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Outlook update: Achieving a soft landing

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- Last September we wrote that the Powell Fed could make history by achieving for the first time on record a soft landing. Recent developments, including what we think is the end of the Fed's tightening cycle, have increased the chances of this occurring. The modest revisions to our US economic outlook detailed in this report provide the justification for this relatively sanguine view.
- Our 2019 growth forecast is unchanged from our previous expectations around the turn of the year at 2.3%, with an upgrade to Q1 (to 2%) offset by a downgrade to Q2. Beyond this year we see a more supportive backdrop for growth with the Fed remaining on hold. As a result, we think the market's recession fears are overdone and forecast 2020 growth at 1.9% (up another one tenth) and 2021 growth at 2.1% (up five tenths).
- With growth remaining above potential this year, we continue to expect the unemployment rate to fall further, though its trough is now modestly higher at 3.6% due to firmer labor force participation. Unemployment should then rise to 4% by end-2021, at which point it will be near our estimate of NAIRU.
- The series of recent disappointing inflation prints and a more modest projected overshoot of full employment led to a downgrade to our inflation forecast. Core PCE is now expected to end the year at only 1.8% and should rebound back towards the Fed's target in 2020. Core CPI inflation should be firmer — we see it ending this year at 2.3% — given a more supportive trend for shelter prices.
- Above-potential growth, a tightening labor market and the persistence of muted inflation pressures are consistent with our existing view that the Fed will remain on hold. Our expectations for no change in the fed funds rate through end-2020 are unaltered, and we have removed a rate cut from 2021, leading to a flat fed funds profile over the next three years.
- Underneath a seemingly uneventful outlook are the potential for a variety of sources of volatility. For the Fed, we see the potential for a rate cut if they formally adopt average inflation targeting, while the countercyclical capital buffer could be raised if financial stability risks build. On growth, downside risks from trade tensions, Brexit and global growth spillovers have diminished but have not been fully eliminated, and a budget deal remains a key source of uncertainty for 2020. On the upside, a continuation of the productivity uptrend led by faster wage growth has potential to extend even further what will be a record expansion by mid year.

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Introduction and summary

Last September we wrote that the Powell Fed could make history by achieving for the first time on record a soft landing from below. [1] Our updated outlook for the US economy, which we detail in this note, suggests that this outcome now appears to be well on the way. The current expansion is set to hit a record duration this summer, and our expectations are that it should extend for at least a few more years.

Several factors have worked in the Fed's favor for this achievement: (1) an apparent further flattening of the Phillips curve (or decline in NAIRU) as price inflation has shown no sign of stirring in response to the tightening labor market; (2) some mildly favorable supply-side developments, including increases in both labor productivity and labor force participation; and (3) the intensification of various "crosscurrents" (uncertainties relating to financial conditions, trade policy, Brexit, and Europe and China) around the turn of the year that helped (along with the first two factors) shift the FOMC to a decidedly more dovish policy stance over its first two meetings this year. In September, the median Fed dots foresaw four rate hikes this year and next (double the market's expectation at the time). By March, the median dots had shifted to no hikes this year and at most only one next year. Our own view is that the Fed is now done, and policy rates will remain unchanged for as far as the eye can see.

This shift in expectations for Fed policy has caused us to upgrade our growth forecast over the next few years, beyond the very near term. Previously, we had thought that Fed tightening to a clearly restrictive stance would induce a more painful slowdown in 2020. We now see a remarkably gentle landing with growth slipping only modestly below potential as fiscal stimulus turns to mild fiscal drag. Nevertheless, we do expect to see a significant slowing of employment growth a year from now as output growth slows and productivity growth picks up further in response to wage inflation that has been boosted by labor market tightness. And, we see unemployment gradually rising back to a downward trending NAIRU over the next several years to complete the soft landing. This process should be helped along by some further gains in labor force participation relative to its demographically-driven secular downtrend. The mild turn in the labor market means that inflation should rise no further after it has returned to the Fed's 2% objective by next year.

Our forecast continues to assume that the aforementioned crosscurrents will gradually dissipate over time. If instead they should intensify, with, for example, a major trade conflict with China and/or Europe breaking out, or if a no deal Brexit should eventuate, growth prospects would be hit significantly (see If the crosscurrents strengthen, how far could global growth fall?). On the other hand, a faster and more favorable than expected resolution of these risks could induce a stronger growth outcome, especially over the year ahead. Another risk is that the Phillips curve proves to be more nonlinear and steeper than we have assumed as the labor market tightens further in the near term. A greater than desired surge in inflation would move the Fed to a potentially aggressive tightening path, with negative implications for the economy. However, a stronger positive response of productivity (and labor force) growth to the tightening labor market could yield higher noninflationary growth than we are currently projecting.

In what follows, we outline first our forecast for growth in the near term and the longer term, including an assessment of recession risks. Our view here is that the

1 See "How the Powell Fed can make History."

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market is placing significantly higher odds on a recession over the current forecast period than economic fundaments seem to warrant. But we are mindful that the market has bested fundamentals-based analysis with some frequency in the past. Next, we analyze prospects for the labor market and inflation, with the latter still largely a tale of "Waiting for Godot." Finally, we detail our view of prospects for Fed policy, including the flat trajectory for rates, prospects for balance sheet policy, and other (macro-prudential) measures that could be adjusted in the place of rates policy to deal with financial vulnerabilities that might arise. We also preview the Fed's own policy review in store for this year and outline why there could be a move toward inflation averaging in 2020 or beyond. We end with a comment on the recently proposed nominations to the Federal Reserve Board.

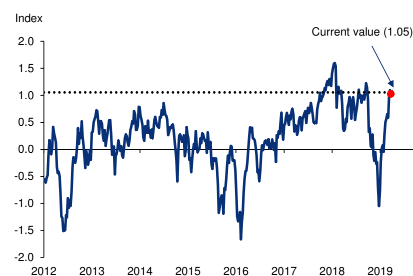
Growth outlook: A steady Fed boosts growth prospects

Relative to our last outlook update, not much has changed in terms of near-term growth, as we continue to expect 2.3% real GDP growth (Q4/Q4) this year. However, we have upgraded growth in 2020 and 2021 to 1.9% (versus 1.8% previously) and 2.1% (versus 1.6% previously), respectively. The genesis of our more optimistic view on growth in the coming years is a more dovish view of monetary policy, with the Fed expected to remain on hold in the presence of muted inflation pressures. A table presenting the details of our current economic forecast is presented at the end of this publication.

2019: Above potential growth despite early noise

In the near term, the incoming data could remain noisy as several disruptions to Q1 activity will take time to work through. The government shutdown is projected to subtract roughly 0.3 percentage points (ppts) from first quarter inflation adjusted-output, and a vareity of weather events could dampen activity including retail sales. However, we remain confident that growth will stabilize at a modestly above-trend pace on average over the remaining three quarters of the year. Supporting this expectation are three factors. First, financial conditions have rebounded to historically loose levels (Figure 1). Second, our DB momentum index based on leading indicators continues to signal slower but still above-potential growth (Figure 2). Third, previously legislated tax cuts and fiscal spending increases should add about 30bp to growth this year (Figure 3).

Figure 1: Financial conditions have soared according to DB FCI



Source : Deutsche Bank

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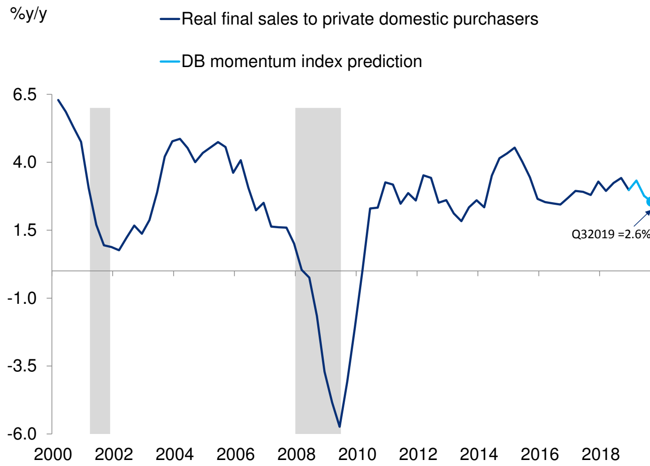
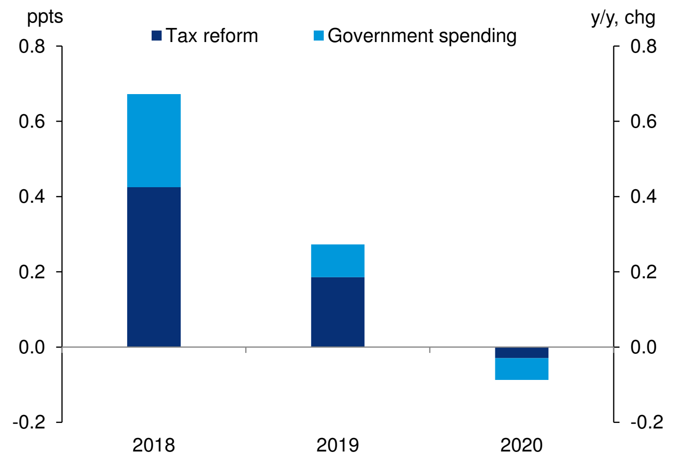
Figure 2: Momentum index consistent with above-potential growth



Source : BEA, Deutsche Bank

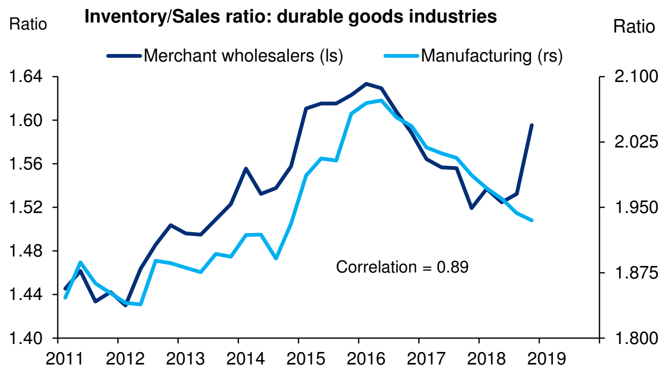
Figure 3: Fiscal still supportive in 2019



Source : Deutsche Bank

Within the details of this forecast, we have upgraded Q1 real GDP growth from 2.0% from 1.5% previously, primarily due to a smaller drag from inventories in the first quarter. This comes at the expense of Q2 growth, which we revised down to 2.5% from 2.7%. To be sure, we continue to expect inventory investment to drag on first half output, subtracting 0.7 ppts and 0.5 ppts from Q1 and Q2 real GDP growth, respectively. However, it is important to note that the expected inventory drawdown should be less of a drag on domestic production because evidence suggests that the surge in inventory accumulation at the end of last year was largely due to imports, possibly in anticipation of increased tariffs, and not over-production on the part of domestic firms. Supporting this interpretation is the fact that the rise in inventories has been concentrated in wholesalers, which coincided with a record increase in inbound loaded port containers at major US ports at the end of last year. However, the inventories-to-sales ratio for durable goods manufacturers has continued to trend lower, and ISM data corroborates that manufacturers' customer inventories remain low from a historical perspective (Figures 4 and 5). For these reasons, we do not anticipate an inventory drawdown will require a meaningful slowdown in domestic production in the coming quarters.

