

St. Louis Housing and Mortgage Market Data

What's Available, What's Reliable?

June 2, 2011

William R. Emmons, Daigo K. Gubo, and Julia S. Maués

Federal Reserve Bank of St. Louis



The views expressed are those of the presenters, not necessarily those of the Federal Reserve Bank of St. Louis.

St. Louis Housing & Mortgage Market Data: What's Available, What's Reliable?

- Housing data
 - House-price indexes (HPIs)
 - Other data (briefly): New-home construction, sales volume
- Mortgage data
 - Mortgage originations and outstandings
 - Delinquency and foreclosure rates
- The outlook (briefly)



U.S. House-Price Trends

- In general, all national house-price indexes tell the same story about the last few decades
 - Moderate house-price increases during latter 1990s
 - Acceleration during first half of the 2000s
 - House-price peak in 2006 or '07; sharp decline through early 2009
 - Prices bounced along a bottom until mid-2010; since then they have been falling again
 - Nationwide average house price back to early-2000s level



Regional Variation in House Prices

- The level of house prices varies a lot across U.S.
 - Partly related to differences in average incomes, population growth or decline, local supply conditions, etc.
 - Some markets appear prone to bubbles—rarely in the Midwest (Case & Shiller, 2003; Rapach & Strauss, 2009)
- Rates of house-price change have become more similar across the nation since the bubble
 - Before 2000: Correlation between St. Louis and U.S. quarterly house-price changes < 0.5 (Note: correlations range from -1.0 to 1.0)
 - Since 2000: Correlation of St. Louis and U.S. changes > 0.8



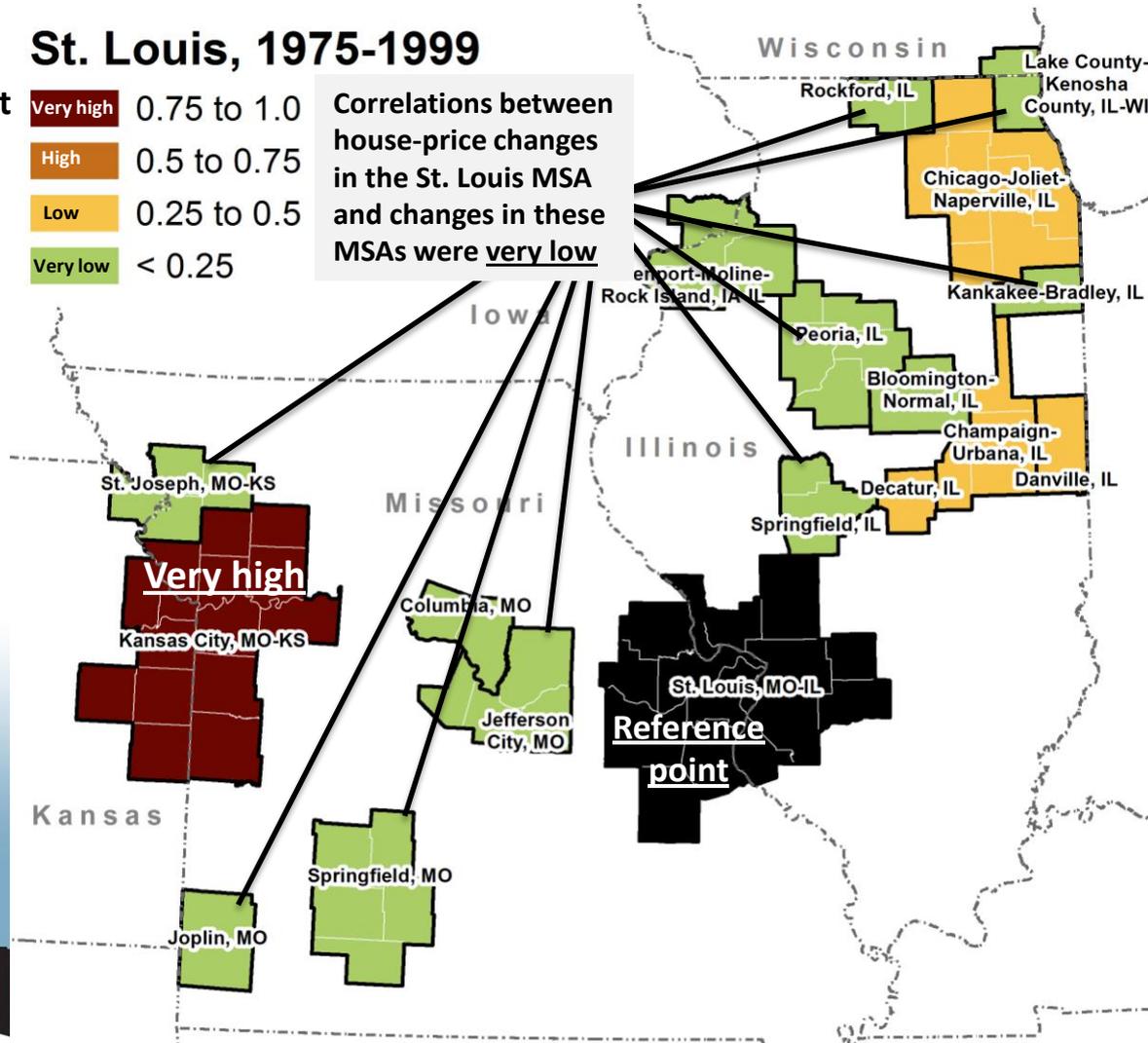
How Similar Were House-Price Changes in St. Louis and Other Nearby Metro Areas ?

St. Louis, 1975-1999

Correlation co-efficient between house-price changes in St. Louis MSA and changes in other nearby MSAs:

Very high	0.75 to 1.0
High	0.5 to 0.75
Low	0.25 to 0.5
Very low	< 0.25

Correlations between house-price changes in the St. Louis MSA and changes in these MSAs were very low



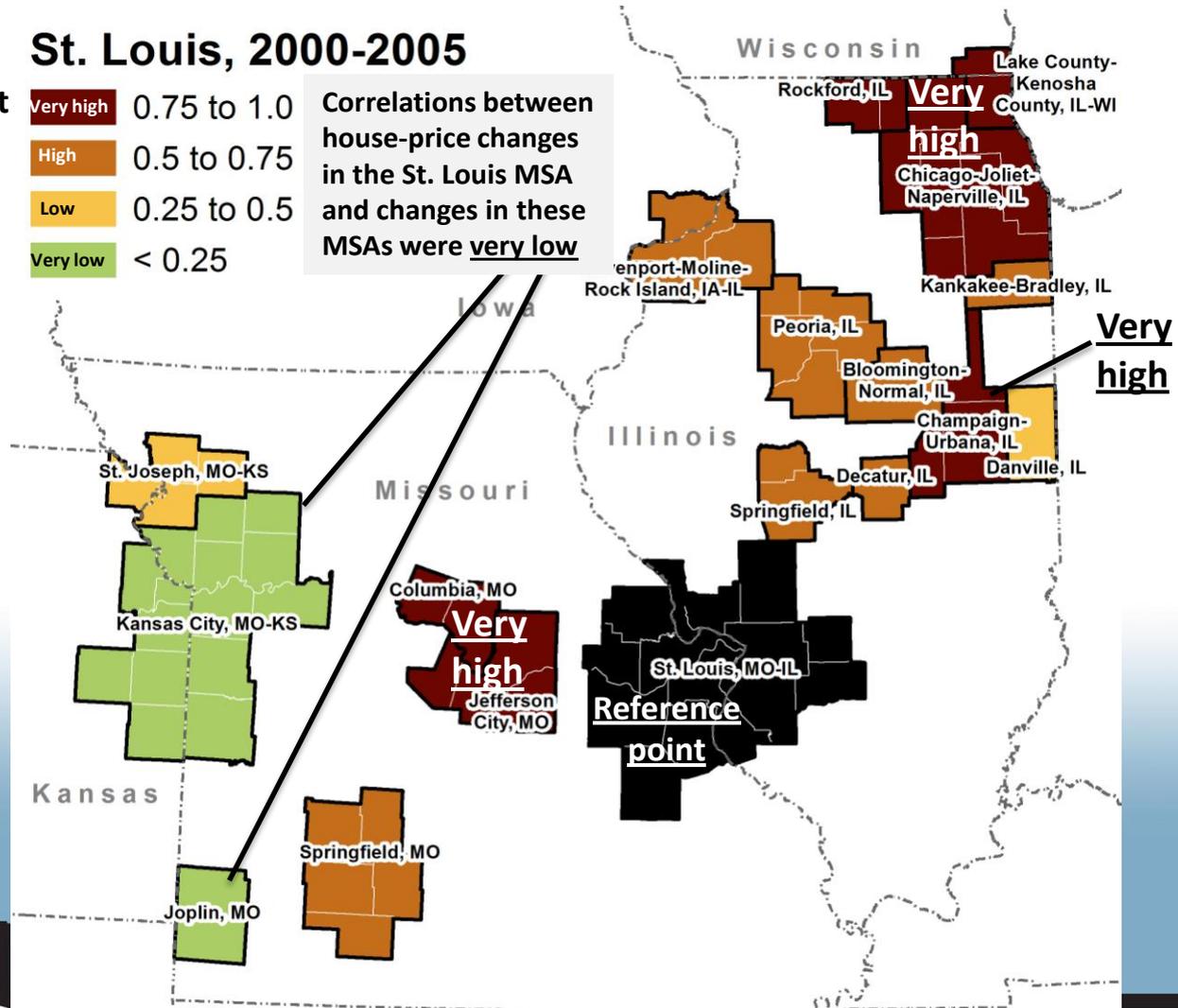
Rates of MSA House-Price Change Became More Similar As the Bubble Inflated

St. Louis, 2000-2005

Correlation co-efficient between house-price changes in St. Louis MSA and changes in other nearby MSAs:

- Very high** 0.75 to 1.0
- High** 0.5 to 0.75
- Low** 0.25 to 0.5
- Very low** < 0.25

Correlations between house-price changes in the St. Louis MSA and changes in these MSAs were very low

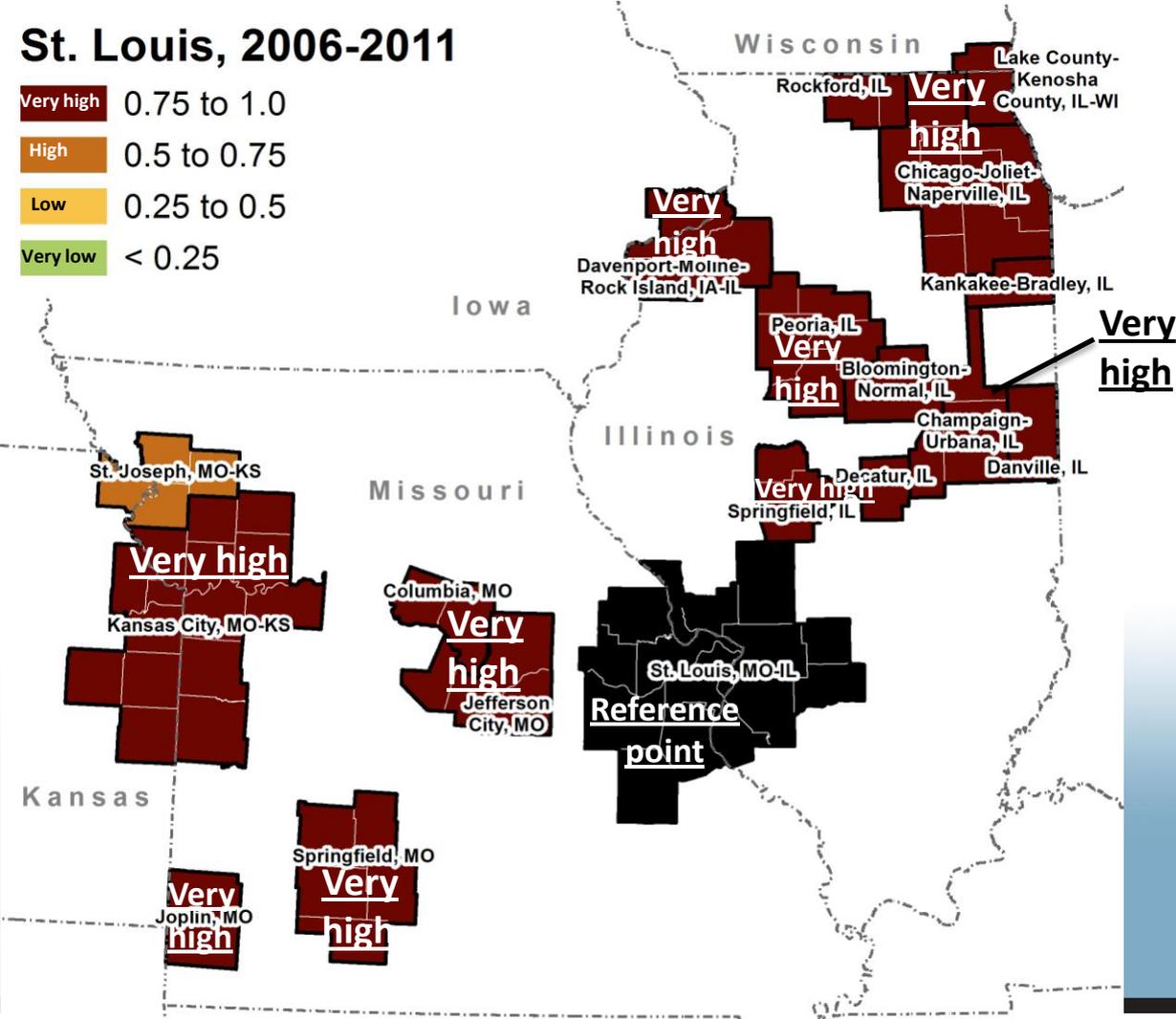


House Prices Deflated Together

Correlation co-efficient between house-price changes in St. Louis MSA and changes in other nearby MSAs:

