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# United States Economic Outlook

1<sup>st</sup> Quarter 2018 | United States Unit

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Closing date: **26 January 2018**

## 1. Editorial

In an environment of persistently low inflation and real equilibrium interest rates, the Fed will not be able to raise rates much further, limiting the space to cut interest rates during the next downturn. On average, the Fed has cut interest rates by 500 basis points during recessions. Not surprisingly, Fed officials are considering once again alternative frameworks for the conduct of monetary policy. These include greater use of forward guidance and quantitative easing, raising the inflation target, a price level target and a nominal GDP target.

When interest rates are near zero percent, the Fed could use some of the tools that were developed in the aftermath of the Great Recession. These would include *forward guidance* or communicating to the markets that interest rates will remain low for a prolonged period of time or until certain economic conditions are met. If there is strong consensus within the committee on how long should interest rates remain low or what the quantitative targets should be, forward guidance could be more easily deployed and communicated. However, if there are strong divisions within the Fed, market participants would find it hard interpreting forward guidance, which in turn would reduce the power of such tool. In fact, some officials believe that once nominal interest rates are set at the zero lower bound, forward guidance may not add sufficient accommodation if the downturn is severe.

Other tools may be needed to complement low interest rates and forward guidance. One option involves quantitative easing or the purchase of securities funded with reserves. In general, this tool is seen as an effective way to keep short-term rates lower for longer and reduce risk premium. This view is based on the experience in recent years when the Fed decided to expand its balance sheet through the purchases of Treasuries and MBS. However, there is ample controversy on the potential side effects, including the impact of quantitative easing on the value of the currency, the buildup of asset price bubbles, or the unintended consequences of promoting borrowing by overleveraged firms and households. Moreover, quantitative easing raised the tensions between Congress and the Fed, thereby limiting potential future actions.

An alternative option could be to raise the inflation target to 3% or 4%. If credible, this would give the Fed more space to raise nominal interest rates. From a communications perspective this would not be complex as it keeps the current framework in place. However, after a long period of low inflation, adjusting to a new higher inflation target could take time. Moreover, the switch to higher inflation could be unpopular and costly for the most vulnerable groups in society. In addition, to guarantee a credible regime switch, the Fed would find it difficult to revise the target in the future even if economic fundamentals were to reverse significantly. That is, if inflation stays above target for a considerable period of time, the Fed would not be able to reduce the target as part of its stabilization strategy as easily as when it decided to raise the target.

Another idea would be to shift to a price level target. In other words, abandon the inflation target and adopt a price level target consistent with the 2% inflation such that any deviations would be made-up in outer years. For example, if inflation is low and thus the price level remains below the target for some time, the Fed would commit to allow future inflation to accelerate so that the price level returns to what would have been the case if inflation had stayed within the target. The

benefits include credible expectations of low interest rates for longer, which could help avoid a deeper downturn and a prolonged period of low inflation. Hitting the 2% inflation on average over time would also mean lower inflation volatility. However, this strategy also implies that if the price level increases above the target, the Fed would have to commit to restrain inflation in the future to bring down the price level. If the economy is growing slowly and inflation is high, so that the price level overshoots the target, the Fed would have to commit to bring down the price level at the risk of causing a recession. In addition, implementing this change could create some problems if the public does not believe that a spike in inflation today would lead to lower inflation in the future. To avoid this conflict, the Fed could maintain the current framework and only implement a temporary price-level target when interest rates are near the zero lower bound.

An alternative option would be to target nominal GDP (the sum of inflation and real GDP growth). In this strategy there would be an equal weight given to inflation and real growth so that when the economy experiences a supply shock and one component moves up while the other moves down, the Fed would commit to target the sum. The benefits include a better response to economic shocks, more stable financial markets and greater accountability. In fact, proponents argue that monetary policy would have been tighter during the high-tech boom and the housing bubble. However, as the inflation target would be implicit, inflation expectations would be weakly anchored. In addition, if real growth is low and inflation is high, as happens in the initial stages of a recovery, monetary policy may need to be tight at the wrong time. Furthermore, since real GDP is known with a lag and is subject to revisions, monetary policy could lose effectiveness.

Given the aforementioned pros and cons of alternative policy frameworks, it seems that the Fed has two options. First, keep the current policy framework in place and hope for growth and inflation to continue edging up, so that nominal interest rates can be raised as far as possible from the zero lower bound, without derailing the expansion. If and when the next downturn comes, the Fed will reduce interest rates to zero and supplement monetary policy accommodation with the tools it already experimented in the post-crisis period. If these prove insufficient, the Fed would consider modest changes to the framework. The second option would be to start implementing an alternative framework better suited to deal with recurrent episodes of low real interest rates and inflation. Under the premise that hitting the zero lower bound will be highly frequent, the Fed would adopt a pre-emptive approach by making a switch sooner rather than later, taking advantage of the current favorable economic conditions. Changes to the framework today, if credible, would help avoid hitting the lower zero bound in the future.

The Fed will continue to scrutinize all available options to upgrade the monetary policy framework and decide the best alternative to manage the risks from the zero lower bound. However, given the changes in leadership and the difficulty in reaching consensus, it would seem that the Fed is not likely to modify the current settings anytime soon. After all, central banks tend to move cautiously; once Bernanke became Chairman in 2006, it took the Committee six years to explicitly adopt a 2% inflation target as being consistent with the Fed's statutory mandate.

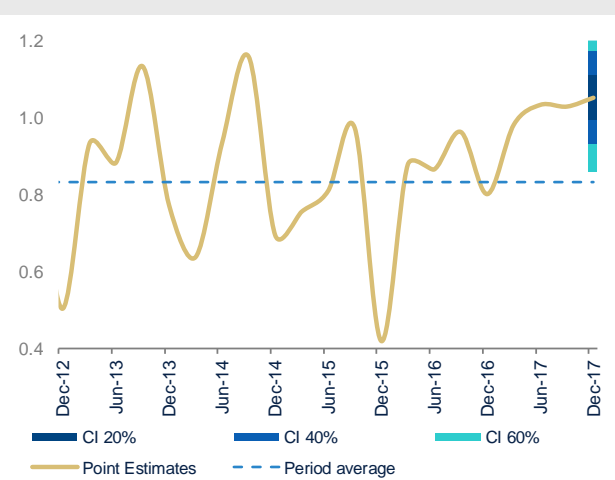
## 2. Global growth has strengthened

World economic growth consolidated in late 2017 at a solid rate of 1% QoQ, reflecting improved results in all major regions and showing signs of continued growth over the coming quarters. Our forecasts point to global growth slightly accelerating in the next two years by around one basis point to 3.8% per year. This represents an upward revision of 0.3% relative to our expectations three months ago in response to higher growth in the U.S, China and the Eurozone in 2018. This is mainly due to more buoyant economic activity and ongoing support from monetary and fiscal policies.

In Latin America, we expect a somewhat stronger recovery this year, due to the upward revision of global demand and higher commodity prices. There are political risks that could weigh on economic confidence and financial markets. These uncertainties are however less significant than three months ago. Investment spending has gained traction with support from increased global demand and an upturn in international trade, allowing a recovery of the industrial sector. Private consumption has gained momentum and remains strong.

