

Sector Overview

In order to introduce the housing market, it is necessary to understand its relevance and total value. The total housing market value was \$43 trillion in 2022, according to Zillow Research. It represents 27% of all household net worth in the US, and it is almost twice the size of the US GDP (US\$ 23 trillion). Residential also is the largest investment for 50% of the US population, with 58% of their total household net worth. Not only is it the primary asset, but it is also the largest debt component; mortgage debt represents 69% of total household debt, or \$11.4 trillion. Therefore, the housing levels are also relevant to the overall US CPI; shelter is the most representative indicator, weighting 32%. Another statistic to highlight is the current 65.5% homeownership rate of all US households. Naturally, households under 35 years old have a much smaller percentage — 38,1% homeowners and 61,9% renters — and households over 65 years old have the opposite — 79,3% homeowners and 20,7% renters.

The residential sector can be divided in three main subsectors:

Multifamily - Multifamily homes contain separate residential units within a single structure. A residential unit here is defined as a room or group of rooms. The units can be adjacent either horizontally or vertically, and they typically share a heating system and public utilities such as water and sewage. Apartment buildings, condominium complexes, and duplexes are all considered multifamily homes. Multifamily properties are usually owned by investors in order to rent.

Single-family home: A single-family home is a freestanding structure that shares no common walls with another residence. Single-family homes tend to be occupied by the owner of the property, although a few REITs and institutions are now investing in them.

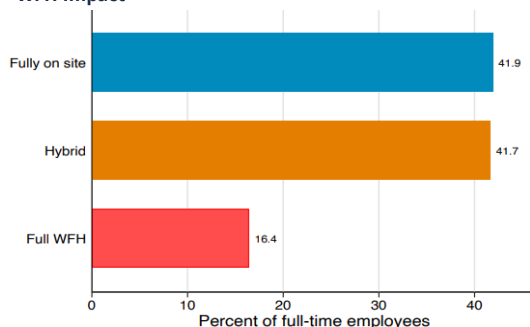
Manufactured housing: A manufactured home is a factory-built residence that can be placed on a piece of land and costs much less than a traditional new build, total rent (land + manufactured home rent) on average is USD 700 - USD 900, much more affordable vs a single-family home or an apartment. Also, its construction period is much shorter than that of a single-family home.

Others: Besides those three, some other subsectors can be described as residentially related, for example: residential vehicles, marinas, residential mortgages, and homebuilders.

Demographical Drivers

The first topic to understand is demographical drives such as working from home (WFH), migration, and household formation.

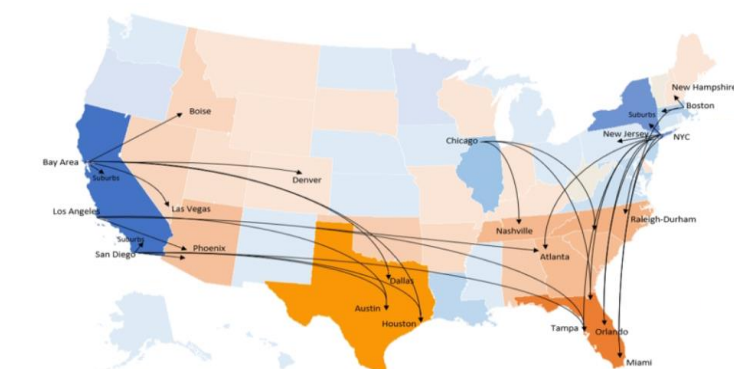
WFH Impact



Since COVID-19, the world is reshaping how and where people can work. Working From Home (WFH) is a new constant in the USA. Of all college graduates, 16,4% are working totally from home, 41,7% are hybrid and 41,9% are working totally from the office. Before COVID, workers on site used to totalize almost 85%. Due to this important change, people are moving out of capitals, especially to cheaper and warmer cities.

Source: WFH Research, Jan/23

Where are people moving to?



