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# The Archvest Advantage Semi-Annual Newsletter

January, 2024

## Happy New Year!

2024 dawned with the energy of 2023's end-of-year market rally burning hot, and we're letting it fuel our focus as we look forward to a year that promises to keep us on our toes. At Archvest, we're ready to help guide you, whatever the next 11 months hold.

To begin, we want to provide an overview of the market as it stands along with some insights into the events and dynamics we're looking at and analyzing as we consider the year ahead.

If you're short on time, we'll give you a brief summary of the major factors as well as some brief administrative notes. If you're interested in more details, keep reading for deeper analysis and insights as well as our full study on the relationship between average home prices and median income.

As always, please feel free to reach out if you have any questions or would like a check-in or review of your overall plan.

## Market Overview

**2023 closed strong** with the Magnificent 7 (Amazon, Apple, Facebook, Google, Microsoft, Nvidia, Tesla) helping boost stocks and bonds:

- Nasdaq +55.13%
- S&P 500 +26.90%
- Dow +16.18%
- Bloomberg US Aggregate Bond Index +4.05%

**Interest Rates:** The Fed is likely to ease up on its hawkish stance on rates which has the potential, we hope, to lead to significantly better projected returns than we've seen in recent years.

**Election Year Drama:** If Congress doesn't raise the debt limit, we face the possibility of a government shutdown. The extra pressure of a Presidential election means we'll be watching closely so we can help you navigate any volatility that may arise.

## Administrative Updates

**Third Party Wire Transfers:** Due to the increased regulatory scrutiny and risk of wire transfer fraud we've seen in recent years, our firm **will no longer facilitate third-party wire transfers** out of your Schwab account. We will continue to process wire transfers to your account as needed. Third-party transfers may be requested directly through schwab.com and our team is happy to

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help you get access and make these requests. Please reach out any time you have a withdrawal need and we will ensure your funds are available.

**Tax Year 2023 1099-Rs and 1099 Consolidated Forms:** In 2023 Schwab and TD Ameritrade merged to become the largest publicly-traded brokerage firm in the US. The timing of the merger meant Schwab did not consolidate some of the data accrued at TD Ameritrade prior to September. If you had accounts with TD Ameritrade you will receive two sets of 1099s for tax year 2023: one from TD covering January-September and one from Schwab covering September to year-end. Please ensure you report both 1099 details on your tax return and reach out for assistance if you need help locating these forms. With your permission, we can also coordinate with your tax professional and send any forms directly to them.

**Statement Schedule:** Schwab will now be issuing quarterly, rather than monthly, statements for those who have no reportable transactions. Archvest will continue to provide you with your regular quarterly performance report.

## iBonds: Update and Analysis

**The Bottom Line:** Due to decreased inflation and interest rates, if you made the typically safe bet of investing in iBonds (aka Series I Savings Bonds) in 2022 it may be a good time to redeem them. Because this timing would be in advance of the 5-year holding period, a penalty of three months' interest will apply. However, the proceeds from the redeemed bonds can easily be moved back into your investment portfolio or online savings account where returns are likely to be higher.

> **The Nitty Gritty:** After inflation hit a high of 9.62% in May 2022, a significant decline since then means the current rate for 2022 iBond purchases is likely 3.97%. You can confirm the current rate of your bond by logging onto your iBond portal.
>
> The underlying rate for Series I Savings bonds is determined by two components: one tied to inflation and one tied to a fixed rate. At or near the time of the 2022 rate peak, the underlying fixed rate was 0.00% (not a typo!). This fixed rate does not fluctuate until the bond matures in 30 years. The inflation rate on the other hand is reviewed every six months which leads to the bond payout increasing or decreasing based on how that rate changes.
>
> While the fixed rate of 0.00% on those bonds purchased in 2022 doesn't change, we've seen decreased inflation leading to diminished rates. We believe that this lower rate is a good reason to redeem those bonds early. With online savings accounts and short-term Treasury bonds offering rates of greater than 5.00% proceeds from redeemed bonds can be moved and earn higher returns.

**Individualized Guidance:** We know each client's circumstances are unique and encourage you to give us a call or schedule a meeting to discuss further.

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## Archvest Research and Analysis: A Study on Home Prices & Median Income

As a firm, our research informs our perspectives and how we guide each client through their financial planning and investment decisions. Last year, we observed relatively small declines in home prices while mortgage rates increased substantially. We were curious why the home price decline did not appear to match the huge increase in mortgage rates.

We decided to delve deeper into the data to further explore the relationship between average home prices, median income, and mortgage rates over time. We wanted to understand the specific variables that impact home price increases and decreases and the patterns we've observed and may look forward to in the year ahead.

Based on our analysis, we believe the largest factor associated with the increasing disparity between household income and housing prices between 1984 and the present has been the steady decline in mortgage rates throughout that period. As such, we would expect housing prices to decline as mortgage rates remain high.