Figure 4: Manufacturing inventory-sales trending lower



Source : BEA, Haver Analytics, Deutsche Bank

Figure 5: Firms do not believe inventories are too high

Source : ISM, Haver Analytics, Deutsche Bank

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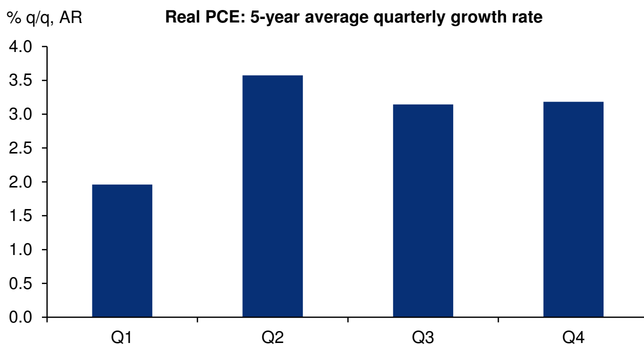
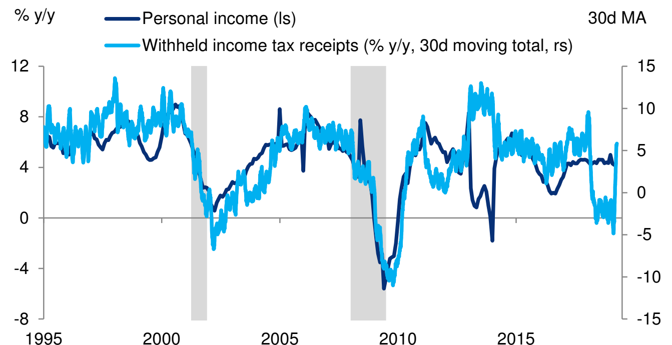
With respect to the demand side of the economy, we continue to expect consumer spending, which is 70% of inflation-adjusted output, to rebound after a lull in Q1. Due to abnormally cold weather in March—heating degree days in March were 49% above normal—we anticipate some mild weakness in March retail sales. Coupled with the other disruptions in the quarter such as the government shutdown, we lowered our Q1 real PCE forecast 0.5 ppts to 1.3%. Note also that Q1 consumer spending tends to be depressed in the first quarter, most likely due to residual seasonality issues (Figure 6). However, a still-sturdy pace of income growth means that consumer spending is primed for a solid rebound in Q2. Indeed, as Figure 7 illustrates, withheld income tax receipts are tracking up over 5% year-over-year, which is very much consistent with the norm over the last couple of years of nominal income growth between 4-5%. Coupled with still solid aggregate balance sheets and elevated consumer confidence, we see real PCE growth rebounding to 2.8% in Q2.

Figure 6: Residual seasonality has weighed on Q1 consumer spending



Source : BEA, Haver Analytics, Deutsche Bank

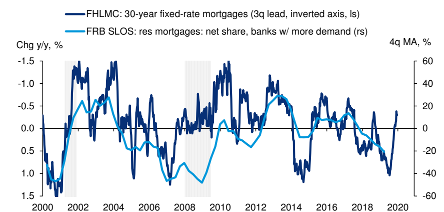
Figure 7: Household income growth measures sturdy



Source : BEA, U.S. Treasury, Haver Analytics, Deutsche Bank

A healthy pace of income growth, solid consumer balance sheets and the recent 80bp decline in mortgage rates also bodes well for a rebound in residential investment this year after it declined -4.1% annualized over the back half of 2018. In addition, the fading of the "shock" value of tax reform, which had several elements that curtailed housing demand, should also provide some support for housing activity, at least on a year-over-year basis (See Is tax reform part of what is ailing the housing market?). Figure 8 shows that large swings in mortgage rates tend to lead mortgage demand, and the rebound in MBA mortgage applications is already hinting at a pick up in existing home sales. As a result, we expect residential investment to grow 4.2% in the first half of this year and then settle into 3.3% growth in H2.

Figure 8: Mortgage rates and housing demand



Source : FHLMC, FRB, Haver Analytics, Deutsche Bank

Nonresidential fixed investment (capex) remains critical to the growth outlook. While recent data on durables and shipments have clearly slowed, several leading indicators support our expectation for capex to continue to add meaningfully to growth. For example, capex plans from the regional Fed surveys and an elevated ISM Composite both support further capex gains (Figures 9 and 10). At the same time, higher oil prices should continue to incentivize energy-related capex. Conversely, the tightening of lending conditions on C&I loans in Q1 portends some downside risk, though we think these data were distorted lower because the survey was conducted in late December 2018, during the peak of negative risk sentiment. Externally, we will be paying close attention to the European and Chinese PMIs for

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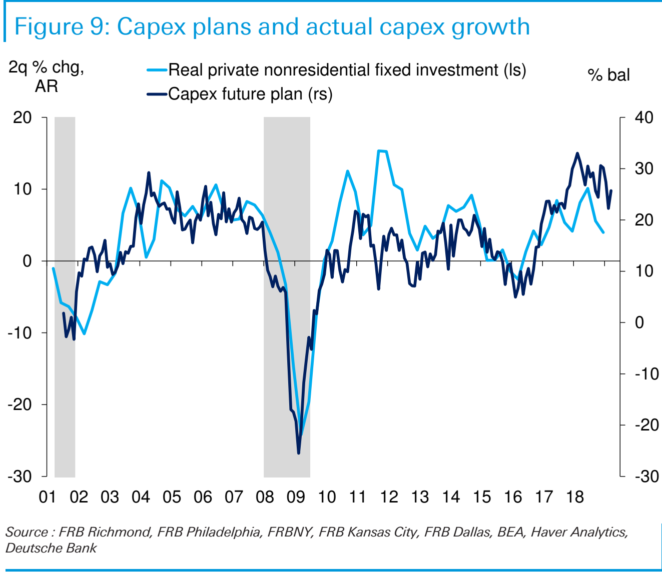
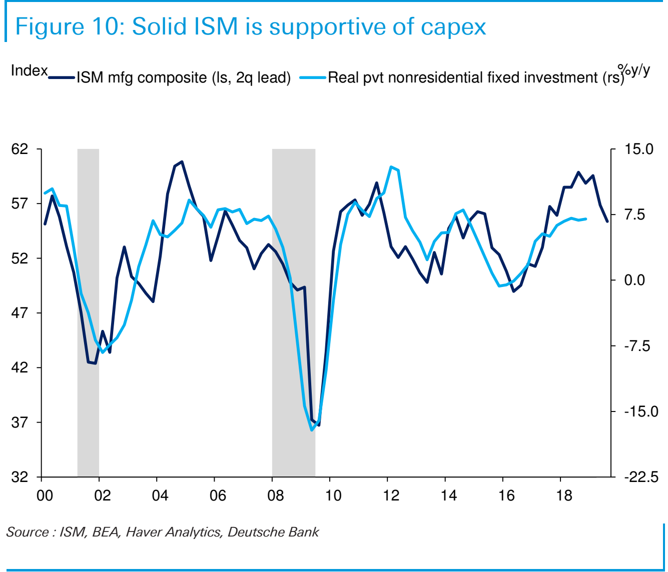
clues as to how these economies are performing in the coming months.

Figure 9: Capex plans and actual capex growth



Source : FRB Richmond, FRB Philadelphia, FRBNY, FRB Kansas City, FRB Dallas, BEA, Haver Analytics, Deutsche Bank

Figure 10: Solid ISM is supportive of capex



Source : ISM, BEA, Haver Analytics, Deutsche Bank

While we are confident that the US economy will rebound from its Q1 soft patch, external demand remains a question mark. Real exports declined -1.6% over the back half of last year, the worst performance since the two quarters ending in Q1 2016 (-2.3%). With growth in Europe and China expected to rebound modestly this year we anticipate real exports will expand 3.7% through the first half of the year and 3.8% in H2. The preliminary data on real goods exports through January provide reason for cautious optimism in this regard, as exports were up 4.5% annualized in the first month of Q1 relative to their Q4 2018 average (Figure 11). In the near term, we will be keeping a close eye on the ISM manufacturing exports series, which as Figure 12 indicates, leads growth in exports by a quarter.

Figure 11: Real export growth looks set to bounce back in Q1

Note: Q1 data point takes the annualized growth rate of the January data relative to the Q4 average. Source : Census, Haver Analytics, Deutsche Bank

Figure 12: ISM new export orders lead real export growth

Source : ISM, BEA, Haver Analytics, Deutsche Bank

The outcome of the various fronts of trade negotiations will clearly impact the net exports outlook. We continue to anticipate that a deal will be signed with China that at least averts further escalation and could very well lead to a rollback of existing tit-for-tat tariffs. The latter realization would be a modest upside surprise. In addi-

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tion, we do not anticipate that the administration will pursue global auto tariffs (see Trade Update: A progress report and rough timetable for action). An intensification on any of these fronts represents a meaningful downside risk to our outlook.

