



THE FORECASTING PROCESS
REVENUES
Prince William County, Virginia

2010 VACo Achievement Award Nomination

Prince William County Revenue Forecasting Process

*Accurate, Multi-Year, Revenue Forecasting
During Recessionary Times*

Prince William County Framework

- Financial and Program Planning Ordinance
 - ◆ Multi-year revenue projections and CIP
 - ◆ Annual budget with service levels
- Strategic Plan
- Principles of Sound Financial Management
 - ◆ Quarterly Reporting (revenues and expenditures)
 - ◆ Balanced Five-Year Fiscal Plan
 - ◆ <http://www.pwcgov.org/default.aspx?topic=04006000070>
- County/School Revenue Agreement

Single Year Forecasting vs 5-Year Forecasting

VISABILITY

1 2 3 4 5

Limited View With One-Year Forecast

- How comfortable would you be driving your car with this level of limited visibility?

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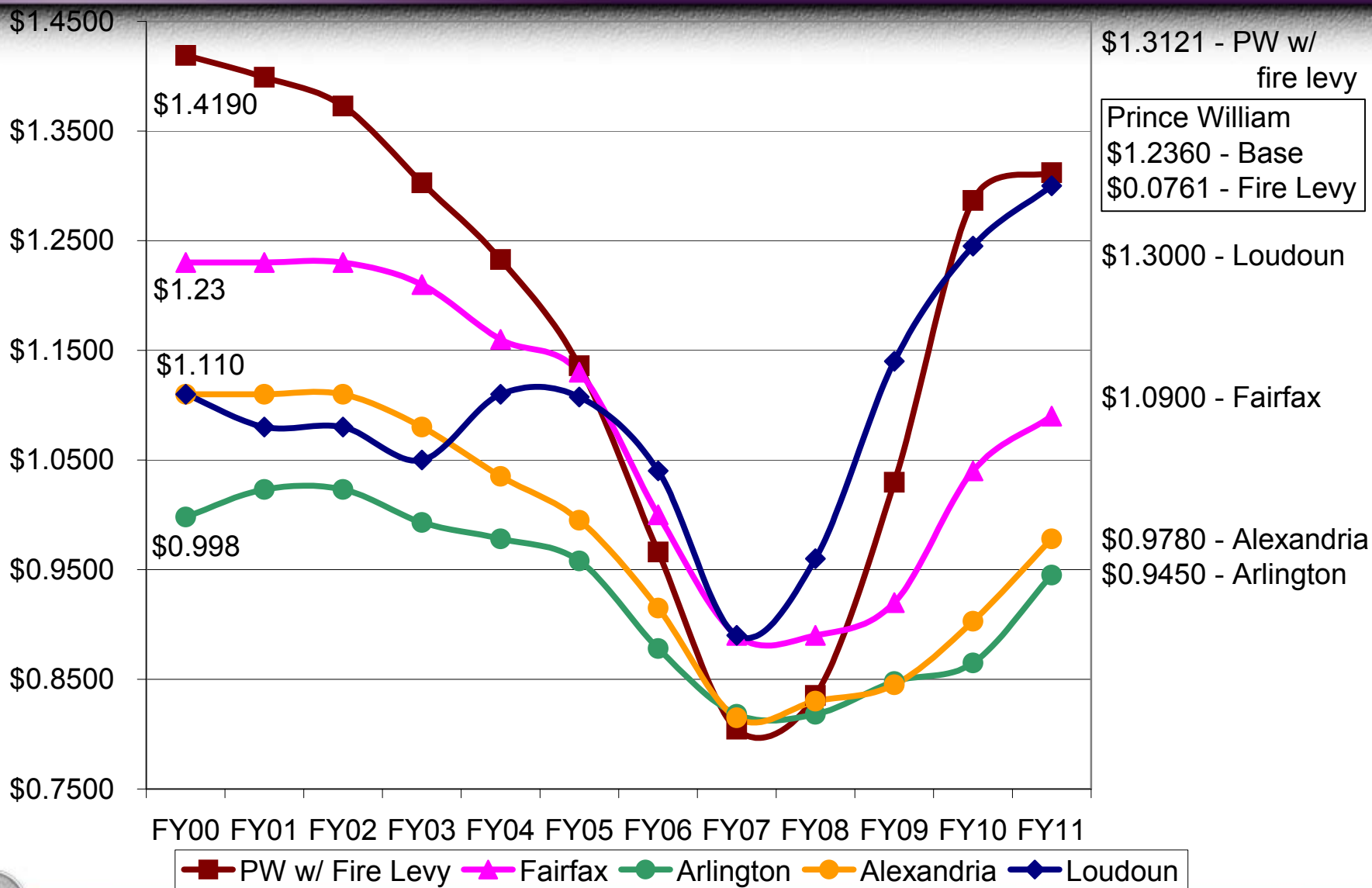
Multi-Year Forecasting Can Help Plan for Issues You Might Not Expect



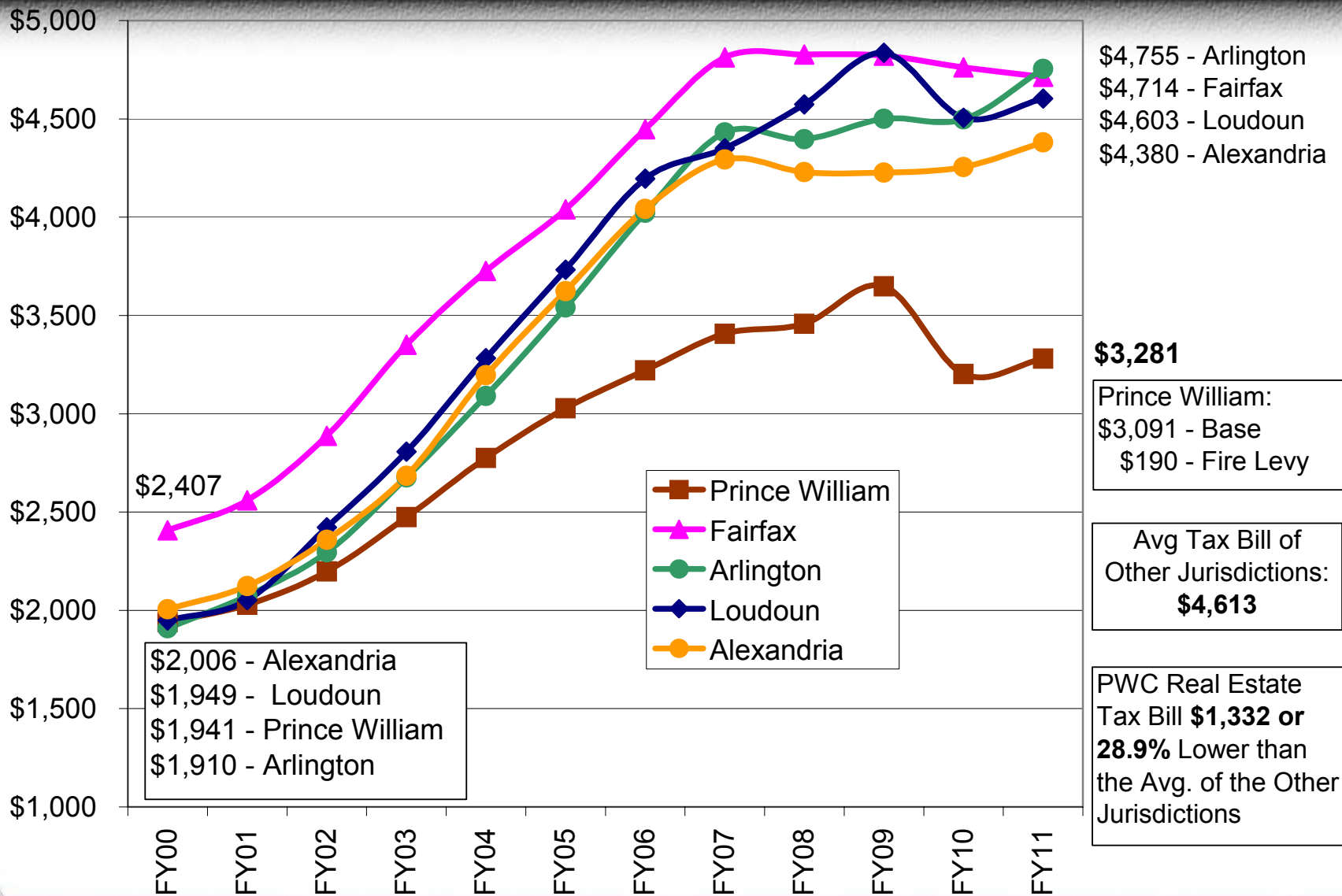
Fiscal Planning Process Calendar

- BOCS Financial Retreat September/October
- Revenue Committee Meetings November
- Revenue Policy Guidance November/December
- Prelim. Forecast Approved by Revenue Committee December
- Proposed Fiscal Plan/Revenue Forecast late February
- Budget Worksessions March
- Final Revenue Forecast late March/early April
- Budget Public Hearings April
- Budget Adoption late April

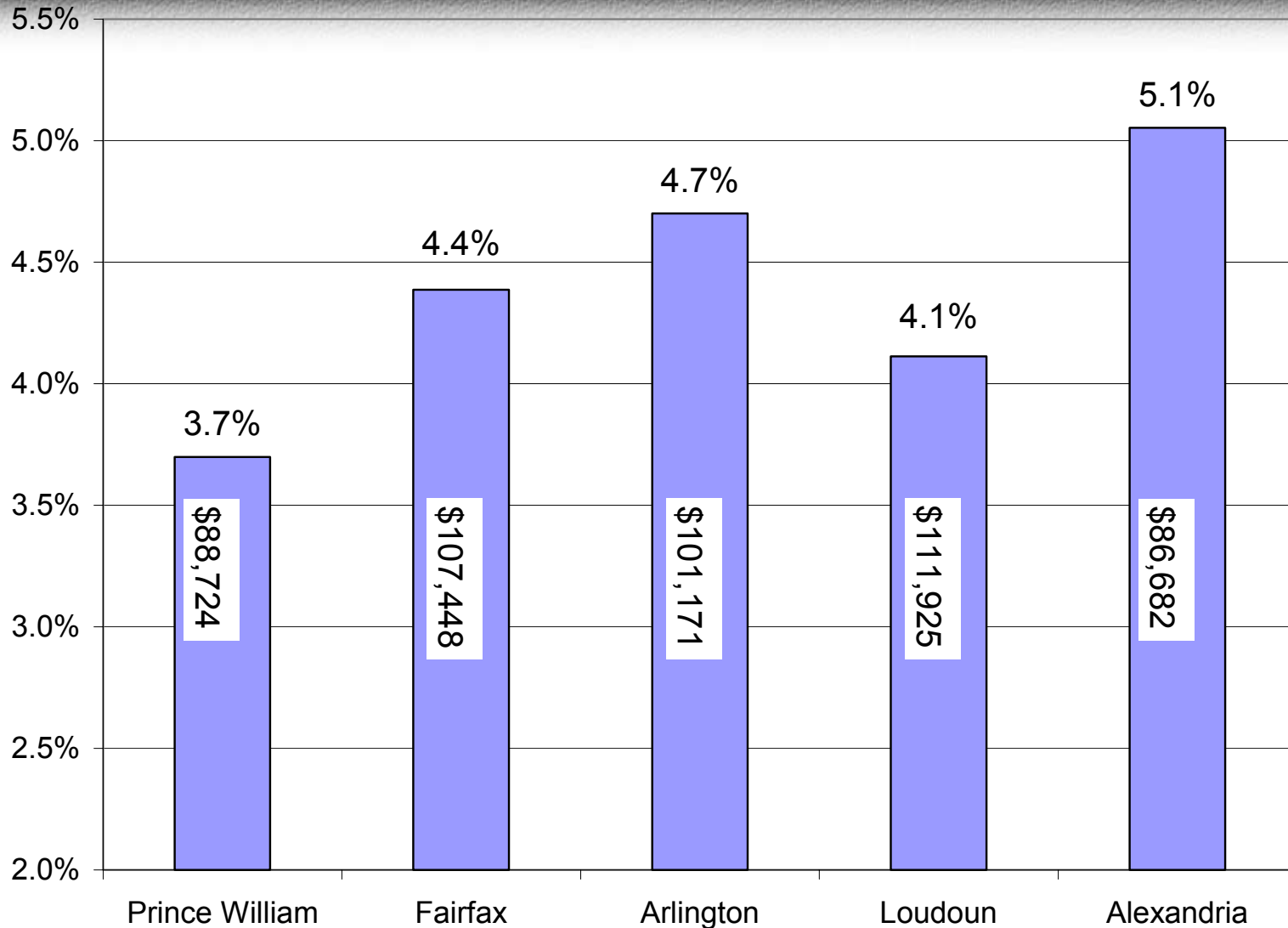
Tax Policy – It Isn't About the Tax Rate...



...It's About the Average Residential Tax Bill (FY2011 at \$1.236)...



