The Virginia Tech–USDA Forest Service Housing Commentary: Section I June 2022

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2022 Virginia Polytechnic Institute and State University VCE-ANR

Return TOC

Table of Contents

This report is a free monthly service of Virginia Tech. Past issues are available at: http://woodproducts.sbio.vt.edu/housing-report.

To request the commentary, please email: buehlmann@gmail.com or delton.r.alderman@usda.gov

Return TOC

Opening Remarks

In June, month-over-month data continued a negative movement in most categories. Year-over-year data indicated some improvement; however, single-family permits and starts decreased again (the fourth consecutive month). This suggests further moderation in single-family activity in the forthcoming months. The impact of increasing borrowing costs, combined with rising house prices (though new median/mean declined precipitously in June), have resulted in a major obstacle for new house sales. The increase in borrowing costs has resulted in potential house buyers to cancel contracts or postpone a house purchase. June also was the fifth consecutive monthly decrease for existing house sales.

The August 10th Atlanta Fed GDPNow™ model forecast was a negative 1.5% for total residential investment spending for September 2022. New private permanent site expenditures were projected at -9.8%; the improvement spending forecast was 1.9%; and the manufactured/mobile expenditures projection was -0.8% (all: quarterly log change and at a seasonally adjusted annual rate).[1]

"…We're also seeing significant shifts in the demand-supply equation, though that too has quite a way to go before normalization. Even with our Collateral Analytics data showing a seasonally adjusted 22% increase in the number of homes listed for sale over the past two months, the market is still at a 54% listing deficit when compared to 2017-2019 levels. With a national shortage of more than 700,000 listings, it would take more than a year of such record increases for inventory levels to fully normalize. Of course, some metro areas are seeing inventory return to the market more quickly than others. San Francisco officially returned to pre-pandemic levels in June, becoming the first major market to do so, with San Jose close behind, where the number of homes listed for sale is just 1% off the June 2017-2019 average. It's therefore of little surprise to find both metros among the markets where prices are pulling back from recent highs, along with Seattle, San Diego, Denver and others."[2] – Ben Graboske, President, Black Knight Data & Analytics

This month's commentary contains applicable housing data, remodeling commentary, and United States housing market observations. Section I contains relevant data, remodeling, and housing finance commentary. Section II includes regional Federal Reserve analysis, private firm indicators, and demographic/economic information.

Sources: [1] www.frbatlanta.org/cqer/research/gdpnow.aspx; 8/10/22;
[2] https://www.blackknightinc.com/black-knights-june-2022-mortgage-monitor/; 8/1/22

Return TOC

June 2022
Housing Scorecard

	M/M	Y/Y
Housing Starts	▼ 2.0%	▼ 6.3%
Single-Family (SF) Starts	▼ 8.1%	▼ 15.7%
Multi-Family (MF) Starts*	▲ 10.3%	▲ 15.6%
Housing Permits	▲ 0.1%	▲ 2.1%
SF Permits	▼ 7.7%	▼ 11.1%
MF Permits*	▲ 12.7%	▲ 27.4%
Housing Under Construction	▲ 0.3%	▲ 22.4%
SF Under Construction	▼ 0.4%	▲ 21.0%
Housing Completions	▼ 4.6%	▲ 4.6%
SF Completions	▼ 4.1%	▲ 8.5%
New SF House Sales	▼ 8.1%	▼ 17.4%
Private Residential Construction Spending	▼ 1.6%	▲ 15.6%
SF Construction Spending	▼ 3.1%	▲ 8.4%
Existing House Sales[1]	▼ 5.4%	▼ 14.2%

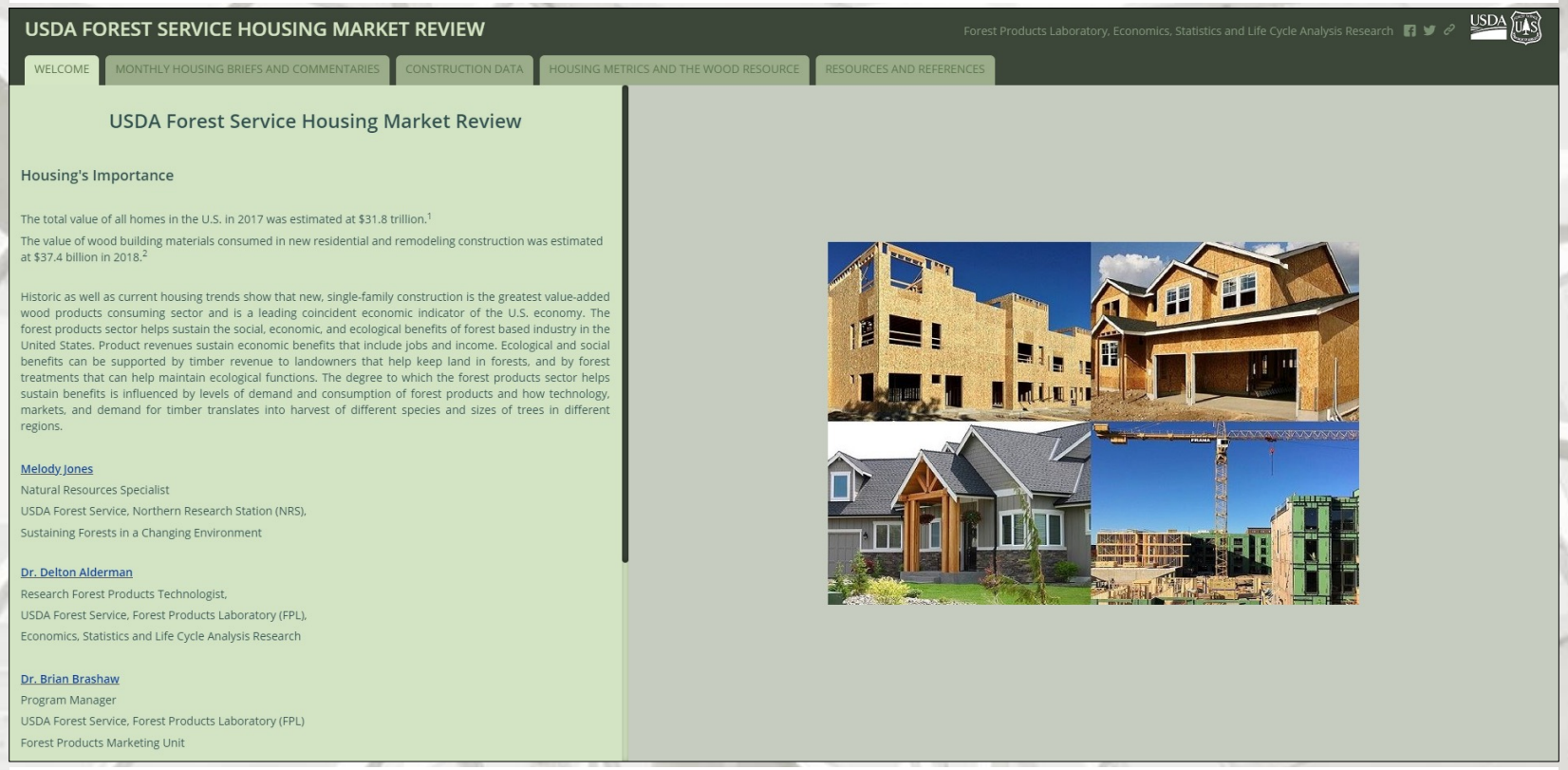
* All multi-family (2 to 4 + ≥ 5-units)

M/M = month-over-month; Y/Y = year-over-year;
NC = No change

Sources: U.S. Department of Commerce-Construction; [1] FRED: Federal Reserve Bank of St. Louis

Return TOC

USDA Forest Service Housing Story Map



USDA Forest Service Housing Market Review

Each story map's tab contains a compilation of housing information. The 'Construction Data' tab is interactive and allows one to gather and view US Census-Construction data at the national or metropolitan statistical area (MSA) level.

The story map is available at the following link:

https://www.arcgis.com/apps/MapSeries/index.html?appid=9553db0ea36140d28076399e898dc693

Sources: https://www.arcgis.com/apps/MapSeries/index.html?appid=9553db0ea36140d28076399e898dc693

Return TOC

New Housing Starts

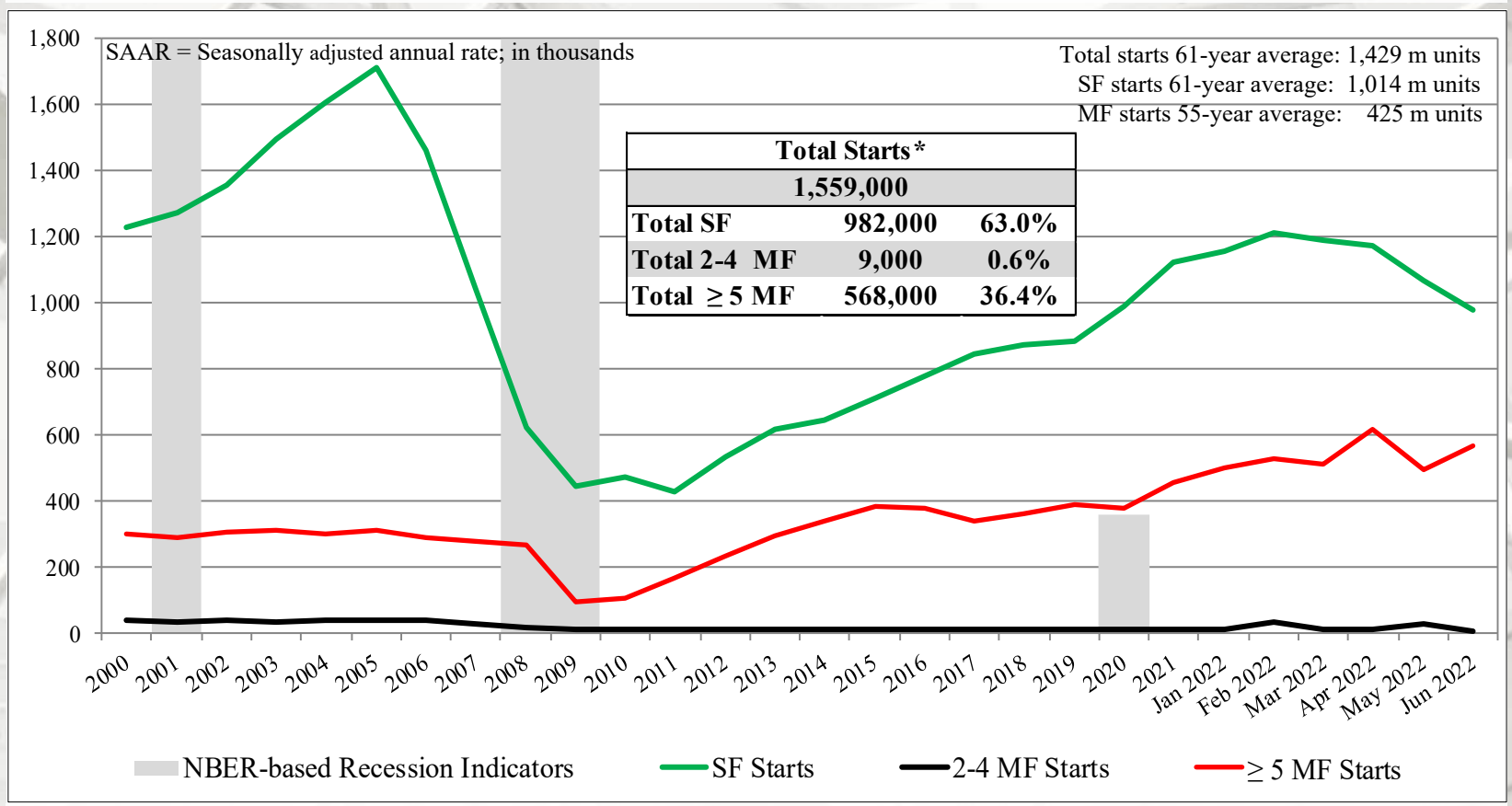
	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
June	1,559,000	982,000	9,000	568,000
May	1,591,000	1,068,000	29,000	494,000
2021	1,664,000	1,165,000	11,000	488,000
M/M change	-2.0%	-8.1%	-69.0%	15.0%
Y/Y change	-6.3%	-15.7%	-18.2%	16.4%

* All start data are presented at a seasonally adjusted annual rate (SAAR).
** US DOC does not report 2 to 4 multi-family starts directly; this is an estimation ((Total starts – (SF + 5-unit MF)).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Total Housing Starts



US DOC does not report 2 to 4 multi-family starts directly; this is an estimation: ((Total starts – (SF + ≥ MF)).

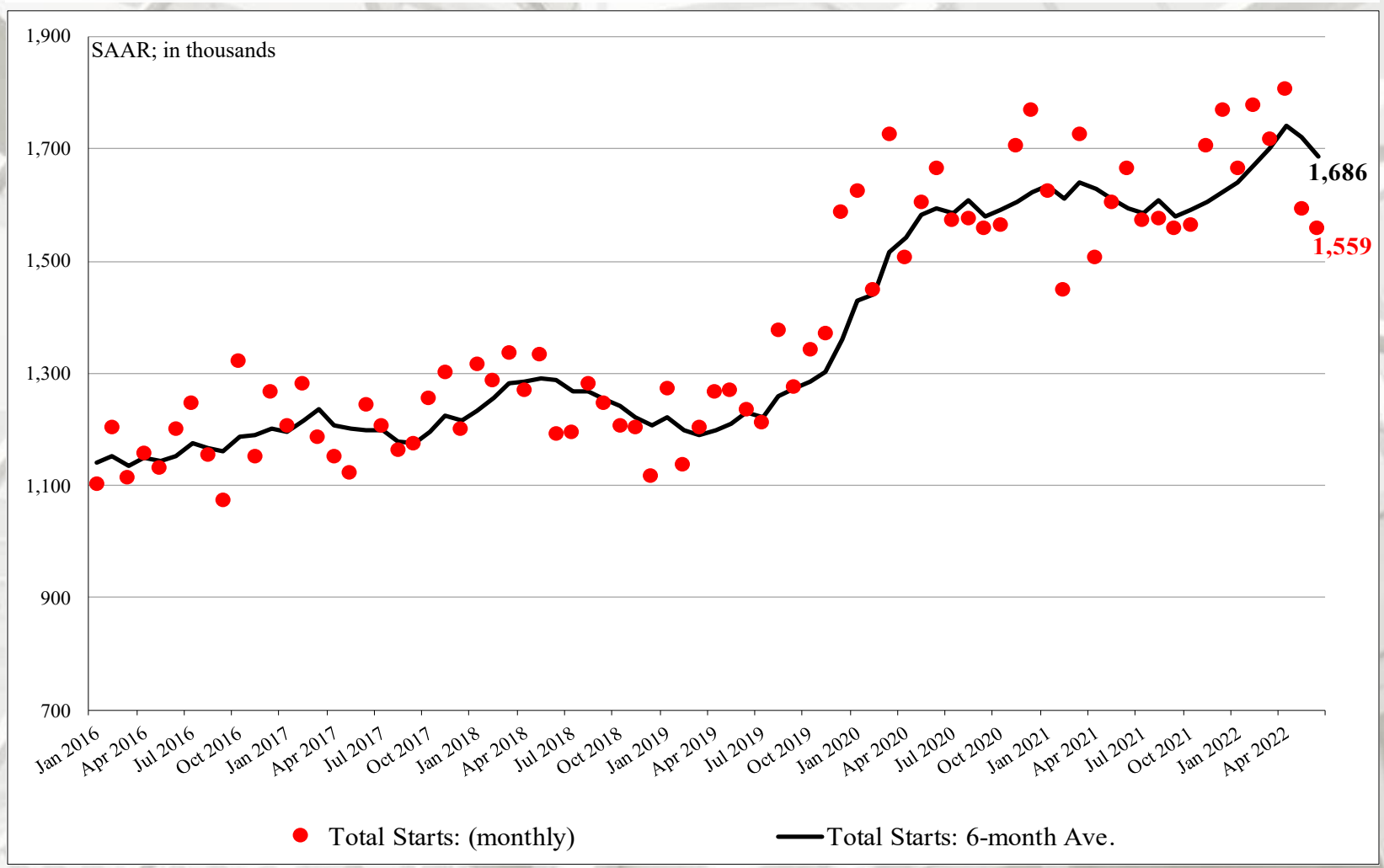
* Percentage of total starts.

NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: https://fred.stlouisfed.org/series/USREC, 6/1/21; http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

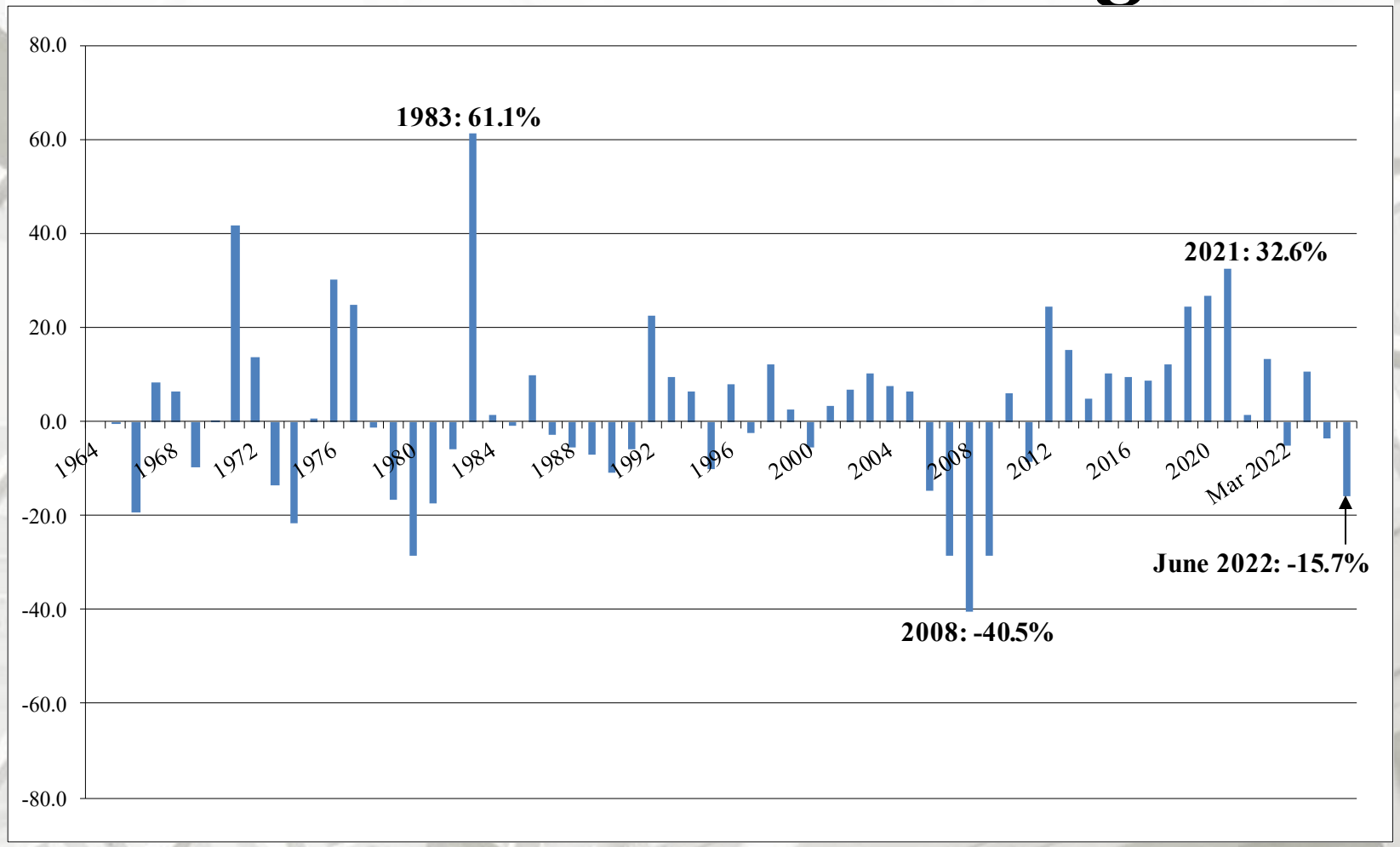
Total Housing Starts: Six-Month Average



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

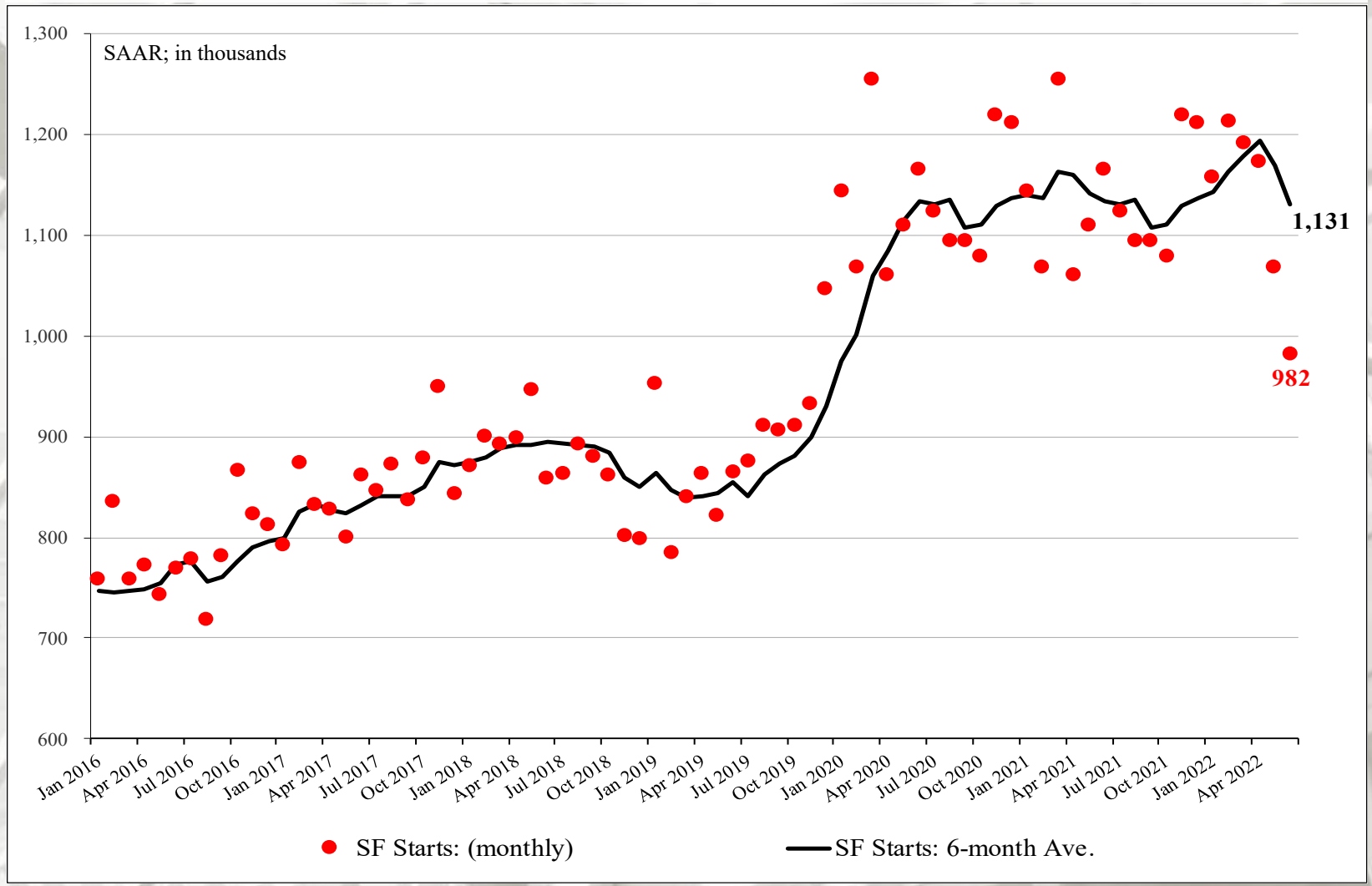
SF Housing Starts: Year-over-Year Change



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

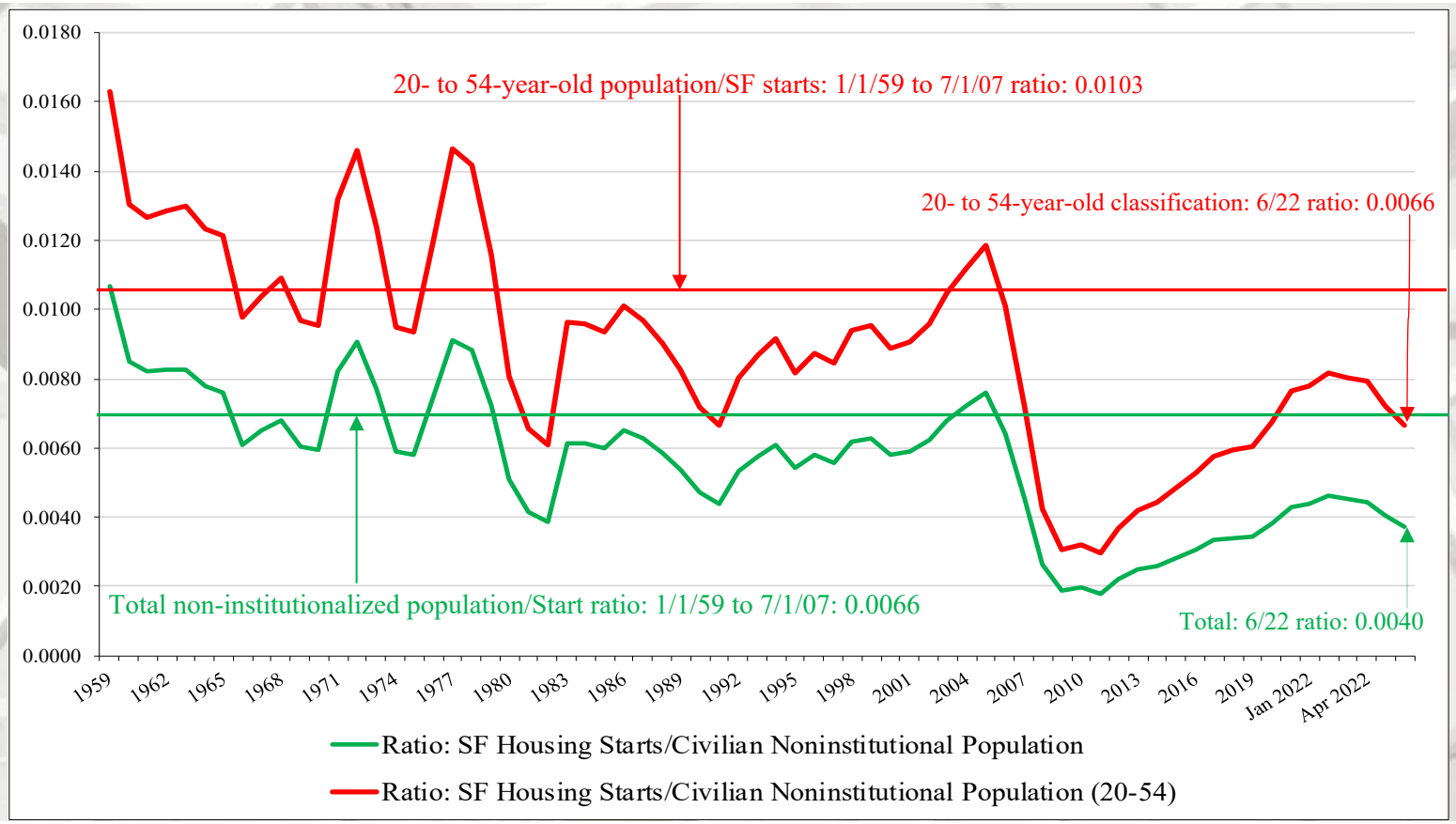
SF Housing Starts: Six-Month Average



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New SF Starts



New SF starts adjusted for the US population

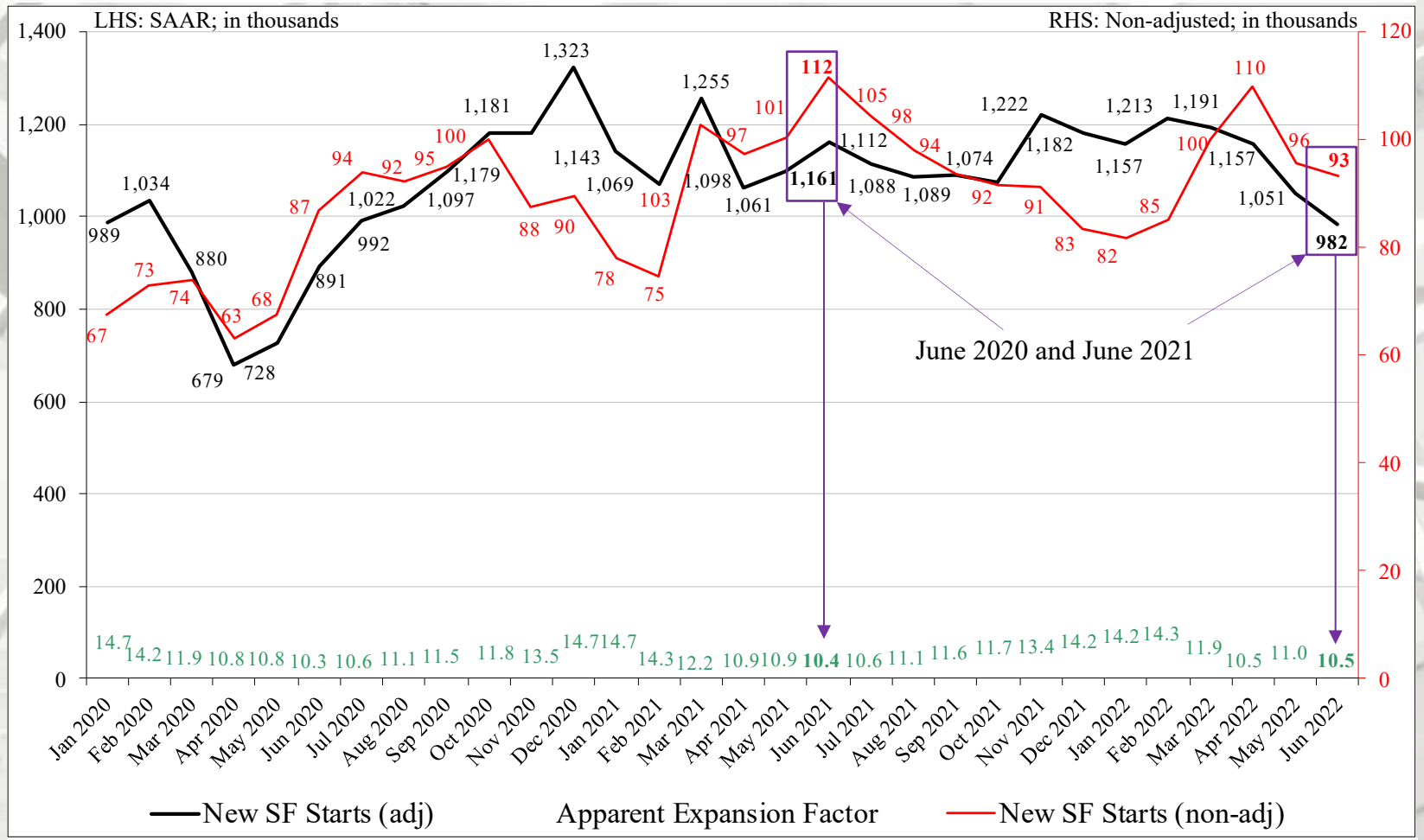
From June 1959 to July 2007, the long-term ratio of new SF starts to the total US non-institutionalized population to is 0.0066. In June 2022 it was 0.0037 – a decrease from May (0.0041). The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in June 2022 it was 0.0066 – also a decrease from May (0.0072). New SF construction in both age categories is less than what is necessary for changes in the population (i.e., under-building).

Note some studies report normalized long-term demand at 900,000 to 1,000,000 new SF house starts per year – beginning in 2025 through 2050.

Sources: http://www.census.gov/construction/nrc/pdf/newresconst.pdff and The Federal Reserve Bank of St. Louis; 7/19/22

Return TOC

Nominal & SAAR SF Starts



Nominal and Adjusted New SF Monthly Starts

Presented above is nominal (non-adjusted) new SF start data contrasted against SAAR data.

The apparent expansion factor "… is the ratio of the unadjusted number of houses started in the US to the seasonally adjusted number of houses started in the US (i.e., to the sum of the seasonally adjusted values for the four regions)." – U.S. DOC-Construction

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Starts by Region

	NE Total	NE SF	NE MF**
June	156,000	48,000	108,000
May	141,000	55,000	86,000
2021	149,000	81,000	68,000
M/M change	10.6%	-12.7%	25.6%
Y/Y change	4.7%	-40.7%	58.8%

	MW Total	MW SF	MW MF
June	215,000	147,000	68,000
May	233,000	144,000	89,000
2021	198,000	130,000	68,000
M/M change	-7.7%	2.1%	-23.6%
Y/Y change	8.6%	13.1%	0.0%

All data are SAAR; NE = Northeast and MW = Midwest.
** US DOC does not report multi-family starts directly; this is an estimation (Total starts – SF starts).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Starts by Region

	S Total	S SF	S MF**
June	825,000	599,000	226,000
May	867,000	617,000	250,000
2021	873,000	668,000	205,000
M/M change	-4.8%	-2.9%	-9.6%
Y/Y change	-5.5%	-10.3%	10.2%

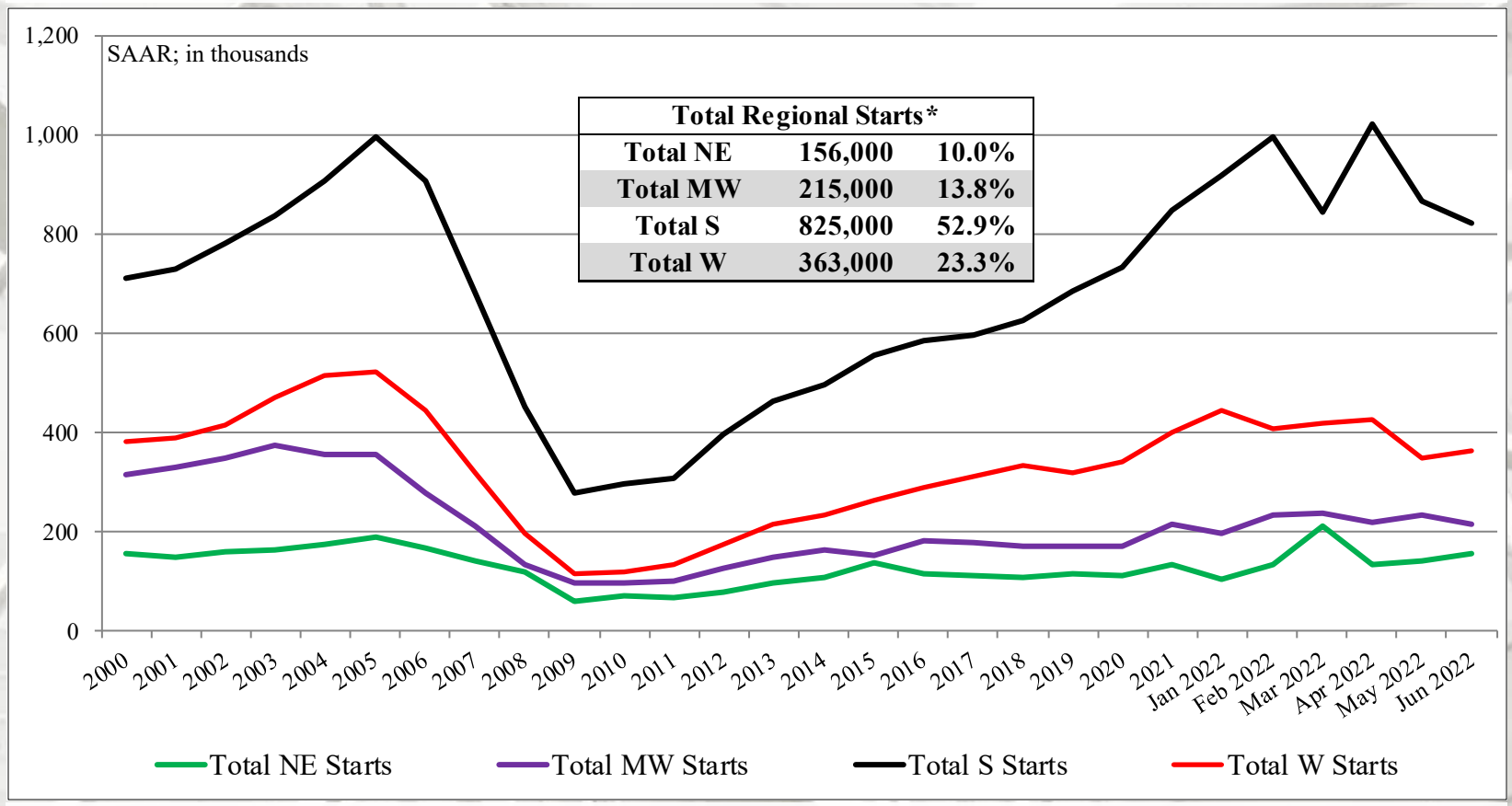
	W Total	W SF	W MF
June	363,000	188,000	175,000
May	350,000	252,000	98,000
2021	444,000	286,000	158,000
M/M change	3.7%	-25.4%	78.6%
Y/Y change	-18.2%	-34.3%	10.8%

All data are SAAR; S = South and W = West.
** US DOC does not report multi-family starts directly; this is an estimation (Total starts – SF starts).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Starts by Region



Total Regional Starts*		
Total NE	156,000	10.0%
Total MW	215,000	13.8%
Total S	825,000	52.9%
Total W	363,000	23.3%

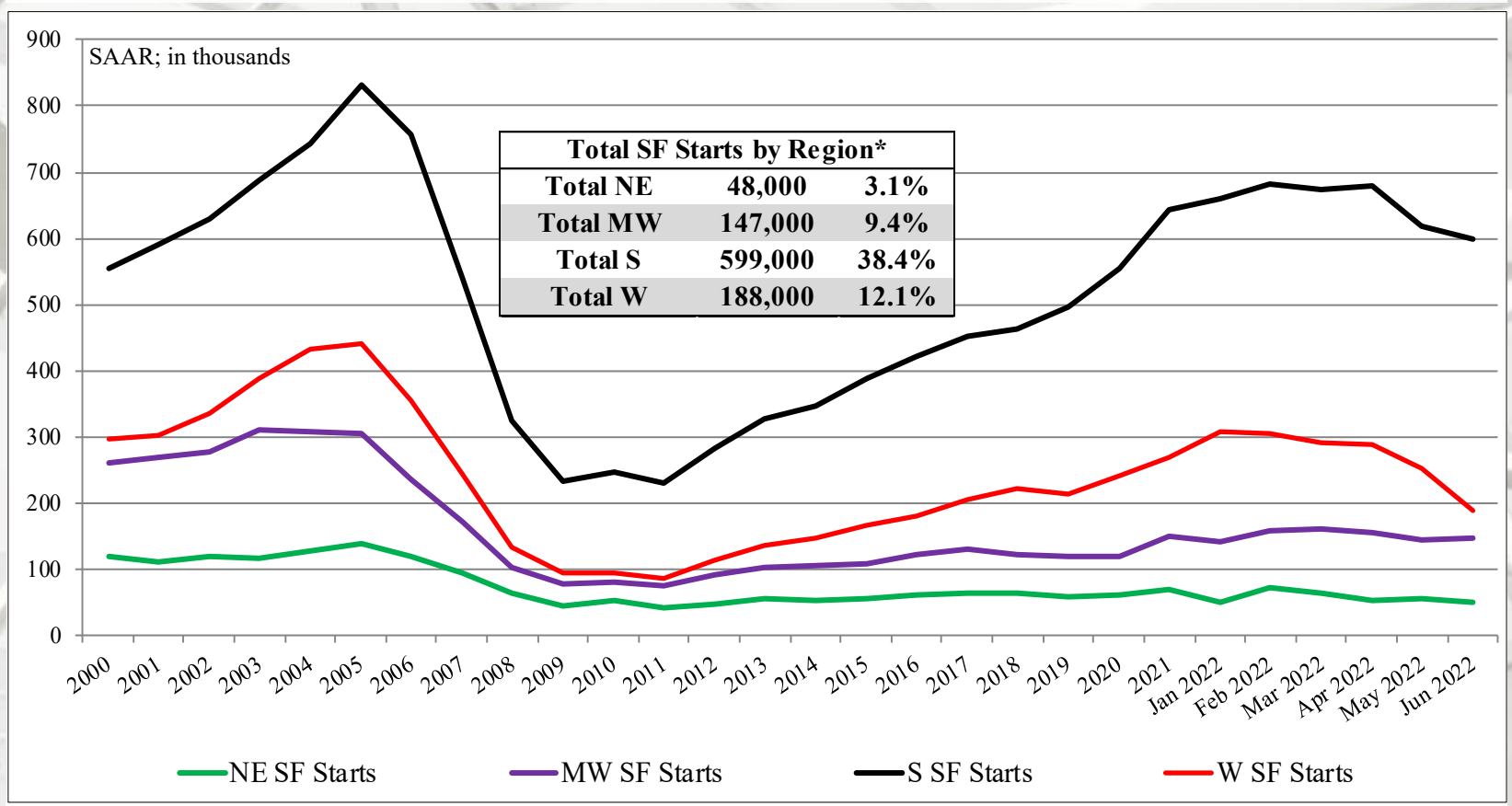
NE = Northeast, MW = Midwest, S = South, W = West
US DOC does not report 2 to 4 multi-family starts directly; this is an estimation (Total starts – (SF + ≥ 5 MF starts).

