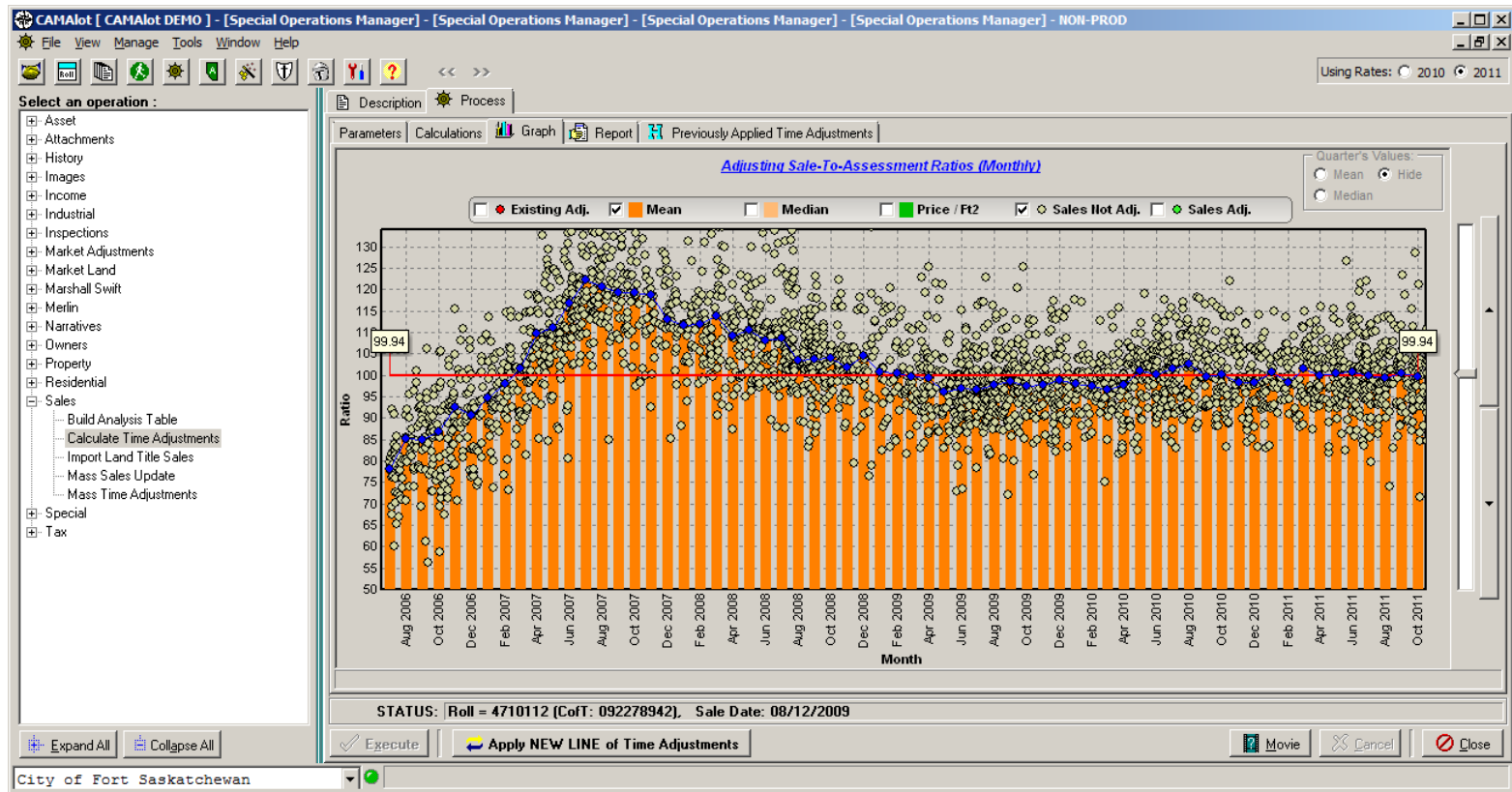


# Time Adjustments in

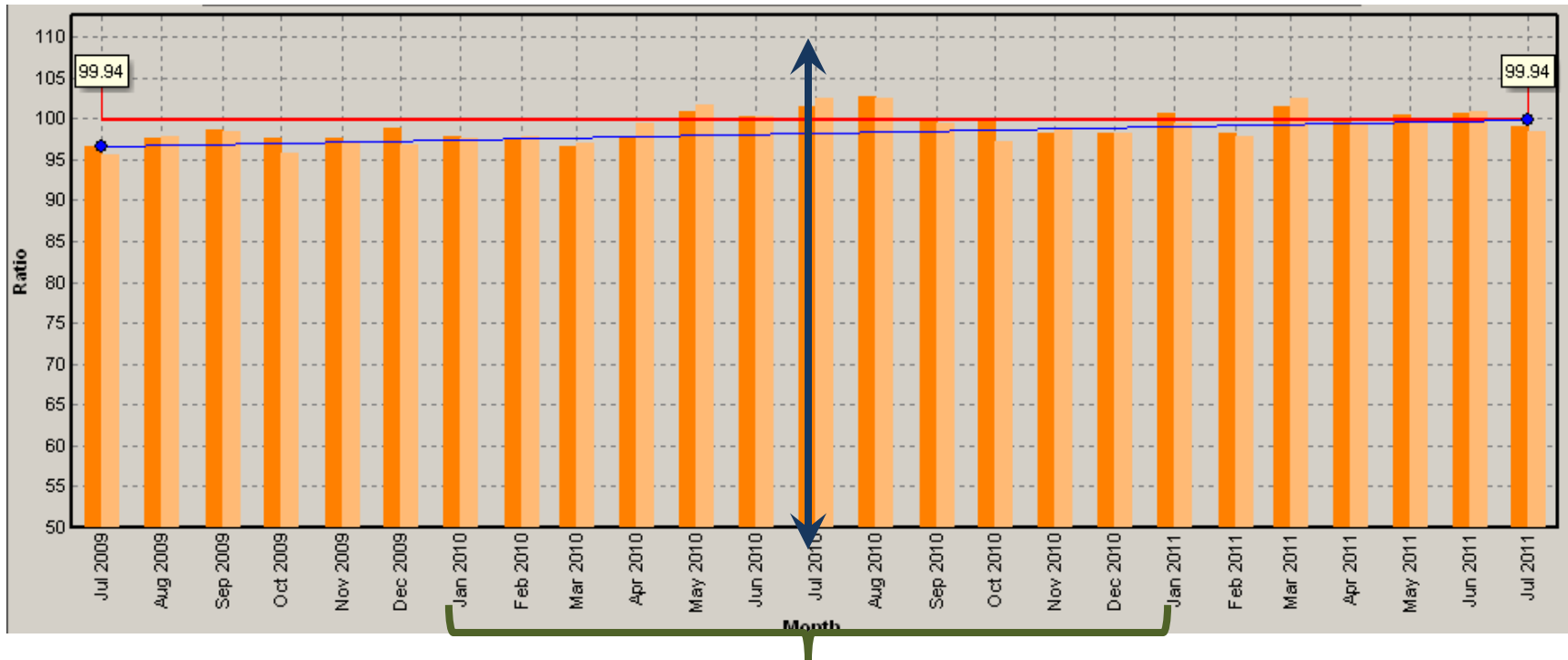


# Why Time Adjustments?

- History

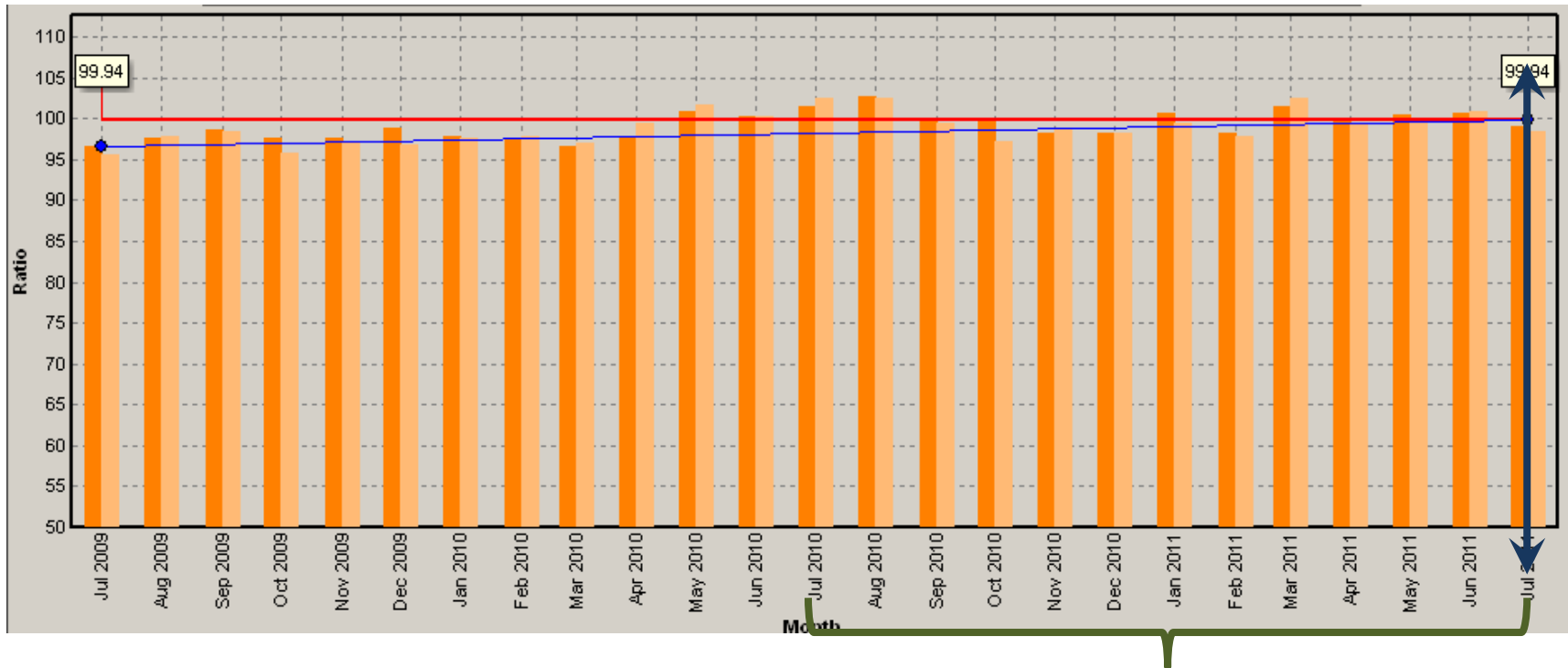
- Valuation Date – July 1, 2010

- Sales Period – Jan 1, 2010 – Dec.31, 2010



# Why Time Adjustments?

- NOW
  - Valuation Date – July 1, 2011
  - Sales Period – July 1, 2010 – June 30, 2011



# How – Time Adjustments

- Paired Sales Analysis
  - Similar properties are identified that have sold at different times, the older sale is adjusted to the more recent sale to account for any physical differences between the properties, and then any remaining difference is attributed to TIME.
    - ❖ Problem with adjusting for differences in properties as well as difficult to find a large number of highly comparable properties that have sold at different times.

# How – Con't

- Resales Analysis
  - Resales can be analyzed like paired sales. Using resales has the advantage of minimizing physical and locational adjustments.
  - Can be used in addition to paired sales.
    - ❖ Difficult to find a large number of resales. Also difficulty in determining adjustments for changes to the property that re-sold.

# How – Con't

- Multiple Regression Analysis
  - MRA is a tool for evaluating the influence of several independent factors, such as property characteristics, on a dependent factor. If time of sale is one of the independent variables, its effect on sales price can be estimated and the rate of change in price levels extracted.
    - ❖ Requires a large number of sales.

# How – Con't

- Units of Comparison
  - Calculating the difference in the price per 'unit of comparison' during a period of time can be used to determine time adjustments (example: sale price per square foot)
    - ❖ Price per unit of comparison is a dependent variable and can vary considerably due to other property attributes.
    - ❖ Would require a large number of highly comparable property sales to be effective.

