2020 Mortgage Market Outlook: Executive Report

March 2020

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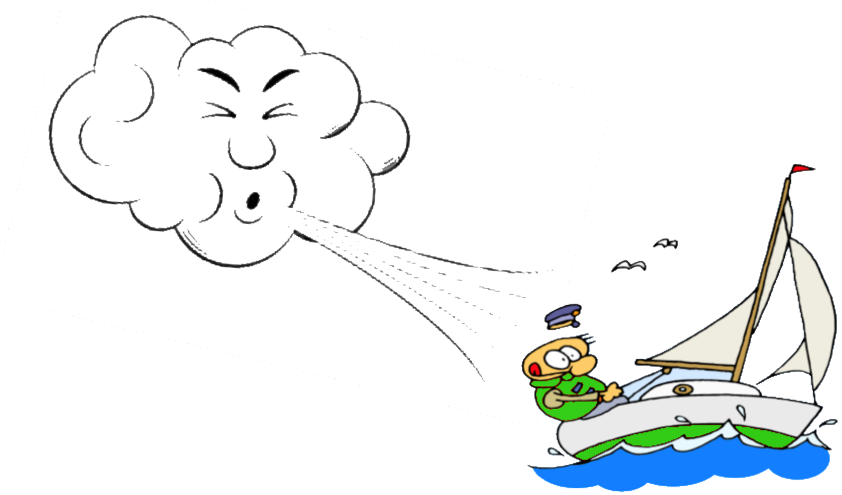
Goodbye Second Wind

The U.S. economy had apparently executed one of those elusive soft landings, where economic activity slows but doesn't quite fall into recession. Indicators which had pointed toward potential recession in 2020 started turning around after the Fed began dropping interest rates last July. The stock market took off. Consumer spending stayed strong despite pessimistic business sentiment and a manufacturing slowdown. The economy got a second wind.

Moreover, for mortgage originations, 2019 was a banner year. Falling mortgage rates ignited a modest midyear refi boom and helped boost a stagnant purchase market. The unexpectedly fast interest rate decline was tough on mortgage servicing operations as runoff rates exploded, but production pipelines full of new refi loans more than made up for that.

However, in the last few weeks, economic concerns surrounding the impact of the coronavirus have staggered global financial markets. They've driven bond rates down to record lows and sparked a second wave for refinances.

With the latest worries over the coronavirus, a 2020 recession now looks a lot more likely again, with GDP growth likely to slow due to supply chain jams, reduced travel, restricted entertainment expenditure, and lost hours of work. In such an economic environment, there won't be any upward pressure on long-term interest rates to snuff out a purchase segment buoyed by robust labor market conditions and growing ranks of affluent Millennials seeking to become homeowners. In addition, refi volumes will drive mortgage originations to their highest levels since 2005.



iEmergent 3-year Mortgage Origination Snapshot (2018-2020)

		2018 Actual		2019 Est		2020 Fct		Year-Over-Year Percent Change 2018-2019		2019-2020	
		Loans (M)	Dollars ($B)	Loans (M)	Dollars ($B)	Loans (M)	Dollars ($B)	% Loans	% Dollars	% Loans	% Dollars
Purchase		4.17	$1,114	4.43	$1,235	4.54	$1,311	6.4%	10.8%	2.3%	6.2%
Refinance											
	Low					5.37	$1386	84.1%	107.3%	49.5%	51.1%
	Actual/High	2.22	$503	4.09	$1,042	6.84	$1,764				
Total											
	Low					9.91	$2,698	33.4%	40.8%	24.9%	26.8%
	Actual/High	6.39	$1,617	8.52	$2,277	11.38	$3,076				

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Expectations for 2020

For a long while, it looked like a 2020 recession was a sure thing, then the economy looked very encouraging, and now with each coronavirus update, a recession looks more likely. The Fed and the Trump administration either have or soon will launch numerous emergency initiatives to combat the economic and financial impacts of a serious epidemic.

For the 2020 housing market, the outlook was quite positive before concerns about the coronavirus exploded. Delinquency and foreclosure rates were back to even better-than-normal levels. Home price appreciation was at reasonable levels. Housing construction had started to ramp up again, although inventory constraints would have continued to restrict housing sales. Now, things are much more uncertain.

For the 2020 mortgage industry, plummeting long-term interest rates have already triggered a second wave refi boom, so we expect an even bigger origination year than last year. With continued good employment conditions, purchase originations should see another robust increase. However, downside risks have grown. Contamination risks may severely cut into aggregate demand, including housing demand.

Politically, 2020 began with a bang and promises to be quite dramatic going forward. The congressional impeachment drama ended, and the Democrats' primary has been a rollercoaster. In this contentious election year there will certainly be more excitement. Expect significant international turmoil as well with heightened Middle East tension, the ever-changing Chinese trade situation, and possibly even an oil price war. Despite all this, it's possible that with wise policy intervention, the resilient U.S. economy will just keep steadily sailing on.

Forecast Comparison

Source	2019 Estimate Purchase ($ B)	2019 Estimate Refi ($ B)	2019 Estimate Total ($ B)	2020 Forecast Purchase ($ B)	2020 Forecast Refi ($ B)	2020 Forecast Total ($ B)	2020 Purch / Refi Ratio
iEmergent	$1,235	$1,042	$2,277	$1,311	$1,575	$2,886	45% / 55%
Fannie	$1,306	$1,012	$2,318	$1,386	$895	$2,281	61% / 39%
Freddie	$1,261	$846	$2,107	$1,333	$650	$1,983	67% / 33%
MBA	$1,272	$901	$2,173	$1,377	$1,232	$2,609	53% / 47%

Note: All forecasts are the latest available from those sources. Fannie's estimates are as of February 2020; Freddie's are from December 2019; the MBA's are from March 2020 . iEmergent refi forecast is the average of our low & high forecasts.

Forecasters from Fannie Mae, Freddie Mac, and the MBA anticipate that the total mortgage opportunity in 2020 will decrease from 2019, primarily because of falling refinance volumes.

iEmergent's outlook differs from the others on a few points: 1) our estimate for refinance volume in 2019 is sharply higher than those other forecasters expect, and 2) refinances in 2020 will be higher as well. Our purchase estimates are rather close. We believe overall originations will be close to $3 trillion. They might too, once they figure in the latest refi impact (MBA does have a new forecast out with refi adjustments reflecting the new environment).

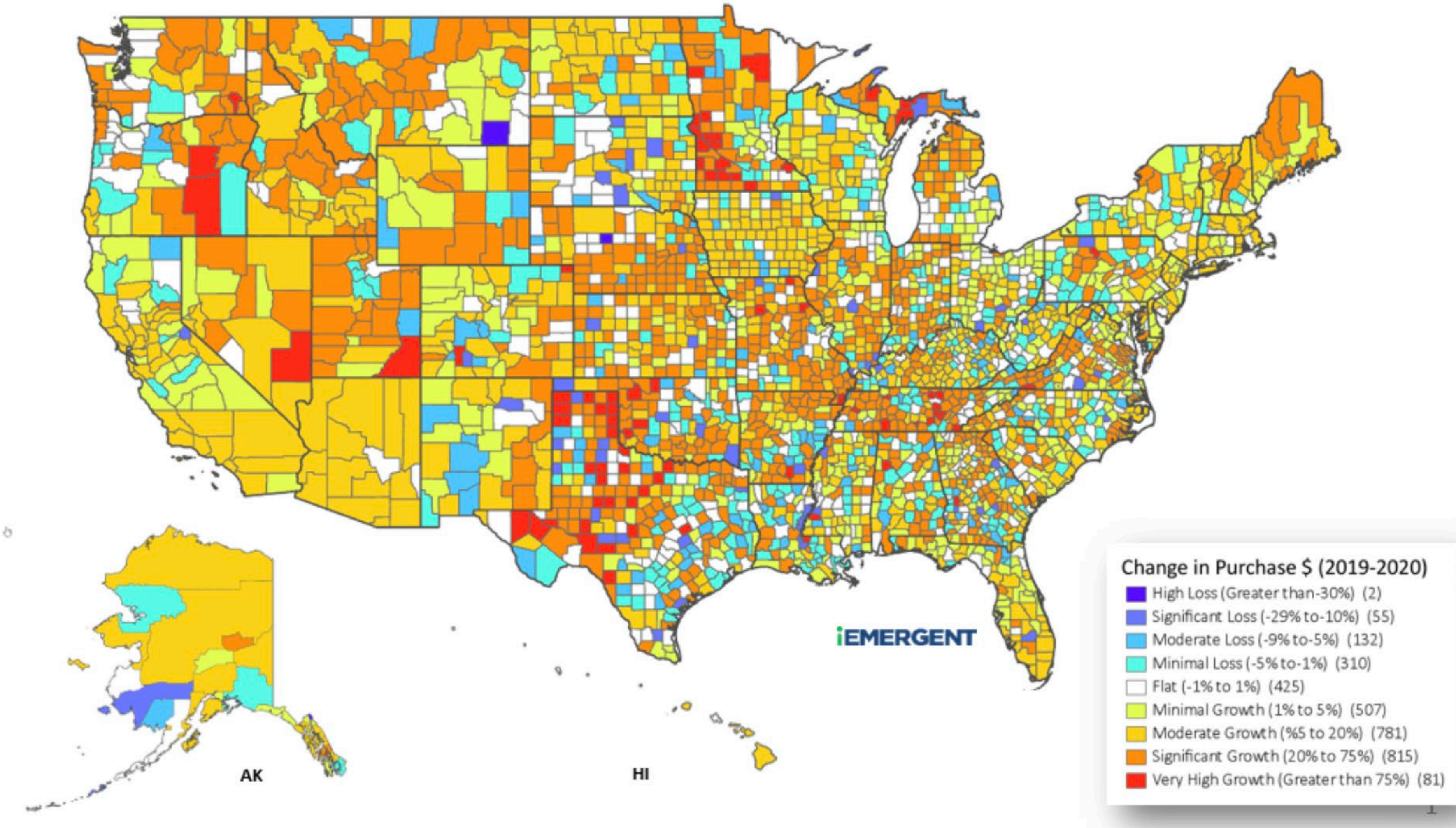
There are fundamental differences in forecast methodology here. Most mortgage forecasts are generated at the national level. At iEmergent, we work from the bottom up. Our methodology for forecasting purchase opportunity begins at the census tract level by quantifying the homebuyer pool – or *the number of households that are ready, willing and able to buy a home*. The size of that pool is determined by demographic shifts (i.e., household growth), by the financial health of US households, and by housing market supply issues. Refinance forecasting incorporates past refi propensities of various market regions.

This market-based approach gives our clients the critical information necessary to make successful tactical and strategic decisions to manage their businesses.

Total Purchase Volume 2019-2020

The map below, which illustrates our forecasted change in purchase origination volume, shows that a significant portion – nearly 1,700 counties – should experience purchase growth greater than 5% from 2019 to 2020, while about 500 counties may see a drop in purchase volume.

2019-2020 Change in Purchase Origination Dollars by County



Economic Conditions Overview

Economic conditions continue to be strong, although coronavirus fears are injecting new uncertainty:

- GDP – The longest U.S. expansion ever should have continued through 2020 and probably longer. But with each new update of the potential economic impact of the coronavirus, it seems more likely that it will be the kind of shock that can slow the economy down.

- Employment – Job creation is still very robust, although wage growth may be moderating.

- Inflation – For a while, inflation exceeding the Fed's 2% target was the worry. Lately, the concern is falling inflation. This was one of the justifications for beginning to lower the Fed Funds target back in July 2019, a stimulative move that extended the expansion.

- Interest rates – Both short-term and long-term rates fell for most of last year and ignited a modest refi boom. With the latest coronavirus concerns, long-term rates have fallen to record lows, while the Fed is trying to head off financial market panic by dragging short-term rates lower.

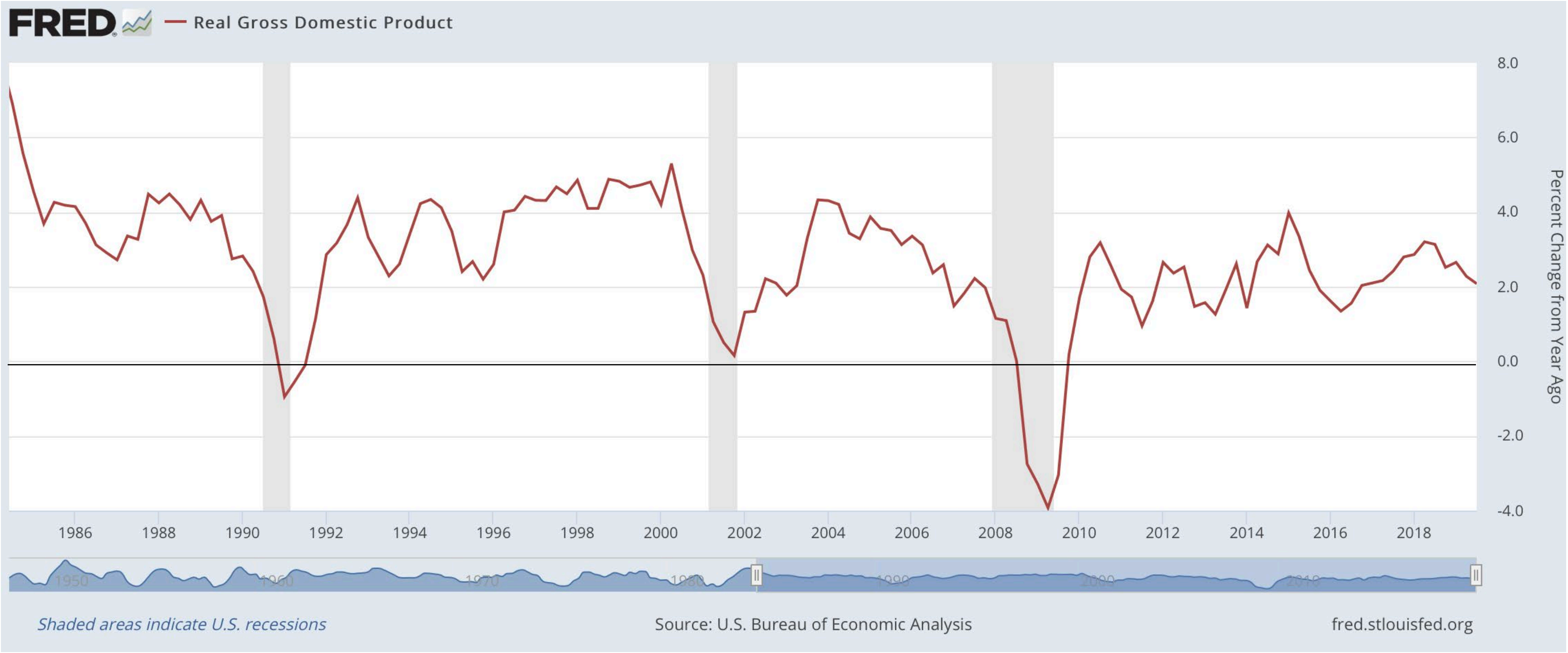
- Stock market – New highs had been reached on the market's approval of Fed easing and the hopes of reduced trade friction with China. But the coronavirus scare provided a trigger to spark an overdue market correction. PE ratios are still quite high.

- Leading indicators – Signals continue to be mixed, but they suggest modest growth in 2020.

As of last summer, our long, slow expansion became the longest economic expansion in U.S history, but with the evolving coronavirus crisis, that record seems less and less likely to extend through 2020.

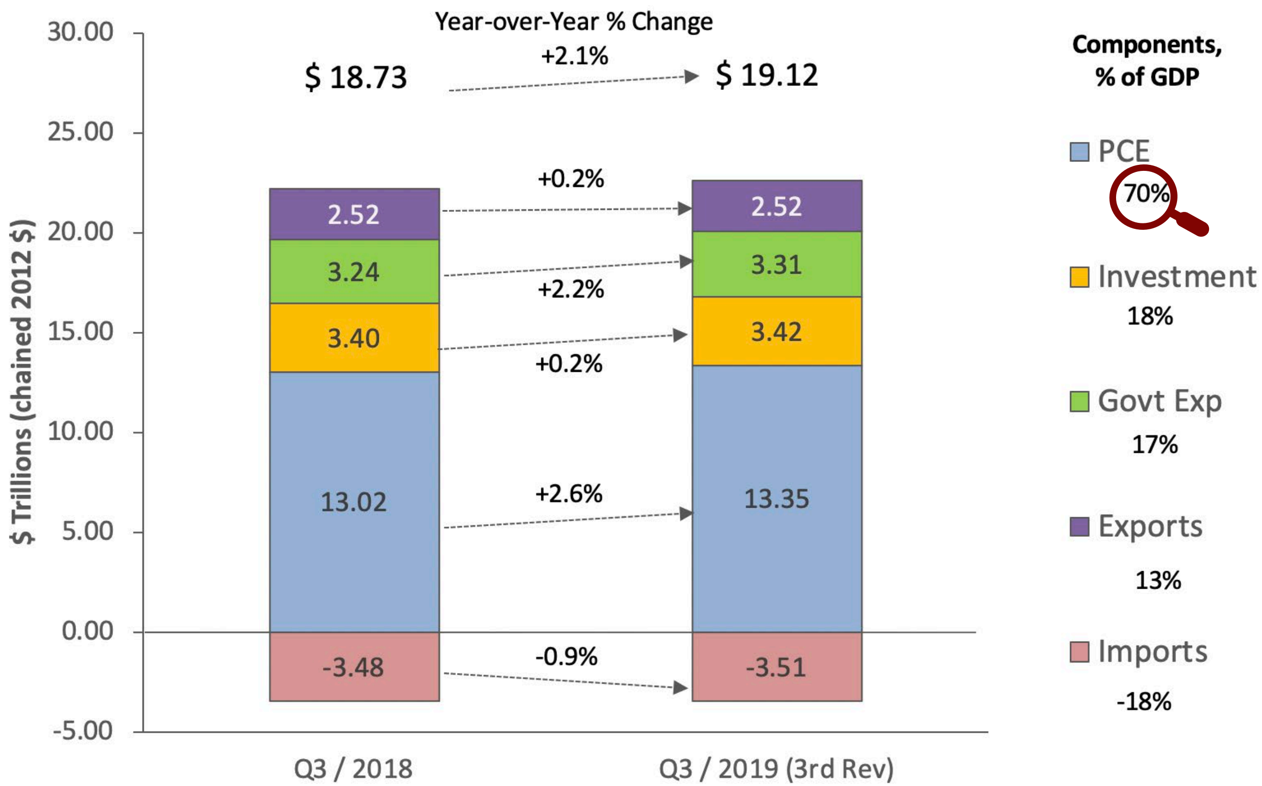
In terms of GDP average growth rate, this expansion has also been the slowest. With a growth average of 2.11%, it is slower than the growth experienced during the weakest previous expansion, the mini-expansion of the early 80s. Its slow pace has arguably helped constrain such overheating phenomena as runaway inflation and rapid interest rate increases.

