

Capstone Written Report

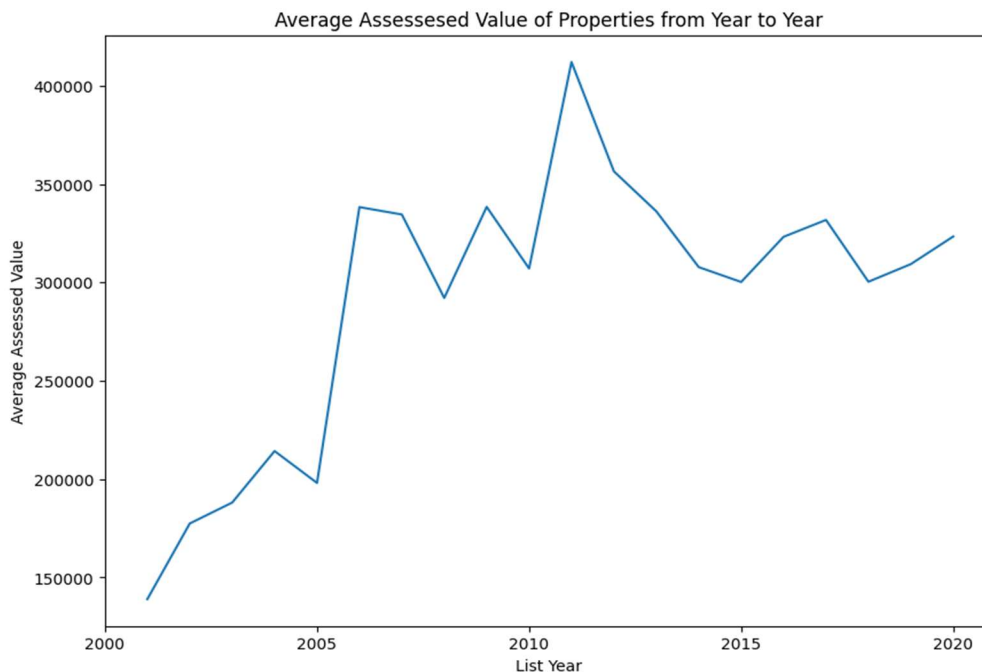
The data I chose for this project was on real estate sales from the year 2001 to 2020 (Kaggle.com). In the dataset it looks at the serial number of each sale, the list year/year the property was put up for sale, the date recorded/the date the property was bought, town, address, assessed value/properties worth, sale amount/what the property actually sold for, sales ratio/how close the sale amount was to the assessed value, property type, residential type, and the number of years that the property took to sell.

Stakeholders Questions: (7)

(What is the average assessed value of properties from year to year?) (What is the average sale amount of properties from year to year?) (What is the average sales ratio of properties from year to year?) (How long, on average, did it take for the different property types to get sold?) (How long, on average, did it take for the different residential types to get sold?) (Which towns saw the highest sum of property sales in 2020?) (Which towns saw the most property sales in 2020?)

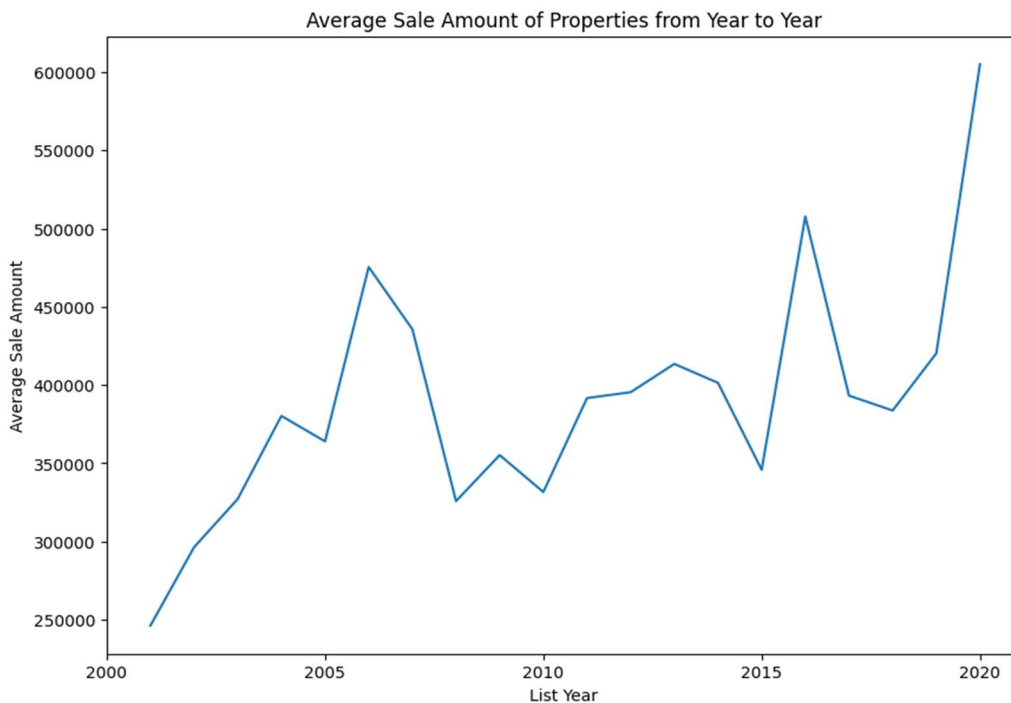
What is the average assessed value of properties from year to year?

