Goldman Sachs | Economics Research

23 August 2020 | 6:21PM EDT

## US Economics Analyst

# The Post-Pandemic Economy (Choi)

- The coronavirus has transformed the global economy, with businesses and households quickly adapting to a new environment out of necessity. We assess possible long-term changes to the economy and their implications for the labor market recovery in this week's *Analyst*.
- The virus shock has accelerated several existing trends, such as the rise in remote working and the digitization of services. Surveys indicate that a significant amount of remote working will likely persist, and our industry analysts expect digitization across industries to continue growing at an accelerated pace.
- The virus shock has had disparate effects across regions and industries. Rents have plunged in dense cities as residents moved out, and activity in virus-sensitive sectors remains far from normal levels. While shocks such as SARS and September 11 had only temporary effects on migration and economic activity, the initial shock has been much larger in this recession.
- Adjusting to the new economy will likely require a large amount of labor reallocation. Permanent layoffs in virus-sensitive industries have rapidly increased, and retail employment will come under further pressure in an increasingly digital world. A greater shift to remote working may also mean fewer jobs in occupations such as building cleaning and maintenance.
- Nevertheless, we see several reasons why the labor market recovery may prove faster than in other recessions. First, we expect many temporarily laid off workers to be re-hired; second, there was no obvious imbalance prior to the downturn; and third, there is scope for a large amount of job creation, suggesting that reallocation could occur at a faster pace than usual.
- We thus expect a much faster recovery in the labor market than in the last recession. We expect the unemployment rate to decline to 9% by the end of this year, a further large decline to 6.5% in 2021 following a vaccine, and a more gradual recovery after that.


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# The Post-Pandemic Economy

The coronavirus pandemic has transformed the global economy. From the sudden surge in employees working from home to the rapid digitization of delivery services and entertainment, the virus has forced businesses and households to quickly adapt to the new environment. While some of these changed behaviors will likely prove temporary when the virus threat fades, many will likely not fully reverse, which could mean a very different type of economy in the post-pandemic world. In this week's *Analyst* we assess possible long-term structural changes to the US economy, the scope for widespread labor reallocation, and implications for the economic recovery.

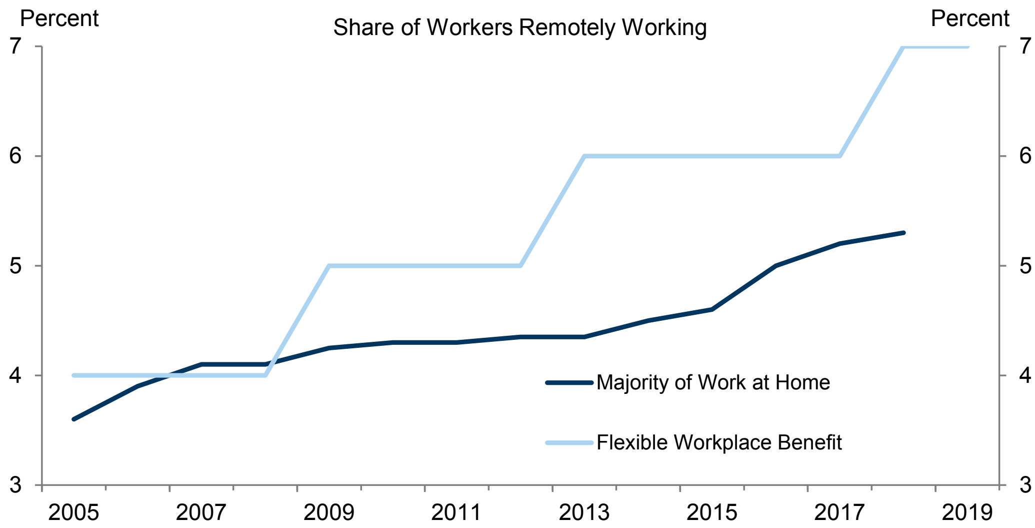
## Long-Run Changes to the Economy

A natural starting point in assessing possible long-run changes to the economy is to look at large changes that have already taken place. We focus on four major changes: the rise in remote working, increased digitization of services, migration away from large cities, and the sharp decline in demand in virus-sensitive industries. If these changes persist, they each have significant implications for the labor market, which we discuss in the following section.

We begin with the surge in employees working from home following widespread lockdowns and office closures. Several surveys suggest that roughly half of the US workforce worked from home at the height of the pandemic, and mobility data suggest that office activity remains far below normal levels.

