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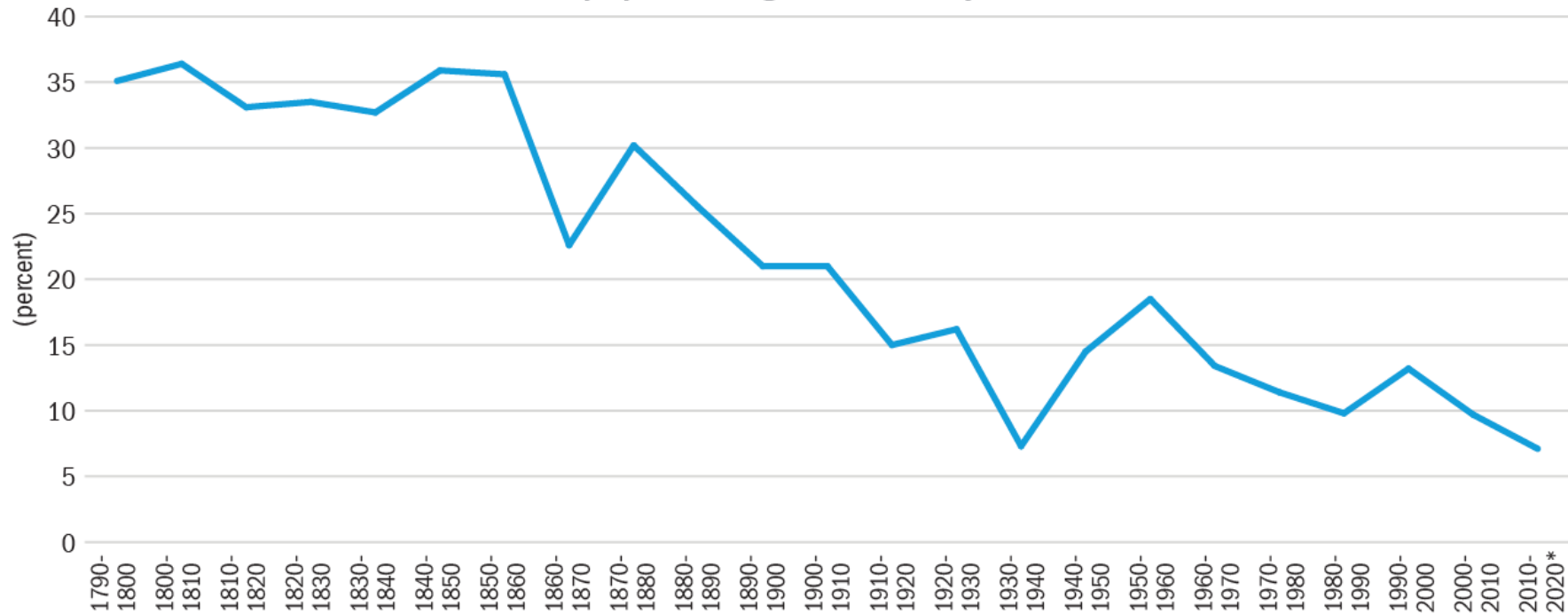
A decade of charts: The biggest shifts of the 2010s



The 2010s opened with the European debt crisis and the Affordable Care Act. It ended with double-digit equity returns and a persistent low-rate environment. Here are charts that our research colleagues believe encapsulate the influential changes of the 2010s — and likely the 2020s.

