


2020 U.S. Housing Market Outlook

Pretium

February 2020

Pretium

Pretium's Housing Market Outlook

In 2019, residential fundamentals tightened further driven by steady and above-trend demand for housing and a persistent undersupply of new housing

- The vacancy rate of for-sale and for-rent housing averaged 3.1% in 2019 (-10bp Y/Y), the lowest level since 1984.[1]
- Housing demand exceeded supply by 235,000 units in 2019, following undersupply of 400,000 units in 2018. Over the past five years, demand has exceeded growth in housing inventory by 1.4mn units.[2]
- Household formation activity remains healthy; the U.S. added 1.39mn households in 2019, which follows a net gain of 1.54mn households in full-year 2018. Demographic shifts (notably the ageing of the Millennial generation) and a healthy labor market support above-trend household formation activity.[3]
- In contrast, housing supply remains below what is needed to support new demand and replace obsolete units. Starts of single- and multifamily units totaled 1.29mn in 2019 and are expected to increase marginally to 1.31mn in 2020 and 1.32mn in 2021.[4]

We do not see an end to this fundamental imbalance; we forecast supply will fall nearly 500,000 units below demand over the next two years (2020 – 2021)

- We estimate the U.S. will underproduce housing by ~240,000 units annually in both 2020 and 2021, with vacancy rates falling ~15bps each year, supporting heathy home price appreciation ("HPA") and residential rent growth.[5]
- Consensus expects above-average housing demand over the medium-term. Harvard's Joint Center for Housing Studies ("JCHS") forecasts 1.22mn household formations per annum over the next decade, with Morgan Stanley forecasting 1.35mn household formations per annum over the next five years.[6]
- Consensus also forecasts little growth in housing starts in 2020 (+20k vs. 2019) and 2021 (+10k vs. 2020e). If correct, then housing starts net of obsolescence would remain well below demand throughout this period.[7]

Housing market activity reaccelerated in 2H 2019. We expect a continued rebound despite historically low inventory

- Several housing market indicators stabilized and ended the year on a positive trajectory. The pullback in rates since 4Q 2018 and less uncertainty surrounding the economic outlook were especially positive for starts, home sales, and a reacceleration of HPA on a year-over-year basis. We expect this to continue.
- Inventory of for sale housing is at an all-time low in terms of units for sale and as a percentage of the U.S. population. We expect constrained availability to weigh on home sales volumes but support elevated HPA.[8]

We believe the single-family rental ("SFR") sector is well positioned to capitalize on the structural imbalances in residential real estate

- We believe residential real estate is well positioned to capture the secular increase in housing demand with less risk from technological disruption or shifts in consumer preferences than other core real estate asset classes.
- Young families should continue to seek the amenities of single-family housing with more choosing to rent given affordability headwinds and constraints on mortgage credit availability.
- SFR is projected to drive above-average net operating income ("NOI") growth over the next several years, coupling growing demand with revenue-generating and cost-saving technologies that should result in continued margin expansion.[9]

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[1] U.S. Census Bureau, Housing Vacancies and Homeownership Report, Table 8a, as of 4Q'19.
[2] Ibid.
[3] U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Table 13a. Monthly Household Estimates, 4Q'19. U.S. Bureau of Labor Statistics, All Employees: Total Nonfarm Payrolls, through December 2019.
[4] U.S. Census Bureau and U.S. Department of Housing and Urban Development, Housing Starts, New Privately-Owned Housing Units Started, Privately Owned Housing Starts: 1-Unit Structures, Housing Starts: 2-4 Units, Privately Owned Housing Starts: 5-Unit Structures or More through December 2019.
[5] Pretium calculations, assuming Harvard JCHS household formations, consensus housing starts, and 0.31% obsolescence rate sourced from Urban Institute research. Moody's Analytics, household income growth forecasts as of January 2020.
[6] Harvard JCHS, "Updated Household Growth Projections: 2018-2028", December 2018. Morgan Stanley, "U.S. Housing Tracker", published December 6, 2019.
[7] Bloomberg Weighted Average Consensus Forecast, 2020, and 2021 Housing Starts, retrieved January 29, 2020.
[8] U.S. Census Bureau and U.S. Department of Housing and Urban Development, New Residential Construction, New Privately-Owned Housing Units Started, through December 2019.
[9] Green Street Advisors, "Real Estate Securities Monthly", January 2, 2020.

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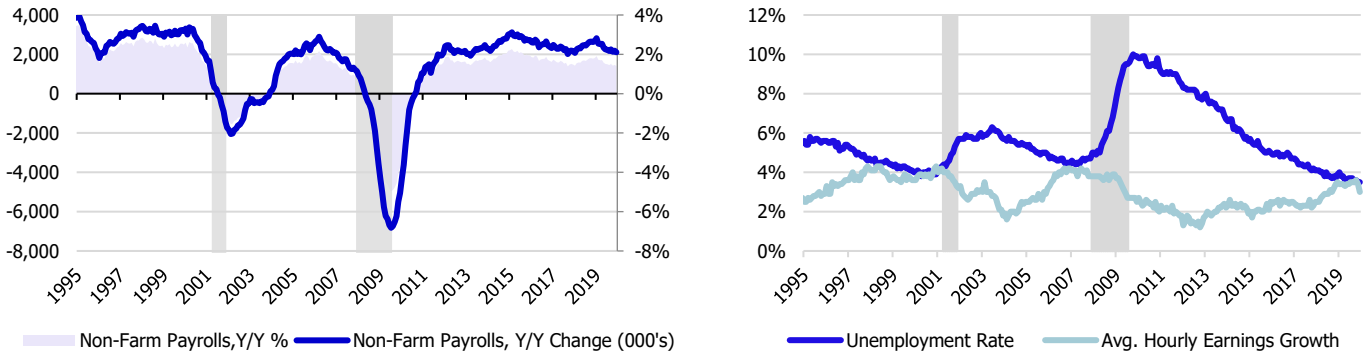
Section I: Economic Outlook

Decelerating Growth, With Fewer Downside Risks

In 2019, U.S. economic growth slowed as flattish business investment offset strong contributions from the labor market and the U.S. consumer. Supportive growth factors include:

- Real GDP grew 2.1% in 4Q'19 and 2.3% during the full year, a deceleration from 2.9% in 2018 and 2.4% in 2017. Consensus estimates from Wall Street economists forecast real GDP growth of 1.8% for 2020, and 1.9% for 2021.[10]
- Non-farm employment grew 1.4% Y/Y in December 2019 (slowing from +1.8% in December 2018). The U.S. created an average of ~176k jobs per month in 2019, below the ~223k average during 2018, but a healthy pace ten years into the economic recovery. The unemployment rate fell to 3.5% in December 2019 from 3.9% in December 2018. Wall Street economists forecast unemployment to increase modestly to 3.7% through 2021.[11]
- Tightening labor markets led to improving wage growth and increased labor participation. Average hourly earnings increased 3.0% Y/Y in 4Q'19 on an annual basis, while the Employment Cost Index rose 2.7% Y/Y in 4Q'19, near the fastest pace this cycle.[12]
- Global and U.S. composite PMIs showed signs of stabilization in 2H'19 after several quarters of declines, signaling more confidence from businesses in low but stable growth in 2020.[13]

Exhibit 1: Labor Markets Remain Healthy, and Supportive of Housing Demand



Source: U.S. Bureau of Labor Statistics, All Employees: Total Nonfarm Payrolls, Civilian Unemployment Rate, Average Hourly Earnings of Production and Nonsupervisory Employees: Total Private, through December 2019.

Although recession risk is lower due to accommodative monetary policy, lower trade tensions, and better than expected economic data, downside risks remain including the global impact of tariff policy and late cycle pressures on corporate earnings. Downside risks include:

- Global growth is slowing and is expected to decelerate through 2020. The International Monetary Fund downgraded their growth outlook due to trade and investment uncertainty. Further, while global and composite PMIs are bottoming, they remain at low levels (near 50) and are at risk of moving into contraction should trade tensions flare up again.[14]
- The U.S. expansion is increasingly reliant on the U.S. consumer; 79% of 4Q'19 Y/Y real GDP growth was attributed to the increase in consumer spending, with only a 2% contribution from growth in fixed investment.[15]
- Profit margins are falling, and, as a result, corporate profit growth is slow. Historically firms have invested less in people and capex when profits and margins were under pressure.[16]

[10] Bureau of Economic Analysis, Gross Domestic Product, 4Q'19. Bloomberg consensus real GDP forecasts, retrieved on January 29, 2020.
[11] U.S. Bureau of Labor Statistics, All Employees: Total Nonfarm Payrolls, through December 2019. U.S. Bureau of Labor Statistics, Civilian Unemployment Rate, through December 2019. Wall Street forecasts are Bloomberg consensus, retrieved January 29, 2020.
[12] U.S. Bureau of Labor Statistics, Average Hourly Earnings of Production and Nonsupervisory Employees: Total Private, through December 2019. U.S. Bureau of Labor Statistics, Employment Cost Index: Total compensation: All Civilian, through 4Q'19.
[13] Markit/JP Morgan Global Composite PMI and Markit US Composite PMI, data through December 2019.
[14] Morgan Stanley, "Global Manufacturing PMI: Global Manufacturing PMI: First Uptick in Seven Months," December 2, 2019. IMF, "World Economic Outlook, October 2019, "Global Manufacturing Downturn, Rising Trade Barriers", October 2019.
[15] Bureau of Economic Analysis, Gross Domestic Product, 4Q'19. Table 3.
[16] Morgan Stanley, "The Wheels for a Slowdown Are in Motion," August 20, 2019. Goldman Sachs, "Higher Wages, Lower Margins, and Unprofitable Firms: Could the Expansion Come to a Natural End?" January 5, 2020.

Slower Economic Growth + Tariff Pressures Leading to Flattish Profits Growth

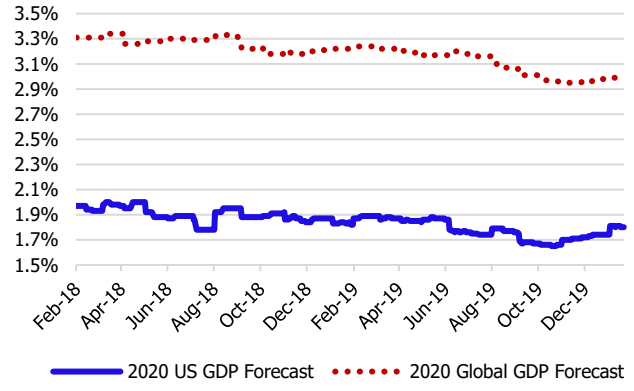
We see four critical areas to monitor over the next 12-18 months:

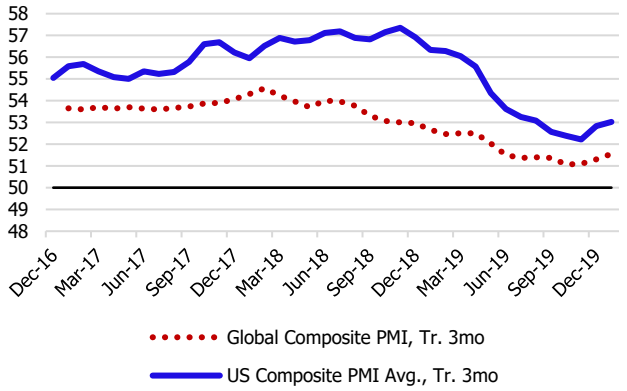
1. On December 13, 2019, the outlines of a **Phase I trade deal** between the U.S. and China were announced. While the details fell short of expectations for a broader rollback of tariffs, some deal is better than no deal for the economic outlook, but we are skeptical this deal will materially alter the pace of GDP or earnings growth through 2020 as it provides little relief from tariffs for many companies.[17]
2. The sharp slowdown in corporate margins and earnings is one of the most important implications of the trade conflict. The severity and duration of this **'profits recession'** will be critical to understanding the outlook for the credit markets.
    - Profit margins have compressed for the past several years and gave up their post-tax reform increase. Profits contracted on a year-over-year basis according to the BEA's national income accounts (-0.4% Y/Y) and S&P 1500 (-0.7%).[18]
3. A fundamental question for the outlook is **whether investment and hiring will re-accelerate** as trade conflicts are partially resolved. Consumer spending was been the primary driver of growth in 2019 but any slowdown in hiring would impact consumer confidence.[19]
    - Firms have reduced fixed investment spending over the past three quarters and have significantly cut back growth in aggregate hours worked.
    - That said, non-farm employment growth has exceeded expectations, increasing by nearly 190k jobs a month for the past 6 months.
4. Easing **financial conditions** have been a tailwind to GDP growth, and are likely to remain supportive given low short rates, rising equities and compressing credit spreads. Loose financial conditions are more important given declining levels of U.S. fiscal stimulus.

1. 2020 Economic Growth Expected to be Slow, But Outlook Stabilizing

- Through 2018 and 2019 consensus expectations for 2020 U.S. GDP growth inched lower and now sit at 1.8%. This reduction was concurrent with the decline in the composite PMI and other business-related indicators (earnings, capex spending, hiring).[20]
    - The good news is that trade tensions have eased since October 2019, and with less rhetoric came stabilization in the economic outlook. In December, the Markit / JP Morgan Global PMI ticked up to 51.7, the highest level since July 2019.
    - While a level just above 50 signals a weak growth outlook, slow and stable is better than the sharp decline in the outlook over the prior 18 months.

Exhibit 2: Global and US Growth Outlooks Stabilizing at Low Levels





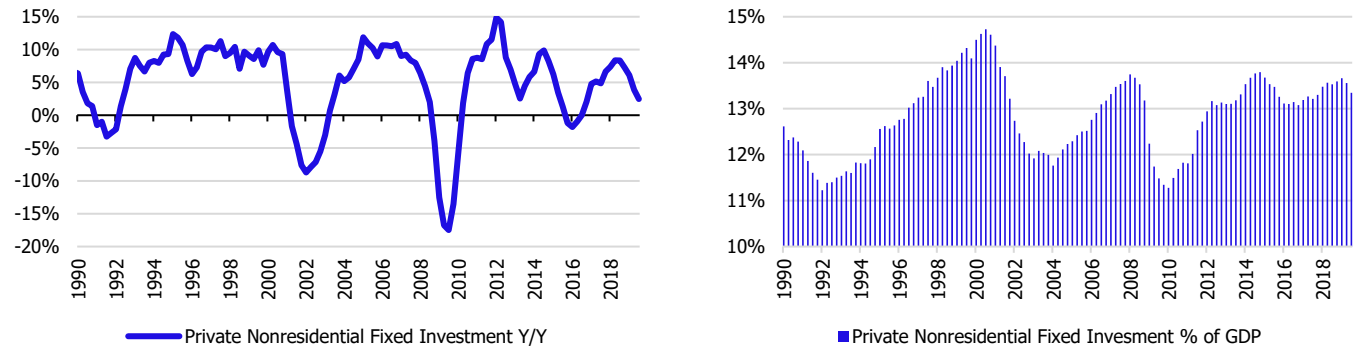
Source: Bloomberg average 2020 real GDP forecasts, data through January 29, 2020. Markit and ISM Composite PMIs, through December 2019.

[17] Goldman Sachs, "US-China Trade Deal Announced, Tariff Rollback Included but Smaller Than Expected," December 13, 2019.
[18] U.S. Bureau of Economic Analysis, Gross Domestic Product and Private Nonresidential Fixed Investment. Data as of Q3'19.
[19] Ibid.
[20] Bloomberg average 2020 real US and Global GDP forecast, data through January 29, 2020.

2. Capex Spending Continues to Slow[21]

- Business investment was a significant soft spot within the U.S. growth backdrop in 2019 given trade policy uncertainty and slowing global demand with real fixed investment spending up just 0.2% in 4Q'19 on a year-over-year basis and non-residential spending flat.[22]
  - Within fixed investment, real intellectual property spending remained healthy at +6.2%, offsetting declines in equipment (-1.5%) and non-residential structure (-7%) spending.
- Overall non-residential fixed investment is 13.2% of GDP in Q4'19, down from a local peak of 13.7% in Q1'19.