* Percentage of total starts.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Total SF Housing Starts by Region



Total SF Starts by Region*		
Total NE	48,000	3.1%
Total MW	147,000	9.4%
Total S	599,000	38.4%
Total W	188,000	12.1%

NE = Northeast, MW = Midwest, S = South, W = West

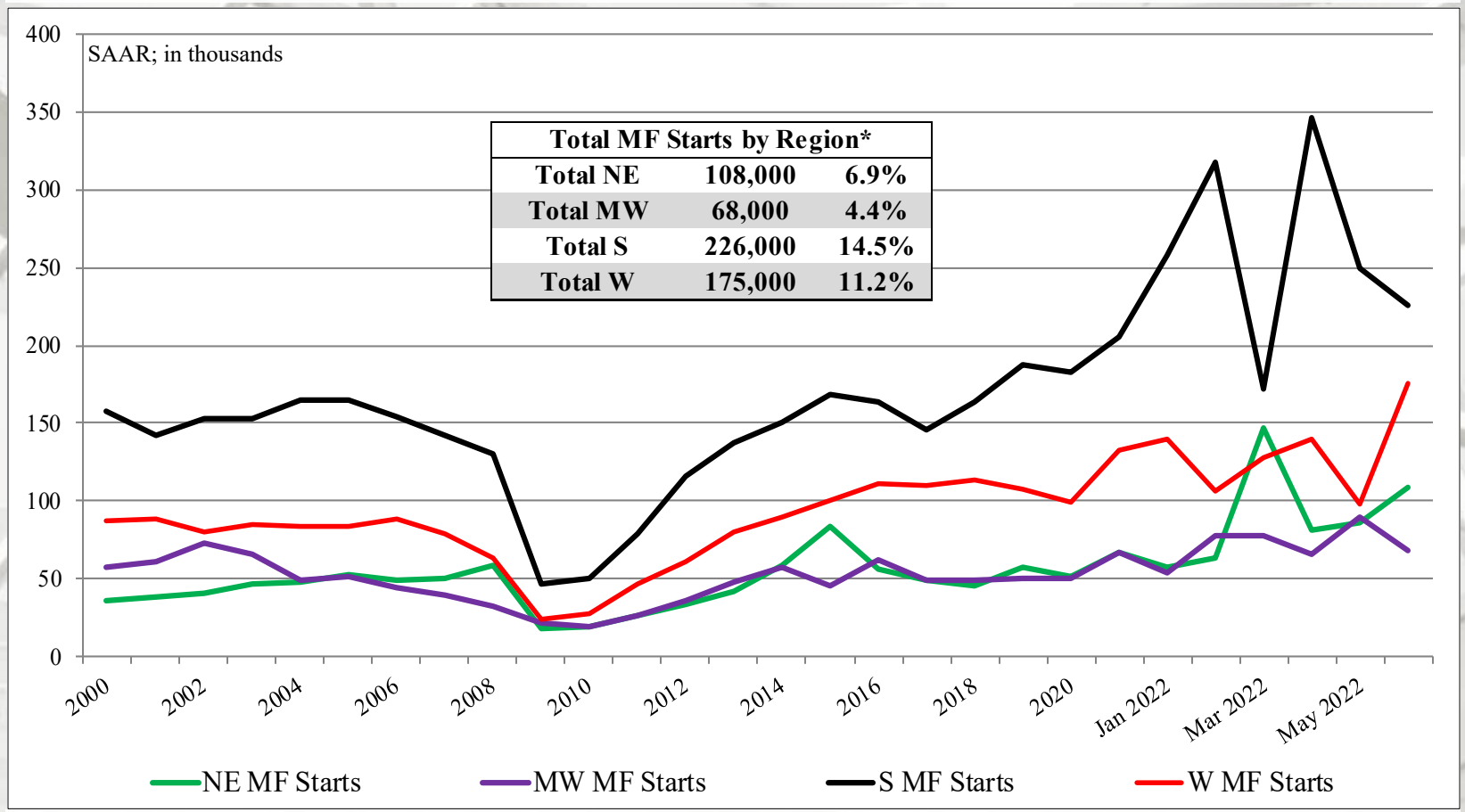
US DOC does not report 2 to 4 multi-family starts directly; this is an estimation (Total starts – (SF + ≥ 5 MF starts).

* Percentage of total starts.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

MF Housing Starts by Region



Total MF Starts by Region*		
Total NE	108,000	6.9%
Total MW	68,000	4.4%
Total S	226,000	14.5%
Total W	175,000	11.2%

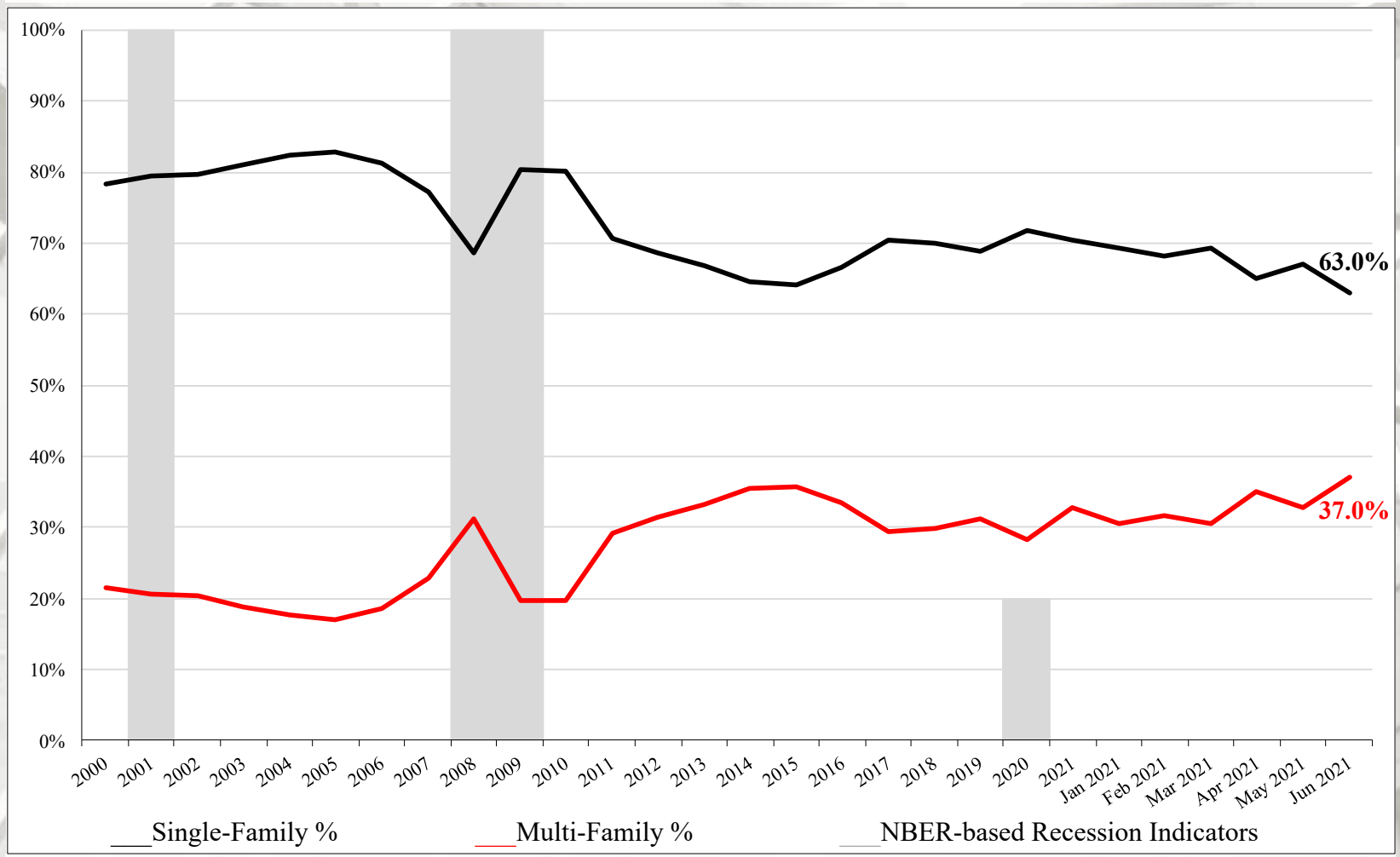
NE = Northeast, MW = Midwest, S = South, W = West
US DOC does not report 2 to 4 multi-family starts directly; this is an estimation (Total starts – (SF + ≥ 5 MF starts).

* Percentage of total starts.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

SF vs. MF Housing Starts (%)



NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: https://fred.stlouisfed.org/series/USREC, 6/1/21; http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Permits

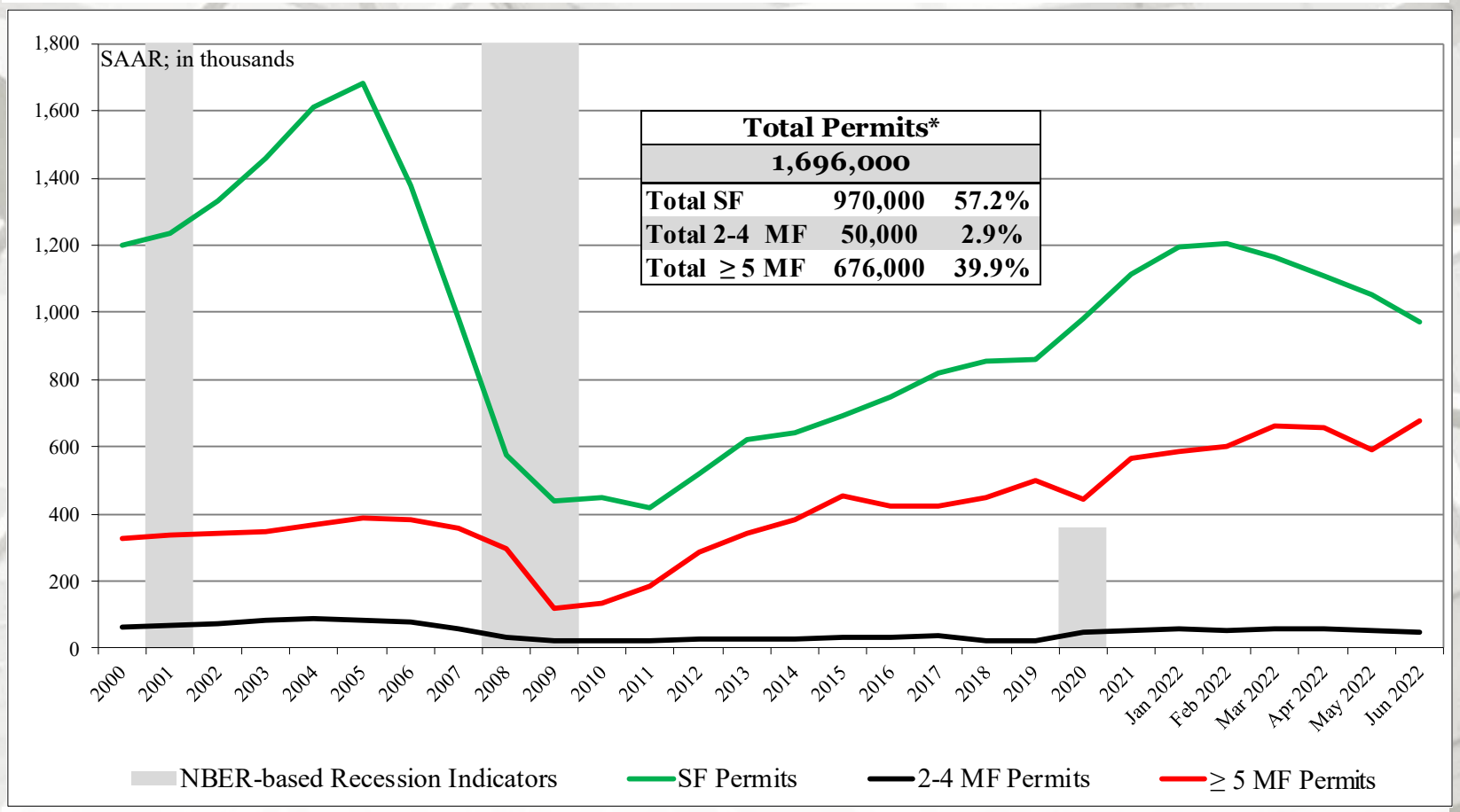
	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
June	1,696,000	970,000	50,000	676,000
May	1,695,000	1,051,000	55,000	589,000
2021	1,661,000	1,091,000	49,000	521,000
M/M change	0.1%	-7.7%	-9.1%	14.8%
Y/Y change	2.1%	-11.1%	2.0%	29.8%

* All permit data are presented at a seasonally adjusted annual rate (SAAR).

Source: https://www.census.gov/construction/bps/; 7/27/22

Return TOC

Total New Housing Permits



* Percentage of total permits.

NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: https://fred.stlouisfed.org/series/USREC, 6/1/21; https://www.census.gov/construction/bps/; 7/27/22

Return TOC

New Housing Permits by Region

	NE Total*	NE SF	NE MF**
June	151,000	52,000	99,000
May	128,000	61,000	67,000
2021	136,000	60,000	76,000
M/M change	18.0%	-14.8%	47.8%
Y/Y change	11.0%	-13.3%	30.3%

	MW Total*	MW SF	MW MF**
June	198,000	119,000	79,000
May	230,000	132,000	98,000
2021	210,000	130,000	80,000
M/M change	-13.9%	-9.8%	-19.4%
Y/Y change	-5.7%	-8.5%	-1.3%

NE = Northeast; MW = Midwest
* All data are SAAR
** US DOC does not report multi-family permits directly; this is an estimation (Total permits – SF permits).

Source: https://www.census.gov/construction/bps/; 7/27/22

Return TOC

New Housing Permits by Region

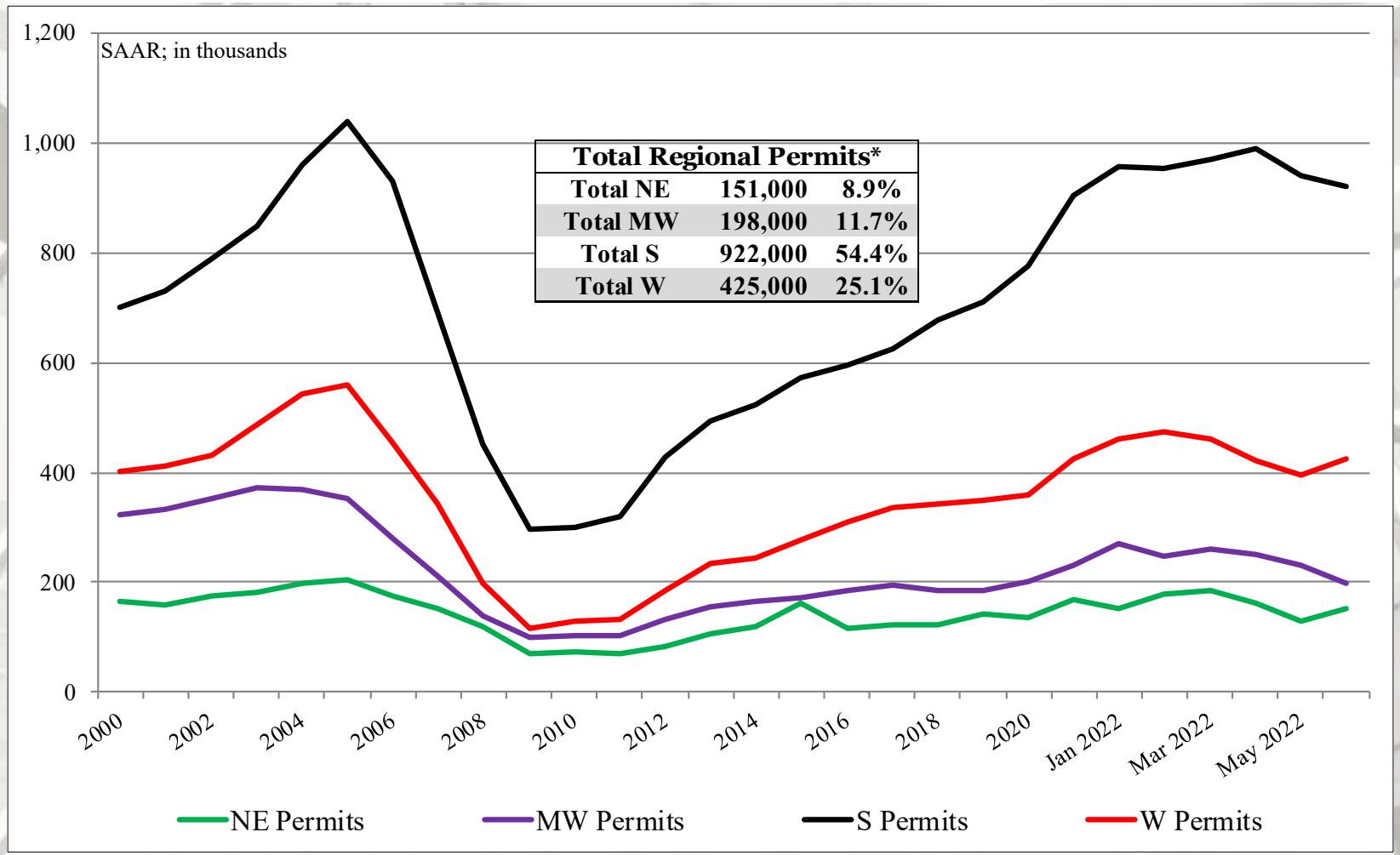
	S Total*	S SF	S MF**
June	922,000	595,000	327,000
May	941,000	624,000	317,000
2021	934,000	668,000	266,000
M/M change	-2.0%	-4.6%	3.2%
Y/Y change	-1.3%	-10.9%	22.9%
	W Total*	**W SF**	**W MF****
June	425,000	204,000	221,000
May	396,000	234,000	162,000
2021	381,000	233,000	148,000
M/M change	7.3%	-12.8%	36.4%
Y/Y change	11.5%	-12.4%	49.3%

S = South; W = West
* All data are SAAR
** US DOC does not report multi-family permits directly; this is an estimation (Total permits – SF permits).

Source: https://www.census.gov/construction/bps/; 7/27/22

Return TOC

Total Housing Permits by Region



Total Regional Permits*		
Total NE	151,000	8.9%
Total MW	198,000	11.7%
Total S	922,000	54.4%
Total W	425,000	25.1%

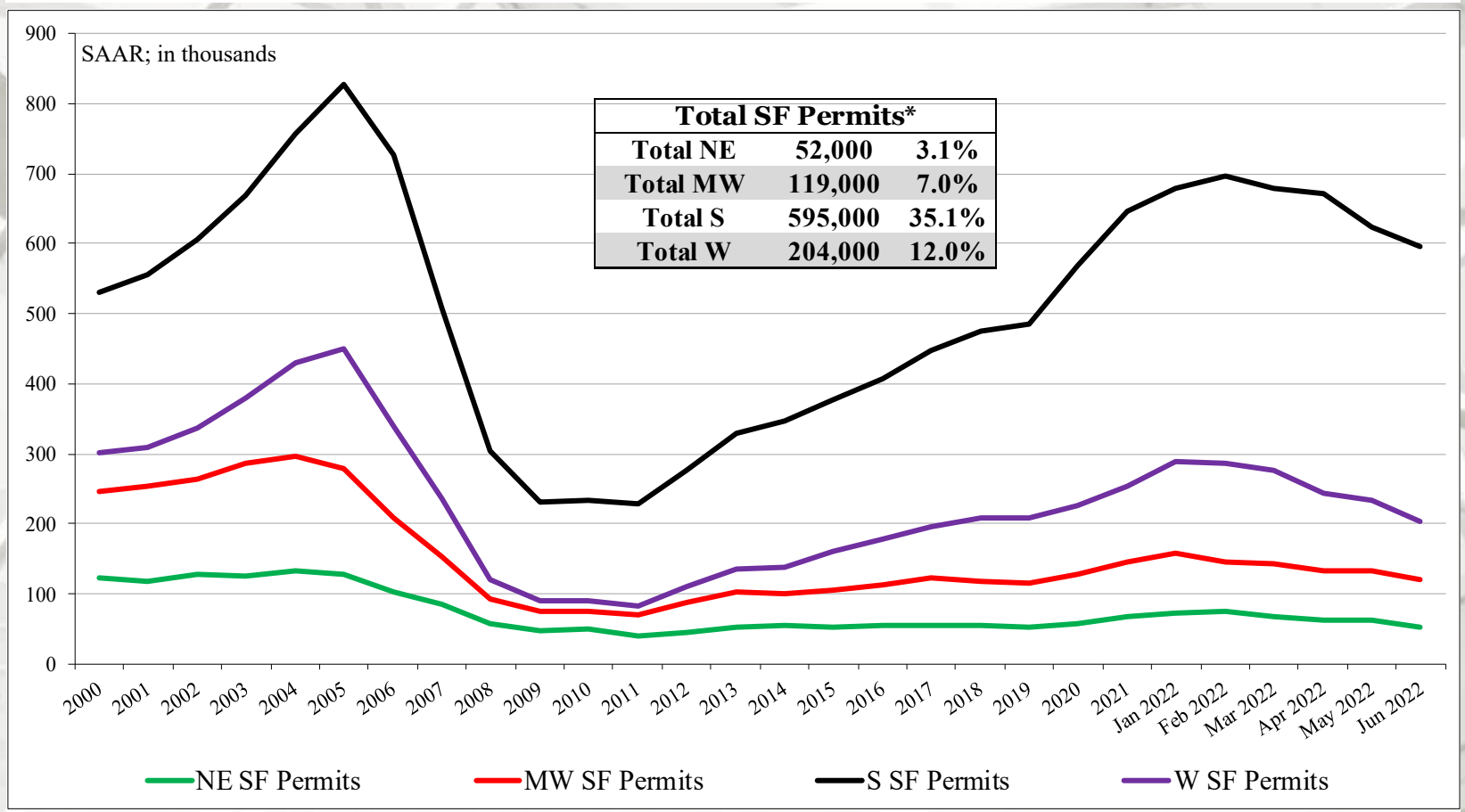
NE = Northeast, MW = Midwest, S = South, W = West

* Percentage of total permits.

Source: https://www.census.gov/construction/bps/; 7/27/22

Return TOC

SF Housing Permits by Region



Total SF Permits*		
Total NE	52,000	3.1%
Total MW	119,000	7.0%
Total S	595,000	35.1%
Total W	204,000	12.0%

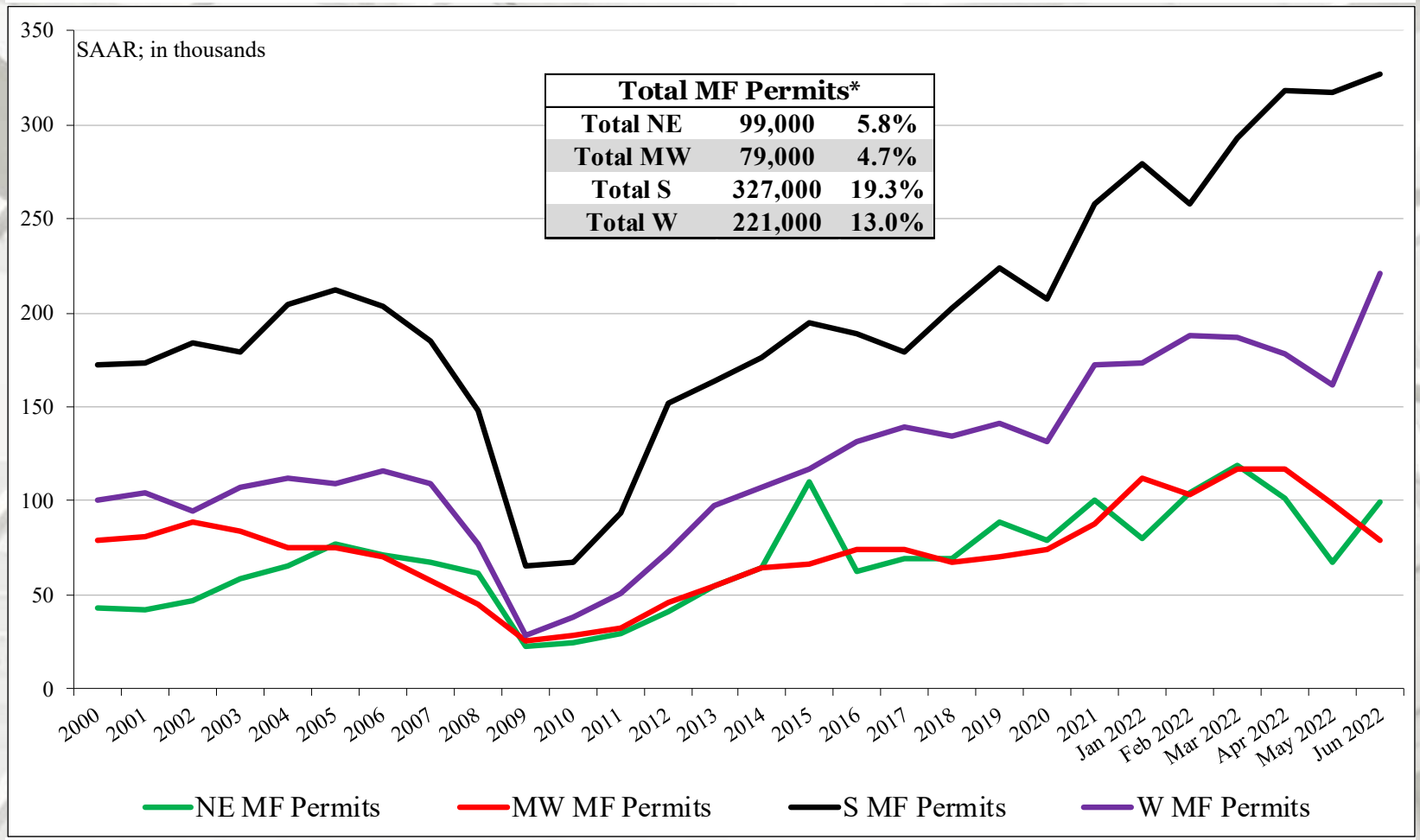
NE = Northeast, MW = Midwest, S = South, W = West

* Percentage of total permits.

Source: https://www.census.gov/construction/bps/; 7/27/22

Return TOC

MF Housing Permits by Region



NE = Northeast, MW = Midwest, S = South, W = West

* Percentage of total permits.

Source: https://www.census.gov/construction/bps/; 7/27/22

Return TOC

New Housing Under Construction (HUC)

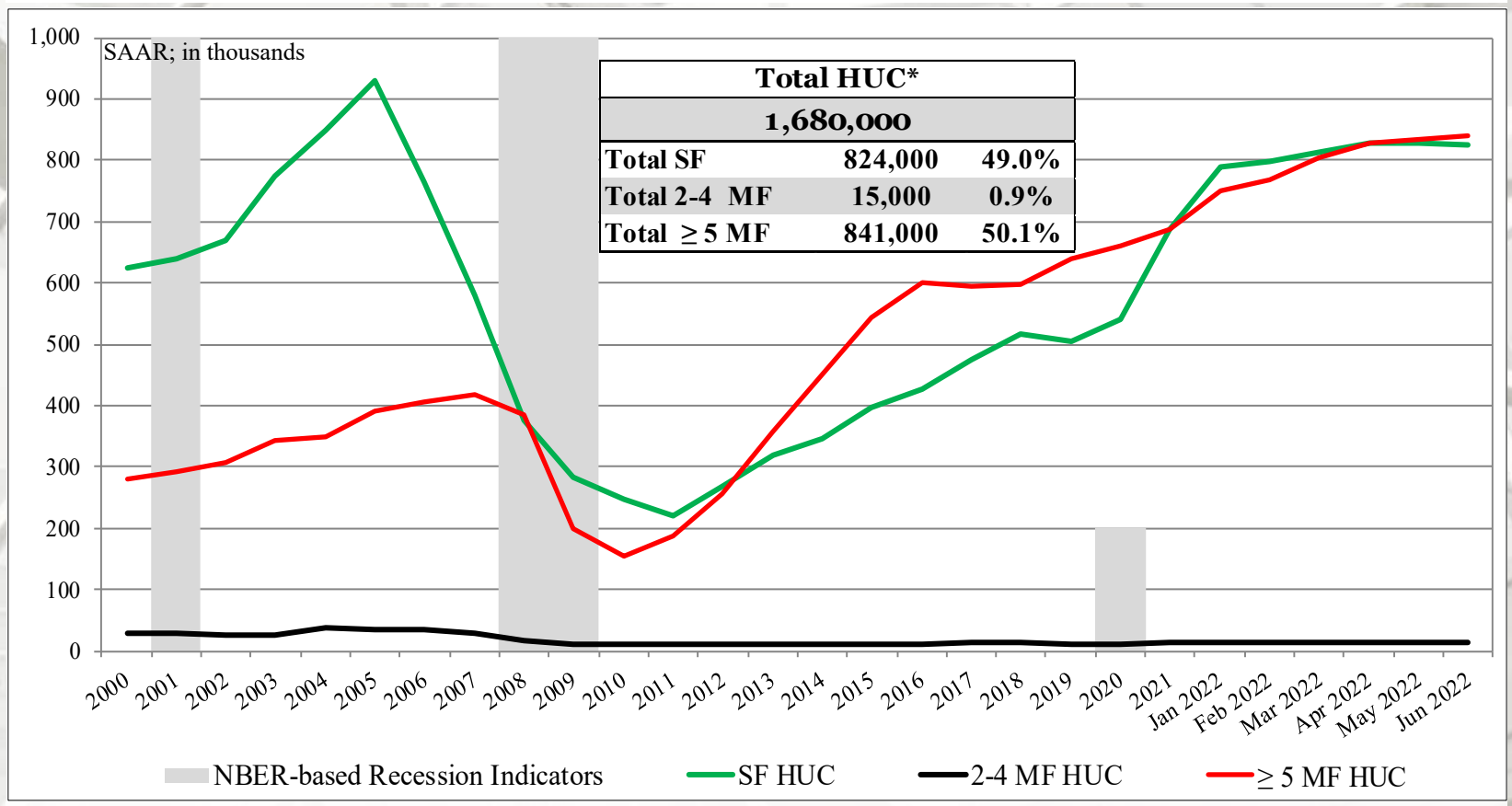
	Total HUC*	SF HUC	MF 2-4 unit** HUC	MF ≥ 5 unit HUC
June	1,680,000	824,000	15,000	841,000
May	1,675,000	827,000	15,000	833,000
2021	1,372,000	681,000	13,000	678,000
M/M change	0.3%	-0.4%	0.0%	1.0%
Y/Y change	22.4%	21.0%	15.4%	24.0%

All housing under construction data are presented at a seasonally adjusted annual rate (SAAR).
** US DOC does not report 2-4 multi-family units under construction directly; this is an estimation ((Total under construction – (SF + 5-unit MF)).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Total Housing Under Construction



US DOC does not report 2 to 4 multi-family under construction directly, this is an estimation (Total under constructions – (SF + ≥ 5 MF HUC)).

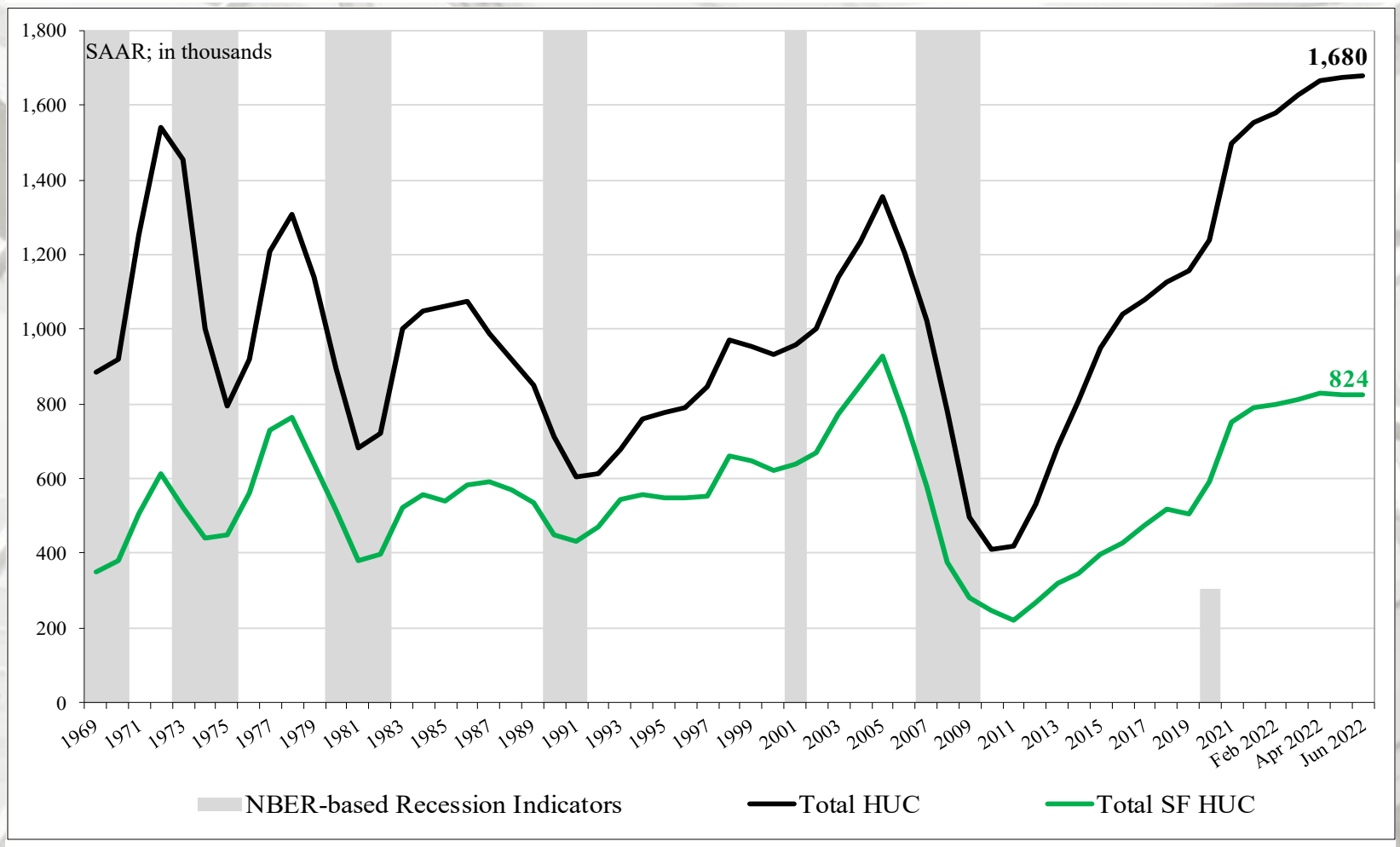
* Percentage of total housing under construction units.

NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: https://fred.stlouisfed.org/series/USREC, 6/1/21; http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Total Housing Under Construction



In June total housing units under construction (HUC) were 1,680,000 units, the most since June 1973: 1,628,000 units. June's SF HUC reading, 824,000 units, which was substantially less than reported for June 2006 (929,000 units).

NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: https://fred.stlouisfed.org/series/USREC, 6/1/21; http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Under Construction by Region

	NE Total	NE SF	NE MF**
June	215,000	58,000	157,000
April	216,000	60,000	156,000
2021	201,000	61,000	133,000
M/M change	-0.5%	-3.3%	0.6%
Y/Y change	7.0%	-4.9%	18.0%
	MW Total	**MW SF**	**MW MF**
June	223,000	114,000	109,000
April	221,000	114,000	107,000
2021	176,000	97,000	79,000
M/M change	0.9%	0.0%	1.9%
Y/Y change	26.7%	17.5%	38.0%

All data are SAAR; NE = Northeast and MW = Midwest.
** US DOC does not report multi-family units under construction directly; this is an estimation (Total under construction – SF under construction).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Under Construction by Region

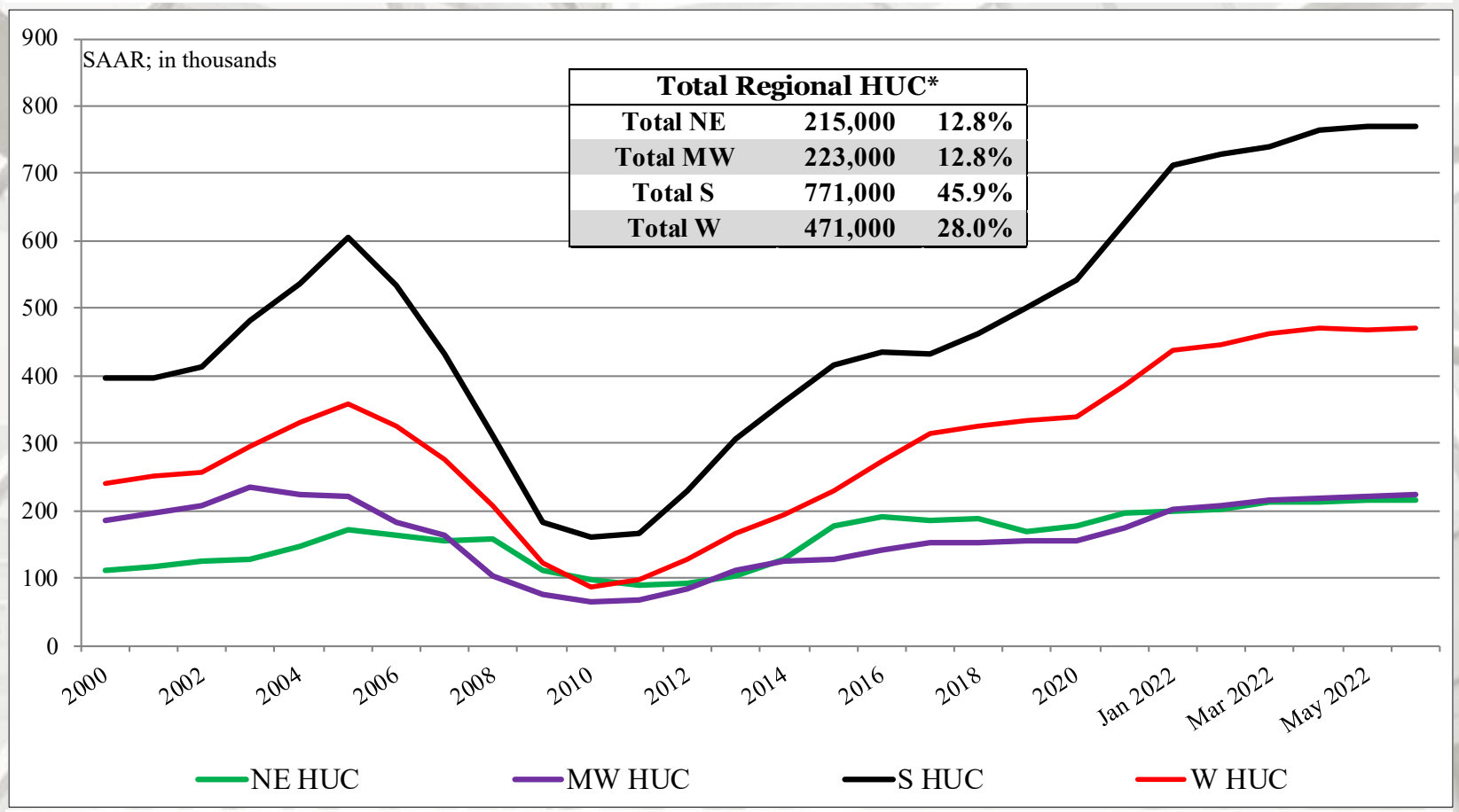
	S Total	S SF	S MF**
June	771,000	440,000	331,000
April	770,000	438,000	332,000
2021	615,000	340,000	275,000
M/M change	0.1%	0.5%	-0.3%
Y/Y change	25.4%	29.4%	20.4%
	W Total	**W SF**	**W MF**
June	471,000	212,000	259,000
April	468,000	215,000	253,000
2021	380,000	183,000	197,000
M/M change	0.6%	-1.4%	2.4%
Y/Y change	23.9%	15.8%	31.5%

All data are SAAR; S = South and W = West.
** US DOC does not report multi-family units under construction directly; this is an estimation (Total under construction – SF under construction).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Total Housing Under Construction by Region



Total Regional HUC*		
Total NE	215,000	12.8%
Total MW	223,000	12.8%
Total S	771,000	45.9%
Total W	471,000	28.0%

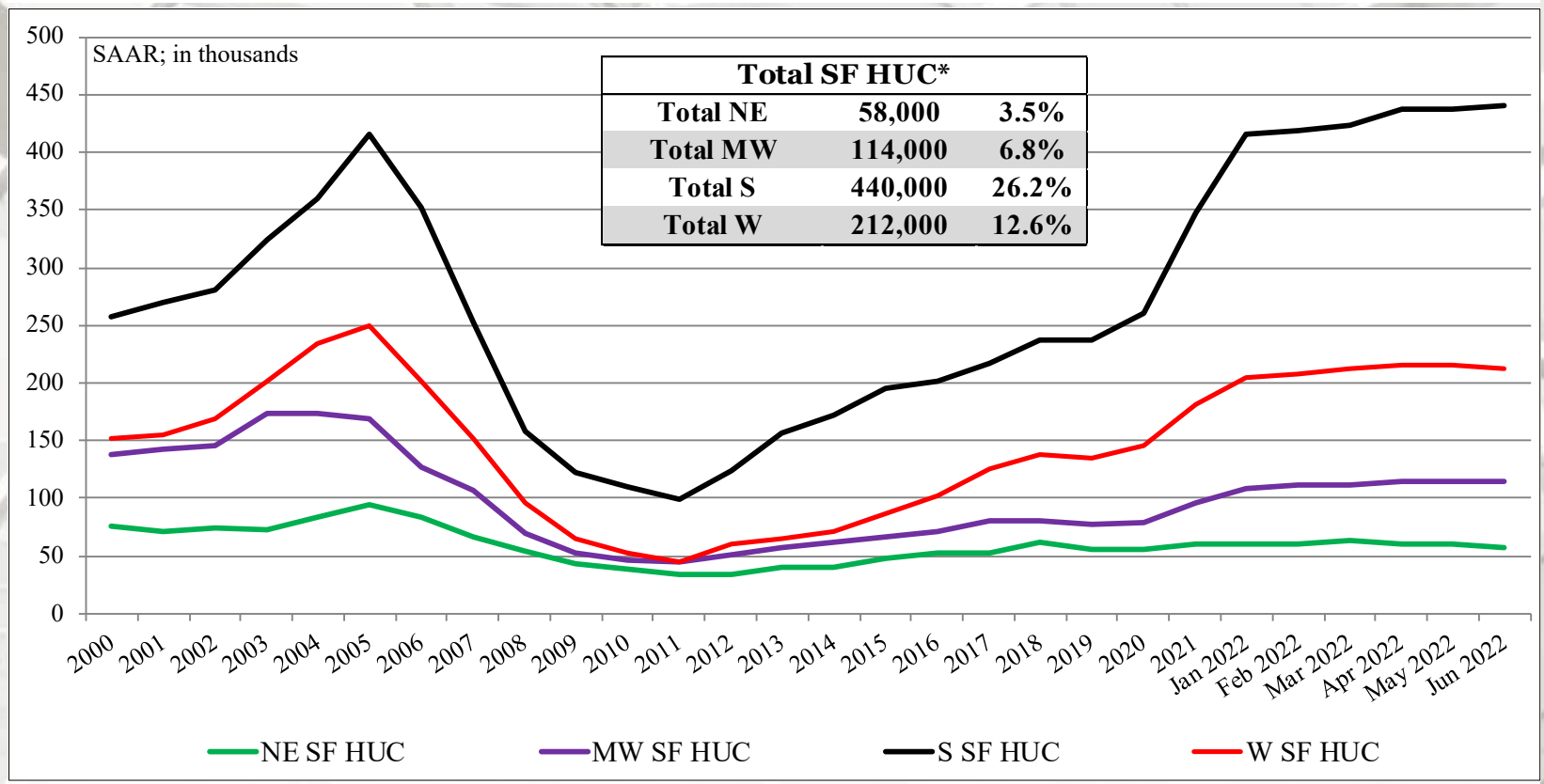
NE = Northeast, MW = Midwest, S = South, W = West
US DOC does not report 2 to 4 multi-family under construction directly; this is an estimation (Total under construction – (SF + ≥ 5 MF under construction).

* Percentage of total housing under construction units.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

SF Housing Under Construction by Region



Total SF HUC*		
Total NE	58,000	3.5%
Total MW	114,000	6.8%
Total S	440,000	26.2%
Total W	212,000	12.6%

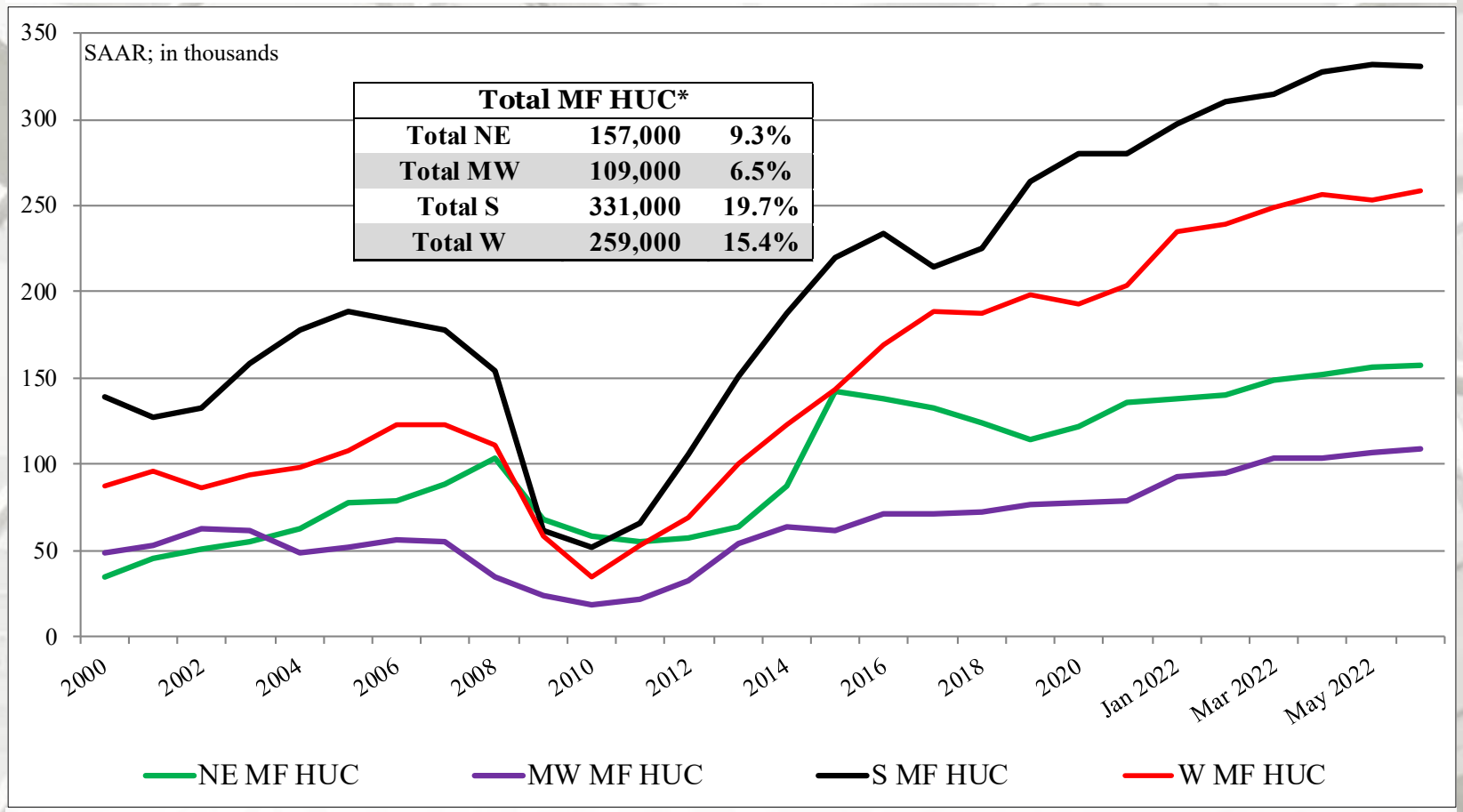
NE = Northeast, MW = Midwest, S = South, W = West.
US DOC does not report 2 to 4 multi-family under construction directly, this is an estimation (Total under construction – (SF + ≥ 5 MF under construction).

* Percentage of total housing under construction units.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

MF Housing Under Construction by Region



NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family under construction directly; this is an estimation (Total under construction – (SF + ≥ 5 MF under construction).

* Percentage of total housing under construction units.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit** Completions	MF ≥ 5 unit Completions
June	1,365,000	996,000	3,000	366,000
May	1,431,000	1,039,000	5,000	387,000
2021	1,305,000	918,000	7,000	380,000
M/M change	-4.6%	-4.1%	-40.0%	-5.4%
Y/Y change	4.6%	8.5%	-57.1%	-3.7%

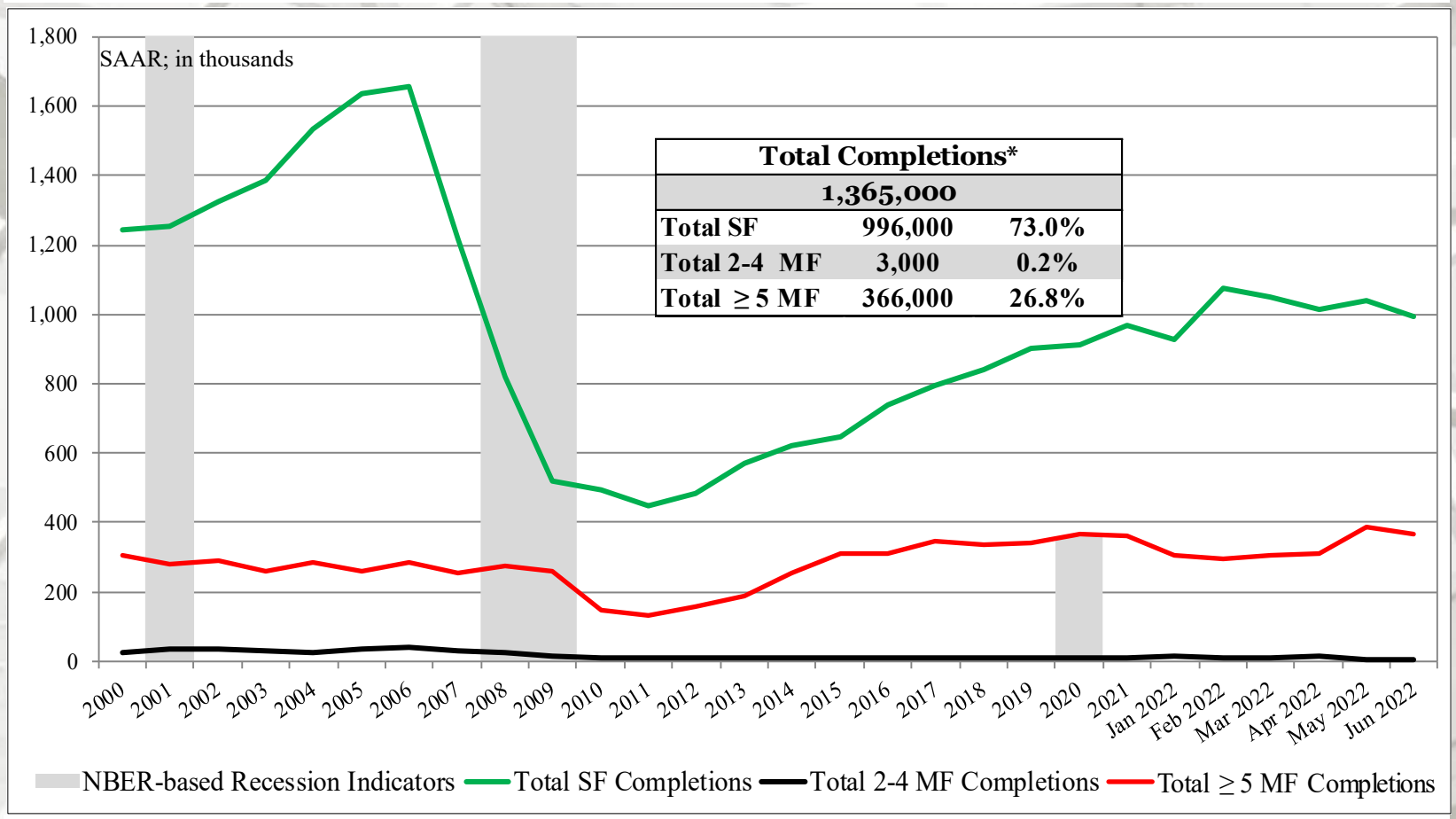
* All completion data are presented at a seasonally adjusted annual rate (SAAR).

** US DOC does not report multi-family completions directly; this is an estimation ((Total completions – (SF + ≥ 5-unit MF)).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Total Housing Completions



Total Completions*		
1,365,000		
Total SF	996,000	73.0%
Total 2-4 MF	3,000	0.2%
Total ≥ 5 MF	366,000	26.8%

** US DOC does not report multifamily completions directly, this is an estimation ((Total completions – (SF + ≥ 5-unit MF)).

* Percentage of total housing completions

NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: https://fred.stlouisfed.org/series/USREC, 6/1/21; http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Completions by Region

	NE Total	NE SF	NE MF**
June	107,000	65,000	42,000
May	99,000	65,000	34,000
2021	103,000	62,000	41,000
M/M change	8.1%	0.0%	23.5%
Y/Y change	3.9%	4.8%	2.4%
	MW Total	**MW SF**	**MW MF**
June	203,000	141,000	62,000
May	174,000	145,000	29,000
2021	173,000	135,000	38,000
M/M change	16.7%	-2.8%	113.8%
Y/Y change	17.3%	4.4%	63.2%

NE = Northeast, MW = Midwest, S = South, W = West
US DOC does not report 2 to 4 multi-family completions directly; this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Housing Completions by Region

	S Total	S SF	S MF**
June	762,000	572,000	190,000
May	784,000	581,000	203,000
2021	699,000	488,000	211,000
M/M change	-2.8%	-1.5%	-6.4%
Y/Y change	9.0%	17.2%	-10.0%
	W Total	**W SF**	**W MF**
June	293,000	218,000	75,000
May	374,000	248,000	126,000
2021	330,000	233,000	97,000
M/M change	-21.7%	-12.1%	-40.5%
Y/Y change	-11.2%	-6.4%	-22.7%

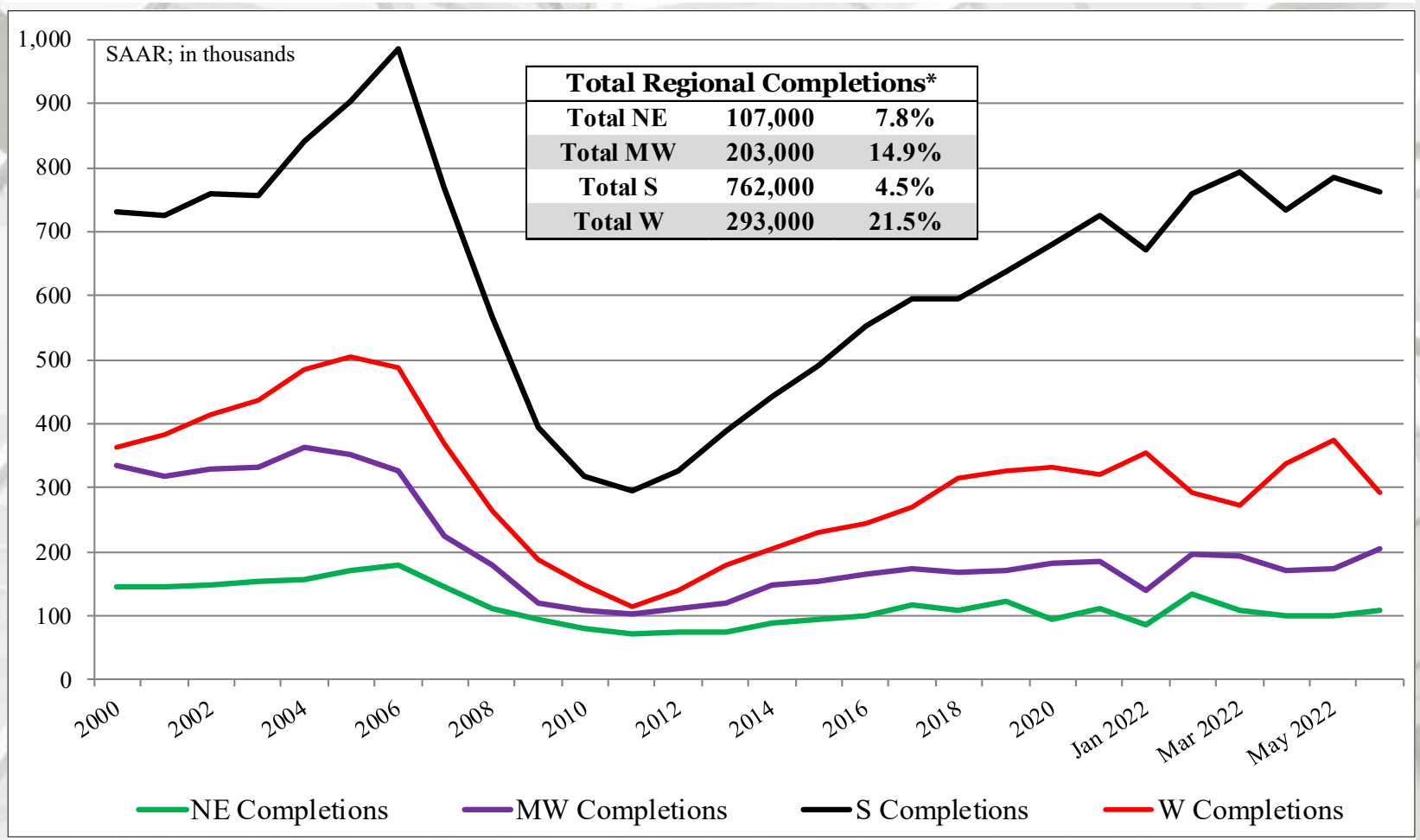
NE = Northeast, MW = Midwest, S = South, W = West
US DOC does not report 2 to 4 multi-family completions directly; this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Total Housing Completions by Region



Total Regional Completions*		
Total NE	107,000	7.8%
Total MW	203,000	14.9%
Total S	762,000	4.5%
Total W	293,000	21.5%

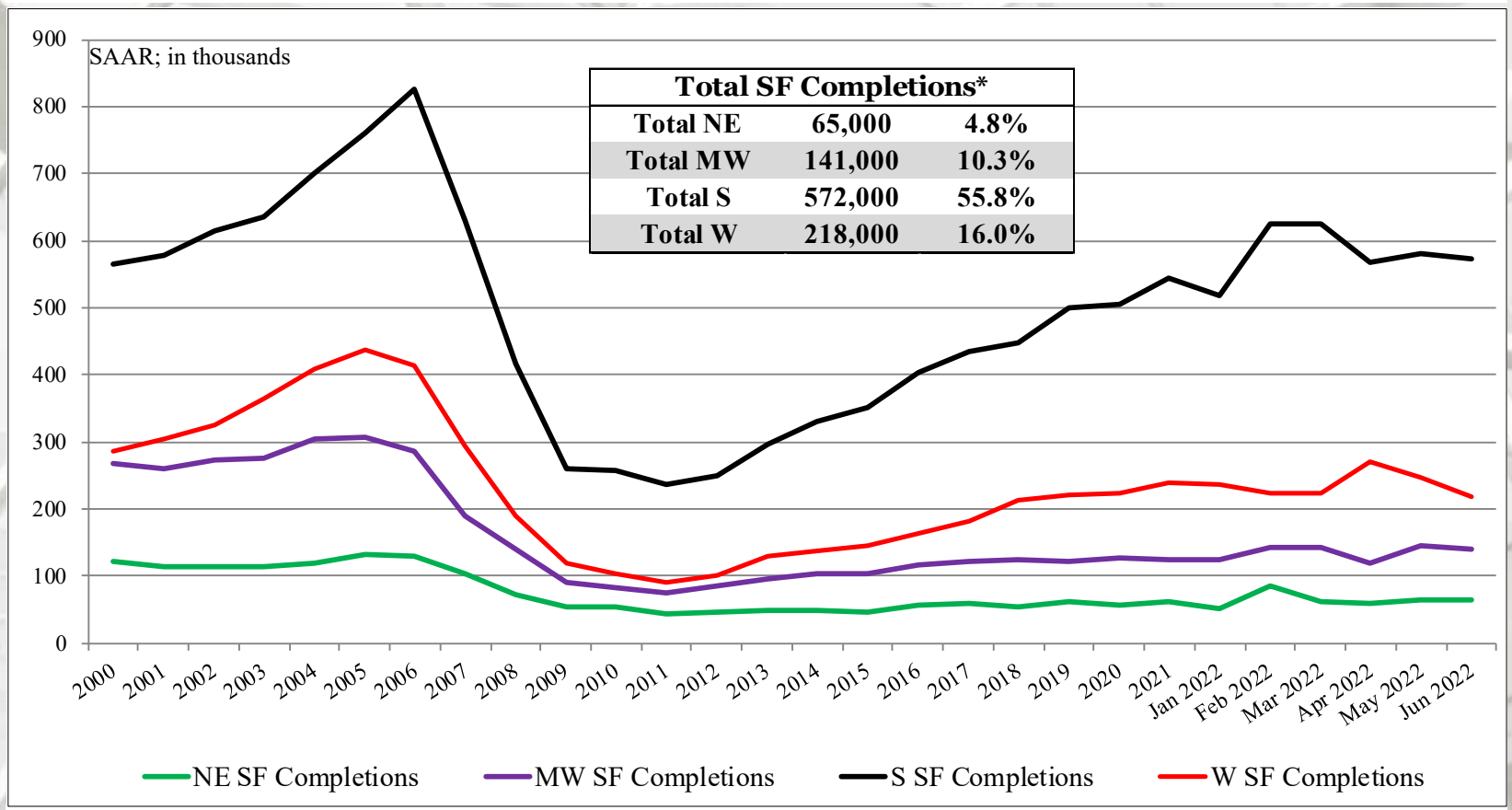
All data are SAAR; NE = Northeast and MW = Midwest; S = South, W = West

** US DOC does not report multi-family unit completions directly; this is an estimation (Total completions – SF completions).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

SF Housing Completions by Region



Total SF Completions*		
Total NE	65,000	4.8%
Total MW	141,000	10.3%
Total S	572,000	55.8%
Total W	218,000	16.0%

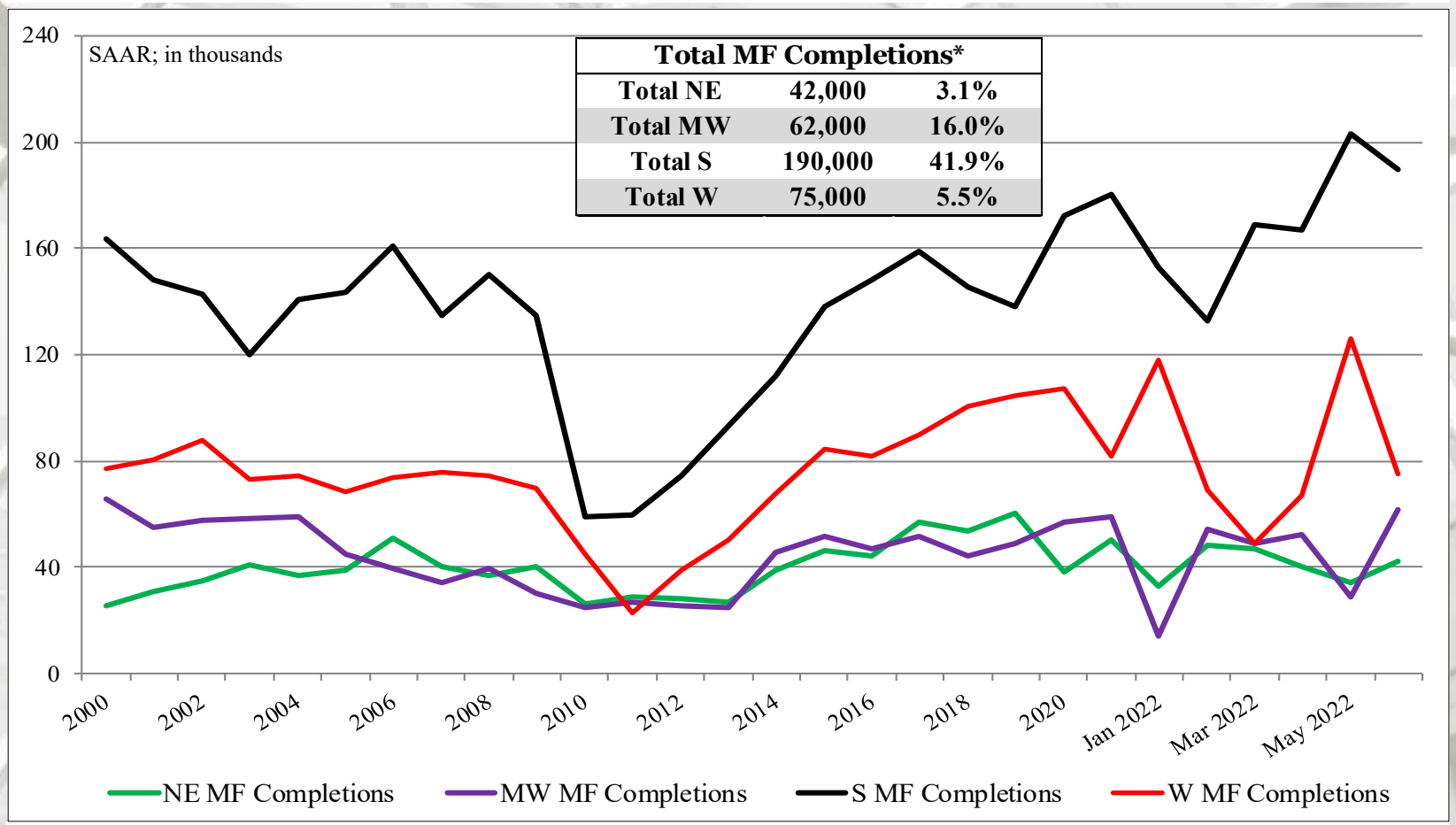
NE = Northeast, MW = Midwest, S = South, W = West
US DOC does not report 2 to 4 multi-family completions directly; this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

MF Housing Completions by Region



Total MF Completions*		
Total NE	42,000	3.1%
Total MW	62,000	16.0%
Total S	190,000	41.9%
Total W	75,000	5.5%

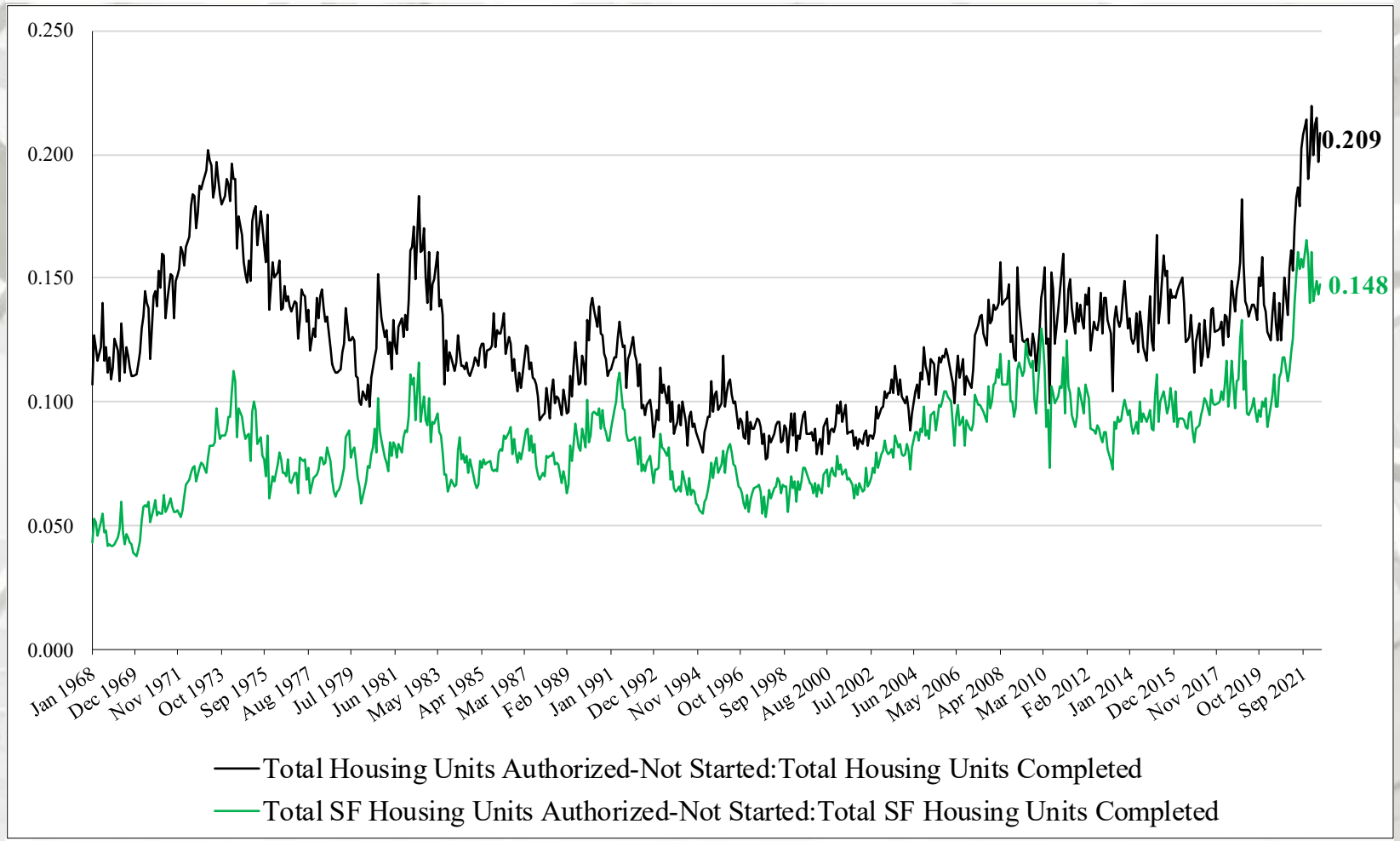
NE = Northeast, MW = Midwest, S = South, W = West
US DOC does not report 2 to 4 multi-family completions directly; this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

Ratio of Housing Units Authorized & Not Started to Housing Units Completed: M/M



Authorized, Not Started vs. Housing Completions

The ratio of SF houses authorized-not started to SF houses completed was less than the greatest in the history of this data series (0.165 – October 2021). Total authorized units not started increased to 285,000 in June and SF authorized units not started decreased to 147,000 in June.

The primary reason is manufacturing supply chain disruptions – ranging from appliances to windows; labor, logistics, and local building regulations.

Sources: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/19/22

Return TOC

New Single-Family House Sales

	New SF Sales*	Median Price	Mean Price	Month's Supply
June	590,000	$402,400	$456,800	9.3
May	642,000	$444,500	$514,000	8.4
2021	714,000	$374,700	$431,900	5.8
M/M change	-8.1%	-9.5%	-11.1%	10.7%
Y/Y change	-17.4%	7.4%	5.8%	60.3%

* All new sales data are presented at a seasonally adjusted annual rate (SAAR)[1] and housing prices are adjusted at irregular intervals[2].

