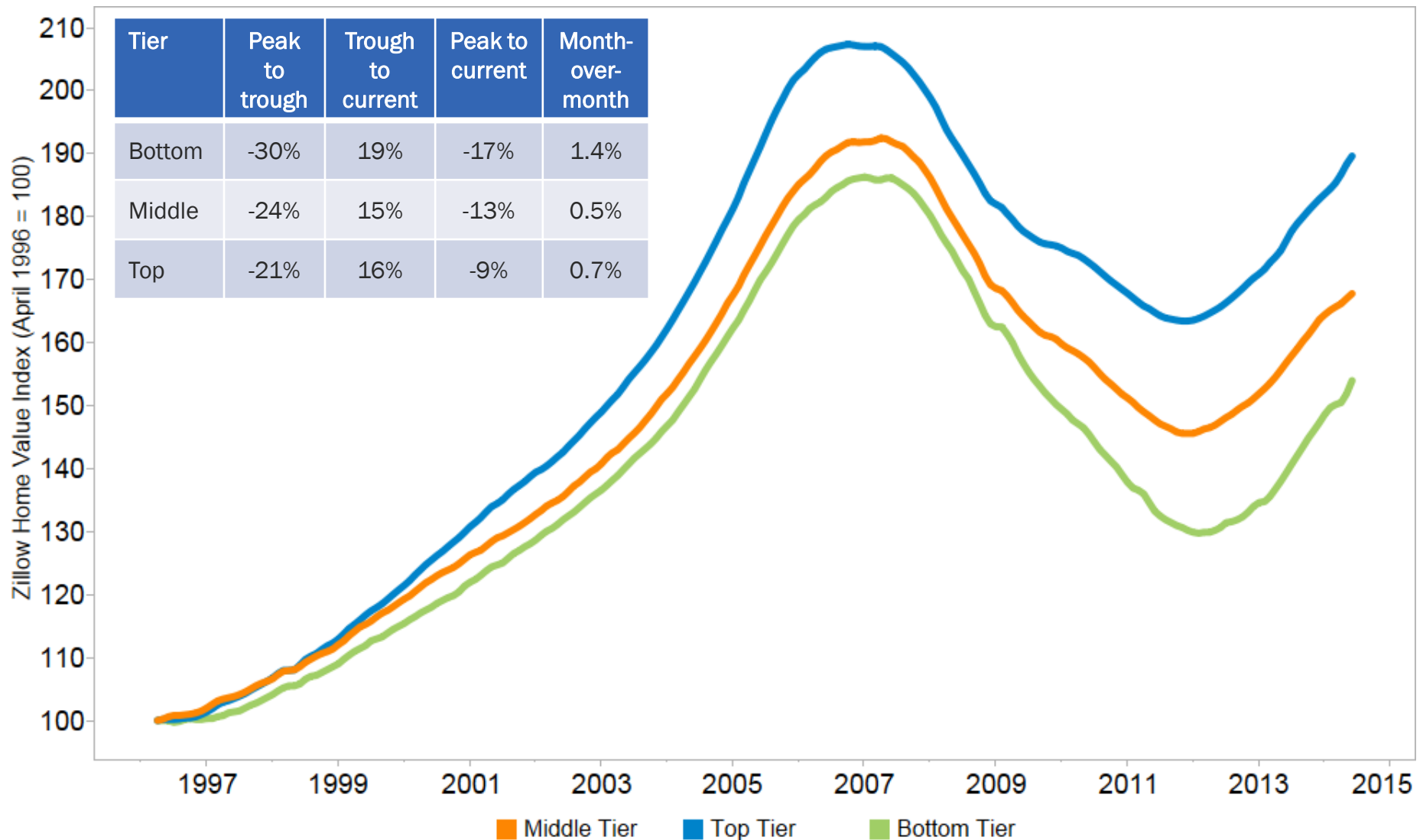
## Zillow Home Value Index: Down 11.3% from 2007 peak



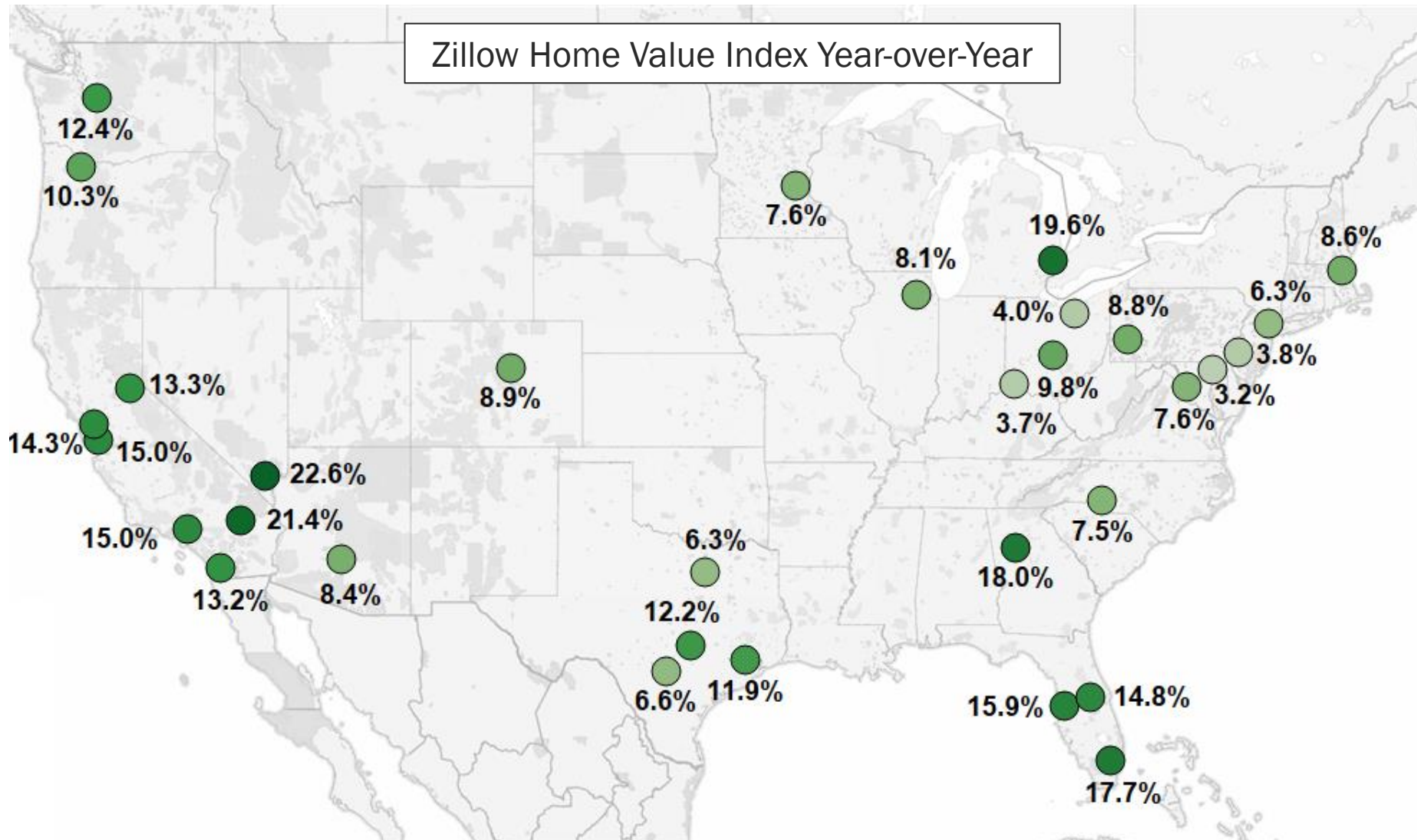
## Zillow Home Value Index: Annual deceleration, monthly gain



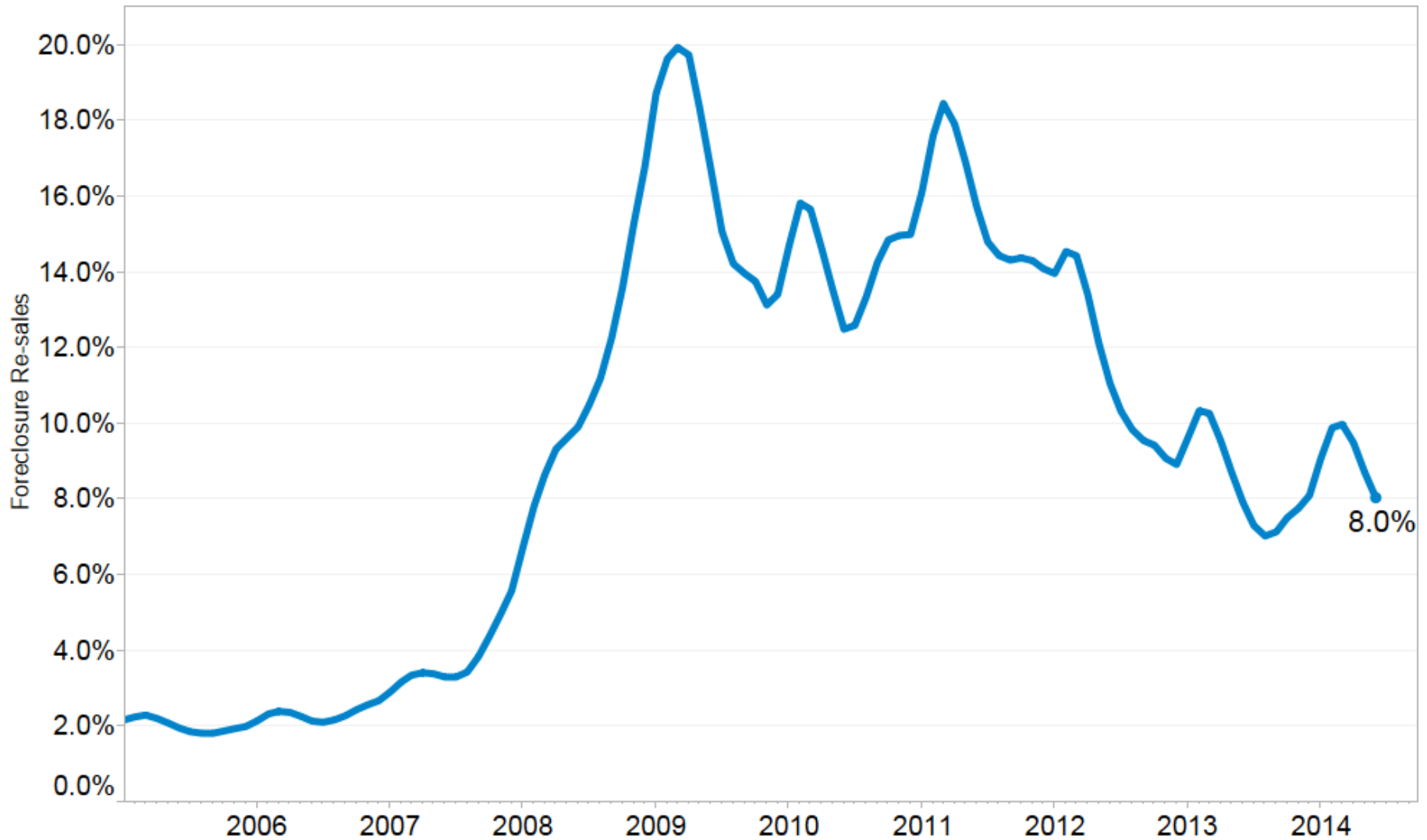
# Zillow Home Value Index: Unequal returns to housing



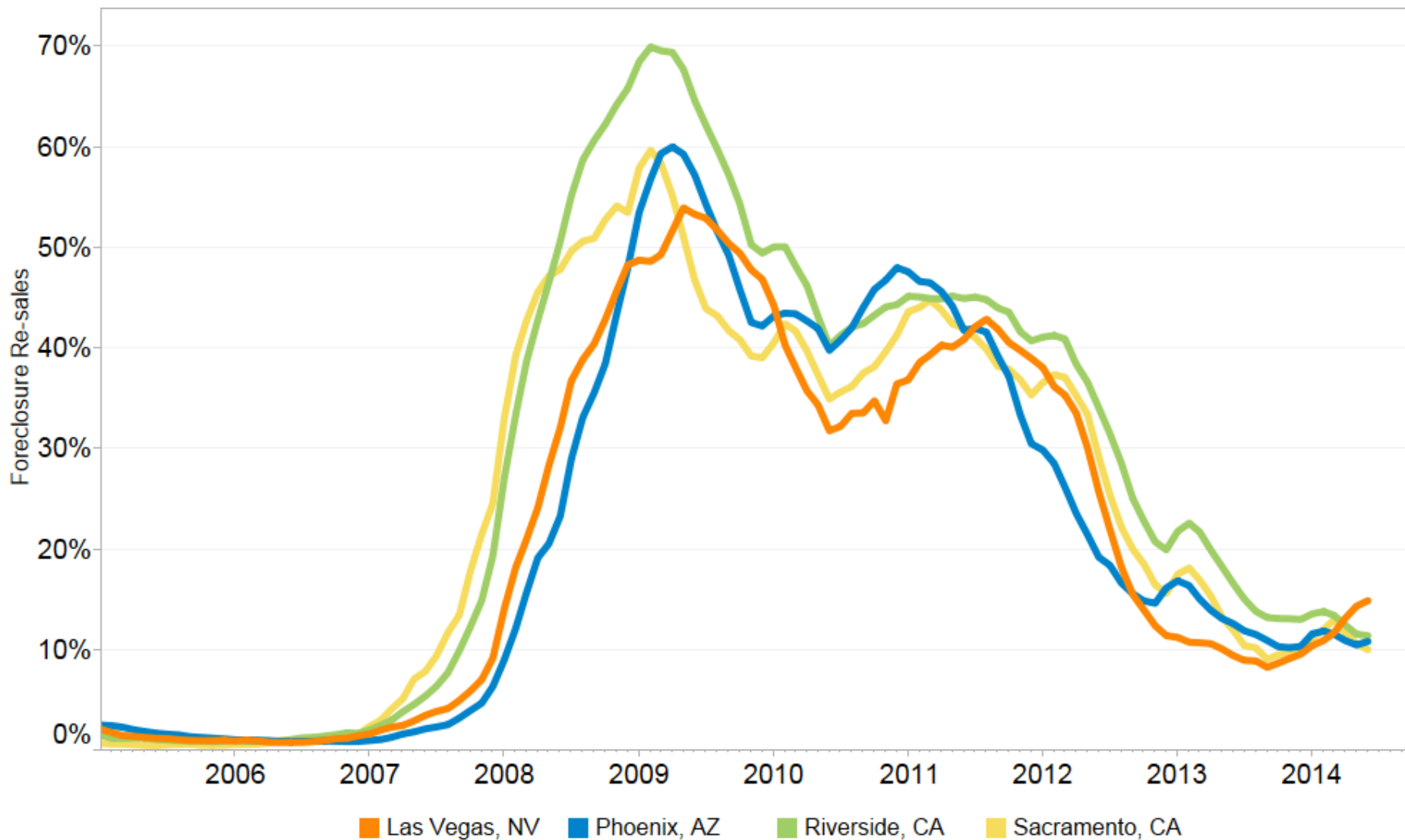
# Zillow Home Value Index: Annual change by metropolitan area



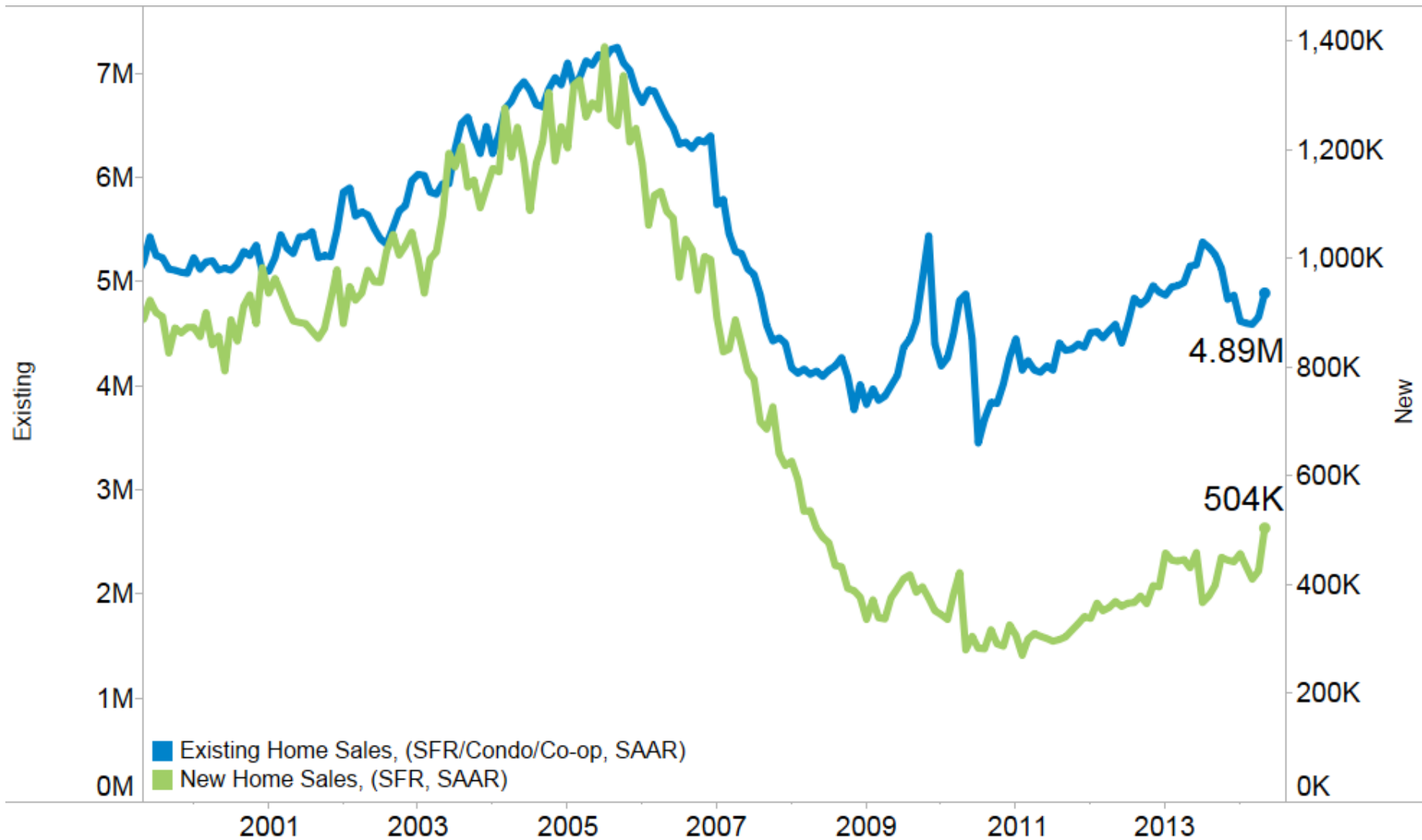
## Nationally, foreclosure re-sales are below half of peak level