...and What is Affordable for Citizens - FY2011 Avg. Residential Tax Bill as a % of 2008 Median Household Income



Median Household Income Source: U S Census Bureau AmericanFactFinder 2008 American Community Survey 1-Year Estimate

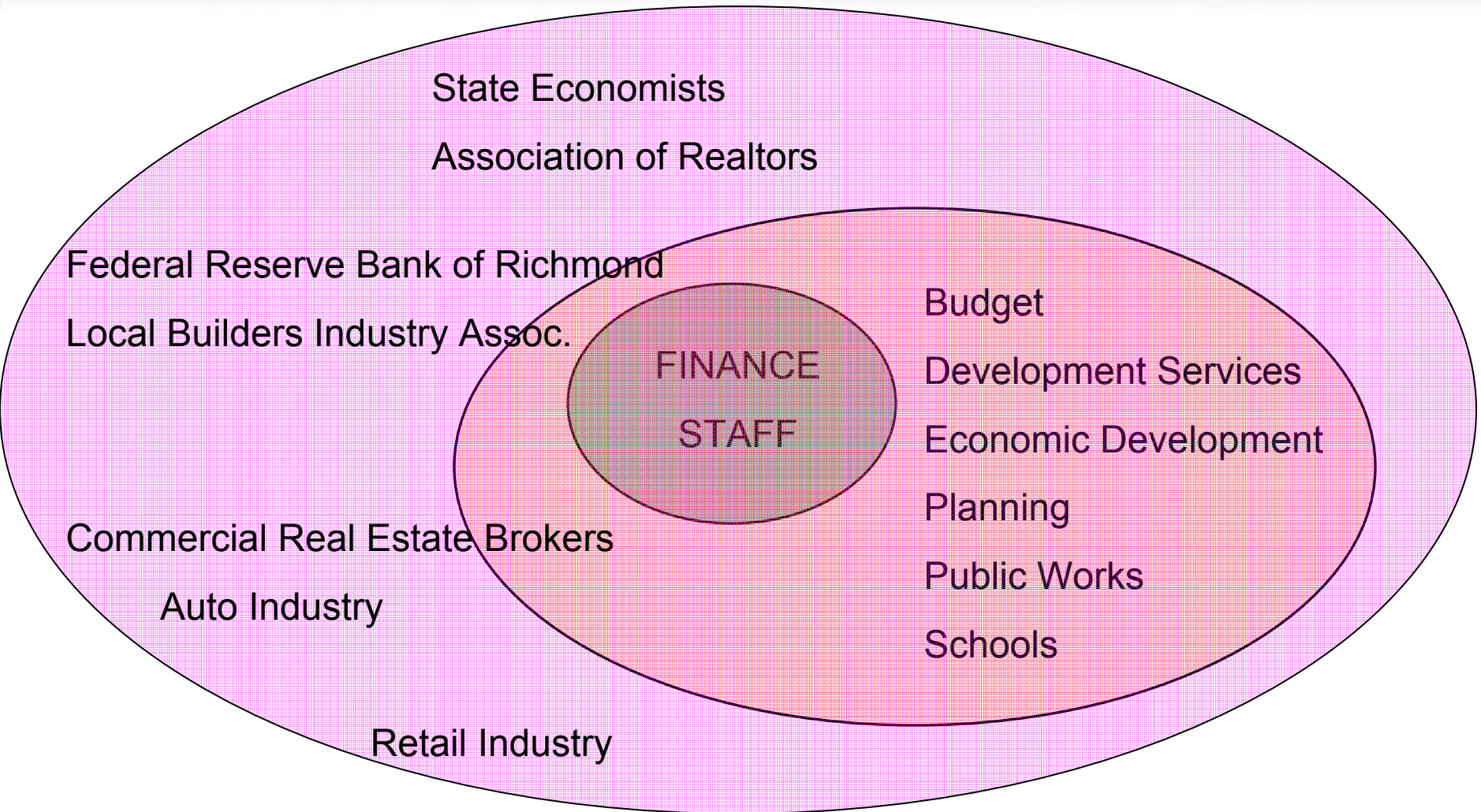
Revenues and Budgeting

- Revenue/Tax Policy

- Budgeting = How to spend the Revenues
 - ◆ Strategic Goals
 - ◆ Comprehensive Plan Levels of Service

- Your Budget is Only as Good as Your Revenue Estimate

Internal and External Partners in Developing a Revenue Forecast



Develop A Process To Become Knowledgeable About Local, State and National Economic Trends

26-Mar	Housing Starts (000s)	February	575		611	-5.9%	update
26-Mar	Building Permits (000s)	February	612		622	-1.6%	update
26-Mar	Existing Home Sales (m)	February	5.02		5.05	-0.6%	update
26-Mar	New Home Sales (000s)	February	308		315	-2.2%	update
6-Apr	Construction Spending	February	-1.4%		-1.4%	0.0%	update
24-Mar	Mortgage Loan Index (4-wk. moving avg increase over prev.)	19-Mar	1.9%		0.8%	1.1%	update
24-Mar	Purchase Loan Index	19-Mar	3.6%		1.1%	2.5%	update
24-Mar	Refinance Loan Index	19-Mar	1.2%		0.8%	0.4%	update
26-Mar	Consumer Credit (\$b)	January	\$5.00		-\$4.60	-208.7%	update
2-Mar	Retail Sales	February	0.3%		0.1%	0.2%	update
2-Mar	Retail Sales ex-auto	February	0.8%		0.5%	0.3%	update
9-Mar	Auto Sales-Domestic (m)	March	4.3		3.7	16.2%	update
9-Mar	Truck Sales--Domestic (m)	March	4.8		4.2	14.3%	update
9-Mar	All Light Vehicle Sales Including Foreign (m)	March	11.8		10.4	13.5%	update
9-Mar	Domestic Light Vehicle Sales % of All Sales Including Fo	March	77.1%		76.0%	1.5%	update
11-Jan	Trade Balance (\$b)	January	-\$37.30		-\$39.90	-6.5%	update
13-Jan	Treasury Budget (\$b)	February	-\$220.90		-\$42.60	418.5%	update
29-Oct	GDP-Adv	Q4 2009	5.6%	★	2.2%	3.4%	update
6-Mar	Import Prices ex-oil	February	0.2%		0.4%	-0.2%	update
6-Mar	Import Prices with oil	February	-0.3%		1.3%	-1.6%	update
6-Mar	Export Prices ex-agriculture	February	-0.2%		0.7%	-0.9%	update
6-Mar	Export Prices with agriculture	February	-0.5%		0.7%	-1.2%	update
7-Mar	PPI	February	-0.6%		1.4%	-2.0%	update
7-Mar	Core PPI	February	0.1%		0.3%	-0.2%	update
8-Mar	CPI	February	0.0%		0.2%	-0.2%	update
8-Mar	Core CPI	February	0.1%		-0.1%	0.2%	update
26-Mar	Mich Sentiment-Prel. (survey)	March	73.6	★	73.6	0%	update
6-Apr	Consumer Confidence (survey)	March	52.5	★	46.4	13.1%	update

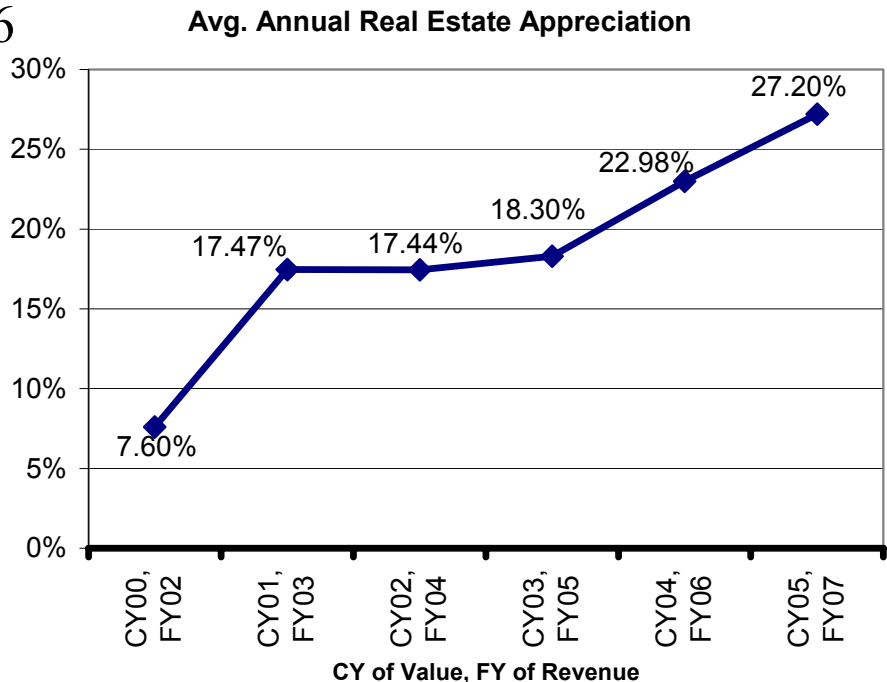
The Easiest Forecast

- When Data is “On Trend” It Tends to Stay on Trend Until There is A Reason Not To
- Ask the Key Questions
 - ◆ Why is this trending metric doing what it’s doing?

- Example: Housing 2002-2005/6

- ◆ Low Interest Rates
- ◆ Easy Credit
- ◆ Flexible Terms
- ◆ Expanding Economy

- ◆ Will anything change to affect this trend?



The Experts Don't Always Get It Right

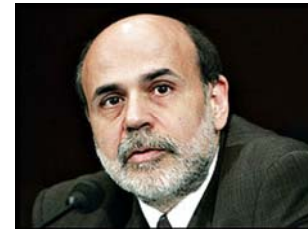
Bernanke: There's No Housing Bubble to Go Bust

Fed Nominee Has Said 'Cooling' Won't Hurt

By Nell Henderson Washington Post Staff Writer
Thursday, October 27, 2005

Ben S. Bernanke does not think the national housing boom is a bubble that is about to burst, he indicated to Congress last week, just a few days before President Bush nominated him to become the next chairman of the Federal Reserve.

U.S. house prices have risen by nearly 25 percent over the past two years, noted Bernanke, currently chairman of the president's Council of Economic Advisers, in testimony to Congress's Joint Economic Committee. But these increases,



Ben S. Bernanke testified on Capitol Hill just before being nominated to succeed Fed Chairman Alan Greenspan. (By Ron Edmonds -- Associated Press)

TOOLBOX

The Hardest Forecast

- Deviation from Trend and/or Rapidly Changing Metrics Play Havoc with Forecasting
 - ◆ Forecast Transient Occupancy after 9-11
 - ◆ Forecast Auto Sales after credit collapse
 - ◆ Forecast Investment Income (interest rates) after the Lehman bankruptcy
 - ◆ Forecast Retail Sales after area sniper homicides

Identify The Revenue Sources

■ 7 Major Revenue Sources

- ◆ Real Estate Taxes – Provides more than 65% of County general revenue
- ◆ Personal Property Taxes – Next largest source of County general revenue at 16%
- ◆ Local Sales Tax Revenue
- ◆ Consumer Utility Tax
- ◆ Communications Sales and Use Tax
- ◆ Business Professional and Occupational License (BPOL)
- ◆ Investment Income

More Revenue Sources

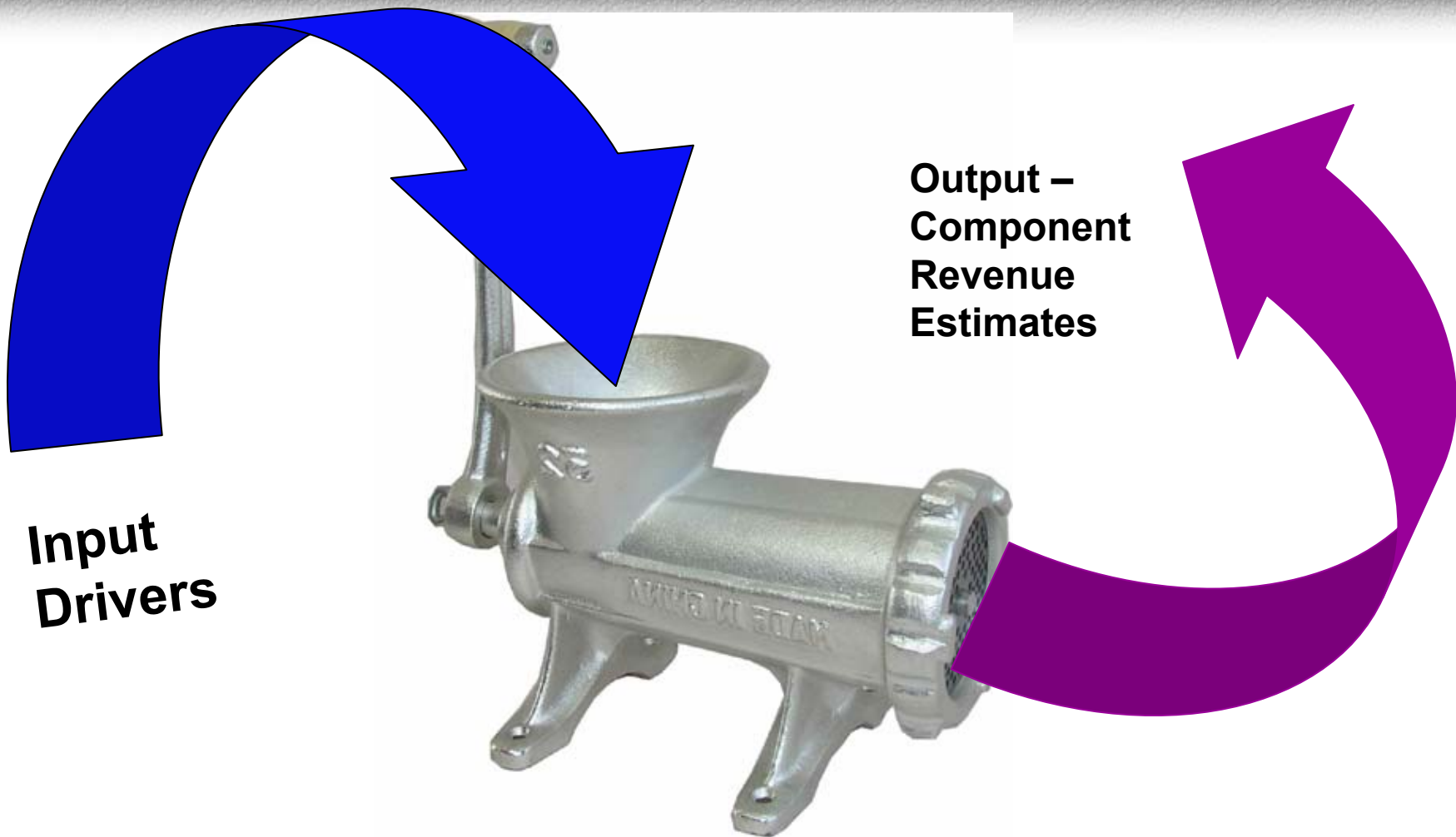
■ Sources > \$1.5 Million

- ◆ Interest on Taxes
- ◆ Motor Vehicle License Fee
- ◆ Recordation Tax
- ◆ Tax on Deeds
- ◆ Cable Franchise Tax

■ Sources < \$1.5 Million

- ◆ 13 Smaller Revenue Items Such As:
 - Transient Occupancy Tax
 - Bank Franchise Tax
 - Daily Rental Equipment Tax
 - Mobile Home Titling Tax; et. al.

