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Tweaking an extraordinary US outlook: A look at 2019 and beyond

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- Earlier this Fall Fed Chair Powell observed that the performance of the US economy "is testament to the fact that we remain in extraordinary times." We agree. With our 2018 outlook holding up remarkably well over the past year, we take a look towards 2019 and beyond. Risks to this "extraordinary" outlook remain, but we now find ourselves expecting the current expansion, which is set to become the longest on record next year, to continue for several years to come. These tweaks come at a time when the consensus and market pricing are moving in the opposite direction, with growing expectations of a 2020 recession.

- Our 2019 growth forecast has edged lower by a tenth, mostly due to the front-loading of tighter financial conditions and some slowing in global growth momentum. The most meaningful revision to our outlook comes in 2020, however, where we have lifted our forecast by half a percent to 1.8%, due to a gentler Fed hiking cycle in 2019 and a more supportive fiscal impulse. Our first look at 2021 sees growth slowing further to 1.6%.

- Perhaps the most extraordinary feature of this expansion is continued impressive labor market performance coupled with modest inflation pressures. We expect the former to continue in 2019, with the 3.4% unemployment rate set to tie the lowest level since 1953. Wage pressures should continue to firm, reducing concerns about a wage puzzle. But as growth slips below potential beyond, the unemployment rate should drift higher, reaching 3.8% in 2020 and 4.3% in 2021.

- Core inflation is still expected to rise above the Fed's target next year, though the magnitude of this overshoot is more modest. Recent softer inflation data, the lagged effects of dollar strength, and some downside risk from a weaker profile for health care inflation should help to offset some of the tailwind from a tight labor market. Core PCE inflation is now expected to rise to 2.2% in 2019 and 2020, and moderate slightly in 2021.

- With the labor market beyond full employment and inflation slightly above the Fed's target, we still expect the Fed to move to a restrictive stance in 2019, but the path to that point has changed. We now anticipate three rate hikes in 2019, with the Fed taking a break, or pause, from their gradual quarterly pace of tightening most likely in Q3. That should be followed by one last rate increase in 2020, leaving our terminal rate for this cycle unchanged at 3.4%. Balance sheet unwind, which has been on autopilot to this point, could reach its endpoint in late-2019.

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Introduction

Following two years of acceleration in US GDP growth to a pace well above trend this year, the expansion is now showing signs of slowing. This turn is good news. It improves prospects for an ongoing expansion for years to come. Earlier this Fall no less an expert on the economy than Fed Chair Powell observed that the current and prospective performance of the US economy "is testament to the fact that we remain in extraordinary times." This observation followed his upbeat assessment that, "I am glad to be able to stand here and say that the economy is strong, unemployment is near 50-year lows, and inflation is roughly at our 2 percent objective. The baseline outlook of forecasters inside and outside the Fed is for more of the same."[1]

What is particularly extraordinary about this picture is that prospects for inflation remain so subdued in the presence of a tight labor market that is likely to tighten even further over the year ahead. The persistence of this favorable inflation performance, along with some recent slippage in both financial conditions and indicators of global growth has caused us to take another look at a forecast that has held up remarkably well over the past year, but could begin to go significantly off track as we look beyond the year just ahead. In brief, whereas we had expected more inflation pressure over the year ahead and more Fed tightening leading to a substantial slowdown in growth in 2020, we now find ourselves sharing Chair Powell's optimism and expecting the current—soon to be record – expansion to continue unabated for years to come. This tweaking of our outlook comes at a time when the consensus is moving in the opposite direction, with growing expectations of a 2020 recession.

In what follows, we begin with a more complete description of how and why our forecast has changed in this year-end update and look ahead to 2019 and beyond. We then describe the details of our revised outlook for aggregate demand growth, including the components of GDP and fiscal policy. Next we turn to prospects for the labor market, unemployment and wages, as well as the supply side of the economy, productivity and labor force growth. Discussions of the outlook for inflation and the Fed follow, and we end with a review of the risks to our updated baseline forecast.

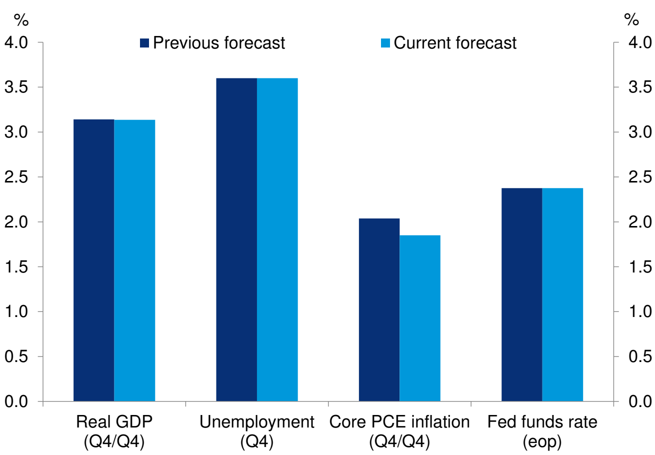
Summary of forecast changes

Our previous forecast, which was little changed over the past year, proved to be accurate for 2018 (Figure 1). Under our previous forecast, we expected that there would be enough growth and labor market tightening through 2019 to raise inflation several tenths above target and to induce the Fed to continue with its gradual pace of quarterly 25bp rate hikes through the end of next year (Figure 2). Four more rate hikes next year following four this year would have brought the upper bound of the fed funds target range to 3.5% by Q4 2019, about 50 bp above our estimate (and the FOMC's median estimate) of the neutral fed funds rate. This Fed tightening was going to be enough in our view to induce a correction in global risk assets, including a fall in equity markets and widening of credit spreads. And the resulting tightening of financial conditions, along with a shift from fiscal stimulus in 2019 to fiscal contraction in 2020, would, in turn,

1 Chairman Jerome H. Powell (October 02, 2018), " Monetary Policy and Risk Management at a Time of Low Inflation and Low Unemployment ", at Boston, Massachusetts.

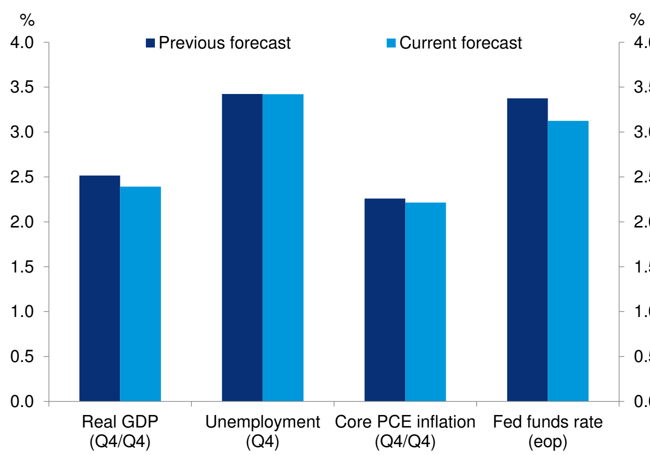
be enough to slow US growth to noticeably below potential in 2020 and thereby cause unemployment to move back up toward NAIRU. We nevertheless felt that outright recession could be avoided, partly because of the absence of any significant real investment overhangs in the US and partly because we assumed the sharp slowing of growth would induce the Fed to reverse course and cut rates a couple times during 2020, giving financial conditions a significant lift again.

Figure 1: Taking stock on 2018: A modest downgrade to core inflation



Source: Deutsche Bank

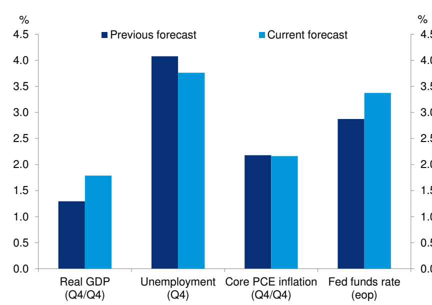
Figure 2: 2019 forecast revision: downward tweaks to growth, inflation, and fed funds rate



Source: Deutsche Bank

Our view of the period ahead has changed, for several reasons. First, recent data point to a slower pickup in inflation pressures than we recently believed, though inflation remains consistent with our expectations from a year ago. Second, recent market gyrations suggest that we may have seen some telescoping forward of the anticipated slide in global equity markets and tightening of financial conditions. Third, it now appears that a return to previous spending caps in 2020 is less likely than we had assumed earlier this year, and fiscal policy could turn out to have a less negative effect on growth in 2020. Fourth, recent Fed speak has suggested a bit more tolerance of an inflation overshoot by the central bank, a fact crystalized in the Fed's projections for core inflation remaining above target through 2021.

Figure 3: Growth and fed funds forecasts upgraded for 2020



Source:Deutsche Bank

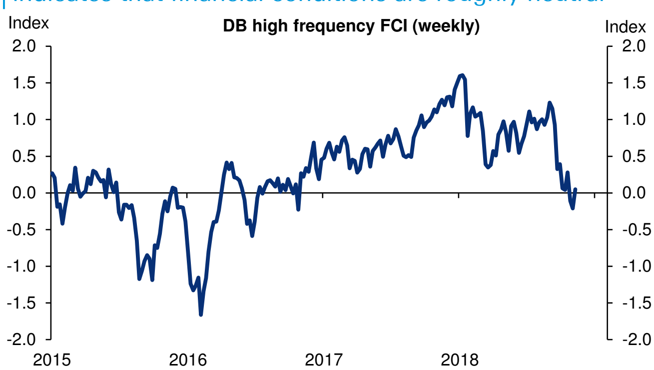
These developments point to slightly lower growth and inflation in 2019 than we had previously projected. They also point to a somewhat less aggressive stance of Fed tightening. Accordingly, we now see the Fed raising rates a bit less (three times, not four) in 2019, with one more hike to follow in H1 2020 – roughly in line with FOMC median projections. Growth still slows in 2020 and 2021 enough to get the unemployment rate moving upward, but on a more gradual trajectory than we had previously. One final modification is that we have built in a bit more pickup in potential growth as we now expect productivity to get a slightly greater lift from the tight labor market than we had previously assumed. This last change is in line with our view that the US economy does indeed show extraordinary signs of being able to sustain a record expansion with only a modest pickup in inflation pressures. Higher potential growth means a somewhat higher level of r-star, and less need for the Fed eventually to reduce rates again, though we can anticipate one rate cut in 2021 for a return to a slightly higher neutral as the unemployment rate nears NAIRU in the years ahead.

Growth outlook: Still solid momentum but financial conditions begin to bite

Up to this point, there has been little economic data that would suggest a sharper slowdown in 2019 growth than what we had previously penciled in. Consumer and business confidence remain significantly elevated and fiscal policy is still expected to provide a solid tailwind in 2019. That said, the recent tightening of financial conditions cannot be ignored.