► Population growth in the U.S. slowed to its lowest level in a century

U.S. population growth rate by decade

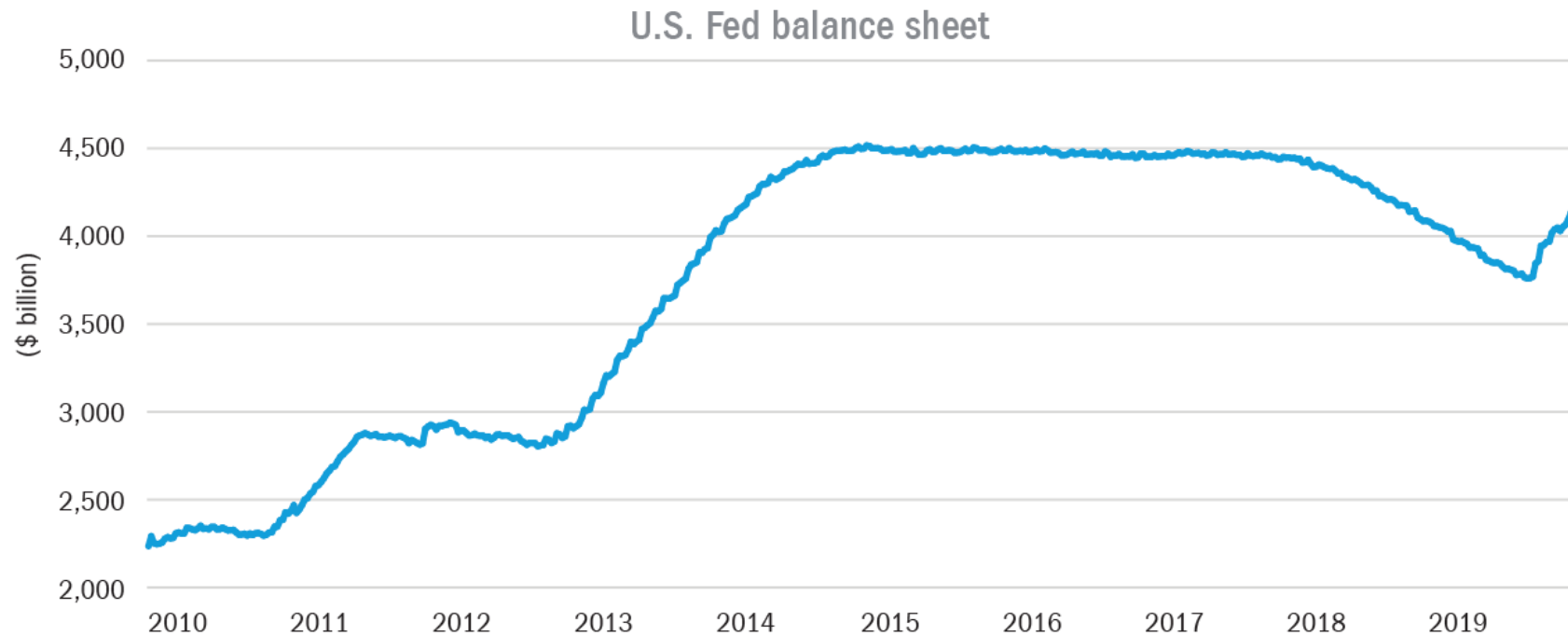


Source: Brookings Institution. Based on Census Bureau estimates. *2020 population is an estimate.

In the U.S., population growth from 2018 to 2019 fell to a slight 0.48%, according to Census Bureau estimates. For the decade, growth rates slowed to levels last seen in the 1930s. Contributing factors include a record-low birthrate, a rising death rate and a fall in immigration.

Bottom line for investors: With lower population growth, investors should expect lower demand for goods and services in the U.S. As a result, economic growth and inflation will likely be below the long-run average, while the labor market is likely to remain tight. This has implications for rates, growth, asset returns and risk.

► Since the global financial crisis, the Federal Reserve Board expanded its balance sheet considerably