While many workers will return to their workplace when the virus threat recedes, a significant amount of remote working will likely persist. Even before the pandemic, remote working showed a clear upward trend. The share of the US workforce mostly working from home increased from 3.6% in 2005 to 5.3% in 2018 according to a Census survey, and the option to work remotely from home was one of the fastest-growing benefits offered to employees according to the Bureau of Labor Statistics' National Compensation Survey (Exhibit 1).

**Exhibit 1: Employees Increasingly Worked From Home or Had the Option Prior to the Pandemic**

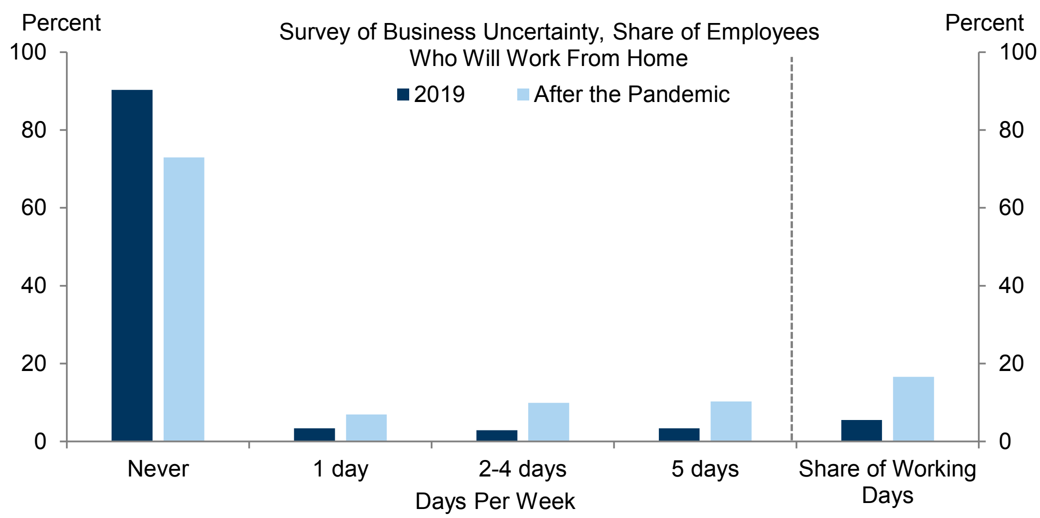



Source: Department of Commerce, Department of Labor, Goldman Sachs Global Investment Research

The shift to remote working out of necessity has likely eroded barriers that may have prevented the adoption of more widespread telecommuting previously, such as reluctance from employees due to stigma, reluctance from managers due to uncertainty over its effectiveness, and up-front costs such as setup costs and productivity losses during the initial stages of adjustment. Based on a sample of senior executives at US firms from the Survey of Business Uncertainty, employers expect that the number of full work days performed at home will roughly triple in the post-pandemic economy (Exhibit 2), with several other surveys suggesting increases of a similar magnitude.[1]

[1] Surveys of employees also suggest that many workers would like to continue to work remotely after offices reopen. This may require firms to offer more flexible workplace arrangements in order to attract and retain employees.

**Exhibit 2: Employers Expect a Large Increase in Working From Home Even After the Pandemic**

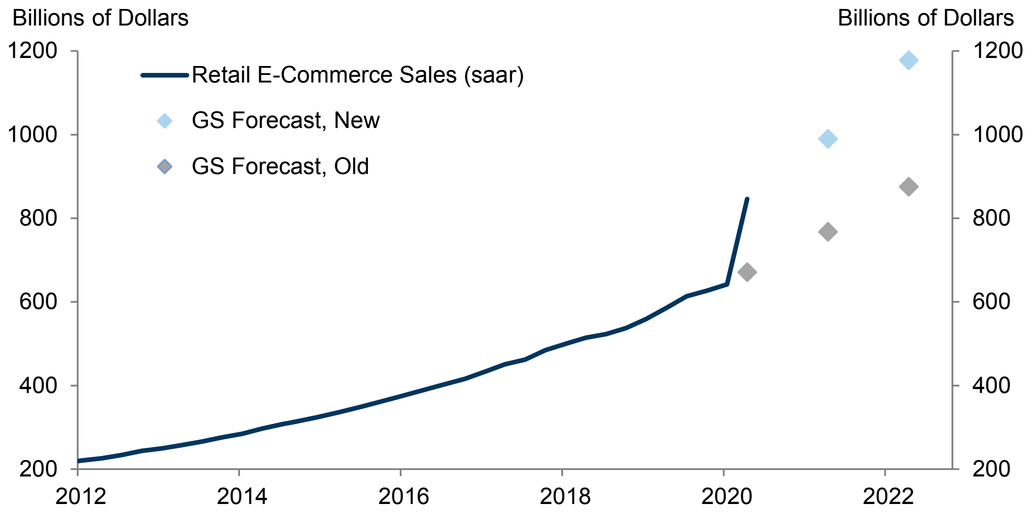



Source: Federal Reserve Bank of Atlanta, Goldman Sachs Global Investment Research