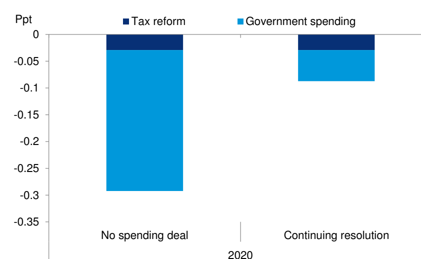
With respect to fiscal policy, The government shutdown was already expected to weigh on Q1 output by roughly 0.2 - 0.3 percentage points (see Government shutdown poses meaningful risk to Q1 GDP). In the Q4 GDP report, the BEA estimated that the federal government shutdown subtracted roughly 0.1 percentage points from growth due to the decline in federal compensation. While federal workers were eventually paid, the BEA takes into account the lost hours worked. Recall that the partial shutdown covered 10 days in Q4. Since the federal government remained partially closed for an additional 25 days in Q1, this suggests that the drag in Q1 will be closer to the higher end of our previously estimated range. That said, total government spending is still expected to contribute 0.5 ppts to growth in the current quarter and roughly 0.4 ppts over the back half of this year.

2020 and 2021: Upgrading growth

While the revisions to our 2019 outlook were limited to a reallocation of growth between quarters, the same cannot be said for our growth expectations in 2020 and 2021. In particular, we upgraded 2020 growth by 0.1 percentage points to 1.9% and 2021 growth by half a percentage point. With the Fed now expected to remain on hold over the next two years at a fed funds rate that is at worst near its neutral level, a looser monetary policy should provide greater support for growth. In terms of magnitude, simulations with the Fed Board staff's model of the US economy (FRB/US) indicate that a 50bp rate cut – which is equivalent to the two rate cuts we have removed since January – would tend to lift growth by about 0.2 percentage points in the first year and a cumulative 0.5 percentage points in years two and three.[2]

Fiscal policy remains a key source of uncertainty for the growth outlook in these years. Recall that Congress will need to pass a FY2020 budget resolution in September. Our base case is that they will end up passing a continuing resolution, keeping spending levels roughly similar to this year. Under this scenario, fiscal drag should be modest in both 2020 and 2021, likely around -0.1 percentage points. However, should they fail to reach a deal, a reversion of the budget spending caps to current law levels would be consistent with fiscal drag in 2020 around -0.3 percentage points (Figure 13). While we believe sequestration is a low probability event in an election year, it cannot be dismissed, and would most certainly result in material downside risks to our forecast for roughly trend growth over the next two years. On the upside, we do not have any additional fiscal stimulus built into our forecast, and in particular remain skeptical that the two parties will be able to bridge the persistent gap they have had on how to fund an infrastructure package.

Figure 13: Fiscal drag could be material in 2020 if the government fails to reach a deal to raise the spending caps



Source : Deutsche Bank

To summarize, the logic for our current outlook is that economic growth should be near its potential level when monetary policy is at worst neutral and is at best still accommodative and fiscal policy is neither providing a strong boost nor meaningful drag. With this backdrop, recession risks are likely to arise primarily from external shocks, not domestic conditions. For that reason, we see the risks of a recession in the coming years as being lower than what appears to be priced into markets, the topic we turn to next.

2 See Deutsche Bank Global Economic Perspectives (November 14, 2014), "Rules of thumb based on FRB/US simulations.

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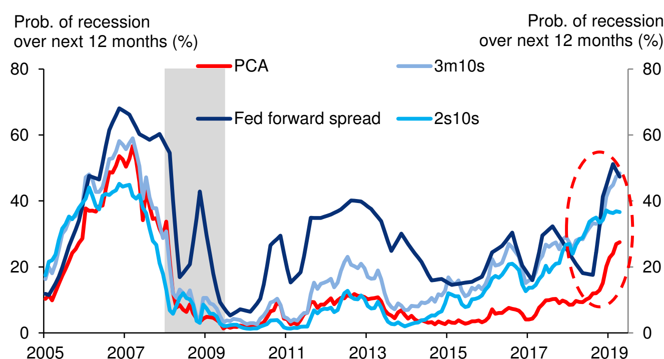
Recession risks: Market fears of recession have risen

This sanguine view on the US economic outlook over the next few years is not without risks, as recent financial market developments, most notably the inversion of certain segments of the yield curve, have highlighted. Given a reasonably reliable track record of financial markets predicting historical downturns, we update our suite of recession probability models based on the yield curve and other measures of financial conditions.

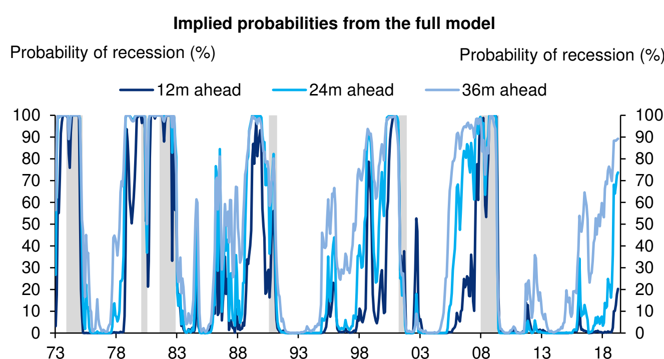
While various yield curve metrics indicate elevated recession risks over the next year, our more comprehensive recession probability model based on a broader range of financial conditions suggests recession risks are only slightly elevated in the coming twelve months (Figures 14 and 15).[3] Beyond the next year, the current constellation of financial conditions suggest that recession risks have risen substantially. This model suggests there is 72% chance of a recession at some point over the next two years and an 89% chance of a recession over the next three years.

Figure 14: Yield curve pointing to rising recession risks over the next year



Note: Probabilities are based on the monthly average values from the yield curves. Source : FRB, Bloomberg Finance LP, Haver Analytics, Deutsche Bank

Figure 15: Recession risks rise appreciably beyond the next year according to broad financial conditions



Note: Probabilities are based on the monthly average values from the yield curves. Source : FRB, BEA, FRB Chicago, Haver Analytics, Deutsche Bank

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 long and relatively modest expansion, overinvestment on durables and structures that normally accompanies an overheated labor market has not been present (Figure 16). The lack of these typical imbalances in the economy is also evident from the fact that our measure of aggregate financial stability risks remain below historical averages, a view shared by the Fed (Figure 17). 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.

3 The more comprehensive recession probability model is based on (1) the 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) the excess corporate bond risk premium, and (4) the Chicago Fed's adjusted national FCI.

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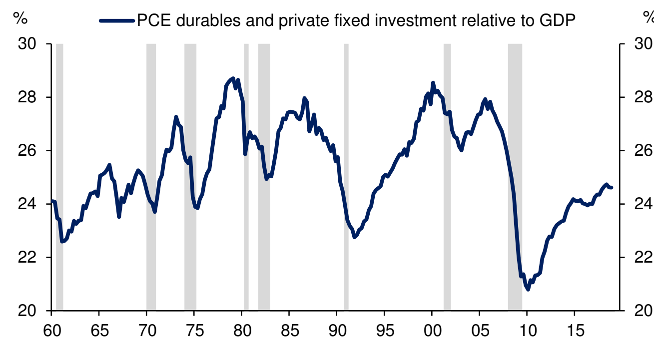
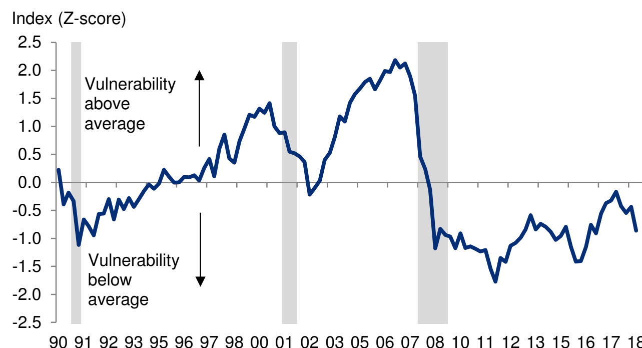
Figure 16: Overinvestment has been less of an issue during this expansion compared to the past



Source : BEA, Haver Analytics, Deutsche Bank

Figure 17: Aggregate financial vulnerability 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.

Labor market: Job growth beginning to cool

The growth profile that we documented earlier should largely be mirrored in our forecast for the labor market. Broadly speaking, as economic growth slows towards potential, the pace of job gains should similarly slow from 2018's heady pace. Through 2019, job gains will remain above the rate needed to keep the unemployment rate steady, but, as growth slows in 2020 and productivity begins to pick up (discussed more in the next section), employment growth should slow which will put upward pressure on the unemployment rate.

Specifically, our growth forecast for 2019 combined with our views on labor force participation and productivity would imply that payrolls will expand, on average, by 150k jobs per month. As seen in Figure 18, this is not too far away from the average pace over the first quarter of the year (180k) but much slower than 2018's pace (223k). Crucially, this is still above the roughly 100k pace that many, such as Chicago Fed President Evans, have noted would keep pace with labor force growth and keep the unemployment rate steady. As such, we see the unemployment rate falling through this year, bottoming out in Q4 around 3.6% (Figure 19).