St. Louis, 2006-2011

Very high	0.75 to 1.0
High	0.5 to 0.75
Low	0.25 to 0.5
Very low	< 0.25



Source: Federal Housing Finance Agency

Annual data

The Appropriate HPI Depends on the Purpose For Which It's Needed

- “Macro” purposes may include:
 - The Federal Reserve wants to estimate the wealth effects of declining house prices on U.S. economic growth
 - Private investors want to speculate on the housing market as an asset class
 - County assessors want to forecast property-tax revenues
- “Micro” purposes may include:
 - A family wants to estimate the market value of its house
 - An economist wants to study the effect of house-price changes on households’ saving and spending behavior
 - Homebuilders want to know if they can build and sell a new house for a profit



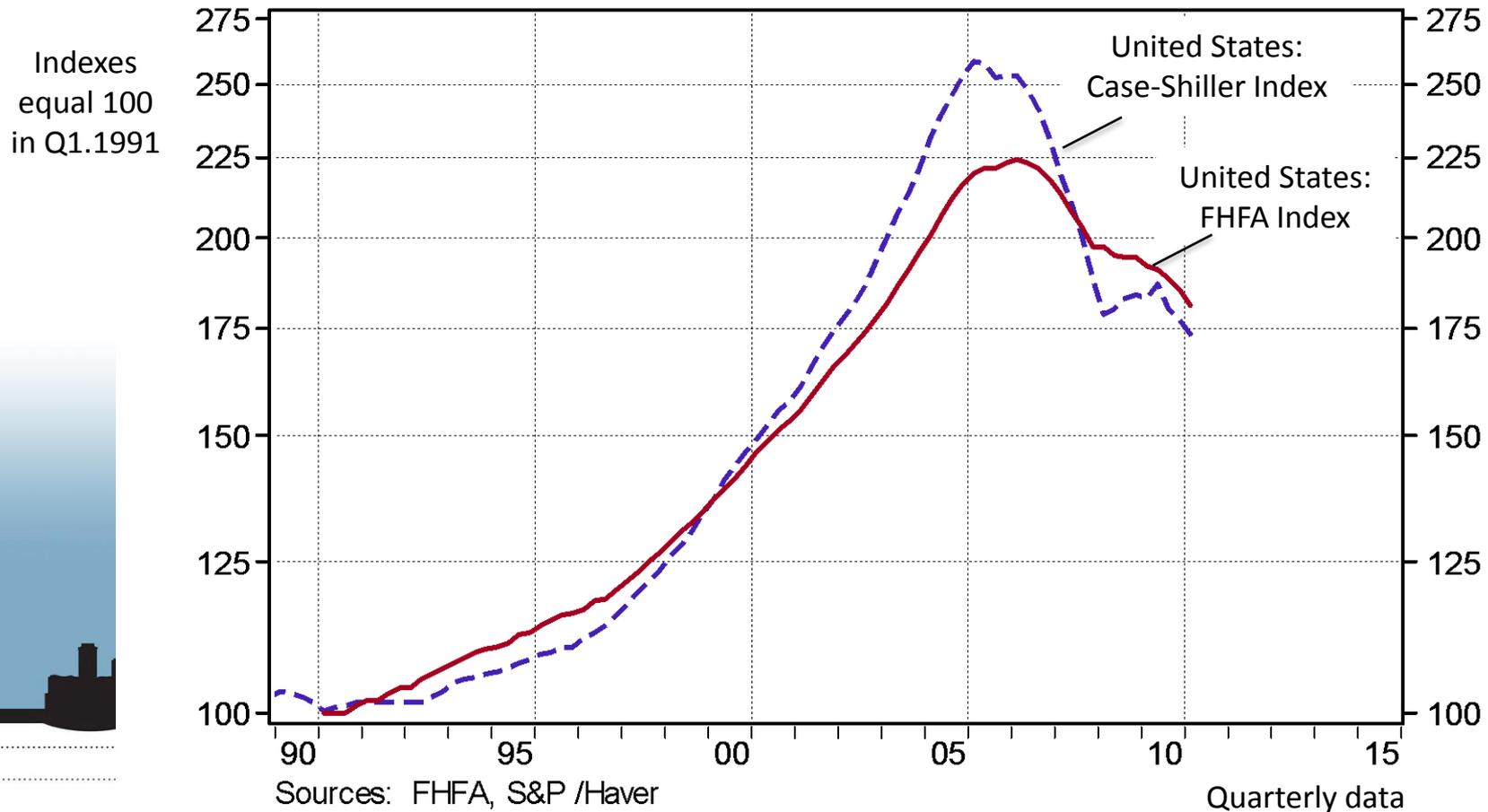
Major U.S. and St. Louis MSA House-Price Indexes

House-price index	Strengths	Weaknesses	Overall evaluation
1) CoreLogic House-Price Index	<ul style="list-style-type: none"> ▪ Repeat-sales method ▪ Timely, monthly 	<ul style="list-style-type: none"> ▪ Limited St. Louis coverage 	<ul style="list-style-type: none"> ▪ Best for macro and national purposes
2) Federal Housing Finance Agency (FHFA) Purchase-Only Home-Price Index	<ul style="list-style-type: none"> ▪ Repeat-sales method ▪ Timely, monthly ▪ St. Louis coverage 	<ul style="list-style-type: none"> ▪ Only conventional conforming mortgages 	<ul style="list-style-type: none"> ▪ Best for micro and St. Louis MSA purposes
3) S&P/Case-Shiller Home-Price Index	<ul style="list-style-type: none"> ▪ Repeat-sales method ▪ Timely, monthly ▪ Derivatives exist 	<ul style="list-style-type: none"> ▪ No St. Louis coverage ▪ Three-month moving average 	<ul style="list-style-type: none"> ▪ Best for major-metro price tiers and investment purposes
4) National Association of Realtors (NAR) Existing Home-Sales	<ul style="list-style-type: none"> ▪ Dollar values rather than index values 	<ul style="list-style-type: none"> ▪ No St. Louis coverage ▪ Average-price methodology is biased 	<ul style="list-style-type: none"> ▪ Best for national house dollar values
5) Zillow Median Home-Value Index	<ul style="list-style-type: none"> ▪ St. Louis MSA and individual-home coverage 	<ul style="list-style-type: none"> ▪ Black-box average methodology may introduce biases 	<ul style="list-style-type: none"> ▪ Best for expected selling price of an individual St. Louis house
Others: Radar Logic Daily; Census Bureau New and Constant Quality; Integrated Asset Services (IAS) 360; etc.	<ul style="list-style-type: none"> ▪ Radar Logic is daily; incl. price per sq. ft.; forward projections ▪ Census for hedonics 	<ul style="list-style-type: none"> ▪ St. Louis details often limited, proprietary, and costly ▪ Data accuracy? 	<ul style="list-style-type: none"> ▪ May provide helpful supplemental information, but not sufficient stand-alone

House-Price Indexes Differ: FHFA vs. Case-Shiller

United States: FHFA Purchase-Only House-Price Index
Price index equals 100 in Q1.1991

United States: S&P/Case-Shiller Home-Price Index:
Price index equals 100 in Q1.1991



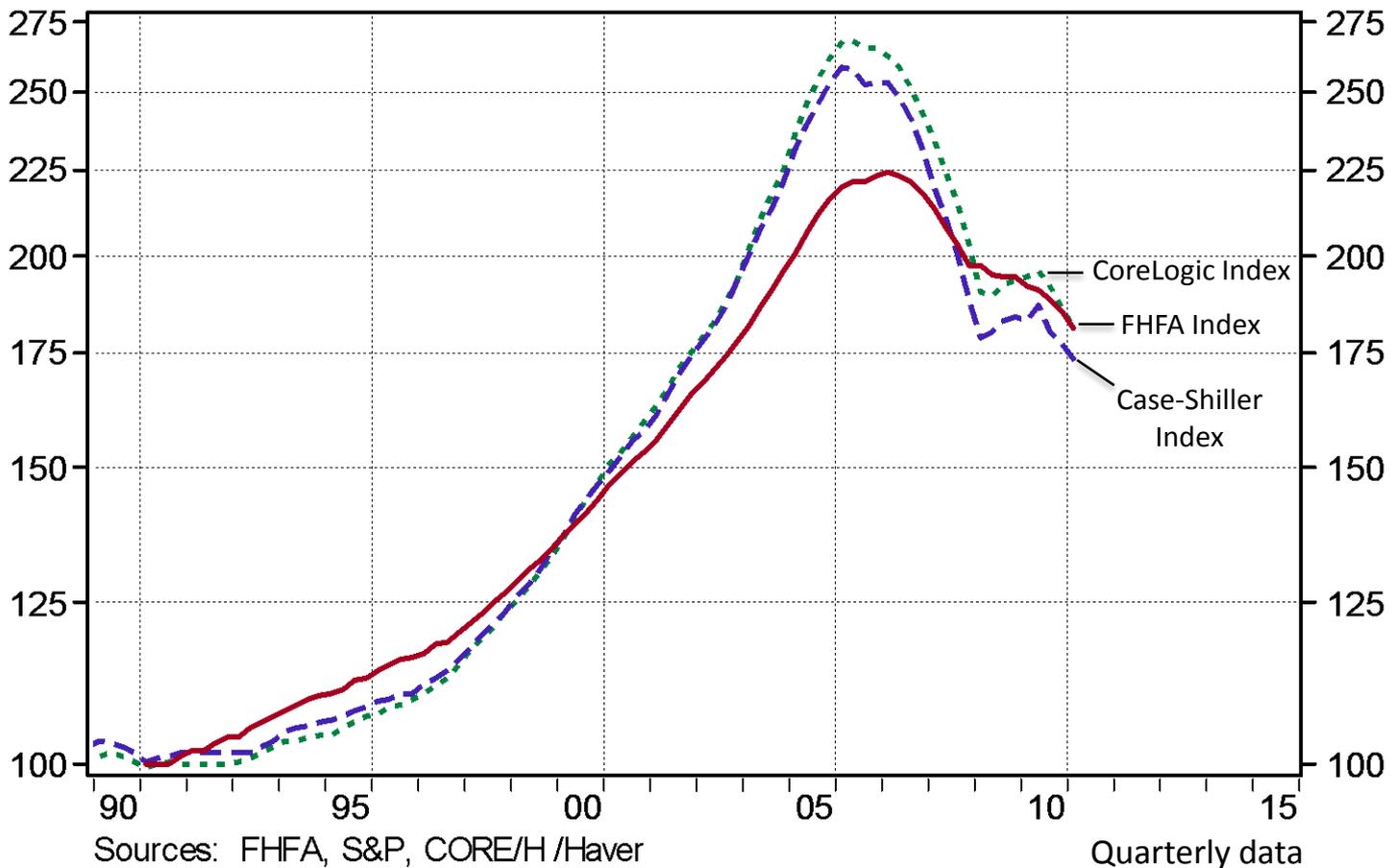
FHFA vs. Case-Shiller vs. CoreLogic

United States: FHFA Purchase-Only House-Price Index

United States: S&P/Case-Shiller Home-Price Index:

United States: CoreLogic Home-Price Index

Indexes
equal 100
in Q1.1991



FHFA vs. Case-Shiller vs. CoreLogic vs. Zillow.com...

