

The Virginia Tech–USDA Forest Service Housing Commentary: Section I September 2021



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<http://woodproducts.sbio.vt.edu/housing-report>.

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Opening Remarks

The month-over-month and year-over-year housing data for September were mixed. Single-family permits and starts, harbingers for current and future construction, were negative month-over-month and year-over-year. Completions remained slowed due to the unavailability of building materials and products, among other factors. Total, and single-family, housing under construction were the only categories positive on month-over-month and year-over-year basis.

The November 15th Atlanta Fed GDPNow™ model forecast was an aggregate 1.6% for total residential investment spending. New private permanent site expenditures were projected at -11.2%; the improvement spending forecast was 3.0%; and the manufactured/mobile expenditures projection was 15.1% for December 2021 (all: quarterly log change and at a seasonally adjusted annual rate).¹

“Working from home appears to be an outcome of the pandemic that is here to stay. Nearly two years of experience has shown that it is possible, and perhaps even preferable, for many to work from home. Indeed, surveys show [a majority of office workers – and a significant share of employers expect to work from home](#) at least once a week going forward. This ability to skip the commute (even just one or two days a week) could change where enough people choose to live to reshape housing demand in cities and suburbs. Supercharged residential sprawl becomes an initial concern, as larger houses in more affordable neighborhoods farther from employment centers could become a viable alternative for millions of metro area workers. However, as we anticipate these changes, a look at earlier research suggests it may not be so simple, and the suburbs may not only be the only place that would see increased demand from remote workers.”² – Daniel McCue, Senior Research Associate, Harvard Joint Center for Housing Studies.

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 economic information.

Sources: ¹ www.frbatlanta.org/cqer/research/gdpnow.aspx; 10/10/21;

² <https://www.jchs.harvard.edu/blog/possible-impacts-remote-work-cities-neighborhoods-and-households>; 11/8/21

September 2021 Housing Scorecard

		M/M	Y/Y
Housing Starts	▼	1.6%	▲ 7.4%
Single-Family (SF) Starts	NC	0.0%	▼ 2.3%
Multi-Family (MF) Starts*	▼	5.0%	▲ 38.5%
Housing Permits	▼	7.8%	▼ 0.2%
SF Permits	▼	0.9%	▼ 7.1%
MF Permits*	▼	18.8%	▲ 16.5%
Housing Under Construction	▲	1.3%	▲ 17.1%
SF Under Construction	▲	1.1%	▲ 30.6%
Housing Completions	▼	4.6%	▼ 13.0%
SF Completions	NC	0.0%	▲ 2.1%
New SF House Sales	▲	14.0%	▼ 17.6%
Private Residential Construction Spending	▼	0.4%	▲ 19.3%
SF Construction Spending	▼	0.6%	▲ 30.4%
Existing House Sales ¹	▲	7.0%	▼ 2.3%

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

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

USDA Forest Service Housing Story Map

USDA FOREST SERVICE HOUSING MARKET REVIEW

Forest Products Laboratory, Economics, Statistics and Life Cycle Analysis Research

WELCOME MONTHLY HOUSING BRIEFS AND COMMENTARIES CONSTRUCTION DATA HOUSING METRICS AND THE WOOD RESOURCE RESOURCES AND REFERENCES

USDA Forest Service Housing Market Review

Housing's Importance

The total value of all homes in the U.S. in 2017 was estimated at \$31.8 trillion.¹

The value of wood building materials consumed in new residential and remodeling construction was estimated at \$37.4 billion in 2018.²

Historic as well as current housing trends show that new, single-family construction is the greatest value-added wood products consuming sector and is a leading coincident economic indicator of the U.S. economy. The forest products sector helps sustain the social, economic, and ecological benefits of forest based industry in the United States. Product revenues sustain economic benefits that include jobs and income. Ecological and social benefits can be supported by timber revenue to landowners that help keep land in forests, and by forest treatments that can help maintain ecological functions. The degree to which the forest products sector helps sustain benefits is influenced by levels of demand and consumption of forest products and how technology, markets, and demand for timber translates into harvest of different species and sizes of trees in different regions.

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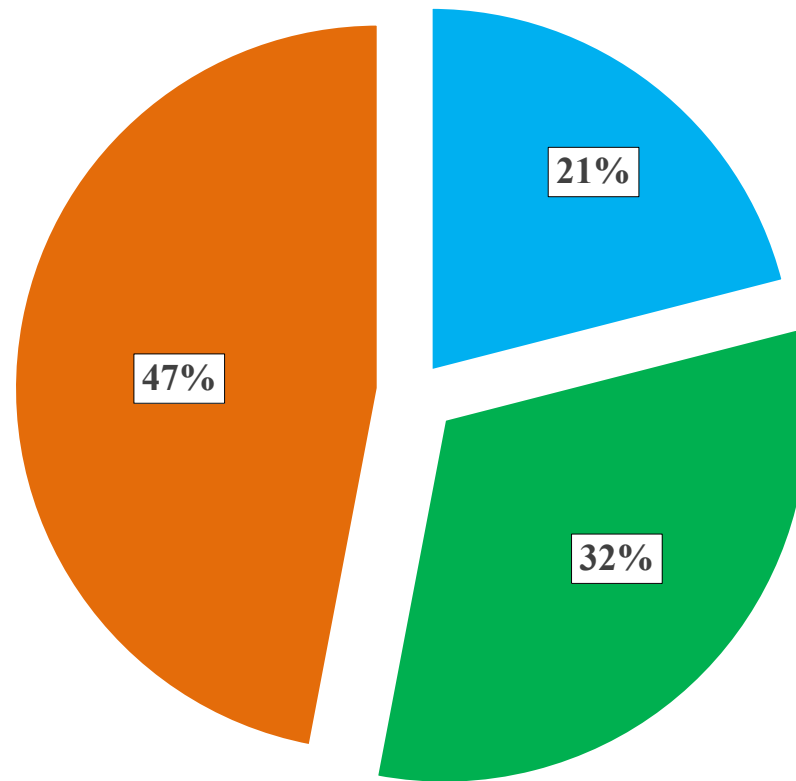
USDA Forest Service Housing Market Review

Each story map's tab contains a compilation of housing information. The 'Construction Data' tab is interactive and allows one the capability 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>

New Construction's Percentage of Wood Products Consumption

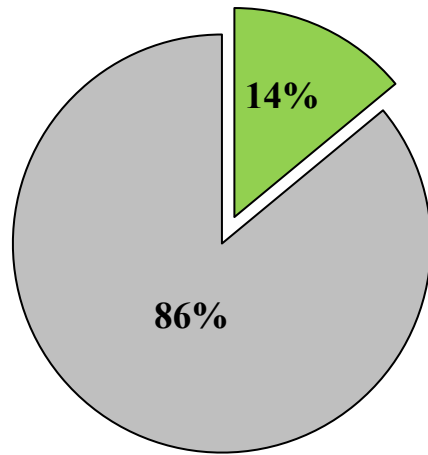


■ Non-structural panels

■ Total Sawnwood

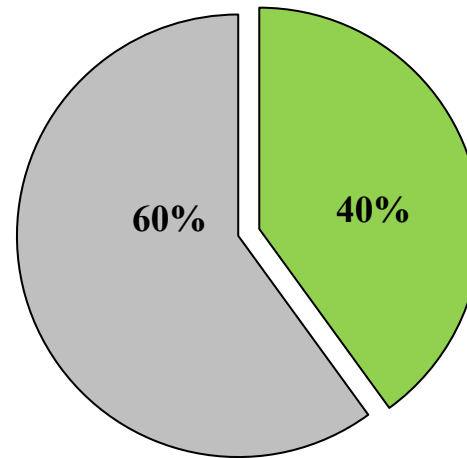
■ Structural panels

New SF Construction Percentage of Wood Products Consumption



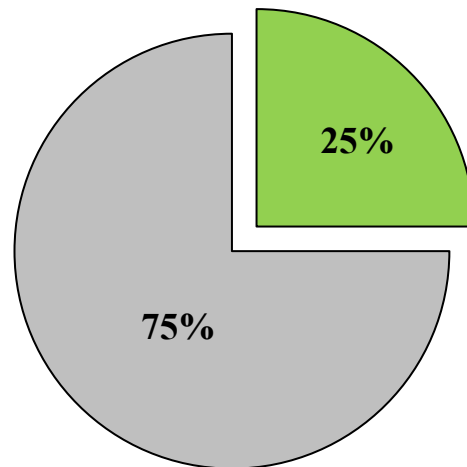
■ Non-structural panels:
New Housing

■ Other markets



■ Structural panels:
New housing

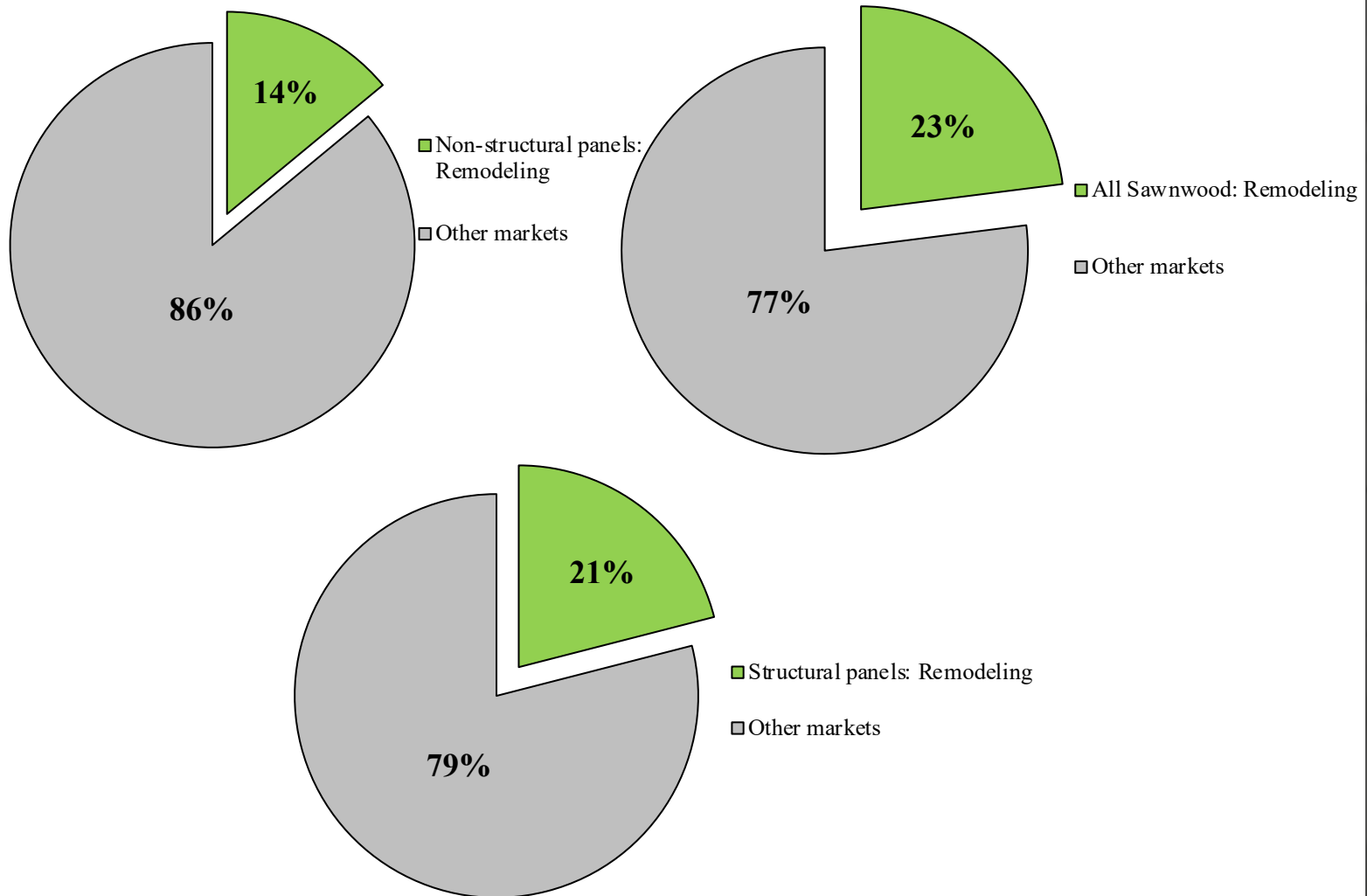
■ Other markets



■ All Sawnwood: New housing

■ Other markets

Repair and Remodeling's Percentage of Wood Products Consumption



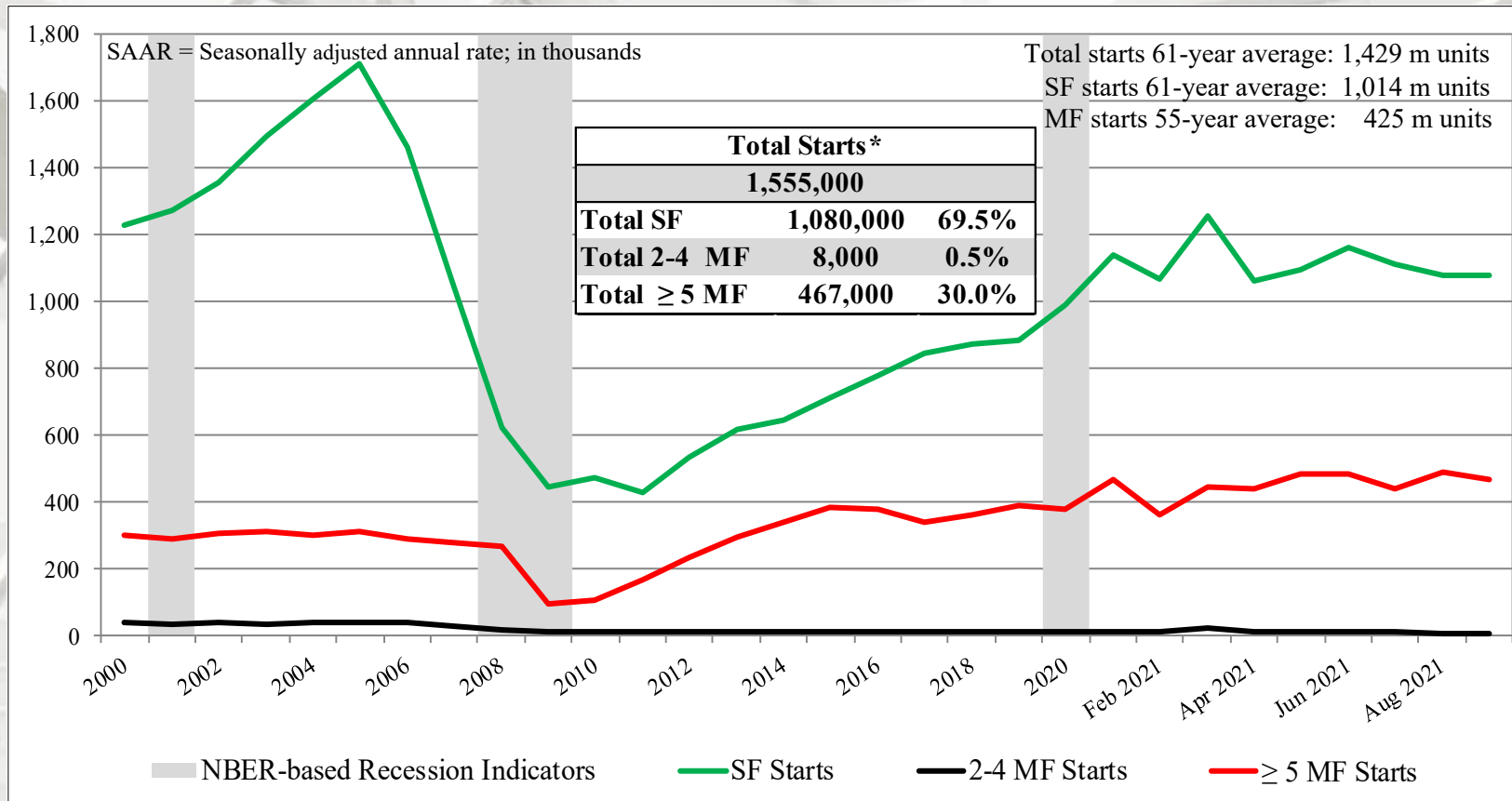
New Housing Starts

	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
September	1,555,000	1,080,000	8,000	467,000
August	1,580,000	1,080,000	8,000	492,000
2020	1,448,000	1,105,000	5,000	338,000
M/M change	-1.6%	0.0%	0.0%	-5.1%
Y/Y change	7.4%	-2.3%	60.0%	38.2%

* 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)).

Total Housing Starts

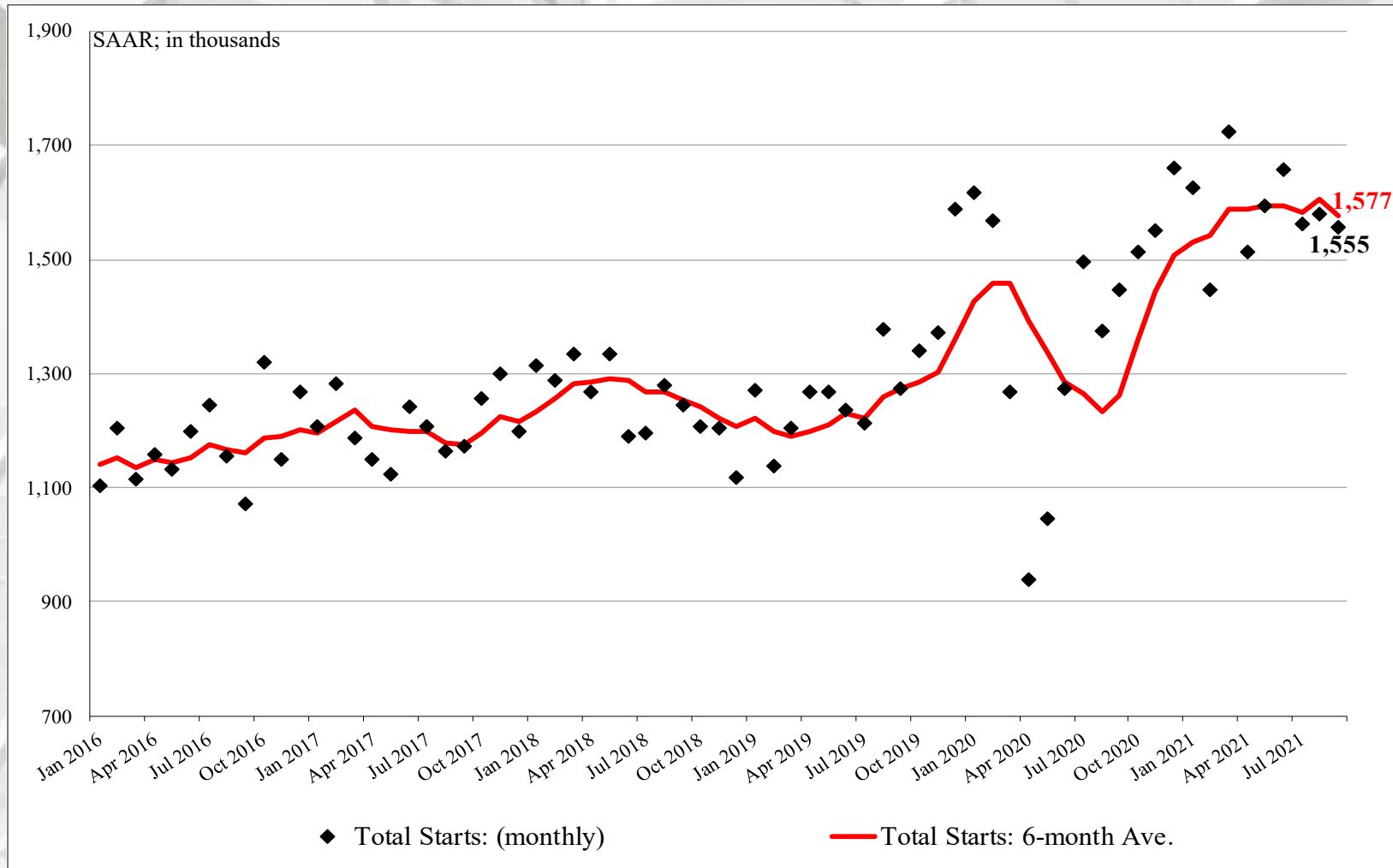


US DOC does not report 2 to 4 multi-family starts directly; this is an estimation: ((Total starts – (SF + ≥ MF)).

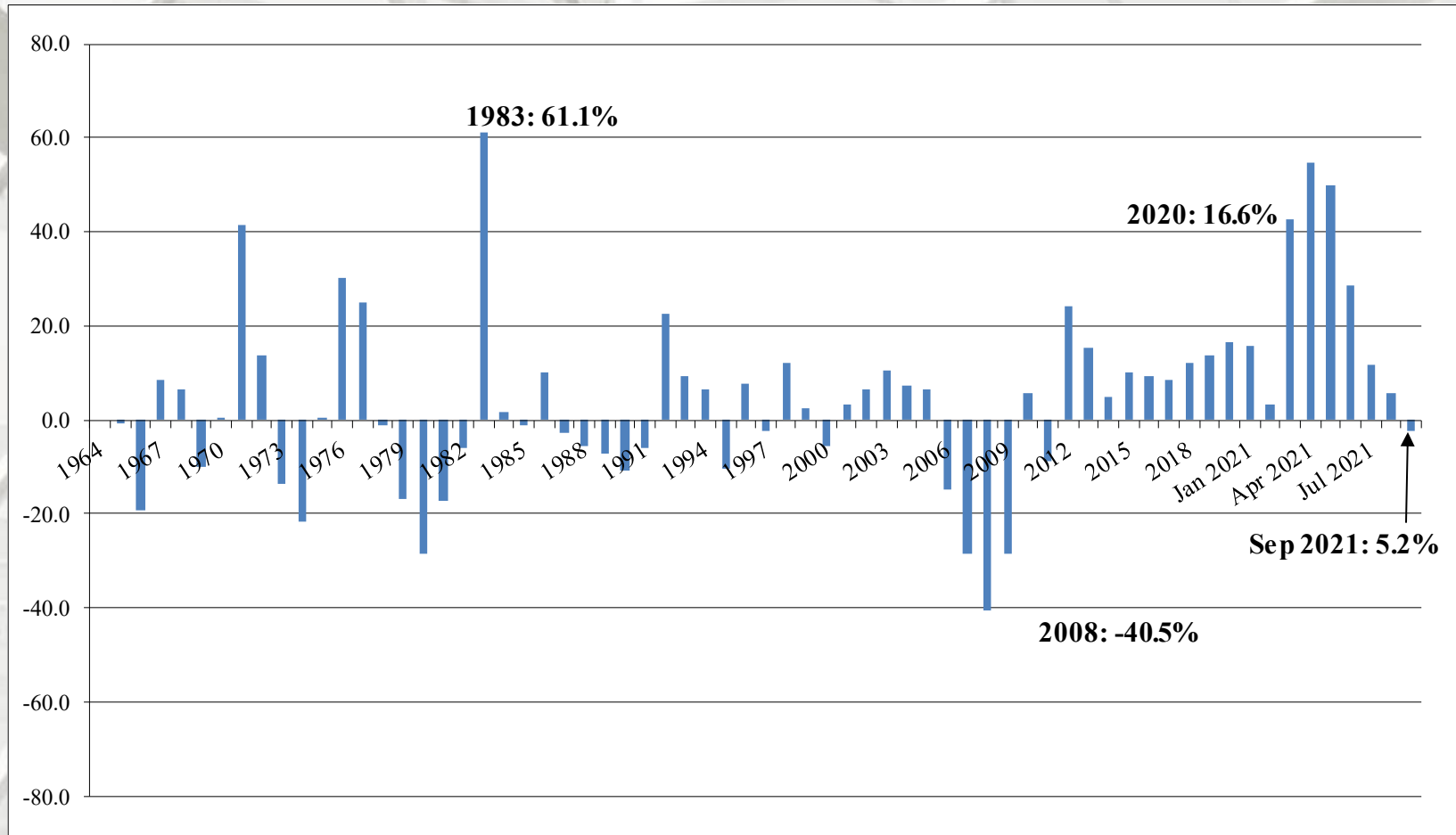
* Percentage of total starts.

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

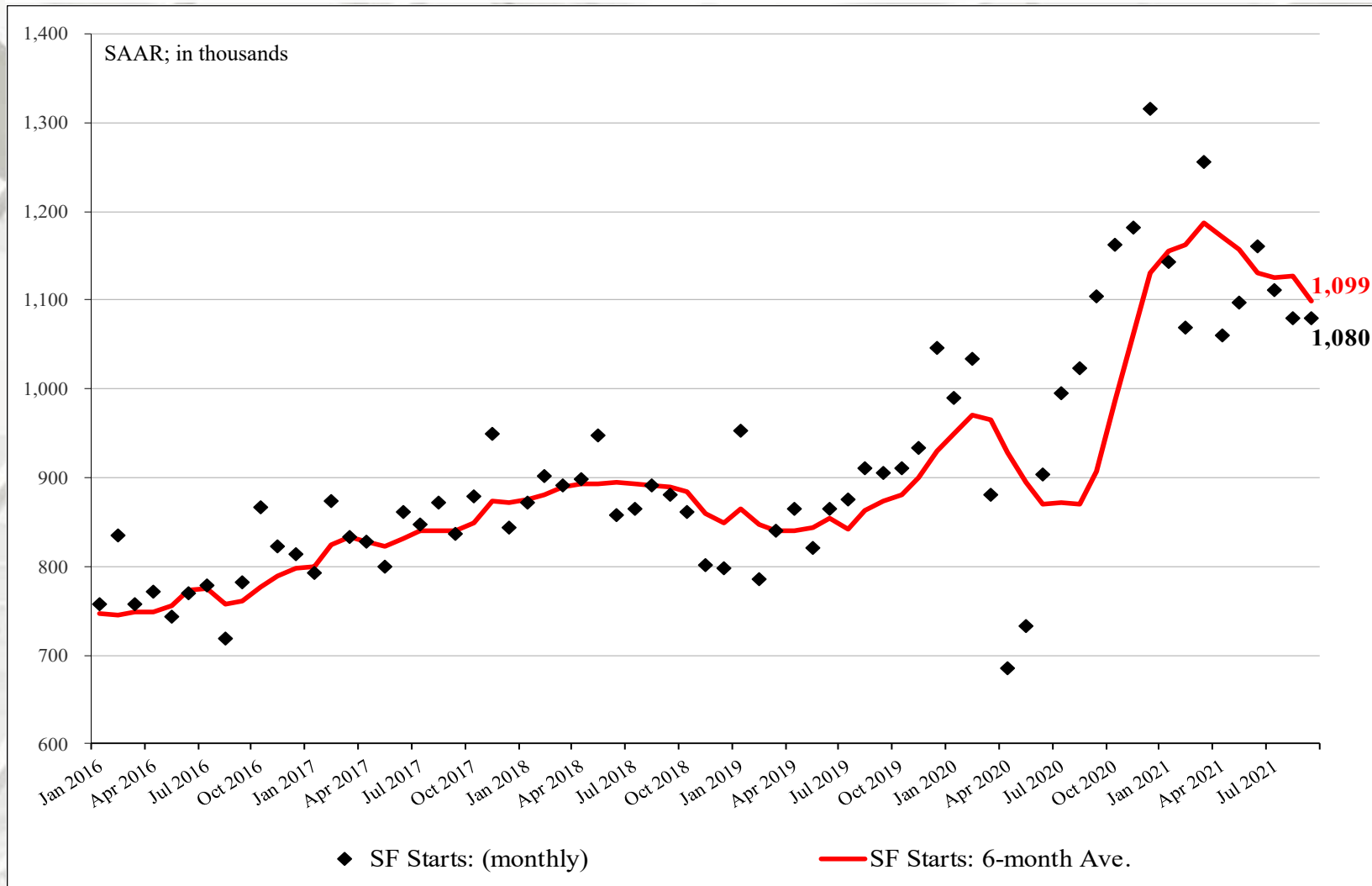
Total Housing Starts: Six-Month Average



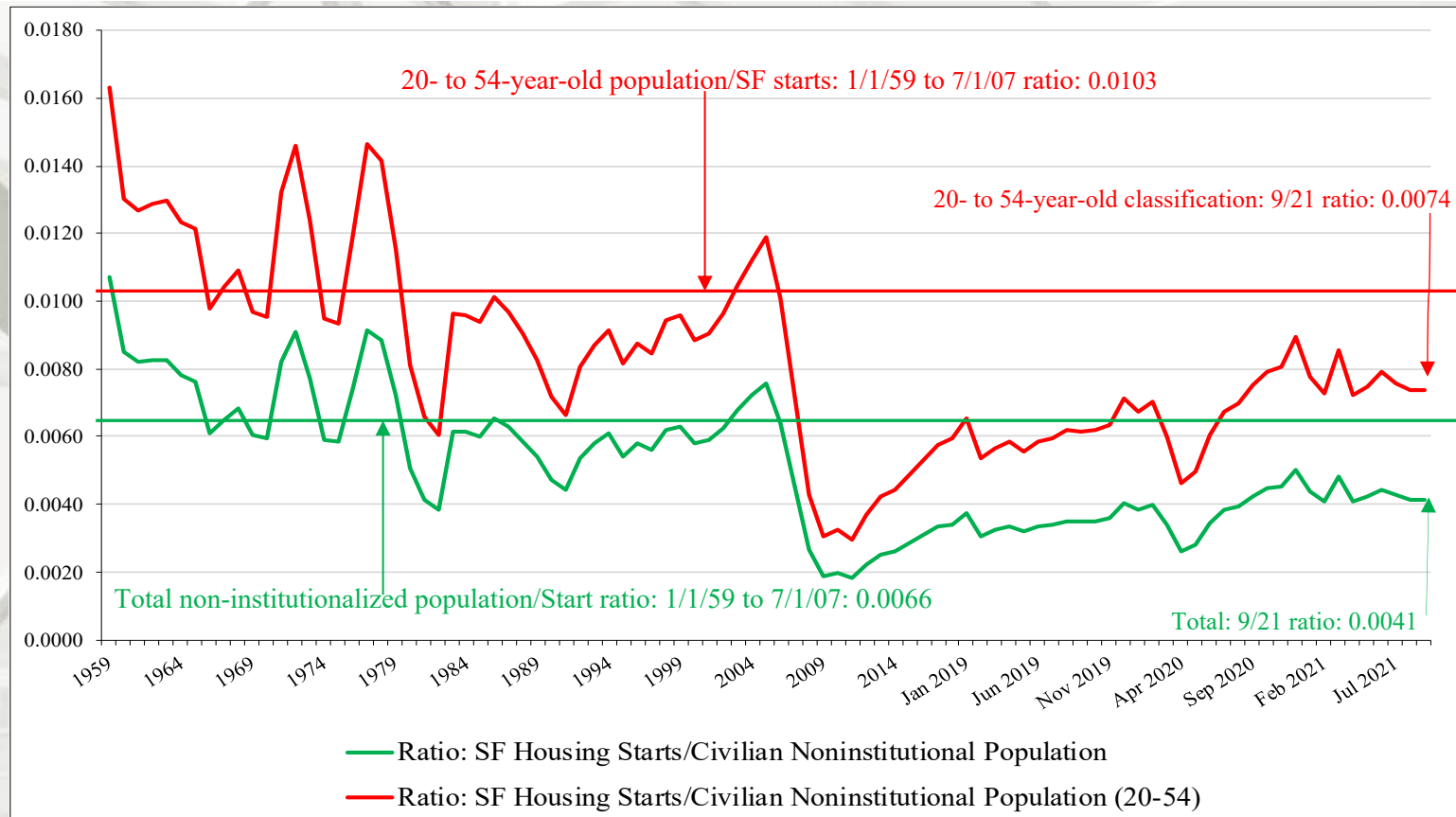
SF Housing Starts: Year-over-Year Change