Source: Raymond James Research, Jan/23

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Perspective

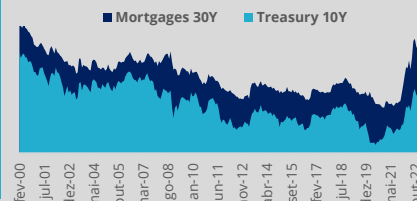
Neutral

Data-Base

31/12/2022

Macro Highlights

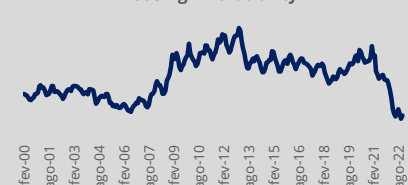
Median Household Income (Year -USD)	\$	70.784
Unemployment Rate (%)		3,6%
US Treasury 10y		3,9%
Mortgages 30 years		6,7%



Sector Highlights

Avg. Monthly Rent (USD)	\$	1.971
Vacancy US (%)		6,0%
Housing Prices (YoY)		9,8%
Total Home Sales (YoY)		-26,7%
Housing Affordability		-33,1%

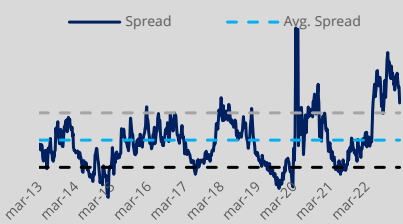
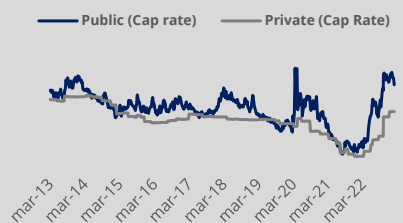
Housing Affordability



Cap Rates

27/01/2023

Public	5,7%
Private	5,0%
Spread	0,8%



Net Domestic Migration

The region with the greatest positive flow of people in recent years was the Sunbelt region. In 2022, Florida and Texas were the greatest examples, with more than 320,000 and 230,000 net people moving in, respectively. On the other hand, California and New York (state) had more than 300,000 people net move out.

Household formations

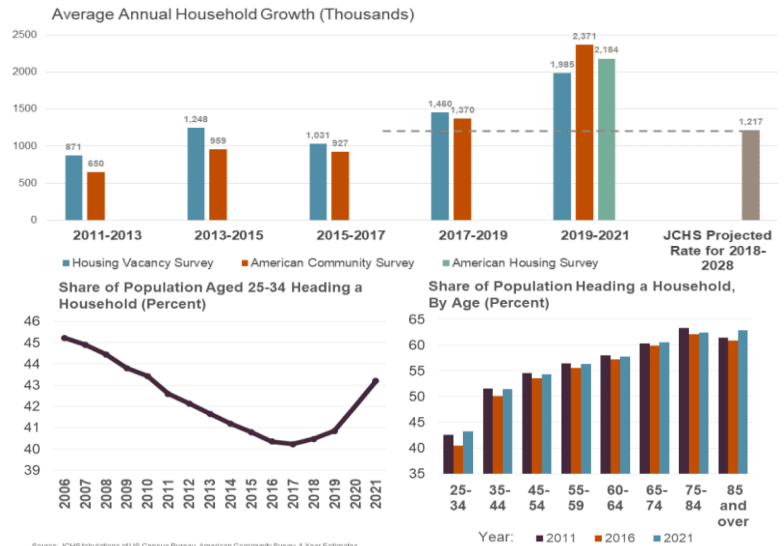
The second demographic factor that influences the real estate market is household formation. This is the main indicator of long-term demand.

It is not news that the American birth rate has been falling in recent decades, as well as in most developed countries. Even so, the number of households headed by 25-34 year-olds grew by 300,000 per year in 2016-2021, up sharply from average annual growth of 45,000 households between 2011-2016, a difference of 260,000 additional households per year - according to JCHS of Harvard University, it was a specific movement of reversion to the historical mean.