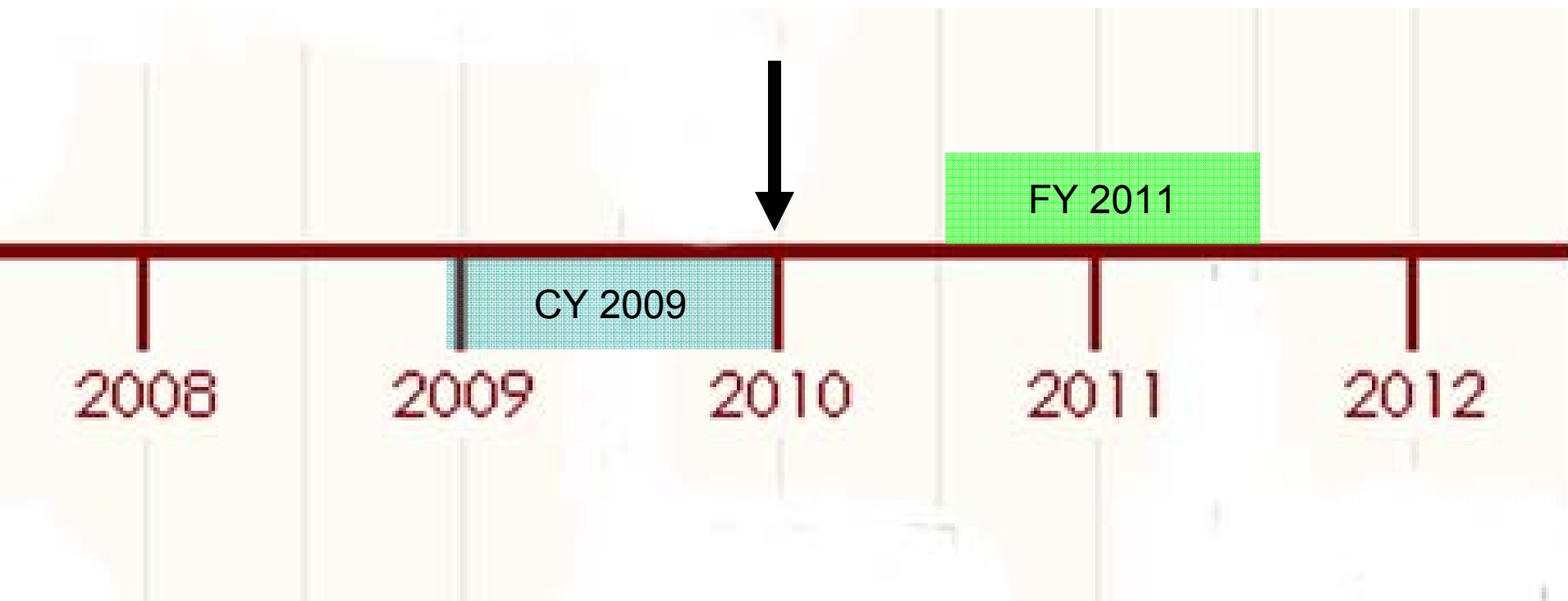
Revenue Drivers Feed the Revenue Model



Example: Real Estate Revenue Drivers

- Equalization (change in value of existing properties)
 - ◆ Residential
 - ◆ Commercial (retail, office, industrial, special use)
 - ◆ Apartments
 - ◆ Agricultural
- Growth (new value added through construction)
 - ◆ New Residential Units Constructed
 - ◆ Value of New Residential Units
 - ◆ Square Footage of New Commercial Construction Completed
 - ◆ Value of New Construction per Square Foot

A Few Words About the Assessment Calendar



Factors Impacting Residential Revenue Drivers

■ Foreclosures

- ◆ Number of Foreclosures
- ◆ Foreclosures Net Bank Sales
- ◆ Avg. Bank Sales Price as % of Avg. Assessed Value

■ Real Estate Market Metrics

- ◆ Average Sales Price
- ◆ Average Number of Days on the Market
- ◆ Ratio of Active Listings to Sales (Months of Inventory)

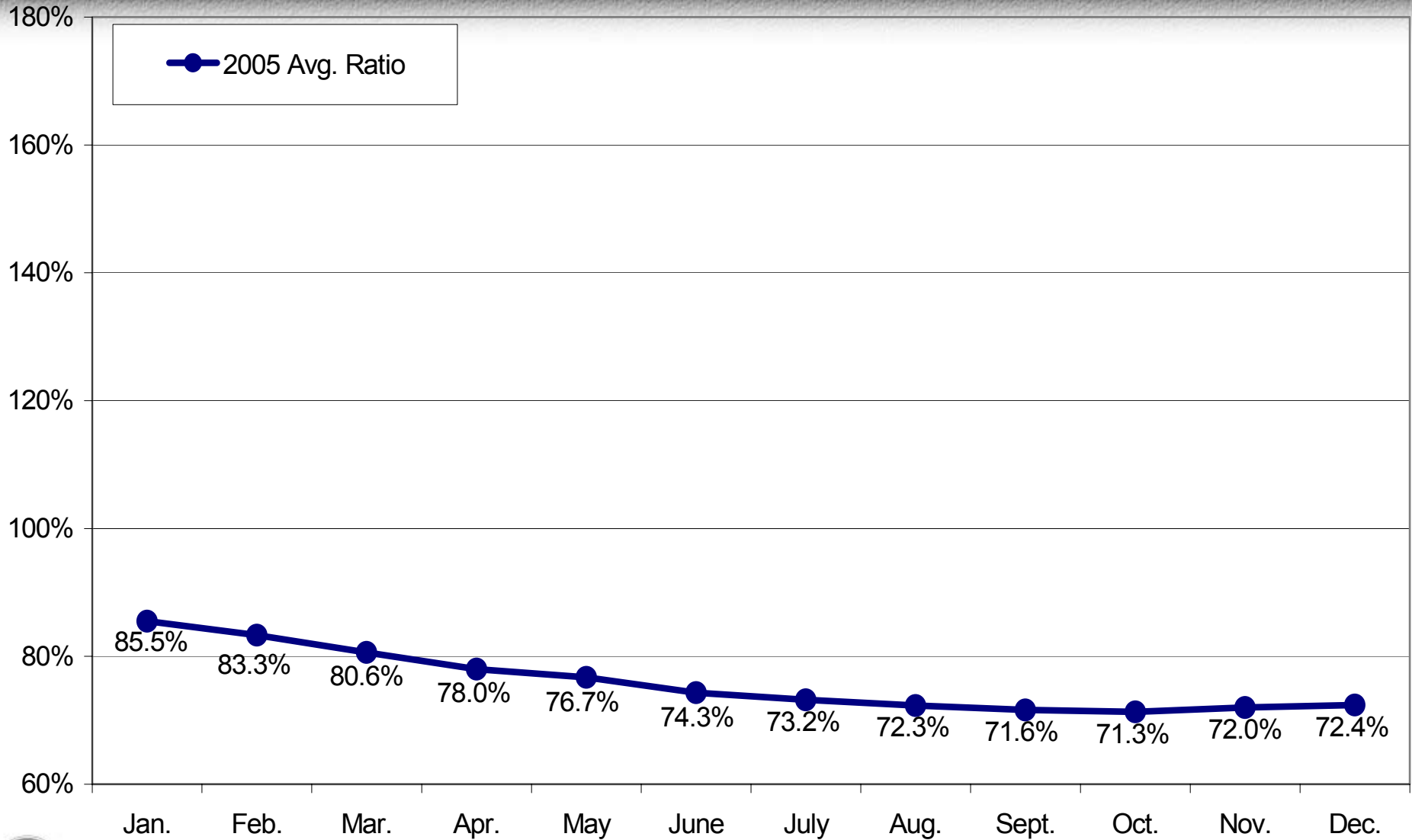
■ External Factors

- ◆ 30-Year Mortgage Rates
- ◆ \$8,000 Federal Tax Credit and Loan Modification Programs

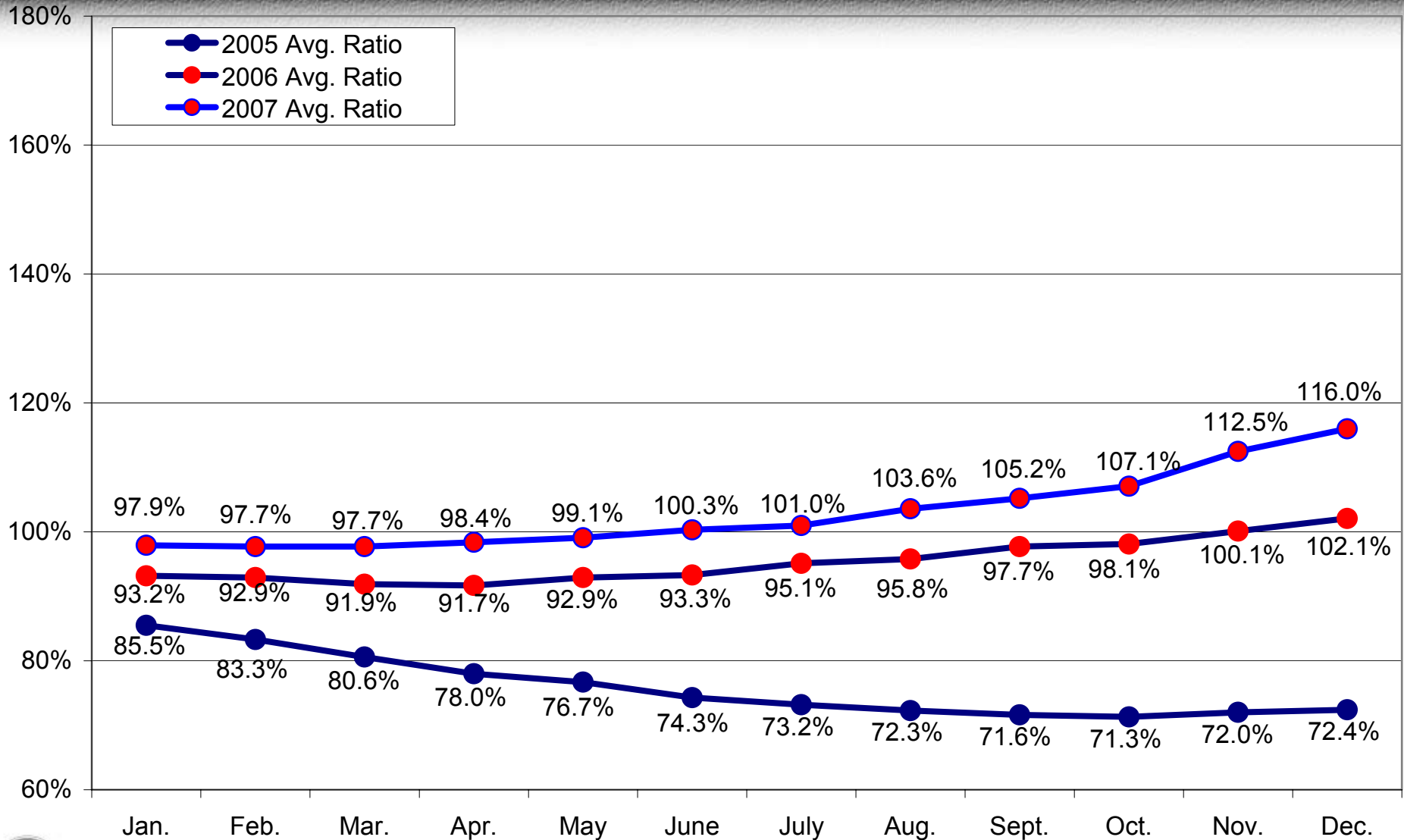
Real Estate Dashboard

- Change in Average Monthly Sales Ratio
- Bank Sales Price vs. Assessed Values
- Sales Volume
- Foreclosures
- Inventory of Foreclosed Homes
- Bank Sales
- Real Estate Market Metrics (MRIS)
 - ◆ Number of Days on Market
 - ◆ Inventory to Sales Ratio

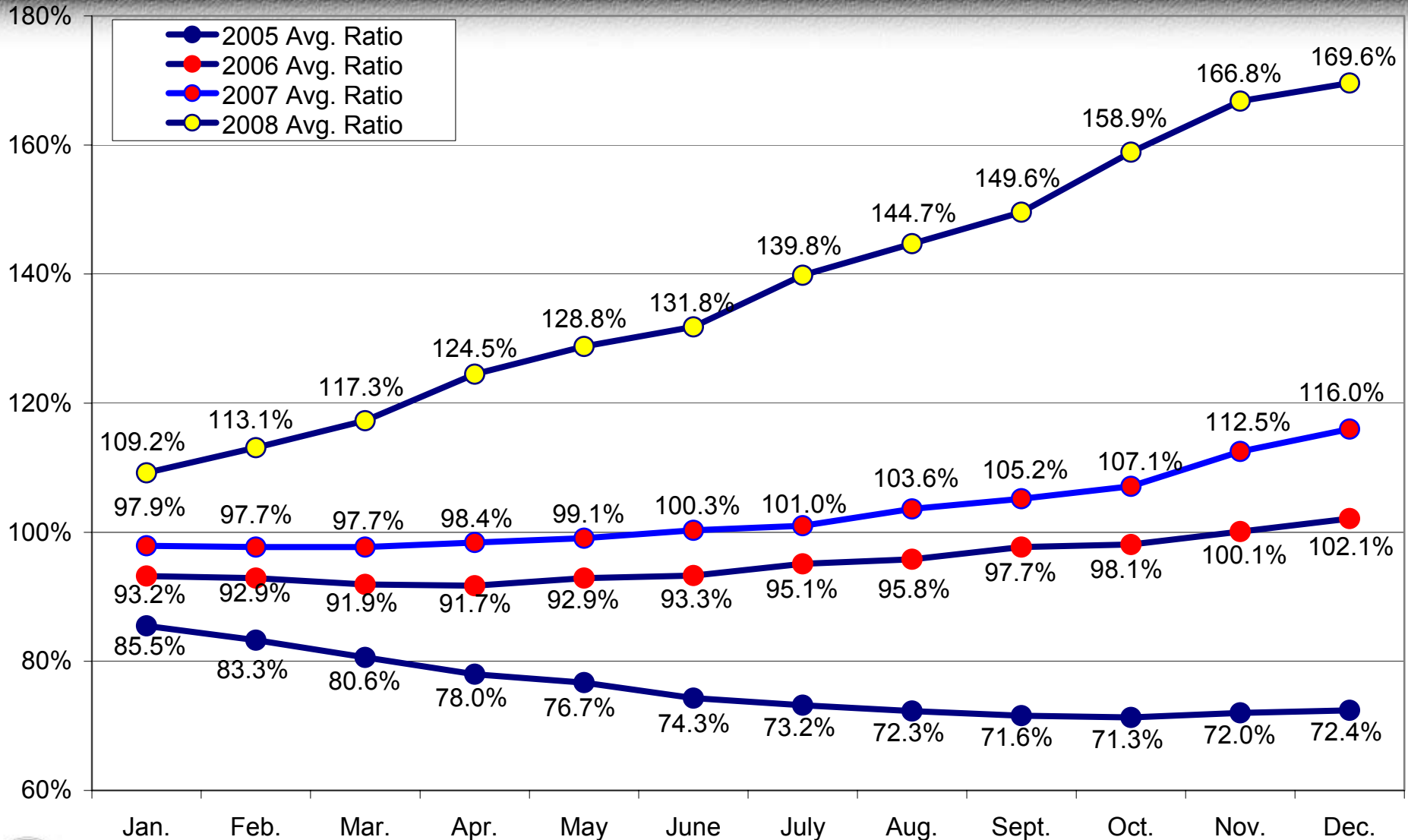
Change in Average Monthly Sales Ratio – Residential Sale Prices Compared to Assessed Values



