Is it generally profitable to purchase a home for the purposes of renting out as an investment, or not?

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ECON 390

The Data

- Panel data; we are observing changes in the variables. Monthly data from Jan 2015 to Sept 2023.
- Data is for entire nation of USA
- Housing data from Zillow, the leading real estate marketplace.
  - https://www.zillow.com/research/data/
  - Mortgage rates USA

Variables used:

Y variable: 'number of units sold'

X variable: 'mortgage rate', 'median house price' and 'rent yield'
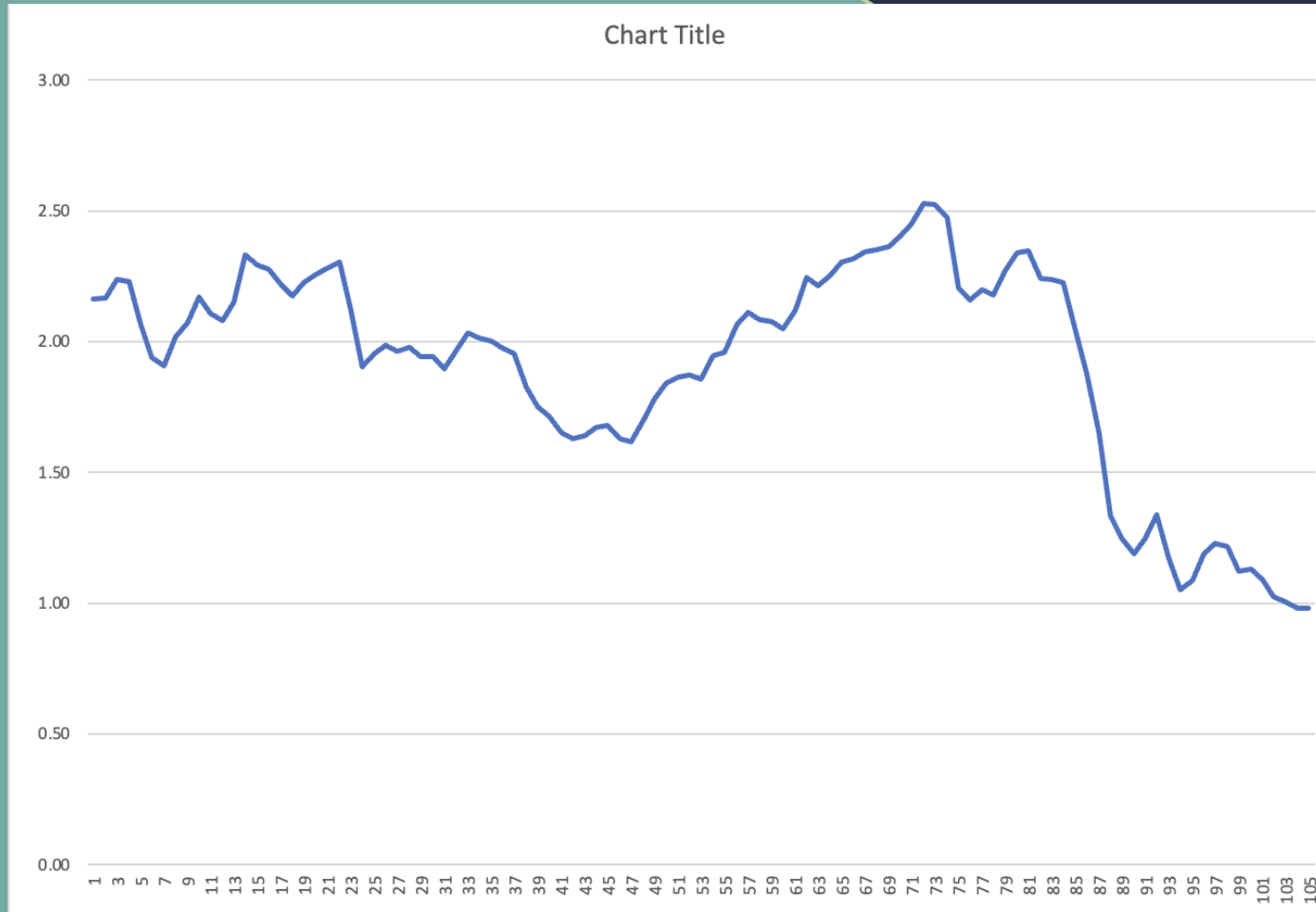
Conclude that:
No, it not profitable to purchase a home for the purposes of renting out as an investment.