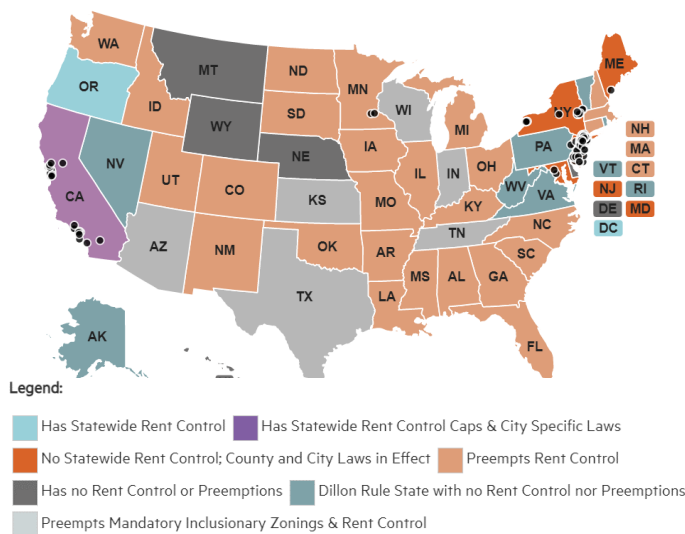
Over the long term, less population growth could also mean future household growth will continue to depend more on driving factors that are less stable and predictable, such as immigration and headship rates and the factors that support them, including changes in incomes and housing affordability.

Source: JCHS - Harvard University

States policies



Source: JCHS tabulations of US Census Bureau, American Community Survey 1-Year Estimates.



Source: National Multifamily Housing Council

Rent Control

Another important topic in the residential sector is state and city regulatory influences, such as rent controls. Some states and municipalities, like California and New York City, have interventionist policies; e.g., in CA, statewide rent increases are currently subject to a 5% increase plus changes in the CPI, not to exceed a 10% total increase, besides cities-specific laws. After COVID, those policies have been in the spotlight, and new states are discussing applying similar actions, such as Florida. Even initial speculation about national rent control began recently.

Although a major number of states do not have any statewide policy on this matter, it's already an important driver due to its current impact on the two biggest markets, CA and NYC, and others are evaluating the possibility of implementing it as well.

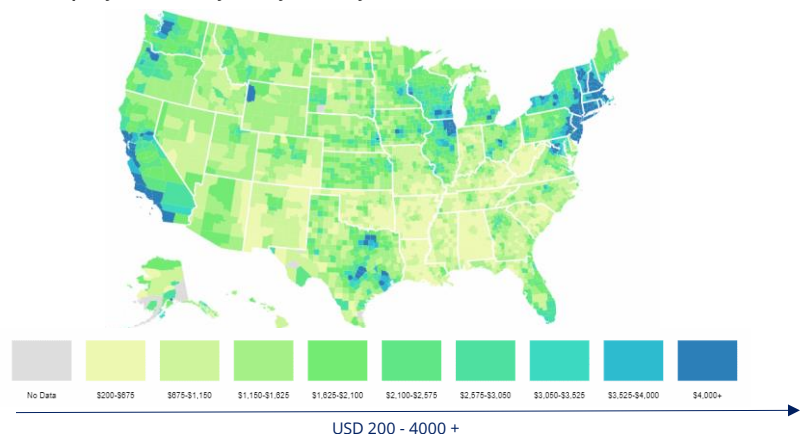
Property taxes

In fiscal year 2020, property taxes comprised 32,2 percent of total state and local tax collections in the United States, more than any other source of tax revenue. Property taxes accounted for 72,2 percent of local tax collections in fiscal year 2020.

Besides property taxes, currently California and the Northeastern states have a total corporate tax rate (federal + state) close to 30%, whereas Texas has 21% and Florida 25%.

As we can see on the property tax map, each state and county balances its taxes between: (1) New business attraction; and (2) Tax collection. Several states in the Sunbelt are among the lowest taxed, a factor that has been key to the movement of business expansion, which consequently boosts the residential market.