## Foreclosure re-sales have significantly declined in hard-hit areas

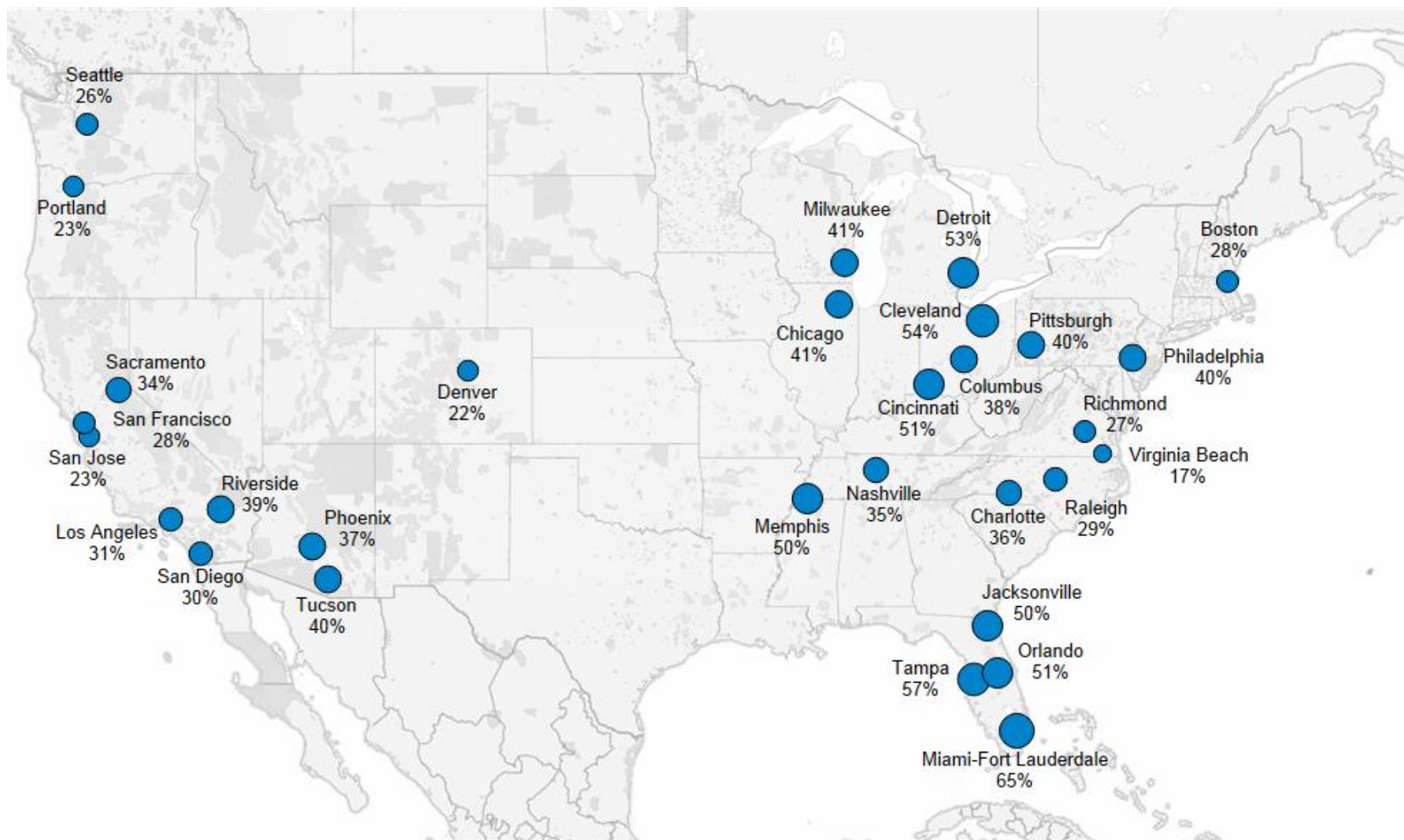


## Existing and new home sales are increasing





## All-cash buyers are most active in Florida, Ohio and Detroit



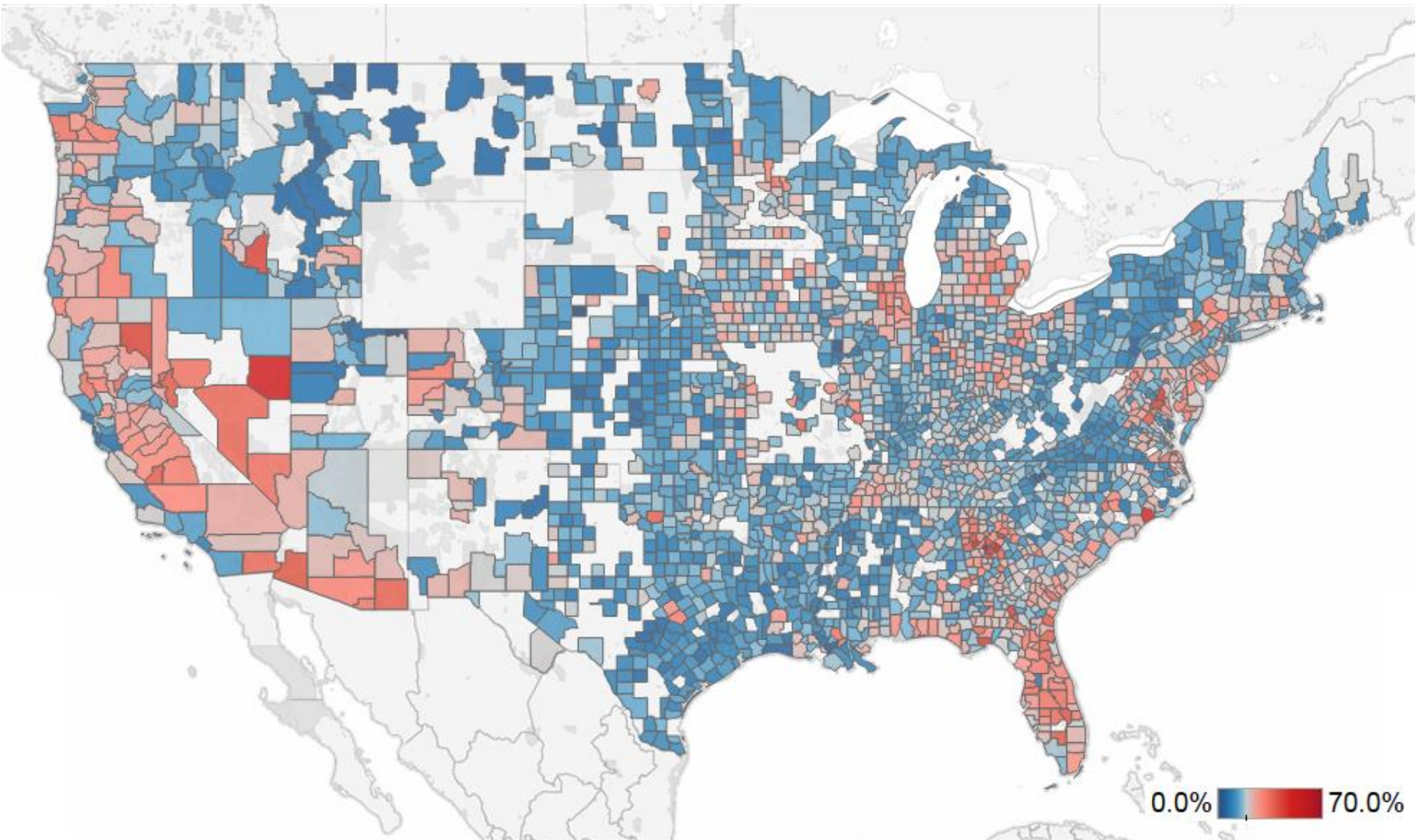
\*Percentages represent the share of all cash sales in 2014 Q1

# Five challenges for the housing market

- Negative Equity
- For-Sale Inventory
- Household Formation Rates
- Mortgage and Rental Affordability
- Mortgage Rate Lock-In