A second major change has been the widespread digitization of services and the growth of e-commerce that has affected nearly every industry. Examples include the rise in online restaurant and grocery delivery, the digitization of clinical trials and the expanding presence of telehealth in the healthcare industry, surging downloads of at-home fitness apps, a boom in virtual learning and the online education market, and ubiquitous video conferencing in replace of business meetings.

Of course, these trends were clearly in place even before the pandemic, with e-commerce a major headwind to brick-and-mortar retail for many years. Our industry analysts expect not only the elevated levels of e-commerce sales to remain sustainable, but for growth to continue at an accelerated annualized pace of around 20% as penetration expands in early stage markets such as groceries, apparel, and consumer packaged goods. Exhibit 3 shows the unprecedented surge of US retail e-commerce sales in Q2, as well as forecasts for sales growth based on estimates by our Internet industry research analysts.

**Exhibit 3: E-Commerce Sales Rose Sharply in Q2; Our Industry Analysts Expect the Acceleration to Persist**

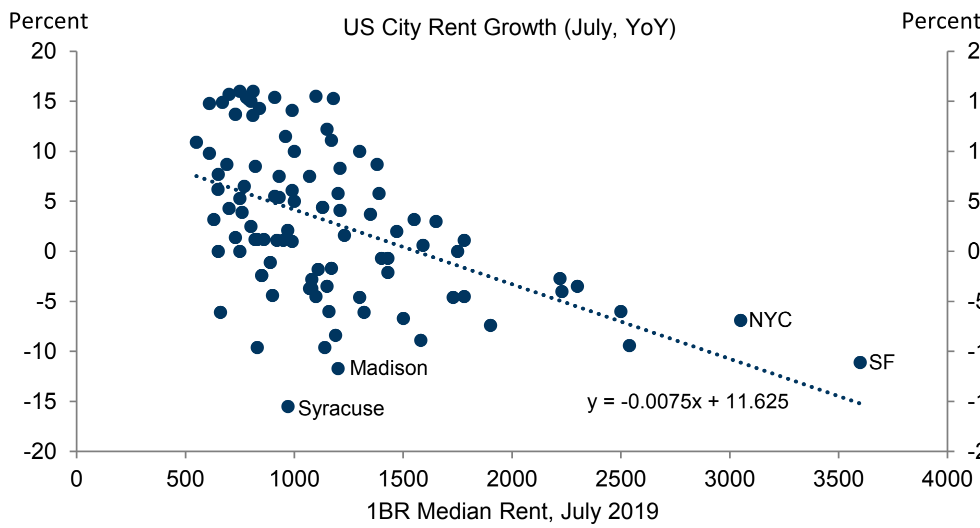



Source: Department of Commerce, Goldman Sachs Global Investment Research

A third major change from the coronavirus has been the shock to migration patterns, with residents leaving dense and expensive urban cities. Widespread anecdotes of Manhattanites fleeing for the suburbs and other less dense areas in droves are corroborated by surveys, mail forwarding requests, garbage collections, moving companies, and smartphone mobility data.

Anecdotes and surveys also suggest that while the initial moves away from large cities were largely driven by virus concerns, subsequent relocations were more often due to more space and cheaper rents available elsewhere once remote working arrangements appeared likely to persist. Rent growth across cities shows a large impact from this substitution, with large declines in rent in expensive cities such as New York City and San Francisco, as well as in college towns such as Madison and Syracuse, but double-digit year-on-year increases in mid-sized Midwest cities such as Indianapolis, Columbus, Cleveland, and Cincinnati according to Zumper (Exhibit 4).