# How – Con't

- Sales Ratio Trend Analysis – CAMA lot Method
  - Calculating the difference in Sale Price to Assessment Ratios (SAR) during a period of time can be used to determine time adjustments.
    - ❖ Requires a number of sales to be effective
    - ✓ Unlike Paired Sales and Resales, most all used sales can be included in the analysis
    - ✓ It is efficient as adjustment for differences between sold properties don't have to be accounted for.
    - ✓ It implicitly considers all relevant physical and locational characteristics because they are part of the assessment.

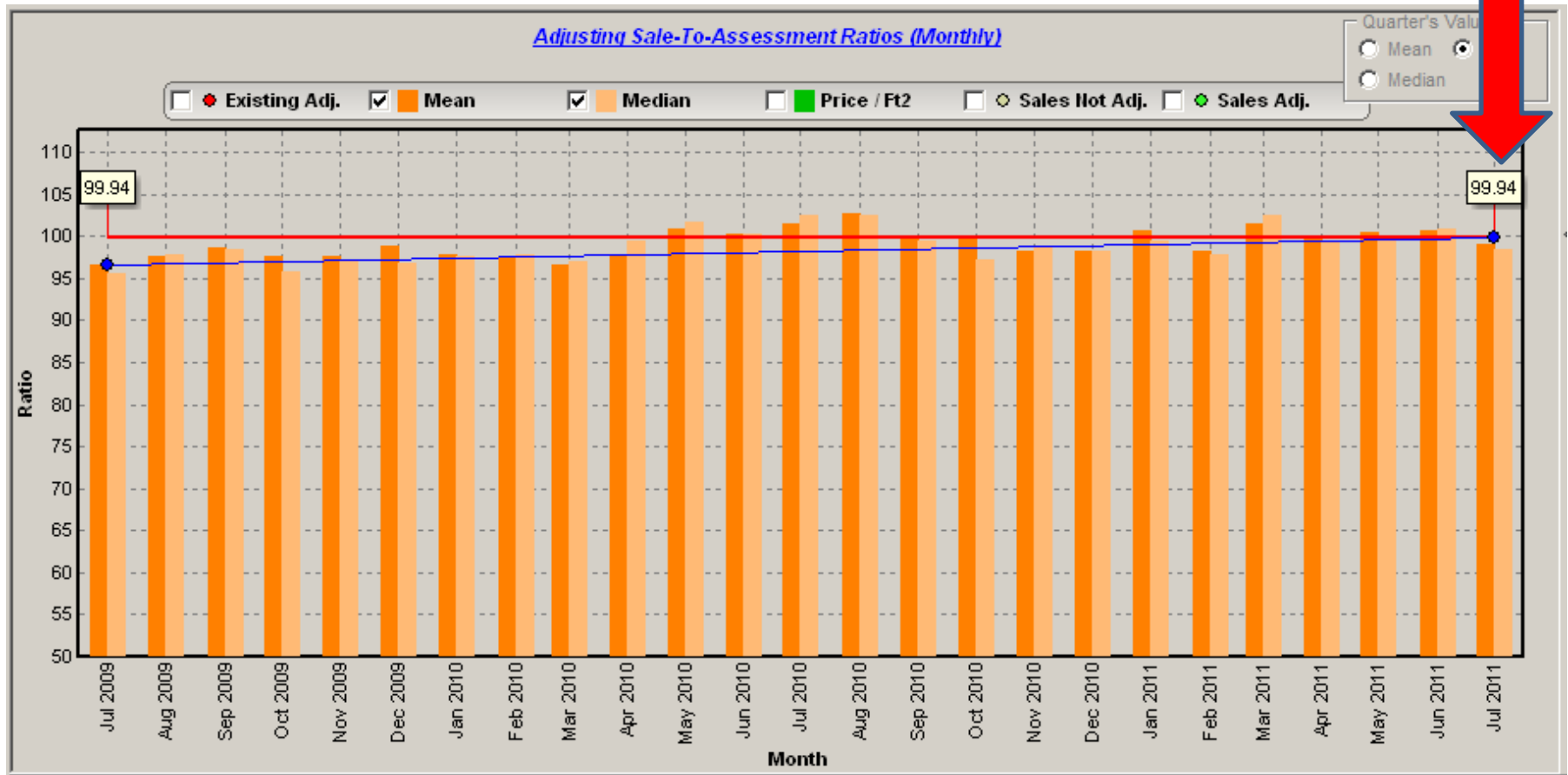


# Description of Sales Ratio Trend Analysis

- GOAL
  - The goal is to calculate a time adjustment factor for each month (or quarter). This factor will be used to adjust every sale price to reflect the value of the property had it been sold on July 1<sup>st</sup> of the Assessment Year.
  - We will find the average SAR for July 1 and then adjust the sale prices in the other months so that the SAR in these months is equal to that found on July 1<sup>st</sup>.

# CAMAlot's Sales Ratio Trend Analysis (con't)

- SAR (Sale Price to Asmt Ratio) for July 1<sup>st</sup>



## CAMAlot's Sales Ratio Trend Analysis (con't)

- Calculation of July 1<sup>st</sup> SAR