> **Real World Takeaways:** This research supports our belief that house prices may continue to decrease in 2024. For this reason, barring necessary life events, it may be best to wait before moving or making major real estate decisions or investments. The Fed is expected to lower interest rates in 2024, and it's possible that if the economy slows or unemployment rises, rates could be reduced multiple times. If you've purchased real estate over the last year, it may provide a good time to refinance at a lower rate. At Archvest we are always happy to review your specific questions and help you run a cost/benefit analysis on refinancing or other real estate decisions.
>
> Our full study is included in the final section of this newsletter. There, you can read the full analysis.

## Closing Thoughts

We hope this introduction gave you a sense of some of the dynamics and projections that may shape the year ahead. We are committed to providing individualized support and guidance and encourage you to contact us about any questions, concerns, or to review and refresh your overall financial plan.

We are grateful for the confidence you've placed in us and look forward to helping you navigate your path to financial security.

THE Archvest Team

# Home Prices Study

## Abstract

In this study, we examined the relationship between average home prices and median household income from 1984 to 2022. We found that median household income is strongly associated with average home prices— in fact, it can explain about 77% of the variation in average home prices. However, this does not explain why the average home price as a multiple of median household income went from 1.7x in 1984 to 7.2x in 2022. We theorized that another variable must be at play.

Our findings indicated mortgage rates are another factor strongly associated with average home prices. In fact, the exact variable is the mortgage rate from the prior year. This lag mortgage rate variable with median household income can explain about 89% of the variation in average home prices. For example, for every percent increase in lag mortgage rates, the expected average home price falls by $21,400 (~5%). This lag mortgage rate variable has significant implications: the mortgage rate increases in 2023 were not priced into 2023 home prices but may significantly impact home prices in 2024.

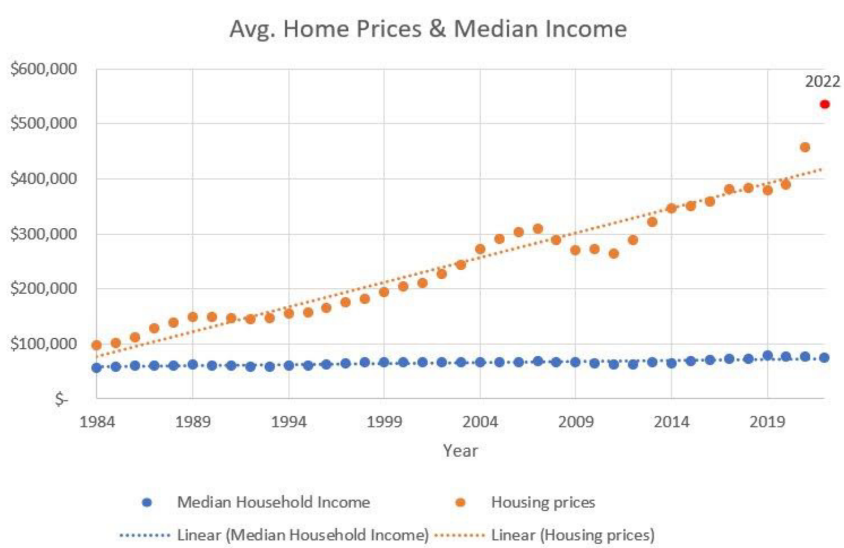
For reference, the data for our study was obtained from and can be found at the St. Louis Federal Reserve.

## Study

Over the last forty years, average home prices have increased significantly. In 1984, the average home price (AHP) in the US was $97,550 and the median household income (MHI) was $56,780. The AHP was about 1.7x of MHI. By 2022, the AHP in the US increased to $535,500 and MHI has only increased to $74,580. Today, the AHP is about 7.2x of the MHI.

This incongruity led us to the question that sparked this research: what is causing this substantial increase in housing prices in the U.S.?

Below is a chart showing the increase in AHP as MHI increased over the last forty years. The dotted line is the trendline. The highlighted red dot labeled 2022 shows that the latest data is significantly above the trendline. In fact, the 2022 data point is the most significant outlier in the dataset.



We can examine the relationship between AHP and MHI using regression analysis. Regression analysis is a reliable mathematical way of estimating the relationship between dependent and independent variables. In this case, the dependent variable is AHP and the independent variable is MHI. The variables are assigned in this manner because it is logical to hypothesize that income levels will affect home prices and not the other way around, hence the terms dependent and independent variables.

We hypothesize that AHP is strongly associated with MHI and potentially another independent variable.