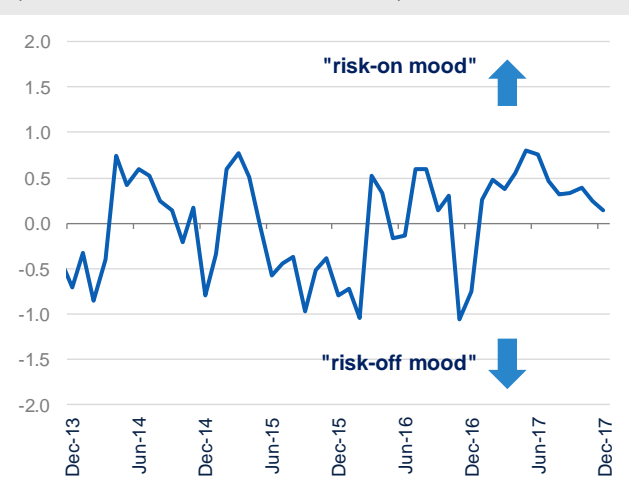
In China, we expect growth to moderate going forward, albeit to a lesser extent than in our previous Outlook. The factors underpinning this scenario remain unchanged: less support from economic policies, a more prudent monetary policy, regulatory tightening, the end to industrial over-capacity and a less expansionary fiscal policy. Nevertheless, the withdrawal from a strict growth target suggests a greater focus on the reduction of structural imbalances, which will boost potential growth. We now forecast that GDP will slow to 6.3% in 2018 (0.3% higher than three months ago) and to around 6% in 2019.

**Figure 2.1** World GDP growth (QoQ, %) forecasts based on BBVA-GAIN



Source: BBVA Research

**Figure 2.2** Risk appetite indicator (overall factor based on EPFR flows)



Source: EPFR and BBVA Research

For Europe, the favorable economic sentiment could be prolonged, though it will be difficult to maintain the current growth pace - clearly above potential. Recent figures, along with an increase in global demand and less uncertainty, have led us to revise up our GDP growth forecast for 2018 by 0.4pp to 2.2%, while we estimate growth at 1.8% for 2019. We are increasing our headline inflation forecast by 3pp to 1.5% for 2018 and to 1.6% for 2019. Regarding inflation, we continue to project a gradual increase in 2018 and in 2019, driven by strong domestic demand, a healthier labor market and the reduction of spare capacity.

Increased growth and higher demand has been accompanied so far by subdued inflation, despite the expansionary measures adopted by major central banks and the gradual reduction in idle capacity in developed economies. Doubts remain as to whether factors underpinning the weakness of inflation are transitory or permanent. Continued economic growth and higher oil prices should push inflation up in the short-term, facilitating advances in the normalization of central bank policy in developed economies.

In the absence of adverse global economic shocks, market fundamentals have continued to support risk taking by investors. In particular, the upbeat economic environment has supported still accommodative monetary conditions, which has helped to maintain record low volatility in financial markets. Yet, this is leading people to question whether certain assets are overvalued, including equities in developed countries, which have maintained an upward trend.

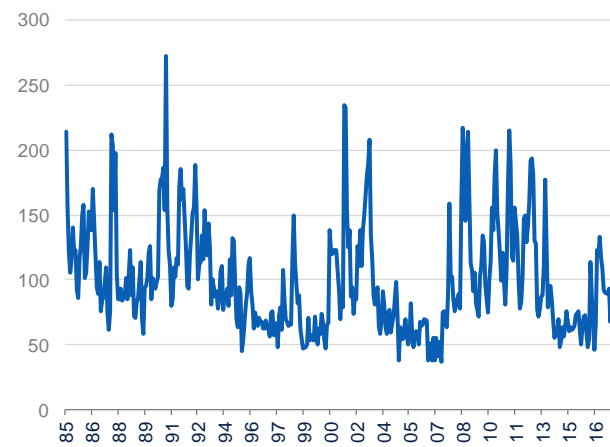
With respect to monetary policy, there have been no surprises. The strong pace of growth is validating monetary policy normalization in developed economies. This positive outlook has also triggered an upward revision of economic projections by the U.S. Federal Reserve and the European Central Bank (ECB). The ECB will reduce quantitative easing in 2018, but with an approach that differs from the Fed Balance Sheet Normalization Strategy, which is underway. Asset purchases have been reduced substantially, but the program has been extended at least until September 2018. In this setting, the ECB is maintaining its commitment not to raise interest rates until sometime after the end of quantitative easing, suggesting interest rate will not be raised until 2019. Other central banks, such as the Bank of England and the Bank of Canada, are taking steps in the same direction (with one-off interest rate rises). The Bank of Japan has maintained its monetary policy, although it has slowed its asset purchases in line with major central banks. Financial markets will have to adapt to a more “normal” monetary environment.

### 3. U.S. optimism high with impetus from tax reform

Neither Trump's nearly 2,500 tweets in the first 12 months of office, a potential populist uprising in Europe, catastrophic weather events in the U.S. (Harvey, Irma & Maria), a shift in the economic ambitions in China nor a government shutdown at the start of 2018, have been enough to derail the optimism both domestically and abroad, leading to a surge in growth and expectations. In fact, annualized growth over past three quarters in the U.S. averaged 2.9%, which was the highest 3-quarter stretch since the first quarter of 2015 (3.5%). Notwithstanding the negative contributions from net exports and a pullback in inventory accumulation, GDP figures were very positive. In fact, on a year-over-year basis, personal consumption, private fixed investment and government spending (Federal, State and Local) were up 2.8%, 5.4% and 0.7%, respectively. With the strong fourth quarter report (2.6% SAAR), average annual growth was 2.3% in 2017.

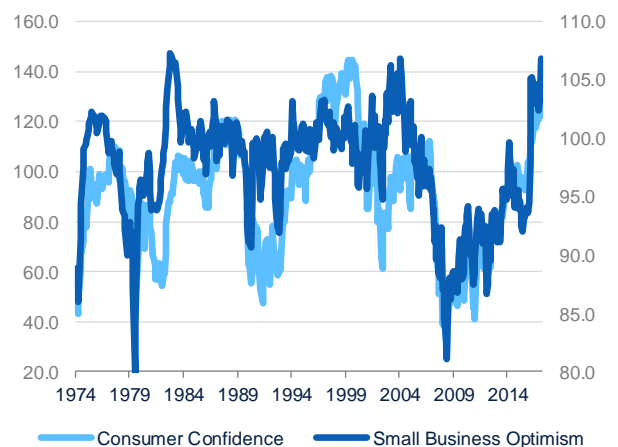
With a mix of increasing consumer confidence and improved business and investor optimism from the tax reform, financial conditions are likely to remain favorable. Corporate credit spreads will continue to ease, as risk appetite remain high. Treasuries, after remaining flat throughout 2017, have begun to rise in part due to increasing inflation expectations and uncertainty, higher growth, and demand and supply frictions; however, we do not expect long-term interest rates to rise rapidly, risking a major tightening of credit conditions in 2018. Furthermore, three additional rate increases by the Fed this year would place monetary policy closer to a neutral position, suggesting short-term rates will remain slightly accommodative for most of the year. With respect to equities, the Tax Cuts and Jobs Act (TCJA) implies an approximately 20-30% decrease in average effective corporate tax rates of U.S. corporations, likely boosting after-tax profits by similar amounts. As a result, there is little evidence that current valuations are irrational or excessive, suggesting the probability of a near-term correction in equities remains low.