**Exhibit 4: Rents in Expensive Cities and College Towns Have Fallen Sharply**



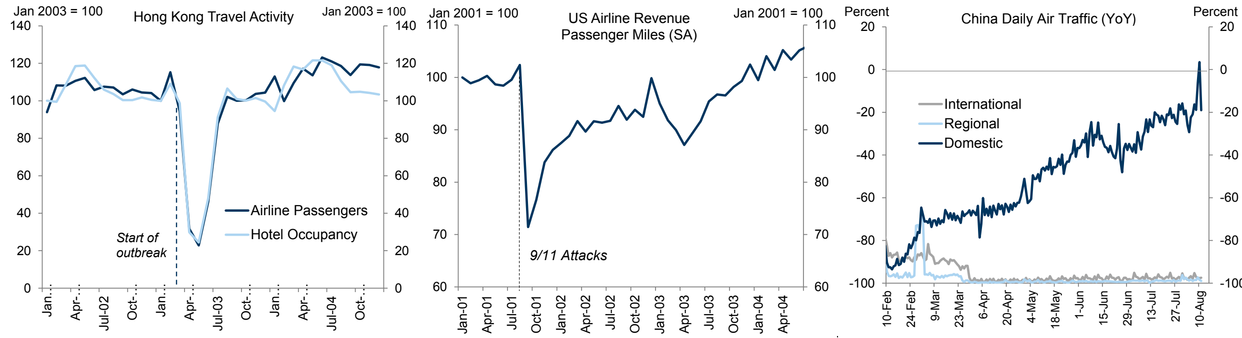

Source: Zumper, Goldman Sachs Global Investment Research

The NAHB has noted the changing geography of housing demand, with improving home demand in lower density markets as people "seek out larger homes and anticipate more flexibility for telework in the years ahead." Whether these migration trends persist thus depends crucially on whether remote work proves sustainable. If so, the locational flexibility will likely drive people away from expensive cities towards more affordable metropolitan areas, a trend that was already under way particularly for Millennials.

A fourth major change has been the collapse in demand in industries particularly impacted by social distancing, such as the travel, restaurant, entertainment, and personal care services industries. The recovery in these industries remains weak, due to both policy restrictions and increased consumer risk aversion. Unlike the other trends accelerated by the virus shock, these industries grew strongly prior to the pandemic, with employment growth typically surpassing that of the overall economy. As the virus threat recedes, we expect policy restrictions to be gradually lifted and consumers to eventually feel comfortable partaking in these activities once again.

Past experiences such as SARS and the September 11 attacks provide a clue on what the recovery in these industries might look like, although the comparisons are imperfect. As shown in Exhibit 5, airline and hotel activity plummeted following the SARS outbreak in Hong Kong but quickly rebounded once the virus was under control. The recovery in US airline travel following the September 11 attacks was more gradual, taking over 2 years to return to previous levels as the threat never entirely went away. In China—the initial epicenter of the virus, but now with the virus largely under control—domestic travel has largely normalized, while international travel (largely due to policy restrictions) remains minimal.

**Exhibit 5: Prior Shocks to the Travel Industry Have Proved Temporary; Domestic Travel in China Has Largely Normalized**



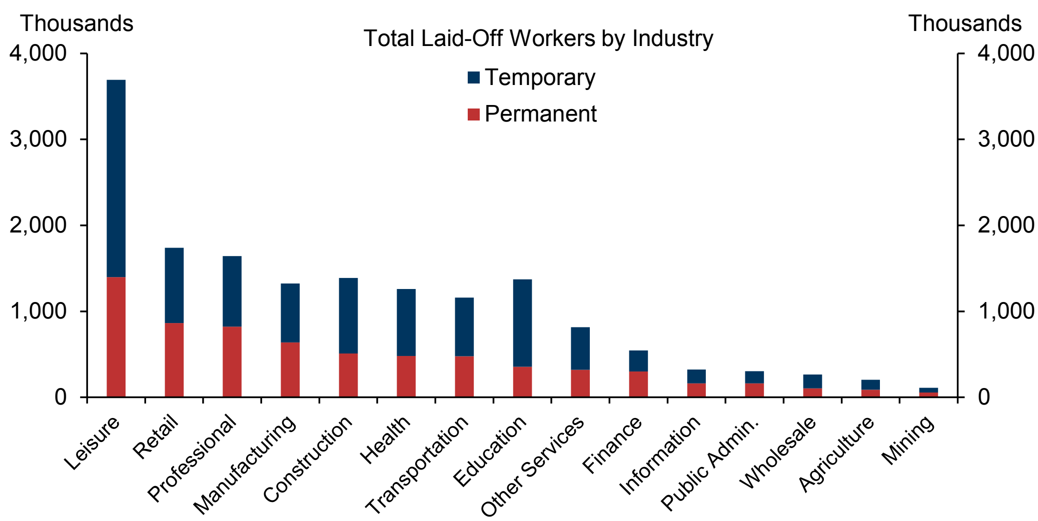

Source: Hong Kong Tourism Board, Department of Transportation, TravelSky, Goldman Sachs Global Investment Research

Overall, given the still elevated number of virus cases in the US, a full recovery in these industries is likely a long way off. And while consumer travel may likely once again reach pre-pandemic levels, business travel—a large driver of revenues in the travel industry—perhaps may not, with firms anticipating slashing their travel budgets and a large shift from face-to-face meetings to lower-cost virtual meetings. According to the Survey of Business Uncertainty, firms anticipate slashing their annual travel expenditures by nearly 30 percent after the virus risks recede, with even larger declines in the information, finance, insurance, and professional and business services industries.