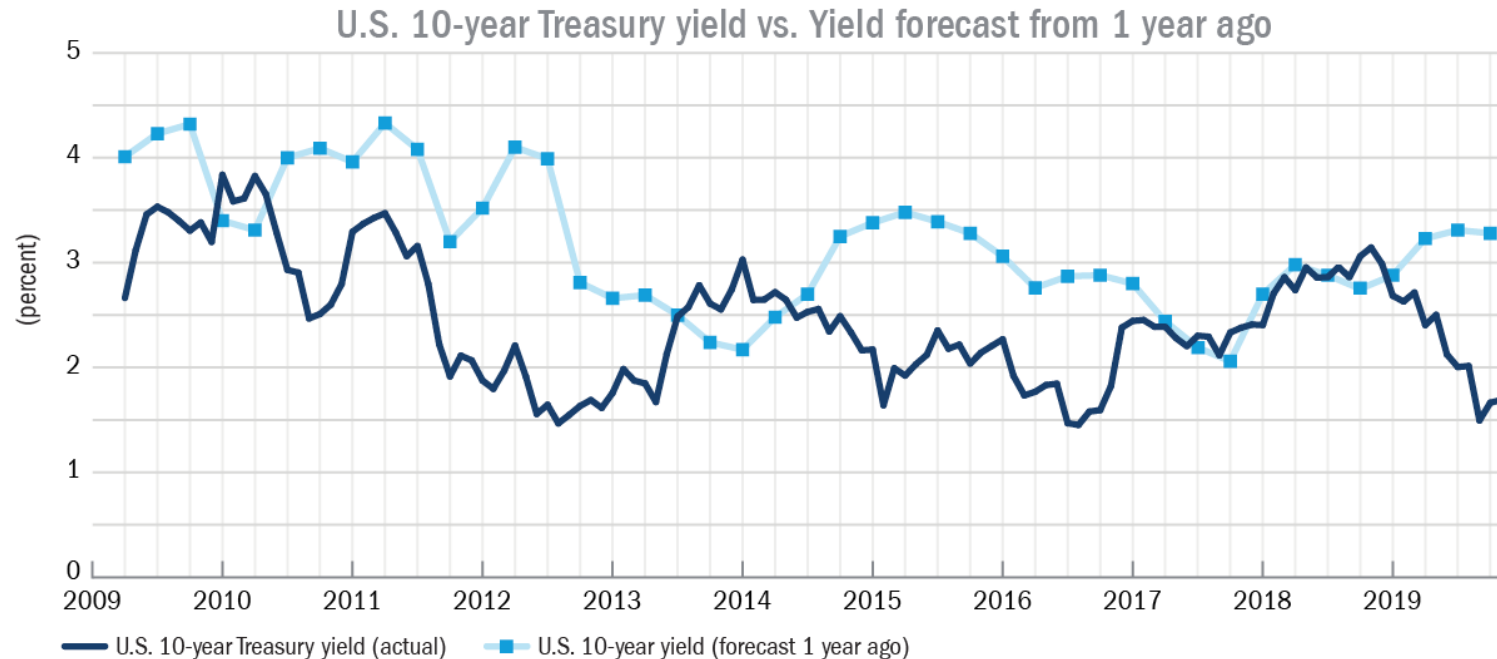


Source: Federal Reserve Board

The chart above explains a lot about the extraordinary behavior of U.S. asset prices over the 2010s. It's important to not oversimplify, though. The Fed's main objective in adding to the balance sheet was to signal its intention to keep rates low and restore confidence after the financial crisis. By removing the supply of safe assets (by buying Treasuries and mortgage-backed securities), the Fed encouraged investors to go out on the risk curve. This action (along with improving earnings) helped push asset prices higher, but it also meant that investors had to take on additional risk to find yield — a dynamic that's unlikely to change in the near future.

Bottom line for investors: Persistent low yields across fixed-income assets have made fundamental credit risk, duration and volatility management more important for achieving stable risk-adjusted returns.