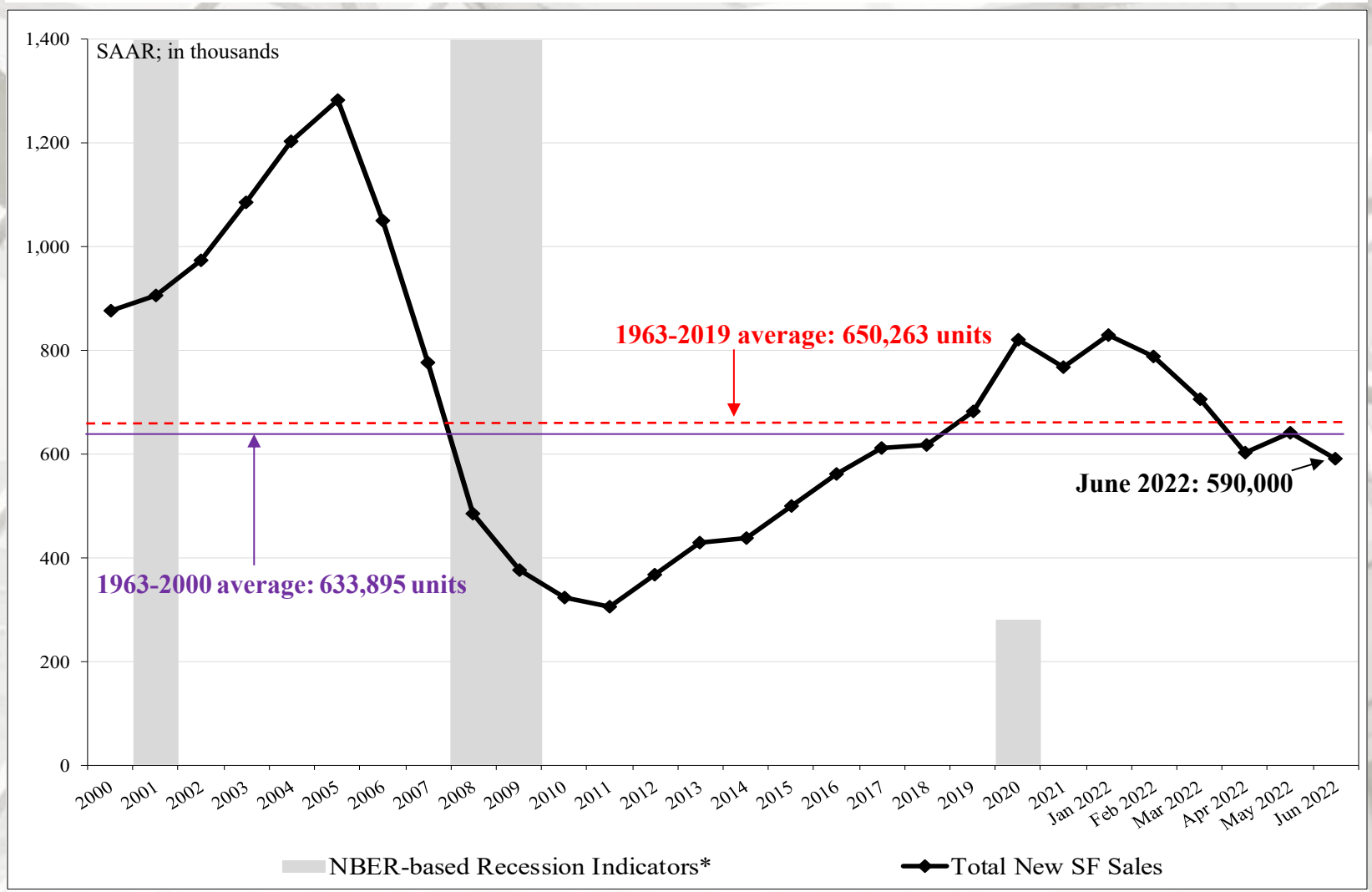
New SF sales were substantially less than the consensus forecast[3] of 664 m (range: 620 m to 680 m). The past three month's new SF sales data also were revised:

March initial: 763 m, revised to 707 m.
April initial: 591 m, revised to 604 m.
May initial: 696 m, revised to 642 m.

Sources: [1] https://www.census.gov/construction/nrs/index.html; 7/26/21; [2] https://www.census.gov/construction/nrs/pdf/newressales.pdf
[3] http://us.econoday.com; 7/26/21

Return TOC

New SF House Sales

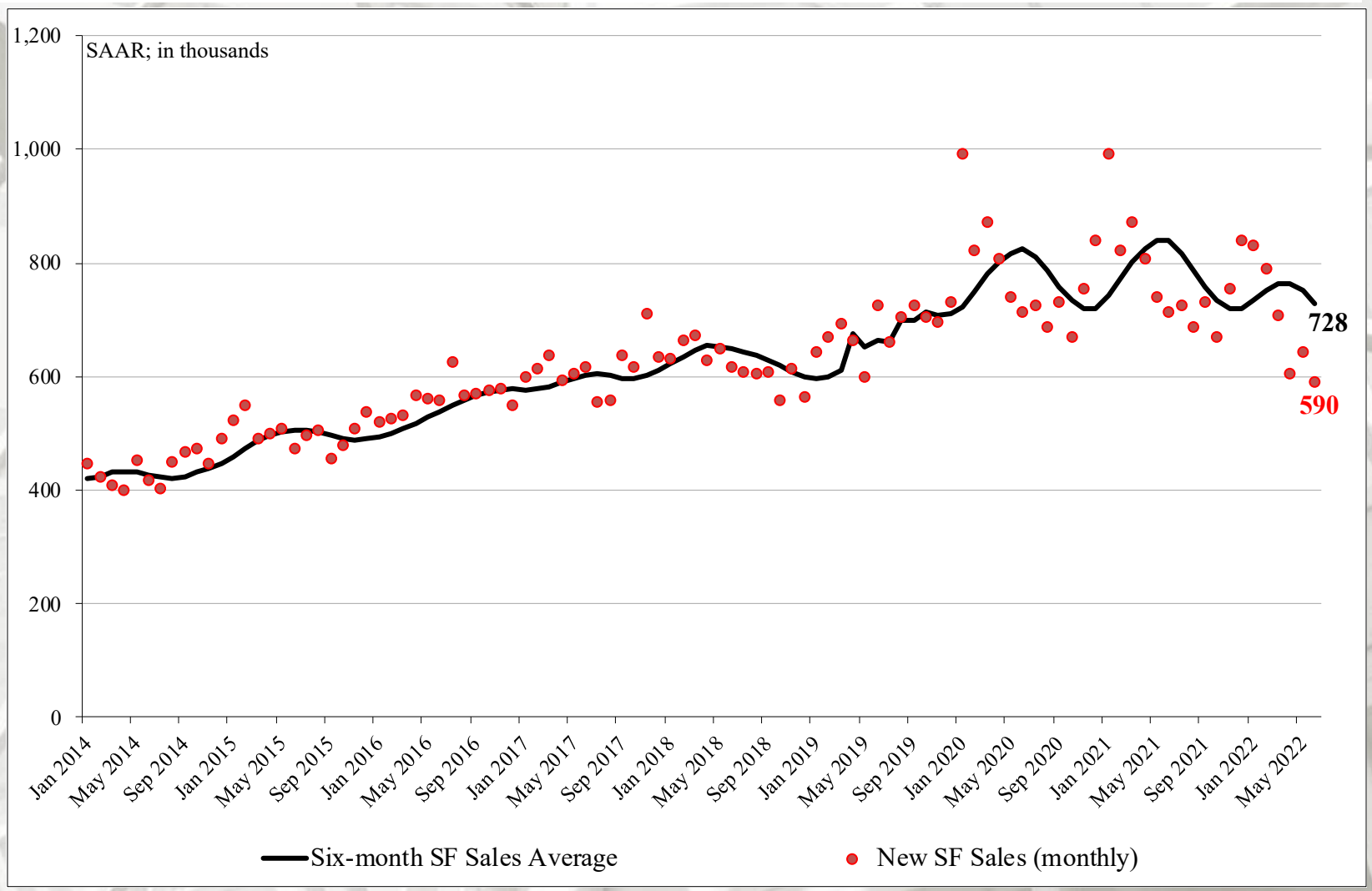


* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: https://fred.stlouisfed.org/series/USREC, 6/1/21; http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF Housing Sales: Six-month average & monthly



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22.

Return TOC

New SF House Sales by Region and Price Category

	NE	MW	S	W
June	18,000	74,000	386,000	112,000
May	19,000	52,000	394,000	177,000
2021	29,000	95,000	423,000	167,000
M/M change	-5.3%	42.3%	-2.0%	-36.7%
Y/Y change	-37.9%	-22.1%	-8.7%	-32.9%

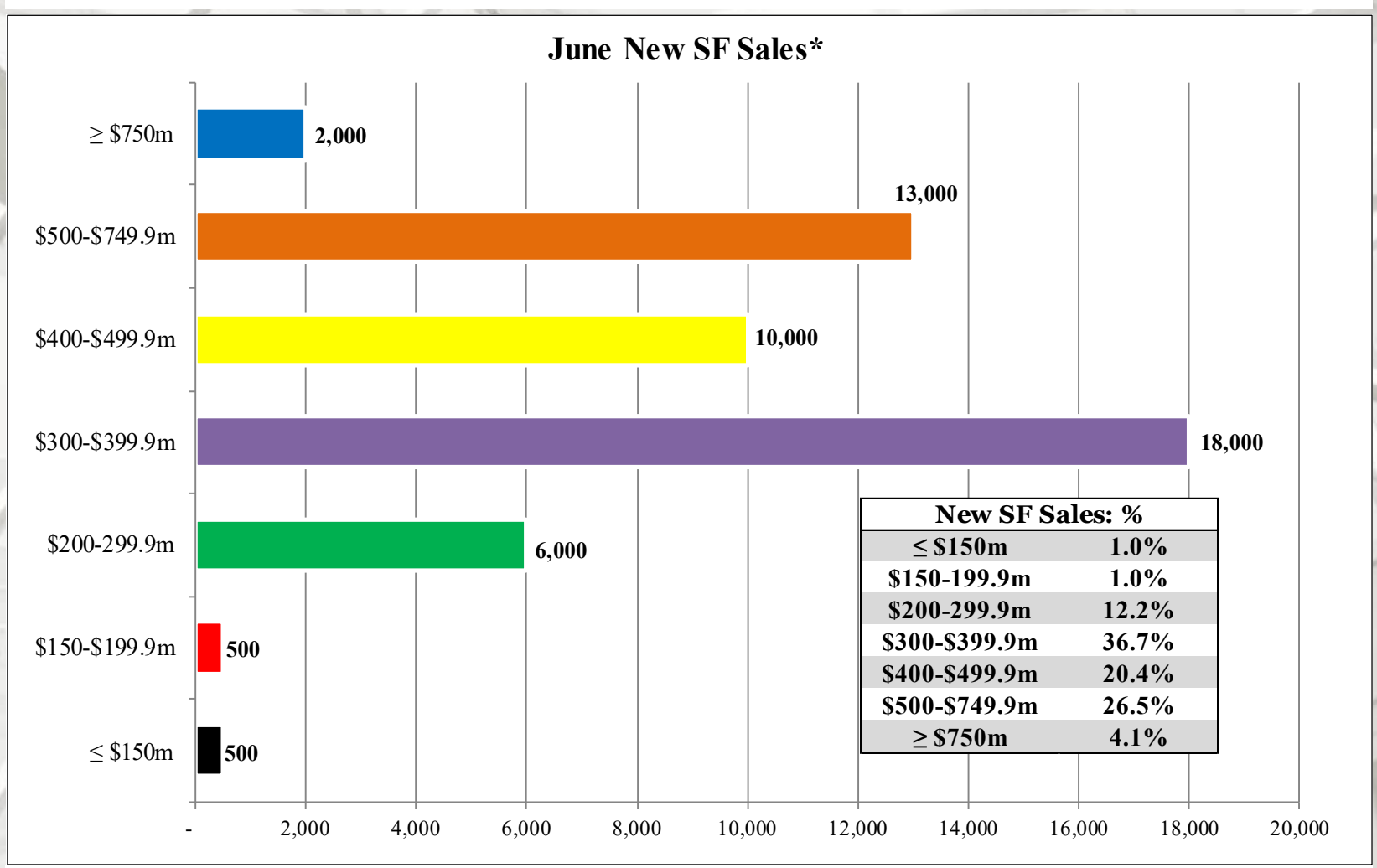
	≤ $150m	$150 - $199.9m	$200 - 299.9m	$300 - $399.9m	$400 - $499.9m	$500 - $749.9m	≥ $750m
June[1,2,3,4]	500	500	6,000	18,000	10,000	13,000	2,000
May	500	500	6,000	17,000	14,000	14,000	8,000
2021	500	1,000	16,000	17,000	10,000	13,000	4,000
M/M change	0.0%	0.0%	-37.5%	-40.9%	8.3%	-16.7%	0.0%
Y/Y change	-50.0%	-50.0%	-70.6%	-45.8%	18.2%	0.0%	60.0%
New SF sales: %	1.0%	1.0%	12.2%	36.7%	20.4%	26.5%	4.1%

NE = Northeast; MW = Midwest; S = South; W = West
[1] All data are SAAR
[2] Houses for which sales price were not reported have been distributed proportionally to those for which sales price was reported;
[3] Detail June not add to total because of rounding.
[4] Housing prices are adjusted at irregular intervals.
[5] Z = Less than 500 units or less than 0.5 percent

Sources: [1,2,3] https://www.census.gov/construction/nrs/index.html; 7/26/22;
[4]https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf

Return TOC

New SF House Sales



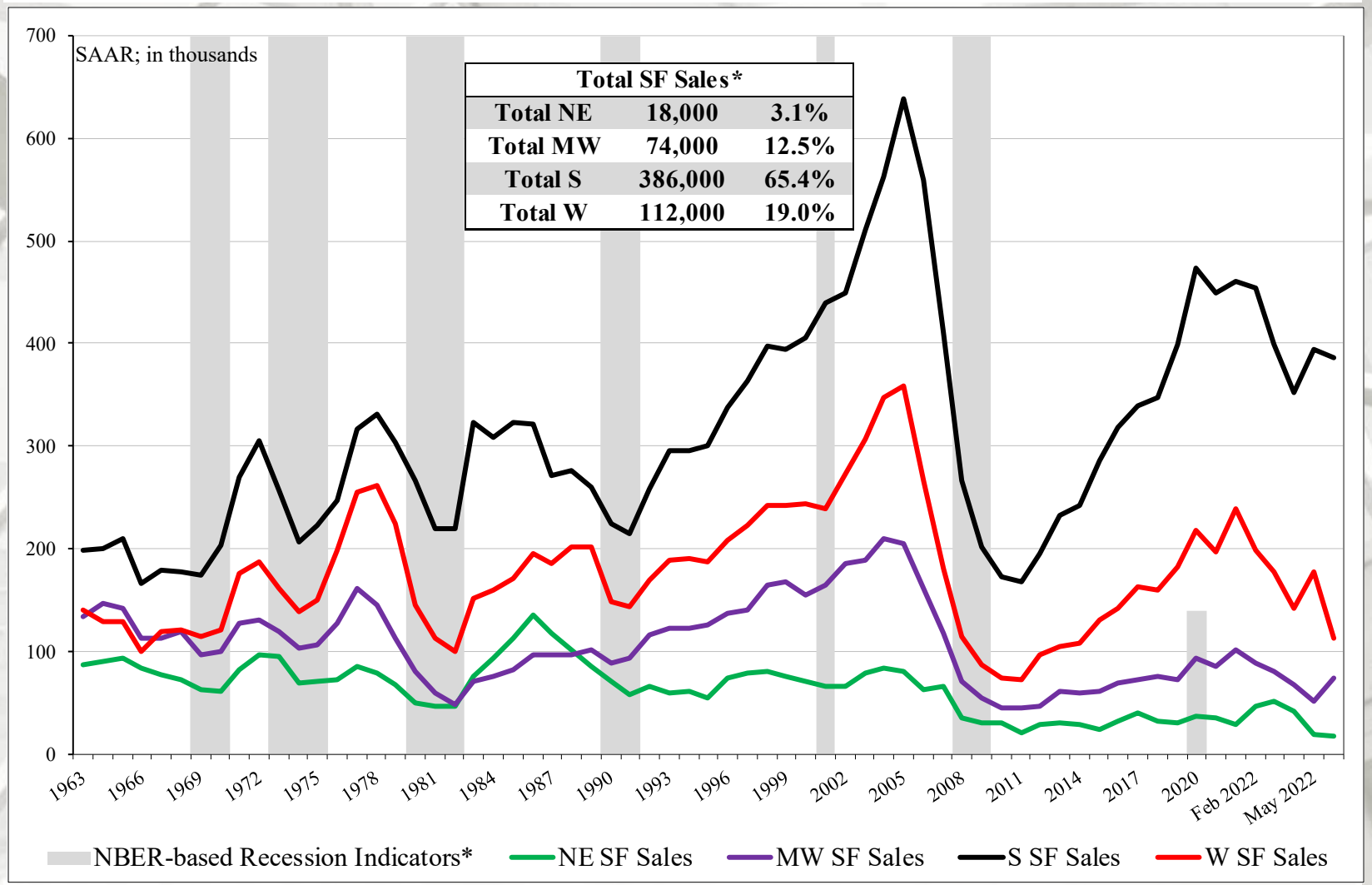
New SF Sales: %	
≤ $150m	1.0%
$150-199.9m	1.0%
$200-299.9m	12.2%
$300-$399.9m	36.7%
$400-$499.9m	20.4%
$500-$749.9m	26.5%
≥ $750m	4.1%

* Total new sales by price category and percent.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF House Sales by Region



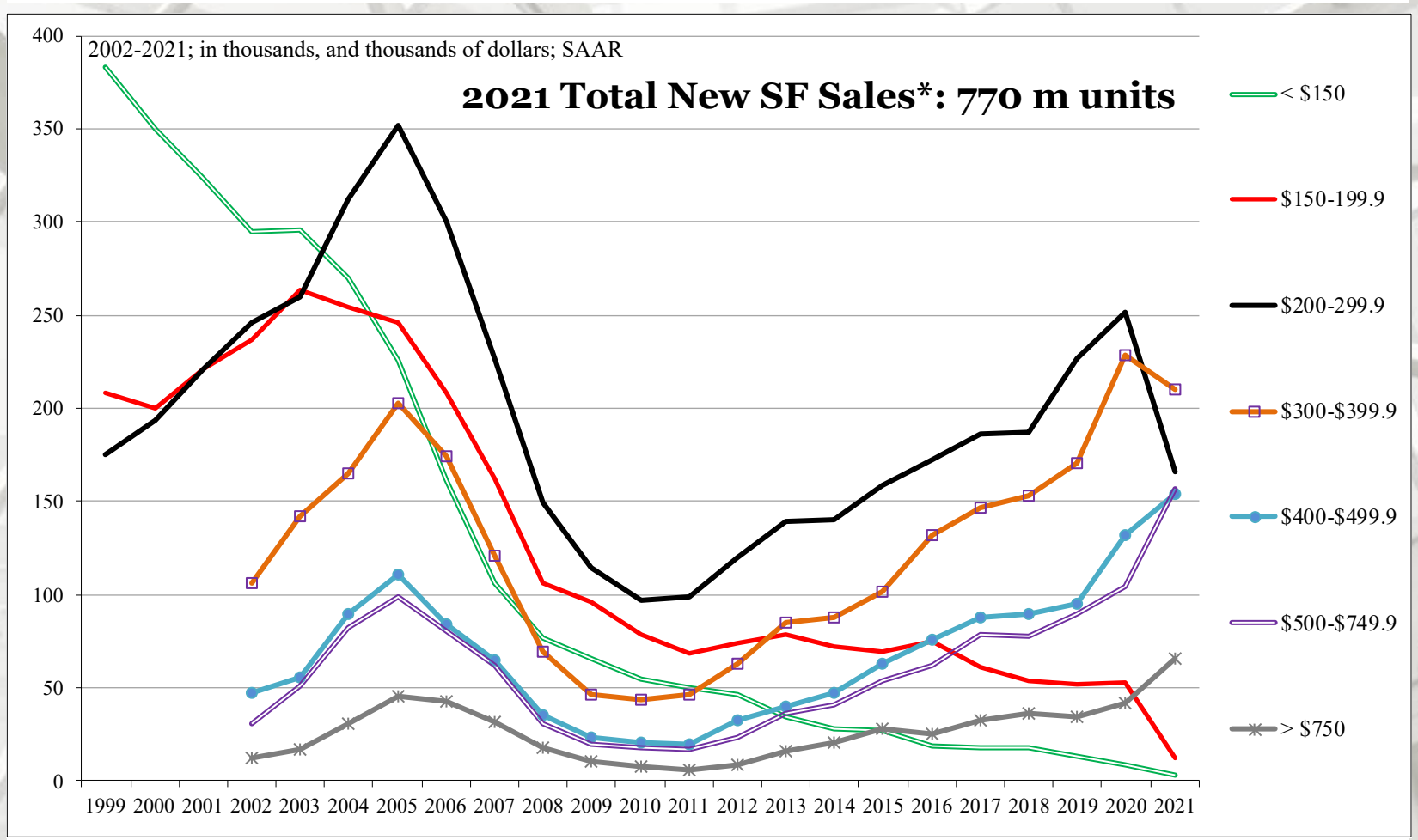
NE = Northeast; MW = Midwest; S = South; W = West
* Percentage of total new sales.

* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF House Sales by Price Category

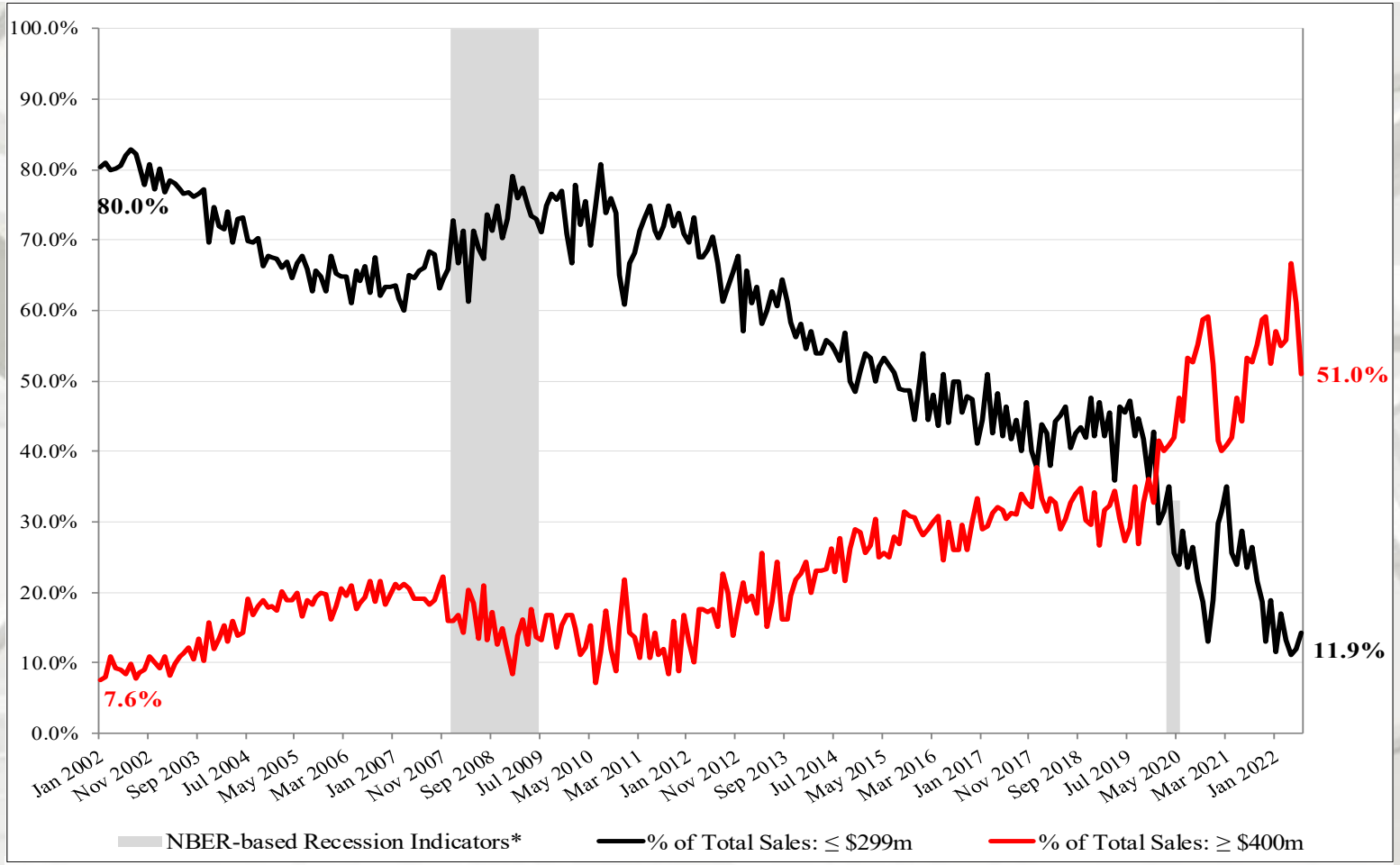


* Sales tallied by price category, nominal dollars.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/24/21

Return TOC

New SF House Sales



* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

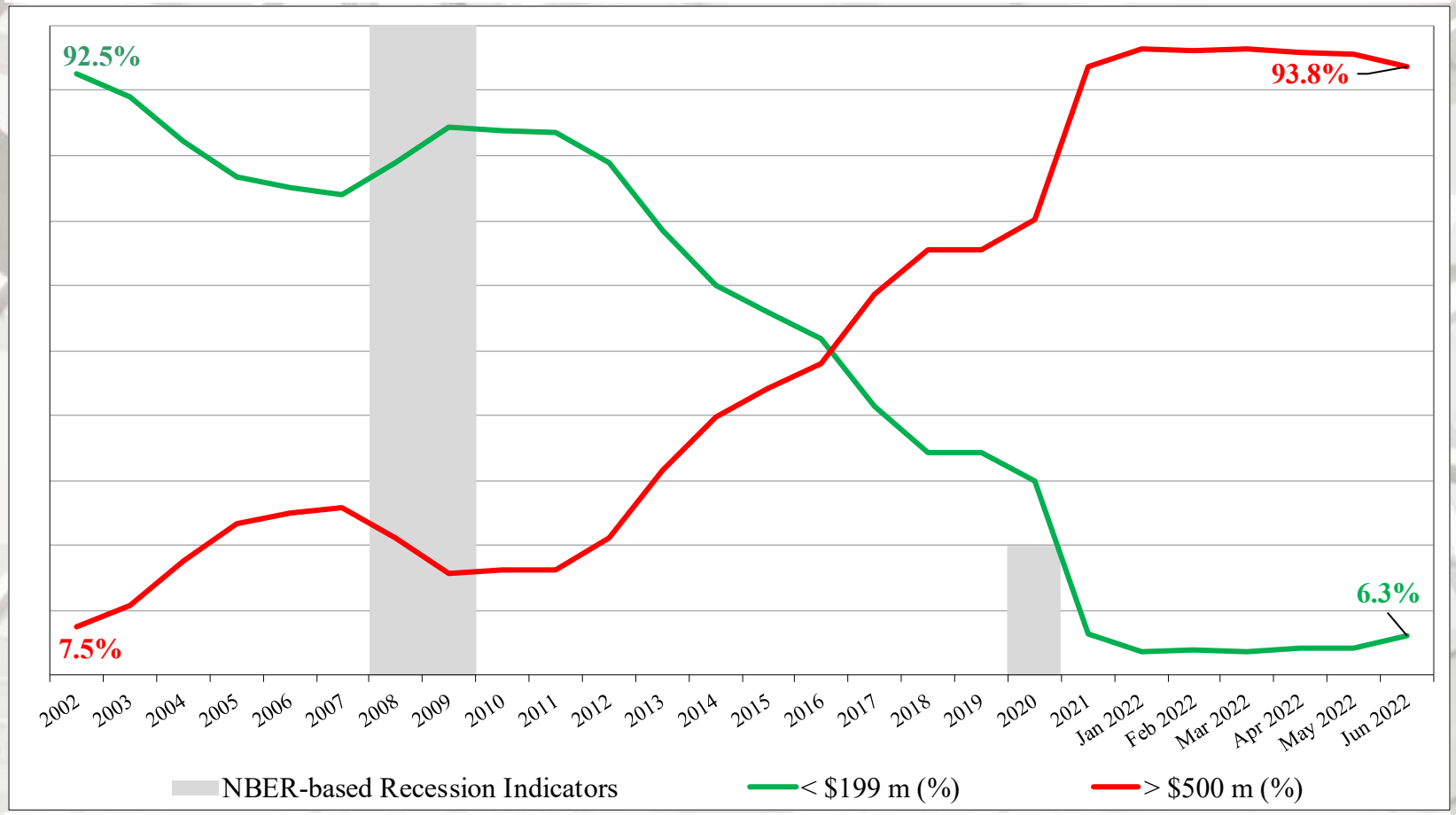
New SF Sales: ≤ $299m and ≥ $400m: 2002 – June 2022

The sales share of $400 thousand plus SF houses is presented above[1, 2]. Since the beginning of 2012, the upper priced houses have and are garnering a greater percentage of sales. A decreasing spread indicates that more high-end luxury homes are being sold. Several reasons are offered by industry analysts; 1) builders can realize a profit on higher priced houses; 2) historically low interest rates have indirectly resulted in increasing house prices; and 3) purchasers of upper end houses fared better financially coming out of the Great Recession.

Source: [1] https://www.census.gov/construction/nrs/index.html; [2] https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf 7/26/22

Return TOC

New SF House Sales



New SF Sales: ≤ $ 200m and ≥ $500m: 2002 to June 2022

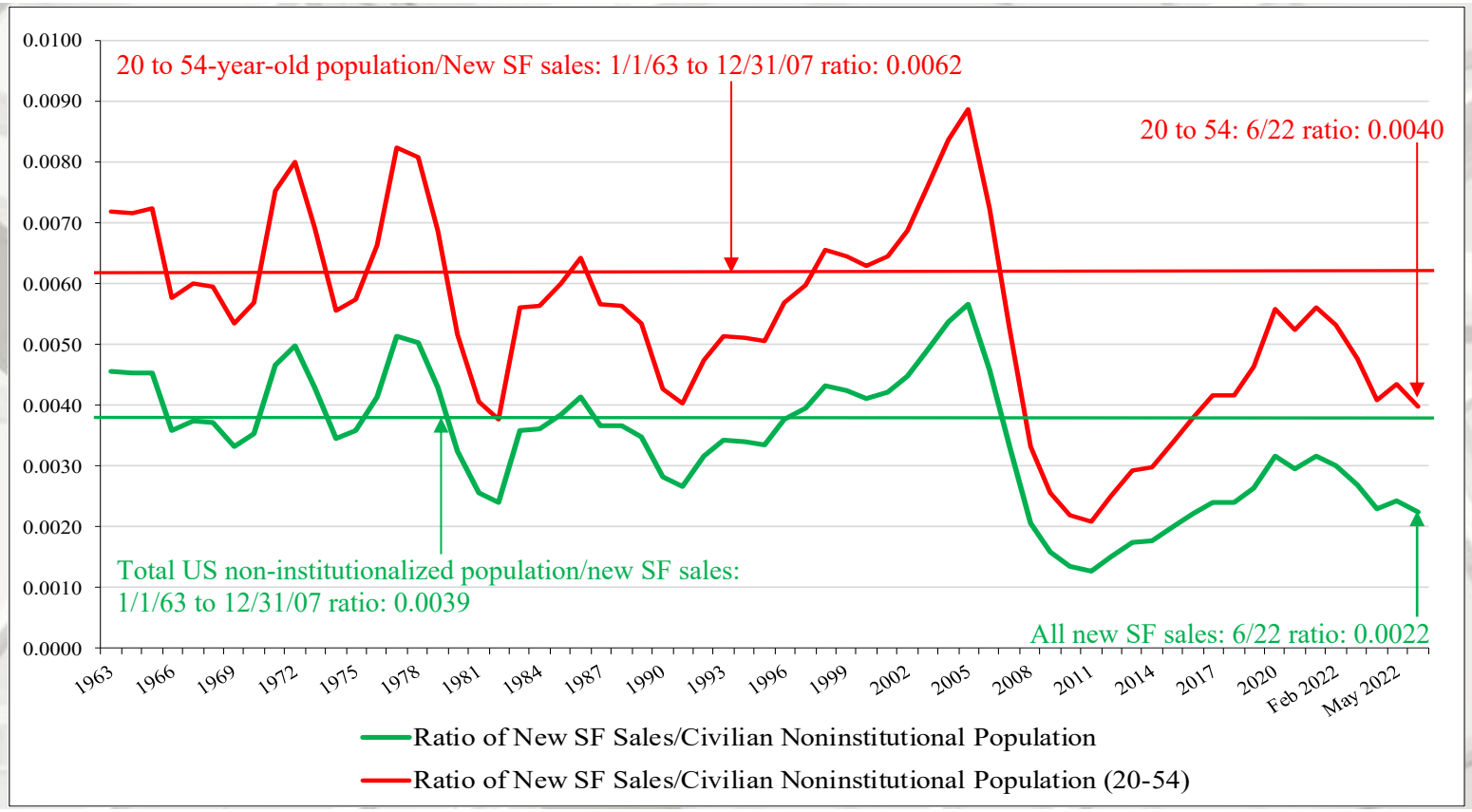
The number of ≤ $200 thousand SF houses has declined dramatically since 2002[1, 2]. Subsequently, from 2012 onward, the ≥ $500 thousand class has soared (on a percentage basis) in contrast to the ≤ $200 thousand class. Oft mentioned reasons for this occurrence is builder net margins, affordability, and purchase of new houses for rent – single-family rentals.

NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Source: [1] https://www.census.gov/construction/nrs/index.html; [2] https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf 7/26/22

Return TOC

New SF House Sales



New SF sales adjusted for the US population

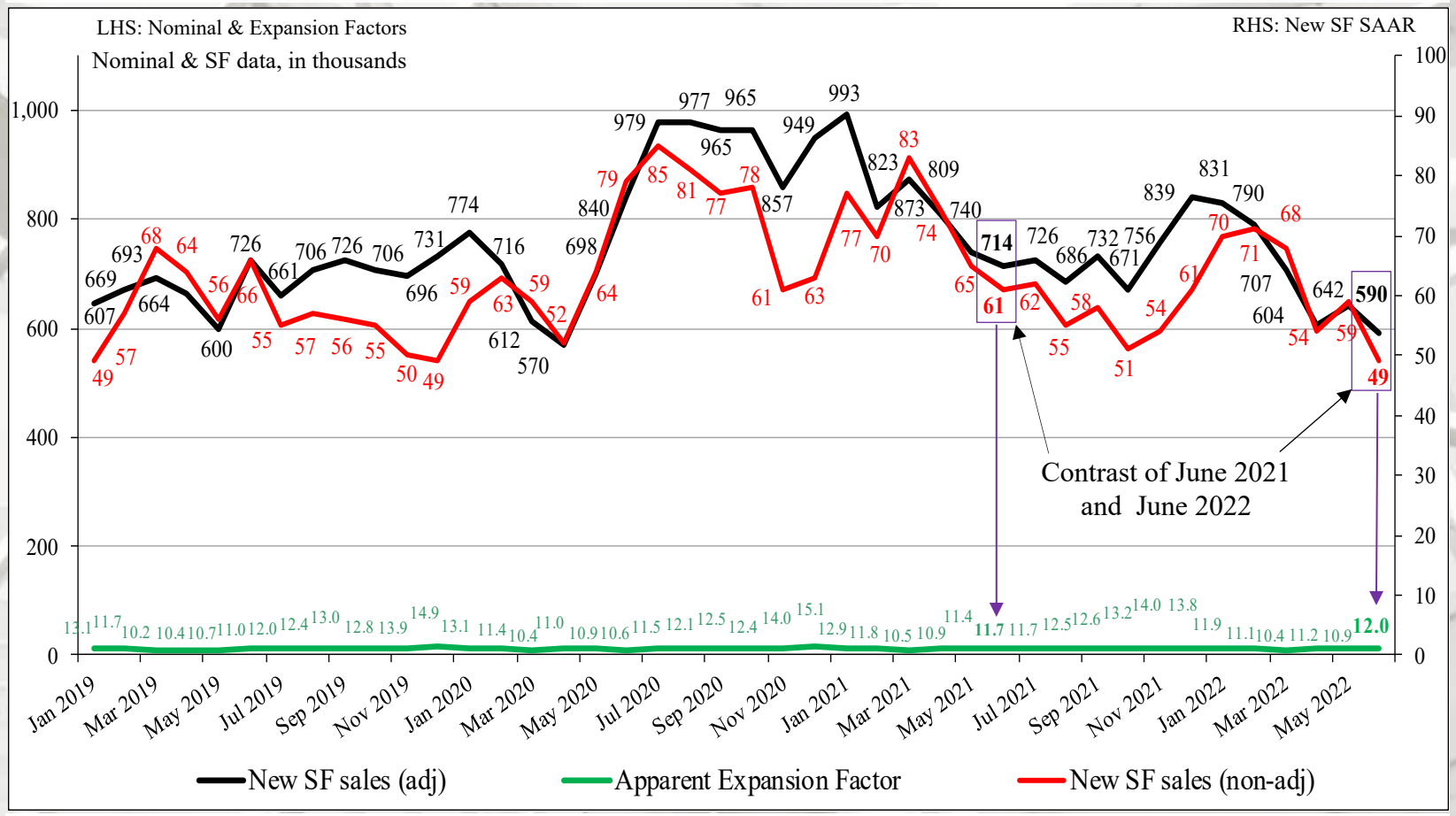
From June 1963 to July 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in June 2022 it was 0.0022 – a decrease from May (0.0024). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in June 2022 it was 0.0040 – also a decrease from May (0.0043). All are non-adjusted data. From a non-institutionalized population world view, new sales remain less than the long-term average.

However, on a long-term basis, some studies peg normalized long-term demand at 900,000 to 1,000,000 new SF house sales per year beginning in 2025 through 2050.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

Nominal vs. SAAR New SF House Sales



Nominal and Adjusted New SF Monthly Sales

Presented above is nominal (non-adjusted) new SF sales data contrasted against SAAR data.