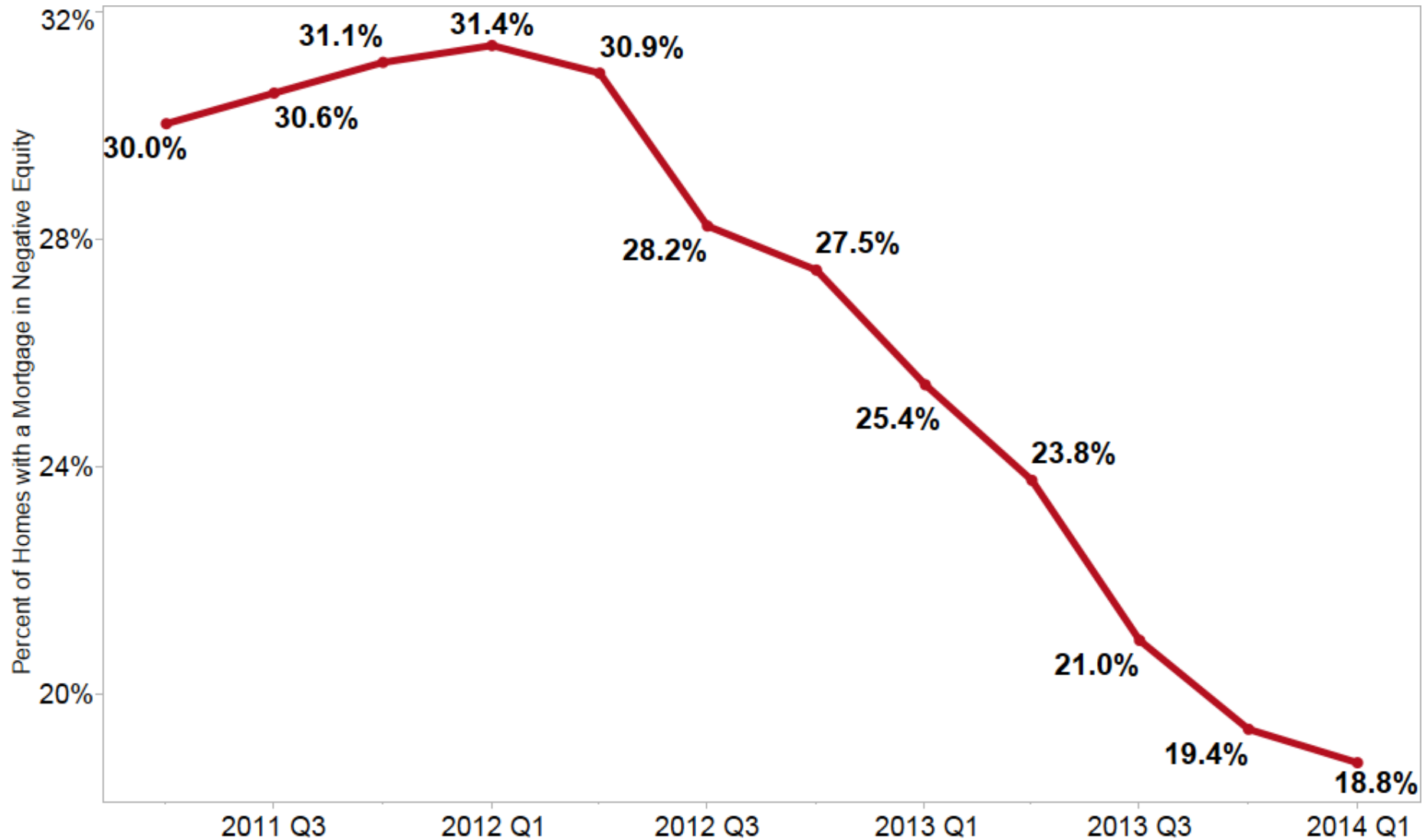
# 1. Negative Equity

## Negative equity remains widespread, 18.8% nationally

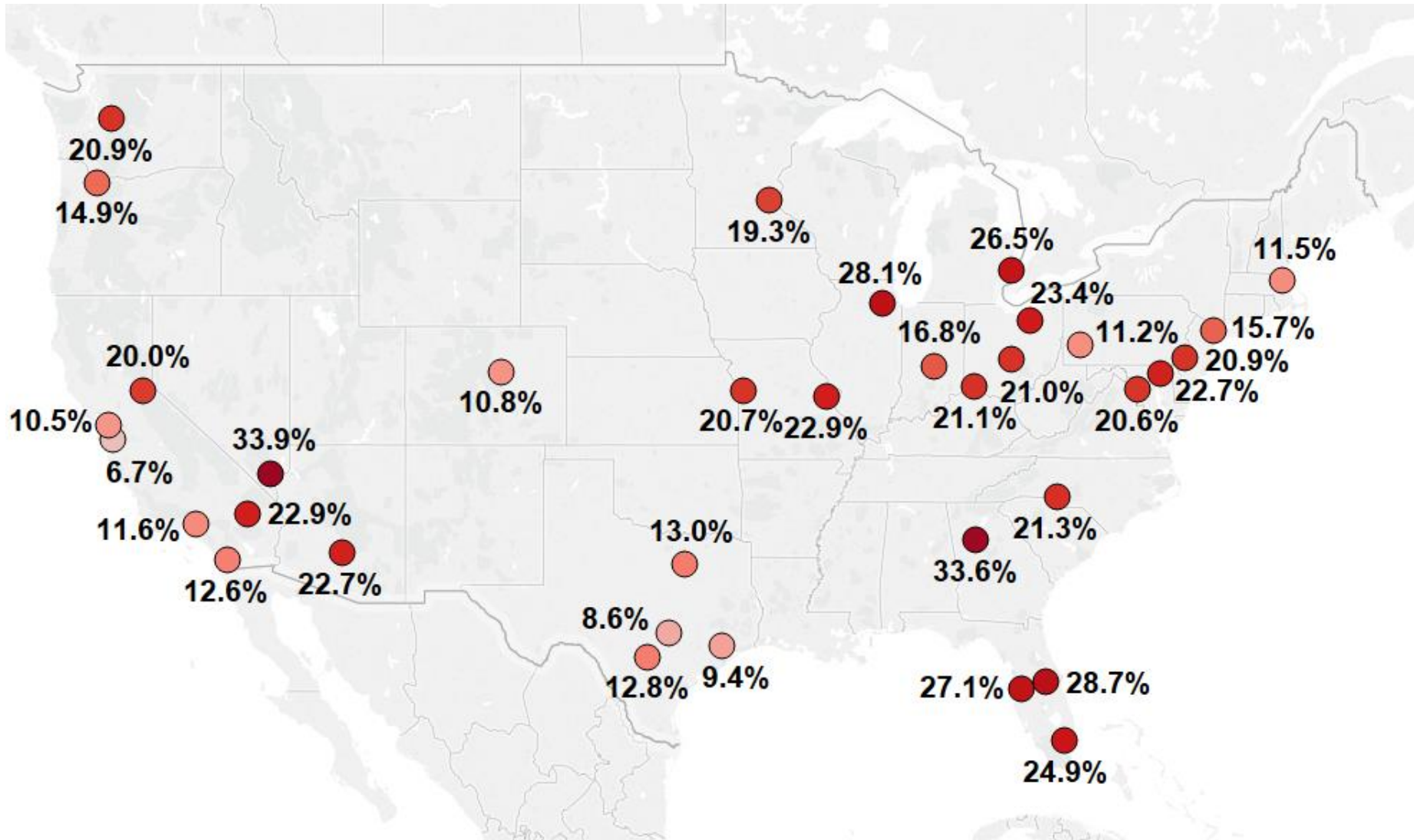




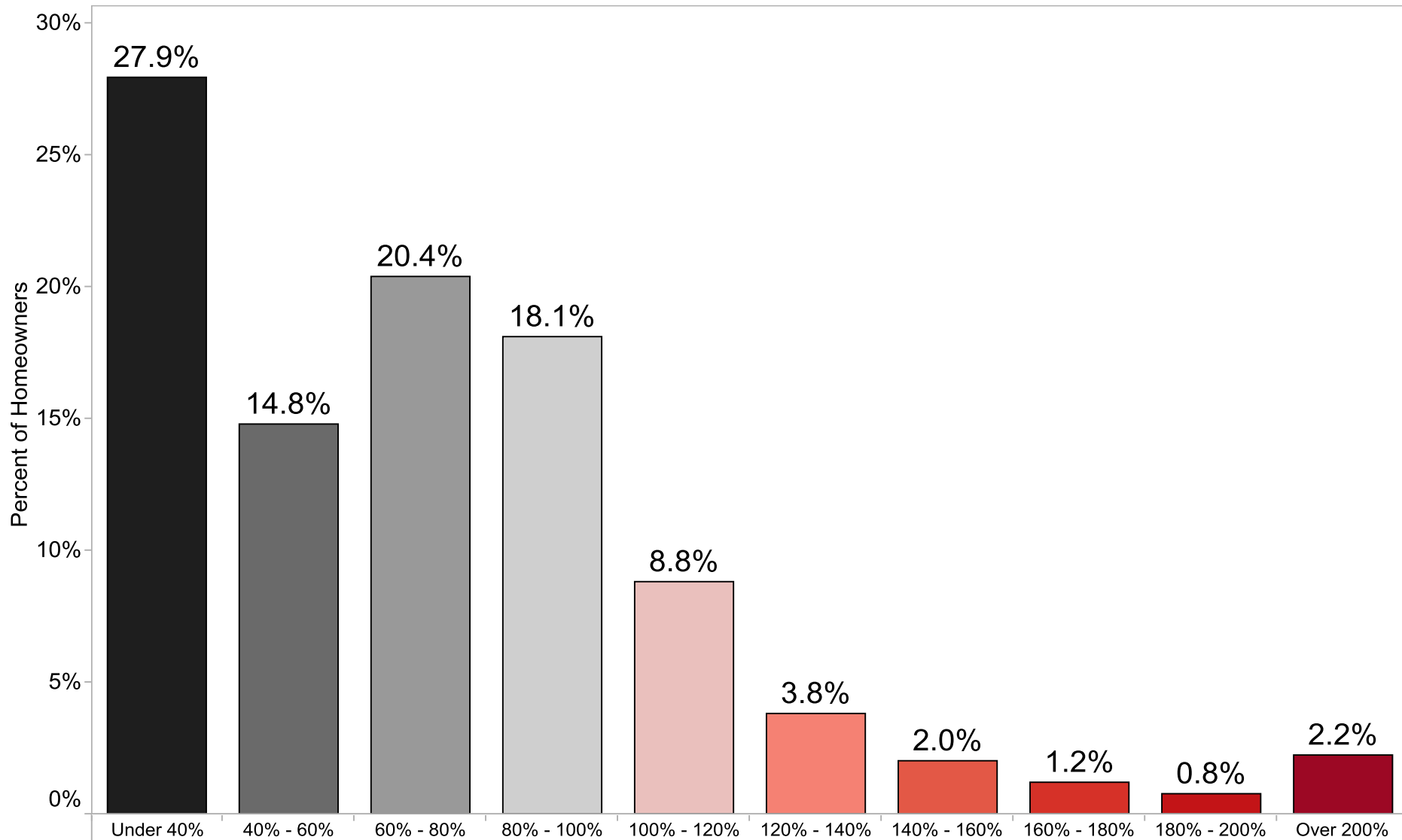
But has declined steadily since 2012 Q1



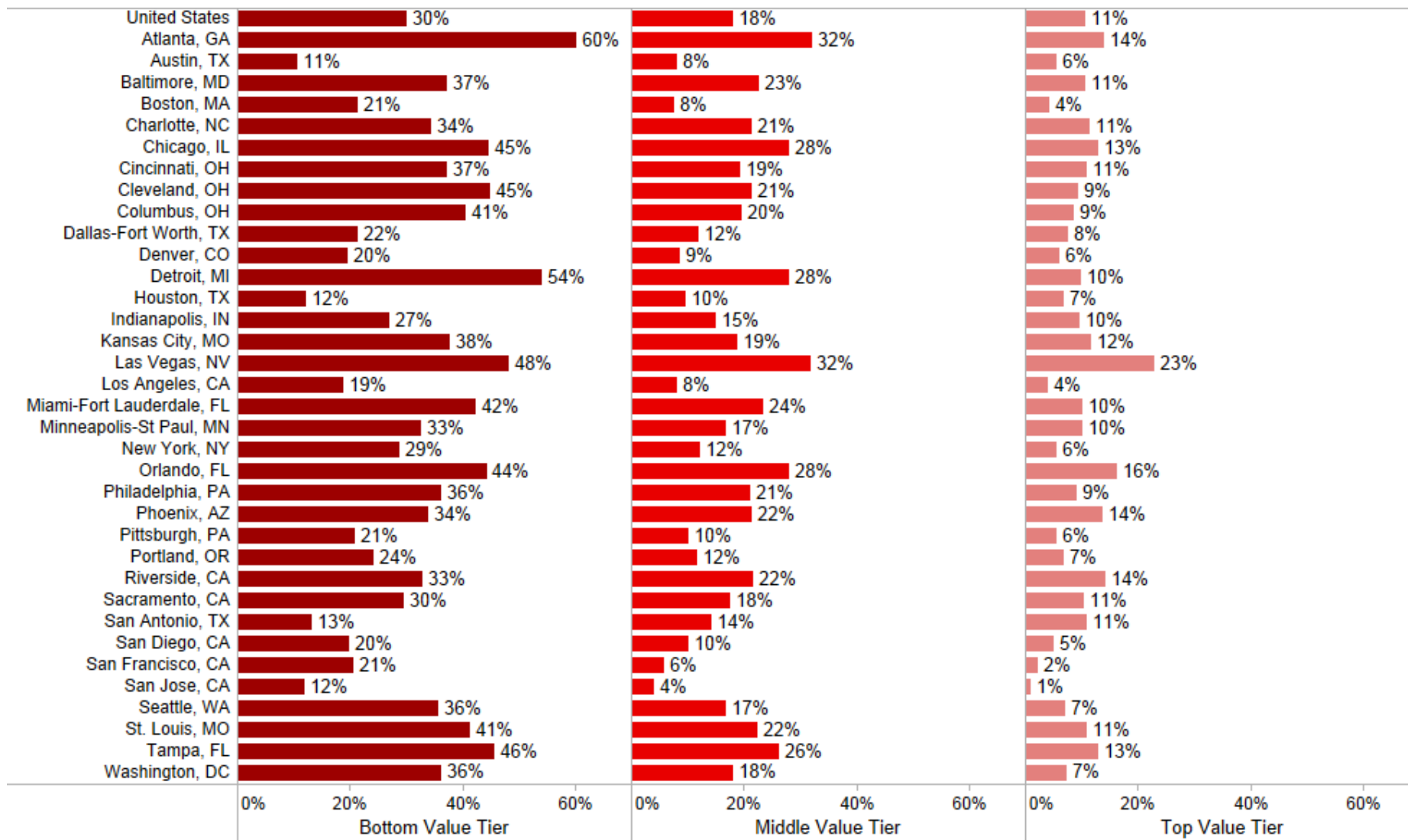
## 2014 Q1 negative equity in the top 35 metropolitan areas



## Loan-to-value distribution of mortgaged homeowners (U.S.)



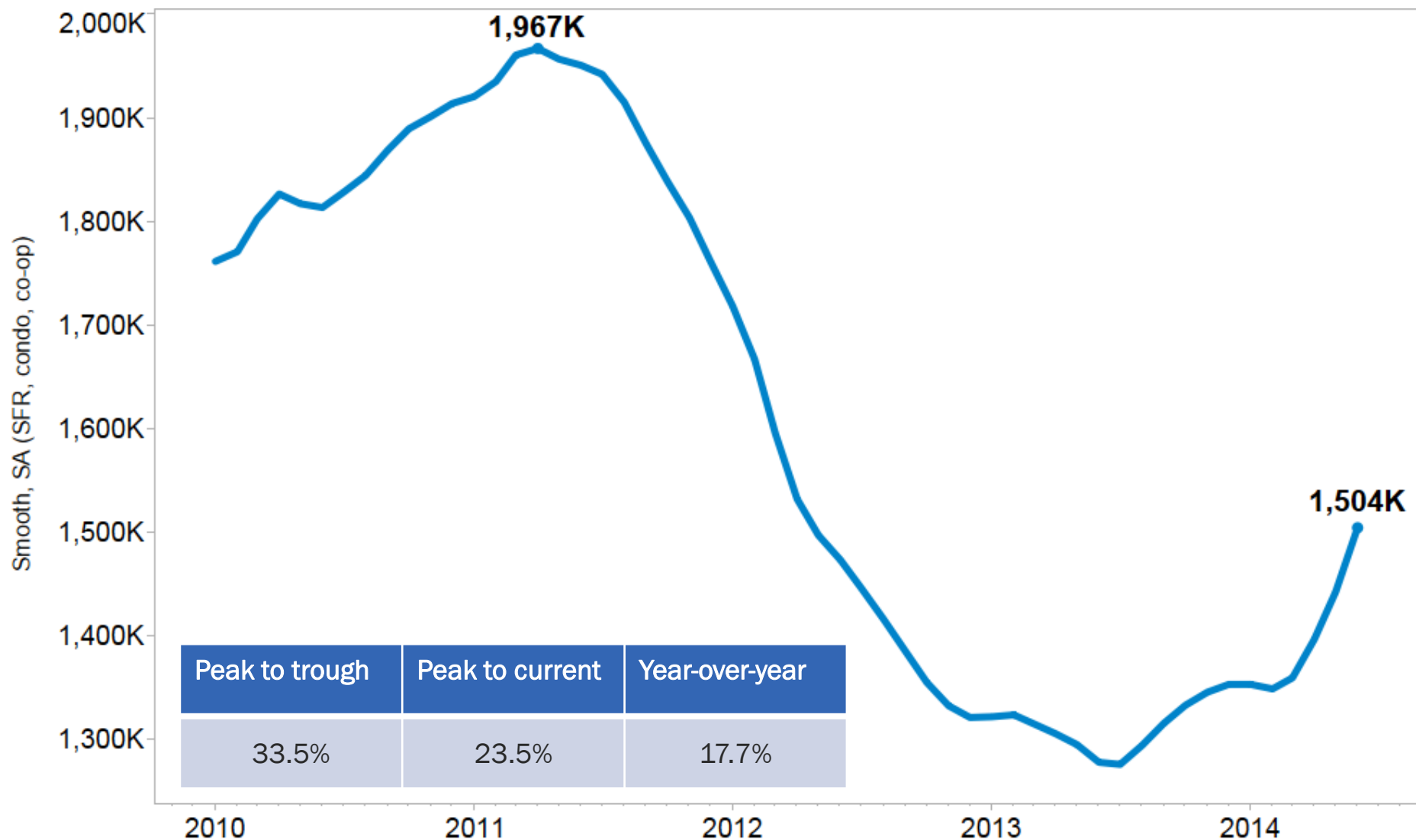
# Negative Equity: Share of underwater homes by value tier



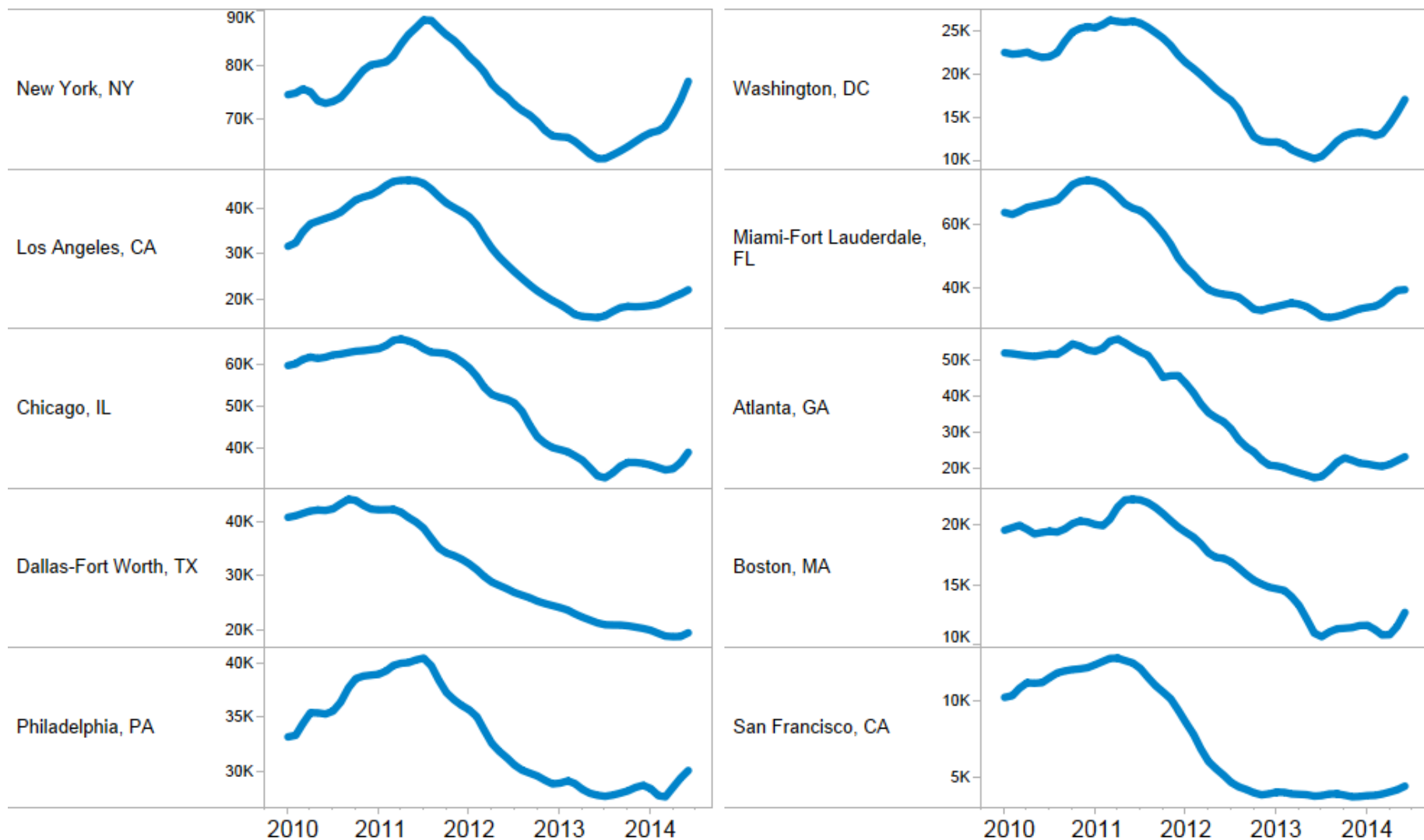


## 2. For-Sale Inventory

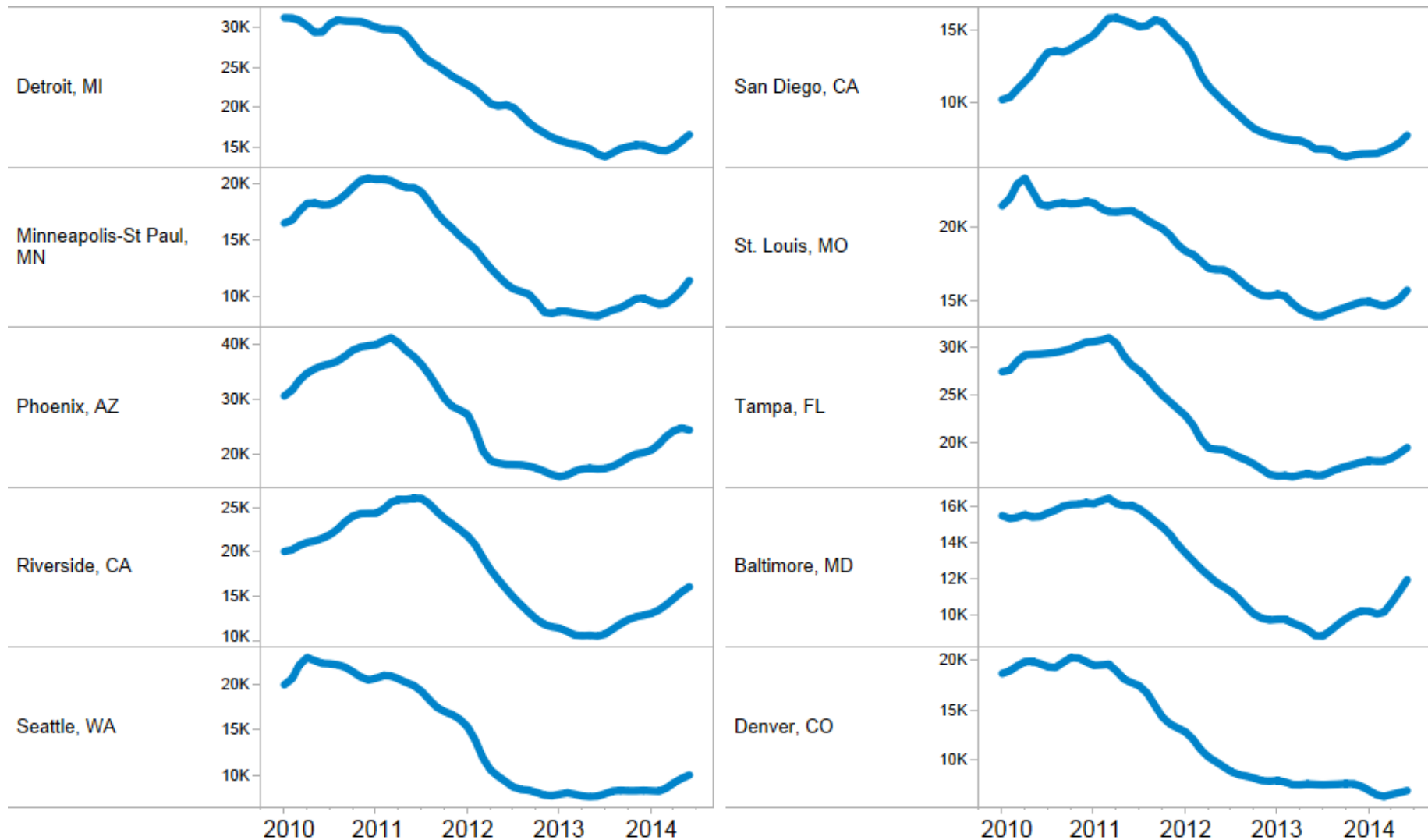
## For-sale inventory has increased for the past four months