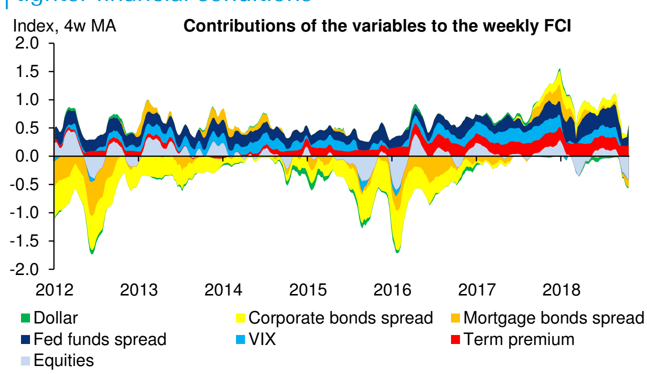
Our DB high-frequency financial conditions index (FCI) has fallen sharply this year, consistent with a tightening of financial conditions, after reaching near-record easy levels in early 2018 (Figures 4 and 5). However, it remains in slightly positive territory, suggesting that financial conditions remain modestly supportive of growth. As a reminder, the DB FCI includes mortgage spreads, corporate bond spreads, equities, the fed funds spread, the trade-weighted US Dollar, 10-year Treasury term premium and the VIX. This tightening is consistent with some slowing in growth momentum heading into 2019, though to growth rates that remain well above potential (Figure 6). It is important to remember, however, that changes in financial conditions need to be sustained for several months to begin to impact real economic activity. Thus, if markets rebound or stabilize, the drag could potentially dissipate.

Figure 4: Latest reading on the DB high frequency FCI indicates that financial conditions are roughly neutral



Source: Deutsche Bank

Figure 5: Several factors, including equities, have driven tighter financial conditions

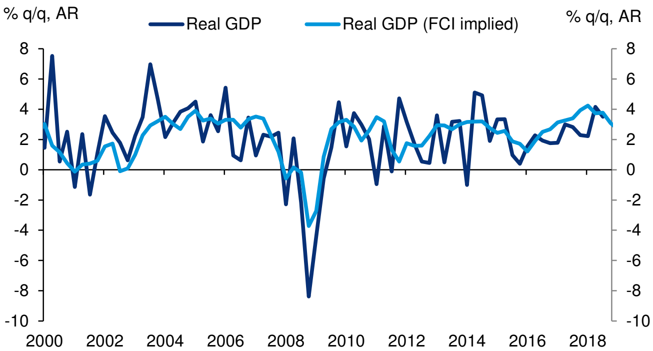


Source: Deutsche Bank

Within financial conditions, there are two indicators that we think are informative about the near-term outlook: the Fed's Senior Loan Officers' Survey (SLOS) and high grade credit spreads. Both domestic bank lending standards for C&I loans to small firms (from the SLOS) and developed market IG credit spreads have fairly consistently led year-over-year GDP growth by two quarters. As of Q4, the net percentage of domestic banks tightening C&I lending standards was -3.1%, which means that more banks are loosening lending conditions than tightening. While this is down from a net balance of -8.8% in Q4 2017, banks have yet to meaningfully curtail lending. However, the spread between developed market investment-grade (IG) bond yields and comparable-maturity Treasury yields has widened by roughly 36 basis points (bps) over the past 12 months. As Figure 7 illustrates, regressing the year-over-year change in real GDP growth on C&I

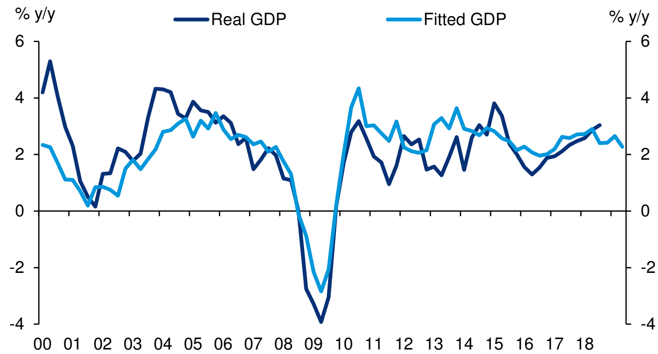
lending standards and the year-over-year change in investment grade credit spreads points toward 2.3% growth by the middle of next year.

Figure 6: DB FCI points to a modest slowdown in growth in coming quarters



Source: BEA, Haver Analytics, Deutsche Bank

Figure 7: Bank lending standards and IG credit spreads lead GDP growth by two quarters

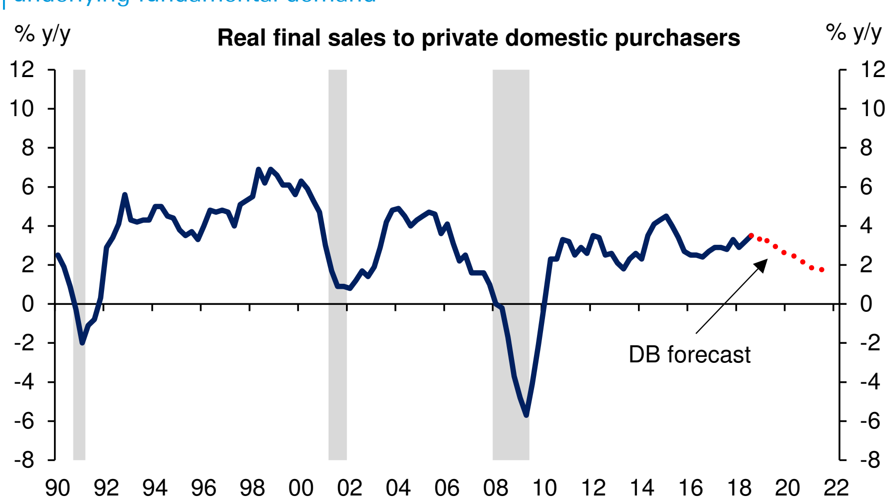


Source: FRB, BEA, Haver Analytics, Deutsche Bank

But the bottom-up fundamentals remain the same near term

From a fundamental perspective, not much has changed with respect to our near-term growth forecast. In fact, we have not made any material changes to our 2019 projection for private sector demand growth. As we illustrate in Figure 8, we continue to expect real final sales to private domestic purchasers, which is our favorite indicator of underlying private demand, to slow from 3.2% (Q4/Q4) this year to 2.7% by the end of next year. Final private demand is then expected to drift down toward 2% over 2020 and 2021 as the Fed tightening and tailwinds from fiscal stimulus begin to fade.

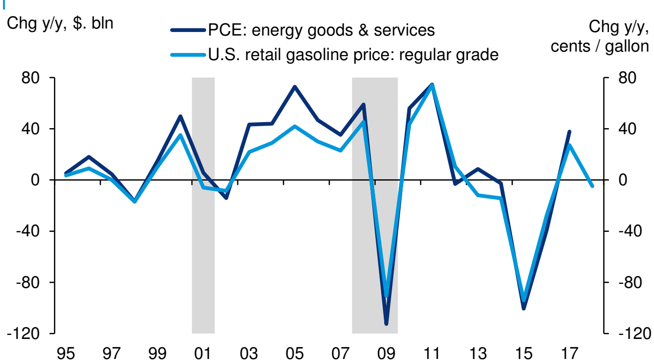
Figure 8: Final sales to private domestic purchasers is our favorite measure of underlying fundamental demand



Source: BEA, Haver Analytics, Deutsche Bank

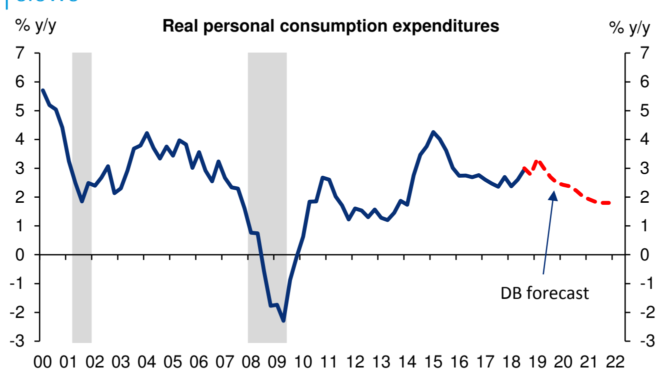
The outlook for real PCE remains unchanged as we continue to expect consumer spending growth to slow to 2.5% (Q4/Q4) next year, compared to 2.8% in 2018 (assuming our Q4 growth forecast is close to the mark). Elevated consumer confidence, falling energy prices, an elevated savings rate and a still healthy tailwind from tax cuts all provide ample cushion for consumers to weather a mild risk asset downturn. In fact, the recent drop in energy prices may provide some upside risks to consumer spending. As we noted earlier this year (see "Will higher gas prices guzzle up the tax cut") there is a tight relationship between changes in retail gas prices and consumer spending on energy goods and services (Figure 9). This relationship suggests that a 1 cent rise in gas prices (on a sustained, or annual, basis) increases spending on energy goods and services – and thus reduces income that can be spent on non-energy items – by $1.16bn. The relationship works in the opposite direction, as well, all else being equal. Hence, what appeared to be a moderate headwind to spending earlier this year with gasoline prices up around $0.50, has turned into potentially a slight tailwind with prices down roughly $0.05. As we look further ahead, consumer spending growth is expected to slow further to 2.1% in 2020 and 1.8% in 2021 as the boost from tax cuts fades and labor market growth trends lower (Figure 10).

Figure 9: The plunge in gasoline prices, if sustained, should provide a modest tailwind to consumer spending



Source: BEA, EIA, Haver Analytics, Deutsche Bank

Figure 10: Real PCE growth is expected to trend lower as the boost from tax cuts fades and the labor market slows

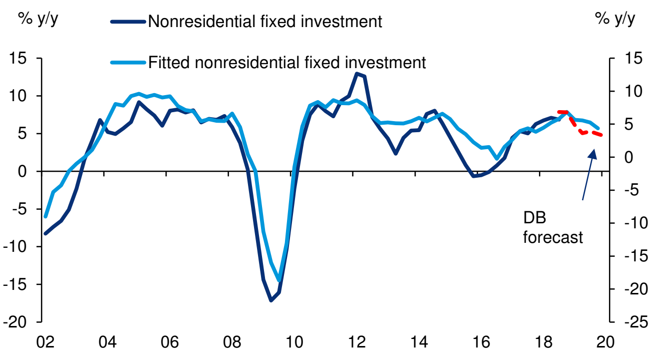


Source: BEA, Haver Analytics, Deutsche Bank

While some forecasters have fretted over the recent weakness in business spending, we continue to expect capex to recover in the current quarter and then gradually trend lower over the next few years (see "Is the recent slowdown in capex cause for concern"). Our near-term forecasting model for nonresidential fixed investment (capex), which utilizes the year-over-year change in oil prices and the capacity utilization rate (one-quarter leads), the year-over-year change in corporate profits (six-quarter lead), Commercial and Industrial (C&I) lending standards from the Fed's Senior Loan Officer Survey (three-quarter lead) and the Fed's measure of recession risk over the next 12 months implied by the excess bond premium (two quarter lead) points to year-over-year growth only gradually declining over the next several quarters. Indeed, as we illustrate in Figure 11, our capex forecast is relatively conservative compared to our model even after assuming that the annual growth of capacity utilization slows, energy prices tumble, lending standards tighten and a rising probability of recession over the next couple of quarters.