Below is a line graph which very clearly shows an upward trend appearing starting from the year 2001 and ending in the year 2020. We can see that in 2005 the average assessed value for properties took a big jump from 200,000 to 340,000. We can also see the years 2010 to 2011 also took a big jump from 310,000 to 420,000. After that it pretty much maintained sitting around 330,000 until the year 2020. It's hard to know which direction we're currently going in, but it seems to me with the information provided to expect upward trends of average assessed value of properties, which is no surprise.



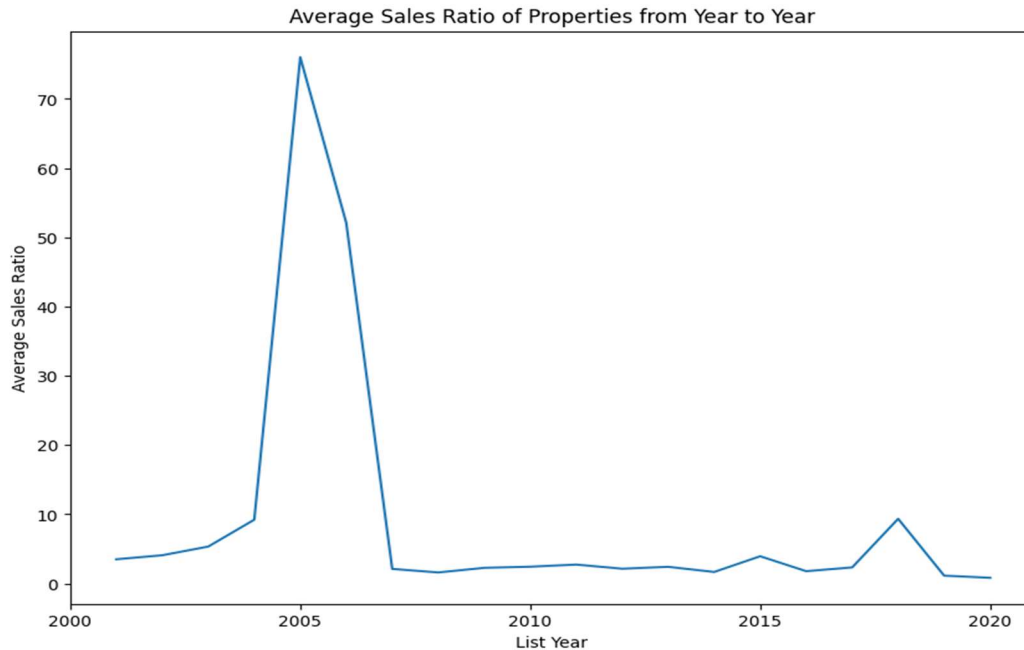
What is the average sale amount of properties from year to year?

According to the line graph below, again we can see more of an upward trend happening over the years of course with some fluctuations. Interestingly, if you look at the y axis on this graph compared to the graph above, you'll notice the graph below has higher values compared to the one above. Perhaps as an investor this information would be useful to know as you should probably expect to pay quite a bit more than what the assessed value was. And it looks like you should expect that to be the case most of the time.