Expansion	Duration (quarters)	Average Y/Y GDP Growth
Q4/1945 - Q4/1948	12	4.15%
Q4/1949 - Q2/1953	14	6.90%
Q2/1954 - Q3/1957	13	3.63%
Q2/1958 - Q2/1960	8	4.96%
Q1/1961 - Q4/1969	35	4.90%
Q4/1970 - Q4/1973	12	4.74%
Q1/1975 - Q1/1980	19	4.03%
Q2/1980 - Q2/1981	4	2.21%
Q4/1982 - Q3/1990	31	4.28%
Q1/1991 - Q1/2001	40	3.53%
Q4/2001 - Q4/2007	24	2.78%
Q2/2009 -	41+	2.11%



In 2019, financial markets were very focused on the trade implications of global slowdown, the tariff wars and Brexit, and certainly trade had been a drag on the economy in the last year. Exports were flat and, with the strong dollar, imports were up – dragging down GDP. But those elements are relatively small components in the U.S. GDP. **Personal consumption expenditure (PCE)** represents 70% of our economy and will continue to be the primary driver of GDP. In the last year, real PCE was up 2.6%, and with excellent employment conditions, this would have continued to provide a positive impact. But with the escalating coronavirus epidemic, most experts expect consumption will be negatively affected.

Real GDP and Major Components



Source: Bureau of Economic Analysis

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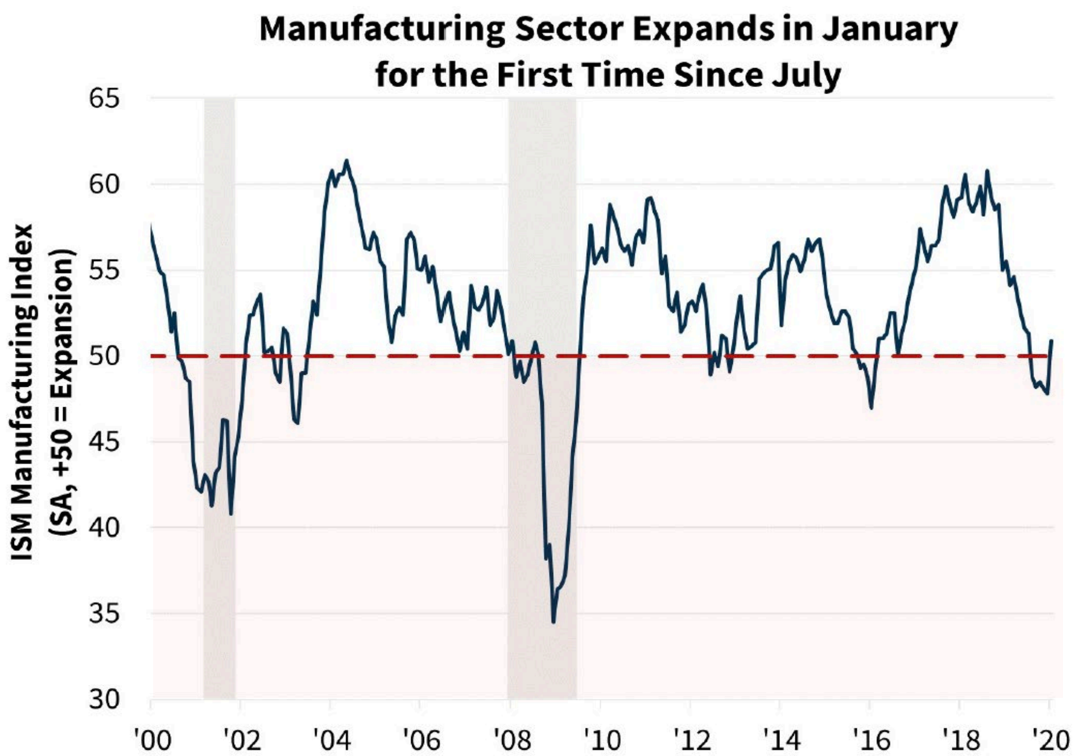
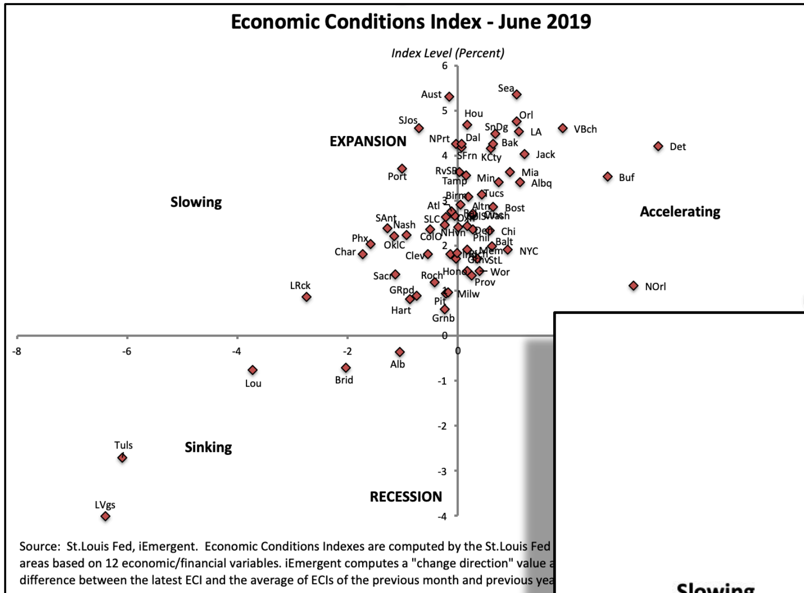
The U.S. manufacturing sector trended down for the entire year of 2019, and according to the Institute of Supply Management's (ISM's) manufacturing index, it dipped into "recession" territory in September. The Bureau of Economic Analysis says the manufacturing sector comprises about 12% of GDP, while the service sector is over 85%, so manufacturing is a much smaller percent of our economy than it once was. (For example, it was about 24% of GDP in 1970).

Even more encouraging was the latest release of this data. January showed a strong uptick, propelling the index back up into "expansion" territory. We've seen manufacturing dips like this twice before in this expansion alone. Neither resulted in recession.

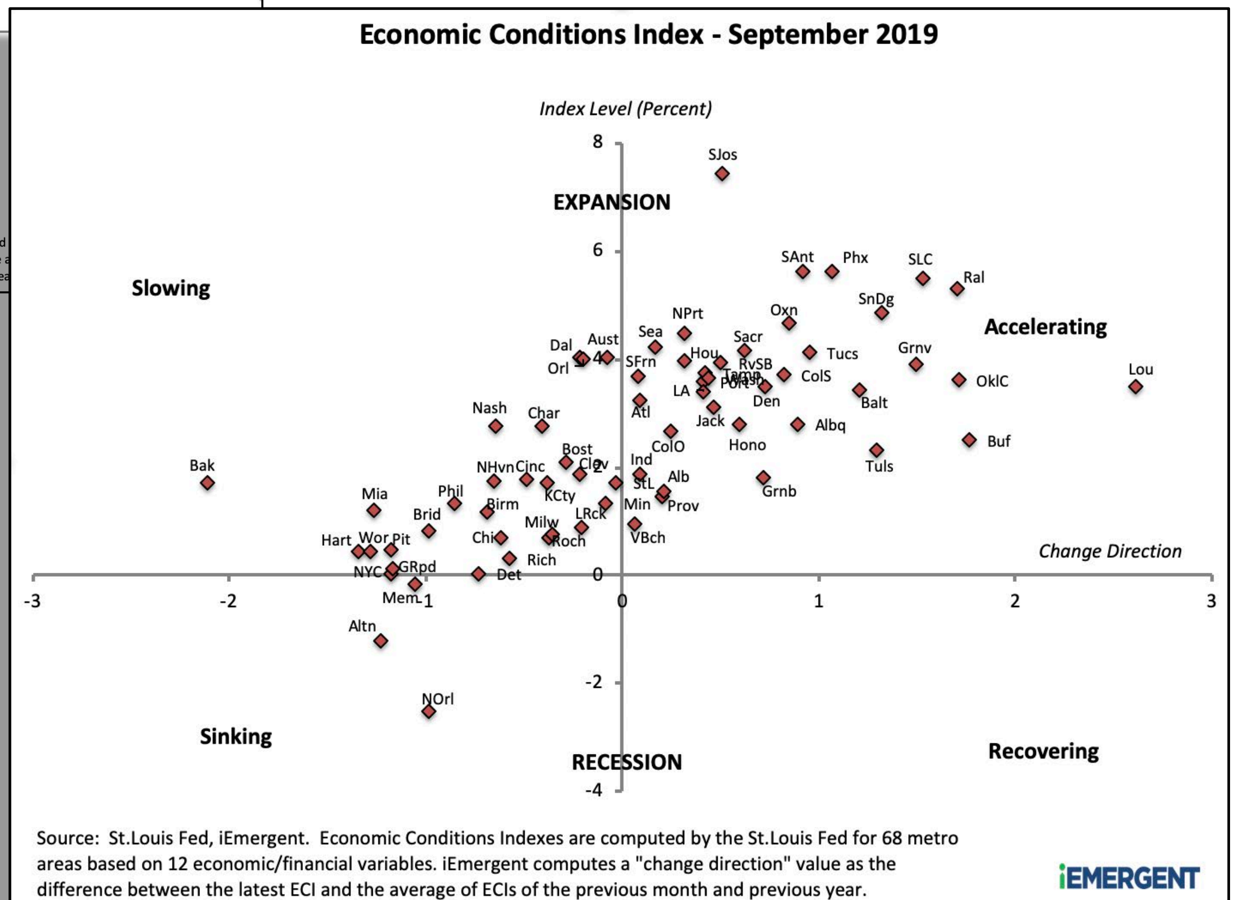
Now, however, the coronavirus is driving expectations, and the outlook is more negative.



Source: Chart from Fannie Mae newsletter, *Economic Developments* – Feb 18, 2020. Data from Institute for Supply Management (ISM).

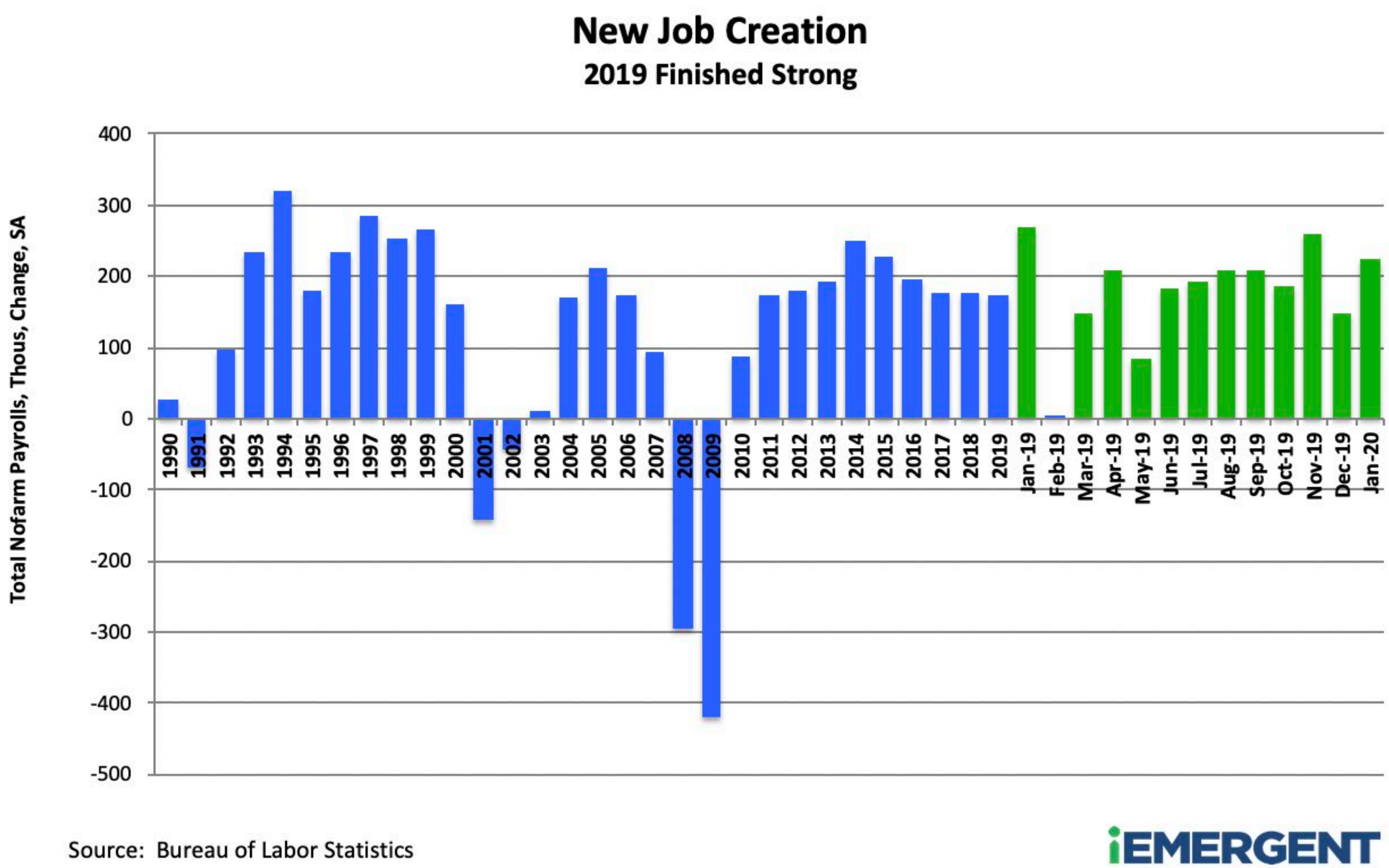


The St. Louis Fed's regional Economic Conditions Indexes are roughly comparable to real economic growth values for their metro areas. At the start of last summer, just less than half (32 of 68) of the major metros had drifted into the "slowing" and "sinking" quadrants, about the same as in the fall of 2018. By September 2019, that segment was about the same, but only three metros were "sinking" versus five in June.

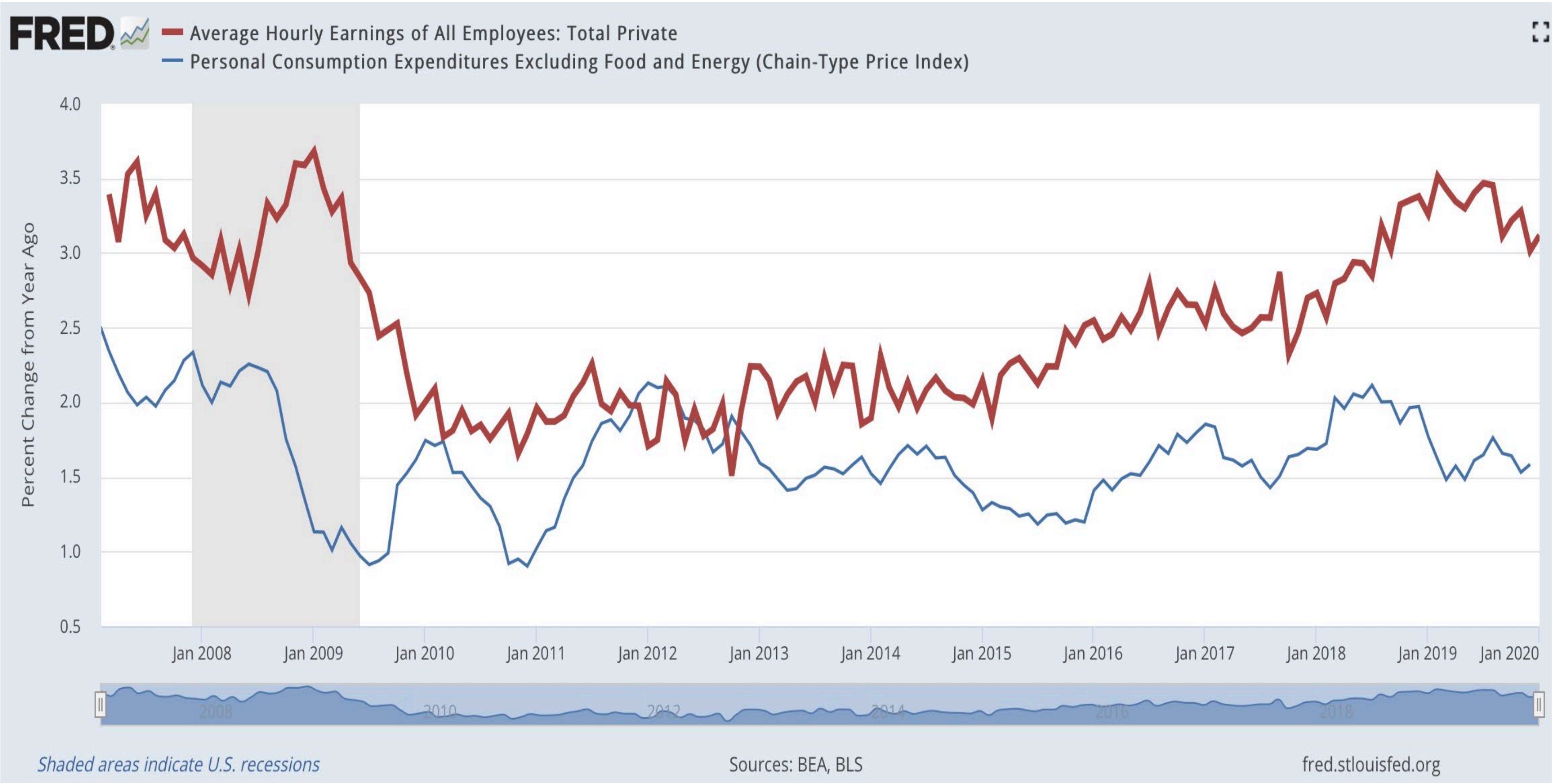


Note: See https://research.stlouisfed.org/wp/more/2014-046/ for more information about Economic Conditions Indexes.

In terms of job creation, 2019 finished the year nearly matching previous year's levels, and while January was lower than last year's level, it was still well above 200,000. As long as this number remains above 150,000 on an annualized basis, that will mean that new jobs are being created fast enough to absorb new workers.