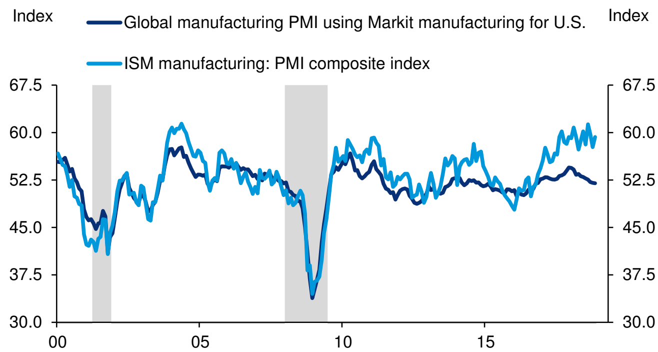
To be sure, there are concerns with respect to energy-related capex and global growth. Regarding the former, it is important to remember that energy-related investment is 5.3% of total inflation-adjusted capex, down from 8.5% in Q2 2014 when oil prices last experienced a massive sell off. The rig count is still down -44.2% from its 2014 peak. Thus, the downside risk from energy investment is substantially less than it was the last time energy prices plunged. With respect to global growth, there are of course uncertainties as the Fed has time and again acknowledged. No doubt, the decoupling of US manufacturing sentiment and global sentiment (Figure 12) is moderately concerning. However, given that the ECB, BoJ and lately the PBoC are either still extremely accommodative in the case of the former two central banks or are in the process of easing policy (PBoC), our hope is that global growth will recover over the coming quarters.

Figure 11: Our capex growth assumptions are conservative relative to our model



Source: FRB, BEA, Haver Analytics, Deutsche Bank

Figure 12: US manufacturing sentiment has diverged meaningfully from the rest of the world



Source: JP Morgan, IHS Markit, Haver Analytics, Deutsche Bank

The impact of trade disputes remains a question mark

A key reason we remain conservative on capex is because of trade policy uncertainties, which could present a headwind to business investment. As we have previously noted (See "US outlook bends but doesn't break as trade stakes rise"), we have built in a roughly 0.1 percentage point drag on real GDP growth in 2019, which assumes the tariff rate on $200 billion of Chinese goods rises from 10% to 25% sometime next year. Our base case is that these tariffs go into effect around the middle of next year as the Administration has essentially called a "cease-fire" on further measures while negotiations are underway for the next 90 days. As Figure 13 illustrates, the proposed tariffs could pose a roughly $70 billion tax on businesses and consumers. While the recent agreement to suspend any further measures is a modest positive, we believe the uncertainty will continue to weigh on business spending until a more concrete and long-lasting agreement is reached.

Figure 13: Summary of proposed tariffs

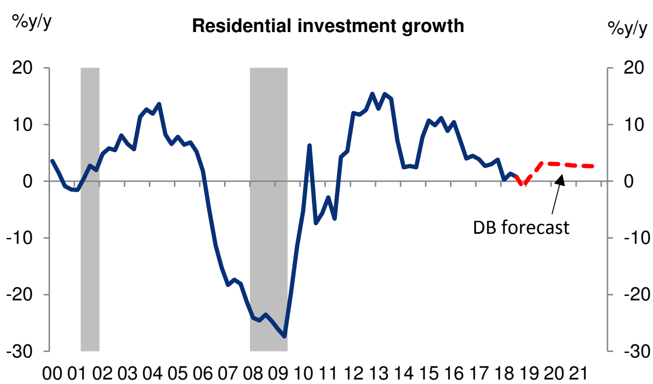
Target products	Number of targeted Product codes	Total 2017 import value (USD, mln)	Tariff rate(%)	Expected Revenue (USD, mln)	Import value of median targeted product code (USD, mln)	Targeted product code with largest 2017 import value	2017 import value (USD, mln)
Steel	303	29033	25%	7258	25	7207.12.00	2446
Aluminum	36	18719	10%	1872	67.7	7601.10.30	5824
China							
June 15, List 1	821	32262	25%	8066	6.6	8703.23.01	1420
June 15, List 2	284	14116	25%	3529	5.9	8543.70.99	1495
'July 10	6036	197216	25%	49304	1.3	8517.62.00	22935
Total	7480	291346	24%	70029			

Source: USITC, USTR, Deutsche Bank

The housing outlook remains muted

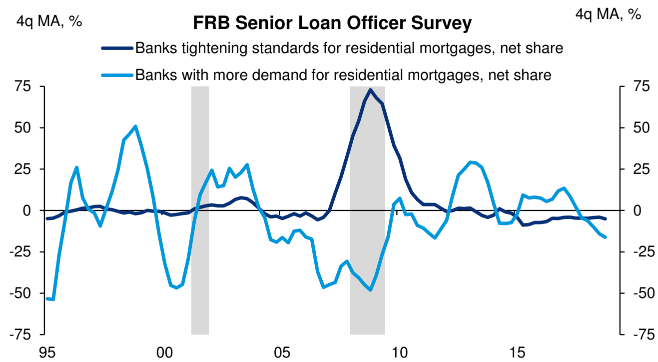
We remain less than sanguine on the housing outlook as rising mortgage rates will likely continue to weigh on residential investment near term (See "A closer inspection of the housing market"). At first glance, a strong labor market, easing lending standards and relatively-elevated affordability are all highly supportive of the housing sector. Indeed, the common narrative for the past few years has been that a tight supply of homes for sale has persistently weighed on transaction volumes but that demand remains buoyant. We find still-visible evidence of supply issues, but some doubts are now emerging about the demand story (Figure 15). Regarding demand, there has been a noticeable downtrend in housing sentiment, which has coincided with recent weakness in new and existing home sales. Furthermore, there is some evidence of buyers' fatigue at the higher end of the housing market. With respect to supply, the stock of housing is increasingly concentrated within older cohorts of the population. This may be weighing on existing home sales where inventories have been tight for several years. The upshot is that residential investment may remain muted over the intermediate forecast horizon, essentially growing in line with its share of real GDP (Figure 14).

Figure 14: Residential investment is expected to remain soft, growing only around its 3.2% share of real GDP



Source: BEA, Haver Analytics, Deutsche Bank

Figure 15: The Fed's Senior Loan Officer Survey shows ongoing easing of mortgage credit but also falling demand

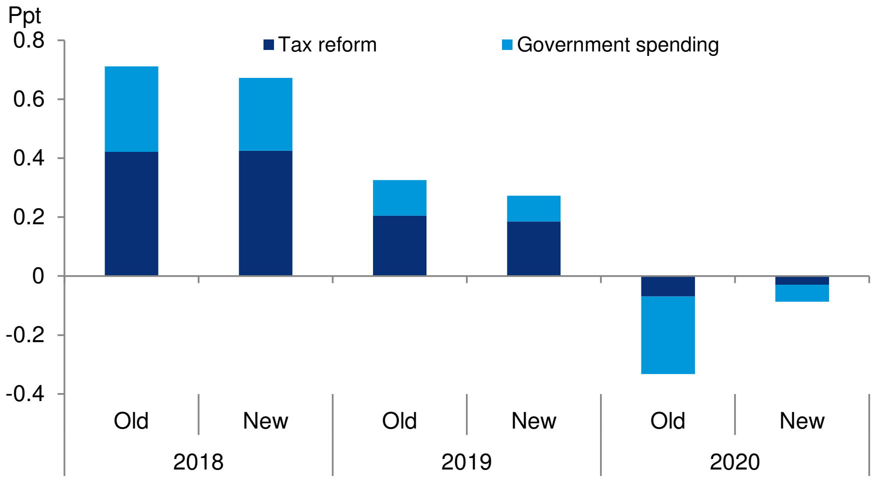


Source: FRB, Haver Analytics, Deutsche Bank

Could the fiscal "cliff" be more like a shallow valley?

The main evolution in our fundamental outlook has been our thinking on the fiscal impulse from federal government spending. Previously, we had expected a sharp drop off in real GDP growth in 2020 as monetary policy tightening in 2019 began to have a more pronounced impact at the same time that the fiscal impulse from tax cuts and federal spending faded. However, with a slightly diminished profile for inflation, we now see the Fed slowing the pace of interest rate hikes in the back half of next year. Additionally, we see a less severe drop off in the fiscal impulse in 2020 if a divided Congress decides to pass a continuing spending resolution next year instead of reverting back to more draconian budget sequestration rules. As Figure 16 illustrates, we had previously expected the fiscal impulse to fall meaningfully in 2020 due mainly to the budget bill.

Figure 16: Previous and current estimates of recent fiscal policies' contributions to growth



Source: Deutsche Bank

Our prior analysis was largely predicated upon the CBO's initial scoring of the budget bill, which assumed a sharp drop in discretionary spending in FY 2020 due to sequestration rules coming back into effect post the expiration of the current two-year agreement. Recall that the CBO has to assume current-law in its long-term forecasts, which implies that discretionary spending rises by roughly $82 billion (nominal) in FY 2019 and then falls -$22 billion in FY 2020. In our view, a divided Congress will not want to have discretionary spending plunge during an election year in 2020, as is currently set to happen as the sequestration spending caps revert to those set forth in the Budget Control Act of 2011. Should Congress want to keep 2020 calendar year discretionary spending in line with its trend growth of 4.5% over the past three years rather than allow the slated 1% drop, this would involve about $60bn in additional spending. As we illustrate in Figure 16, the fiscal impulse in 2020 is still likely to be slightly negative, but about 20 bps less so than in our prior forecast. This is one key reason we have raised our 2020 growth forecast.