Change in Average Monthly Sales Ratio – Residential Sale Prices Compared to Assessed Values

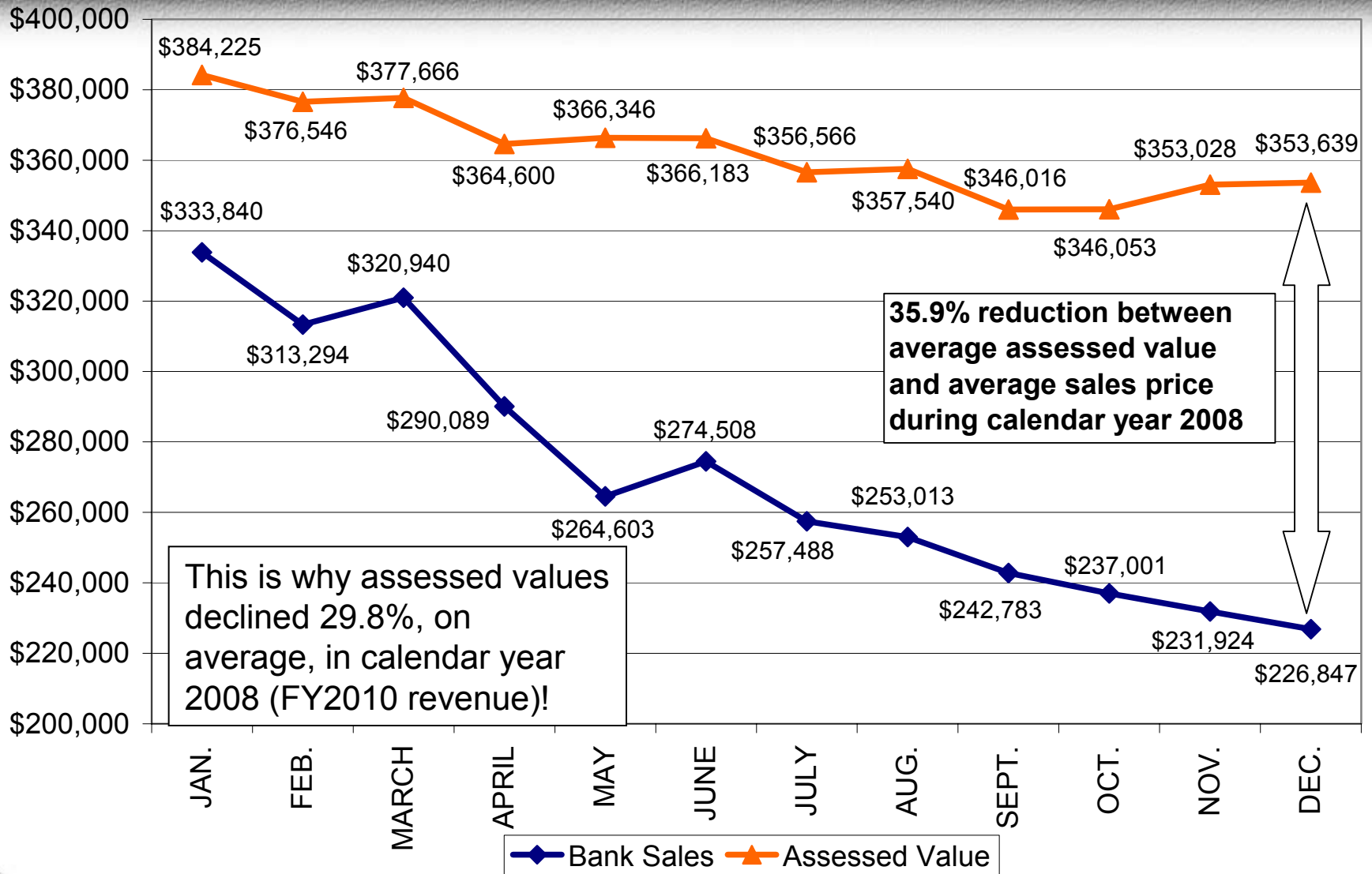


Change in Average Monthly Sales Ratio – Residential Sale Prices Compared to Assessed Values

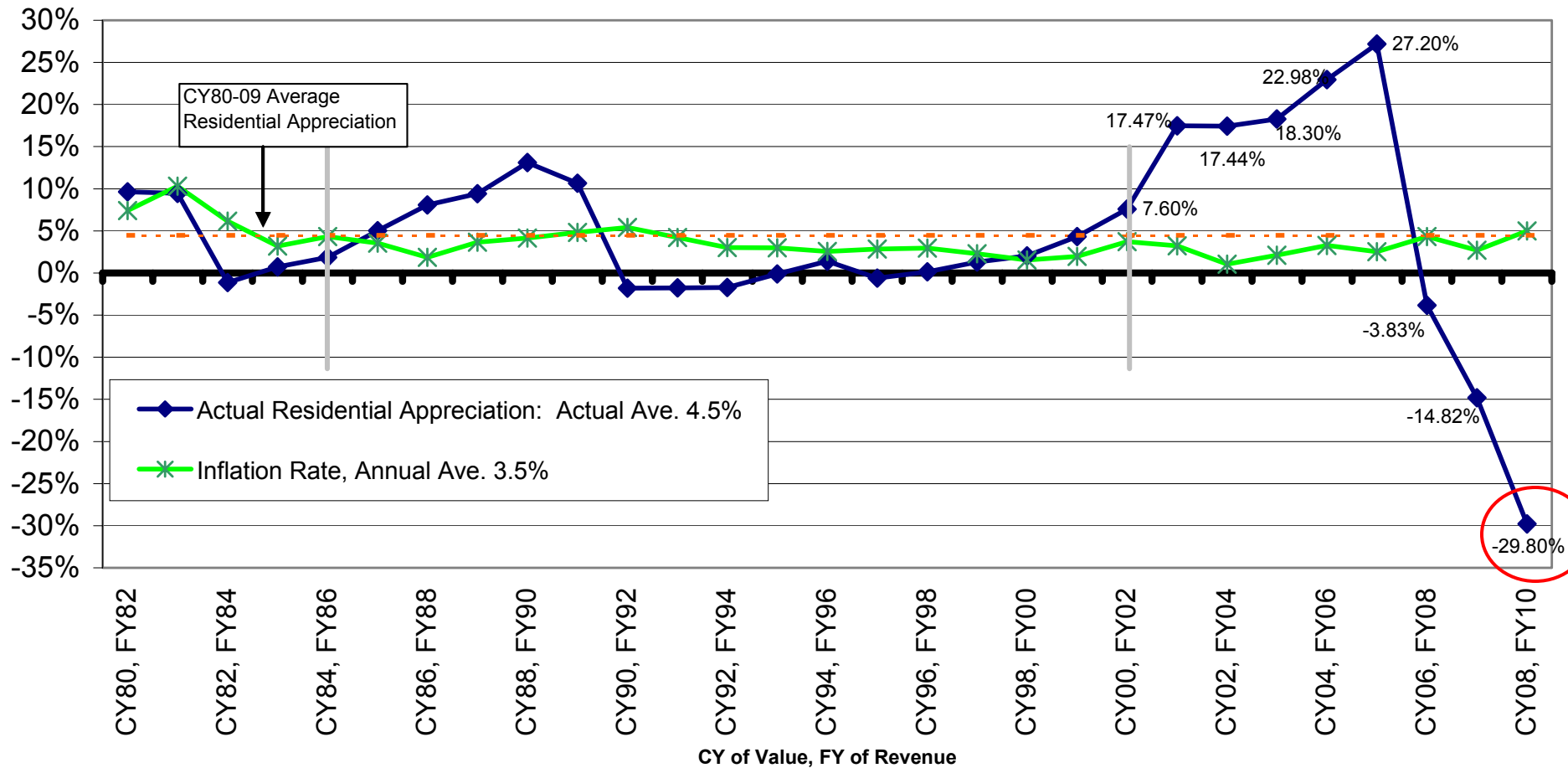


Review What Happened in Most Recent Year Completed - Single Family Bank Sales 2008

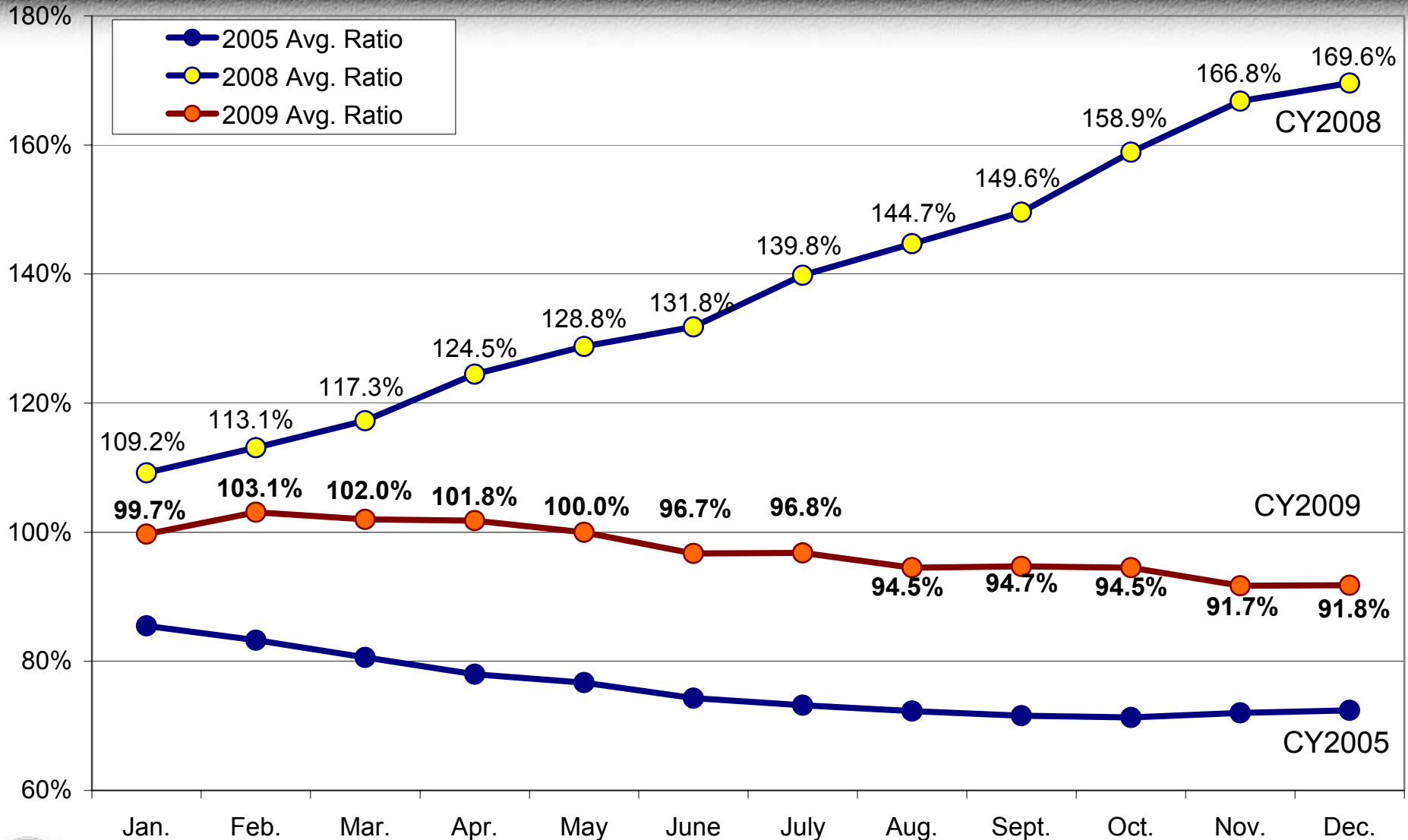
Monthly Avg. Sale Price vs. Avg. Assessed Value



