Assignment: BI Report - Part B

Melbourne Real Estate Investment Advisory

Danielle Martin, Ivan Ivancevic, Md Radif Rafayet Chowdhury & Tamara Allos

School of Business, Law and Entrepreneurship, Swinburne University of Technology

INF30004: Business Intelligence and Data Visualization

Dr. Adi Prananto

Submission date: 1st June 2023

Table of Contents

1. Introduction

Recent years have been a challenging and inconsistent time for the real estate market. With the future unclear and speculations of a housing bubble about to burst investors need prescient information to best succeed. This report aims to provide valuable insights, foresights, and analysis of the current Melbourne real estate market to assist investors in making informed decisions regarding their property investments. It will offer foresight into the likelihood of a bubble burst and outline the resulting impact to investments in various scenarios. It also explores how proximity to the CBD might impact investments as well as various additional trends and foresights to support informed decision-making. As such this report arms investors with the knowledge needed to see strong returns in a potentially tumultuous market.

2. The Real Estate Bubble

While there are many external indicators for a real estate bubble burst that this particular dataset cannot provide, it does provide insights into the number of sales and median price over time. These factors are both commonly referenced as indicators for a crashing or declining market. The number of properties listed and sold over time (Fig. 1) indicates overall supply and demand in the housing market (Baker, 2008).

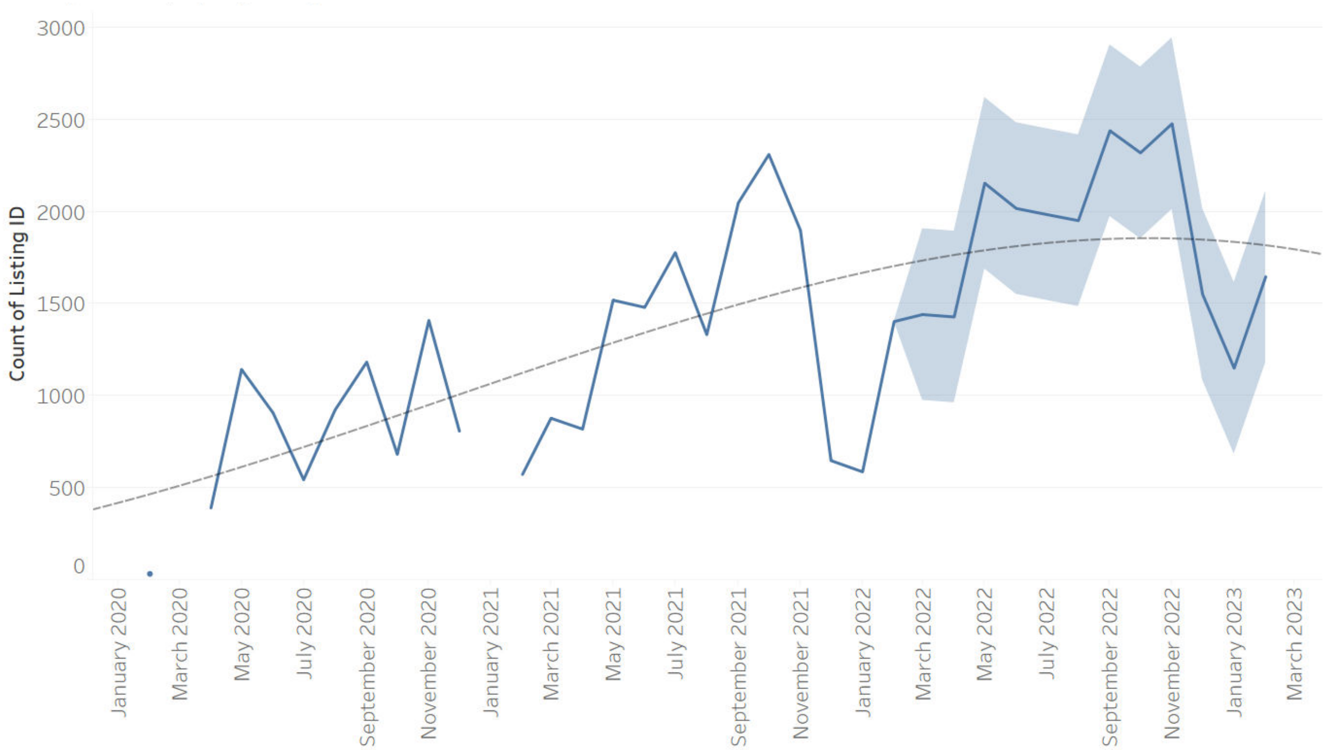

Figure 1: Total number of properties sold each month with 1 year forecast

Since COVID there has been a rebound in sales numbers as seen in mid 2021 (Fig. 1). However, this seems to be cooling off with the sales growing less each month after accounting for seasonality (Fig. 1). This could be explained by the recently increasing interest rates and inflation (Barrett, 2023) as they are both strong indicators for decreased demand (Kader et al., 2022).

The forecast based on this data suggests that the levelling off is minor (Fig. 1). However, the aforementioned economic factors could result in a relatively rapid downturn in the market if the bubble does burst so caution is still advised.

Another important factor to consider in regards to supply and demand is the number of property listings that do not sell. In an oversaturated market, buyers have more options and sellers may find that they are unable to sell their properties at a profit. Additionally, rising interest rates or an increase in the required down payment on purchases, such as during the Financial Crisis will exclude a large number of potential buyers from the market will further decrease demand (Baker, 2008). In either of these cases, a larger number of failed property listings would be seen. A cooling off of sales combined with a steadily increasing number of properties left unsold as seen in Figure 2, is therefore a cause for concern.