**Figure 3.1** Economic policy uncertainty, 1985=100



Source: BBVA Research & Baker et al

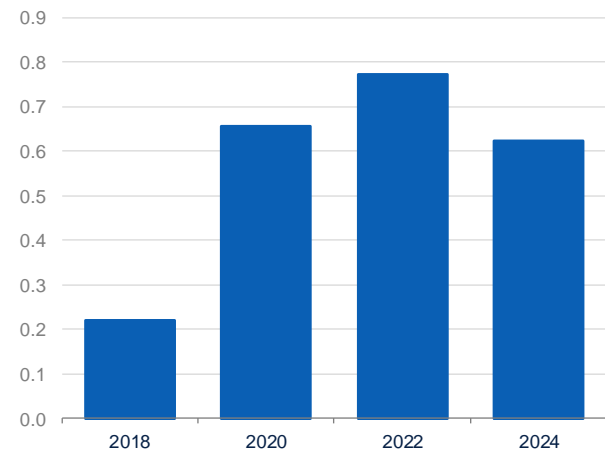
**Figure 3.2** Consumer confidence and small business optimism, 1985=100



Source: BBVA Research

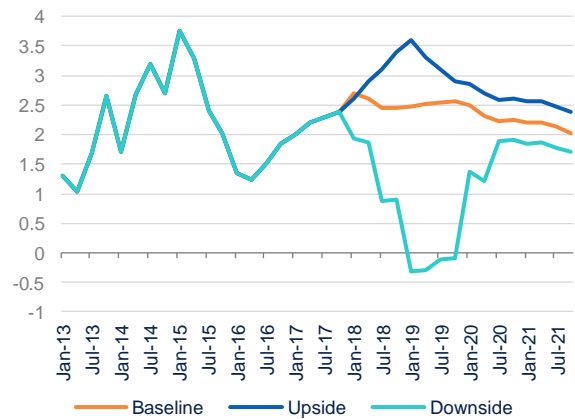
This optimism and momentum was enough to justify raising our growth outlook 10-20bp in 2018. However, with the passage of the TCJA our baseline is now for growth to be even higher. We estimate the TCJA will add 0.2% to GDP growth in 2018. The cumulative effect by 2024 will be 0.6%, implying real GDP growth of 2.6% and 2.5% in 2018 and 2019, respectively.

**Figure 3.3** Impact of tax cuts & jobs Act- GDP, PP



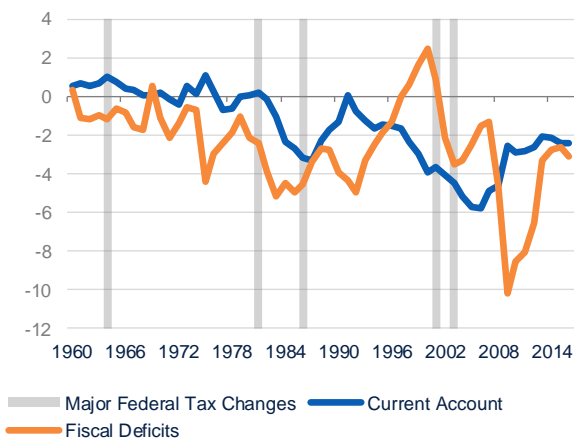
Source: BBVA Research

**Figure 3.4** Gross Domestic Product, year-over-year %



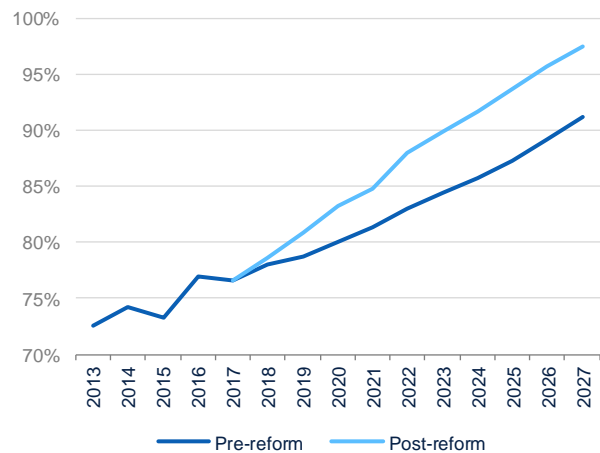
Source: BBVA Research

**Figure 3.5** Fiscal deficits & current account balance, % of GDP



Source: BBVA Research & Haver Analytics

**Figure 3.6** Debt-to-GDP, %



Source: BBVA Research & Haver Analytics

While the impact from the tax changes could be smaller than expected, particularly when considering that the economy is operating at or near full employment and that higher interest rates could offset some of the positive effects, we expect the supply-sided impetus from the corporate tax changes to outweigh any negative aspects. Key provisions include the

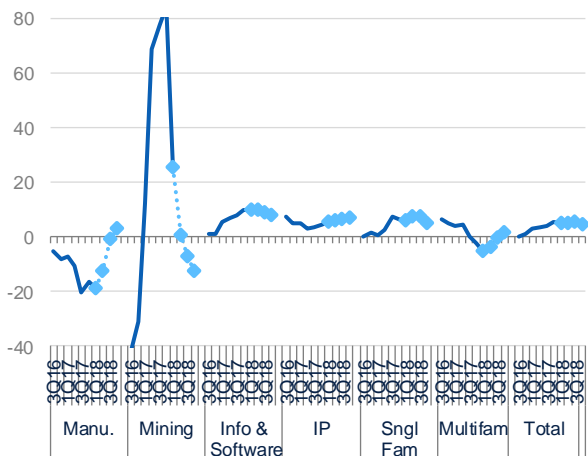


reduction in marginal tax rates to a more globally competitive level, increased ability to deduct new investment, lower marginal rates on pass-through income from small businesses, and the shift to a territorial system with anti-abuse rules and a base erosion anti-abuse tax (BEAT).

While individual tax cuts will give a slight boost to average after tax incomes, expiring tax cuts and marginal rate cuts skewed towards the highest income earners have the potential to lower the aggregate marginal propensity to consume, suggesting that the impact from the demand-side will be muted. In other words, a large portion of the tax cuts could end up as higher savings rather than investment or consumption. This could result in Federal deficits exceeding the current 10-year projections of \$1.45 trillion. Such an increase in Federal deficits would imply debt-to-GDP of around 96% by 2027, which is about 5% higher than previous baseline projections.

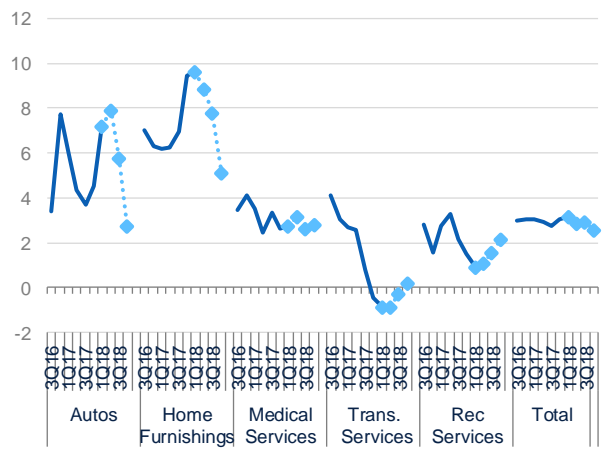
Popular sentiment is also not on the side of consumption with only 14 percent of voters expecting that their taxes will go down;<sup>1</sup> surprising, given that nearly 80 percent of taxpayers are likely to see some reduction in their tax burdens.<sup>2</sup> Thus far, the bulk of the firm-level responses to higher returns to capital have been one-time payments to labor, rather than wage increases. However, lump-sum income shocks tend to have lower elasticities since individuals tend to smooth consumption patterns (save). Furthermore, optimistic estimates for the number of workers getting bonuses are around 2 million, which would be about 1% of total employment. As a result, we are expecting the TCJA to provide only a moderate impetus for consumption in 2018 and 2019, implying growth of around 2.7% and 2.4%, respectively.