The apparent expansion factor "…is the ratio of the unadjusted number of houses sold in the US to the seasonally adjusted number of houses sold in the US (i.e., to the sum of the seasonally adjusted values for the four regions)." – U.S. DOC-Construction

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF House Sales

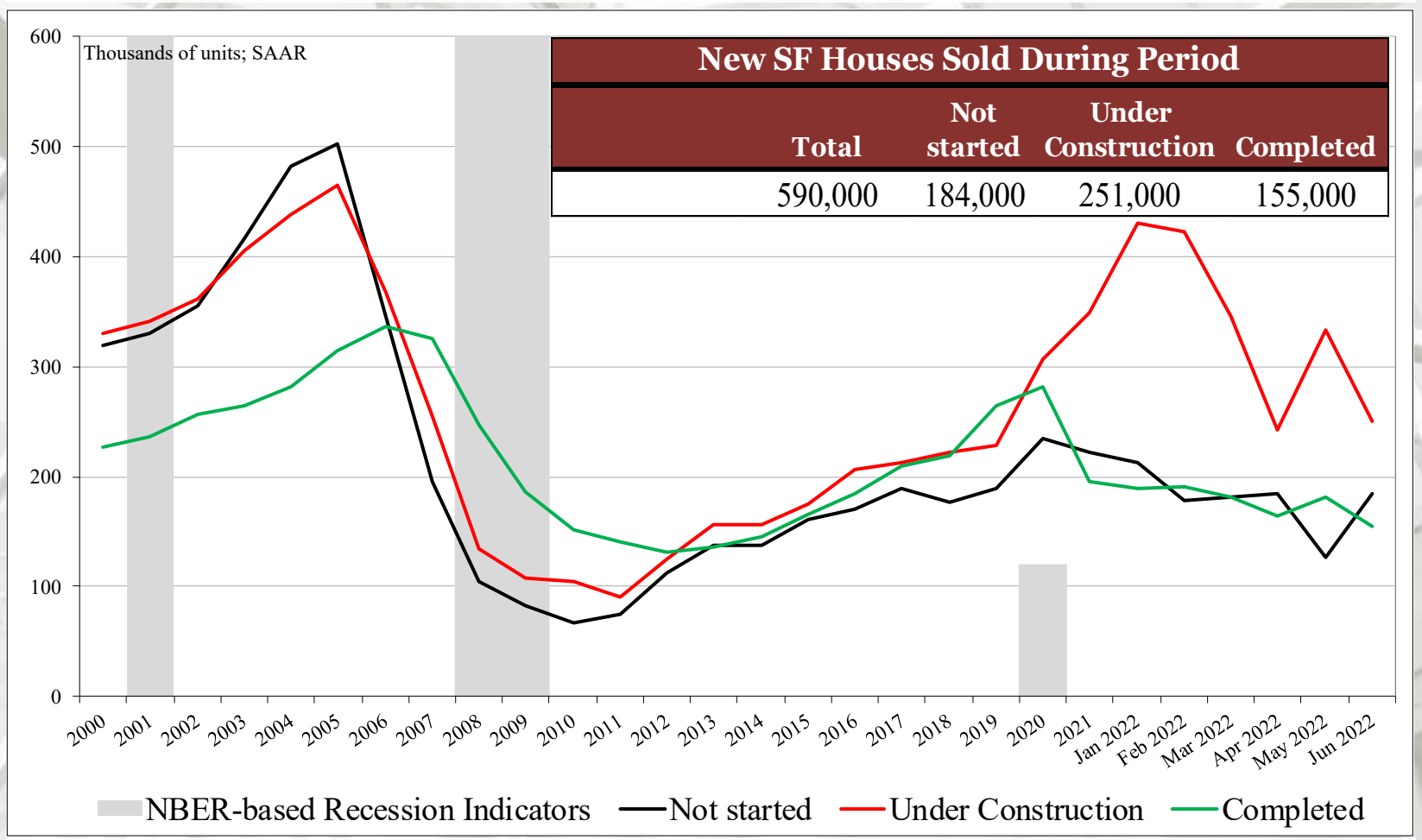
New SF Houses Sold During Period				
	Total	Not started	Under Construction	Completed
June	590,000	184,000	251,000	155,000
May	642,000	127,000	334,000	181,000
2021	714,000	195,000	341,000	178,000
M/M change	-8.1%	44.9%	-24.9%	-14.4%
Y/Y change	-17.4%	-5.6%	-26.4%	-12.9%
Total percentage		31.2%	42.5%	26.3%

SAAR

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF House Sales: Sold During Period



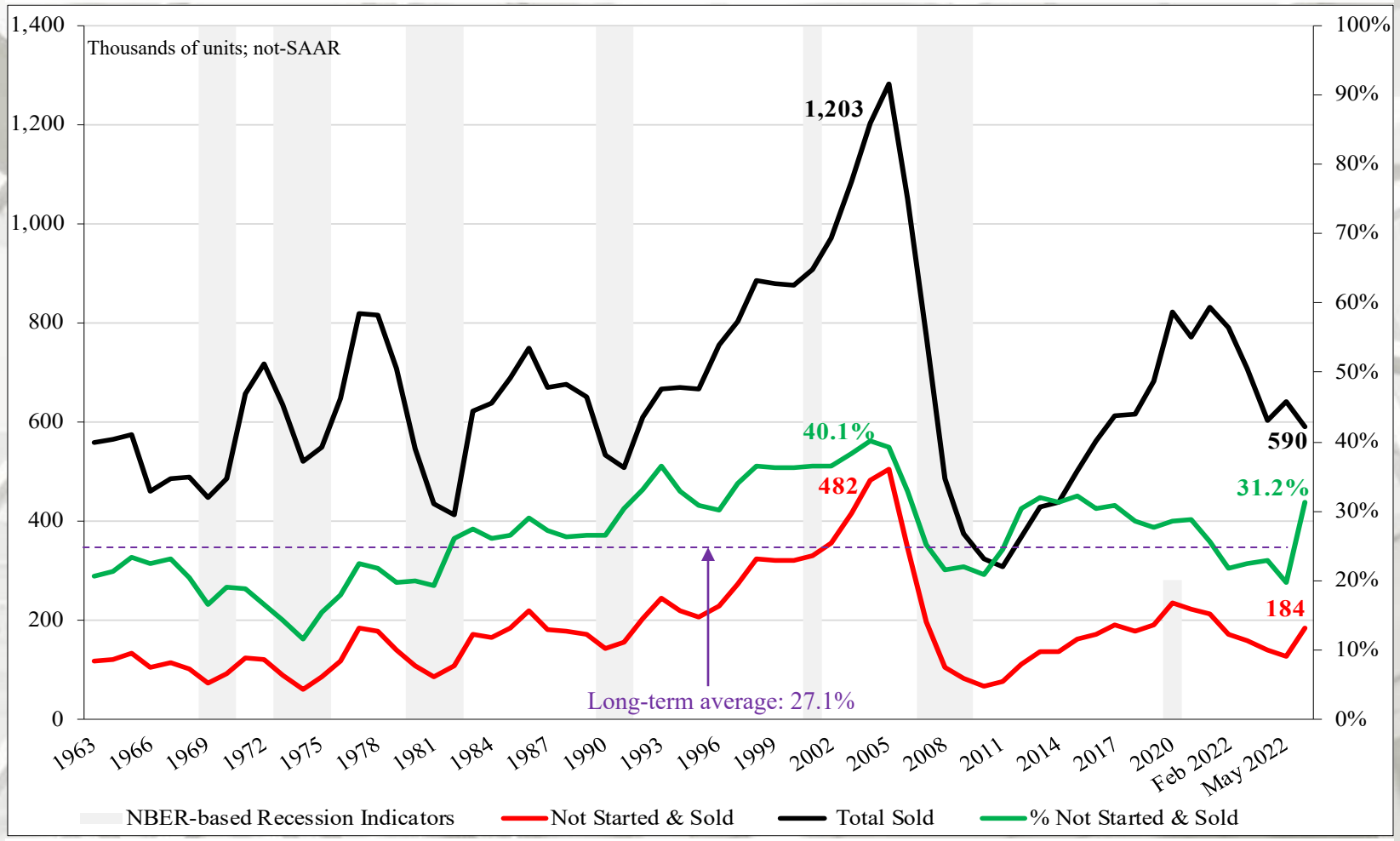
New SF Houses Sold During Period			
Total	Not started	Under Construction	Completed
590,000	184,000	251,000	155,000

* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF House Sales:
Percentage Not Started & Sold During Period



Of the new houses sold in June (590 m), 31.2% (184 m) had not been started. The long-term average is 27.1%.

* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF Houses for Sale at End of Period

New SF Houses for Sale at the end of the Period				
	Total	Not started	Under Construction	Completed
June	457,000	110,000	306,000	41,000
May	447,000	106,000	304,000	37,000
2021	346,000	95,000	219,000	32,000
M/M change	2.2%	3.8%	0.7%	10.8%
Y/Y change	32.1%	15.8%	39.7%	28.1%
Total percentage		24.1%	67.0%	9.0%

Not SAAR

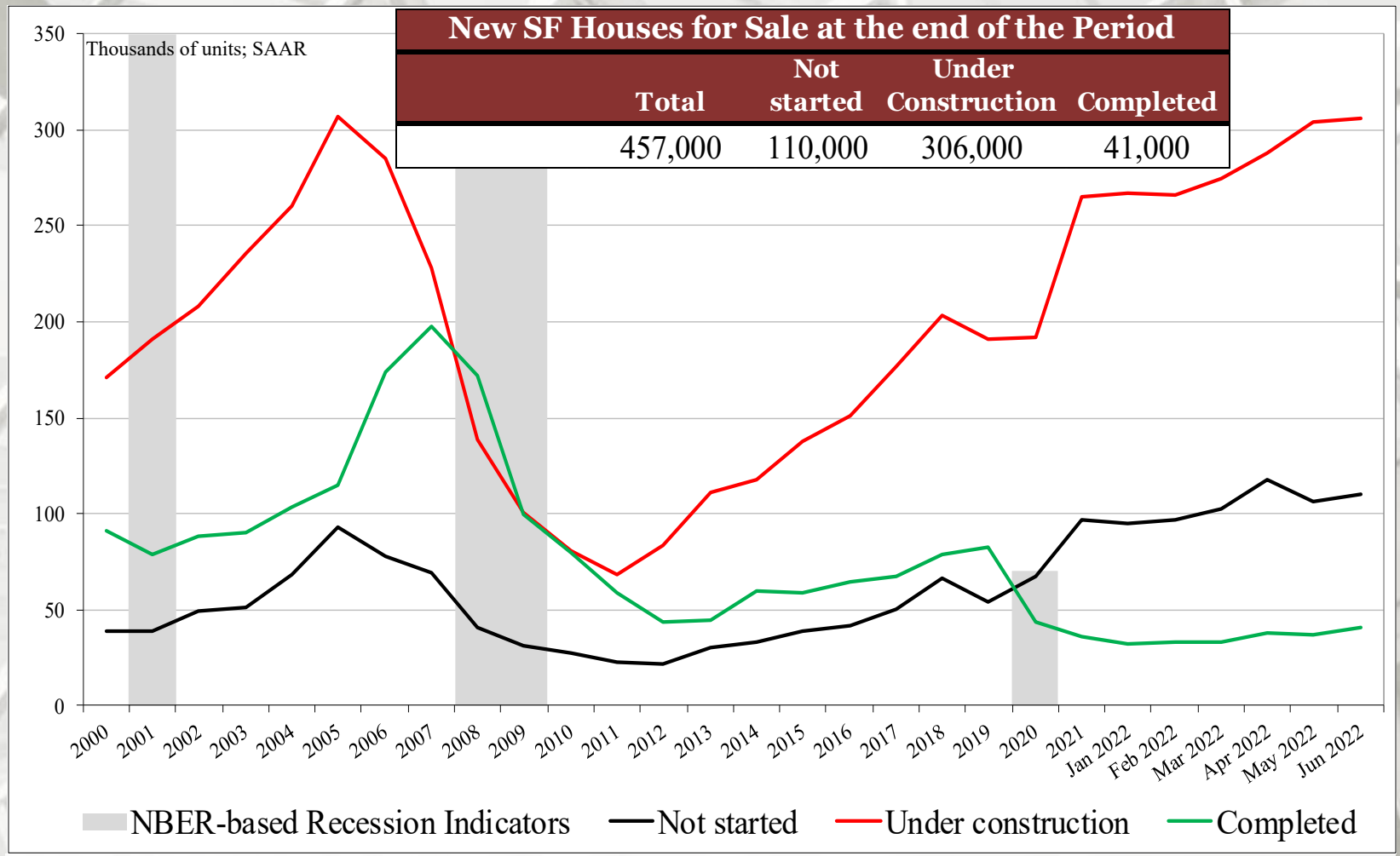
Of houses listed for sale (457 m) in June, 8.9% (41 m) have been built. In the 'ground had not been broken for construction' or 'not started' category, 110 m (24.1%) were sold.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF House Sales: For Sale at End of Period

New SF Houses for Sale at the end of the Period			
Total	Not started	Under Construction	Completed
457,000	110,000	306,000	41,000



NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF House Sales

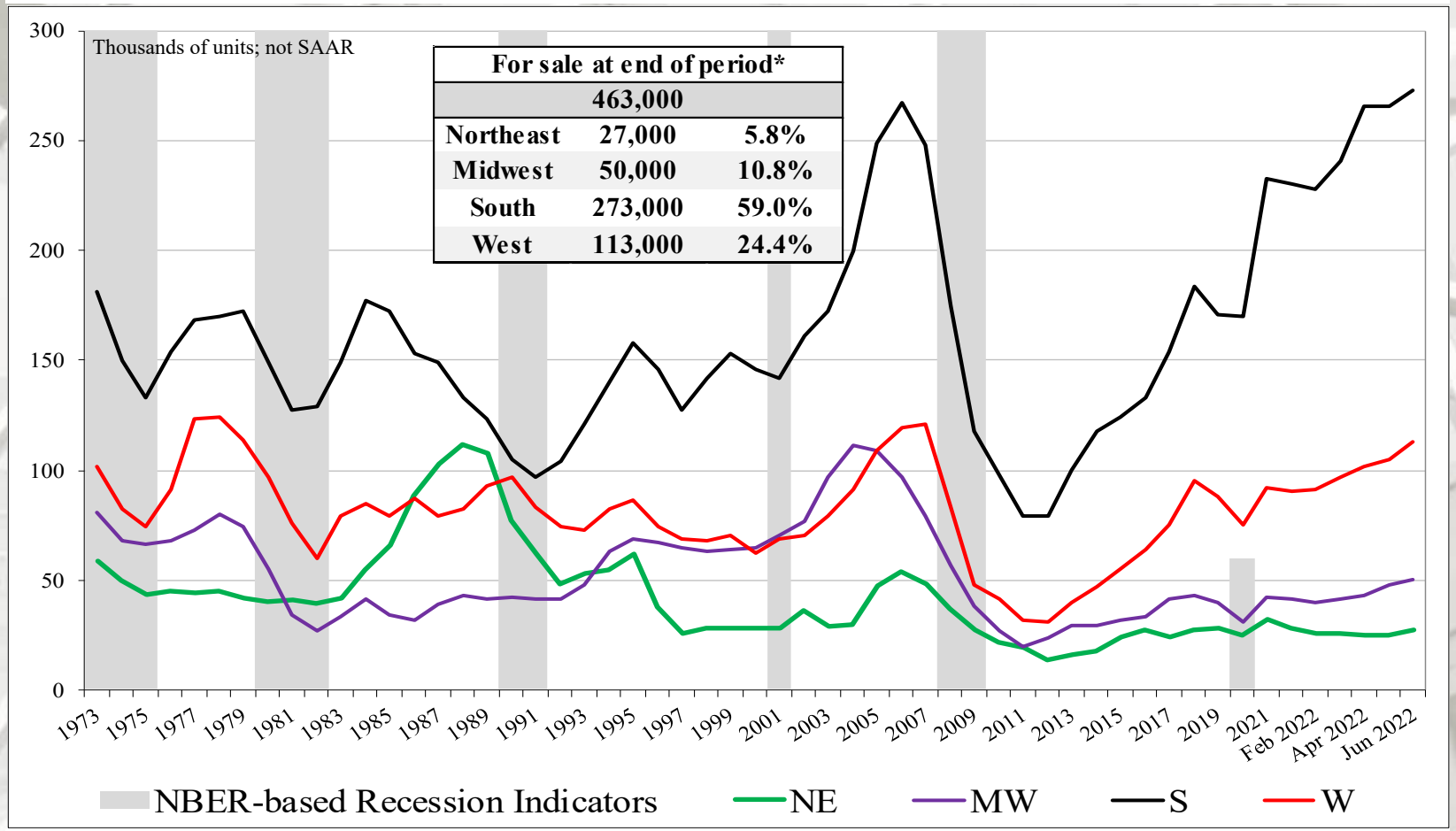
New SF Houses for Sale at the end of the Period by Region*	Total	NE	MW	S	W
June	463,000	27,000	50,000	273,000	113,000
May	445,000	25,000	48,000	266,000	105,000
2021	350,000	26,000	31,000	205,000	88,000
M/M change	4.0%	8.0%	4.2%	2.6%	7.6%
Y/Y change	32.3%	3.8%	61.3%	33.2%	28.4%

* Not SAAR

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

New SF Houses for Sale at End of Period by Region



NE = Northeast; MW = Midwest; S = South; W = West

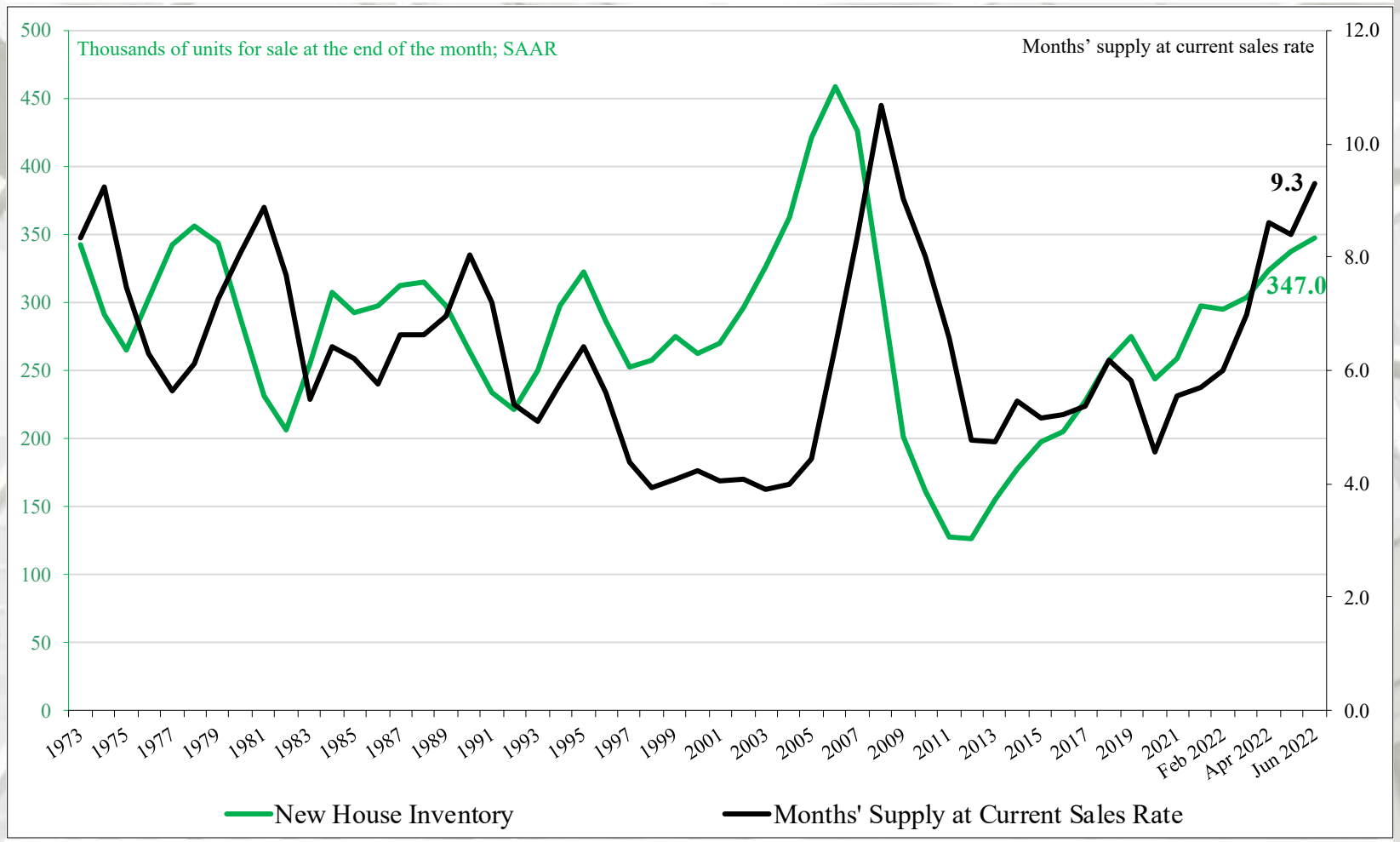
* Percentage of new SF sales.

NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

Months' Supply and New House Inventory[a]



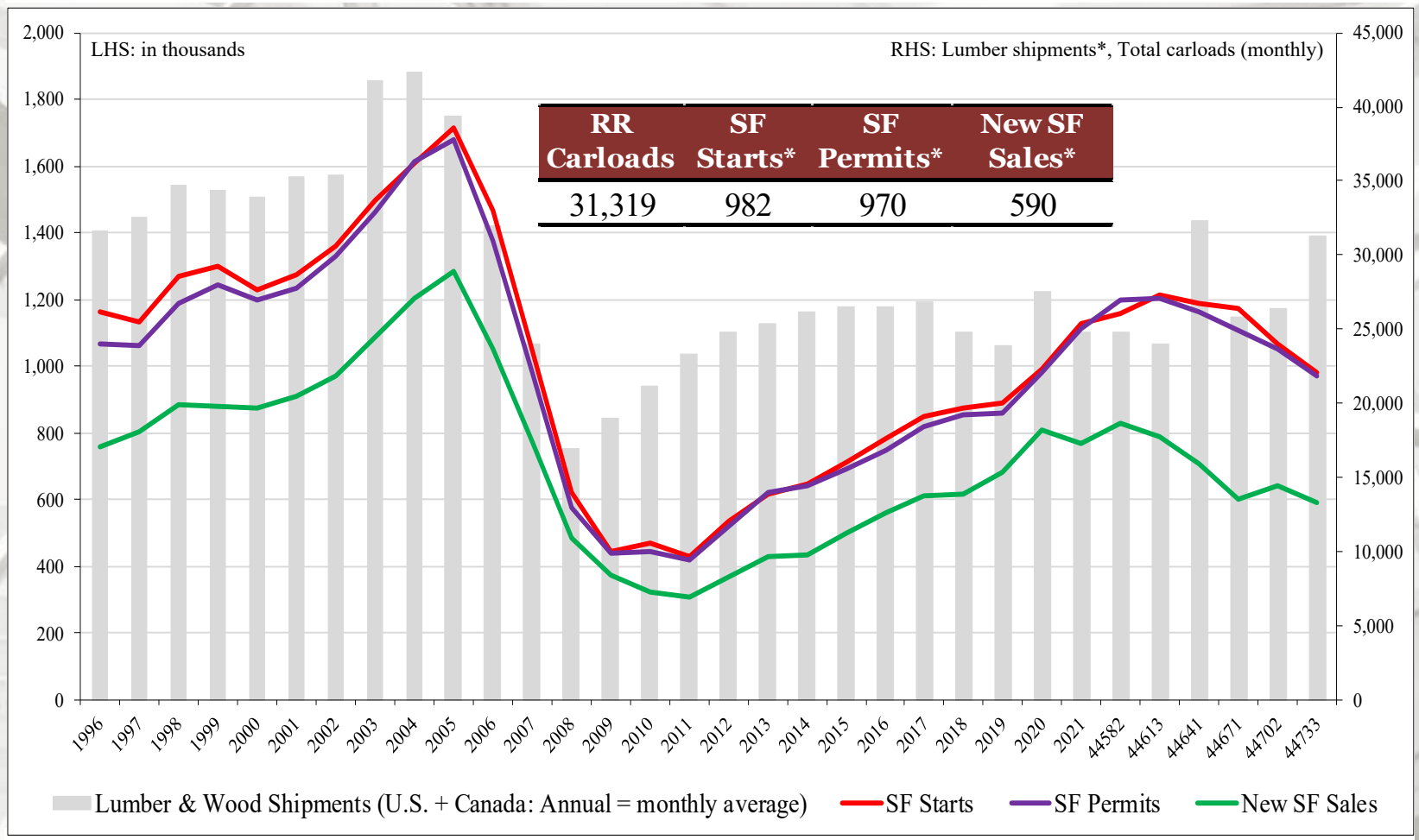
[a] New HUC + New House Completions (sales data only)

The months' supply of new houses for sale was 9.3 at the end of June 2022 (SAAR).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 7/26/22

Return TOC

U.S.-Canada Lumber & Wood Shipments vs. SF Starts, Permits, and New Sales



RR Carloads	SF Starts*	SF Permits*	New SF Sales*
31,319	982	970	590

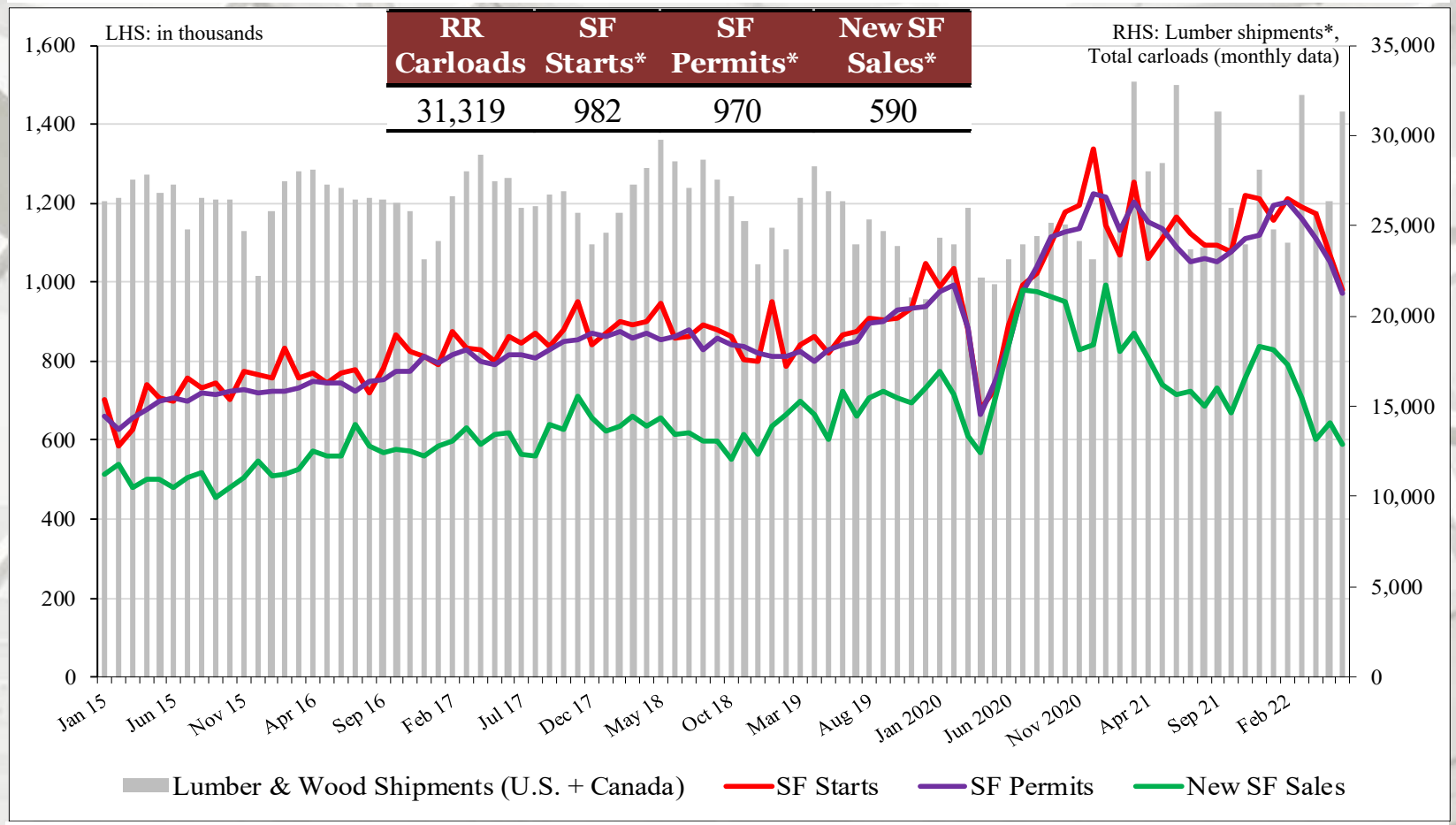
Carloads of Canadian + U.S. lumber and wood shipments to the U.S. are contrasted above to U.S. housing metrics. Annual SF starts, SF Permits, and New sales are compared to total carload lumber and wood shipments. The intent is to discern if lumber shipments relate to future SF starts, SF permits, and new SF sales. It is realized that lumber and wood products are trucked; however, to our knowledge comprehensive and timely trucking data is not available.

* In thousands

Sources: *Association of American Railroads, *Rail Time Indicators* report-June 2022; http://www.census.gov/construction/; 7/19/22 & 7/26/22

Return TOC

U.S.-Canada Lumber & Wood Shipments vs. SF Starts, Permits, and New Sales



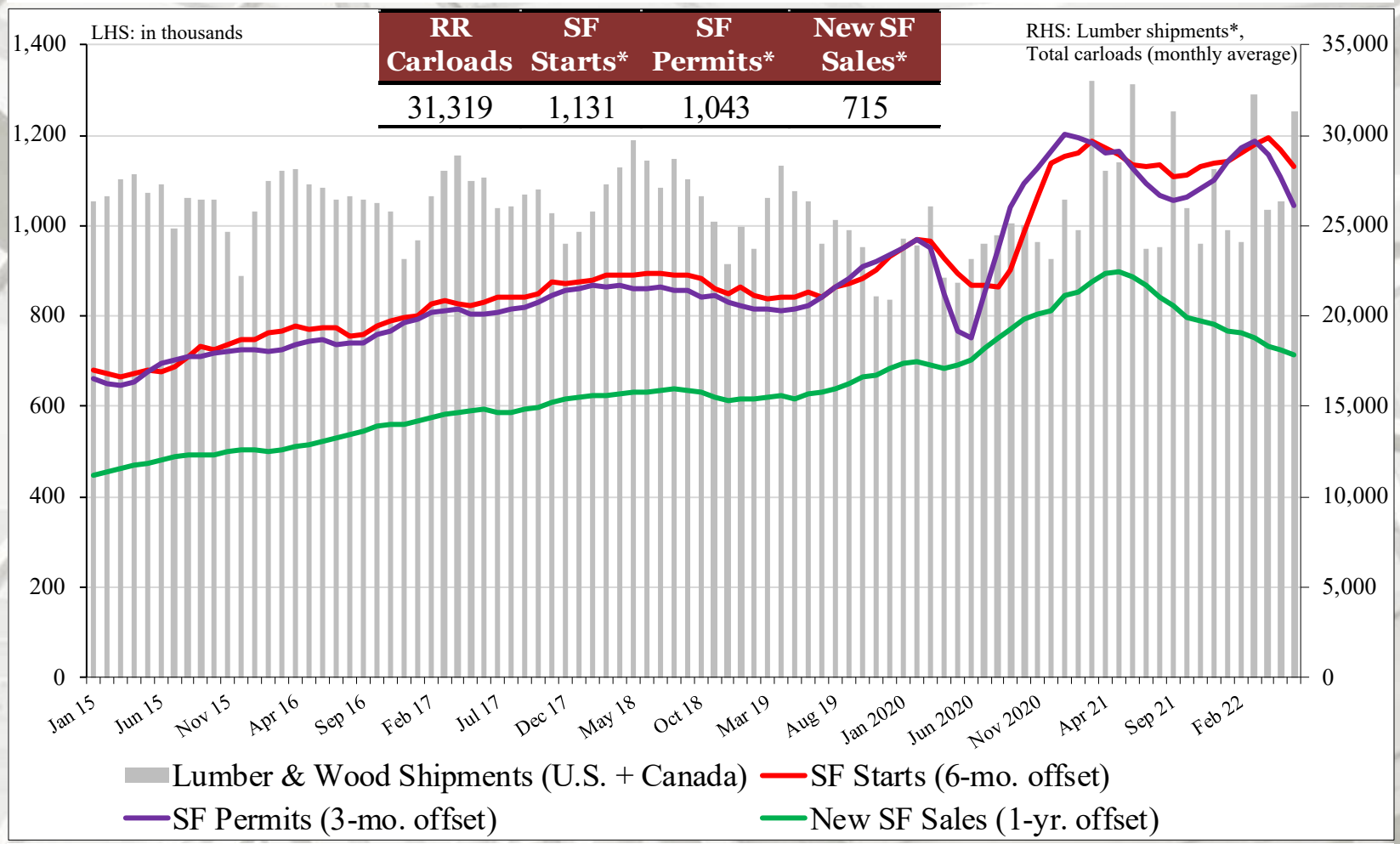
Total carloads of Canadian + U.S. lumber and wood shipments to the U.S. are contrasted above to U.S. housing metrics. Annual SF starts, SF Permits, and New sales are compared to total carload lumber and wood shipments. The intent is to discern if lumber shipments relate to future SF starts, SF permits, and new SF sales. It is realized that lumber and wood products are trucked; however, to our knowledge comprehensive and timely trucking data is not available.

* In thousands.

Sources: *Association of American Railroads, *Rail Time Indicators* report-June 2022; http://www.census.gov/construction/; 7/19/22; & 7/26/22

Return TOC

U.S.-Canada Lumber & Wood Shipments vs. SF Starts, Permits, and New Sales



Total carloads of Canadian + U.S. lumber and wood shipments to the U.S. are contrasted above to U.S. housing metrics. SF starts are off-set 6-months (a typical time-frame from permit issuance to actual start); Permits are off-set 3-months; and New sales are off-set 1-year. The intent is to discern if lumber shipments relate to future SF starts, SF permits, and New sales. It is realized that lumber and wood products are trucked; however, to our knowledge comprehensive and timely trucking data is not available.

* In thousands and offset by respective time-frames.

Sources: *Association of American Railroads, *Rail Time Indicators* report-June 2022; http://www.census.gov/construction/; 7/19/22 & 7/26/22

Return TOC

June 2022
Construction Spending

	Total Private Residential*	SF	MF	Improvement**
June	$923,721	$467,521	$100,579	$355,621
May	$939,173	$482,458	$100,165	$356,550
2021	$799,279	$431,262	$100,655	$267,362
M/M change	-1.6%	-3.1%	0.4%	-0.3%
Y/Y change	15.6%	8.4%	-0.1%	33.0%

* millions.
** The US DOC does not report improvement spending directly, this is a monthly estimation: ((Total Private Spending – (SF spending + MF spending)).
All data are SAARs and reported in nominal US$.

Total private residential construction spending includes new single-family, new multi-family, and improvement (AKA repair and remodeling) expenditures.

New single-family: new houses and town houses built to be sold or rented and units built by the owner or for the owner on contract. The classification excludes residential units in buildings that are primarily nonresidential. It also excludes manufactured housing and houseboats.

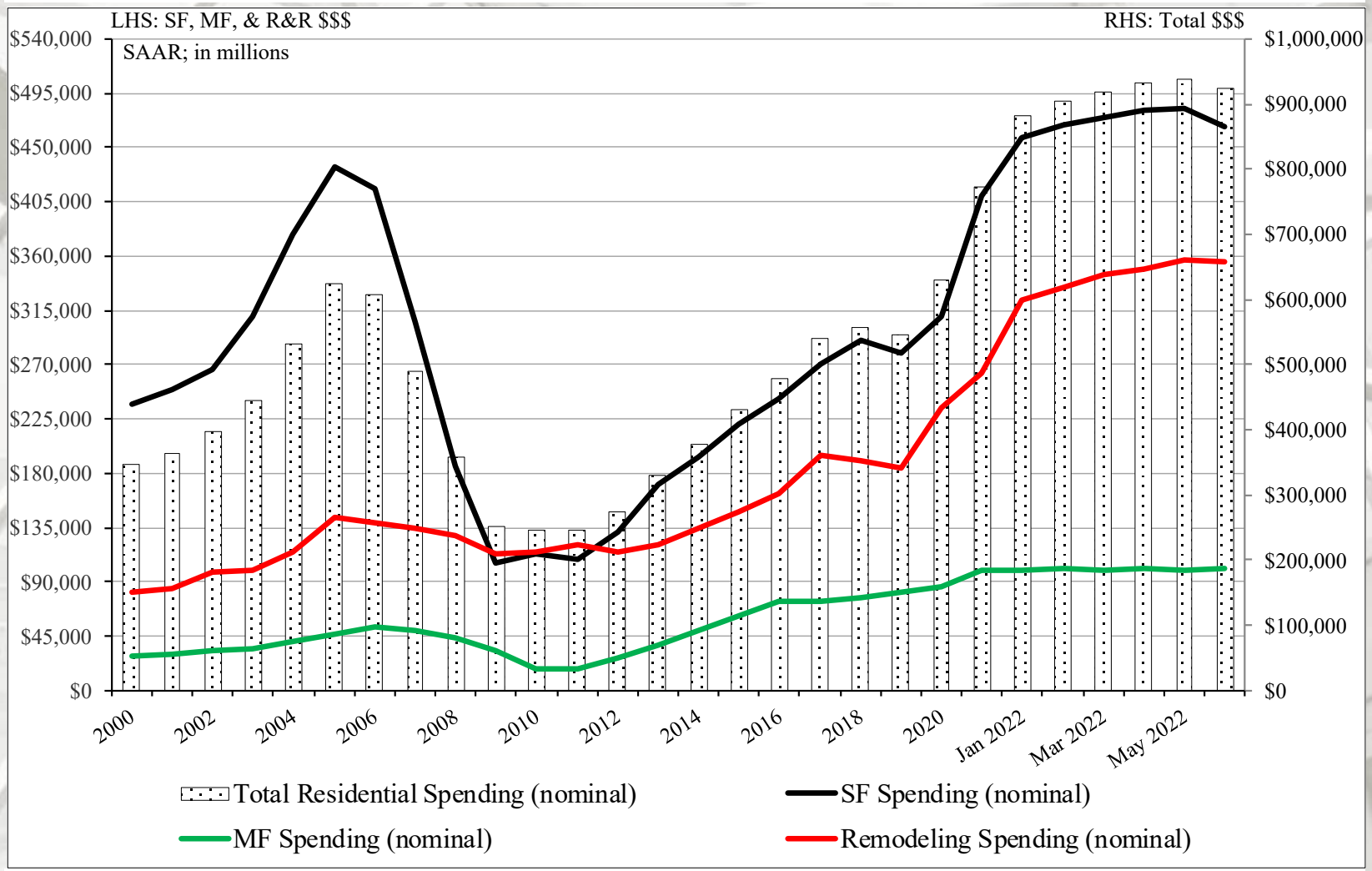
New multi-family includes new apartments and condominiums. The classification excludes residential units in buildings that are primarily nonresidential.