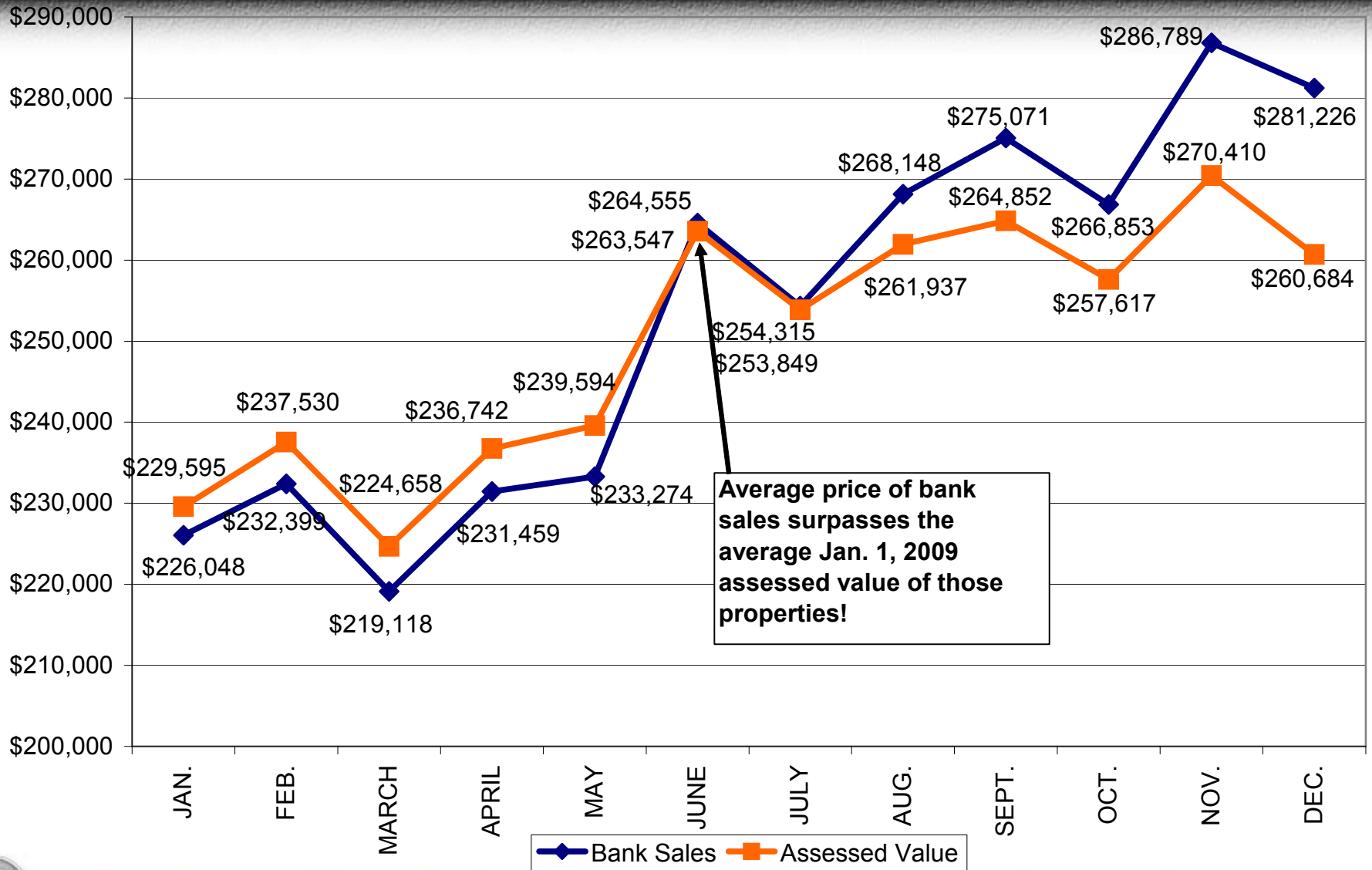
Examine Recent Trends – History of PWC Annual Residential Appreciation



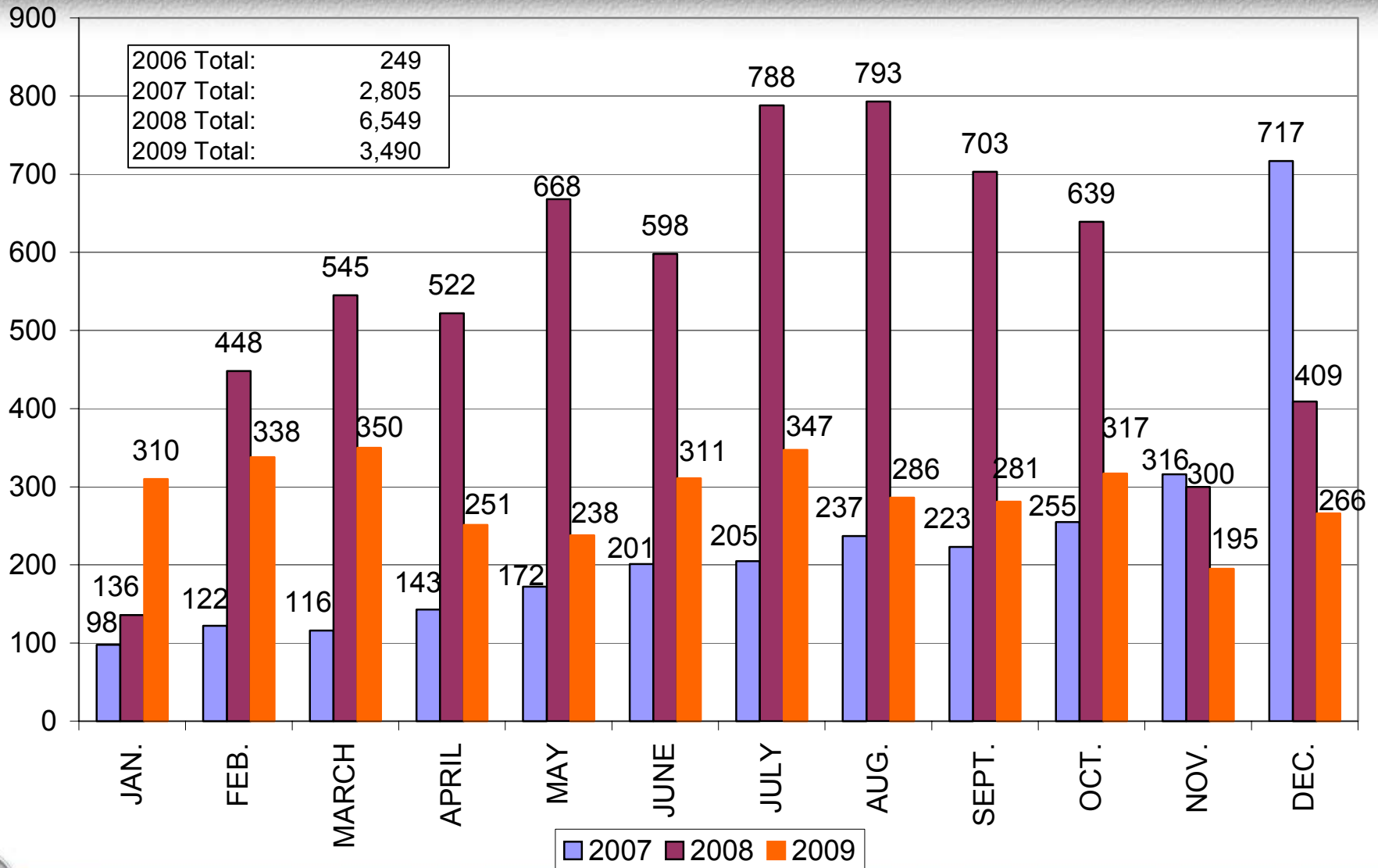
Change in Average Monthly Sales Ratio – Residential Sale Prices Compared to Assessed Values



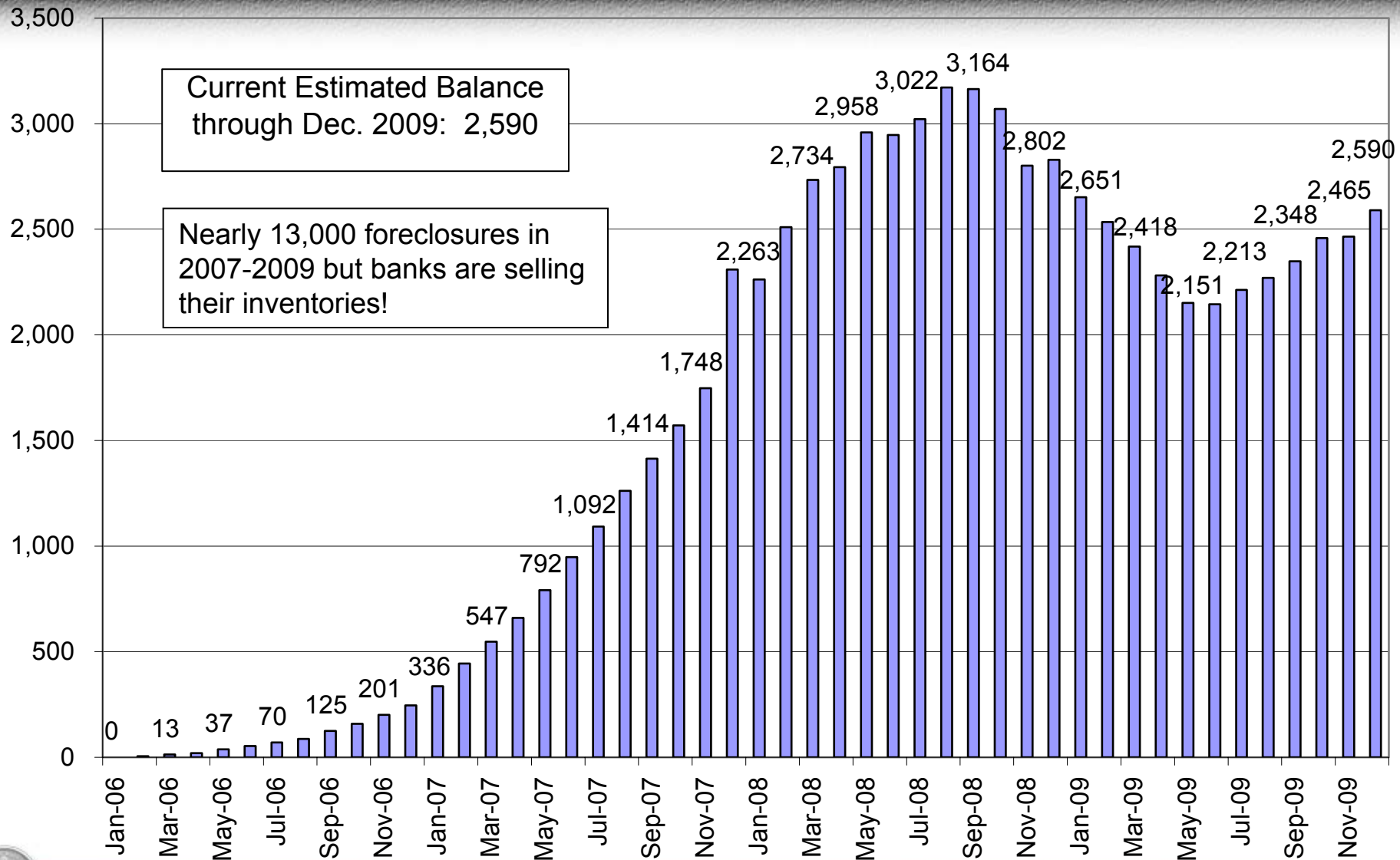
Single Family Bank Sales 2009 Monthly Avg. Sale Price vs. Avg. Assessed Value



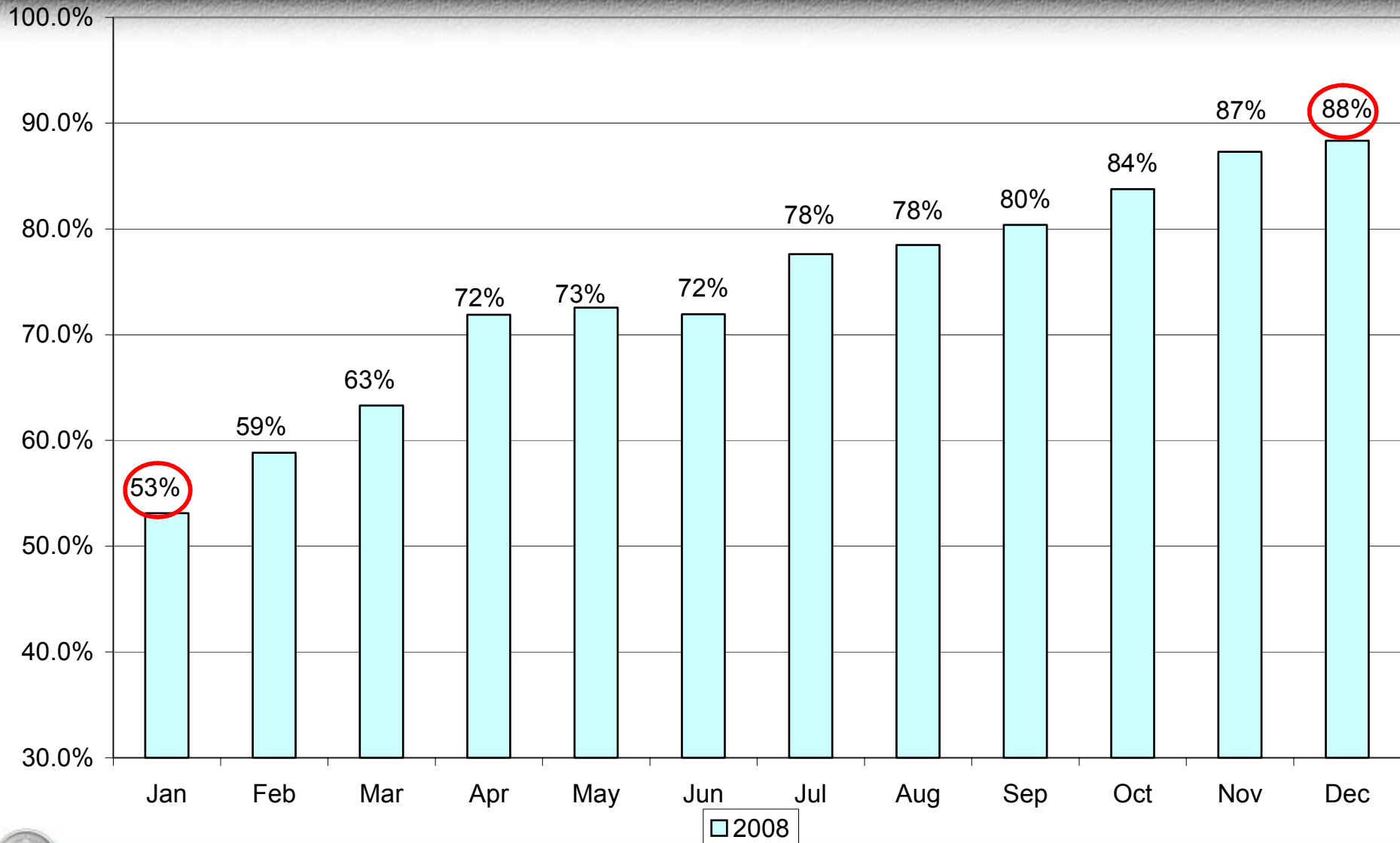
Foreclosures Decreased 46.7% in 2009 Compared to 2008