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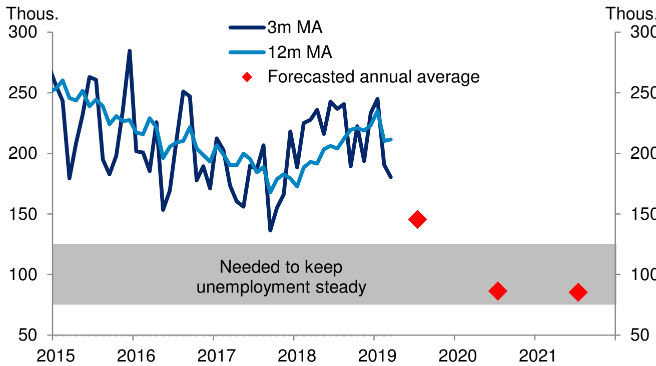
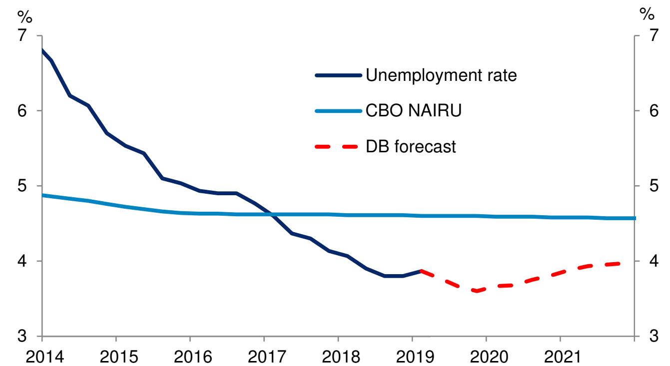
Figure 18: Growth in nonfarm payrolls slowing...



Source : BLS, CBO, Haver Analytics, Deutsche Bank

Figure 19: ...eventually putting upward pressure on the unemployment rate

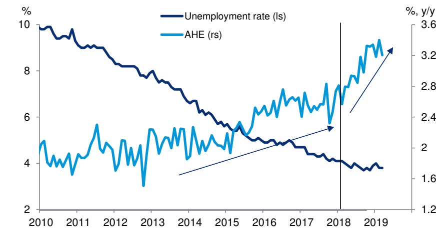


Source : BLS, CBO, Haver Analytics, Deutsche Bank

The story changes in 2020 and 2021, where we expect job growth to slow further to something around 90k per month. While this rate could still be consistent with a stable unemployment rate, under our productivity forecast, this pace of job growth would correspond to the unemployment rate ticking up two-tenths per year, reaching 3.8% by the end of 2020 and 4.0% by the end of 2021.

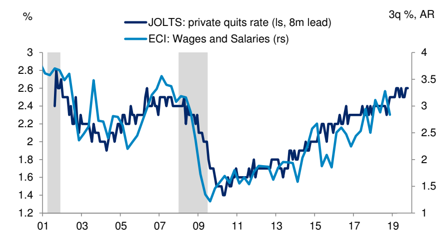
Figure 19 also shows the Congressional Budget Office's (CBO) estimate of NAIRU, that is the level of unemployment which puts no upward or downward pressure on inflation. While this is a commonly cited estimate of NAIRU, the behavior of prices and wages over the last couple of years suggests that it may currently be too high. In a piece last year (see Lower NAIRU or flatter Phillips curve?), we found limited evidence for a lower NAIRU, instead arguing that a flatter Phillips curve was more likely. However, in subsequent work (see The Phillips Curve and the Future of US Monetary Policy), we found little evidence that the wage Phillips curve has flattened, unlike the price Phillips curve, which has flattened demonstrably over time. Given the relatively large wage Phillips curve coefficients estimated in that paper, a one percentage point unemployment gap would imply a bit too much upward pressure on wage growth than what we have actually realized. This, together with recent academic work estimating NAIRU using labor market flows, has caused us to reevaluate our views on NAIRU to something around 4.1%, which squares with our previous work using state-level data identifying this level as an important level (see A tipping point for wage growth? Evidence of non-linearities in state data).[5] This tipping point seems to have been an important one for national data as well, as growth in average hourly earnings seems to have accelerated as the unemployment cut through this level in March 2018, whereas it did not seem to do so a year earlier when the unemployment fell below 4.6% (Figure 20). Despite this lower estimate of NAIRU, we still see wage growth picking up as the labor market continues to tighten. Leading indicators, such as the quits rate, continue to project wage growth in line with previous cycle highs (Figure 21).

Figure 20: Accelerating wage growth implies NAIRU around 4.1%



Source : BLS, Haver Analytics, Deutsche Bank

Figure 21: Leading indicators point toward further wage growth



Source : BLS, Haver Analytics, Deutsche Bank

One element that is key to our labor market forecast is the evolution of participation, which has remained remarkably stable between 62.7% and 63.1% (with a couple months exception) over the last five years. This stability masks two largely offsetting moves: a percentage point rise in prime age participation reversing about half

5 Crump, R., S. Eusepi, M. Giannoni, and A. Sahin (March 7, 2019), "A unified approach to measuring u*." Brookings Papers on Economic Activity.

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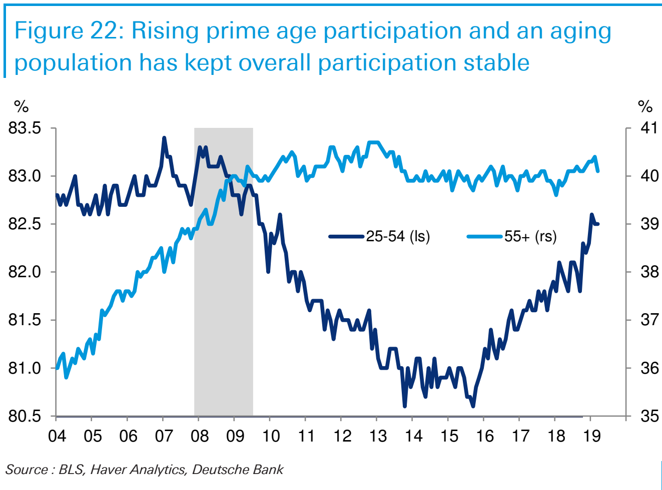
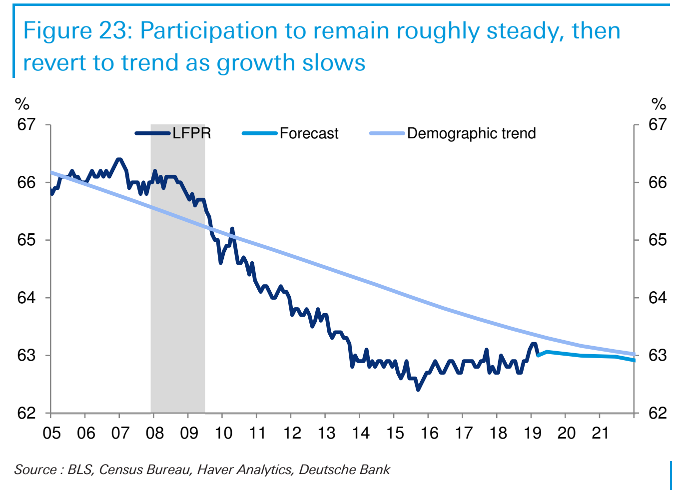
of the decline in this group's participation since the beginning of the financial crisis and a demographic shift towards older workers that typically have lower participation rates (Figure 22).

Figure 22: Rising prime age participation and an aging population has kept overall participation stable



Source : BLS, Haver Analytics, Deutsche Bank

Figure 23: Participation to remain roughly steady, then revert to trend as growth slows



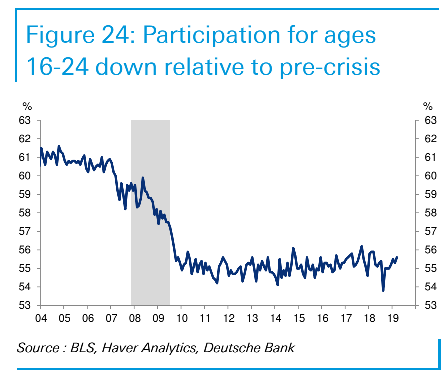
Source : BLS, Census Bureau, Haver Analytics, Deutsche Bank

We can construct a simple measure of the demographic trend for labor force participation from a population-weighted labor force participation rate by holding the participation rates for specific gender/age-groups constant at their average level between 2005 and 2007 and then letting the population shares vary as projected by the Census Department. Absent the global financial crisis, which seems to have severely depressed prime age participation, the participation rate for the overall population would have been expected to fall from about 66% to about 63% by the end of 2021. As actual prime age participation fell in the aftermath of the financial crisis, overall participation fell below this demographic baseline. However, with the tight labor market pulling people into the labor force, prime age participation has been recovering and overall participation is converging back towards the trend.

Our forecast has this process continuing over the near term, with participation remaining roughly steady in 2019 and 2020 as the tight labor market continues to pull more prime age workers back into the labor force (Figure 23). Then as economic growth gets closer to potential and the labor market begins to cool, the demographic trend begins to reassert itself and participation slowly begins to decline.

Admittedly, there is much uncertainty around participation predictions, which is why participation across different age cohorts will be key indicators going forward. For example, the calculated demographic trend assumes that participation for both older and younger workers will move back to their pre-crisis levels. On one hand, there could be some upside to participation should older workers continue to stay in the labor force as improving medical technology allows them to work longer. However, there could be downside risks should younger cohorts continue to eschew an early start to their working lives in favor of greater education attainment (Figure 24) or if prime age workers fail to reach the pre-crisis levels of participation perhaps due to automation or other factors that lead to greater labor market detachment.