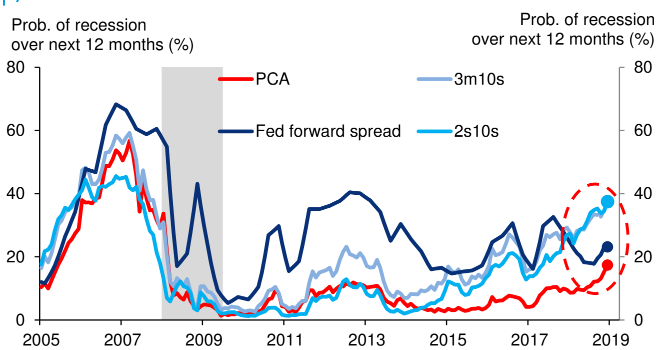
Recession risks: Still low over next year but continue to rise beyond

This sanguine view on the US economic outlook over the next few years is not without risks, which we discuss in more detail in the final section of this report. With the perception that some of the tailwinds that have supported the recent strengthening of growth are now moderating or turning to headwinds – including fiscal stimulus, supportive financial conditions and solid external growth momentum – a natural question is what are the risks of a US recession over the next few years and, if one were to occur, how severe could it be?

On the first question, our suite of recession probability models based on the yield curve and other measures of financial conditions suggest that recession risks remain quite low over the next year even though yield curve flattening, and indeed recent inversion in shorter term slope measures, has raised the specter of an impending recession. Figure 17 presents our stable of recession probability models based on the yield curve. These four different probit models are based on: (1) the traditional 2s10s slope (i.e., the difference between 10-year

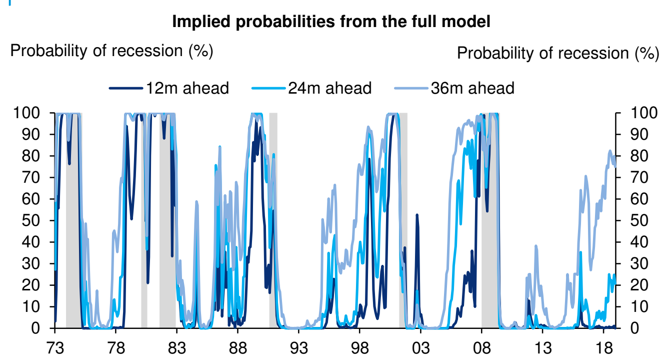
Treasury yields and 2-year yields), (2) the 3m10s slope which has been advocated by some Fed research, (3) the spread between the 18-month forward 3-month Treasury yield and the spot 3-month Treasury yield (another variant espoused in Fed staff research), and (4) our principal component analysis (PCA) of the spot yield curve. [2]As has been the case in recent months, we continue to believe that traditional yield curve metrics, such as the 2s10s slope, are overestimating recession risks over the next year. Our PCA approach, which summarizes nearly all of the information embedded in the spot yield curve continues to point to recession risks over the next year not far from their unconditional expectations (15-20%).

Figure 17: Principal component analysis suggests recession risks are not particularly elevated over the next year



Note: Dots represent estimates from the most recent daily values for the variables. Source: FRB, Bloomberg Finance LP, Haver Analytics, Deutsche Bank

Figure 18: Recession risks rise beyond the next year



Source: FRB, BEA, FRB Chicago, Haver Analytics, Deutsche Bank

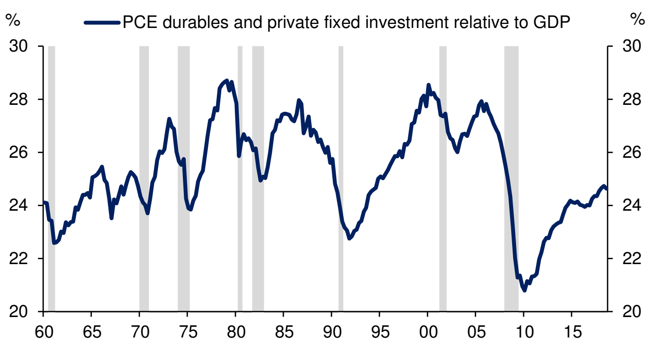
Beyond the next year, recession risks do begin to rise. To make this assessment we turn to our more comprehensive recession probability model which includes: (1) the first three factors from a yield curve PCA, (2) the Fed's policy stance (real fed funds rate minus neutral as measured by Holston, Laubach and Williams (2016)), (3) excess corporate bond risk premium, and (4) the Chicago Fed's adjusted national FCI. Recession risks over the next twelve months are very low, less than 5%, according to this more comprehensive view from financial conditions. Beyond the next year, the current constellation of financial conditions suggest that recession risks will be on the rise. This model suggests there is 25% chance of a recession at some point over the next two years. This is near the highest levels since the crisis. Over the next three years, there is nearly an 80% chance of a recession according to this model. In short, we agree that recession risks should rise more meaningfully beginning in 2020, but a recession is not part of our baseline expectation.

One important factor that likely increases the probability of, and in the event the severity of, a recession, is the extent to which imbalances in cyclical sectors have emerged. During this expansion, the imbalance in spending on durables and structures that normally accompanies an overheated labor market has not been present (Figure 19). The lack of these typical imbalances in the economy is also

2 See (1) Engstrom, Eric and Steven Sharpe (June 28, 2018), "(Don't fear) the yield curve", FEDS Notes. (2) Bauer, Michael D. and Thomas M. Mertens (August 27, 2018), "Information in the yield curve about future recessions", FRBSF Economic Letter, 2018-20. and (3) Deutsche Bank US Economic Perspectives (August 6, 2018), "What is the curve's recession signal? A principal component approach."

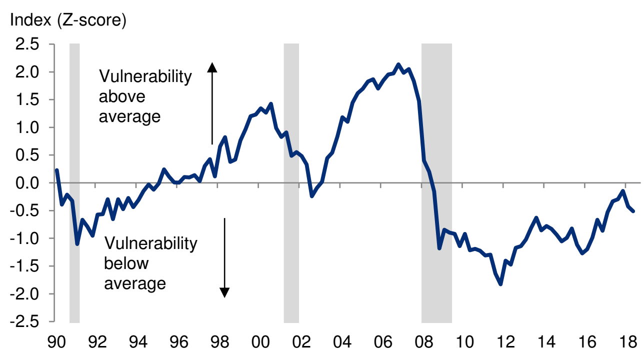
evident from the fact that our measure of aggregate financial stability risks remain just below historical averages, a view shared by the Fed which recently updated its monitoring of financial stability conditions (Figure 20). The absence of an investment overhang and the associated lack of significant financial imbalances in the household and corporate sectors – even though some measures of non-financial corporate indebtedness are elevated – removes one or two of the most important potential drivers of recessions in the past and thus suggests that, if a recession does occur, it should be relatively mild.

Figure 19: Overinvestment has typically preceded recessions in the past and has been less of an issue during this expansion



Source: BEA, Haver Analytics, Deutsche Bank

Figure 20: Aggregate financial vulnerability slightly below normal



Source: Deutsche Bank

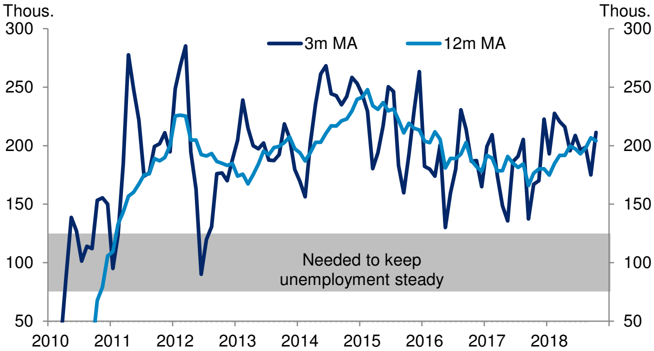
Added to the lack of imbalances are several other factors that suggest recession risks should either be lower or that the severity of any recession should be more modest than indicated in the past by standard yield-curve inversion. These factors include: (1) the emergence of shale oil which helps to moderate the impact of oil price spikes on the economy; (2) the flat Phillips curve should help keep inflation pressures in check, thereby taking pressure off of the Fed to overtighten; and (3) in the current policy tightening cycle, the Fed has been, and is likely to continue to be, a good deal more cautious than in the past.[3]

Labor market: Wage puzzle less puzzling as labor market tightens

The growth profile that we documented in the previous section should be mirrored in the labor market. With real GDP growth set to close out the year at its highest level since 2015, it is no surprise that nonfarm payrolls expanded by roughly 210 thousand jobs on average through the ten months of 2018 that we have available. As seen in Figure 21, this recent pace of job growth remains well above common estimates of the pace needed to keep the unemployment rate steady.

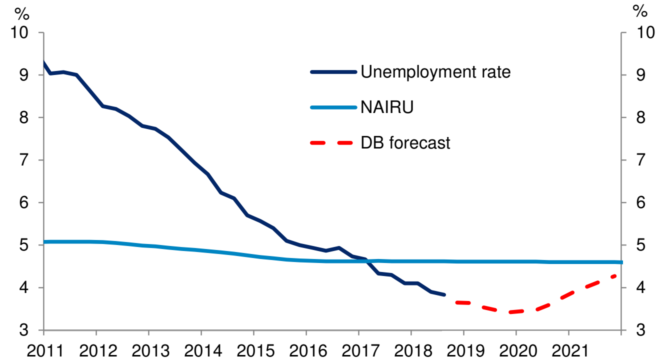
3 For more detail on this, see Deutsche Bank US Economic Perspectives (September 20, 2018), "How the Powell Fed can make history."

Figure 21: Even as the pace of job growth moderates, the labor market should continue to tighten …



Source: BLS, Haver Analytics, Deutsche Bank

Figure 22: ...pushing the unemployment rate even lower

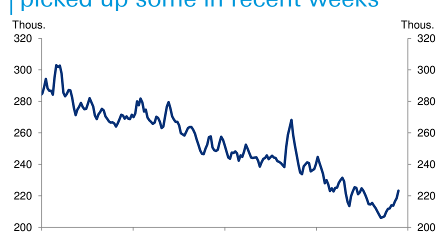


Source: BLS, CBO, Haver Analytics, Deutsche Bank

As economic growth begins to moderate from its 2018 Q2 peak, we would expect this pace of monthly job gains to decelerate. We are beginning to see some indications that slowing may be beginning to impact the labor market with the recent uptick in initial jobless claims, though some of that rise is likely attributable to Hurricanes Florence and Michael and has been concentrated in relatively few states. However, with growth still above potential through 2019, this pace should be more than sufficient to put further downward pressure on the unemployment rate, pushing it down to 3.4% by the end of 2019, consistent with our prior expectations given the only marginal adjustment to growth (Figure 22). Further out, growth should move below potential, and, as such, the unemployment rate should begin to level off and then ultimately drift back up toward the full-employment level of the unemployment rate, hitting 3.8% by the end of 2020 and 4.3% by the end of 2021. Underlying this unemployment rate forecast is an assumption that the participation rate remains broadly stable in 2019 but then begins to more closely track its 0.25 percentage points annual decline due to structural factors, most importantly aging (more on this below).