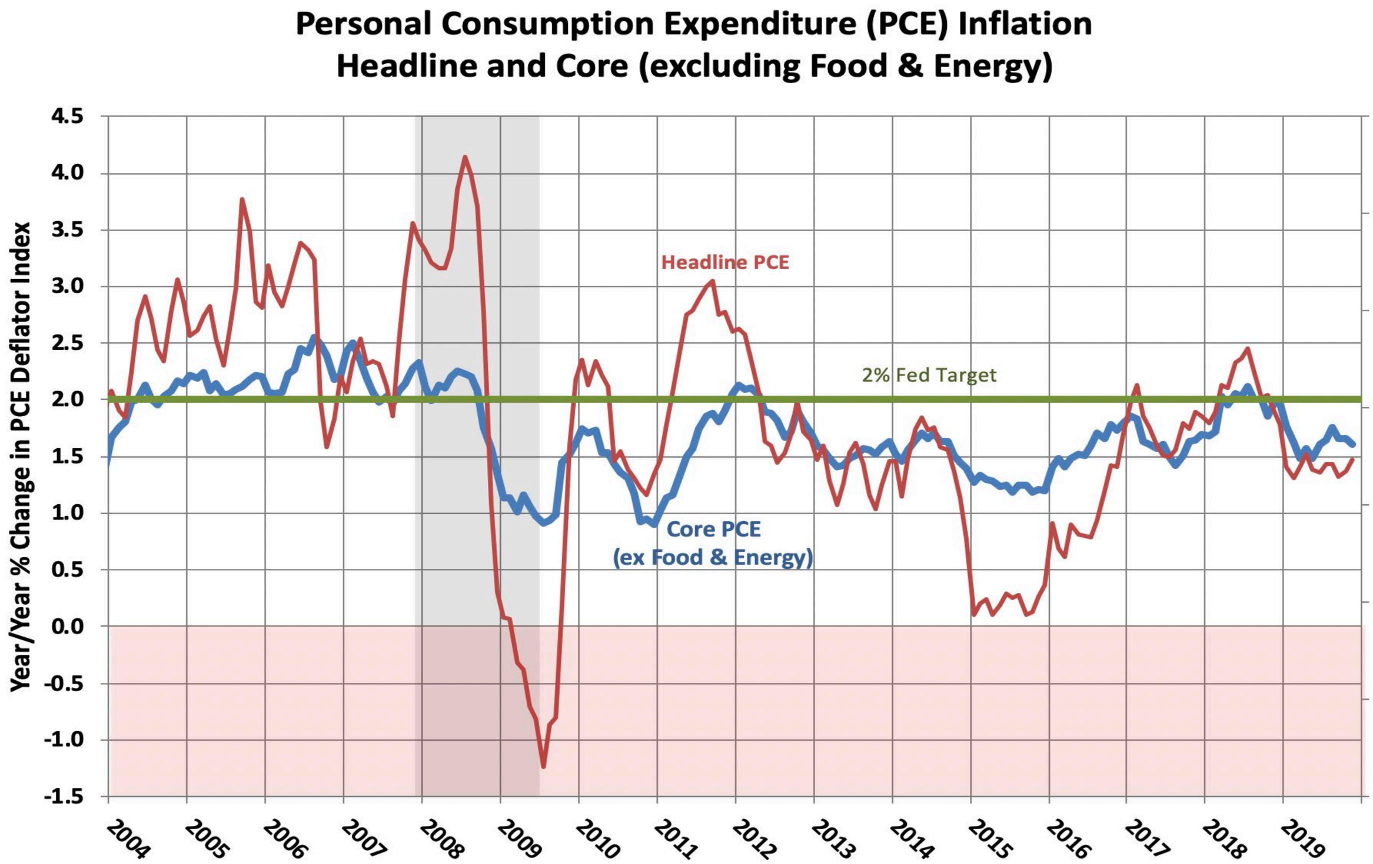


Average hourly earnings growth stagnated at around 2%/year from 2010 to 2014 and ratcheted up to 2.5% in 2015 where it settled through 2017. In 2018, with a tightening labor market, earnings growth started increasing again, topping 3% for the last three months of the year. However, in 2019, earnings growth has trended down, but with an uptick for January. That is still above inflation (shown for reference by the blue line) by a good margin, so it represents an increase in real terms.



For inflation, the Federal Reserve monitors the Personal Consumption Expenditure (PCE) price index, and more particularly, the Core PCE index, which excludes food and energy, because it is more stable than the volatile headline PCE inflation rate.

Core PCE inflation has been under the Fed's 2% target for nearly the entire duration of the expansion, and after flirting with that target for much of 2018, it drifted lower in 2019. The lower inflation outlook was one of the factors cited by the Fed when it began lowering the Fed Funds rate last July.



Source: BEA, Federal Reserve

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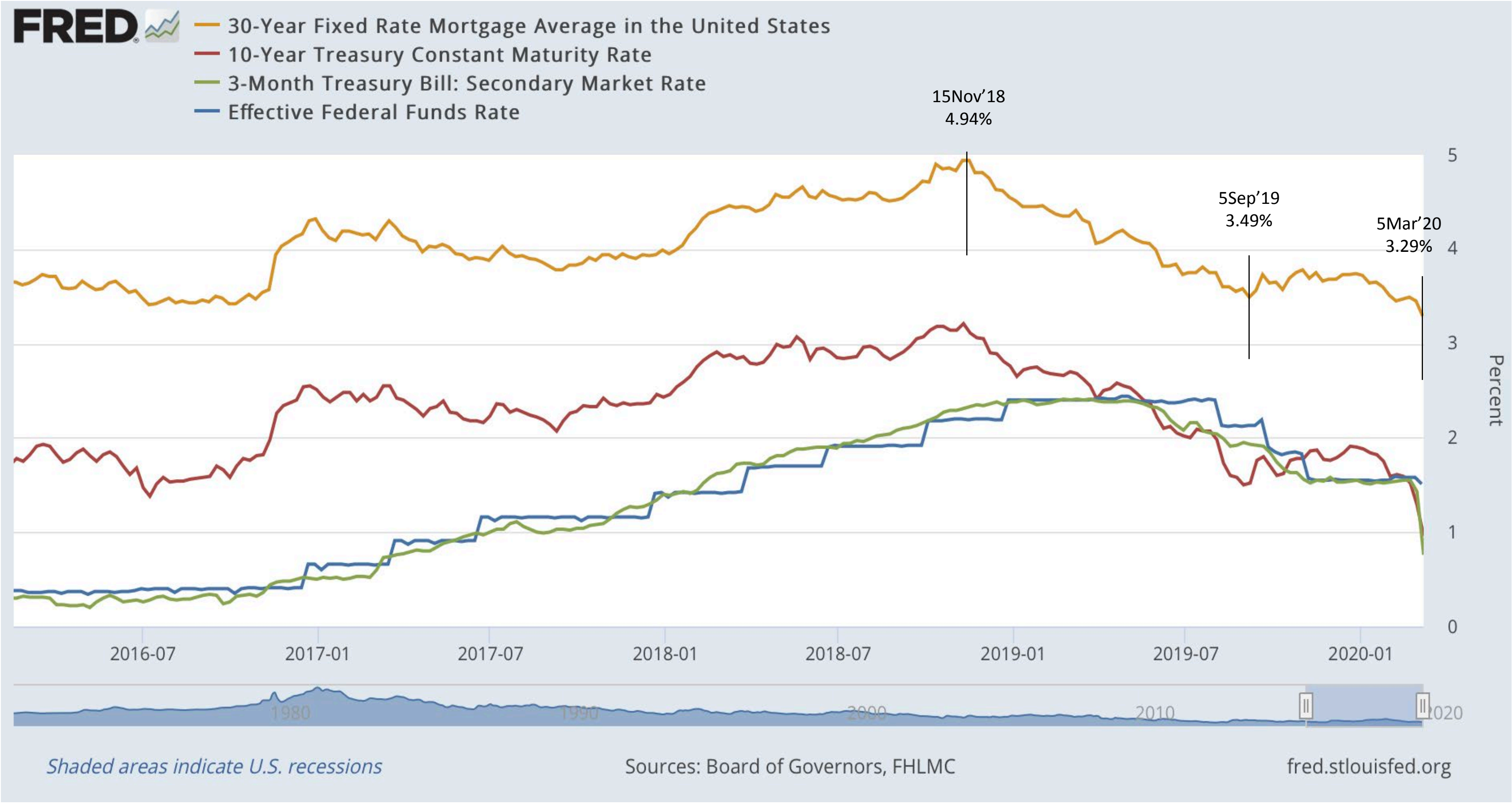
In less than a year, 10-year Treasury bond rates fell over 170 basis points (1.7 percent) and mortgage rates fell with them. Fixed mortgage rates for 30-yr mortgages bottomed at 3.49% in September. But, in the last weeks of February and early March, coronavirus concerns have panicked financial markets. Yields on the 10-year Treasury have hit all-time record lows and so have mortgage rates. The Fed made an emergency 0.5% reduction in the Fed Funds target rate on March 3* and markets expect another reduction at the Fed's regular meeting at the end of March.



* This chart is of weekly data and at the time we published, the Fed Funds Rate series hadn't yet been updated. It will drop to 1% at the next update.

The stock market has repeatedly set new records in the last few months. S&P 500 index hit its latest peak in mid-February. In the past, the peak of the stock market has been one of several leading indicators of business cycle change, with market turning points leading business cycle turning points by an average of a little more than a year. We believe that the recent peak may well mark the peak of this business cycle expansion.

Does this mean the stock market is now overvalued? According to the Shiller Price-Earnings (PE) ratio*, it is approaching, but still under, the PE ratio levels reached in 2018. Besides this time period, PE ratios have only been this high twice before: during the "Dot-Com" bubble of 1999-2000 and just prior to the market crash of 1929.

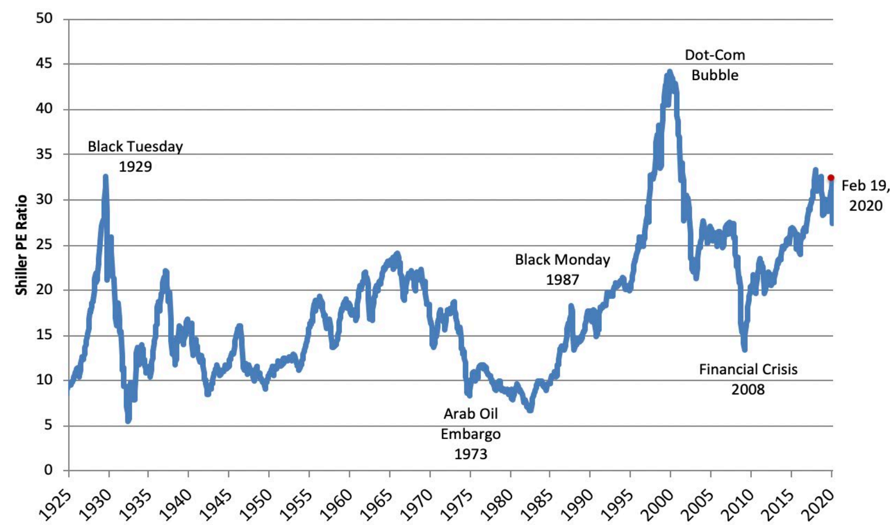
March 10 Update – As we were getting ready to release this presentation, the stock market was roiled by sharp declines triggered by the potential economic impact of the coronavirus epidemic. We believe this sell-off was inevitable and just looking for such a trigger.

* The Shiller PE ratio, also known as the cyclical adjusted PE (CAPE) ratio, is based on the 10-year average inflation-adjusted earnings of S&P 500 companies.

Stock Market Correction Triggered by Coronavirus Fears

Source: S&P, downloaded from fred.stlouisfed.org

Shiller PE Ratio of S&P 500



Source: multpl.com. The Shiller Price Earnings ratio is the S&P 500 index divided by the inflation-adjusted 10 year average annual earnings. Based on Robert Shiller analysis from his book, *Irrational Exuberance.*

The Conference Board Leading Economic Index® (LEI) for the U.S. increased in January

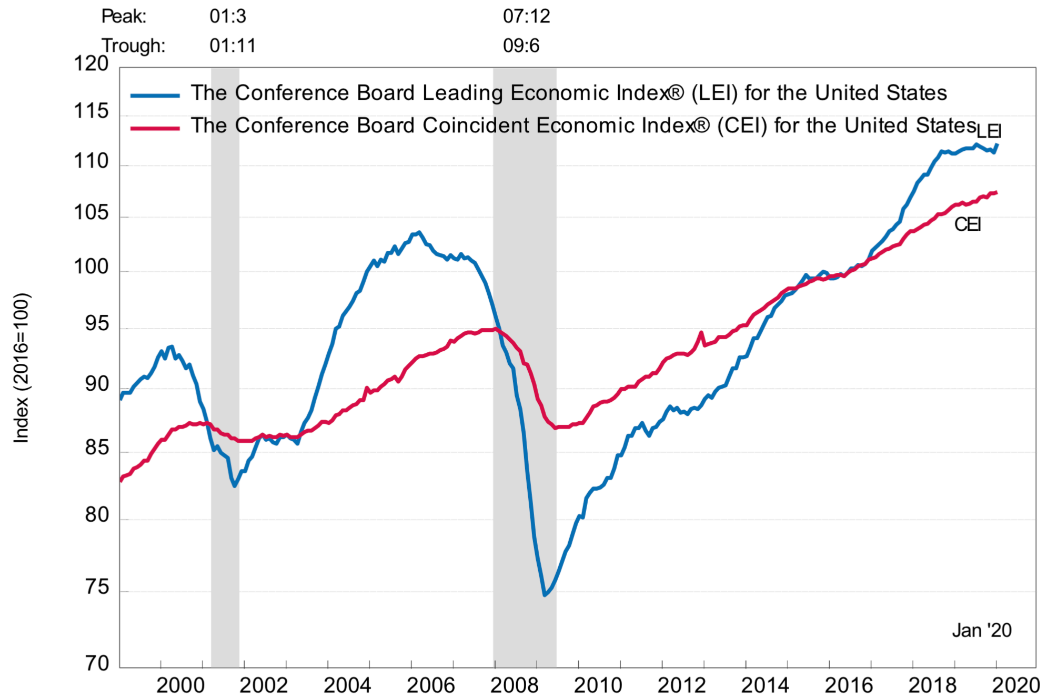
The Conference Board publishes monthly indexes designed to help analyze the health and strength of the U.S. economy. Their Leading Economic Index (LEI) consolidates the combined trends of 10 business and economic data series that have historically led economic performance.

In the latest month (January data, released in February), the LEI increased by 0.8%, the biggest one-month decline in 2019. Six indicators were positive in January, while three were essentially unchanged. Only the Institute of Supply Management (ISM) new orders index gave a negative reading.

Their bottom-line conclusion:

> *The LEI's six-month growth rate has returned to positive territory, suggesting that the current economic expansion – at about 2 percent – will continue through early 2020. While weakness in manufacturing appears to show signs of softening, the COVID-19 outbreak may impact manufacturing supply chains in the US in the coming months.*

- The Conference Board, Feb 20, 2020 release



Leading Economic Index

0	1	Average weekly hours, manufacturing
+	2	Average weekly initial claims for unemployment insurance
0	3	Manufacturers' new orders, consumer goods and materials
–	4	ISM® new orders index
0	5	Manufacturers' new orders, nondefense capital goods excl. aircraft
+	6	Building permits, new private housing units
+	7	Stock prices, 500 common stocks
+	8	*Leading Credit Index™*
+	9	Interest rate spread, 10-year Treasury bonds less federal funds
+	10	Avg. consumer expectations for business conditions

Source: The Conference Board, Feb 2020

Housing Market Conditions Overview

After years of struggle, the housing market is finally strong enough to make meaningful contributions to the economy. The year 2020 should be very positive for home construction and sales, if the coronavirus doesn't derail things.

- **Troubled Loans** – Delinquency and foreclosure rates are now so low they are setting records.

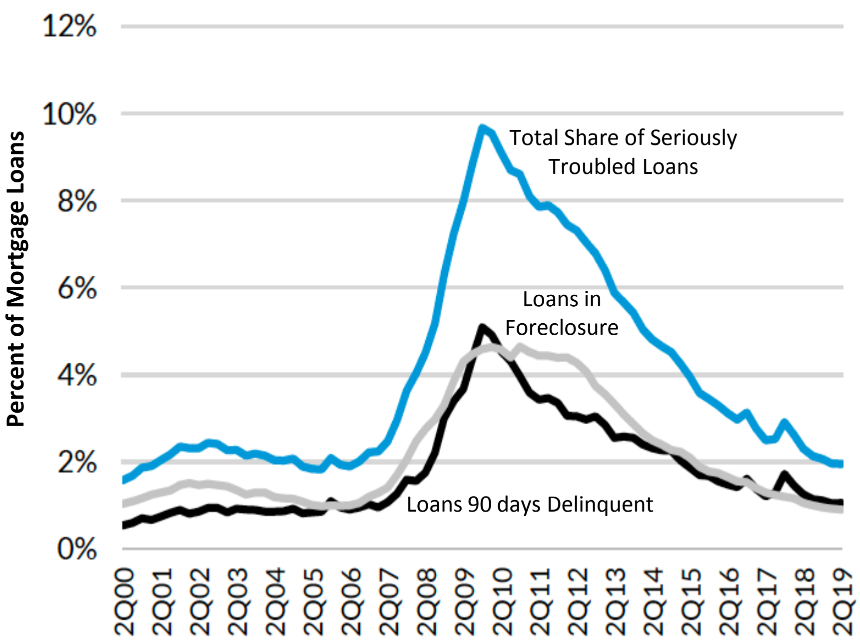
- **Housing Construction and Inventory** – Housing construction crashed during the Great Recession and took years to recover. However, as 2019 ended, home construction was experiencing a significant upswing. Single-family home construction is finally approaching levels of the early 1990s and multi-family starts are at record levels. The inventory squeeze still continues, as the higher construction levels still aren't keeping up with higher purchase demand.

- **Home Prices and Sales** – For 2018 and much of 2019, home prices continued to rise but at a decelerating rate. Home sales were being constrained by price levels that prospective homebuyers couldn't afford. However, improving affordability due to declines in mortgage interest rates, as well as an excellent labor market, stimulated purchase demand. By yearend, price appreciation was starting to accelerate again and will likely continue in 2020. Despite that, we do not expect to see prices rise enough to curtail home sales as they did in 2018.

- **Homeownership Rates** – They are rising again, led by gains from householders under 35 years old. FTHBs represent a growing share of total homebuyers, and Millennials represent a growing share of those FTHBs.

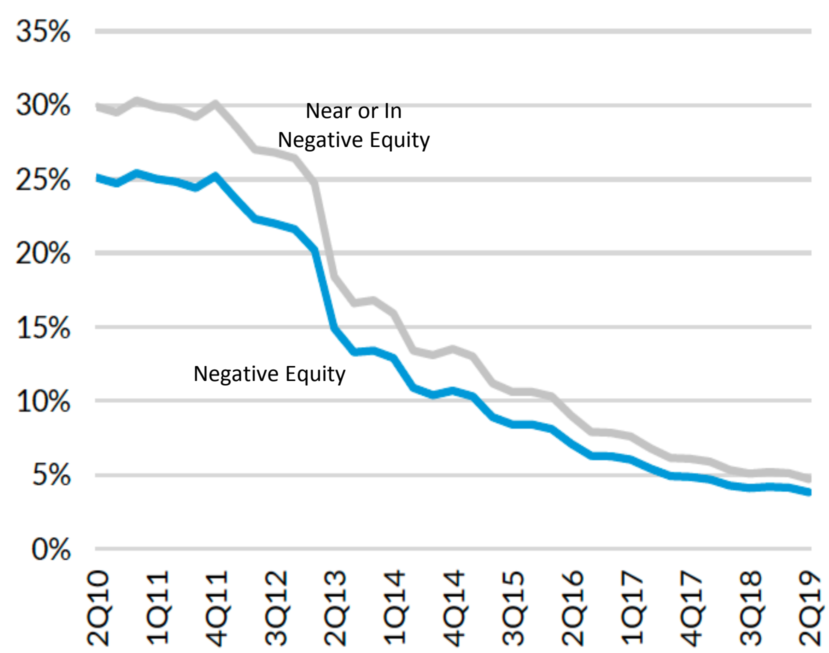
At 2%, the share of seriously troubled mortgage loans is now at the lowest level since 2006. Moreover, the share of loans with negative equity have hit their lowest levels in more than 10 years, now below 5% of loans outstanding.