  - Monthly averages tend to create a value for approx. the 15<sup>th</sup> of the month. Our valuation date is July 1, so it is necessary to average the results of June and July to get the July 1 average.
    - June = 100.76
    - July = 99.11
    - $(100.76 + 99.11) / 2 = 99.94$

# CAMAlot's Sales Ratio Trend Analysis (con't)

- SAR for July 1<sup>st</sup>
  - This number is critical as it is used when calculating the time adjustment factor for each month.
  - This number represents how much your assessment should increase (or decrease) in your new assessment.

Is this number reasonable?

# CAMAlot's Sales Ratio Trend Analysis (con't)

- Test for July 1<sup>st</sup> SAR
  - Previous year ASR for Improved Residential is 98% (would be an SAR of 102%)
  - SAR as of July 1<sup>st</sup> is calculated at 99.94% (would be an ASR of 100%)
  - ASR changed from 98% to 100%. This means the market has gone down by 2%.

Is this number reasonable?

## CAMAlot's Sales Ratio Trend Analysis (con't)

- Calculation of monthly time adjustments
  - The SAR is calculated for each used sale in the month (sale price / assessment).
  - CAMAlot calculates both the Average and Median SAR for each month
  - Each months adjustment factor is calculated by using the July 1 SAR and dividing it by the monthly SAR

