

## Housing and Mortgage Monitor

# Bad news is (likely) still good news for home prices

### Bad news is (likely) good news for home price appreciation: revising our HPA forecast

We are revising higher our national home price appreciation (HPA) forecast for 2025. Based on our 381 MSA-level model, we now expect full-year 2024 HPA of +4.5% and 2025 HPA of +4.4% vs. our previous forecasts of +4.2% and +3.2%, respectively (Exhibit 1). This adjustment is underpinned by two key ingredients. The first is the prospect of lower mortgage rates. Our economists now forecast the Fed will deliver three 25bp rate cuts this year, prompting us to revise our 30-year conforming mortgage rate forecast to 6.5% for year-end 2024 and 6.1% for year-end 2025, slightly lower than our previous forecasts of 6.6% and 6.3%, respectively. While purchase mortgage applications have yet to respond to lower rates, we think this tailwind will materialize in coming months as rates stay in a lower range (Exhibit 2). Even a small change in mortgage rates can have a material impact on affordability. As an example, the 20bp lower mortgage rates we expect for 2025 means that home prices can grow by an additional 1.6% without impacting affordability, assuming income growth remains unchanged. The second ingredient is our expectation that income growth will remain resilient. This is key, as a 20bp decline in mortgage rates means that affordability will stay unchanged

as long as income growth remains positive on a year-on-year basis in 2025, in *nominal* terms. The main source of downside risk to HPA is a rise in layoffs that would weigh on income growth, particularly among households with high debt-to-income ratios (which have driven a large portion of mortgage originations recently). For now, we take comfort in the historically low permanent layoff rate at present and think immigration-driven unemployment should pose limited risk to home prices (Exhibit 3).

### Florida: A beneficiary of substantial home equity build-up, but the path ahead will be rocky

While our MSA-level projections continue to favor Mid-Atlantic and Midwestern markets, our outlook on West Coast home prices has also turned more positive (Exhibit 4). While having a poor level of baseline affordability, home prices in California, Oregon, and Washington have benefited from constrained inventory and a relative increase in investor purchases. On the other hand, we remain more cautious on home price appreciation in Sun Belt metros such as Nashville, Phoenix, Dallas, Orlando, and Miami. Our model's somewhat negative outlook on Florida HPA this year has been particularly surprising to

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some clients. In our view, three main factors are driving this adjustment. First, Exhibit 5 shows that sequential HPA in the largest Florida markets has already slowed down, resulting in a lower momentum factor in our model (Exhibit 6). Second, while housing affordability has deteriorated across all US regions, Florida markets have seen disproportionately large declines in our MSA-level housing affordability indices, in our view a function of exceptionally strong HPA in 2021 and 2022 (Exhibit 7). To compound this, the pace of real disposable income growth has slowed for Florida vs. other large states (Exhibit 8). Finally, homeowners insurance premiums have risen more in Florida than the broader country (Exhibit 9). While changes in insurance costs are not factored into our home price model, we think they could be further dampening affordability.

### **Expecting slightly higher but contained mortgage delinquencies, with the exception of FHA loans**

We are slightly raising our forecast for the aggregate 30+ day mortgage delinquency rate to 3.3% at 2024Q4 and 3.8% for 2025Q4, from previous forecasts of 3.1% and 3.5%, respectively, as a result of higher unemployment and a more conservative assumption for wage growth (Exhibit 10). For context, the most recent reading was 3.2% per the Federal Reserve Bank of New York's *Q1 Quarterly Report on Household Debt and Credit*. We would note that our new forecasts are still on the low end of the pre-COVID range of mortgage delinquencies, primarily supported by modest household leverage and low mark-to-market LTVs on the stock of outstanding mortgages (Exhibit 11). One segment of the mortgage market where we have noticed a sharper uptick in delinquencies is FHA loans, where 30+ delinquency rates are already above pre-COVID levels (Exhibit 12). We think two key factors are driving this divergence. First, FHA loans have an average LTV at origination of 95%, a significantly higher level than other loans that fosters heightened sensitivity to home price declines. Second, FHA loans are inherently oriented towards lower-income households, a segment of the borrower universe which has seen rising delinquency rates in other products such as subprime auto loans. Coincidentally, last month the US Department of Housing and Urban Development proposed a permanent program to sell nonperforming FHA loans to private investors. Based on the segment of borrowers seriously delinquent or defaulted on their loans, we estimate that this program could have a total market size up to \$26 billion.

**Exhibit 1: We forecast home prices will appreciate by 4.5% in 2024 and 4.4% in 2025**

GS housing and mortgage forecasts

Variable	2024				Annual Data		
	Q1	Q2	Q3	Q4	2023	2024	2025
<b>Housing Measures</b>							
Housing Starts (SAAR, Thousands)	1,448	1,450	1,443	1,450	1,421	1,450	1,541
Single Family	1,071	1,059	1,061	1,059	1,026	1,059	1,111
Multi Family	377	391	382	391	401	391	430
Case-Shiller National House Prices (YoY %Chg)	6.0	5.1	4.1	4.5	5.7	4.5	4.4
<b>Interest Rates</b>							
10-Year Treasury (%)	4.2	4.4	4.2	4.3	4.0	4.3	4.1
PMMS 30-Year Fixed-Rate Mortgage (%)	6.8	6.9	6.6	6.5	6.8	6.5	6.1
<b>Mortgage Originations</b>							
Total 1-4 Family (\$Billions)	377	426	532	502	1,639	1,838	2,360
Purchase Originations	291	310	407	364	1,325	1,373	1,684
Refinance Originations	86	116	125	138	314	465	676
Gross Issuance of Agency MBS (\$Billions)	211	307	383	362	986	1,263	1,746
Refinance Share (%)	23	27	23	27	19	25	29

Note 1: Annual data for housing starts are annual averages. Annual data for Case-Shiller national house prices are year-end numbers. Annual data for mortgage originations are the sum of quarterly originations.

Note 2: The Case-Shiller National House Price index is a weighted average of metro-level HPis for 381 metro cities where the weights are dollar values of housing stock reported in the American Community Survey.

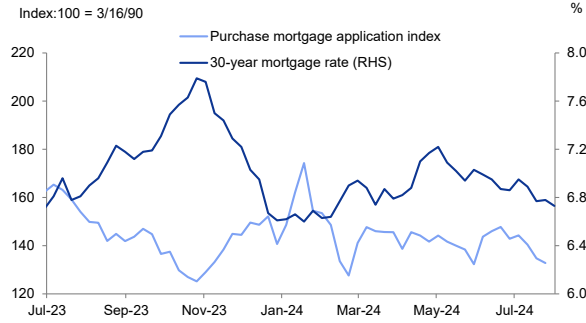
Note 3: Interest rates refer to period end values.

Note 4: Sources for historical data are Census Bureau, NAR, Moody's Analytics, Federal Reserve, Freddie Mac, and MBA.

Source: Goldman Sachs Global Investment Research

**Exhibit 2: Mortgage applications have yet to respond to the drop in mortgage rates**

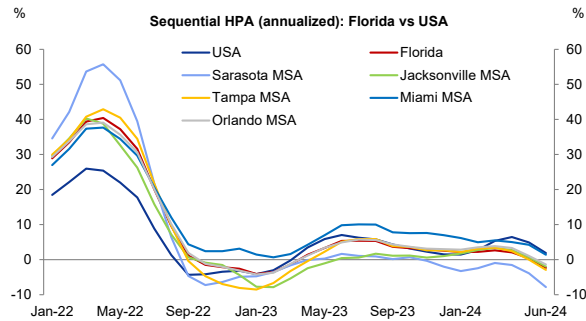
Purchase mortgage application index (left hand axis) vs. Freddie Mac 30-year Primary Mortgage Market Survey (right axis)



Source: Mortgage Bankers Association, Freddie Mac, Goldman Sachs Global Investment Research

**Exhibit 5: Florida MSAs have seen a sharper slowdown in HPA vs. the broader country**

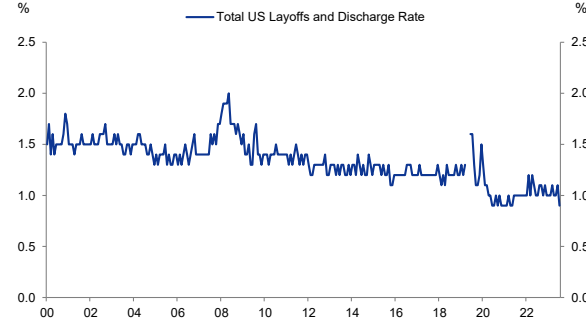
Annualized, seasonally-adjusted, month-over-month change of Zillow Home Value Index for the top 5 Florida MSAs vs. Florida state and United States national



Source: Zillow, Goldman Sachs Global Investment Research

**Exhibit 3: The rate of permanent layoffs remains low in the US**

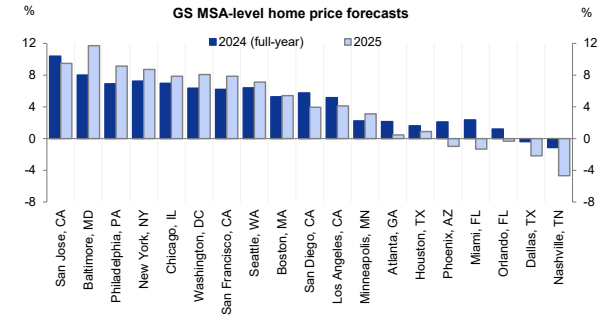
Rate of layoffs and discharges across all US workers (seasonally-adjusted)



Source: Bureau of Labor Statistics, Goldman Sachs Global Investment Research

**Exhibit 4: The outlook for West Coast home prices has strengthened**

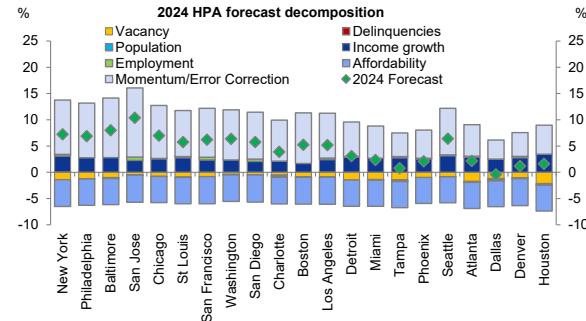
GS MSA-level 2024 and 2025 full-year home price growth forecasts for largest metros



Source: Goldman Sachs Global Investment Research

**Exhibit 6: Our model expects stronger home price momentum in California, the Mid-Atlantic, and Midwest, but poorer HPA in the South**

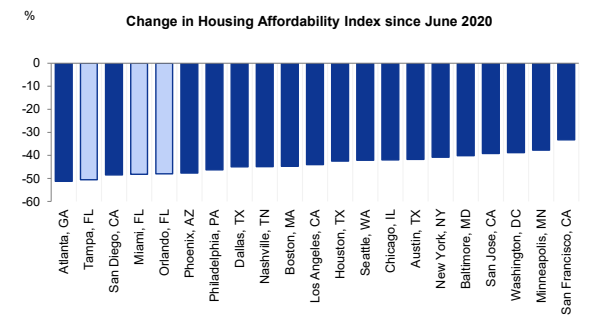
Decomposition of our 2024 full-year home price appreciation forecast into the primary GS bottom-up HPA model drivers