## Inventory is starting to pick up in many areas

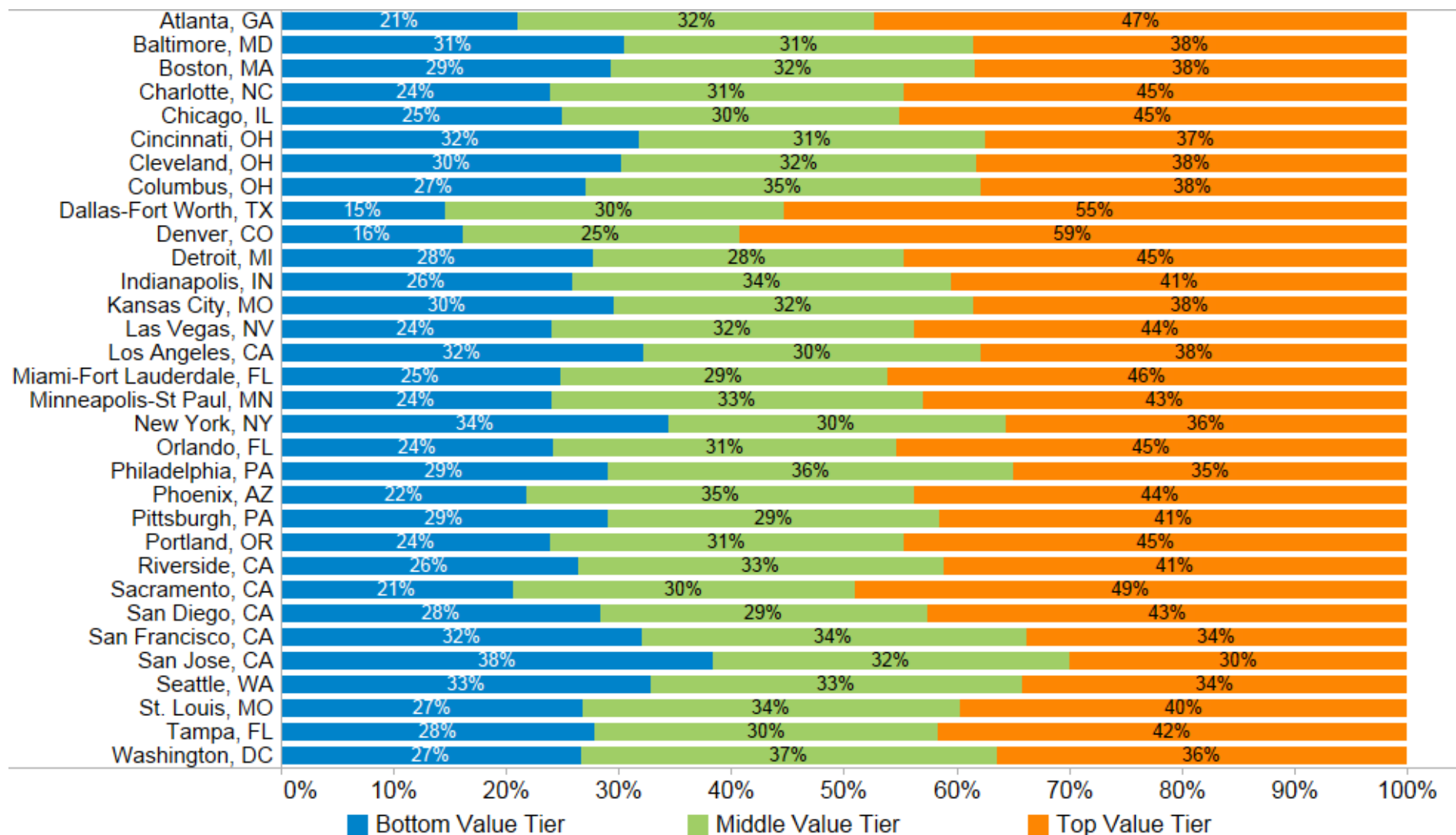


## Inventory in Phoenix decreased 1.4% from May to June



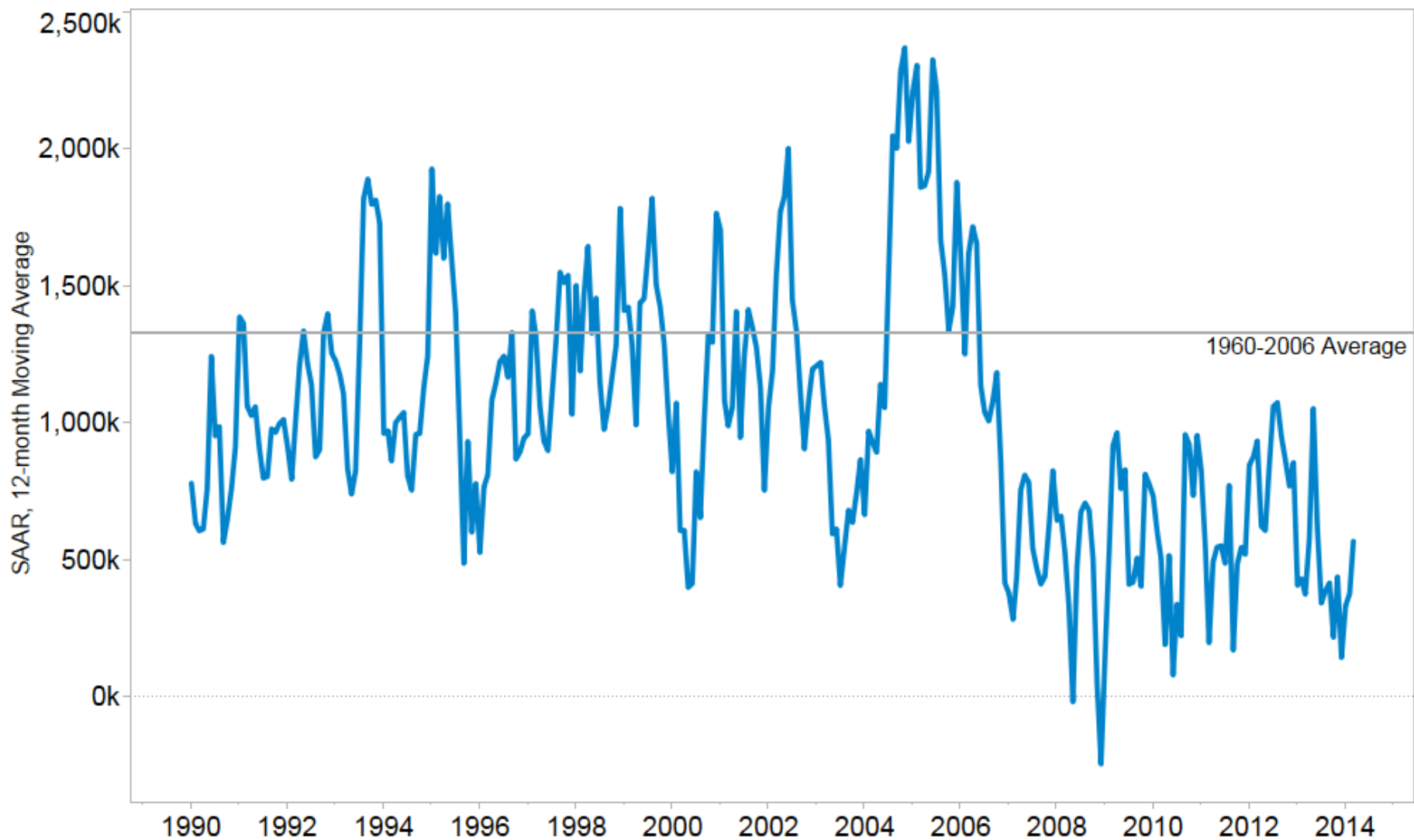


## Share of for-sale inventory is lowest in the bottom value tier

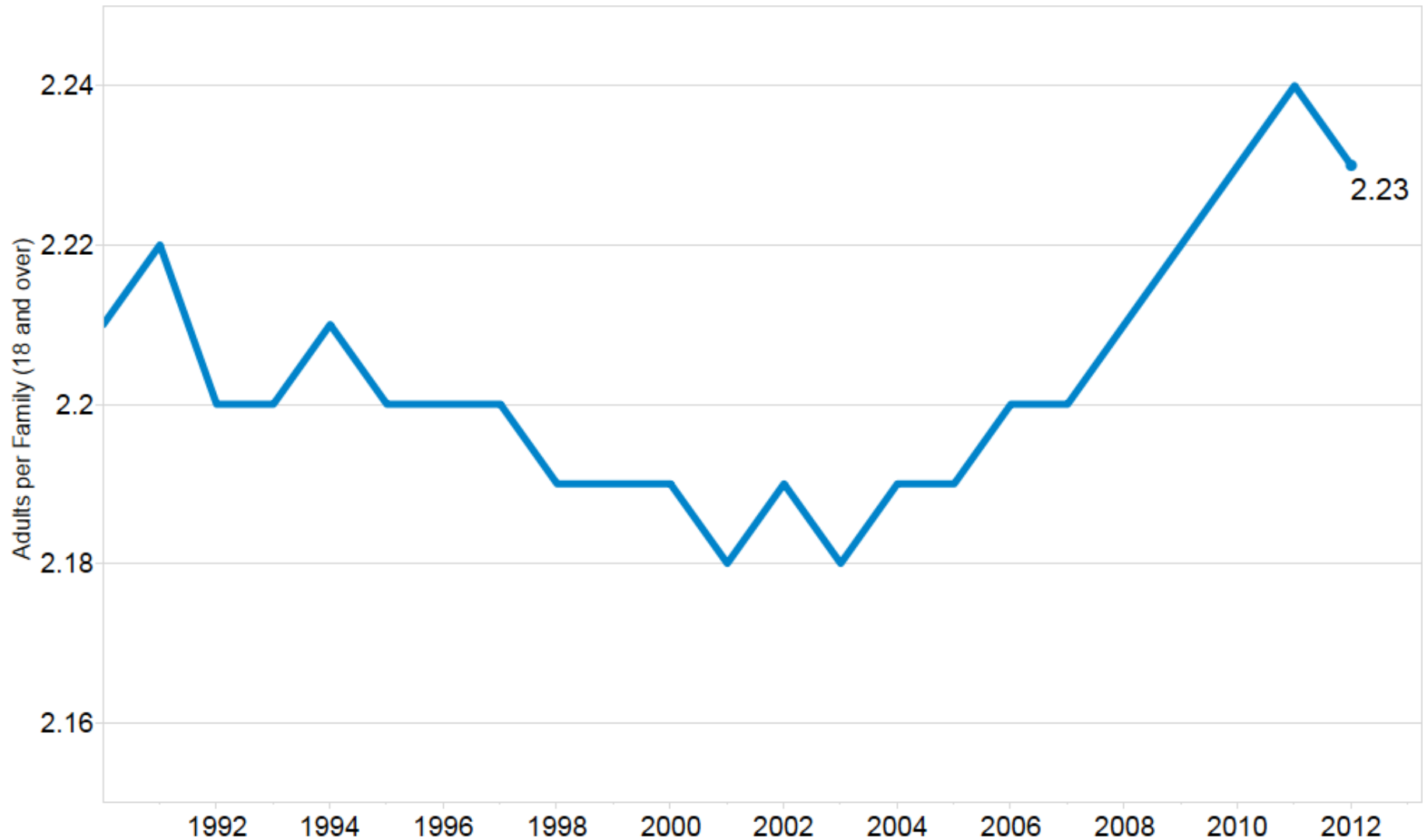


## 3. Household Formation

## Household formation still struggling below average



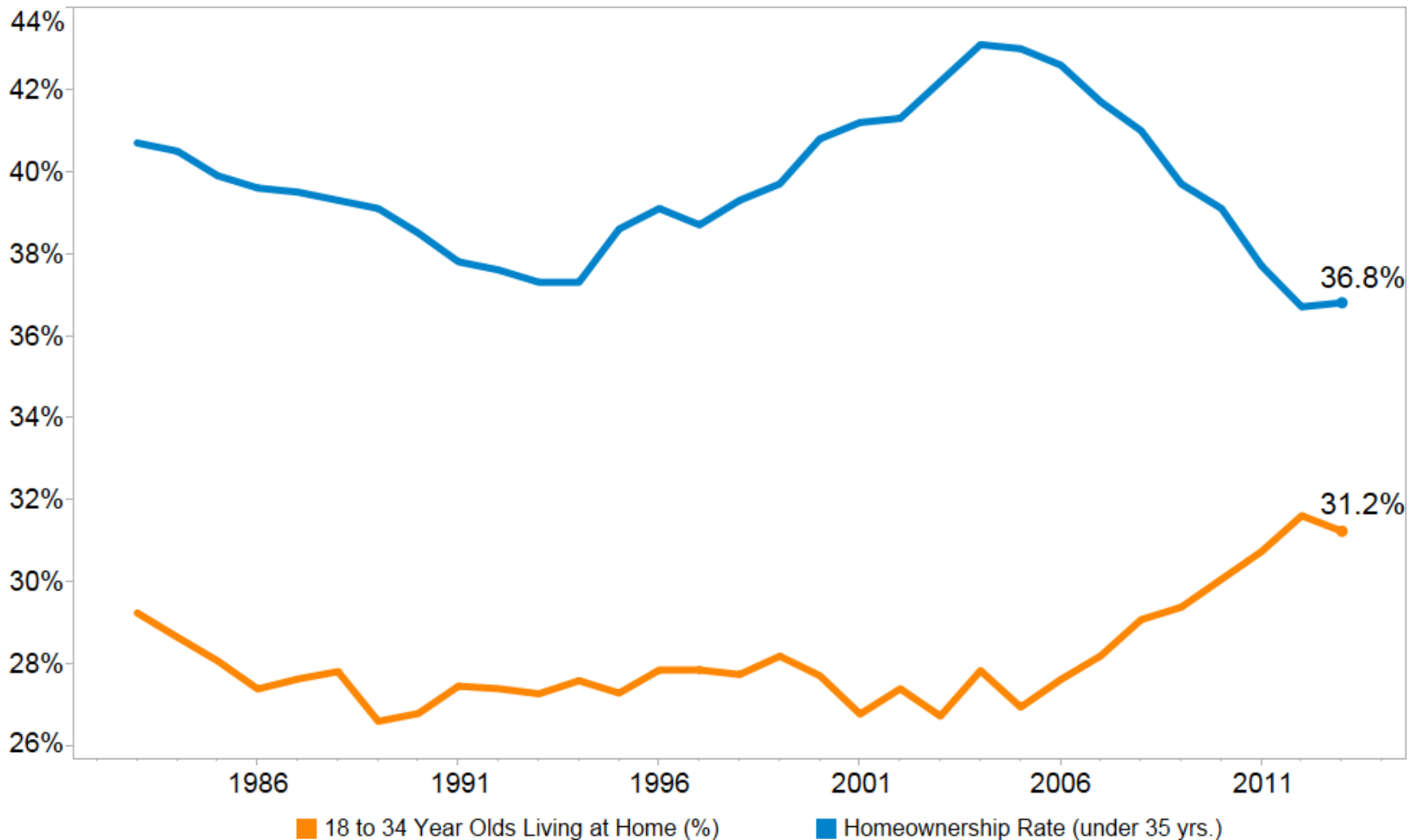
## Adults per family is high, households are doubled up...