What is the average sales ratio of properties from year to year?

According to the line graph below the x axis represents the list year and the y axis represents the average sales ratio. All the average sales ratio measure is how close the selling price of the property is to its assessed value in percentages. For example, a 0.95 ratio is really accurate, whereas a 0.02 ratio I probably wouldn't count on. From the graph we can see the average sales ratio is sitting close to 0.05 or 5%. To me this indicates, apart from the years 2005 to 2006 (where that massive jump is) to never really expect to pay what the assessed value of a property is, as 5% accuracy is not ideal. And according to the graph before the one listed above, as an investor you also should probably expect to pay quite a bit more than what the assessed value of the property was.



How long, on average, did it take for the different property types to get sold?

Average time to sell by property type:

Property Type	
Apartments	298.909465
Public Utility	292.000000
Commercial	281.903079
Industrial	278.552632
Nan	276.305156
Single Family	275.052468
Vacant Land	274.644325
Condo	271.097444
Three Family	268.246722
Two Family	267.550557
Four Family	266.195349
Residential	264.181432

Name: TimeToSell, dtype: float64

In python, I made a new column "TimeToSell" which converts the "Years until sold column" into days. According to the result to the left we can see it's all very close in relation to the amount of time it took for the different properties to get sold. There's only a 35 day difference from apartments, which took the longest time on average for those properties to get sold (299 days) compared to residential properties which took the least time on average to get sold (264 days)

How long, on average, did it take for the different residential types to get sold?

Average time to sell by Residential Type

Residential Type	
Nan	276.349999
Single Family	273.626142
Condo	271.276663
Three Family	268.928267
Two Family	268.384166
Four Family	268.089330

Name: TimeToSell, dtype: float64

According to the results on the left we can see again there was not a huge difference in the amount of days on average it took for the different residential types to get sold. There was only 6 day difference from single family (took the longest) to four family (which took the least amount of time on avg.

Which towns saw the highest sum of property sales in 2020?

Town	
Willington	5.536673e+09
Stamford	4.361516e+09
Greenwich	4.229101e+09
Norwalk	1.574368e+09
New Canaan	1.180537e+09
...	
Union	4.098500e+06
Bridgeport	2.325122e+06
Newington	7.747000e+05
Somers	4.670000e+05
Deep River	1.500000e+05
Name: Sale Amount, Length:	

Looking at the results on the left we can see Willington had the highest sale amount total in the year 2020. Whereas Deep River had the least sale amount total in the year 2020. As a real estate agent this might be useful to know. As you'll probably want to sell properties in those first five town's listed (higher sale amount, higher commission) and you'll probably want to stay away from those bottom five towns.

Which towns saw the most property sales in 2020?

Stamford	2686
Waterbury	2385
Norwalk	1932
Greenwich	1778
Danbury	1607
...	
Union	21
Bridgeport	13
Newington	3
Somers	2
Deep River	1
Name: Town, Length:	

Interestingly, looking at the results on the left you'll notice Willington isn't listed. Stamford actually had the most number of property sales in year 2020. Stamford also had the second highest sale amount total in the year 2020 if you look at the results from the previous question, which makes more sense. To me this indicates that Willington is probably a very nice town with very high property cost listings. Perhaps as a real estate agent you would have better luck in towns like Stamford, Norwalk, and Greenwich as these towns had the most number of property sales in year 2020 and also saw the highest sale amounts in 2020.

Conclusion

Overall, we saw on average for both the assessed value (properties worth) and sale amount (what the property sold for) both were on an upward trend indicating unsurprisingly that prices have gone up over the years and will probably continue to do so. We also found there was a significant difference in what the property sold for compared to what the property was worth. Most of the time the property was sold for much higher than what the property was worth. The average sales ratio over the years just proves this point even more as most of the time the ratio was sitting around 5% apart from the years 2005 (75%) and 2006 (55%). When looking at how long the different property types took to sell it was hard to find any significant conclusions as the highest difference was only 35 days, however we saw four family residential types took the least amount of time to sell. And lastly, we found towns; Stamford, Norwalk, and Greenwich had the greatest number of property sales overall in the year 2020. These towns also had the highest sale amounts in 2020 indicating for a real estate agent that these might be good towns to investigate a little bit more.