## Implications for the Labor Market Recovery

Adjusting to these trends will likely require a large amount of labor reallocation. Permanent layoffs in virus-sensitive industries such as leisure and hospitality have rapidly grown and are likely to rise significantly further (Exhibit 6). Even if these sectors eventually rebound once a vaccine is available, the prolonged period of weak demand likely means that permanent damage from scarring effects will be unavoidable.

**Exhibit 6: Permanent Layoffs Have Increased, Particularly in Leisure and Hospitality**



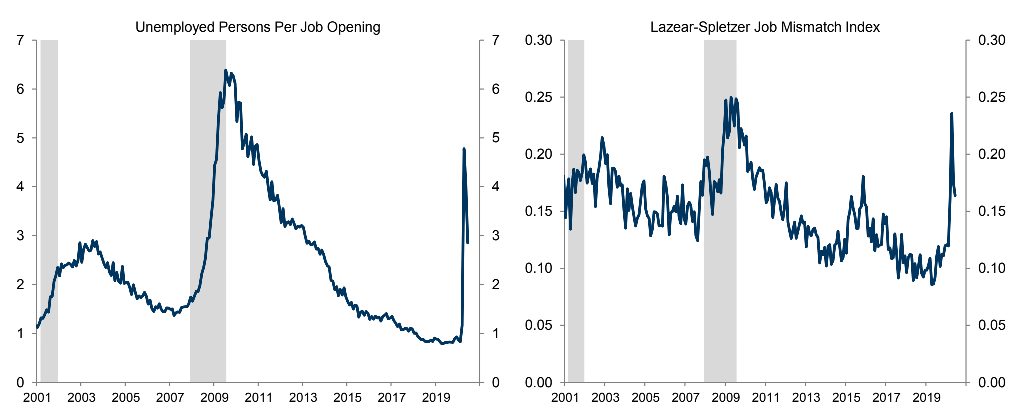

Source: Department of Labor, Goldman Sachs Global Investment Research

Other changes in the post-pandemic world will also likely have significant labor market effects. Brick-and-mortar retail employment will come under even more pressure in an increasingly digital world, and our estimates based on the labor intensity of nonstore and brick-and-mortar retailers suggests that the accelerated shift towards e-commerce will lower retail employment growth by an additional 10k per month over the next few years. Shifts in migration patterns have large impacts on local employment, particularly in the construction industry, and increased working from home will likely lead to job losses in office support occupations such as security workers, buildings and grounds cleaning and maintenance workers, and food preparation and serving workers.

Typically, labor reallocation is a slow and drawn out adjustment process, leading to worse employment outcomes particularly during recessions. And while the rapid changes to the economy present a major reallocation shock, we see several reasons why the labor market recovery may prove faster than in other recessions. First, our research suggests that most temporarily laid-off workers will continue to be re-hired. Second, there was no obvious imbalance prior to the downturn, such as the housing bubble and the corresponding excess construction workers in the last recession. And third, the nature of the shock also presents opportunities for a large amount of hiring as businesses adapt to a changing world.

Many companies were in fact hiring during the peak of the pandemic, especially in areas such as delivery services. Job openings have since increased further, including new jobs such as temperature screeners, and job openings per unemployed worker are significantly higher than in the recovery following the financial crisis, where there was a sharp contraction in labor demand with very little new job creation. A measure of industry mismatch between available workers and available jobs developed by Edward Lazear and James Spletzer also suggests less imbalance than in the last recession (Exhibit 7).