**Figure 3.7** Industry real private fixed investment, year-over-year %



Source: BBVA Research

**Figure 3.8** Real private consumption, year-over-year %

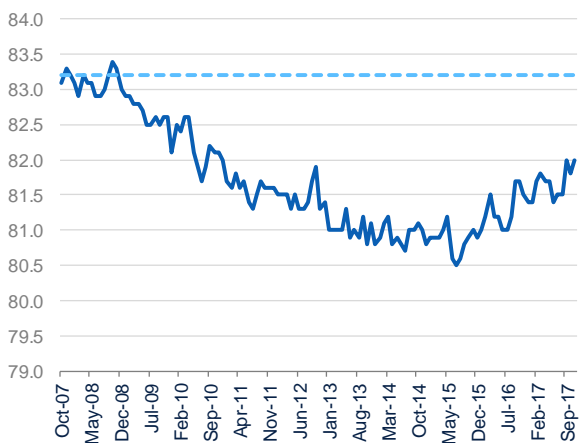


Source: BBVA Research

1: Five thirty eight: <https://fivethirtyeight.com/features/voters-are-skeptical-of-the-gop-tax-bill-overall-not-just-whether-theyll-get-a-cut/>  
 2: <http://www.taxpolicycenter.org/publications/distributional-analysis-conference-agreement-tax-cuts-and-jobs-act/full>

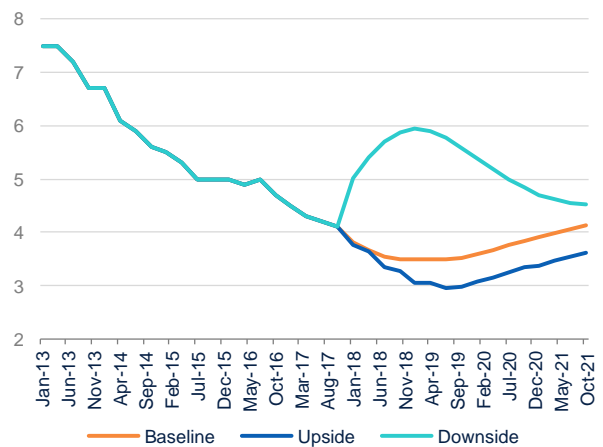
Where the TCJA has the biggest potential to boost domestic growth is on the supply-side with jolt to private fixed investment, as firms will now face lower statutory rates and will be able to deduct 100 percent of capital expenditures for a five-year period. This will add to the tailwinds in the mining sector, which include gains in productivity in shale exploration, rising prices and added potential from exports. In addition, the weakening of the U.S. dollar, investment incentives and stronger global and domestic growth have the potential to revive the manufacturing sector, which contracted in 2017. For residential investment, the changes to standard, state and local income tax and mortgage interest deductions are expected to have only modestly negative effects on home prices, suggesting that residential investment could grow strongly given the persistent supply shortages in major metropolitan areas. As a result, we expect real private fixed investment growth to accelerate to 4.4% in 2018 and 4.9% in 2019, from 3.2% in 2017.

**Figure 3.9** Prime-age labor force participation, %



Source: BBVA Research & Haver Analytics

**Figure 3.10** Unemployment rate, %



Source: BBVA Research & Haver Analytics

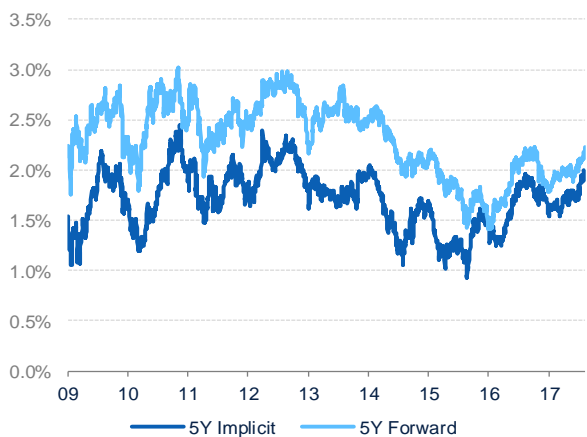
In terms of the fundamentals, the labor market remains in a historically strong position. Monthly job creation averaged 174K in the fourth quarter of 2017, which is consistent with the annual average, changing demographics and slowing labor force growth. In terms of industry strengths, the financial, manufacturing, construction and professional and technical service sectors were strong contributors to job growth adding 105K, 84K, 190K and 265K, respectively. However, retail added only 13.6K employees in 2017, marking the lowest non-recessionary job creation rate in modern history. In part, this reflects a shift in consumer preferences toward online sales rather than visits to the mall.

However, prime-age workers—those aged 24-55— which had left the labor force at alarming rates— are now re-entering the labor force. In fact, the participation rate for prime-age workers was up 1.3pp since 2015, of which 60% is explained by higher female participation. In other words, of the 1.5M prime-age workers that entered/re-entered the labor force since 2015, nearly 1M of those have been females. The improvement in prime-age workers seems to be supported by stronger job creation in household goods repair and maintenance, death care services, and membership associations.

Part of the gender gap could also be associated with opportunities and skills. For example, two traditionally male-dominated sectors, construction and manufacturing, currently have 500K job openings as opposed to occupations with higher participation from females such as health care and social assistance and professional business services, which have over 2 million openings. Not surprisingly, given the increasing demand for hospital workers and nursing care, we are seeing wages in these sectors rise at a rate that is consistent with a tight labor market, as is the case in construction and transportation, which have continued to face shortages in the post-crisis period.

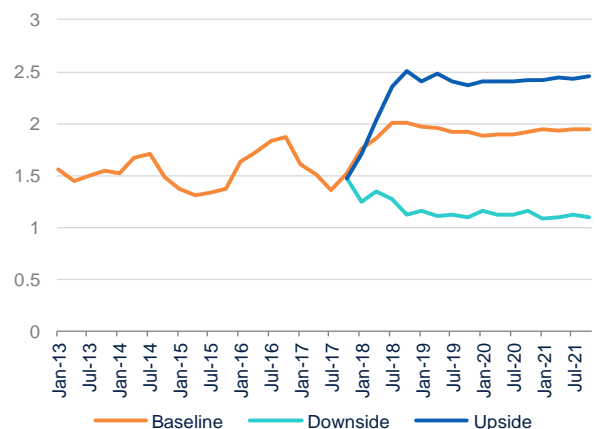
Moreover, although much of the previous early wage gains in the post-crisis period were sector specific, in 2017 most sectors saw a nontrivial rise in both nominal and real wages. That said, given the tightness of the labor market and the fact that we expect the unemployment rate to dip well below its long-run average to 3.7% by the end of 2018, one would expect wages and prices to rise more briskly. The lack of response has led some to question the links between inflation expectations and unemployment.

**Figure 3.11** Inflation expectations, %



Source: BBVA Research

**Figure 3.12** Core PCE, year-over-year %



Source: BBVA Research

Regardless, we now expect core inflation to begin to edge up because of expansionary fiscal policy, stronger growth and a weaker dollar. Despite higher than expected growth and the prospects of deficit-financed fiscal policy, core inflation will continue to trend below 2%. Categories such as healthcare and education, which had been large contributors to the higher inflation in the pre-crisis period, are likely to continue to grow at rates below their pre-crisis trend. As a result, our baseline assumes of core PCE converges with its long-term trend of around 1.9% by 4Q18.

The risk balance also appears tilted to the upside given that there is a moderate probability that private investment and/or domestic consumption respond more strongly to the tax changes than anticipated. In addition, global sentiment remains high, conditions in Europe and China are expected to remain auspicious while risks in Latin America appear political rather than economic in nature.

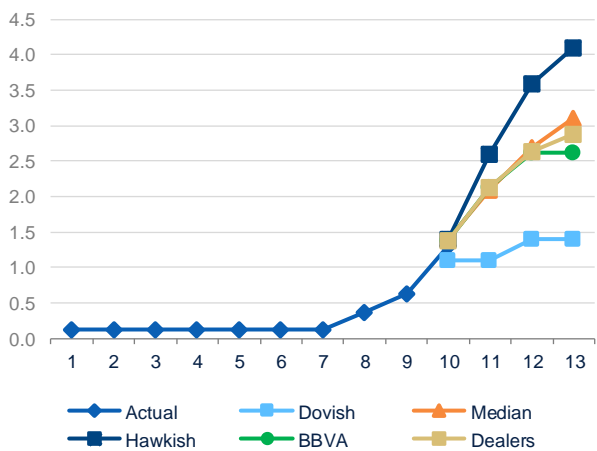
With respect to downside risks, domestic policy uncertainty remains the biggest concern. While the first government shutdown in 4 years ended, the agreement only buys Congress and the President three weeks to negotiate annual appropriations before the Government runs out of funding on February 8th. Reaching a deal before the deadline will be difficult given the political polarization in Washington and lack of goodwill on both sides. Complicating matters is the Debt Ceiling, which exceeded \$20tn on December 9. Extraordinary measures to stay within the statutory limit will run out in March. Barring any unforeseen shift in partisanship, Congress and the President will likely opt to kick-the-can down the road by way of a series of stopgap measures, elevating policy uncertainty and putting U.S. creditworthiness at risk. Particularly if Democrats perceive that recurrent short-term deals benefit their chances for the midterm elections.