Figure 24: Participation for ages 16-24 down relative to pre-crisis



Source : BLS, Haver Analytics, Deutsche Bank

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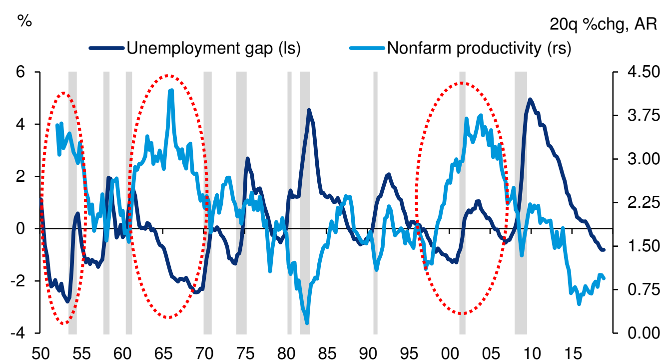
Supply side: Tight labor market to beget productivity growth

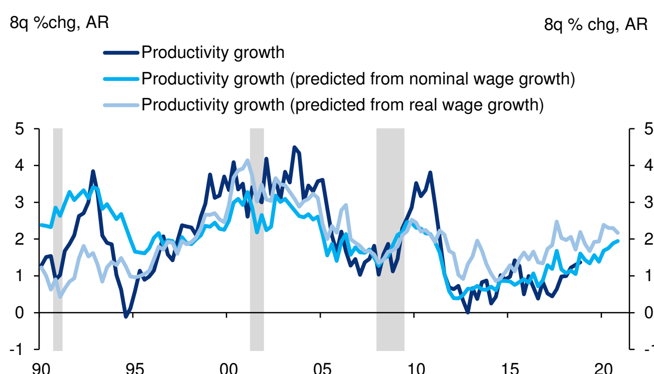
Along with labor force growth, the other main determinant of supply-side growth is productivity. While it has been sluggish through the current expansion, there are some nascent signs of a pickup in productivity growth over the last couple quarters. Previous work that we have done (see Chicken or the egg: Are firmer wages a precursor to a productivity pickup?) suggests that this is due to the particularly tight labor market. As wage costs grow, labor becomes relatively more expensive and firms attempt to defray this cost by shifting to other factors of production and investing in productivity enhancing projects such as capital expenditures, research and development, and worker training.

Figure 25: Tight labor markets have historically coincided with acceleration of productivity growth



Source : BLS, CBO, Haver Analytics, Deutsche Bank

Figure 26: Wage growth suggests nonfarm business productivity to rise above 2%



Source : BEA, BLS, Haver Analytics, Deutsche Bank

Should productivity pickup as we expect, this would have two major implications for the Fed. The first is that inflationary pressures should remain relatively muted as the supply side would be better able to keep up with any excess demand. In the short run, this reduces the Fed's need to raise rates. As seen in the minutes to the March meeting, this interpretation for the recent Fed pause seems to be gaining some traction amongst the FOMC members and was most recently put forward publicly by Governor Brainard.

However, a pickup in productivity growth would also imply that the economy, in the long run, would be better able to accommodate higher interest rates without monetary policy impacting growth. Economic theory captures this relationship by positing a positive relationship between productivity growth and the neutral level of real interest rates, or r-star. As productivity growth picks up, the neutral rate, that is the level of rates that neither encourages nor hinders growth, should also pick up and the Fed would be able to raise rates without negatively impacting economic prospects.

Taken together, a pickup in the supply side of the economy driven by a tightening labor market can go some way in rationalizing the Fed's interest rate projections in the March SEP. Muted inflation pressures combined with a pickup in the neutral rate would be reflected in an interest rate projection that was relatively flat in the near term, but had a bias towards hiking in the medium term.

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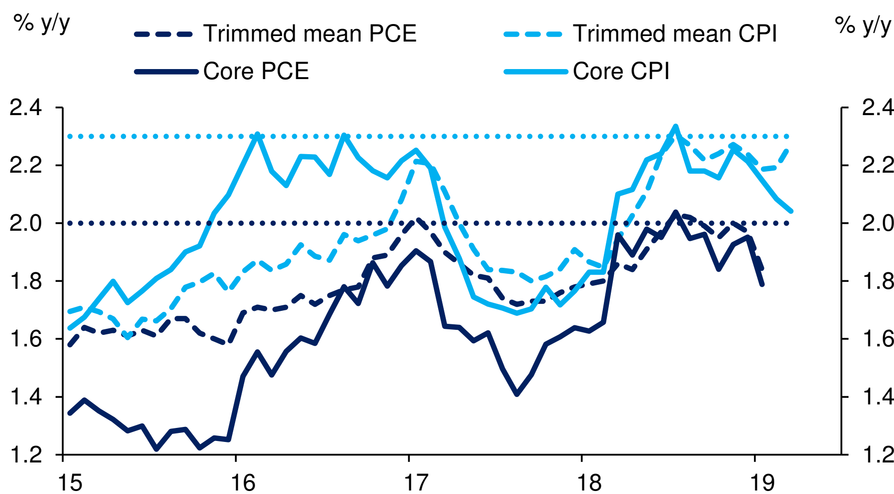
Inflation outlook: Still waiting for Godot

While growth and labor market data have mostly hewed close to our expectations from our last comprehensive outlook update, inflation has disappointed in recent months. After peaking at levels slightly above the Fed's objective around the middle of 2018, core inflation has fallen 25-30bp to levels that are now a few tenths below target (Figure 27). While some of this disappointment has been driven by one-offs, including the sharp decline in financial services inflation in the PCE and the March plunge in apparel prices, recent data for other components and some modest changes in the macro outlook argue for a flatter inflation profile from here. As a result, we have downgraded our core inflation forecast over the coming years.

Figure 27: Core inflation has fallen below the Fed's target in recent months

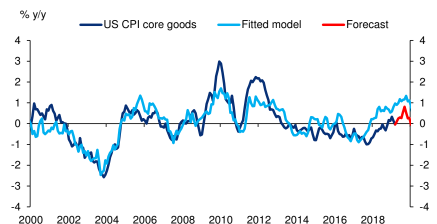


Source : FRB Dallas, FRB Cleveland, BEA, BLS, Haver Analytics, Deutsche Bank

The micro story: A necessary handoff from goods to services

For the better part of the last two years, our bottom-up story for firmer core inflation has been that past dollar weakness should lift core goods inflation as services remained broadly steady. Although goods inflation has lagged our models, the essential elements of this story have been realized. Core goods inflation in the CPI index has risen from -1% year-over-year to about zero most recently, while core services inflation has risen from 2.66% to 2.74% over this time. However, with the tailwind from past dollar weakness transitioning to a headwind later this year, the story for firmer core inflation must also transition to one where a tightening labor market and a solid domestic economy begin to put more upward pressure on services inflation.

Figure 28: Core goods inflation should firm in the next few months and then moderate



Source : BLS, Haver Analytics, Deutsche Bank

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 next few months (Figure 28). However, the peak in core goods inflation is likely to be realized by Q3, at which point this major category will begin to act as an incremental drag on core inflation. The subcategories of core goods that have led much of the rebound are also consistent with only limited upside from here. After rising sharply last year, new vehicles inflation has converged back to leading indicators based on import and producer

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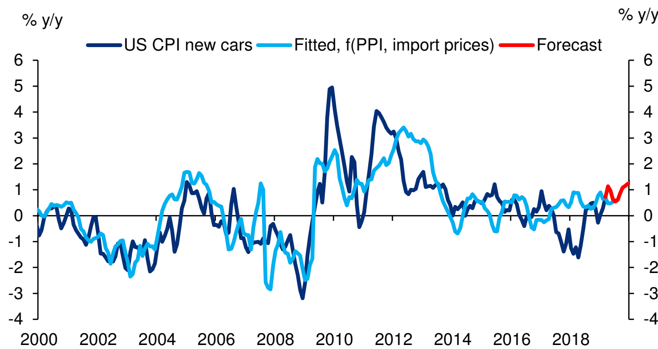
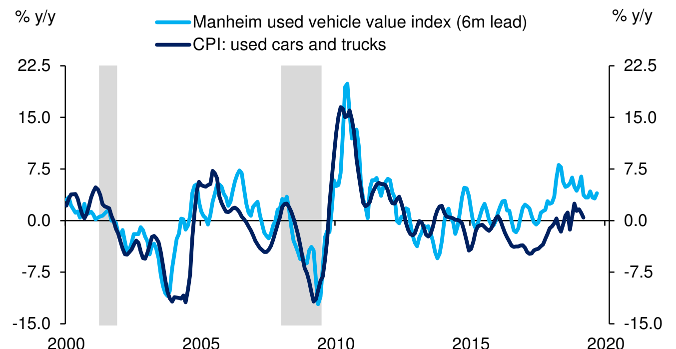
prices (Figure 29). Similarly, used vehicle inflation appears to have less upside relative to private estimates after a string of very strong prints late last year following US hurricanes (Figure 30).

Figure 29: New car inflation has only modest near-term upside



Source : BLS, Haver Analytics, Deutsche Bank

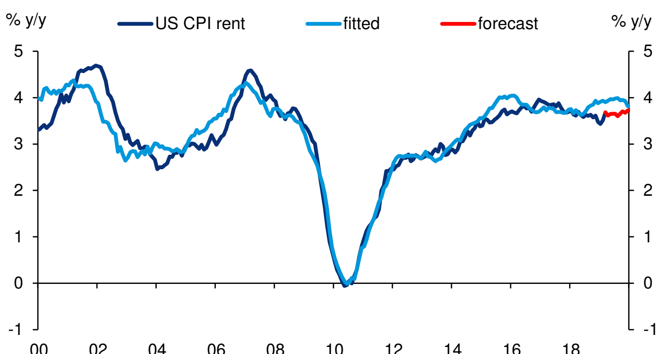
Figure 30: CPI Used vehicles inflation has lagged private estimates



Source : Manheim, BLS, Haver Analytics, Deutsche Bank

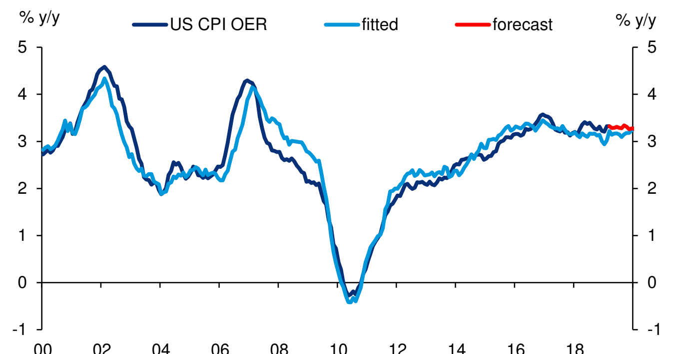
On the services side, the main focus should remain on shelter inflation in the CPI. While our model for primary rents (based on lagged home price growth, rental vacancies, architectural billings, and consumer spending growth) points to greater upside risk, we have conservatively built it in only a modest uptrend for our forecast (Figure 31). 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 (OER) to converge to leading indicators from above by tracking sideways from current levels (Figure 32). These important components lead to a broadly flat view about core services inflation in the coming months but with some potential upside if rent inflation were to rise back to our leading indicators.