Source: Goldman Sachs Global Investment Research

**Exhibit 7: Housing affordability has particularly deteriorated in Florida markets**

Change in GS MSA-level Housing Affordability Index for large metros in June 2024 vs. June 2020

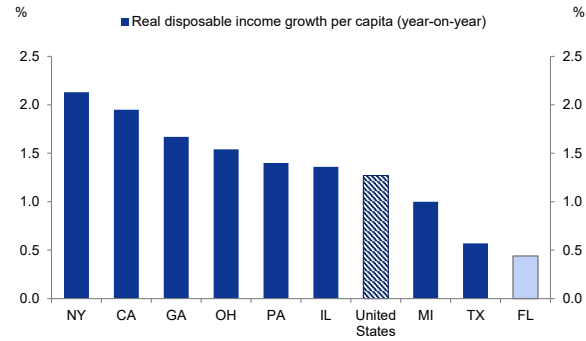


Source: Goldman Sachs Global Investment Research

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**Exhibit 8: Florida has experienced weaker real disposable income growth vs. other geographies**

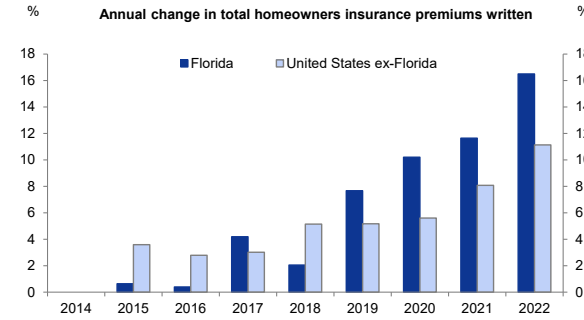
Year-over-year change in real disposable income growth by state



Source: Bureau of Economic Analysis, Goldman Sachs Global Investment Research

**Exhibit 9: The cost of homeowners insurance has risen more in Florida than the broader country**

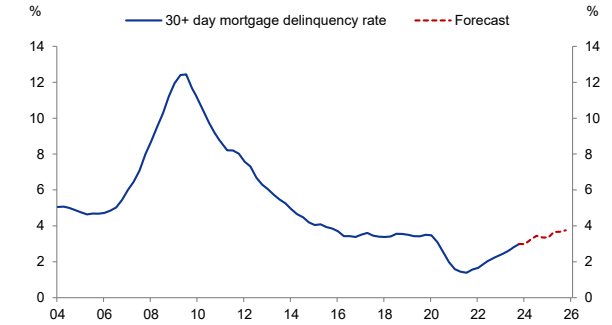
Year-over-year % change in total homeowners insurance premiums for Florida vs. the US ex-Florida



Source: National Association of Insurance Commissioners, Goldman Sachs Global Investment Research

**Exhibit 10: We expect the aggregate 30+ day mortgage delinquency rate will rise to 3.8% by 2025E vs. 3.2% today**

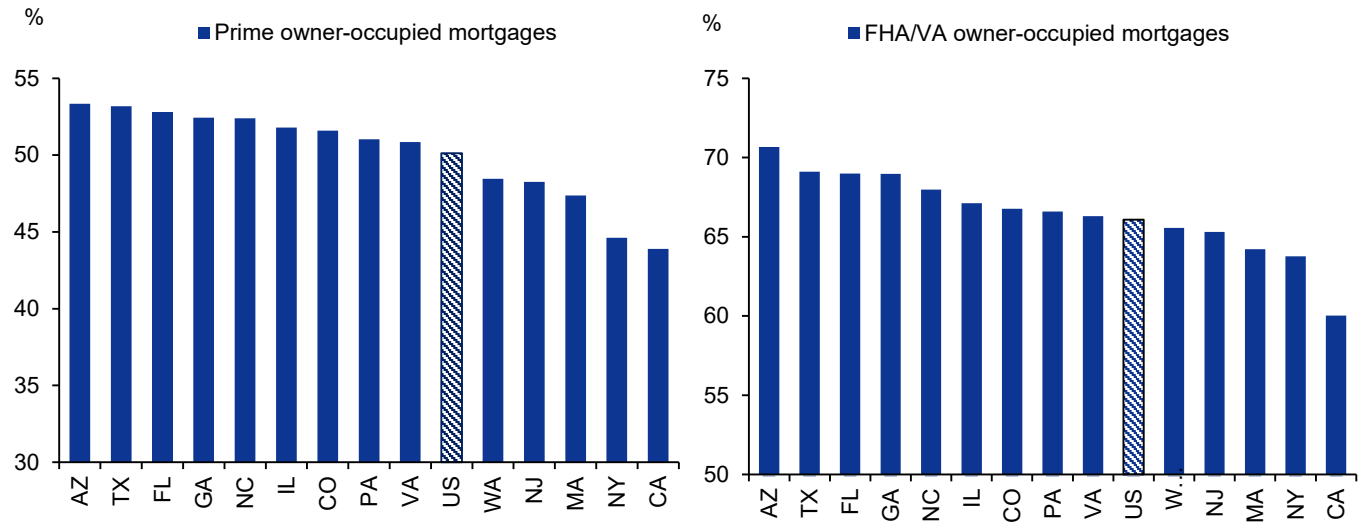
30+ day delinquency rate with GS forecasts for all first-lien residential mortgages



Source: Federal Reserve Bank of New York, Goldman Sachs Global Investment Research

**Exhibit 11: Mark-to-market LTVs still remain low, at ~50% for conforming loans and ~68% for VA/FHA loans**

HPI-adjusted (mark-to-market) LTV across states, for prime loans (both agency and non-agency) on left panel and FHA/VA loans on right panel

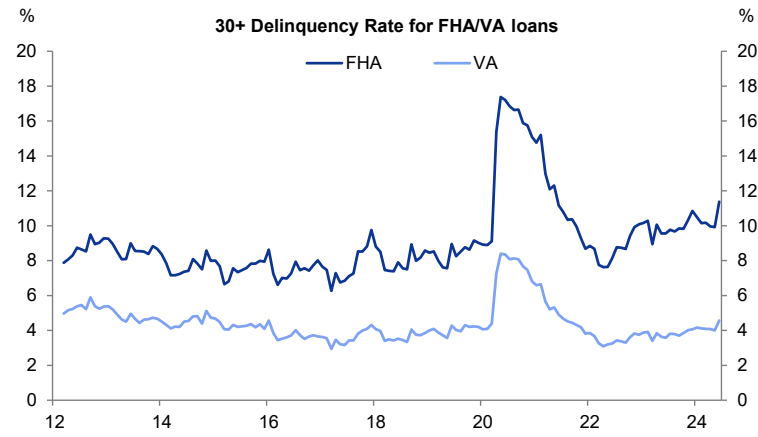


Source: Black Knight Goldman Sachs Global Investment Research

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**Exhibit 12: FHA delinquency rates have risen above pre-COVID levels**  
30+ day delinquency rate for FHA and VA loans



Source: Black Knight, Goldman Sachs Global Investment Research

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## Housing Forecasts and Key Charts

### Exhibit 13: We forecast home prices will appreciate by 4.5% in 2024 and 4.4% in 2025

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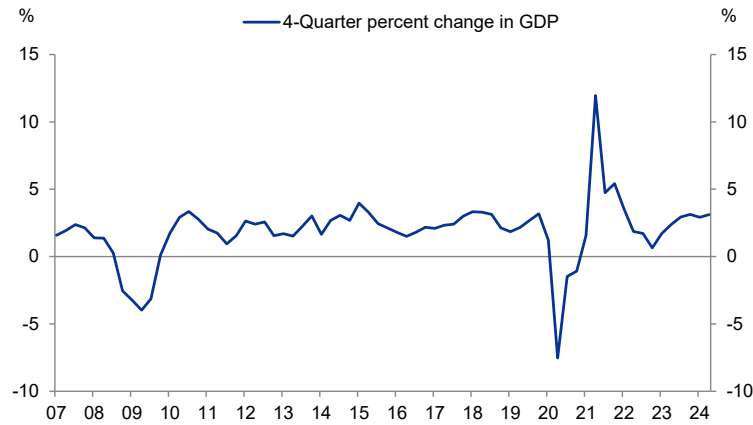
Note 4: Sources for historical data are Census Bureau, NAR, Moody's Analytics, Federal Reserve, Freddie Mac, and MBA.

Source: Goldman Sachs Global Investment Research

# Labor markets appear to be loosening

**Exhibit 14: Economic growth remains positive year over year**

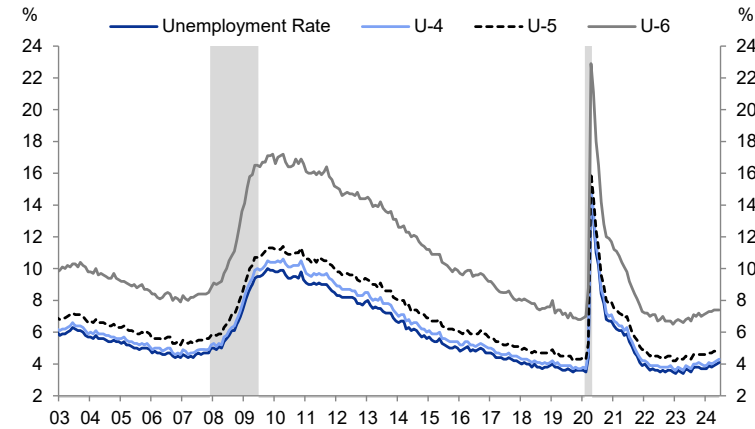
Year-over-year change in GDP



Source: US Bureau of Economic Analysis (BEA), Goldman Sachs Global Investment Research

**Exhibit 15: Unemployment and underemployment rates indicate persistent tightness in labor markets**

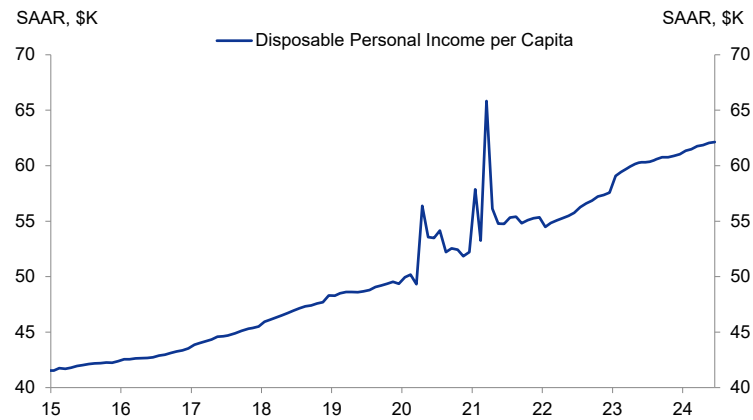
Measures of labor under-utilization



Source: BLS, Goldman Sachs Global Investment Research

**Exhibit 16: Nominal personal income continues to grow**

Disposable personal income per capita



Source: BEA, Goldman Sachs Global Investment Research

**Exhibit 17: Financial conditions are now loosening**

Goldman Sachs Financial Conditions Index

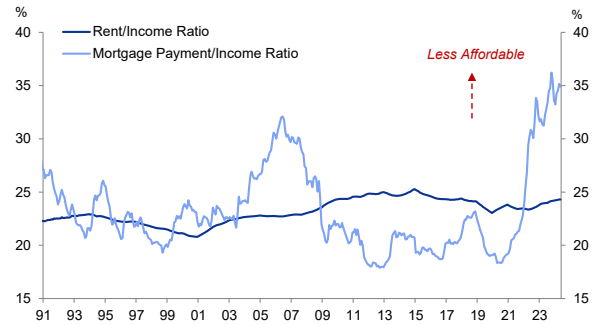


Source: Goldman Sachs Global Investment Research

# US housing affordability is still poor

**Exhibit 18: Rental affordability is superior to mortgage affordability at present but is strained nonetheless**

Housing vs. Rental Affordability Indices



Source: Goldman Sachs Global Investment Research

**Exhibit 19: Our US housing affordability index remains at record lows**

GS Housing Affordability Index



Source: Goldman Sachs Global Investment Research

**Exhibit 20: Current coupon mortgage basis has tightened to 143bp this month**

Mortgage basis (current coupon mortgage rate – 5/10-Year Treasury rate)