Exhibit 3: Nonresidential Fixed Investment Spending Growth Decelerating

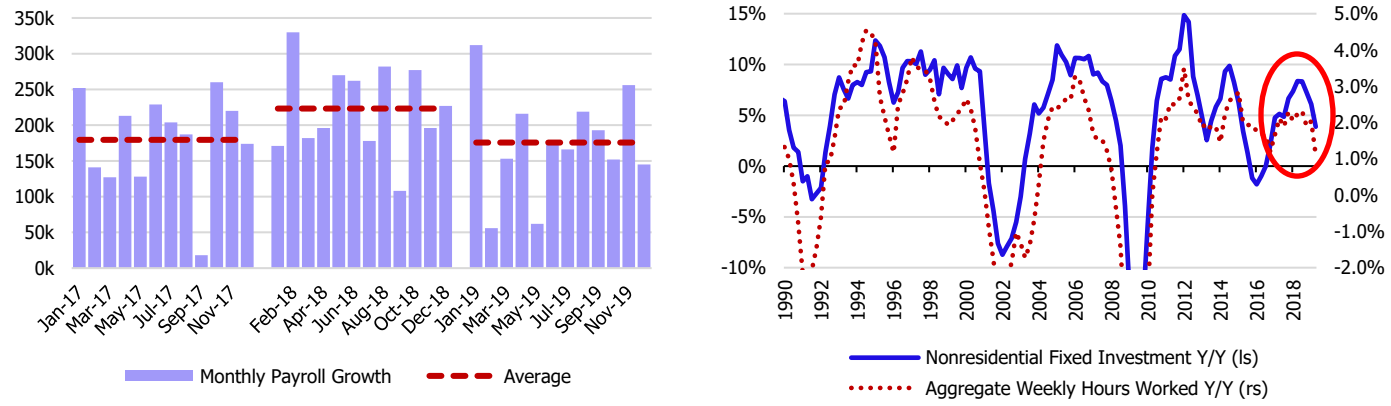


Source: U.S. Bureau of Economic Analysis, Gross Domestic Product and Private Nonresidential Fixed Investment. Data as of Q4'19.

In Contrast, Hiring Remains Robust, But Aggregate Hours Softer

- Although the labor market remains healthy (2019 job growth +176,000 per month on average, unemployment near 50-year lows), we see downside risk to employment and hours going forward as employers face mounting headwinds to profitability.[23]
- Businesses tend to invest in capital and employment at the same time. Since 1990, the correlation between the change in fixed investment and the growth in aggregate hours worked is almost 90%.[24]

Exhibit 4: Employment Growth Steady, but Decelerating with Fixed Investment



Source: U.S. Bureau of Economic Analysis, Private Nonresidential Fixed Investment and Index of Aggregate Weekly Hours. Data as of Q4'19. U.S. Bureau of Labor Statistics, All Employees: Total Nonfarm Payrolls. Data through December 2019.

[21] Morgan Stanley, "The Wheels for a Slowdown Are in Motion," August 20, 2019.
[22] U.S. Bureau of Economic Analysis, Gross Domestic Product and Private Nonresidential Fixed Investment. Data as of Q4'19.
[23] U.S. Bureau of Labor Statistics, All Employees: Total Nonfarm Payrolls. Data through December 2019.
[24] U.S. Bureau of Economic Analysis, Private Nonresidential Fixed Investment and Index of Aggregate Weekly Hours: Production and Nonsupervisory Employees: Total Private Industries. Data as of Q4'19.

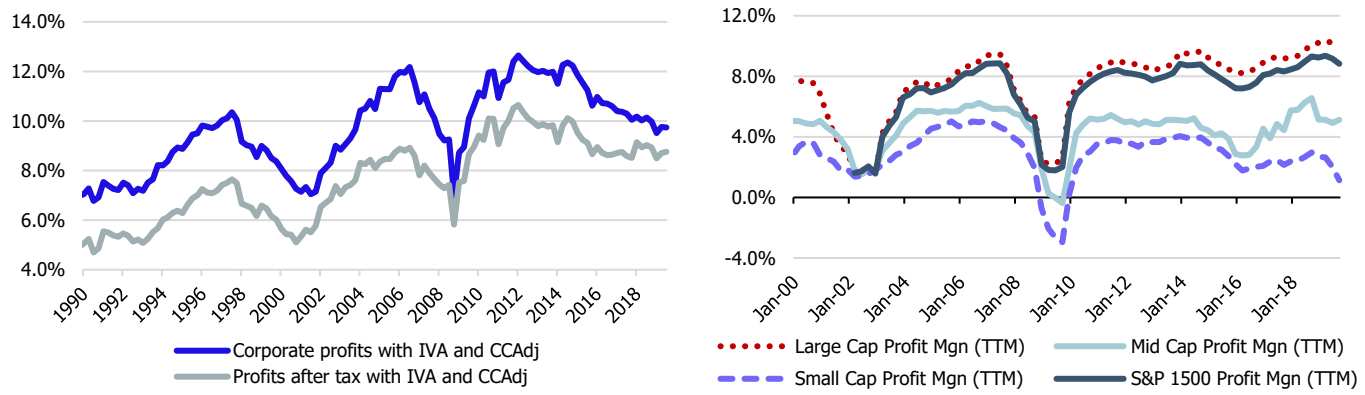
3. Expect Slower Top-Line, Tighter Margins, and Lower Profit Growth Through 2020

- Through 2019, revenue growth for the S&P 1500 has slowed dramatically, to 3.4%, down from a recent peak of over 10% in late-2018. Similarly, year-over-year EBITDA growth is now 7.5%, from a recent peak of +19% in mid-2017.[25]
- Profit margins have compressed to their lowest point in this cycle driven primarily by an increase in unit labor costs, *before* slower top-line growth and higher costs impact profitability over the next 12+ months.[26]

We Expect Continued Pressures on Earnings Growth in 2020[27]

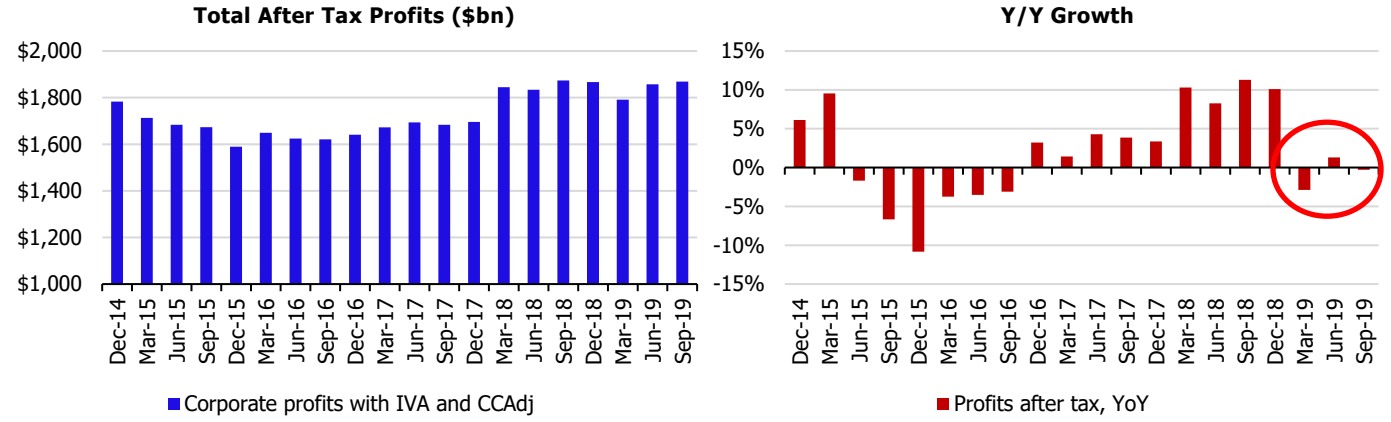
- Earnings growth will be increasingly pressured through 2020 as companies tackle top-line pressures from slower economic growth coupled with increasing input costs.
  - This is already reflected in the GDP national income accounts, which showed year-over-year profits fell 0.6% YTD versus 2018 for U.S. corporations.

Exhibit 5: Margins Compressing, Especially for Non-Large Cap Companies



Source: Bureau of Economic Analyses, Table 1.12. National Income by Type of Income. Last Revised on: January 30, 2020. Bloomberg. Trailing 12 Month EBITDA and Sales per Share for the S&P 500 Index. Data through December 27, 2019.

Exhibit 6: NIPA Corporate Profits Flat in 2019



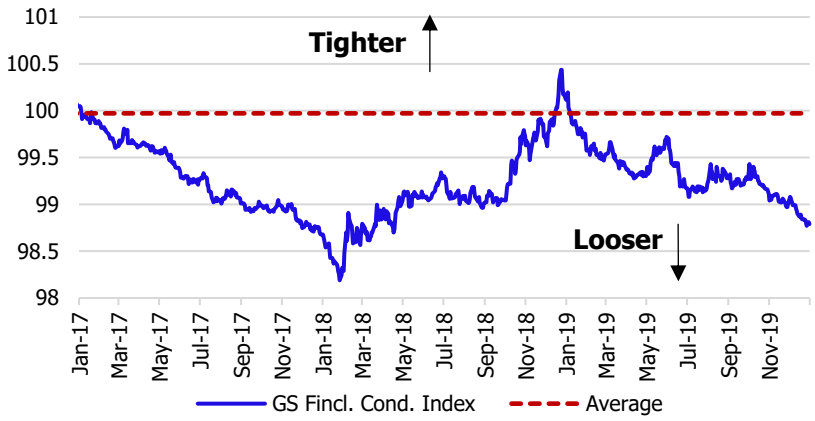
Source: Bureau of Economic Analyses, Table 1.12. National Income by Type of Income. Last Revised on: January 30, 2020.

[25] Bloomberg. Trailing 12 Month EBITDA and Sales per Share for the S&P 1500 Index. Data through December 27, 2019. Wall Street Journal, "Huge Disparity in Corporate Profits Hints at Something Amiss," December 14, 2019.
[26] Bureau of Economic Analyses, Table 1.12. National Income by Type of Income. Last Revised on: January 30, 2020. Bloomberg. Trailing 12 Month EBITDA and Sales per Share for the S&P 500 Index. Data through December 27, 2019.
[27] JP Morgan, "Equity Strategy; Impact from Latest Round of Tariffs," August 16, 2019. Bureau of Economic Analyses, Table 1.12. National Income by Type of Income. Last Revised on: January 30, 2020.

4. Improving Financial Conditions Support 2020 Growth Outlook

- Financial conditions eased through 2019 and into 2020 after tightening significantly in late 2018 on trade fears and concerns that the Federal Reserve rate increases in 2018 would have a negative impact on economic growth.[28]
- Today, the Goldman Sachs Financial Conditions Index ("FCI") sits below the long-term average and in the ~3rd percentile of most loose conditions since 1990.
- Goldman Sachs' economists estimate that a 100bp change in their FCI equates to a 1% change in GDP growth over the next year.[29]
  - According to Goldman's economists, the FCI impulse in now pointing to roughly 0.5% contribution to growth from financial conditions in 2020, suggesting 0.2% higher growth relative to consensus forecasts based on historical experience.

Exhibit 7: Goldman Sachs Financial Conditions Index



Financial conditions loosened substantially in 2019.

Source: Goldman Sachs, Bloomberg. Data accessed on January 29, 2020.

[28] Goldman Sachs Financial Conditions Index, Bloomberg. Data accessed on January 29, 2020.
[29] Goldman Sachs, "US Daily: Do Forecasters Fully Account for Financial Conditions?", November 12, 2019.

Mortgage Rates Followed Bond Yields Lower…

Dovish pivot by the Fed alleviated some downside pressures; one more cut expected in 2020

- Yields in the U.S. fell for most of 2019, as the Fed cut rates three times, characterizing the latest cut as "insurance" against a downturn in growth as recession concerns and trade policy uncertainty weighed on investor sentiment.[30]
- The Federal Reserve lowered overnight rates to a range of 1.5% to 1.75% in 2019. The FOMC communicated that the current stance of policy is "likely to remain appropriate", with many Fed officials stating that it would take a "material" change to the outlook to change the policy rate. Markets have priced in more than one additional cut by the Fed's December 2020 meeting.[31]
- Global yields declined in sync with U.S. yields as central bankers aggressively responded to slowing global growth – according to Cornerstone Macro Research global short rates have fallen by 60bp Y/Y helping support global growth and sentiment.[32]

Exhibit 8: Global Yields Declined Meaningfully in 2019

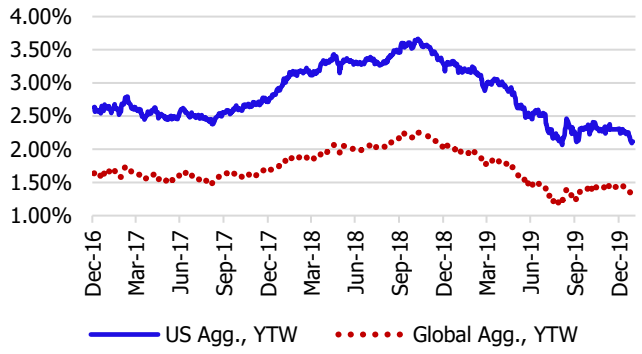
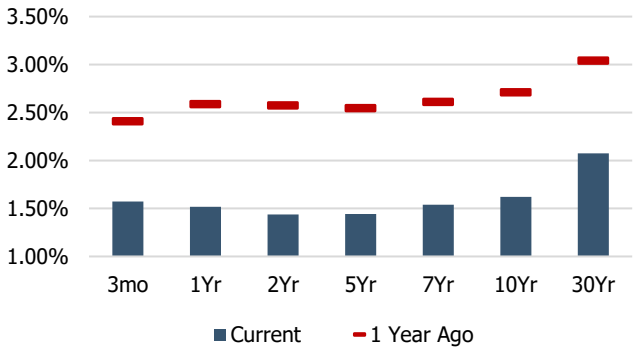


Exhibit 9: U.S. Treasury Yield Curve, Current v 1Yr Ago

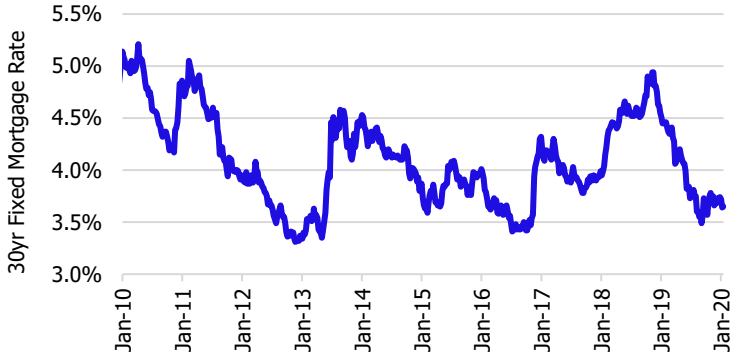


Source: Barclays Global Agg Index (LEGATRUU Index), and Bloomberg Barclays US Agg Index (LBUSTRUU Index). Data through January 29, 2020. Bloomberg, U.S. Treasuries Active Curves, priced on January 29, 2020.

Mortgage rates declined sharply through 2019

- In 2H'19, the 30-year fixed mortgage rate averaged 3.68%, which was ~100bp lower than the rate in 2H 2018. Through 2019, mortgage rates have averaged 3.94%, which was ~60bp lower than the full year average in 2018.[33]

Exhibit 10: 30-Year Mortgage Rates Down Sharply in 2019



Avg. 30-Year Fixed Mortgage Rate	
2016	3.7%
2017	4.0%
2018	4.5%
2019	**3.9%**
1H – 4.2%	
2H – 3.7%	

Source: Freddie Mac, 30-Year Fixed Rate Mortgage Average, retrieved from FRED, Federal Reserve Bank of St. Louis; January 23, 2020.