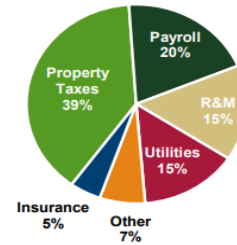
Median Property Taxes Paid by County, 2020 (5-year estimate)



Source: Tax Foundation

Operating Expenses Breakdown

To understand the impact of property taxes, when we look at Apartment REIT's operating expenses breakdown, we can see that property taxes represent 39% on average. As this tax is a % of the price and housing prices went up last year, its weighting represents more vs past years.



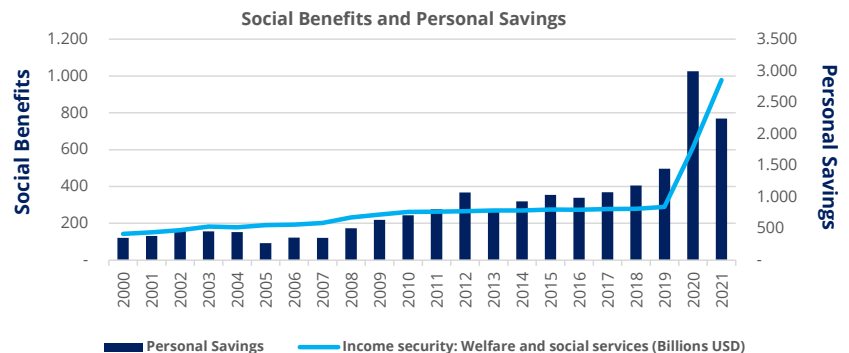
Source: Green Street

Jobs, Income and Savings

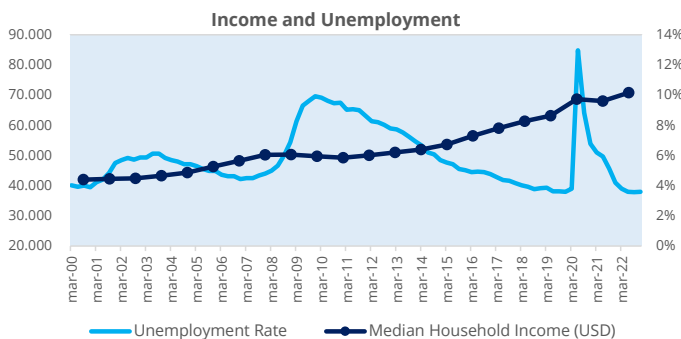
Social Benefits and Personal Savings

In 2019, total government expenditures were less than 300 billion USD. After COVID, the US government spent a record amount on welfare and social services, including financial assistance for food, housing, and other benefits. These expenditures multiplied by 3,4 times and came close to 1 trillion USD.

Alongside social benefits, personal savings also went up by more than 1.5 times in 2020, given the high level of apprehension over the pandemic.



Source: Bloomberg



Source: Bloomberg

Income and Unemployment

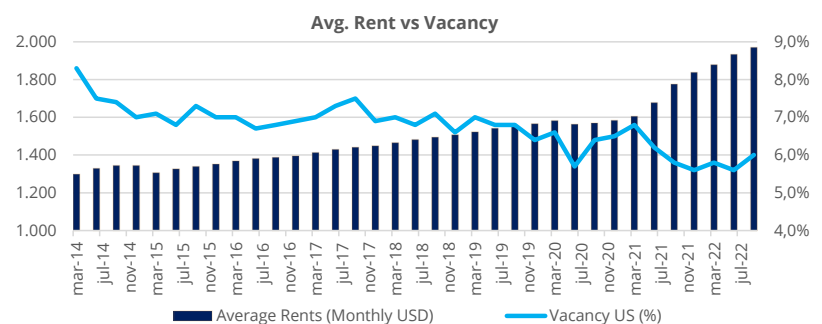
The American job market reflects a good part of the American economy; after the peak of layoffs in COVID, the return of jobs happened in a vertiginous way. At the end of 2022, the unemployment rate reached 3%, the lowest level since the 1970s. Income from both work and social benefits leveraged the availability of money for the American people. Therefore, even as savings increased, so did spending.