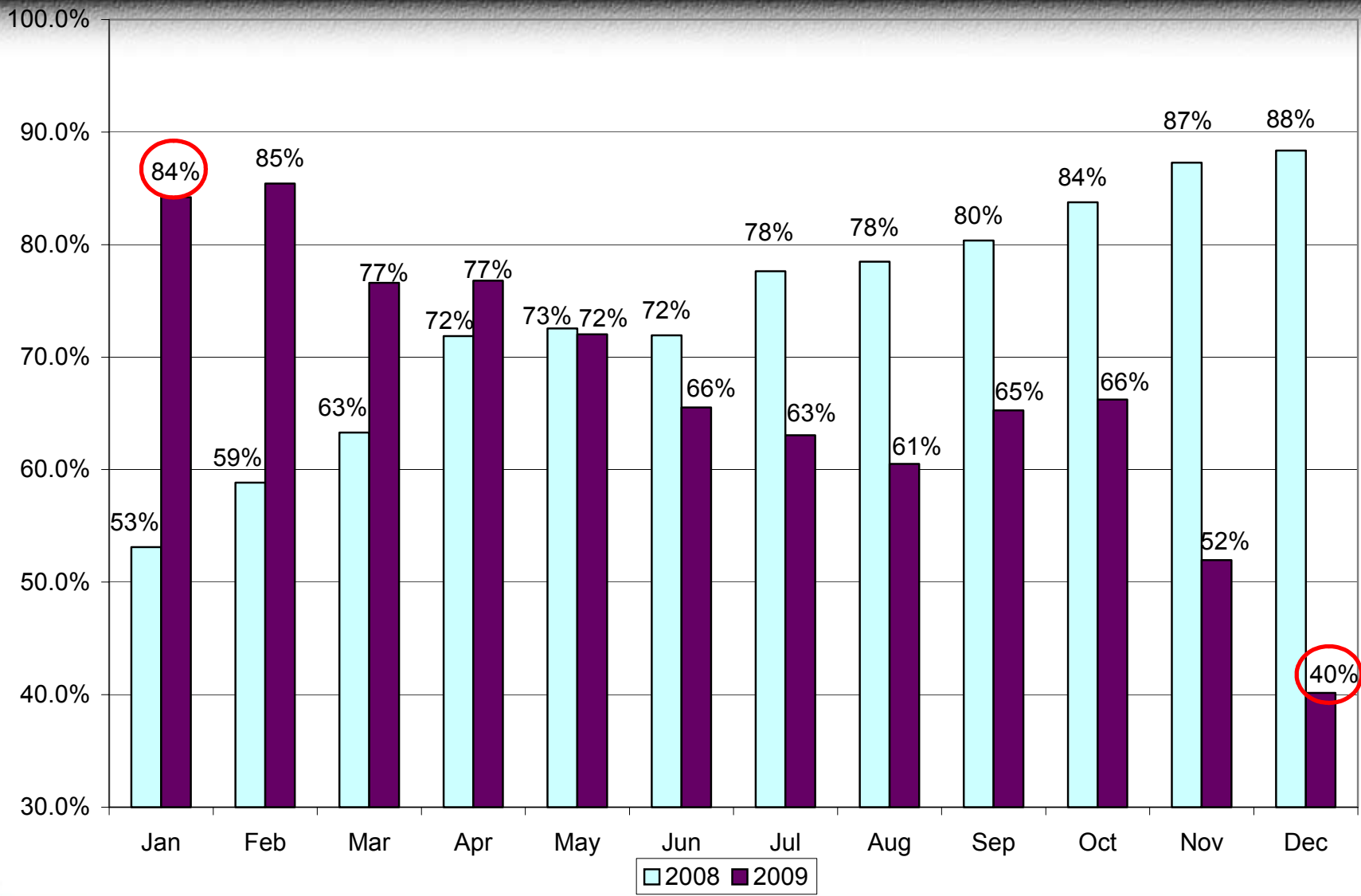
Inventory of Foreclosed Homes



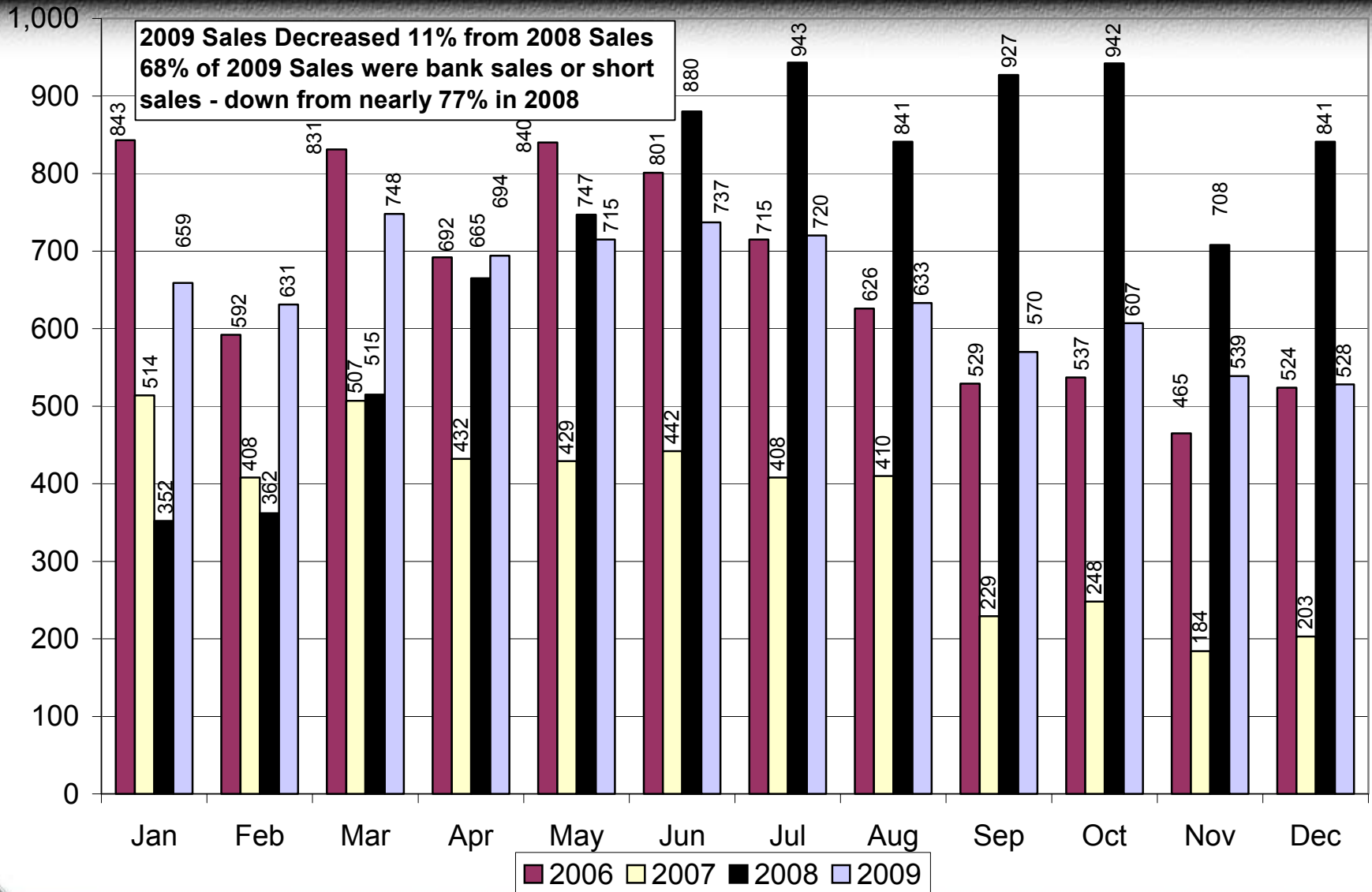
Bank Sales Dominated the Market - Bank Sales & Short Sales as % of Total Sales Increase in CY2008 from 53% in January to 88% in December



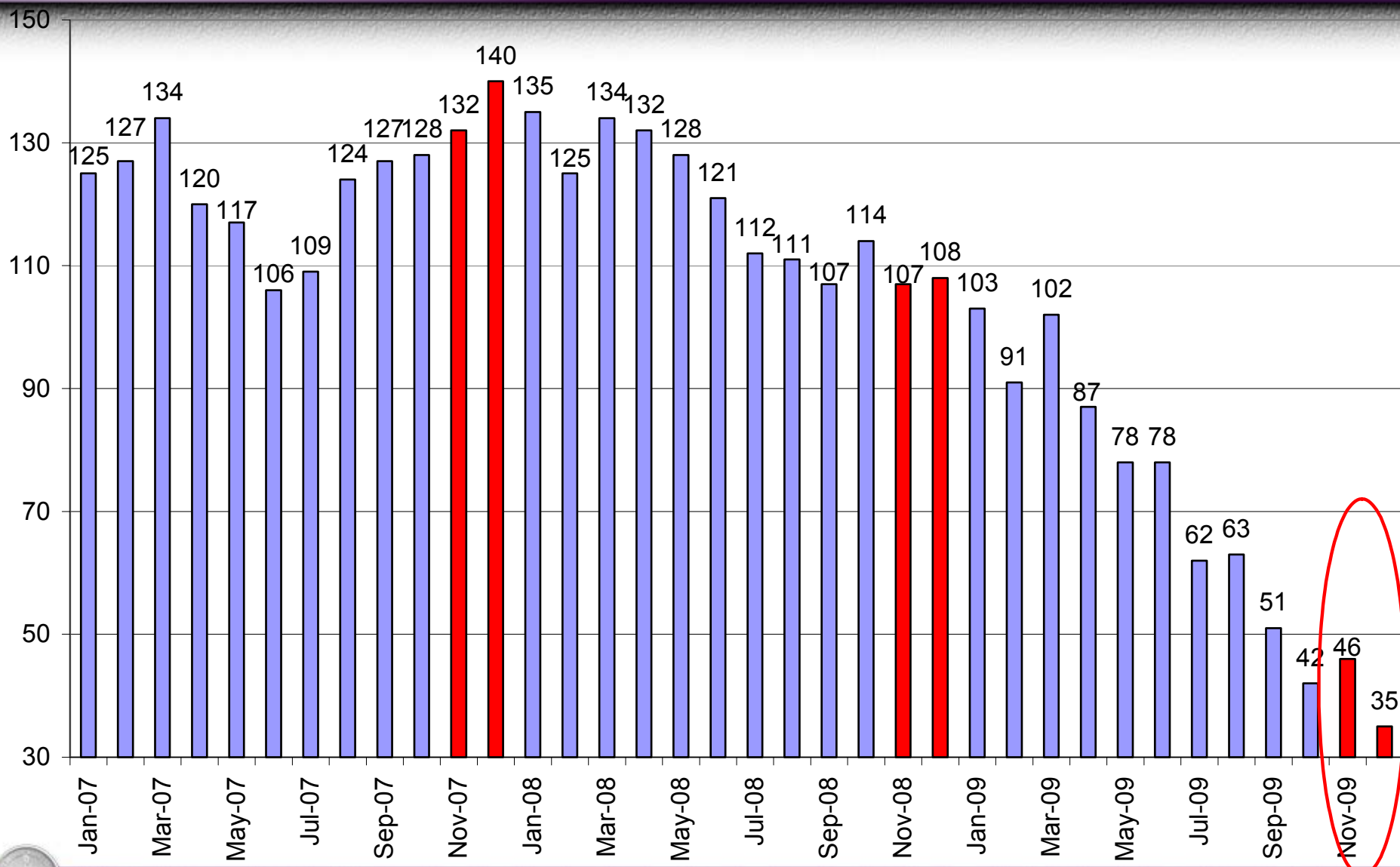
Bank Sales & Short Sales as % of Total Sales Declined in CY2009 from 84% in January to 40% in December



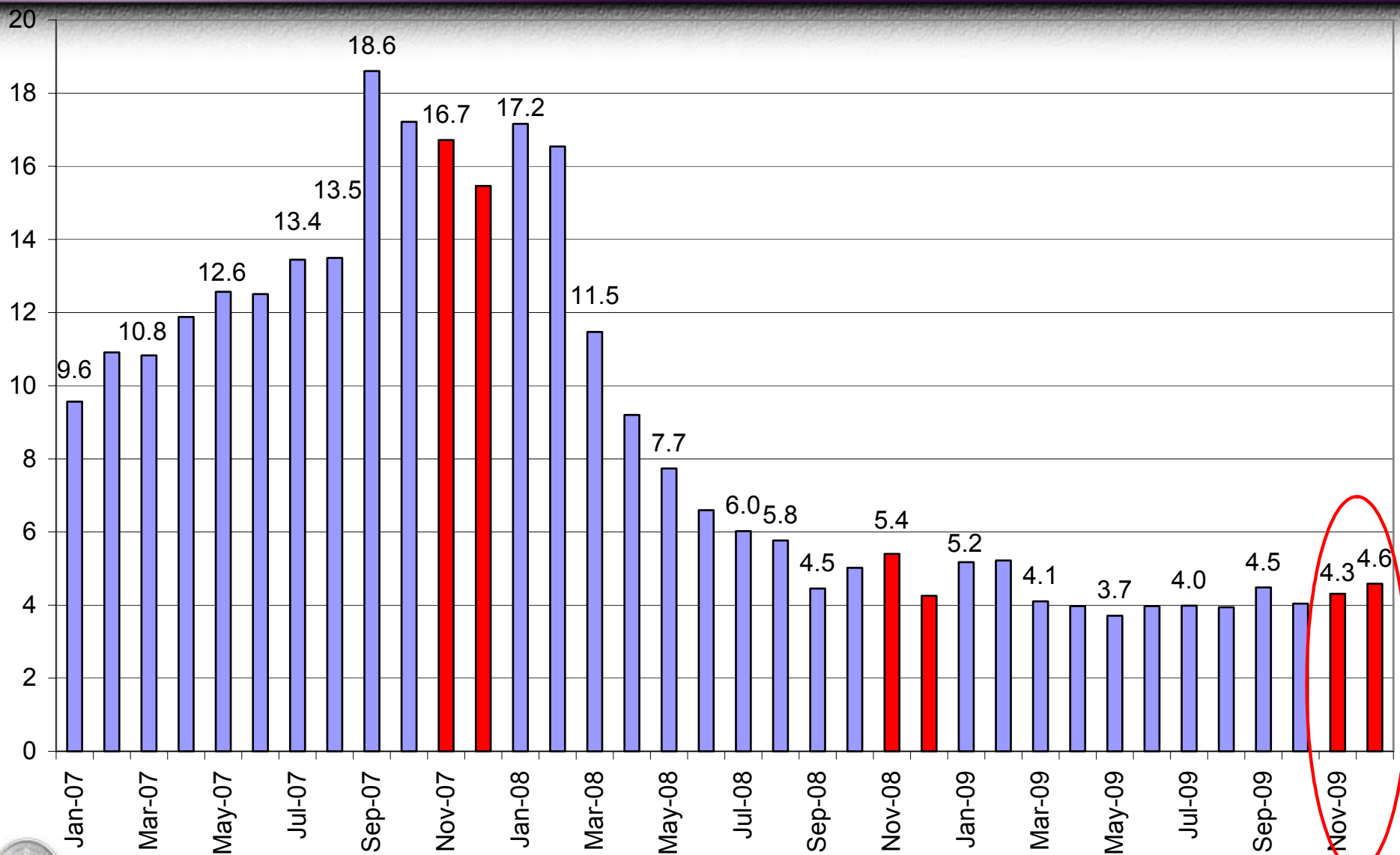
Monthly Residential Sales Volume - Includes Bank Sales and Short Sales