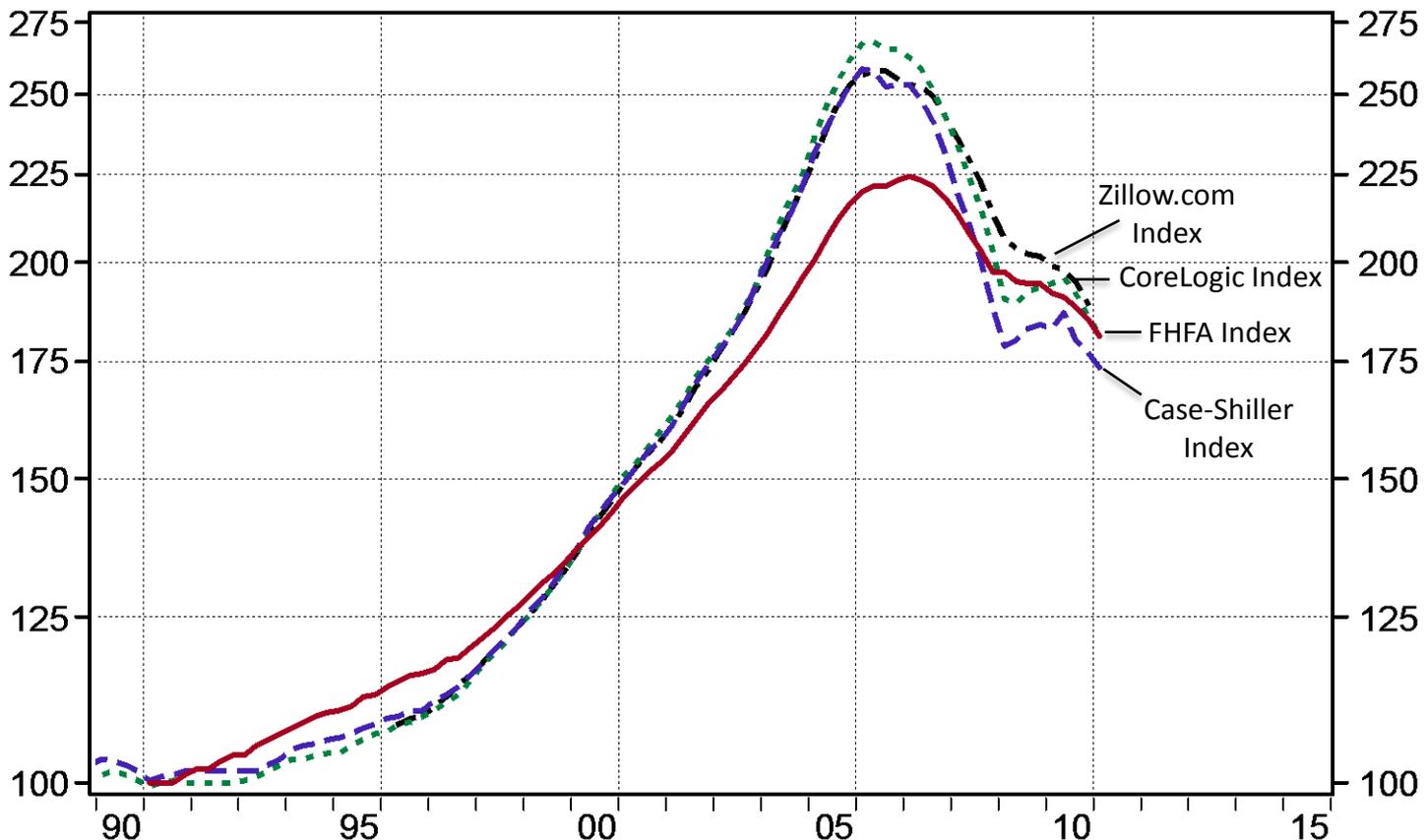
United States: FHFA Purchase-Only House-Price Index

United States: S&P/Case-Shiller Home-Price Index:

United States: CoreLogic Home-Price Index

United States: Zillow.com Median Home-Value Index

Indexes equal 100 in Q1.1991 (except Zillow index, which was set equal to others in 1997)



Sources: FHFA, S&P, CORE/H, ZILLOW /Haver

Quarterly data

All Major Indexes Tell The Same Basic Story About U.S. House Prices

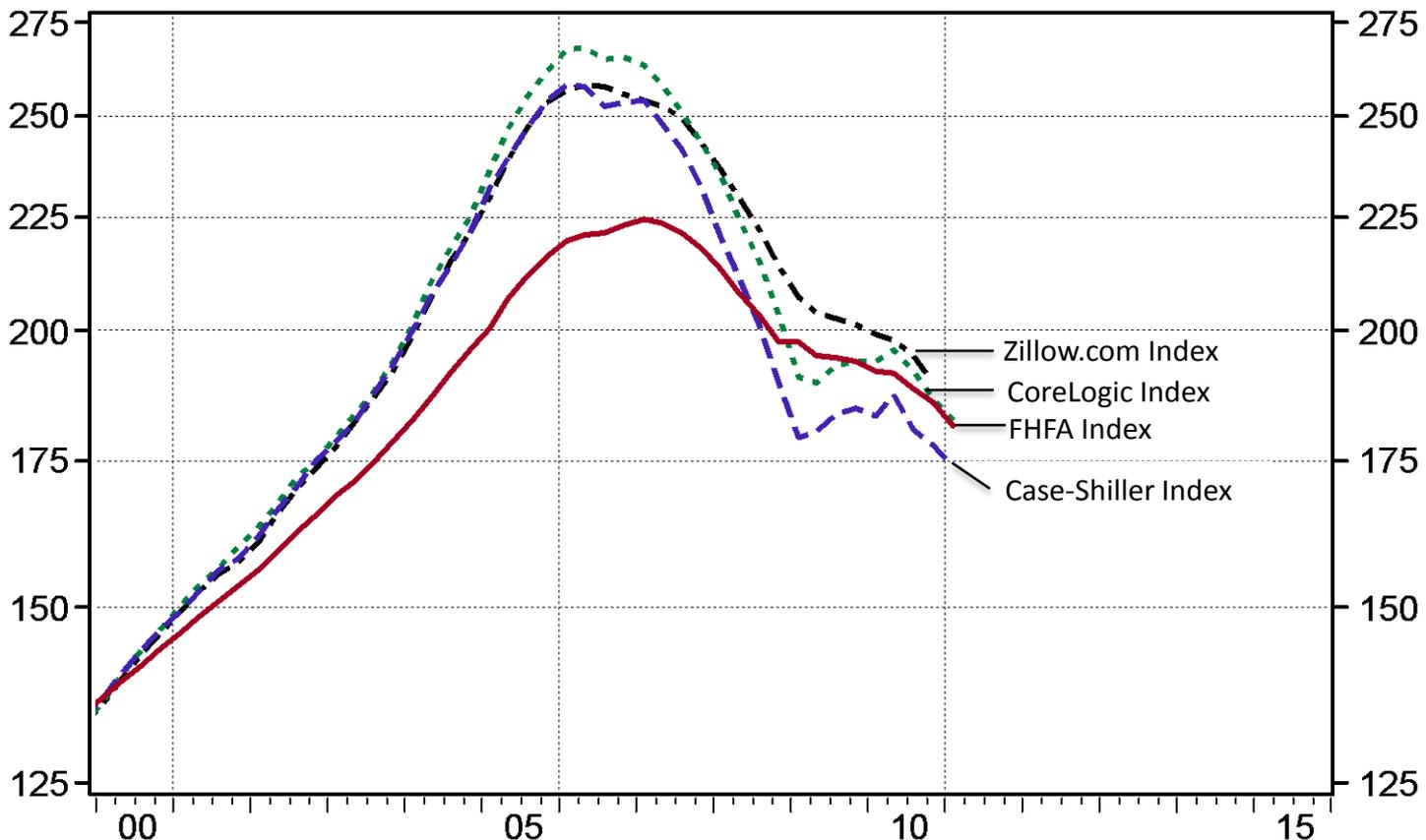
United States: FHFA Purchase-Only House-Price Index

United States: S&P/Case-Shiller Home-Price Index:

United States: CoreLogic Home-Price Index

United States: Zillow.com Median Home-Value Index

Indexes equal 100 in Q1.1991 (except Zillow index, which was set equal to others in 1997)



Sources: FHFA, S&P, CORE/H, ZILLOW /Haver

Quarterly data

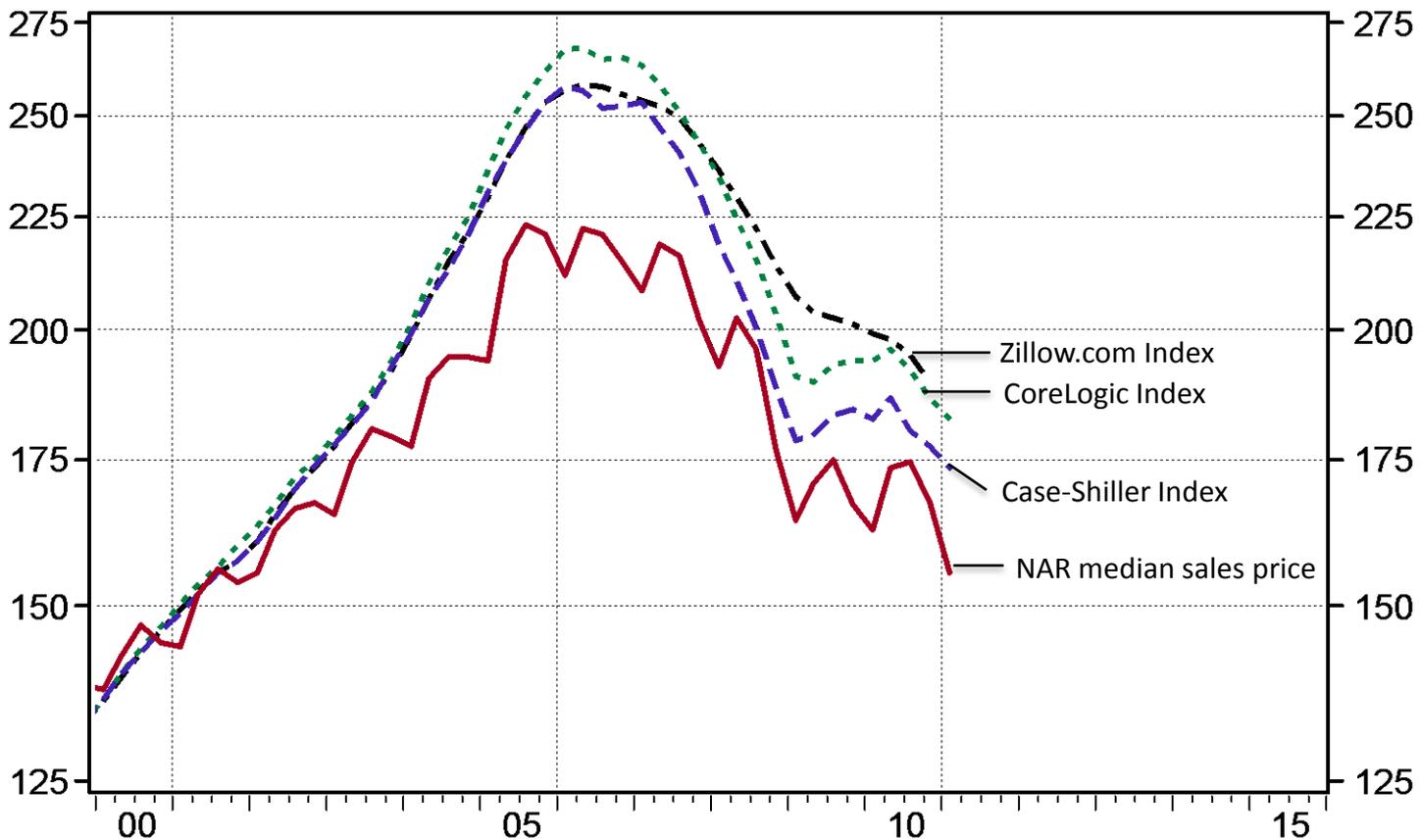
Some Are Useful Only For Limited Purposes

United States: NAR Median Sales Price of Existing Single-Family Homes

United States: S&P/Case-Shiller Home-Price Index:

United States: CoreLogic Home-Price Index

United States: Zillow.com Median Home-Value Index



Sources: NAR, S&P, CORE/H, ZILLOW /Haver

Quarterly data

So Should We Use A U.S. or A St. Louis House-Price Index for St. Louis MSA?

- High-quality St. Louis indexes (and data) for various purposes would be ideal, but only a few exist
- As a first approximation, a U.S. HPI may be good enough for some purposes; however:
 - Problem #1: National HPIs (and correlations with St. Louis) vary a lot—you still need to know which one(s) to use
 - Coverage, methodology, and appropriate uses differ
 - Some are more reliable or timely than others
 - Problem #2: Local conditions sometimes differ significantly from national, and only some index producers publish a St. Louis sub-index (some are available at a cost)



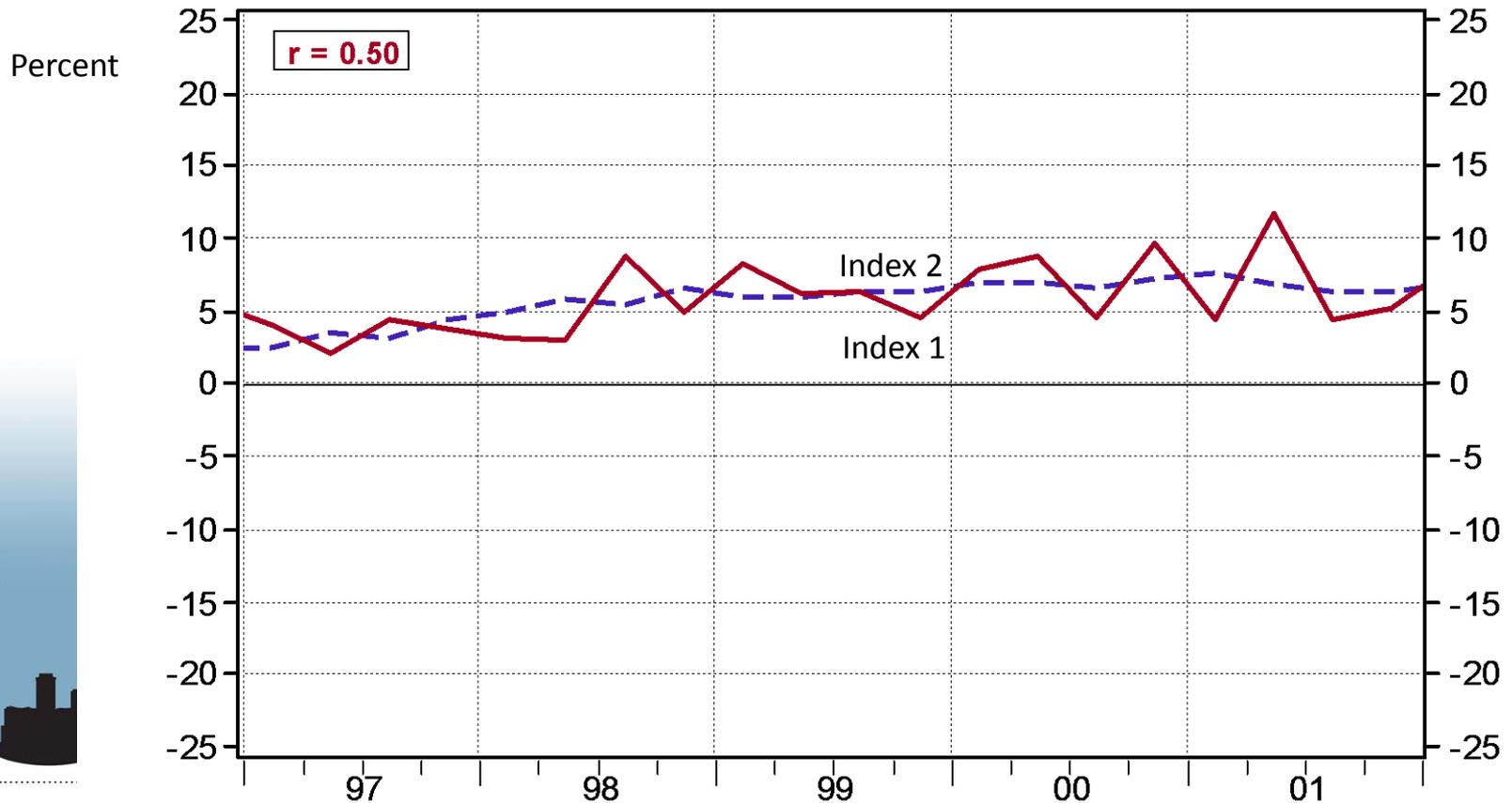
Can You Identify Which Is the U.S. House-Price Index and Which Is For St. Louis?