Rents and Vacancy

Rents and Vacancy

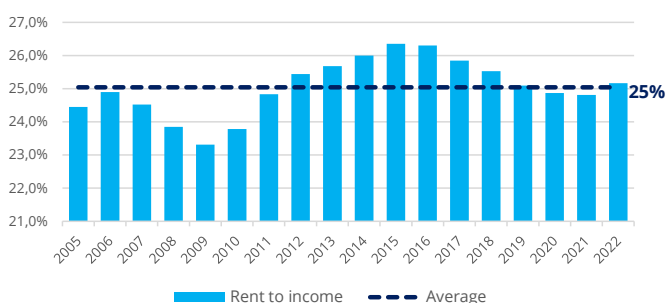
As previously mentioned, the main component of the US CPI (American inflation index) is the item called shelter, which is the average of current and equivalent rents, represents 32% of the total CPI.

Historically, rents in the USA have grown less than 4% on average; however, during COVID, as WFH became necessary, people started looking into options with more space in areas other than places near their offices, and therefore they invested more and more in their houses. In 2021 and 2022, rents went up by more than 24% and vacancy went down to 5.6%. For 2023, we expect to see stable rents in line with the historical average.



Source: Bloomberg

Rent-to-Income



Source: Green Street

Rent-to-income

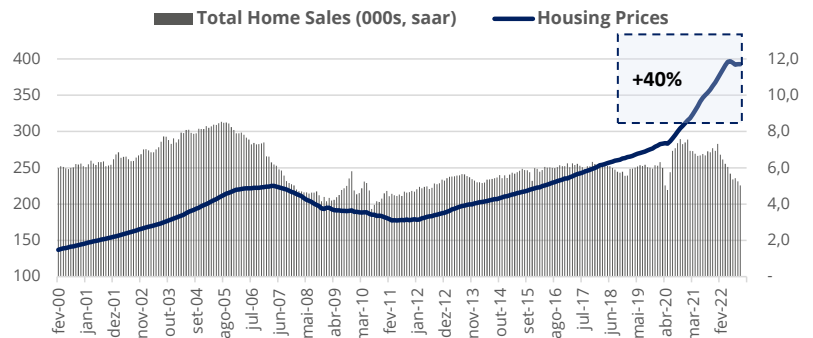
Even with the sharp increase in rents, the total income counterbalances the final rent-to-income ratio. This metric is currently close to the historical average of 25% when looking at the US average. With this, we understand that there should not be stress in the levels of short-term rents, depending mainly on the movement of American income.

It is worth mentioning that each region has a specific dynamic; for example, New York City has one of the highest rent-to-income rates in the country.

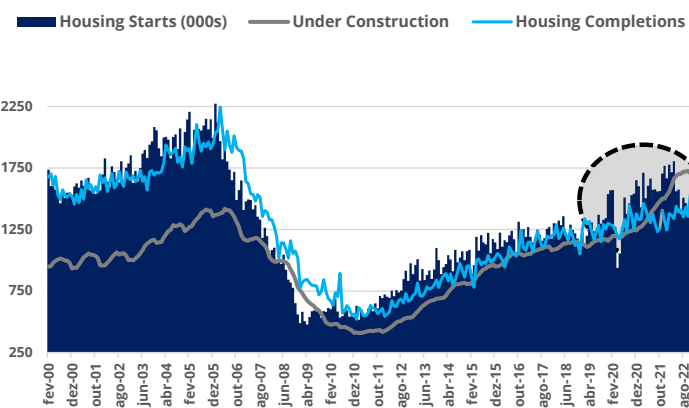
Housing Market

Home sales

In this scenario, people had disposable money; not only that, but debt costs were also at historical lows. US Treasury 10-year, a government bond, was below 1% and mortgages were at 3%; therefore, people who were looking for a new home due to COVID had money in their pockets and a good window to be leveraged -- a perfect storm. From 2020 until 2022, housing prices jumped by 40%, the same way that rents did, as mentioned earlier.



Source: Bloomberg



Source: Bloomberg

Inventory

Another explanation for housing prices is the current inventory situation.