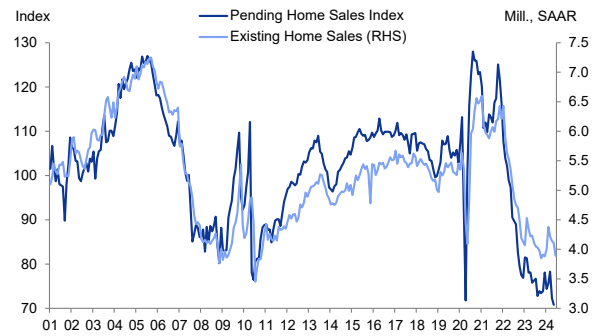


Source: Goldman Sachs Global Investment Research

# Housing activity picked up in 2024Q1

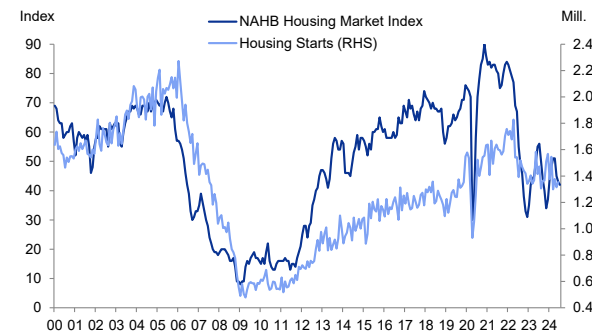
**Exhibit 21: Existing home sales are down 4% year to date through June**

Pending and existing home sales



Source: NAR, Goldman Sachs Global Investment Research

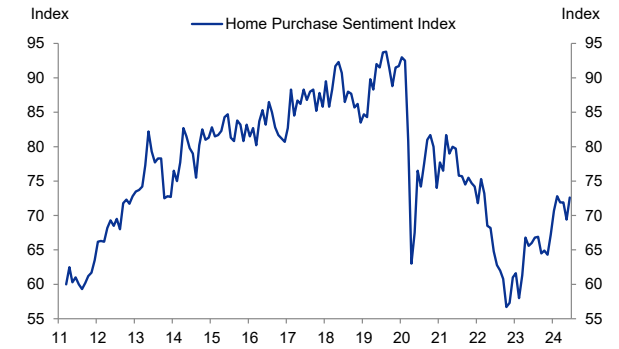
**Exhibit 22: Housing starts increased in June**  
NAHB housing market index and housing starts



Source: NAHB, Census Bureau, Goldman Sachs Global Investment Research

**Exhibit 23: Homebuyer sentiment has somewhat improved in June**

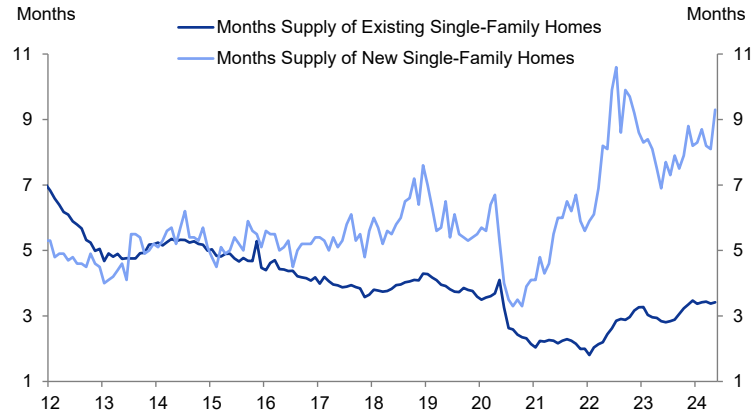
Fannie Mae Home Purchase Sentiment Index



Source: Fannie Mae, Haver Analytics, Goldman Sachs Global Investment Research

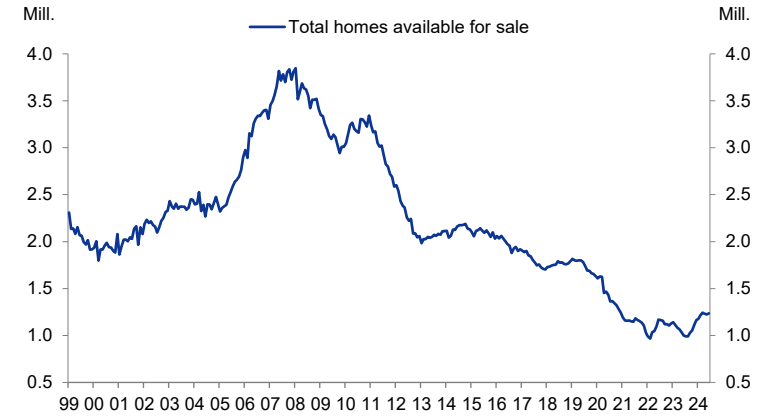
# Supply of completed homes remains constrained

**Exhibit 24: Months supply has normalized across new and existing housing**  
Months' supply of single-family homes



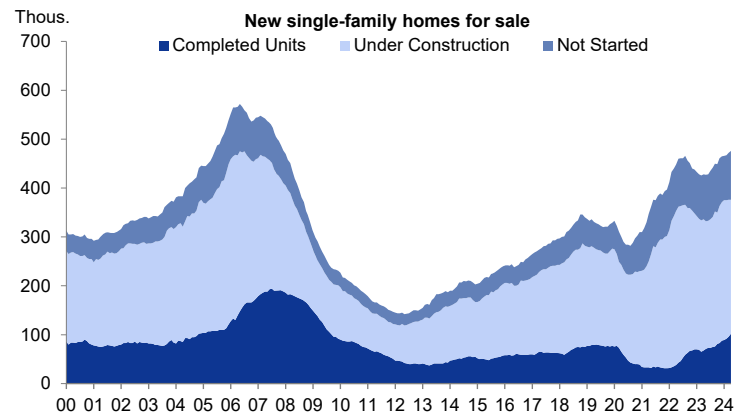
Source: National Association of Realtors (NAR), Census Bureau, Haver Analytics, Goldman Sachs Global Investment Research

**Exhibit 25: Supply of homes listed for sale slightly increased in June**  
Total homes available for sale (seasonally adjusted)



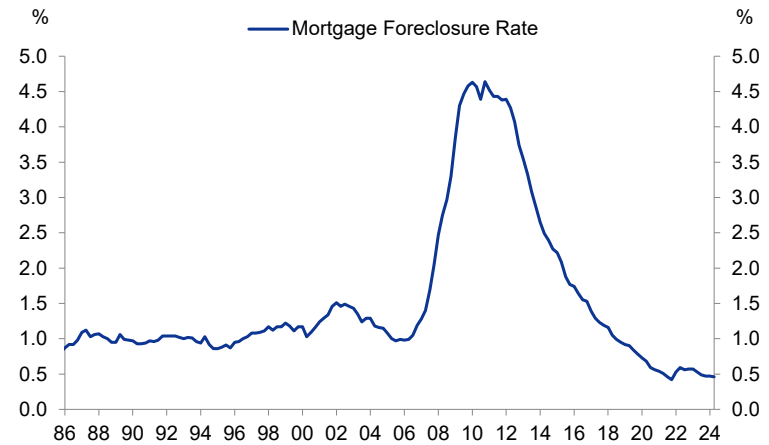
Source: National Association of Realtors (NAR), Goldman Sachs Global Investment Research

**Exhibit 26: The pipeline of homes not yet completed remains substantial**  
For-sale single-family homes available by stage



Source: Census Bureau, Goldman Sachs Global Investment Research

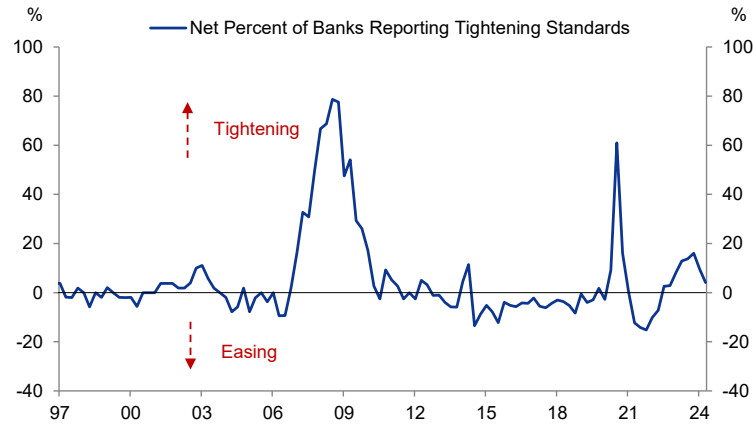
**Exhibit 27: The share of loans in foreclosure remains very low at 0.46%**  
Mortgage foreclosure rate



Source: MBA, Goldman Sachs Global Investment Research

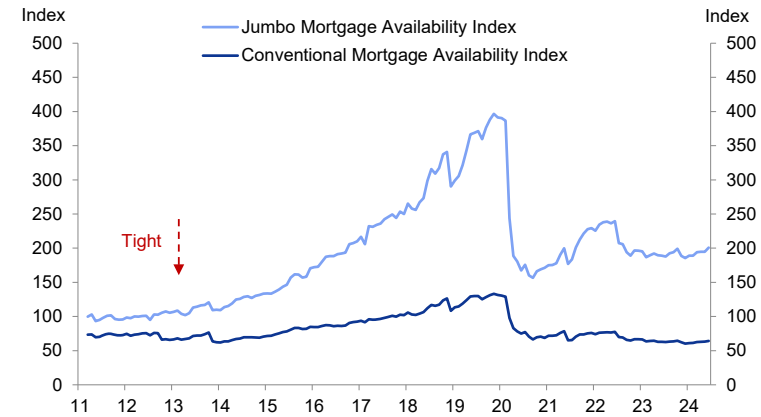
# Mortgage lending standards have loosened in Q22024