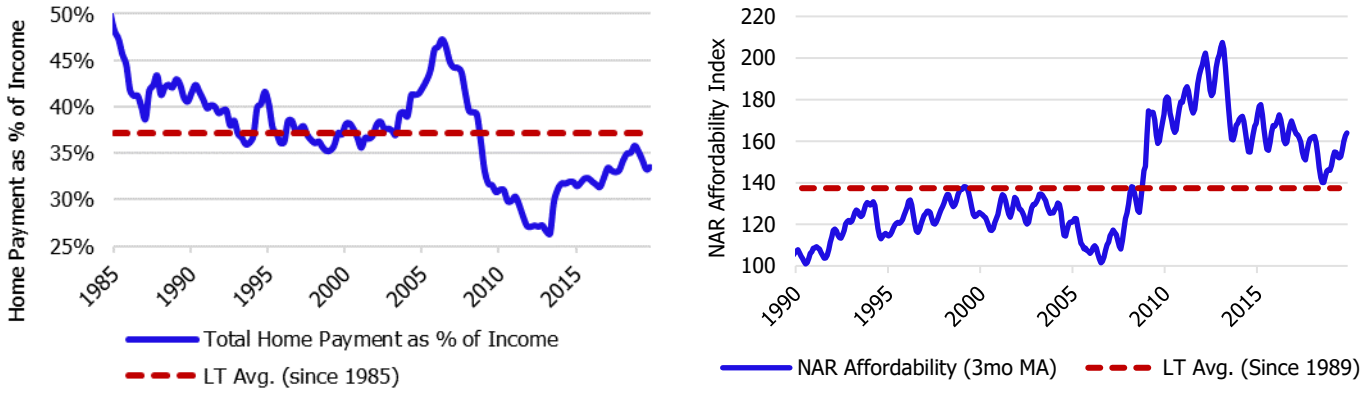
[30] FOMC October Press Release, https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20191030.pdf.
[31] FOMC December Press Release, https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20191211.pdf. Bloomberg Federal Funds rate 2020 expectations, retrieved on January 29, 2020.
[32] Cornerstone Macro, "A sustainable 2020-21 Global Expansion?" December 15, 2019.
[33] Freddie Mac, 30-Year Fixed Rate Mortgage, retrieved from FRED, Federal Reserve Bank of St. Louis; January 23, 2020.

Affordability better today than in 2H'18, but still worse than 2012-2018 average

Post-crisis, housing affordability was above-average due to depressed housing prices and low mortgage rates (Exhibit 12). From 2009-2018, affordability weakened from historically easy levels as home prices appreciated and mortgage rates gradually normalized.[34]

One way to show affordability is to estimate median home payment-to-income ratios over time. In 4Q'19 this index showed that the median U.S. family buying a median-priced home would spend 33% of its income on home payments, below the 37% average since 1985 but above the 31% average since 2010.[35]

Exhibit 11: Affordability Indices Back Near Long-Term Average

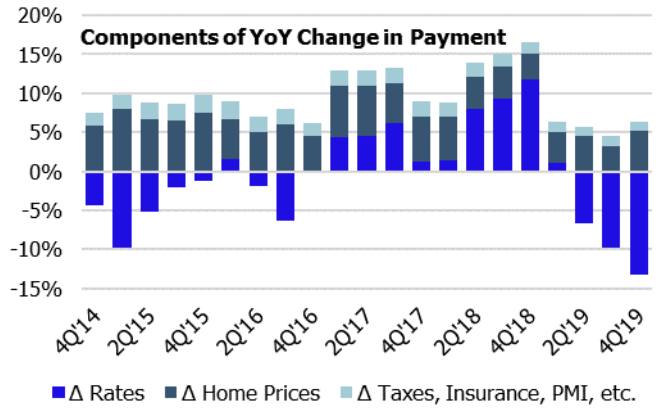


Source: Pretium calculation using Moody's income data, U.S. Census and NAR existing home price data, Fannie Mae 30Yr Mortgage rates, FHA mortgage insurance premiums, as of January 2020. NAR Housing Affordability Index through November 2019.

Over the past few years, housing payments increased rapidly on the back of higher rates and rising home prices.[36] Affordability improved in 2019, with the median home payment falling 2% year over year, led by the ~100bp pullback in mortgage rates.

The 2019 improvement in affordability was helpful to the market but should be seen in context; payments remain 14% higher today than at YE 2016 due to several years of home price appreciation.[37]

Exhibit 12: Declining Rates More Than Offset HPA in 2019



Source: Pretium calculation using Moody's income data, U.S. Census and NAR existing home price data, Fannie Mae 30Yr Mortgage rates, FHA mortgage insurance premiums, as of January 2020.

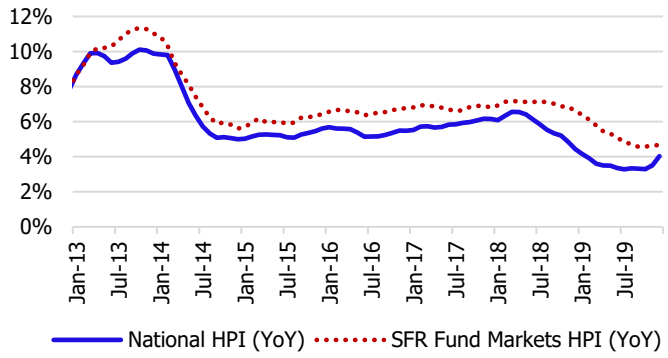
[34] Pretium calculation using Moody's income data, U.S. Census and NAR existing home price data, Fannie Mae 30Yr Mortgage rates, FHA mortgage insurance premiums, as of January 2020. For all periods, calculation assumes a 96.5% LTV FHA loan with 85bps of mortgage insurance, taxes equal to 1.2% of home value, insurance equal to 50bps of home value, and HOA fees of 15bps of home value.
[35] Ibid.
[36] Ibid.
[37] Ibid.

Home Price Appreciation ("HPA") Likely to Rebound Through 2020

Y/Y HPA has reaccelerated with the positive tailwinds of steady demand growth, rising input costs, and historically low inventory levels.

- CoreLogic estimates that home prices grew 4.0% Y/Y through December 2019, down from a peak rate of 6.6% in April 2018. HPA growth decelerated from early 2018 through 1H'19, as deteriorating affordability provided a headwind to buyers.[38]
- U.S. home prices have appreciated since 2012 and are now ~10% above the prior peak on a nominal basis. Adjusted for inflation, home prices are still ~12% below the prior peak.[39]

Exhibit 13: Home Price Appreciation Stabilized in 2H 2019



Source: CoreLogic Home Price Index, Single-Family Combined Tier, as of December 2019. "SFR Fund Markets" include Atlanta, Charlotte, Dallas, Houston, Indianapolis, Jacksonville, Las Vegas, Memphis, Miami, Nashville, Orlando, Phoenix, Raleigh-Durham, and Tampa-St. Petersburg.

It is important to recognize the pace and reasons why home prices appreciated this cycle compared to the last cycle. According to the Urban Institute, "compared to 2005-2007 bubble, when [home price growth] was driven mostly by speculators, today it is driven by families wanting to buy homes to live in them."[40]

- In the last housing cycle, U.S. home prices increased by 9.4% in 2002, 10.8% in 2003, 15.7% in 2004, and 15.3% in 2005 before flattening in 2006 and starting their decline in 2007.[41] This pace of appreciation was well above household income growth and, in our view, fueled by loose credit and speculation more than fundamentals.
- In this cycle, price gains have been more measured, with national HPA of 5.0% in 2014, 5.7% in 2015, 5.6% in 2016, and 6.2% in 2017. This pace is more consistent with both strong fundamental demand and income growth, and the rising costs of new home construction due to land, labor, materials, and regulatory costs.

Exhibit 14: CoreLogic HPI, Nominal

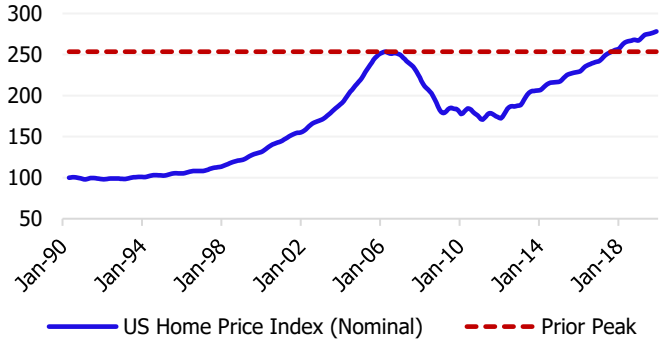
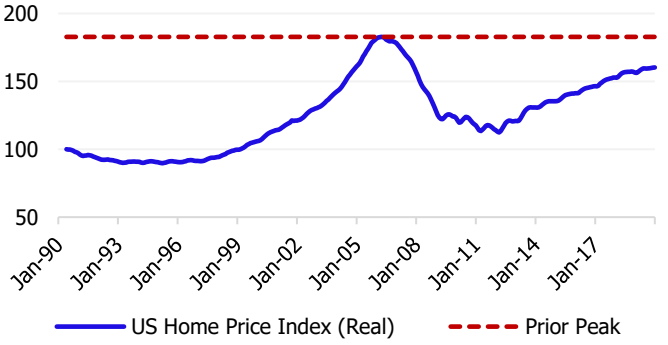


Exhibit 15: CoreLogic HPI, Adjusted for Inflation



Source: CoreLogic National HPI, updated through December 2019. Index deflated using U.S. Bureau of Economic Analysis, Personal Consumption Expenditures Excluding Food and Energy (Chain-Type Price Index), downloaded from the St. Louis FRED data system.

[38] CoreLogic Home Price Index, Single-Family Combined Tier, as of December 2019.
[39] CoreLogic National HPI, updated through December 2019. Index deflated using U.S. Bureau of Economic Analysis, Personal Consumption Expenditures Excluding Food and Energy (Chain-Type Price Index), downloaded from the St. Louis FRED data system.
[40] CoreLogic National HPI, through December 2019. Urban Institute, "Housing Finance at a Glance," May 2019.
[41] Ibid.

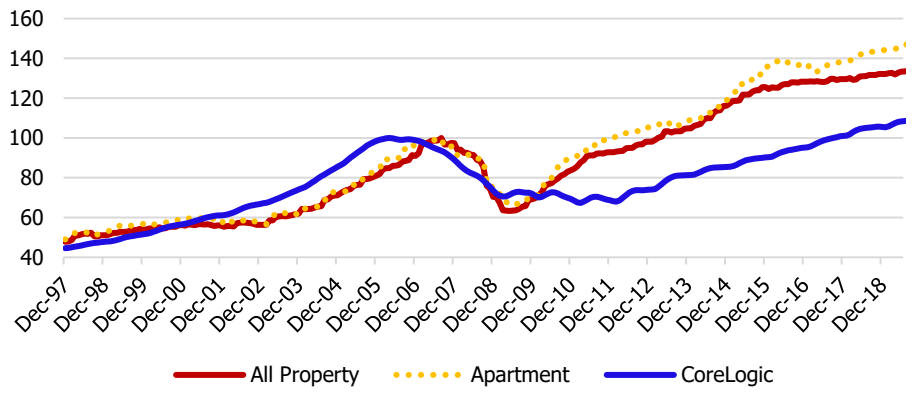
Home Price Recovery More Muted Than Commercial Real Estate Values[42]

U.S. home prices are ~10% above prior peaks, well below increases for multifamily residential ("MFR") and commercial real estate ("CRE") broadly

As noted on the prior page, the CoreLogic Home Price Index is now 10% above the April 2006 peak level on a nominal basis. During this recovery, the increase in home prices have been more muted than the increase in value for commercial real estate, including multifamily. While home prices have exceeded their pre-crisis values, those increases remain well below the increase in commercial real estate values relative to its pre-crisis level.

- Green Street Advisors' Commercial Property Price Index ("CPPI") is an unlevered time series of commercial property values. CRE values peaked in the last cycle in the third quarter of 2007.
- From 3Q'07 through 4Q'19, multifamily values have increased by 52% while all CRE property values have increased by 35%.

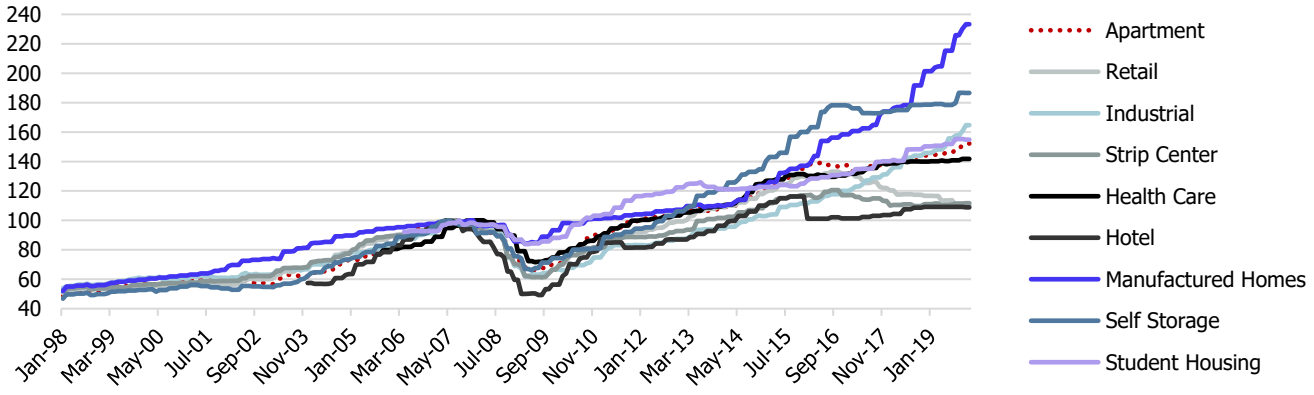
Exhibit 16: Commercial Real Estate and Single-Family Home Values (Indexed to 100 at Pre-Crisis Peaks)



Source: CoreLogic National HPI, updated through December 2019. Green Street Advisors, Commercial Property Price Index (CPPI), data through December 31, 2019, retrieved on January 10, 2020.

Within CRE, there is considerable divergence with manufactured housing values 133% above prior peak, storage values 87% above prior peak, and student housing 55% above prior peak. In contrast, hotels are 9% above prior peak, retail 10% above prior peak, and office 17% above prior peak.

Exhibit 17: Subsector Unlevered Asset Values (Indexed to 100 at Pre-Crisis Peaks)



Source: Green Street Advisors, Commercial Property Price Index (CPPI), data through December 31, 2019, retrieved on January 10, 2020.

[42] CoreLogic National HPI, updated through December 2019. Green Street Advisors, Commercial Property Price Index (CPPI), data through December 31, 2019, retrieved on January 10, 2020.

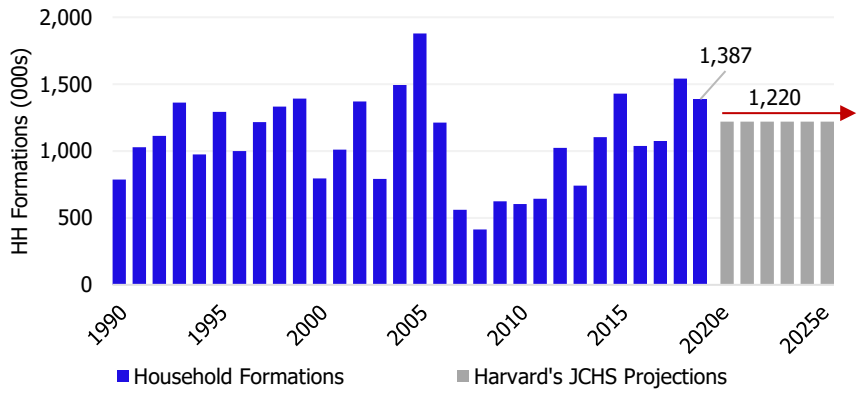
Section II: Supply and Demand Fundamentals and the Housing Cycle

Demand Trends: Healthy, With Positive Tailwinds

In 2019, the U.S. created 1.39mn new households on a year-over-year basis. This is just below the 1.54mn pace in 2018, which was the strongest pace of household formations since 2005.[43]

In our view, there are three primary supports for above-trend housing demand over the next decade: constructive population shifts, a healthy labor market, and potential upside from pent-up demand from young adults. Harvard's JCHS expects household formations to average 1.22mn per annum through 2028, while Morgan Stanley expects household formations of 1.35mn per annum over the next five years.[44]

Exhibit 18: Annual Household Formations with Harvard's JCHS Forecasts

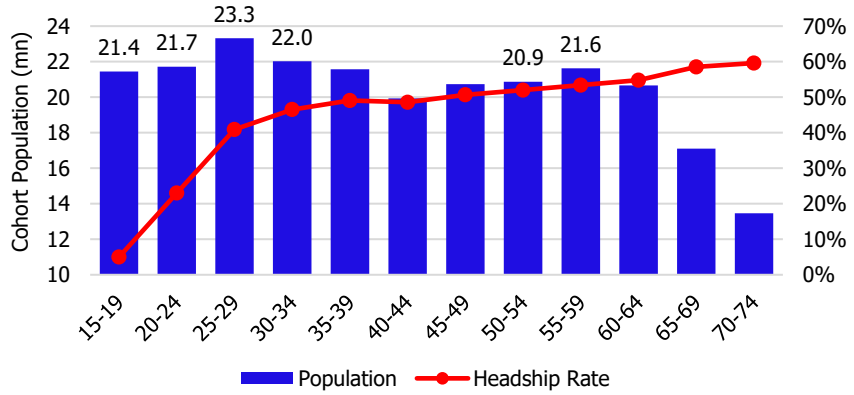


Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, 4Q'19. Projections from Harvard JCHS, "Updated Household Growth Projections: 2018-2028", December 2018.

