

Measuring the Quality of Reappraisal

*A Sales Ratio Analysis of Residential and Commercial
Properties using TY 2021 Appraisal Values*



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(1) All taxable property must be appraised at 100% of its market value except as otherwise provided.

Sales Ratio

$$\text{Sales Ratio} = \frac{\text{Appraised Value}}{\text{Market Value}}$$

- Appraised Value
 - An opinion of value at a given point in time
- Market Value
 - The sales value is assumed to be equivalent to the market value

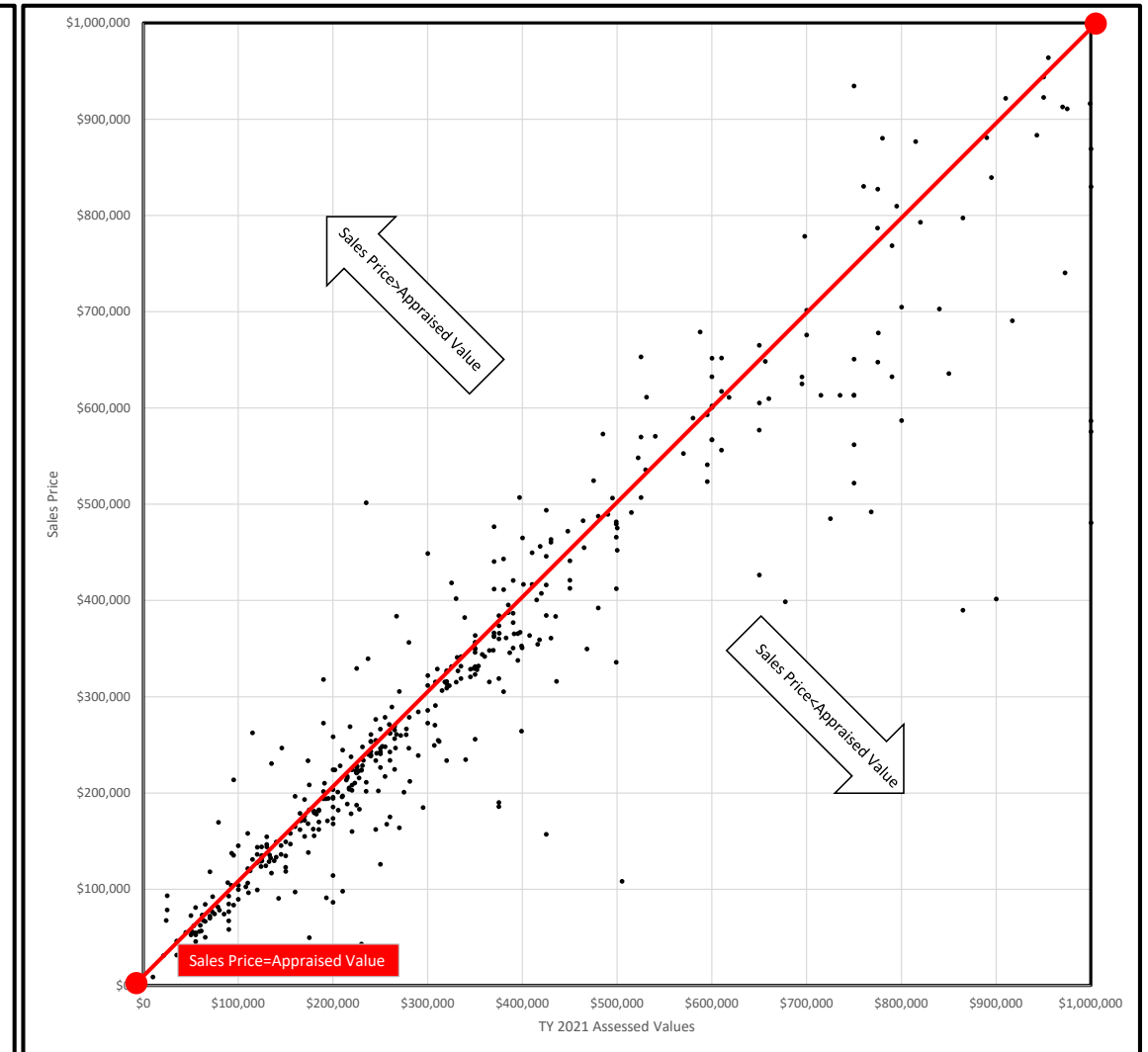
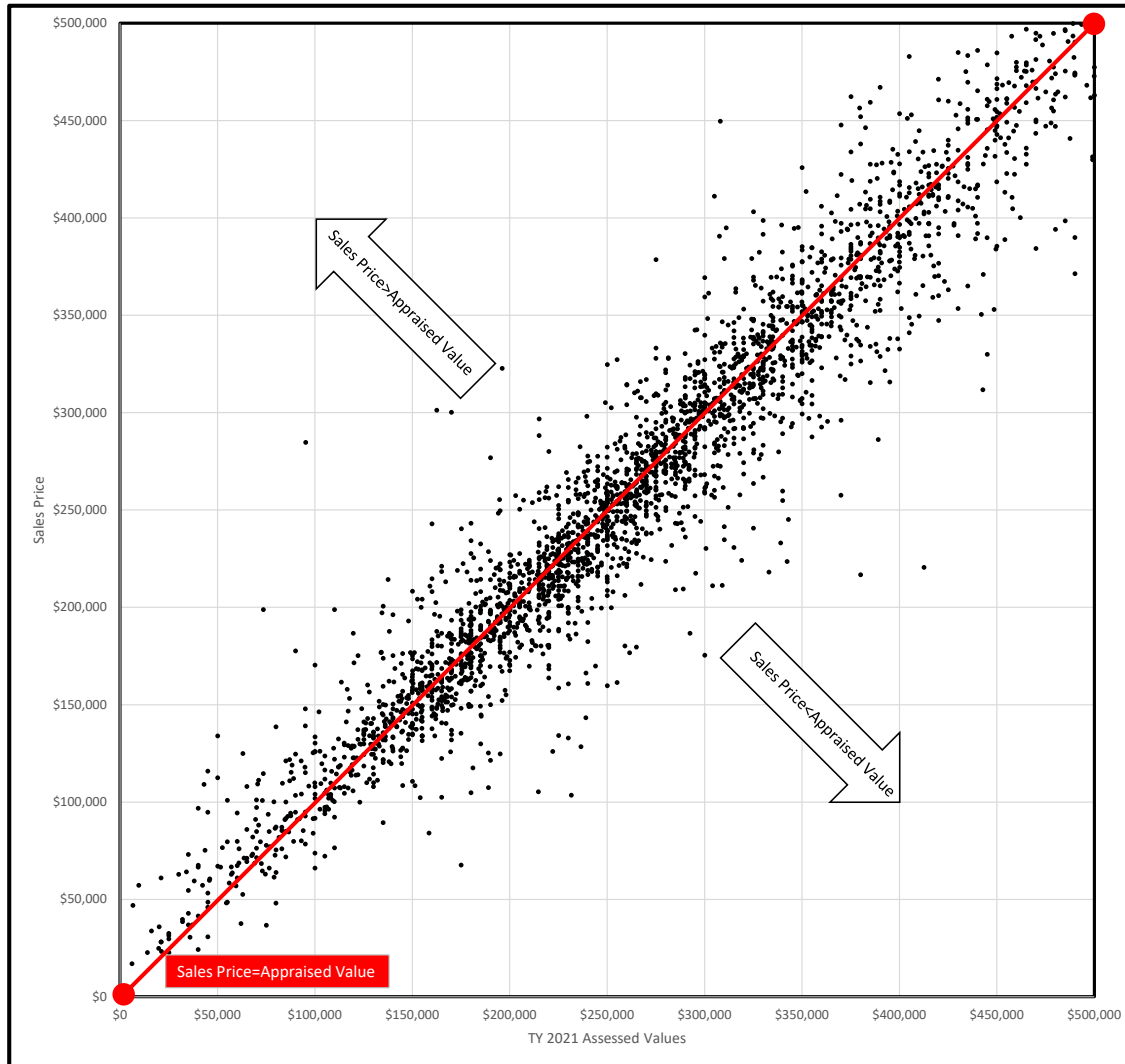
Timing/Sales Data

