Confidence must be earned

Amundi ASSET MANAGEMENT

INVESTMENT TALKS

December 2022

Price declines expected, but mortgage defaults should remain muted

- *We expect a 15% cumulative decline in home prices over the next three years. After recent home price gains and the doubling of mortgage rates, affordability is poor for prospective buyers with median family incomes.*
- *The magnitude of potential price declines may be muted by a shortage in housing supply and a structural increase in housing demand.*
- *Across most scenarios, we expect mortgage defaults to remain low. Underwriting standards have been pristine, and rising rates are of limited concern to existing owners.*
- *We believe the timing and magnitude of an ultimate trough in home prices will be determined by changes in nominal incomes and mortgage rates.*

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Portfolio Manager

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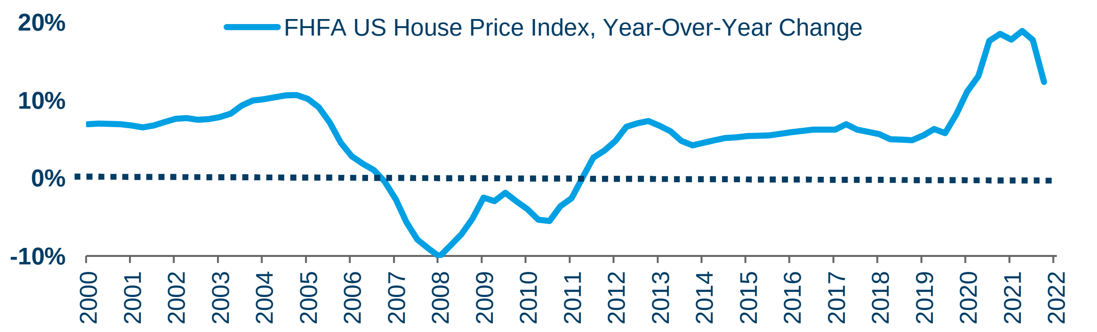
Portfolio Manager

Exhibit 1: US Home Price Gains Begin To Cool, But Remain Above Long-Term Trend



Source: Federal Housing Finance Agency (FHFA). Data is as of September 30, 2022. Data is from a third party. Although the data is gathered from sources believed to be reliable, the accuracy and/or completeness of the information cannot be guaranteed.

Introduction

The historic home price gains of 2020 and 2021 have given way to a historic rise in mortgage rates in 2022, resurfacing concerns of a correction in home prices. The housing crisis of 2008 offers some clues for the future, though we believe anyone expecting a repeat will be disappointed. To unwrap what the past may tell us about the future for housing, we separate the discussion into four areas: affordability, payment shock, supply surplus, and distressed selling (see Exhibit 2).

Exhibit 2: Home Price Drivers: Then & Now

	Housing Crisis (2008)	Today (2022)
Affordability	✗ At current interest rates, home prices exceed historically affordable levels for prospective buyers with median family incomes.	
Payment Shock	✗ Short-term **teaser rates** and a lack of income documentation allowed millions of borrowers to buy homes they could not afford once these teaser rates expired.	✓ The vast majority of existing homeowners have locked in their payment with a **fixed rate** mortgage whose monthly payment is set for life.
Supply Surplus	✗ Home builders overbuilt during the boom years prior to the crisis, resulting in a **surplus**.	✓ Underbuilding over the past 10 years has left the housing market in a **shortage**.
Distressed Selling	✗ Millions of homeowners were pushed into **foreclosure** during the crisis, with distressed sales eventually comprising more than 40% of all home sales.	✓ Distressed supply is unlikely thanks to drastically improved loan underwriting standards along with loss mitigation strategies that prioritize **modifications** over liquidations.

Source: Amundi US. Data is as of December 2022.

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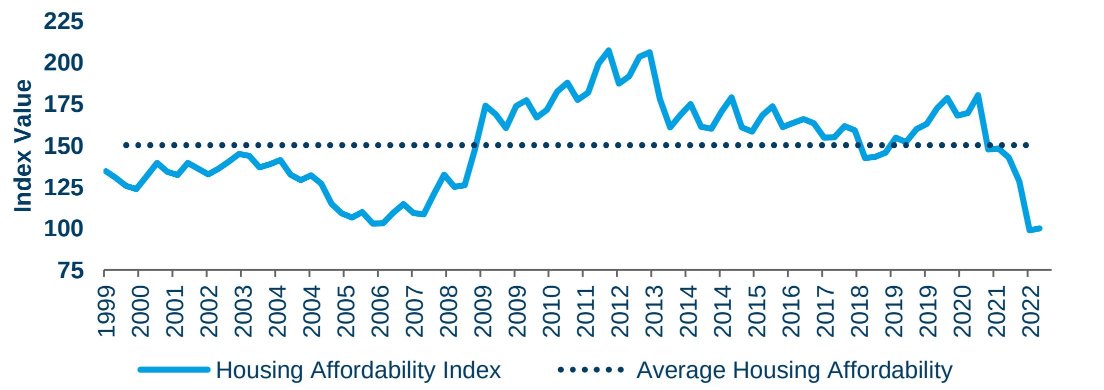
Affordability