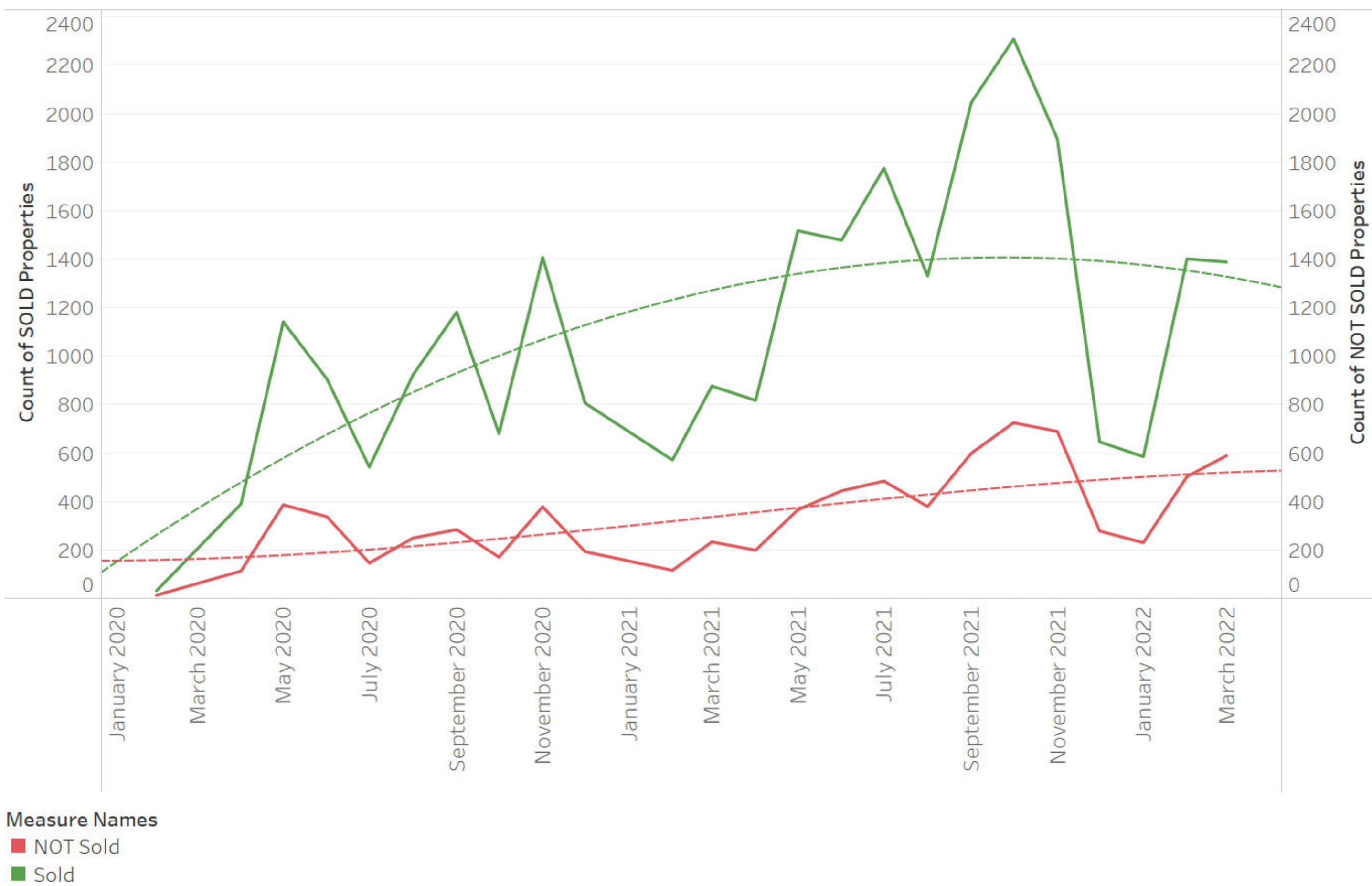

Figure 2: Comparison of properties sold and not sold for each month

The combination of reduced demand and a growing supply inevitably leads to a decline in property prices. This trend is clearly depicted in Figure 3, where the median price reached its highest point and has since been gradually decreasing over the past two years.