SF Housing Starts: Six-Month Average



New SF Starts

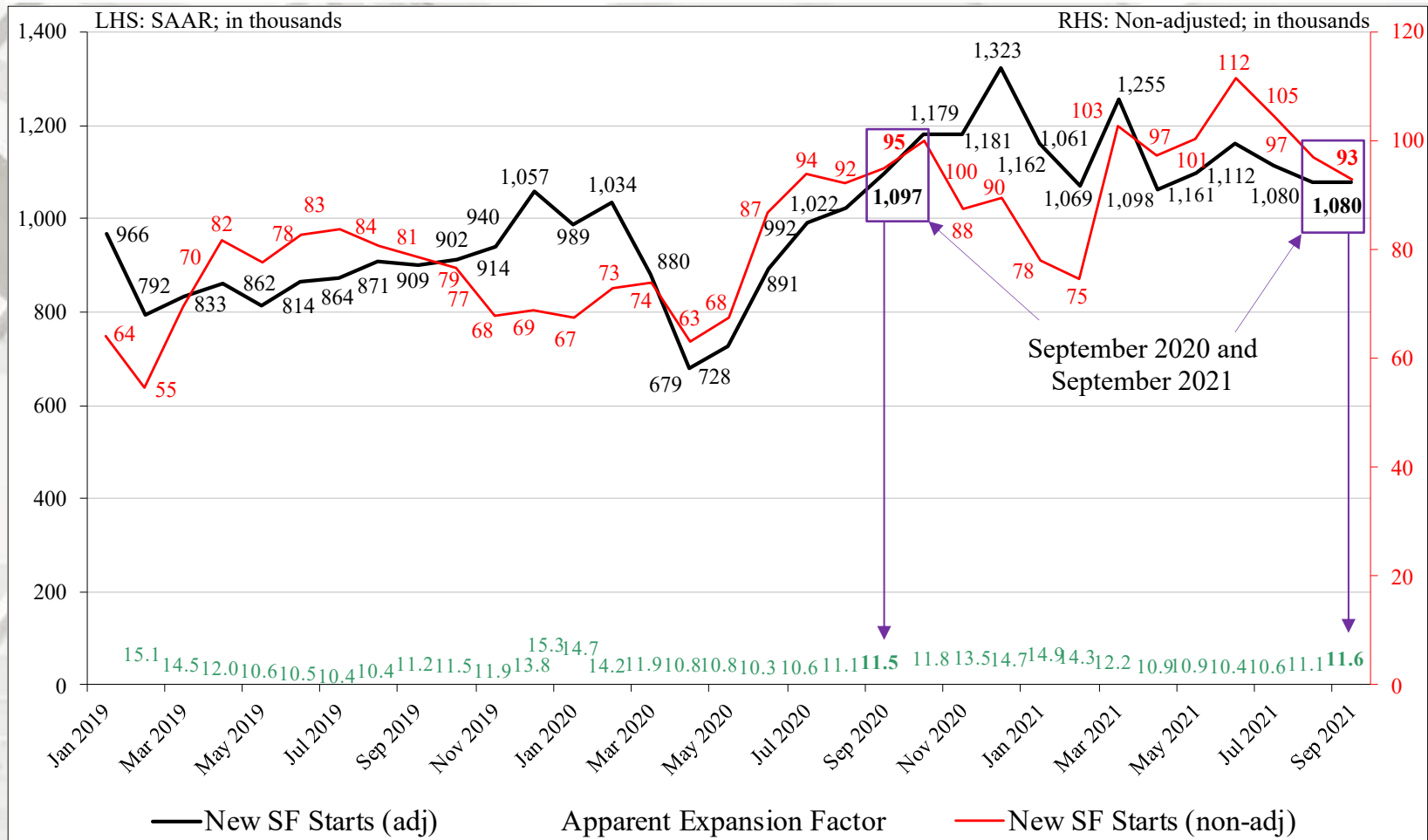


New SF starts adjusted for the US population

From January 1959 to July 2007, the long-term ratio of the total US non-institutionalized population to new SF starts is 0.0066; in September 2021 it was 0.0041 – no change from August. The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in September 2021 was 0.0074 – also no change from August. From a population worldview, new SF construction is less than what is necessary for changes in population (i.e., under-building).

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.

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

New Housing Starts by Region

	NE Total	NE SF	NE MF**
September	120,000	66,000	54,000
August	165,000	67,000	98,000
2020	126,000	68,000	58,000
M/M change	-27.3%	-1.5%	-44.9%
Y/Y change	-4.8%	-2.9%	-6.9%
	MW Total	MW SF	MW MF
September	217,000	137,000	80,000
August	203,000	128,000	75,000
2020	210,000	127,000	83,000
M/M change	6.9%	7.0%	6.7%
Y/Y change	3.3%	7.9%	-3.6%

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).

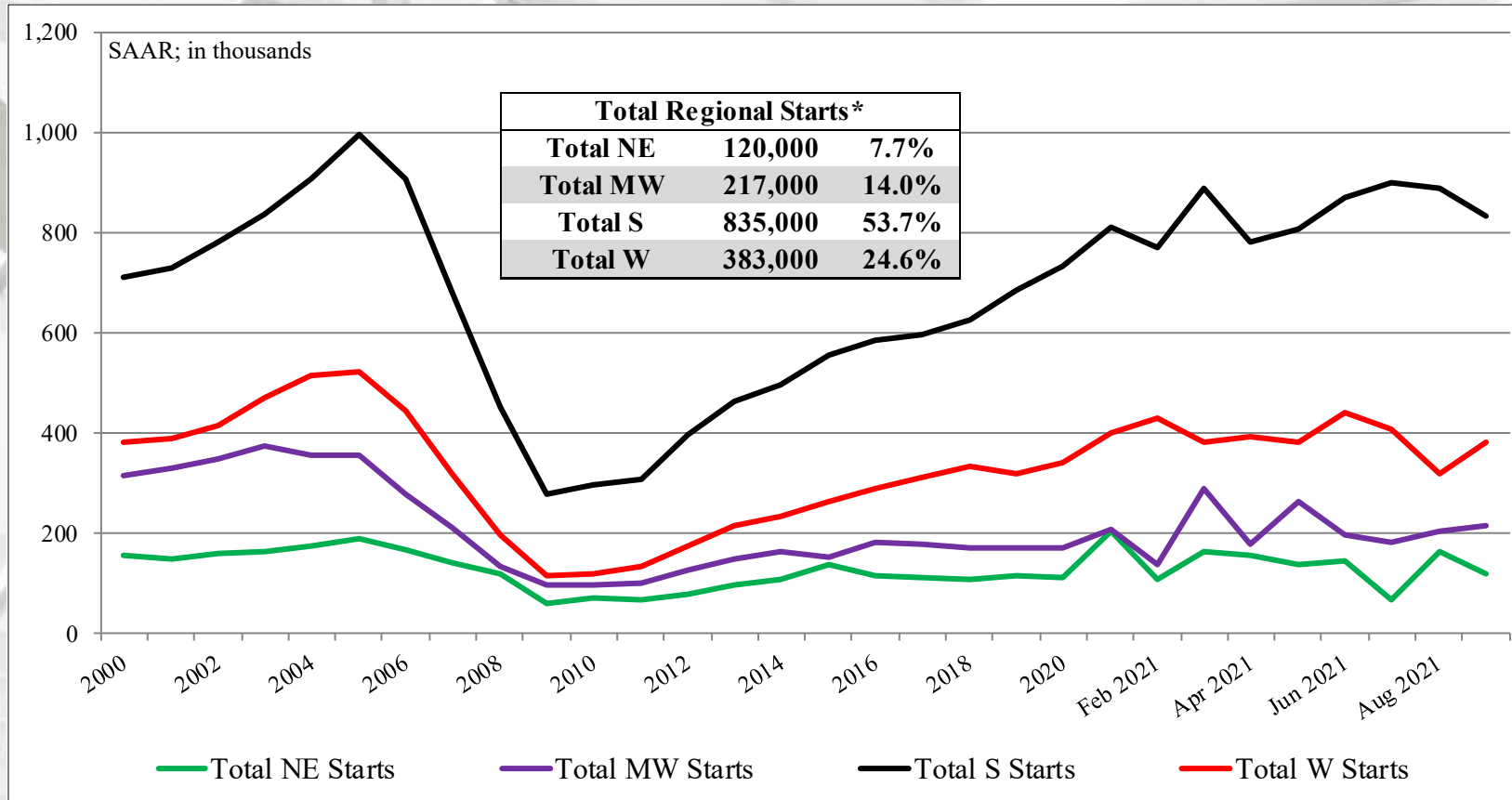
New Housing Starts by Region

	S Total	S SF	S MF**
September	835,000	632,000	203,000
August	891,000	677,000	214,000
2020	763,000	645,000	118,000
M/M change	-6.3%	-6.6%	-5.1%
Y/Y change	9.4%	-2.0%	72.0%
	W Total	W SF	W MF
September	383,000	245,000	138,000
August	321,000	208,000	113,000
2020	349,000	265,000	84,000
M/M change	19.3%	17.8%	22.1%
Y/Y change	9.7%	-7.5%	64.3%

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).

New Housing Starts by Region

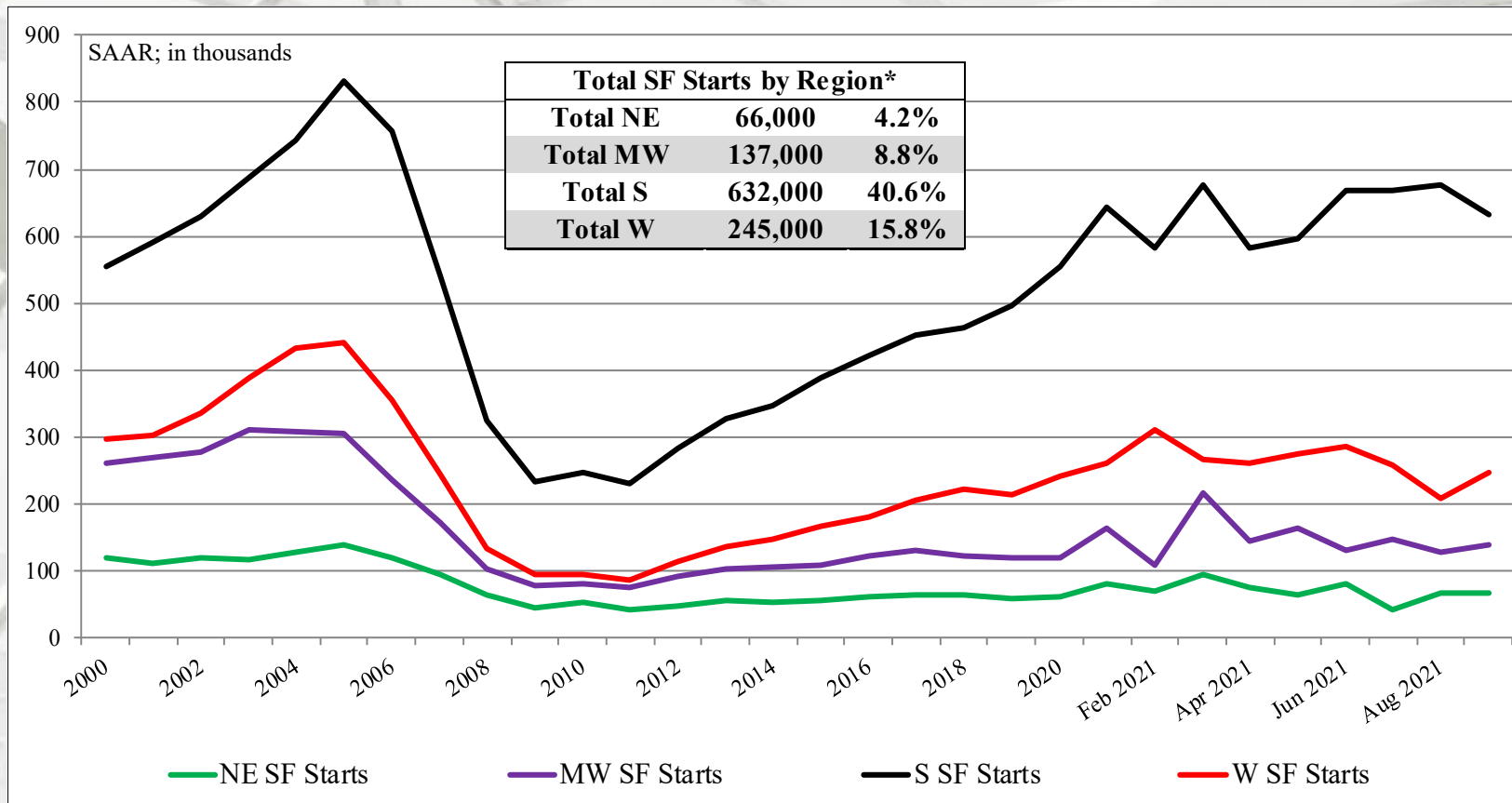


NE = Northeast, MW = Midwest, S = South, W = West

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.

Total SF Housing Starts by Region

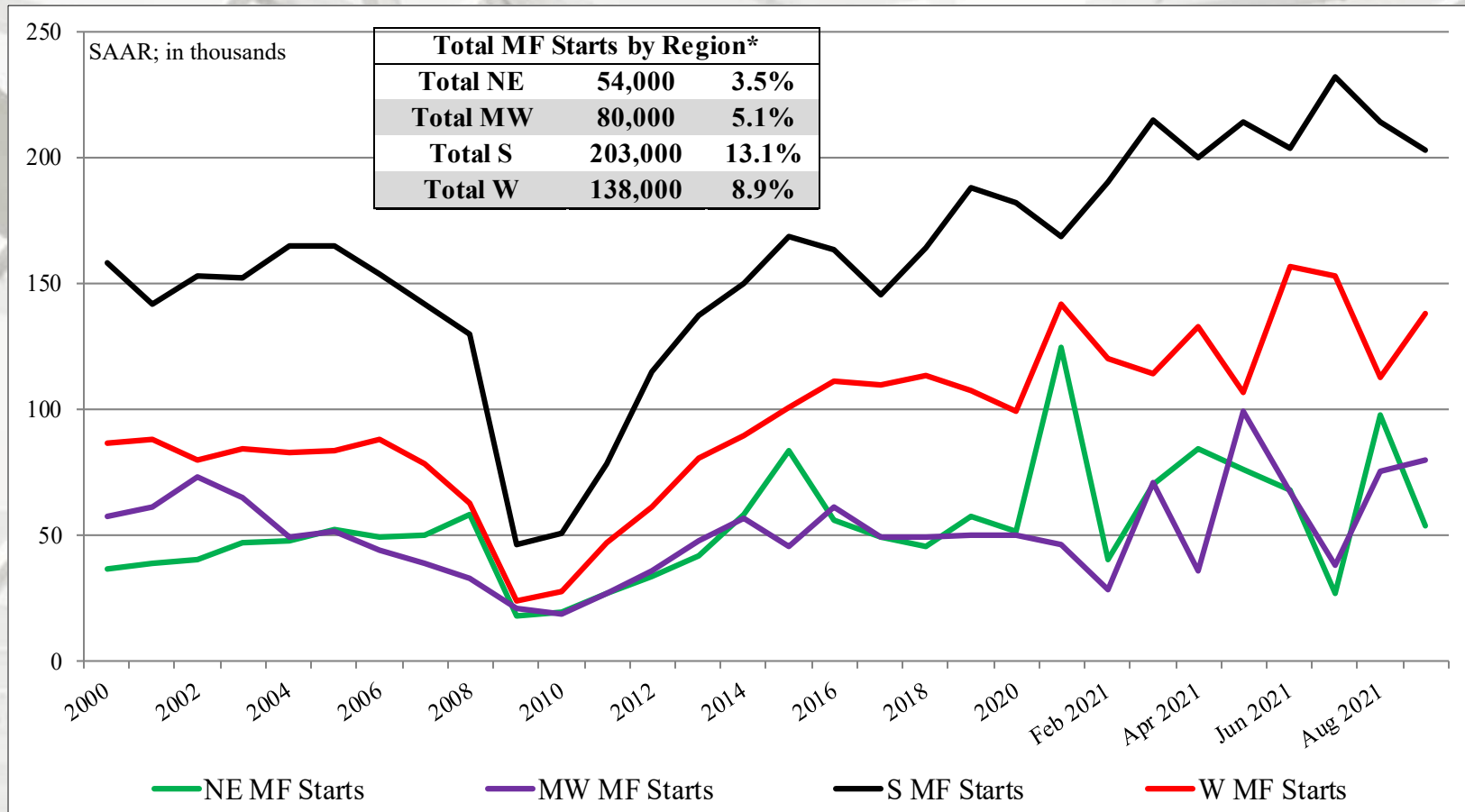


NE = Northeast, MW = Midwest, S = South, W = West

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.

MF Housing Starts by Region

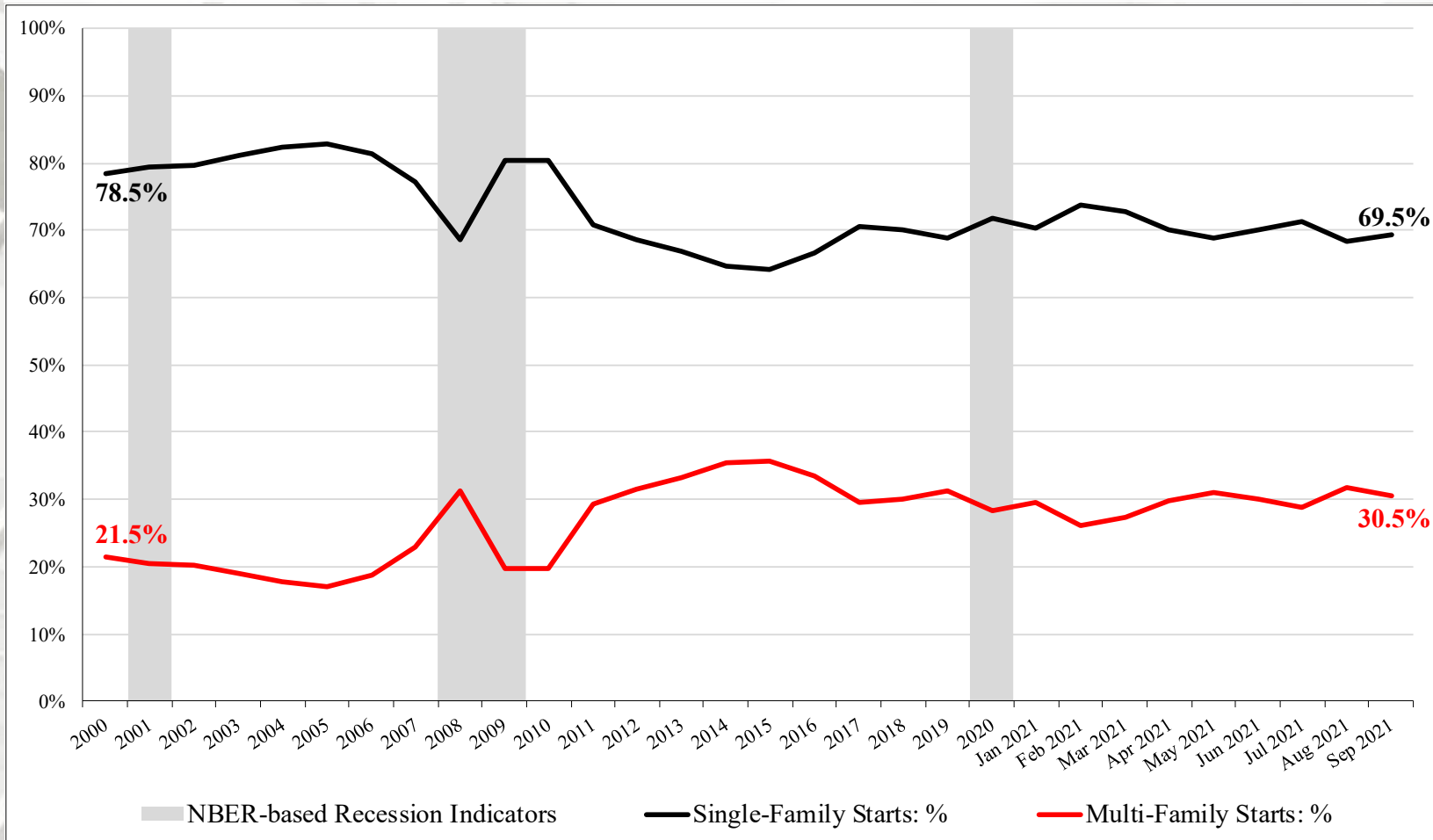


NE = Northeast, MW = Midwest, S = South, W = West

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.

SF vs. MF Housing Starts (%)



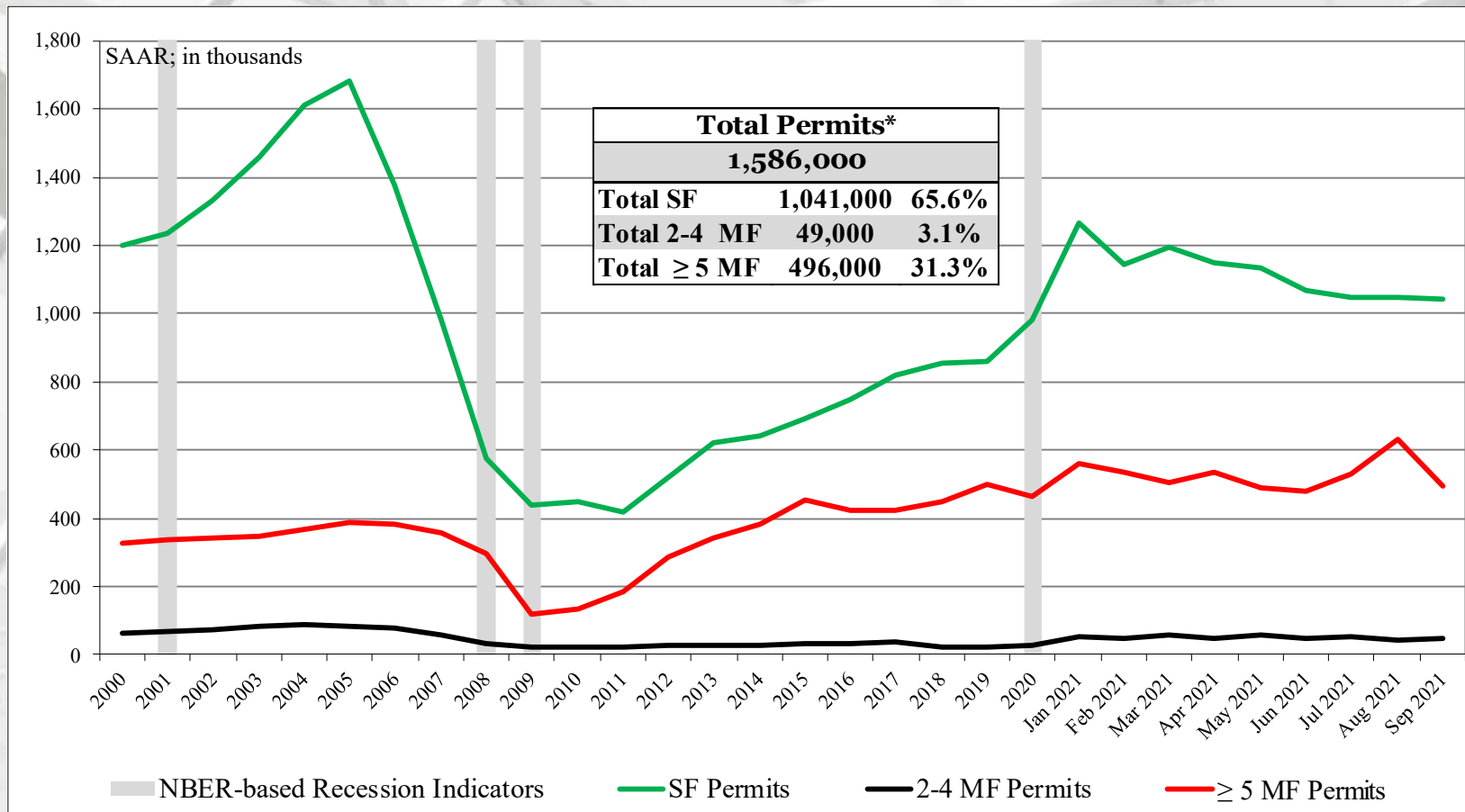
NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
September	1,586,000	1,041,000	49,000	496,000
August	1,721,000	1,050,000	41,000	630,000
2020	1,589,000	1,121,000	46,000	422,000
M/M change	-7.8%	-0.9%	19.5%	-21.3%
Y/Y change	-0.2%	-7.1%	6.5%	17.5%

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

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).

New Housing Permits by Region

	NE Total*	NE SF	NE MF**
September	124,000	55,000	69,000
August	155,000	67,000	88,000
2020	156,000	65,000	91,000
M/M change	-20.0%	-17.9%	-21.6%
Y/Y change	-20.5%	-15.4%	-24.2%
	MW Total*	MW SF	MW MF**
September	216,000	126,000	90,000
August	217,000	126,000	91,000
2020	215,000	143,000	72,000
M/M change	-0.5%	0.0%	-1.1%
Y/Y change	0.5%	-11.9%	25.0%

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).