Real Estate Market Metrics – Average Number of Days on Market

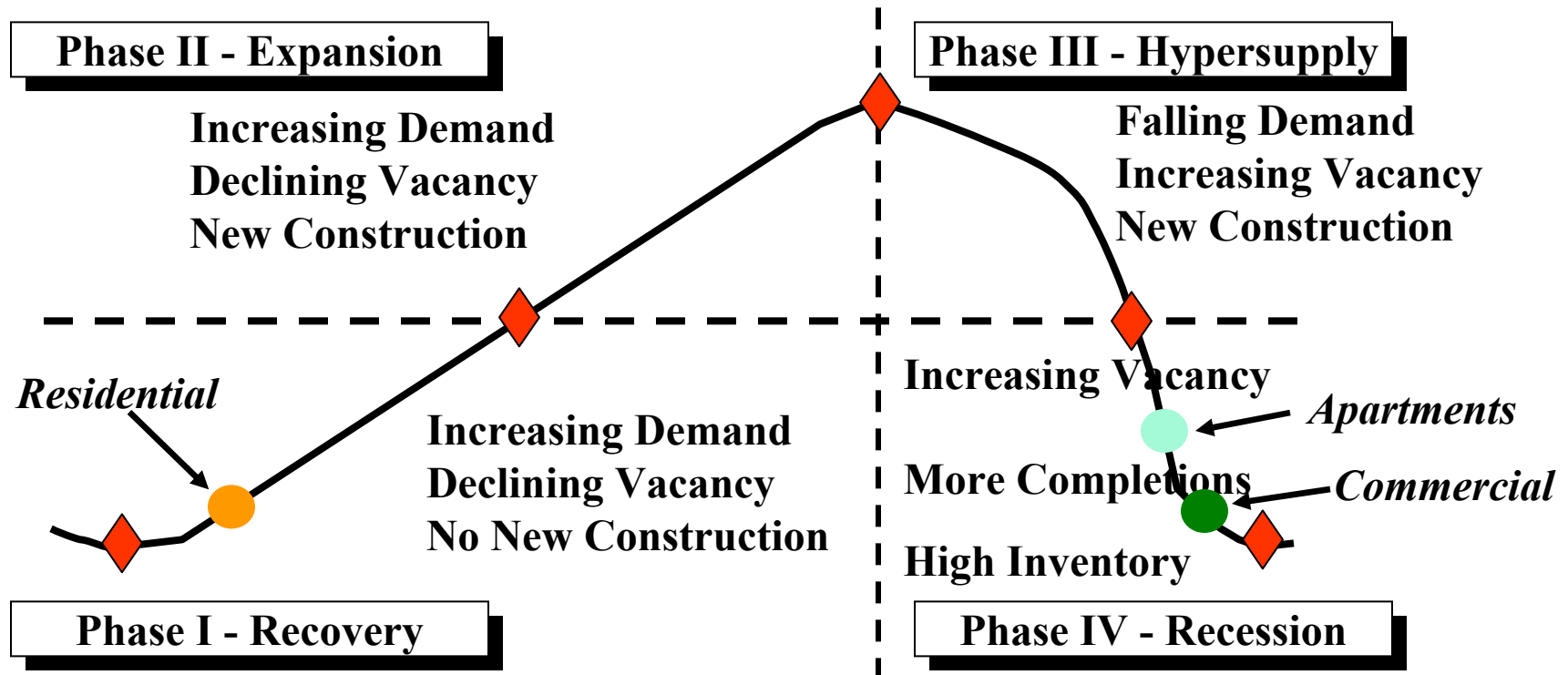


Real Estate Market Metrics – Ratio of Monthly Active Listings to Sales



Real Estate Market Cycles and Status of PWC Markets

Real Estate Market Cycle Quadrants

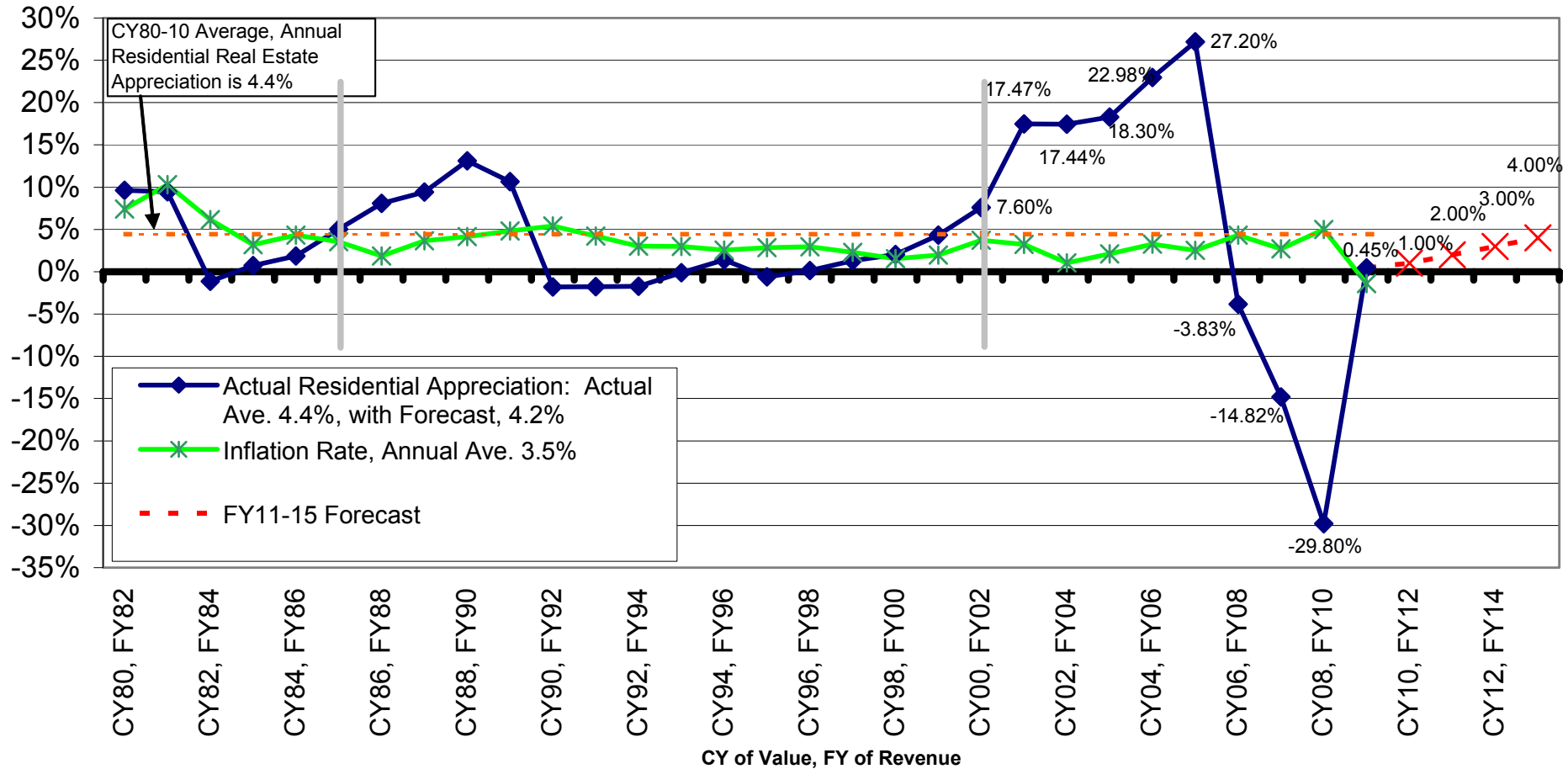


Source: Mueller, *Real Estate Finance*, 1995

What Did The Experts (Prince William Association of Realtors) Tell the Revenue Committee?

- We don't have enough product to sell. Low inventories of homes for sale is a problem as banks are not foreclosing at 2008 rates.
- Inventory of homes for sale decreased from 5,900 homes to approximately 1,200 homes. Foreclosed properties remain a huge part of inventory.
- There is no secondary market for loans financing \$700,000 homes. Banks requiring 30% equity and mortgage rates are 100 basis points higher than conventional loans.
- Low home appraisals are not instilling confidence in existing homeowners (many are underwater in their mortgages) to move up in the market.

History of Residential Real Estate Appreciation



Other Revenue Categories and Related Drivers

■ Personal Property Tax

- ◆ Average Value of Vehicles Located in the County
- ◆ Number of Additional Vehicles Entering the County
- ◆ Business Equipment Replacement During a Recession

■ Sales Tax

- ◆ Trends
- ◆ Population growth
- ◆ Inflation

■ Investment Income

- ◆ Federal Funds Target Interest Rate
- ◆ Ten-Year Treasury Interest Rate
- ◆ Growth of County Investment Portfolio (Tied to Tax Policy)
- ◆ Expected Movement of Short and Long-Term Interest Rates

Personal Property Tax – Value Changes of Common Vehicles (2008 Market Activity)

Sedans and Hybrids

Tax Year	Fiscal Year	2004 Toyota Camry	2001 Nissan Altima	2003 Honda Accord	2004 Toyota Prius	2005 Ford Focus	Average
2006	2007	-6.1%	-3.7%	-4.5%	-14.1%	-25.2%	-10.7%
2007	2008	-12.7%	-20.6%	-12.7%	-7.1%	-12.8%	-13.2%
2008	2009	-8.7%	-19.5%	-16.8%	-14.6%	-11.3%	-14.2%
2009	2010	-15.0%	-13.6%	-11.2%	-3.6%	-14.3%	-11.5%

Trucks and Sport Utility Vehicles

Tax Year	Fiscal Year	2004 Toyota 4Runner	2003 Dodge Caravan	2002 GMC Yukon	2005 Ford Explorer	2006 Ford F150	Average
2006	2007	-11.4%	-18.0%	-17.2%	-26.9%	-20.8%	-18.9%
2007	2008	-11.9%	-21.7%	-21.5%	-18.8%	-17.3%	-18.2%
2008	2009	-6.4%	-14.0%	-10.1%	-8.3%	-7.6%	-9.3%
2009	2010	-29.9%	-30.7%	-33.5%	-36.4%	-24.8%	-31.1%

Personal Property Tax – Value Changes of Common Vehicles (2009 Market Activity)

Sedans and Hybrids

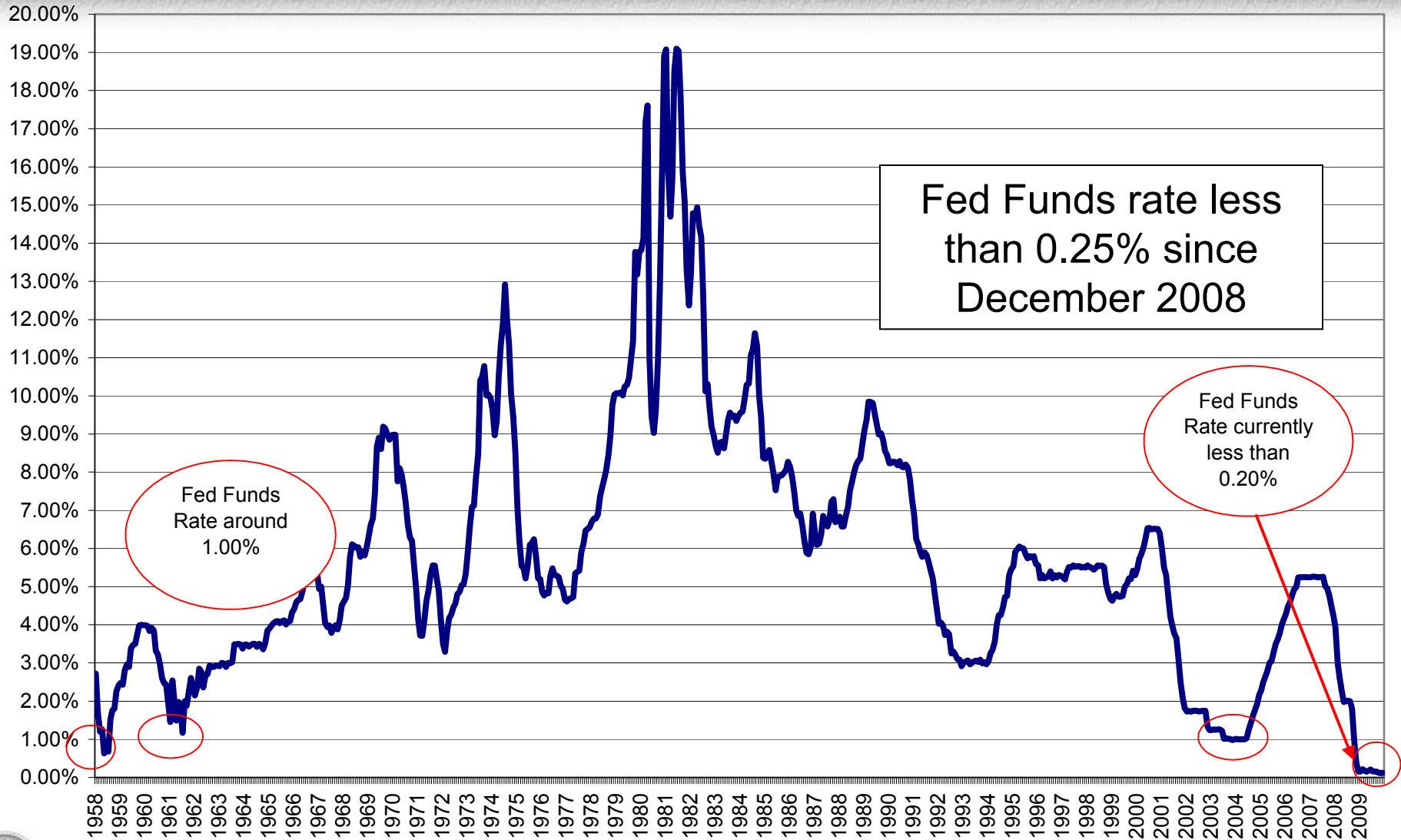
Model	Honda Civic LX Value	Nissan Altima S Value	Toyota Camry LE Value	Toyota Corolla CE Value	Ford Mustang Value	Honda Civic Hybrid Value	Toyota Prius Value
Year	% Change	% Change	% Change	% Change	% Change	% Change	% Change
2008	-16.75%	-13.87%	-17.18%	-17.94%	-6.61%	-21.79%	
2007	-18.23%	-11.96%	-15.81%	-18.97%	-6.80%	-24.04%	-27.02%
2006	-20.04%	-16.77%	-16.30%	-18.05%	-7.85%	-26.41%	-28.01%
2005	-26.57%	-21.73%	-17.67%	-18.80%	-9.47%	-32.16%	-31.72%
2004	-24.13%	-20.99%	-18.83%	-20.61%	-16.26%	-29.86%	-34.09%