Improvements: Includes remodeling, additions, and major replacements to owner occupied properties subsequent to completion of original building. It includes construction of additional housing units in existing residential structures, finishing of basements and attics, modernization of kitchens, bathrooms, etc. Also included are improvements outside of residential structures, such as the addition of swimming pools and garages, and replacement of major equipment items such as water heaters, furnaces and central air-conditioners. Maintenance and repair work is not included.

Source: http://www.census.gov/construction/c30/pdf/privsa.pdf; 8/1/22

Return TOC

Total Construction Spending (nominal): 2000 – June 2022



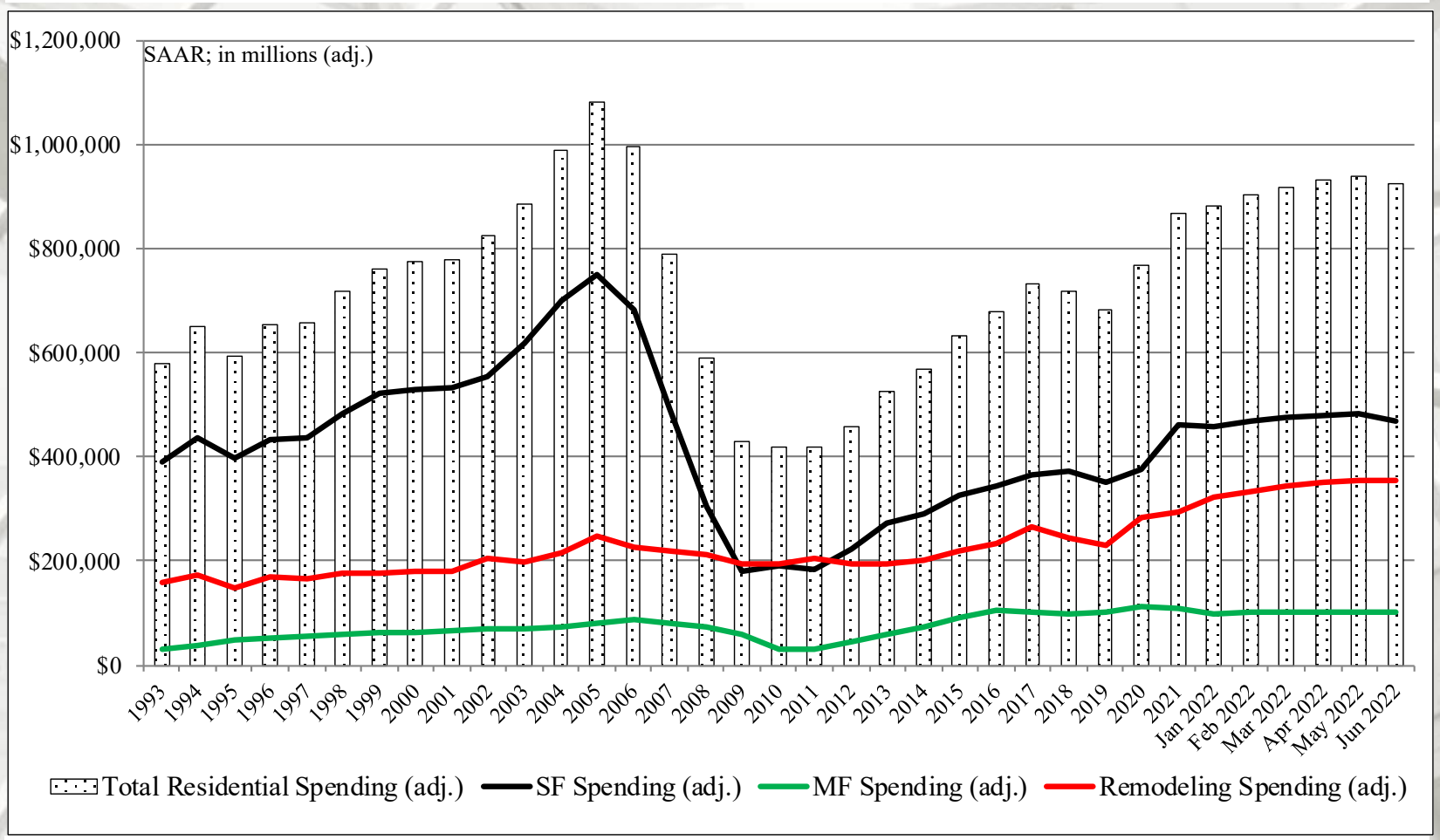
Reported in nominal US$.

The US DOC does not report improvement spending directly, this is a monthly estimation for 2022.

Source: http://www.census.gov/construction/c30/pdf/privsa.pdf; 8/1/22

Return TOC

Total Construction Spending (adjusted): 1993 – June 2022

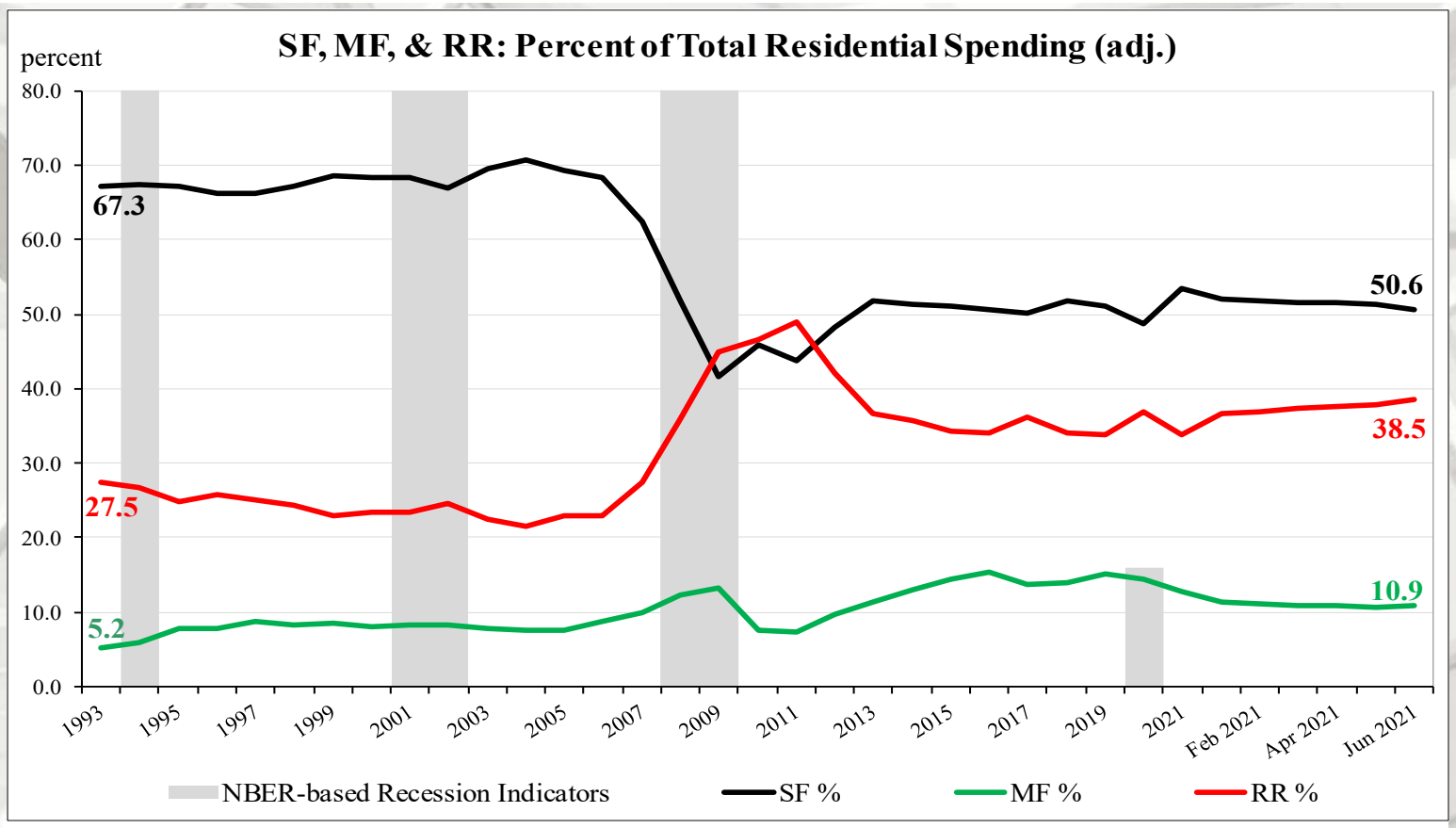


Reported in adjusted $US: 1993 – 2021 (adjusted for inflation, BEA Table 1.1.9); June 2022 reported in nominal US$.

Sources: * http://www.bea.gov/iTable/iTable.cfm; 8/1/22; http://www.census.gov/construction/c30/pdf/privsa.pdf; 8/1/22

Return TOC

Construction Spending Shares: 1993 – June 2022



Total Residential Spending: 1993 through 2006

SF spending average: 69.2%

MF spending average: 7.5 %

Residential remodeling (RR) spending average: 23.3 % (SAAR).

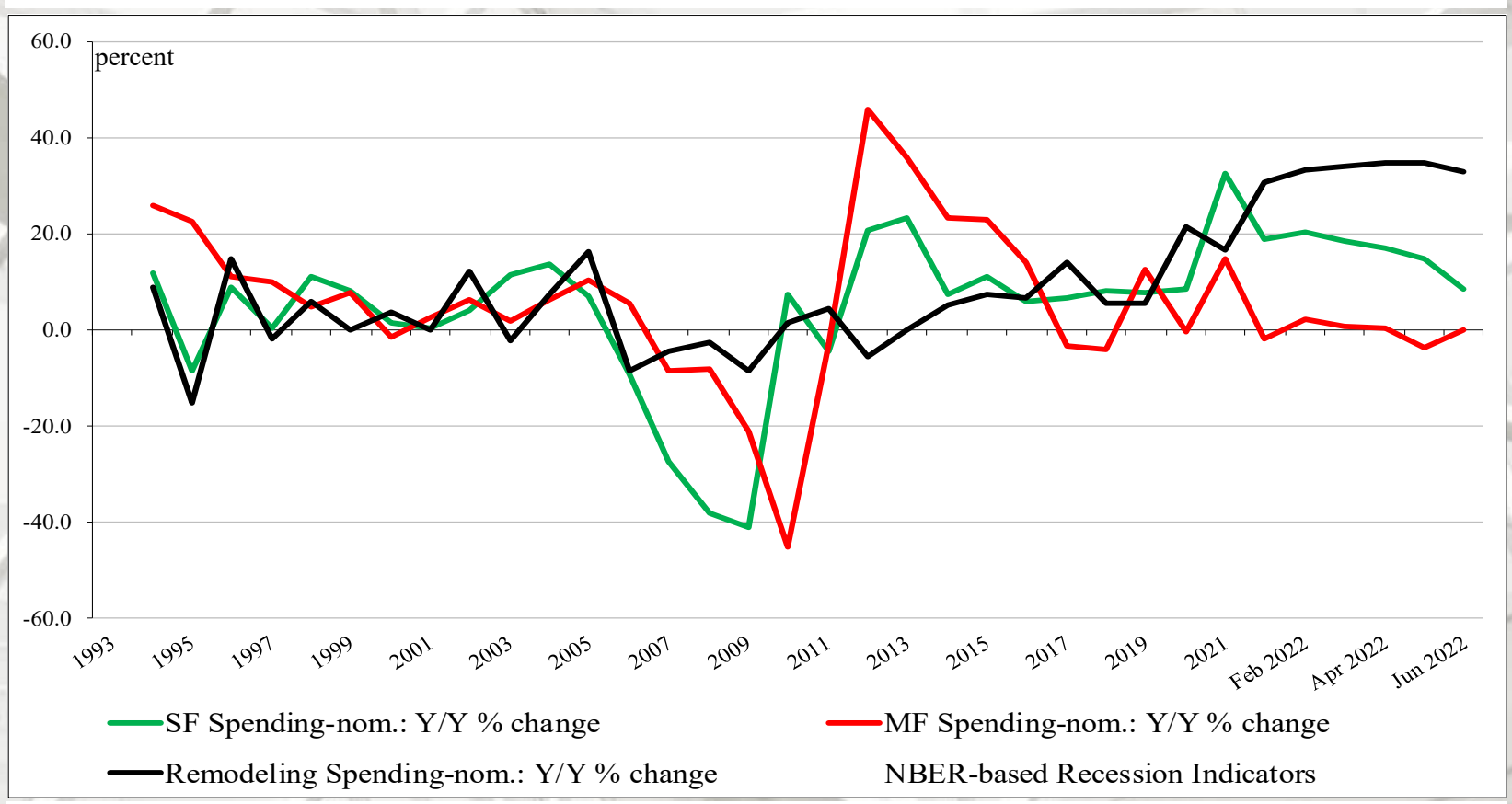
Note: 1993 to 2021 (adjusted for inflation, BEA Table 1.1.9); June 2022 reported in nominal US$.

* NBER based Recession Indicator Bar s for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: * https://fred.stlouisfed.org/series/USREC, 7/24/21; http://www.census.gov/construction/c30/pdf/privsa.pdf; 8/1/22 and http://www.bea.gov/iTable/iTable.cfm; 3/30/22

Return TOC

Adjusted Construction Spending: Y/Y Percentage Change, 1993 – June 2022



Nominal Residential Construction Spending: Y/Y percentage change, 1993 to June 2021

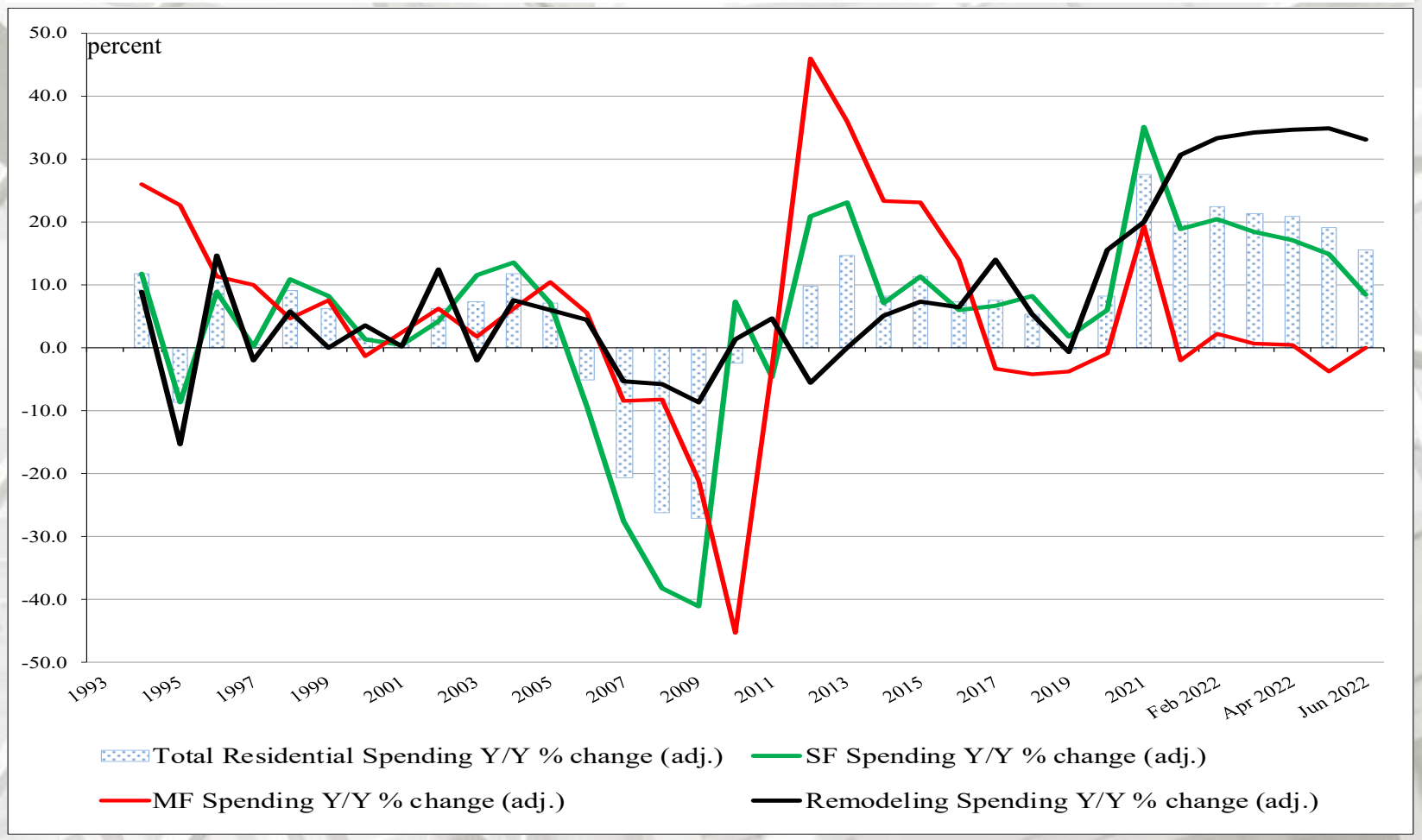
Presented above is the percentage change of inflation adjusted Y/Y construction spending. SF and RR expenditures were positive on a percentage basis, year-over-year (June 2022 data reported in nominal dollars).

* NBER based Recession Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Sources: * **https://fred.stlouisfed.org/series/USREC, 6/24/21**; http://www.census.gov/construction/c30/pdf/privsa.pdf; 8/1/22 and http://www.bea.gov/iTable/iTable.cfm; 3/30/22

Return TOC

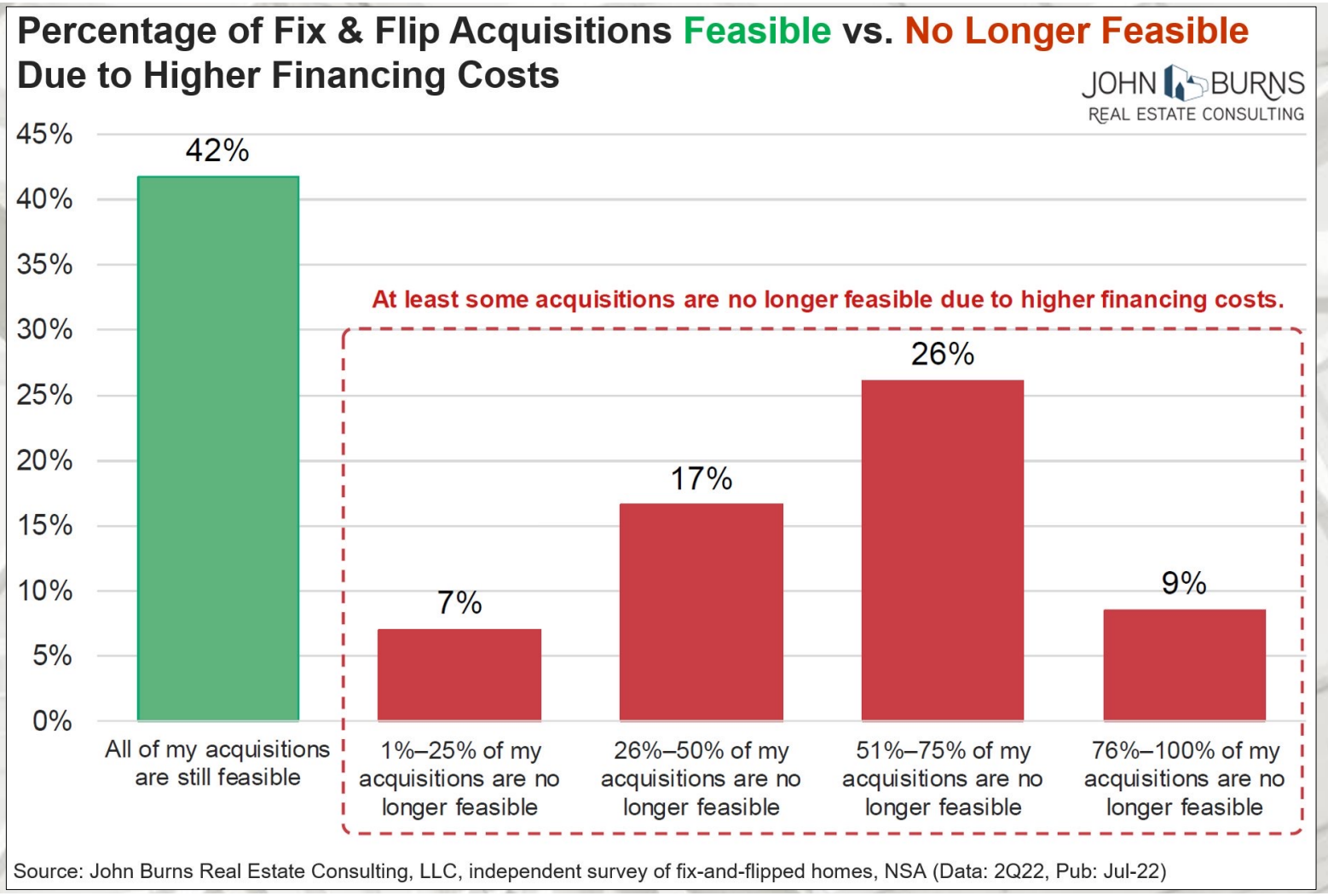
Adjusted Construction Spending: Y/Y Percentage Change, 1993 – June 2022



Sources: http://www.census.gov/construction/c30/pdf/privsa.pdf; 8/1/22 and http://www.bea.gov/iTable/iTable.cfm; 3/30/22

Return TOC

Remodeling & U.S. Housing Market



John Burns Real Estate Consulting, LLC

'Fix & Flip'

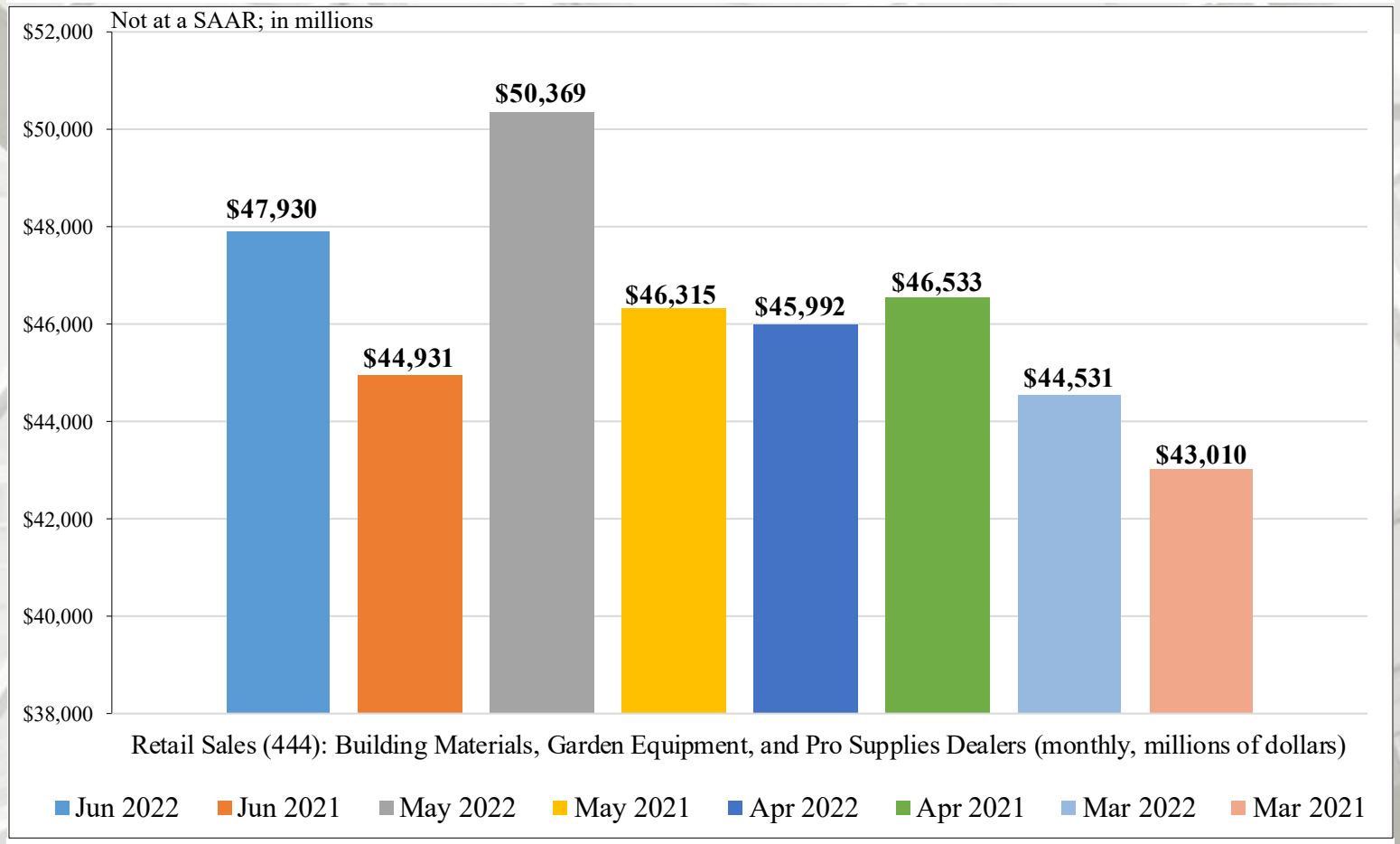
"Good color on fix & flip market from my colleague @housing_alex. We ran this survey from July 11-19, so pretty fresh insight. Higher financing costs leading to more dead deals." – Rick Palacios, Director of Research, Real Estate Consulting, LLC

Source: https://twitter.com/RickPalaciosJr/status/1554875868119371776; 8/3/22

Return TOC

Remodeling

Retail Sales: Building materials, Garden Equipment, & PRO Supply Dealers



Building materials, Garden Equipment, & PRO Supply Dealers: NAICS 444

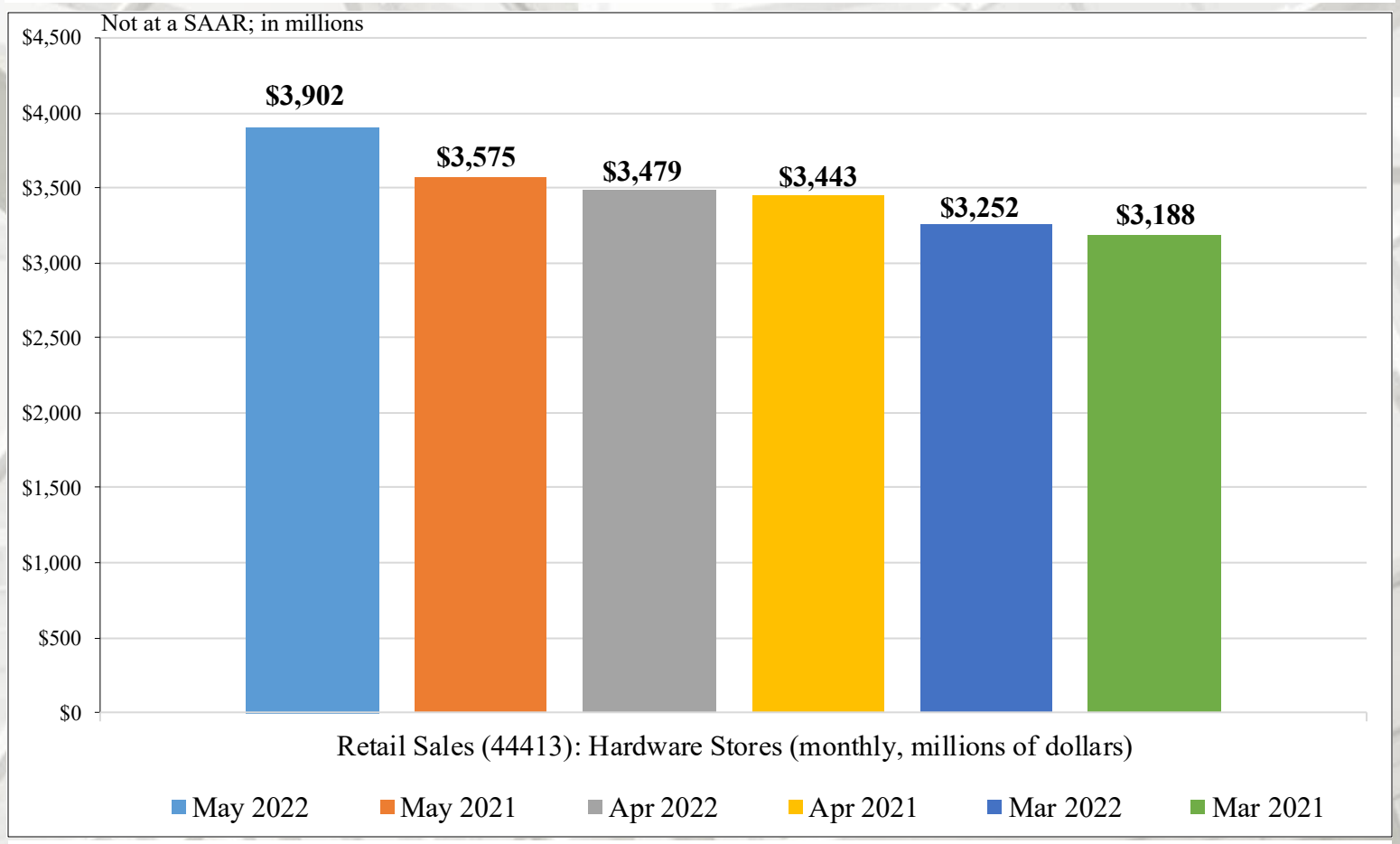
NAICS 444 sales decreased 4.2% in June 2022 from June 2022 and improved 6.7% Y/Y (on a non-adjusted basis).

Source: https://www.census.gov/retail/index.html; 6/17/22

Return TOC

Remodeling

Retail Sales: Hardware Stores



Hardware Stores: NAICS 44413

NAICS 44413 retail sales increased 12.2% in April 2022 from June 2022 and increased 9.1% in June 2022 from June 2021 (on a non-adjusted basis).

Source: https://www.census.gov/retail/index.html; 6/17/22

Return TOC

Remodeling

Harvard Joint Center for Housing Studies

Remodeling Gains To Slide Lower Through Mid-year 2023

"Annual growth in homeowner spending for improvements and repairs is expected to soften during the first half of next year, according to our latest Leading Indicator of Remodeling Activity (LIRA). The LIRA projects year-over-year gains in remodeling expenditures to owner-occupied homes will decelerate from 17.4 percent in 2022 to 10.1 percent by the second quarter of 2023.

Slowing sales of existing homes, rising mortgage interest rates, and moderating house price appreciation are expected to dampen owners' investments in home improvements and maintenance over the coming year. Steep slowdowns in homebuilding, retail sales of building materials, and renovation permits all also point to a cooling environment for residential remodeling.

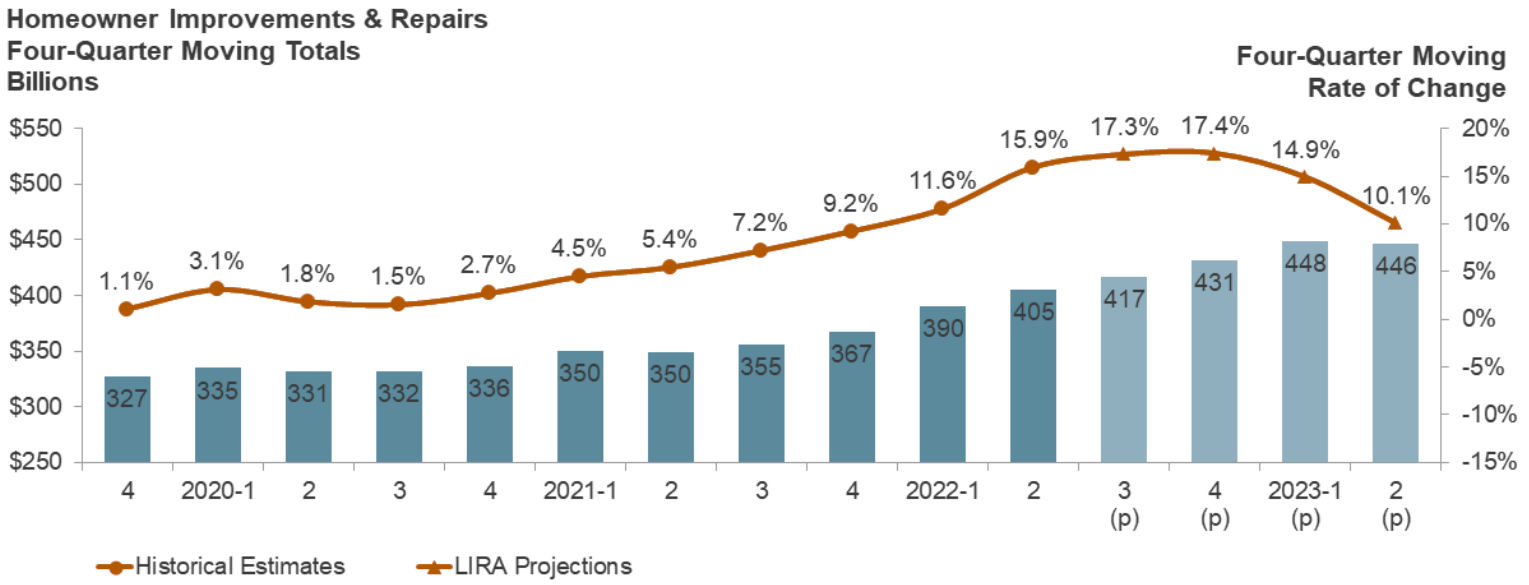
While beginning to soften, growth in spending for home improvements and repairs is expected to remain well above the market's historical average of 5 percent. In the first half of 2023, annual remodeling expenditures are still set to expand to nearly $450 billion." – Abbe Will, Senior Research Associate and Associate Project Director, Remodeling Futures, Joint Center for Housing Studies, Harvard University

Source: https://www.jchs.harvard.edu/blog/remodeling-gains-slide-lower-through-mid-year-2023; 7/19/22

Return TOC

Remodeling

Leading Indicator of Remodeling Activity – Second Quarter 2022



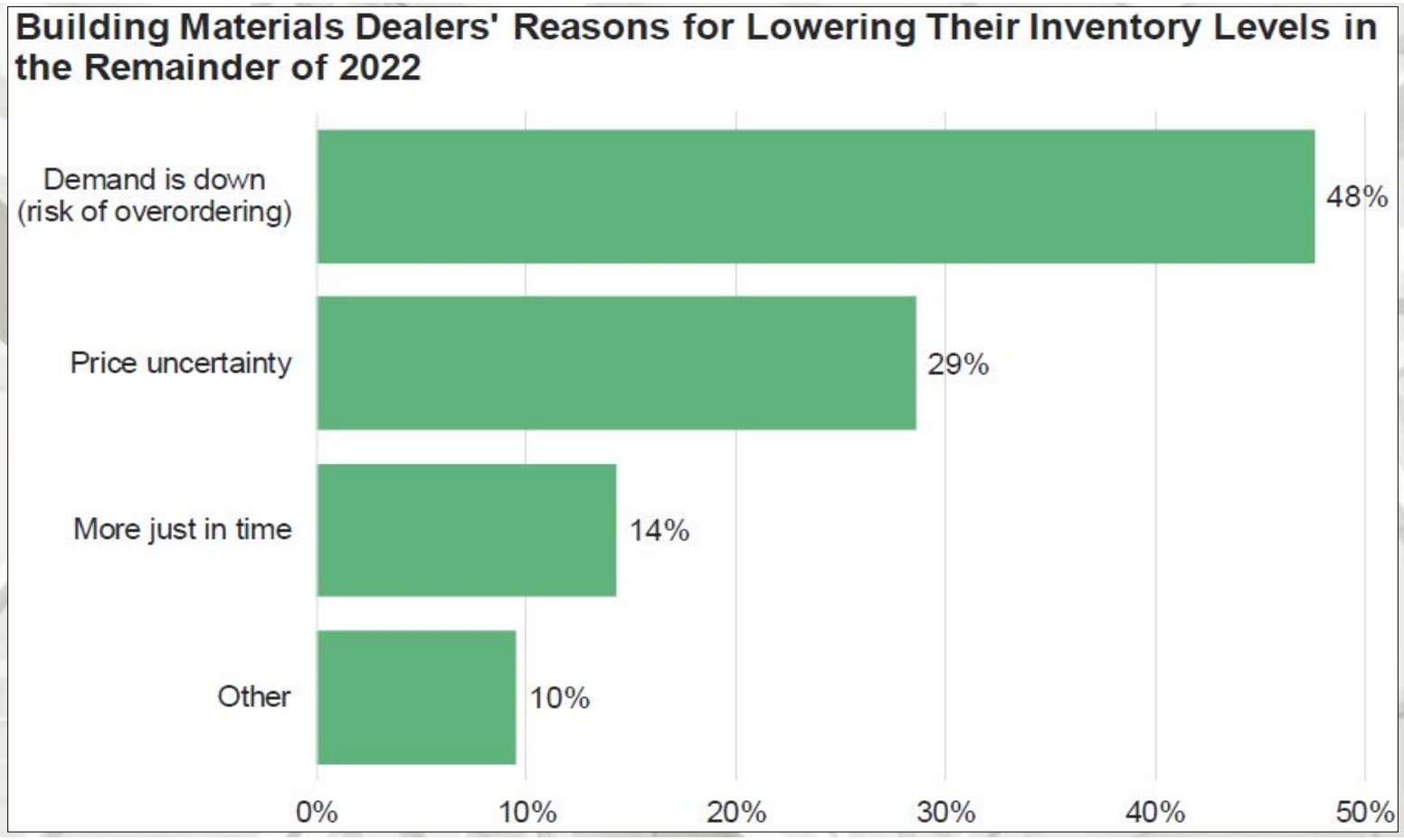
Notes: Improvements include remodels, replacements, additions, and structural alterations that increase the value of homes. Routine maintenance and repairs preserve the current quality of homes. Historical estimates since 2019 are produced using the LIRA model until American Housing Survey benchmark data become available.

Joint Center for Housing Studies of Harvard University JCHS

Source: https://www.jchs.harvard.edu/blog/remodeling-gains-slide-lower-through-mid-year-2023; 7/19/22

Return TOC

Remodeling



John Burns Real Estate Consulting LLC

"Building material companies should expect orders to slow, per our survey of 345 locations across the country.