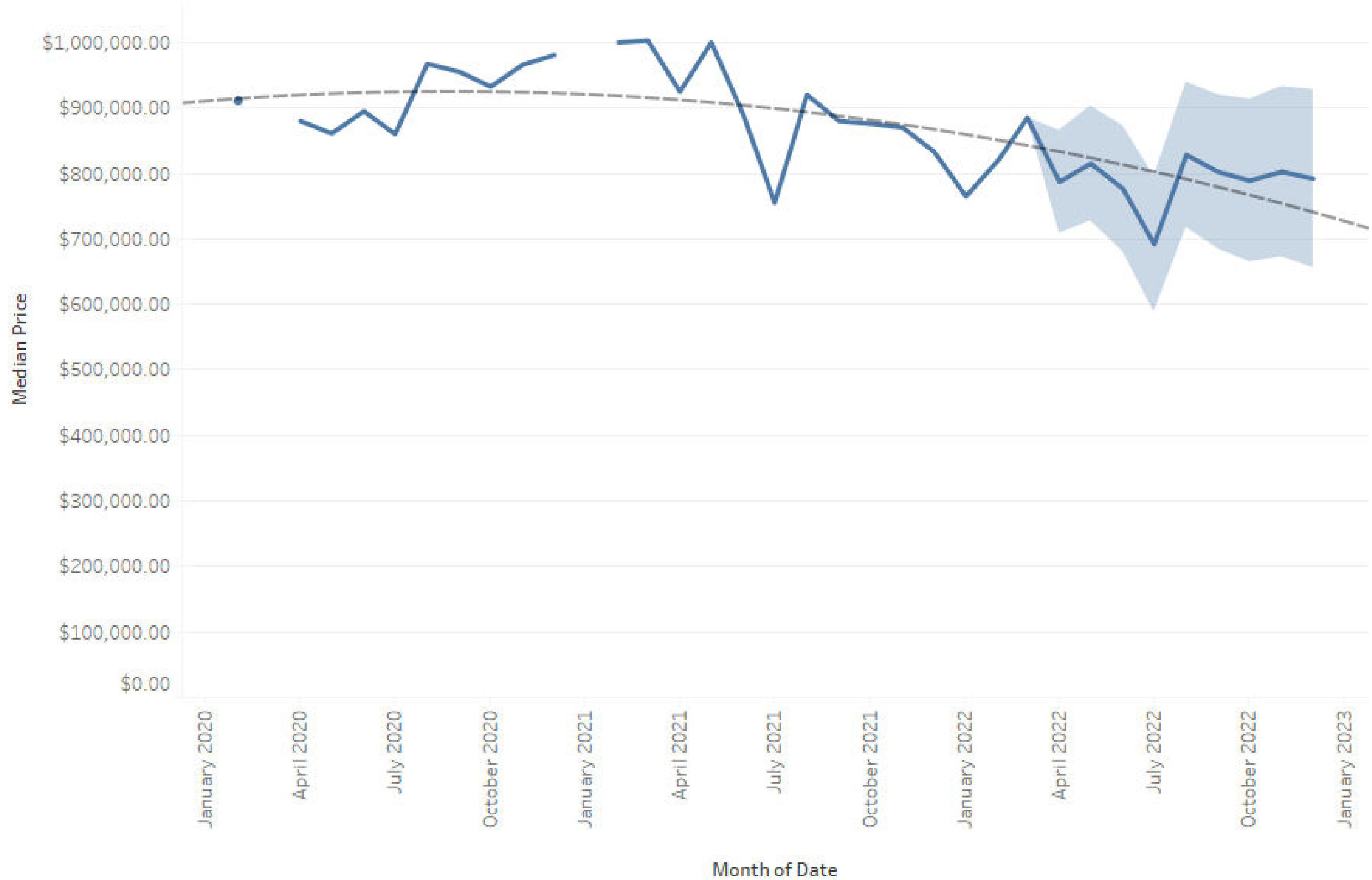

Figure 3: Median price of properties sold each month with a forecast up to the end of 2022

A study by Anundsen et al. (2016) found that prices tend to peak around 2-3 years prior to the housing bubble bursting. Based on a peak in early 2021 (Fig. 3) we therefore expect prices might begin to depreciate significantly some time during 2023 or early 2024.

2.1 What if it Fluctuates?

Considering how imminent the burst appears to be, this report will next outline a number of scenarios based on potential changes to the market so that investors can better quantify the impact it will have on current and potential investments.

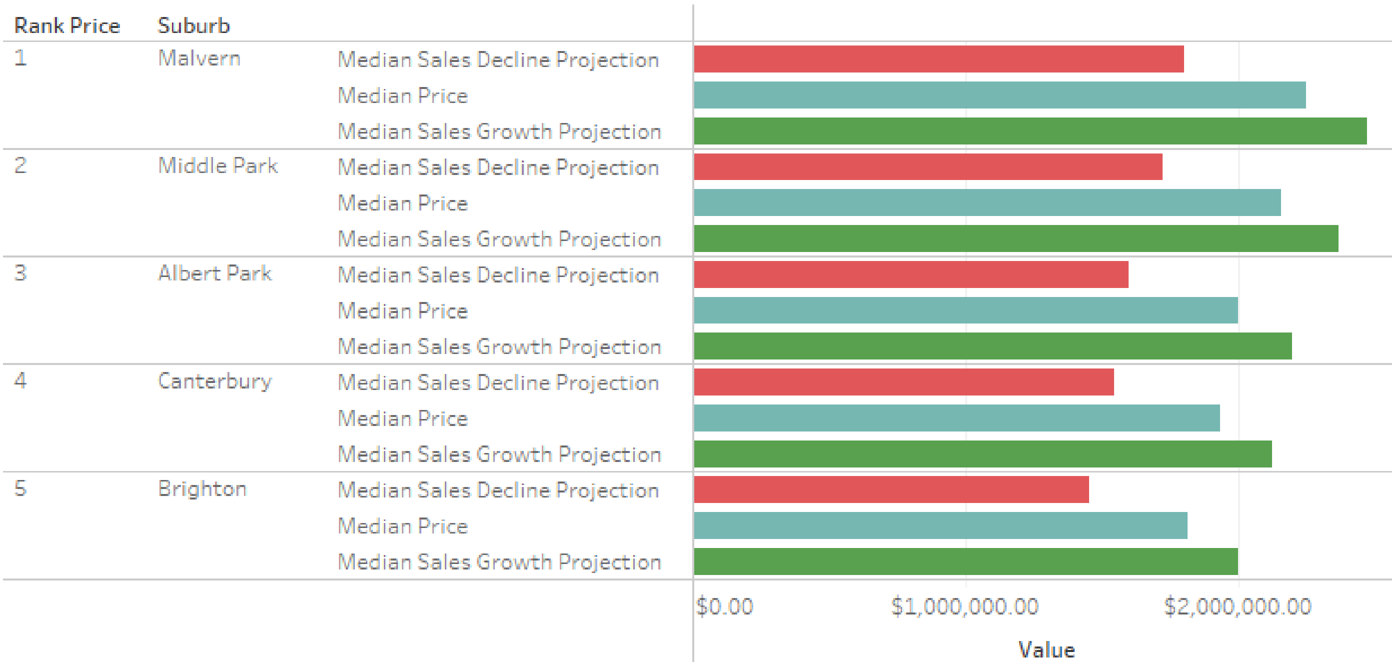

Figure 4: What-if analysis of 10% growth and decline in the top 5 selling suburbs by median price

In Figure 4 we can see the top 5 suburbs with the highest median price, additionally the +/-10% projections for the median price above and below. In the visualization we can see that the 10% decline in the median price makes a bigger dent than the growth projections. This means that if the market fluctuates then there is a possibility that more money is lost than gained. But if the market does decrease expect to see that the median price of the properties to have a bigger impact on the actual median price.