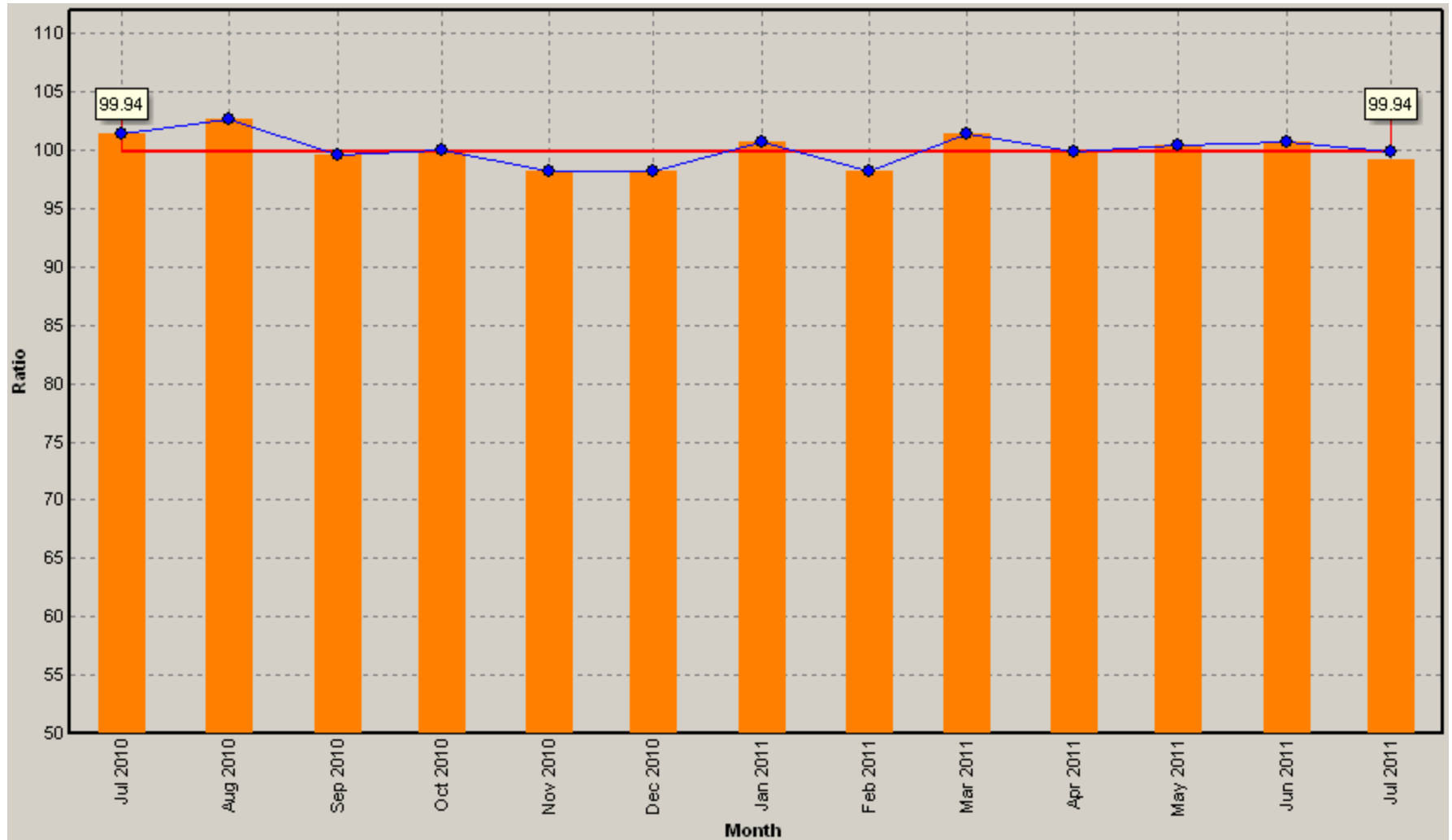
Aug (2010) – Avg SAR of 103.00%  
 $99.94\% / 103.00\% = .9735$  (time adjustment factor)

# CAMAlot's Sales Ratio Trend Analysis (con't)

- Calculation of monthly time adjustments

Month	Average SAR	Calculation	Factor
Aug 2010	103.00	99.94 / 103.00	0.9735
Sep 2010	99.54	99.94 / 99.54	1.0040
Oct 2010	100.08	99.94 / 100.08	0.9986
Nov 2010	98.20	99.94 / 98.20	1.0177
Dec 2010	98.16	99.94 / 98.16	1.0182
Jan 2011	100.67	99.94 / 100.67	0.9927
Feb 2011	98.17	99.94 / 98.17	1.0181
Mar 2011	101.42	99.94 / 101.42	0.9854
Apr 2011	99.83	99.94 / 99.83	1.0011
May 2011	100.40	99.94 / 100.40	0.9954
Jun 2011	100.76	99.94 / 100.76	0.9919
Jul 2011	99.11	99.94 / 99.11	1.0000