* 48% cite that they see demand slowing
* 29% cite that they worry prices might fall
* 14% cite they are going to pivot back to ordering more "just in time". – John Burns, Chief Executive Officer, John Burns Real Estate Consulting LLC

Source: https://twitter.com/johnburnsjbrec/status/1554075209543696386?; 8/1/22

Return TOC

Existing House Sales

National Association of Realtors®

	Existing Sales	Median Price	Month's Supply
June	5,120,000	$416,000	3.1
May	5,410,000	$408,400	2.6
2021	5,970,000	$366,900	2.8
M/M change	-5.4%	1.9%	19.2%
Y/Y change	-14.2%	13.4%	10.7%

All sales data: SAAR

Source: https://fred.stlouisfed.org/series/EXHOSLUSM495S; 7/20/22

Return TOC

Existing House Sales

	NE	MW	S	W
June	670,000	1,230,000	2,260,000	960,000
May	670,000	1,250,000	2,410,000	1,080,000
2021	760,000	1,360,000	2,630,000	1,220,000
M/M change	0.0%	-1.6%	-6.2%	-11.1%
Y/Y change	-11.8%	-9.6%	-14.1%	-21.3%

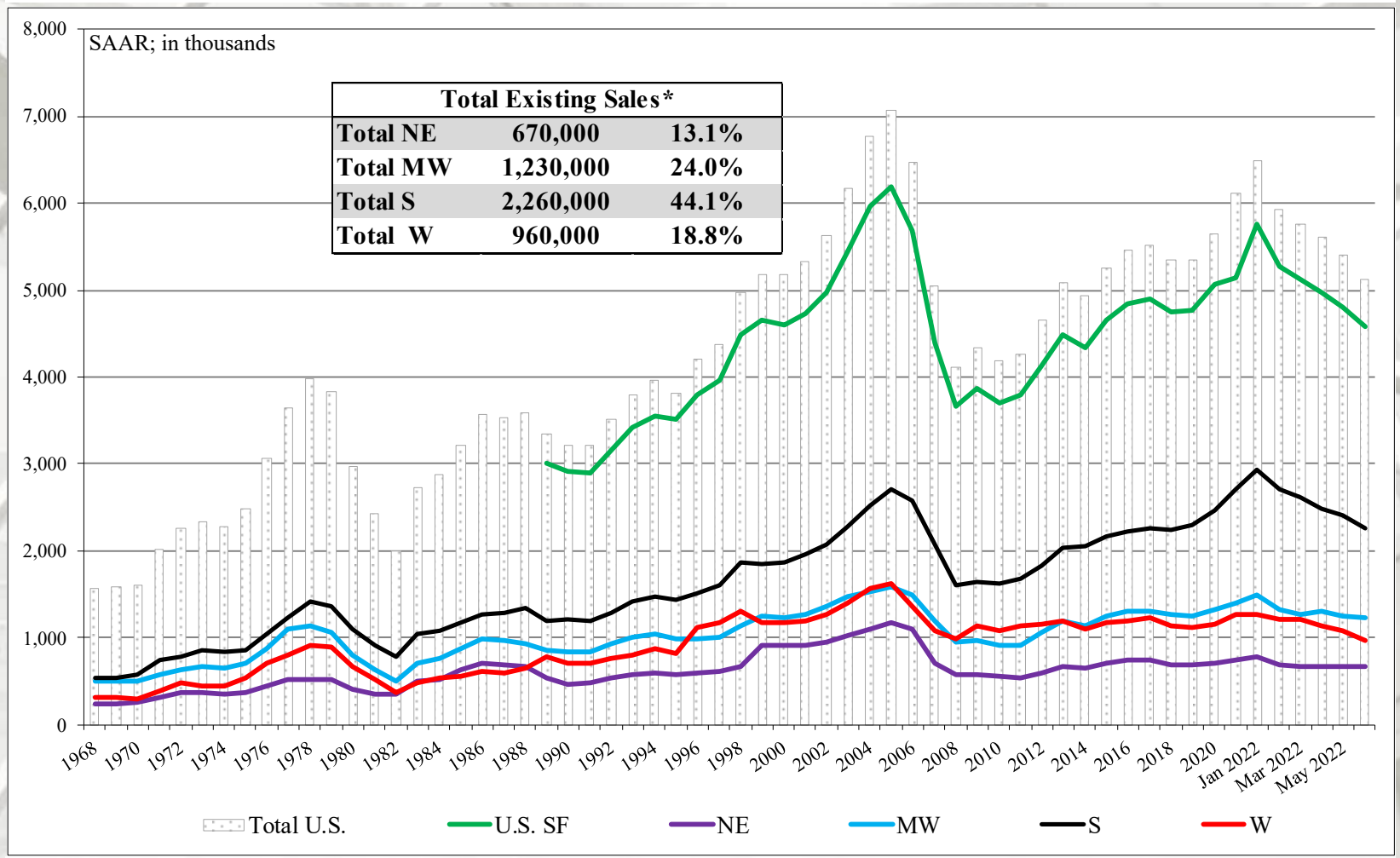
	Existing SF Sales	SF Median Price
June	4,570,000	$370,000
May	4,800,000	$360,700
2021	5,240,000	$315,100
M/M change	-4.8%	1.9%
Y/Y change	-12.8%	13.3%

All sales data: SAAR.

Source: https://fred.stlouisfed.org/series/EXHOSLUSM495S; 7/20/22

Return TOC

Existing House Sales



NE = Northeast; MW = Midwest; S = South; W = West

* Percentage of total existing sales.

Source: https://fred.stlouisfed.org/series/EXHOSLUSM495S; 7/20/22

Return TOC

U.S. Housing Prices

Federal Housing Finance Agency

U.S. House Price Index – July 2022

FHFA House Price Index Up 1.4 Percent in May; Up 18.3 Percent from Last Year

Significant Findings

"House prices rose nationwide in May, up 1.4 percent from the previous month, according to the latest Federal Housing Finance Agency House Price Index (FHFA HPI®). House prices rose **18.3 percent** from May 2021 to May 2022. The previously reported 1.6 percent price change for April 2022 was revised downward to 1.5 percent.

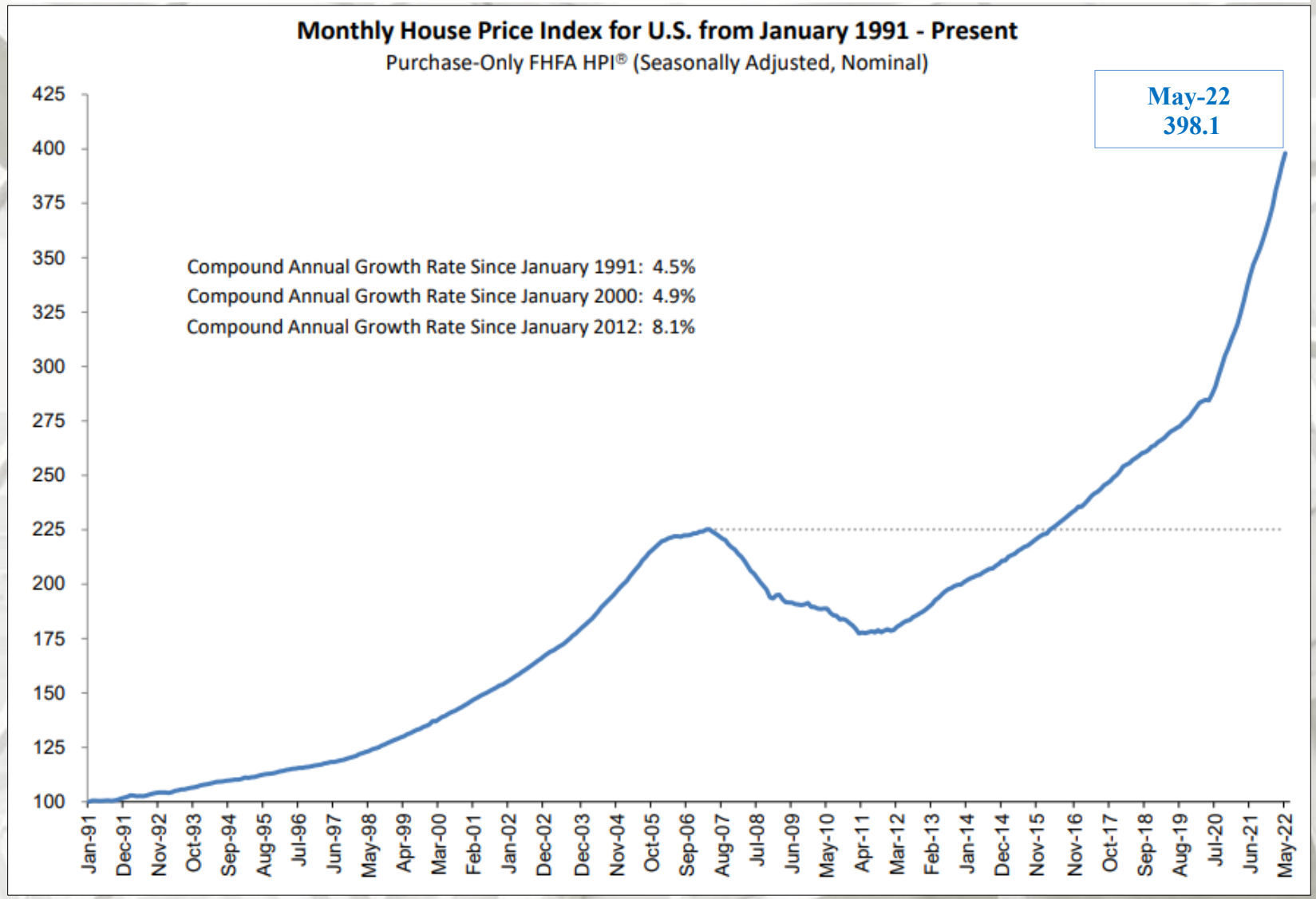
For the nine census divisions, seasonally adjusted monthly house price changes from April 2022 to May 2022 ranged from **+0.2 percent** in the Pacific division to **+2.0 percent** in the New England division. The 12-month changes were all positive, ranging from **+13.9 percent** in the Middle Atlantic division to **+23.8 percent** in the South Atlantic division." – Raffi Williams and Adam Russell, FHFA

"House prices continued to rise in May, but at a slower pace. Since peaking in February, price appreciation has moderated slightly. Price growth continues to remain above historical levels, supported by the low inventory of properties for sale." – William Doerner, Ph.D., Supervisory Economist, Division of Research and Statistics, FHFA

Source: https://www.fhfa.gov//AboutUs/Reports/Pages/US-House-Price-Index-July-2022.aspx; 7/26/22

Return to TOC

U.S. Housing Prices



Source: https://www.fhfa.gov//AboutUs/Reports/Pages/US-House-Price-Index-June-2022.aspx; 7/26/22

Return TOC

U.S. Housing Prices

S&P CoreLogic Case-Shiller Index Reports Annual Home Price Gain of 19.7% in May

"… Data for May 2022 show that home prices continue to increase across the U.S. More than 27 years of history are available for these data series, and can be accessed in full by going to www.spdji.com.

Year-Over-Year

The S&P CoreLogic Case-Shiller U.S. National Home Price NSA Index, covering all nine U.S. census divisions, reported a 19.7% annual gain in May, down from 20.6% in the previous month. The 10-City Composite annual increase came in at 19.0%, down from 19.6% in the previous month. The 20-City Composite posted a 20.5% year-over-year gain, down from 21.2% in the previous month.

Tampa, Miami, and Dallas reported the highest year-over-year gains among the 20 cities in May. Tampa led the way with a 36.1% year-over-year price increase, followed by Miami with a 34.0% increase, and Dallas with a 30.8% increase. Four of the 20 cities reported higher price increases in the year ending May 2022 versus the year ending April 2022. … .

Month-Over-Month

Before seasonal adjustment, the U.S. National Index posted a 1.5% month-over-month increase in May, while the 10-City and 20-City Composites posted increases of 1.4% and 1.5%, respectively.

After seasonal adjustment, the U.S. National Index posted a month-over-month increase of 1.0%, and the 10-City and 20-City Composites both posted increases of 1.3%.

In May, all 20 cities reported increases before and after seasonal adjustments." – Craig J. Lazzara, Managing Director and Global Head of Index Investment Strategy, S&P Dow Jones Indices

Source: https://www.spglobal.com/spdji/en/index-announcements/article/sp-corelogic-case-shiller-index-reports-annual-home-price-gain-of-204/; 7/26/22

Return to TOC

U.S. Housing Prices

S&P CoreLogic Case-Shiller Index

Analysis

"Housing data for May 2022 continued strong, as price gains decelerated slightly from very high levels. The National Composite Index rose by 19.7% for the 12 months ended May, down from April's 20.6% year-over-year gain. We see a similar pattern in the 10-City Composite (up 19.0% in May vs. 19.6% in April) and in the 20-City Composite (+20.5% vs. +21.2%). Despite this deceleration, growth rates are still extremely robust, with all three composites at or above the 98th percentile historically.

The market's strength continues to be broadly based, as all 20 cities recorded double-digit price increases for the 12 months ended in May. May's gains ranked in the top quintile of historical experience for 19 cities, and in the top decile for 17 of them. However, at the city level we also see evidence of deceleration. Price gains for May exceeded those for April in only four cities. As recently as February of this year, all 20 cities were accelerating.

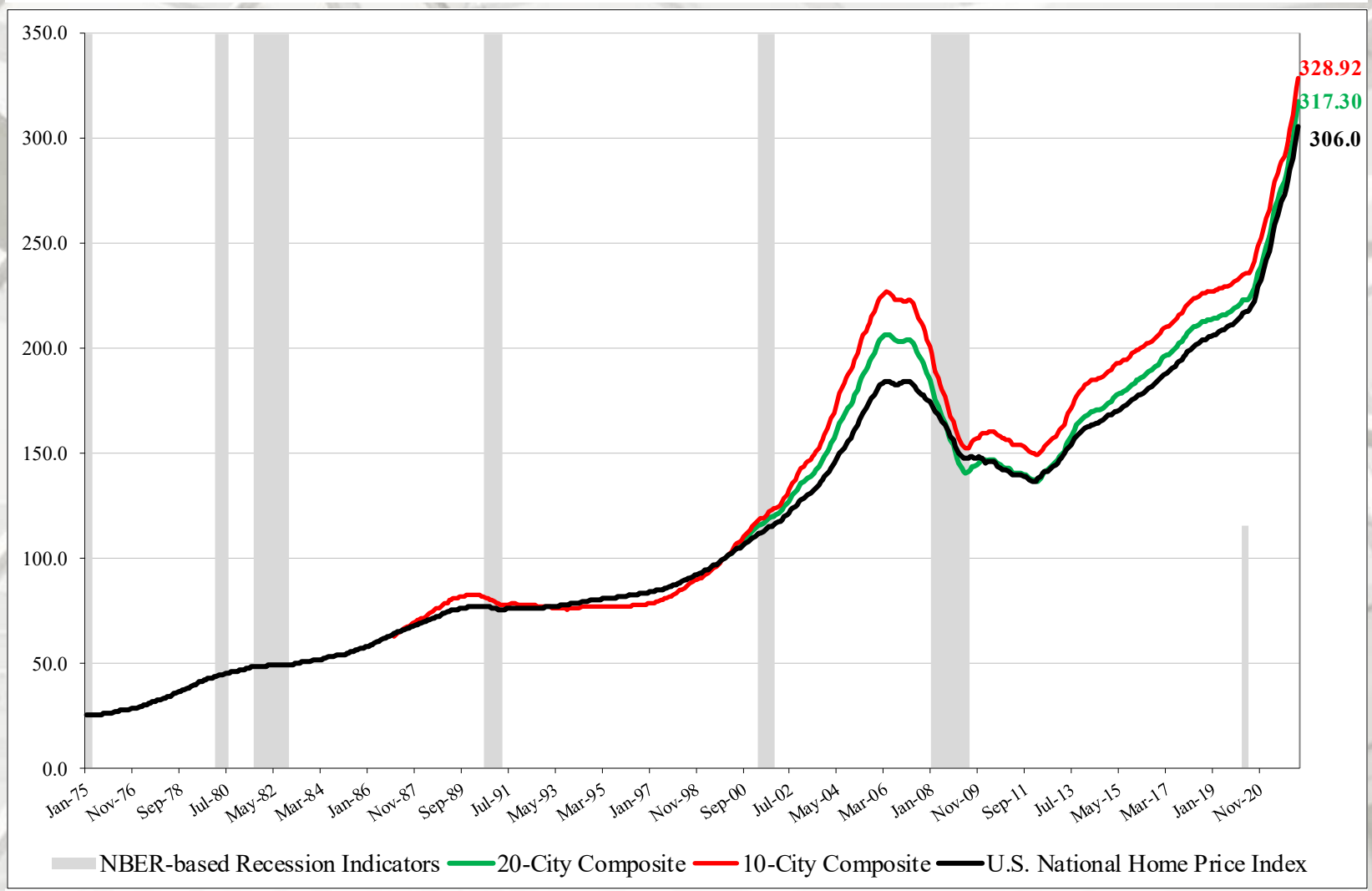
Tampa (+36.1%) was the fastest growing city for the third consecutive month, with Miami (+34.0%) in second place. In May, Dallas fought its way into the top three with a gain of 30.8%. Prices continued strongest in the South and Southeast, both of which recorded 30.7% gains year-over-year.

We've noted previously that mortgage financing has become more expensive as the Federal Reserve ratchets up interest rates, a process that was ongoing as our May data were gathered. Accordingly, a more-challenging macroeconomic environment may not support extraordinary home price growth for much longer." – Craig J. Lazzara, Managing Director and Global Head of Index Investment Strategy, S&P Dow Jones Indices

Source: https://www.spglobal.com/spdji/en/index-announcements/article/sp-corelogic-case-shiller-index-reports-annual-home-price-gain-of-204/; 7/26/22

Return to TOC

S&P/Case-Shiller Home Price Indices

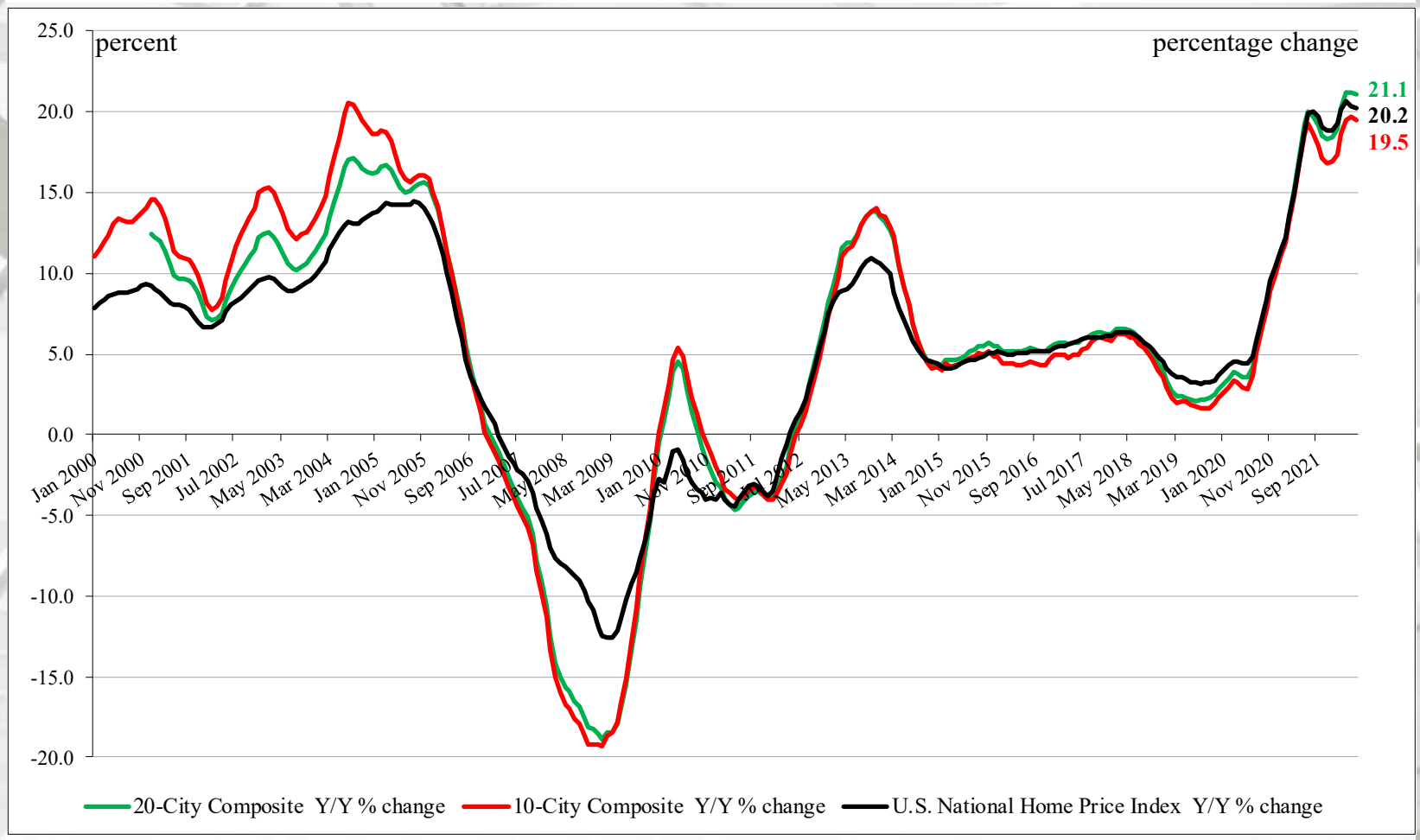


* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

Source: https://www.spglobal.com/spdji/en/index-announcements/article/sp-corelogic-case-shiller-index-reports-annual-home-price-gain-of-204/; 7/26/22

Return to TOC

S&P/Case-Shiller Home Price Indices



* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

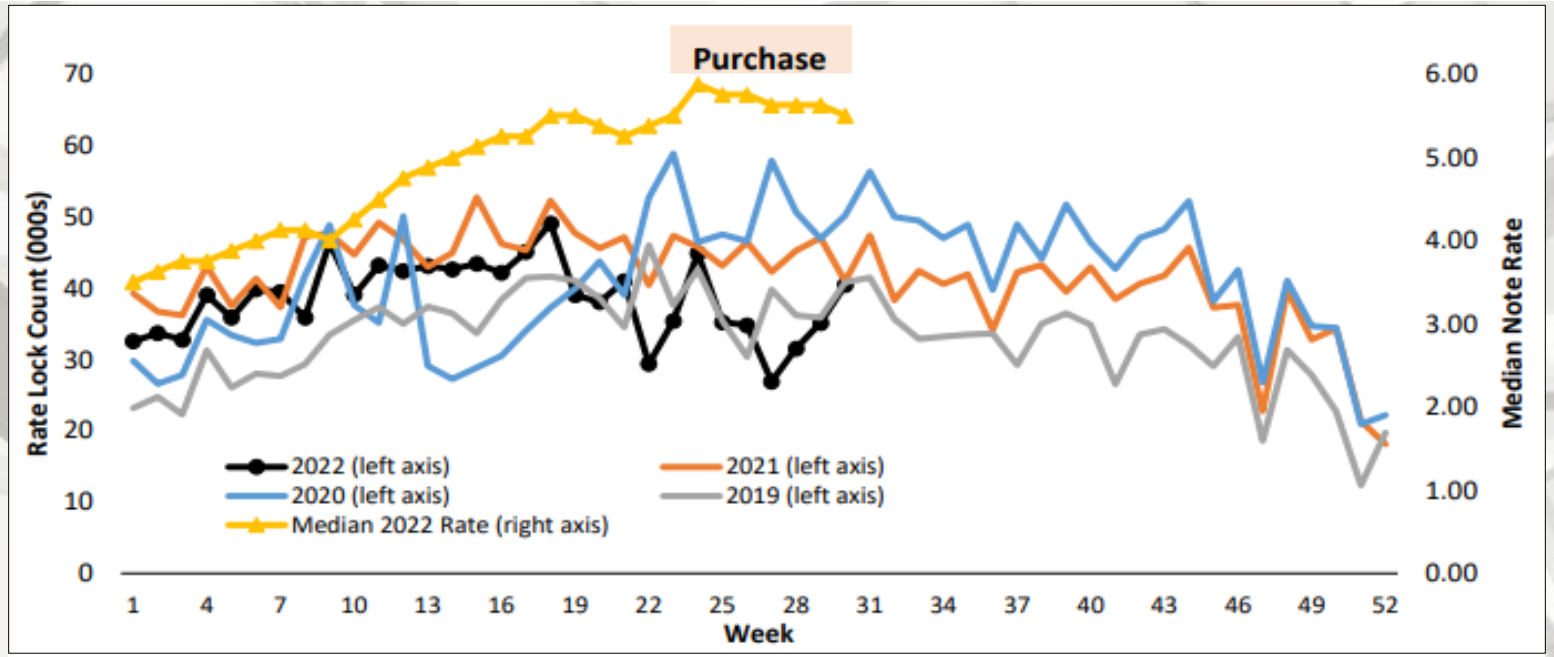
Y/Y Price Change

From May 2021 to May 2022, the National Index increased 20.2%; the Ten-City by 19.5%, and the Twenty-City by 21.1%.

Source: https://www.spglobal.com/spdji/en/index-announcements/article/sp-corelogic-case-shiller-index-reports-annual-home-price-gain-of-204/; 7/26/22

Return to TOC

U.S. Housing Affordability & Prices



Note: Rate locks are limited to lenders who joined Optimal Blue Dec. 2018 or earlier. Week 30 refers to July 23-29, 2022.
Source: Optimal Blue and AEI Housing Center, www.AEI.org/housing.

AEI Housing Center

Purchase Activity Outlook Given Headwinds

"**After weeks of decline, purchase rate lock volume and home price appreciation (HPA) both ticked up slightly in response to the recent rate drop, which gathered a bit more steam last week.**

- With rates down 1/8 ppts from last week and 3/8 ppts from its recent peak six weeks ago, volume for 2022 week 30 bounced back slightly, down only 1% from both 2019's and 2021's levels.
- HPA for July, August, and early September 2022 is projected at 12.5%, 10.2%, and 10.4%, respectively, down from 15.0% in June 2022.

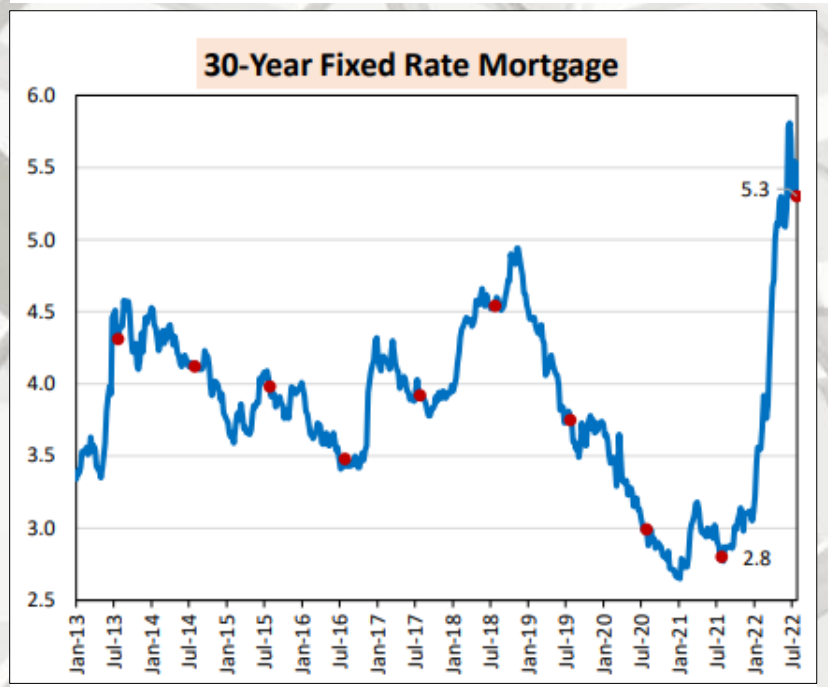
While we still have a long way to get to a more balanced market (including seeing a significant increase in supply), rate lock volume appears to be normalizing around 2019's healthy, pre-pandemic levels.

- Mortgage News Daily reported a 30-year mortgage rate of 5.13% for July 29, 2022.
- The Fed will need to hold the course on rates and quantitative tightening, as rates at the 6% level are needed to slow year-over-year HPA to 4-6% by the end of 2022." – Edward Pinto, Resident Fellow; Director and Tobias Peter, Research Fellow and Director of Research, AEI Housing Center

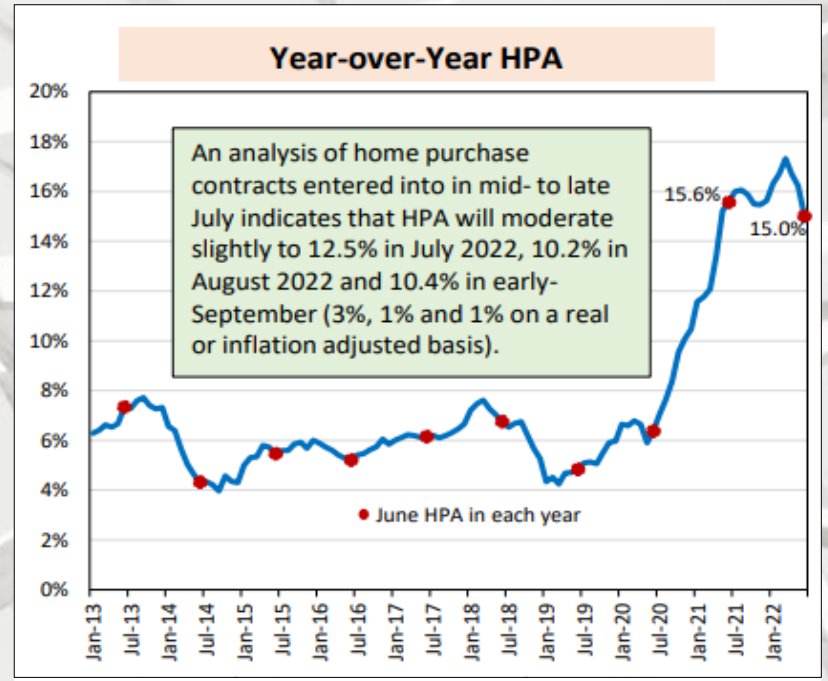
Source: https://www.aei.org/housing/housing-market-indicators/; 7/26/22

Return TOC

U.S. Housing Affordability & Prices



Note: Data are for 30-year fixed-rate prime conventional conforming home purchase mortgages with a loan-to-value of 80 percent
Source: Freddie Mac.



Note: Data are for the entire country. Data for June 2022 are preliminary.
Source: AEI Housing Center, www.AEI.org/housing.

AEI Housing Center

Home Price Appreciation (HPA) Is Starting to Decelerate

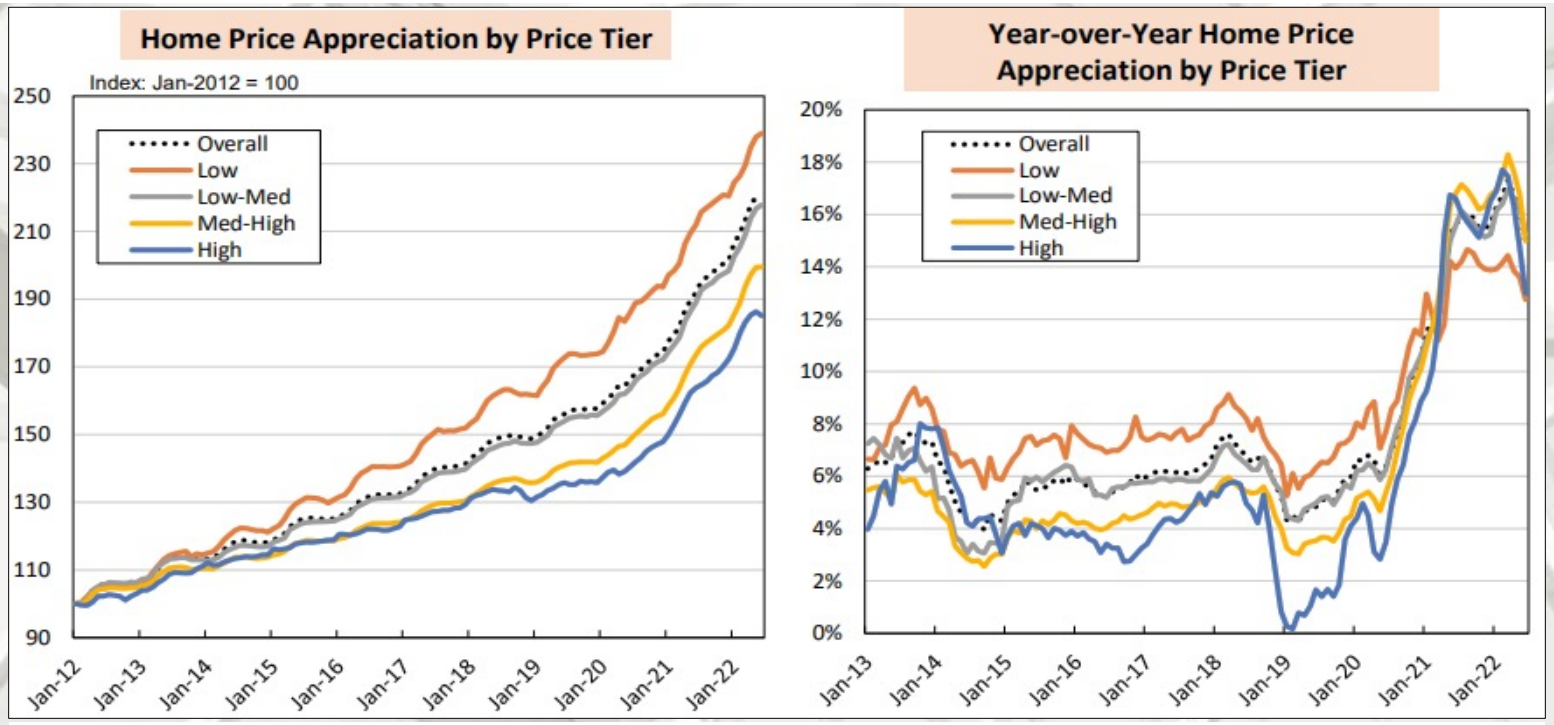
"**HPA has peaked with June 2022 coming in at 15.0% year-over-year – down from 16.2% a month ago, its peak of 17.3% in March 2022, and 15.6% a year ago.**

- Relatively low historical nominal mortgage rates (5.73% as of 7.18.22) and negative inflation-adjusted real rates, along with supply constraints, a home equity wealth effect from monetary stimulus, and the Work from Home revolution will continue to fuel historically high HPA until later this year.
- Based on Optimal Blue data, HPA is projected to moderate even more to 12.5% in July 2022 and 10.2% (+/- 2%) in August 2022 while inching up to 10.4% in early September 2022. If mortgage rates remain around 6%, HPA (y-o-y) is expected to further slow to 4%-6% for December 2022 (y-o-y)." – Edward Pinto, Resident Fellow; Director and Tobias Peter, Research Fellow and Director of Research, AEI Housing Center

Source: https://www.aei.org/housing/housing-market-indicators/; 8/2/22

Return TOC

U.S. Housing Affordability & Prices



Note: Data are for the entire country. Data for June 2022 are preliminary.
Source: AEI Housing Center, www.AEI.org/housing.

AEI Housing Center

Home Price Appreciation by Price Tier

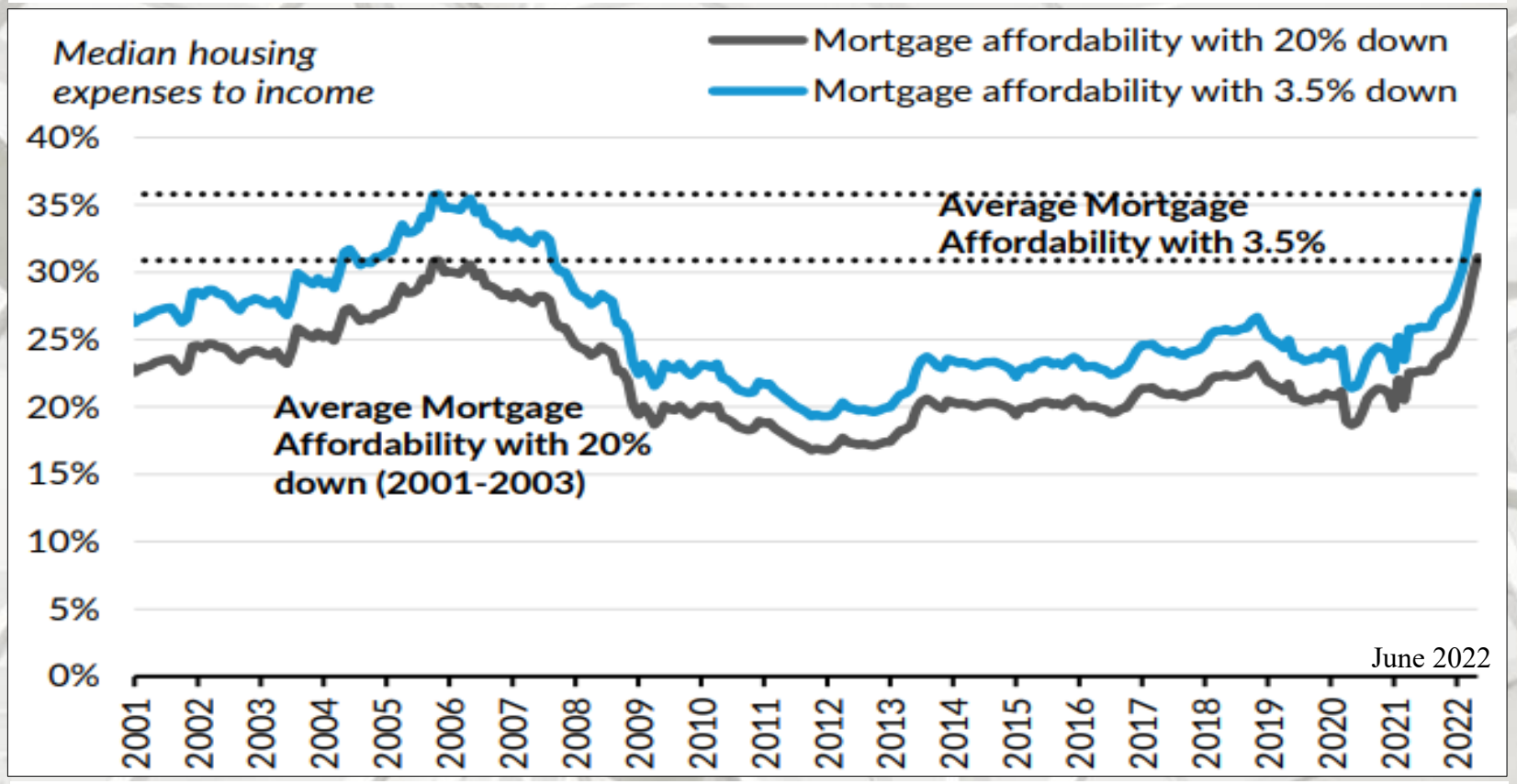
"Since 2012 a large gap in HPA has developed between the lower and upper end of the market (left panel).