That said, with predictable monetary policy, stable financial conditions, a wealth-effect from rising equity prices, fiscal stimulus and confidence abound, we expect 2018 to be an above average year for growth. In fact, this momentum is likely to carry into 2019 with the added impetus from deregulation and potential for moderate increases in household and corporate leverage. With this in mind, in a few more months, this economic cycle will become the longest expansion ever.

## 4. Monetary policy on solid footing heading into 2018

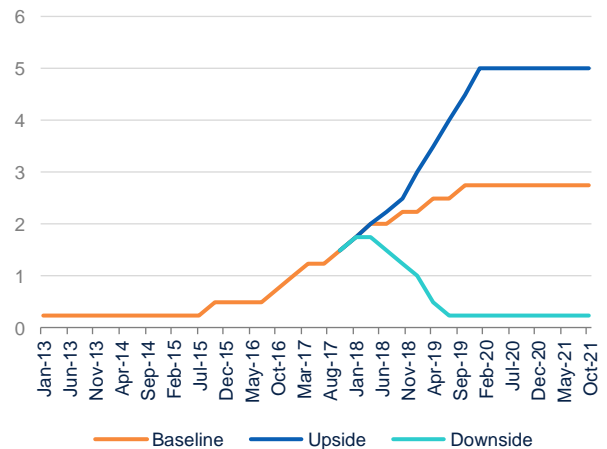
After wearing market’s patience thin in 2016 with an unexpected and prolonged pause in its normalization strategy, the Fed regained its footing in 2017. Interest rates were lifted by 25bp three times (in line with the committee’s expectation heading into the year), the process of unwinding the Balance Sheet was communicated and executed while at the same time the transition between Yellen and her successor (Powell) was solidified. As a result, market and consensus expectations are now more closely aligned with a gradual, but steady increase in interest rates in 2018 and beyond. In fact, the gap that remains relates more to the terminal level of this tightening cycle than the timing and pace of interest rate normalization, as markets have now aligned with our baseline of three additional 25bp rate increases in 2018.

**Figure 4.1** Fed funds rate, %



Source: BBVA Research, Haver Analytics & FRB

**Figure 4.2** Fed funds rate scenarios, %



Source: BBVA Research

Given that the normalization policy has gained traction, the greatest source of uncertainty stems from the shifting composition of the FOMC board and the inward rotation of new regional presidents. This year, the board is likely to have a new chair, at least two new governors (potentially three more), a new vice chair and head at the NY Fed, and a new head of regulatory affairs. Assuming all the governors seats are filled with candidates with similar attitudes towards monetary policy— traditional policy-rule wonks— such as Quarles and Goodfriend there would be a non-trivial shift in the board’s voting bias from slightly dovish to hawkish. This hawkish bias will also be reinforced by the rotation of regional presidents: Cleveland Fed President Mester will be voting in 2018, Kashkari (Minneapolis) and Evans (Chicago) will not be voting, and the new Richmond Fed President Thomas Barkin will be a voting for the first time this year. As such, the committee’s tolerance for higher inflation may be limited.

**Figure 4.3** FOMC board rotations

		Dovish		Center	Hawkish	
Permanent		Brainard	Dudley**	Powell	Quarles, Goodfriend	
Rotation	2017	Kashkari	Evans	Kaplan	Harker	
	2018		Williams, Bostic*		Barkin*	Mester
	2019		Evans, Rosengren	Bullard		George
	2020	Kashkari		Kaplan	Harker	Mester

\* Newly Appointed/Interim, voting bias unobserved

\*\*Retiring in 2018

Awaiting Confirmation

Source: BBVA Research

In terms of the new Chair, the greatest test will be of Powell's leadership style, which will face scrutiny in the early phases of his tenure. Powell will be a break from the previous two Chairs who had pedigreed economic backgrounds. He does have political and financial experience, serving as Undersecretary of the Treasury under George H. W. Bush and as a partner in the private equity firm the Carlyle group. However, Powell's main work as a governor has been behind the scenes, working to respond to the 2014 Treasury debt flash crash while also leading the effort to reform the London Interbank Offered Rate market. As a result, while he is likely to be committed to the Fed's symmetric 2% inflation goal and believes that the best way to combat the next downturn is to bring inflation back to 2% he also favors a strong risk management approach and clear delineation between monetary policy and macroprudential tools. With respect to the political economy and fiscal policy, he may be more tolerant than the current Chair, but is not likely sacrifice price stability for short-term growth objectives.

Nevertheless, with inflation moving closer to the Fed's target and the labor market clearly surpassing levels the committee would deem to be consistent with the long-run, there is a chance the more conservative board will devote more attention to financial conditions. First, concerns over the inversion of the yield curve could grow: there are fears from a market signaling perspective— markets react to inversion signals rather than precede it— and from a leading indicator perspective— the concern that if the inversion is a reflection of weakening economic growth. The former would suggest slowing the pace of normalization to allow the term-premium to rise, the latter would imply a faster pace of normalization in an effort to prepare monetary policy for the next shock. Second, U.S. equity markets, while not irrationally overbought by some metrics, have experienced their second longest Bull Market and are poised to surpass the 1990s, which was the longest Bull Market in history. Third, home price pressures continue to build despite tighter financial conditions and decreasing affordability. Fourth, the dollar has weakened in spite of the Fed leading the normalization push in developed economies, a trend that could complicate the inflation outlook. Last, although the Fed's modus operandi with respect to tax reform has been that it will mostly affect the supply-side and thus will not greatly impact their outlook for inflation, there is a chance that some of

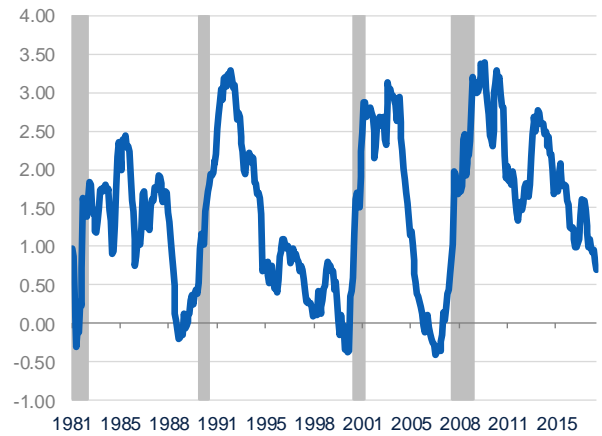
the more hawkish appointments begin to exercise their Taylor-like instincts and advocate for a less acquiesced policy. While the scrutiny surrounding these factors may grow, there is unlikely to be a major divergence in the normalization notwithstanding a major blow to market's or investor's confidence.