Index #1

Percent change at annualized rate

Index #2

Percent change at annualized rate



Sources: Federal Housing Finance Agency /Haver Analytics

Quarterly data

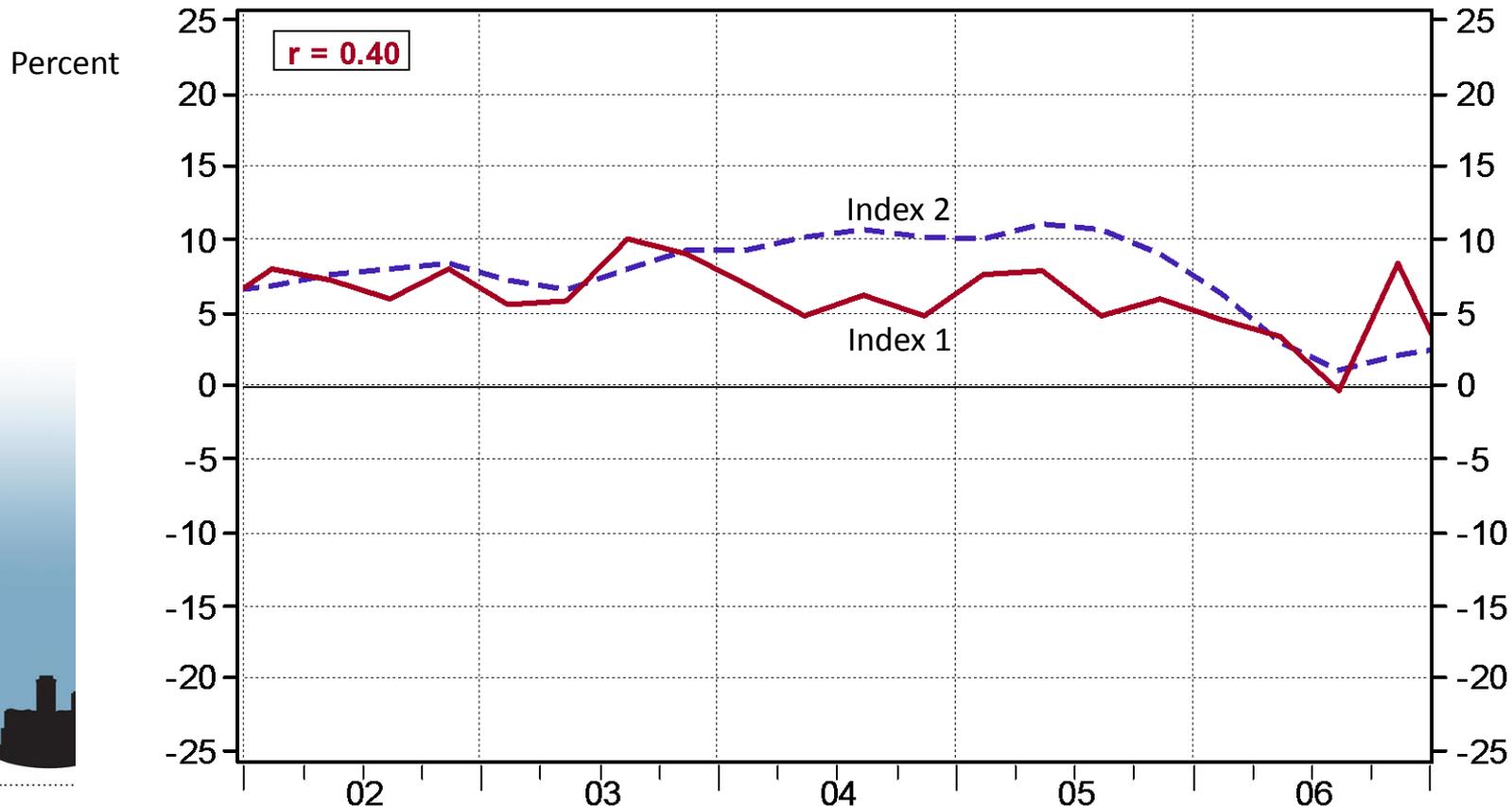
Can You Identify Which Is the U.S. House-Price Index and Which Is For St. Louis?

Index #1

Percent change at annualized rate

Index #2

Percent change at annualized rate



Sources: Federal Housing Finance Agency /Haver Analytics

Quarterly data

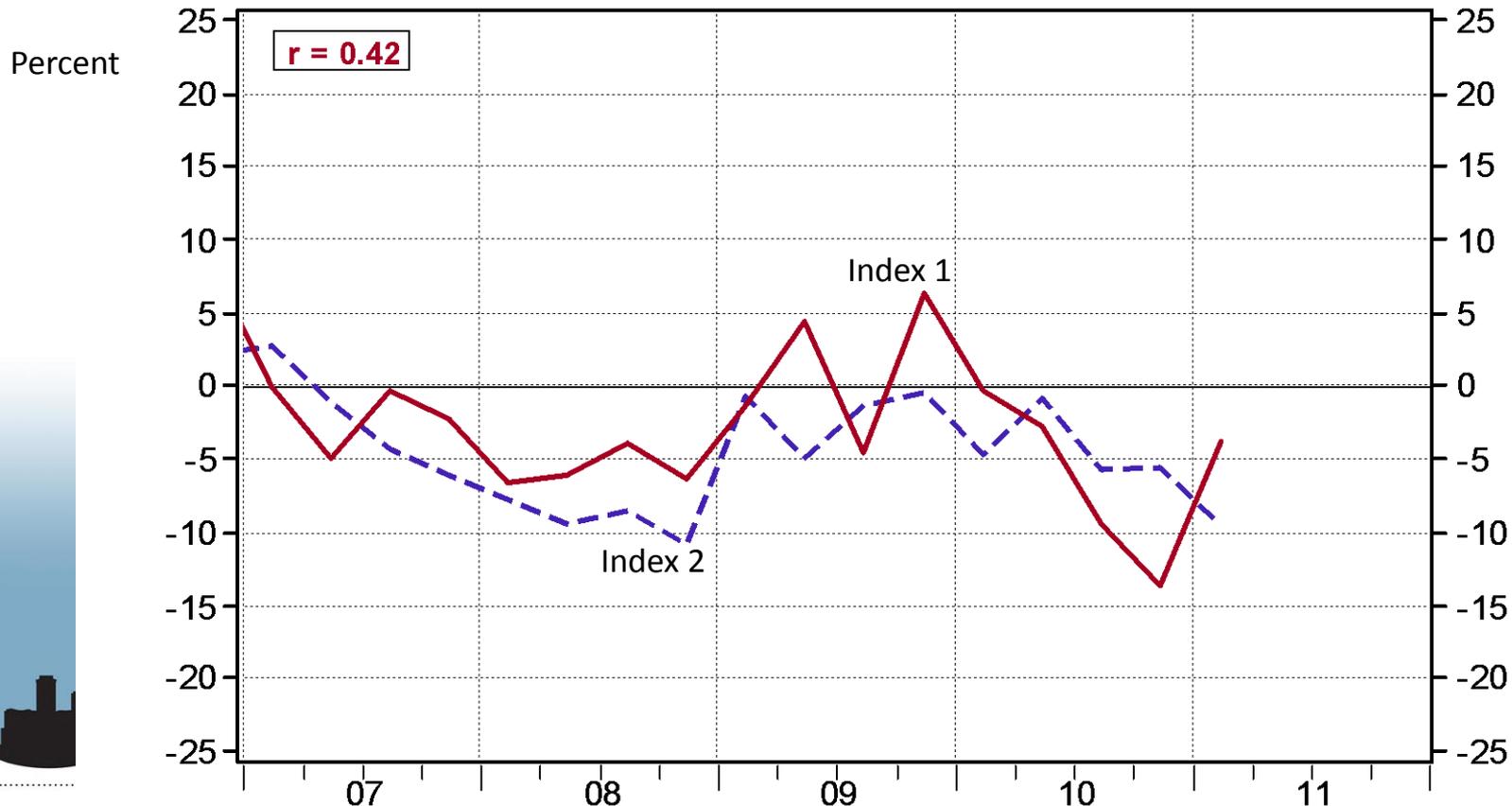
Can You Identify Which Is the U.S. House-Price Index and Which Is For St. Louis?

Index #1

Percent change at annualized rate

Index #2

Percent change at annualized rate

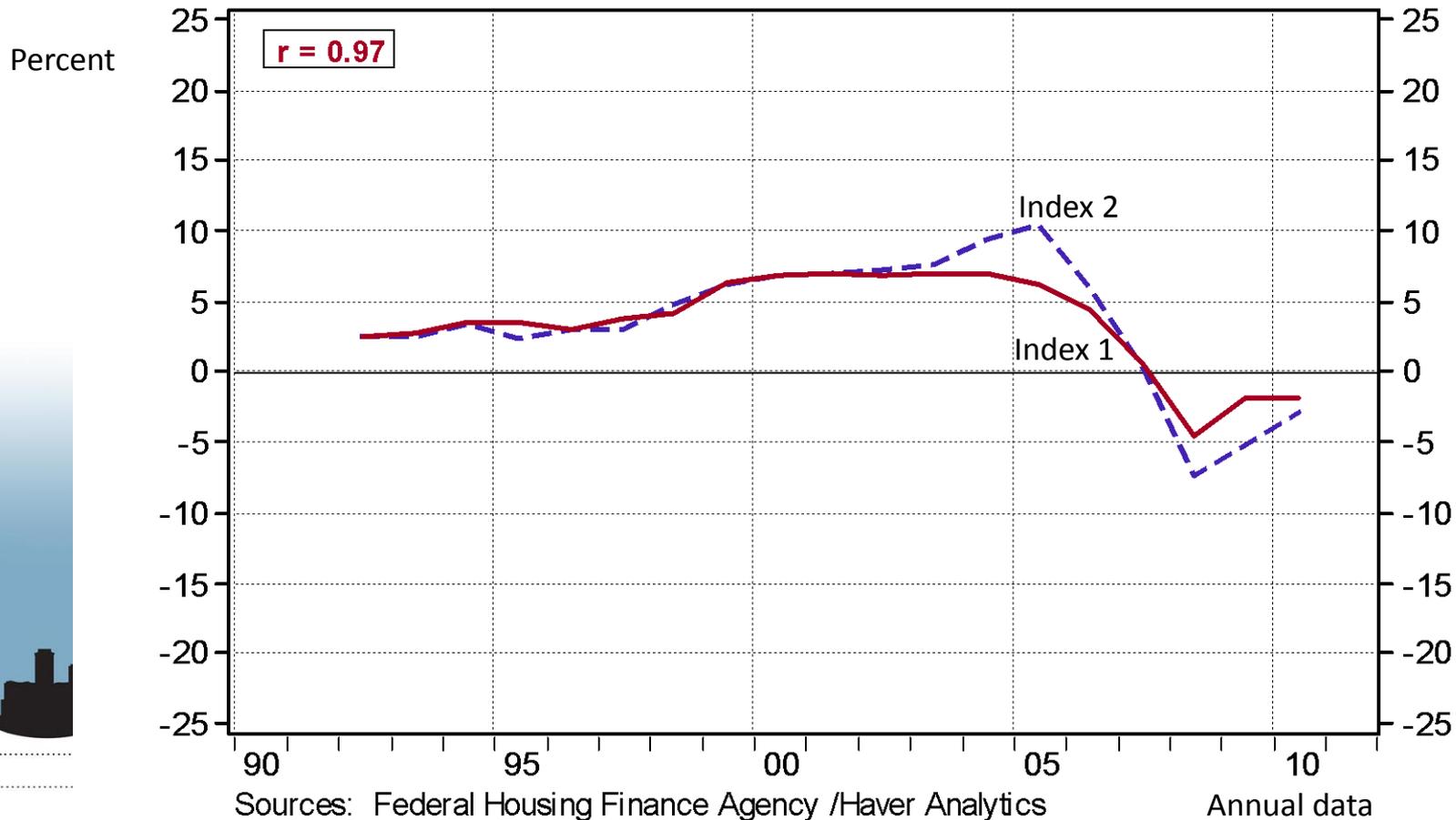


Sources: Federal Housing Finance Agency /Haver Analytics

Can You Identify Which Is the U.S. House-Price Index and Which Is For St. Louis?