New Housing Permits by Region

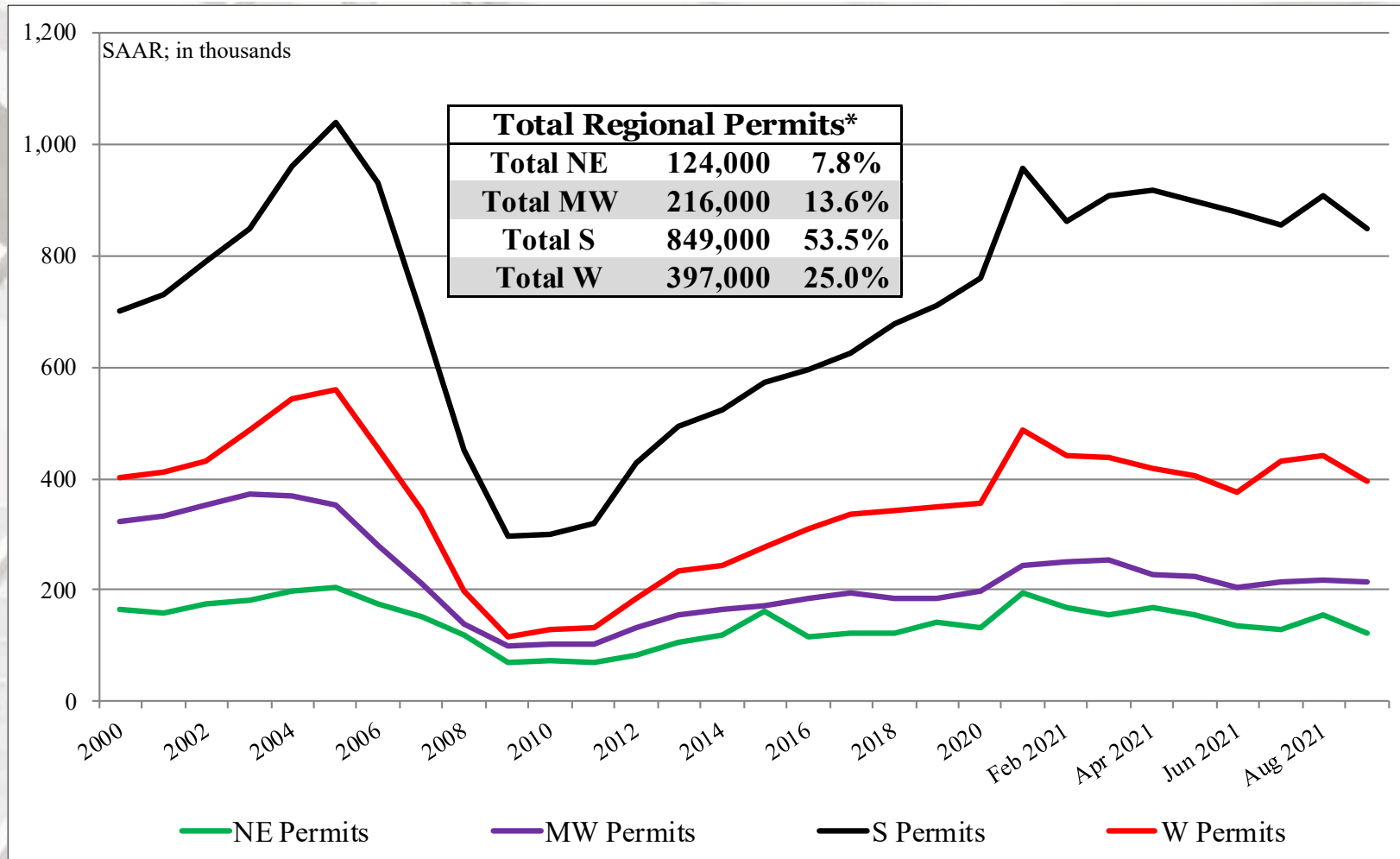
	S Total*	S SF	S MF**
September	849,000	619,000	230,000
August	907,000	608,000	299,000
2020	837,000	647,000	190,000
M/M change	-6.4%	1.8%	-23.1%
Y/Y change	1.4%	-4.3%	21.1%
	W Total*	W SF	W MF**
September	397,000	241,000	156,000
August	442,000	249,000	193,000
2020	381,000	266,000	115,000
M/M change	-10.2%	-3.2%	-19.2%
Y/Y change	4.2%	-9.4%	35.7%

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).

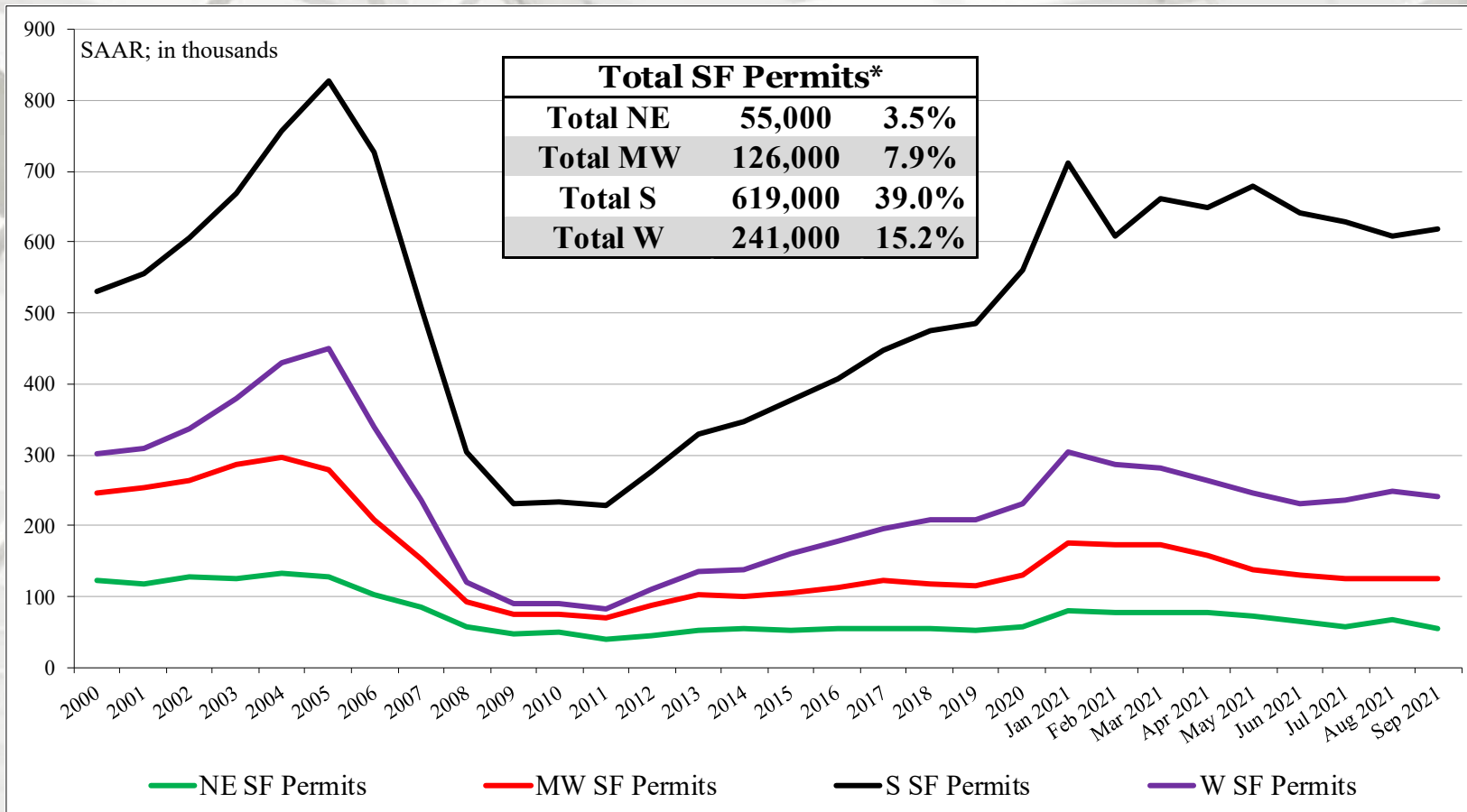
Total Housing Permits by Region



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

* Percentage of total permits.

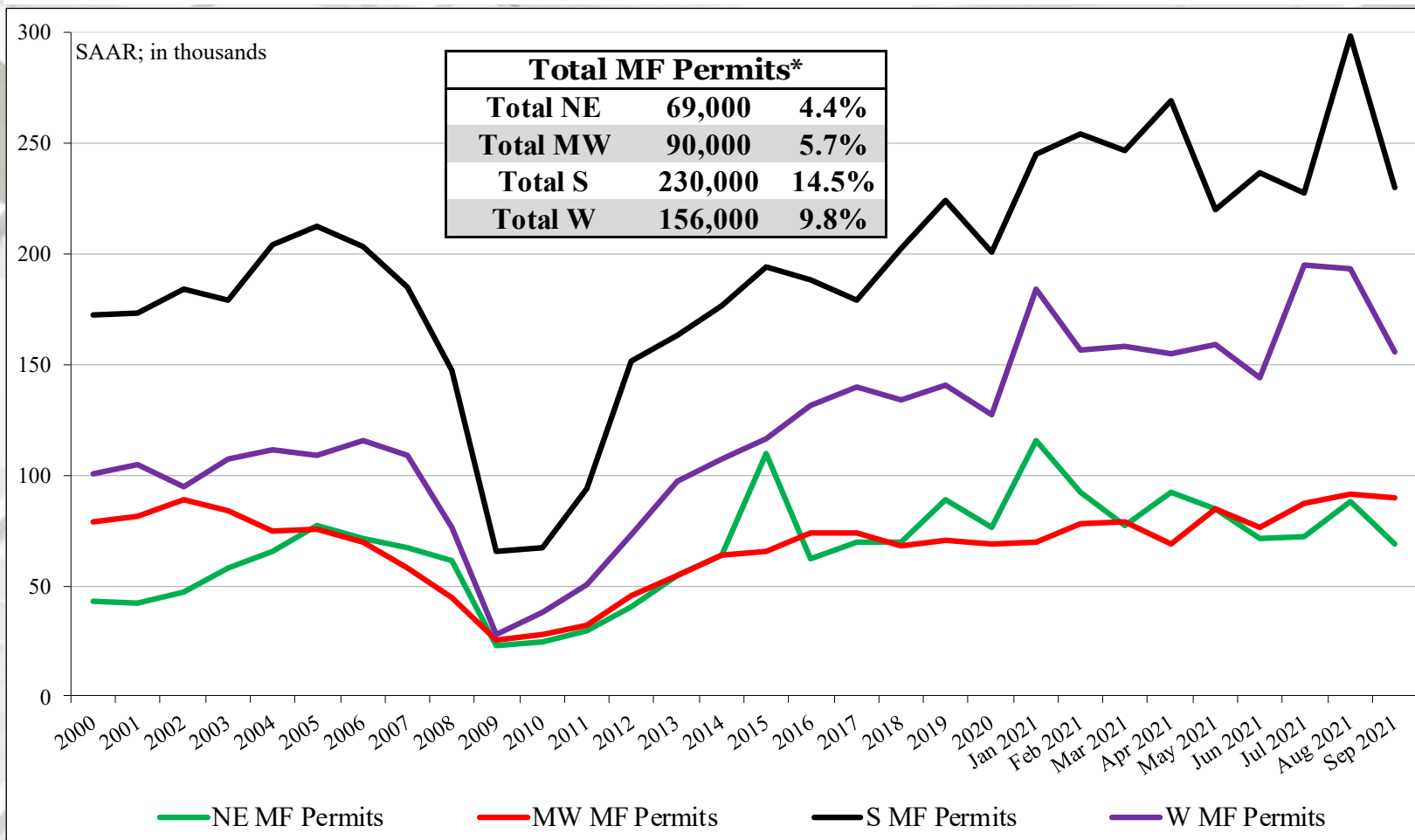
SF Housing Permits by Region



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

* Percentage of total permits.

MF Housing Permits by Region



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

* Percentage of total permits.

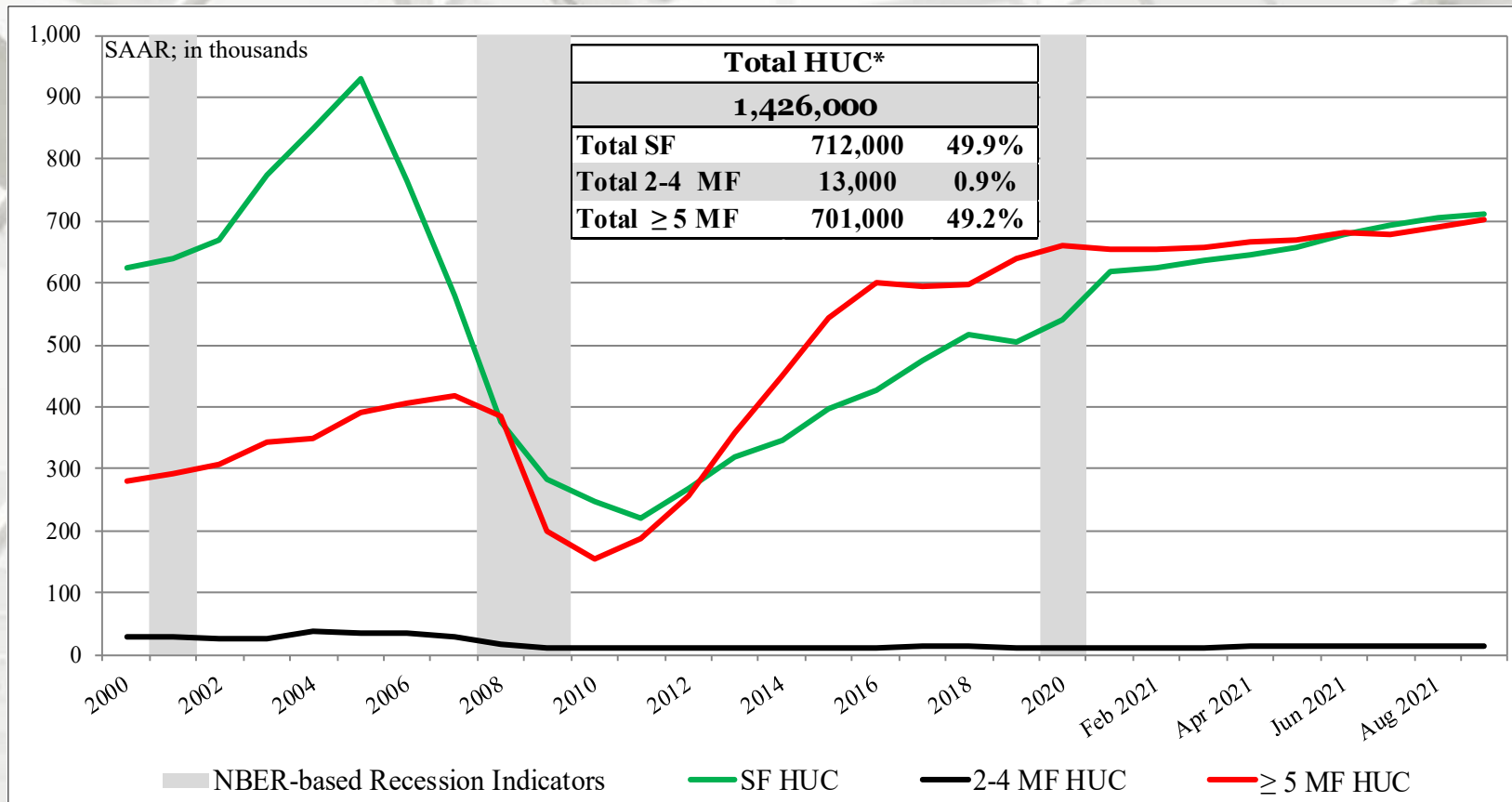
New Housing Under Construction (HUC)

	Total HUC*	SF HUC	MF 2-4 unit** HUC	MF ≥ 5 unit HUC
September	1,426,000	712,000	13,000	701,000
August	1,408,000	704,000	13,000	691,000
2020	1,218,000	545,000	11,000	662,000
M/M change	1.3%	1.1%	0.0%	1.4%
Y/Y change	17.1%	30.6%	18.2%	5.9%

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)).

Total Housing Under Construction

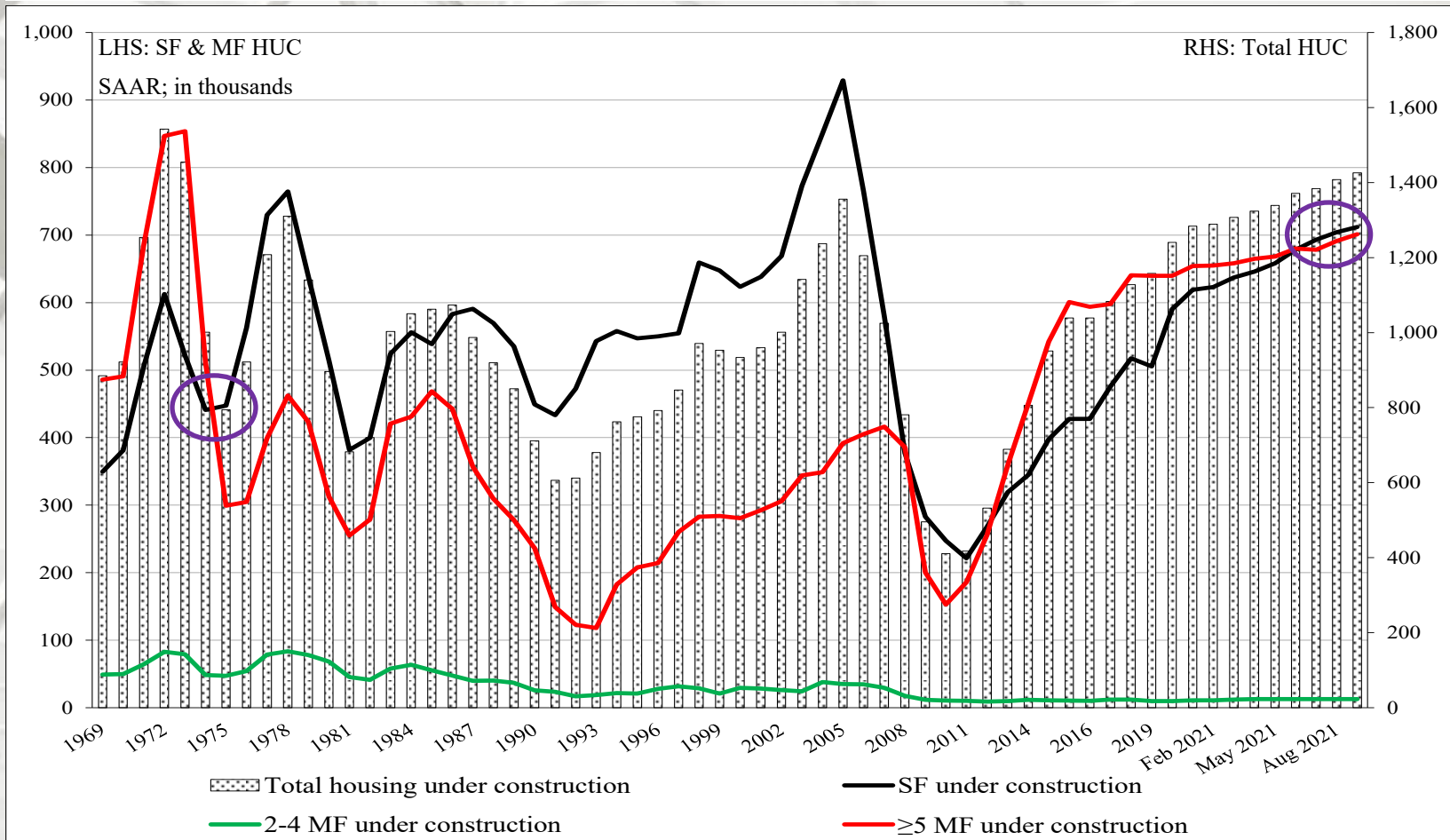


US DOC does not report 2 to 4 multi-family under construction directly, this is an estimation (Total under constructions – (SF + ≥ 5 MF HUC)).

* 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).

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)).

A Housing Construction Turnover – A Reversion to the Mean?

From 1975 to 2008, SF HUC exceeded ≥ 5-unit MF HUC. Recently, SF units under construction were greater than ≥ 5-unit MF under construction. Since this past January, the divergence between SF and ≥ 5-unit MF has been rapidly closing. The reasons for the difference are many, including builder margins, MF's recovery was faster, consumer affordability, etc. Hopefully, this is a budding trend, and it will continue.

New Housing Under Construction by Region

	NE Total	NE SF	NE MF**
September	196,000	60,000	136,000
August	199,000	60,000	139,000
2020	179,000	57,000	122,000
M/M change	-1.5%	0.0%	-2.2%
Y/Y change	9.5%	5.3%	11.5%
	MW Total	MW SF	MW MF
September	182,000	99,000	83,000
August	178,000	98,000	80,000
2020	160,000	80,000	80,000
M/M change	2.2%	1.0%	3.8%
Y/Y change	13.8%	23.8%	3.8%

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).

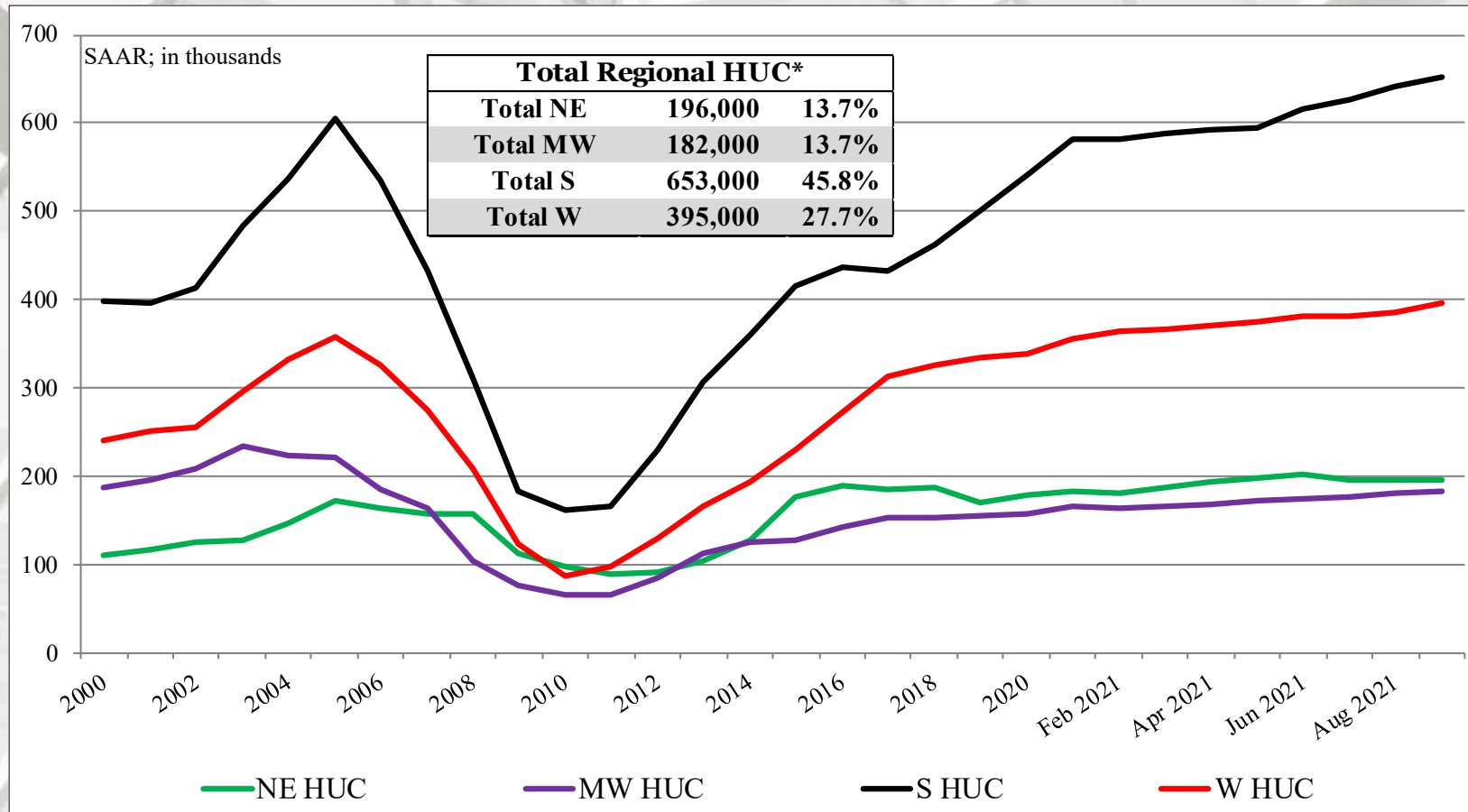
New Housing Under Construction by Region

	S Total	S SF	S MF**
September	653,000	368,000	285,000
August	643,000	364,000	279,000
2020	546,000	264,000	282,000
M/M change	1.6%	1.1%	2.2%
Y/Y change	19.6%	39.4%	1.1%
	W Total	W SF	W MF
September	395,000	185,000	210,000
August	388,000	180,000	208,000
2020	333,000	144,000	189,000
M/M change	1.8%	2.8%	1.0%
Y/Y change	18.6%	28.5%	11.1%

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).

Total Housing Under Construction by Region

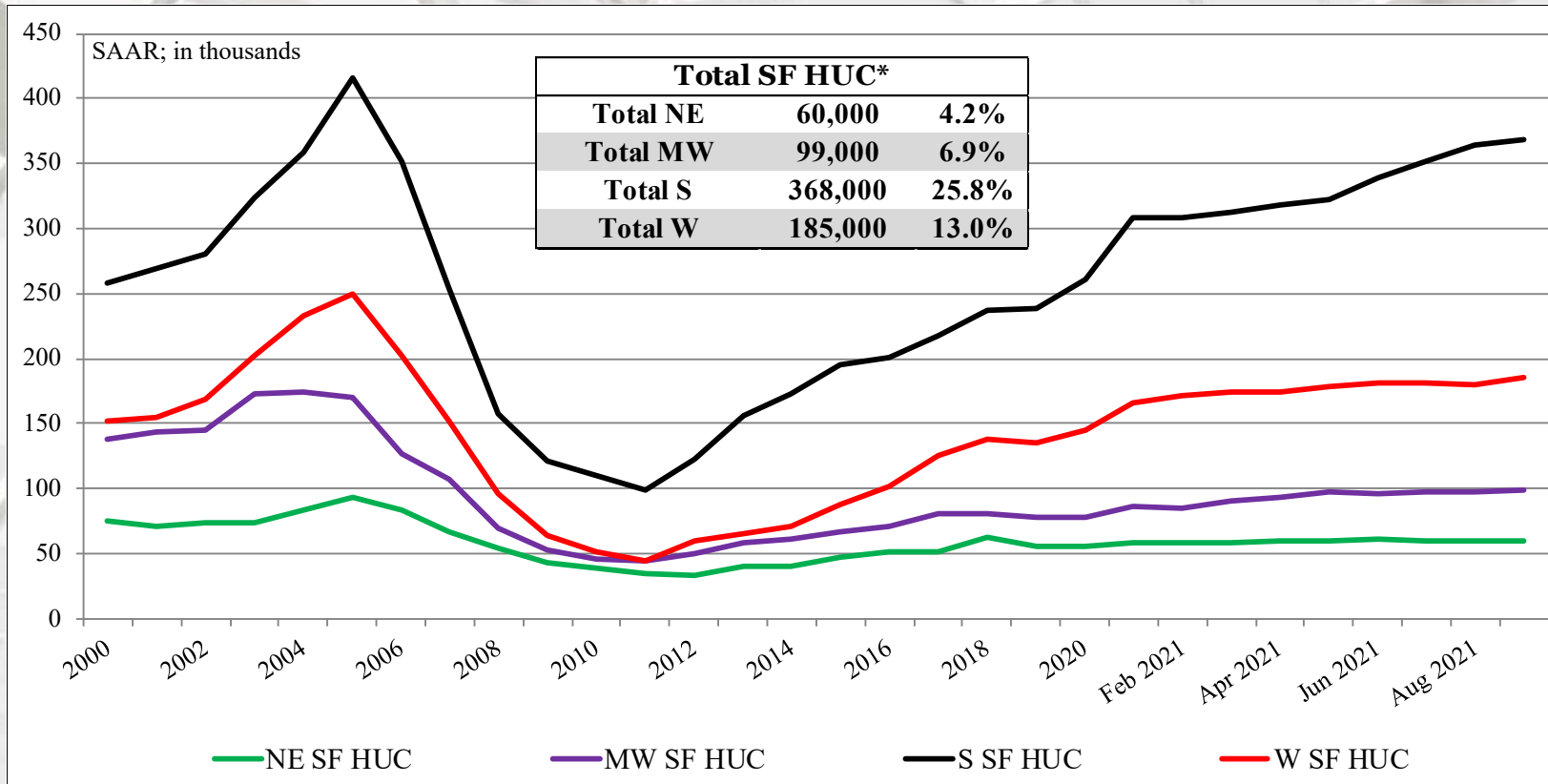


NE = Northeast, MW = Midwest, S = South, W = West

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.