**Figure 4.4** S&P 500 price-to-operating earnings & cyclically-adjusted PE



Source: BBVA Research & Haver Analytics

**Figure 4.5** Yield curve slope(10Y-1Y) & recessions



Source: BBVA Research & Haver Analytics

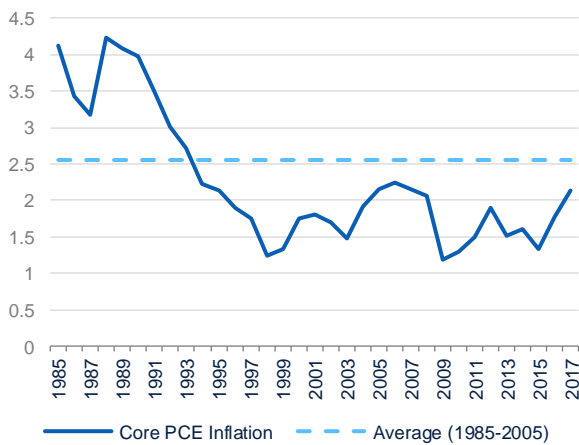
Both the change in committee zeitgeist and the fact that the committee is close to achieving their dual-mandate suggest that the Fed will also start giving more attention to policy options in the out years. While we do not expect a change in strategy in the short-term, there could be serious discussions about possible adjustments to the targets and tools. Possible alternatives to the current framework of inflation targeting include policies such as inflation-level targeting and nominal GDP targeting. Similarly, with the benefit of hindsight, discussions on the non-traditional monetary policy tools used during the crisis such as quantitative easing, forward guidance and financial regulation and their efficacy will surely grow. However, if history serves as precedent the committee and Congress will be reluctant to expand the scope or approach of monetary policy any time soon.

Our baseline scenario assumes three additional rate increases in 2018 and two more in 2019. However, with both headline and core measures of inflation rising, market-based inflation expectations reaching 3-year highs, potential spillovers from weak dollar, a rebound in commodity prices, expansionary fiscal policy and tightening labor markets, the probability of four rate moves in 2018 continues increasing.

## 5. Inflation and the Phillips Curve

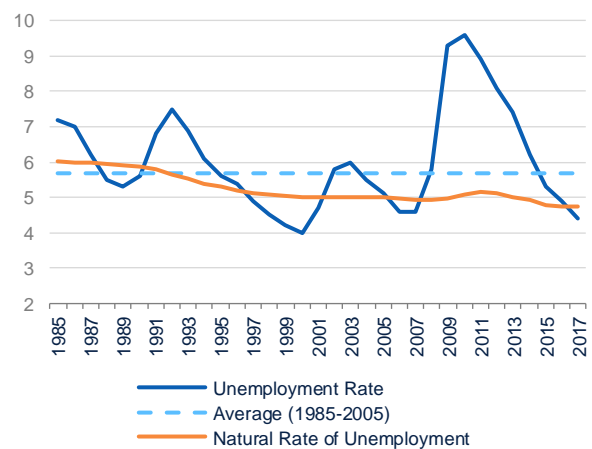
The U.S. has experienced low inflation in the last decade (Figure 5.1). While the Federal Reserve's dual mandate includes price stabilization, the low inflation rate for an extended period also has its risks. As Japan—the poster child of a low-inflation economy—shows us, low inflation rates lead to low nominal interest rates, which will give the central bank insufficient room to maneuver under adverse economic situations. This is known as the Zero Lower Bound Problem (ZLBP).<sup>3</sup> Conventional wisdom recommends an extended period of expansionary monetary policy to boost demand, and consequently to lift the price level above the inflation target.

**Figure 5.1** Core-PCE inflation (1985-2017)  
%



Source: BEA, Haver & BBVA Research

**Figure 5.2** Unemployment rate (1985-2017)  
%



Source: BLS, CBO & BBVA Research

### The Phillips Curve

The low unemployment rate complicated ZLBP during the last several years (Figure 5.2). The unemployment rate in 2016-2017 was significantly below its historical average. Moreover, the unemployment rate has been consistently lower than its natural rate since November 2016, which indicates a likely overheating of the economy, and thus would imply tighter monetary policy with higher interest rates. However, inflation has remained low, which is inconsistent with established relationships between labor market tightness and inflation. This conundrum prompted policymakers and economists to re-investigate the relationship with a more theoretical approach.

Although we have seen similar low-inflation, low-unemployment situation in Japan for more than two decades, it is worth noting that we have not observed such combination in the economic history of the U.S. In fact, the conventional understanding of the business cycle fluctuation is that inflation (unemployment rate) will increase (decrease) during

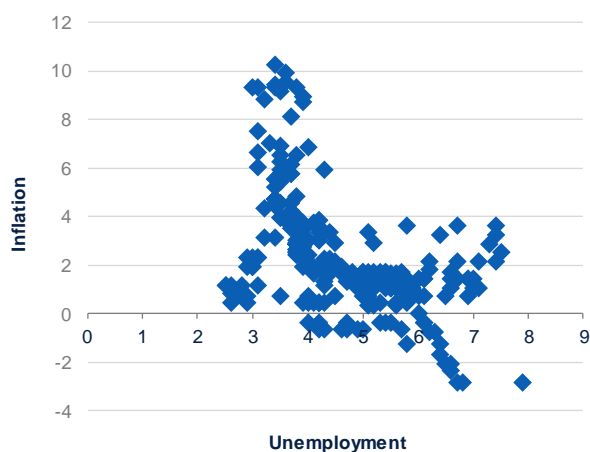
3: Reifschneider, D., & Williams, J. C. (2000). Three Lessons for Monetary Policy in a Low Inflation Era. *Journal of Money, Credit and Banking*, 936-966.



economic expansions, and the opposite will happen during economic downturns. Irving Fisher initially discovered the trade-off between inflation and unemployment in 1926,<sup>4</sup> which was later named as the “Phillips Curve” due to the extensively circulated work by William Phillips, who finds the inverse relationship between wage increases and the rate of unemployment in British data.<sup>5</sup>

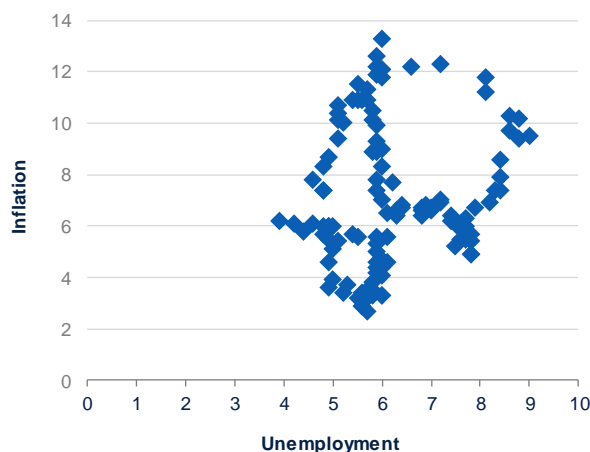
The statistical relationship between the inflation and unemployment suggests a convenient exploit for the central bank: jobs can be created as long as policymakers are willing to tolerate an increase in inflation. In fact, such relationship holds true for the 1960s, and the U.S. economy enjoyed a decade of economic propensity (Figure 5.3).

**Figure 5.3** Inflation and unemployment (1948-1969)  
%



Source: BEA, BLS, Haver and BBVA Research

**Figure 5.4** Inflation and unemployment (1970-1979)  
%



Source: BEA, BLS, Haver and BBVA Research

However, such trade-off suddenly disappeared in the 1970s. As the central bank repeatedly tried to create jobs by raising inflation, the U.S. economy suffered from both high inflation and massive unemployment (Figure 5.4). Edmund Phelps predicted the collapse of the relationship in 1967,<sup>6</sup> when economic data showed no sign to reject the Phillips Curve. Phelps argued that in the long-run, the unemployment moves around its natural level, which is determined by real labor market frictions, such as changes in the economic structure and mismatch of job skills. Therefore, in the long run, policymakers' efforts to push the unemployment rate under its natural level will end up in vain.