1. Population Shifts a Long-Term Driver of Household Formations…

An important structural support for household formation forecasts is the robust population shift occurring in the young-adult age cohorts. There are more than 67mn Americans between the ages of 20 and 34 entering their prime household forming years, providing a demographic underpinning to the above-average housing demand forecasts noted above.[45]

Exhibit 19: Population Shifts Support Continued Above-Average Household Formation Growth



The % of individuals leading a household jumps from ~25% at 20 to 24 years old to over 45% in the 30 to 34 cohort

Source: Population from U.S. Census, Population Estimates by Age and Sex, 2018 annual data. Headship rates from U.S. Census Bureau Homeownership and Vacancy Survey, 2018 annual data.

[43] U.S. Census Bureau, Housing Vacancies and Homeownership Report, as of 4Q'19.
[44] Harvard JCHS, "Updated Household Growth Projections: 2018-2028", December 2018. Morgan Stanley, "U.S. Housing Tracker: Unfaltering Formations", published December 6, 2019.
[45] Population from U.S. Census, Population Estimates by Age and Sex, 2018 annual data.

...Especially Single-Family Housing Demand

Moody's Analytics forecasts that from 2019 to 2035 the 35- to 44-year-old cohort will increase by 8.4mn people or 20%, compared to a 12% growth rate for the U.S. population overall.[46]

Exhibit 20: Total Population, 35 to 44 Years Old (000s)

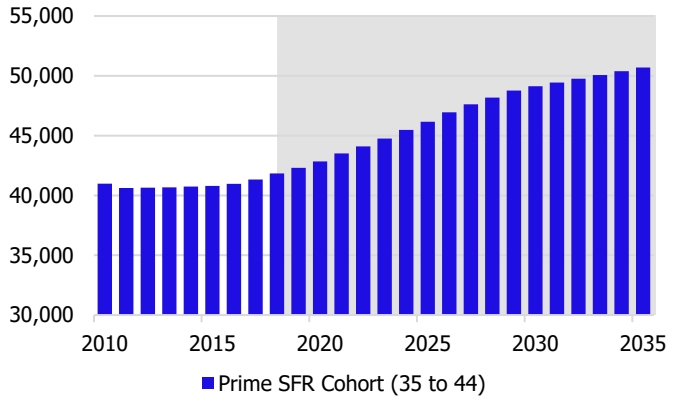
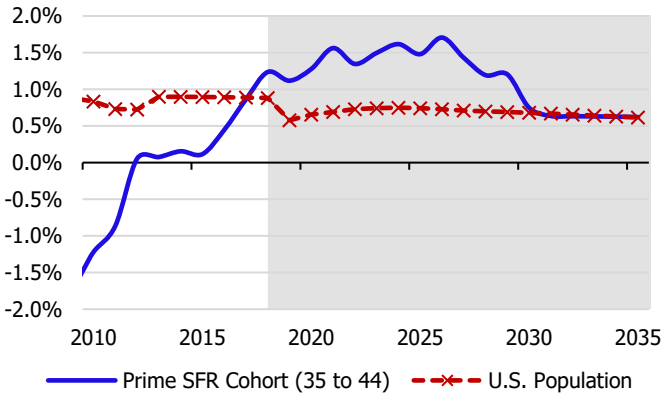


Exhibit 21: Annual Population Growth Rate

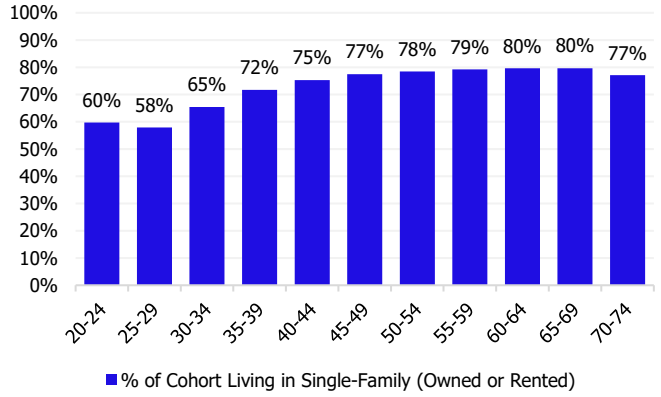


Source: U.S. Census Bureau and Moody's Analytics Forecasts, updated on January 27, 2020.

We expect the significant growth in the 35- to 44-year-old cohort over the next two decades will support single-family housing demand—both owned and rental—with this cohort more likely to form families and prefer the amenities of single-family housing (access to schools, larger living spaces, more bedrooms, safer neighborhoods). Historically, the propensity to live in single-family housing rather than multifamily housing increases as people age into their 30s and 40s.[47]

- According to UC Berkeley, 78% of single-family renters are aged 25 to 54, with the largest cohort (35%) aged 35 to 44.[48]
- A primary reason for the move to single-family housing is the need for more space. According to UC Berkeley, 57% of single-family renter households had minor children present and 60% were married or partners cohabitating.[49]

Exhibit 22: Propensity to Live in Single-Family Housing



Source: U.S. Census Bureau, American Community Survey 2013-2017 5-Year Estimates retrieved from IPUMS USA.

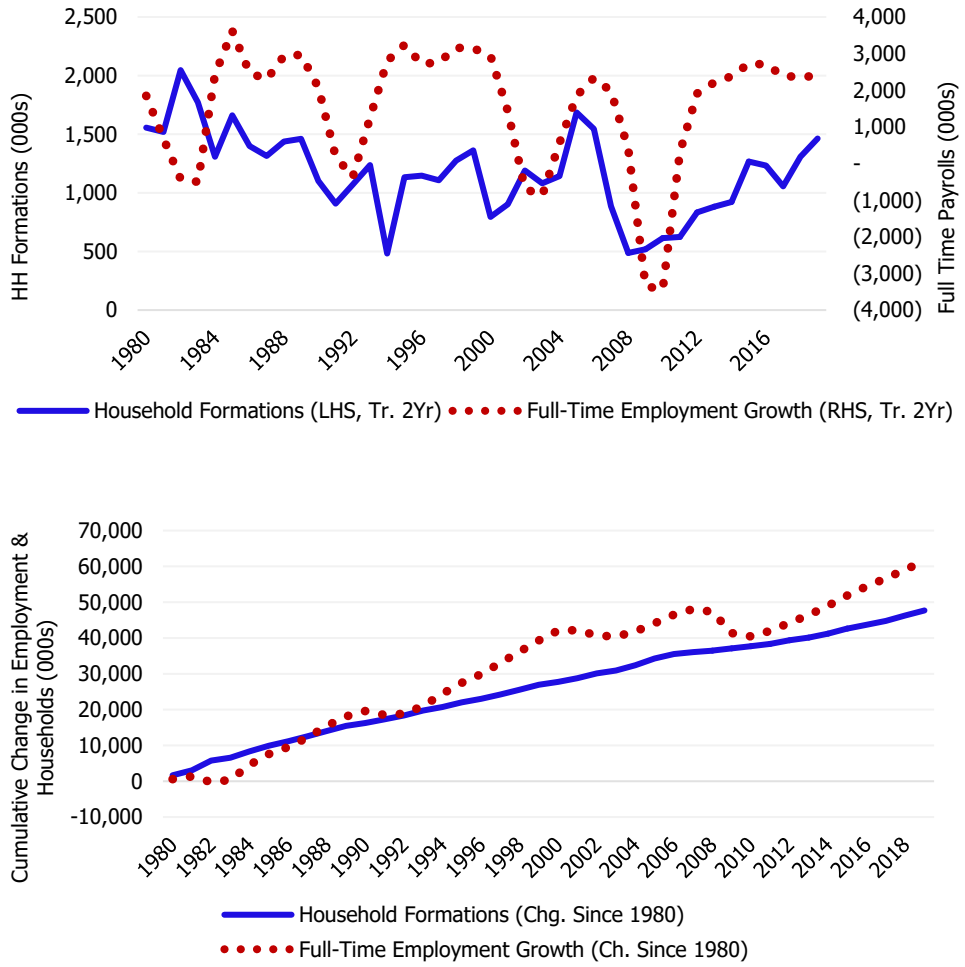
[46] U.S. Census Bureau and Moody's Analytics Forecasts, updated on January 27, 2020.
[47] U.S. Census Bureau, American Community Survey 2013-2017 5-Year Estimates retrieved from IPUMS USA.
[48] Terner Center of UC Berkeley, "The Rise of Single-Family Rentals after the Foreclosure Crisis," April 2018.
[49] Ibid.

2. Full-Time Employment Highly Correlated with Housing Demand

A healthy economic backdrop is important to our constructive outlook for housing demand and pricing power. Employment growth is a key driver (along with population growth, consumer confidence, and housing availability) of household formations, as illustrated by Exhibit 23 below. Further, housing is pro-cyclical, and economic growth (e.g., GDP, employment, wages, labor force participation) has historically translated into improving asset values.[50]

As noted earlier, one of the key risks to our housing outlook is the potential for a further deceleration in employment growth over the next 1-2 years should trade conflict escalate and cause a slowdown in business expansion / hiring. We believe any resulting slowdown would be temporary, however, due to the large increase in young-adult populations.

Exhibit 23: Household Formations and Employment Growth are Closely Linked



Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Table 13a. Monthly Household Estimates, December 30, 2019. U.S. Bureau of Labor Statistics, All Employees: Total Nonfarm Payrolls, December 2019.

[50] U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Table 13a. Monthly Household Estimates, December 30, 2019.

3. Potential Incremental Tailwind from Unwind of Young Adults Living at Home

We estimate pent-up demand includes over 4mn "missing" households, particularly among younger cohorts as more young adults are living at home. Any benefit from these households would be incremental to Harvard's base case demand forecast.

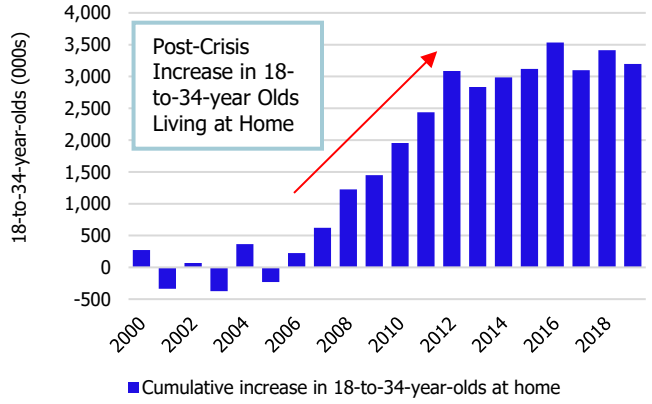
- Over the past several years, household formations have rebounded despite a significant increase in the number of young people living at home. Young people living at home longer than in prior generations represents deferred household formations, or "pent up demand" for housing.
- As shown below on the left, there has been a sharp increase in young adults living at home; from 2003 to 2019, the percentage of 18- to 34-year-olds living at home increased from 27% to 32%, an increase of over 3mn additional people.[51] Deferred household formations are reflected in lower headship rates / deferred household formation relative to expected housing demand.

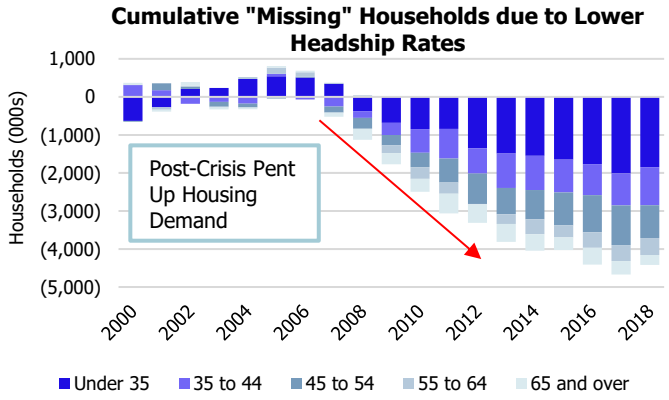
Better employment and wage growth for these cohorts may encourage a decline in young people living at home and, therefore, additional household formations.

- Over the last five years, employment of 25- to 34-year-olds increased by nearly 3.8mn, or ~34% of all net employment growth.
- In 2019, year-over-year 25- to 34-year-old employment growth averaged 1.4%, 20bps faster than general employment growth.[52] Employment growth for 25- to 34-year-olds also outpaced population growth of 1% for the age group.[53]

As noted earlier, projections from Harvard's Joint Center for Housing Studies ("JCHS") for 1.22mn household formations per annum through 2028 assume no change in headship rates. Therefore, a return of these missing households would be additive to their estimates.[54]

Exhibit 24: Pent-Up Demand Led by Under 35 Cohorts Who Increasingly Live at Home





Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, July 25, 2019 and U.S. Census Bureau, National Intercensal Tables 2000-2010, and National Population by Characteristics: 2010-2018. Table AD-1. Young Adults, 18-34 Years Old, Living at Home: 1960 to Present.

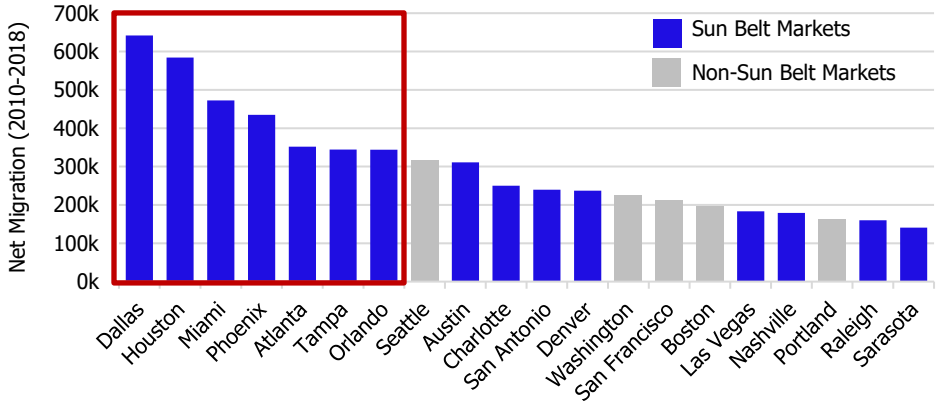
[51] U.S. Census Bureau, Table AD-1. Young Adults, 18-34 Years Old, Living at Home: 1960 to Present, November 2019.
[52] U.S. Bureau of Labor Statistics, Employment Level: 25 to 34 years, Civilian Employment Level, as of December 2019.
[53] U.S. Census Bureau (BOC); Moody's Analytics Forecasted, updated January 27, 2020.
[54] Harvard JCHS, "Updated Household Growth Projections: 2018-2028", December 2018.

Housing Demand in Sun Belt Markets Supported by Robust Population Growth & In-migration

Although long-term demographic trends support U.S. population growth and household formations, several parts of the U.S. are larger beneficiaries of the demographic trends discussed above than others. For example, the metro areas of Chicago, Los Angeles, and New York, combined, lost over 230k net residents due to migration in 2018 alone. On the other hand, as shown below in Exhibit 25, Sun Belt markets such as Dallas, Houston, Miami, and Phoenix have been large beneficiaries of in-migration over the past several years.[55]

Going forward, we expect fast-growing Sun Belt markets to continue to attract additional in-migration and to grow above the national average, benefiting local housing markets.