After the strongest home price gains in history and an equally unprecedented move in mortgage rates, home prices are now near their lowest affordability levels since 2006. Absent material moves in nominal incomes or mortgage rates, the median-income household cannot afford to purchase the median priced home. Importantly, the path to this point is quite different, and unlike during the years ahead of the housing crisis of 2008, affordability is a larger problem for prospective buyers than current owners. Nonetheless, affordability is a major headwind for the future of home prices.

Exhibit 3: Housing Affordability Currently Near Historic Lows



Source: Amundi US, National Association of Realtors. Data is as of September 30, 2022. Most recent available data. This Housing Affordability Index measures the ratio of the payment a median income family can afford versus the payment required on a median priced home at prevailing interest rates, assuming 20% down and a 25% qualifying ratio. Higher values are more affordable, while lower values are less affordable.

Payment Shock

In the years ahead of the housing crisis of 2008, the non-agency mortgage market nearly tripled from roughly 20% to 58% of mortgage-backed securities (MBS) issuance[1], propelled by the popularity of "teaser rate" products whose payments were set artificially low before resetting substantially higher in subsequent years. Since then, the Dodd-Frank Act has effectively eliminated these products, and the non-agency mortgage market is now a shadow of its former self. Unlike 2008, where expiring teaser rates resulted in payment shock for tens of millions of households, the vast majority of today's borrowers have fixed-rate mortgages. These borrowers are very likely to maintain their current mortgages.

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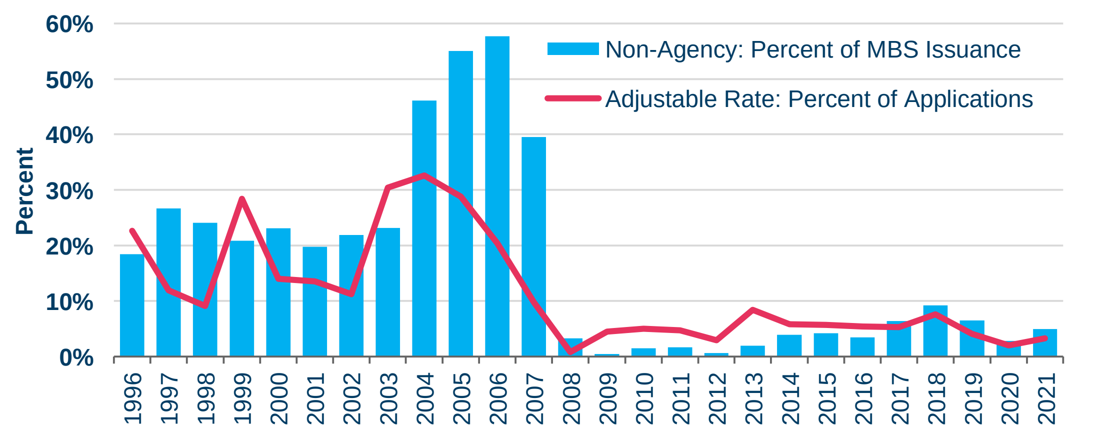
Exhibit 4: Non-Agency and Adjustable Rate Share of MBS Issuance Remains Minimal