US total inventory is already greater than 140 million housing units; however, once the US population adds more than 330 million people, on average, almost 2,5 people live per housing unit.

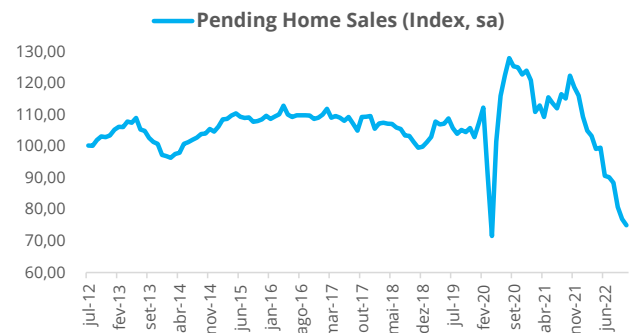
On the one hand, new households continue to increase; on the other hand, new supply can't keep up. Therefore, it is estimated that there is a housing shortage greater than five million units, according to Fannie Mae.

This shortage doesn't seem to be decreasing in the next few quarters. Before 2008, housing starts were at record levels, creating an extremely hot and speculative environment. After the housing bubble burst, new supply dried out. Since then, unit starts have been recovering. In today's scenario, we can see that housing starts are cooling down, but there is a significant embedded supply that will be delivered soon. Some specific cities, such as Phoenix, Denver, Charlotte, and Nashville, should complete a bulk new supply of 3%-5% in the next 2 years—an alert sign for Sunbelt areas.

Pending Home Sales

In order to track movements some weeks ahead, a good indicator to predict home sales is the pending home sales index: This concept tracks signed real estate contracts for existing single-family homes, condos, and co-ops that have not yet closed. As such, it is a leading indicator for existing home sales.

We can see in the graph on the side that the number of pending home sales throughout 2022 had the biggest drop in the last decade. The main variables to understand the home sales movement are house prices, stock availability, and, finally, the cost of financing, also called mortgages.