SF Housing Under Construction by Region

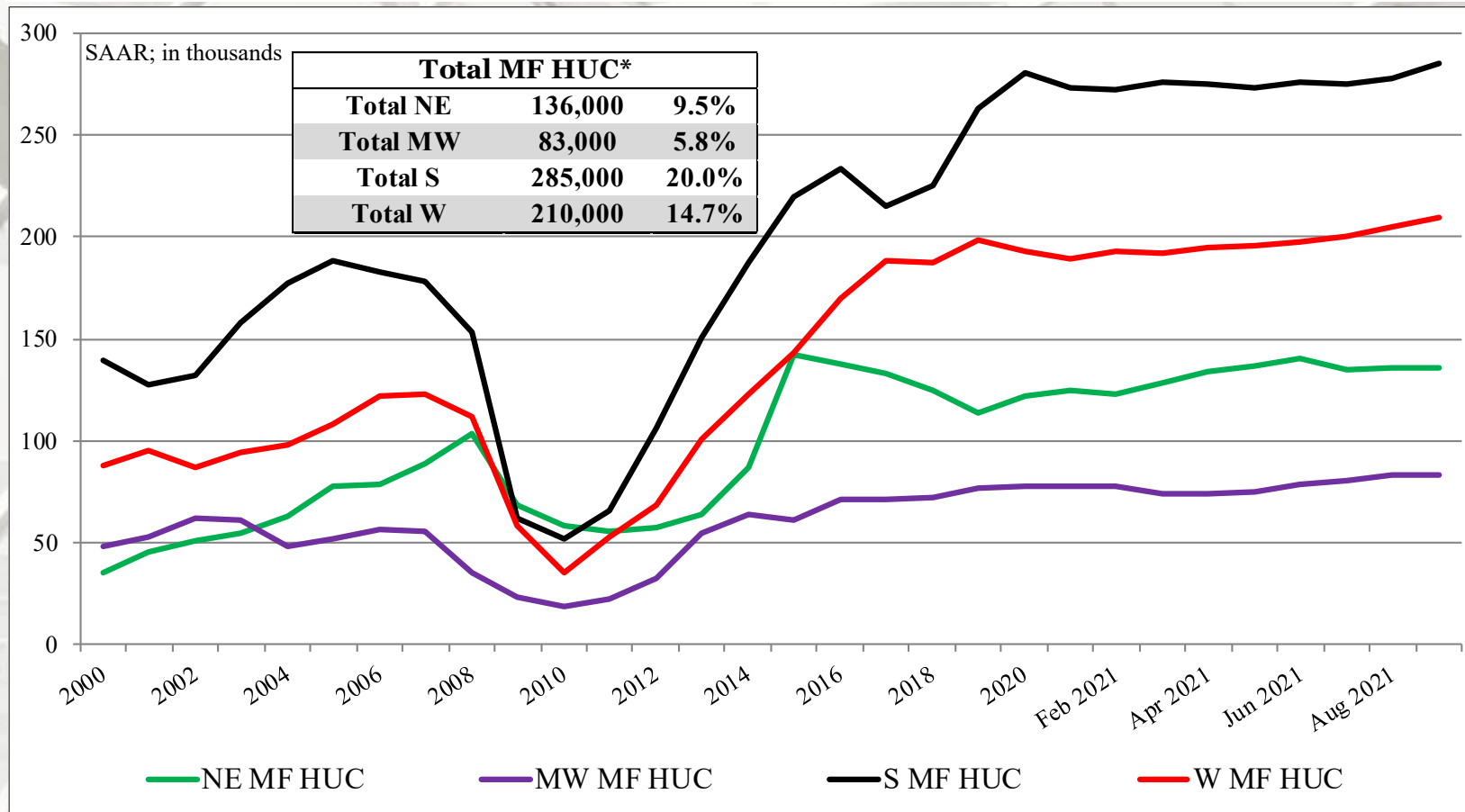


NE = Northeast, MW = Midwest, S = South, W = West.

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.

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.

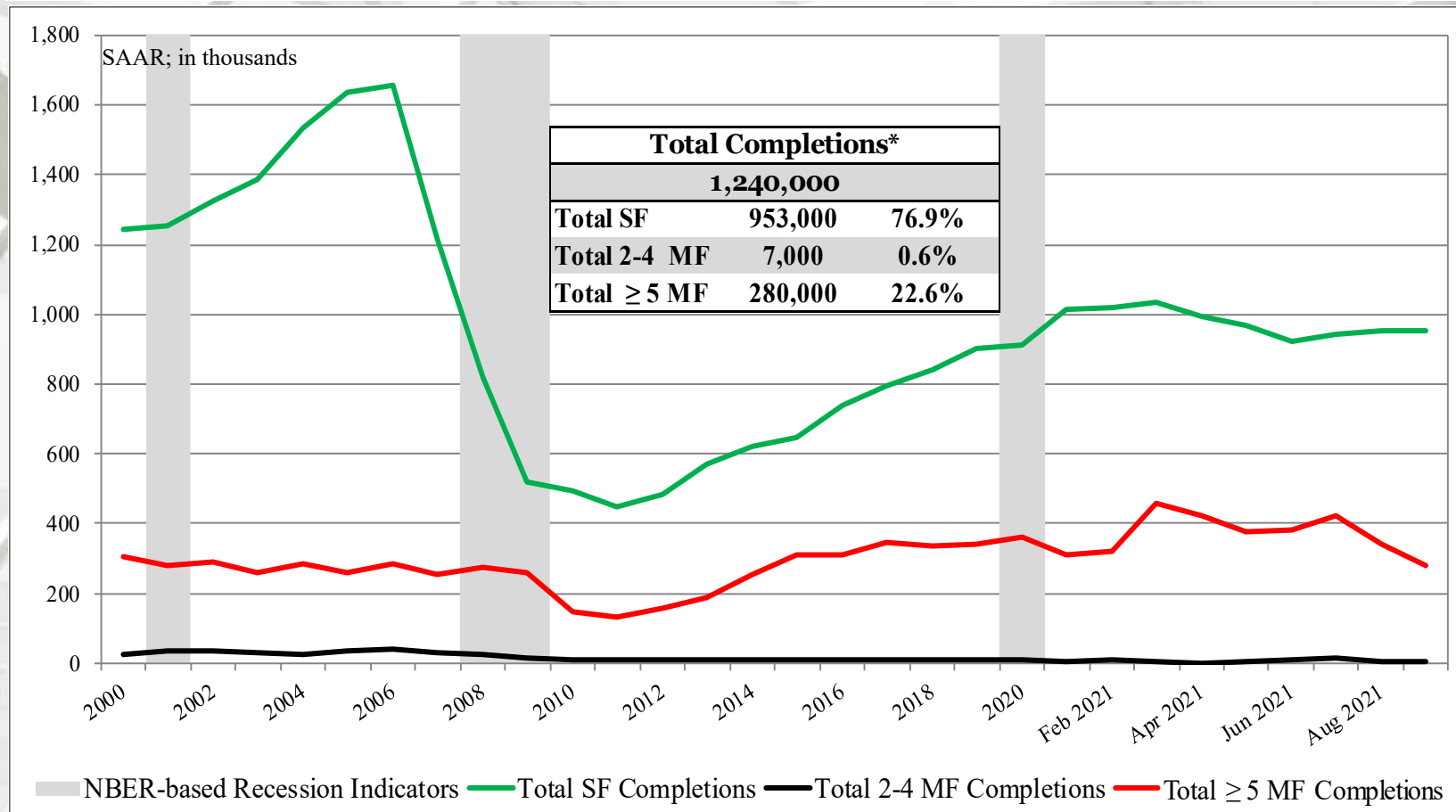
New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit**	MF ≥ 5 unit Completions
September	1,240,000	953,000	7,000	280,000
August	1,300,000	953,000	5,000	342,000
2020	1,426,000	933,000	12,000	481,000
M/M change	-4.6%	0.0%	40.0%	-18.1%
Y/Y change	-13.0%	2.1%	-41.7%	-41.8%

* 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)).

Total Housing Completions



** 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).

New Housing Completions by Region

	NE Total	NE SF	NE MF**
September	111,000	56,000	55,000
August	137,000	62,000	75,000
2020	102,000	47,000	55,000
M/M change	-19.0%	-9.7%	-26.7%
Y/Y change	8.8%	19.1%	0.0%
	MW Total	MW SF	MW MF
September	188,000	129,000	59,000
August	159,000	113,000	46,000
2020	207,000	125,000	82,000
M/M change	18.2%	14.2%	28.3%
Y/Y change	-9.2%	3.2%	-28.0%

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

New Housing Completions by Region

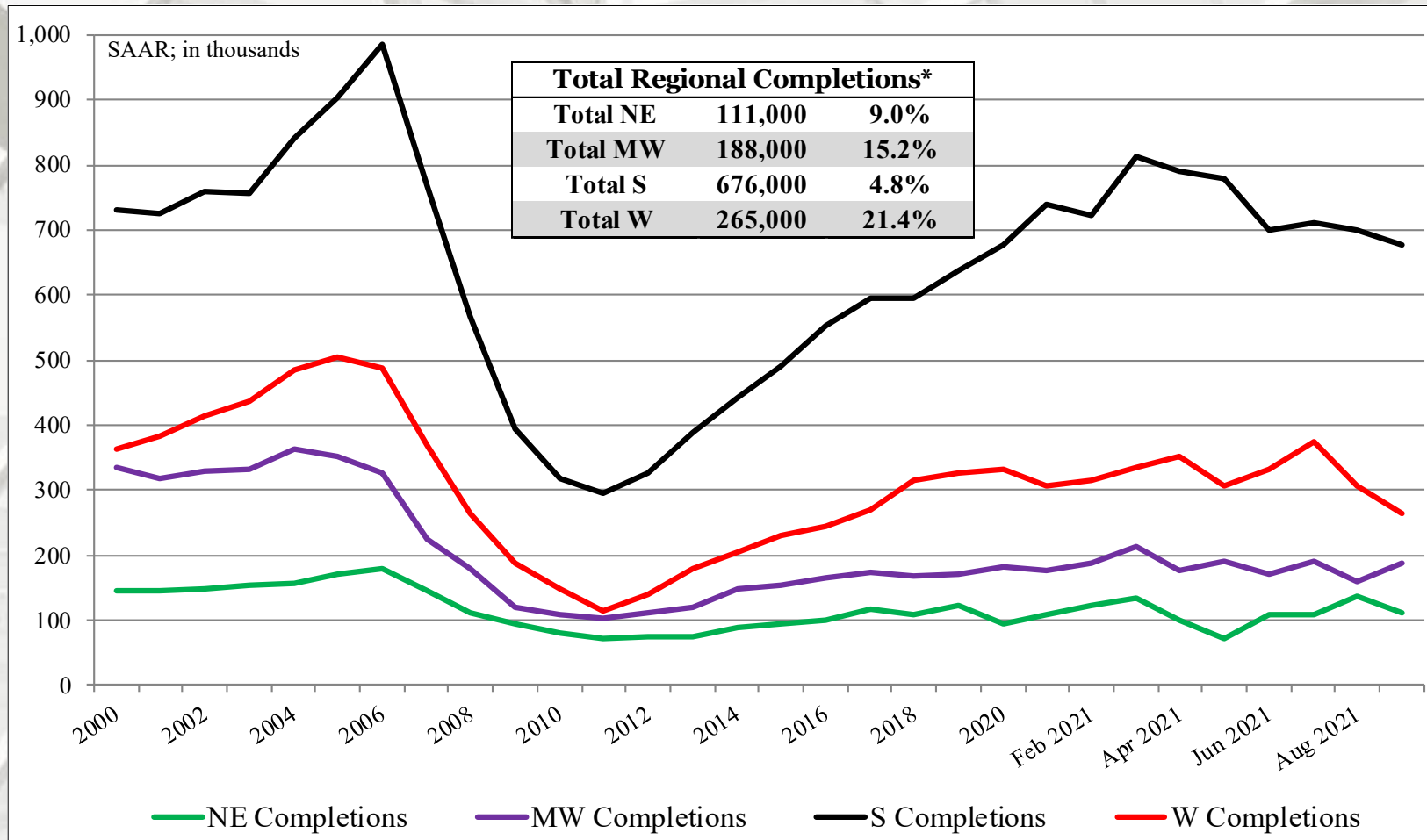
	S Total	S SF	S MF**
September	676,000	554,000	122,000
August	699,000	544,000	155,000
2020	752,000	514,000	238,000
M/M change	-3.3%	1.8%	-21.3%
Y/Y change	-10.1%	7.8%	-48.7%
	W Total	W SF	W MF
September	265,000	214,000	51,000
August	305,000	234,000	71,000
2020	365,000	247,000	118,000
M/M change	-13.1%	-8.5%	-28.2%
Y/Y change	-27.4%	-13.4%	-56.8%

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

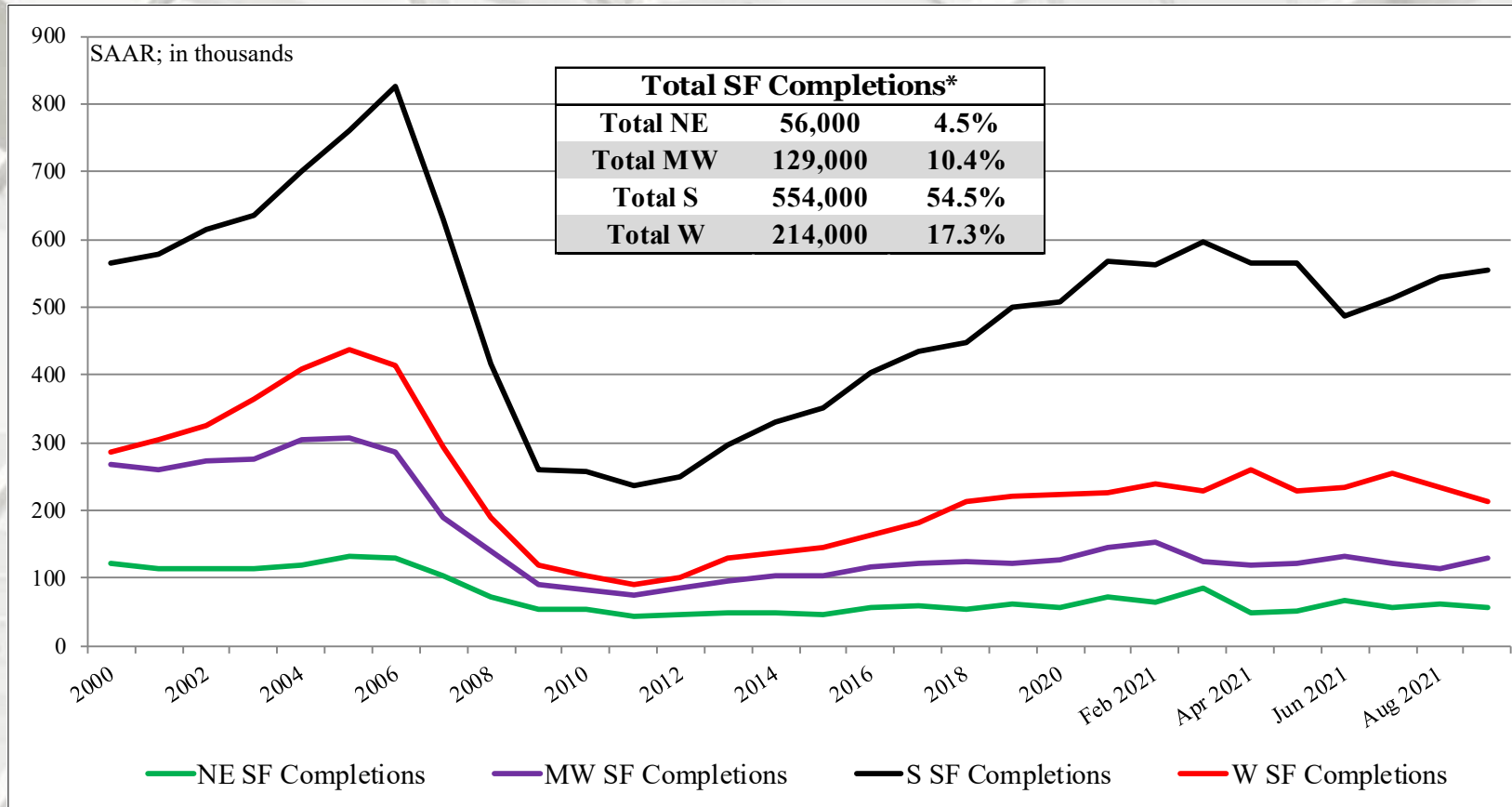
Total Housing Completions by Region



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).

SF Housing Completions by Region

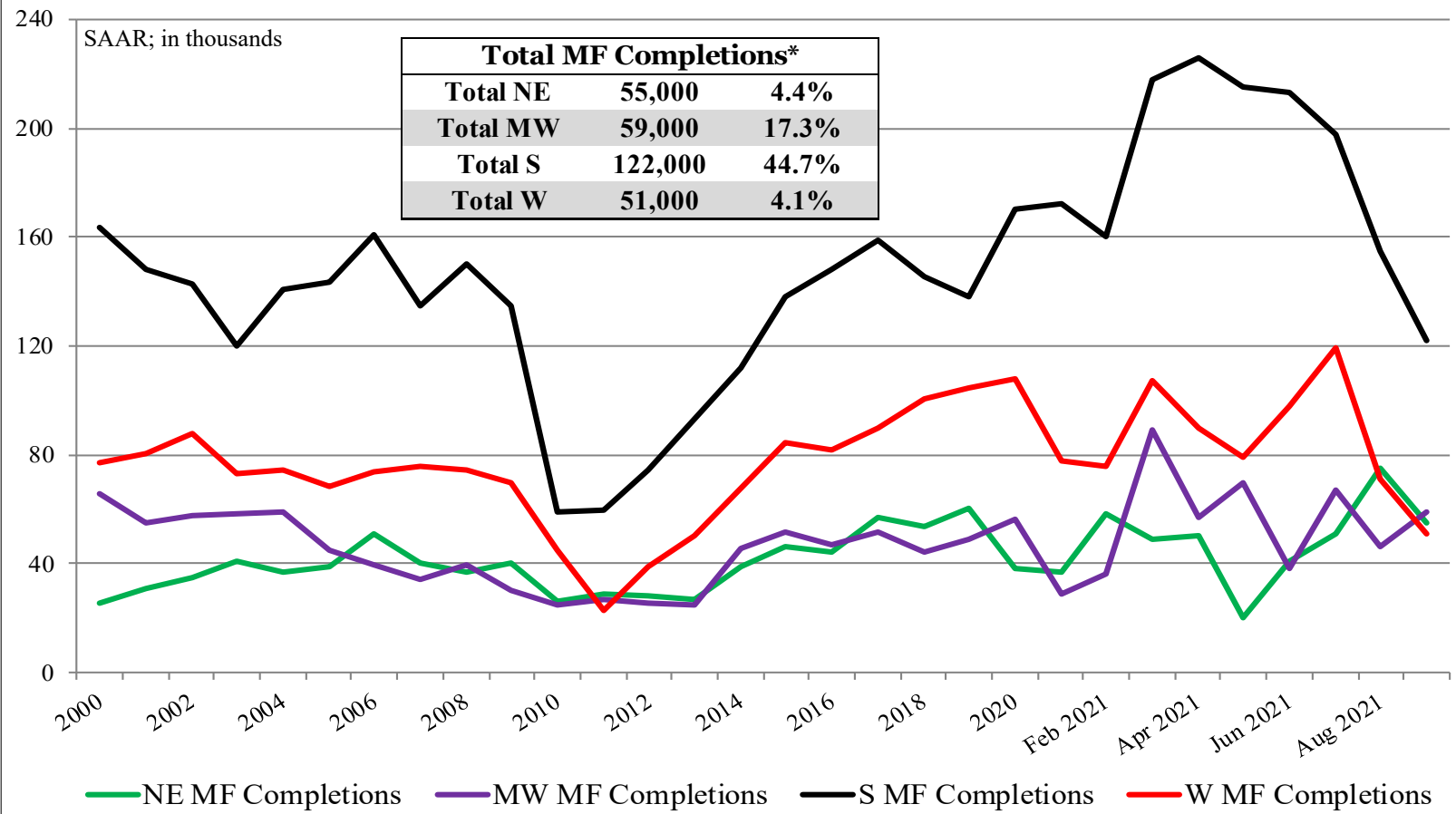


NE = Northeast, MW = Midwest, S = South, W = West

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

MF Housing Completions by Region

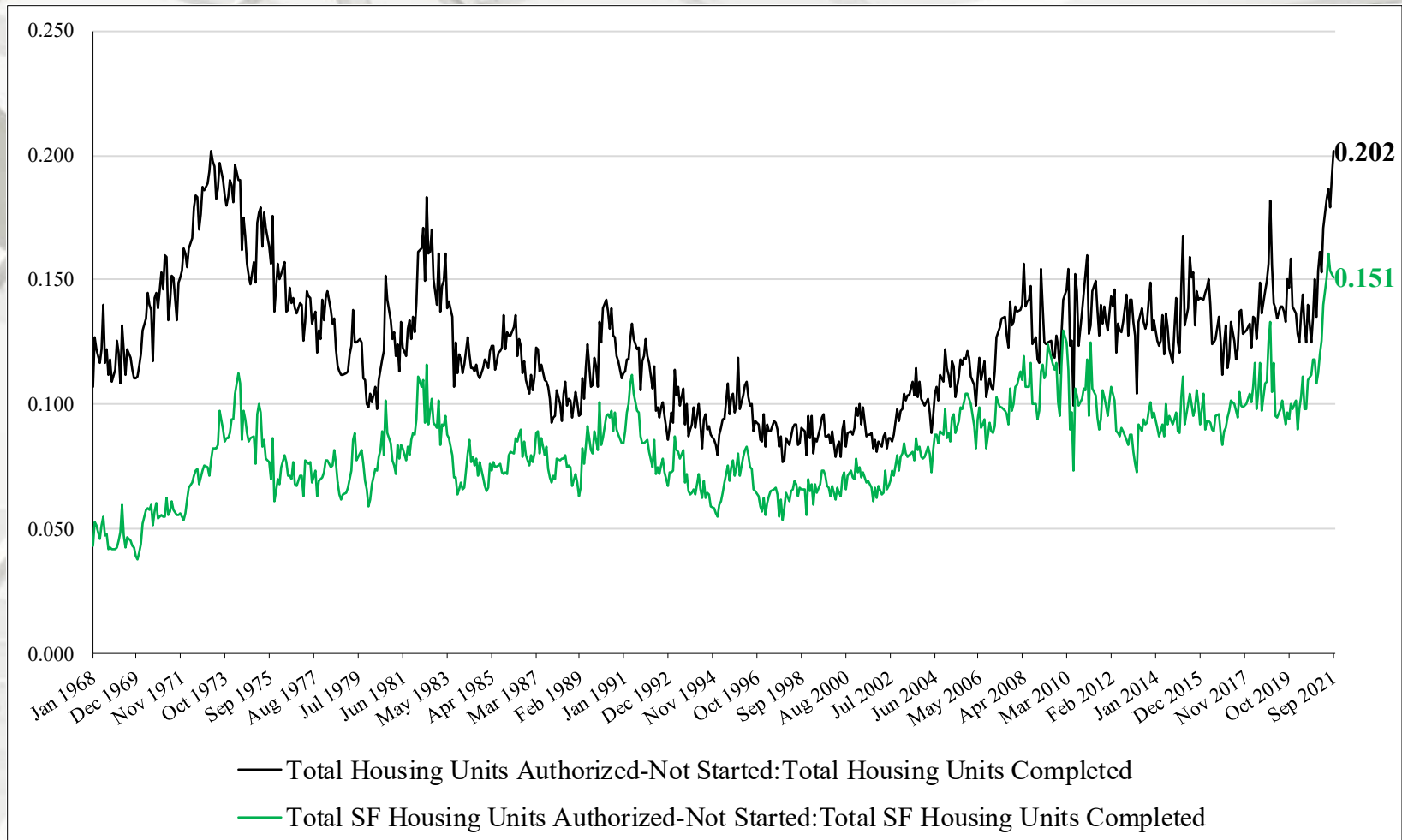


NE = Northeast, MW = Midwest, S = South, W = West

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

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



Authorized, Not Started to Housing Completions

The ratio of SF houses authorized-not started to SF completed is the greatest in the history of this data series. The total housing unit ratio is the greatest since February 1973 (0.202).

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

New Single-Family House Sales

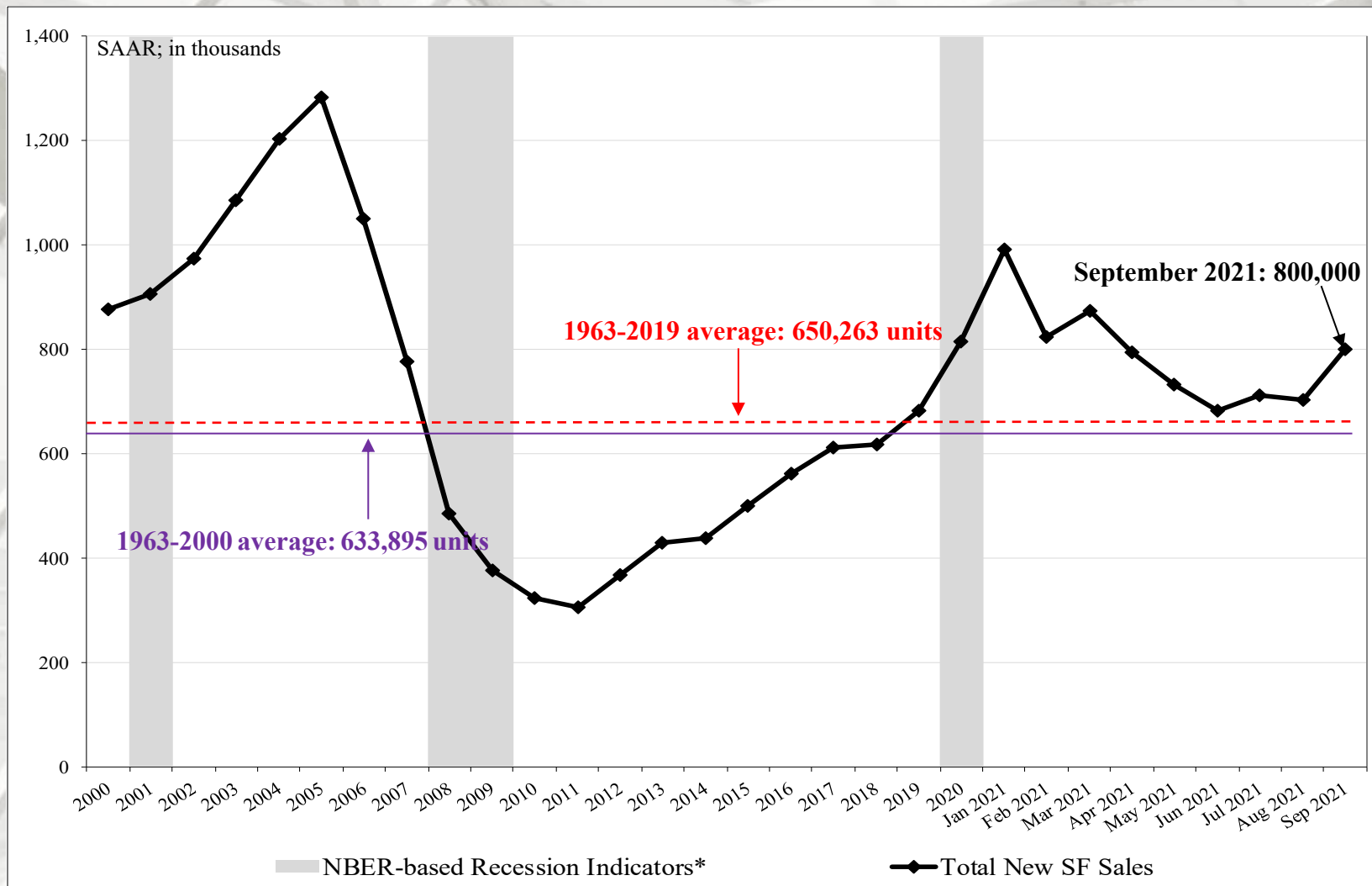
	New SF Sales*	Median Price	Mean Price	Month's Supply
September	800,000	\$408,800	\$451,700	5.7
August	702,000	\$401,500	\$446,900	6.5
2020	971,000	\$344,400	\$405,100	3.5
M/M change	14.0%	1.8%	1.1%	-12.3%
Y/Y change	-17.6%	18.7%	11.5%	62.9%

* All new sales data are presented at a seasonally adjusted annual rate (SAAR)¹ and housing prices are adjusted at irregular intervals².