However, in the short run, an unexpected increase in the rate of inflation could lower the unemployment. As the nominal wage negotiated between workers and firms is based on their expected inflation, a surprise in inflation will reduce the real wage, and therefore encourage firms to hire more workers. However, after a period of time, firms and workers will adjust

4: Fisher, I. (1973). I Discovered the Phillips Curve: "A Statistical Relation between Unemployment and Price Changes". *Journal of Political Economy*, 81(2, Part 1), 496-502.  
 5: Phillips, A. W. (1958). The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861–1957. *Economica*, 25(100), 283-299.  
 6: Phelps, E. S. (1967). Phillips Curves, Expectations of Inflation and Optimal Unemployment over Time. *Economica*, 254-281.

their expectation to absorb the shocks in inflation, and the temporary boost in the number of jobs will go away with the unemployment rate converging to its natural level. In other words, since the central bank cannot keep surprising the public with ever-accelerating inflation, the effect can only last a short period of time.

## The New Keynesian Phillips Curve

The view that inflation can affect the unemployment, but only in the short run, has been widely accepted by economists. In the standard New Keynesian model used by today's central banks, the relationship between inflation and unemployment can be written as:

$$\pi = \beta\pi^e - \kappa(u - \bar{u})$$

where  $\pi$  denotes the inflation rate,  $\pi^e$  notes the expected inflation rate, and  $(u - \bar{u})$  denotes the difference between the actual unemployment rate and the natural rate of unemployment. The positive coefficients  $\beta$  and  $\kappa$  denote the impact of expected inflation and unemployment on inflation respectively. Since this equation is a key component for New Keynesian models, it is often referred to as the New Keynesian Phillips Curve (NKPC).<sup>7</sup>

According to the equation, the unemployment rate and the inflation rate are negatively correlated. The slope parameter,  $\kappa$ , will determine the sensitivity of changes of the two. Also, since the relationship between inflation and unemployment is only short-run, the slope parameter is time-varying. According to Blanchard et al. (2015)<sup>8</sup> and Blanchard (2016),<sup>9</sup> the slope parameter has steadily declined from the 60's 0.7 to today's 0.1. Although different economists may maintain various estimates of the slope parameter, most will agree that the slope has been decreasing, which is commonly referred to as the "flattening" of the Phillips Curve.

With the declining sensitivity to the unemployment rate, the expected inflation plays an increasingly important role in shaping the path of inflation rates. Based on the same estimates by Blanchard et al., the anchoring of expectation has been gradually increasing since the mid-1980s. The value of  $\beta$  was around 0.3 in 1985 and is close to 1 since 2008. The dominance of the expected inflation on actual inflation comes after three decades of low inflation and the credibility of the monetary authority.

## How Will the Inflation Expectation Evolve?

Policymakers and economists provided various explanations for the low inflation. Some economists think that the low inflation is just temporary. For example, the Federal Reserve Chair Janet Yellen argues that "the recent lower readings on inflation likely reflect transitory factors." That is, the inflation rate will eventually rise and "stabilize around 2 percent over the

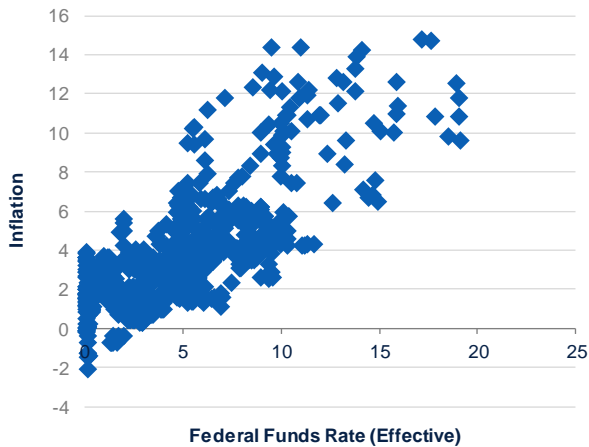
7: Gordon, R. J. (2011). The history of the Phillips Curve: Consensus and Bifurcation. *Economica*, 78(309), 10-50.

8: Blanchard, O., Cerutti, E., & Summers, L. (2015). Inflation and Activity—Two Explorations and Their Monetary Policy Implications (No. w21726). National Bureau of Economic Research.

9: Blanchard, O. (2016). The United States Economy: Where to from Here? The Phillips Curve: Back to the '60s?. *The American Economic Review*, 106(5), 31-34.

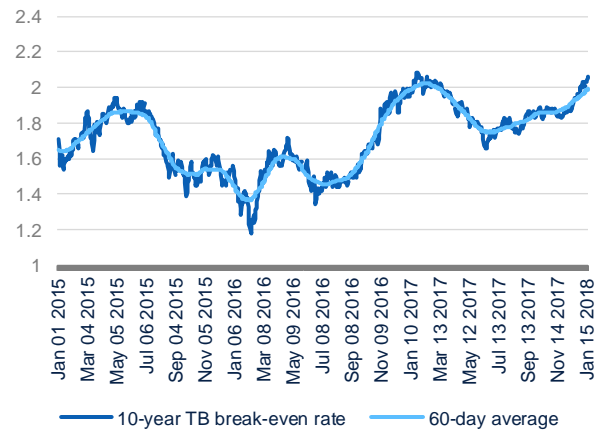
medium term”, once the “transitory factors fade.”<sup>10</sup> Therefore, she and other FOMC members decided to raise the interest rate in last December, even though core-PCE inflation was still lower than the target of 2%.

**Figure 5.5** CPI inflation and Federal Funds Rate  
% YoY, %



Source: BLS, Haver and BBVA Research

**Figure 5.6** Inflation expectation  
%



Source: Haver and BBVA Research

However, some economists, notably Cochrane (2015),<sup>11</sup> Williamson (2016),<sup>12</sup> and Uribe (2017),<sup>13</sup> claim that nominal interest rates can be used as a tool to guide the expected inflation. Their idea is based on the long-run parity between the nominal interest rate and the sum of the real interest rate and the expected inflation rate, which is often written in the math form as  $i = R + \pi$ , where  $i$  denotes the nominal interest rate,  $R$  denotes the real interest rate, and  $\pi$  denotes the inflation rate. As the real interest rate is determined by “real” factors, the change in nominal interest rates and the change in inflation rates should be one-on-one (Figure 5.5). Therefore, if the central bank can convince the public that they are determined to raise the interest rate, the expected inflation rate will follow suit, and so will the actual inflation rate. They call this solution “neo-Fisherism”, because Irving Fisher was the first economist who estimated the relationship between nominal and real interest rates taking inflation as given. As the Fed showed a strong will in 2017 to “normalize” the monetary policy, the increase of the inflation rate is a natural result.

The market indicator of inflation expectations seems to support the view of the neo-Fisherites. For example, the 10-year break-even rate is a key market measure of inflation expectations. It is the difference between the nominal yield on the 10-year Treasury Bond and the real yield on the 10-year Treasury Inflation-Protected Security (TIPS). From Figure 5.6, we can see that the inflation expectation has an overall upward trend since 2016. The sharp increase in this January illustrates the momentum for a higher inflation rate.

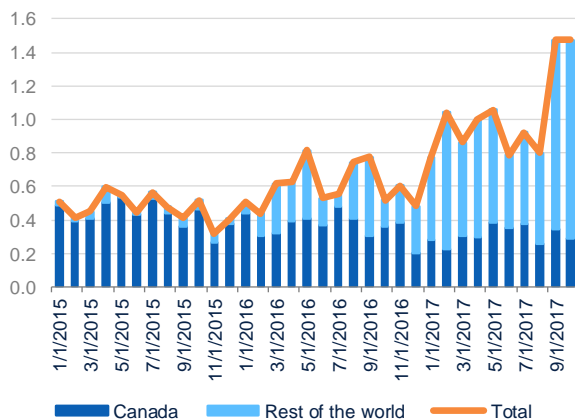
10: The Current Economic Outlook and Monetary Policy: Hearings before the Joint Economic Committee, U.S. Congress, November 29, 2017 (Testimony of Janet L. Yellen).  
 11: Cochrane, John H., “Doctrines Overturned,” The Grumpy Economist Blog, February 2015  
 12: Williamson, S. D. (2016). Neo-Fisherism: A Radical Idea, or the Most Obvious Solution to the Low-Inflation Problem?. *The Regional Economist*, 24(3).  
 13: Uribe, M. (2017). The Neo-Fisher Effect in the United States and Japan (No. w23977). National Bureau of Economic Research.