**Exhibit 28: Bank lending standards continue to loosen**  
FRB Senior Loan Officer Opinion Survey on mortgage lending



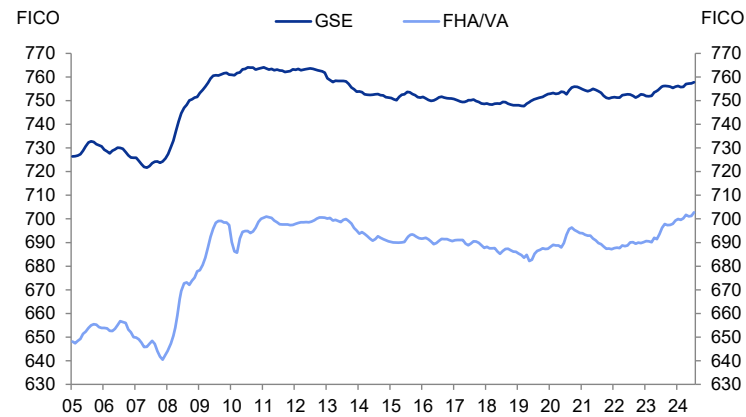
Source: FRB, Haver Analytics

**Exhibit 29: Jumbo mortgage availability increased in June**  
MBA Credit Availability Index (March 2012=100)



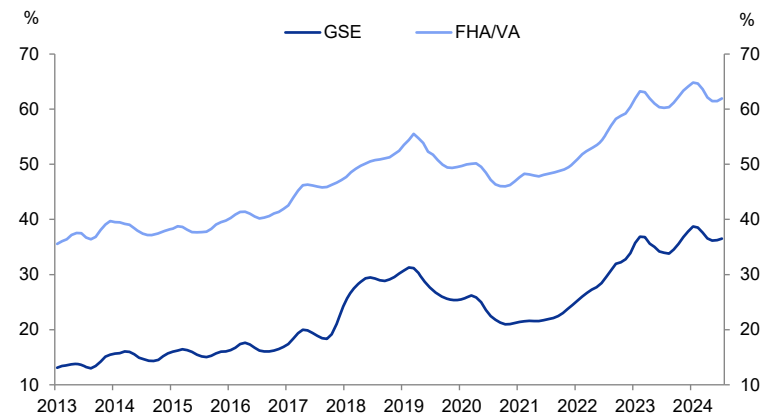
Source: MBA

**Exhibit 30: FICO scores at origination remain high relative to pre-GFC levels**  
Average FICO at origination for purchase mortgages



Source: Black Knight, eMBS, Goldman Sachs Global Investment Research

**Exhibit 31: 37% of new GSE purchase mortgages have DTI above 43%**  
Share of loans with DTI above 43% for purchase mortgages by origination month

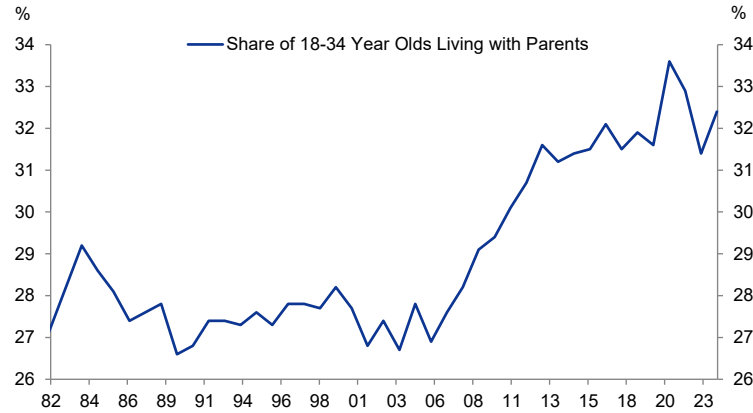


Source: eMBS, Goldman Sachs Global Investment Research

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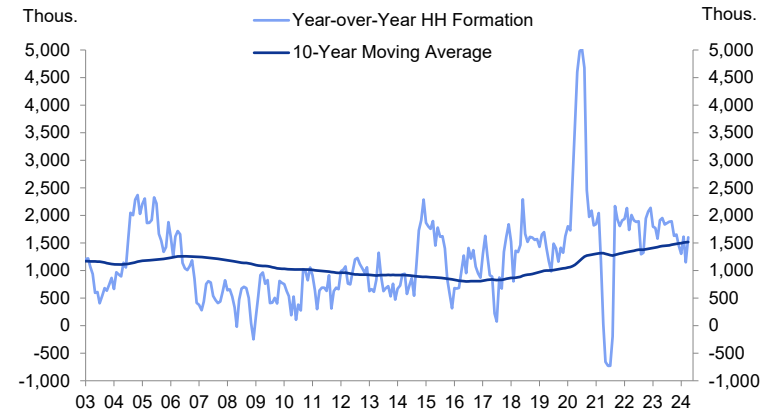
# Homeownership rates have ticked down in Q12024

**Exhibit 32: The share of young adults living with parents increased in 2023**  
Share of 18-34 year old individuals living with parents



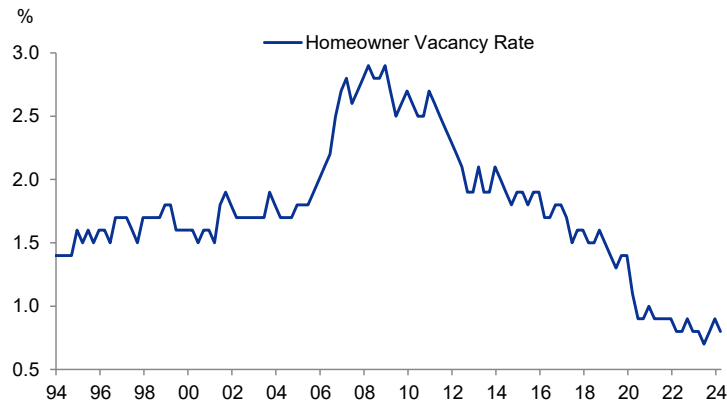
Source: Census Bureau, Goldman Sachs Global Investment Research

**Exhibit 33: Household formation is above long-term trend**  
Household formation



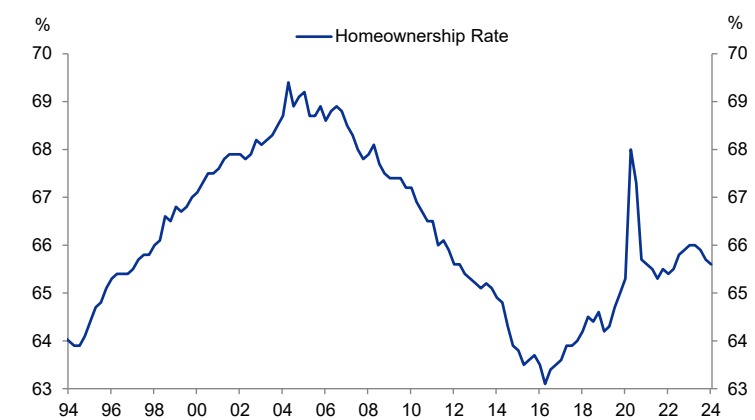
Source: Census Bureau, Haver Analytics, Goldman Sachs Global Investment Research

**Exhibit 34: Homeowner vacancies remain at all-time low rates**  
Homeowner vacancy rate



Source: Census Bureau, Goldman Sachs Global Investment Research

**Exhibit 35: US homeownership rate has ticked down in Q1 2024**  
Homeownership rate



Source: Census Bureau



# Sequential home price growth is slowing

## Exhibit 36: Some of the main home price indices show positive home price appreciation in recent months

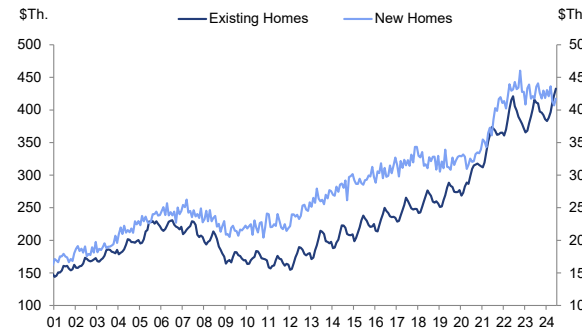
Annualized HPA across different house price indices and horizons

Metric	End Date	Annualized HPA (% SA)			
		Past 1 Mon	Past 3 Mon	Past 6 Mon	Past 12 Mon
NAR	Jun-24	-2.5	2.8	2.7	3.8
Freddie Mac	May-24	1.6	1.6	2.2	5.7
FHFA	May-24	-0.6	0.6	2.5	5.6
Zillow	Jun-24	-2.2	2.2	7.0	6.8
Case-Shiller	May-24	3.1	3.8	4.2	5.9
Median	May-24	-0.6	2.2	2.7	5.7

Source: FHFA, Freddie Mac, S&P, Zillow, Goldman Sachs Global Investment Research

## Exhibit 37: New home sales prices have increased in June

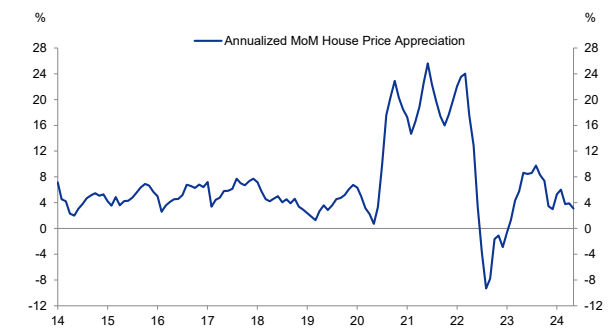
Median price of new and existing single-family home sales



Source: NAR, Census Bureau, Goldman Sachs Global Investment Research

## Exhibit 38: House prices rose at a +3.1% rate in May

Annualized month over month price growth, Case-Shiller US Seasonally-Adjusted index



Source: S&P, Goldman Sachs Global Investment Research

## Most US metros are seeing home price growth stabilize

### Exhibit 39: New York year-over-year house price growth is the highest of the top 20 metro areas

Metro level housing indicators

City	1/2000 to Current HPA (%)	Annualized HPA 1/2000-Current (%)	YoY HPA (%)	Serious Delinq. (%)	Unemployment Rate (%)	Vacancy Rate (%)	Median Price (\$Th)	Median Income (\$Th)	HOI	Average FICO
New York	210	5	9.4	3.2	4.4	0.8	667	113	13	742
San Diego	346	6	9.1	0.7	4.4	0.3	828	117	4	761
Las Vegas	196	5	8.6	1.4	5.4	1.1	432	84	14	739
Los Angeles	344	6	8.4	1.0	4.9	0.4	905	105	3	754
Miami	340	6	7.6	2.2	2.7	0.9	451	85	22	730
Cleveland	92	3	7.5	2.5	4.0	0.8	186	94	71	730
Chicago	107	3	7.5	2.5	4.7	0.5	347	125	51	738
Boston	237	5	7.2	1.4	3.1	0.7	632	140	23	751
Charlotte	180	4	7.2	1.6	3.5	0.6	389	103	37	741
Seattle	294	6	7.1	0.8	4.5	0.5	673	139	25	757
Detroit	88	3	6.9	2.9	3.9	0.6	226	95	66	726
Washington DC	229	5	6.1	1.7	2.8	0.2	517	150	46	747
Atlanta	148	4	5.7	2.2	3.1	0.8	375	104	40	734
Phoenix	228	5	4.4	1.2	3.0	1.0	440	99	22	745
San Francisco	265	5	4.3	0.5	4.2	1.1	1108	158	9	768
Tampa	287	6	3.3	1.9	3.4	1.1	359	89	31	736
Dallas	201	5	2.6	1.8	3.8	1.0	376	103	28	738
Minneapolis	141	4	2.4	1.3	2.7	0.6	350	125	60	752
Denver	223	5	2.1	0.8	3.8	0.1	560	126	24	757
Portland	228	5	1.0	0.9	4.1	0.6	500	114	18	757