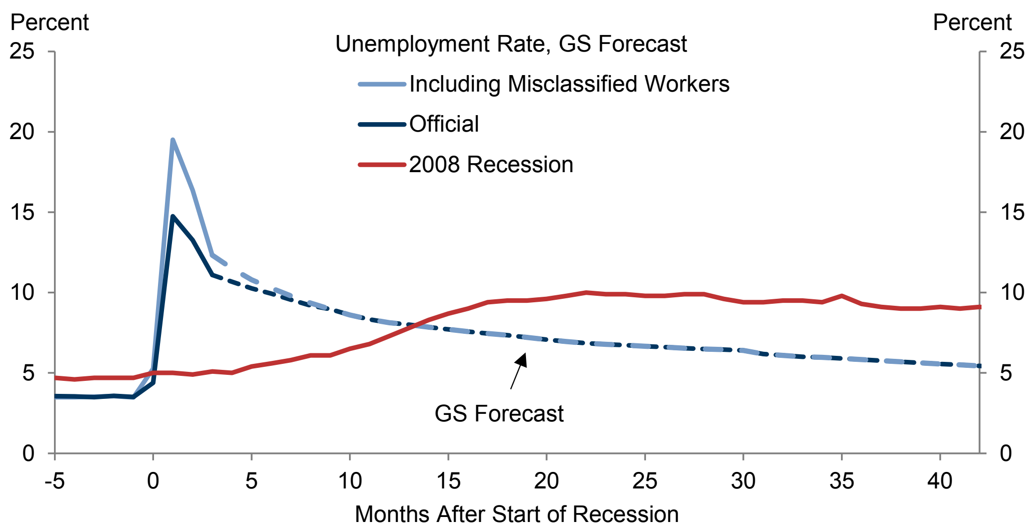
**Exhibit 7: Job Openings and Measures of Job Mismatch Suggest a Quicker Pace of Reallocation in this Recovery**




Source: Department of Labor, Goldman Sachs Global Investment Research

Taken together, we expect a much faster recovery in the labor market than in the last recession, and for the recovery to be very front-loaded (Exhibit 8). We expect the unemployment rate to decline to 9% by the end of this year, a further large decline to 6.5% in 2021 as a vaccine enables some sectors to bounce back, and a more gradual recovery after that.

**Exhibit 8: We Expect a Much Faster Labor Market Recovery Than Following the Global Financial Crisis**




Source: Department of Labor, Goldman Sachs Global Investment Research

## David Choi

# The US Economic and Financial Outlook

## Forecast Changes

We boosted our Q2 GDP tracking estimate by 3pp to -31.6% (qoq ar) after the Census Quarterly Services Survey revealed more resilience in services activity than the BEA assumed in the first vintage of the Q2 GDP report. We left our Q3 GDP tracking estimate unchanged on net at +26.5% (qoq ar).

**THE US ECONOMIC AND FINANCIAL OUTLOOK**

(% change on previous period, annualized, except where noted)