Loans Seriously Delinquent or In Foreclosure



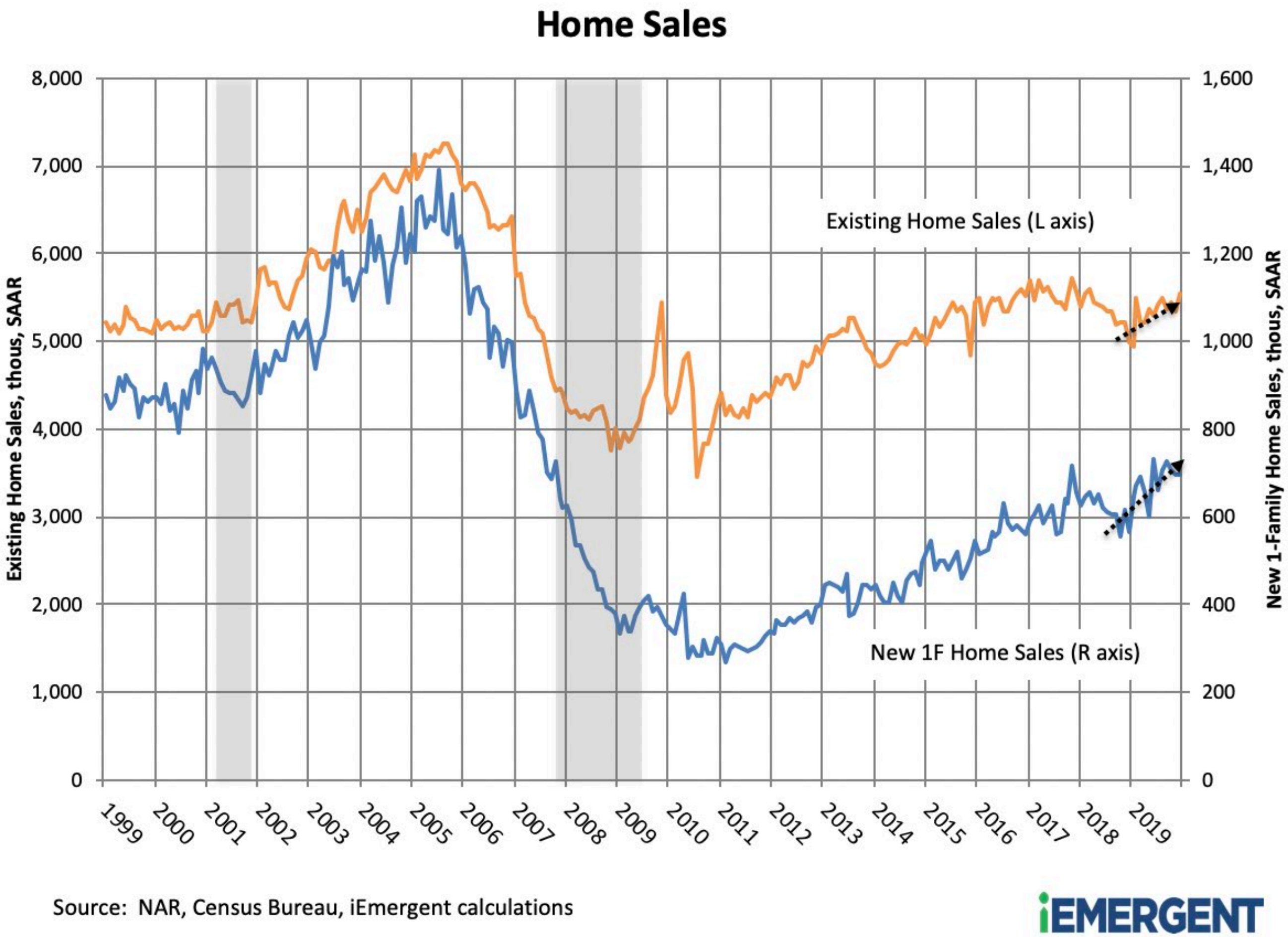
Source: Mortgage Bankers Association, from Urban Institute's monthly "At a Glance" chart book.

Negative Equity Share

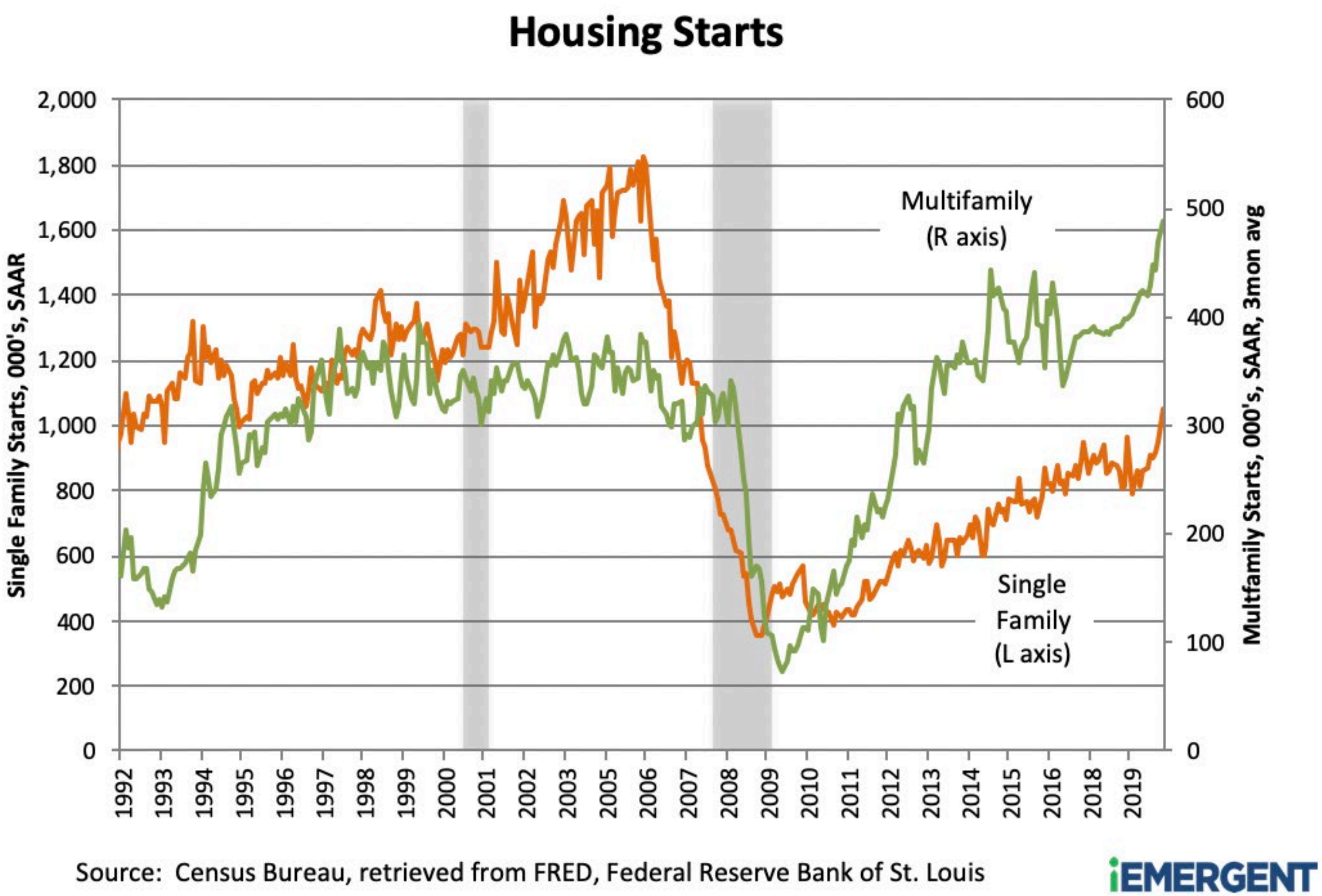


Source: CoreLogic and Urban Institute. Chart from Urban Institute.
Note: Loans with negative equity refer to loans with LTV above 100%. Loans "near" negative equity refer to loans with LTV above 95%.

In fits and starts, home sales trended higher in 2019. Healthy economic conditions, highlighted by hardy labor market conditions and falling mortgage rates, have helped stimulate demand for home purchases. Inventory continues to be tight, however, especially in bigger markets. Nevertheless, we expect strong purchase demand to continue in 2020 and push sales levels higher.



Housing construction took off in 2019 and finished the year on a high note. Multifamily starts hit record levels in December. Single family starts, very sluggish since the recession ended, are back up to the levels of the early 1990s. In December, builder sentiment hit its highest level in 20 years. A growing home construction industry will help ease the inventory problems that have plagued housing for years. Moreover, housing construction is an area of the economy that has beneficial multiplier effects – new homes need new furnishings, new appliances, etc., as well as new infrastructure. This is a very positive direction for housing and for the overall economy. Housing is actually poised to help accelerate the economy, the first time that has been true through this entire expansion cycle.



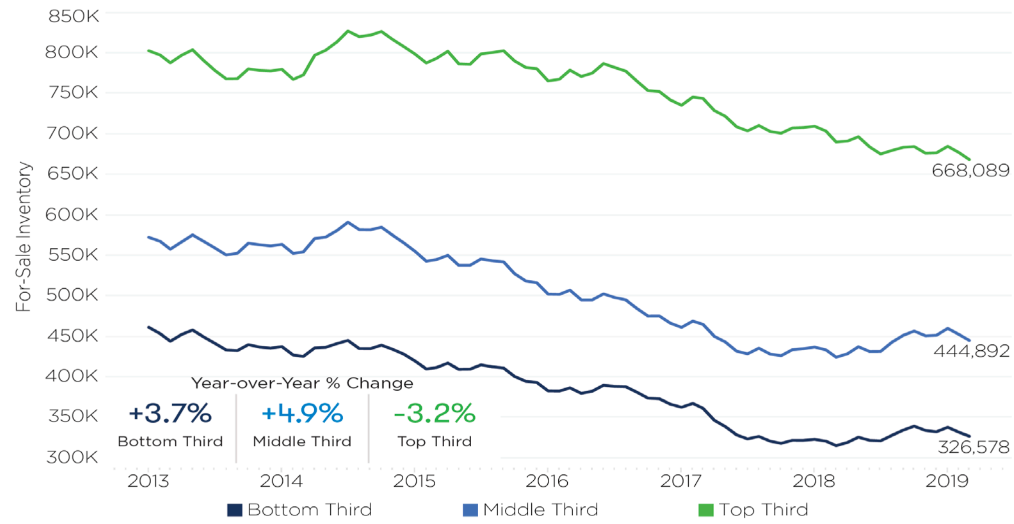
As a result of continued low levels of construction and lower mobility (homeowners leaving existing homes to move up to bigger homes), the inventory of homes to sell had declined for several years. That inventory squeeze remains most severe for homes in bottom third and middle third of home values. However, inventories in those two segments did begin rising in late 2018.

With inventory pressures in the lower two thirds of home values, it's no surprise that price pressure has been greatest in those segments.

Historically, when price pressure has created affordability problems for prospective homebuyers, those homebuyers lowered their sights and bought cheaper homes. But in this environment, there have been fewer homes at the cheaper end, so those prospective buyers had to postpone home purchases.

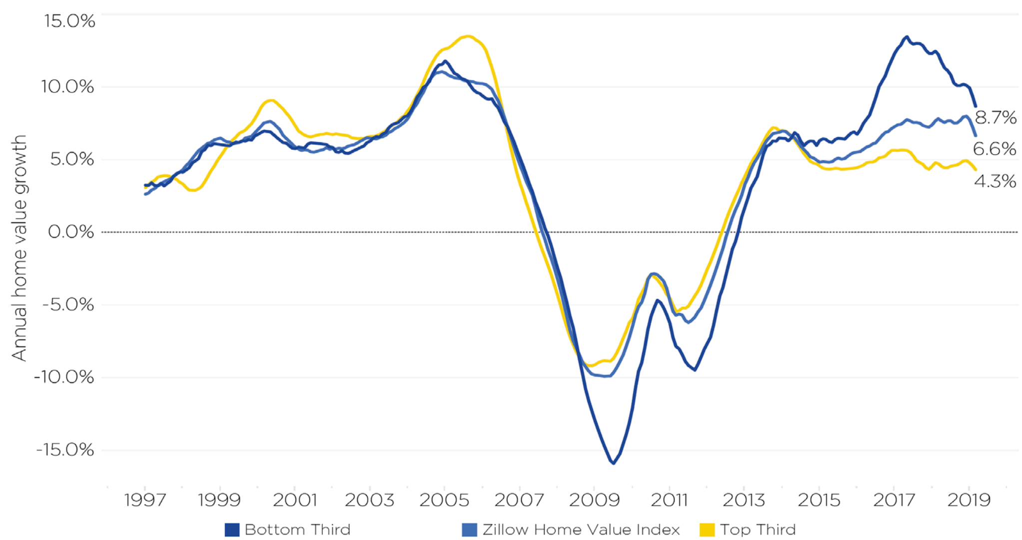
Zillow For-Sale Inventory, by Thirds

Inventory shortages are particularly acute among bottom- and middle-third homes.



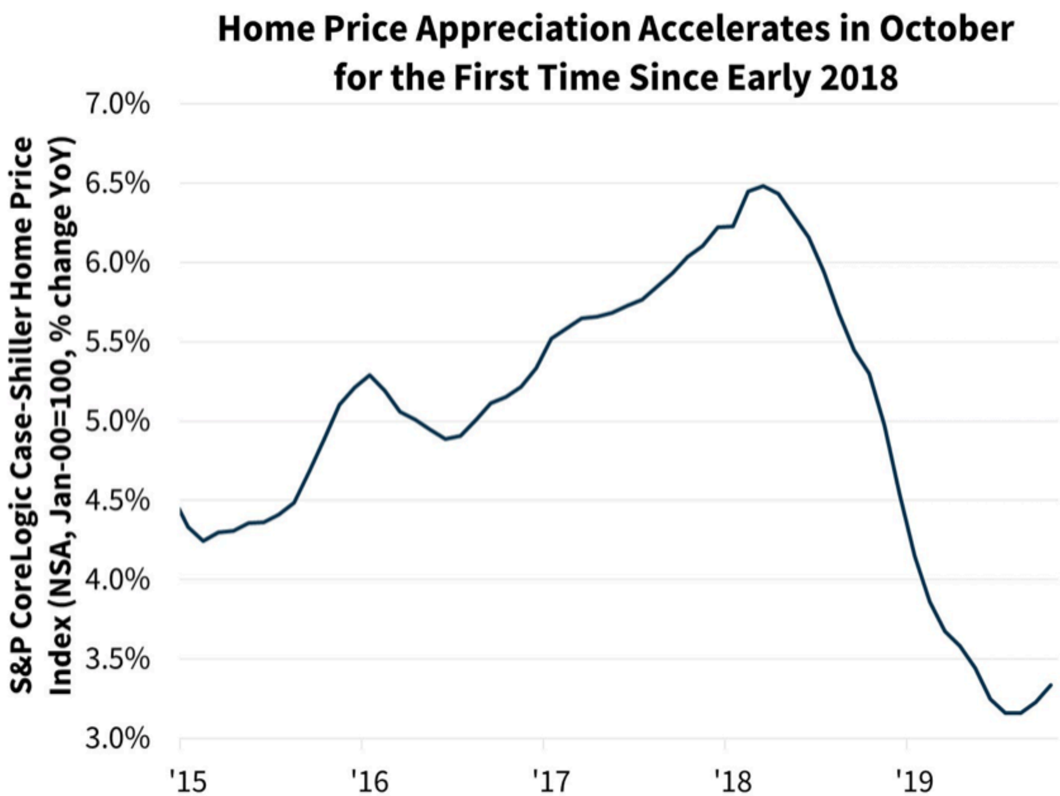
Annual Home Value Appreciation, by Thirds

Home value appreciation among homes valued in the bottom third has slowed somewhat, but the annual pace of growth is still more than double that of top-third homes.



Home prices have been rising since 2012 in virtually the entire country. The rate they have risen has changed with market conditions. In 2018, national home price appreciation peaked at nearly 6.5% and then began to decline. Prices had reached levels that constrained prospective homebuyers' ability to afford buying a home. Sales slowed and thus price appreciation began to slow as well.

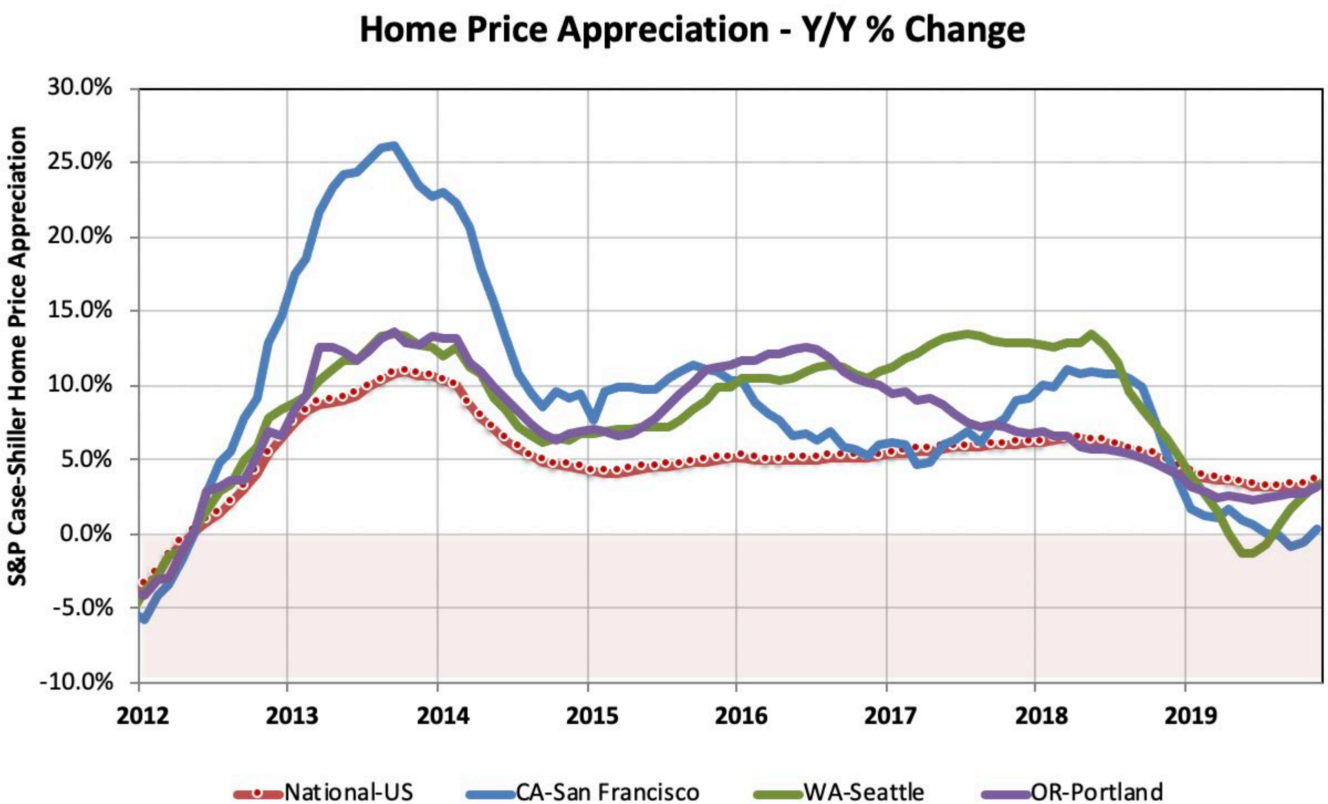
However, as interest rates declined in 2019, affordability improved and helped stimulate purchase demand. By yearend, the 2018 dynamic had reversed. Price appreciation started increasing again, a trend we expect to continue through 2020.



Source: CoreLogic, as reported in Fannie *Economic Developments* monthly newsletter, Jan 21, 2020.

Home price appreciation (HPA), measured as year-over-year growth in the home price index (HPI), reached a multi-year high of +6.5% in early 2018. That cooled home purchase demand significantly. But with slowing sales, price appreciation began to slow as well. The national HPA dropped to +3.2% in July 2019 before ticking back up to +3.5% in November. At this rate, home prices are increasing just about as fast as average hourly wages.