2.2 What if it Bursts?

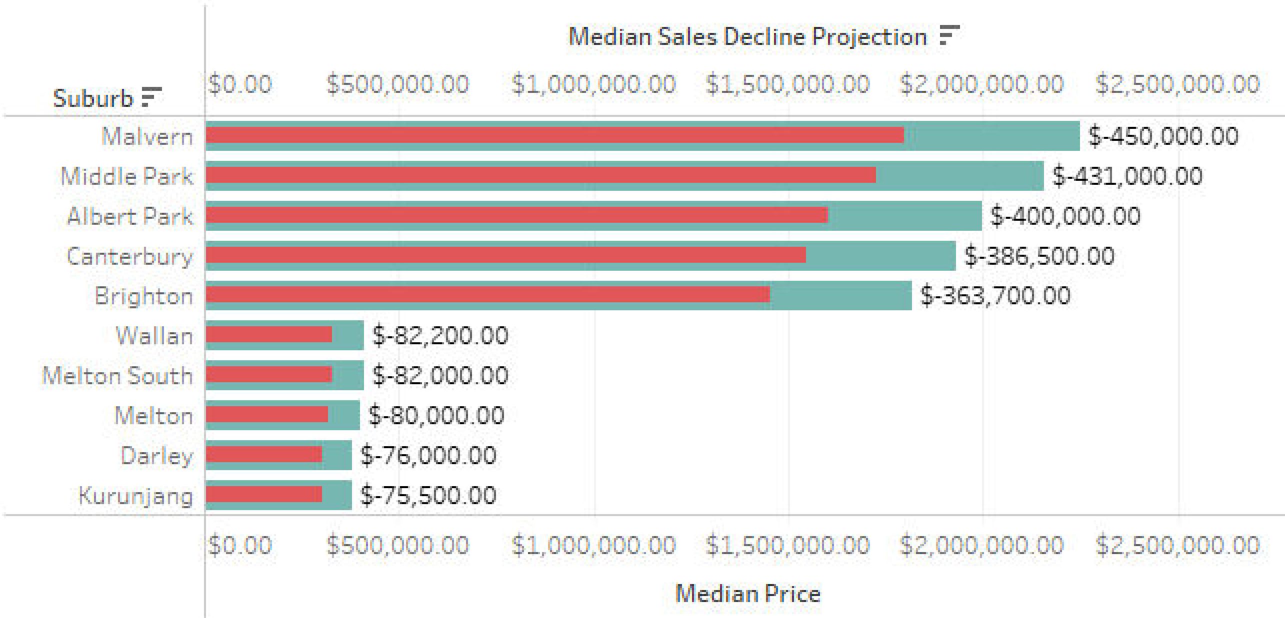

Figure 5: What-if analysis of 20% decline in the top 5 and bottom selling suburbs sold by median price

Figure 5 shows the -20% projection on top and bottom 5 suburbs' median prices. We can clearly see that when the suburb has a higher median price and the -20% is taken into account, the higher median priced suburbs tend to lose more money if there were to be a bubble burst. This is because if the median price is higher the 20% will also be higher than the lower ones which means the suburb median price would lose more money. It's safe to say if there was a bubble burst almost all the suburb median prices would drop, meaning the suburbs with the highest median price will continue to have the highest median price.

Despite the concern surrounding a bubble burst, investment risk is not necessarily tied to the performance of the market. In a study on how property characteristics impact pricing and risk, Bourassa et al. (2005) found that “marketwide variation explains little of specific houses’ price movements and thus housing risk is not well measured by market measures of risk”. A poor performing market simply means investors must be more tactical with their investments. Instead of focusing on the risk of the entire market it is better to focus on the individual characteristics of a property to determine risk and make the best possible investment choice. To this end, the report will proceed to cover performance and risk within various key property characteristics, including proximity to the city, suburb, and housing type.

3. Property Distance Projections

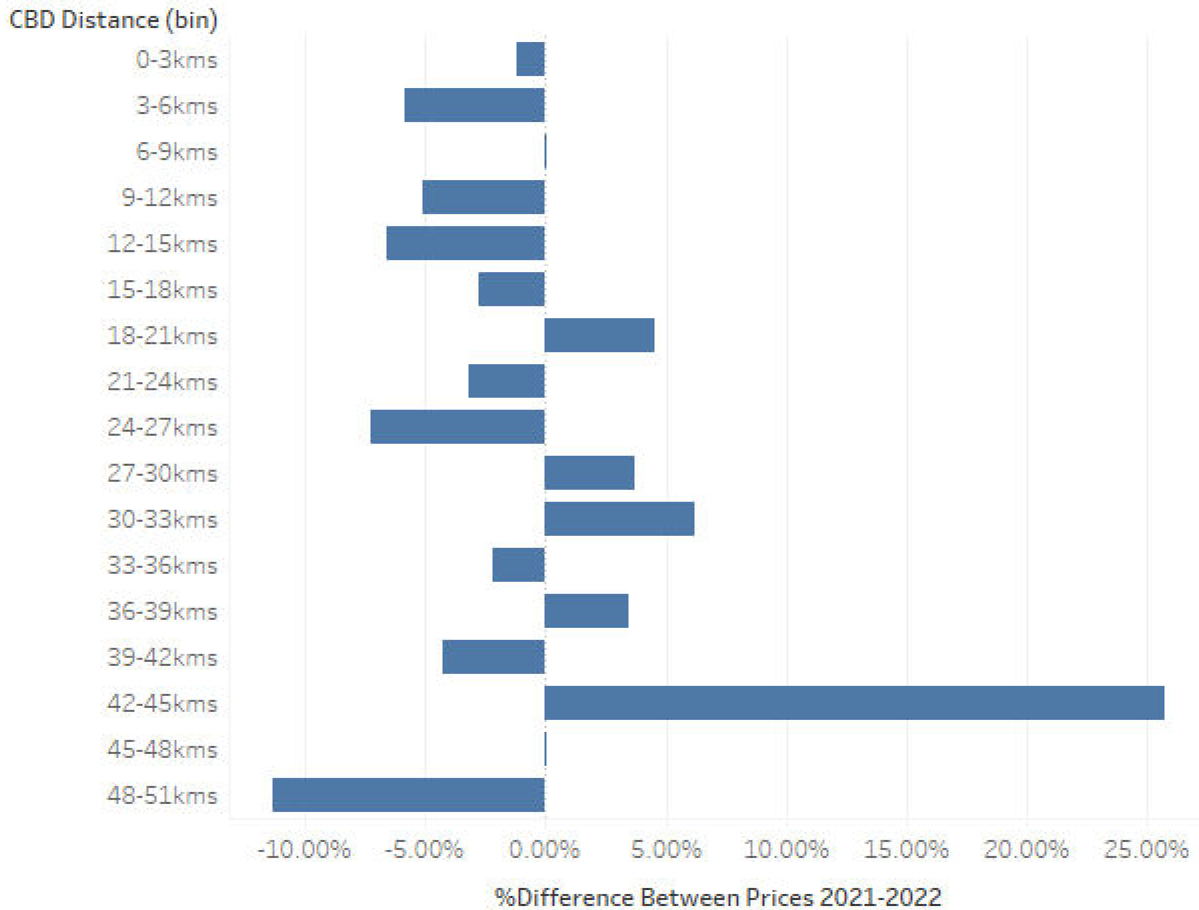

Figure 6: Actual growth and decline percentage of median price between 2021-2022 for sold properties by CBD distance