Index #1
Annual percent change

Index #2
Annual percent change

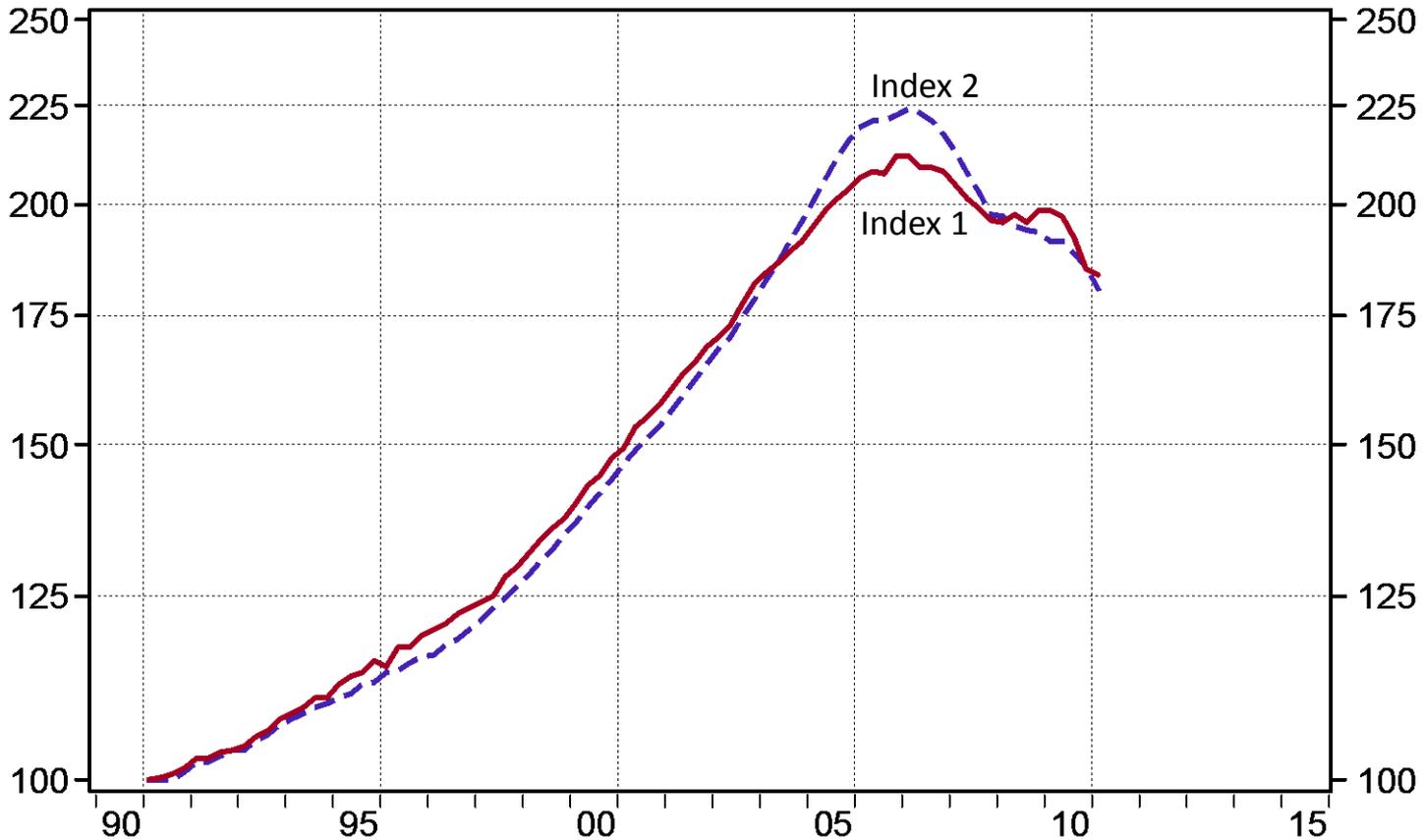


Can You Identify Which Is the U.S. House-Price Index and Which Is For St. Louis?

Index #1
Price index equals 100 in Q1.1991

Index #2
Price index equals 100 in Q1.1991

Indexes
equal 100
in Q1.1991



Sources: Federal Housing Finance Agency /Haver Analytics

Quarterly data

Which is the St. Louis House-Price Index?

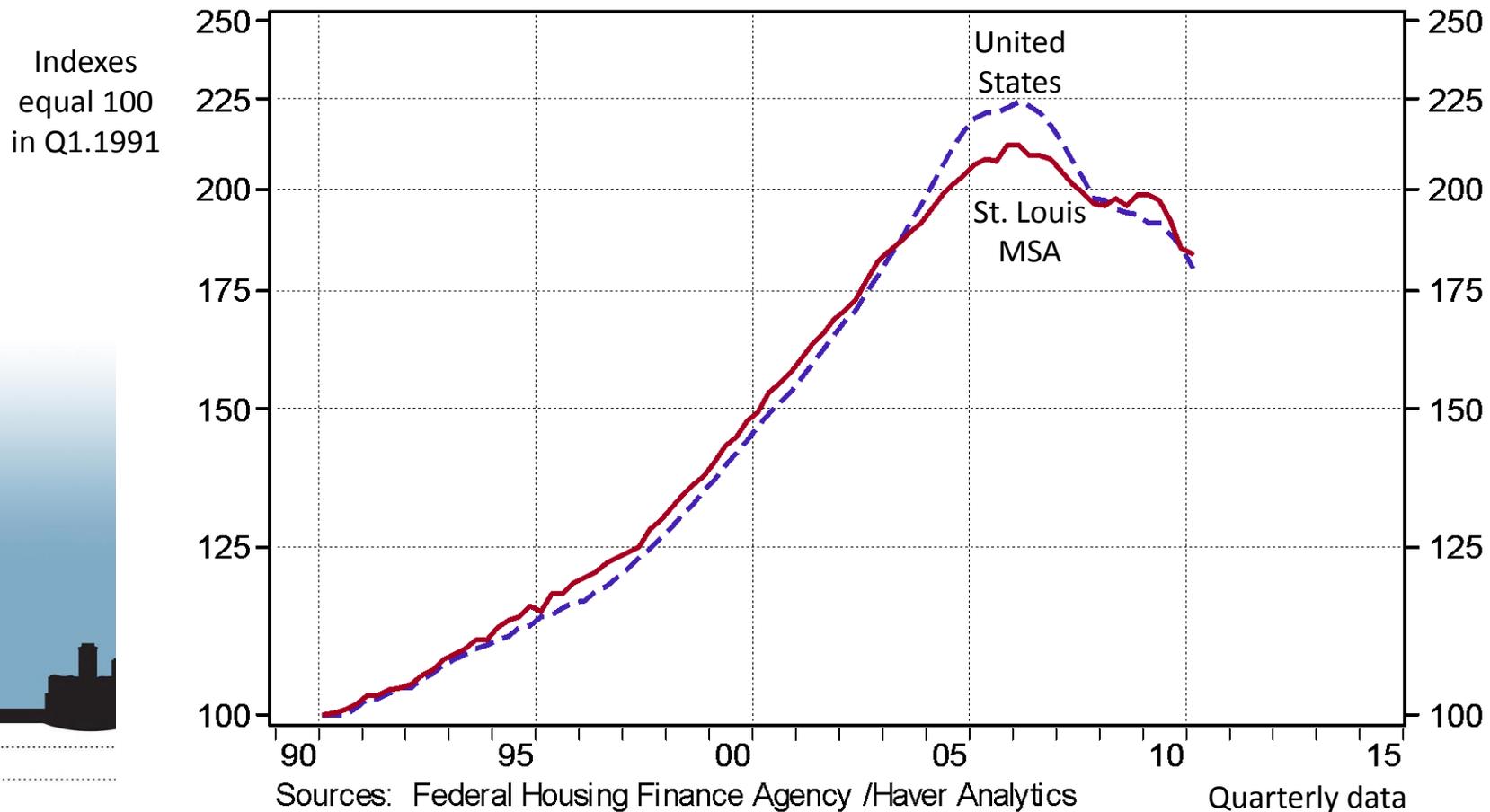
- ✓ 1. Index 1
- 2. Index 2



St. Louis House Prices Track the National Average Closely, According to FHFA

St. Louis MO-IL MSA: FHFA Purchase-Only House-Price Index
Price index equals 100 in Q1.1991

United States: FHFA Purchase-Only House-Price Index
Price index equals 100 in Q1.1991



Suppose You Wanted to Know: What's My House Worth in Today's Market?

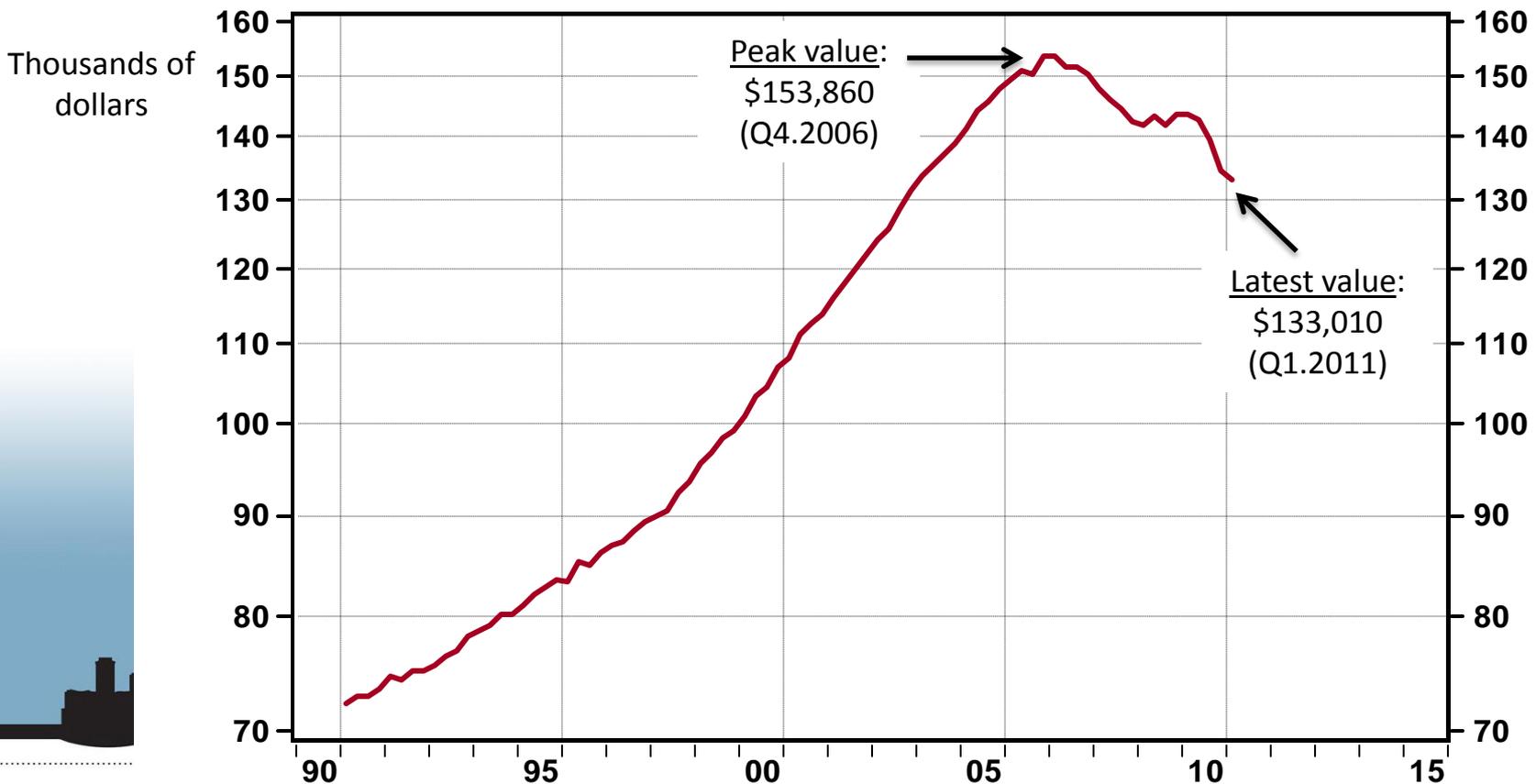
- Three key problems predicting your house's sale price
 - Your house is unique: It's a complex bundle of features
 - “Comparable” houses (“comps”) trade infrequently
 - Lots of randomness involved in selling a particular house
- Approaches to predicting your sale price
 - Top-down approaches: House-price indexes
 - Simple averages of houses sold
 - Model-based approaches (repeat sales, user costs)
 - Bottom-up approaches
 - Comps—What have other similar houses brought recently?
 - Price a bundle of features—What are people paying for particular characteristics, including location, age, type of construction, bedrooms, bathrooms, square feet, fireplace, deck, etc.?