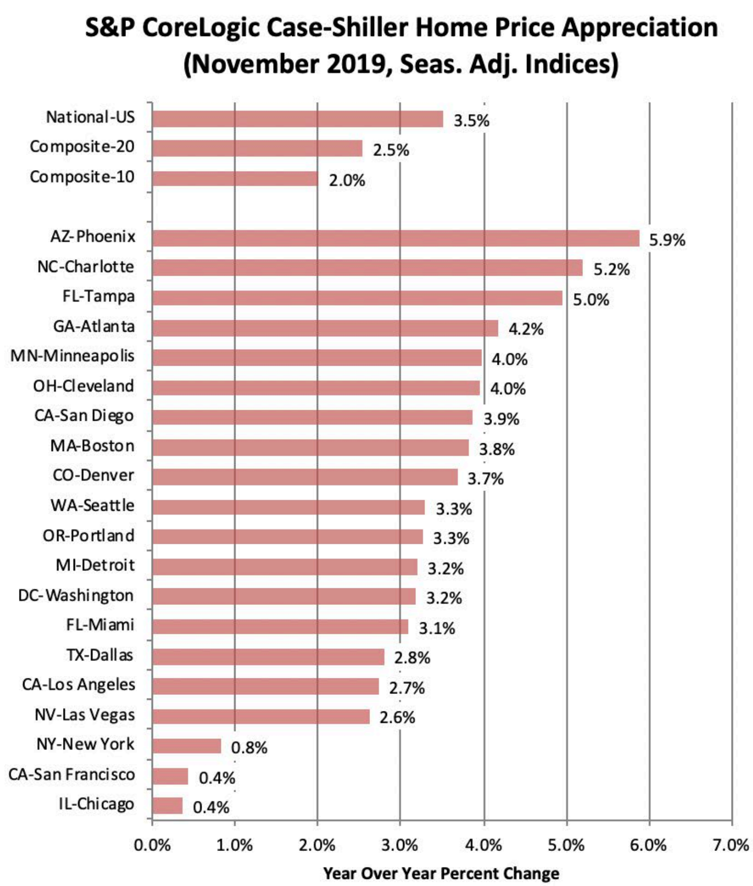
In some markets, HPA slowdowns were very rapid. San Francisco and Seattle experienced steep HPA decreases in the second half of 2018; and in 2019, both markets' HPAs went negative (home prices declined) for a while. Portland's HPA decrease started earlier (in 2016) but hasn't been negative since early 2012.

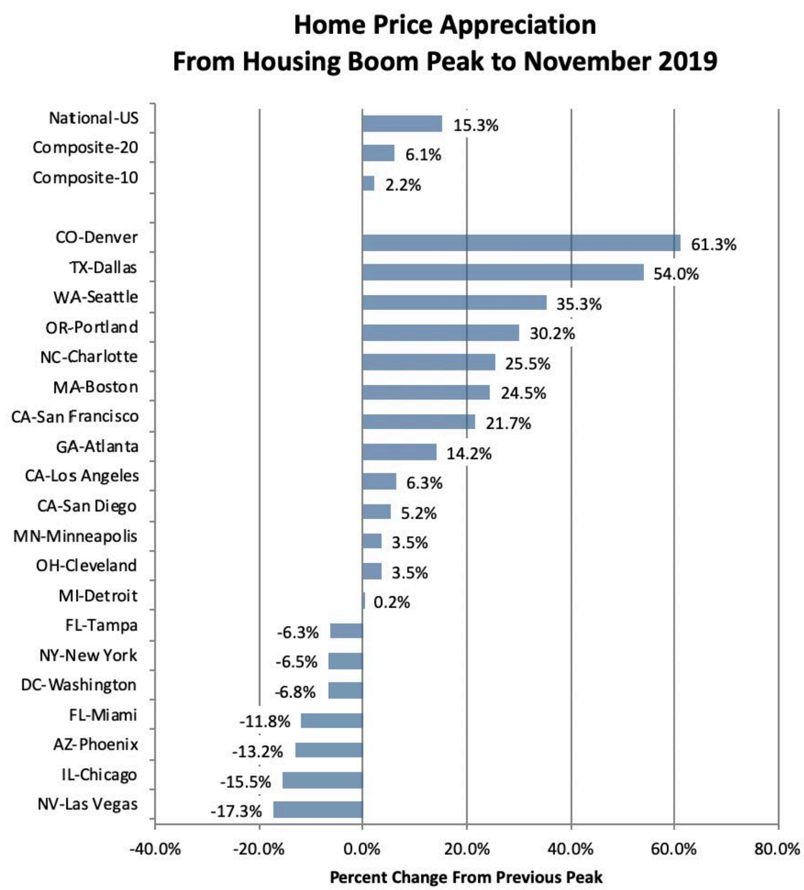


Source: S&P, iEmergent calculations

When we put these charts together last year (for September 2018), the fastest-growing home prices were in Las Vegas and San Francisco (+12.9% and +7.9%, respectively). Since then, both those markets have cooled considerably. Las Vegas home price appreciation is down to +2.6%, and for San Francisco price appreciation is down to +0.4% (left chart).

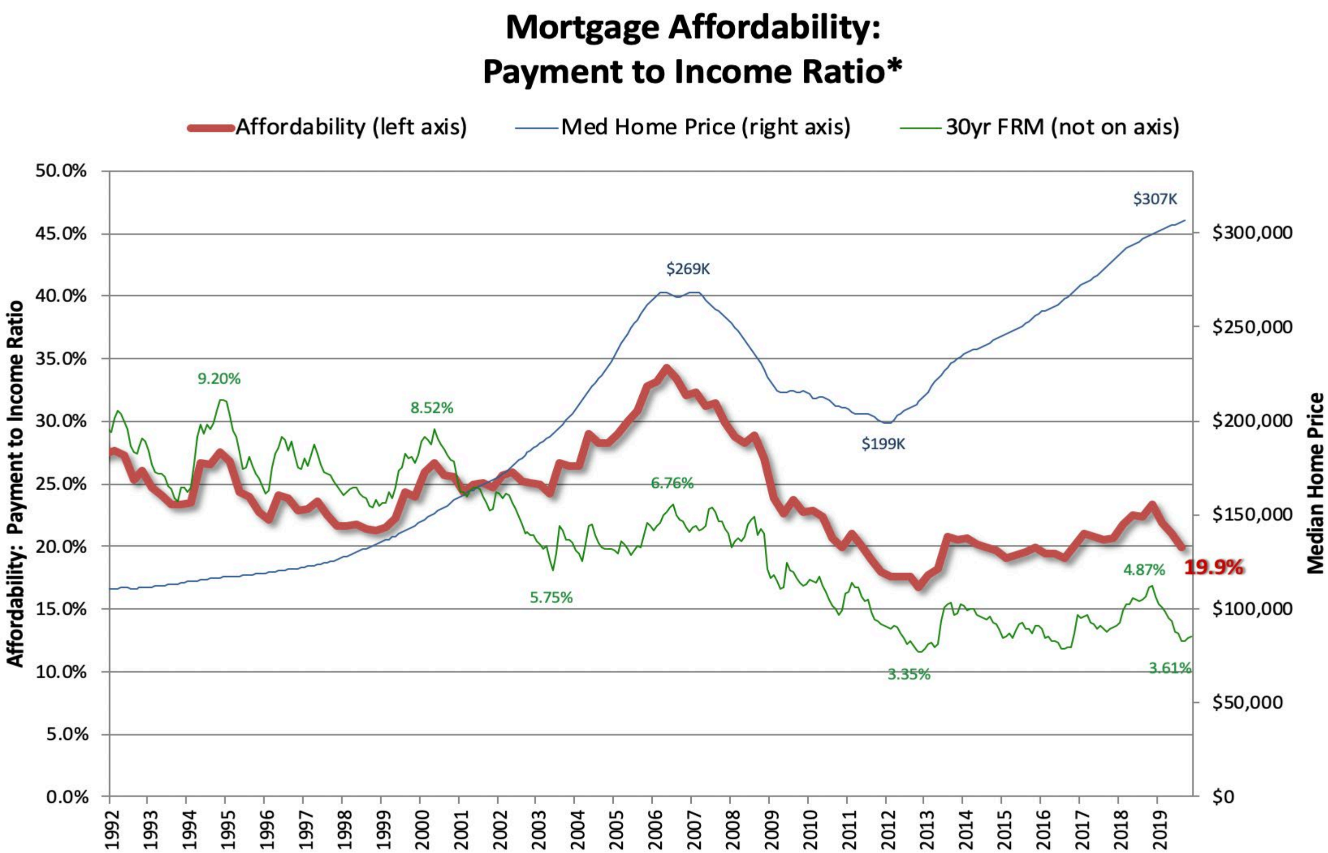
More and more major markets are finally surpassing their previous peak price levels reached during the Housing Boom (right chart). Minneapolis, Cleveland and Detroit are the latest markets to fully erase home price declines experienced during the Housing Bust. Seven of the top twenty housing markets still haven't recouped those losses. Most are from the infamous "sand state" markets in Arizona, Nevada and Florida. They had the most catastrophic home price declines during the Bust.





Source: S&P, iEmergent calculations

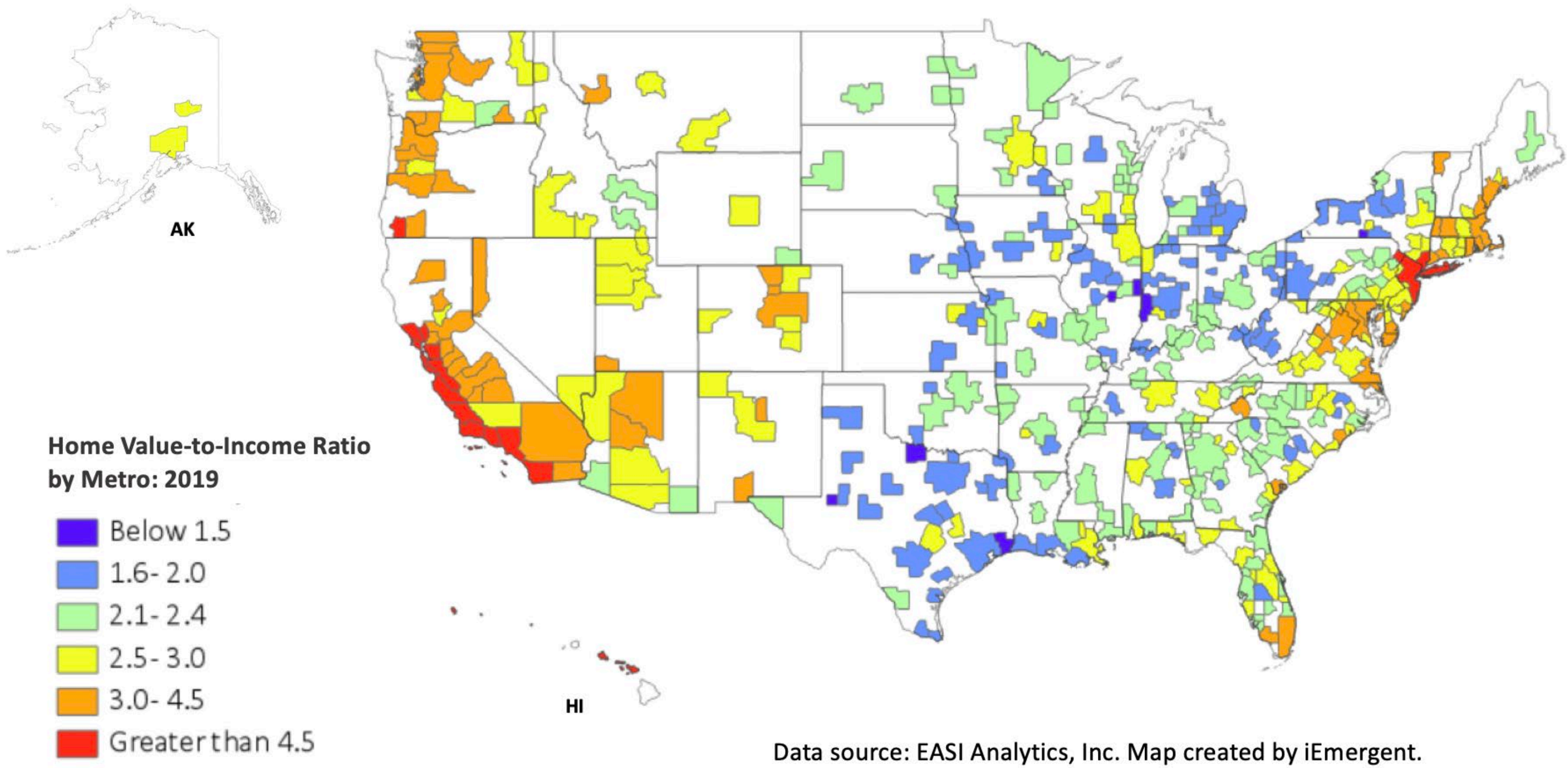
As mortgage interest rates declined in 2019, housing affordability (as measured by the mortgage payment-to-income ratio) became easier. Housing affordability is determined mainly by three factors: household income, home prices and mortgage rates, the latter two which are shown on this chart. With home price appreciation slowing in 2019 to about the rate of income gains, mortgage rates became the primary factor affecting change in affordability. When mortgage rates initially bottomed out in Q3, only 19.9% of the median household income was required to afford mortgage payments on the median priced home – the lowest level in 3 years and a level lower than any point in the decades of the 1990s and 2000s. Since then, mortgage rates have fallen further.



* Payment to Income Ratio is the percent of the median household income required to make payments on a median priced home with a 30-yr fixed rate mortgage at 80% LTV.
Source: iEmergent calculations using data from FHLMC, Census Bureau, S&P, BEA

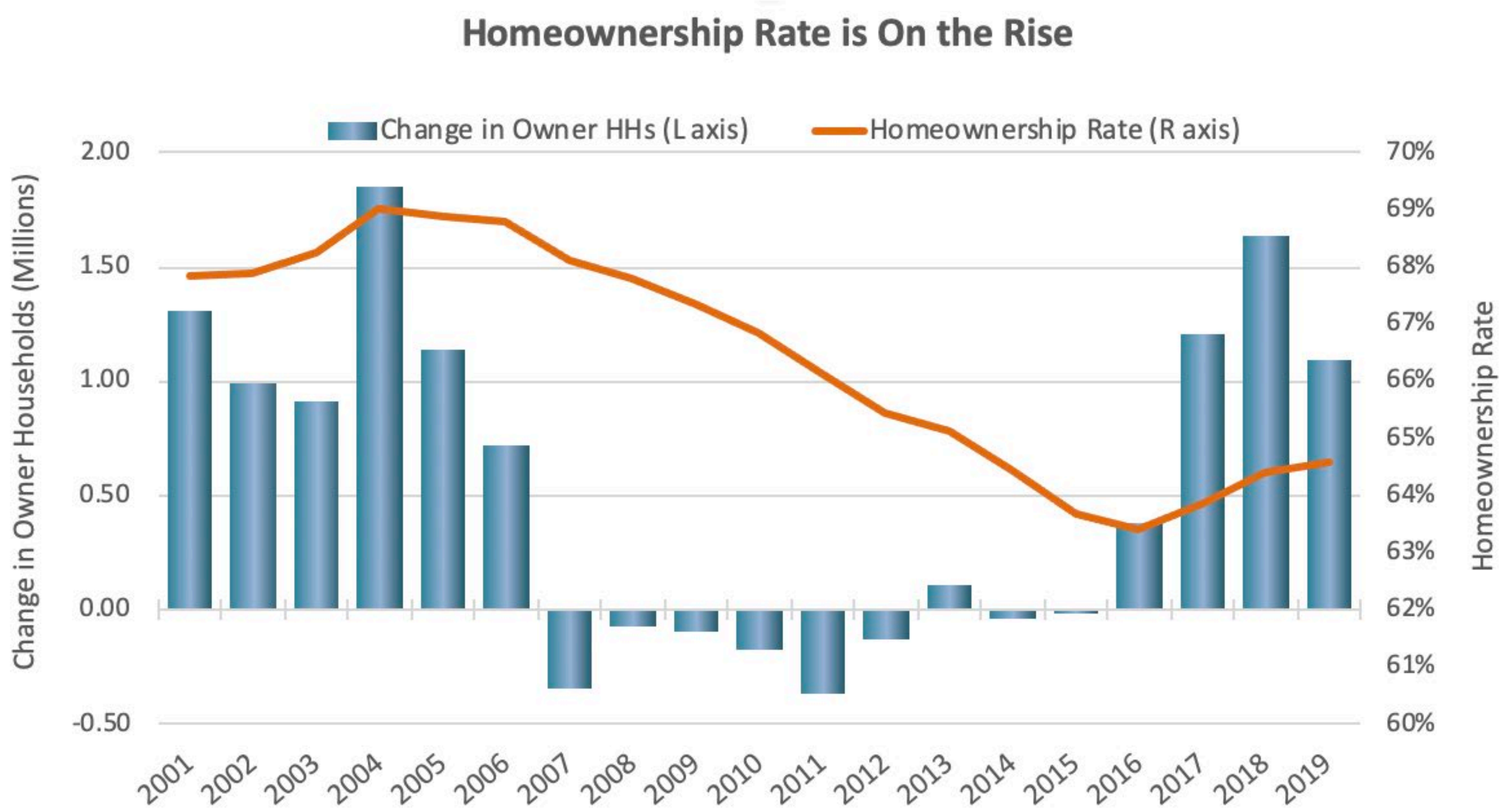
Looking at affordability on a national level is quite different than looking at it on a local level. This map provides an illustration of that difference. In last year's version of this presentation, we showed a similar map. This year, it shows that affordability in coastal regions has gotten even tougher. However, markets in the middle of the country remain very affordable.

Home Value-to-Income Ratios Vary Between Markets



Data source: EASI Analytics, Inc. Map created by iEmergent.

The homeownership rate (HOR) in the U.S. had been declining steadily for over a decade and reached lows not seen since the mid-1960s. But since 2016, the HOR has risen steadily from its low of 62.9% in Q2/2016 up to 65.1% in Q4/2019 (64.6% for the year). Part of this has been due to sustained healthy economic conditions, but more significantly, the households in the large Millennial segment have finally reached the point where they are buying homes in growing numbers.