- Appraisal Date
 - Tax Year 2021
 - January 1, 2020 (42.18.121 ARM)
- Sales Dates
 - Residential
 - 1/1/2020-3/31/2020
 - Commercial
 - 10/1/2019-6/30/2020



Residential Sales Ratios

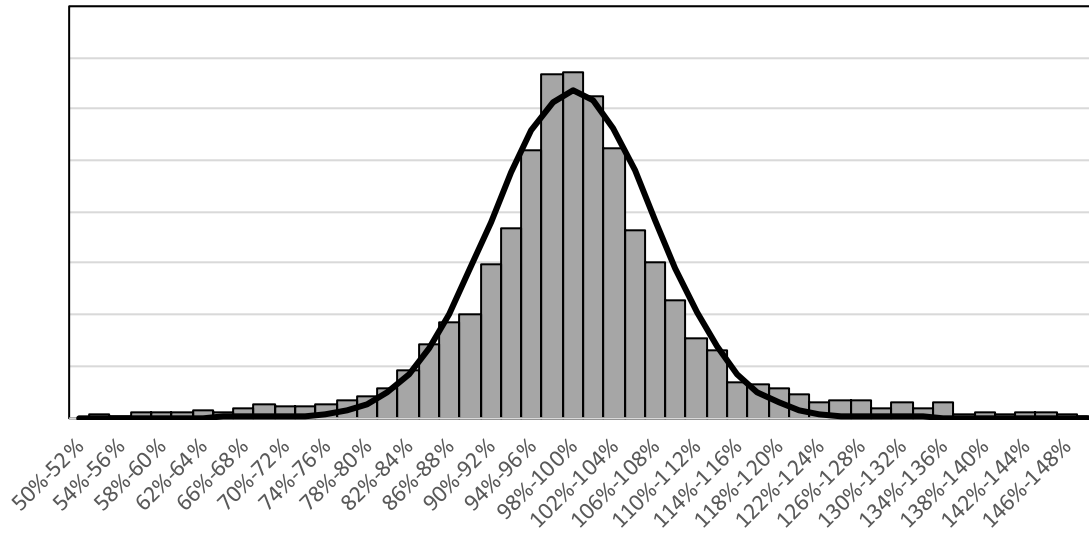
Commercial Sales Ratios



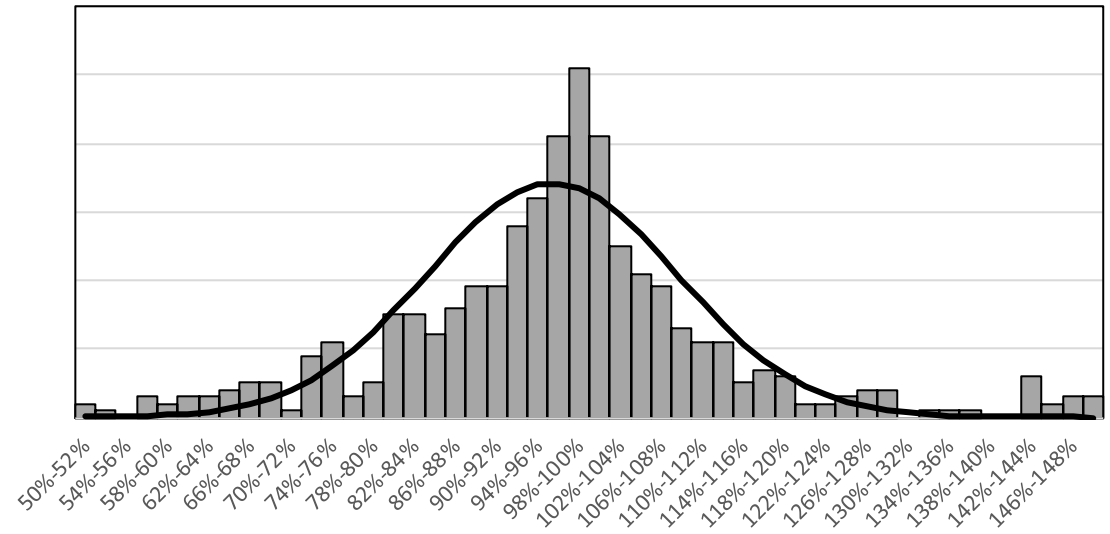
Residential Sales Ratios

Commercial Sales Ratios

Statewide Residential Sales Ratio Frequency



Statewide Commercial Sales Ratios Frequency



Sales Ratio Statistics

- Measures of Appraisal Level

- Median
- Mean
- Weighted Mean

- Measures of Appraisal Uniformity

- Coefficient of Dispersion (COD)
- Other
 - Standard Deviation (σ)
 - Coefficient of Variation (COV)
- Price Related Differential (PRD)
 - Coefficient of Price-Related Bias (PRB)

Residential Ratio Statistics
CY 2020¹ Sales Relative to TY 2021 Values

| <u>Number of Sales</u> | <u>Values</u> |
|---------------------------|---------------|
| Total Observations | 3,168 |
| Used Observations | 2,897 |

Measurement of Appraisal Levels

| | |
|--|---------------|
| <i>Upper Bound Confidence Interval</i> | 99.28% |
| Median Ratio | 98.99% |
| <i>Lower Bound Confidence Interval</i> | 98.67% |

| | |
|--|---------------|
| <i>Upper Bound Confidence Interval</i> | 99.33% |
| Mean Ratio | 99.04% |
| <i>Lower Bound Confidence Interval</i> | 98.75% |

| | |
|--|---------------|
| <i>Upper Bound Confidence Interval</i> | 98.81% |
| Weighted Mean | 98.15% |