# CAMAlot's Sales Ratio Trend Analysis (con't)





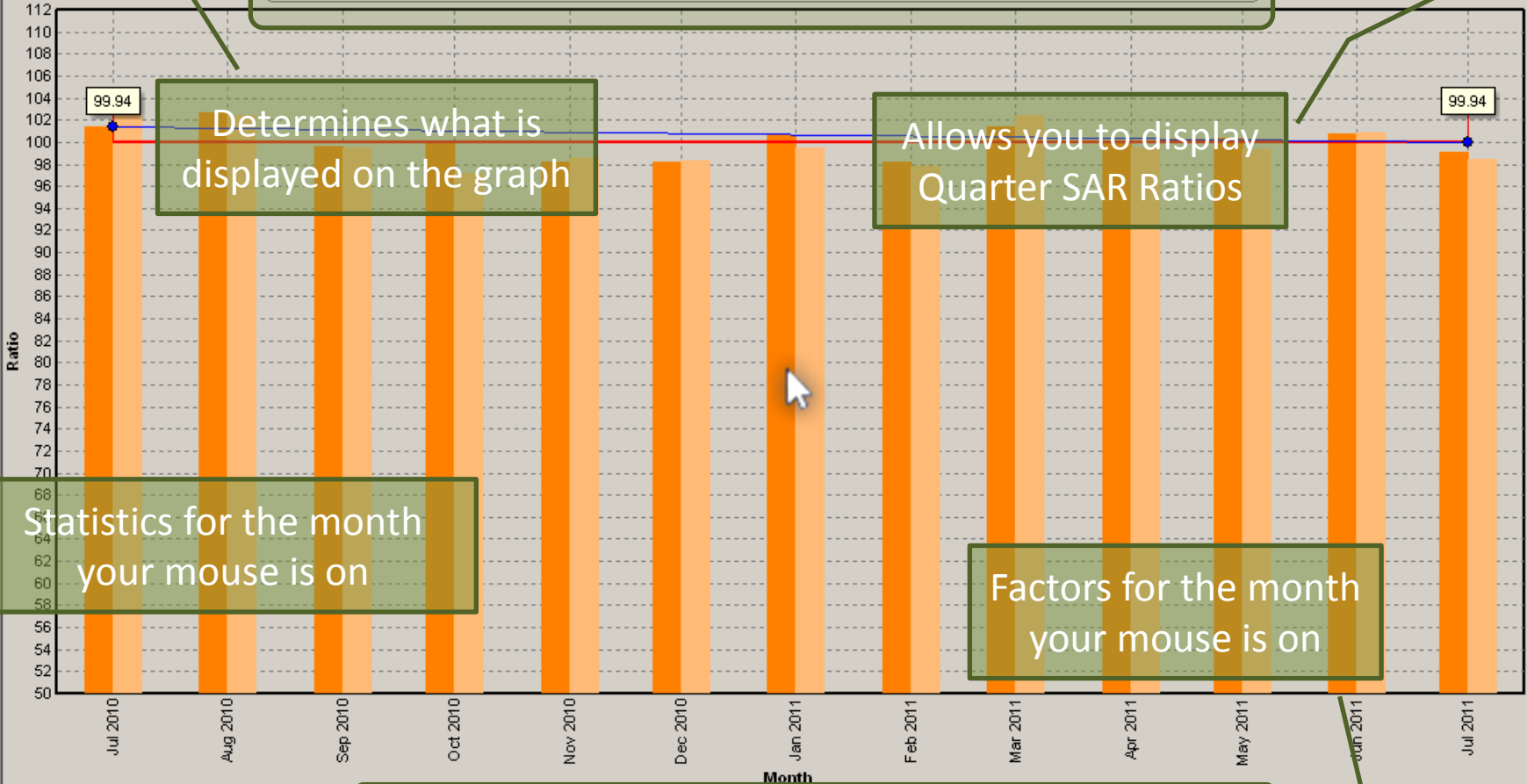
# CAMAlot's Sales Ratio Trend Analysis (con't)

- CAMAlot calculates
  - July 1<sup>st</sup> SAR
  - Each Month
    - Median SAR – with time adjustment factor based on this SAR
    - Average SAR – with time adjustment factor based on this SAR
    - Line Sale Adjustment Factor
      - This is what CAMAlot applies as the Time Adjustment
      - Can be modified by the user

Adjusting Sale-To-Assessment Ratios (Monthly)

Quarter's Values:  
 Mean  Hide  
 Median

Existing Adj.  Mean  Median  Price / Ft2  Sales Not Adj.  Sales Adj.



Determines what is displayed on the graph

Allows you to display Quarter SAR Ratios

Statistics for the month your mouse is on

Factors for the month your mouse is on

Mean Factor: 0.9927, Median Factor: 1.0044, Price/Ft2 Factor: 1.0429 <<< Line Factor: 0.9926 >>>

STATUS: Jan 2011, Mean: 100.67, Median: 99.50, Used Sales: 29, Price: 233/Ft2