Given that the unemployment rate has been at almost 50 year lows, some forecasters have been puzzled by the fact that despite the unemployment rate falling about a percentage point below the previous cycle's low, many commonly cited measures of wage growth have only just topped 3% this year. With productivity growth moving above 1%, unit labor cost inflation remains below the Fed's two percent target for consumer price inflation. This disconnect is likely due to a combination of factors, from monopsony power to job polarization to the demographic effects of baby boomers retiring.[4] However, with above-trend growth and the labor market continuing to tighten over the near term, wage growth should continue to grind higher as evidenced by leading indicators, such as the quits rate (Figure 25).

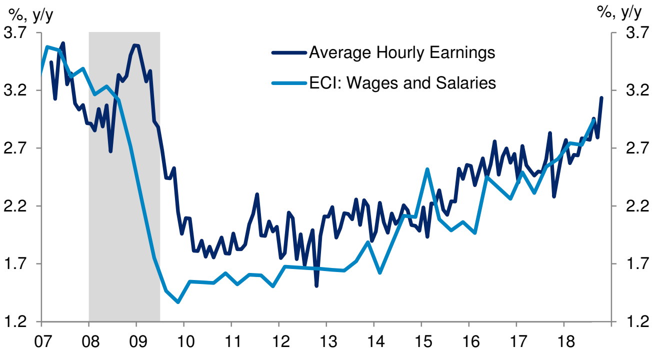
Figure 23: Initial jobless claims have picked up some in recent weeks



Source: BLS, Haver Analytics, Deutsche Bank

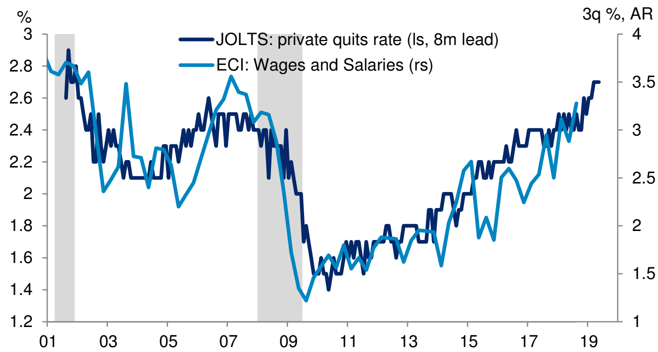
4 See, amongst others, Naidu, Suresh and Posner, Eric A. and Weyl, Eric Glen, Antitrust Remedies for Labor Market Power (February 23, 2018). Harvard Law Review, Forthcoming; Krueger, Alan B. (Fall 2017), "Where have all the workers gone? An inquiry into the decline of the US labor force participation rate." Brookings Papers on Economic Activity; Tuzemen, Didem, 2018. "Why Are Prime-Age Men Vanishing from the Labor Force?," Economic Review, Federal Reserve Bank of Kansas City, issue Q I, pages 5-30; and Daly, Mary C. & Hobijn, Bart & Pyle, Benjamin, 2016. "What's up with wage growth?," FRBSF Economic Letter, Federal Reserve Bank of San Francisco.

Figure 24: Wages grinding higher...



Source: BLS, Haver Analytics, Deutsche Bank

Figure 25: ...and should continue to do so as the labor market tightens

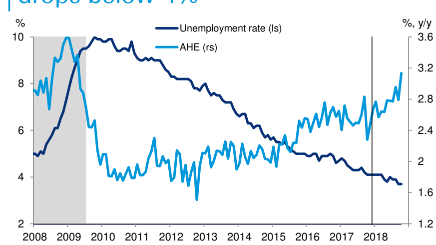


Source: BLS, Haver Analytics, Deutsche Bank

There is some risk that this pace of wage growth could even accelerate as the labor market tightens to levels last seen in the late 1960s. While there are not very many observations in the national data with unemployment this low, a significant number of states have experienced high-pressure labor markets. Using state-level data, we identified a 4% unemployment rate as an important threshold, below which wages begin to accelerate more meaningfully (see [“A tipping point for wage growth? Evidence of non-linearities in state data“]). Interestingly, this seems to have been the case with average hourly earnings, with wage growth inflecting in 2018 as the unemployment rate breached this level (Figure 26).

Another reason for measures of wage growth to pick up even as output growth slows is that there will be compositional changes in the labor market. An important factor weighing on wage growth in this expansion has been the effect of workers, including those that are discouraged, re-entering the labor force. Such re-entrants typically are less skilled and have less experience than their counterparts who have remained in the labor market, and as such, would command lower wages.

Figure 26: Wage growth seems to accelerate as unemployment rate drops below 4%

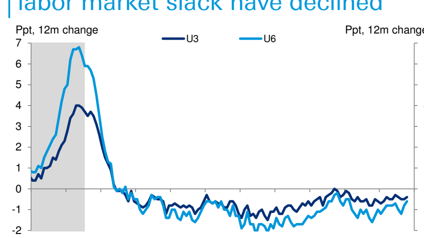


Source: BLS, Haver Analytics, Deutsche Bank

We can see the effect of these workers re-entering from the sidelines in the steeper decline in broader measures of labor market slack, such as the U-6 unemployment rate (as compared with the narrower headline U-3 measure) which takes into account marginally attached workers and part-time workers who want to work full time. Also, these workers entering the labor market seem to be largely prime age, i.e., between 25 and 54, which has pushed the labor force participation rate for this group up over two percentage points since 2015 to its highest level since 2010.

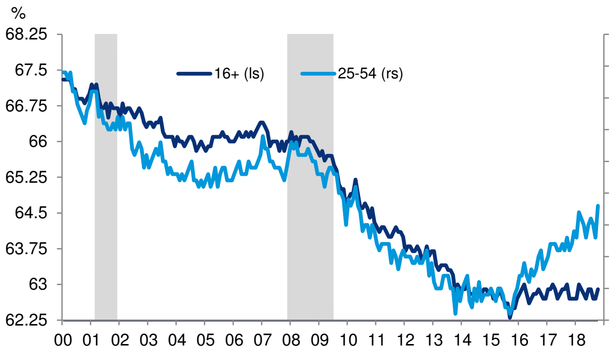
Over the past couple of years, this dramatic rise in the prime age labor force participation rate, due primarily to cyclical considerations, has served to largely offset many structural factors, such as an aging population and job polarization, that would tend to drag the overall labor force participation rate lower. As we discussed in depth in a piece earlier this year (see [“Stable participation adds to our terminal funds rate”]), as the cyclical impact of above trend growth begins to fade towards the end of 2019, this structural downtrend should begin to reassert itself and the participation rate should begin to fall again as fewer workers flow in to the labor force and even begin to flow out. With the downward bias to wages from

Figure 27: Broader measures of labor market slack have declined



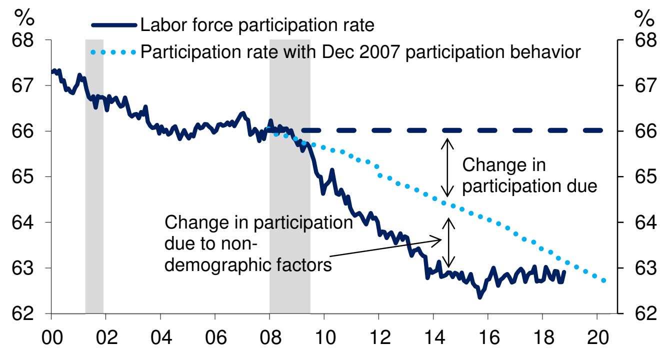
Source: BLS, Haver Analytics, Deutsche Bank these new entrants lessening as cyclical pressures begin to wane, wage growth will likely continue to rise even as output growth slows to its long-term trend.

Figure 28: Tight labor market pulls in prime age workers keeping overall participation steady



Source: BLS, Haver Analytics, Deutsche Bank

Figure 29: As cyclical boost fades, participation should resume its downward trend

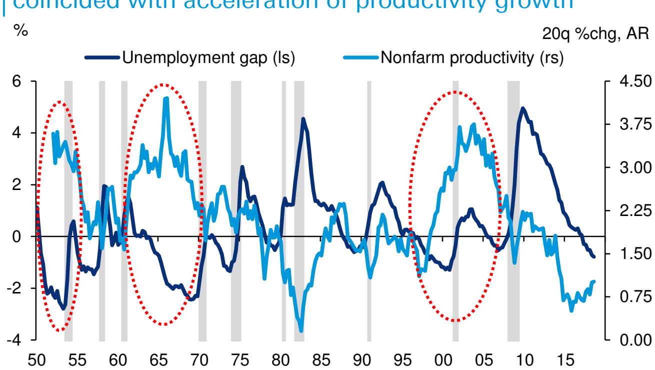


Source: BLS, Census, Haver Analytics, Deutsche Bank

Supply side: Tight labor market to support firmer productivity

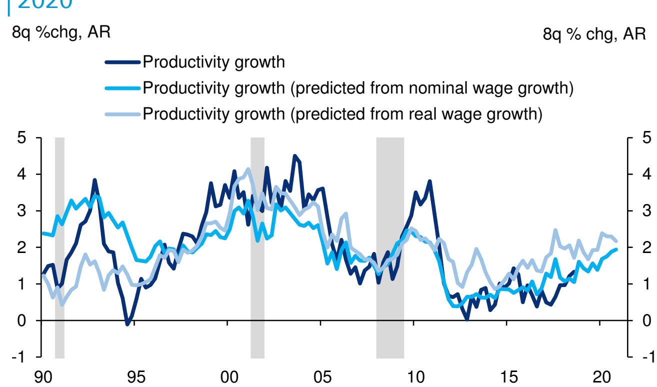
An even more important driver of supply side growth than labor force participation is prospects for labor productivity growth, which until recently has been historically sluggish during the current expansion. Previous work that we have done (see "Chicken or the egg: Are firmer wages a precursor to a productivity pickup?") suggests that this tight labor market will lead to a pickup in productivity. As wage growth rises, labor becomes relatively more expensive and businesses respond to demand by investing in productivity enhancing projects, such as capital expenditures, research and development, and worker training. Previous surges in productivity around episodes of tight labor markets provide suggestive evidence for this narrative (Figure 30). Indeed, we have begun to see an upturn in productivity growth recently as unemployment has moved below NAIRU.