New SF sales were substantially more than the consensus forecast³ of 760 m (range: 745 m to 780 m). The past three month's new SF sales data also were revised:

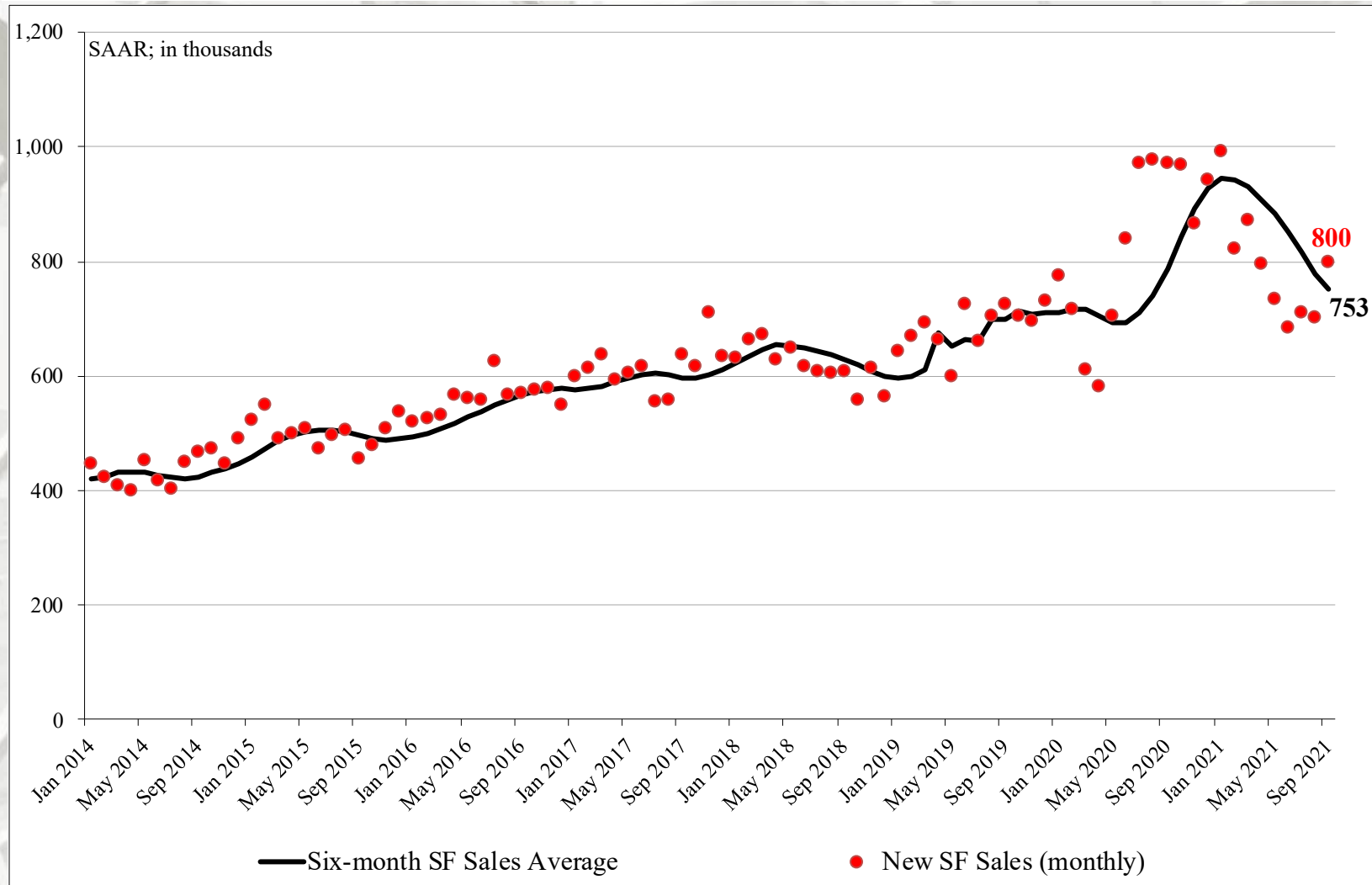
June initial:	676 m, revised to 683 m.
July initial:	708 m, revised to 712 m.
August initial:	740 m, revised to 702 m.

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 Housing Sales: Six-month average & monthly



New SF House Sales by Region and Price Category

	NE	MW	S	W			
September	31,000	65,000	424,000	182,000			
August	25,000	77,000	414,000	196,000			
2020	46,000	96,000	578,000	257,000			
M/M change	24.0%	-15.6%	2.4%	-7.1%			
Y/Y change	-32.6%	-32.3%	-26.6%	-29.2%			
	\$150 - ≤ \$150m	\$200 - \$199.9m 299.9m	\$300 - \$399.9m	\$400 - \$499.9m	\$500 - \$749.9m	≥ \$750m	
September ^{1,2,3,4}	1,000	1,000	12,000	16,000	15,000	15,000	6,000
August	1,000	1,000	14,000	12,000	13,000	12,000	5,000
2020	1,000	4,000	22,000	24,000	11,000	10,000	5,000
M/M change	0.0%	0.0%	-14.3%	33.3%	15.4%	25.0%	20.0%
Y/Y change	0.0%	-75.0%	-45.5%	-33.3%	36.4%	50.0%	20.0%
New SF sales: %	1.5%	1.5%	18.5%	24.6%	23.1%	23.1%	9.2%

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 September not add to total because of rounding.

⁴ Housing prices are adjusted at irregular intervals.

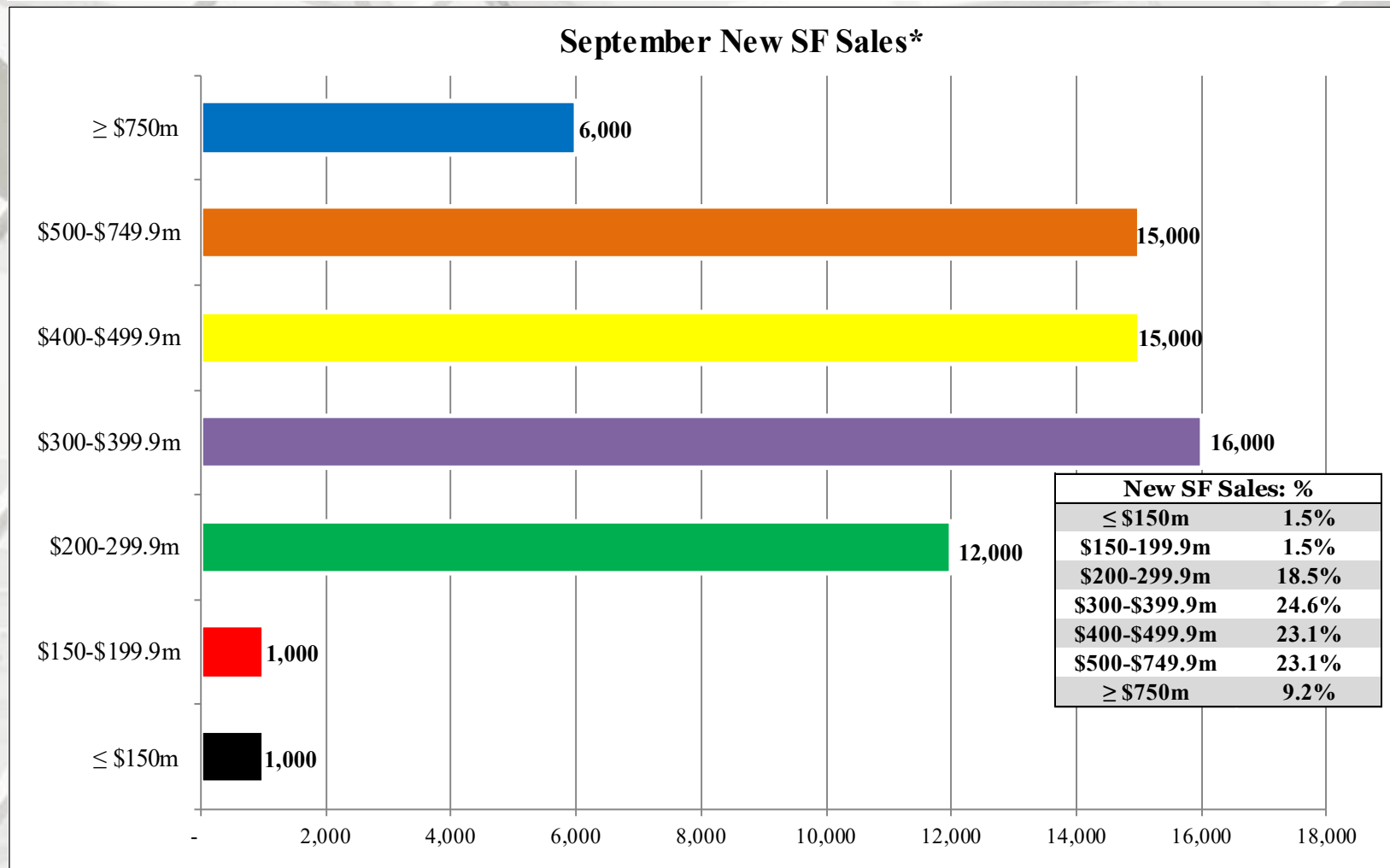
⁵ Z = Less than 500 units or less than 0.5 percent

Sources: ^{1,2,3} <https://www.census.gov/construction/nrs/index.html>; 10/26/21;

⁴ https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf

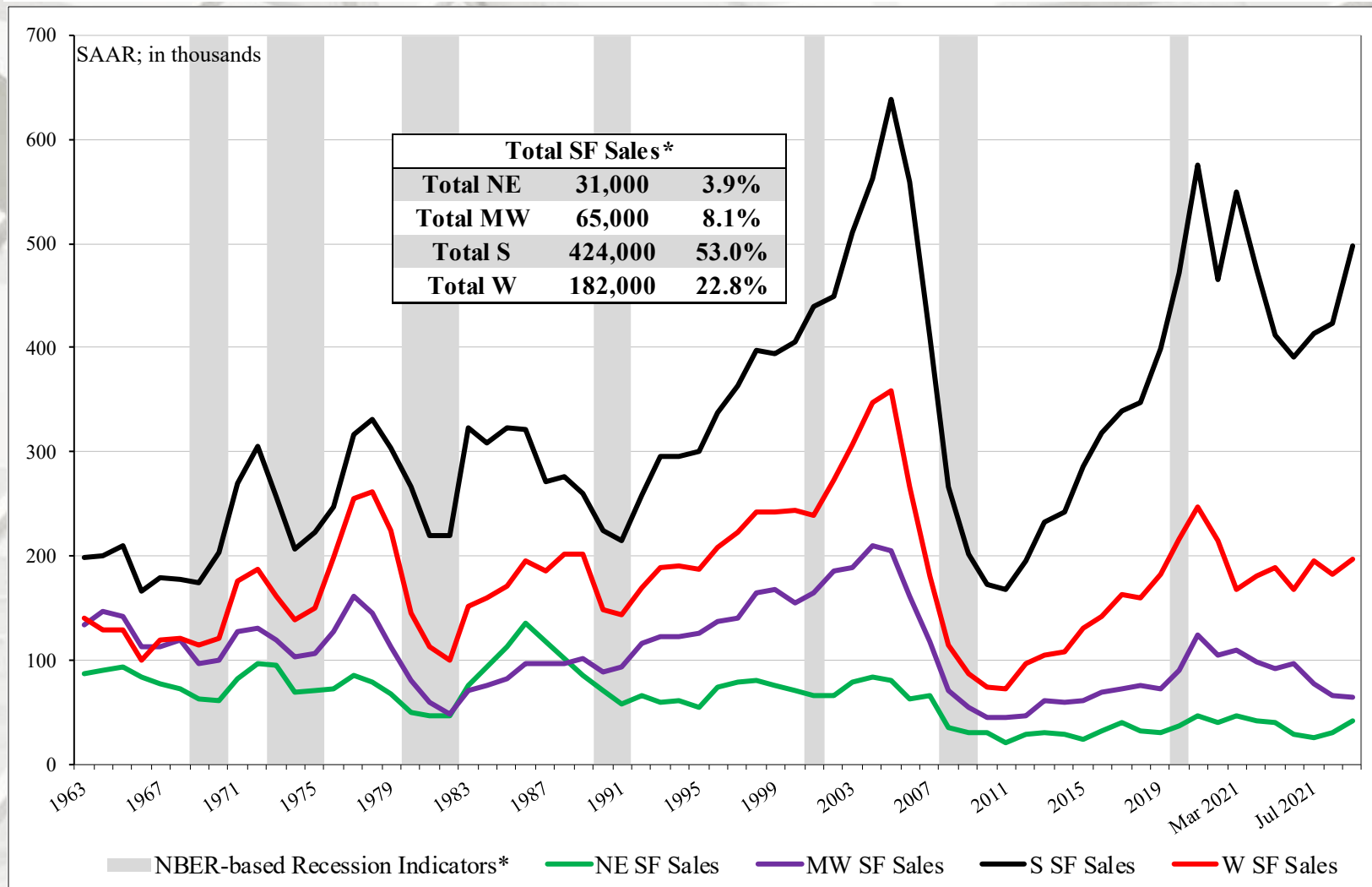
Return TOC

New SF House Sales



* Total new sales by price category and percent.

New SF House Sales by Region

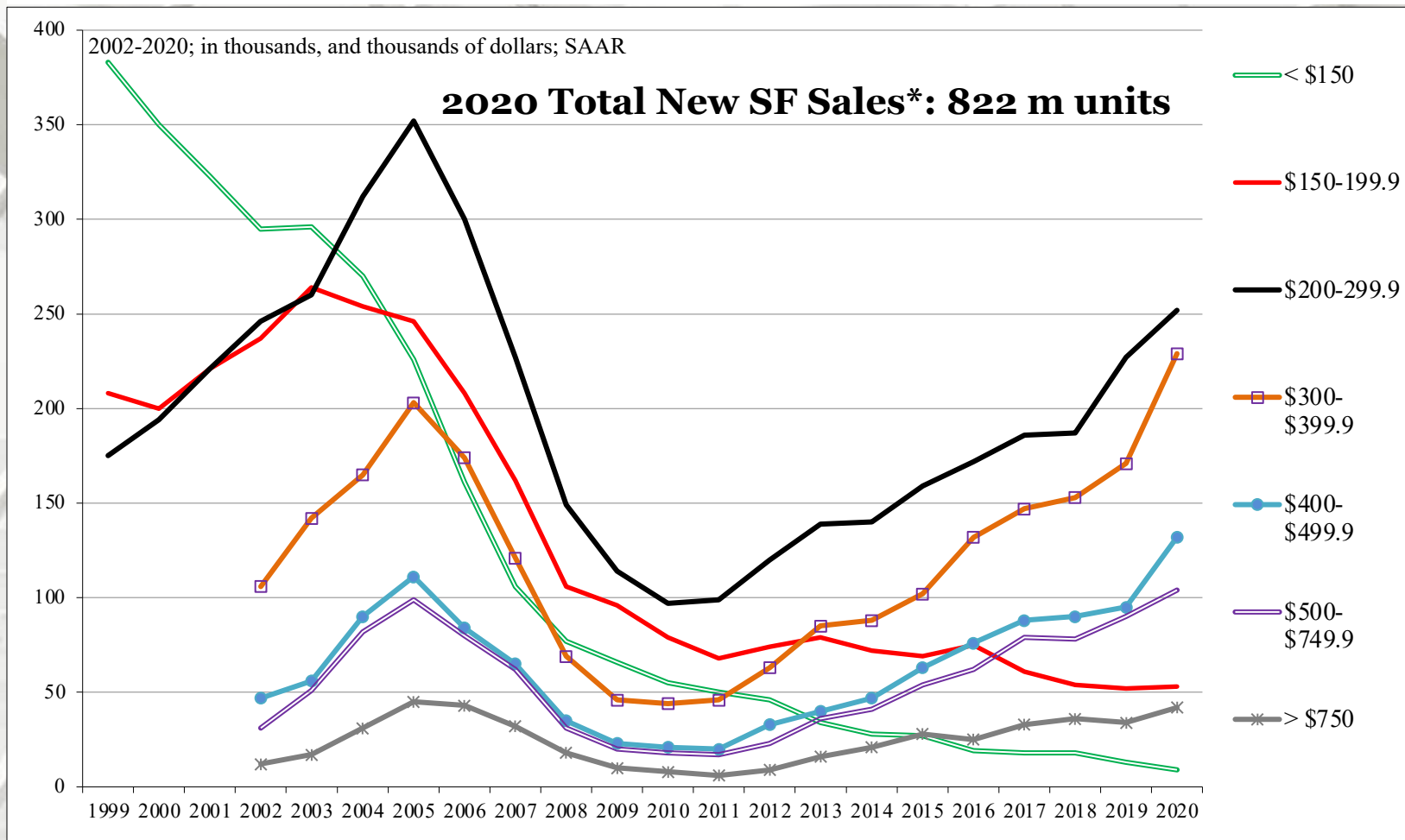


NE = Northeast; MW = Midwest; S = South; W = West

* Percentage of total new sales.

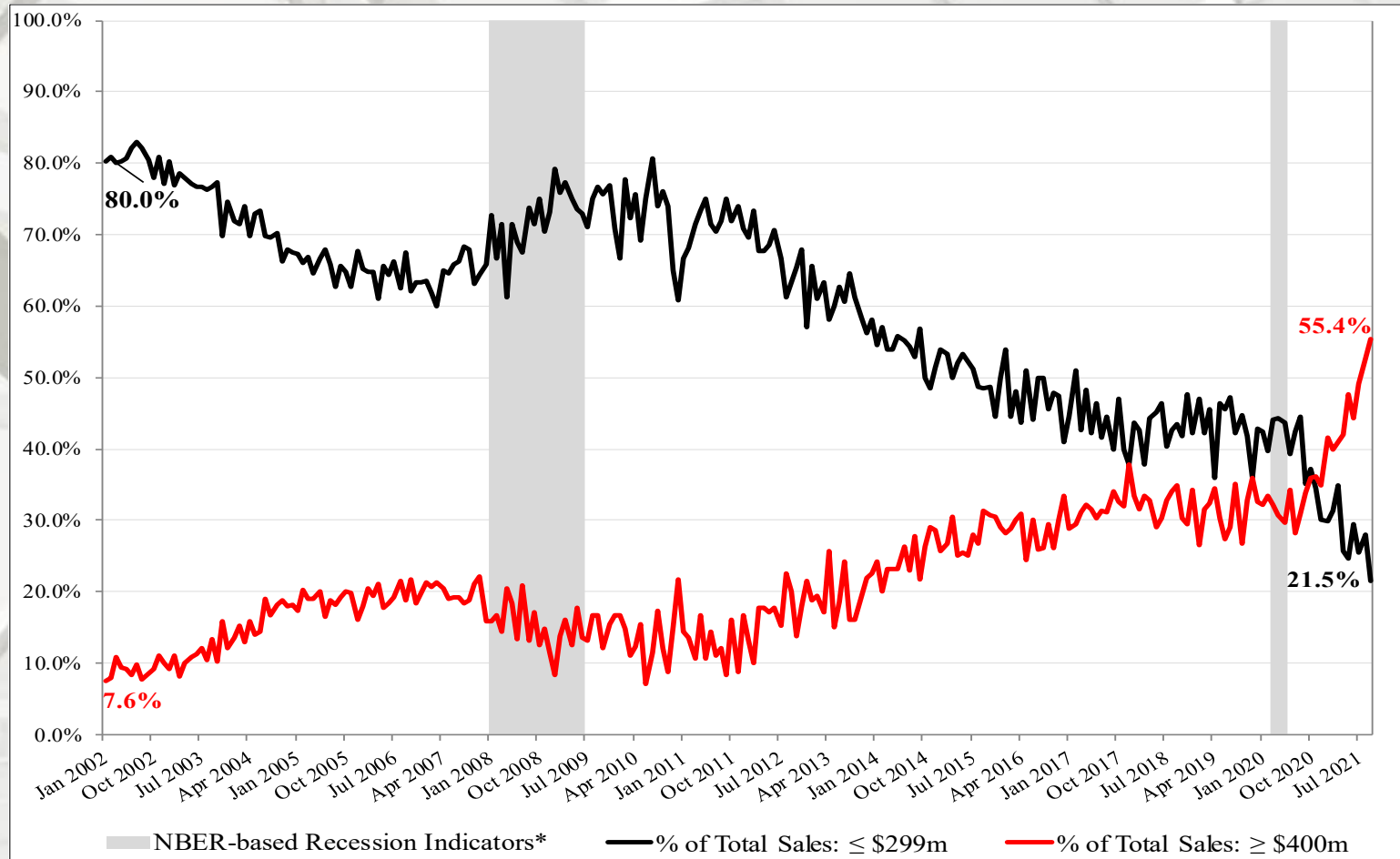
* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

New SF House Sales by Price Category



* Sales tallied by price category, nominal dollars.

New SF House Sales

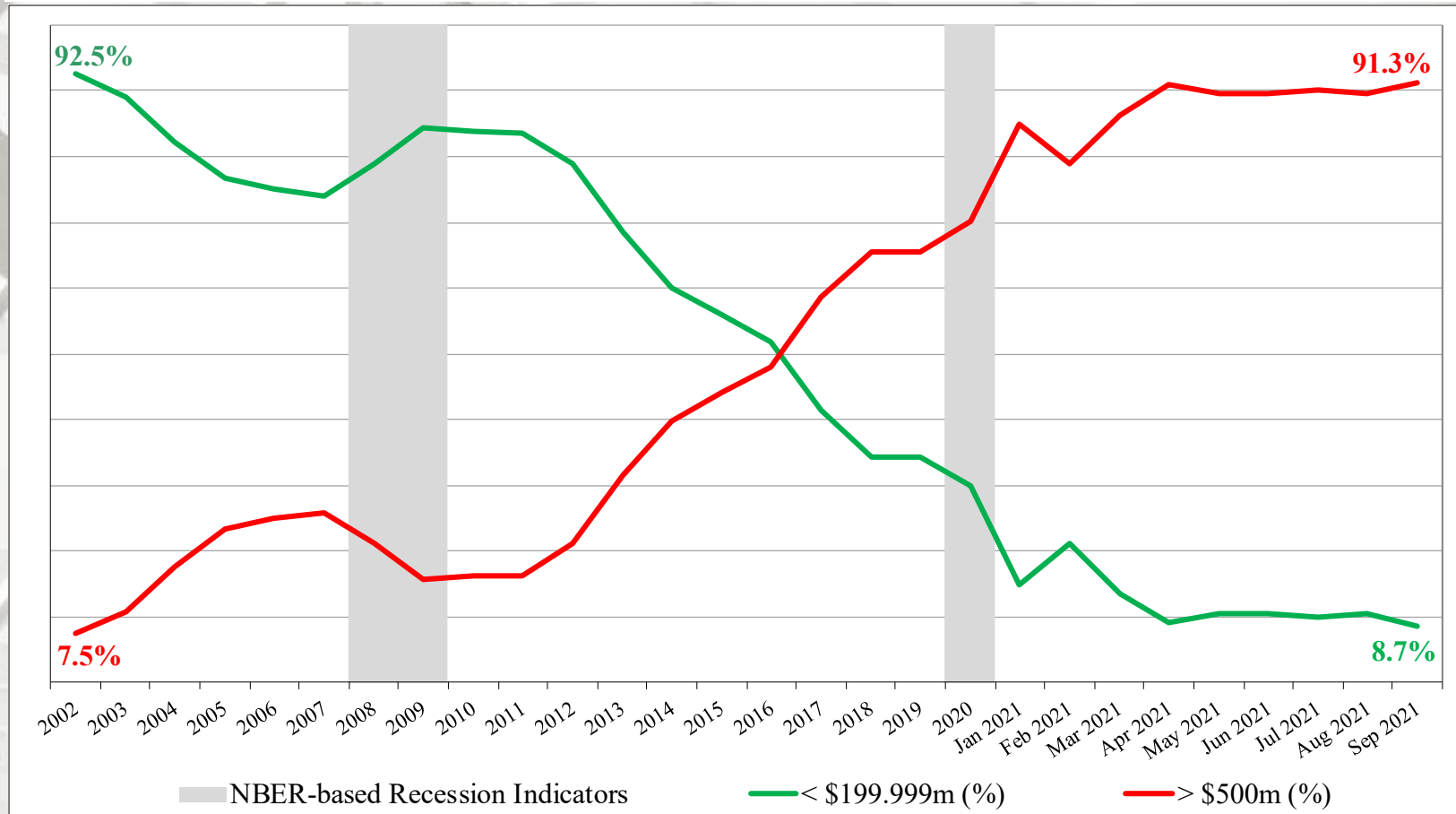


* NBER based Recession Indicator Bars for the United States from the Period following the Peak through the Trough (FRED, St. Louis).

New SF Sales: ≤ \$299m and ≥ \$400m: 2002 – September 2021

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.

New SF House Sales



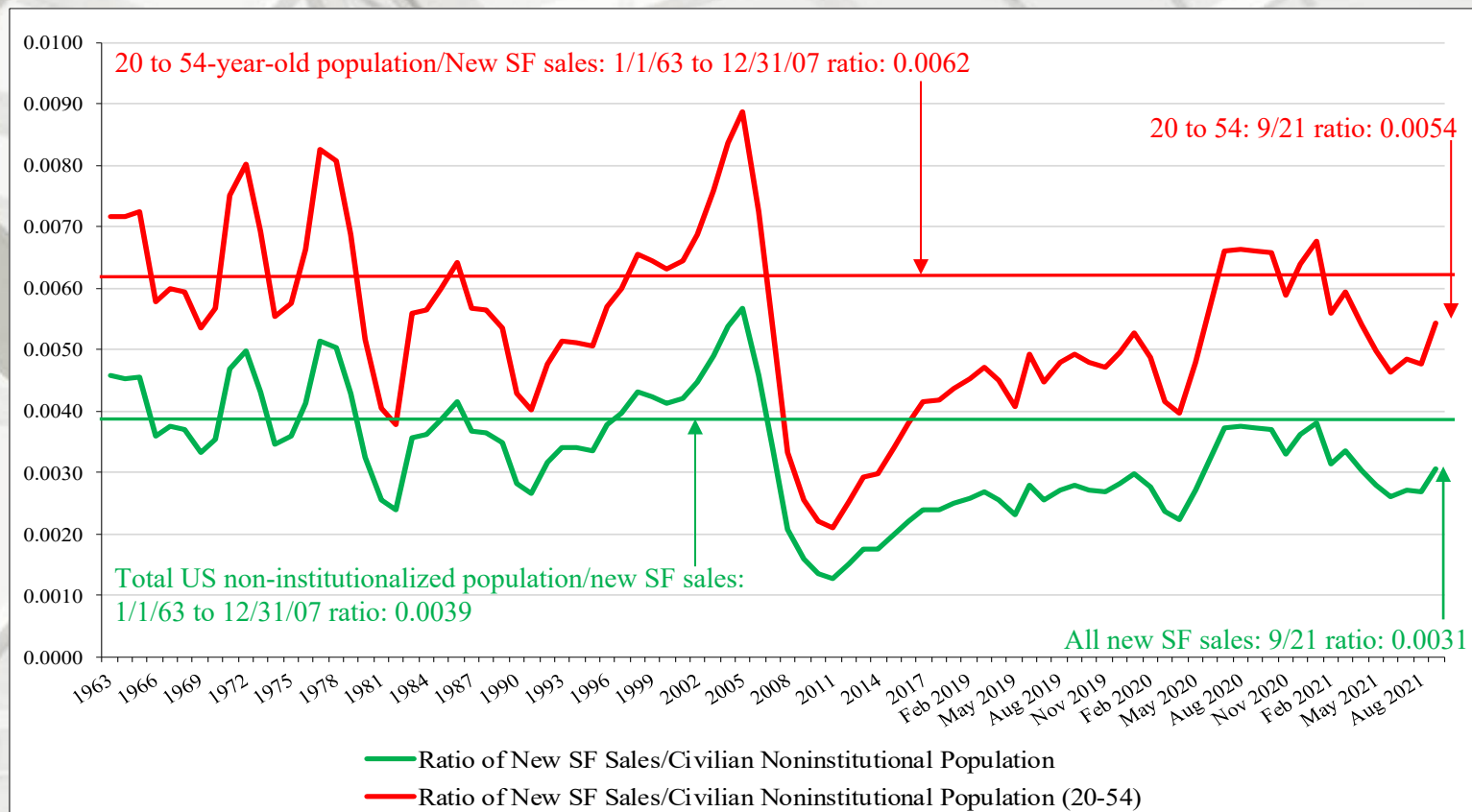
New SF Sales: ≤ \$ 200m and ≥ \$500m: 2002 to September 2021

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 ≤ \$200m class. One of the most oft mentioned reasons for this occurrence is builder net margins.

Note: Sales values are not adjusted for inflation.