| | 2018 | 2019 | 2020 (f) | 2021 (f) | 2022 (f) | 2023 (f) | 2020 | | | | 2021 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **OUTPUT AND SPENDING** | | | | | | | | | | | | | | |
| Real GDP | **3.0** | **2.2** | *-4.0* | *6.3* | *3.3* | *2.2* | **-5.0** | **-32.9** | *26.5* | *7.0* | *9.5* | *7.5* | *4.0* | *3.0* |
| *Real GDP (annual=Q4/Q4, quarterly=yoy)* | **2.5** | **2.3** | *-3.2* | *6.0* | *2.7* | *2.0* | **0.3** | **-9.1** | *-4.2* | *-3.2* | *0.3* | *12.3* | *7.0* | *6.0* |
| Consumer Expenditure | **2.7** | **2.4** | *-5.2* | *5.6* | *3.7* | *2.3* | **-6.9** | **-34.6** | *29.1* | *4.0* | *9.0* | *8.0* | *3.6* | *2.6* |
| Residential Fixed Investment | **-0.6** | **-1.7** | *1.8* | *8.2* | *5.1* | *2.3* | **19.0** | **-38.7** | *41.2* | *12.0* | *8.0* | *8.0* | *8.0* | *5.0* |
| Business Fixed Investment | **6.9** | **2.9** | *-4.9* | *7.4* | *5.2* | *3.9* | **-6.7** | **-27.0** | *14.5* | *11.3* | *11.2* | *9.4* | *6.3* | *5.8* |
| Structures | **3.7** | **-0.6** | *-7.0* | *5.6* | *4.0* | *2.7* | **-3.7** | **-34.9** | *15.1* | *7.0* | *12.0* | *7.5* | *5.7* | *5.3* |
| Equipment | **8.0** | **2.1** | *-9.4* | *8.3* | *4.5* | *2.7* | **-15.2** | **-37.7** | *26.1* | *15.0* | *12.0* | *10.0* | *5.0* | *5.0* |
| Intellectual Property Products | **7.8** | **6.4** | *1.9* | *7.5* | *6.7* | *5.7* | **2.4** | **-7.2** | *3.0* | *10.0* | *10.0* | *10.0* | *8.0* | *7.0* |
| Federal Government | **2.8** | **4.0** | *4.2* | *1.2* | *0.1* | *0.0* | **1.5** | **17.4** | *-10.0* | *3.0* | *3.0* | *1.0* | *0.0* | *0.0* |
| State & Local Government | **1.2** | **1.3** | *0.4* | *2.0* | *1.2* | *1.0* | **1.1** | **-5.6** | *4.0* | *3.0* | *3.0* | *1.5* | *1.5* | *1.5* |
| Net Exports ($bn, '09) | **-878** | **-918** | *-835* | *-904* | *-875* | *-887* | **-788** | **-781** | *-869* | *-900* | *-912* | *-924* | *-898* | *-882* |
| Inventory Investment ($bn, '09) | **53** | **49** | *-101* | *131* | *65* | *60* | **-81** | **-316** | *-58* | *50* | *100* | *150* | *150* | *125* |
| Industrial Production, Mfg. | **2.3** | **-0.2** | *-9.9* | *6.3* | *3.8* | *1.4* | **-5.5** | **-47.0** | *19.2* | *13.1* | *12.0* | *10.7* | *6.4* | *3.9* |
| **HOUSING MARKET** | | | | | | | | | | | | | | |
| Housing Starts (units, thous) | **1,248** | **1,295** | *1,272* | *1,500* | *1,578* | -- | **1,484** | **1,044** | *1,218* | *1,344* | *1,477* | *1,420* | *1,492* | *1,610* |
| New Home Sales (units, thous) | **614** | **685** | *670* | *770* | *832* | -- | **701** | **676** | *621* | *682* | *752* | *739* | *763* | *825* |
| Existing Home Sales (units, thous) | **5,334** | **5,330** | *4,532* | *4,369* | *4,414* | -- | **5,483** | **4,320** | *3,967* | *4,357* | *4,359* | *4,361* | *4,372* | *4,384* |
| Case-Shiller Home Prices (%yoy)* | **4.1** | **3.2** | *-2.1* | *2.3* | *1.9* | *2.0* | **2.8** | *-0.5* | *-1.6* | *-2.1* | *-1.0* | *0.1* | *1.2* | *2.3* |
| **INFLATION (% ch, yr/yr)** | | | | | | | | | | | | | | |
| Consumer Price Index (CPI) | **2.4** | **1.8** | *1.3* | *1.8* | *1.7* | *1.8* | **2.1** | **0.4** | *1.3* | *1.2* | *1.3* | *2.6* | *1.7* | *1.6* |
| Core CPI | **2.1** | **2.2** | *1.6* | *1.6* | *1.8* | *1.9* | **2.2** | **1.3** | *1.5* | *1.3* | *1.1* | *1.9* | *1.5* | *1.7* |
| Core PCE** | **2.0** | **1.7** | *1.3* | *1.4* | *1.6* | *1.7* | **1.8** | **0.9** | *1.3* | *1.2* | *1.1* | *1.7* | *1.3* | *1.5* |
| **LABOR MARKET** | | | | | | | | | | | | | | |
| Unemployment Rate (%)^ | **3.9** | **3.5** | *9.0* | *6.5* | *5.7* | *5.2* | **4.4** | **11.1** | *10.1* | *9.0* | *8.0* | *7.2* | *6.8* | *6.5* |
| U6 Underemployment Rate (%)^ | **7.6** | **6.7** | *15.0* | *12.0* | *10.5* | *9.7* | **8.7** | **18.0** | *16.3* | *15.0* | *14.0* | *13.1* | *12.7* | *12.0* |
| Payrolls (thous, monthly rate) | **193** | **178** | *-568* | *550* | *222* | *180* | **-303** | **-4,424** | *1,255* | *1,200* | *950* | *685* | *320* | *246* |
| **GOVERNMENT FINANCE** | | | | | | | | | | | | | | |
| Federal Budget (FY, $bn) | **-779** | **-984** | *-4,200* | *-2,700* | *-1,650* | *-1,600* | -- | -- | -- | -- | -- | -- | -- | -- |
| **FINANCIAL INDICATORS** | | | | | | | | | | | | | | |
| FF Target Range (Bottom-Top, %)^ | **2.25-2.5** | **1.5-1.75** | *0-0.25* | *0-0.25* | *0-0.25* | *0-0.25* | **0-0.25** | **0-0.25** | *0-0.25* | *0-0.25* | *0-0.25* | *0-0.25* | *0-0.25* | *0-0.25* |
| 10-Year Treasury Note^ | **2.69** | **1.92** | *1.05* | *1.45* | *1.65* | *1.85* | **0.70** | **0.66** | *0.95* | *1.05* | *1.15* | *1.25* | *1.35* | *1.45* |
| Euro (€/$)^ | **1.15** | **1.12** | *1.17* | *1.27* | *1.28* | *1.30* | **1.10** | **1.12** | *1.18* | *1.17* | *1.19* | *1.22* | *1.24* | *1.27* |
| Yen ($/¥)^ | **110** | **109** | *106* | *104* | *102* | *101* | **108** | **108** | *106* | *106* | *106* | *105* | *105* | *104* |