Exhibit 25: Net Domestic and International Migration by Metro Area (2010-2018)

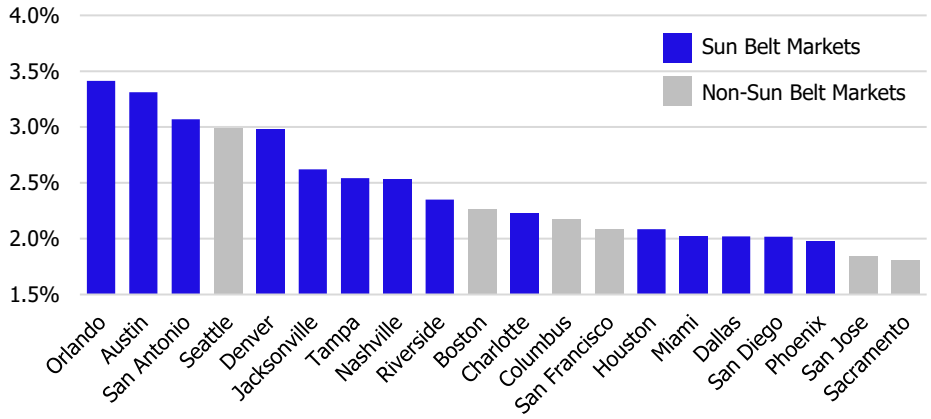


More affordable Sun Belt markets have attracted strong in-migration

Source: U.S. Census Bureau, Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2018 - United States -- Metropolitan and Micropolitan Statistical Area, 2018 Population Estimates.

As often cited in the media, coastal markets like Seattle, San Francisco, and Boston have succeeded in attracting a healthy number of young adults. However, as shown in Exhibit 26 below, **Sun Belt markets, such as Orlando, have experienced population growth among 25- to 35-year-olds comparable to, or faster than, coastal markets** due to robust employment growth and more affordable housing markets.[56]

Exhibit 26: 25- to-34-Year-Old Cohort Population Growth by Metro Area (2010-2019 CAGR)



Sun Belt markets have also experienced above average Millennial age population growth

Source: U.S. Census Bureau, Population Estimates. Retrieved from Moody's Analytics, as of January 2020. Comparison includes 40 metro areas with populations over 1.5mn.

[55] U.S. Census Bureau, Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2018 - United States -- Metropolitan and Micropolitan Statistical Area, 2018 Population Estimates.
[56] U.S. Census Bureau, Population Estimates. Retrieved from Moody's Analytics, as of January 2020.

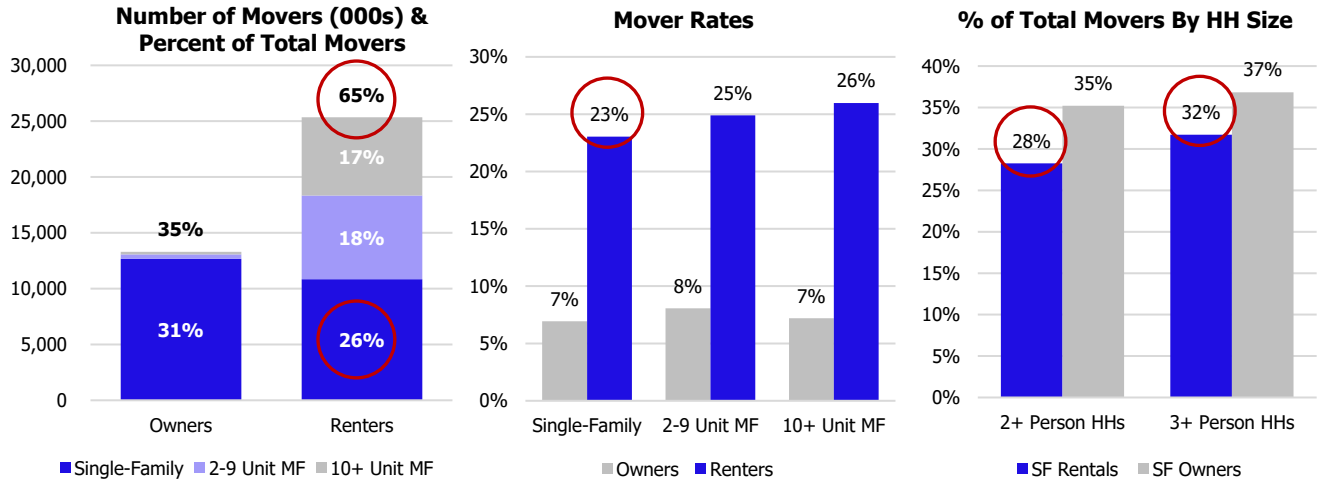
In-migration disproportionately favors rental demand including single-family rentals

In our view, above-average population growth from immigration is a positive driver of housing demand. In-migration has an outsized impact on rental demand. Nationally, renters make up ~65% of movers within the U.S., even though they make up ~35% of the U.S. population. Further, 41% of renters who move are single-family renters.[57]

- Therefore, 26.5% of all movers rent a single-family home in their new location, compared to 15% for the total population renting a single-family home.
- Further, 46% of movers who now live in a single-family home, rent that home (compared to 20% for the total population).
  - In part this reflects who moves – renters were 3x as likely to move as homeowners. Surprisingly, the percentage of SFR renters who moved (23%) was very similar to the percentage of multifamily renters (10+ units) who moved (26%) – we believe this speaks to the higher number of people in an average SFR vs. MFR unit.
- Filtering the data for households with more than one resident, the % of SFR increases. With 2+ persons in a household, 28% rent a single-family home. With 3+ persons in a household, 32% rent a single-family home.

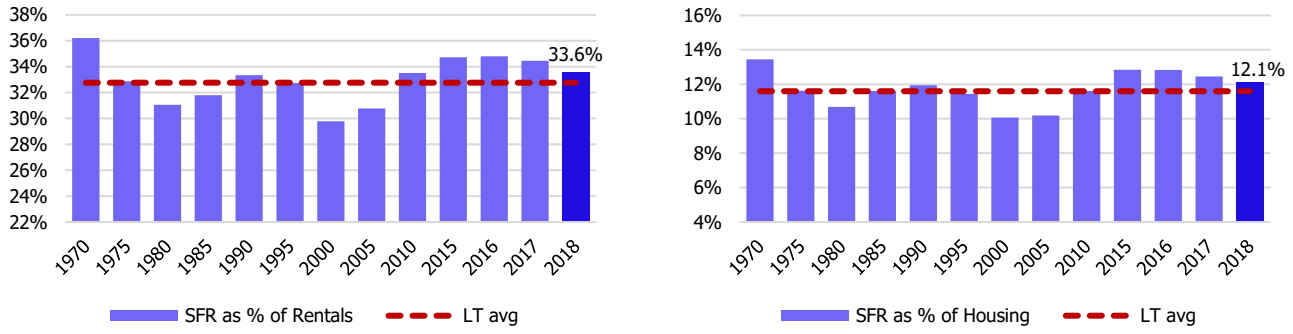
Overall, we believe this supports our view that incremental population growth into our markets is a positive specifically for SFR rental demand, in addition to the positive effects it has on HPA and overall economic growth.

Exhibit 27: Movers Are Disproportionately Renters in Their New Locations, Especially with Larger Families



Source: U.S. Census Bureau, American Community Survey 2013-2017 5-Year Estimates retrieved from IPUMS USA.

Exhibit 28: Single-Family Rentals as a Percent of U.S. Housing (left) and as a Percent of All Rentals (right)



Source: U.S. Census Bureau. For 1970-1995 data, we use the American Housing Survey data. For 2000 and 2010 we use the Decennial Census. For 2005, and 2015-2018 we use the American Community Survey 1 Year Survey. Any error in combining these various data series is ours.

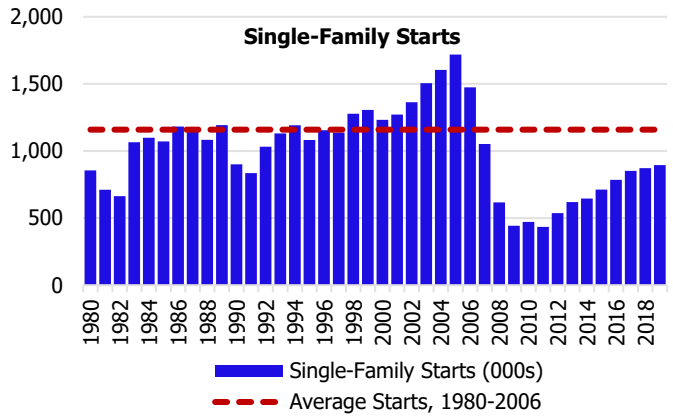
[57] U.S. Census Bureau, American Community Survey 2013-2017 5-Year Estimates retrieved from IPUMS USA.

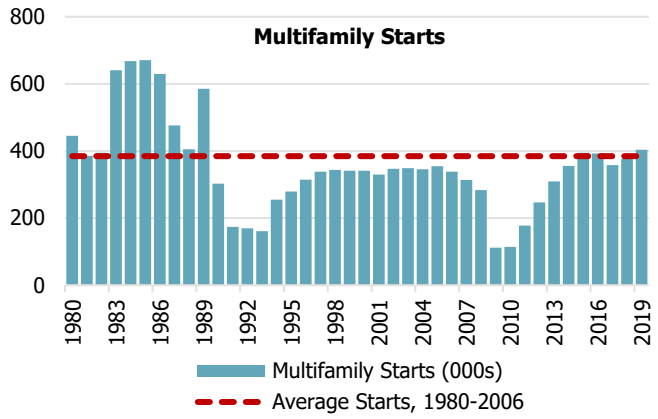
Housing Supply: Construction Volumes Increasing Modestly

Although new home construction has picked up, it remains well below "normal" levels

In 2019, monthly new housing starts averaged 1.3mn at a seasonally adjusted annual rate, an increase from the 1.25mn average in 2018 and 1.21mn in 2017. This compares to housing starts from 1980 to 2006 which averaged over 1.5mn units annually.[58]

Exhibit 29: Single-Family and Multifamily Housing Starts Up Modestly in 2019

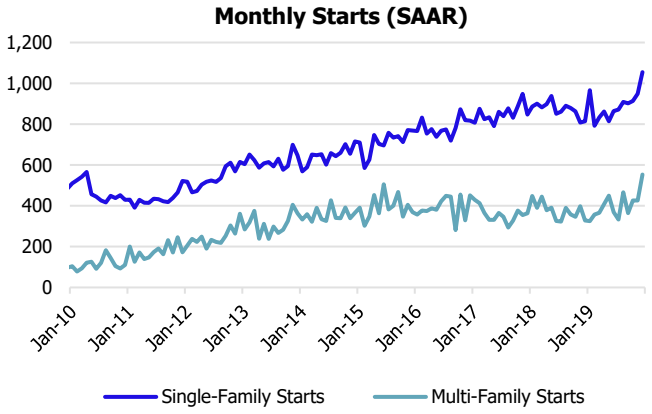


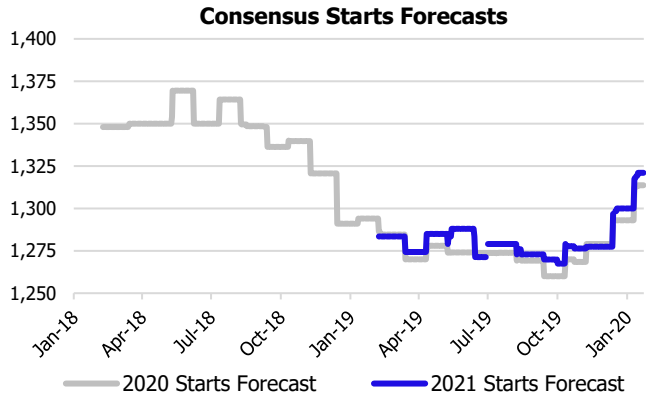


Source: U.S. Census Bureau and U.S. Department of Housing and Urban Development, New Residential Construction, New Privately-Owned Housing Units Started, through December 2019.

Looking forward, Bloomberg **consensus forecasts housing starts of 1.31mn in 2020 and 1.32mn in 2021,** which would equate to CAGR growth of 1% over the next 2 years.[59] Consensus starts forecasts trended lower in 1H'19, then stabilized through 2H'19 as housing activity recovered and economic uncertainty improved.

Exhibit 30: Starts Forecasts Have Ticked Higher After Housing Starts Recovered in Late 2019





Source: U.S. Census Bureau and U.S. Department of Housing and Urban Development, New Residential Construction, New Privately-Owned Housing Units Started, through December 2019. Bloomberg Weighted Average Consensus Forecast, 2020 and Housing Starts (ticker ECHUUS 20 Index, ECHUUS 21 Index, retrieved January 29, 2020.

[58] U.S. Census Bureau and U.S. Department of Housing and Urban Development, New Residential Construction, New Privately-Owned Housing Units Started, through December 2019.
[59] Bloomberg Weighted Average Consensus Forecast, 2020 and 2021 Housing Starts, retrieved January 29, 2020.

Acute Shortage of Entry-Level Housing

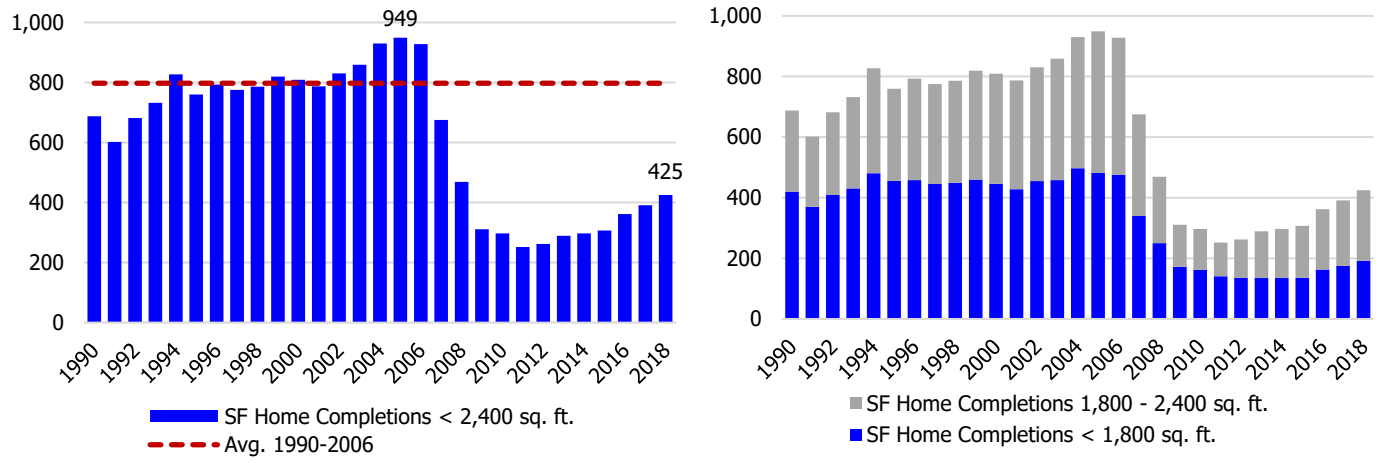
During this cycle, homebuilders have focused on producing larger, more expensive homes compared to what builders offered pre-recession. The main reasons for this are higher fixed costs that necessitate building higher-priced homes to achieve profitability.[60]

In 2018 (latest data available), builders completed 425,000 single-family homes under 2,400 square feet. This is up from 391,000 in 2017, but well below the 900,000 average from 2002-2006 or 792,000 average from 1990-2007.[61]

- As a proportion of total construction, 51% of single-family home completions were below 2,400sf, which is below the 61% average from 1990-2006.[62]
- Building of homes under 1,800sf is particularly tight. In 2018, there were 192,000 homes built under 1,800sf, which is 57% below the average from 1990-2007. In contrast, there were 233,000 homes built between 1,801-2,400sf, which was 33% below the long-run average.[63]

Net, there are fewer starter / entry-level homes – today and over the past decade – being produced for a growing pool of ageing Millennials who are moving through life events (marriage, children, etc.) and now need more space to raise their families.

Exhibit 31: Single-Family Housing Completions for Units Below 2,400 Square Feet



Source: U.S. Census Bureau, New Privately-Owned Housing Units Completed, Square Feet of Floor Area in New Single-Family Houses Completed. Annual data, 1968-2018.