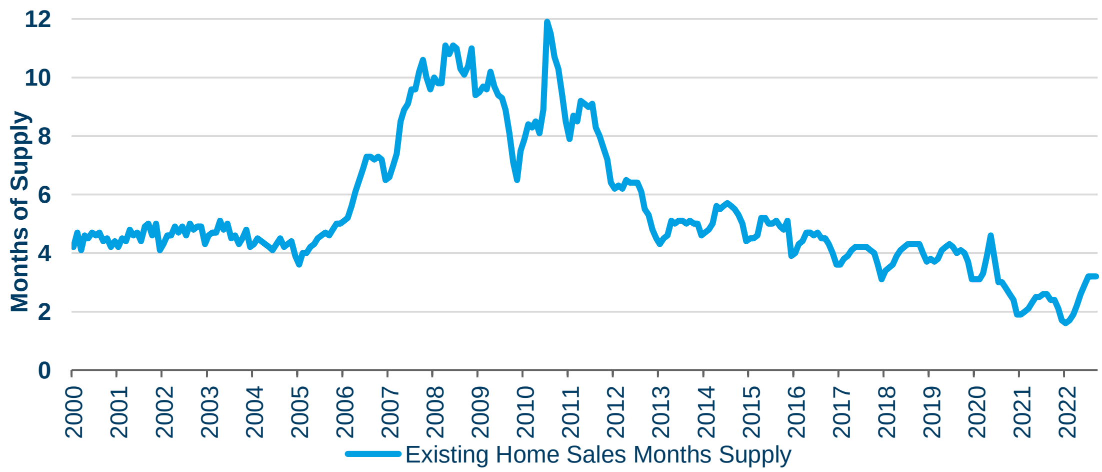


[1] Source: Securities Industry and Financial Markets Association, Mortgage Bankers Association, Amundi US. Data is latest available as of September 30, 2022. Although the data is gathered from sources believed to be reliable, the accuracy and/or completeness of the information cannot be guaranteed.

Supply Surplus

In the years ahead of the 2008 housing crisis, spurred by an errant price signal, home builders rushed to add supply, only to see housing demand collapse in the coming years. Many builders went bust. Since then, single-family housing starts (new construction) have remained below long-term household formation rates, and the pandemic both revealed and exacerbated a shortage in single-family housing. Existing home inventories are near their lowest levels in more than 20 years. Unlike in 2008, we do not anticipate a glut of supply in the housing market.

Exhibit 5: Supply of Existing Homes Below Historic Levels



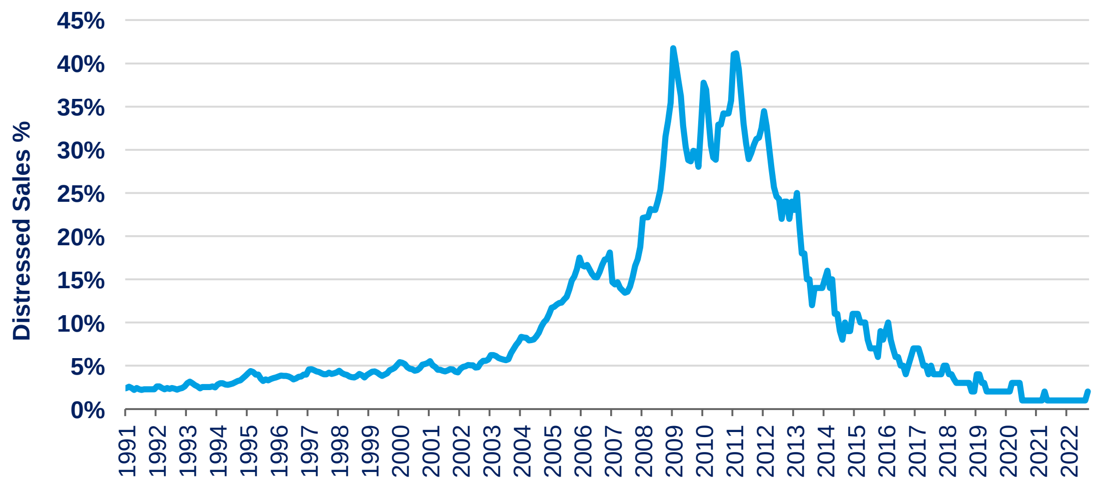
Source: National Association of Realtors. Data is as of September 30, 2022.

Distressed Selling

During the housing crisis of 2008, the percentage of distressed housing sales climbed from single digits to more than 40% of all existing home sales. Distressed sales trade at a discount to non-distressed sales, and the surge in distressed sales created a negative feedback loop that dragged home prices even lower. Today, the preconditions for a negative feedback loop of price declines no longer exist. Furthermore, thanks to the lessons learned from this period, mortgage modifications are now heavily prioritized over foreclosure. For these reasons, we do not anticipate a surge in distressed sales.

Reverting to 2018 affordability levels suggests prices could decline roughly 15% over the next three years.