- Preliminary numbers for June 2022 indicate that the low price tier continues to have strong HPA.
- The med-high and high price tiers, which are more dependent on the Fed's monetary punch bowl for increased buying power from low rates, are showing the strongest HPA.
- But the impact from higher rates is slowly emerging, especially for the high price tier (right panel). Both our HPA index and Optimal Blue rate lock data indicates that a strong HPA trend reversal is underway." – Edward Pinto, Resident Fellow; Director and Tobias Peter, Research Fellow and Director of Research, AEI Housing Center

Source: https://www.aei.org/housing/housing-market-indicators/; 8/22/22

Return TOC

U.S. Housing Affordability



Urban Institute

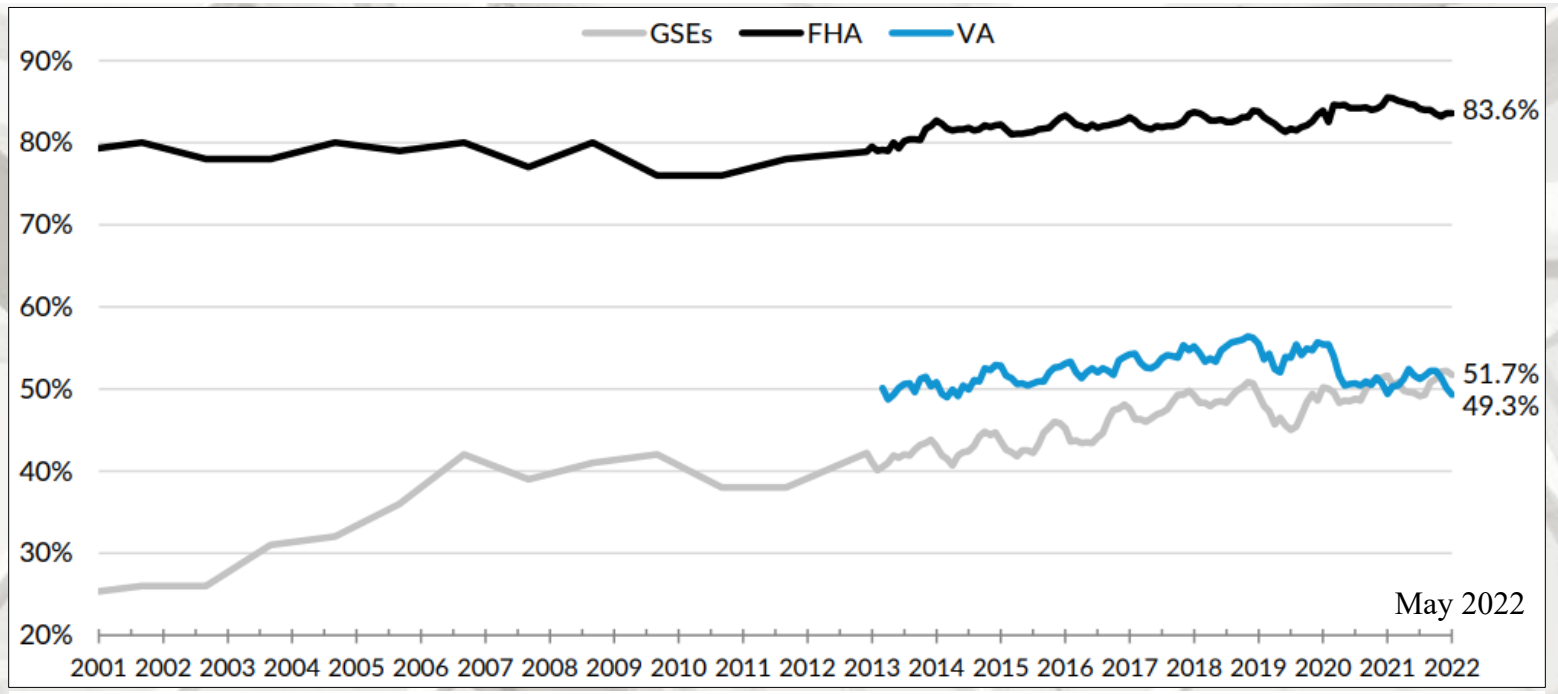
National Mortgage Affordability Over Time

"With the rise in interest rates, and rapid increases in home prices, affordability continues to worsen. As of June 2022, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 31.3 percent, higher than the 30.9 percent at the peak of the housing bubble in November 2005; with 3.5 percent down it is 36.2 percent, above the 35.8 percent prior peak in November 2005. These numbers represent a sharp worsening in affordability over the past year. … " – Laurie Goodman *et. al*, Vice President, Urban Institute

Source: https://www.urban.org/research/publication/housing-finance-glance-monthly-chartbook-July-2022; 7/29/22

Return TOC

U.S. Housing Affordability



Sources: eMBS, Federal Housing Administration (FHA), and Urban Institute.
Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

Urban Institute

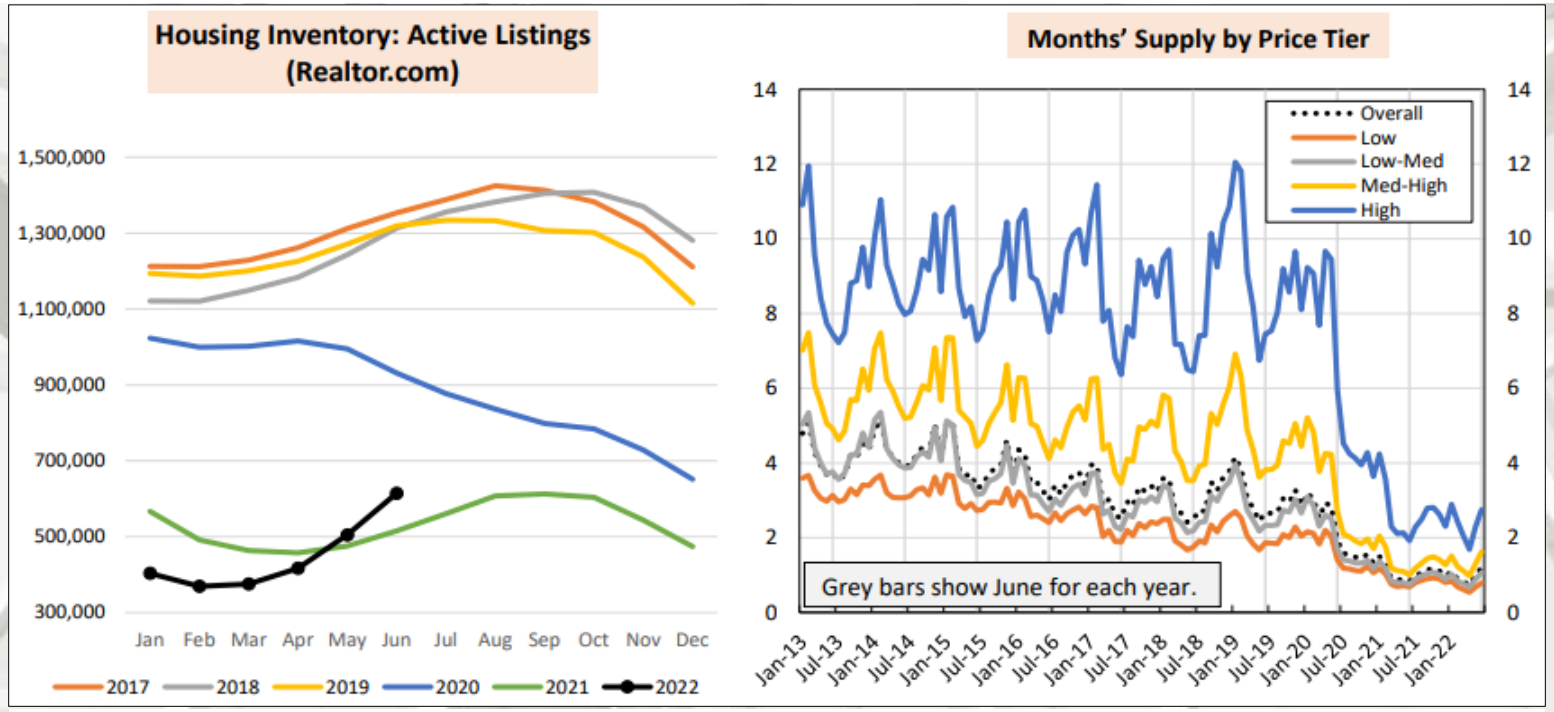
First-time Home Buyers

"In May 2022, the FTHB share for FHA, which has always been more focused on first time homebuyers, was 83.6 percent. The FTHB share of GSE lending in May was 51.7 percent; the VA share was a very similar 49.3 percent. … the average FTHB was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, and have a higher LTV, thus paying a higher interest rate." – Laurie Goodman *et. al*, Vice President, Urban Institute

Source: https://www.urban.org/research/publication/housing-finance-glance-monthly-chartbook-July-2022; 7/29/22

Return TOC

U.S. Housing Supply



Sources: Realtor.com, Zillow, and AEI Housing Center, www.AEI.org/housing.

AEI Housing Center

Supply Continues to be Extremely Tight

"Housing inventory increased by more than seasonality in June. Though a good sign, it continued to run well below pre-2021 levels.

- June 2022 inventory was up 19% from a year ago but was still only less than half of the 2017-2019 levels. We continue to be a very long way from a healthy supply (left).
- Months' supply, currently at 1.2 months, is near the lowest level seen in our series (right). It would need to increase to > 6 months to indicate a buyer's market and to 7-9 months to trigger a decline in national y-o-y home price appreciation. " – Edward Pinto, Resident Fellow; Director and Tobias Peter, Research Fellow and Director of Research, AEI Housing Center

Source: https://www.aei.org/housing/housing-market-indicators/; 8/2/22

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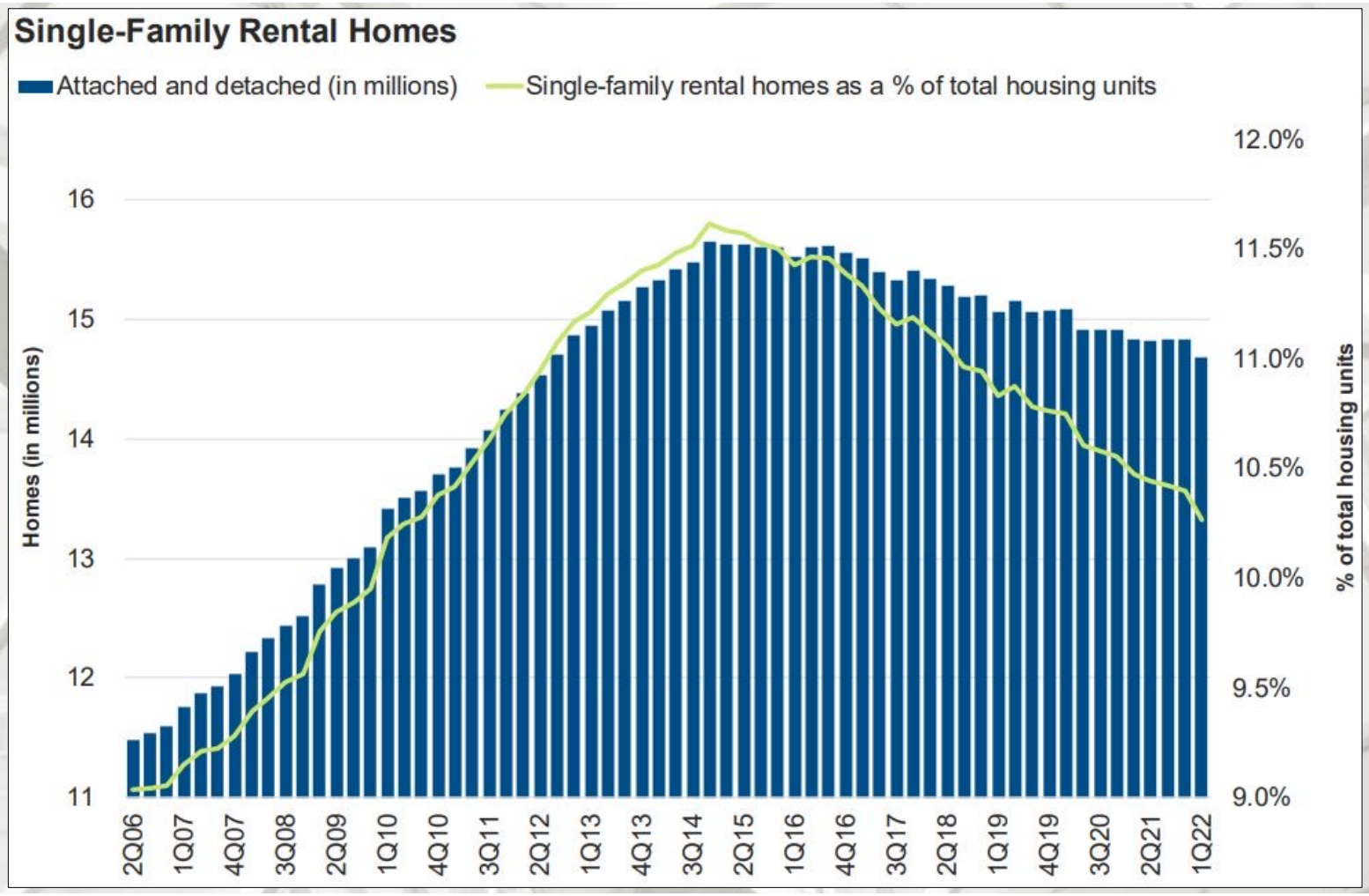
U.S. Housing Market



John Burns Real Estate Consulting, LLC

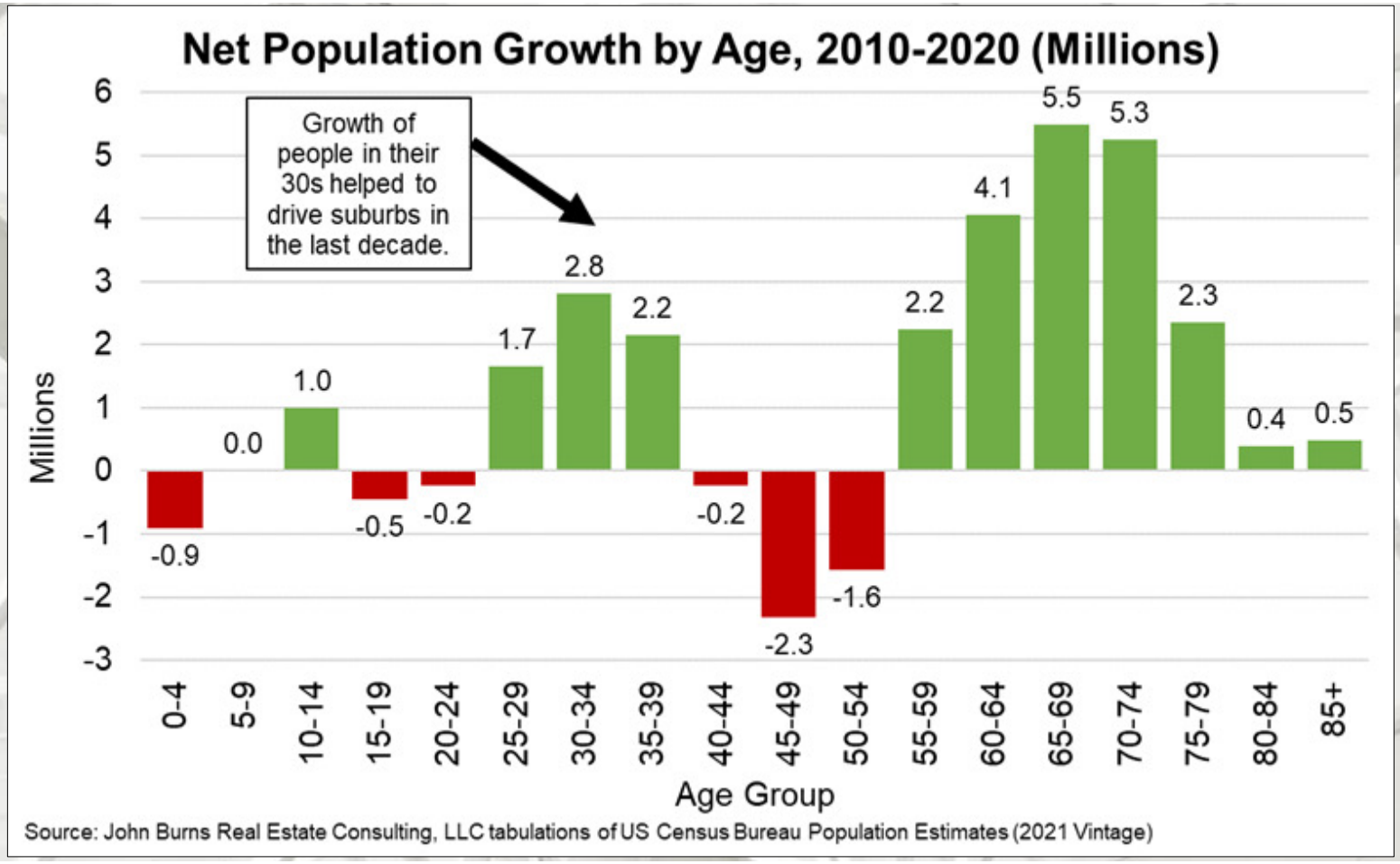
"Wonder why SF rents have been spiking? There has been a 7-year DECLINE IN SUPPLY that followed the 9-year supply increase.

While large SF rental owners garner publicity for growth, many owned homes that became rentals during the downturn have converted back to owned homes." – John Burns, Chief Executive Officer, Real Estate Consulting, LLC

Source: https://twitter.com/johnburnsjbrec/status/1549364141894389760; 7/19/22

Return TOC

U.S. Housing Market



John Burns Real Estate Consulting, LLC

"Growth of people in their 30s fueled the shift to the suburbs in the last decade (even before the pandemic). The same population fueled urban growth the prior decade in their 20s. Cities aren't dead, but age trends suggests continued suburban growth. All that rental demand last decade is now for sale demand." – Chris Porter, Chief Demographer and John Burns, Chief Executive Officer, Real Estate Consulting, LLC

Source: https://twitter.com/johnburnsjbrec/status/1549831457975111680; 7/20/22

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US Housing Market

Housing is the Business Cycle

Why a Housing Crash will Worsen 2022 Recession

Eric Basmajian, EPB Macro Research

Sources: https://youtu.be/Z6JBX8Y8XQM; 7/28/22

Return TOC

U.S. Housing Finance

Mortgage Bankers Association (MBA)

Mortgage Payment to Rent Ratio

"The national median mortgage payment was $1,893 in June, according to the latest Purchase Applications Payment Index (PAPI) release. While it held steady over the second quarter of 2022 (from $1,889 and $1,897 in April and May), it was up 9.1% from the end of the first quarter, and $510 (36.9%) in the first half of 2022. Similarly, the mortgage payment for the 25th percentile loan application (where one-quarter of purchase applications are for a lower amount and three-quarters for a higher one) was flat in the second quarter but increased by 38.5% from December 2021 to $1,241 in June.

" – Joel Kan, Associate Vice President of Economic and Industry Forecasting, MBA

Sourcehttps://www.mba.org/news-and-research/research-and-economics/chart-of-the-week; 8/5/22

Return TOC

U.S. Housing Finance

Mortgage Bankers Association (MBA)

Mortgage Credit Availability Decreased in June

"Mortgage credit availability decreased in June according to the Mortgage Credit Availability Index (MCAI), a report from the Mortgage Bankers Association (MBA) that analyzes data from ICE Mortgage Technology.

Soaring housing costs are not restricted to owner-occupied homes. Indeed, according to the U.S. Census Bureau's Housing Vacancies and Homeownership (CPS/HVS) survey, the national median asking rent increased by 20.1% from the fourth quarter of 2019 to the fourth quarter of 2021, and the quarter-on-quarter increase was 4.0% in the first quarter of 2022. New CPS/HVS data, released this week, shows that the quarterly increase in the national median asking rent intensified to 4.7% in this year's second quarter, increasing from $1,255 to $1,314.

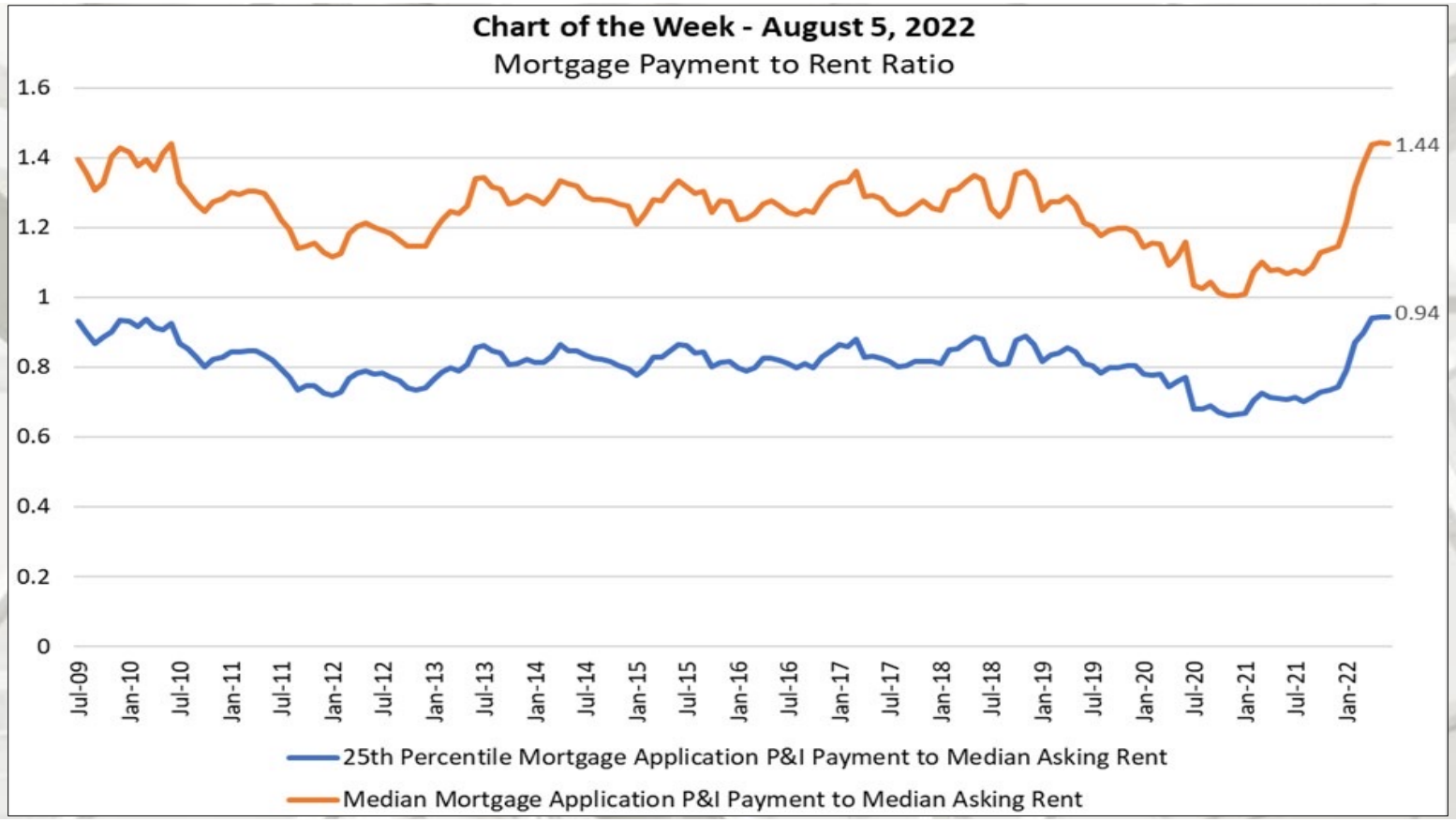
This week's MBA Chart of the Week examines the relationship between mortgage payments and asking rents since the second half of 2009. MBA's national mortgage payment to rent ratio (MPRR) compares the national median and 25th percentile mortgage payments to the national median asking rent.

The MPRR that compares the median mortgage application P&I to the median asking rent (orange line) bounced between approximately 1.20 and 1.40 from 2013 through 2019. It then decreased to 1.00 in 2020 (a series low), before increasing to 1.15 at the end of 2021, and jumping to 1.38 in March 2022 (highest since 2010). The increase in the first quarter continued at a decelerated pace in the second quarter of this year, with the MPRR reading 1.44 in both May and June. Similarly, the 25th percentile purchase mortgage application payment to median asking rent ratio — the MPRR measure that may be more apt for first-time homebuyers—remained around 0.80 from 2013 to 2019. It was down to 0.66 at the end of 2020 and back up to 0.74 at the end of 2021. After jumping to 0.90 in March, it reached a series high of 0.94 in June." – Edward Seiler, Ph.D., Housing Economist and Executive Director, Research Institute for Housing America, MBA

Source: www.mba.org/news-research-and-resources/research-and-economics/single-family-research/mortgage-credit-availability-index; 8/12/22

Return TOC

U.S. Housing Finance



Mortgage Bankers Association (MBA)

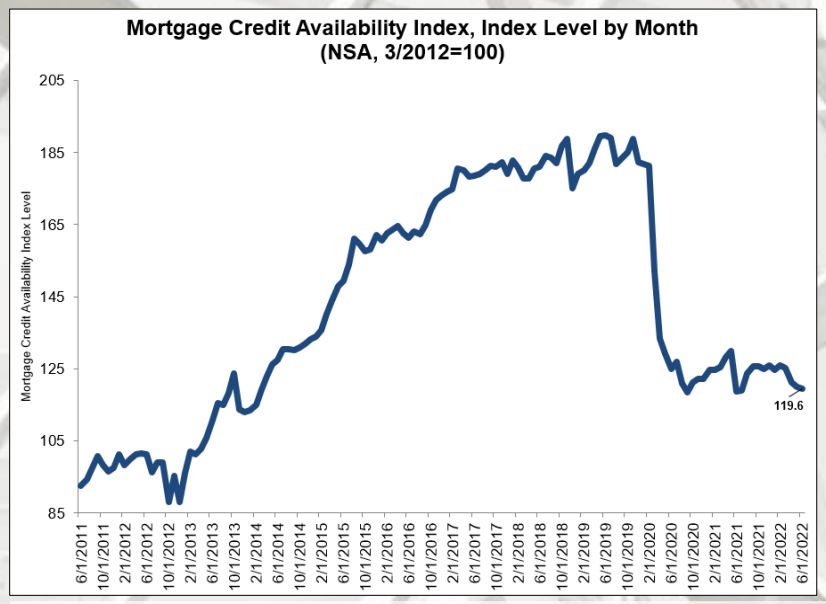
Mortgage Credit Availability Decreased in June

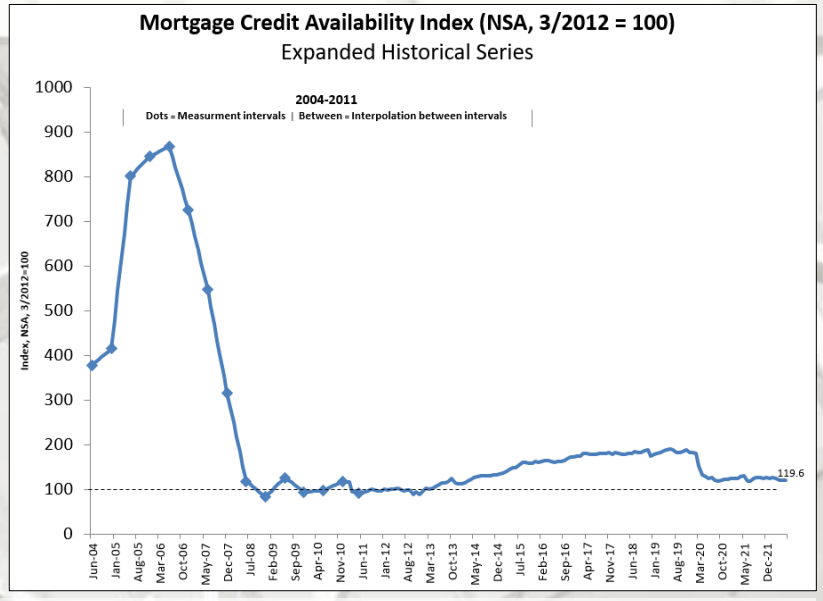
"MBA's mortgage finance forecast calls for house price appreciation to fall to 2.7% in the fourth quarter, and for the 30-year fixed rate mortgage rate to be at 5.2%. This is welcome news for potential home purchasers. Whether the MPRR falls back to lower levels also depends on rent increases. Recent data suggests that while rents are still rising at a historically fast pace, there are signs of softening. We will continue to monitor and report these developments. – Edward Seiler, Ph.D., Housing Economist and Executive Director, Research Institute for Housing America, MBA

Source: www.mba.org/news-research-and-resources/research-and-economics/single-family-research/mortgage-credit-availability-index; 8/12/22

Return TOC

U.S. Housing Finance
Mortgage Credit Availability (MBA)





Source: *Mortgage Bankers Association; Powered by Ellie Mae's AllRegs® Market Clarity®*

Source: www.mba.org/news-research-and-resources/research-and-economics/single-family-research/mortgage-credit-availability-index; 7/12/22

Return TOC

MBA Mortgage Finance Forecast

MBA Mortgage Finance Forecast

July 18, 2022

	2021				2022				2023							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023	2024
Housing Measures																
Housing Starts (SAAR, Thous)	1,581	1,591	1,569	1,679	1,720	1,658	1,559	1,556	1,589	1,622	1,633	1,648	1,605	1,623	1,623	1,699
Single-Family	1,138	1,112	1,104	1,170	1,187	1,094	1,057	1,084	1,107	1,143	1,175	1,197	1,131	1,105	1,156	1,251
Two or More	443	479	465	509	533	564	502	472	482	479	458	451	474	518	468	448
Home Sales (SAAR, Thous)																
Total Existing Homes	6,287	5,950	6,067	6,203	6,063	5,453	5,338	5,590	5,505	5,540	5,525	5,464	6,127	5,611	5,509	5,634
New Homes	896	737	699	752	814	691	703	767	759	771	771	764	771	744	766	810
FHFA US House Price Index (YOY % Change)	13.1	17.7	18.6	17.6	18.8	16.6	5.6	2.7	2.4	2.3	2.5	2.4	17.6	2.7	2.4	2.5
Median Price of Total Existing Homes (Thous $)	313.5	351.7	356.1	353.8	361.4	401.8	379.0	374.7	387.5	391.5	397.7	399.7	343.8	379.2	394.1	408.5
Median Price of New Homes (Thous $)	364.9	380.6	407.8	422.5	430.9	452.8	437.4	438.6	438.6	440.5	442.1	443.3	394.0	439.9	441.1	446.1
Interest Rates																
30-Year Fixed Rate Mortgage (%)	2.9	3.0	2.9	3.1	3.8	5.3	5.2	5.2	5.0	5.0	4.9	4.8	3.1	5.2	4.8	4.3
10-Year Treasury Yield (%)	1.3	1.6	1.3	1.5	1.9	2.9	2.9	2.9	2.9	2.9	2.8	2.8	1.5	2.9	2.8	2.5
Mortgage Originations																
Total 1- to 4-Family (Bil $)	1,094	1,050	954	893	689	678	495	507	467	620	577	580	3,991	2,369	2,244	2,501
Purchase	320	460	442	424	381	477	403	402	343	482	444	435	1,646	1,663	1,704	1,806
Refinance	774	590	512	469	308	201	92	105	124	138	133	145	2,345	706	540	695
Refinance Share (%)	71	56	54	53	45	30	19	21	27	22	23	25	59	30	24	28
FHA Originations (Bil $)													293	166	168	180
Total 1- to 4-Family (000s loans)	3,146	2,926	2,714	2,497	1,830	1,846	1,520	1,423	1,309	1,664	1,557	1,493	11,283	6,619	6,023	6,296
Purchase	974	1,341	1,302	1,259	1,025	1,282	1,092	1,047	908	1,246	1,139	1,081	4,876	4,446	4,374	4,494
Refinance	2,172	1,585	1,412	1,238	805	564	428	376	401	418	418	412	6,407	2,173	1,649	1,802
Refinance Share (%)	69	54	52	50	44	31	28	26	31	25	27	28	57	33	27	29
Mortgage Debt Outstanding																
1- to 4-Family (Bil $)	11,783	12,022	12,274	12,536	12,777	12,993	13,211	13,389	13,590	13,800	14,000	14,188	12,536	13,389	14,188	14,814

Notes:

Total 1-to-4-family originations and refinance share are MBA estimates. These exclude second mortgages and home equity loans.

Mortgage rate forecast is based on Freddie Mac's 30-Yr fixed rate which is based on predominantly home purchase transactions.

The 10-Year Treasury Yield and 30-Yr mortgage rate are the average for the quarter, but annual columns show Q4 values.

The FHFA US House Price Index is the forecasted year over year percent change of the FHFA Purchase-Only House Price Index.

MBa

MORTGAGE BANKERS ASSOCIATION

Source: https://img03.en25.com/Web/MortgageBankersAssociation/%7B34b143ca-8a76-4685-9b90-8b79abdd701b%7D_Mortgage_Finance_Forecast_July_2022.pd; 7/20/22

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MBA Economic Forecast

MBA Economic Forecast

July 18, 2022

	2021				2022				2023							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023	2024
Percent Change, SAAR																
Real Gross Domestic Product	6.3	6.7	2.3	6.9	-1.6	0.4	1.7	1.9	1.7	1.5	1.5	1.5	5.5	0.6	1.5	1.5
Personal Consumption Expenditures	11.4	12.0	2.0	2.5	1.8	2.2	3.2	1.6	1.5	1.8	1.5	1.9	6.9	2.2	1.7	2.4
Business Fixed Investment	12.9	9.2	1.7	2.9	10.0	7.8	9.0	0.5	0.7	0.2	0.1	0.0	6.6	6.8	0.2	-0.4
Residential Investment	13.3	-11.7	-7.7	2.2	0.4	-10.5	-11.4	2.2	5.0	7.4	6.2	7.2	-1.5	-5.0	6.4	6.1
Govt. Consumption & Investment	4.2	-2.0	0.9	-2.6	-2.9	-3.3	-0.1	2.4	3.0	0.9	0.9	1.0	0.1	-1.0	1.5	1.0
Net Exports (Bil. Chain 2012$)	-1033.0	-1048.4	-1112.3	-1139.5	-1311.0	-1270.4	-1341.3	-1350.5	-1339.0	-1339.3	-1339.3	-1352.0	-1083.3	-1318.3	-1342.4	-1435.6
Inventory Investment (Bil. Chain 2012$)	-75.1	-143.3	-56.8	164.3	160.3	74.5	82.4	95.5	75.0	60.0	57.3	49.9	-27.7	103.2	60.5	41.0
Consumer Prices (YOY)	1.9	4.8	5.3	6.7	8.0	8.4	7.7	6.0	4.3	2.5	2.2	2.5	6.7	6.0	2.5	1.9
Percent																
Unemployment Rate	6.2	5.9	5.1	4.2	3.8	3.6	3.6	3.7	3.8	3.9	4.0	4.2	5.4	3.7	4.0	4.5
Federal Funds Rate	0.125	0.125	0.125	0.125	0.375	1.625	2.375	3.375	3.625	3.875	3.875	3.875	0.125	3.375	3.875	3.375
10-Year Treasury Yield	1.3	1.6	1.3	1.5	1.9	2.9	2.9	2.9	2.9	2.9	2.8	2.8	1.5	2.9	2.8	2.5

Notes:

The Fed Funds Rate forecast is shown as the mid point of the Fed Funds range at the end of the period.
All data except interest rates are seasonally adjusted
The 10-Year Treasury Yield is the average for the quarter, while the annual value is the Q4 value
Forecast produced with the assistance of the Macroeconomic Advisers' model

MBa
MORTGAGE BANKERS ASSOCIATION

Source: https://img03.en25.com/Web/MortgageBankersAssociation/%7B6c0df152-5643-4ee8-9643-16fe16cb4ebb%7D_Economic_Forecast_July_2022.pdf; 7/20/22

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Summary

In conclusion:

In June, month-over-month data continued a negative movement in most categories. Year-over-year data indicated some improvement; however, single-family permits and starts decreased again (the fourth consecutive month). This suggests further moderation in single-family activity in the forthcoming months. The impact of increasing borrowing costs, combined with rising house prices (though new median/mean declined precipitously in June), have resulted in a major obstacle for new house sales. The increase in borrowing costs has resulted in potential house buyers to cancel contracts or postpone a house purchase. June also was the fifth consecutive monthly decrease for existing house sales.

The disparity between the number of houses started versus houses completed are at the greatest level since 1984. This spread is evident for both single- and multi-family starts as builders await building materials and products necessary to complete started houses. New and existing house sales were negative, due to a lack of available inventory for sale and increasing mortgage interest rates. Increasing mortgage rates, in combination with record house prices, June reduce affordability for potential house buyers.

Pros:

1) The desire to own a house remains strong.

Cons:

1) Mortgage interest rates and affordability;
2) Inflation;
3) The war in Ukraine;
4) Construction material and appliance constraints;
5) Logistics/Supply chains;
6) Lot availability and building regulations (according to several sources);
7) Labor shortages in many sectors;
8) Household formations still lag historical averages;
9) Job creation is improving and consistent, but some economists question the quantity and types of jobs being created;
10) Debt: Corporate, personal, government – United States and globally;
11) Other global uncertainties.

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