Source: Black Knight, Goldman Sachs Global Investment Research

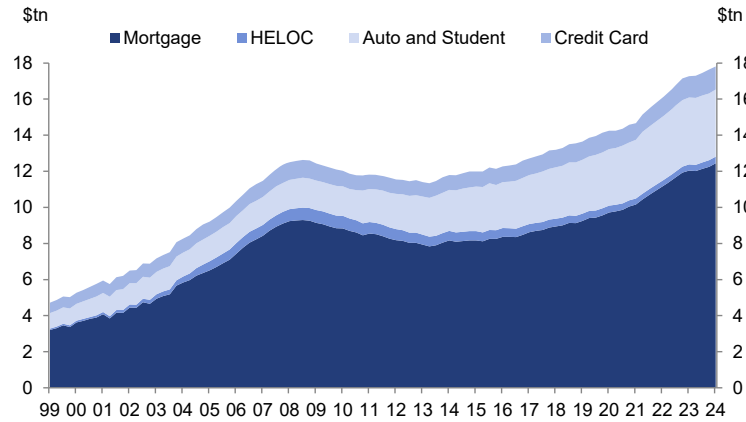
### Exhibit 40: Definitions of housing indicators

Metric	Definition	Source
1/2000-to-Current HPA	Cumulative house price growth from 1/2000 to current month	S&P
Annualized HPA (2000 to Current)	Annualized average house price growth from 1/2000 to current month	S&P
YoY HPA	Year-over-year house price growth	S&P
% Seriously Delinquent	Percentage of first-lien mortgages 60+ days delinquent or in foreclosure	Black Knight
Unemployment Rate	Seasonally adjusted unemployment rate	BLS
Vacancy Rate	Homeowner vacancy rate	US Census
Median Price	Median home price (\$Th)	NAHB
Median Income	Median family income (\$Th)	NAHB
HOI	Housing Opportunity Index: 100=affordable, 0=unaffordable	NAHB
Average FICO	Average FICO score at origination among outstanding first-lien mortgages	Black Knight

Source: Goldman Sachs Global Investment Research

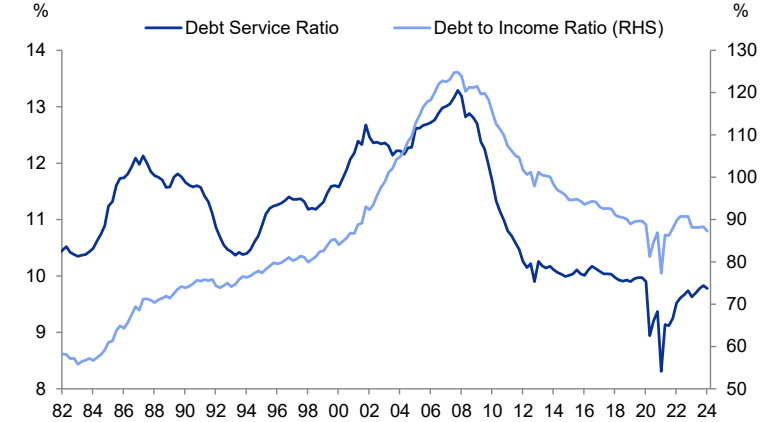
# Household balance sheet metrics remain resilient

**Exhibit 41: Outstanding credit card debt increased by 8% year-over-year in 2024Q1**  
Household debt balance by type of debt



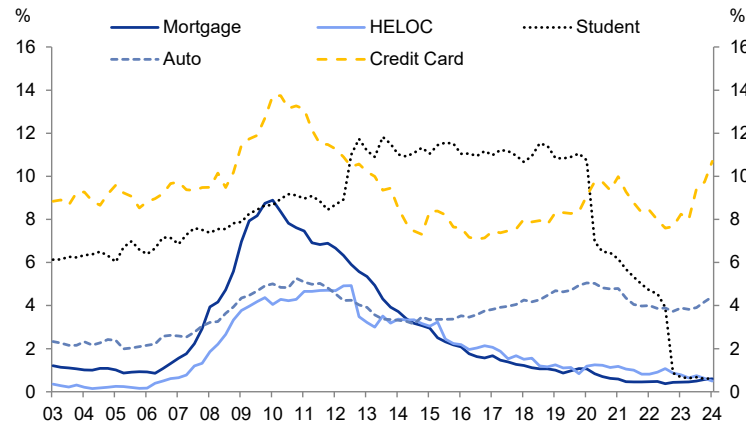
Source: FRB, FRBNY, Goldman Sachs Global Investment Research

**Exhibit 42: Household debt to income ratios declined in 2024Q1**  
Debt service ratio and debt-to-income ratio



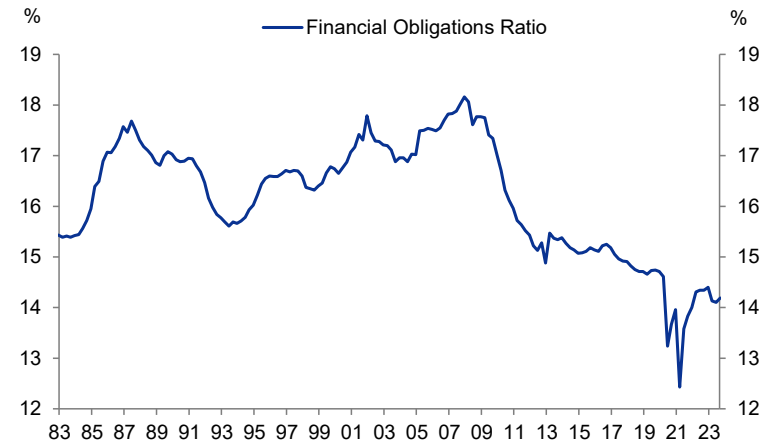
Source: FRB, BEA, Goldman Sachs Global Investment Research

**Exhibit 43: Serious delinquency rates remained low through Q1, with the exception of credit cards**  
90+-day delinquency rate by account type



Source: FRBNY, Goldman Sachs Global Investment Research

**Exhibit 44: Financial obligations (including debt payments, lease payments, property taxes, and rents) relative to incomes are staying low by historical standards**  
Ratio of financial obligation payments to disposable personal income

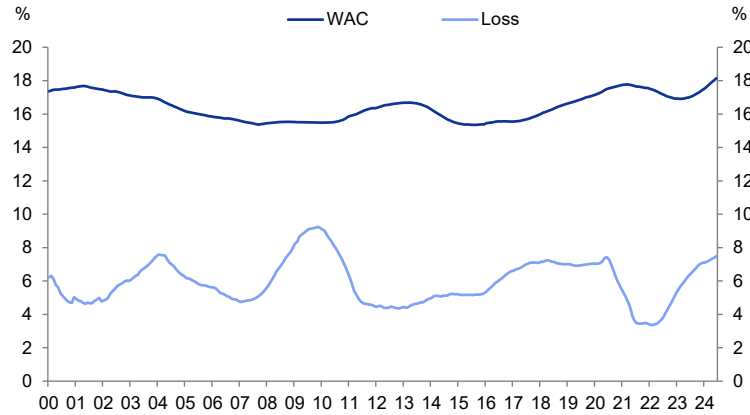


Source: Federal Reserve Board, Goldman Sachs Global Investment Research

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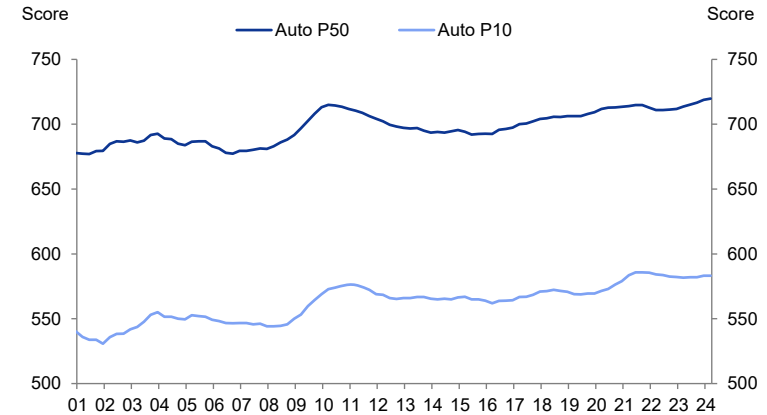
# Auto loan loss rates are close to pre-COVID levels

**Exhibit 45: Subprime auto ABS losses have grown and are close to pre-COVID levels**  
 Subprime auto loan ABS annual loss rate vs. WAC



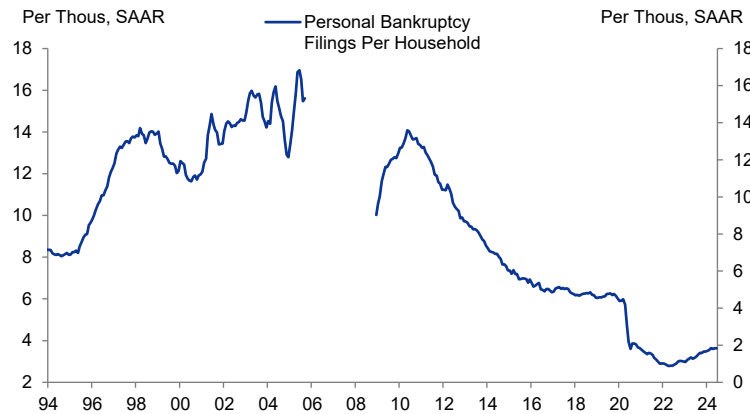
Source: Intex, Goldman Sachs Global Investment Research

**Exhibit 46: Auto loan credit scores are at the high end of their historical range**  
 Auto loan 10th and 50th percentile credit scores by origination quarter



Source: Federal Reserve Bank of New York, Goldman Sachs Global Investment Research

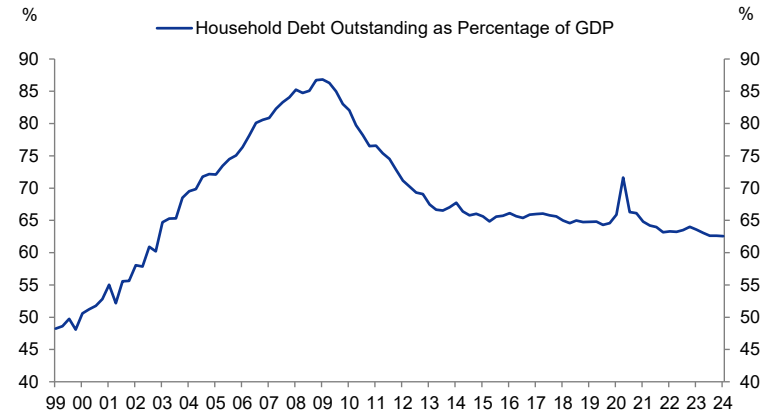
**Exhibit 47: Personal bankruptcy filing rates are hovering over multi-decade lows**  
 Personal bankruptcies per capita (seasonally adjusted)



2005-2009 data are excluded due to distortions following enactment of the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005.

