

ECON 106V LAB #2



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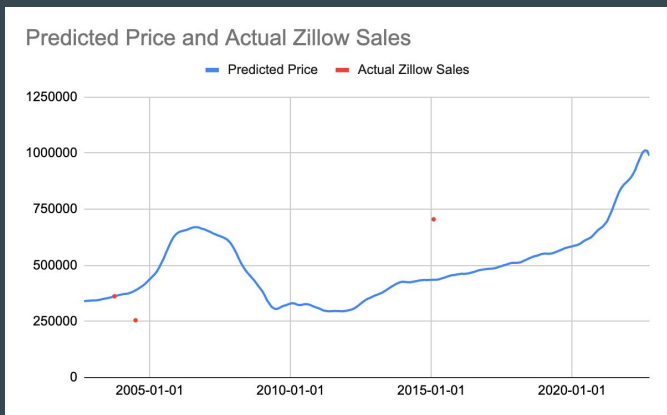
Housing Data

- City of Phoenix
 - From 7/1/2002 - 9/1/2006, the peak of the housing bubble, the Phoenix housing market experienced a rise of prices of 97.06%
 - From 9/1/2006 - 5/1/2009, the subsequent trough of the housing crash, the Phoenix housing market experienced a fall of 54.46% (-54.46%)
 - From 7/1/2002 - 7/1/2016, the Phoenix housing market experienced a rise of 40.29%
- City of Los Angeles
 - From 7/1/2002 - 9/1/2006, the peak of the housing bubble, the LA housing market experienced a rise of prices of 104.49%
 - From 9/1/2006 - 5/1/2009, the subsequent trough of the housing crash, the LA housing market experienced a fall of 41.89% (-41.89%)
 - From 7/1/2002 - 7/1/2016, the LA housing market experienced a rise of 87.41%

Zillow Examiner

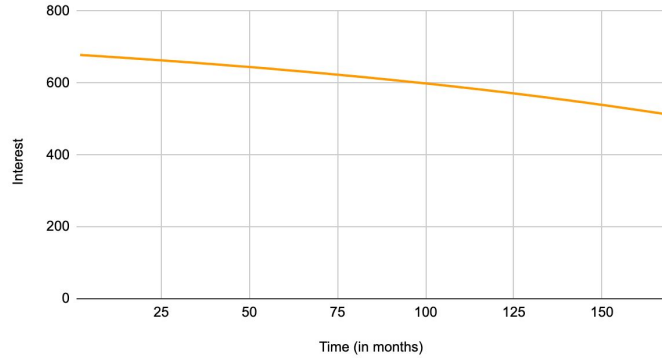


The approximation was the actual Zillow sales price on 8/1/2003. However, the subsequent prices were not close to the predicted approximation. 5/1/2004 has an actual sales price of \$255,000, which is 34.40% below the predicted price. 12/1/2014 has an actual sales price of \$705,500, which is 61.81% above the predicted value. Many factors could explain the discrepancy, such as: inflation, interest rates, desirability of the location/house at the given time, the local real estate market trends, condition of the unit, etc.

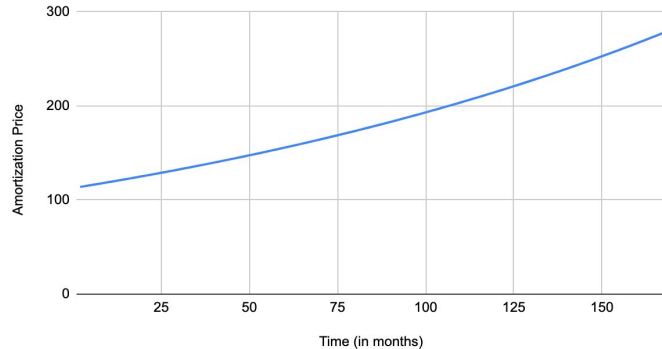


Amortization For Fixed Rate, 30-Years, Mortgage

Interest Value Over Time



Amortization Trend Over Time



Outstanding balance in June 2016: **\$94,797.30**

The interest decreased over time, whereas the amortization rate increased over time. In the beginning, the interest is high because the loan balance is still high, hence most of the monthly payment goes to the interest and only a small portion goes to paying off the principal. However, as the principal gets paid over time, less interest is owed every month because the loan balance is lower, hence why we see a decreasing trend for interest over time. There is a positive amortization trend because the size of the loan decreases with each payment. The trends can also be explained by the inverse relationship between interest and amortization.