The Best Model-Based Estimate of Average St. Louis-Area House Prices

Adjusted FHFA Purchase-Only Index For St. Louis MO-IL MSA

Thousands of dollars; benchmarked to Zillow.com estimate in 2010



St. Louis House-Price Changes According to FHFA

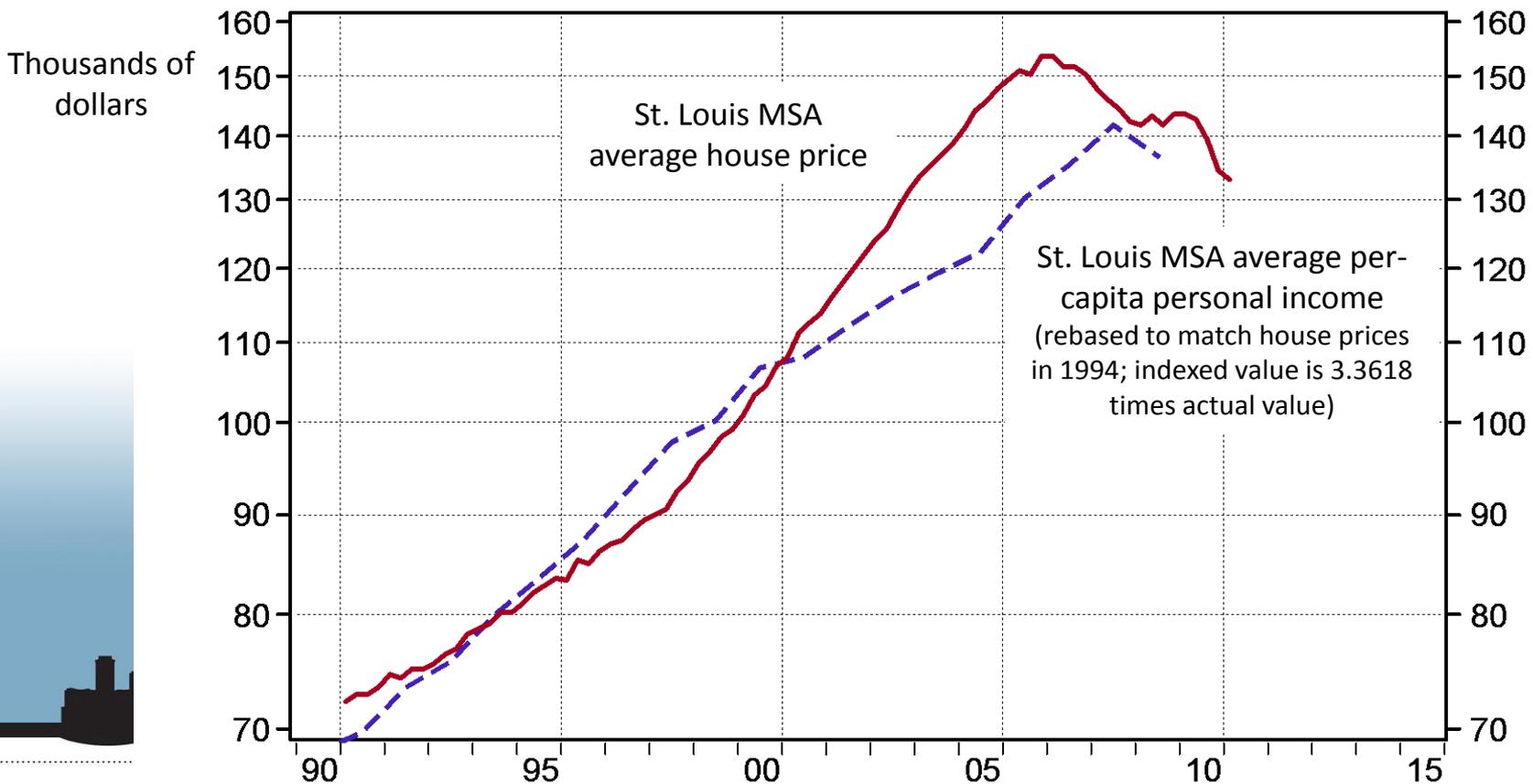
Period	Dates	Cumulative simple percent change	Continuously compounded average annualized percent change
Beginning to peak	Q1.1991 to Q4.2006	112.3%	4.8%
Peak to latest	Q4.2006 to Q1.2011	-13.6%	-3.4%
Entire two decades	Q1.1991 to Q1.2011	83.5%	3.0%
First decade	Q1.1991 to Q1.2001	49.3%	4.0%
Second decade	Q1.2001 to Q1.2011	22.9%	2.1%



Average St. Louis-Area House Prices vs. A Measure of Fundamental Value

Adjusted FHFA Purchase-Only Index For St. Louis MO-IL MSA
Thousands of dollars; benchmarked to Zillow.com estimate in 2010

Estimated Fundamental Value: Per-Capita Personal Income In St. Louis MSA
Indexed to match house prices in 1994



Sources: FHFA, BEA House prices: Quarterly data, seasonally adjusted; income: annual

St. Louis House-Price Changes: Adjusted for Inflation; Compared to Stocks

Period	Dates	Cumulative simple real percent change	Continuously compounded average annualized real percent change	<i>For comparison: S&P 500 average annualized real total returns</i>
Beginning to peak	Q1.1991 to Q4.2006	52.0%	2.7%	8.3%
Peak to latest	Q4.2006 to Q1.2011	-20.7%	-5.5%	-1.5%
Entire two decades	Q1.1991 to Q1.2011	20.6%	0.9%	6.3%
First decade	Q1.1991 to Q1.2001	21.2%	1.9%	11.4%
Second decade	Q1.2001 to Q1.2011	-0.5%	-0.1%	1.1%



The Best Web-Based Estimate of the Selling Price of Your House: Zillow

- What will the selling price be of a particular foreclosed home in St. Louis County?
 - Example: 12047 Gardengate Drive, St. Louis County 63146
(http://www.zillow.com/homedetails/12047-Gardengate-Dr-Saint-Louis-MO-63146/2729262_zpid/#{scid=hdp-site-map-bubble-address})
- What will the selling price be of a nearby home?
 - Example: 12046 Spruce Haven Drive, St. Louis County 63146
(http://www.zillow.com/homedetails/12046-Spruce-Haven-Dr-Saint-Louis-MO-63146/2729275_zpid/#{scid=hdp-site-map-bubble-address})



Other Housing Data:

New-Home Construction

- New-home construction
 - New-home starts
 - Census Bureau: National and four Census regions; monthly; structures by number of housing units; dollar values; seasonally adjusted
 - Census Bureau: National value of new residential construction put in place; monthly; seasonally adjusted
 - Building permits
 - Census Bureau national and regional: Same coverage as new-home starts
 - Census Bureau local breakdowns
 - MSAs and counties: Monthly; structures by number of housing units; dollar values; not seasonally adjusted; not all counties covered
 - “Places” within counties (towns, unincorporated areas): Monthly; structures by number of housing units; not seasonally adjusted
 - Proprietary sources: MetroStudy; CBRE-EA Dodge Pipeline; etc.



Other Housing Data: Home Sales and Homeownership Rates

- Home sales

- New homes

- Census Bureau: National and four Census regions; monthly; structures by number of housing units; dollar values; seasonally adjusted; median and average sales price; new houses for sale; months of supply at current selling rate; new houses sold by price range; median months for sale; stage of construction
 - Census Bureau: Constant-quality sales prices of new homes

- Existing homes

- National Association of Realtors: National and four Census regions; monthly; seasonally adjusted
 - Local Multiple Listing Services (proprietary)

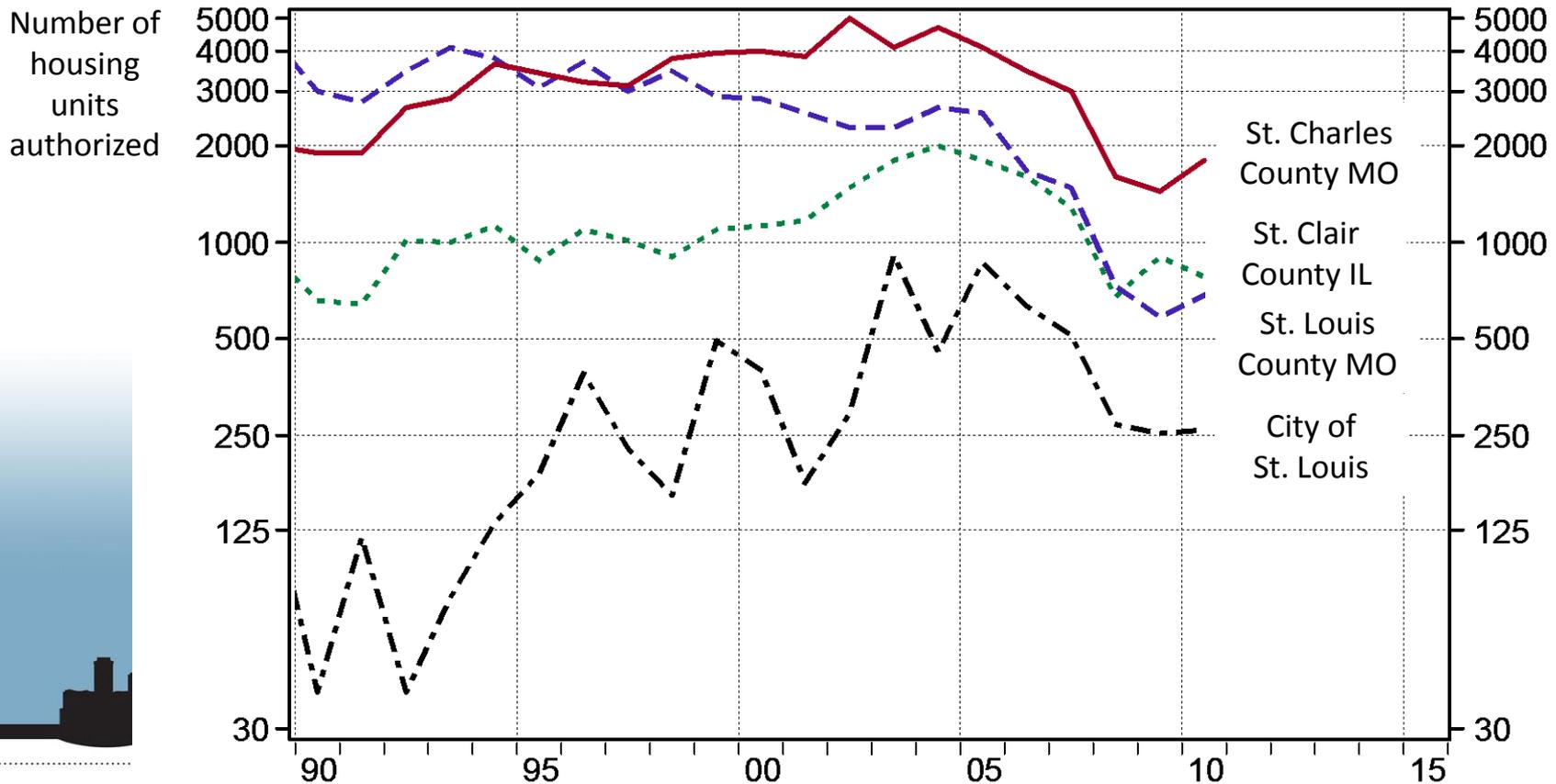
- Homeownership and vacancy rates

- Census Bureau: National and four Census regions; quarterly; seasonally adjusted; by age, race, ethnicity, family income; owner-occupied, rental, and vacation occupancy and vacancy data



New-Home Construction Remains Far Below Peak Levels Throughout St. Louis MSA

St. Charles County MO Private Building Permits Issued (Total Private Units)
 St. Louis County MO Private Building Permits Issued (Total Private Units)
 St. Clair County IL Private Building Permits Issued (Total Private Units)
 City of St. Louis MO Private Building Permits Issued (Total Private Units)



Sources: CEN/H/Haver

Annual data through 2010

Mortgage Originations and Outstandings

- Public data sources

- Home Mortgage Disclosure Act (HMDA) (<http://www.ffiec.gov/hmda/default.htm>)
- Mortgage Bankers Association (MBA) national data (<http://www.mortgagebankers.org/ResearchandForecasts/>)
- Census Bureau's American Housing Survey, 2004 St. Louis Report (<http://www.census.gov/prod/2005pubs/h170-04-59.pdf>)

- Proprietary data sources

- First American CoreLogic (formerly LoanPerformance) (<http://www.facorelogic.com/industries/mortgage/origination.jsp>)
- Lender Processing Services (formerly McDash) (<http://www.lpsvcs.com/Products/Mortgage/Origination/RiskManagementLoanAnalytics/Pages/default.aspx>)
- Mortgage Bankers Association (MBA) regional data (<http://www.mortgagebankers.org/ResearchandForecasts/ProductsandSurveys/DataOnDemandServiceProductListNew.htm>)