Figure 30: Tight labor markets have historically coincided with acceleration of productivity growth



Source: BLS, CBO, Haver Analytics, Deutsche Bank

Figure 31: Productivity to rise above 2% by the end of 2020



Source: BEA, BLS, Haver Analytics, Deutsche Bank

Given that wage growth should continue to pick up on the back of further tightening in the labor market, we see a further uptrend in the productivity growth of the nonfarm business sector, rising to somewhere between 2% and 2.25% by the end of 2020 with an additional 25bp pickup likely by the end of 2021 (Figure 31). This rise in productivity would imply that potential GDP growth, that is the pace of output growth that we would expect the economy to converge to over the medium to long run, should pick up to about 2.2% by 2021, slightly above the upper end of the range of the FOMC's estimates of long-run growth in the September Summary of Economic Projections.[5]

A pickup in potential growth would have two important implications for the Fed. The first is that output and unemployment gaps should become smaller as potential GDP rises and NAIRU falls. In previous work, we found limited statistical evidence of a falling NAIRU as of yet (see "Lower NAIRU or flatter Phillips curve?"), but such a fall may be more evident as productivity accelerates and we get more data. In traditional macroeconomic models, smaller output and unemployment gaps imply less upward pressure on inflation, therefore reducing the Fed's need to raise rates in the short-run. This dovish sentiment has been put forth recently by some Fed officials, most notably Vice Chair of Supervision Quarles and Vice Chair Clarida.

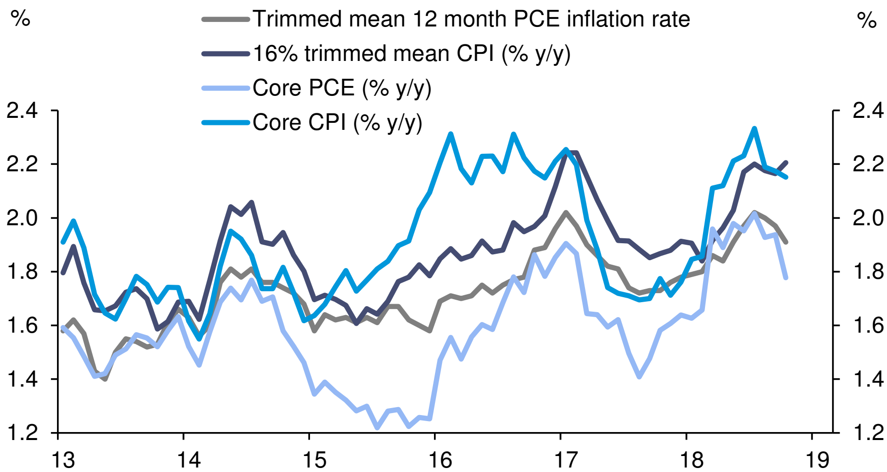
However, economic theory suggests that potential growth should be positively related to the neutral level of real interest rates, so-called r-star. In fact, a popular measure of r-star from Holston, Laubach, and Williams (2016) posits a one-for-one relationship between potential GDP growth and r-star. As productivity growth and potential GDP growth pick up, the neutral rate, that is the level of rates that neither encourages nor hinders growth, should also pick up. Thus the Fed would have to raise rates just to maintain a given stance of monetary policy. Taken together, all else equal, a pickup in productivity growth and that of potential would imply a slower pace of rate hikes but potentially more cumulative rate increases, ultimately reaching a higher level of rates.

Inflation outlook: Back to where we started - a more modest inflation overshoot

Despite some intra-year gyrations, core inflation for 2018 is set to end up right where we expected last November. At that time, we forecast 1.9% and 2.2% for core PCE and core CPI for end-2018, respectively, consistent with our current forecast. [6] From this broader perspective, core inflation has evolved over the course of the last year exactly how we anticipated. However, from a more granular perspective, core inflation overshot our expectations earlier this year, causing us to modestly upgrade our forecasts in 2018 and 2019, and has since slowed (Figure 32). As a result of this reduced momentum and continued dollar strength, the key innovation to our core inflation outlook is a modest downgrade to 2019, by one-tenth, which is now coincidentally back in line with our forecast from November 2017.

5 Potential growth is equal to trend productivity growth plus trend labor force growth. Our estimate of potential GDP growth adjusts for the fact that non farm business output and productivity growth tends to average about 0.5% pt above their GDP counterparts.
6 See Deutsche Bank US Economic Perspectives (November 16, 2017), "US Outlook: A firmer Fed to keep the economy from overheating" .

Figure 32: Core inflation near Fed target but has slowed slightly

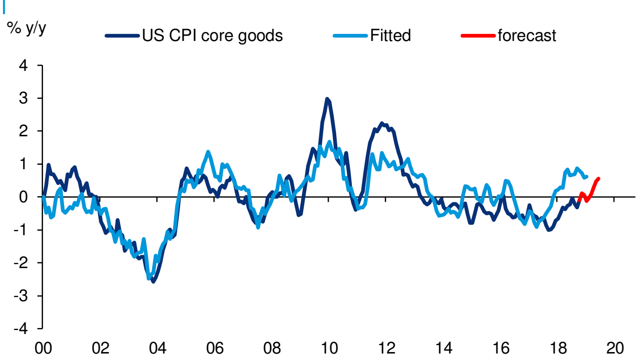


Source: FRB Dallas, FRB Cleveland, BEA, BLS, Haver Analytics, Deutsche Bank

The micro story: Core goods to continue to do the heavy lifting in the near-term

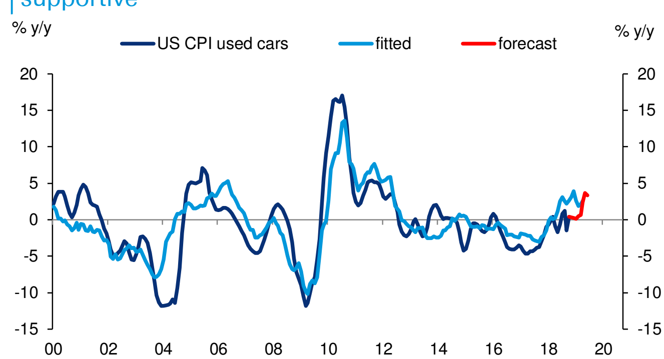
Our bottom-up story for why core inflation should continue to rise, at least over the next two to three quarters, continues to revolve around core goods inflation. Our core goods model, based on lagged effects of the dollar, core consumer PPI prices, private estimates of used car prices, and suppliers' deliveries from the ISM points to a further firming of core goods inflation during the months ahead (Figure 33). However, because a persistent gap has opened up between our model and the data, we continue to assume a shallower trajectory than what is implied by leading indicators. Within the core goods category, there are supportive leading indicators at the component level. For example, private estimates of used car inflation point to further upside in this category (Figure 34). The same goes for new vehicles.

Figure 33: Core goods inflation should rise ahead



Source: BLS, Haver Analytics, Deutsche Bank

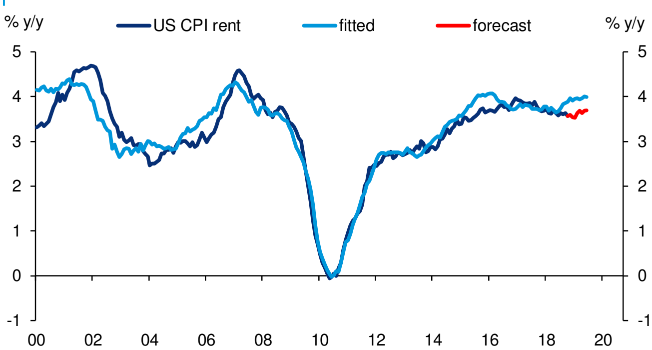
Figure 34: Private sector signal for used car inflation supportive



Source: BLS, Haver Analytics, Deutsche Bank

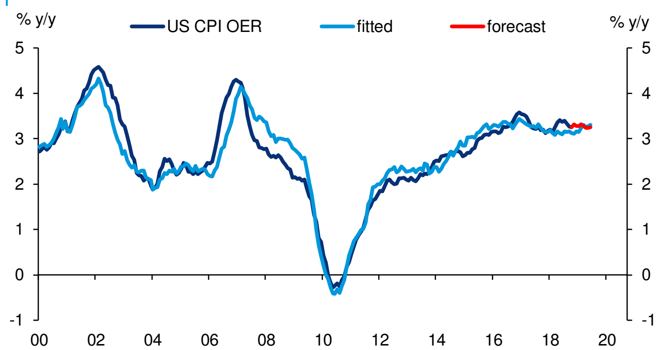
On the services side, the main focus is on shelter inflation, namely primary and owners' equivalent rents. While our model for the former (based on lagged home price growth, rental vacancies, architectural billings, and consumer spending growth) points to upside risk, we have conservatively built it in relatively flat trajectory for our forecast (Figure 35). This discount is supported by some tentative evidence that rents are in the early stages of under shooting leading indicators. As such, there is some upside risk to our core inflation forecast should rents instead converge to leading indicators. Meanwhile, we expect owners' equivalent rent to converge to leading indicators from above (Figure 36). These important components lead to a broadly flat view about core services inflation in the coming months.

Figure 35: Rent inflation to remain stable with upside



Source: BLS, Haver Analytics, Deutsche Bank

Figure 36: OER inflation to moderate towards leading indicators

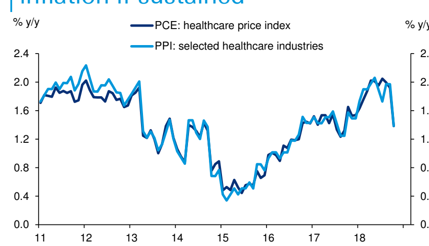


Source: BLS, Haver Analytics, Deutsche Bank

For PCE, health care inflation remains a critical story for the outlook. In October, PPI health care inflation surprised to the downside, as an expected jump in Medicare related inflation was offset by a sharp decline in PPI for private insurers. This plunge spilled over into a similar decline in PCE health care inflation, which has fallen from about 2% to below 1.5% in year-over-year terms over the past few months. PPI health care inflation has been revised up in October of the last two years, so we are treating this data as still tentative, but this soft patch persisting would be a very important development for the Fed's key inflation gauge.

Health care represents about one-fifth of the core PCE price index. A 60bp decline in the year-over-year rate therefore subtracts roughly 12bp from year-over-year core PCE inflation. To offset this decline, year-over-year inflation for all other items in the core PCE index would effectively have to rise by 15bp, not an easy task even in a tight labor market.

Figure 37: Falling health care inflation could undermine at target inflation if sustained



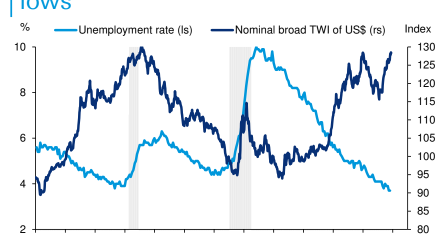
Source: BEA, BLS, Haver Analytics, Deutsche Bank

The macro story: Can unemployment pick up the slack of a rising dollar headwind?