Figure 31: Rent inflation to trend up modestly this year



Source : BLS, Haver Analytics, Deutsche Bank

Figure 32: OER inflation to remain broadly stable



Source : BLS, Haver Analytics, Deutsche Bank

Health care inflation has also been an important contributor to recent weakness, and as such, its outlook remains critical for the broader core category, especially in the PCE. Since its peak in July at 2.05%, health care services inflation in the PCE price index has fallen nearly 30bp to 1.77% as of January (Figure 33). This decline

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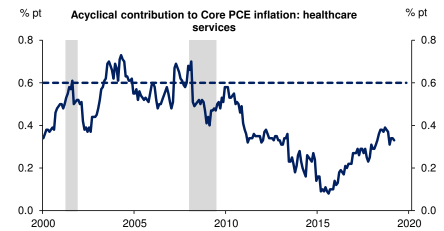
has deducted nearly 6bp from year-over-year core PCE inflation over this period. From a longer-term perspective, historically low health care inflation means that prices for non-health care items need to grow faster than in the past to achieve the same outcome for core PCE inflation. Indeed, with the contribution from health care falling from a pre-crisis average of nearly 60bp to 30bp more recently, the remaining 80% of the core PCE index comprised of non-healthcare items would need to grow nearly 8bp faster just to offset this additional drag.

Figure 33: Health care inflation has been a material drag on core PCE relative to pre-crisis

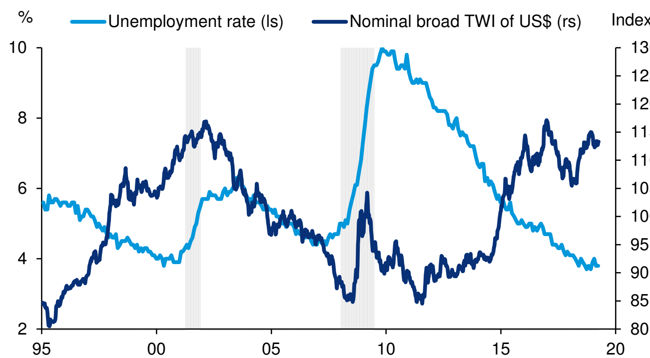


Source : FRBSF, Haver Analytics, Deutsche Bank

The macro story: Unemployment tailwind versus dollar headwind

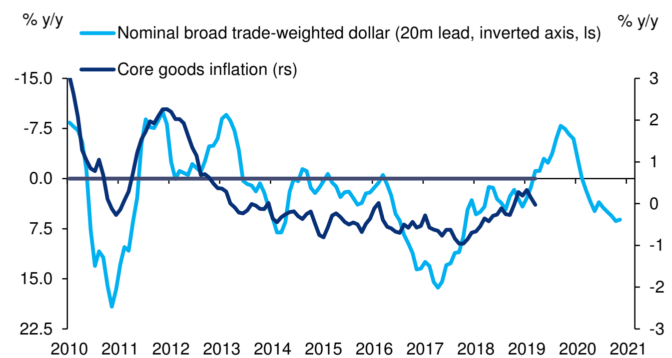
Beyond the horizon for which we have informative signals at the component level, we take a macro-driven view of inflation, namely a relatively standard Phillips curve model. In this context, we have viewed the medium-term inflation outlook as a tug-of-war between the tailwind from a tightening labor 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 (Figures 34 and 35).

Figure 34: Unemployment low but a strong dollar



Source : FRB, BLS, Haver Analytics, Deutsche Bank

Figure 35: Dollar strength should begin to weight on core goods inflation later this year



Source : FRB, BLS, Haver Analytics, Deutsche Bank

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 wane over time. The dissipation of this drag, in turn, supports modestly higher core inflation over the medium term from current levels, a view corroborated by the leading signal from growth indicators like the ISM manufacturing index (Figure 36). However, with the slowing in momentum, growth indicators signal only limited upside. Moreover, with unemployment now expected to bottom at a slightly higher level and NAIRU believed to be lower, the macro picture has become less supportive of core inflation in the coming years.

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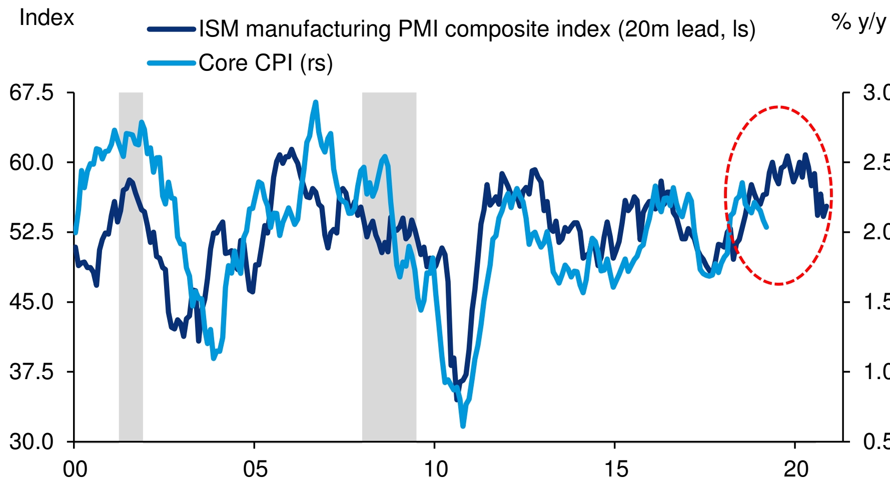
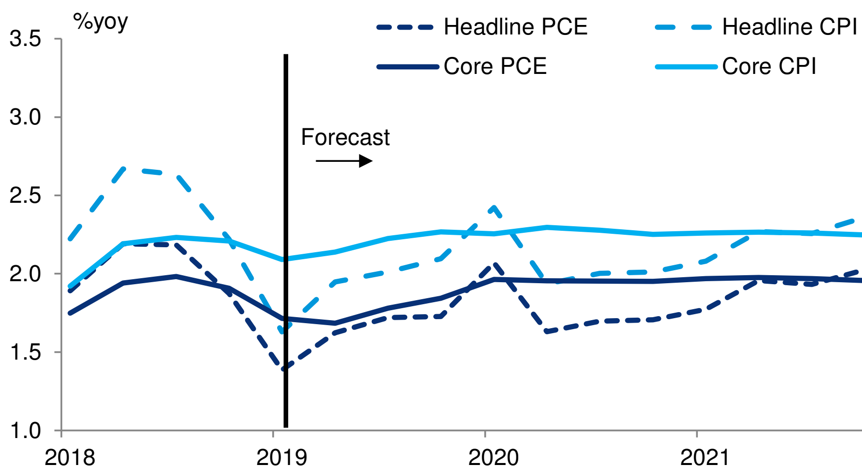
Figure 36: ISM points to upside risk to inflation in near-term, followed by moderation



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 1.8% by end-2019 and 2% by end-2020 (Figure 37). Core CPI inflation is expected to reach 2.3% during these periods. The monthly trend in core inflation should bottom in Q2 and then take a step higher with the August data due to favorable base effects from a weak print in that same month last year. Given the softer than expected prints that opened 2019, achieving these new lower forecasts still requires a pickup in the monthly inflation trend over the remainder of the year.

Figure 37: Core PCE inflation now expected to be below the Fed's 2% target this year



Source : BEA, BLS, Haver Analytics, Deutsche Bank

Risks to this new forecast are likely now skewed modestly to the upside. Our recent in depth work on the Phillips curve indicates that non-linearities are still present, though it may take an unemployment rate of one percent or more below NAIRU for them to become operative (see The Phillips curve and the future of US monetary policy). Therefore, if NAIRU ends up being a bit higher than we and the Fed currently expect, or if the unemployment rate falls more rapidly, it is possible that the econo-

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my inches onto the steeper portion of the Phillips curve, which, in turn, engenders a sharper uptick in inflation pressures over the year ahead. On the other hand, absent one-off shocks due to quality adjustments or a much stronger dollar than we envision, the downside risks to core inflation should be more limited.

Fed: The end of the hiking cycle

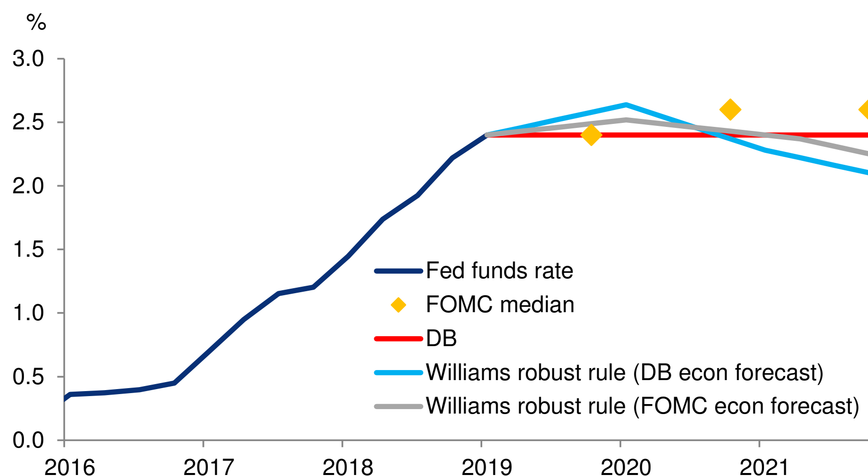
The Fed underwent a dramatic shift from a clear tightening bias at the end of 2018 to a decidedly neutral stance in the first few months of 2019. In the process, the median Fed dot fell from three 2019 rate hikes as of last September to zero at the March meeting, and the peak fed funds rate during this cycle fell from 3.4% to 2.6%.