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

New SF House Sales

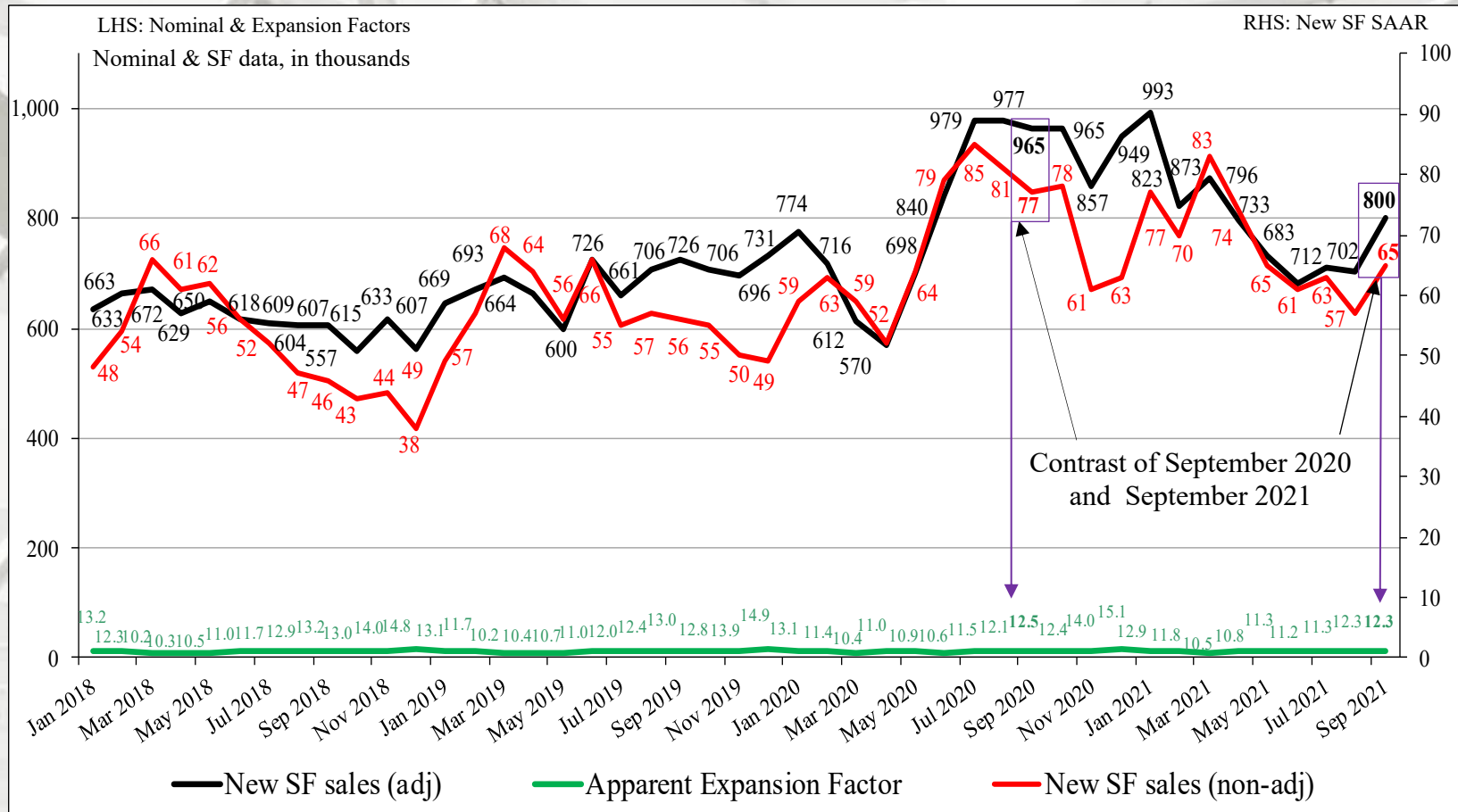


New SF sales adjusted for the US population

From January 1963 to July 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in September 2021 it was 0.0031 – an increase from August (0.0027). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0048; in September 2021 it was 0.0054 – also an improvement from August (0.0048). All are non-adjusted data. New house sales for the 20 to 54 class exceeded population growth for the second time in more than a decade. From a total 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.

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

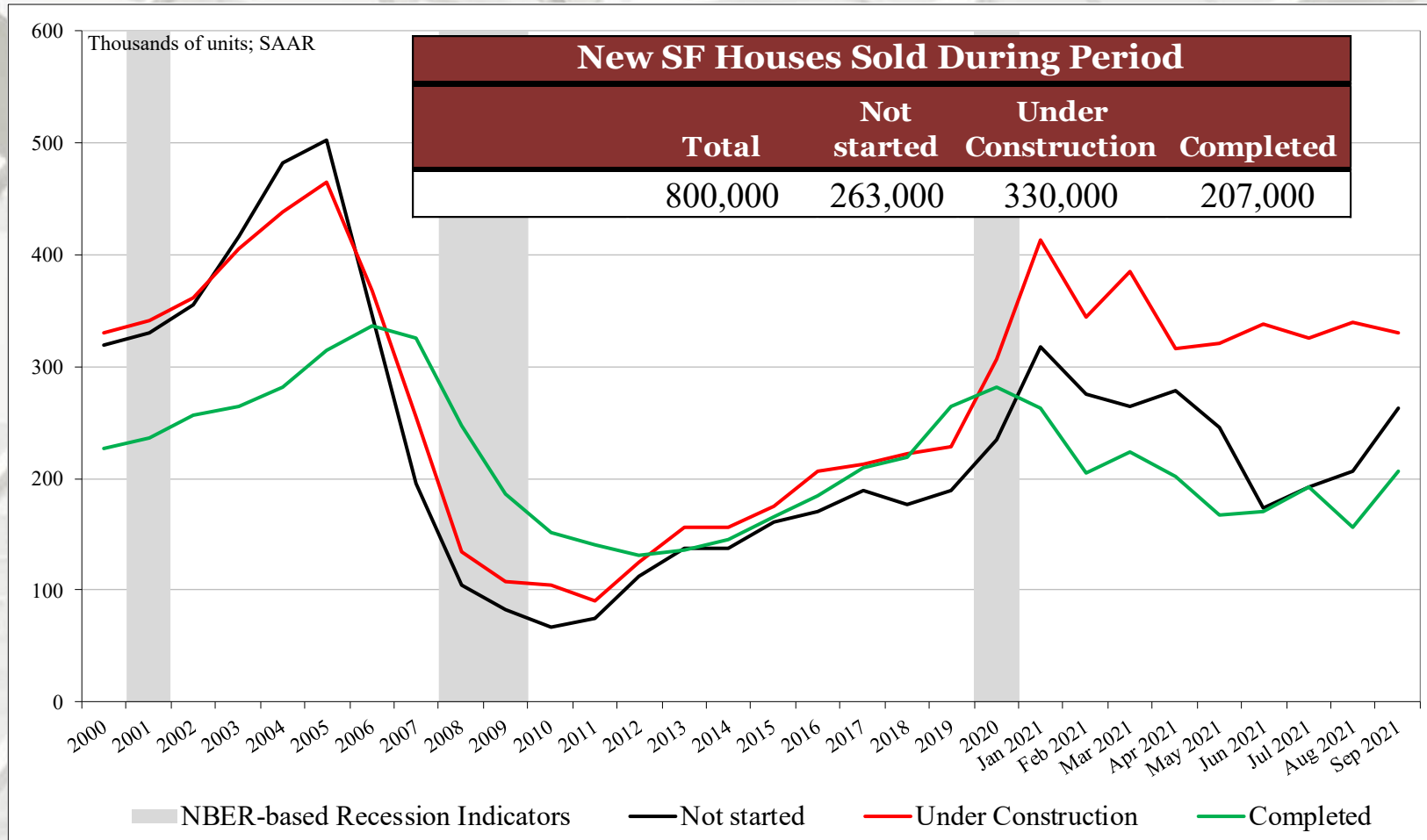
New SF House Sales

New SF Houses Sold During Period

	Total	Not started	Under Construction	Completed
September	800,000	263,000	330,000	207,000
August	702,000	207,000	339,000	156,000
2020	971,000	308,000	340,000	323,000
M/M change	14.0%	27.1%	-2.7%	32.7%
Y/Y change	-17.6%	-14.6%	-2.9%	-35.9%
Total percentage		32.9%	41.3%	25.9%

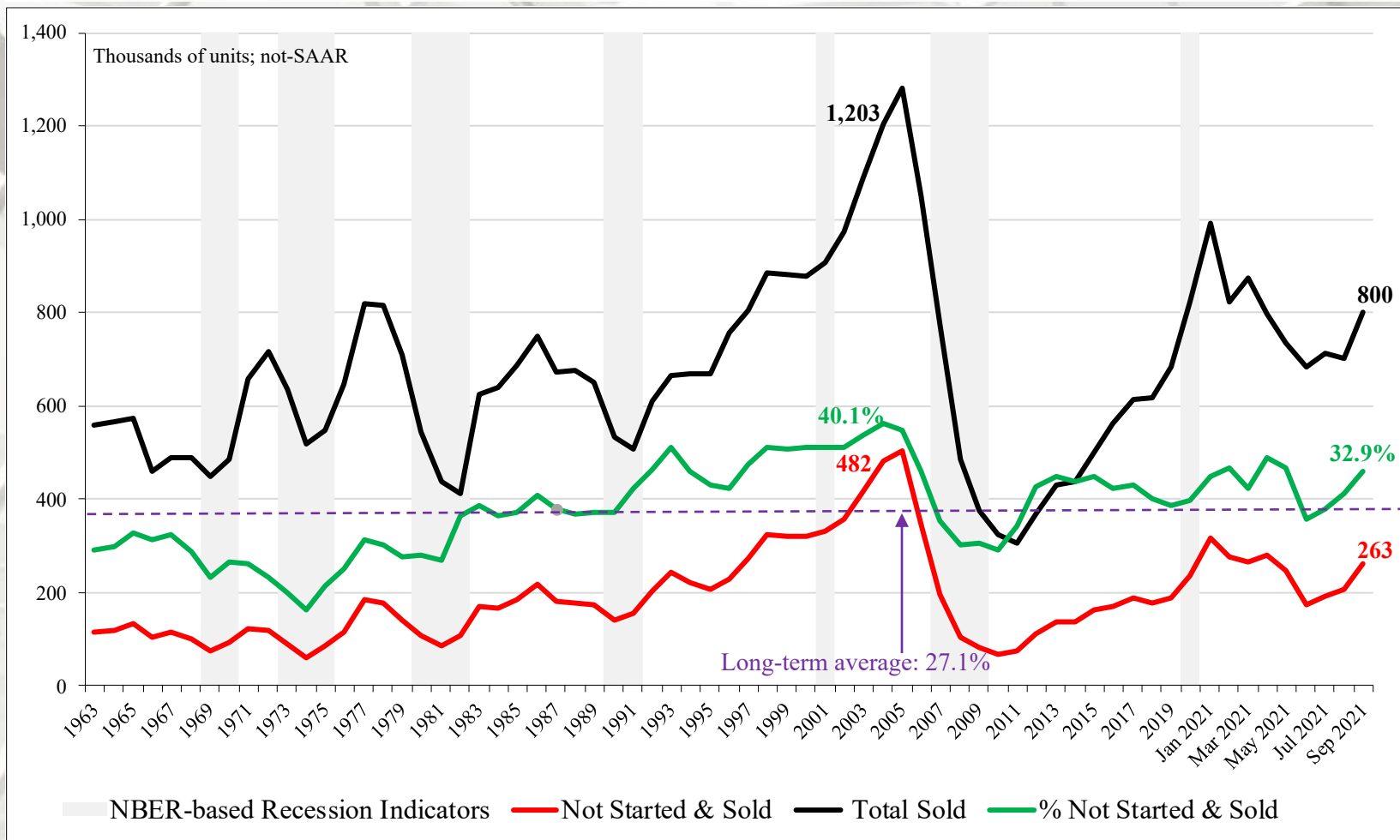
SAAR

New SF House Sales: Sold During Period



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

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



Of the new houses sold in September (800 m), 32.9% (263 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).

New SF Houses for Sale at End of Period

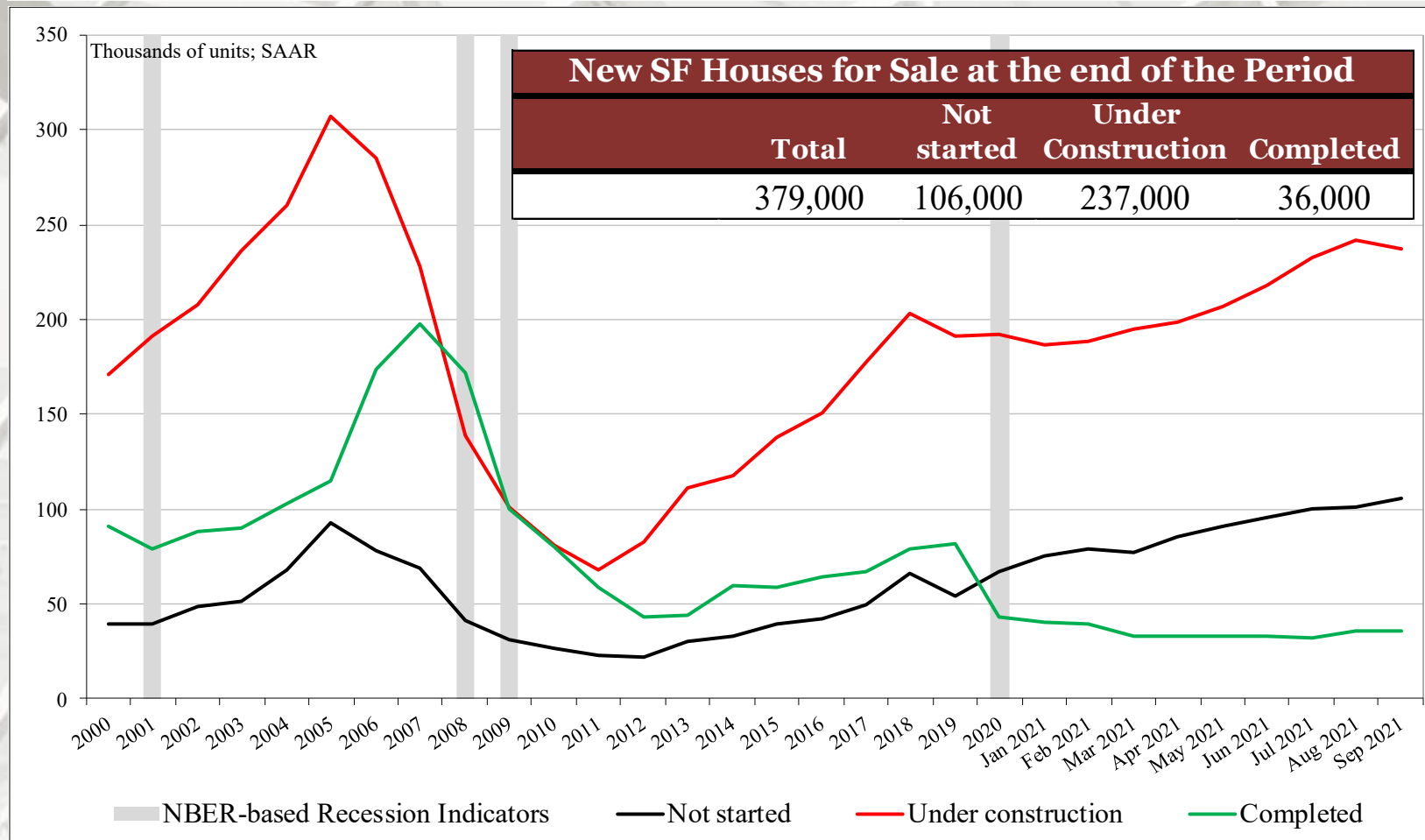
New SF Houses for Sale at the end of the Period

	Total	Not started	Under Construction	Completed
September	379,000	106,000	237,000	36,000
August	379,000	101,000	242,000	36,000
2020	286,000	62,000	177,000	47,000
M/M change	0.0%	5.0%	-2.1%	0.0%
Y/Y change	32.5%	71.0%	33.9%	-23.4%
Total percentage		28.0%	62.5%	9.5%

Not SAAR

Of houses listed for sale (379m) in September, 9.5% (36m) have been built. In the 'ground had not been broken for construction' or 'not started' category, 106m (27.9%) were sold; the greatest number since April of 2006 (100m).

New SF House Sales: For Sale at End of Period



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

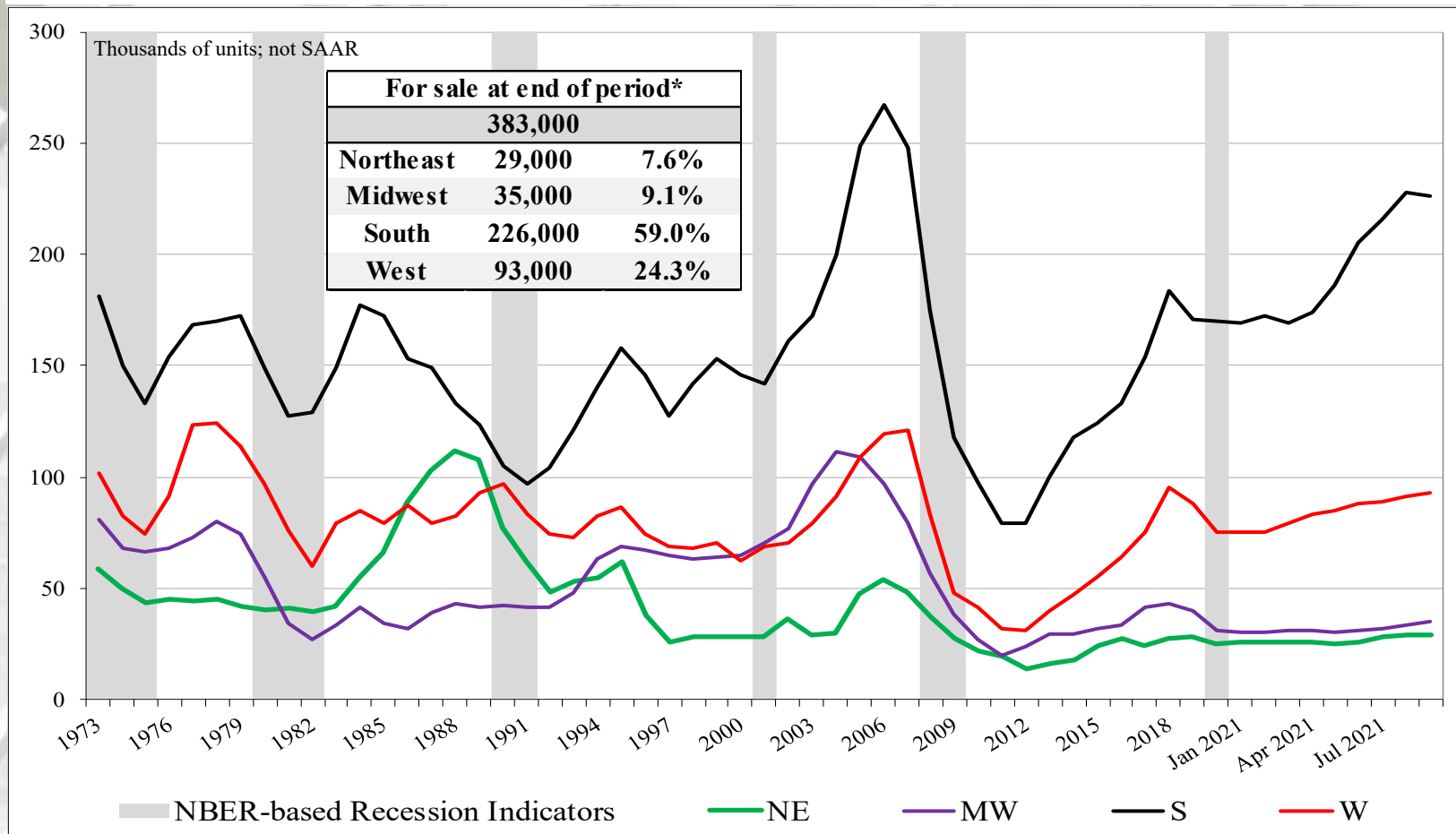
New SF House Sales

New SF Houses for Sale at the end of the Period by Region*

	Total	NE	MW	S	W
September	383,000	29,000	35,000	226,000	93,000
August	382,000	29,000	33,000	228,000	91,000
2020	286,000	22,000	31,000	161,000	72,000
M/M change	0.3%	0.0%	6.1%	-0.9%	2.2%
Y/Y change	33.9%	31.8%	12.9%	40.4%	29.2%

* Not SAAR

New SF Houses for Sale at End of Period by Region

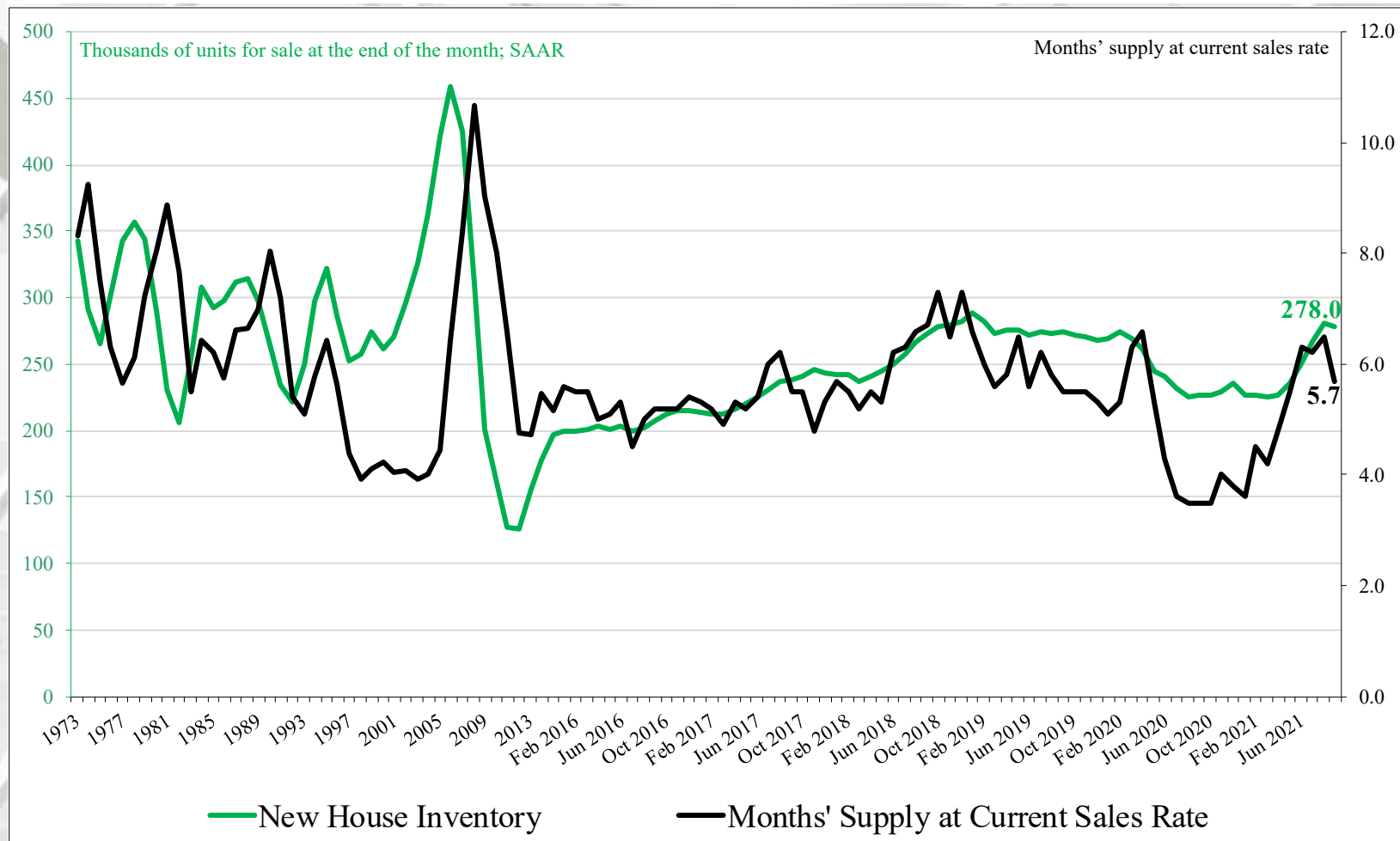


NE = Northeast; MW = Midwest; S = South; W = West

* 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).

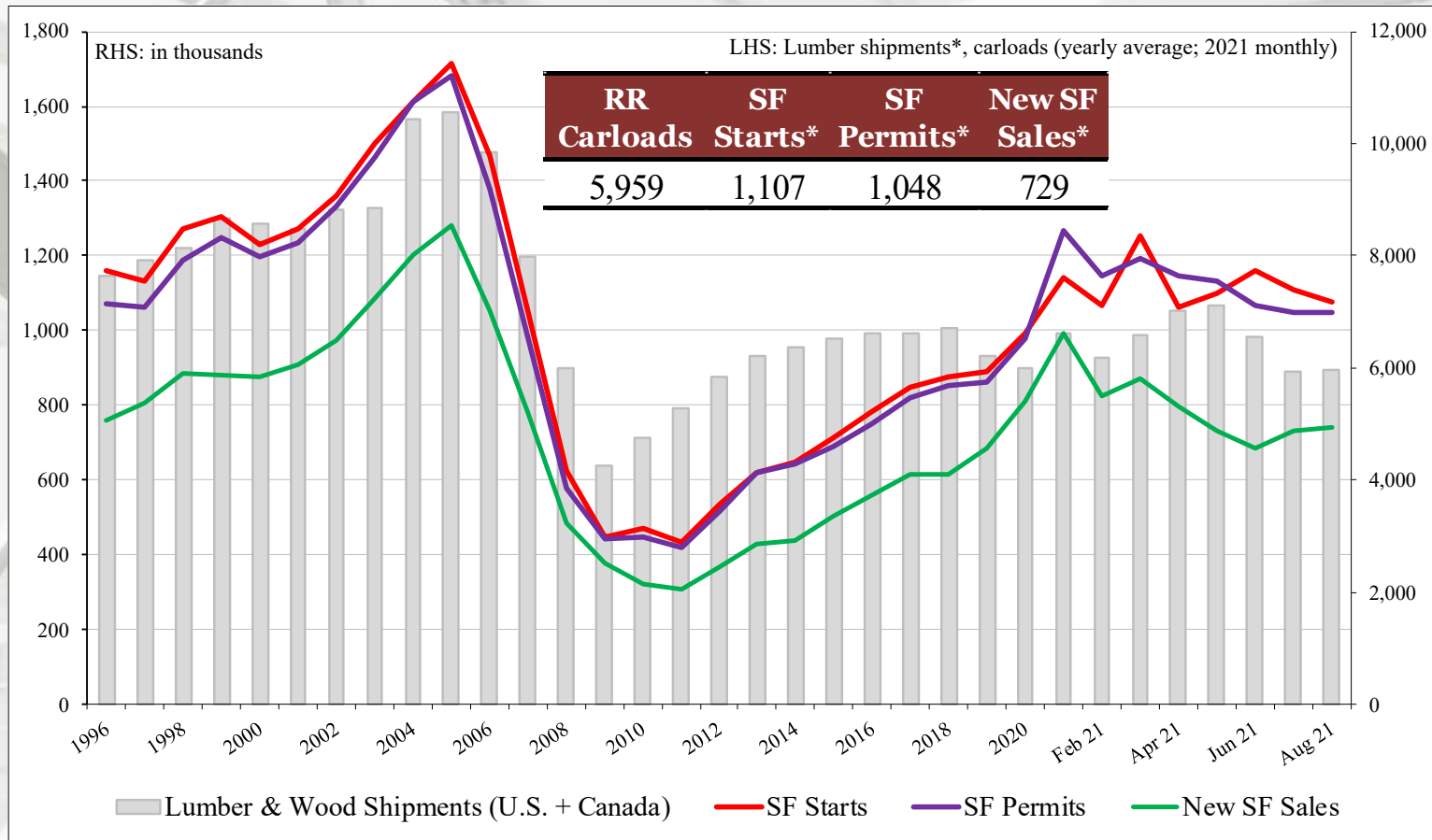
Months' Supply and New House Inventory^a



^a New HUC + New House Completions (sales data only)

The months supply of new houses for sale was 5.7 at the end of September (SAAR).

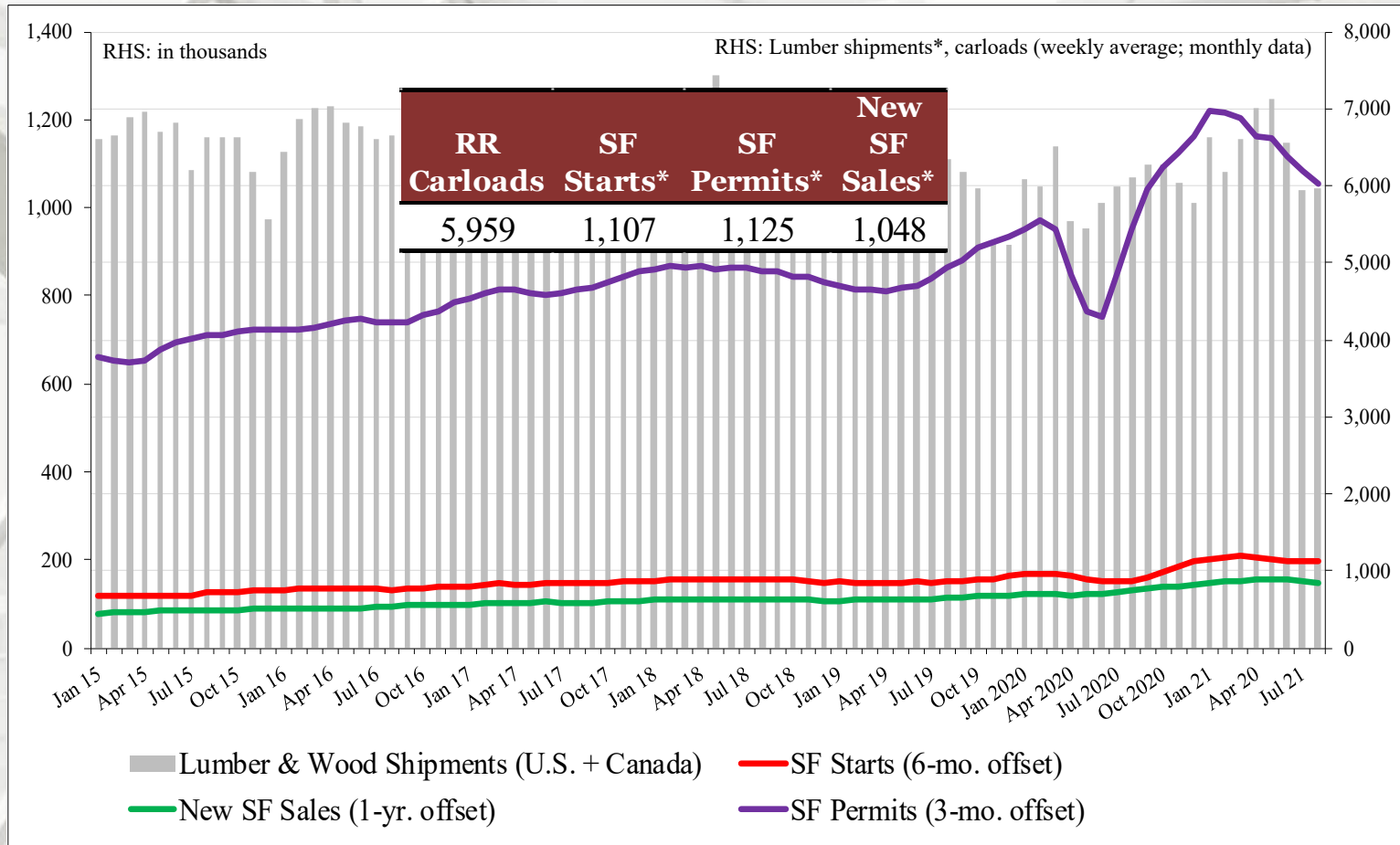
U.S.-Canada Lumber & Wood Shipments vs. SF Starts, Permits, and New Sales



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 carload lumber and wood shipments. The intent is to learn 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. Note that 2021 data is on a monthly basis.