We also analyze how the the number of units sold is affected by the mortgage rate, median house price and rent yield

Rent yield: (Annual rental income / median house price) * 100

- To calculate the potential return on investment through rental income.

- A higher rent yield generally indicates a better income-generating potential relative to the property's cost.
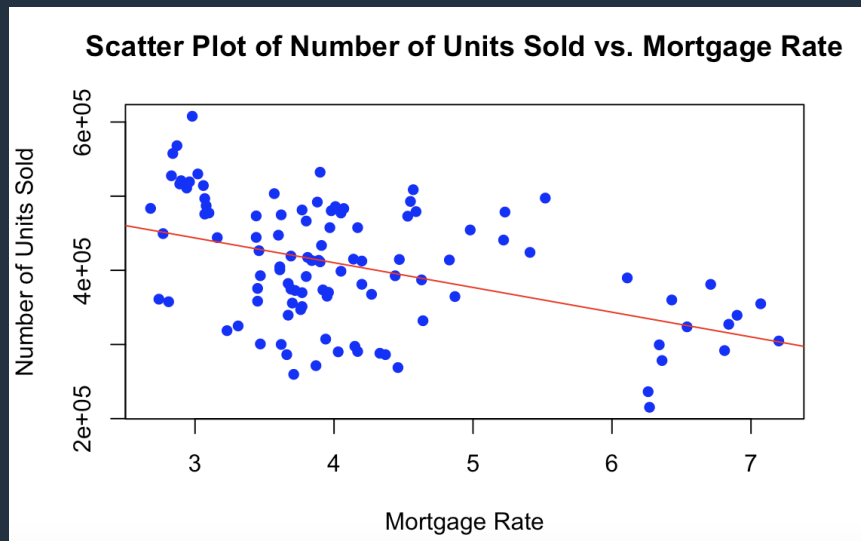
Rent yield & Rent-to-payment ratios

Between 2015 and 2023, rent yield goes from 8% down to 7%.

Meanwhile, mortgage rates goes from 3.67% up to 7.20%, representing that there is no return on investment when rent yield is equal to mortgage rates.

(The rental income is sufficient to cover the mortgage payments.)

Regression:

- The model suggests that median house price and rental prices are significant predictors of number of units sold. However, mortgage rates does not appear to be a significant predictor in this model.

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Call:
lm(formula = number_of_units_sold ~ median_house_price + mortgage_rates +
    rental_prices, data = housing_data_512_815)

Residuals:
    Min      1Q  Median      3Q     Max
-160171  -30891    8503   33907  104923

Coefficients:
                     Estimate Std. Error t value Pr(>|t|)
(Intercept)         9.045e+05  6.650e+04  13.602  < 2e-16 ***
median_house_price  5.081e+00  5.675e-01   8.952 1.81e-14 ***
mortgage_rates      2.689e+03  8.193e+03   0.328    0.743
rental_prices      -1.149e+03  1.453e+02  -7.911 3.35e-12 ***
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Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 53390 on 101 degrees of freedom
Multiple R-squared:  0.5943,     Adjusted R-squared:  0.5822
F-statistic: 49.31 on 3 and 101 DF,  p-value: < 2.2e-16
```


Scatter Plot of Number of Units Sold vs. Mortgage Rate

In terms of whether it's worth renting a house for investment, this model suggests that rental prices and median house prices are important factors