Rates policy: On hold

Our own Fed expectations have undergone a similar revision. The confluence of somewhat softer growth, an inflation profile that no longer sees core inflation rising meaningfully above the Fed's target, and a Committee that sees some benefits in achieving modestly above 2% inflation, have conspired for us to call the end of the Fed's tightening cycle. The case for the Fed to remain on hold under this outlook is compelling. We therefore expect the Fed to remain on hold through end-2020.

This expectation is broadly consistent with the prescription from the Williams robust rule (Figure 38). While our modestly stronger economic outlook compared to the Fed's indicates some near-term upside risk to rates according to this rule, our economic forecast would also be consistent with modest downside to rates in 2021. Either way, the Williams robust rule is consistent with downside risks to the Fed's expectation for one rate hike next year unless unemployment falls substantially further or inflation picks up above 2%.

Figure 38: Williams rule continues to track our Fed expectations well



Source : FRB, Deutsche Bank

Balance sheet: From QT to asset purchases

Over the past few months we have also received considerable clarity on the path forward for the Fed's balance sheet and operating framework. At the January FOMC meeting the Fed confirmed, as was widely expected, that they will remain in the floor system with abundant excess reserves. Then at the March meeting, the

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Fed detailed their plans for stopping the unwind of the balance sheet. Specifically, they will begin to taper the reduction in Treasury securities in May by reducing the cap on monthly redemptions from the current level of $30 billion to $15 billion. The Committee will then conclude the unwind of its balance sheet at the end of September, at which point it may begin to hold the SOMA portfolio stable for some time, allowing reserves to continue to fall at a slower pace as other liabilities, most notably currency, increase. See Figure 39 for a detailed description of these steps which is taken from a note by our colleague Steven Zeng: Mapping the final steps of Fed balance sheet endgame .

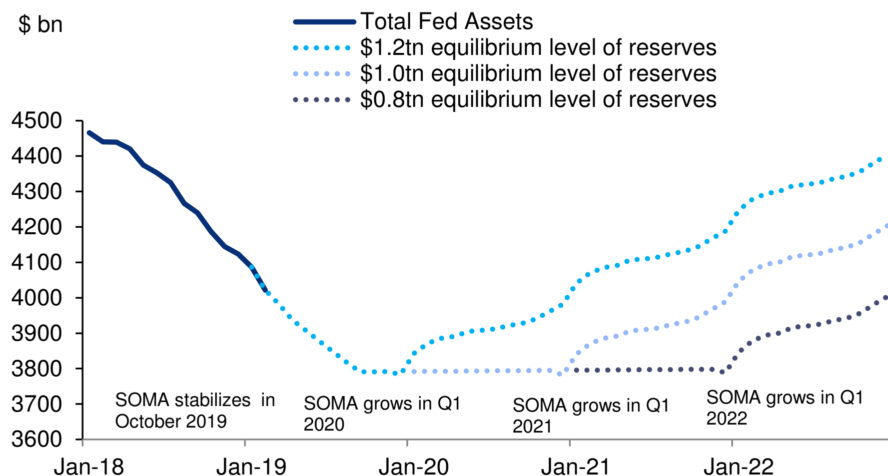
Figure 39:Roadmap for Fed balance sheet normalization

Phase	Action	Timing	Comments	Market Implications
1	Slowing the runoff	May - September	Monthly redemptions cap lowered from $30bn to $15bn	Bullish for Treasuries given Fed will purchase $42bn more Treasuries during this period
2	Decide on composition and WAM of SOMA	TBD - June or September expected	SOMA WAM is 92 months, compared to outstanding market of 69 months and pre-crisis average of 40 months	Richening of T-bill sector and bill-like products, lower repo rates
3	Announce new repo facility	TBD - September expected	Helps Fed maintain firmer control of fed funds by making Treasuries more fungible with reserves	Richer front-end Treasuries vs OIS, wider swap spreads
4	Stopping the runoff	October	Stabilize SOMA portfolio. Reinvest MBS redemptions below $20bn into Treasuries	Bullish for Treasuries. Fed becomes net buyer of $12-15bn per month on going-forward basis depending on pace of MBS runoff
5	Restarting asset purchases	TBD - 2020 expected	Once reserve balances drop to their long-run level, Fed must expand SOMA portfolio to maintain that reserve level by offsetting growth in nonreserve liabilities	Bullish for Treasuries. Fed becomes net buyer of ~$20bn per month, depending on pace of MBS runoff and growth in nonreserve liabilities

Source : FRB, Deutsche Bank

Despite greater clarity on these important steps, uncertainty remains on a few points, namely the long-run level of reserves the Fed is likely to hold, and by extension when the SOMA portfolio will begin to grow agin, and the composition of the Fed's balance sheet. On the former, while there is limited evidence that reserves are currently scarce, we believe that the longer-run level of reserves is likely in the $1tn to $1.2tn range. If this proves correct, the Fed will begin to increase its SOMA portfolio most likely in 2020 (Figure 40).

Figure 40: Fed assets should begin to rise again in 2020



Source : FRB, Deutsche Bank

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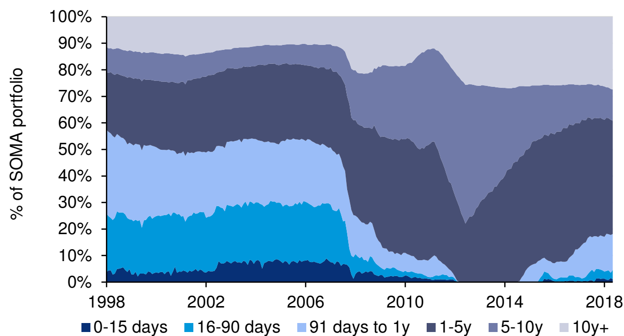
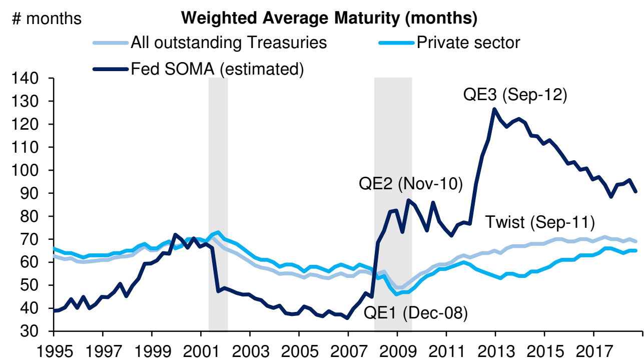
On the latter point, the Committee has not specified a long-term goal with respect to the weighted average maturity (WAM) of the SOMA portfolio. And in the March FOMC press conference, Chair Powell noted that the Fed is not in a rush to resolve the question about balance sheet composition. As he noted, the Fed will discuss this topic over a "series of meetings." All indications are that, over time, the Fed will at least want to match the duration of the outstanding Treasury market and that it could even look to shorten beyond that point. Either way, with the Fed's current portfolio at a much longer duration that the outstanding Treasury stock, the maturity of the Fed's holdings should shorten over time (Figure 42). We anticipate that the Fed will, at least initially, do this in a way to limit the impact on the shape of the curve.

Figure 41: SOMA portfolio skewed toward longer-term Treasuries relative to pre-crisis



Source : FRB, Deutsche Bank

Figure 42:SOMA WAM well above market



Source : FRB, Deutsche Bank

Although the transition from a shrinking SOMA portfolio to one that is stable should at the margin lead to easier financial conditions, we think that the balance sheet unwind was already having a limited impact in recent months. Indeed, our DB shadow fed funds rate, which proxies for the current setting of Fed policy dictated by the fed funds rate and the balance sheet, is currently very close to the effective fed funds rate (Figure 43). This implies that there is limited impact from the Fed's balance sheet on financial conditions in either direction.

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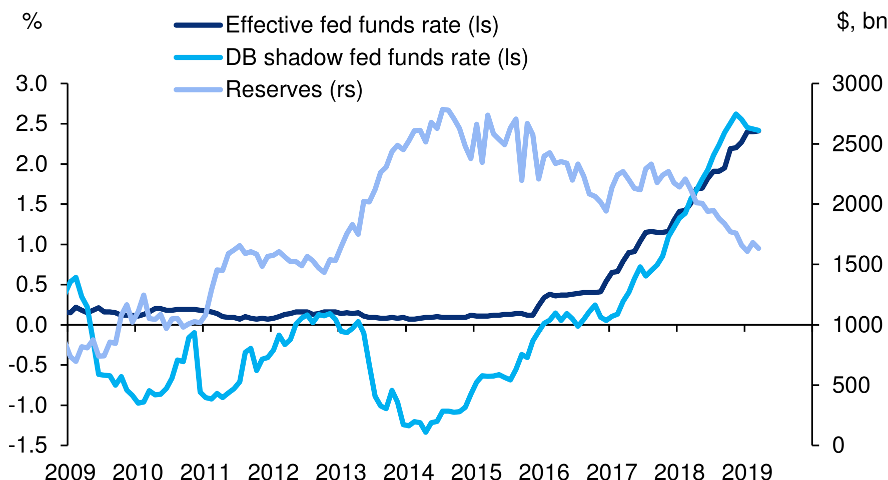
Figure 43: Fed balance sheet having limited impact on financial conditions based on DB shadow rate



Source : FRB, Haver Analytics, Deutsche Bank

CCyB: A possible tool if financial stability risks arise

With rates policy on hold and the balance sheet stabilizing, an interesting question arises about how the Fed will respond to an economy that evolves broadly along the lines that we expect but where financial markets continue to soar and financial stability risks pick up. Such a coincidence of events, with inflation pressures remaining broadly muted but financial stability risks elevated, is consistent with how Chair Powell and Governor Brainard have described more recent historical experience in economies with tight labor markets.

A natural policy response to this environment would be to raise the countercyclical capital buffer (CCyB) to build even greater resiliency in the financial system should a sharp downturn in markets take hold. [6] Earlier this year Governor Brainard voted to increase the CCyB from its current setting at zero. Prior to that, a number of regional Fed presidents expressed varying degrees of support for tightening via this macroprudential policy. Nonetheless, with the rest of the Fed Board believing that financial stability risks do not currently meet the law's definition of being "meaningfully above normal", the Board has not shown clear signs of activating this tool. Until this assessment changes, it is likely that the CCyB remains stuck at zero.