Beyond the horizon for which we have informative signals at the component level, we take a macro-driven view of inflation, namely a relatively standard Phillips curve model. In this context, we have viewed the medium-term inflation outlook as a tug-of-war between the tailwind from a tightening labor market evidenced by the lowest unemployment rate since the 1960s, versus the headwind from the continued strengthening of the dollar which has returned to near its highest level over the past few decades (Figure 37).

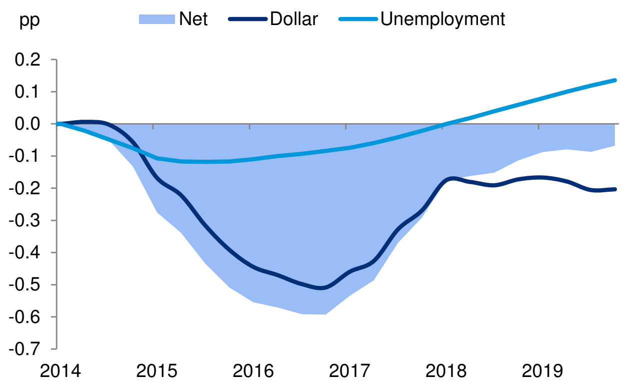
Assuming that the unemployment rate falls in line with our forecast and that the trade-weighted dollar remains relatively stable near current levels — an assumption broadly consistent with the aggregated view from DB's bilateral FX forecasts — the net effect from these two macro forces should remain negative but will continue to wane in 2019 (Figure 39). The dissipation of this drag, in turn, supports modestly higher core inflation next year, a view corroborated by the leading signal from growth indicators like the ISM manufacturing index (Figure 40).

Figure 38: Mixed macro signals: Dollar near all-time highs, unemployment at several decade lows



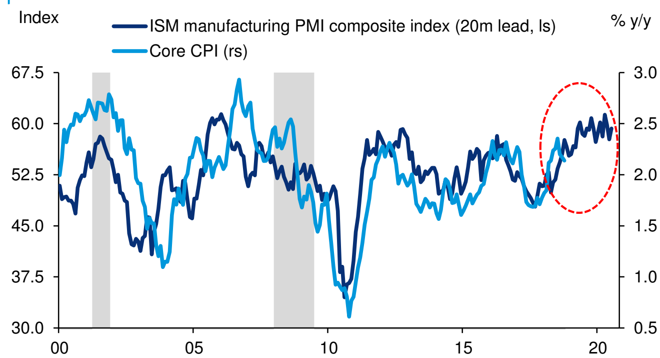
Source: FRB, BLS, Haver Analytics, Deutsche Bank

Figure 39: Dollar strength offsets much of the inflation tailwind from falling unemployment



Source: Deutsche Bank

Figure 40: ISM signals firmer core inflation ahead

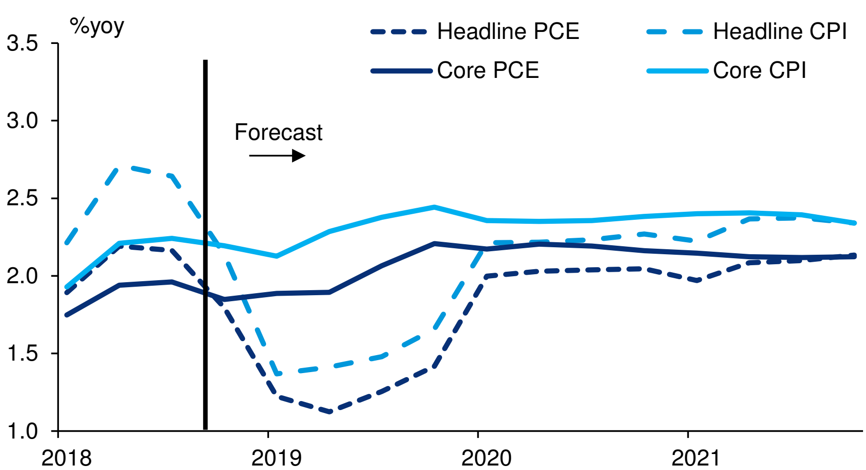


Source: ISM, BLS, Haver Analytics, Deutsche Bank

With our bottom-up view informing the starting point for our macro-based inflation model, we now forecast core PCE inflation of 2.2% by end-2019 and 2020 (Figure 41). Core CPI inflation is expected to reach 2.4% during these periods. These updated forecasts are one-tenth below our previous forecasts. Our initial forecasts for 2021 foresee a modest slowing in core inflation to levels that remain one-tenth above the Fed's target.

The headline inflation forecast, on the other hand, has been whipsawed by the plunge in oil prices. Headline inflation should now trough in the middle of 2019, nearly one percentage point below levels consistent with the Fed's inflation target, and end 2019 nearly half a percentage point below current levels.

Figure 41: Core inflation to rise modestly above target next year



Source: BEA, BLS, Haver Analytics, Deutsche Bank

Fed: To neutral and beyond?

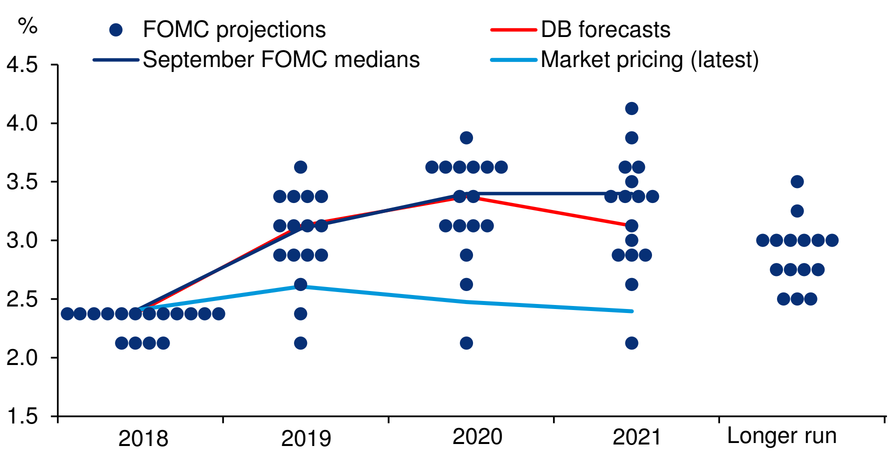
For the Fed, 2018 evolved exactly in line with our out-of-consensus outlook set out in November of last year. Our expectation for four rate hikes in 2018 looks set to be fulfilled when the Fed next meets on December 19. But while the destination of travel for monetary policy was clearer when policy was well below neutral, as it was at the start of 2018, the path forward has become murkier as policy approaches an uncertain neutral setting.

Rates policy: Same destination but slightly slower pace

The modest adjustments to our economic outlook — namely slightly slower growth and inflation next year — have led us to remove a rate hike from 2019. We now expect the Fed to raise rates three times in 2019, consistent with their median projections from the September SEP. We see the "pause" coming in the second half of the year, mostly likely in September, though we would not rule out the possibility that the Fed transitions to a slower (e.g., every four months) hiking pace that has them raising rates on meetings that were previously viewed as being "off" due to the absence of a press conference in earlier years. [7] Importantly, we still see the Fed taking a restrictive stance next year, consistent with growth above potential, above-target inflation and unemployment well below NAIRU.

Beyond 2019, with growth now expected to remain above or near potential into the first half of 2020, and with higher potential growth possibly supporting a higher r-star, we now expect an additional rate hike to occur in the first half of that year, most likely in June. Our terminal fed funds rate expectation is thus unchanged at 3.4%. Further out, as growth remains below potential into 2021 and the unemployment rate rises more meaningfully, we expect the Fed will cut rates once in 2021 to bring monetary policy back closer to a neutral setting.

Figure 42: DB projection now in line with the Fed through 2020



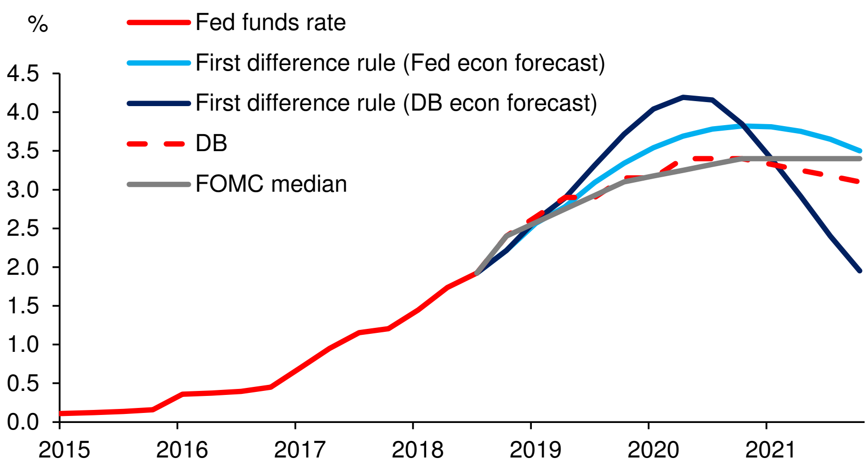
Source: FOMC, Bloomberg Finance LP, Deutsche Bank

These baseline expectations are reasonably consistent with the prescribed fed funds rate from the first difference policy rule that we have emphasized recently because it reduces its reliance on estimates of r-star and NAIRU. [8] Under the Fed's forecast, the first difference rule points to some modest upside to rate hikes next year, with an end-2019 prescription closer to 3.4% (Figure 43). The first difference rule points to further upside in 2020 on the Fed's forecasts – and even more on

7 In 2019 Chair Powell will begin to hold a press conference after every FOMC meeting, making each meeting "live".
8 See Deutsche Bank US Economic Perspectives (June 25, 2018), "A policy rule for the Powell Fed."

our forecasts – but also some scope for more cuts in 2020 under either economic forecast.

Figure 43: First difference rule points to some upside risk to fed funds in 2020 if inflation remains above target



Source: BEA, BLS, FRB, CBO, Haver Analytics, Deutsche Bank

The adjustments to our expected Fed path are also informed importantly by our interpretation of recent Fedspeak. Specifically, while the central narrative from Fed officials has been that they are intent on lifting the fed funds rate to neutral to balance the risks to the outlook and eventually getting to a restrictive stance, they are not yet convinced that restrictive policy is needed without first taking a breather in the tightening cycle. This sentiment appears to be driven primarily by (1) the fact that recent tailwinds to US growth (e.g., financial conditions and global growth) may be turning to headwinds, reducing the risk of overheating; (2) while inflation is likely to rise further, more significant upside risks to inflation are not yet expected, due primarily to a flat Phillips curve and well-anchored (at least from the upside) inflation expectations; and (3) Fed officials are generally more willing to accept modestly above target inflation consistent with the symmetry of their inflation objective. This last point is evident from the fact that the September SEP has inflation remaining above the Fed's target through 2021, something that could only occur if the Fed was intent on setting policy so that inflation was expected to continue to overshoot.