Source: Admin. Office of the US Courts, Census Bureau, Goldman Sachs Global Investment Research

**Exhibit 48: Household debt outstanding as a share of US GDP is down over the past decade**  
 Household debt outstanding as a percentage of annual nominal US GDP

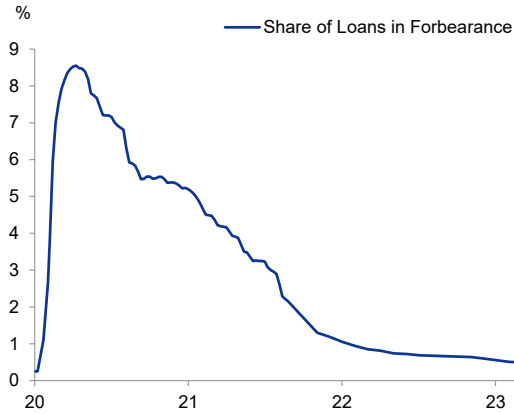


Source: BEA, Federal Reserve, Goldman Sachs Global Investment Research

# 0.23% of mortgage borrowers are in forbearance

**Exhibit 49: The share of US mortgage borrowers in forbearance has slightly increased in June**

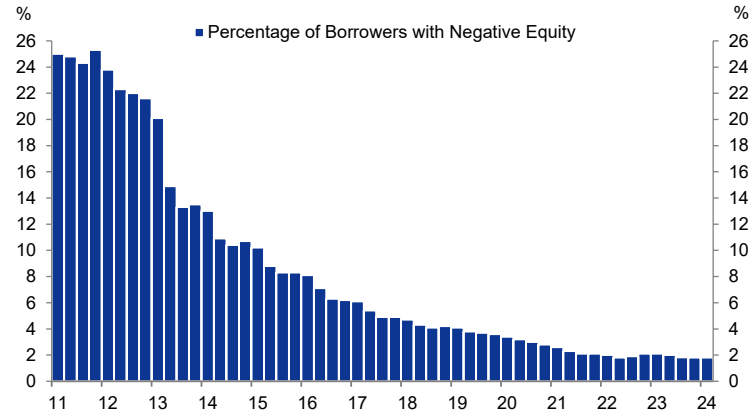
Share of US mortgage borrowers in a forbearance plan



Source: MBA, Goldman Sachs Global Investment Research

**Exhibit 50: 1.8% of mortgaged properties have negative equity**

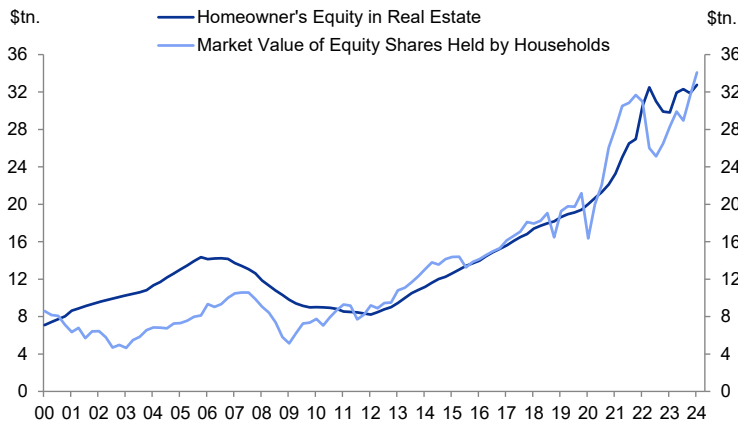
Percentage of mortgages with negative equity



Source: CoreLogic, Goldman Sachs Global Investment Research

**Exhibit 51: The gap between real estate equity and stock market holdings has converged**

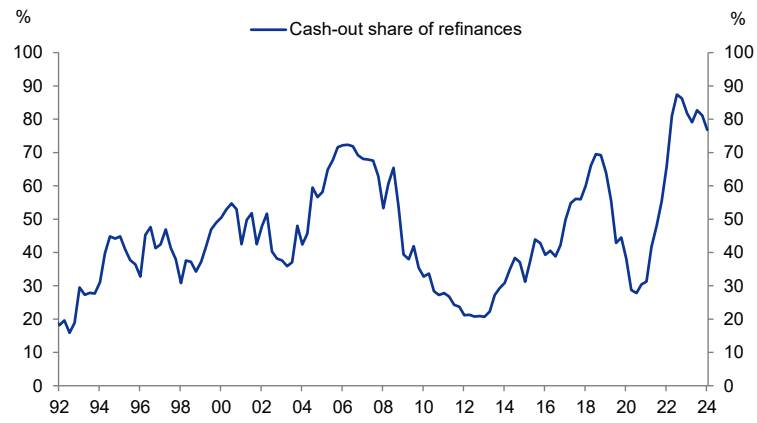
Housing and stock market equity held by households



Source: FRB, Goldman Sachs Global Investment Research

**Exhibit 52: 77% of refinance originations are cash-out transactions**

Cash-out refinance share by origination quarter

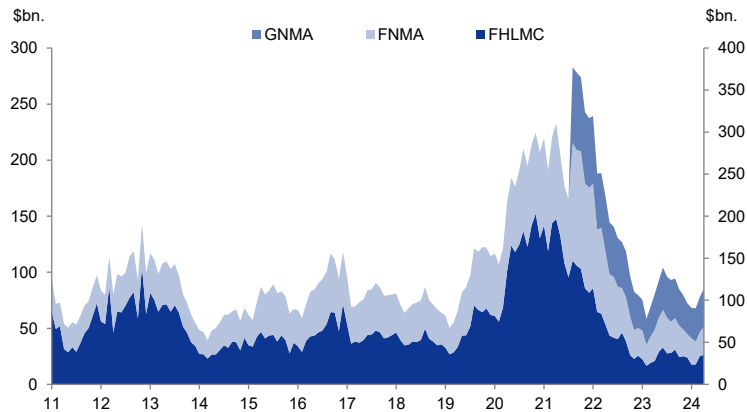


Source: FHFA, Goldman Sachs Global Investment Research

# Agency MBS issuance has picked up from 2023H1 but remains low

**Exhibit 53: Agency MBS issuance has picked up off seasonal strength**

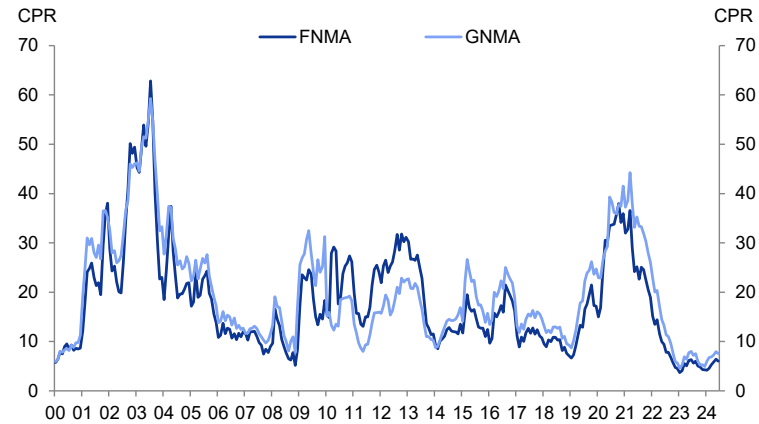
Agency MBS gross monthly issuance



Source: eMBS, Goldman Sachs Global Investment Research

**Exhibit 54: Agency prepayments for 30-year conventionals inched higher in June**

30-year conventional and government MBS prepayment speeds (conditional prepayment rate)



Source: eMBS, Goldman Sachs Global Investment Research

**Exhibit 55: 30-year FNMA 30-year prepayment rates remain mostly unchanged in June vs. May**

Agency MBS prepayments by product

Product	Bal (\$B)	WAC	WALA	CLTV	ALS	% Wells	% Chase	% BoA	Jun CPR	May CPR	% Chg
FN30	2,864	4.0	48	54	257	7	6	1	6	6	-6%
GN30-II	1,790	4.0	43	69	263	4	0	0	8	8	-5%
FN15	372	2.9	51	34	163	8	7	0	7	7	-7%
FN20	145	3.3	55	39	188	8	9	1	5	6	-4%

Source: eMBS, Goldman Sachs Global Investment Research

## Conventional MBS prepayment rates were down in June vs. May across some cohorts

### Exhibit 56: Prepayments were down in June across some coupon cohorts

FNM 30-year MBS prepayments by coupon and vintage

Product	Coupon	Vintage	Bal (\$B)	WAC	WALA	CLTV	FICO	ALS (\$K)	Jun CPR	May CPR	% Chg
FNM30	1.5	2021	39	2.5	39	48	773	334	4	4	-13%
FNM30	1.5	2020	37	2.5	43	46	774	322	4	4	-9%
FNM30	2.0	2022	42	2.9	28	59	761	345	4	4	-6%
FNM30	2.0	2021	441	2.9	36	53	763	295	5	5	-5%
FNM30	2.0	2020	266	2.9	44	47	767	278	5	5	-5%
FNM30	2.5	2022	75	3.3	28	64	749	317	5	6	-5%
FNM30	2.5	2021	296	3.2	35	57	743	253	6	6	-5%
FNM30	2.5	2020	204	3.4	47	47	755	244	6	6	-6%
FNM30	2.5	2019	13	3.5	56	45	766	280	5	7	-24%
FNM30	3.0	2022	66	3.7	27	66	744	294	6	6	-6%
FNM30	3.0	2021	42	3.7	35	58	720	202	7	7	-9%
FNM30	3.0	2020	60	3.8	49	47	744	195	6	7	-5%
FNM30	3.0	2019	44	3.9	56	46	755	218	7	7	-8%
FNM30	3.0	2016	53	3.6	94	35	761	191	6	6	-7%
FNM30	3.0	2015	12	3.8	109	31	767	187	7	7	-3%
FNM30	3.5	2022	60	4.2	25	69	743	297	6	7	-7%
FNM30	3.5	2020	11	4.2	50	48	730	156	7	8	-17%
FNM30	3.5	2019	25	4.3	59	47	741	183	8	8	-6%
FNM30	3.5	2018	10	4.1	75	41	755	197	6	7	-14%
FNM30	3.5	2017	32	4.0	82	39	754	179	6	7	-13%
FNM30	3.5	2016	22	4.1	95	36	739	145	6	7	-9%
FNM30	3.5	2015	30	4.1	107	33	751	156	6	7	-11%
FNM30	3.5	2013	18	4.0	132	28	742	127	6	7	-14%
FNM30	4.0	2019	14	4.8	60	47	728	159	7	9	-13%
FNM30	4.0	2018	25	4.6	72	44	743	180	8	8	-9%
FNM30	4.0	2017	24	4.5	83	40	730	150	7	7	-2%
FNM30	4.0	2014	15	4.6	119	32	735	128	7	7	-3%
FNM30	4.0	2013	10	4.6	129	30	737	116	7	7	-4%
FNM30	4.5	2018	15	5.1	71	45	720	142	8	9	-8%
FNM30	5.0	2023	53	6.0	13	73	760	329	5	6	-10%
FNM30	5.0	2022	50	5.8	21	74	740	282	8	8	-3%
FNM30	5.5	2024	30	6.5	3	77	763	334	6	7	-8%
FNM30	5.5	2023	72	6.5	12	74	757	317	6	7	-4%
FNM30	6.0	2024	33	7.0	3	78	757	337	8	8	-8%
FNM30	6.0	2023	63	6.9	11	75	753	311	7	8	-11%
FNM30	6.5	2023	50	7.4	10	76	748	310	10	11	-9%
FNM30	7.0	2023	15	7.9	7	77	744	298	18	18	1%