Inflation target review: A "make up" strategy is possible

The Fed is currently conducting a review of their policy framework, the focal point of which is likely to be whether they should redefine the 2% inflation objective. This review will feature a Federal Reserve research conference in early June and, as Governor Clarida detailed, "the FOMC will conduct its own assessment of its monetary policy framework, beginning around the middle of the year" with the conclusions made public in the first half of 2020.

To counteract the elevated risks of lower inflation and inflation expectations in a world where monetary policy is more frequently constrained by the zero lower

6 We discussed the CCyB in detail here: Countercyclical capital buffer gaining traction.

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bound , one idea is for the Fed to adopt a "make up" strategy, in which they set monetary policy to achieve 2% inflation on average over a period of time rather than on a forward-looking basis. Although we believe some members of the Fed leadership could support such a change, namely NY Fed President Williams and perhaps Vice Chair Clarida, this sentiment is not unanimous. Several Fed officials, including Governor Quarles and Kansas City Fed President George, have voiced some concerns with "make up" strategies. Moreover, Powell was careful to note that there is a "high bar for adopting fundamental change."

Figure 44: Summary of Fed policy framework options

Policy framework options: Impact on Fed policy outlook

More dovish ↑ / Less dovish ↓

Framework option	Impact	Comments
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
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
Nominal GDP target	↓	▪ Fed targets nominal GDP growth or level ▪ Aims for higher inflation during recovery; moderated by better real growth
Average inflation rate targeting	↓	▪ **Fed targets higher inflation (e.g., 2.3%) when away from zero lower bound**
Temporary approaches	→	▪ Switches frameworks (e.g., to price level targeting) when fed funds rate is at zero lower bound but otherwise unchanged
Enhanced forward guidance	→	▪ Calendar / outcome-based guidance when fed funds rate hits ZLB ▪ Similar to policies pursued during recovery from crisis

Source : Deutsche Bank

This "high bar" can be justified by a number of factors: First, higher inflation does not necessarily have the support of the public and politicians, as demonstrated by Powell's recent congressional appearances. Second, what works in models may not work in practice, especially since average inflation targeting suffers from a "time inconsistency" problem in which central banks have to pre-commit to take a suboptimal action. Third, with no other major central banks pursuing "make up" strategies, the typically conservative Fed may (correctly) be reluctant to be an innovator in adopting an un-tested inflation objective. Fourth, Fed credibility could take a further hit if they unsuccessfully aim for even higher inflation. [7] Fifth, while a flat Phillips curve makes it difficult to lift inflation, it also presents challenges to returning inflation back to target if it overshoots for some time. For these reasons, it is not obvious that the Fed will adopt a new inflation target even if it perceives some benefits of the change.

However, as we have argued in the past, if the Fed does in fact shift to an average inflation framework they would likely need to take an easier monetary policy stance to reinforce their commitment to the new target, which could necessitate a rate cut given the Fed's flat rates profile. The extent of the initial rate cut needed to reinforce the Fed's commitment to its new objective would depend on exactly how they define average inflation targeting. In our view, the most likely option is to set policy to make up for inflation misses over the past one to three years. A significantly

7 We discussed the benefits and drawbacks of alternative inflation frameworks in detail here: Fed policy framework: Is the price (level) right?

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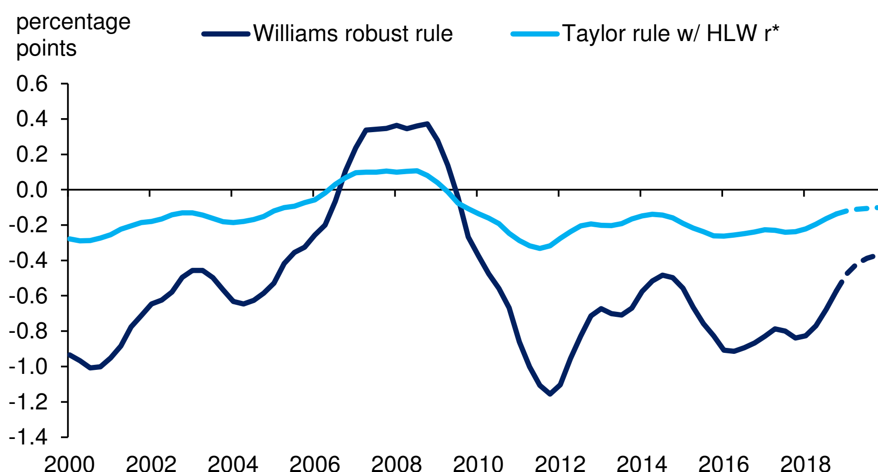
longer look back period would tie the hands of the Fed to make up for inflation misses in the possibly distant past. For example, the price level targeting rule detailed in the Fed's latest Monetary Policy Report prescribed a current fed funds rate below 50bp to make up for previous soft inflation readings. Fed officials are unlikely to believe this is a reasonable prescription for current policy. Using two traditional policy rules – a Taylor rule and the Williams robust rule – an average inflation target with a three-year look back period would be consistent with one or two rate cuts relative to the prescriptions from these rules with a 2% inflation objective (Figure 45).

Figure 45: Shifting to an average inflation target with 3 year look back period would require easier policy



Source : FRB, Haver Analytics, Deutsche Bank

Fed appointments

Recent news of the Administration's potential nominations of Stephen Moore and Herman Cain to the Fed's Board of Governors has stirred up considerable controversy in the press. To be clear, neither has been formally nominated at this point. While it appears that Cain may not find sufficient support in the Senate for his nomination to move forward, Moore's nomination appears to remain viable at this point. Our view is that if approved, these appointments would not have much, if any, impact on the course of monetary policy in the near term. They would raise from 10 to 12 the number of voting members on the FOMC, and their stated preferences for cutting rates would clearly be minority views and votes, particularly with even the existing Committee's most dovish member, St. Louis Fed President Bullard, not advocating for cuts.

However, Senate approval of one or both of these potential nominees would be a significant step in the direction of politicizing (and thereby reducing the effective independence of) the Fed—by placing on the FOMC votes that would appear to be closely tied to the Administration. As we have reviewed in some detail in previous research (See The Phillips Curve and the Future of US Monetary Policy and Trapped in a low inflation expectations regime? Lessons from the 60s and 80s), administrations of either party have a natural preference for boosting growth in the near term over controlling inflation in the longer term. The risk in this preference may be relatively low at this time, but we have been here before—in the mid 1960s, the last time inflation was low and the Administration had significant sway over Fed policy. As has been well documented, the end result was the great inflation of the 1970s. By choosing to take the relatively small step in the direction of politicizing the Fed with

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its approval of either of these candidates, the Senate would be opening the door to more such moves by both political parties (depending on which was in the majority) in the years ahead. One could well imagine how the end result would be a repeat of the great inflation — and the recession that followed it as Paul Volcker was tasked to bring inflation under control.

Finally, appointments to the Fed can be viewed somewhat differently in the sense that decisions made there can be a matter of life or death for the economy in the near term as well as the longer term. When things go wrong, the Fed is the doctor on call around the clock. One could liken a financial crisis to a heart attack. In the event of a heart attack, one would want to know that the team of doctors on call is well trained and experienced at their trade. Politicizing the Fed could well lead to the selection of candidates that were lacking in terms of training or experience in dealing with monetary policy and/or financial crisis management.

DB US economic forecast details

Figure 46: DB US forecast details

Economic Activity	**2019**				**2020**				**2021**				**2019F**	**2020F**	**2021F**
(% qoq, saar)	**Q1F**	**Q2F**	**Q3F**	**Q4F**	**Q1F**	**Q2F**	**Q3F**	**Q4F**	**Q1F**	**Q2F**	**Q3F**	**Q4F**	**Q4/Q4**	**Q4/Q4**	**Q4/Q4**
GDP	2.0	2.5	2.4	2.2	1.7	2.1	1.8	1.9	1.9	2.0	2.1	2.2	2.3	1.9	2.1
Private consumption	1.3	2.8	2.5	2.0	1.7	2.2	1.9	1.9	2.0	2.3	2.3	2.4	2.1	1.9	2.2
Investment	2.9	1.1	3.0	3.9	2.4	2.2	1.8	2.4	3.3	2.7	3.6	3.4	2.7	2.2	3.2
Nonresidential	5.8	4.3	4.0	3.5	2.8	2.4	2.2	2.1	2.9	3.2	3.3	3.2	4.4	2.4	3.2
Residential	4.5	4.0	3.5	3.1	2.9	3.0	2.7	2.5	2.7	2.8	2.5	2.6	3.8	2.8	2.6
Gov't consumption	2.2	3.0	2.3	2.3	2.0	1.8	1.8	1.6	1.7	1.7	1.5	1.4	2.5	1.8	1.6
Exports	3.5	4.0	3.9	3.7	3.8	3.9	3.8	3.7	3.5	3.5	3.5	3.5	3.8	3.8	3.5
Imports	1.1	3.9	4.3	4.1	3.9	3.8	3.7	3.5	4.5	4.5	4.5	4.5	3.3	3.7	4.5
Contribution (pp): Inventories	-0.7	-0.5	-0.1	0.1	-0.1	0.0	-0.1	0.0	0.1	-0.1	0.1	0.1	0.0	-0.1	0.0
Net trade	0.3	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.4
Unemployment rate, %	3.9	3.8	3.7	3.6	3.7	3.7	3.8	3.8	3.9	3.9	4.0	4.0	3.6	3.8	4.0
Prices (% yoy)															
CPI	1.6	2.0	2.0	2.1	2.4	1.9	2.0	2.0	2.1	2.3	2.3	2.4	2.1	2.0	2.4
Core CPI	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
PCE	1.4	1.6	1.7	1.7	2.1	1.6	1.7	1.7	1.8	2.0	1.9	2.0	1.7	1.7	2.0
Core PCE	1.7	1.7	1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.8	2.0	2.0
Fed Funds	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375	2.375

Source : Deutsche Bank

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