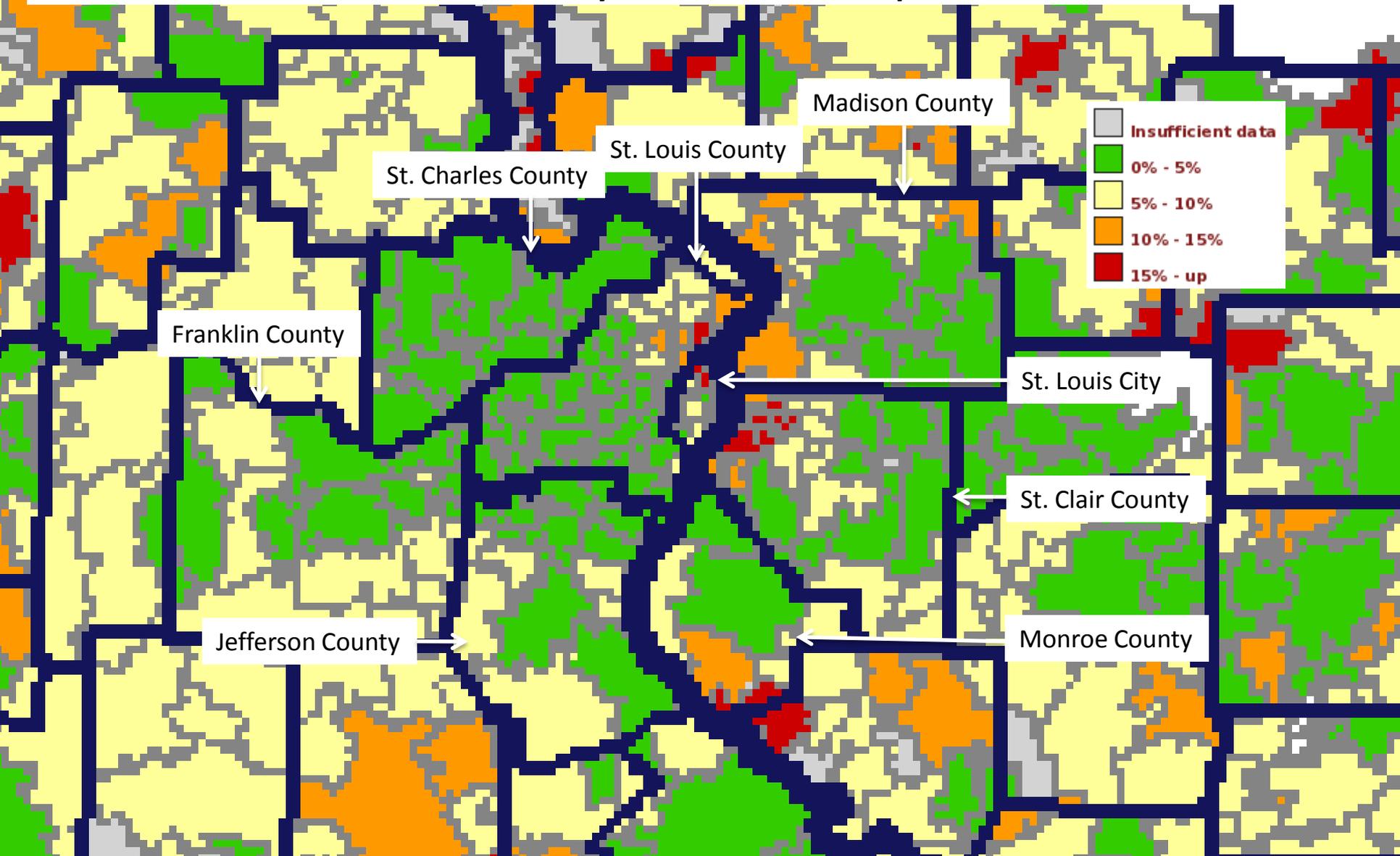


Mortgage Delinquencies & Foreclosures

- Private data sources with limited amounts of information available free of charge
 - Mortgage Bankers Association (MBA) quarterly national and state delinquency survey
(<http://www.mortgagebankers.org/ResearchandForecasts/ProductsandSurveys/NationalDelinquencySurvey.htm>)
 - Zillow.com (<http://www.zillow.com/>)
 - RealtyTrac (<http://www.realtytrac.com/trendcenter/>)
 - Foreclosure.com (<http://www.foreclosure.com/>)
 - First American CoreLogic (formerly LoanPerformance)
(<http://www.facorelogic.com/industries/mortgage/origination.jsp>)
 - Lender Processing Services (formerly McDash)
(<http://www.lpsvcs.com/Products/Mortgage/Origination/RiskManagementLoanAnalytics/Pages/default.aspx>)
- Note: The Dodd-Frank Act of 2010 (Section 1447) mandates the creation of a publicly available national mortgage database

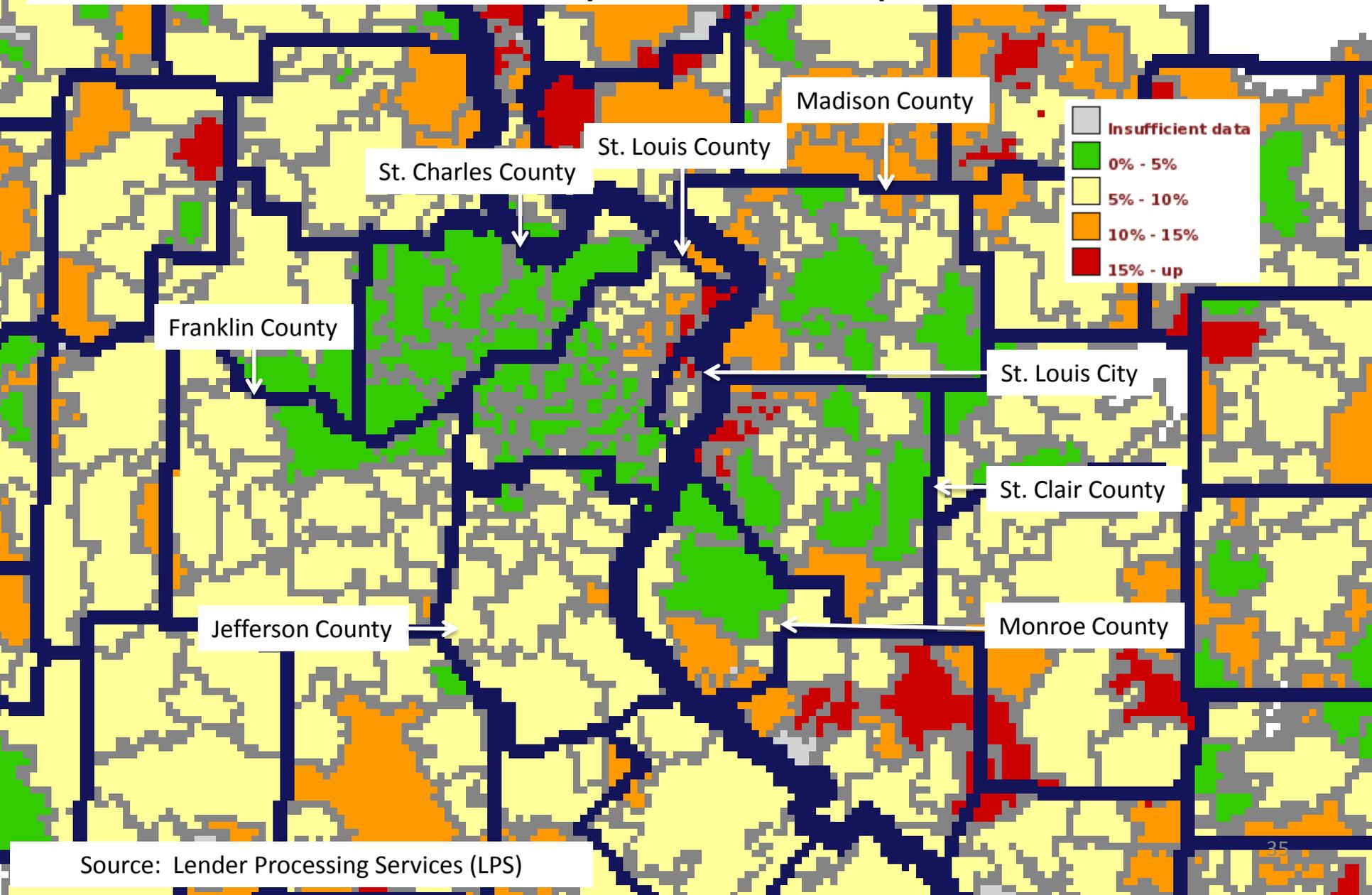


Share of Mortgages 30 or More Days Delinquent or in Foreclosure By ZIP Code: April 2007



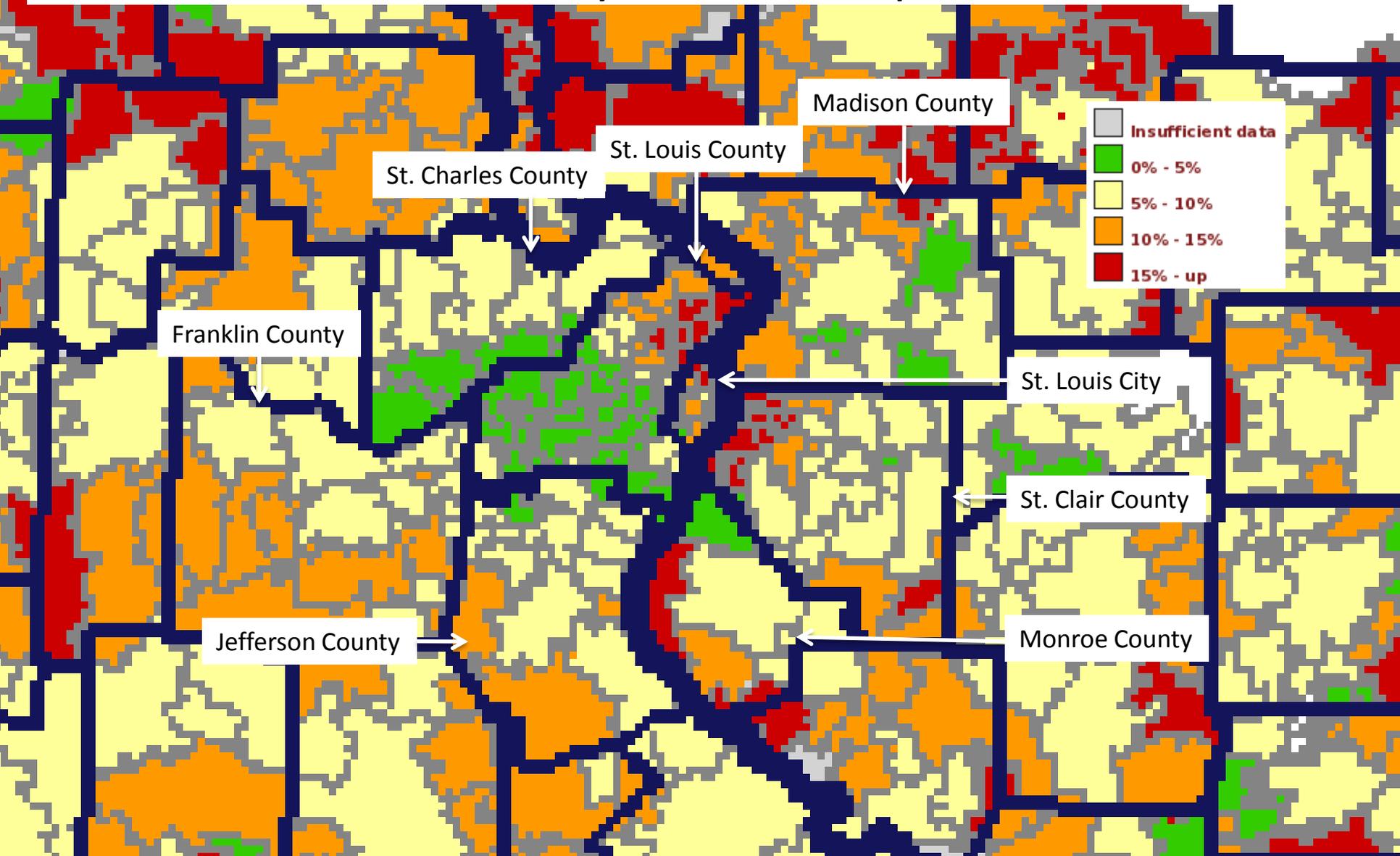
Source: Lender Processing Services (LPS)

Share of Mortgages 30 or More Days Delinquent or in Foreclosure By ZIP Code: April 2008



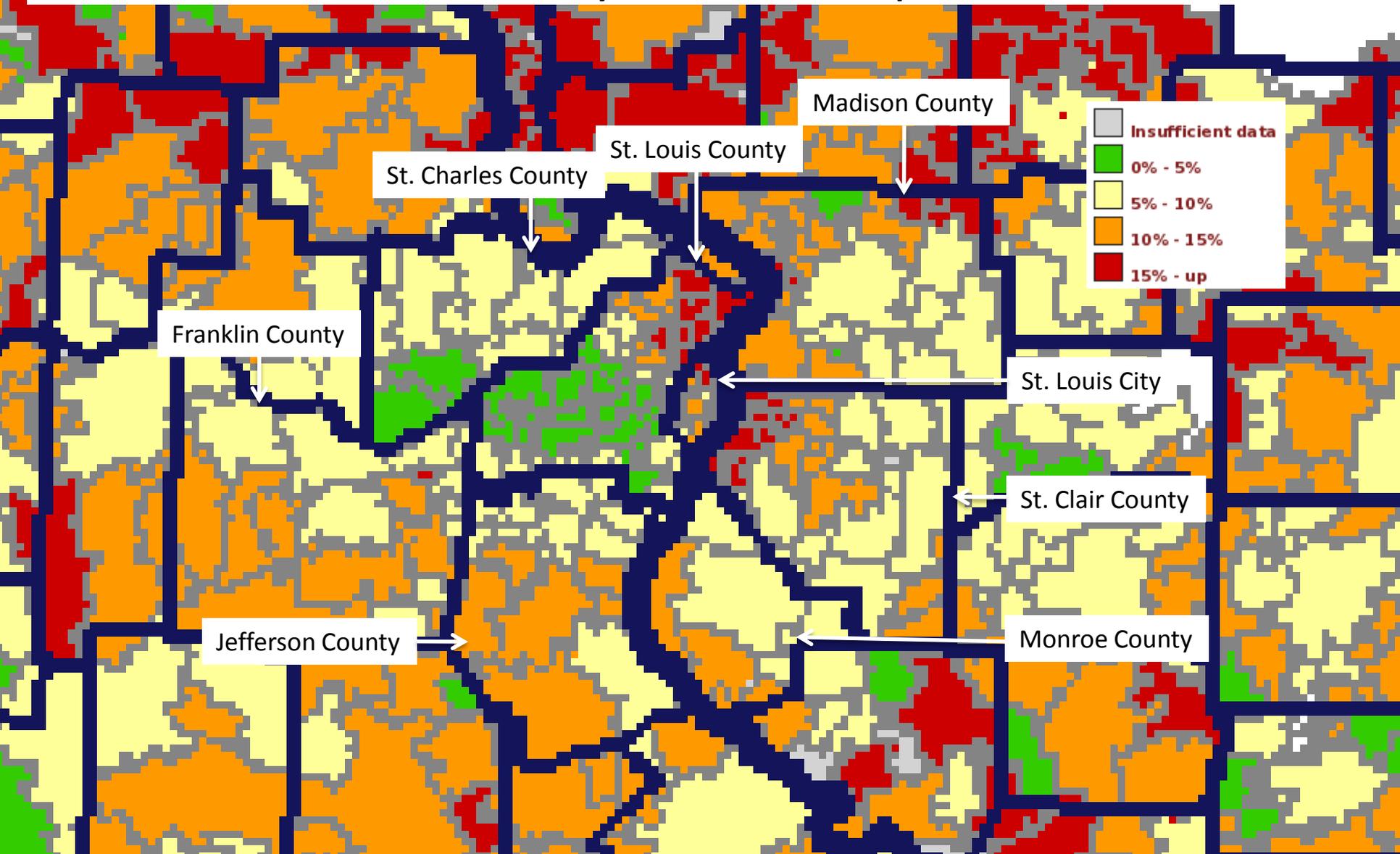
Source: Lender Processing Services (LPS)