Based on Figure 6, we can observe the percentage difference between median property prices in 2021 and 2022 based on their proximity to the CBD (Central Business District). The majority of areas show a decrease in the percentage difference between prices from 2021 to 2022, indicating a slower growth rate or even decline. However, there are a few areas where the percentage difference increases or remains stable, such as the city fringe (6-9 kms) and suburban regions (27-33 kms). This suggests a market likely to see growth in these areas.

Areas further out from the CBD appear to have more dramatic change, however this could be due to a low sample size for those areas. The variance shown in areas with a distance greater than 42 kms is likely not truly representative of any kind of reliable trend.

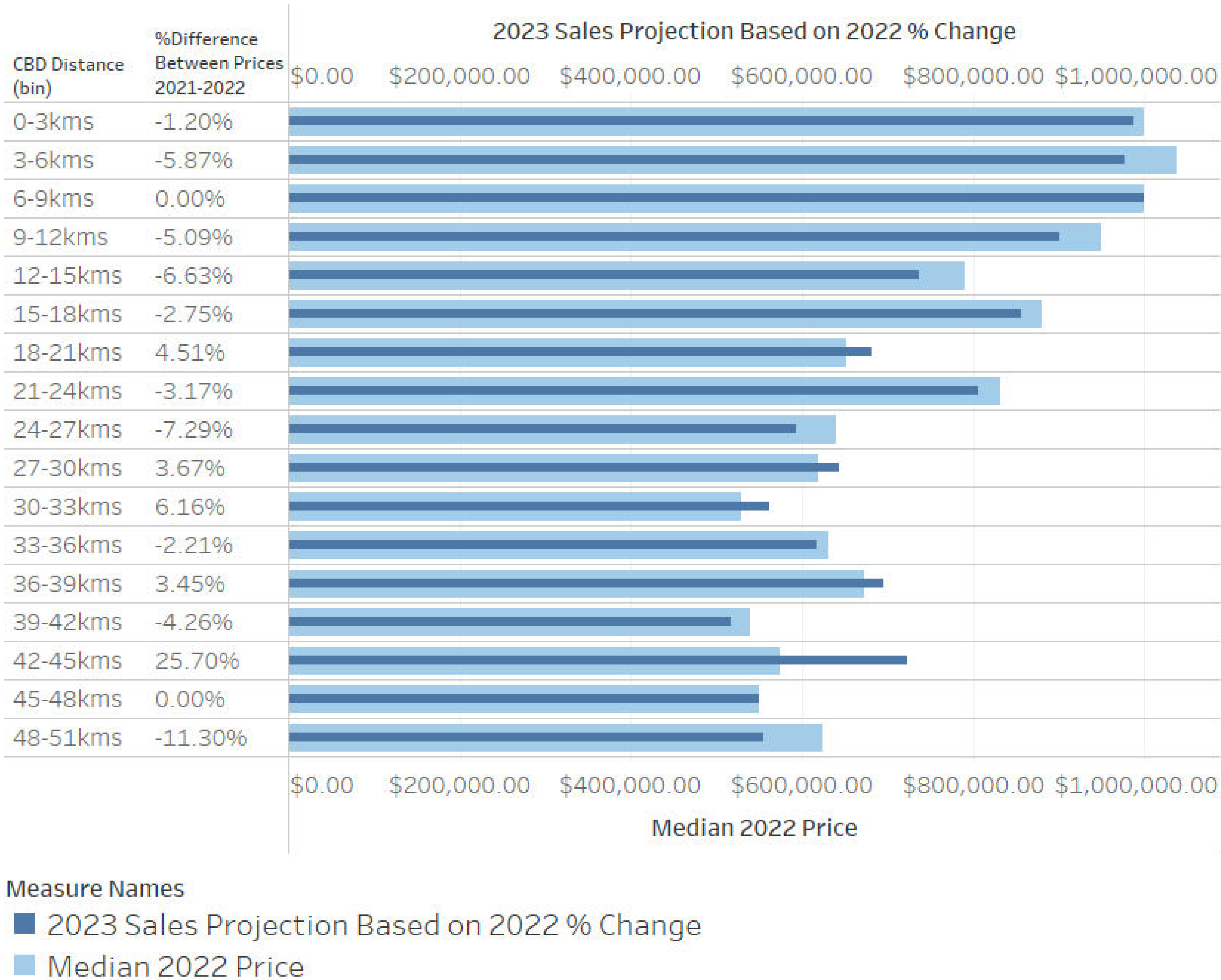

Figure 7: What-if analysis projection based on the actual percentage difference seen in Figure 6

Figure 7 depicts the 2023 projections based on the variance shown in Figure 6. If the market remains the same over the next year and does not yet take a drastic turn, then we can expect to see the most consistent growth in the more suburban areas (27-40 kms).

Surprisingly, areas closer to the CBD are not showing strong signs of growth. All areas within 6 kms of the CBD are projected to decrease in value slightly. Properties in this area may have reached an unattainable level with a median price at roughly $1 million, forcing the target market of usually younger, first home buyers to consider properties with a lower median price (Ratchatakulpat et al., 2009). This means the coming year could see areas that previously remained stagnant start to flourish.

In addition to this change, remote work has had a significant impact on the housing market. With less incentive to remain close to the CBD, people are moving to the suburbs, driving down prices closer to the city and driving them up further out (Van Nieuwerburgh, 2022). These factors together have amplified growth in suburban areas making them highly competitive. Families who usually buy in suburban areas are now competing with first home buyers muscled out of city properties, and an influx of people shifting to remote work leaving the city.