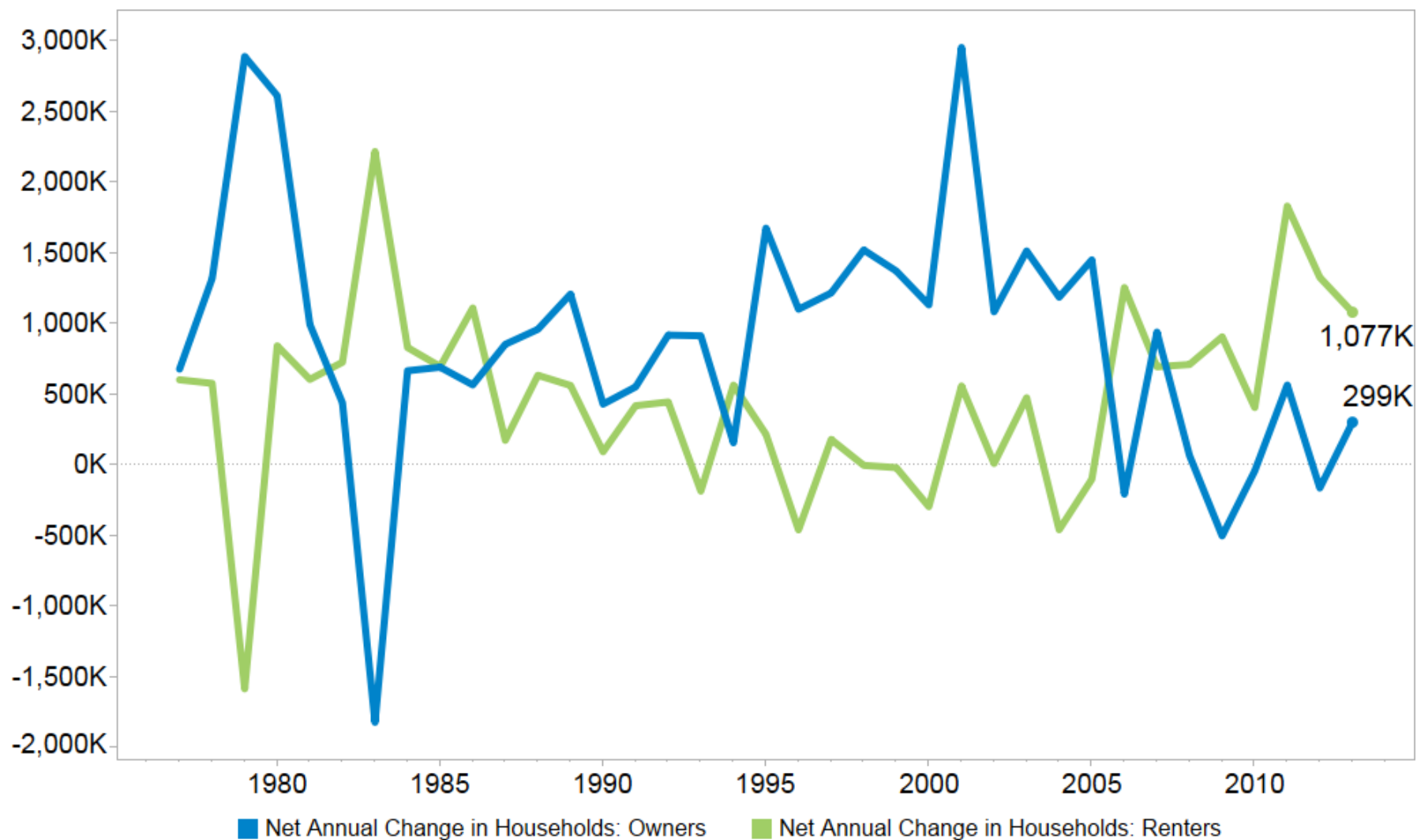


# Young adults are living at home at higher rates

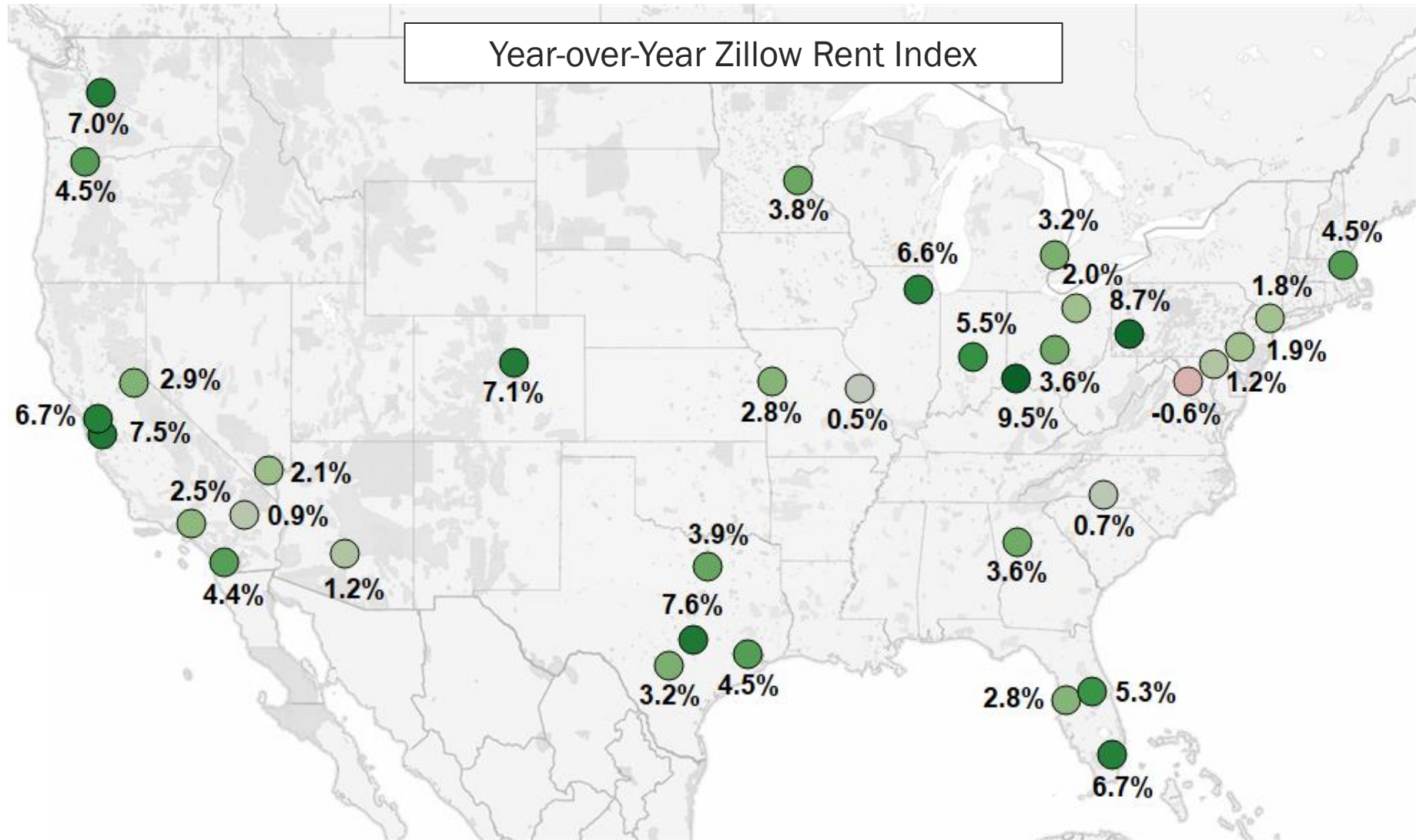
## Housing demand will increase as they strike out on their own