► The market repeatedly got rate calls wrong

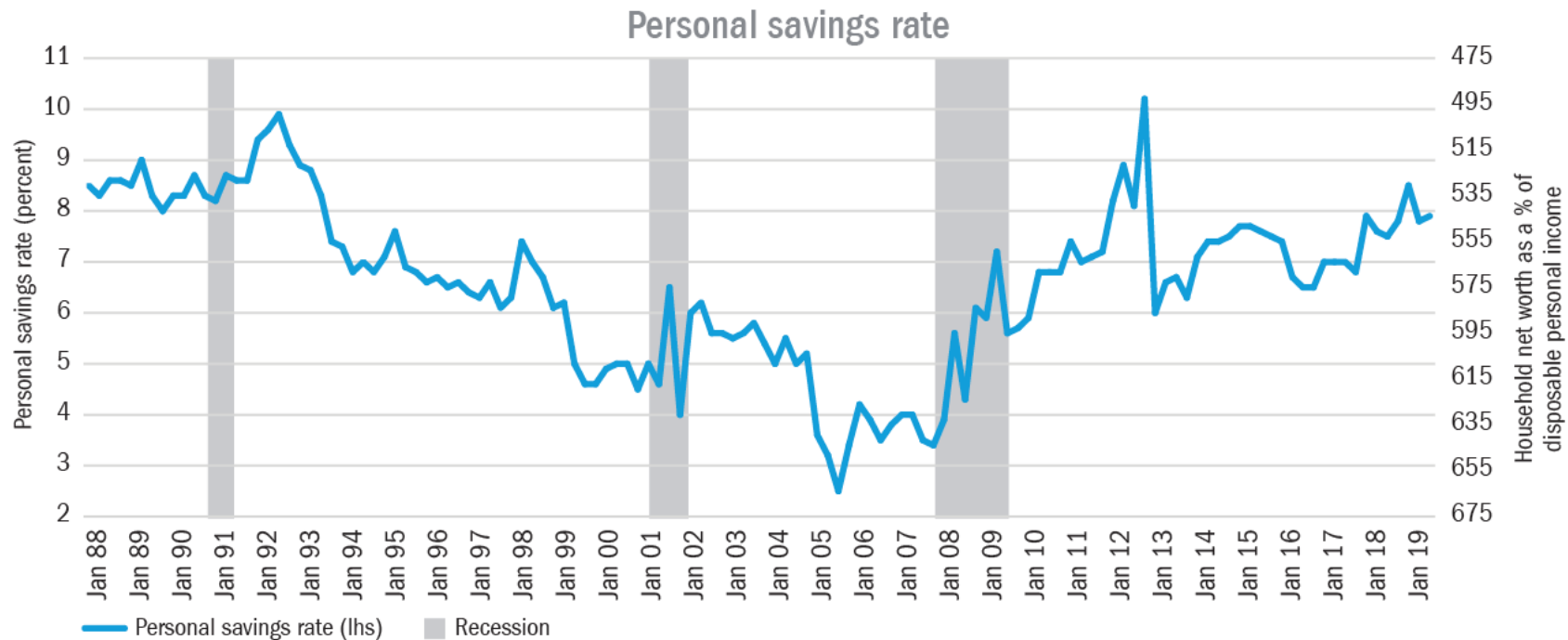


Source: Bloomberg

From the early 1980s through the end of 2019, interest rates have been on a downward trajectory, and all through the 2010s, investors expected rates to revert higher. In the chart above, the dark line shows where the actual 10-year Treasury yield went through the decade, and the lighter line shows where consensus forecasts had projected yields be 12 months earlier. In almost every period during the decade, investors had expected yields to be higher in the future. (Investors have gotten it wrong in prior decades as well.) What is truly incredible is that 10-year yields stayed roughly between 1.50% and 3% from 2012 through 2019 despite unemployment falling from 8% to 3.5% over the same period. No one predicted this in the early 2010s.

Bottom line for investors: Investors expected forward yields to rise with higher levels of economic activity and the material increase in the monetary base to cause inflation. Instead, rates went lower, and lower relative economic growth outside the U.S. resulted in negative rates in other regions of the world, causing foreign investors to buy U.S. government bonds, which also acted to lower the yields of U.S. Treasuries.