4. Suburb Projections

CBD proximity alone shows some interesting trends, however still has too much variance to be considered a reliable indicator from which to make investment decisions. A further drill-down into individual suburb performance is required to get a more precise picture.

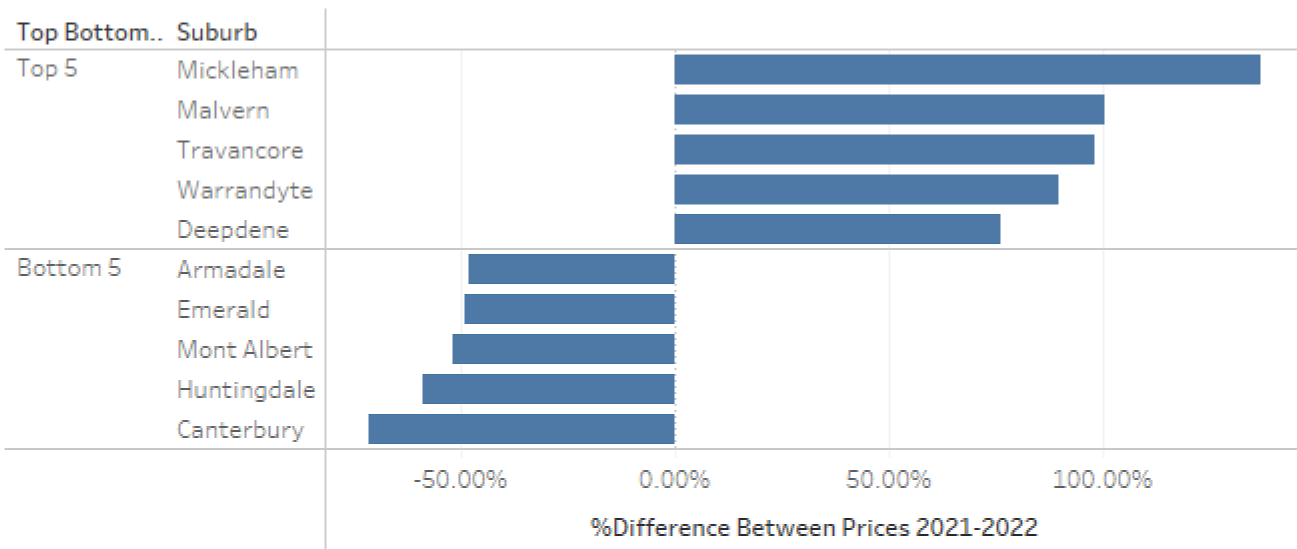

Figure 8: Actual growth and decline percentage of median price between 2021-2022 for sold properties by top and bottom suburbs

Based on Figure 8, we can analyse the growth and decline trends in median property prices for different suburbs between 2021 and 2022.

Among the top five suburbs with the highest growth in median prices for sold properties between 2021 and 2022, Micklenham stands out as the suburb with the highest percentage difference of approximately 150%. This indicates that property prices in Mickleham experienced a significant increase during that period, making it a potential candidate for investment.

In terms of suburbs with the highest decline in median prices between 2021 and 2022, Canterbury experienced a decrease of more than 50%. This significant decline suggests that investing in properties in Canterbury during this period might not have yielded favourable returns.

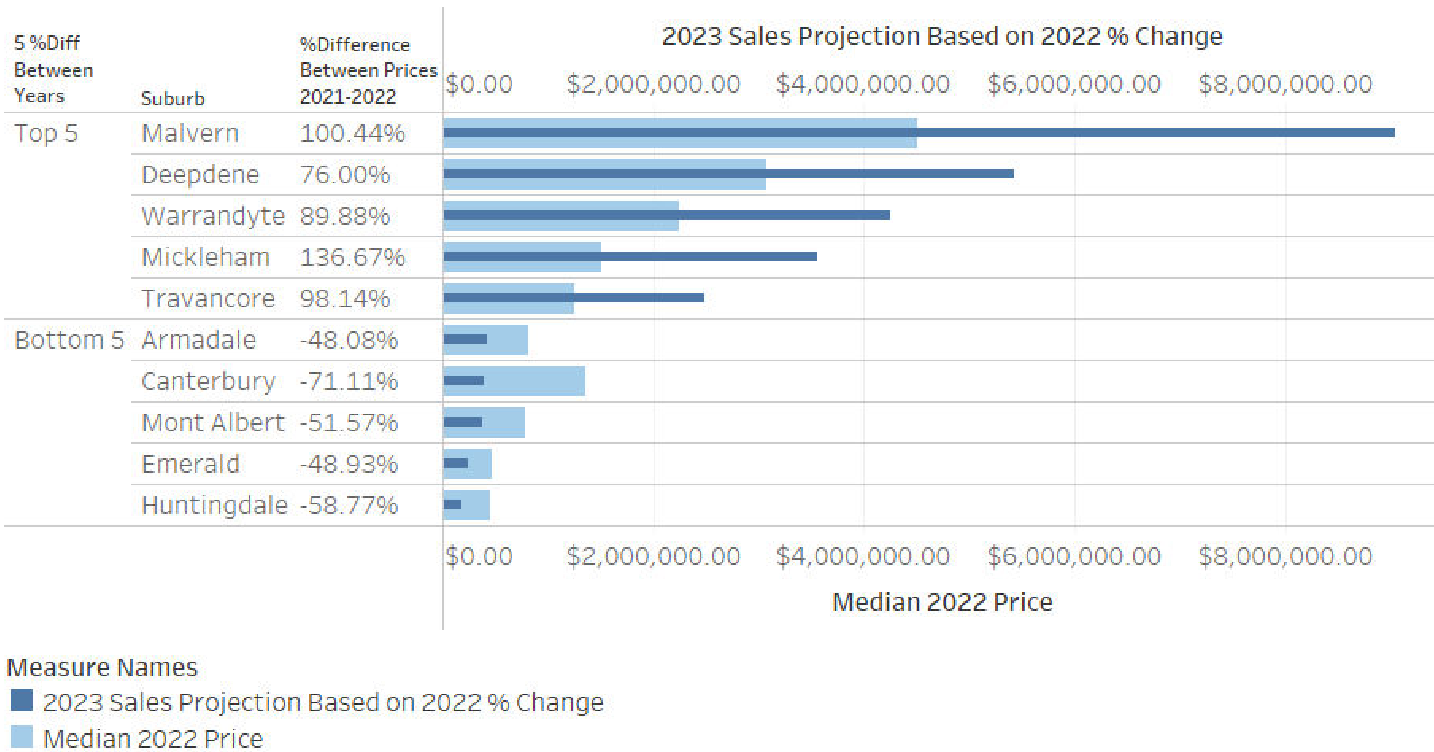

Figure 9: What-if analysis projection based on the actual percentage difference seen in Figure 8