* In thousands

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



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

Sources: *Association of American Railroads, *Rail Time Indicators* report-September 2021; <http://www.census.gov/construction>; 10/19/21; & 10/26/21

September 2021 Construction Spending

	Total Private Residential*	SF	MF	Improvement**
September	\$773,537	\$412,662	\$100,044	\$260,831
August	\$776,785	\$415,330	\$100,334	\$261,121
2020	\$648,272	\$316,390	\$90,556	\$241,326
M/M change	-0.4%	-0.6%	-0.3%	-0.1%
Y/Y change	19.3%	30.4%	10.5%	8.1%

* 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\$.

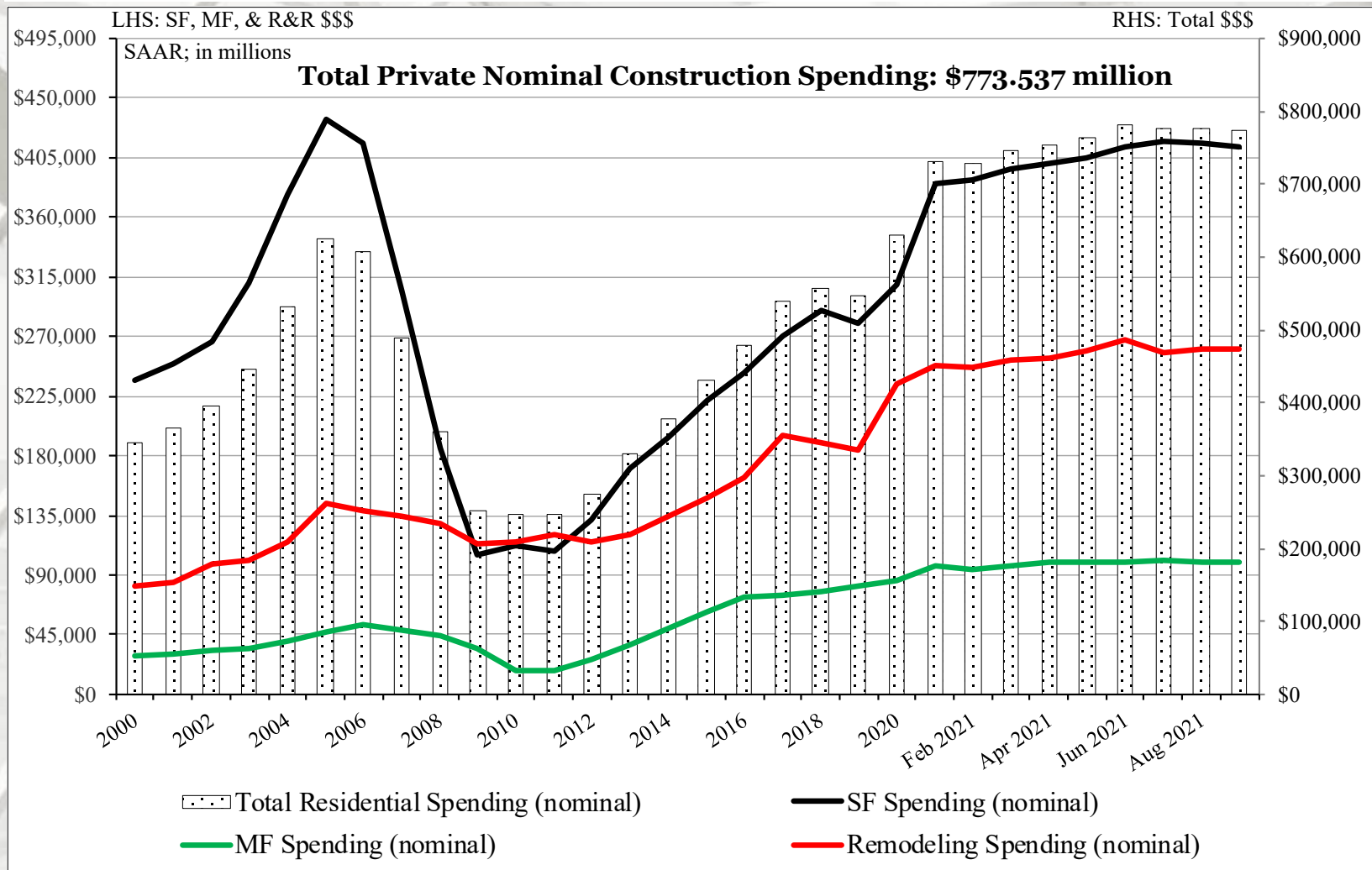
Total private residential construction spending includes new single-family, new multi-family, and improvement (AKA repair and remodeling) expenditures.

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.

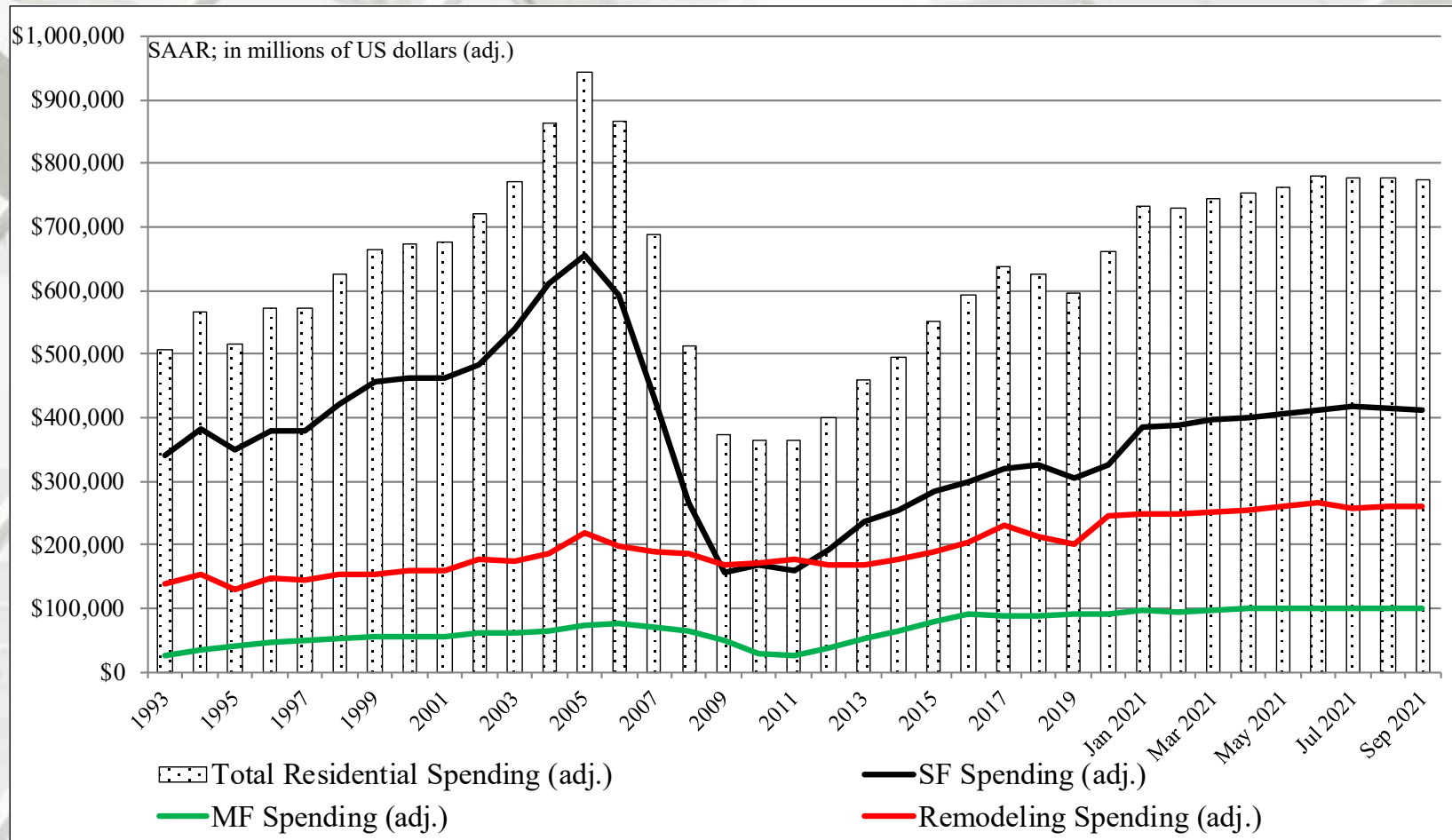
Total Construction Spending (nominal): 2000 – September 2021



Reported in nominal US\$.

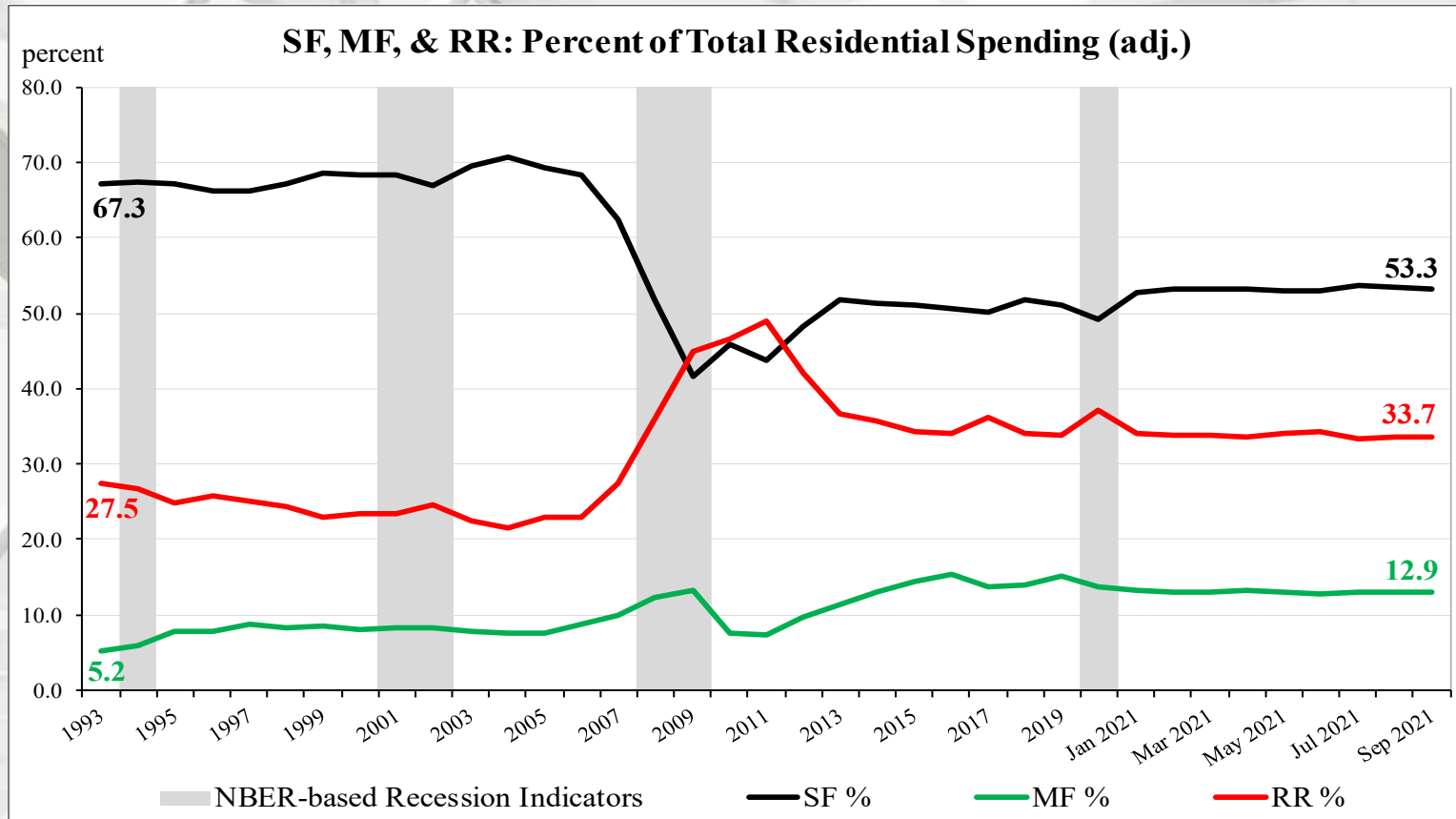
The US DOC does not report improvement spending directly, this is a monthly estimation for 2021.

Total Construction Spending (adjusted): 1993-September 2021



Reported in adjusted US\$: 1993 – 2020 (adjusted for inflation, BEA Table 1.1.9); September 2021 reported in nominal US\$.

Construction Spending Shares: 1993 to September 2021



Total Residential Spending: 1993 through 2006

SF spending average: 69.2%

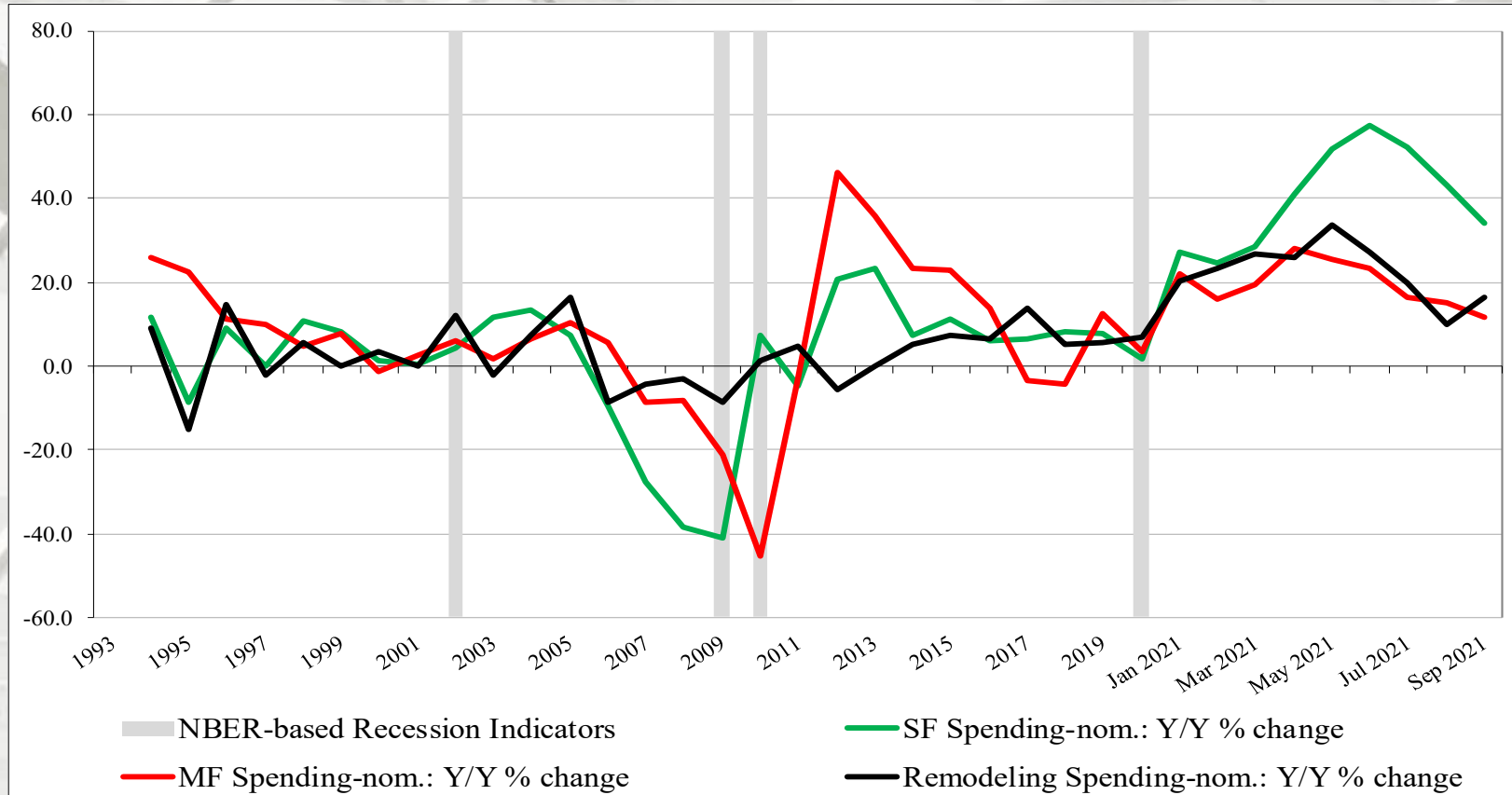
MF spending average: 7.5%

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

Note: 1993 to 2020 (adjusted for inflation, BEA Table 1.1.9); September 2021 reported in nominal US\$.

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

Adjusted Construction Spending: Y/Y Percentage Change, 1993 to September 2021

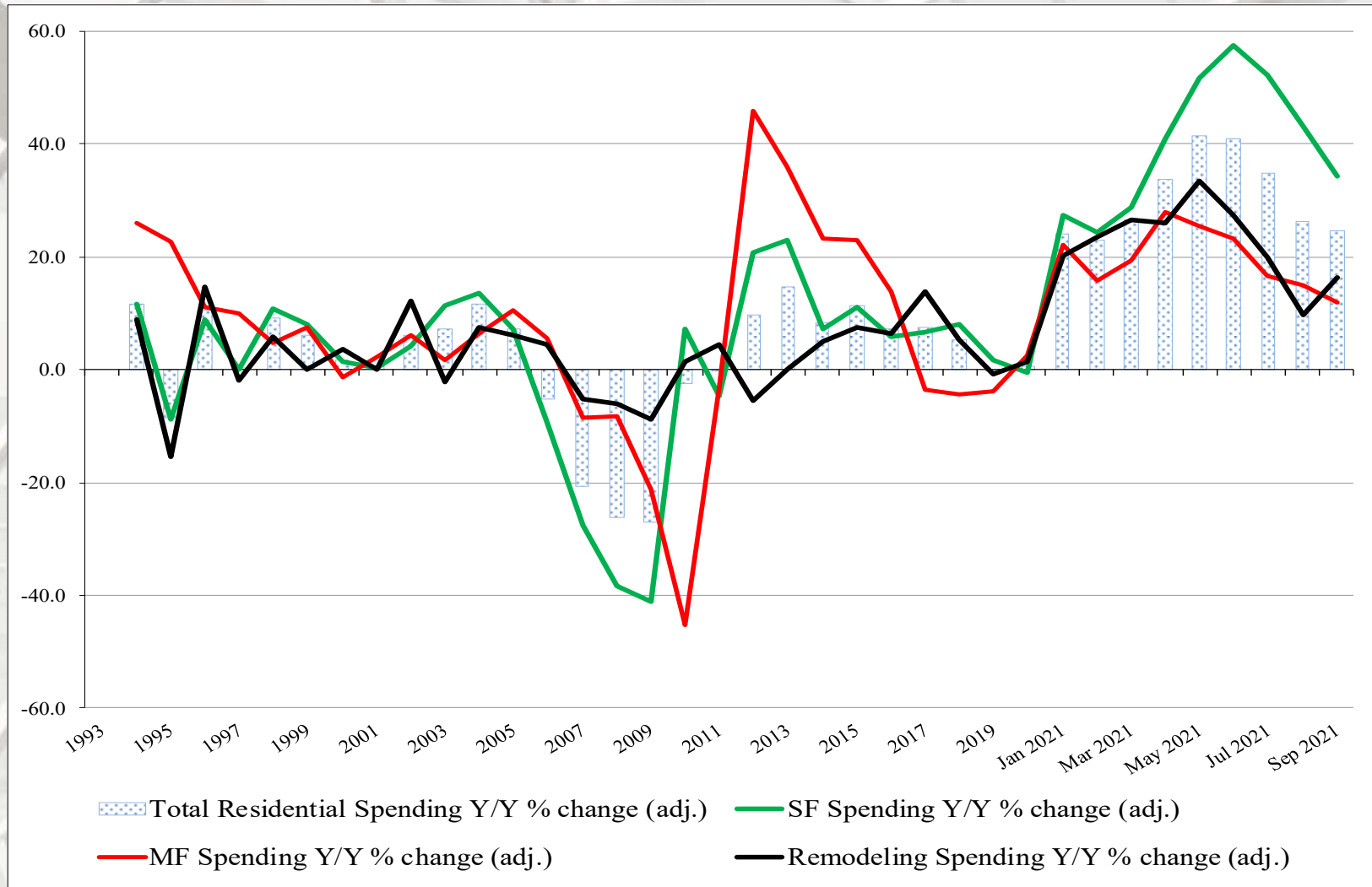


Nominal Residential Construction Spending: Y/Y percentage change, 1993 to September 2021

Presented above is the percentage change of inflation adjusted Y/Y construction spending. SF, MF, and RR expenditures were positive on a percentage basis, year-over-year and month-over-month (September 2021 data reported in nominal dollars) – yet all are trending negatively.

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

Adjusted Construction Spending: Y/Y Percentage Change, 1993 to September 2021



Remodeling

Harvard Joint Center for Housing Studies Gains In Remodeling To Remain Robust

“Strong growth in home improvement and maintenance expenditures is expected to continue over the coming year, according to our latest [Leading Indicator of Remodeling Activity \(LIRA\)](#). The LIRA projects year-over-year gains in annual improvement and repair spending will reach 9 percent in the fourth quarter and maintain that pace into 2022.

Residential remodeling continues to benefit from a strong housing market with elevated home construction and sales activity and immense house price appreciation in markets across the country. The rapid expansion of owners’ equity is likely to fuel demand for more and larger remodeling projects into next year.

With these tailwinds, annual improvement and repair expenditures by homeowners could reach \$400 billion by the third quarter of 2022. Yet there are several headwinds that could still taper the expected growth in remodeling spending including the rising costs of labor and building materials, as well as increasing interest rates.

A year after the unprecedented changes to the US economy brought on by the pandemic, many economic indicators are showing extreme percent changes from pandemic-induced lows. To reduce the enormous growth rate volatility generated by these year-over-year comparisons, the projections for 2022-Q2 and -Q3 utilize smoothed data for three leading model inputs: residential remodeling permits, single-family housing starts, and existing single-family home sales. Using unsmoothed inputs in the LIRA model would have projected unlikely annual growth rates roughly two-thirds larger than reported. The Remodeling Futures Program will continue to monitor input volatility.” – Abbe Will, Senior Research Associate & Associate Project Director, Remodeling Futures; Harvard Joint Center for Housing Studies

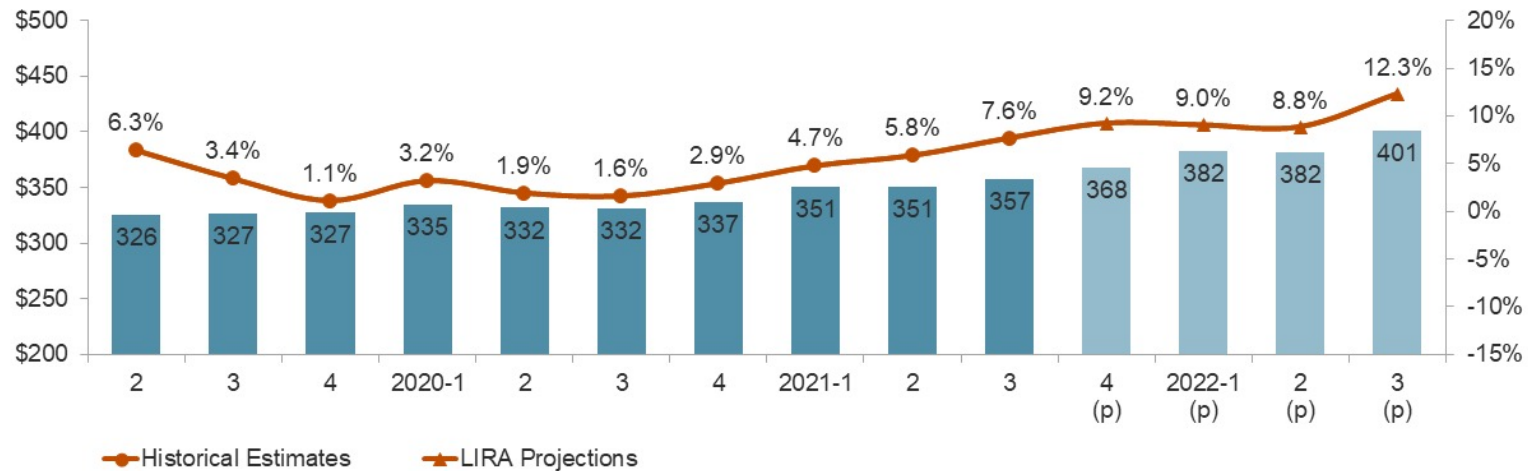
Remodeling

Harvard Joint Center for Housing Studies

Leading Indicator of Remodeling Activity – Third Quarter 2021

Homeowner Improvements & Repairs
Four-Quarter Moving Totals
Billions

Four-Quarter Moving
Rate of Change



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.

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Joint Center for Housing Studies of Harvard University 

Existing House Sales

National Association of Realtors
September 2021 sales: 6.290 thousand

	Existing Sales	Median Price	Mean Price	Month's Supply
September	6,290,000	\$352,800	\$372,600	2.4
August	5,880,000	\$357,700	\$376,800	2.6
2020	6,440,000	\$311,500	\$343,100	2.7
M/M change	7.0%	-1.4%	-1.1%	-7.7%
Y/Y change	-2.3%	13.3%	8.6%	-11.1%

All sales data: SAAR

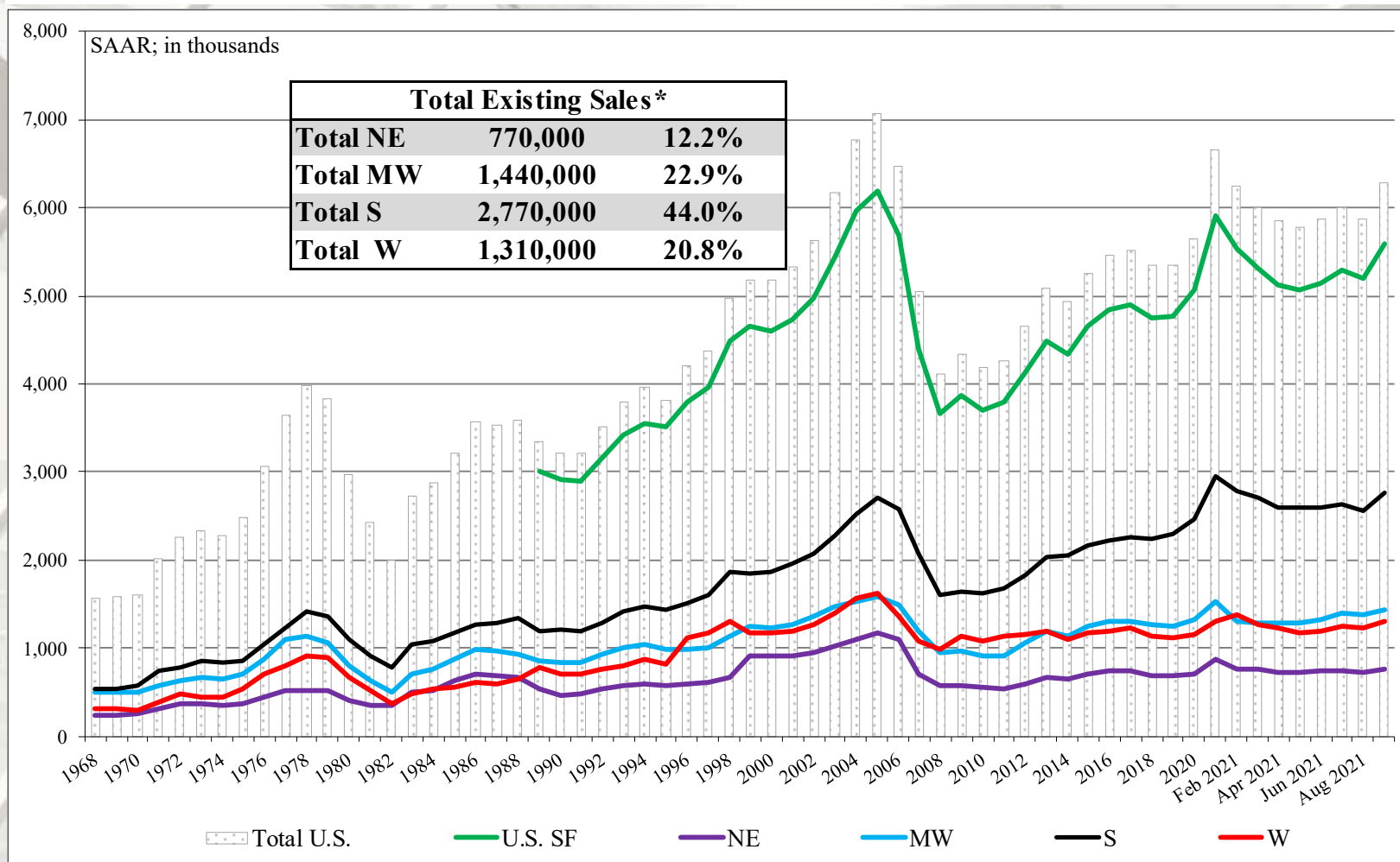
Existing House Sales

	Existing SF Sales	SF Median Price	SF Mean Price
September	5,590,000	\$359,700	\$377,100
August	5,190,000	\$364,700	\$381,400
2020	5,770,000	\$316,000	\$346,500
M/M change	7.7%	-1.4%	-1.1%
Y/Y change	-3.1%	13.8%	8.8%

	NE	MW	S	W
September	770,000	1,440,000	2,770,000	1,310,000
August	730,000	1,370,000	2,550,000	1,230,000
2020	840,000	1,480,000	2,770,000	1,350,000
M/M change	5.5%	5.1%	8.6%	6.5%
Y/Y change	-8.3%	-2.7%	0.0%	-3.0%

All sales data: SAAR.