Source: Bloomberg



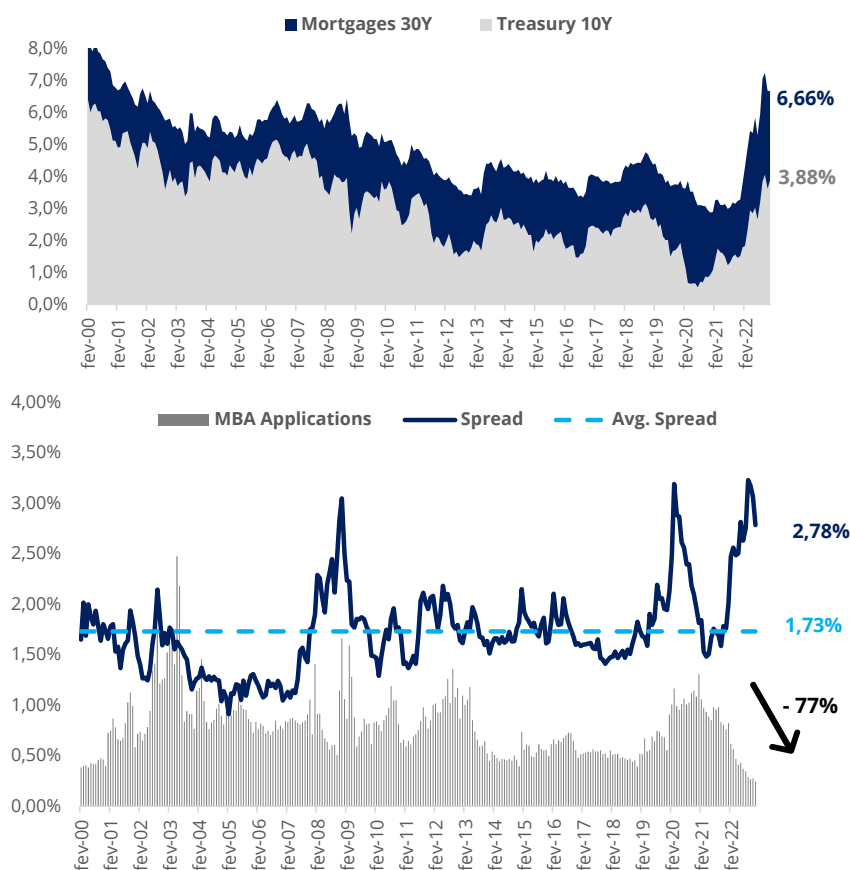
Spread Mortgages vs Treasury

In the chart on the side, it is possible to see the variation of Mortgages 30 years vs Treasury 10 years. The correlation of titles is evident, since Mortgages use the current Treasury rate as a basis to determine the loan rate. Over more than 20 years, with a temporary break in 2007/2008, but already resumed in 2009, the American market experienced a favorable moment for new deals, largely due to the low cost of capital.

However, the scenario from 2021 to date has changed, with the effects of the pandemic already mentioned, align with a dynamic of temporary deglobalization due to conflicts in Ukraine and sanctions in Europe and the USA, in addition to the effects of the lockdown in China, the world has passed and it is still going through a period of monetary tightening with American inflation, which broke historical records above the 7% per year vs. 2% inflation target. In this way, the Federal Reserve began a cycle of hikes in FED funds that has not yet ended, with that the 10-year Treasury exceeded 4.2%, and ended the year 2022 at 3.88%.

Mortgages are directly impacted by all this movement, however in a non-linear way, due to risk factors specific to the residential market. When analyzing the Spreads chart between the rates, we can see that Mortgage rose from 7% in 2022, representing a spread of 3.23% vs an average of 1.73% - even higher point than 2008.

As a result, people who contracted their mortgages at rates below 4% have a disincentive to speed up the payment, just as they are discouraged to sell the property, since they would have to contract mortgages at current rates to buy another one. Therefore, the selling volume (mentioned earlier) and the volume of Mortgages Applications dropped vehemently. It can be seen on the side that MBA Applications had a drop of 77% vs. the end of 2020.



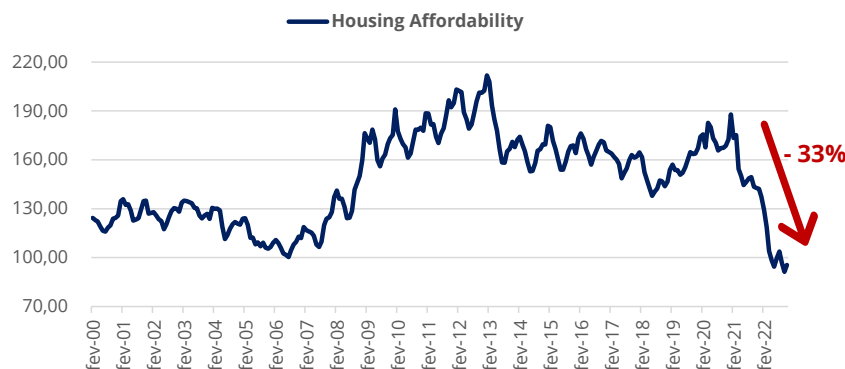
Source: Bloomberg

Affordability Issue

As a conclusive form of the analysis presented, we arrive at the concept of Affordability: This concept tracks the affordability of housing, typically based on a mix of median home prices, median income and mortgage rates. Basically the combination of the impacts mentioned above.

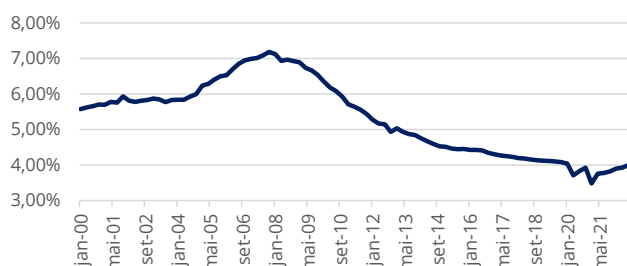
Current Affordability is the lowest in over 20 years, down 33% vs recent peak at the end of 2020.

