**Option #1: US Organization Capstone Project**

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Zillow

Zillow was launched in 2006 by two former Microsoft executives (Norman, 2015). Zillow provides easy access to public real estate information for homes both on and off the market (Norman, 2015). Along with public information, Zillow provides an estimated home value and aerial photos of properties (Norman, 2015). The estimate is made up of relevant property information collected in an area and compares key home statistics such as square footage and acreage to make accurate estimations for home values (Norman, 2015). Zillow became the go to place for real estate data, home buyers, and sellers (Norman, 2015).

Proposal

Investing in real estate has always been a safe investment and is often the go to investment for investors looking to make good profits. However, in the recent years, home values have increased almost exponentially, and it is the purpose of this report to uncover the main causes of these astounding price increases. The housing market is extremely competitive between investors buying up properties or families attempting to purchase their first home. The theory of this proposal is that demand for houses far out stretches the supply of housing. New construction is on the rise but has been slowed due to the pandemic and the increase tariffs. Construction materials are harder to acquire and therefore, slow down new construction. The theory behind this proposal is that the number of new listings each month is declining, while the home values are consistently increasing. As home values increase, the amount of new construction should increase equally. However, it is expected that new construction is slower to increase than home values, therefore, creating more demand than supply.

Business Theory

The proposed theory to Zillow Inc, would include data analysis to support that housing prices will continue to rise, and demand will not likely be satisfied in the short term. Analysis suggests that new construction has been slow to return after the 2008 housing crisis. This slow return of new construction has created insatiably high demand in the housing market. The proposition states that Zillow would be safe to invest in new construction projects.

Datasets

Zillow offers many historical and current datasets. This report will be utilizing several data sets provided by Zillow research to analyze trends and propose theories as to why the housing market is seeing unprecedented competition and when there could be a leveling off. The datasets that will be used in this study will be the raw inventory of houses listed for sale by month (Zillow Inc, 2021). The average home value for homes in the US (Zillow Inc, 2021). And, the total completed units of new construction by year (US Census Bureau, 2020). These data sets will be downloaded in csv format and imported into SAS to perform data analytics.

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These data sets will be analyzed to show trends in the housing market. The specific trends to be analyzed will be the increasing housing prices, the decreasing supply of new listings on the market, and the slow growth of new construction after the 2008 housing crisis. Each data set will be represented as a graph over time to show the trends presented here.

Business Intelligence Tool

SAS is a useful business intelligence tool and provides excellent data visualization capabilities. The ease of use for SAS was a determining factor for the decision to use it for this proposal. SAS has many built in data visualization techniques including graphs and other charts, that can help the user easily visualize trends and perform analysis.

Data Visualization

The data in this study is used for trend analysis over time. Each of the datasets that will be incorporated in this study are units over a timeframe. Therefore, it is common practice to use a line graph to represent the data. The x axis would be used to represent a time span and the y axis will be used to plot the values at each interval in time. The result of this x,y plotting is a trend line over time. In this study, it is expected to show housing prices increasing, a slow increase in new construction, and a decline in total listings by month.

Function Used

SAS was used to perform the data analysis. SAS comes with many built in capabilities for data analysis and the functions used in this project were built into SAS. The function used were Import to get the data from a CSV to a data set within SAS. Then the function Proc sgplot was used to plot the data on a line graph. This proc creates a line graph that allows the user to visualize the data over time and spot trends. The line graph was used because it is a good visualization for data over a period of time.

Programming Code Example

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\* Task code generated by SAS Studio 3.8

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\* Generated on ‘4/3/21, 11:44 AM’

\* Generated by ‘sasdemo’

\* Generated on server ‘LOCALHOST’

\* Generated on SAS platform ‘Linux LIN X64 2.6.32-754.6.3.el6.x86\_64’

\* Generated on SAS version ‘9.04.01M6P11072018’

\* Generated on browser ‘Mozilla/5.0 (Macintosh; Intel Mac OS X 10\_13\_6) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/89.0.4389.90 Safari/537.36’

\* Generated on web client ‘http://localhost:10080/SASStudio/38/main?locale=en\_US&zone=GMT-04%253A00&http%3A%2F%2Flocalhost%3A10080%2FSASStudio%2F38%2Findex=’

\*

\*/

ods graphics / reset width=7.5in height=4.8in imagemap;

proc sgplot data=WORK.NEWCONSTRUCTION;

title height=14pt “New Construction Homes in the US by year”;

footnote2 justify=left height=12pt “Units measured in thousands”;

vline Year / response=Total;

xaxis valuesrotate=vertical;

yaxis grid;

run;

ods graphics / reset;

title;

footnote2;

Data Analysis Graphs

Graphical user interface, chart, line chart

Description automatically generated

As represented in the line graph above, new construction took a steep decline after the 2008 housing crisis. New construction hit an all-time low in 2011 and started to recover from that point. However, as of 2020, new construction is finally getting back to 1995 levels. Data provide for this graph by the US Census Bureau (2020).

Chart, line chart

Description automatically generated

Data provided by Zillow Inc. (2021). This graph represents the total new homes listed for sale in the US by month since November 2017. As seen in the graph, the number of new listings has been declining since December 2019. As of February 2021, new listings were below 800,000.

Chart, line chart

Description automatically generated

Data provided by Zillow Inc (2021). Here the data shows the average prices for single family homes in the US from 1996 to 2021. The trend shows a decline in value from 2007 to 2012. However, the values of housing has increased since 2012 and is currently at an all-time high. Comparing this chart to the chart of new construction, the trend would show that housing prices have exceed the volume of new construction. Therefore, it would be good to invest in new construction, as the demand far outweighs the supply of homes.

GitHub upload

Graphical user interface, text, email, website

Description automatically generated

References

Norman, J. (2015). Zillow.com is launched. Retrieved March 29, 2021, from https://historyofinformation.com/detail.php?id=1438

US Census Bureau. (2020, August 23). US census Bureau new residential construction. Retrieved March 29, 2021, from https://www.census.gov/construction/nrc/historical\_data/index.html

Zillow inc. (2021, March 25). Housing data. Retrieved March 29, 2021, from https://www.zillow.com/research/data/