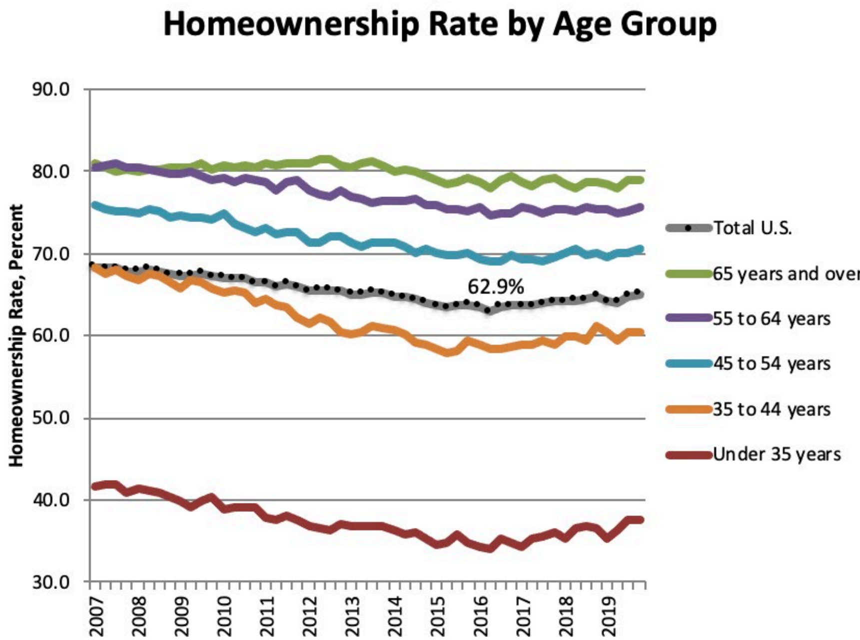
Source: Census Bureau Housing Vacancy Survey

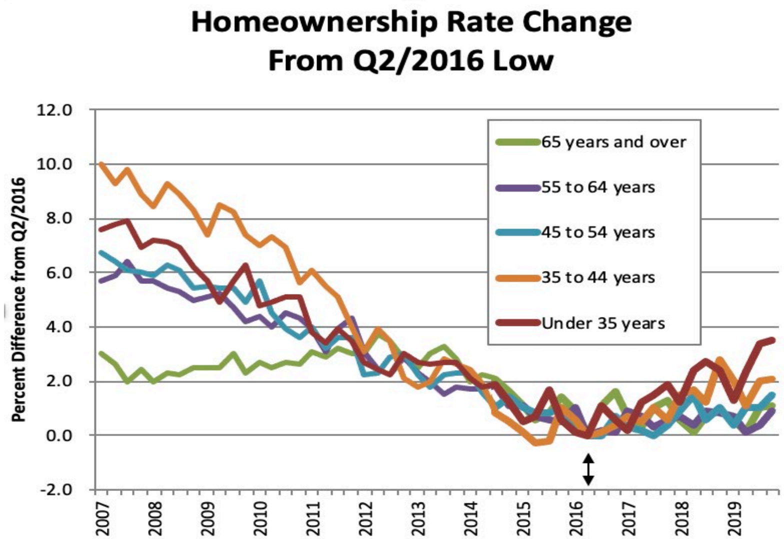
iEMERGENT

Deconstructing the national homeownership rate into age segments shows the expected general dynamic that the homeownership rate increases with age.

It also reveals other insights:

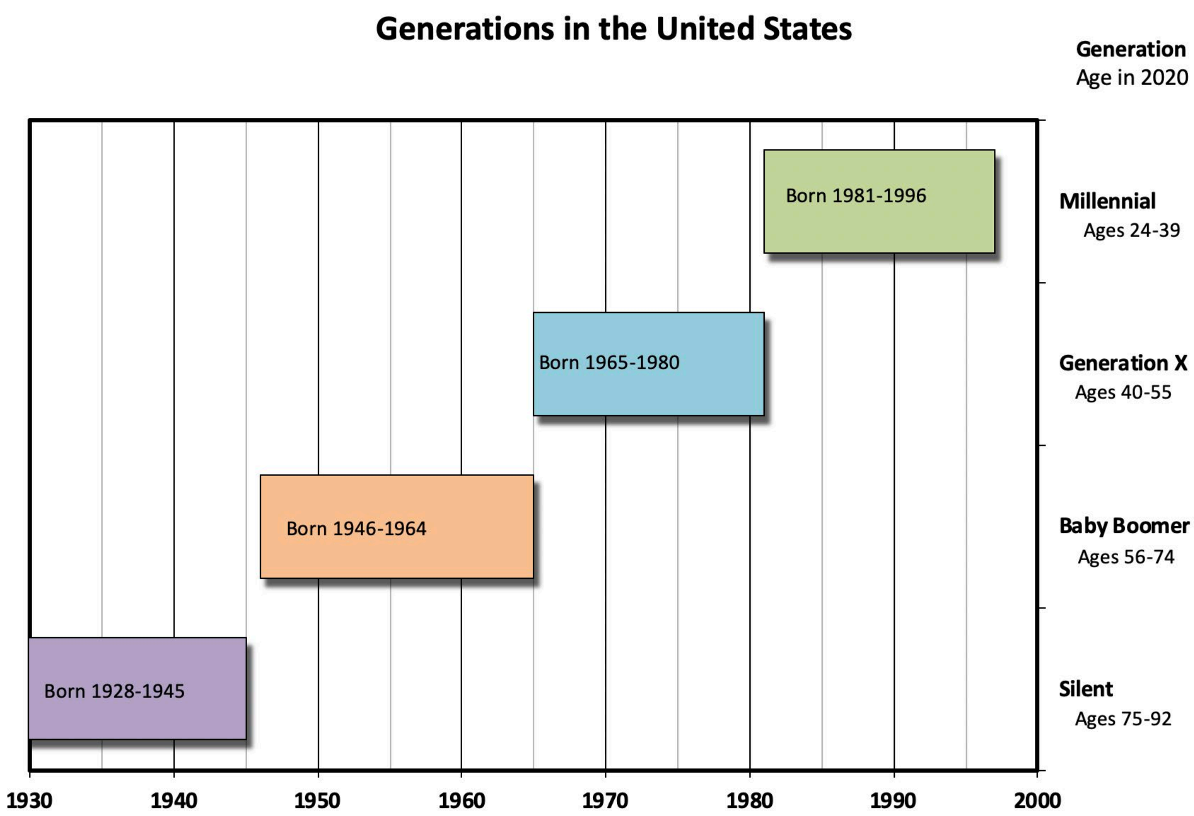
- The 35-44 segment (primarily the youngest segment of Gen X) was hurt most by homeownership rate declines during the Housing Bust. They were the unfortunate people who bought more homes closest to the top of the market and experienced more defaults and foreclosures when the market crashed.
- The 65 and older segment was barely affected at all by the Housing Bust but has declined since the Bust ended. The primary cause of this is likely the movement of households in the 55-64 age group into the 65+ group in the last 6 years.
- Since the homeownership rate low-point of 62.9% in Q2/2016, the youngest group (under 35) has led the way higher, followed by the 35-44 segment. The Millennial generation is increasingly dominating the rise in homeownership.





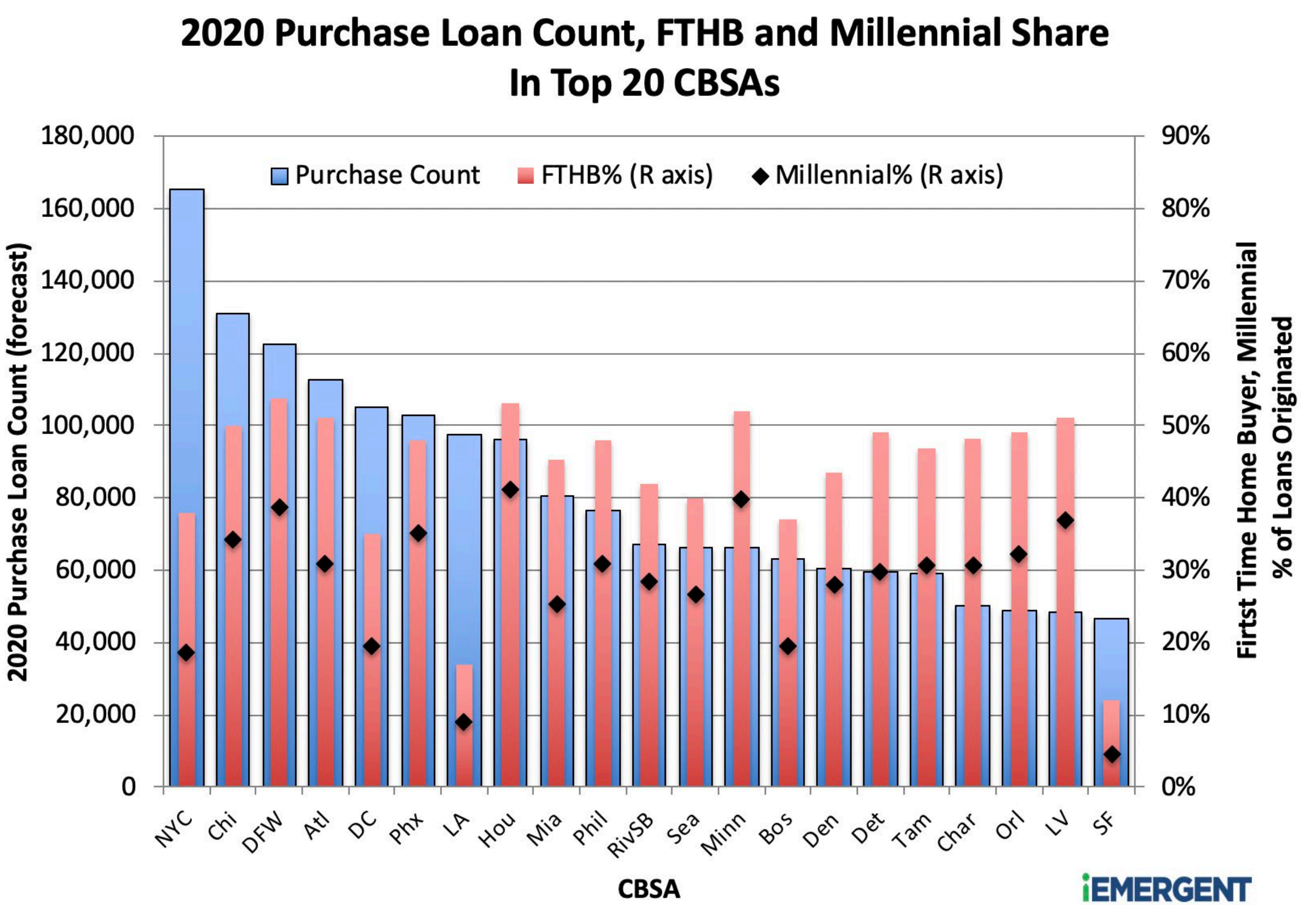
Source: Census Bureau Housing Vacancy Survey

Most of the households in the Millennial generation are now smack in the middle of their peak home buying years. It took a while for them to get there. The Millennials formed households later (at an older age) and bought their first homes later than any previous generation. Part of what drove that was economic, with the Great Recession and its aftermath of slow economic recovery, particularly for the young. But more of it was societal, with people staying in school longer and getting married and starting families later. The much larger educational debt load of members of the Millennial generation has also slowed their ability to form households and purchase homes.



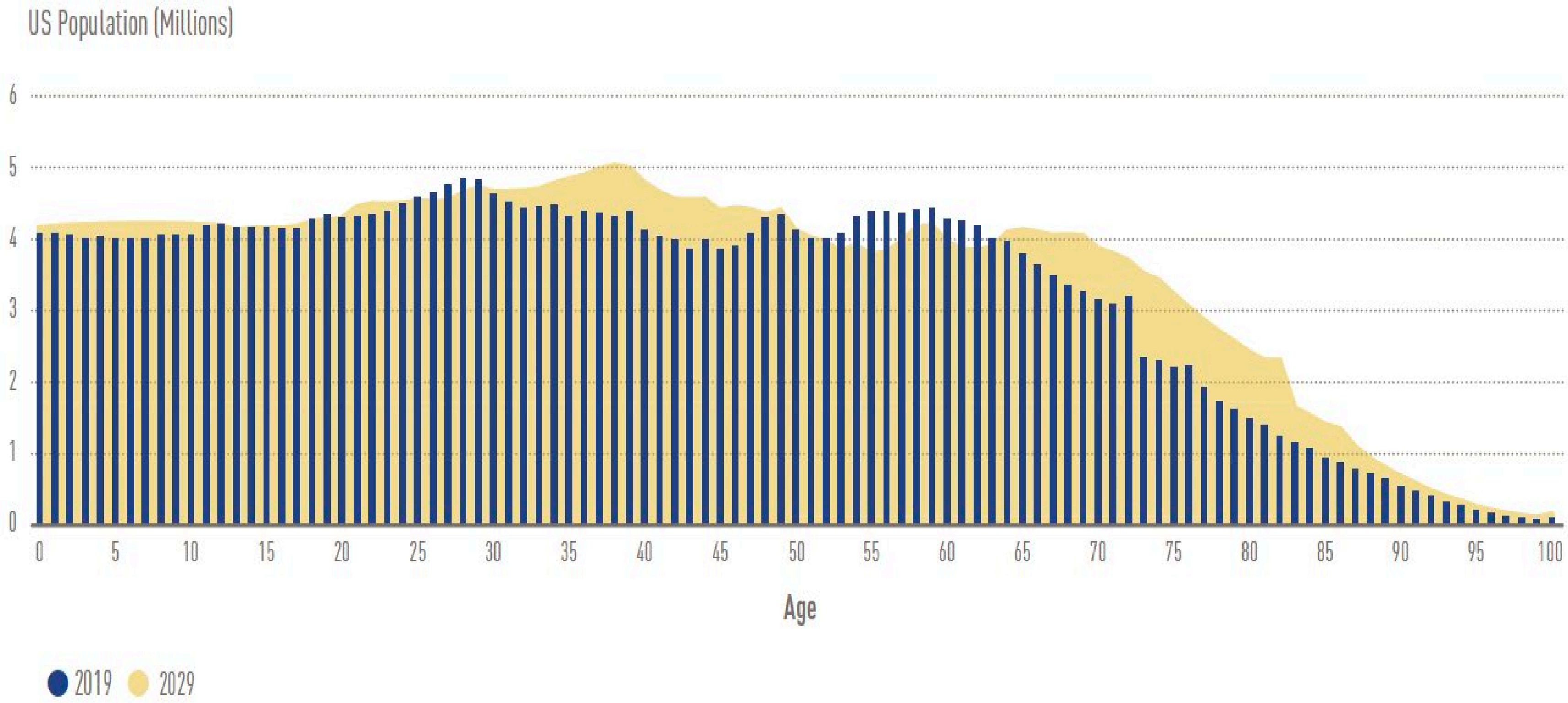
Source: Pew Research Center

The first-time homebuyer (FTHB) share of the purchase market is now over 43% and continues to grow. The Millennial portion of that FTHB segment is nearly 65% and also continues to grow. However, from market to market, those percentages can vary considerably depending on housing affordability conditions and income levels by age group. For instance, in 2020, we estimate that the New York core-based statistical area (CBSA) had the the most purchase loans, but Chicago had the most FTHB loans and Dallas/Ft. Worth had the most Millennial loans. And while 69% of the Las Vegas FTHB segment was made up of Millennial buyers, Millennials made up only 5% of the San Francisco purchase market.



In the next ten years, the two huge Millennial and Baby Boom generation segments will significantly alter the housing demand picture. Millennials will have shifted to the stage of life where they will be leaving their starter homes to look for bigger homes to accommodate their growing families. Boomers will be downsizing. Their children will have left to form their own households, so they'll be shifting to smaller homes as more of them retire.

Over the Next Decade, the Millennial and Baby-Boom Generations Will Swell the Populations in Key Age Groups



Source: Harvard University Joint Center for Housing Studies, *State of the Nation's Housing, 2019.* Data from Census Bureau.

Mortgage Market Conditions Overview

- Following the rapid decline of mortgage interest rates in 2019, origination volume soared, driving production to $2.28 Trillion. Refinance volume doubled and purchase volume also experienced a sizable year-over-year gain.

- For 2020, bolstered by hardy economic conditions and the large, increasingly affluent Millennial segment, purchase volume will continue to thrive, growing by an expected 6%, though it will still be constrained by tight inventories in many markets.

- Refinance applications tailed off as 2019 ended, but with another interest rate decline in February, they spiked up again. Lender pipelines are still quite full, so the first half of 2020 will look a lot like the second half of 2019 in terms of refi production. With rates plummeting due to the coronavirus scare, another refinance spike has begun. For 2020, we expect another 50%+ increase in refi volume from 2019's elevated level.

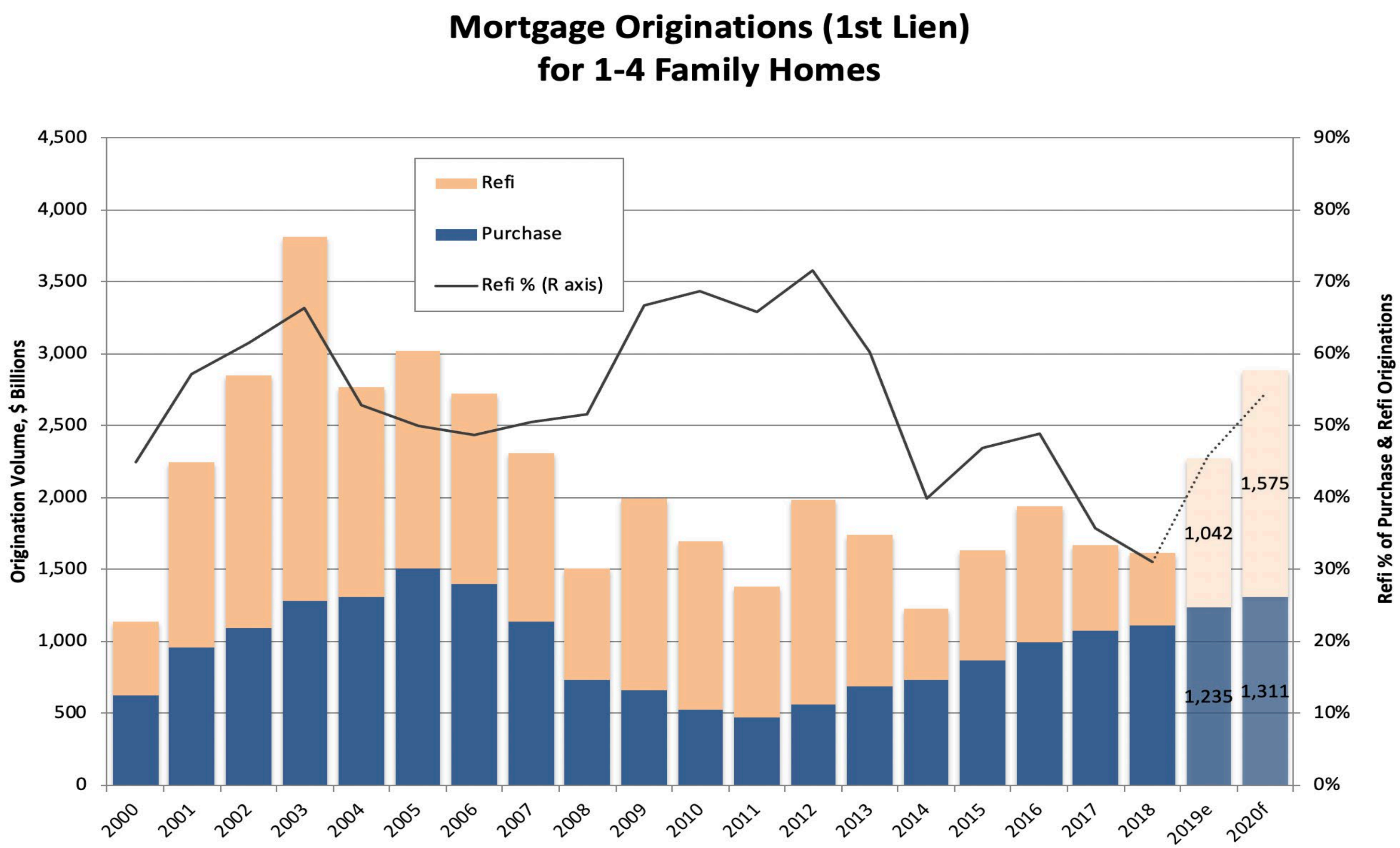
- In total, we expect the size of the 2020 mortgage originations market will increase by an estimated 27% from the 2019 market, the biggest origination year since 2005. But the impact of the coronavirus remains a wildcard.

- Credit availability continued to be too tight in 2019 and has more room to loosen in 2020. However, in the current environment of economic and financial uncertainty, that won't happen.