► Americans placed greater emphasis on saving

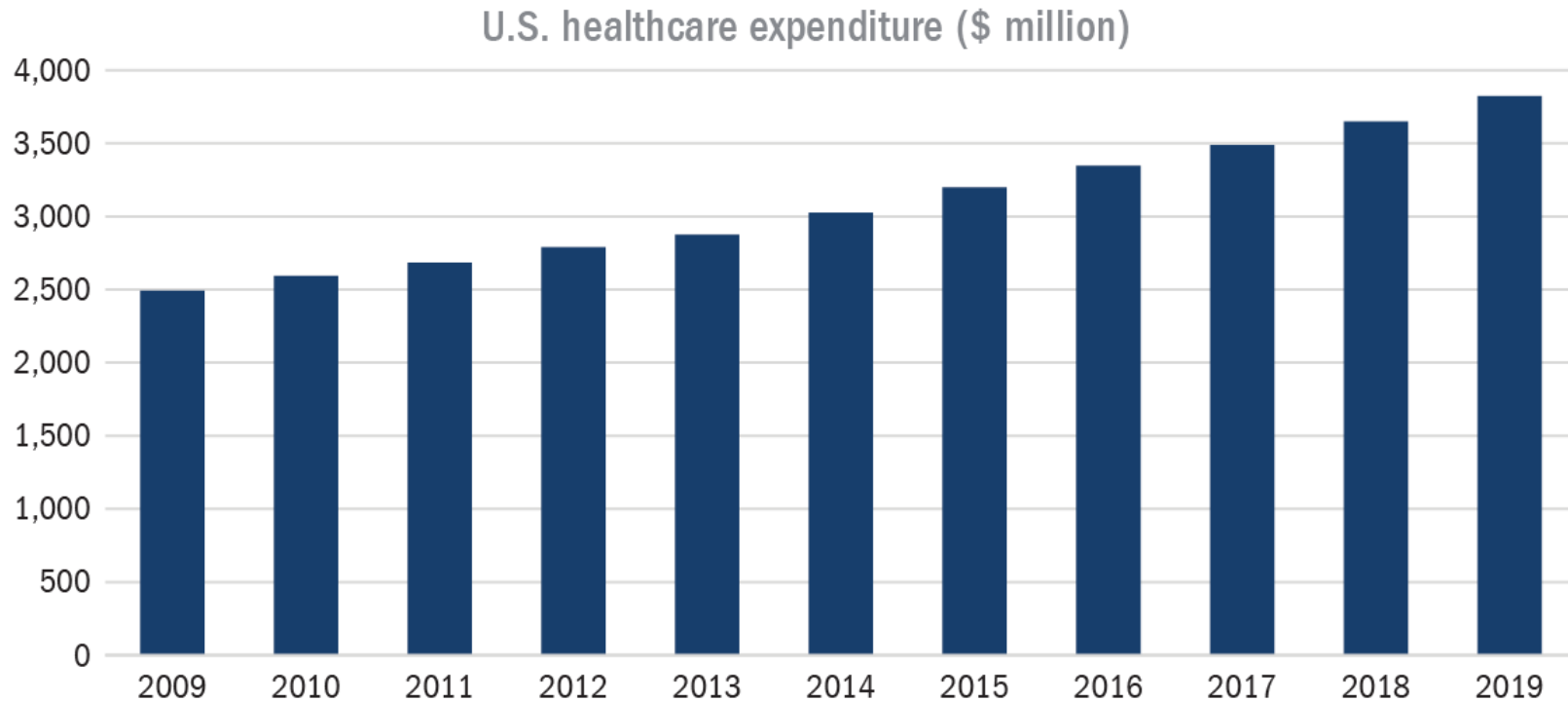


Source: Macrobond, Bureau of Economic Analysis, Federal Reserve Board

Since the global financial crisis, Americans have placed a greater emphasis on savings and the stability of their balance sheet. It was a decade-long reversal of a declining savings trend witnessed at the beginning of the century.

Bottom line for investors: While Americans appear to be saving more, they still have a long way to go in creating a financial plan. At the end of the decade, a CNBC poll reported that 75% of Americans manage their own finances with no help from a professional service. This leads to a host of asset allocation mistakes and unintended risks. A National Financial Educators Council survey found that these mistakes cost Americans \$1,230 annually, on average.

► Personal spending on healthcare continued to grow



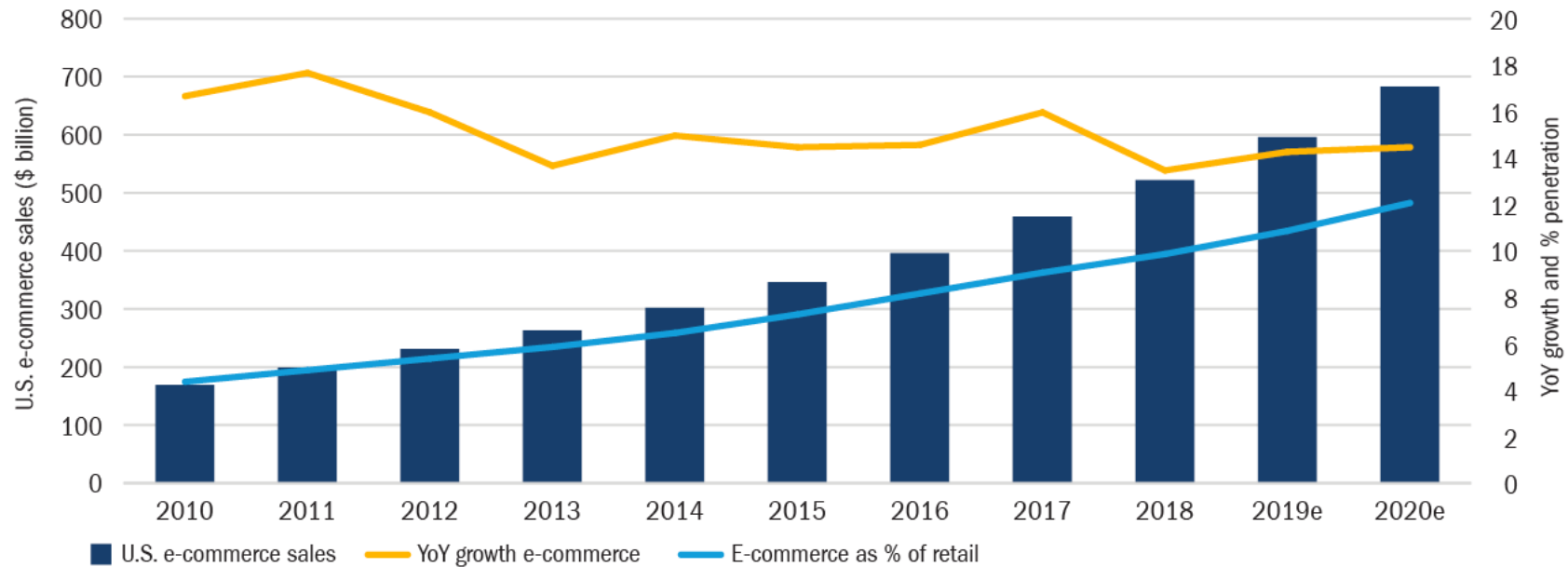
Source: Centers for Medicare & Medicaid Services

Over the 2010s, healthcare spending increased at a faster growth rate than U.S. GDP, inflation and population. By the end of the decade, public and personal U.S. healthcare spending exceeded \$3.6 trillion or nearly 18% of GDP. Higher healthcare spending in the United States weighs on public sector budgets as well as businesses and households. An aging population will likely drive spending higher, putting more strain on budgets and balance sheets.