Source: eMBS, Goldman Sachs Global Investment Research

## High coupon Ginnie Mae prepayments slightly increased month-on-month in some cohorts

### Exhibit 57: Total prepayments on most Ginnie Mae cohorts decreased in most cohorts in June vs. May

GNM II 30-year MBS prepayments by coupon and vintage

Product	Coupon	Vintage	Bal (\$B)	WAC	WALA	CLTV	FICO	ALS (\$K)	CDR	VCPR	Jun CPR	May CPR	% Chg
GNM II	2.0	2022	31	2.5	28	74	725	316	0	6	6	6	0%
GNM II	2.0	2021	235	2.4	36	65	726	278	0	6	6	7	-7%
GNM II	2.0	2020	73	2.4	43	58	740	278	0	6	6	6	2%
GNM II	2.5	2022	41	3.0	28	76	697	254	1	6	7	8	-15%
GNM II	2.5	2021	191	2.9	35	70	688	262	0	7	7	7	-6%
GNM II	2.5	2020	114	2.9	46	59	712	249	0	7	7	8	-8%
GNM II	3.0	2022	40	3.5	27	80	691	275	1	6	7	8	-2%
GNM II	3.0	2021	48	3.4	34	72	660	247	1	6	7	8	-12%
GNM II	3.0	2020	53	3.5	50	59	685	213	0	7	7	9	-14%
GNM II	3.0	2019	24	3.5	57	56	706	212	0	7	7	8	-12%
GNM II	3.0	2017	13	3.5	85	47	710	162	0	7	7	8	-10%
GNM II	3.0	2016	33	3.4	94	45	706	159	0	7	7	7	-2%
GNM II	3.0	2015	11	3.5	108	41	714	147	0	6	6	7	-14%
GNM II	3.0	2013	17	3.3	134	34	718	126	0	5	6	7	-19%
GNM II	3.5	2022	37	4.0	26	81	689	284	1	6	7	8	-15%
GNM II	3.5	2020	12	3.9	50	59	649	188	1	6	8	8	-9%
GNM II	3.5	2019	21	4.0	59	56	674	196	1	7	8	9	-9%
GNM II	3.5	2017	29	3.9	83	49	695	165	1	7	7	8	-6%
GNM II	3.5	2016	20	3.9	96	44	676	144	0	6	7	7	-7%
GNM II	3.5	2015	22	3.9	107	42	690	137	0	6	7	7	-5%
GNM II	3.5	2013	10	3.9	132	34	691	111	0	6	6	7	-11%
GNM II	3.5	2012	15	3.8	143	31	711	119	0	6	6	7	-8%
GNM II	4.0	2022	58	4.5	23	84	698	313	1	6	7	8	-13%
GNM II	4.0	2019	13	4.5	63	55	655	176	1	7	8	9	-8%
GNM II	4.0	2018	13	4.5	72	53	688	166	1	7	8	9	-13%
GNM II	4.0	2017	10	4.4	85	49	661	161	1	6	7	8	-12%
GNM II	4.5	2023	21	5.0	13	88	709	338	1	3	4	4	-6%
GNM II	4.5	2022	60	5.0	22	86	692	321	2	6	7	8	-11%
GNM II	5.0	2024	15	5.6	3	92	717	390	0	1	1	1	-6%
GNM II	5.0	2023	54	5.6	12	87	711	359	1	4	5	6	-4%
GNM II	5.0	2022	42	5.5	21	86	681	314	2	6	9	9	-1%
GNM II	5.5	2024	33	6.1	3	92	715	383	0	2	2	2	-13%
GNM II	5.5	2023	65	6.1	12	88	702	355	1	6	7	8	-7%
GNM II	5.5	2022	20	6.0	20	86	674	305	3	6	9	11	-11%
GNM II	6.0	2024	27	6.6	3	93	702	368	0	2	2	2	7%
GNM II	6.0	2023	56	6.6	11	89	693	347	2	11	13	13	0%
GNM II	6.5	2024	12	7.0	3	92	683	348	0	3	3	3	3%
GNM II	6.5	2023	34	7.0	9	90	682	341	2	26	28	22	27%
GNM II	7.0	2023	12	7.5	8	91	671	331	3	35	37	29	29%

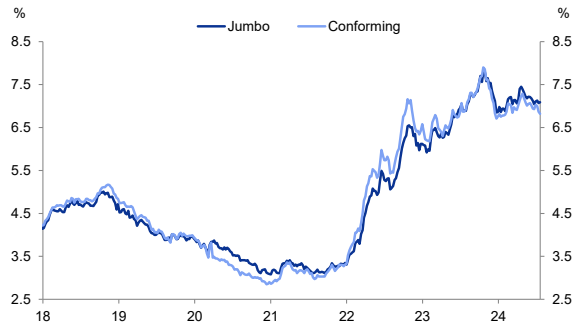
Source: eMBS, Goldman Sachs Global Investment Research



# The Jumbo-conforming spread has converged

**Exhibit 58: The jumbo - conforming spread has reverted to positive territory**

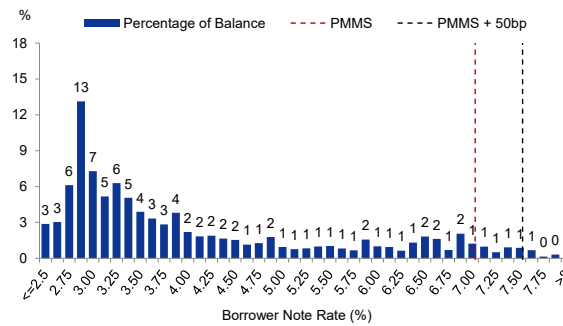
Jumbo vs. conforming mortgage rates



Source: MBA, Goldman Sachs Global Investment Research

**Exhibit 59: 92% of outstanding mortgages have interest rates below PMMS**

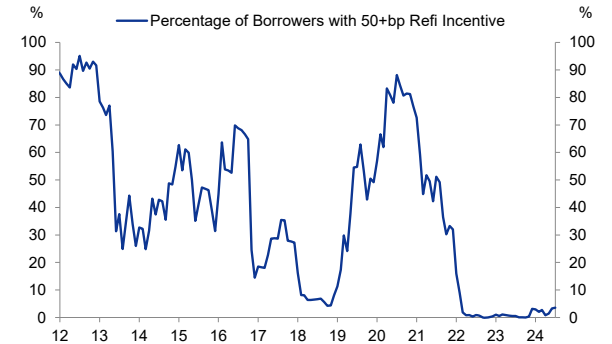
Distribution of outstanding 30-year conventional mortgage borrower interest rates



Source: eMBS, Goldman Sachs Global Investment Research

**Exhibit 60: 3.6% of mortgage borrowers are in-the-money for refinancing**

Percentage of outstanding 30-year conventional mortgages with at least a 50bp incentive to refinance



Source: eMBS, Goldman Sachs Global Investment Research

# The Federal Reserve's agency MBS assets have fallen below \$2.3 trillion

**Exhibit 61: The Treasury curve remains inverted**

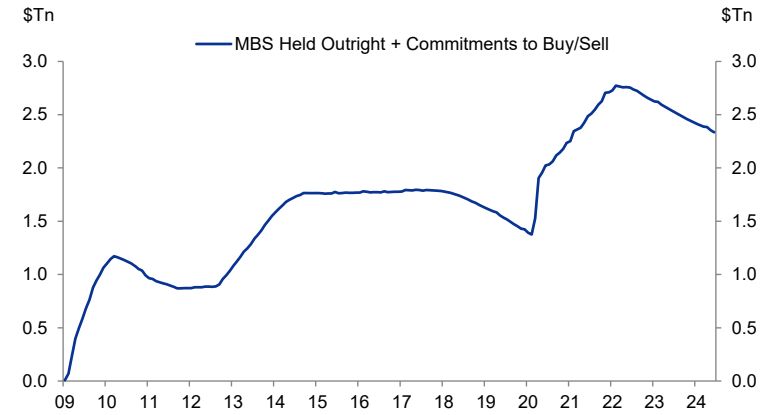
US Treasury yields



Source: Goldman Sachs Global Investment Research

**Exhibit 62: Federal Reserve holdings of agency MBS have continued to run off**

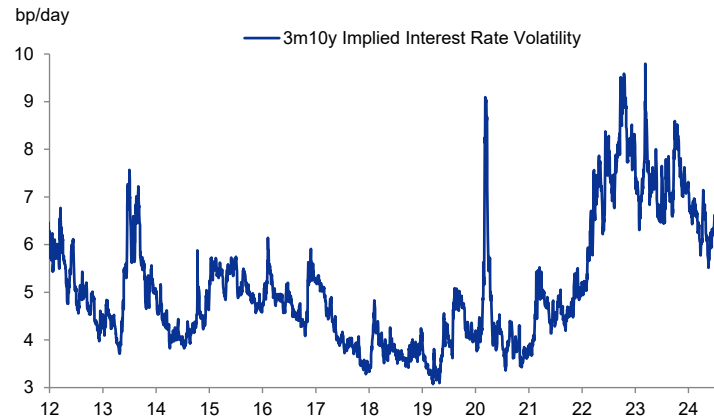
Federal Reserve holdings plus commitments to buy agency MBS



Source: Federal Reserve, Goldman Sachs Global Investment Research

**Exhibit 63: Interest rate volatility has shifted down in recent weeks**

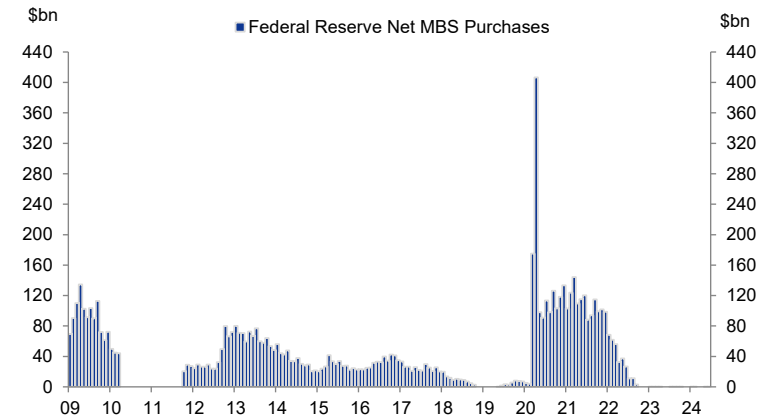
Implied interest rate volatility



Source: Goldman Sachs Global Investment Research

**Exhibit 64: The Federal Reserve did not make MBS purchases in June**

Federal Reserve gross monthly MBS purchase volumes

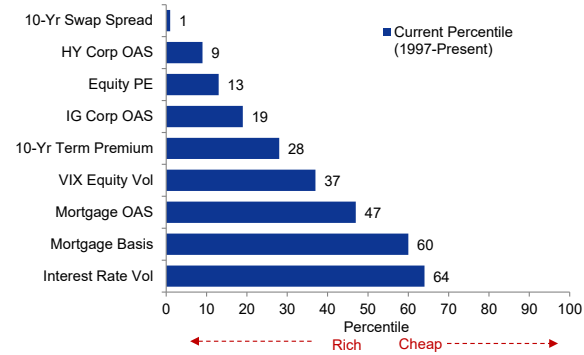


Source: Federal Reserve, Goldman Sachs Global Investment Research

# Agency MBS valuations have improved recently

**Exhibit 65: The current coupon mortgage basis is in the 64th percentile of its 1997 - 2024 range**

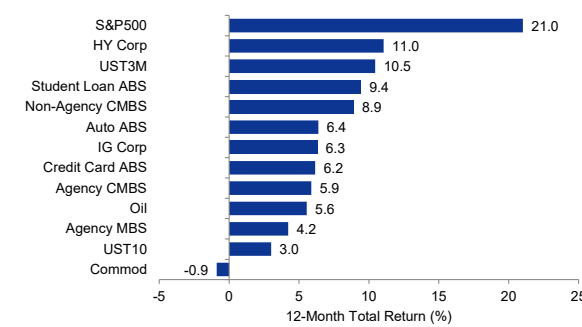
Current valuation percentiles vs. 1997–present distribution (0th percentile=rich, 100th percentile=cheap)