Exhibit 6: Distressed Selling Far Below 2008 Housing Crisis Levels

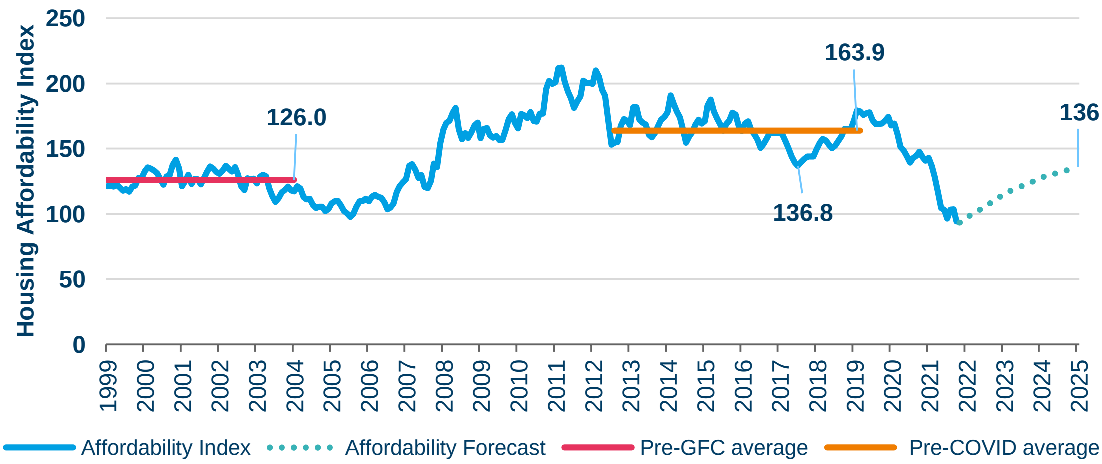


Source: Amundi US. Data is as of September 30, 2022. Most recent available data.

Forming a Forecast

Housing is a real asset whose prices tend to follow incomes and interest rates over the long run. Our forecast attempts to find the price decline needed over three years to return median home prices back to historically affordable levels for the median-income family after making some informed assumptions for future wage growth and mortgage rates. This forecast is therefore inherently sensitive to the assumptions, particularly interest rates. Within this framework, home prices could decline roughly 15% over the next three years, with the majority of the decline occurring in 2023. Notably, this framework does not give consideration to the current shortage in housing inventory, nor the potential for a post-pandemic increased preference for single-family housing.

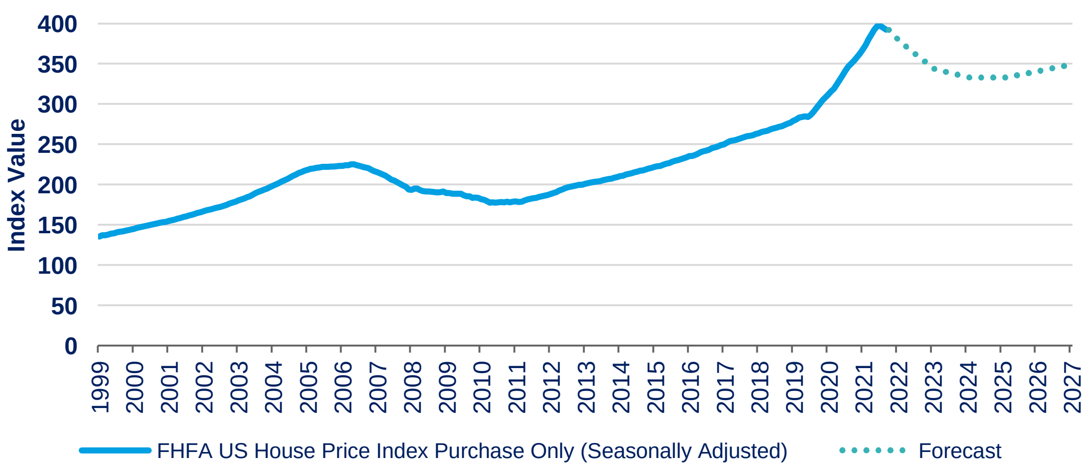
Exhibit 7: A Path Back to Housing Affordability



Source: Amundi US, National Association of Realtors. Data is as of September 30, 2022. Most recent available data.

History suggests homeowners who have benefited from the price gains of the past will be unfazed by a price correction if the equity in their homes remains intact.

Exhibit 8: Home Price Index: History & Forecast



Source: FHFA, Amundi US. Data is as of September 30, 2022.

Exhibit 9: Housing Forecast Assumptions Through Year-End 2025

Affordability Index Target Level	June 2018
Annualized wage growth	4.90%
Ending mortgage rate	6.10%
Implied home price decline	15.09%

Source: Amundi US. Data is as of September 30, 2022.

What Could Go Wrong?

Rising rates and falling incomes could further erode housing affordability from already challenged levels. We expect changes in these two factors to determine the path for home prices. We also remain vigilant for increased variability at the regional level. Work-from-home trends may have increased demand for single-family housing in the aggregate, but office flexibility has also enabled labor markets to relocate away from high-cost, high-tax regions. Finally, we note that markets often overcorrect *through* equilibrium rather than correct *to* equilibrium, though the shortage in housing inventory reduces this risk.