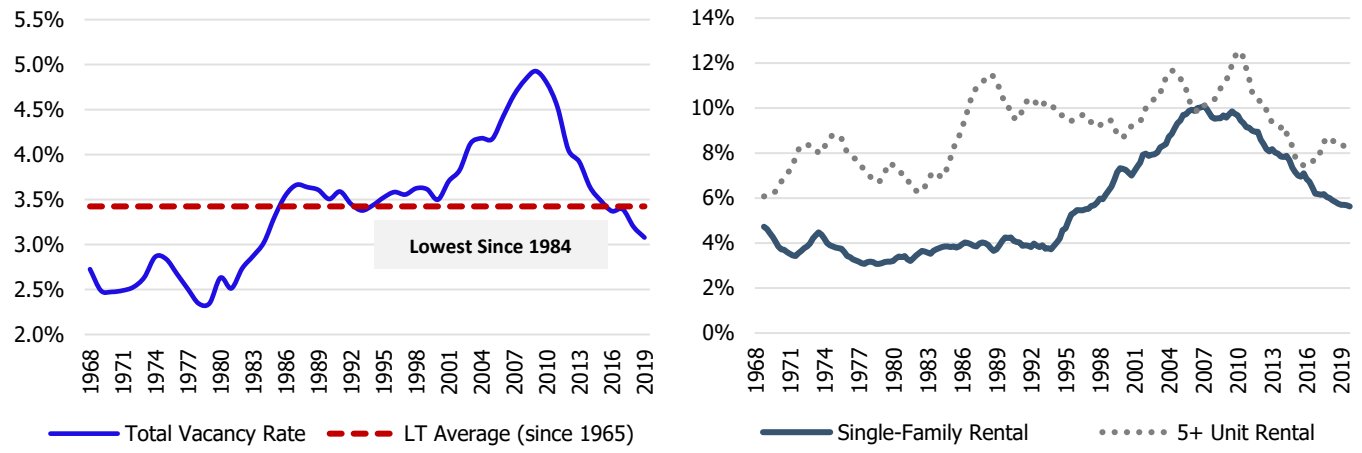
[60] Zelman and Associates, "Proprietary Look at Builder Price Points - Entry-Level Push Picking Up Steam at the Right Time" published May 7, 2019.
[61] U.S. Census Bureau, New Privately-Owned Housing Units Completed, Square Feet of Floor Area in New Single-Family Houses Completed. Annual data, 1968-2018.
[62] Ibid.
[63] Ibid.

Housing Vacancy Rates Continue to Compress

Per the U.S. Census Bureau, vacancy rates of for-sale and for-rent housing during 2019 averaged 3.1%, down ~10bps from 2018, and the lowest level since the early 1980s. This contraction is the result of nearly 10 years of underbuilding of new supply relative to underlying housing demand.[64]

- Rental vacancy rates averaged 6.9% in 2019, in-line with 2018. As shown below on the right, both single-family and multifamily vacancy rates are tightening.[65]

Exhibit 32: Total Housing Vacancy Rates are at Tightest Levels Since 1984 and SFR Vacancy Rates Grind Lower

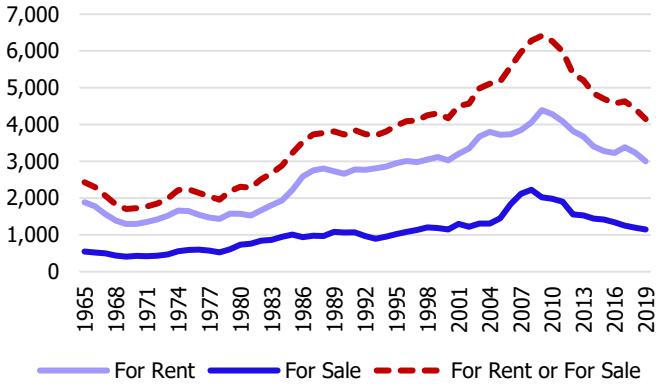


Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Series H-111, through 4Q'19.

In 4Q'19, there were 4.1mn housing units for rent or for sale, down from 6.4mn in 2009.[66]

- The total number of for rent or sale units is the lowest since 1997.

Exhibit 33: Total for Sale and For Rent Housing Units (000s)



Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Table 7, through 4Q'19. National Association of Realtors, Existing Home Sales, through December 2019.

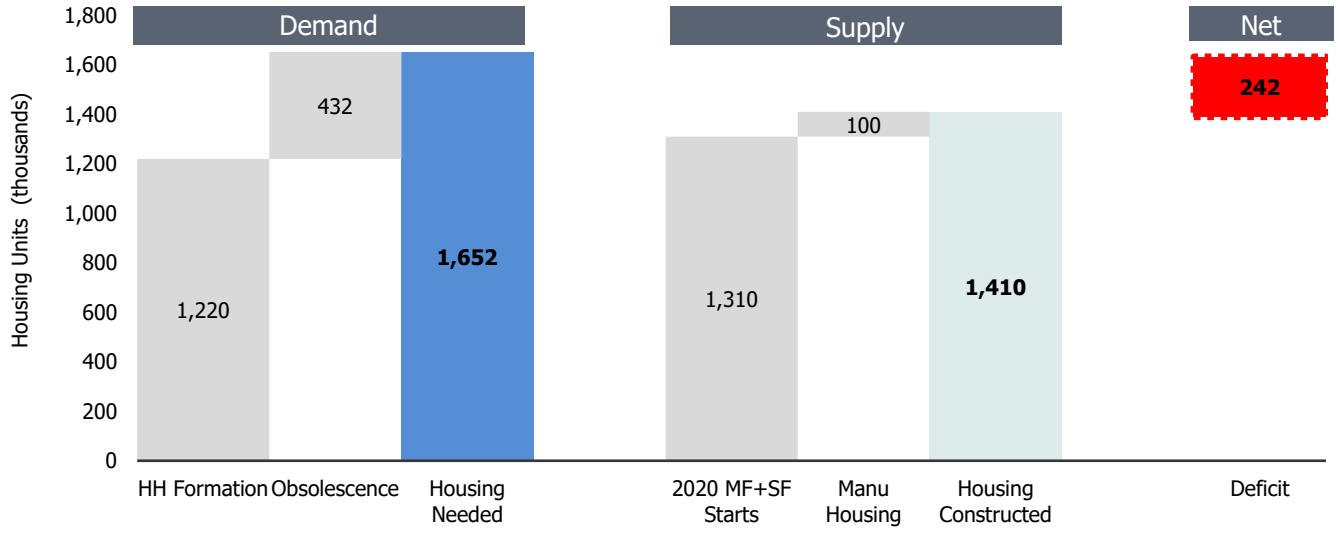
[64] U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Series H-111, through 4Q'19.
[65] U.S. Census Bureau, Table 3. Rental Vacancy Rates by Units in Structure: 1968 to Present, Current Population Survey/Housing Vacancy Survey, through 4Q'19.
[66] U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Table 7, through 4Q'19.

Further Compression in Vacancy Rates Likely with Forecasted Supply / Demand

Harvard's JCHS forecasts long-term housing demand of 1.22mn households per annum through 2028. If Harvard's JCHS demand forecast proves to be correct, then the U.S. housing industry needs to build ~1.6mn units of new housing to keep pace with incremental demand and to replace obsolete units.[67]

With consensus forecasts expecting single-family and multifamily housing starts to increase only slightly to 1.31mn and 1.32mn in 2020 and 2021, respectively, the U.S. housing deficit is likely to get worse in the near-term.[68]

Exhibit 34: Net Deficit in U.S. Housing Supply



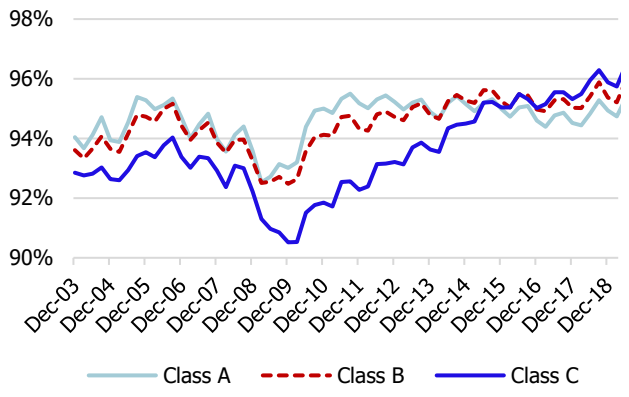
Source: Harvard JCHS, "Updated Household Growth Projections: 2018-2028", December 2018. Current construction starts from U.S. Census, New Residential Construction report, through December 2019. Bloomberg Weighted Average Consensus Forecast, January Survey, 2020 Housing Starts, retrieved January 29, 2020.

[67] Harvard JCHS, "Updated Household Growth Projections: 2018-2028", December 2018. Current construction starts from U.S. Census, New Residential Construction report, through December 2019.
[68] Bloomberg Weighted Average Consensus Forecast, 2019, 2020, and 2021 Housing Starts, retrieved January 29, 2020.

Strong Multifamily Metrics Support View of Healthy Rental Asset Fundamentals

According to Axiometrics, occupancy rates for Class B multifamily (defined as the median priced units in a market) were 95.8% in 4Q'19, up 40bps Y/Y. Class A and Class C occupancy rates were 95% and 96%, respectively.[69]

Exhibit 35: Multifamily Occupancy Rates by Class

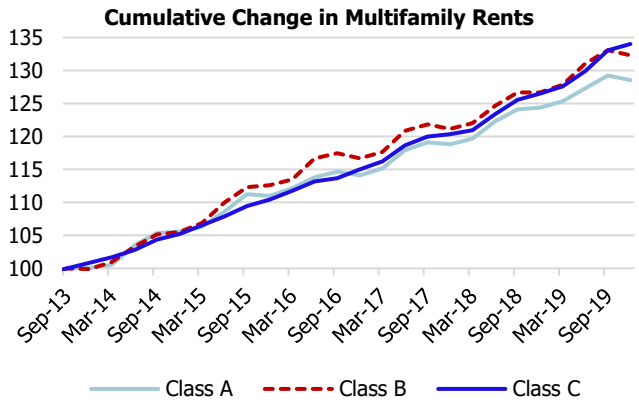


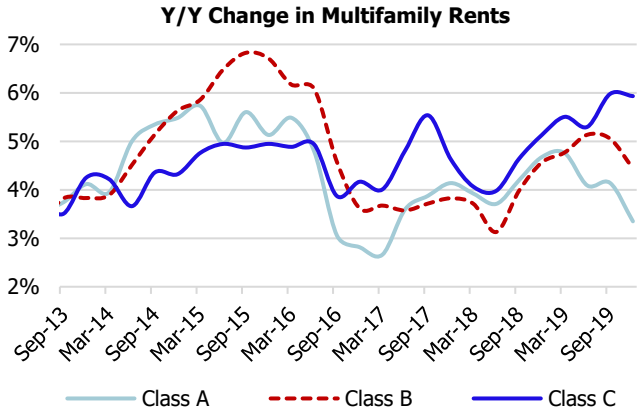
Source: Axiometrics, data as of 4Q'19.

Multifamily rents are increasing at ~4.5%+ per annum.

Axiometrics reports that for the past five years multifamily rental rates have increased by ~4% per annum with Class B rents performing best, rising 4.1% per year and Class A rents increasing 3.7% per year. Longer-term, Axiometrics expects multifamily rents will see a +2.5% CAGR from YE 2019 through 2023.[70]

Exhibit 36: Class B and C Multifamily Rent Growth Has Outperformed Class A Rent Growth Recently





Source: Axiometrics, data as of 4Q'19.

[69] Axiometrics, data as of 4Q'19.
[70] Axiometrics effective rent growth forecasts, as of 4Q'19.

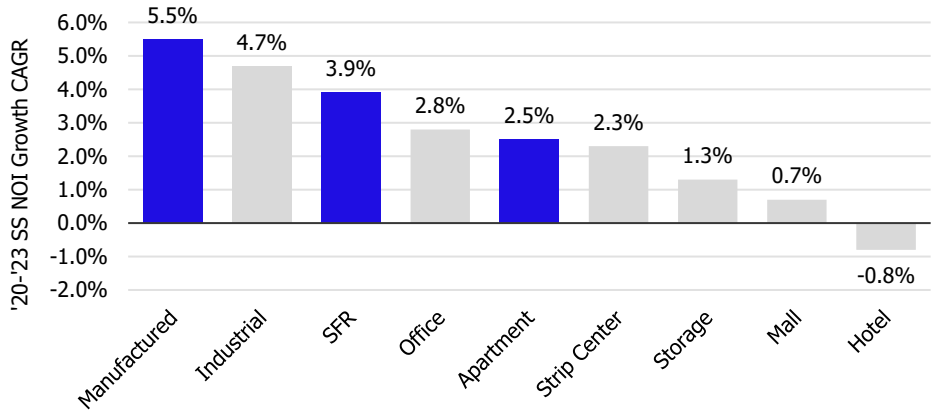
Strong Fundamentals Support Above-Average Near-Term NOI Growth for Residential Assets

Green Street Advisors expects manufactured housing, SFR, and apartment REITs to experience above-average NOI growth through 2023[71]

While the commercial real estate sector is widely considered late cycle (especially in demand-challenged retail subsectors), the outlook for residential remains positive.

- Single-family rentals are expected to post among the strongest NOI growth in the REIT space. The industry enjoys dual tailwinds from a positive fundamental housing backdrop, and a continued opportunity to lower controllable expenses. We expect the growth in both single-family rental revenue and NOI will continue over the medium term, with an opportunity for institutional owners to lower operating expenses through best practices and investments in technology.
- Although multifamily NOI growth has slowed from recent highs due to supply pressures in coastal markets, apartment REITs should also benefit from the underlying demand for rental housing.[72]
  - In our view, weaker new homebuyer affordability at a time of strong household formations will increase rental demand as households, on the margin, find home buying less affordable. We expect that constrained mortgage credit availability and weak affordability will lead more households to rent, even before considering any potential change in homebuyer preference due to generational attitudes, weaker young adult balance sheets, etc.

Exhibit 37: Green Street Advisors Same-Store NOI Growth Outlook Forecasts for REIT Sectors (2020-2023)



Source: Green Street Advisors, "Real Estate Securities Monthly", January 2, 2020.

[71] Green Street Advisors, "Real Estate Securities Monthly", January 2, 2020.
[72] Ibid.

Existing Home Sales Activity Rebounds, But Constrained by Limited Inventory

Despite healthy housing demand, existing home sales remain below the pace of the past several years. 2019 existing sales volumes at 5.3mn SAAR were in-line with 2018's average but 3% below the 2016-2017 average.[73]

In part, lower sales activity reflects the impact of rate uncertainty and worsening affordability, as detailed on page 8.

In addition, sales volumes are constrained by historically low inventory levels. We do not expect inventory levels to rise materially through 2020 given the general undersupply of housing relative to incremental demand.

- Inventory levels averaged 1.54mn in 2019, or 1.3% of housing stock. This is 40% below the long-term inventory to total stock ratio.[74]
  - Inventory for sale in December 2019 was 1.22mn units, the lowest print in the 36-year data series from NAR.
- Similarly, months' supply of existing homes averaged 3.9 months in 2019, in-line with 2018 but well below the long-term average of 6.5 months.[75]

Exhibit 38: Existing Home Sales

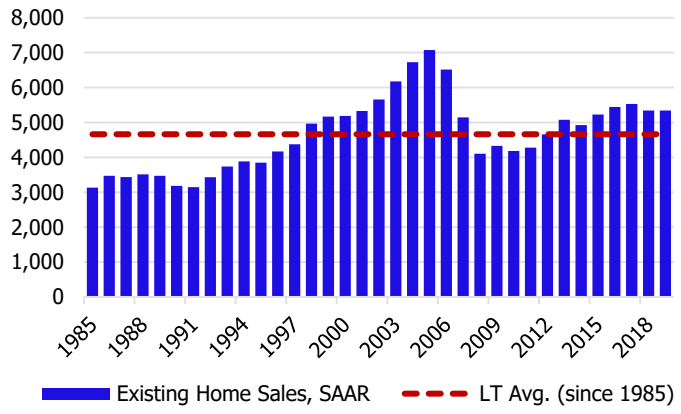
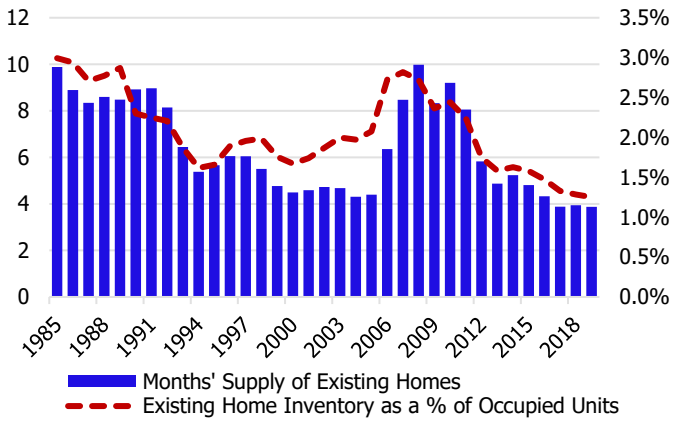


Exhibit 39: For Sale Inventory of Existing Homes



Source: National Association of Realtors, Existing Home Sales, through December 2019.