Source: Haver Analytics, Yield Book, Goldman Sachs Global Investment Research

**Exhibit 66: Agency MBS has returned +4.2% over the past 12 months vs. +6.3% for IG corporate bonds**

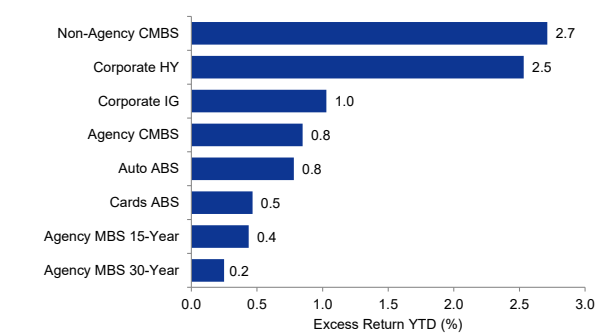
12-month lagging total return



Source: Bloomberg, Haver Analytics, Goldman Sachs Global Investment Research

**Exhibit 67: 15-year agency MBS have delivered positive excess return in 2024**

Excess returns year to date



Source: Bloomberg, Goldman Sachs Global Investment Research

## CMBS delinquency rates remain contained despite challenging CRE fundamentals

### Exhibit 68: Only 15% of 2024 conduit CMBS loans are collateralized by office properties, the lowest mark in over a decade

Conduit CMBS origination breakdown and performance by vintage

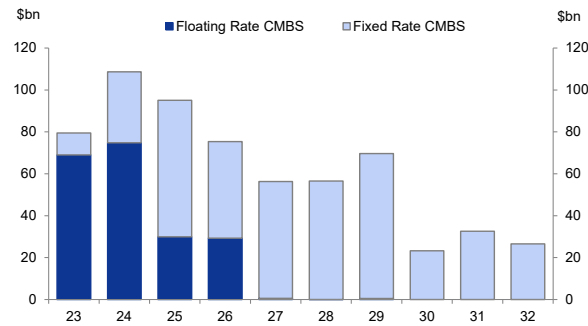
Vintage	Balance (\$Bn)	Apartment %	Lodging %	Retail %	Office %	CA %	NY %	TX %	FL %	IO %	DQ/FCL/REO %
2013	6	1	4	47	35	5	20	1	10	81	51
2014	19	9	10	30	34	15	17	7	7	79	30
2015	47	14	15	27	24	15	13	10	6	71	9
2016	39	8	14	30	28	15	13	7	5	71	6
2017	41	6	14	23	33	19	19	6	4	78	7
2018	36	10	13	26	28	17	12	5	8	80	6
2019	47	15	11	19	32	20	16	7	5	83	6
2020	30	16	9	12	35	18	24	6	3	89	4
2021	33	20	3	17	30	17	20	7	6	84	1
2022	24	15	7	18	31	13	17	6	7	87	2
2023	20	13	11	27	18	12	13	7	5	89	5
2024	12	19	11	30	15	15	16	6	4	93	3

Source: Trepp, Goldman Sachs Global Investment Research

# High CMBS note rates will be an obstacle to debt refinancing

**Exhibit 69: Large CMBS loan maturities are hitting in 2023 and 2024**

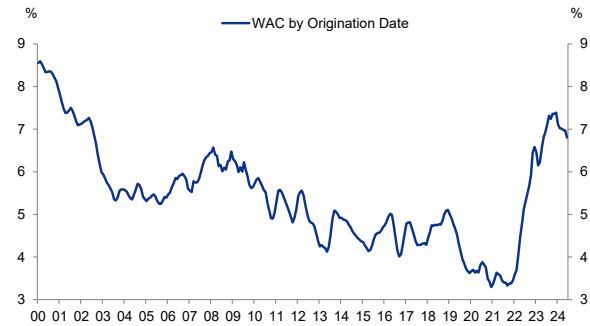
Remaining CMBS loan maturities by maturity date



Source: Trepp, Goldman Sachs Global Investment Research

**Exhibit 70: Recent CMBS loan originations have an average note rate of 6.8%**

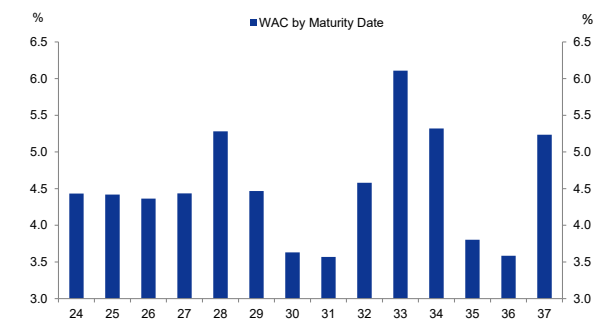
Conduit CMBS weighted average coupon by origination date



Source: Trepp, Goldman Sachs Global Investment Research

**Exhibit 71: Loans maturing in 2024 have an average note rate of 4.4%**

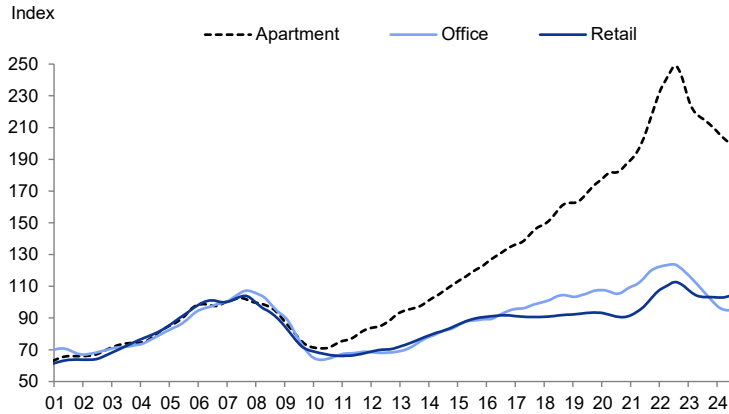
Conduit CMBS weighted average coupon by maturity date



Source: Trepp, Goldman Sachs Global Investment Research

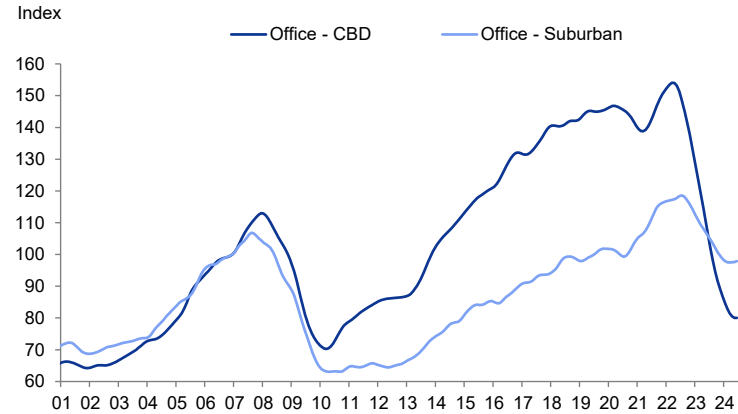
# Apartment and office property prices have declined

**Exhibit 72: All commercial property prices are down year to date**  
Commercial property price indices by property type



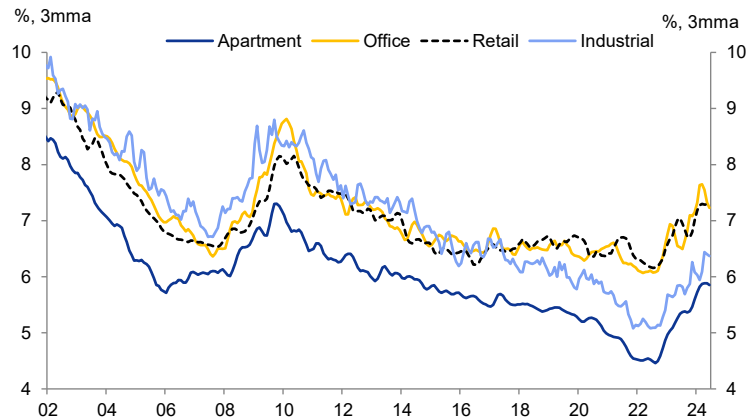
Source: RCA, Goldman Sachs Global Investment Research

**Exhibit 73: CBD office prices have declined to GFC prices**  
Office commercial property price indices



Source: RCA, Goldman Sachs Global Investment Research

**Exhibit 74: CRE cap rates have widened over the past 6 months**  
US commercial property cap rates



Source: RCA, Goldman Sachs Global Investment Research

**Exhibit 75: US apartment asking rents reverted higher in 2023Q1 after declining in 2022Q4**  
Apartment asking rent index

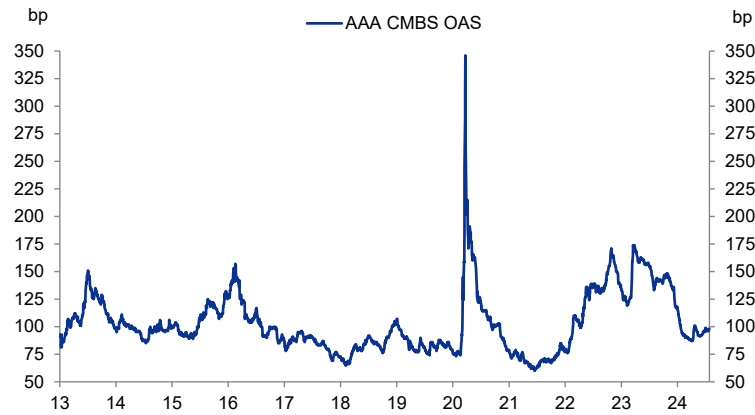


Source: CoStar, Goldman Sachs Global Investment Research

# CMBS spreads have widened in July

**Exhibit 76: AAA CMBS spreads have widened over the past month**

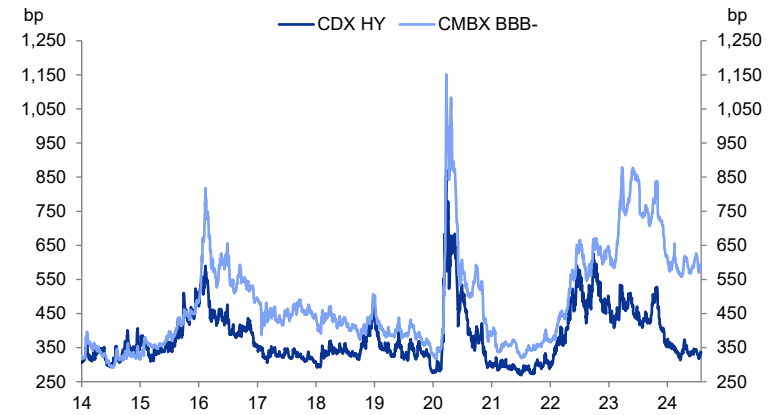
AAA conduit CMBS spreads



Source: Bloomberg, Goldman Sachs Global Investment Research

**Exhibit 77: The spread between CMBX BBB- and CDX HY have widened**

On-the-run CMBX BBB- vs. CDX HY spreads



Source: Markit, Goldman Sachs Global Investment Research

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