- Traditional banks continue to reduce their footprint in mortgage lending as independent mortgage lenders increase their market share. Independents continue to lead the way at expanding credit availability to borrowers with lower FICO scores.

With a big surge in refinance volume, 2019 mortgage originations finished at an estimated $2.28 trillion, their highest level since 2007 and over 40% higher than the year before. We estimate that refinances were 46% of total 1st lien mortgage originations.

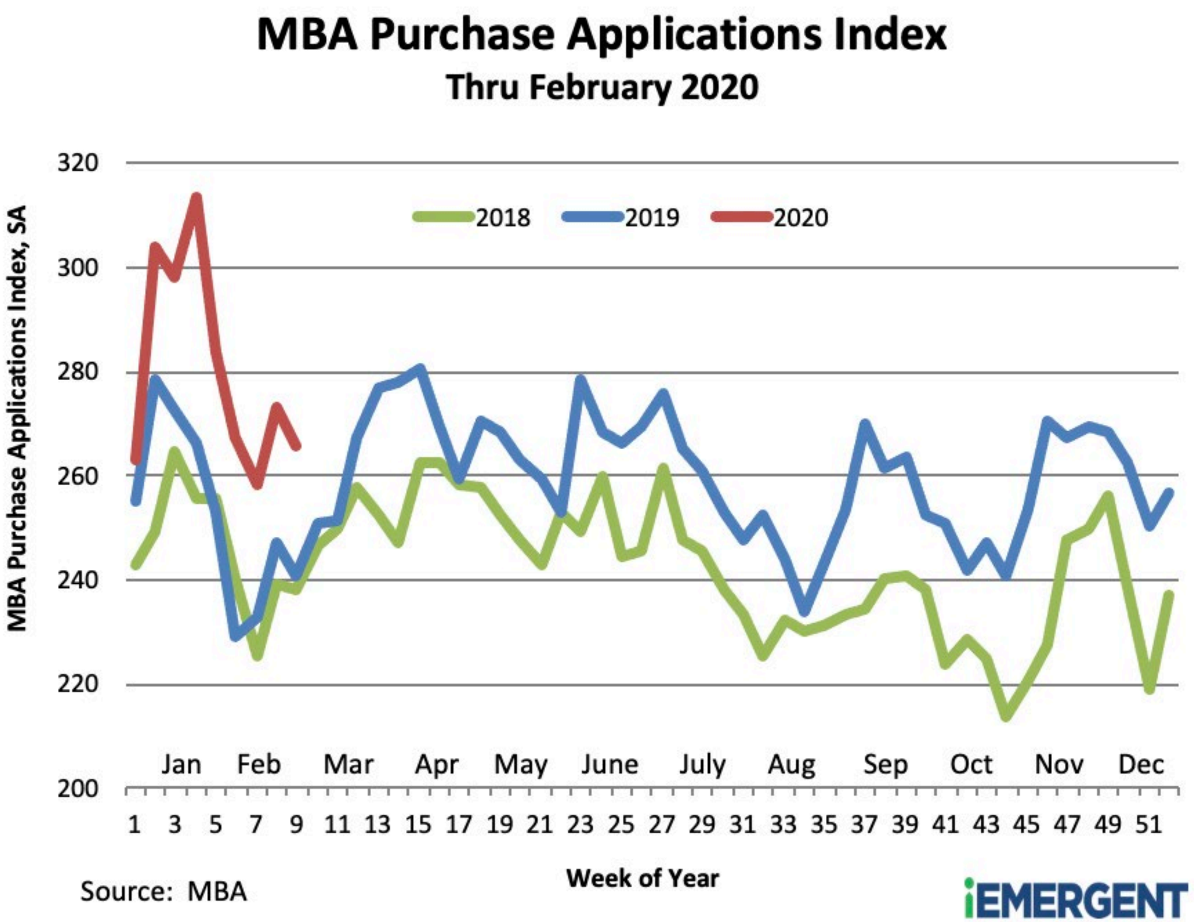
For 2020, we forecast a 27% increase in mortgage volume, with a modest 6% increase in purchase funding combined with a whopping 51% increase in refinance volumes, for a total of $2.89 trillion, the biggest origination year since 2005.



Source: Historical data from MBA and HMDA. 2019 estimate and 2020 forecast from iEmergent (using midpoint refi estimate).

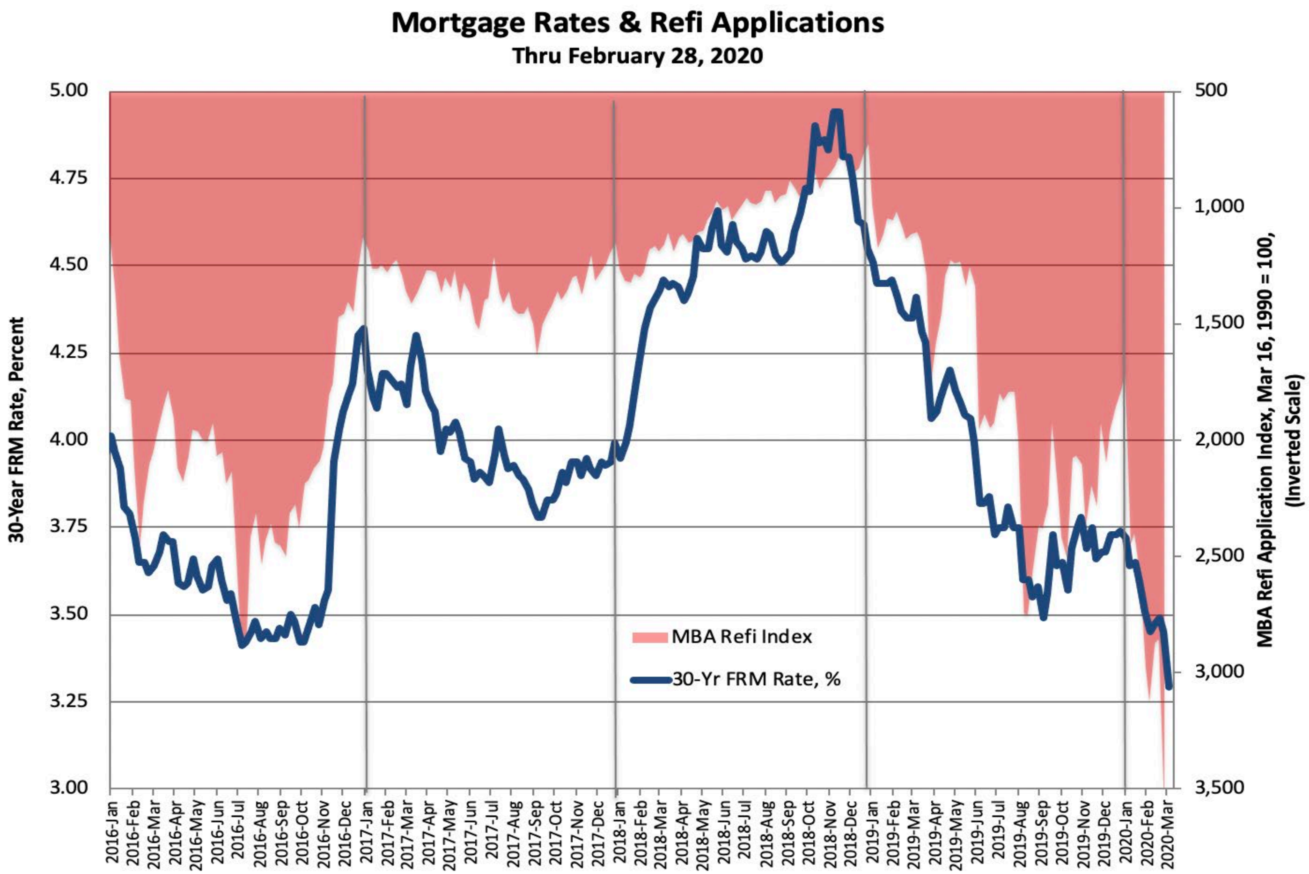
The *MBA's Purchase Applications Index* is a leading indicator of the eventual counts of purchase loans originated. Looking at the index from a year-over-year perspective, as shown below, highlights the fact that in 2019 purchase applications ran ahead of those from 2018 for most of the year – all but the February thru March period, where they tracked very closely. By yearend, on average, that difference was 6.8% higher. Since pull-thru rates stayed relatively consistent last year, that translated into a similar increase in funded loan counts.

So far in 2020, purchase applications are running an average of 11% higher than 2019.



Refinance volume is largely dependent on mortgage interest rates, which in turn are highly correlated to Treasury bond rates that are notoriously hard to predict. For that reason, we generally present our refi forecast as a range.

After their peak in November 2018, mortgage rates fell rapidly with periodic upticks. They bottomed out in early September, nearly 150 bps below their peak. During that time, refinance application volume exploded. Mortgage rates drifted up for a couple months after that, but now they have returned to even lower levels than September. As the coronavirus scare stunned financial markets in late February and early March, mortgage rates hit record lows and refinance applications spiked once again. A second wind refi boom has begun.

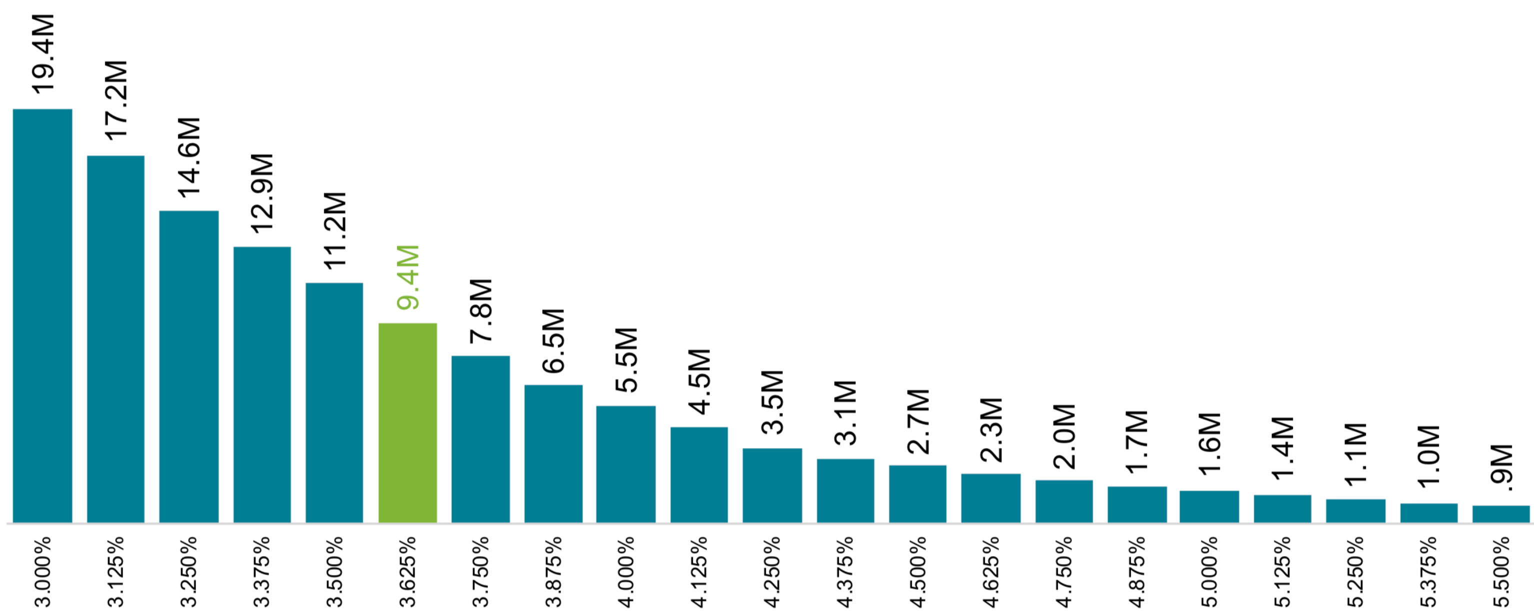


Source: FreddieMac, MBA

With the country's current mortgage loan portfolio, the pool of "refinance-able" loans will be highly sensitive to even small movements in mortgage interest rates, either up or down. Black Knight Financial Services reports that at current rates, movements of as little as a 1/8 percentage point will change the pool of potential refi candidates by 1.6-1.8 million.

NUMBER OF REFINANCE CANDIDATES UNDER DIFFERENT 30-YEAR FIXED RATE SCENARIOS

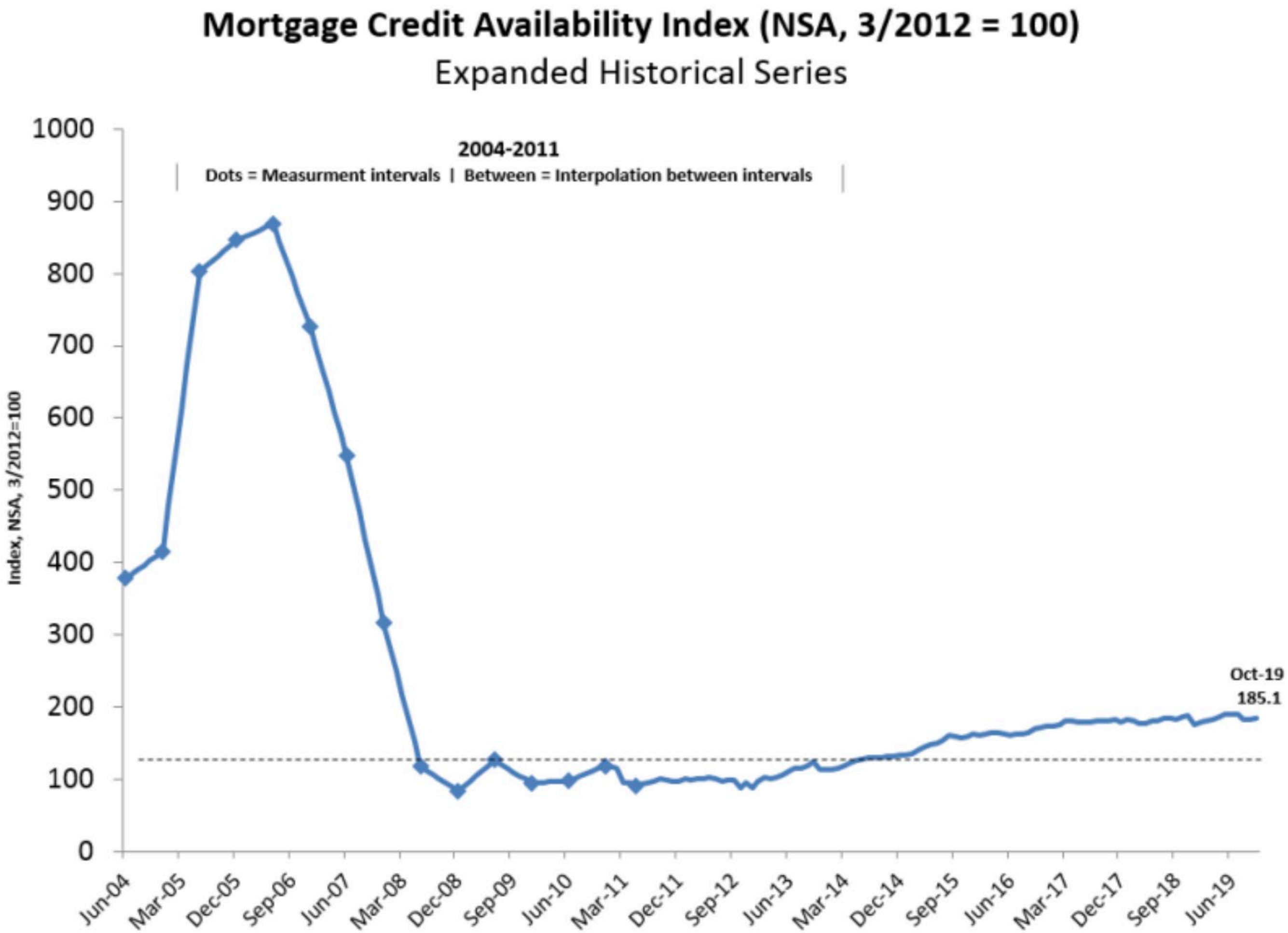
(BASED ON FIRST LIEN MARKET MAKE UP AS OF DECEMBER 2019)



Source: Black Knight Financial Services, *Mortgage Monitor*, Dec 2019

BLACK KNIGHT®

Mortgage credit availability has barely budged in the last three years. However, it is still far below levels of 2004 and before. While there is no question that mortgage credit was too loose from 2005-2007, the current level of mortgage credit availability is far below where it was before 2005. With current concerns regarding the financial and economic impact of the coronavirus, credit availability will likely get worse this year.

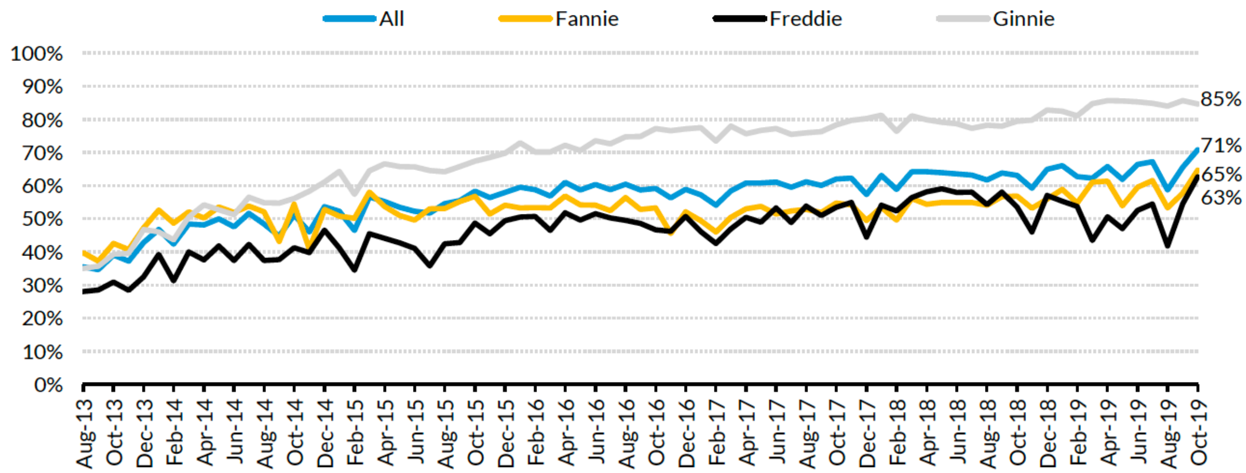


Source: MBA

Before 2015, banks and other depository institutions made the majority of agency mortgage loans (1st lien loans excluding non-conforming loans). Since then, nonbank independent lenders have taken the lead. Most recently, nonbanks originated 71% of all agency loans and 85% of GNMA loans.