In Figure 9, we observe the projection of the top and bottom 5 suburbs based on the median price and sales projections for 2022, considering the variance between 2021 and 2022.

For the top 5 suburbs, Malvern stands out as the best suburb to invest in. A huge amount of growth is projected, however it also has the highest median price for 2022. Meaning it requires a larger investment to see a return.

Alternatively, when looking at the percentage difference between prices in 2021 and 2022, Mickleham exhibits the highest increase at 136.67%. This suggests that Mickleham would yield a much higher return with a lower initial investment required. Mickleham and Warrandyte's distance from the CBD also places them within the areas previously speculated to see growth over the coming years. Meaning they are likely to be the fastest growing of the suburban areas and should be considered as valuable investment areas.

Furthermore, these Top 5 suburbs are seeing strong enough growth that profitability is very likely still attainable even if the overall market decreases by 20%.

5. Property Type

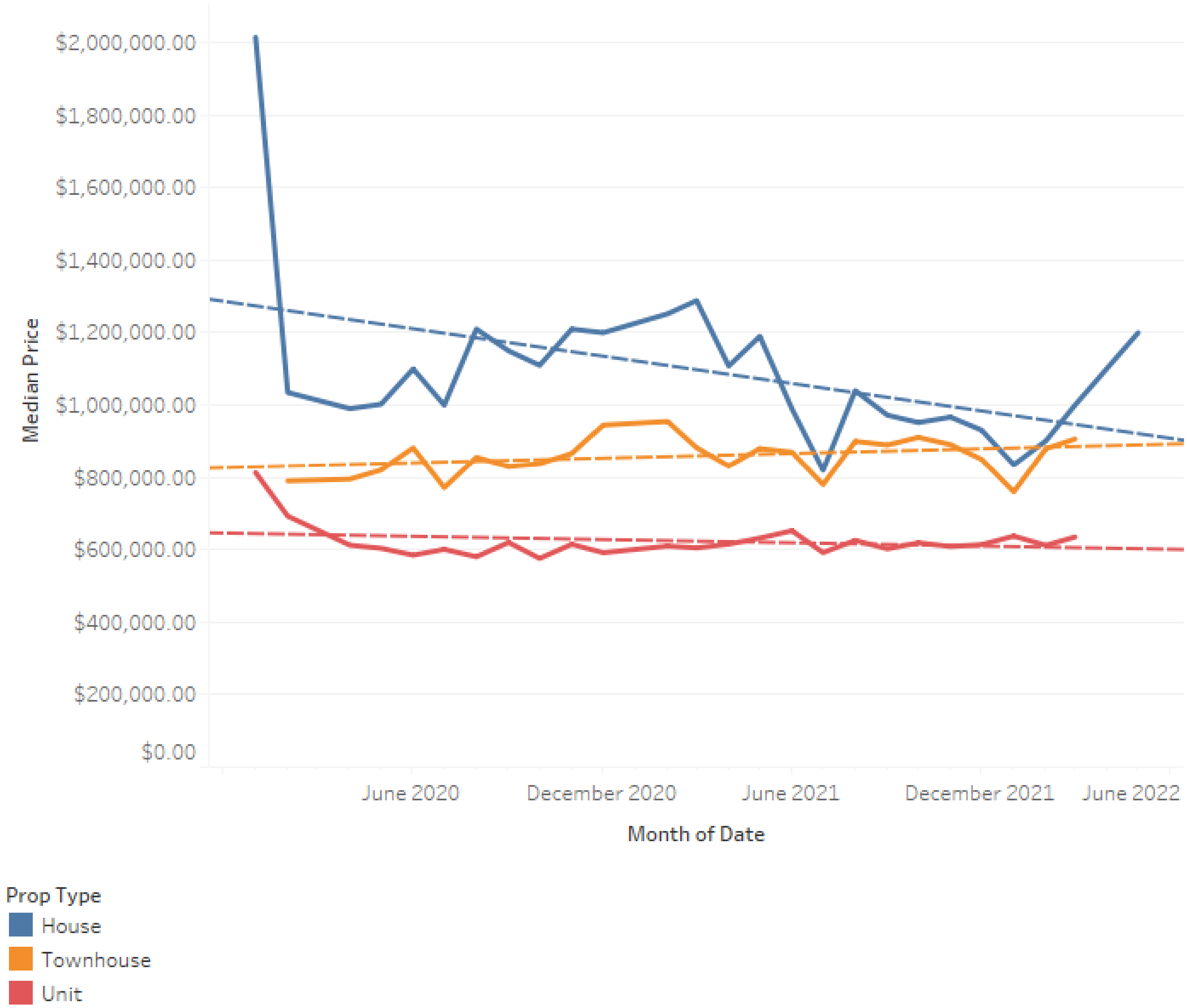

Figure 10: Median house price by property type for houses sold each month

Figure 10 shows that whilst houses remain the most expensive property type to purchase, they have been decreasing in value in the last couple of years. The Townhouse and Unit property types both started at similar median prices, with the units hovering around the $600,000 mark for the three years but gradually declining. On the other hand the Townhouses moved up from around $800,000 to almost $900,000 over three years. We can recognise that the Townhouses are the only property type to move up in median price over the years, whereas the houses and units decline in median price. The Townhouses median line also looks like it will overtake the house median line, and the townhouses will become more valuable than the houses. Townhouses are an increasingly popular form of housing, with more and more townhouses being built each year. This is because people didn't have much knowledge of what townhouses were and that houses were the normal properties that families and people would buy to live in. But in 2022 the townhouses are becoming more and more popular so the demand is going up which means the price of the townhouses are going up in price, bringing up the median price.