Bottom line for investors: The healthcare industry remains structurally attractive, benefiting from growing spending due to an aging and frequently ailing population. This ultimately increases pressure for structural change. But until that happens, we expect healthcare will continue to grow faster than GDP.

► We bought a lot of stuff online

U.S. e-commerce sales, growth and penetration



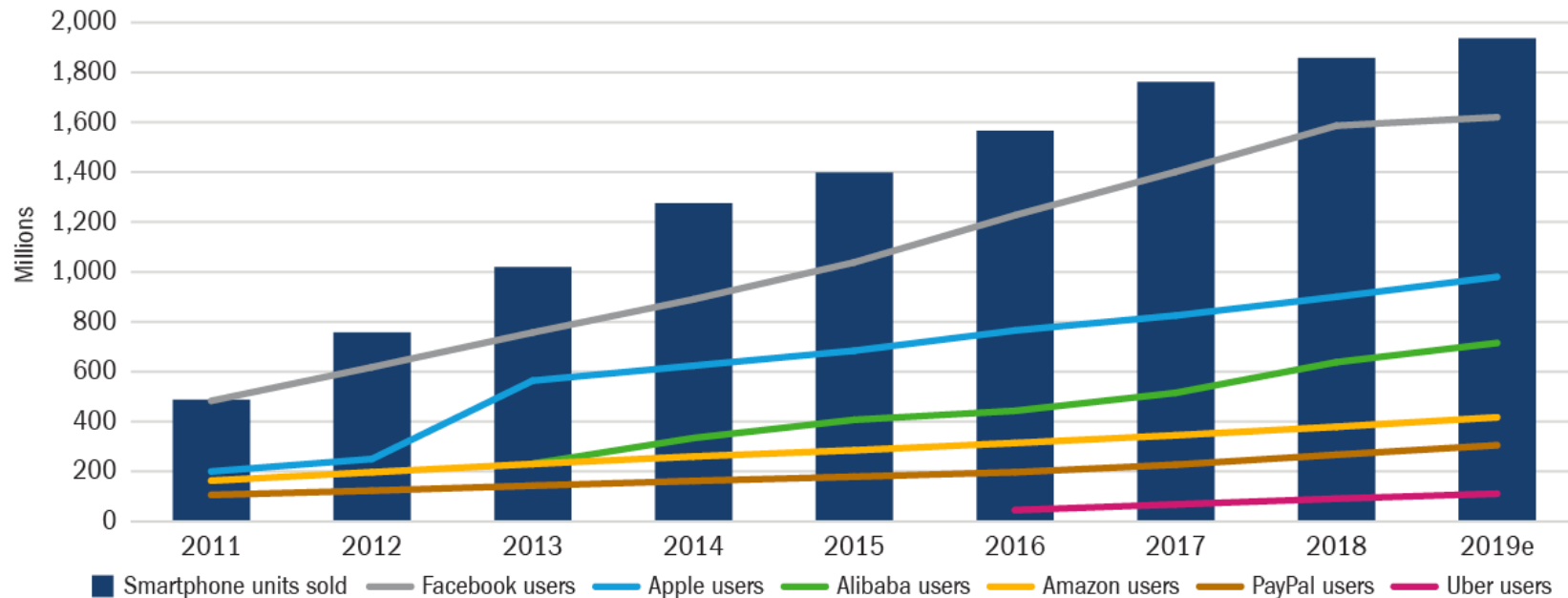
Source: U.S. Census Bureau and Columbia Threadneedle Investments

While brick and mortar retail sales have continued to grow at a 3.4% cumulative annual growth rate (CAGR), they have been substantially outpaced by e-commerce, which has grown at a 15% CAGR. In fact, the global packaging tape market is forecasted to reach \$21.5 billion by 2026. The highest penetration in e-commerce is within the books, music and video, and computer and consumer electronics categories.