Refinancing — June 2016

Beginning Balance: \$125,563.85

After 14 years, with 16 years remaining...

Present value of the original mortgage is \$94,514.03, with an ending balance of \$8.95 (present value: \$3.18) on June 2032. ($\$94,514.21 + \$3.18 = \$94,517.21$)

Present value of the refinanced mortgage is \$94,516.30, with an ending balance of \$0.00 on June 2032.

Refinancing is a good idea. Even though the present value of the refinanced value is \$2.27 higher than the original mortgage, the refinanced value has an ending balance of \$0, whereas the original mortgage has an ending balance of \$8.95. Given the rate of 0.54%, the present value of \$8.95 is \$3.18, which when included in the value of the original mortgage, would bring the original mortgage to have a total present value of \$94,517.21.

By such comparison, the refinanced mortgage would be a better choice.

However, in the real world, the several dollars difference isn't worth the time and energy spent to refinance, hence the original mortgage would be better if the value of time and energy is involved.

Amortization: Floating Mortgage Rate – June 2016

Original Mortgage:

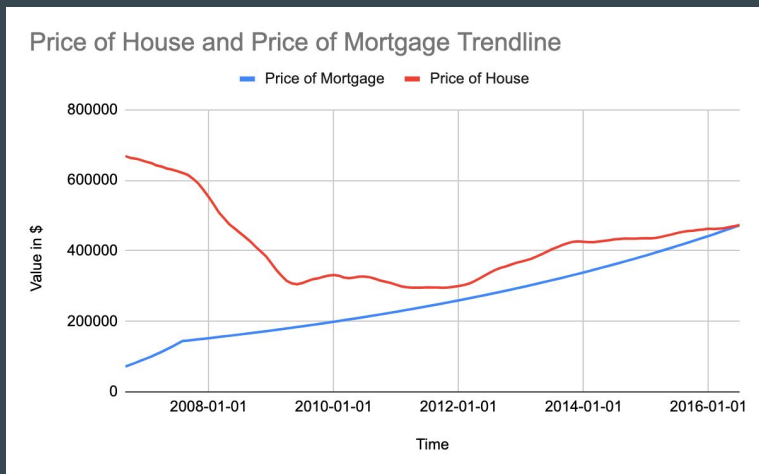
- Beginning Balance: \$125,563.85
- June 2016, Balance: \$94,517.21

Floating Rate Mortgage:

- Beginning Balance: \$125,563.85
- June 2016, Balance: \$124,355.90

The *Original Mortgage* performed better than the *Floating Rate Mortgage*. By June 2016, the *Original Mortgage* has a balance of \$94,517.21, whereas the *Floating Rate Mortgage* has a balance of \$124,255.90. The *Floating Rate Mortgage* has a low rate of amortization, hence its balance does not have a significant change when compared to the *Original Mortgage*. The homebuyer could not have anticipated such result when they obtained their first mortgage in July 2002, because interest rates are dependent on the state of the economy, and the state of the economy is unpredictable because there are lots of unforeseen circumstances that could affect it (e.g., worldwide pandemic). An extremely low interest rate would have to be present in the *Floating Rate Mortgage* to have the opposite result.

Buying At Another Time



We see the effect of negative amortization when it hits near 2008 as the price of the mortgage starts to grow faster. Throughout the entire period, we are not underwater but we closely reach that point in 2016.