Existing House Sales



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

* Percentage of total existing sales.

U.S. Housing Prices

Federal Housing Finance Agency

U.S. House Price Index — October 2021

FHFA House Price Index Up 1.0 Percent in August; Up 18.5 Percent from Last Year

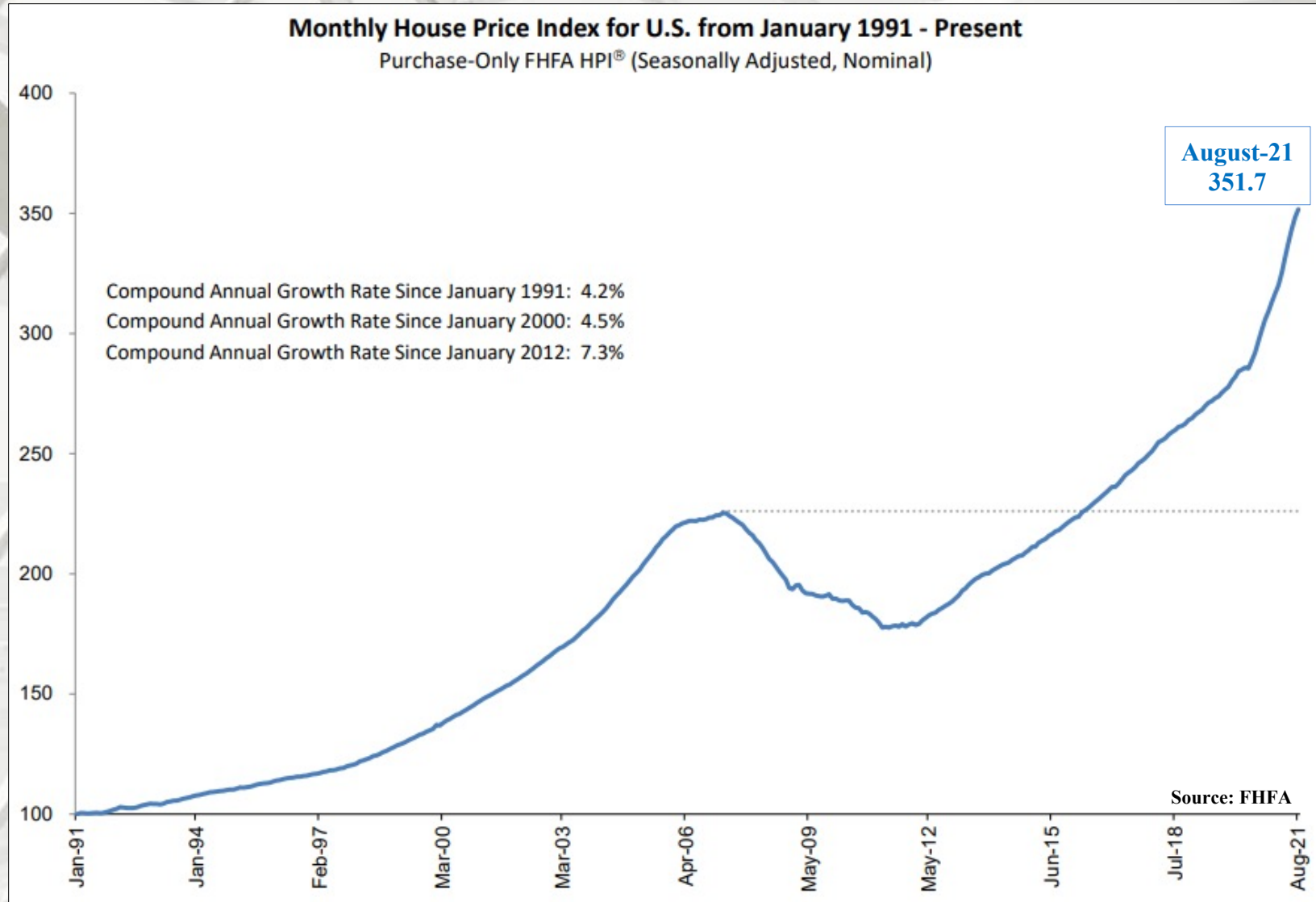
Significant Findings

“House prices rose nationwide in August, up 1.0 percent from the previous month, according to the latest Federal Housing Finance Agency House Price Index (FHFA HPI®). House prices rose 18.5 percent from August 2020 to August 2021. The previously reported 1.4 percent price change for July 2021 remained unchanged.

For the nine census divisions, seasonally adjusted monthly house price changes from July 2021 to August 2021 ranged from **-0.1 percent** in the New England division to **+1.9 percent** in the South Atlantic division. The 12-month changes ranged from **+14.9 percent** in the West North Central division to **+25.8 percent** in the Mountain division.” – Raffi Williams and Adam Russell, FHFA

“Annual house price gains remained extremely high in August but the pace of month-over-month gains continues to decelerate. This does not mean house prices are at risk of declining – far from it, they continue to climb at a double-digit pace in all regions – but it does suggest we may have seen the peak in annual gains for the time being.” – Dr. Lynn Fisher, Deputy Director, Division of Research and Statistics, FHFA

U.S. Housing Prices



U.S. Housing Prices

S&P CoreLogic Case-Shiller Index Annual Home Price Gains Remained High In August According to S&P CoreLogic Case-Shiller Index

“... Data for August 2021 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 19.8% annual gain in August, remaining the same as the previous month. The 10-City Composite annual increase came in at 18.6%, down from 19.2% in the previous month. The 20-City Composite posted a 19.7% year-over-year gain, down from 20.0% in the previous month.

Phoenix, San Diego, and Tampa reported the highest year-over-year gains among the 20 cities in August. Phoenix led the way with a 33.3% year-over-year price increase, followed by San Diego with a 26.2% increase and Tampa with a 25.9% increase. Eight of the 20 cities reported higher price increases in the year ending August 2021 versus the year ending July 2021.

Month-Over-Month

“Before seasonal adjustment, the U.S. National Index posted an 1.2% month-over-month increase in August, while the 10-City and 20-City Composites both posted increases of 0.8% and 0.9%, respectively.

After seasonal adjustment, the U.S. National Index posted a month-over-month increase of 1.4%, and the 10-City and 20-City Composites both posted increases of 0.9% and 1.2%, respectively. In August, 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

U.S. Housing Prices

S&P CoreLogic Case-Shiller Index Analysis

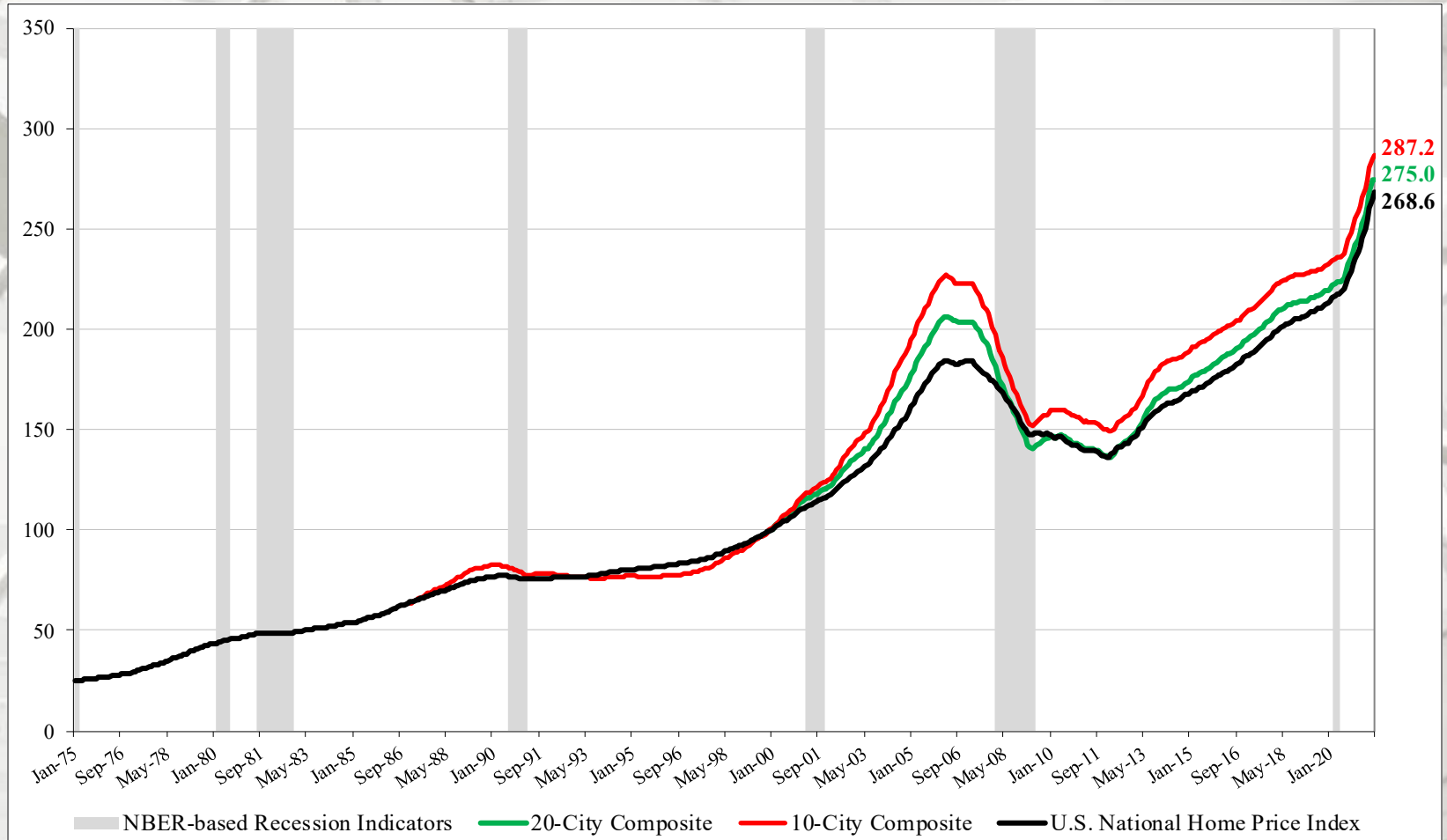
“The U.S. housing market showed continuing strength in August 2021. Every one of our city and composite indices stands at its all-time high, and year-over-year price growth continues to be very strong, although moderating somewhat from last month’s levels.

In August 2021, the National Composite Index rose 19.84% from year-ago levels, marginally ahead of July’s 19.75% increase. This slowing acceleration was also evident in our 10- and 20-City Composites, which rose 18.6% and 19.7% respectively, modestly less than their rates of gain in July. Price gains were once again broadly distributed, as all 20 cities rose, although in most cases at a slower rate than had been the case a month ago.

We have previously suggested that the strength in the U.S. housing market is being driven in part by a reaction to the COVID pandemic, as potential buyers move from urban apartments to suburban homes. More data will be required to understand whether this demand surge represents an acceleration of purchases that would have occurred anyway over the next several years, or reflects a secular change in locational preferences. August’s data are consistent with either explanation. August data also suggest that the growth in housing prices, while still very strong, may be beginning to decelerate.

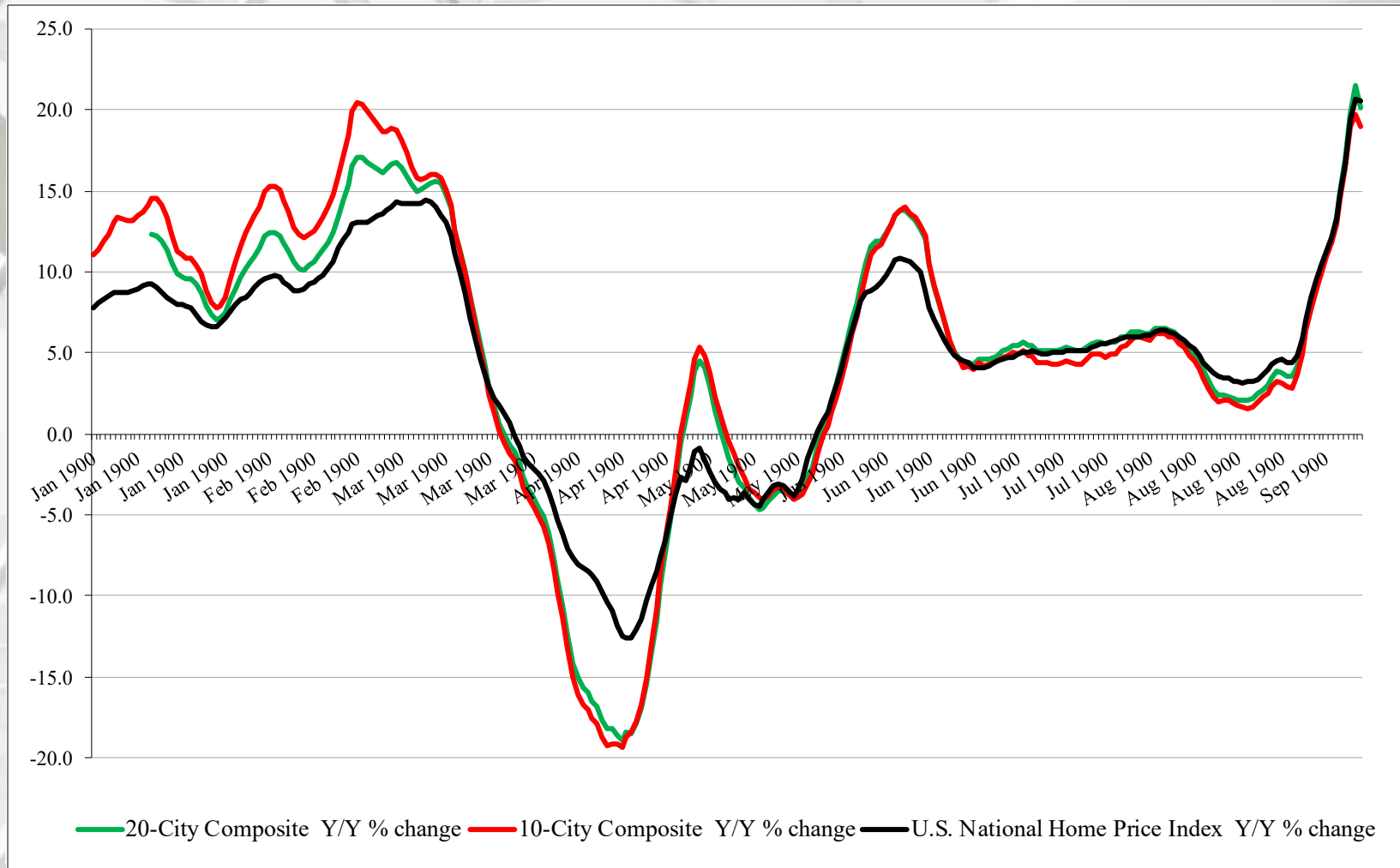
Phoenix’s 33.3% increase led all cities for the 27th consecutive month. San Diego (+26.2%) continued in second place, but in August, Tampa (+25.9%) edged Dallas and Seattle for the bronze medal. As has been the case for the last several months, prices were strongest in the Southwest (+24.1%), but every region logged double-digit gains.” – Craig J. Lazzara, Managing Director and Global Head of Index Investment Strategy, S&P Dow Jones Indices

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).

S&P/Case-Shiller Home Price Indices



Y/Y Price Change

From August 2020 to August 2021, the National Index increased 20.6%; the Ten-City by 19.0%, and the Twenty-City by 20.2%.

U.S. Housing Finance

Mortgage Bankers Association (MBA)

Mortgage Credit Availability Increased in October

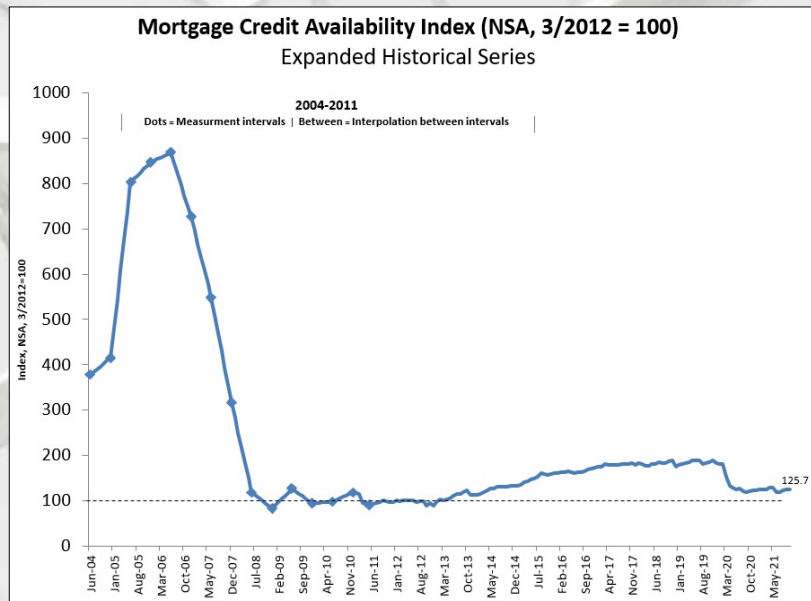
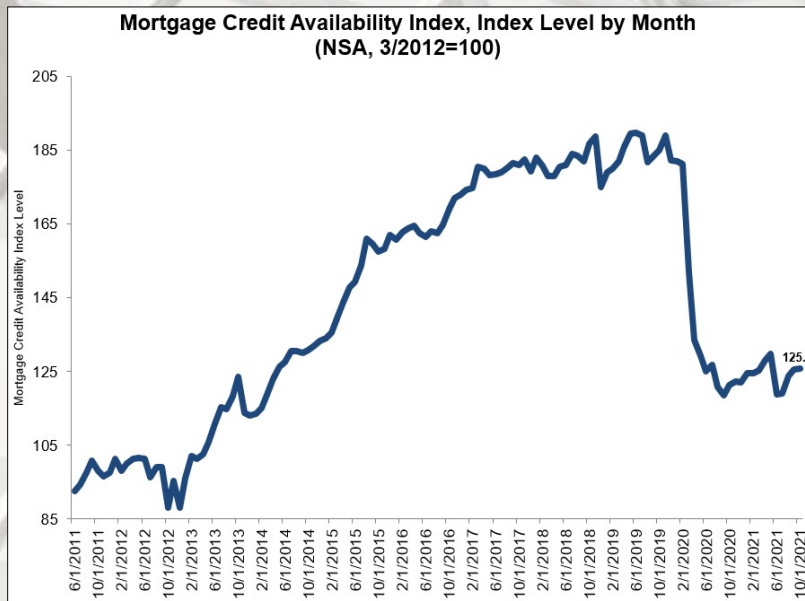
“Mortgage credit availability increased in September according to the Mortgage Credit Availability Index (MCAI), a report from the Mortgage Bankers Association (MBA) that analyzes data from Ellie Mae’s AllRegs® Market Clarity® business information tool.

The MCAI rose by 0.1 percent to 125.7 in October. A decline in the MCAI indicates that lending standards are tightening, while increases in the index are indicative of loosening credit. The index was benchmarked to 100 in March 2012. The Conventional MCAI increased 0.1 percent, while the Government MCAI remained essentially unchanged. Of the component indices of the Conventional MCAI, the Jumbo MCAI increased by 4.1 percent, and the Conforming MCAI fell by 6.0 percent.

Credit availability inched forward in October, but the overall index was 30 percent lower than February 2020 and close to the lowest supply of mortgage credit since 2014. Within the subindexes, a 4 percent increase in the jumbo index was essentially offset by a 6 percent drop in the conforming index. There was an increase in the supply of jumbo ARM and non-QM products, which drove most of the increase in the jumbo index. On the conforming side, there was a pullback in ARMs, higher LTV loans, and lower credit score products. While there is tightening in ARM credit availability both for jumbo and conforming loans, ARM loans have accounted for a small share of loan applications, ranging from 2.5 percent to 5 percent of applications to date in 2021. Tight credit availability, combined with ongoing supply and affordability challenges, are significant obstacles for some prospective first-time buyers.” – Joel Kan, Associate Vice President of Economic and Industry Forecasting, MBA

U.S. Housing Finance

Mortgage Credit Availability (MBA)



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

MBA Mortgage Finance Forecast

MBA Mortgage Finance Forecast

September 21, 2021

	2020				2021				2022				2020	2021	2022	2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Housing Measures																
Housing Starts (SAAR, Thous)	1,485	1,086	1,440	1,575	1,599	1,586	1,591	1,585	1,594	1,650	1,690	1,683	1,397	1,590	1,654	1,705
Single-Family	981	774	1,041	1,220	1,156	1,107	1,115	1,170	1,224	1,285	1,340	1,353	1,004	1,137	1,301	1,395
Two or More	504	312	399	356	443	479	476	415	370	365	350	330	393	453	354	310
Home Sales (SAAR, Thous)																
Total Existing Homes	5,483	4,313	6,137	6,777	6,303	5,830	5,971	6,215	6,340	6,462	6,580	6,592	5,678	6,080	6,493	6,653
New Homes	703	708	973	926	896	728	760	833	903	976	1,006	1,067	828	804	988	1,092
FHFA US House Price Index (YOY % Change)	6.2	5.7	8.0	10.9	12.7	17.4	13.4	11.6	10.4	9.5	7.9	6.2	10.9	11.6	6.2	5.3
Median Price of Total Existing Homes (Thous \$)	272	288	309	312	314	351	366	365	359	359	359	356	295.4	348.9	358.2	365.4
Median Price of New Homes (Thous \$)	330	323	333	354	365	374	394	395	393	395	397	393	335.0	381.9	394.7	397.2
Interest Rates																
30-Year Fixed Rate Mortgage (%)	3.5	3.2	3.0	2.8	2.9	3.0	2.8	3.1	3.4	3.6	3.8	4.0	2.8	3.1	4.0	4.3
10-Year Treasury Yield (%)	1.4	0.7	0.6	0.9	1.3	1.6	1.3	1.6	1.8	1.9	2.2	2.3	0.9	1.6	2.3	2.5
Mortgage Originations																
Total 1- to 4-Family (Bil \$)	601	996	1,154	1,357	1,094	1,050	915	679	534	645	605	594	4,108	3,738	2,378	2,471
Purchase	266	360	432	424	320	460	417	406	358	485	448	438	1,482	1,603	1,729	1,830
Refinance	335	636	721	933	774	590	498	273	176	160	157	156	2,625	2,135	649	641
Refinance Share (%)	56	64	63	69	71	56	54	40	33	25	26	26	64	57	27	26
FHA Originations (Bil \$)													311	282	156	168
Total 1- to 4-Family (000s loans)	2,067	3,380	3,842	4,407	3,449	3,225	2,741	1,982	1,521	1,794	1,647	1,585	13,696	11,397	6,546	6,312
Purchase	908	1,213	1,430	1,366	1,001	1,404	1,241	1,179	1,015	1,345	1,216	1,165	4,917	4,825	4,741	4,658
Refinance	1,159	2,167	2,413	3,041	2,449	1,821	1,500	802	505	449	431	420	8,780	6,572	1,805	1,654
Refinance Share (%)	56	64	63	69	71	56	55	40	33	25	26	26	64	58	28	26
Mortgage Debt Outstanding																
1- to 4-Family (Bil \$)	10,544	10,626	10,785	10,925	11,042	11,200	11,353	11,490	11,636	11,805	11,981	12,166	10,925	11,490	12,166	12,953

Notes:

As of the Sep, 2021 forecast, the 2020 originations numbers have been revised based on the 2020 Home Mortgage Disclosure Act data. 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. Copyright 2021 Mortgage Bankers Association. All rights reserved. THE HISTORICAL DATA AND PROJECTIONS ARE PROVIDED "AS IS" WITH NO WARRANTIES OF ANY KIND.



MBA Economic Forecast

MBA Economic Forecast

September 21, 2021

	2020				2021				2022				2020	2021	2022	2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Percent Change, SAAR																
Real Gross Domestic Product	-5.1	-31.2	33.8	4.5	6.3	6.6	5.1	6.3	4.9	3.7	3.2	2.5	-2.3	6.1	3.6	2.0
Personal Consumption Expenditures	-6.9	-33.4	41.4	3.4	11.4	11.9	2.2	3.4	2.2	2.1	2.1	2.1	-2.4	7.1	2.1	2.0
Business Fixed Investment	-8.1	-30.3	18.7	12.5	12.9	9.3	3.2	11.8	8.5	6.3	5.2	4.2	-3.8	9.2	6.0	3.3
Residential Investment	20.4	-30.7	59.9	34.4	13.3	-11.5	1.0	0.8	3.0	4.1	6.2	3.1	15.7	0.5	4.1	2.0
Govt. Consumption & Investment	3.7	3.9	-2.1	-0.5	4.2	-1.9	2.5	1.9	2.7	1.7	1.8	1.2	1.2	1.7	1.8	1.5
Net Exports (Bil. Chain 2012\$)	-692.0	-642.8	-854.9	-950.8	-1033.0	-1050.7	-1031.7	-995.1	-1013.0	-1019.0	-1020.3	-1011.5	-785.1	-1027.7	-1016.0	-1001.2
Inventory Investment (Bil. Chain 2012\$)	-25.8	-214.9	21.5	75.5	-75.1	-144.0	-50.2	4.0	86.3	130.5	149.4	144.2	-35.9	-66.3	127.6	123.2
Consumer Prices (YOY)	2.1	0.4	1.3	1.2	1.9	4.8	5.1	4.8	4.5	2.9	2.2	2.7	1.2	4.8	2.7	2.1
Percent																
Unemployment Rate	3.8	13.0	8.8	6.7	6.2	5.9	5.2	4.5	4.2	3.9	3.8	3.8	8.1	5.4	3.9	3.8
Federal Funds Rate	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.625
10-Year Treasury Yield	1.4	0.7	0.6	0.9	1.3	1.6	1.3	1.6	1.8	1.9	2.2	2.3	0.9	1.6	2.3	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

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MBA

MORTGAGE BANKERS ASSOCIATION

Summary

In conclusion:

The month-over-month and year-over-year housing data for September were mixed. Single-family permits and starts, harbingers for current and future construction, were negative month-over-month and year-over-year. Completions remained slowed due to the unavailability of building materials and products, among other factors. Total, and single-family, housing under construction were the only categories positive on month-over-month and year-over-year basis.

Pros:

- 1) Historically low interest rates remain in place;
- 2) Select builders are beginning to focus on entry-level houses;

Cons:

- 1) COVID-19;
- 2) Construction material and appliance constraints;
- 3) Logistics/Supply chains;
- 4) Lot availability and building regulations (according to several sources);
- 5) Laborer shortages in many sectors;
- 6) Household formations still lag historical averages;
- 7) Job creation is improving and consistent, but some economists question the quantity and types of jobs being created;
- 8) Debt: Corporate, personal, government – United States and globally;
- 9) Other global uncertainties.

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