Bottom line for investors: Looking forward, we expect e-commerce to maintain a 15% CAGR as retail categories such as apparel, home furnishings and grocery (still only marginally penetrated) see a shift to online purchases.

▶ Smartphones helped propel the growth of large customer user bases across the internet and helped create “Big Tech”

Smartphones and growth of mobile internet businesses

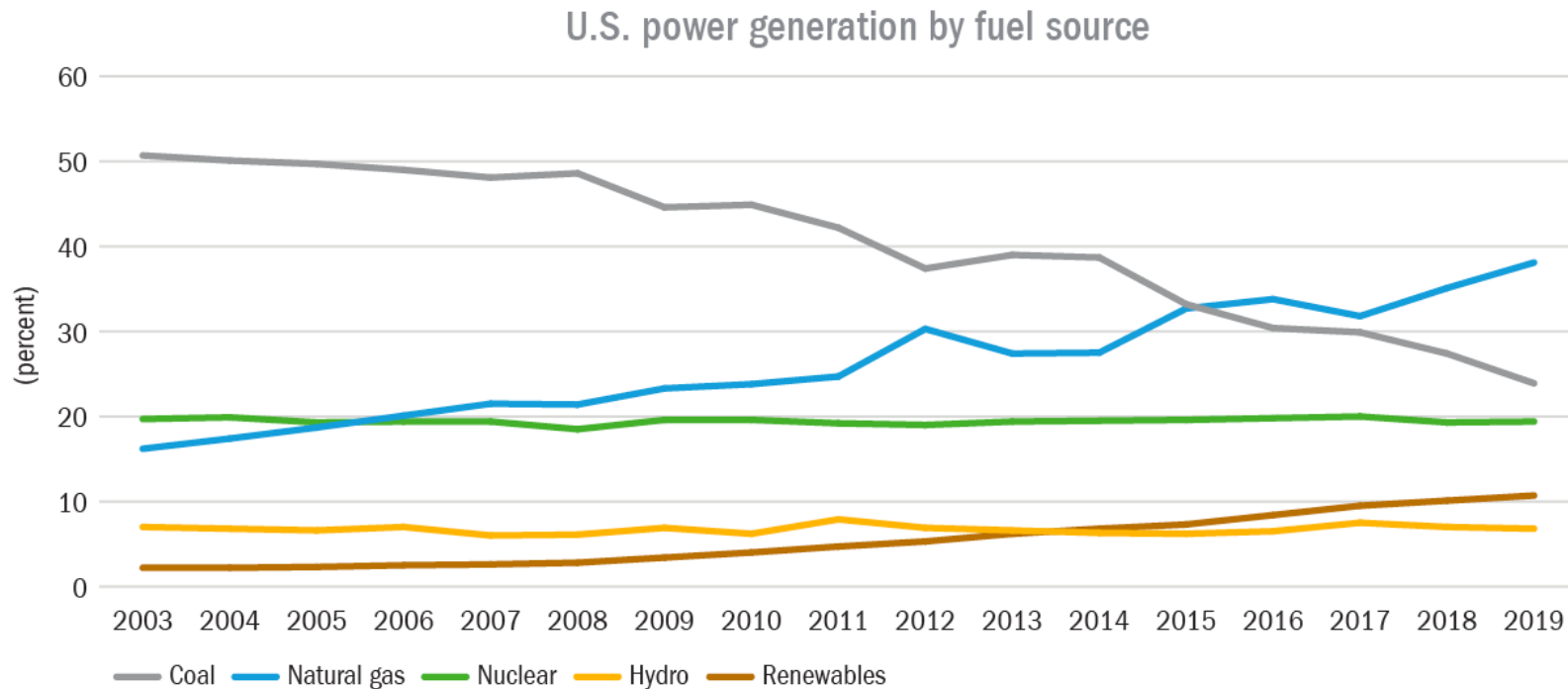


Source: Gartner, company reports, Columbia Threadneedle Investments

The internet started in early 1990s, but the rise of “Big Tech” and internet businesses with large customer bases coincided with the rise of the smartphone. Over the 2010s, retail platforms such as Amazon and Alibaba have been able to grow to 400 million and 700 million customers, respectively. Apple has nearly one billion users, and social media players such as Facebook and WeChat in China have one-to-two billion daily active users.

Bottom line for investors: In the next decade, we expect these internet companies to continue to monetize their large customer bases by attacking large verticals of the economy — from retail and media to transportation, financial services and healthcare — in order to increase user loyalty and sales and profit per user.