* Weighted average of metro-level HPIs for 381 metro cities where the weights are dollar values of housing stock reported in the American Community Survey.

** PCE = Personal consumption expenditures. ^ Denotes end of period.

Note: Annual, Q4/Q4, and Quarterly YoY GDP growth estimates embed our assumption of an upward revision in Q2 2020 (from -32.9% to -31.6%, qoq ar). Published figures in bold.

Source: Goldman Sachs Global Investment Research.

Source: Goldman Sachs Global Investment Research

# Economic Releases

| Date | | Time (ET) | Indicator | Estimate GS | Consensus | Last Report |
|---|---|---|---|---|---|---|
| **Tue** | **Aug 25** | 9:00 | FHFA House Price Index (June) | n.a. | +0.3% | -0.3% |
| | | **9:00** | **S&P/Case Shiller Home Price Index (June)** | **Flat** | **+0.1%** | **+0.04%** |
| | | **10:00** | **Conference Board Consumer Confidence (August)** | **94.0** | **93.0** | **92.6** |
| | | **10:00** | **New Home Sales (July)** | **+2.5%** | **+1.0%** | **+13.8%** |
| | | 10:00 | Richmond Fed Manufacturing Index (August) | n.a. | 10 | 10 |
| **Wed** | **Aug 26** | **8:30** | **Durable Goods Orders (July)** | **+5.5%** | **+4.5%** | **+7.6%** |
| | | | **Ex-Transport** | **+2.5%** | **+1.7%** | **+3.6%** |
| | | **8:30** | **Core Capital Goods Orders (July)** | **+2.5%** | **+2.0%** | **+3.4%** |
| | | **8:30** | **Core Capital Goods Shipments (July)** | **+2.5%** | **+2.0%** | **+3.3%** |
| **Thu** | **Aug 27** | **8:30** | **Real GDP (Q2 Second)** | **-31.6%** | **-32.5%** | **-32.9%** |
| | | **8:30** | **Personal Consumption (Q2 Second)** | **-32.0%** | **-34.6%** | **-34.6%** |
| | | **8:30** | **Initial Jobless Claims** | **1,000k** | **1,000k** | **1,106k** |
| | | | Continuing Claims | n.a. | 14,500k | 14,844k |
| | | **10:00** | **Pending Home Sales (July)** | **+4.0%** | **+2.0%** | **+16.6%** |
| | | 11:00 | Kansas City Fed Manufacturing Index (August) | n.a. | +5 | +3 |
| **Fri** | **Aug 28** | **8:30** | **Personal Income (July)** | **+0.1%** | **-0.4%** | **-1.1%** |
| | | **8:30** | **Advance Goods Trade Balance (July)** | **-$69.9bn** | **-$72.2bn** | **-$71.0bn** |
| | | **8:30** | **Personal Spending (July)** | **+2.0%** | **+1.5%** | **+5.6%** |
| | | **8:30** | **PCE Price Index (July)** | **+0.40%** | **+0.4%** | **+0.4%** |
| | | **8:30** | **Core PCE Price Index (July)** | **+0.45%** | **+0.5%** | **+.0.2%** |
| | | 8:30 | Wholesale Inventories (July Preliminary) | n.a. | -0.8% | -1.4% |
| | | **9:45** | **Chicago Purchasing Managers' Index (August)** | **51.9** | **52.5** | **51.9** |
| | | **10:00** | **UMich Consumer Sentiment (August Final)** | **82.0** | **72.8** | **72.8** |

Source: Goldman Sachs Global Investment Research

# Disclosure Appendix

## Reg AC

We, Jan Hatzius, Alec Phillips, David Mericle, Spencer Hill, CFA, Daan Struyven, David Choi, Joseph Briggs, Blake Taylor, Ronnie Walker and Laura Nicolae, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

## Disclosures

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