In short, the volume of transactions should remain low, with low prepayment rates, until the indicators stabilize.



Source: Bloomberg

Mortgage Debt Service Payments as a Percent of Disposable Personal Income



Source: FRED - Economic Research

2023 vs 2008

There are several differences and few similarities between the subprime crisis of 2008 and the current situation. In a simplified way, it can be said that the main difference is the availability of income to pay debts.

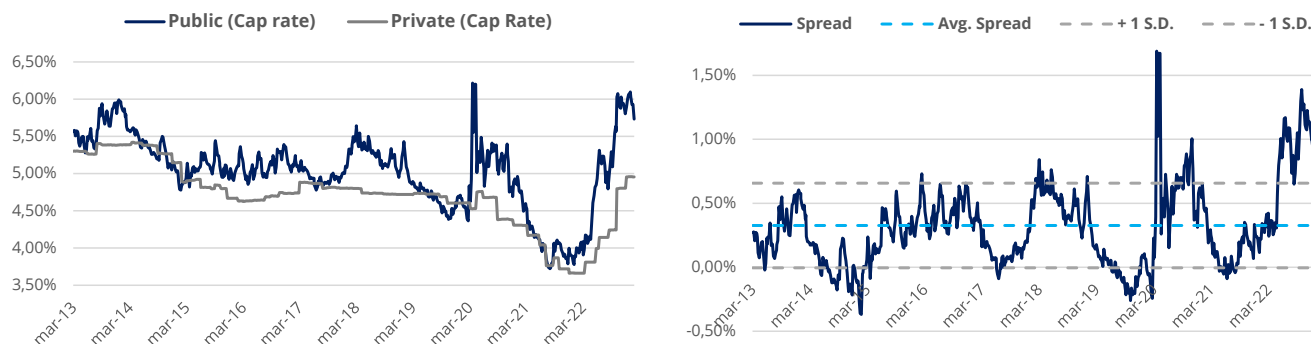
Even with the fact that mortgage rates are much above average, the volume has been decreasing and, as most of the mortgages were contracted in lower rates (close to 4%), the Mortgage debt service payment is only 4% of people's available income. With that, we can conclude that this is not a moment of high housing speculation.

Public vs Private

Before finalizing, it is worth complementing the analysis with a separation between the private and public markets, more specifically Residential REITs. Major homeowners in the institutional sphere. Corporations own approximately 10% - 15% of all US homes. Residential REITs can be divided into Apartments, Single Family Houses and Manufactured Homes, the largest being the Apartments subsector.

In the chart below, you can see the comparison between the cap rates between the public vs private market. At the end of 2022, REITs were trading at an implied cap rate close to 6% vs nominal cap rates still below 5%. As is also evident from the chart, the volatility of REIT cap rates is obviously much higher, so it adjusts sharply and quickly to different market moments.

In the chart below on the right, you can see a deviation from the historical average of spread cap rates. The Spread between them reached two standard deviations up vs. the historical average, showing that we should see an opposite movement in the coming quarters, both a catch-up in the private market and an adjustment in the public market. The gap between them should be closer.



Source: Green Street

Takeaways

- WFH, in the US, has become structural and should continue to be used in the long term.
- National migrations to regions like Sunbelt are also expected to continue, but at a slower pace than we have seen in recent quarters. However, as the delivery of new supply in the main migration focus cities is relevant for 2023 and 2024, a balancing must occur, in which prices do not rise so much due to new demand and nor do they fall so much due to the dilution from new supply.
- We remain comfortable with rent levels, even with the increase in recent years, due to the average income level. It's possible to see a modest increase in average rent in 2023.
- On the other hand, we don't see room for advances in house prices. The most likely scenario is a decline in transaction prices, mainly due to the current cost of capital.
- We don't see any disruption from long-term factors. The market is still adjusting to the new variables. In the long term, the progress of the American economy, with income growth and the housing shortage, continue to be the main keys to the future of the sector.

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