► The U.S. electricity mix has changed



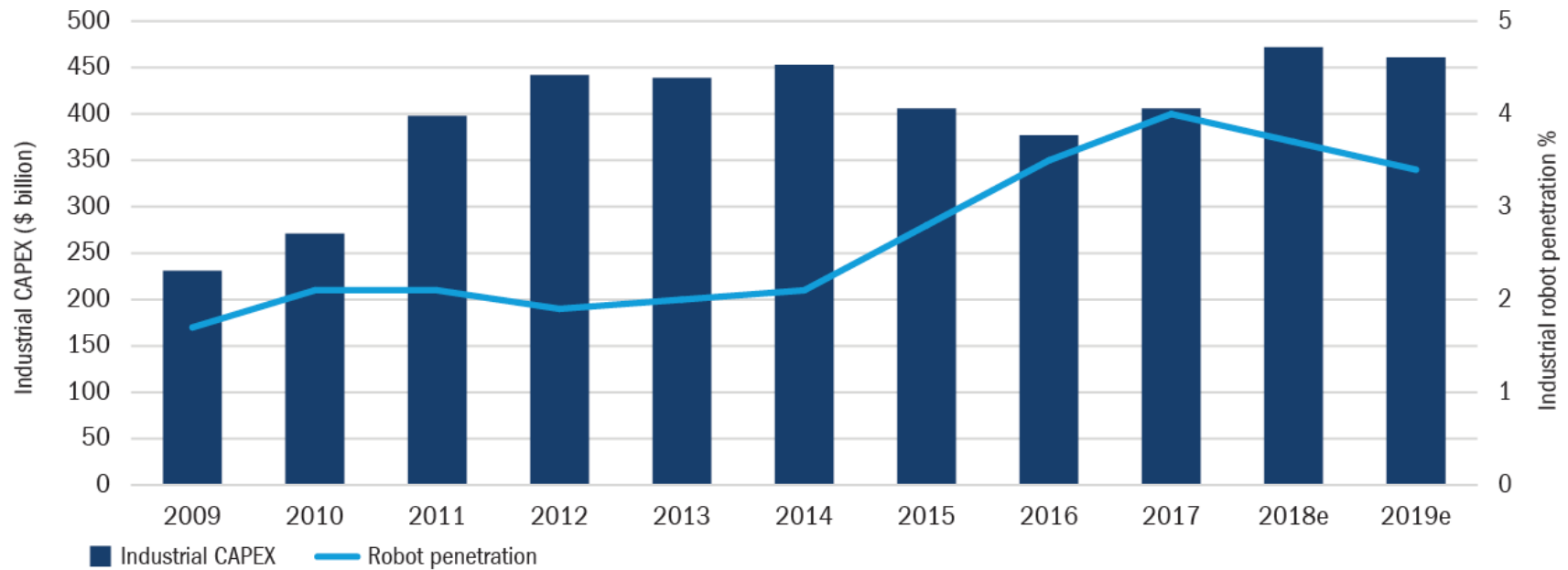
Source: Energy Information Administration

The shift away from coal accelerated over the 2010s, coinciding with a few things. First, U.S. shale production of natural gas grew substantially, resulting in increased natural gas availability and lower prices. Second, an increased focus on the environmental impact of energy production supported a move to lower emission fuels, such as natural gas and renewables. Third, renewables have benefited from production efficiencies, making them more affordable vis-à-vis alternatives, such as coal.

Bottom line for investors: While the administration is supportive of coal, the shift to cleaner and greener sources of fuel is unlikely to reverse. Natural gas will remain a cheap and clean electricity feedstock for the U.S. long term given the vast domestic shale resource. Additionally, in recent years, the price of photovoltaic solar power systems has dropped to levels that are competitive with or even below the wholesale price of electricity in many markets.

► Robots

Industrial robot penetration of industrial CAPEX



Sources: Bloomberg, IFR (International Federation of Robotics), World Economic Forum Future of Jobs Report and Columbia Threadneedle Investments

At the end of the 2010s, robot panic began to take root — varying reports cataloged anywhere from 7.1 million to 2 billion jobs that would be superseded by robot labor. Investment in robots as a percent of industrial capex grew over the decade, but job losses to robot labor have not created a spike in unemployment (the U.S. unemployment rate was 3.8% at the end of 2019). A 2018 World Economic Forum report offered that, while 75 million jobs may transition to robots globally by 2022, the global economy would also create 133 million new roles at the same time.

Bottom line for investors: Companies that adopt automation have been shown to have better long-term profitability, and as a result, better long-term, more cognitively demanding job creation. We expect outperformance from companies that embrace both automation and retraining their workforces.

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