But there seems to be a spike in the median price for the houses in the start of 2022, which may continue to go up but the median line does seem like it is going down. The main reason that the line does go down a lot is because there seems to be an outlier that a house was sold around the $2,000,000 mark, this would explain the line going in a downward trend. This could be an argument to say that houses may be as popular as townhouses because it seems that the median price sold is still higher than the townhouses median price. So investors should invest in the townhouses, looking at the line for the townhouses, the line has been going on an upward scale for the past few years which would be the safest option. But the houses seem to spike up and down which would make them more risky to invest in but would have a bigger reward if it spikes up.

6. Conclusion

In conclusion, while a bubble burst does seem to be likely for the future, there is still opportunity for investors to make a return through property investment. It is simply more risky than previous years and requires a more tactical approach. Scenarios of +/-10% and -20% on investment quantified the expected profit and loss in an actual dollar value, demonstrating some best and worst case scenarios for the top and bottom performing suburbs. This showed that suburbs with the highest current median price have the most to lose in the event of a bubble burst. The data confirms that recent trends have been pushing people away from the city, driving prices up in the suburbs and down closer to the CBD. With these trends likely to continue even in the case of a wider market decline, investors should strike now into suburban properties while prices remain low. When taking a closer look at individual suburbs, Malvern, Deepdene, Warrandyte, Mickleham, and Travancore are all predicted to show large enough growth in the next year to withstand a bubble burst. Particularly Mickleham and Warrandyte which have the advantage of having low median prices and being suburban areas. These suburbs require the lowest initial investment and provide the greatest potential return. Finally, with growing demand for townhouses over other property types, investors should seriously consider them when appraising potential investment opportunities.

7. References

Anundsen, A. K., Gerdrup, K., Hansen, F., & Kragh-Sørensen, K. (2016). Bubbles and crises: The role of house prices and credit. *Journal of Applied Econometrics*, *31*(7), 1291–1311. https://doi.org/10.1002/jae.2503

Baker, D. (2008). The housing bubble and the financial crisis. *Real-World Economics Review*, *20*(46), 73–81.

Barrett, J. (2023, April 6). Lower income households worst hit by rising interest rates and inflation, RBA finds. *The Guardian*. https://www.theguardian.com/australia-news/2023/apr/06/lower-income-households-worst-hit-by-rising-interest-rates-and-inflation-rba-finds?fbclid=IwAR3P3hf-8ytvJClslkklsspxjwqxwmJdE8V-EpYgZn_qk6QzA4DVpC40i_0

Bourassa, S. C., Haurin, D. R., Haurin, J. L., Hoesli, M., & Sun, J. (2005). House price changes and idiosyncratic risk: The impact of property characteristics. *SSRN Electronic Journal*, *37*(2). https://doi.org/10.2139/ssrn.873451

Kader, S. A., Zayed, N. M., Faisal-E-Alam, Md., Salah Uddin, M., Nitsenko, V., & Klius, Y. (2022). Factors affecting demand and supply in the housing market: A study on three major cities in turkey. *Computation*, *10*(11), 196. https://doi.org/10.3390/computation10110196

Ratchatakulpat, T., Miller, P., & Marchant, T. (2009). Residential real estate purchase decisions in Australia: is it more than location? *International Real Estate Review*, *12*(3), 273–294. https://doi.org/10.53383/100115

Van Nieuwerburgh, S. (2022). *The remote work revolution: Impact on real estate values and the urban environment*. National Bureau of Economic Research. http://dx.doi.org/10.3386/w30662

Melbourne Real Estate Investment Advisory

Indicates some volatility

The overall trend of Monthly Count of Property Listings from March 2020 to 2021 shows a mixture of fluctuations and increases in market activity. Trend highlights fluctuations in market with periods of increased activity followed by temporary slowdowns.

Real Estate Bubble Burst

Approx. Yearly Median Prices

2020 - $920,000

2021 - $885,000

2022 - $830,000

Forecast

Indicates a gradual upward trend from 2020 to 2023 in property listings.

Melbourne's Housing Marketing Plunge

Approx. Monthly Forecasted Median Prices

January 2022 - $765k

March 2022 - $885k

August 2022 - $828k

November 2022 - $830k

Suggests volatility Indicates a downwards trend in the house market. Continuous downward trajectory.

Top and Bottom 5 Difference in % between 2021-22 Median Price

Per Suburb

Suburbs	%
1. Mickleham	136.7%
2. Malvern	100.4%
3. Travancore	98.1%
4. Warrandyte	89.9%
5. Deepdene	76%

Top↑

Suburbs	%
1. Canterbury	-71.1%
2. Huntingdale	-58.8%
3. Mont Albert	-51.6%
4. Emerald	-48.9%
5.Armadale	-48.08 %

Bottom↓

What-if Bubble Burst -20% Prices

Top and Bottom 2

Suburbs	Approx. Median	Median Decline
Malvern	$2.3M	$-450,000
Middle Park	$2.1M	$-431,000
Darley	$500k	$-76,000
Kurunjang	$500k	$-75,500

Result

Conveys properties with a higher median price are more susceptible to potential loses

CBD DISTANCE

Best 3 Distances to Invest

	Median Prices
3-6kms	$1,037,750
6-9kms	$1,000,000
9-12kms	$950,000

Investing in properties closer to the city is better and safe option as prices only increase/stay consistent. This is due to location and accesibility

However between 2021 to 2022, there has been a significant sales projection for 42km to 48kms averaging 25.6% growth

Property Type to invest in

1. Townhouses
2. Units
3. Houses

Through a regression line, if the trend follows past years, it is recommend to invest in the property type of townhouses then units then houses. Despite houses showing an increase, past trends indicate a downwards trend