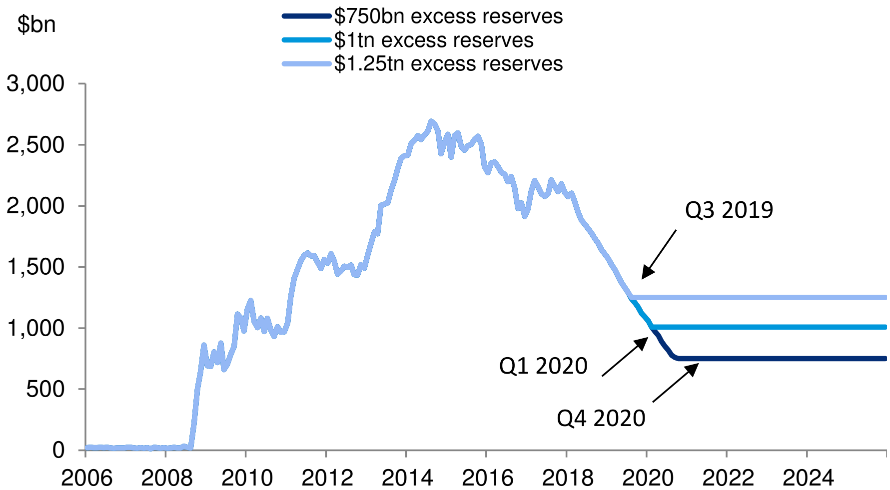
Balance sheet: Destination still unknown

Beyond the fed funds rate, the discussion about the end of the Fed's balance sheet unwind is also set to intensify in 2019. As we have written previously, we do not yet think there is evidence that reserves are becoming scarce. [9] Recent comments from Simon Potter, who heads the Markets Group at the NY Fed, suggests that the Fed agrees. As such, it is difficult to pinpoint the likely end date of the Fed's balance sheet unwind with precision at this point. That said, we have previously argued that the equilibrium level of reserves is likely to be considerably larger than previously anticipated, perhaps in the vicinity of $1tn. With this level of reserves, our update of earlier Fed staff simulations that accounts for the recent evolution of excess reserves suggest that the unwind would most likely stop around end-2019.

9 See Deutsche Bank US Economic Perspectives (October 3, 2018), "More Fed IOER adjustments to come but reserve scarcity not yet an issue."

Figure 44 shows the likely evolution of the Fed's excess reserves under three scenarios: excess reserves fall to $750bn, $1tn, or $1.25tn.

Figure 44: Federal Reserve excess reserve scenarios



Source: FRB (Bonis, Ihrig and Wei (2017)), Deutsche Bank

Policy and operating framework: Some noise but action unlikely

The Fed is also slated to address two bigger picture questions in 2019: their operating and policy frameworks. On the former, the key decision is whether to (1) remain in the current floor system in which the Fed maintains abundant reserves and controls the fed funds rate via the IOER and the overnight reverse repo rate or (2) return back to the pre-crisis approach of managing scarce reserves to target the fed funds rate. To date, key Fed officials — e.g., former NY Fed President Dudley and the NY Fed's Simon Potter and Lorie Logan — as well as the minutes to the November FOMC meeting have expressed a desire to remain within the current floor system. [10] The primary argument for doing so is that the current system has worked well and has been operationally efficient, whereas returning to the previous system where the Fed needed to estimate banks' reserve demand on a daily basis has been complicated by regulatory changes that can influence — in more difficult to predict ways — reserve holdings across banks. While it is not a done deal, we anticipate that the Fed will stick with the floor system on an ongoing basis.

The other big picture topic for 2019 is the potential for alterations to the Fed's policy framework, namely its 2% inflation target. The Fed recently announced a formal review of this framework, with a conference scheduled for mid-year to discuss options. The impetus for this review is the reality that, with the neutral fed funds rate expected to remain low relative to history, the zero lower bound is likely to bind more frequently in the future, causing the Fed and other central banks to more regularly resort to what have to date been thought of as "unconventional" policies.

10 See, for example, Dudley, William C. (April 18, 2018), "Important choices for the Federal Reserve in the years ahead." Remarks at Lehman College, Bronx, New York and Logan, Lorie K. (May 18, 2017), "Implementing monetary policy: Perspective from the Open Market trading desk." Remarks before the Money Marketeers of New York University.

As we have written in the past, we do not see an alternative framework that clearly dominates the current 2% inflation targeting regime.[11] Alternatives, such as price level targeting or a higher inflation rate, would be difficult to communicate, could risk the Fed's credibility, and could at times require too easy monetary policy that would raise overheating and financial stability risks. For these reasons, this review is unlikely to culminate in a significant change to the Fed's policy framework. More modest changes, such as temporary price level targeting, as advocated by former Chairs Bernanke and Yellen, or targeting an inflation range, as advocated by Boston Fed President Rosengren, are possible.

Figure 45: No clear better alternative to 2% inflation target

	Framework option	Impact	Comments
More dovish	Higher inflation rate target	↓	▪ Fed raises inflation rate target from 2% to, say, 3 or 4% ▪ Dovish policy shift to "commit" to achieving new target
	Price level target	↓	▪ Fed targets price level instead of inflation rate ▪ Shoots for higher inflation during recovery to make up for lower inflation during downturns
	Nominal GDP target	↓	▪ Fed targets nominal GDP growth or level ▪ Aims for higher inflation during recovery; moderated by better growth
Less dovish	Temporary approaches	→	▪ Switches frameworks (e.g., to price level targeting) when fed funds rate is at zero lower bound but otherwise unchanged ▪ Explicit acknowledgement of ZLB issues would be mildly dovish
	Enhanced forward guidance	→	▪ Calendar / outcome-based guidance when fed funds rate hits ZLB ▪ Similar to policies pursued during recovery from crisis

Note: Green arrow represents dovish implications for monetary policy. Orange Source: Deutsche Bank

Risks

The above analysis has already highlighted some of the risks to our forecasts of growth, on both the demand and the supply sides, as well as inflation and implicitly the Fed. Here we provide a more complete list of the key risks to our baseline outlook for the US economy and the Fed. These risks remain roughly the same as previously, although the relative weights we place on them have shifted a bit. The risks are both home-grown and from abroad.

On the domestic side, the most important negative risk we see is that the recent and further tightening of the labor market results in a significant rise in wage and price inflation. Rising inflation and inflation expectations induce a more aggressive Fed tightening, leading to a plunge in financial conditions and a recession by 2020 or 2021.

A key upside risk is that tax cuts and the tight labor market induce a significantly greater increase in business investment and productivity growth than we have projected. Such a supply-side surprise could be augmented by a greater than expected return of previously discouraged workers to the labor market. Stronger supply growth would reduce inflation pressures and allow the Fed to go easier

11 See Deutsche Bank US Economic Perspectives (April 23, 2018), "The case against price level targeting", and Deutsche Bank US Economic Perspectives (November 21, 2017), "Fed policy framework: Is the price (level) right?"

in near-term rate hikes, allowing demand side and overall growth to proceed at a faster pace.

Looking abroad, the most significant downside risk comes from a significant further escalation of the trade policy conflict, should it extend to tariffs on US imports of autos from Europe or even a full extension of 25% tariffs on all US imports from China. This escalation could spillover directly to economic activity and financial conditions including through a stronger dollar enough to engender a significant slowdown in growth momentum. Finally, the possibility of a euro area crisis kicked off by a hard Brexit and fomented by Italy's vulnerability to any slowing of euro area growth as it struggles with fiscal consolidation is another potential negative on the horizon.

While all of these risks are still seen as tail events, we attach at least as much probability to the two domestic risks as we do to the two foreign ones. Between the two domestic risks, previously, we saw the (negative) inflation risk as noticeably greater than the (positive) supply side risk. But in light of recent developments on the inflation front, the gap between these two probabilities has narrowed.

DB US economic forecast details

Figure 46: DB US forecast details

Economic Activity	**2018**		**2019**				**2020**				**2018F**	**2019F**	**2020F**	**2021F**
(% qoq, saar)	**Q3F**	**Q4F**	**Q1F**	**Q2F**	**Q3F**	**Q4F**	**Q1F**	**Q2F**	**Q3F**	**Q4F**	**Q4/Q4**	**Q4/Q4**	**Q4/Q4**	**Q4/Q4**
GDP	3.5	2.7	2.3	2.6	2.4	2.3	2.1	2.1	1.7	1.4	3.1	2.4	1.8	1.6
Private consumption	3.6	3.2	2.7	2.5	2.4	2.4	2.4	2.3	1.8	1.6	2.8	2.5	2.0	1.8
Investment	15.1	0.7	1.2	4.0	3.3	3.0	1.6	1.9	1.7	1.1	6.0	2.9	1.6	2.5
Nonresidential	2.5	4.6	3.8	3.6	3.6	3.0	2.4	2.0	1.6	1.5	6.8	3.5	1.9	2.2
Residential	-2.6	3.3	3.2	3.1	3.1	3.0	2.9	3.0	2.7	2.5	-1.1	3.1	2.8	2.6
Gov't consumption	2.6	2.9	2.7	3.0	2.8	2.5	2.0	1.8	1.8	1.6	2.4	2.8	1.8	1.6
Exports	-4.4	6.1	4.0	3.8	3.9	3.5	3.6	3.7	3.6	3.4	3.5	3.8	3.6	3.5
Imports	9.2	4.9	4.5	4.8	4.7	4.5	3.9	3.8	3.7	3.5	4.1	4.6	3.7	4.5
Contribution (pp): Inventories	2.3	-0.9	-0.4	0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.1	0.0	-0.1	0.0
Net trade	-1.9	-0.1	-0.3	-0.4	-0.3	-0.4	-0.2	-0.2	-0.2	-0.2	-0.1	-0.4	-0.2	-0.4
Unemployment rate, %	3.8	3.6	3.6	3.5	3.5	3.4	3.4	3.5	3.6	3.8	3.6	3.4	3.8	4.3
Prices (% yoy)														
CPI	2.6	2.1	1.4	1.5	1.5	1.7	2.2	2.2	2.2	2.3	2.1	1.7	2.3	2.3
Core CPI	2.2	2.2	2.1	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.4	2.4	2.3
PCE	2.2	1.8	1.2	1.1	1.3	1.4	2.0	2.0	2.0	2.0	1.8	1.4	2.0	2.1
Core PCE	2.0	1.9	1.9	1.9	2.1	2.2	2.2	2.2	2.2	2.2	1.9	2.2	2.2	2.1
Fed Funds	2.125	2.375	2.625	2.875	2.875	3.125	3.125	3.375	3.375	3.375	2.375	3.125	3.375	3.125

Source: Deutsche Bank

Appendix 1

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