Share of Mortgages 30 or More Days Delinquent or in Foreclosure By ZIP Code: April 2009



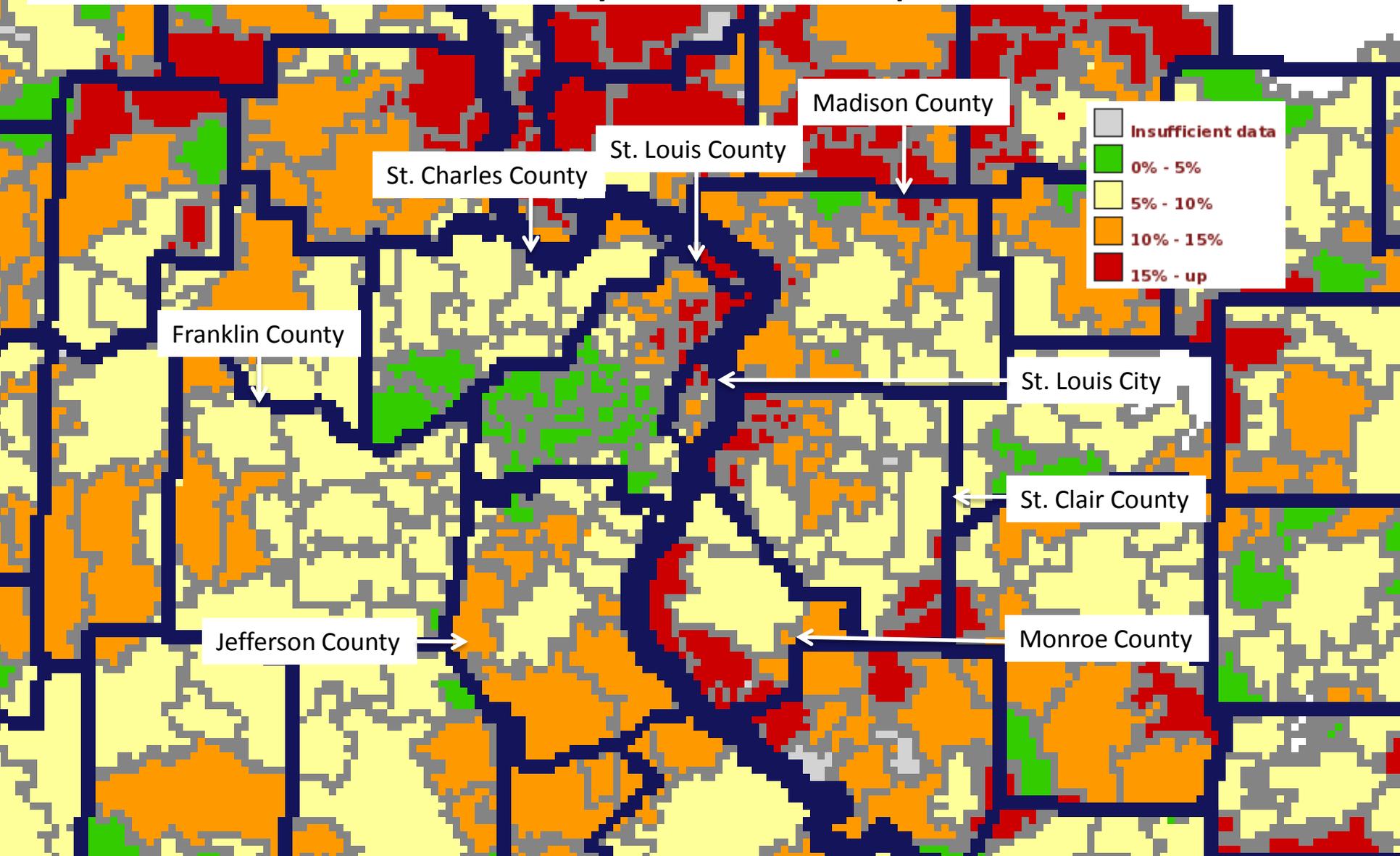
Source: Lender Processing Services (LPS)

Share of Mortgages 30 or More Days Delinquent or in Foreclosure By ZIP Code: April 2010



Source: Lender Processing Services (LPS)

Share of Mortgages 30 or More Days Delinquent or in Foreclosure By ZIP Code: April 2011



Source: Lender Processing Services (LPS)

The Outlook for St. Louis Housing and Mortgage Markets

- All local housing markets will remain under pressure for the foreseeable future
 - Local economy has stabilized, but remains chronically weak
 - Delinquency and foreclosure problems remain serious
 - Negative equity is a growing problem
- Mortgage lending will remain tight, with funding mostly by Fannie, Freddie, and FHA
- Housing-market problems remain a big risk to the economic recovery here and elsewhere



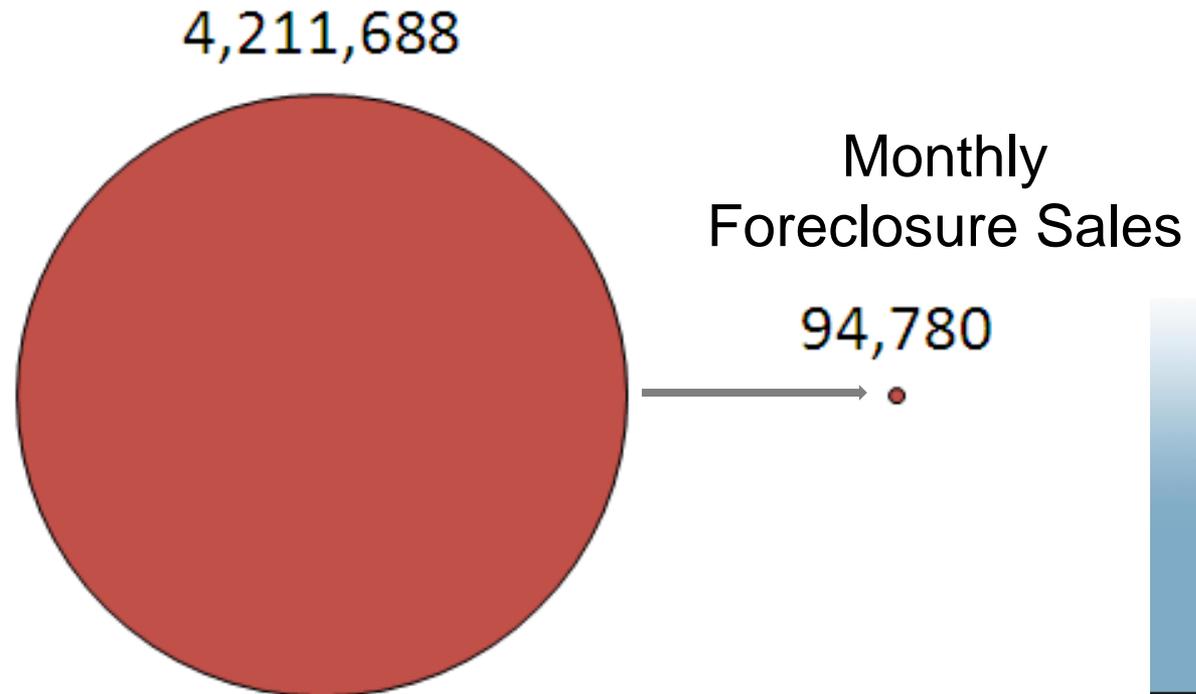
In Sum: What's Your House Worth?

- More than in 2001, but not as much as in 2007
 - Typical St. Louis house price is about 20 percent higher than a decade ago, but 10 to 20 percent below 2007 peak
 - Further declines are likely this year and perhaps next
- Best approaches to local house-price analysis
 - Your house's likely selling price: Zillow.com and your Realtor
 - St. Louis percentage changes and trends: FHFA St. Louis
 - Regional property-value trends: CoreLogic and Case-Shiller... and William Rogers' new UMSL indexes



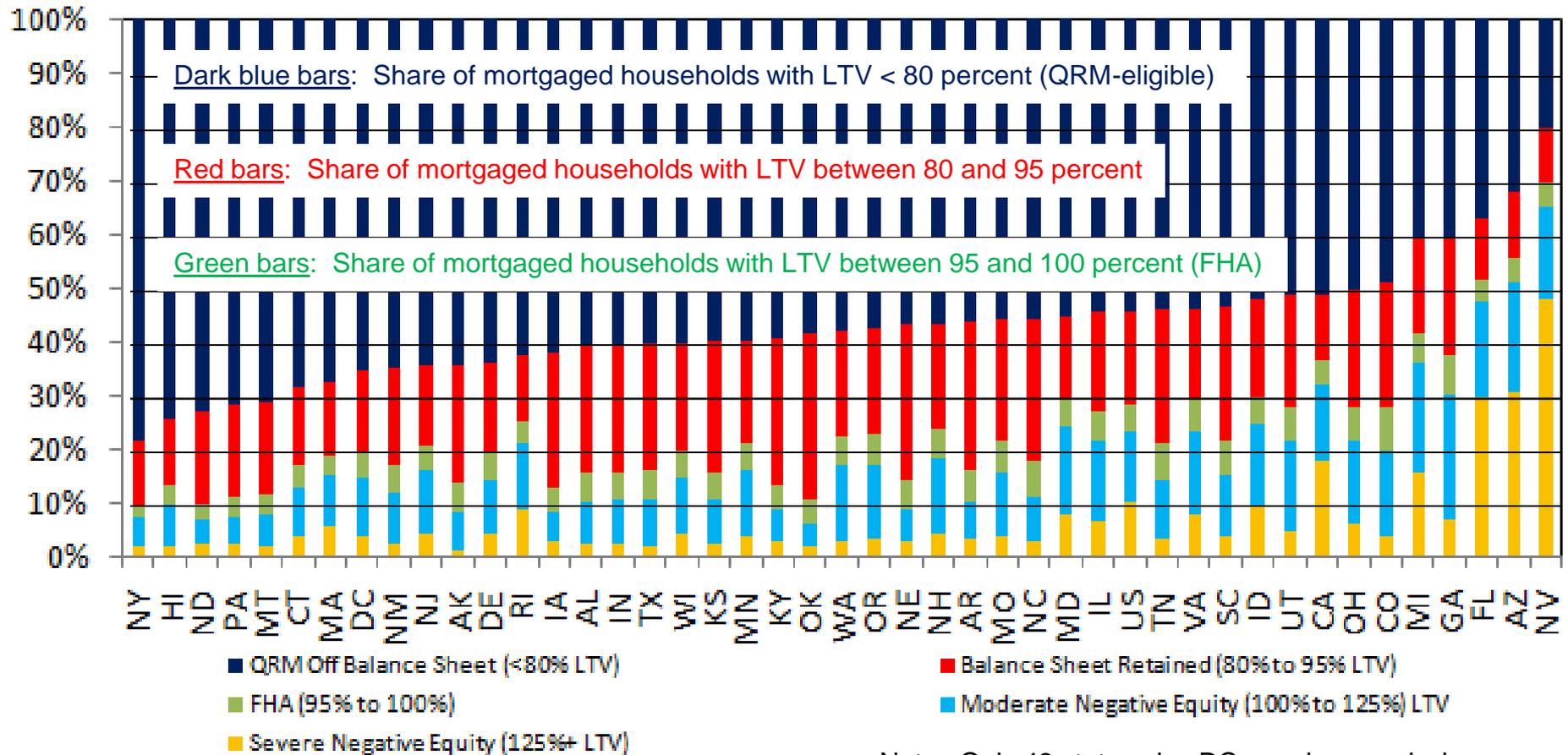
Appendix: The Foreclosure Pipeline Is Full—And Emptying Out Very Slowly

Number of mortgages 90 or more days delinquent or in foreclosure



Appendix: Large Variation across States in Loan to Value (LTV) Distributions

LTV Segmentation by Policy Segments



Note: Only 43 states plus DC are shown; missing states are LA, ME, MS, SD, VT, WV, WY