Exhibit 40: Existing Home Sales Turnover Ratio

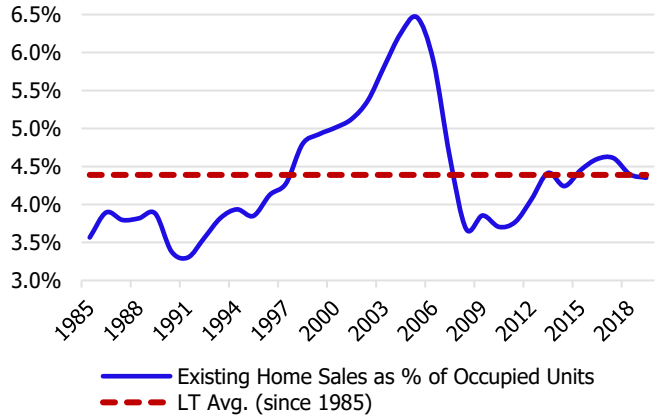
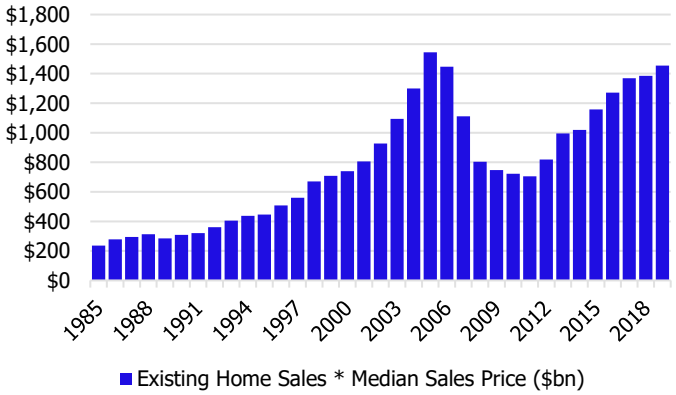


Exhibit 41: Existing Home Sales Volumes ($bn, nominal)



Source: National Association of Realtors, Existing Home Sales, through December 2019.

[73] National Association of Realtors, Existing Home Sales, through December 2019.
[74] Ibid.
[75] Ibid.

Median new home sale pricing down 1% Y/Y, compared to existing home sales pricing +5% Y/Y. Gap between new and existing home prices back to long-term average.

During this housing cycle, median new home sales prices accelerated more quickly than existing home sales prices as builders focused on building larger, more expensive homes.

- By 2014, the median sales price of a new home was 37% higher than the median existing home compared to an average new home premium of 18% from 1980 to 2006.[76]

Over the past several years, however, the median sales price of existing homes has increased at a faster pace than the price of new homes.

- For example, in 2019 the median price of new homes for sale was 1% lower than in 2019. On the other hand, the median sales price of existing homes for sale increased 5% Y/Y due to tight inventory levels.[77]

As shown below on the right, this dynamic has narrowed the gap between new and existing median sales prices to 17%, the smallest since 2009.[78] We expect the gap to narrow further given the scarcity of existing homes for sale and deteriorating trends in the new home market.

Exhibit 42: New Homes Sales Near Long-Term Average

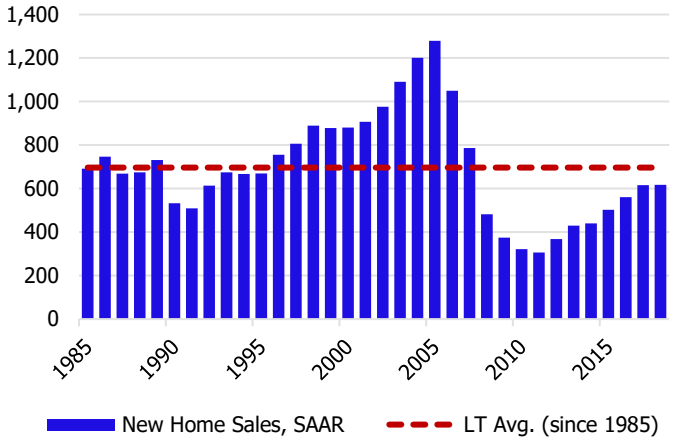
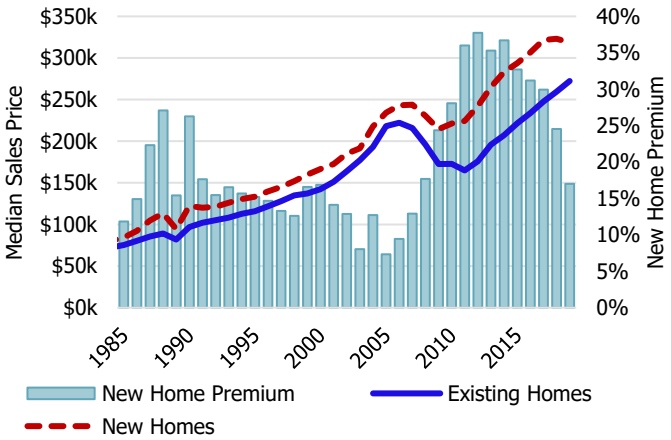


Exhibit 43: New and Existing Sales Price Gap Narrowing



Source: U.S. Census Bureau and the National Association of Realtors, data through December 2019. U.S. Census Bureau, Median Sales Price of Houses, as of December 2019; U.S. Census Bureau and U.S. Department of Housing and Development, Median Sales Price for New Houses Sold, as of December 2019.

[76] U.S. Census Bureau, Median Sales Price of Houses, as of December 2019; U.S. Census Bureau and U.S. Department of Housing and Development, Median Sales Price for New Houses Sold, as of December 2019.
[77] Ibid.
[78] Ibid.

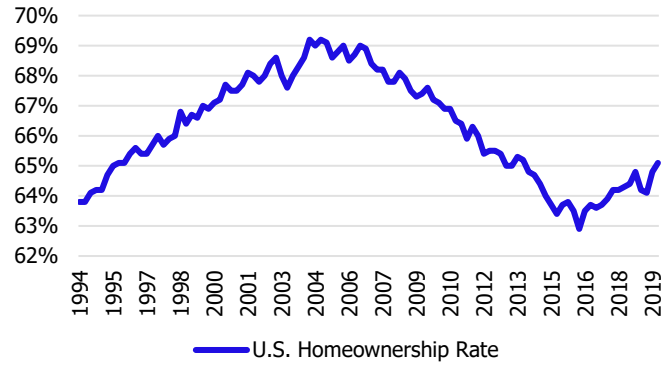
Section III: Homeownership and Mortgage Credit Availability

Homeownership Rates Ticked Higher in 2019

The homeownership rate was 65.1% in 4Q'19, up 30bp Y/Y. For historical context, the current reading is in-line with the long-run average homeownership rate since 1965 of ~65.3%. The homeownership rate has stabilized following a decade of post-crisis declines in homeownership and an increase from 2016-2018.[79]

Given worsening affordability, tightening mortgage credit availability, and weak young adult balance sheets, we expect homeownership will remain in the current range nationally.

Exhibit 44: Homeownership Rate, 1994-2019



Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Series H-111, as of 4Q'19.

As shown in the two charts below, households led by under-35 and 35- to-44-year-olds have driven the recent increase in the homeownership rate.[80]

- From the post-crisis lows, homeownership for under 35-year olds has increased by 350bps, while homeownership for 35-44-year olds has increased by 240bps. However, their homeownership rates remain well below prior peak levels, having fallen by 600bps and 970bps, respectively from post-crisis highs.
- Interestingly, homeownership for older cohorts is not recovering and remains stable. Homeownership in the 65+ cohort sits near the lowest level since 1996, while homeownership for 45-65 years is near the lowest in the Census data series which begins in 1994.

Exhibit 45: Homeownership Rates by Age

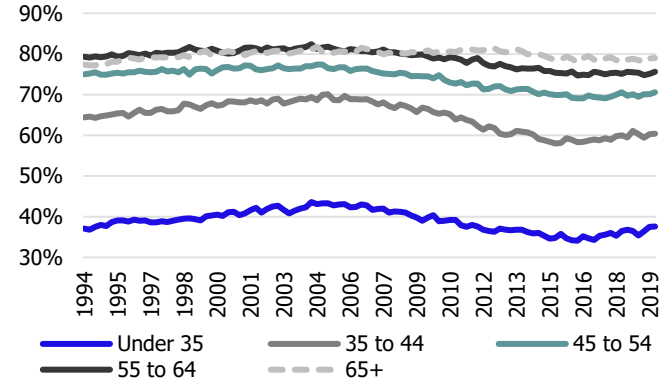
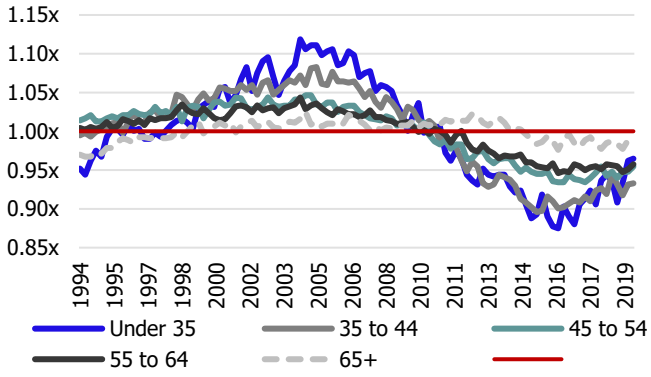


Exhibit 46: Homeownership Rates by Age, Z-Score



Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Series H-111, as of 4Q'19.

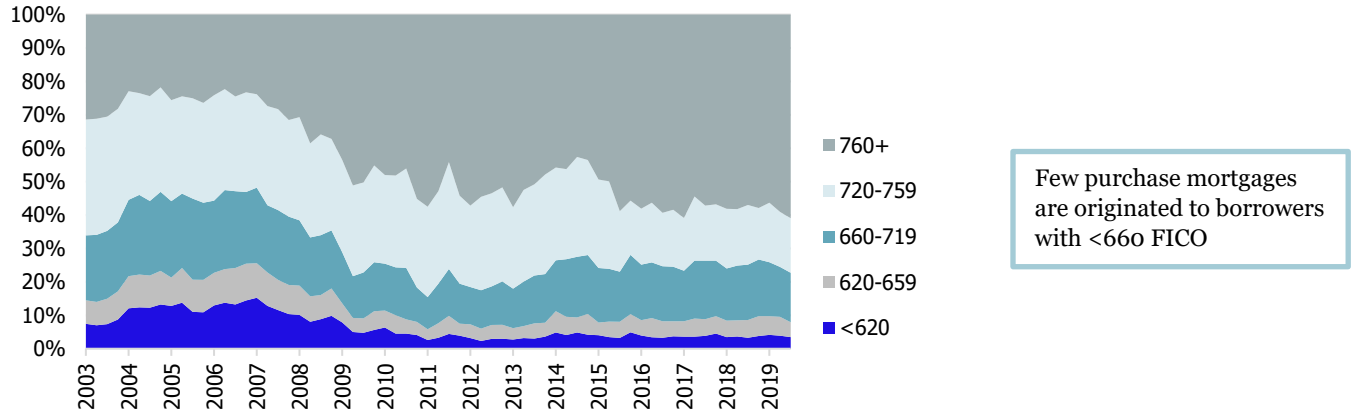
[79] U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, Series H-111, as of 4Q'19.
[80] Ibid.

Mortgage Credit Remains Tight

Loose lending standards in the last cycle encouraged record-high homeownership rates and encouraged riskier borrowers (and borrowers in general) to leverage their homes with considerable debt.

In this cycle, mortgage credit availability has been constrained across lending channels, with average FICO scores on new purchase loans 50 points higher on loans from the Federal Housing Authority ("FHA") and 20-30 points higher on Fannie Mae and Freddie Mac loans.[81] As the chart below on purchase originations by credit scores from the New York Federal Reserve illustrates, there are few loans being made to borrowers with sub-660 FICO scores.[82]

Exhibit 47: Percentage of Mortgage Originations by Credit Score

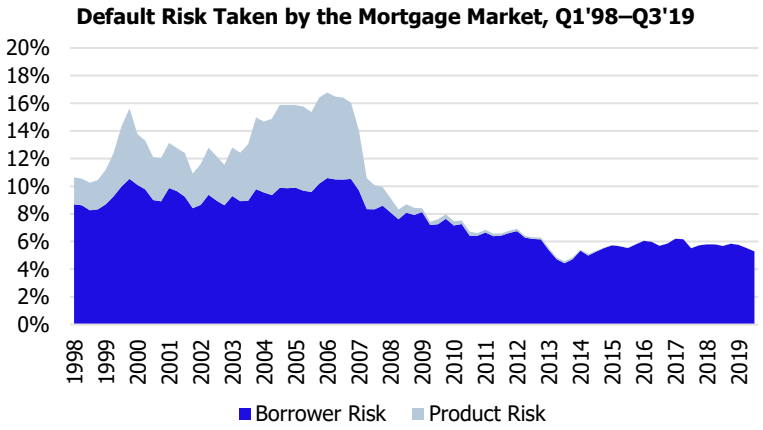


Source: New York Fed Consumer Credit Panel/Equifax, data through 3Q'19.

The chart in Exhibit 48 from the Urban Institute illustrates that the mortgage market is taking about half as much default risk on new loans today as it took from 2005 to 2007, primarily by eliminating riskier loan products (Alt-A, subprime, etc.). According to the Urban Institute, "If the current default risk was doubled across all channels, risk would still be well within the pre-crisis standard of 12.5 percent from 2001 to 2003 for the whole mortgage market."[83]

We believe that more conservative lending standards this cycle will constrain a further rebound in homeownership while also resulting in a more stable housing market, with fewer mortgage delinquencies and defaults in the next cycle.

Exhibit 48: Urban Institute Housing Credit Availability Index, 1998-2019



Source: Urban Institute, Housing Credit Availability Index, Q3'19. Updated January 15, 2020.

[81] Goldman Sachs Global Investment Research. Goldman Sachs, "Housing and Mortgage Monitor," November 27, 2019.
[82] New York Fed Consumer Credit Panel/Equifax, data through 3Q'19.
[83] Urban Institute, Housing Credit Availability Index, 3Q'19. Data from eMBS, CoreLogic, HMDA, IMF, and Urban Institute. https://www.urban.org/policy-centers/housing-finance-policy-center/projects/housing-credit-availability-index.