To begin, we examined just the MHI variable in relationship to AHP. The regression formula is written out as follows:

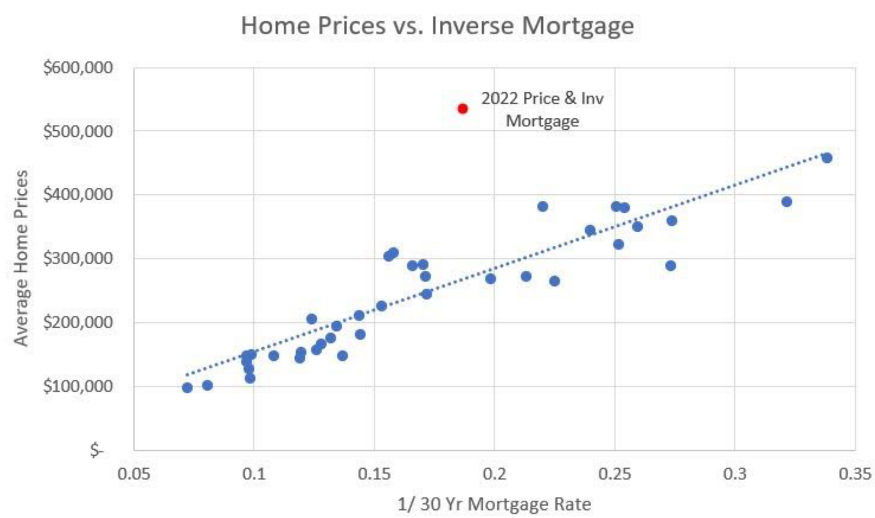
Er(AHP)= β0+ β1(MHI)

*Note: Er is an abbreviation for expected average home price and the β (beta or coefficient) is used as a placeholder for a number. The 0 and 1 are used to distinguish the intercept and coefficient(s).*

We found that MHI is very statistically significant and explained about 77% of the variability in AHP. For every $1,000 increase in MHI, it is associated with an increase of $17,700 in AHP.

While MHI is highly significant, it does not factor in that interest rates have been on the decline for forty years with only the past year bucking the trend. If we incorporate average 30-year mortgage rates (MR), we can determine the effect of MR on AHP.

Below is a chart showing the increase in AHP as MR declined. The MR variable is shown as 1/ MR to illustrate the effect of lower interest rates on AHP. The mortgage rate is lower as you move from left to right on the horizontal axis. The dotted line is the trendline.




Again, note the red highlighted data point significantly above the trendline. The AHP in 2022 is significantly above historical prices regardless of MHI or inverse MR.

When we incorporate MR, the slightly more complex regression formula is written out as follows:

Er(AHP)= β0+ β1(MHI)+ β2(MR)

We found that MR is also statistically significant, and the incorporation of MR explained about 85% of the variability in AHP. An increase of 1.00% in mortgage rates is associated with a drop of $16,600 (~ 4%) in AHP.

## The Price Discovery Process

In finance and economics, there is a concept called the price discovery process. This process involves buyers and sellers arriving at a transaction price for a specific item at a given time. For assets such as stocks and bonds, the price discovery process is relatively quick. You can determine the price of a stock or bond based on the last recent transaction. However, real estate is different from stocks and bonds in that a piece of property does not trade every day on the exchange. This means there is a lag between the economic value of an asset and the transactional value of the asset. This understanding led us to wonder about the impact of mortgage rates on home prices. Does the previous year's mortgage rate affect current home prices?

We created a lag mortgage rate independent variable to examine this question. This lag variable is simply the previous year's mortgage rate. For example, the MR for 2021 was 2.96% and the MR for 2022 was 5.34%. Therefore, the lag MR for 2022 would be 2.96%.

Here's the revised regression formula:
Er(AHP)= β0+ β1(MHI)+ β2(lag MR)

We found that the lag MR variable is more strongly associated with AHP than MR. By incorporating this lag MR variable, the factors explained about 89% of the variability in AHP. For every percentage increase in last year's mortgage rate, the AHP declined by $21,400 (~5%). Here's the equation in full:

Er(AHP)= -216,000+ 9.3(MHI)- 21,400(lag MR)
*Note: variables MHI and lag MR are statically significant at the 95% confidence level.*

The data shows that there is a strong association between AHP, MHI, and lag MR. Our hypothesis that AHP is strongly associated with MHI and potentially another independent variable is correct, and that other independent variable is lag MR.

This has important implications: the significant mortgage rate increases in 2023 were not priced into 2023 home prices. Mortgage rates peaked in 2023 at 8.3% in October, the highest level in 20 years. 2023's mortgage rates may significantly impact home prices in 2024. The data suggest that mortgage rates have a lag time before affecting home prices.

Between 2022 and the most recent data point, Q3 2023, AHP has decreased by 4%. This is in line with our study findings which suggested AHP would decrease in 2023 as 2022 mortgage rates increased from 2021.

To conclude and answer our initial question— what has caused the increase in disparity between household income and housing prices between 1984 and today— we have determined that the largest factor associated with the disparity has been the steady decline in mortgage rates over that period.

**Please keep in mind that our study is looking at average home prices and median household income. This is not the same across all markets, particularly in the Bay Area. Our home prices are the highest in the nation. That said, we are not immune to mortgage rates.**

If you are interested in seeing the full data from our study, please email our newest associate, Sean, at sean@archvest.com.