## Renter households are forming faster than owner households

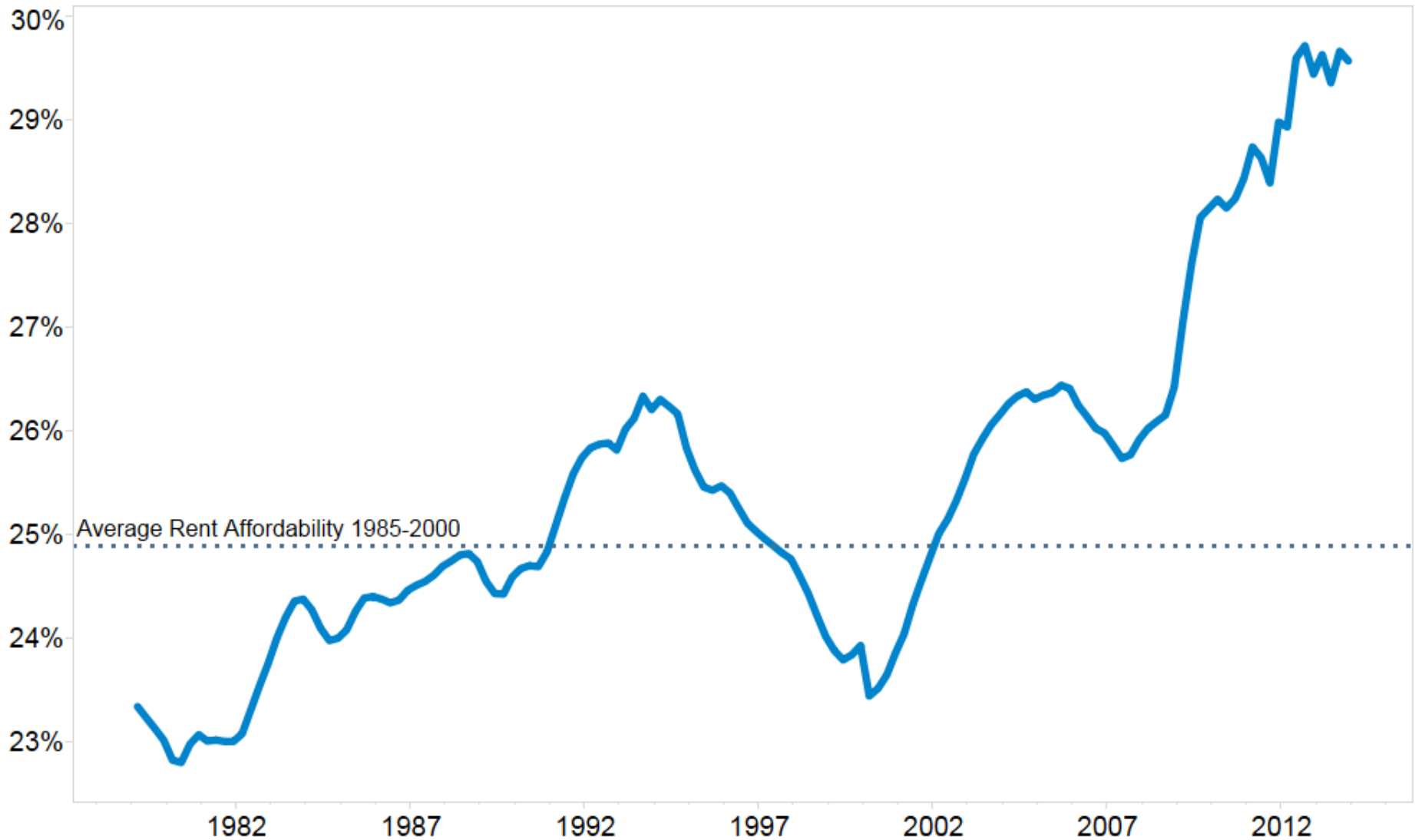


## Increased renter demand is driving rental appreciation

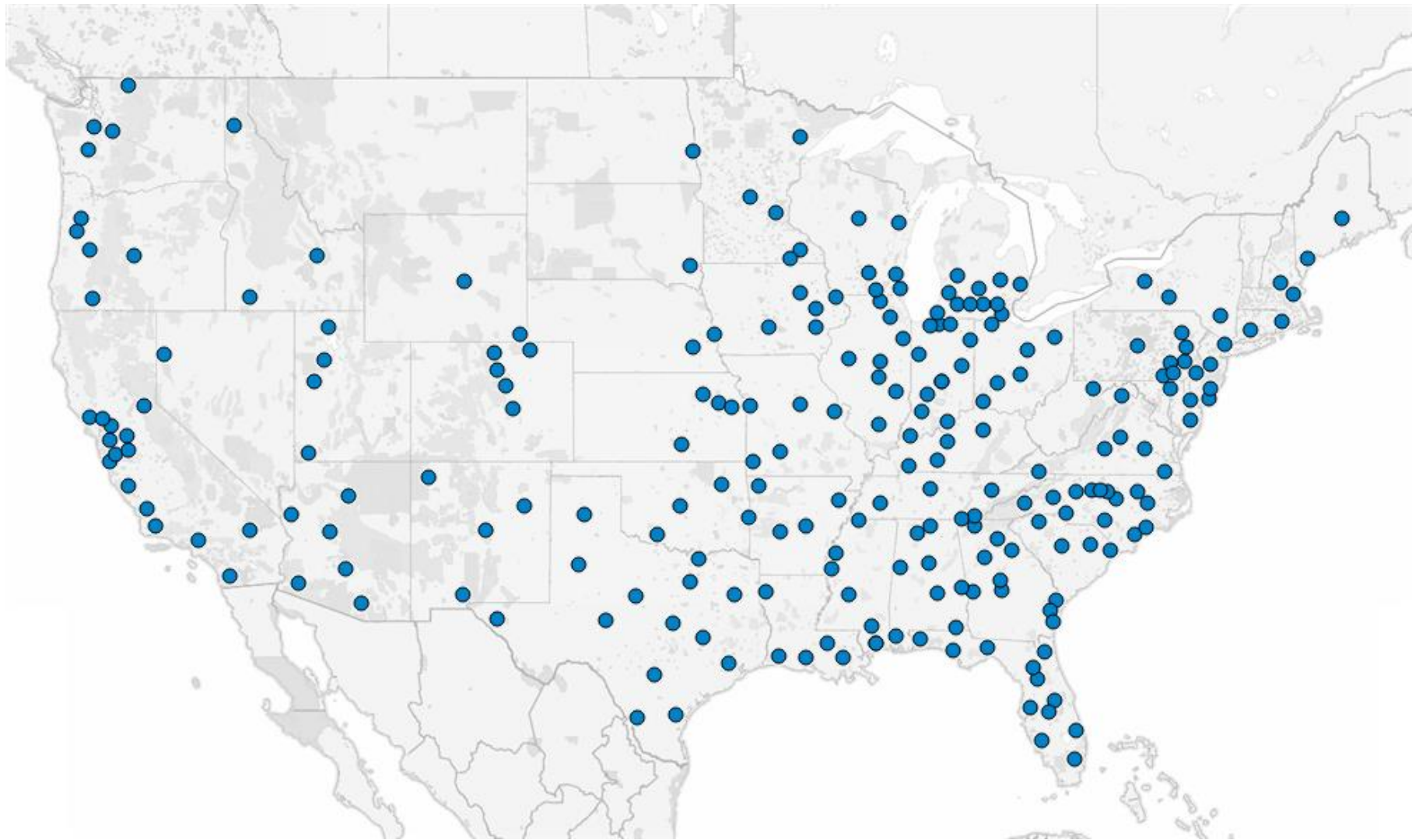


## 4. Mortgage and Rental Affordability

## Rent affordability is at all time lows, U.S. spends 30% of income

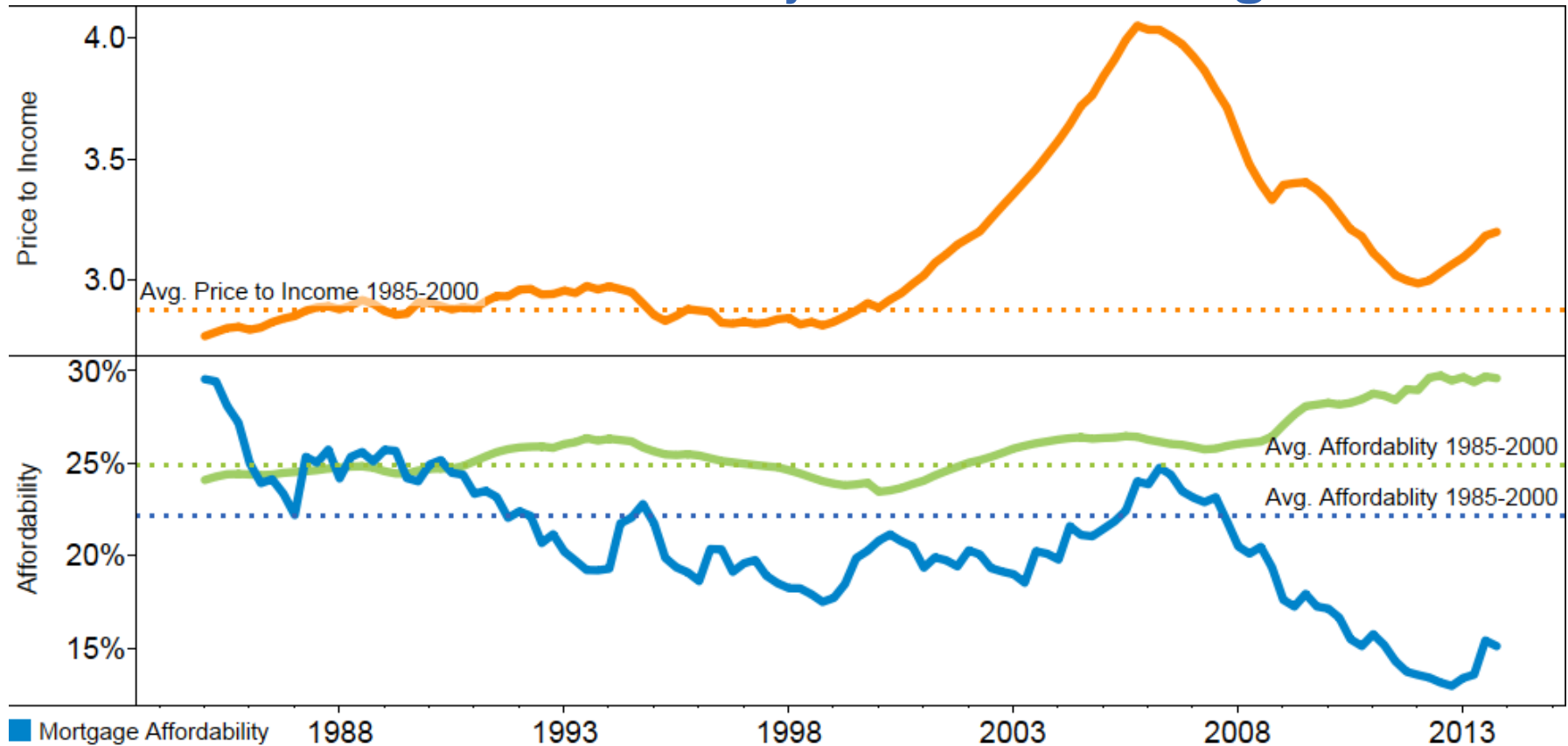


## Rent affordability below historical average in 227 metro areas



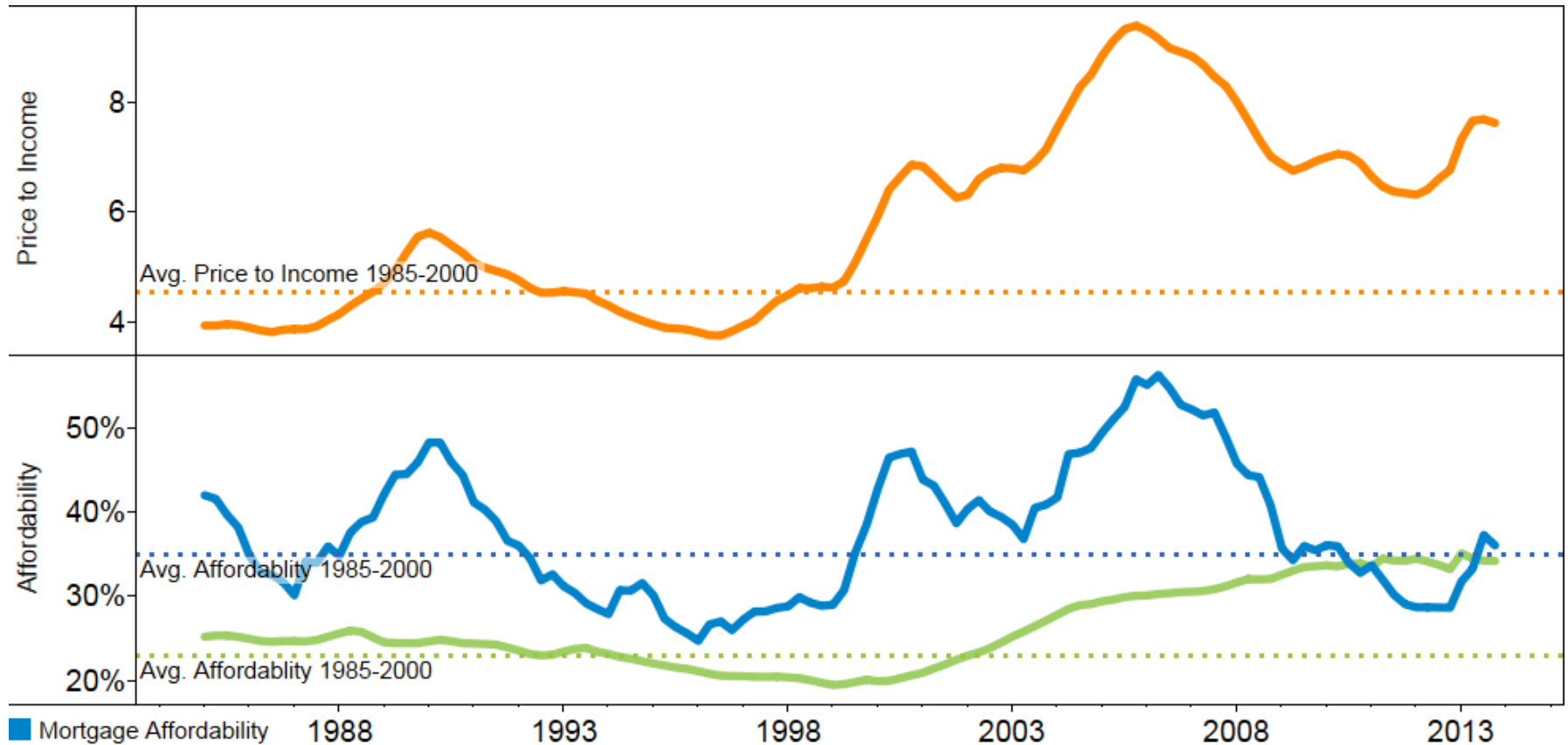


# United States: Mortgage affordability better than average Rent affordability worse than average



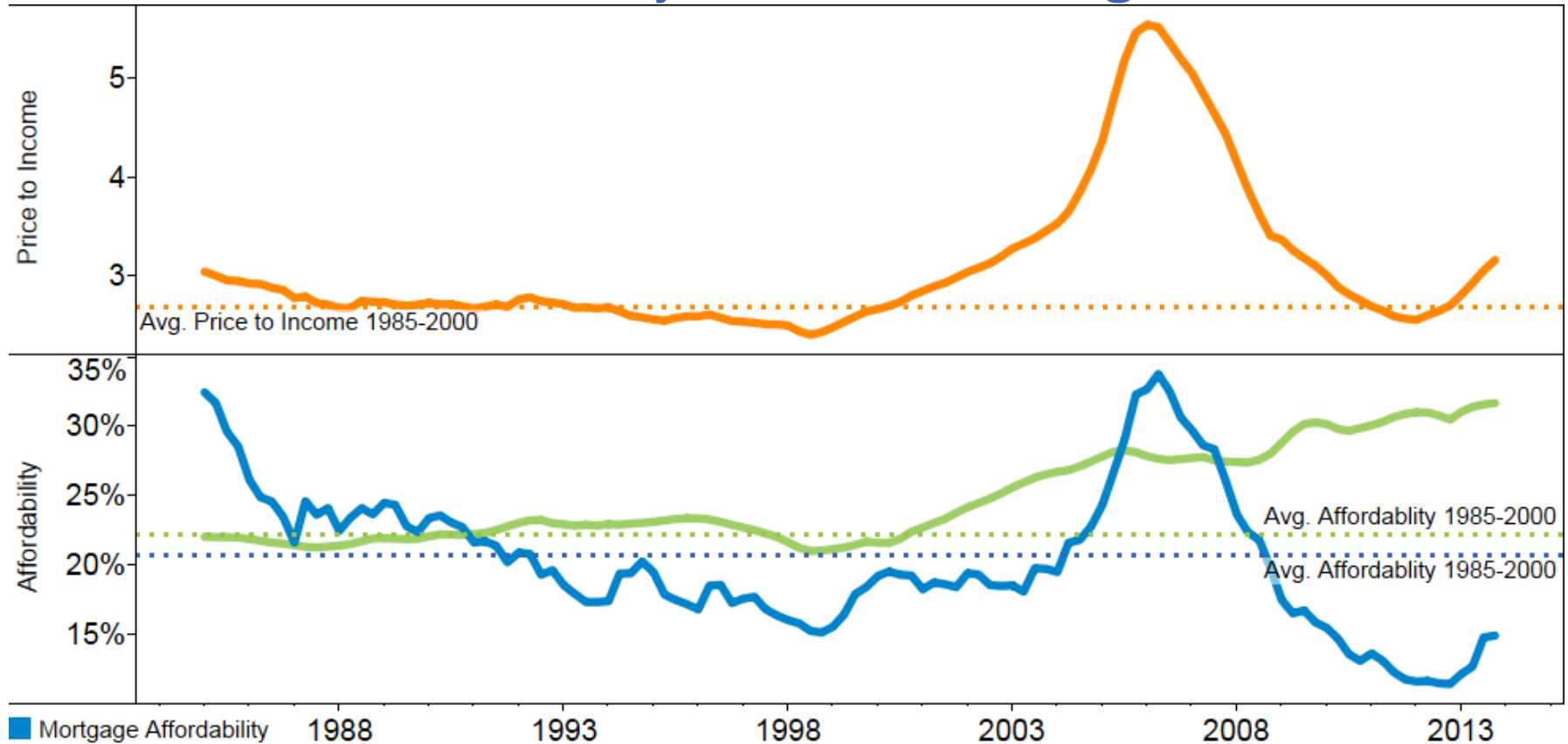
Current Mortgage Affordability	Average Mortgage Affordability	Forecasted Affordability at 5% Rates	Forecasted Affordability at 6% Rates	Forecasted Affordability at 7% Rates	Price to Income	Average Price to Income	Current Rent Affordability	Average Rent Affordability
15.1%	22.1%	17.3%	19.3%	21.5%	3.2	2.9	29.6%	24.9%

# San Jose: Mortgage and rent affordability worse than average



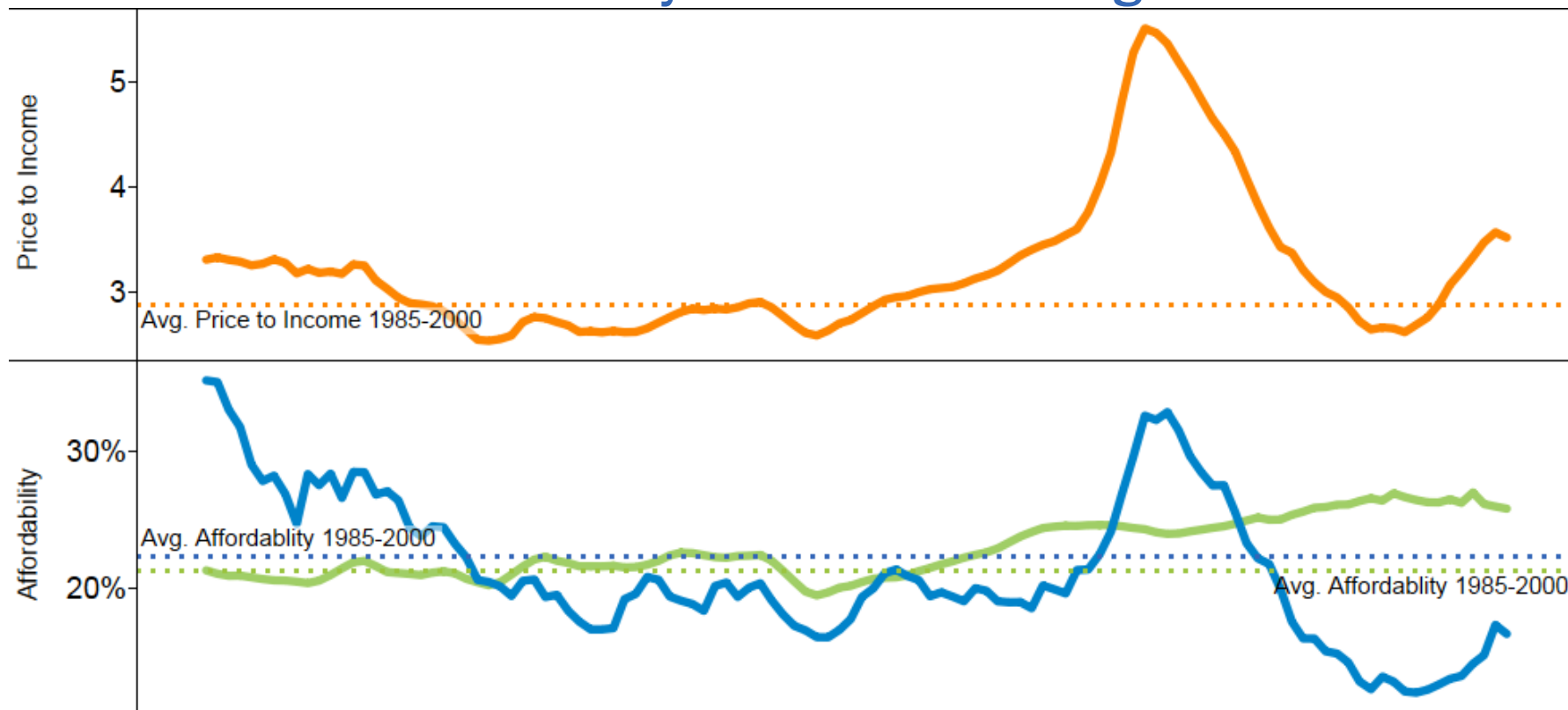
Current Mortgage Affordability	Average Mortgage Affordability	Forecasted Affordability at 5% Rates	Forecasted Affordability at 6% Rates	Forecasted Affordability at 7% Rates	Price to Income	Average Price to Income	Current Rent Affordability	Average Rent Affordability
15.1%	22.1%	17.3%	19.3%	21.5%	3.2	2.9	29.6%	24.9%

## Orlando: Mortgage affordability better than average Rent affordability worse than average



Current Mortgage Affordability	Average Mortgage Affordability	Forecasted Affordability at 5% Rates	Forecasted Affordability at 6% Rates	Forecasted Affordability at 7% Rates	Price to Income	Average Price to Income	Current Rent Affordability	Average Rent Affordability
15.1%	22.1%	17.3%	19.3%	21.5%	3.2	2.9	29.6%	24.9%

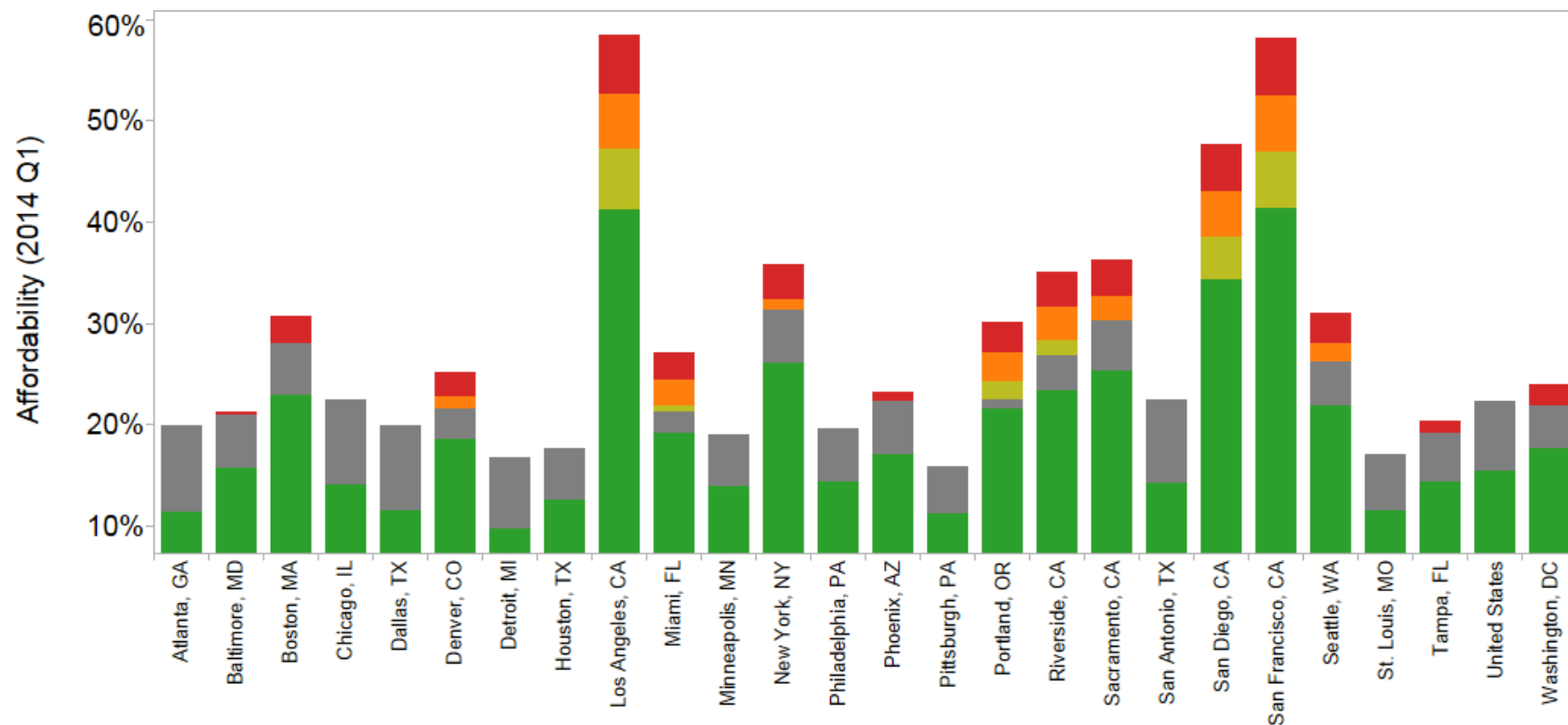
## Phoenix: Mortgage affordability better than average Rent affordability worse than average



■ Mortgage Affordability  
 ■ Rent Affordability  
 ■ Price to Income Ratio

Current Mortgage Affordability	Average Mortgage Affordability	Forecasted Affordability at 5% Rates	Forecasted Affordability at 6% Rates	Forecasted Affordability at 7% Rates	Price to Income	Average Price to Income	Current Rent Affordability	Average Rent Affordability
15.1%	22.1%	17.3%	19.3%	21.5%	3.2	2.9	29.6%	24.9%

# Mortgage affordability in the largest metropolitan areas



Average Affordability	20%	21%	28%	22%	20%	21%	17%	18%	36%	21%	19%	31%	20%	22%	16%	23%	27%	30%	22%	34%	39%	26%	17%	19%	22%	22%
Current Affordability	11%	16%	23%	14%	11%	19%	10%	13%	41%	19%	14%	26%	14%	17%	11%	22%	23%	25%	14%	34%	41%	22%	12%	14%	15%	18%
Forecasted at 5% Rates	13%	17%	25%	15%	13%	20%	11%	14%	47%	22%	15%	29%	16%	19%	12%	24%	28%	29%	16%	38%	47%	25%	13%	16%	17%	19%
Forecasted at 6% Rates	14%	19%	28%	17%	14%	23%	12%	16%	53%	24%	17%	32%	17%	21%	14%	27%	32%	33%	18%	43%	52%	28%	14%	18%	19%	22%
Forecasted at 7% Rates	16%	21%	31%	19%	16%	25%	13%	17%	58%	27%	19%	36%	19%	23%	15%	30%	35%	36%	20%	48%	58%	31%	16%	20%	21%	24%