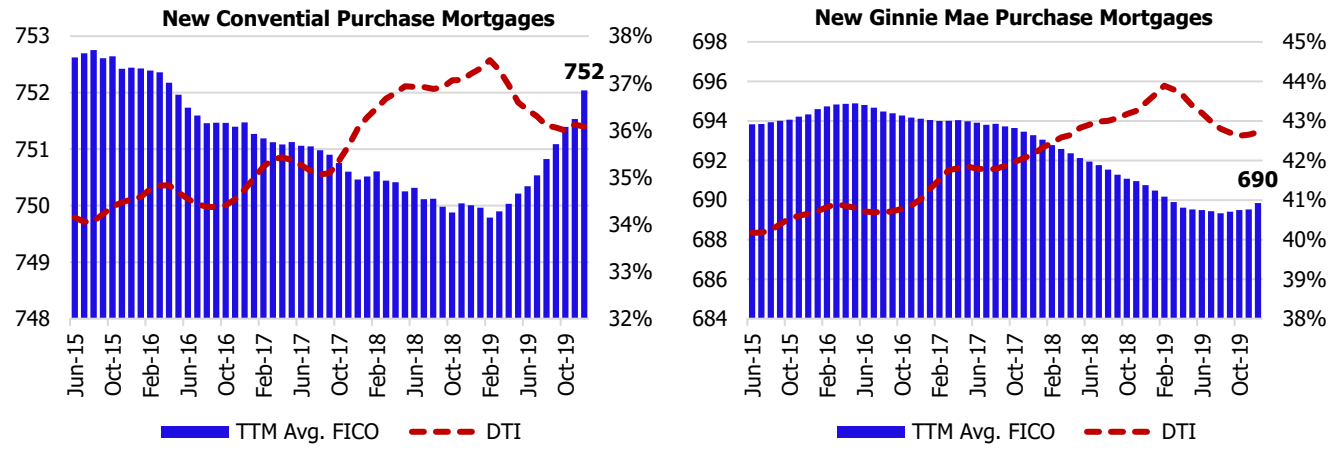
Recent Trends in Mortgage Credit; Lower Debt-to-Income ("DTI") Ratios[84]

Over the past twelve months, there has been a tightening of credit underwriting for both conventional (Fannie Mae and Freddie Mac) and Ginnie Mae (FHA/VA) mortgages, primarily through lower DTI ratios.

- Through December 2019, the trailing 12-month FICO for conventional loans was 753, an increase of 2 points from the 2018 - 2019 average.
- For Ginnie Mae loans, the average FICO on a trailing 12-month basis was 690, in-line with the 2018 – 2019 average FICO.

As affordability became more constrained in 2017 and 2018, mortgage credit underwriting loosened through less stringent DTI ratio requirements for borrowers. That trend has reversed in the past few months. While DTIs peaked on a trailing 12-month basis in January 2019, a significant change occurred in March 2019, as the FHA reinstated manual underwriting on some of its riskiest loans (sub-620 FICOs and DTIs above 43%) which should impact 4-5% of FHA originations.[85]

Exhibit 49: Average Purchase FICO Scores and DTIs Show a Tightening of Credit Availability



Source: Morgan Stanley, " U.S. Housing Tracker: Accelerating into the End of the Year ", January 9, 2020. EMBS.

[84] Morgan Stanley, " U.S. Housing Tracker: Accelerating into the End of the Year ", January 9, 2020. EMBS.
[85] See Wells Fargo, "Forget Technology, FHA Returns to Manual Labor," March 19, 2019, and Evercore-ISI, "An Important Change to FHA Underwriting," March 19, 2019.

Outlook for Regulatory Changes in Mortgage Credit: Likely Tighter Through 2020

In our view, housing reform actions to date and likely future administrative changes will reduce the government's role in mortgage credit and allow private capital to better address underserved borrowers.

- In aggregate, we expect the administration will attempt to shrink the role of government-backed mortgage credit by increasing the direct cost of the government guarantee to make private capital more competitive.
- Leveling the playing field should, on balance, allow more private capital to enter residential credit and responsibly expand credit to currently underserved borrowers including self-employed and near-prime borrowers with less access to credit.

Recent Timeline of Administrative Reform

In March 2019, President Trump released a memorandum directing the Secretary of Treasury and Secretary of Housing and Urban Development ("HUD") to "craft administrative and legislative options for housing finance reform."[86] The memorandum followed several other actions taken by the Trump Administration that signaled intentions to reform the housing finance system, including:

- Mark Calabria nominated as Director of the Federal Housing Finance Agency ("FHFA") and confirmed in April 2019.[87]
- Reinstating manual underwriting for FHA loans with FICO scores below 620 and DTIs above 43% and stating that the "FHA will carefully monitor the impact of this change and is preparing to implement additional changes to maintain a better balance of managing risk and fulfilling its mission."[88]

In June 2019, the CFBB released a press release noting their intention to let the QM patch expire as planned "in January 2021 or after a short extension."[89] In addition, the release requested for input on modifying the QM definition, potentially increasing the DTI threshold from 43%, and/or changing the income/documentation requirements under Appendix Q.[90]

- According to the CFPB, the QM patch enabled the GSEs to acquire $234bn of high DTI loans, or ~30% of what the GSEs acquired in 2018.[91] Therefore, in our opinion, it is unclear how much change to the status quo the Administration is willing to take to reduce the government's footprint in high DTI conventional lending.

In September 2019, the Departments of Treasury and Housing and Urban Development released their respective housing reform proposals, including suggestions for both administrative and legislative changes to the housing finance system.[92]

- The proposals generally seek to level the playing field between private and public capital to reduce the government share of lending, including higher guarantee fees ("g-fees"), larger capital buffers for the GSEs, and a smaller government footprint in non-core markets such as cash out refinancings, investor homes, vacation home loans, and high balance loans.
- Other suggestions include:
  - Propose ending QM patch in January 2021 (in line with CFPB recommendation in June 2019), amend the ATR rules, and offer bright line definition of safe-harbor to replace the patch.
  - Review capital treatment and risk retention rules for private label securitizations ("PLS"), which are more favorable and less restrictive to GSEs than private capital and inhibit the growth of PLS.
  - For both GSE and HUD, increase g-fees and capital reserves to build buffer and more appropriately price risk to level playing field with private capital.
  - Identify higher risk lending, and propose future restrictions on underwriting high DTI, high LTV, risk layering, etc.
  - For FHA, clearly defining litigation risk under the False Claims Act in order to bring banks back into FHA lending to improve counterparty risk.
  - For both, find ways to lower servicing costs for delinquent loans, which have spiked post-crisis.

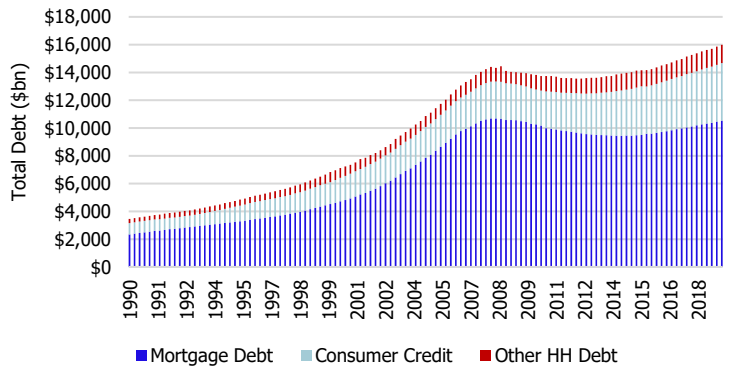
[86] https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-reforming-housing-system-help-americans-want-buy-home/.
[87] Housing Wire, "Senate confirms Mark Calabria to lead FHFA, April 4, 2019.
[88] See Wells Fargo, "Forget Technology, FHA Returns to Manual Labor," March 19, 2019, and Evercore-ISI, "An Important Change to FHA Underwriting," March 19, 2019. Wall Street Journal, "FHA Clamps Down on Risky Government-Backed Mortgages," March 25, 2019.
[89] Consumer Financial Protection Bureau. https://files.consumerfinance.gov/f/documents/cfpb_anpr_qualified-mortgage-definition-truth-in-lending-act-reg-z.pdf.
[90] See JP Morgan, "QM patch to expire – but will QM change?" July 26, 2019, or Nomura, "Securitized Products Weekly," July 26, 2019.
[91] Consumer Financial Protection Bureau. https://files.consumerfinance.gov/f/documents/cfpb_anpr_qualified-mortgage-definition-truth-in-lending-act-reg-z.pdf.
[92] U.S. Department of the Treasury, "Housing Reform Plan, Pursuant to the Presidential Memorandum Issued March 27, 2019", September 2019. Note: Items listed in the order in which they appear in the Appendix of the report.

Consumer Balance Sheets: Household Mortgage Debt Remains Below 2008 Peak

There is far less leverage in the U.S. housing system today and, therefore, we expect far less credit-induced stress in the housing system when the next downturn occurs.

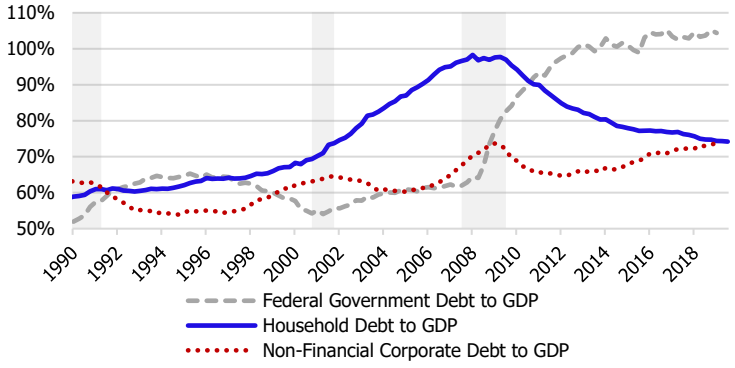
- Since YE 2008, there has been a significant shift in the components of the debt markets, with the federal government increasing its debt outstanding by 112%, corporations increasing debt by 48%, and households increasing debt by 13%. Within household debt, consumers have reduced mortgage debt by 1% while increasing other consumer debt by 57%.[93]
- Since 2008, household debt (includes mortgages and consumer credit) increased by $1.54tn, however, as a proportion of GDP household debt has fallen to 74% from 97%.[94]
  - Most of the expansion in household debt occurred in consumer credit (includes autos, credit cards, student loans). Consumer related debt increased by $1.5tn from 2008 to 2019.
  - Since 2008, mortgage debt, including first mortgages and home equity lines of credit, has contracted by $170bn. As a percentage of GDP, however, mortgage debt has fallen to 49%, below the pre-crisis peak of 74%, and below the thirty-year average of 53%.

Exhibit 50: U.S. Consumer Debt Shows Increasing Share of Non-Mortgage Debt



Source: Board of Governors of the Federal Reserve System (US), Households and nonprofit organizations; debt securities and loans, home mortgages, consumer credit; liability, Level, Billions of Dollars, Quarterly, Seasonally Adjusted. All data through 3Q'19.

Exhibit 51: U.S. Household Debt to GDP Has Fallen Substantially, While Corporate Debt Burden Increased



As a percent of GDP, household sector debt has decreased meaningfully, resulting in healthier household balance sheets

Source: U.S. Department of the Treasury. Fiscal Service, Federal Debt: Total Public Debt, through 3Q'19. Board of Governors of the Federal Reserve System (US), Households and nonprofit organizations; debt securities and loans; liability, Level, through 3Q'19. Bank for International Settlements, Total Credit to Non-Financial Corporations, Adjusted for Breaks, for United States, through 3Q'19. U.S. Bureau of Economic Analysis, Gross Domestic Product, through 3Q'19.

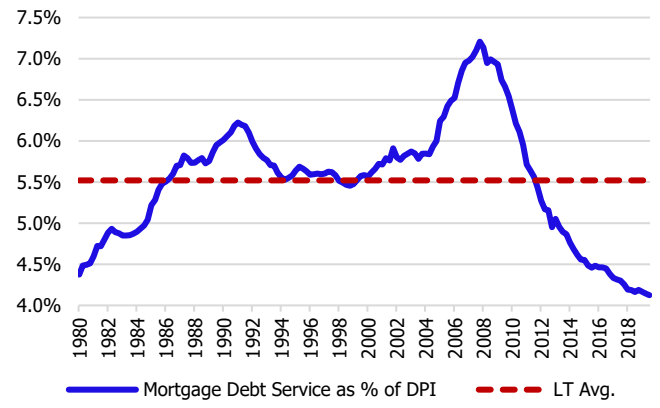
[93] Federal Reserve, z.1 Financial Accounts of the United States. Households and nonprofit organizations; home mortgages; liability, Level, Billions of Dollars, Quarterly, Seasonally Adjusted. Households and nonprofit organizations; consumer credit; liability, Level, Billions of Dollars, Quarterly, Seasonally Adjusted. Nominal GDP from Bureau of Economic Analysis. All data through 3Q'19.
[94] Ibid.

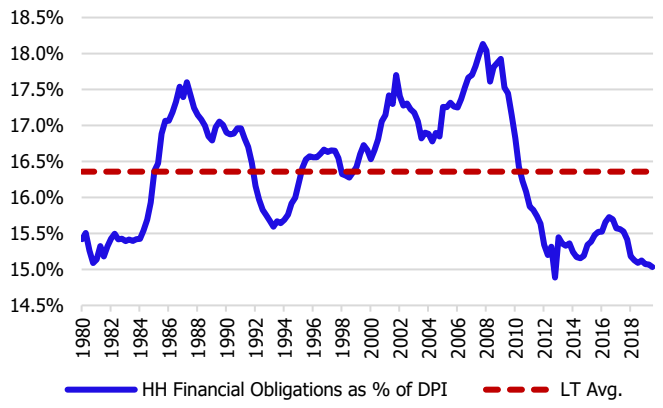
Lower Rates and Leverage Improve Service Ratios and Delinquency Rates

Further, after a decade of low interest rates, many borrowers have locked in lower rates and improved their debt coverage ratios, both on a mortgage-only basis as well as for all financial obligations.[95]

- Mortgage service amounts to 4.1% of disposable income on average, down from 7.2% in 2007, and a long-run average of 5.6%.
- Total household financial obligations comprise 15.0% of disposable income on average, down from 17.9% in 2007, and a long-run average of 16.4%.

Exhibit 52: Mortgage Debt Payments and Total Household Financial Obligations Have Declined Since 2008





Source: Board of Governors of the Federal Reserve System, Household Debt Service and Financial Obligations Ratios, as of 3Q'19.

Healthier consumer balance sheets, stricter underwriting standards, low mortgage rates, and robust rates of HPA have helped improve mortgage delinquency rates. During the first three quarters of 2019, delinquency rates averaged 4.3%, below the long-term historical median of 4.9% since 1979.[96]

In our view, low delinquency rates are further evidence of a healthy housing market with less downside risk to home prices should the economy soften.[97]

Exhibit 53: 30+ Day Delinquencies as % of Total

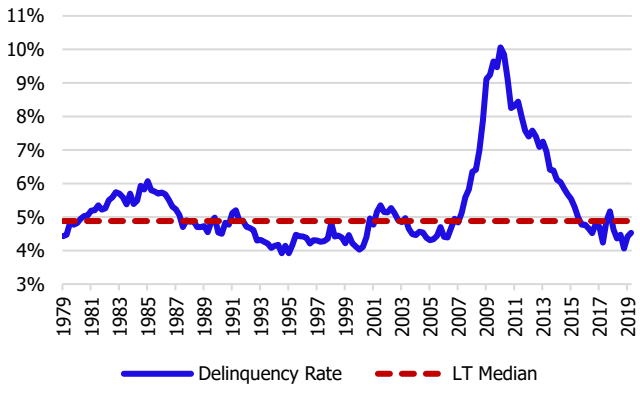
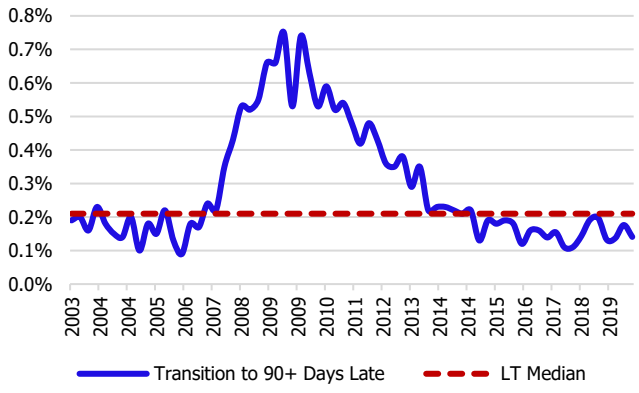


Exhibit 54: Transitions to 90+Delinquencies as % of Total



Source: Mortgage Bankers' Association Delinquency Rates, data through Q3'19 2019. New York Fed Consumer Credit Panel/Equifax, data through 3Q'19. Table 15 data.

[95] Board of Governors of the Federal Reserve System, Household Debt Service and Financial Obligations Ratios, as of 3Q'19.
[96] Mortgage Bankers Association, Delinquencies As % of Total Loans, Seasonally Adjusted, data through Q3'19.
[97] Ibid.

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