What Could Go Right?

If mortgage rates drop more quickly than anticipated, our home pirce outlook may prove too bearish. The US Treasury yield curve reflects the market's expectation for a sustained period of restrictive monetary policy, but this has historically proven difficult. The spread between mortgages and Treasuries is also unusually high versus history and may compress in coming years, particularly as interest rate volatility subsides. Relief in mortgage rates alongside resilient nominal incomes offers a path back to affordability, absent a price correction. Additionally, as mentioned elsewhere, the affordability framework does not give consideration to the current shortage in housing inventory nor the potential for a post-pandemic increased preference for single-family housing. Both would suggest affordability will not revert to pre-pandemic levels.

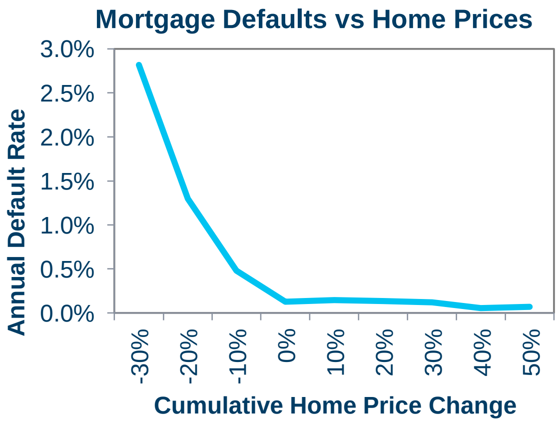
Investment Implications

While we are bearish on the outlook for home prices, we are bullish on the outlook for mortgage defaults. History again provides us with a guide. Historically, the primary driver of mortgage defaults has been a large cumulative decline in the value of a borrower's home. This suggests that homeowners who have benefited from the price gains of the past will be unfazed by a price correction if their equity remains intact. History also offers bond investors a cushion against a correction that is worse than we anticipate. For example, in order to earn a BBB rating[1], Standard & Poors requires that residential mortgage backed securities (RMBS) avoid losses in a simulated 33% price decline.

Importantly, mortgage servicing practices have evolved tremendously as a result of the lessons learned from the housing crisis. Foreclosure is now treated as a last resort after payment deferrals and mortgage modification options have been exhausted. While we are optimistic that mortgage defaults will remain muted across most scenarios, we maintain a heightened vigilance for exposures that could be harmed rather than helped by generous modifications.

33%

In order to earn a BBB rating, S&P requires that the typical non-agency residential mortgage-backed securities (RMBS) avoids losses in a simulated 33% price decline.



Source: S&P Global Ratings Residential Mortgage-Backed Securities (RMBS): Methodology And Assumptions For Rating U.S. RMBS Issued 2009 and Later. The 33% decline is inclusive of an assumed 23% market value decline which is compounded by a 13% forced-sale discount. Data is from a third party. Although the data is gathered from sources believed to be reliable, the accuracy and/or completeness of the information cannot be guaranteed.

[1] Note that AAA-rated bonds, including US Treasury bonds, are considered the safest by the three primary bond rating agencies: Fitch, Moody's, and Standard & Poor's. "AA" follows, and then "A". Grades go as low as "D" for Fitch and Standard & Poor's. The lowest rating Moody's grants is "C".

Definitions

- **Agency mortgage-backed security:** Agency MBS are created by one of three agencies: Government National Mortgage Association (known as GNMA or Ginnie Mae), Federal National Mortgage (FNMA or Fannie Mae), and Federal Home Loan Mortgage Corp. (Freddie Mac). Securities issued by any of these three agencies are referred to as agency MBS.
- **Basis points:** One basis point is a unit of measure equal to one one-hundredth of one percentage point (0.01%).
- **Curve steepening:** A steepening yield curve may be a result of long-term interest rates rising more than short-term interest rates or short-term rates dropping more than long-term rates.
- **Federal Housing Finance Agency:** Provides supervision, regulation, and housing mission oversight of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks.
- **FX:** FX markets refer to the foreign exchange markets where participants are able to buy and sell currencies.
- **Monetary policy reaction function:** A function that gives the value of a monetary policy tool that a CB chooses, or is recommended to choose, in response to some indicator of economic conditions.
- **Quantitative tightening (QT): The** opposite of QE, QT is a contractionary monetary policy aimed to decrease the liquidity in the economy. It simply means that a CB reduces the pace of reinvestment of proceeds from maturing government bonds. It also means that the CB may increase interest rates as a tool to curb money supply.

Important information

Date of first use: December 13, 2022
Amundi US is the US business of the Amundi Asset Management group of companies.

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