■ Current Affordability

■ Average Affordability

■ Forecasted at 5% Rates

■ Forecasted at 6% Rates

■ Forecasted at 7% Rates



## 5. Mortgage Rate Lock-in

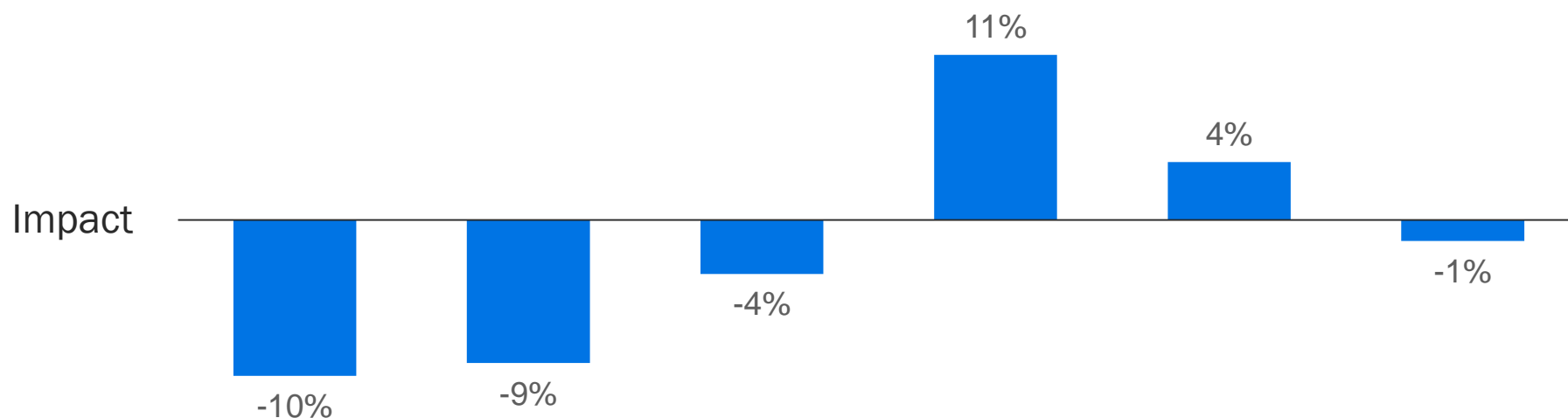


# What “should” existing home sales be?

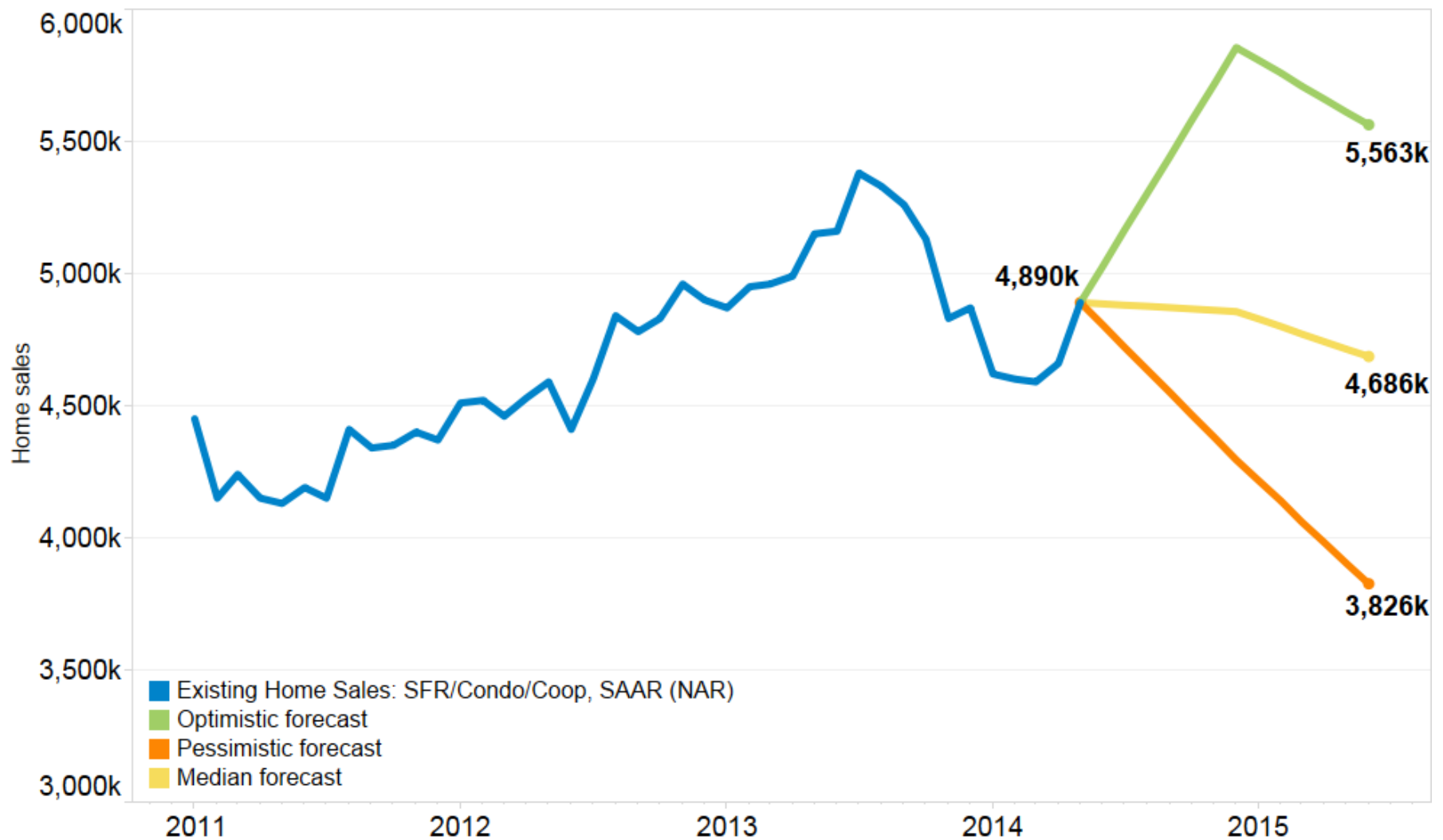
## Impact on home sales relative to “normal”

	Lower homeownership rate	Higher vacancy rate	Slower 5-year growth in home values	Low 30-yr FRM interest rate	Mortgage rate lock-in*	Lower annual income growth
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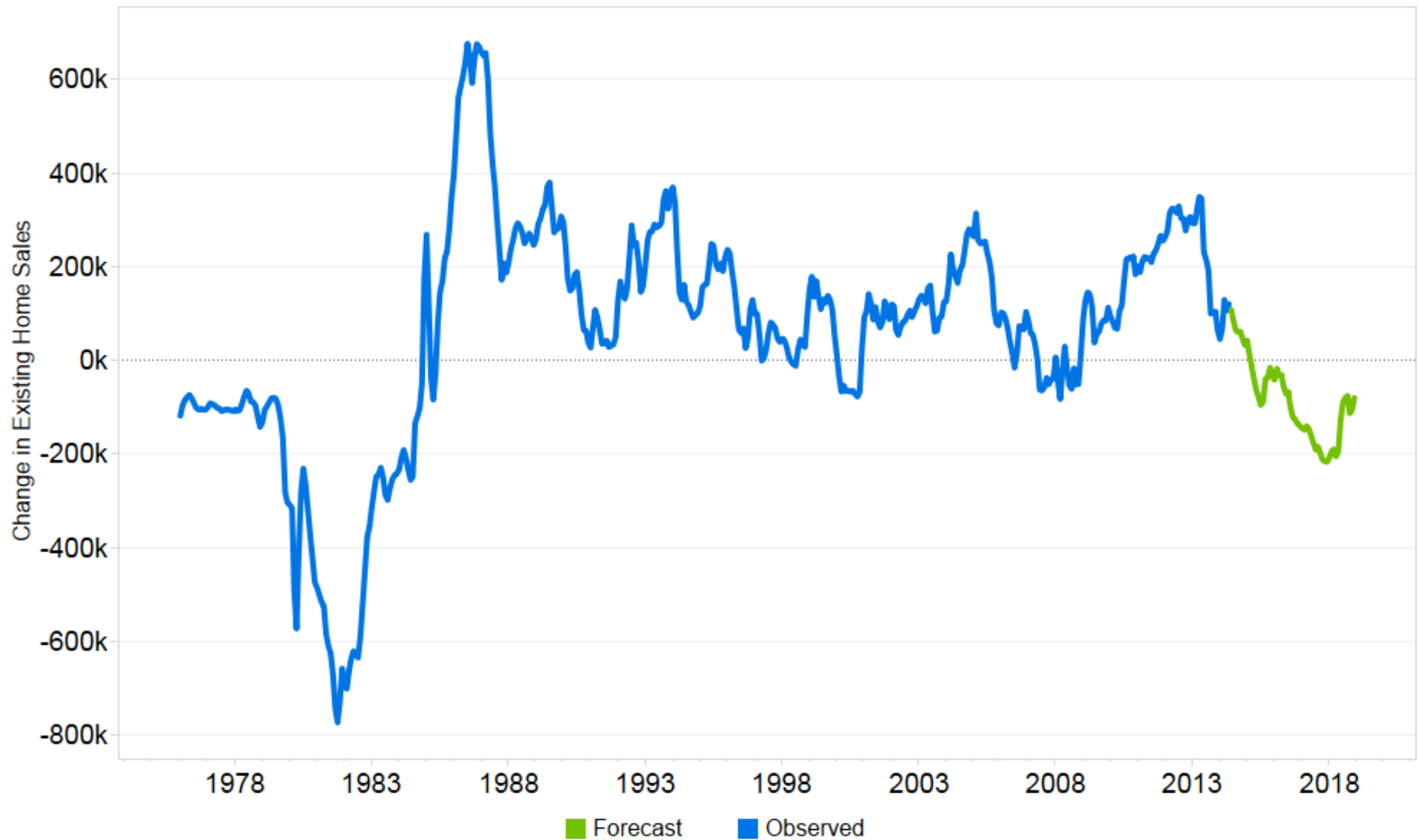
Current	64.7%	1.8%	20.3%	4.2%	-13.7%	3.4%
Historical	65.7%	1.5%	29.0%	8.6%	-4.3%	3.9%