Trucks and Sport Utility Vehicles

Model	Honda Odyssey EX Value	Nissan Pathfinder Value	Toyota Highlander Value	Toyota 4Runner Value	Toyota Sienna Value	Ford Explorer XLT Value	Ford F150 Super Value
Year	% Change	% Change	% Change	% Change	% Change	% Change	% Change
2008	11.33%	20.63%	5.01%	10.36%	1.97%	10.14%	16.90%
2007	14.12%	17.57%	16.29%	14.99%	13.53%	15.19%	22.45%
2006	7.05%	18.20%	14.63%	16.77%	14.14%	17.53%	19.06%
2005	2.51%	8.94%	5.45%	12.52%	7.11%	9.94%	14.95%
2004	-5.79%	1.06%	1.86%	10.96%	6.81%	8.56%	14.52%

Reflects changes in guide value from January 2009 to November 2009

Investment Income - History of Fed Funds Target Rate



Investment Income Forecasting: Questions to Ask Yourself

- What's my portfolio structure?
 - ◆ 1-2 year maturities only?
 - ◆ Longer maturities?
 - ◆ What is the mix?
- Where's the Interest Rate Curve?
 - ◆ Normal
 - ◆ Steep
 - ◆ Inverted
- Is my portfolio management active or passive?
 - ◆ Do I strategically manage investments?
 - ◆ If yes, what are you going to do over the projection period?

Use the Correct Metric

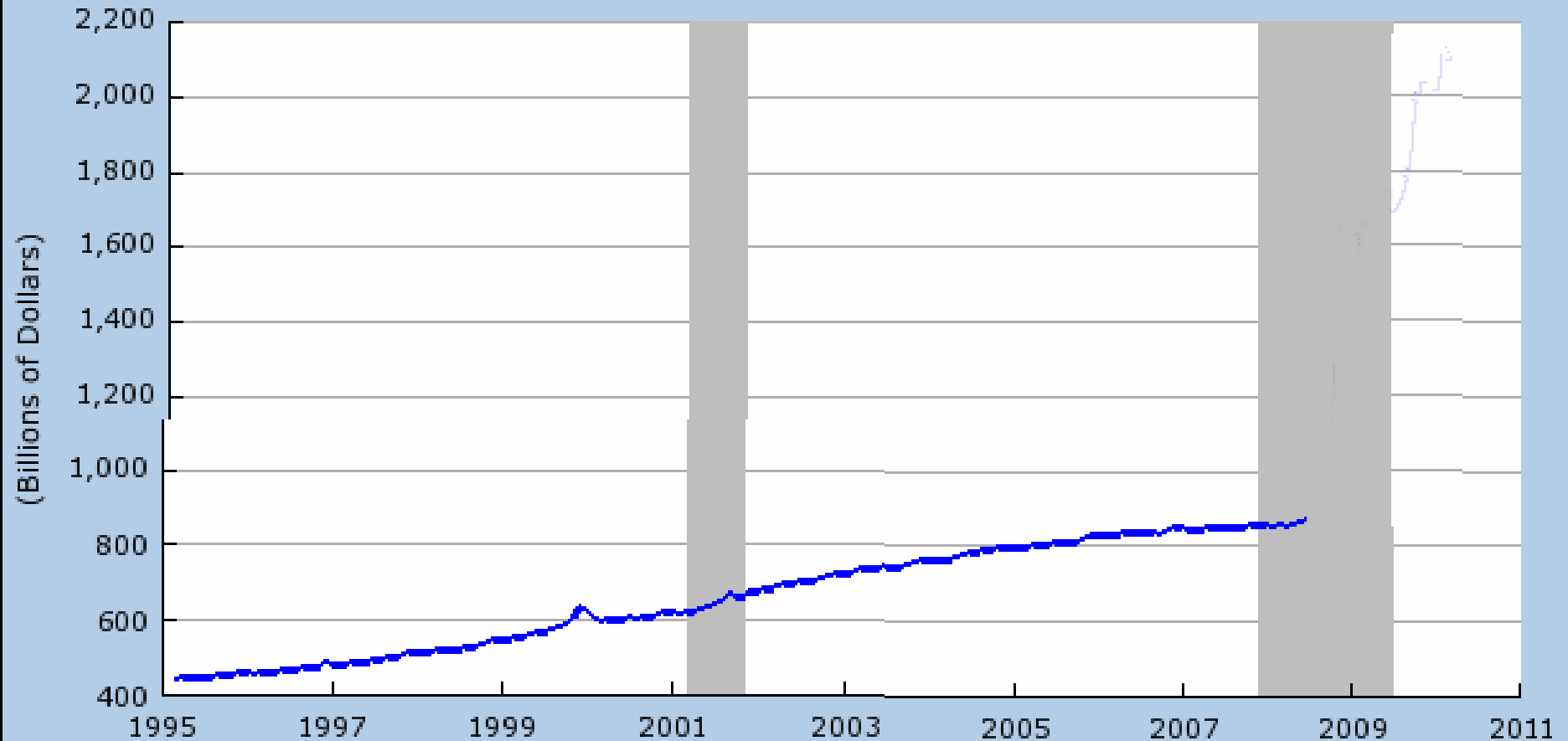
- PWC typically has 40-50% of its portfolio invested in securities >3 yrs out to 10 yrs
 - ◆ We model our projections on longer maturities off of 10-yr treasury yields
 - ◆ We model short-term security yields off of shorter-term treasury yields (90, 180, 1 yr) and the money fund index

Mark-to-Market Gains and Losses

- Municipalities are required to adjust their portfolio value based on the market value of the securities per GASB 31 and record the difference as a gain or loss (for securities with >1 yr.
- IF you typically hold securities to maturity or seldom if ever sell a security at a loss – **DO NOT INCLUDE MARK-TO-MARKET GAINS AND LOSSES IN YOUR REVENUE FORECAST**

Monetary Base Rises At A Consistent Rate Over Time

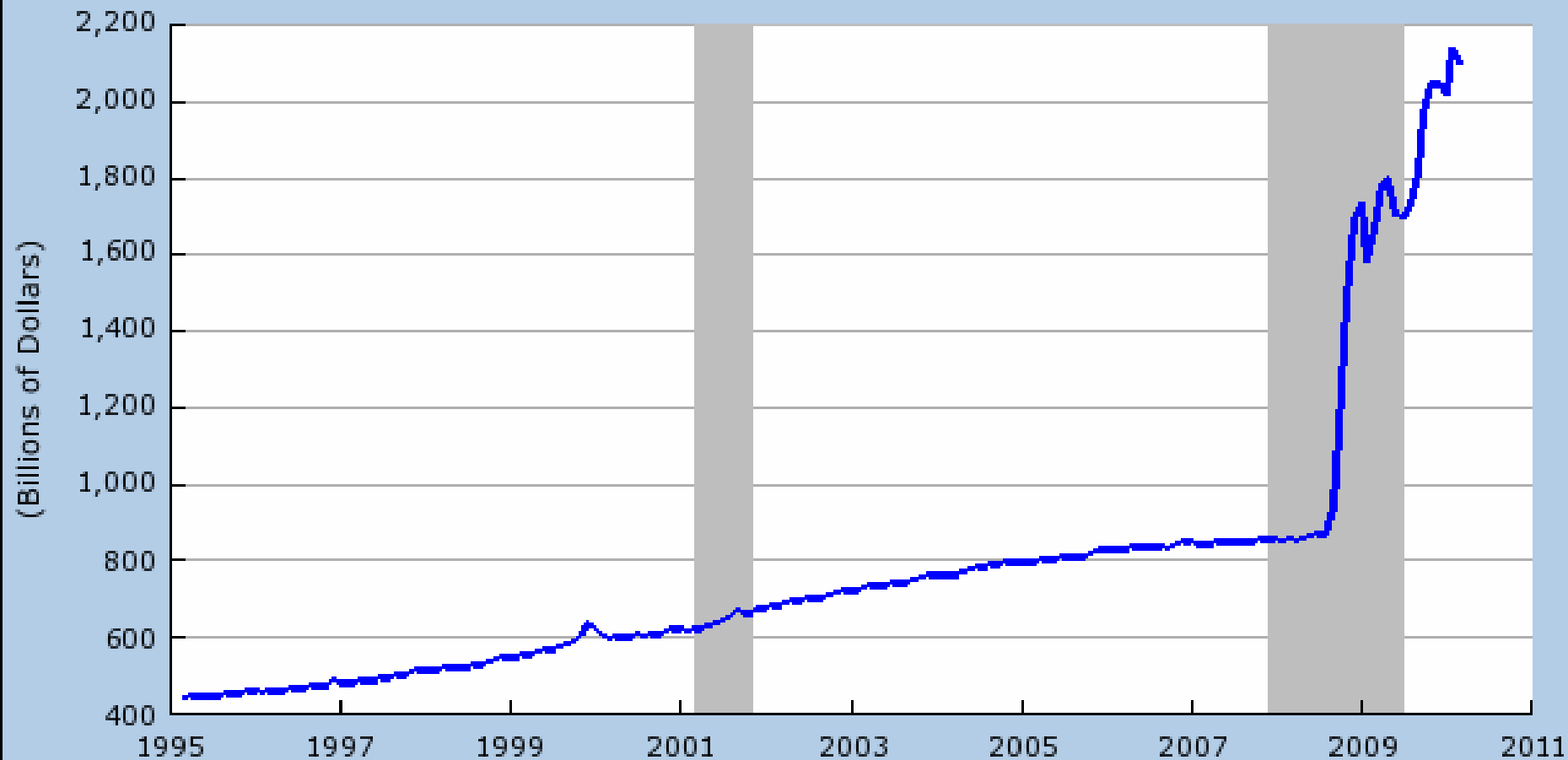
St. Louis Adjusted Monetary Base (AMBNS)
Source: Federal Reserve Bank of St. Louis



Shaded areas indicate US recessions.
2010 research.stlouisfed.org

... or at least it USED to

St. Louis Adjusted Monetary Base (AMBNS)
Source: Federal Reserve Bank of St. Louis



Shaded areas indicate US recessions.
2010 research.stlouisfed.org

Ask Questions ... Do the Experts' Opinions Make Sense In the Context of What You Know to be the Facts?

By JON HILSEN RATH

ECONOMY | APRIL 15, 2010

Bernanke Sees Little Inflation Threat

Fed Chief Cites Broad Slowdown in Prices, Has Optimistic but Cautious View of



Reuters

Fed Chairman Ben Bernanke testifies Wednesday before Congress. His inflation assessment gives the Fed room to be patient about raising rates.

Federal Reserve Chairman Ben Bernanke pointed to a sharp and widely dispersed slowdown in inflation in recent months and indicated he saw little threat of it picking up any time soon, an important diagnosis as the Fed plots out its next steps in the unfolding economic recovery.

FY2011-2015 General Revenue Forecast (in thousands)

Real Estate Tax Rate:		\$1.212	\$1.236	\$1.261	\$1.286	\$1.299	\$1.299
	% to Total (FY2011)	<u>FY2010</u> Revised Est.	<u>FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
Real Estate Taxes	65.96%	\$476,987	\$474,782	\$488,675	\$517,508	\$550,339	\$585,887
Personal Property Taxes	16.05%	115,385	115,545	114,535	119,215	124,365	130,825
Sales Tax	6.26%	44,600	45,050	45,950	47,790	49,700	51,690
Consumer Utility Tax	1.81%	12,780	13,050	13,320	13,650	14,030	14,490
Communications Sales Tax	2.67%	18,700	19,200	19,390	19,780	20,370	20,980
BPOL Tax	2.80%	19,930	20,130	20,530	21,150	21,780	22,650
Investment Income	1.80%	13,250	12,990	16,690	21,490	28,110	32,020
All Other	2.64%	19,592	19,008	19,319	19,911	20,556	21,285
Total General Revenue	100.00%	\$721,224	\$719,755	\$738,409	\$780,494	\$829,250	\$879,827
Increase over Prior Year		-7.17%	-0.20%	2.59%	5.70%	6.25%	6.10%
School Portion		\$405,912	\$405,476	\$416,062	\$439,866	\$467,450	\$496,061
County Portion		310,912	310,389	318,457	336,638	357,690	379,546
Transportation Fund		4,400	3,890	3,890	3,990	4,110	4,220
Total General Revenues		\$721,224	\$719,755	\$738,409	\$780,494	\$829,250	\$879,827

A Wise Man Once Said...

- “It’s dangerous to make predictions, especially about the future.”
- “The future ain’t what it use to be.”
- “You’ve got to be very careful if you don’t know where you are going because you might not get there.”

- Lawrence “Yogi” Berra