| <i>Lower Bound Confidence Interval</i> | 97.50% |

Measurement of Appraisal Uniformity

| | |
|------------------------------------|--------------|
| Coefficient of Dispersion | 6.216 |
| Coefficient of Variation | 8.015 |
| Standard Deviation | 0.079 |
| Price Related Differentials | 1.009 |

Range (1.5x Inter Quartile Range)

| | |
|------------------------------------|---------------|
| Maximum Ratio in the Sample | 121.0% |
| Minimum Ratio in the Sample | 77.7% |

¹Sales from 1/1/2020 to 3/31/2020

Commercial Ratio Statistics
Sales¹ Relative to TY 2021 Values

| <u>Number of Sales</u> | <u>Values</u> |
|---------------------------|---------------|
| Total Observations | 525 |
| Used Observations | 464 |

Measurement of Appraisal Levels

| | |
|--|---------------|
| <i>Upper Bound Confidence Interval</i> | 98.28% |
| Median Ratio | 97.45% |
| <i>Lower Bound Confidence Interval</i> | 96.54% |

| | |
|--|---------------|
| <i>Upper Bound Confidence Interval</i> | 97.52% |
| Mean Ratio | 96.41% |
| <i>Lower Bound Confidence Interval</i> | 95.29% |

| | |
|--|---------------|
| <i>Upper Bound Confidence Interval</i> | 95.51% |
| Weighted Mean | 93.32% |
| <i>Lower Bound Confidence Interval</i> | 91.13% |

Measurement of Appraisal Uniformity

| | |
|------------------------------------|---------------|
| Coefficient of Dispersion | 9.432 |
| Coefficient of Variation | 12.685 |
| Standard Deviation | 0.122 |
| Price Related Differentials | 1.033 |