## Sales will slow in the coming year

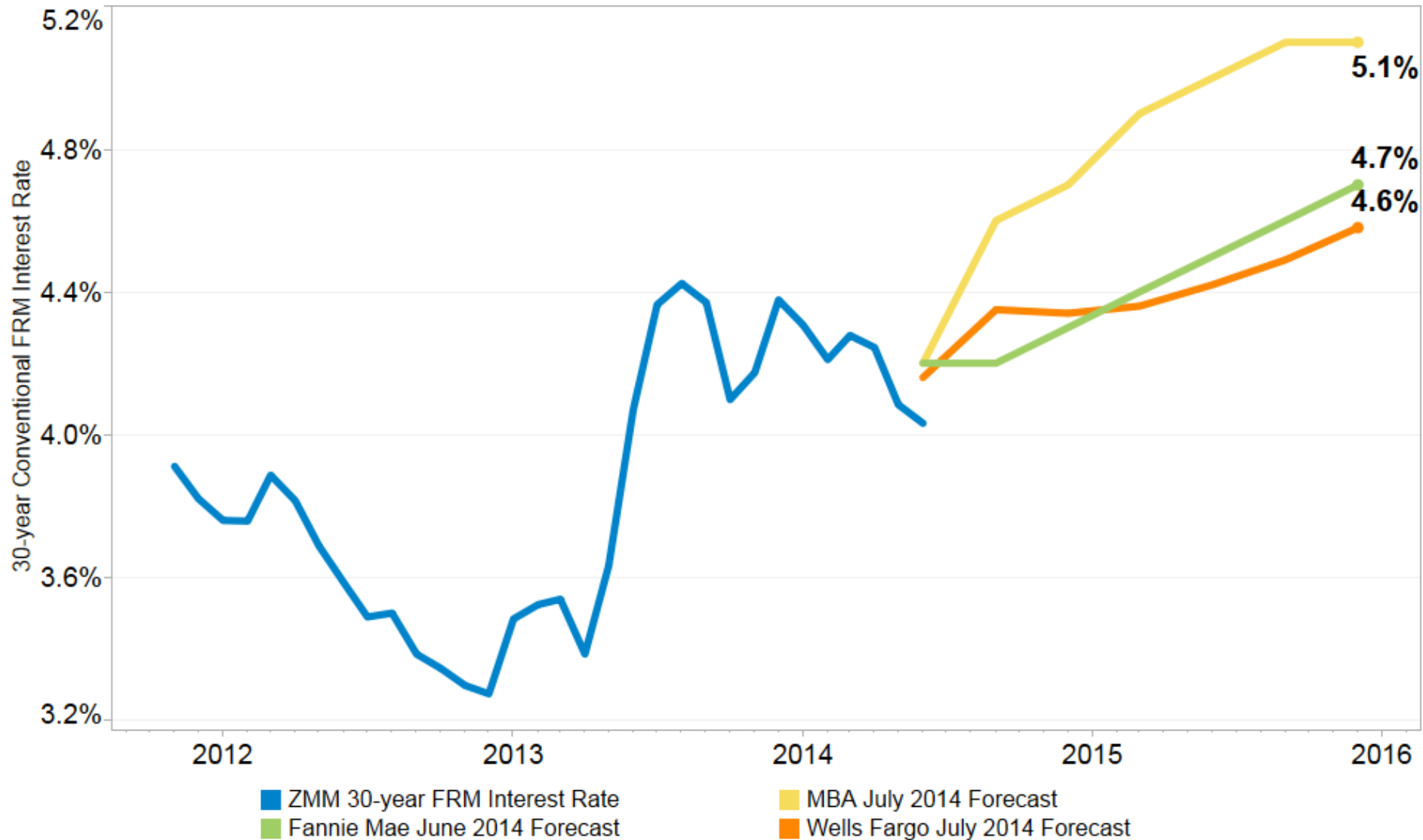


## Once interest rates exceed 5%, lock-in will be a drag on sales

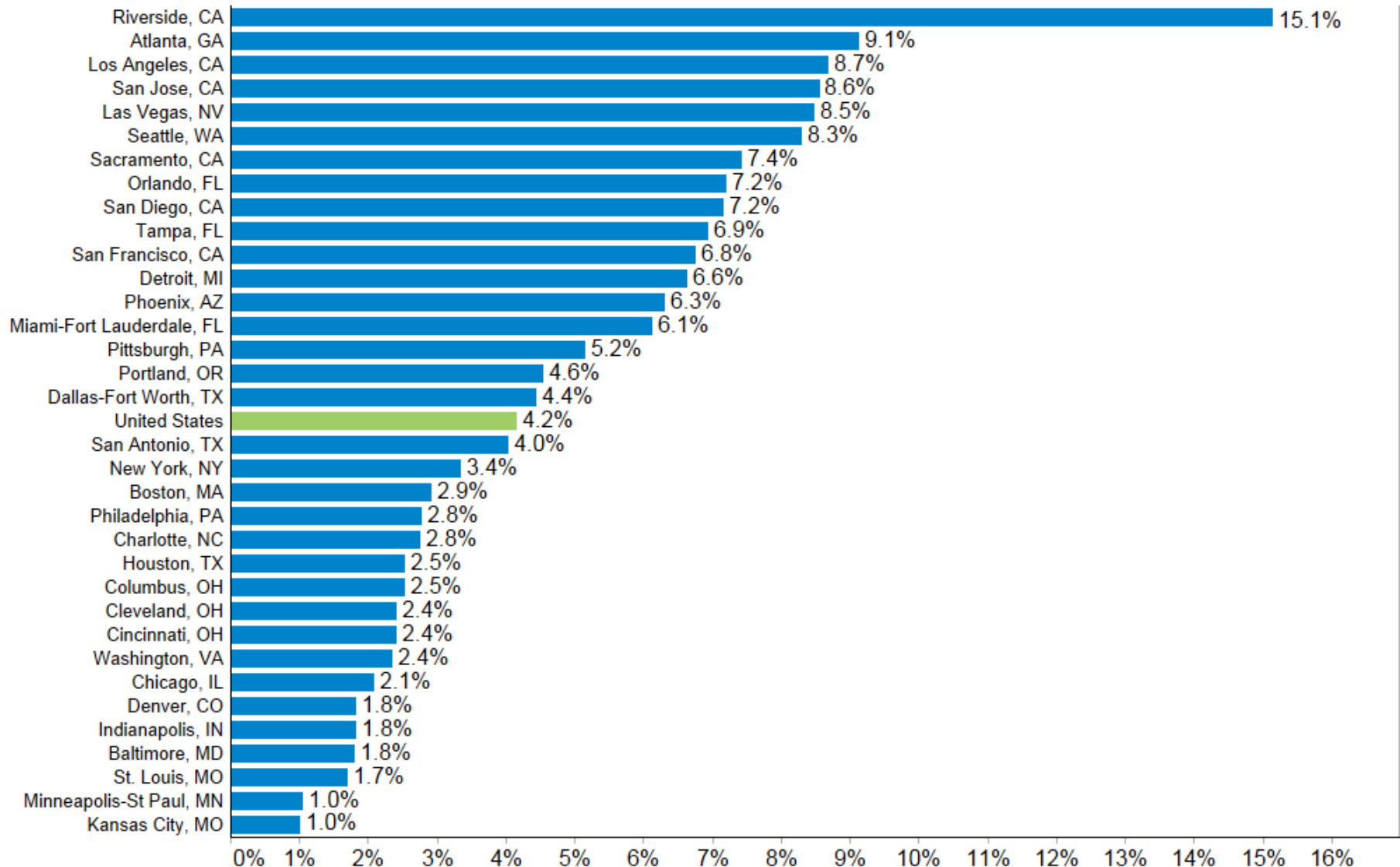


# Outlook

## Mortgage rates are expected to rise



## Zillow Home Value Forecast for June 2015 positive

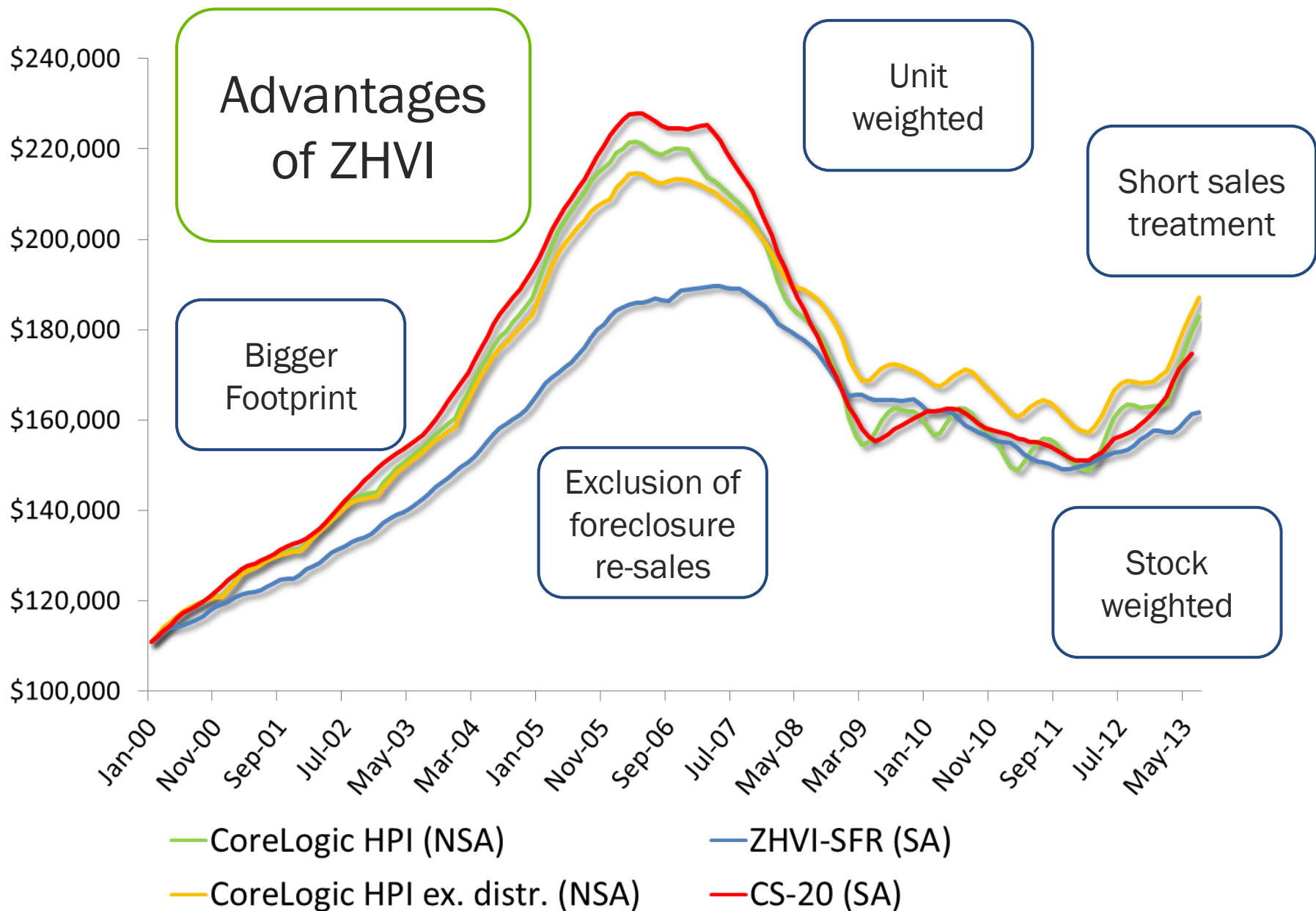




# Summary and Outlook

- **Current recovery fueled by:**
  - Huge reset in home prices
  - Low mortgage rates
  - Inventory constraints due to negative equity
- **“Normal” recoveries usually fueled by:**
  - Household formations
  - Rising incomes
- **We are currently transitioning between these two types of recoveries, but it will be several more years before we get back to “normal”**
- **Tailwinds for housing markets**
  - Pent-up supply of household formations coming from doubled-up households
  - Increased economic growth/inflation which should filter down to wage growth

# Appendix: Methodological Reference

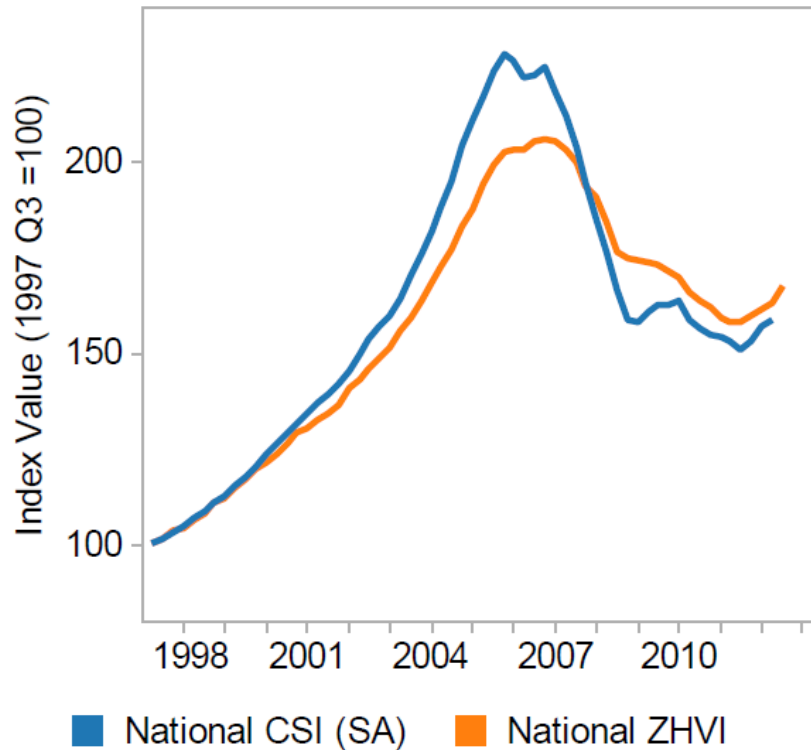


# Differences between Zillow Home Value Index and Case-Shiller

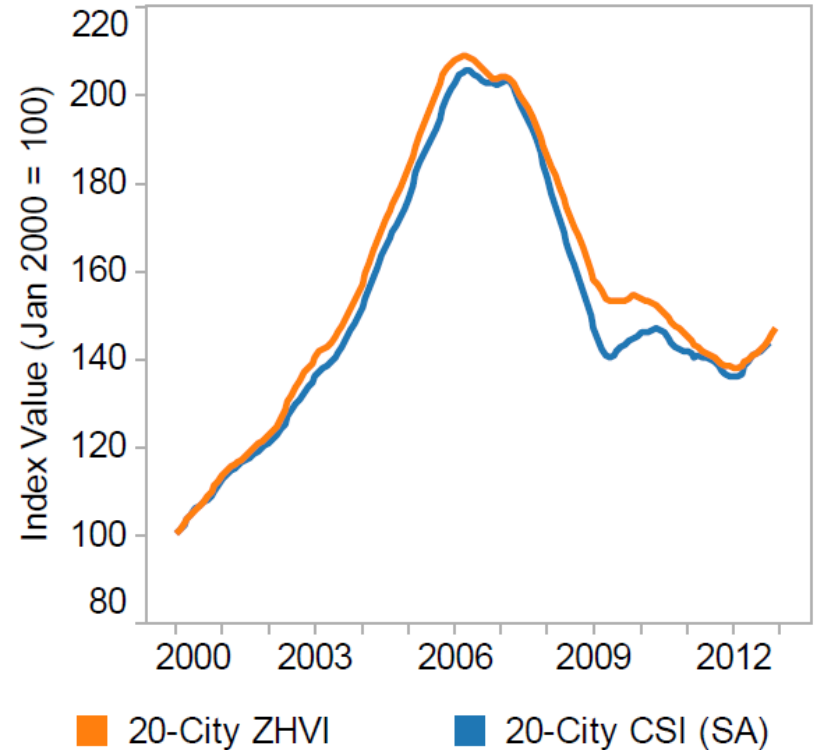
- ZHVI is based on the median of the estimated values of all homes in the country. ZHVI fully controls for biases in the mix of closed sales.
- Case-Shiller is based on repeat sales methodology. If segments of homes are appreciating at different rates and those segments are not proportionally represented in the mix of repeat sales, the index will be biased.
- Case-Shiller only includes homes that have sold at least twice (and excludes all new construction).
- Case-Shiller includes foreclosure re-sales even though these are substantially different than non-distressed sales.
- ZHVI looks at all home values, regardless of what has sold or not.
- ZHVI does not include foreclosure re-sales.

# The impact of footprint and value weighting

National ZHVI vs. National CSI

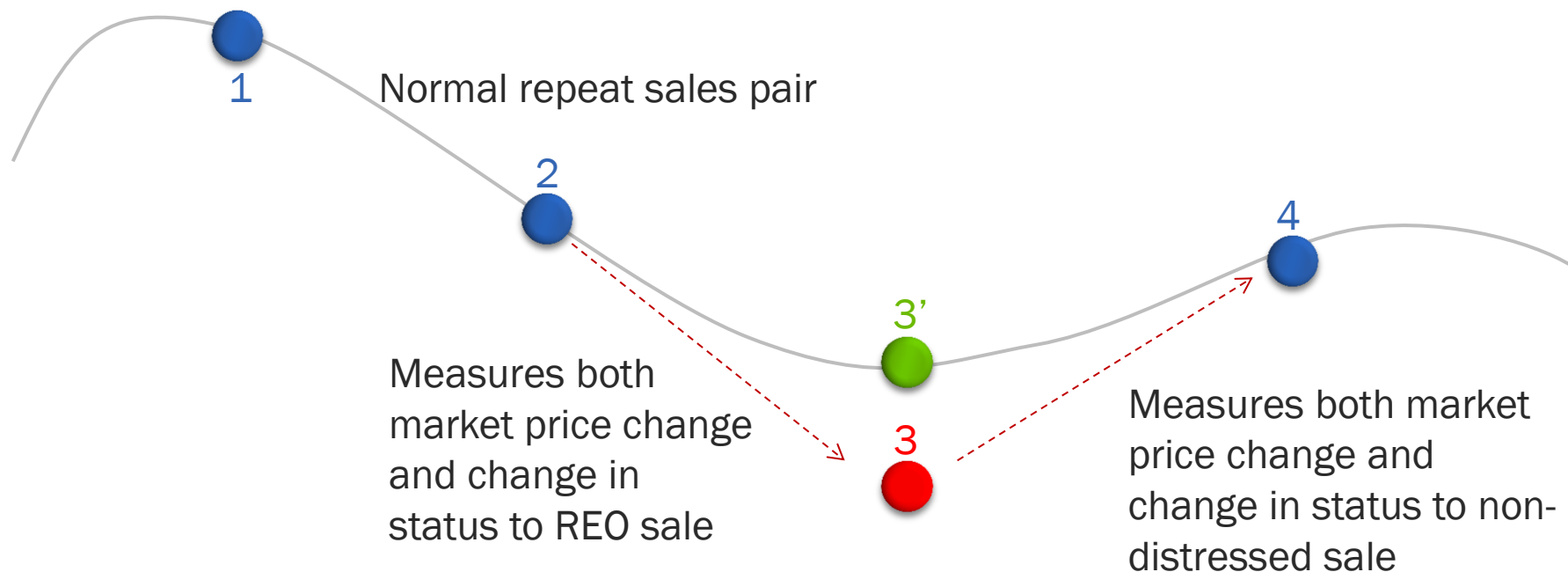


20-City ZHVI vs. 20-City CSI



- When controlling for the footprint, ZHVI and Case-Shiller are similar at the 20 city level.

## Problems with the inclusion of foreclosure re-sales



- Non-distressed sale
- Non-distressed value of home
- REO sale



## Excluding short sales: A noble endeavor but does it lead to upward bias?

- **Current CoreLogic approach (as we understand it):**
  - For sales after 2006, the sale is removed from the pairing process if the sale price is less than the mortgage amount at time of origination (no assumptions made about remaining principal).
- **Example:**
  - 2007: Sale of home for \$100K (\$80K mortgage)
  - 2013: Home sells again for \$75K (but mortgage balance is only \$70K)
    - This home would be excluded from the index despite not being a short sale.
- This can easily become a filter for homes that have declined in value but are not, in fact, short sales. The exclusion of such transactions will result in an upward bias in the estimate of home price appreciation.

# How much did house prices really increase in 2012?

April 4, 2013

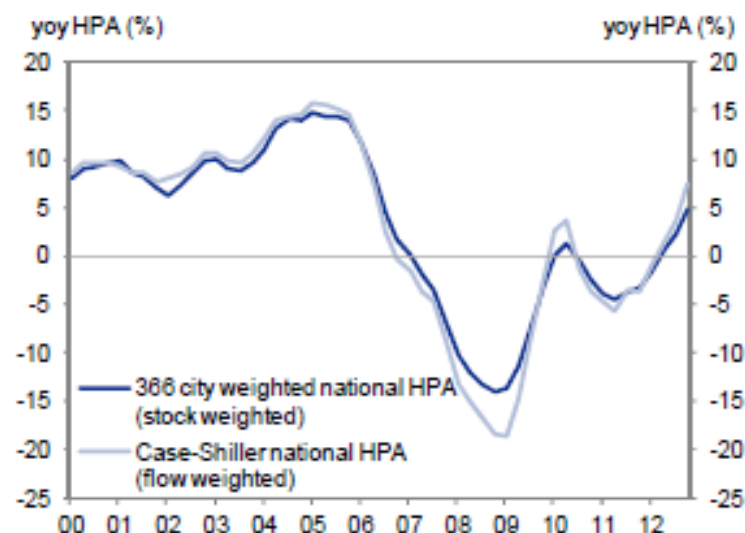
percentage point difference in the 2012 house price growth rate is entirely driven by the weighting method.

The analysis above shows that the national house prices, weighted by the housing stock of each location, probably increased 3-4% rather than 7-8% in 2012. The difference can be explained by a declining share of distressed sales and the weighting method used in repeat-sales index construction. This result is intuitive considering the large number of cities in the US where house prices tend to stay flat for years and rarely experience significant appreciation or depreciation. For example, out of the 366 metro areas in our

**Exhibit 1: House prices appreciation rates turned from negative in 2011 to positive in 2012 across indices**

House Price Index	HPA (yoy %Chg)	
	2011	2012
S&P/Case-Shiller Composite 20	-4.1	6.8
S&P/Case-Shiller US National	-3.7	7.3
CoreLogic National incl Distressed	-3.1	8.3
CoreLogic National excl Distressed	-4.1	6.7
FHFA Purchase-Only Monthly Index	-1.3	5.6
Zillow.com Home Value Index	-3.4	5.6
Radar Logic 25 MSA Composite	-6.4	13.3
FNC Composite 30	-4.4	5.8
NAR Median Sales Price	-3.9	11.1

**Exhibit 4: Flow weighted house price index shows a bigger decline in 2009 and a sharper recovery in 2012**



# Summary comparison of national home price indices

	S&P/Case-Shiller U.S. National Home Price Index (“S&P/CSI”)	Zillow National Home Value Index (“ZHVI”)
<b>Primary Purpose</b>	Benchmark for home price-linked financial product development, trading, and settlement	Housing market analysis and research
<b>Methodology</b>	Repeat Sales <ul style="list-style-type: none"> <li>Weighted composite of nine underlying Census Division repeat sales indices</li> <li>Seasonally- and non-seasonally-adjusted versions</li> </ul>	Hedonic Imputation <ul style="list-style-type: none"> <li>Median of actual and estimated market values of all homes within a market (or market segment)</li> <li>Three-month smoothed, using a Henderson Filter</li> <li>Seasonally-adjusted only</li> </ul>
<b>Underlying Data</b>	Sale pairs for single-family homes only, i.e., SF homes for which: <ul style="list-style-type: none"> <li>A sale price (distressed or non-distressed) is recorded within the current index reporting period and for which a prior historical sale price is also available</li> <li>Excludes newly-constructed homes</li> <li>Index data history to 1987</li> </ul>	Actual and estimated values of 83 million individual single-family homes, condos, and co-ops: <ul style="list-style-type: none"> <li>Actual, non-distressed sale prices recorded during the index reporting period</li> <li>Estimated non-distressed market values for every home in the Zillow database that does not sell during the reporting period</li> <li>Includes newly constructed homes</li> <li>Index data history to 1997</li> </ul>
<b>Coverage</b>	Approximately 71% of US housing stock by market value	Approximately 95% of US housing stock by market value
<b>Release Frequency</b>	Quarterly	Monthly
<b>Reporting Lag</b>	56 – 61 days	18 – 23 days