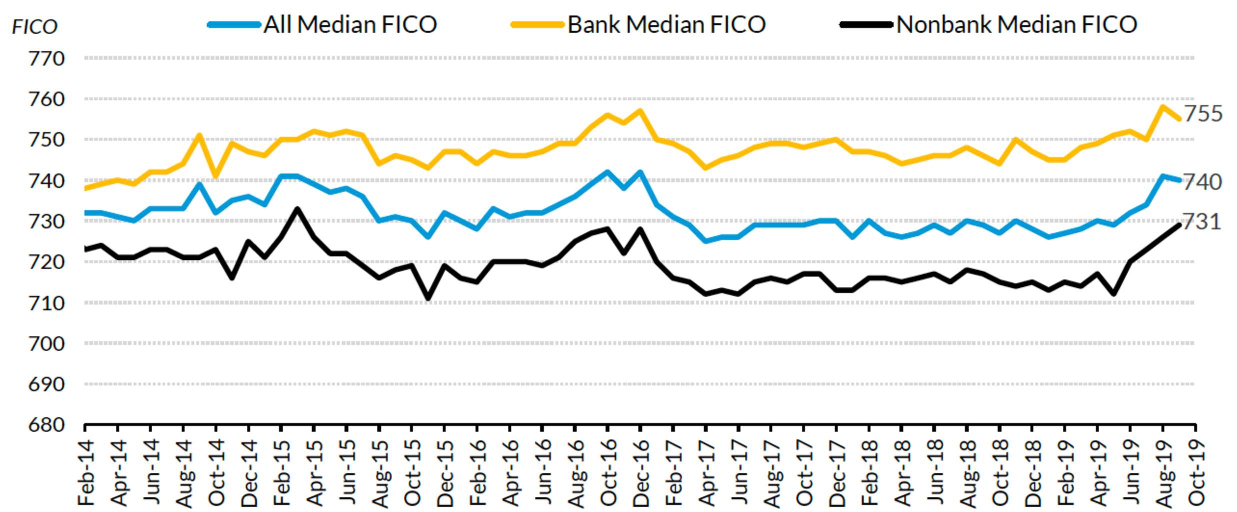
Nonbanks are also increasingly aggressive at expanding credit availability to borrowers. Nonbanks' median FICO scores have run about 30 points lower than bank median FICO scores for several years, although in 2019, that margin narrowed to less than 25 points.

Nonbank Origination Share: All Loans *



Sources: *eMBS and Urban Institute.*

Agency FICO: Bank vs. Nonbank

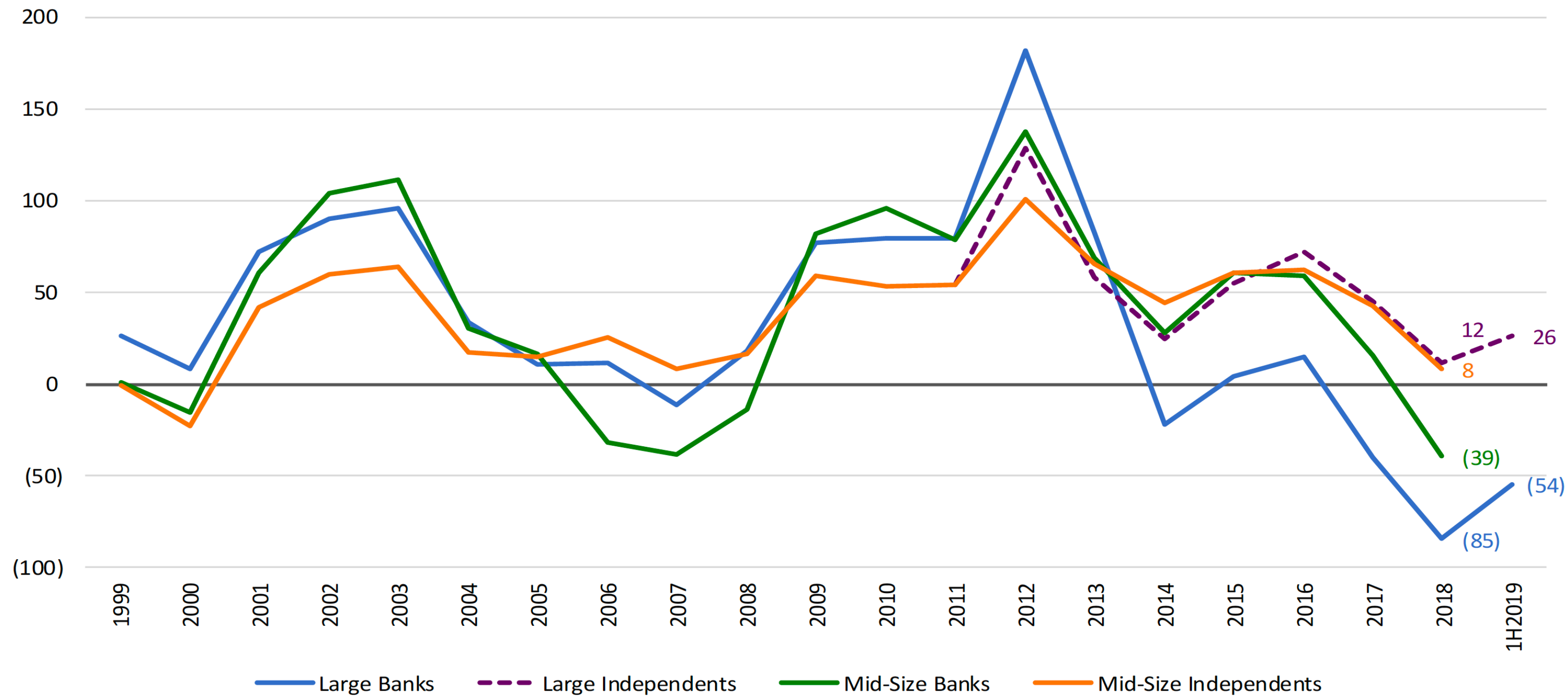


Sources: *eMBS and Urban Institute.*

* Excludes non-conforming loans.

Mortgage lending is a low margin business, even in the best of times. With reduced production volume and higher operating costs in the wake of the Financial Crisis, profits were squeezed in 2017 and 2018. However, early data from the first half of 2019 showed an uptick in profitability from large lenders, and this was before the big influx of refinance loans started to hit. By the time 2nd half data is tabulated, we expect to see 2019 come in at least as profitable as 2016, and 2020 should be even better.

Production Profitability Dropped Across All Peer Groups in 2018 but Increased in 1H 2019 (bps)



Source: MBA and STRATMOR Peer Group Roundtable, as reported at MBA Annual Conference, Oct 2019 by Marina Walsh of the MBA.

IN SUMMARY…

- We're living in the longest economic expansion in U.S. history, as the economy has executed a perfect soft landing. However, the coronavirus is the kind of shock that will likely derail this expansion.
- Rapidly declining long-term interest rates led to a moderately-sized refi boom in the second half of 2019. The rate decline also improved mortgage affordability, which when combined with excellent employment conditions, helped stimulate purchase volume. Total 2019 originations were an estimated $2.28 trillion.
- After a decade in the doldrums, home building began accelerating last year and that will begin to help relieve some of the tight inventory conditions that have prevailed for years.
- Home price appreciation slowed most of last year, but with the increased purchase demand, home appreciation began ratcheting up toward yearend. We believe appreciation will keep rising this year but not enough to severely derail sales volumes.
- For 2020, purchase originations will have another good year due to record low interest rates and continued demographic pressure (more affluent Millennials). With mortgage rates plummeting to new lows, refinances will experience a second wind spike, driving originations to $2.89 trillion, their highest level since 2005. However, the impact of the coronavirus may wreak havoc on this outlook.

2018-2019 Originations by State

	2019 Mortgage Originations					2020 Mortgage Originations				2019-2020 % Change		2019-2020 % Change	
State	Purchase Loans (#)	Purchase Dollars ($B)	Total Loans (#)	Total Dollars ($B)	% Purchase ($)	Purchase Loans (#)	Purchase Dollars ($B)	Total Loans (#)	Total Dollars ($B)	Purchase Loans	Purchase Dollars	Total Loans	Total Dollars
AK	9,100	$2.6	14,999	$4.1	63.5%	9,600	$2.8	19,000	$5.2	5.5%	8.5%	26.7%	27.1%
AL	64,100	$12.5	110,768	$20.6	60.6%	65,600	$13.7	140,600	$27.1	2.3%	10.3%	26.9%	32.0%
AR	39,400	$6.7	65,644	$10.8	62.4%	40,000	$7.3	80,800	$13.7	1.5%	7.9%	23.1%	26.7%
AZ	134,000	$35.4	254,499	$63.2	56.1%	139,700	$39.7	342,500	$86.8	4.3%	11.9%	34.6%	37.4%
CA	387,900	$200.4	1,105,012	$486.3	41.2%	410,900	$218.8	1,488,300	$652.7	5.9%	9.2%	34.7%	34.2%
CO	117,300	$40.4	288,948	$87.2	46.3%	118,400	$42.3	385,000	$116.	0.9%	4.7%	33.2%	33.0%
CT	43,300	$12.6	78,235	$22.4	56.0%	45,000	$13.3	100,100	$29.1	3.9%	5.8%	27.9%	29.6%
DC	9,000	$5.	16,434	$8.4	59.6%	9,000	$5.3	19,500	$10.1	0.0%	5.5%	18.7%	20.9%
DE	15,800	$4.	27,275	$6.8	59.6%	15,900	$4.2	34,200	$8.6	0.6%	4.6%	25.4%	26.9%
FL	360,100	$96.3	587,015	$149.6	64.4%	373,500	$103.5	712,400	$184.6	3.7%	7.5%	21.4%	23.4%
GA	163,400	$38.3	281,090	$61.6	62.2%	168,500	$40.7	362,100	$80.1	3.1%	6.2%	28.8%	29.9%
HI	14,500	$7.2	31,344	$15.2	47.6%	14,700	$7.5	35,100	$17.2	1.4%	3.8%	12.0%	13.5%
IA	53,200	$8.2	90,344	$13.8	59.3%	55,500	$8.8	116,400	$18.3	4.3%	7.0%	28.8%	32.1%
ID	38,600	$9.1	65,941	$14.5	62.5%	39,300	$9.7	81,800	$18.4	1.8%	7.1%	24.1%	26.6%
IL	160,800	$34.9	283,596	$62.	56.4%	165,100	$35.5	369,500	$80.9	2.7%	1.5%	30.3%	30.6%
IN	101,600	$18.4	179,688	$30.6	60.1%	104,100	$20.	223,900	$39.1	2.5%	8.9%	24.6%	27.7%
KS	38,600	$7.3	64,791	$11.7	62.7%	39,100	$7.6	81,300	$14.8	1.3%	3.6%	25.5%	26.4%
KY	55,800	$9.7	99,449	$16.7	58.0%	56,700	$10.1	123,500	$20.9	1.6%	4.2%	24.2%	25.3%
LA	45,800	$9.8	85,308	$17.1	57.3%	45,500	$10.	97,800	$20.	-0.7%	1.8%	14.6%	17.2%
MA	90,400	$38.3	185,198	$69.2	55.4%	89,700	$40.9	205,900	$79.2	-0.8%	6.6%	11.2%	14.5%
MD	87,400	$29.1	156,673	$50.	58.2%	90,700	$30.8	206,100	$66.1	3.8%	5.8%	31.5%	32.3%
ME	18,600	$4.2	34,492	$7.4	57.2%	19,200	$4.6	43,000	$9.4	3.2%	7.6%	24.7%	27.0%
MI	132,900	$25.4	265,743	$46.9	54.3%	135,600	$26.8	311,900	$56.	2.0%	5.5%	17.4%	19.5%
MN	91,500	$21.7	164,527	$36.7	59.3%	93,600	$23.1	204,600	$46.	2.3%	6.5%	24.4%	25.5%
MO	90,000	$16.5	159,068	$28.5	57.9%	91,700	$17.3	199,200	$36.6	1.9%	5.1%	25.2%	28.5%
MS	29,200	$5.1	52,947	$8.7	59.0%	29,800	$5.4	66,600	$11.2	2.1%	5.4%	25.8%	29.1%
MT	15,200	$4.1	26,823	$6.8	59.9%	15,800	$4.5	34,400	$8.9	3.9%	11.3%	28.2%	31.2%

Note: The totals in this table are derived using the midpoint of iEmergent's 2020 forecast range for refinance activity.

2018-2019 Originations by State

	2019 Mortgage Originations					2020 Mortgage Originations				2019-2020 % Change		2019-2020 % Change	
State	Purchase Loans (#)	Purchase Dollars ($B)	Total Loans (#)	Total Dollars ($B)	% Purchase ($)	Purchase Loans (#)	Purchase Dollars ($B)	Total Loans (#)	Total Dollars ($B)	Purchase Loans	Purchase Dollars	Total Loans	Total Dollars
NC	165,700	$40.3	266,953	$60.8	66.2%	167,400	$42.7	337,600	$77.5	1.0%	6.0%	26.5%	27.5%
ND	9,900	$2.1	17,790	$3.5	59.9%	10,100	$2.2	20,600	$4.1	2.0%	3.6%	15.8%	16.6%
NE	27,400	$5.2	48,143	$8.5	61.8%	27,400	$5.5	58,400	$10.5	0.0%	4.8%	21.3%	24.0%
NH	20,800	$5.4	38,119	$9.4	57.2%	21,100	$5.5	47,700	$11.8	1.4%	3.2%	25.1%	25.5%
NJ	107,500	$36.2	207,931	$66.4	54.6%	109,100	$38.7	247,300	$80.5	1.5%	6.7%	18.9%	21.1%
NM	26,100	$5.3	45,737	$9.	58.3%	26,700	$5.5	58,700	$11.8	2.3%	4.1%	28.3%	30.3%
NV	59,600	$16.5	125,183	$32.1	51.5%	63,200	$17.6	164,500	$42.1	6.0%	6.6%	31.4%	31.0%
NY	148,500	$56.8	282,106	$100.6	56.5%	149,400	$59.2	336,700	$120.9	0.6%	4.3%	19.4%	20.3%
OH	154,900	$27.5	284,160	$47.8	57.6%	157,300	$28.5	346,600	$58.9	1.5%	3.8%	22.0%	23.3%
OK	49,800	$9.1	79,744	$13.8	65.7%	49,400	$9.3	96,700	$17.	-0.8%	3.0%	21.3%	23.7%
OR	61,400	$18.8	145,018	$39.8	47.1%	62,300	$19.5	189,700	$52.	1.5%	3.9%	30.8%	30.5%
PA	146,100	$31.	300,900	$58.7	52.8%	145,400	$32.2	364,800	$72.4	-0.5%	4.1%	21.2%	23.3%
RI	14,300	$3.9	28,875	$7.2	53.8%	14,600	$4.3	34,800	$9.	2.1%	9.9%	20.5%	24.2%
SC	87,700	$20.4	143,710	$32.1	63.6%	90,100	$21.9	181,700	$41.5	2.7%	7.4%	26.4%	29.1%
SD	12,200	$2.4	20,846	$4.	61.5%	12,500	$2.5	26,000	$5.	2.5%	4.2%	24.7%	26.9%
TN	103,700	$22.8	183,445	$37.7	60.5%	105,600	$24.6	225,400	$47.2	1.8%	8.0%	22.9%	25.0%
TX	390,300	$97.4	612,993	$140.6	69.2%	392,900	$101.2	745,200	$170.8	0.7%	4.0%	21.6%	21.5%
UT	64,800	$19.2	139,978	$37.	51.9%	64,400	$20.3	160,200	$43.4	-0.6%	5.6%	14.4%	17.1%
VA	134,900	$41.1	241,989	$71.5	57.6%	140,400	$43.7	315,000	$94.5	4.1%	6.1%	30.2%	32.2%
VT	7,300	$1.7	15,538	$3.2	51.6%	7,500	$1.8	17,500	$3.7	2.7%	7.6%	12.6%	16.7%
WA	125,700	$46.2	295,260	$95.5	48.4%	127,000	$47.7	319,000	$104.6	1.0%	3.2%	8.0%	9.5%
WI	83,300	$17.	174,301	$32.7	52.0%	84,600	$17.5	208,000	$39.6	1.6%	2.7%	19.3%	20.9%
WV	16,400	$2.9	31,578	$5.2	54.6%	16,700	$3.	37,100	$6.4	1.8%	5.3%	17.5%	21.2%
WY	8,900	$2.1	13,893	$3.2	65.3%	9,100	$2.3	18,200	$4.4	2.2%	9.7%	31.0%	35.6%
US	**4,434,700**	**$1,234.7**	**8,520,041**	**$2,277.1**	**54.2%**	**4,536,400**	**$1,311.4**	**10,642,900**	**$2,886.5**	**2.3%**	**6.2%**	**24.9%**	**26.8%**

Note: The totals in this table are derived using the midpoint of iEmergent's 2020 forecast range for refinance activity.

Our Company

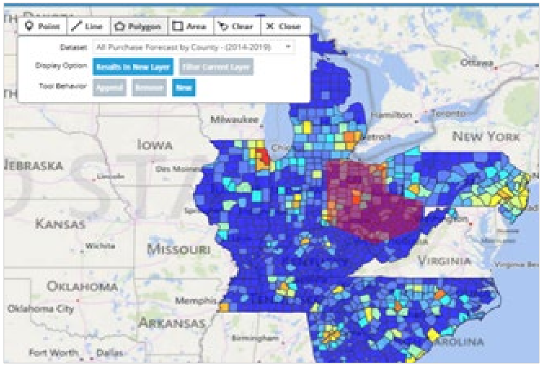
iEmergent is a forecasting and advisory firm for the lending industry. Since 2000, we have been focused on delivering a forward-looking approach to helping organizations navigate the industry's changing landscape. After nearly 20 years as an executive at two national lenders, our founder leveraged his background in mathematics and predictive modeling to develop a groundbreaking method for forecasting mortgage opportunity. In addition to our forecasts, we provide strategic advisory services to lenders of all sizes and types, as well as mortgage insurance, title, and investment companies. Viewed as industry leaders, we have been featured in Mortgage Banking magazine, HousingWire, National Mortgage News, Origination News, Inman News, and the Credit Union Journal.

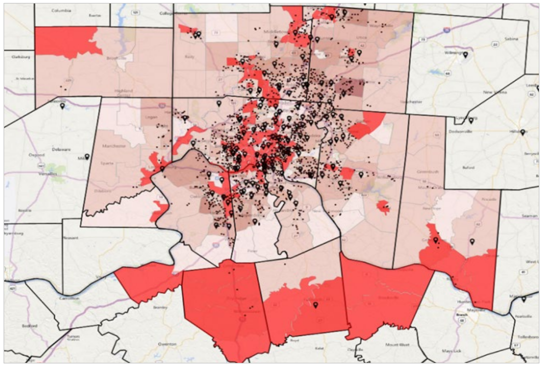
Our Products

iEmergent provides accurate, forward-looking data that quantifies what's next in mortgage markets across the nation. As housing and lending sputter and stutter toward recovery, our forecasts drill down into states, metro areas, counties, and neighborhoods to quantify where and how mortgage opportunity will grow, slow, or stay the same.

Most clients access our data through Mortgage MarketSmart, a web application with dynamic maps. This powerful visualization tool brings HMDA and detailed forecast data to life, helping organizations easily make decisions about high-level strategic opportunities and tactical, market-level challenges:

- Expand and grow responsibly
- Improve sales strategies at all levels
- Optimize resources, brand, and locations
- Recruit, hire, train, and retain sales resources
- Minimize distribution risk and meet CRA/Fair Lending regulations





Forecast Segments

Market Geography
- State
- MSA
- County
- Census Tract

Market Segments
- Occupancy Types
- Custom Loan Sizes
- Conventional Loan Type
- FHA,VA, FSA Loan Types
- Jumbo, Conforming
- Borrower Income Levels
- Borrower Race/Ethnicity
- First Time Homebuyer
- CRA Eligible
- New Construction Sales
- Custom Loan Sizes
- Refinance Ranges

For more information about Mortgage MarketSmart, our forecasts, or advisory services, call **Bernard Nossuli at 515-327-0070 (x106).**