Range (1.5x Inter Quartile Range)

| | |
|------------------------------------|---------------|
| Maximum Ratio in the Sample | 129.0% |
| Minimum Ratio in the Sample | 63.5% |

¹Sales from 10/1/2019 to 6/30/2020

International Association of Assessing Officers Sales Ratio Standards

| Select IAAO Appraisal Standards | |
|--|------------------------|
| <u>Level of Appraisal</u> | |
| Min=90% | Max=110% |
| <u>Coefficient of Dispersion</u> | |
| <u>Area</u> | <u>Standard</u> |
| Single Family Residence | 5.0 to 15.0 |
| <i>Larger Urban Areas</i> | 5.0 to 10.0 |
| Income Producing Property | 5.0 to 20.0 |
| <i>Larger Urban Areas</i> | 5.0 to 15.0 |
| Vacant Land | 5.0 to 20.0 |
| <i>Seasonal and Rural Land</i> | 5.0 to 25.0 |
| <u>Price Related Differential</u> | |
| Min=0.98 | Max=1.03 |

| Residential Ratio Statistics | |
|---|---------------|
| CY 2020 ¹ Sales Relative to TY 2021 Values | |
| <u>Number of Sales</u> | <u>Values</u> |
| Total Observations | 3,168 |
| Used Observations | 2,897 |
| <u>Measurement of Appraisal Levels</u> | |
| <i>Upper Bound Confidence Interval</i> | 99.28% |
| Median Ratio | 98.99% |
| <i>Lower Bound Confidence Interval</i> | 98.67% |
| <i>Upper Bound Confidence Interval</i> | 99.33% |
| Mean Ratio | 99.04% |
| <i>Lower Bound Confidence Interval</i> | 98.75% |
| <i>Upper Bound Confidence Interval</i> | 98.81% |
| Weighted Mean | 98.15% |
| <i>Lower Bound Confidence Interval</i> | 97.50% |
| <u>Measurement of Appraisal Uniformity</u> | |
| Coefficient of Dispersion | 6.216 |
| Coefficient of Variation | 8.015 |
| Standard Deviation | 0.079 |
| Price Related Differentials | 1.009 |
| <u>Range (1.5x Inter Quartile Range)</u> | |
| Maximum Ratio in the Sample | 121.0% |
| Minimum Ratio in the Sample | 77.7% |

Between
90%-100%

Between
5.0-15.0

Between
0.98-1.03

¹Sales from 1/1/2020 to 3/31/2020

| Commercial Ratio Statistics | |
|---|---------------|
| Sales ¹ Relative to TY 2021 Values | |
| <u>Number of Sales</u> | <u>Values</u> |
| Total Observations | 525 |
| Used Observations | 464 |
| <u>Measurement of Appraisal Levels</u> | |
| <i>Upper Bound Confidence Interval</i> | 98.28% |
| Median Ratio | 97.45% |
| <i>Lower Bound Confidence Interval</i> | 96.54% |
| <i>Upper Bound Confidence Interval</i> | 97.52% |
| Mean Ratio | 96.41% |
| <i>Lower Bound Confidence Interval</i> | 95.29% |
| <i>Upper Bound Confidence Interval</i> | 95.51% |
| Weighted Mean | 93.32% |
| <i>Lower Bound Confidence Interval</i> | 91.13% |
| <u>Measurement of Appraisal Uniformity</u> | |
| Coefficient of Dispersion | 9.432 |
| Coefficient of Variation | 12.685 |
| Standard Deviation | 0.122 |
| Price Related Differentials | 1.033 |
| <u>Range (1.5x Inter Quartile Range)</u> | |
| Maximum Ratio in the Sample | 129.0% |
| Minimum Ratio in the Sample | 63.5% |

Between
90%-100%

Between
5.0-20.0

Slightly
greater
than 1.03

¹Sales from 10/1/2019 to 6/30/2020

Questions

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