Although policymakers and economists may disagree on the mechanism behind the recent rise of inflation rates, in the short run, both of their theories would suggest an increasing inflation rate, and the Fed should keep increasing nominal interest rates. In the medium run, however, the Fed may tend to take more aggressive measures to cool down the economy, as the global economy seems to pick up the pace. The neo-Fisherites may pay more attention to the estimation of the natural interest rates, measures of inflation expectation, and communication strategies of the central bank.

## 6. Crude oil exports, the next chapter in the U.S. energy boom

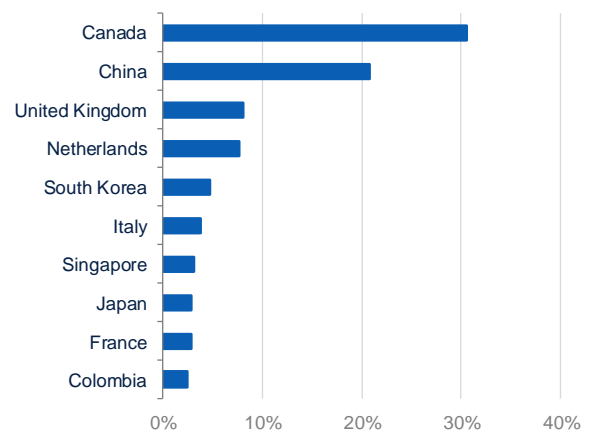
In the following years, the U.S. will play an increasingly important role in crude oil markets, not only as a major producer, but also as a major exporter. Exports of crude oil have grown significantly since Congress lifted the 40-year-old ban in December 2015. Between 2016 and 2017, they increased by 69%, from an average of 590,000 b/d to 1 million b/d. From January 2016 to October 2017, 42% of U.S. crude oil exports went to Canada -which was originally excluded from the ban. Another 22% went to Europe, specifically to the Netherlands, the UK, Italy, France and Spain; 26% went to Asia (with China absorbing half of them), and 8% went to Latin America.

**Figure 6.1** U.S. exports of crude oil by destination (million barrels per day)



Source: BBVA Research and Haver Analytics

**Figure 6.2** Top ten destinations for U.S. crude oil exports (% of total)



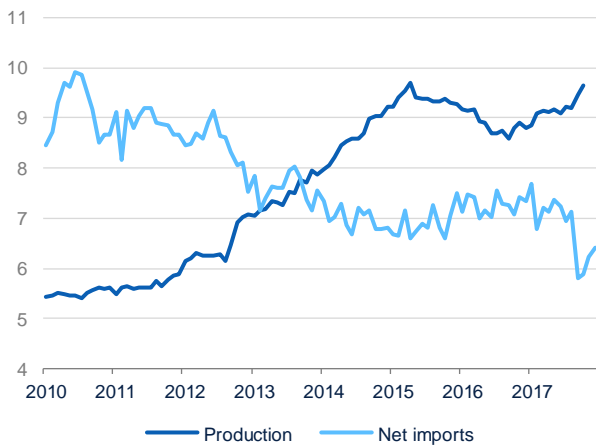
Source: BBVA Research and Haver Analytics

Besides the elimination of the export ban, other factors have contributed to the surge in crude oil exports. The most important is the rapid expansion of the country’s production resulting from the use of hydraulic fracturing and horizontal drilling to extract crude oil from the huge reserves accumulated in tight formations. Exports are, in fact, the natural consequence of higher production. The so called “shale boom” significantly increased the amount of domestic oil available to refineries, boosting refinery runs and reducing imports. In fact, although the U.S. continues to be a net importer of crude oil, the trade gap has narrowed from 9.2 million b/d in 2010 to 6.8 million b/d in 2017.

Crude oil exports were also possible because refineries could not absorb all the crude produced domestically. Many of the refineries were configured to process crude oil with higher density (heavy) and higher content of sulfur (sour) than the light sweet varieties coming from the Bakken or the Eagle Ford. For these refineries, switching to light-sweet is costly; thus, importing heavy sour from countries like Canada or Venezuela makes more economic sense. This situation created a surplus of light-sweet that could be sold overseas.

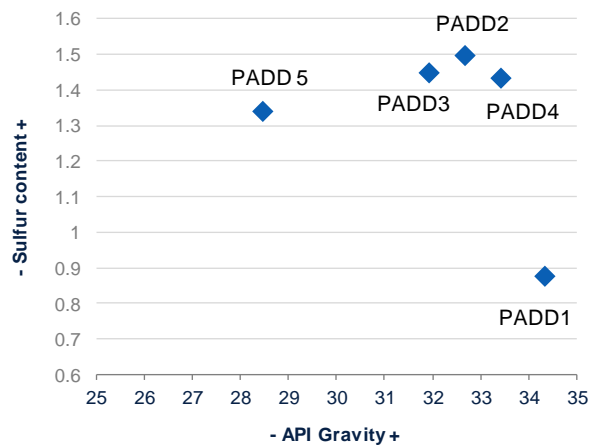
Investments to process heavy sour were made several years ago when U.S. production was expected to decline and imports to increase. However, as these trends have reversed, U.S. refineries are expected to invest in technology to process light-sweet crude. These upgrades will come hand in hand with investments in transportation infrastructure to facilitate the move from the production sites to the refineries.

**Figure 6.3** U.S. production and net imports of crude oil



Source: BBVA Research and Haver Analytics

**Figure 6.4** U.S. crude oil input qualities (by Petroleum Administration of Defense Districts)

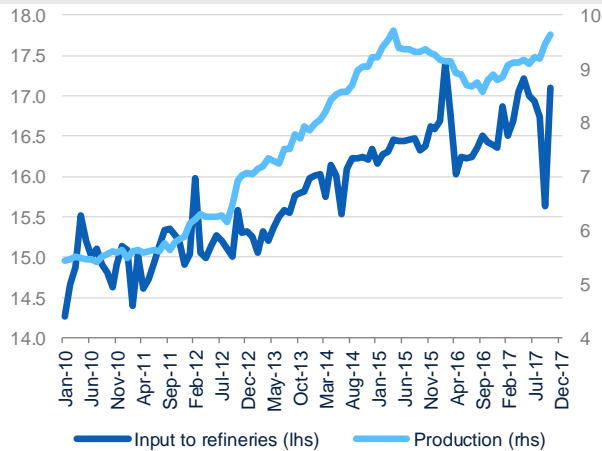


Source: BBVA Research and Haver Analytics

Another important factor behind the growth of U.S. crude oil exports is the price differential between the WTI and the Brent, which has averaged \$5.1 per barrel since 2H17, the highest in four years. In December 26, the Brent was priced at \$7.39 per barrel above the WTI. The output cuts lead by OPEC and Russia pushed the value of the Brent up against the WTI since the prices of OPEC crudes have a stronger correlation with the Brent. In 2017, the spread was also widened by the impact that Hurricane Harvey had on U.S. refining capacity. Harvey’s disruption to refineries caused inventories to build up, which in turn caused the WTI to trade at a discount against the Brent. A wider gap generated arbitrage opportunities for U.S. crude which reflected in higher exports. Another supportive element was the forward curve that turned into backwardation in the second half of the year, discouraging inventory accumulation.

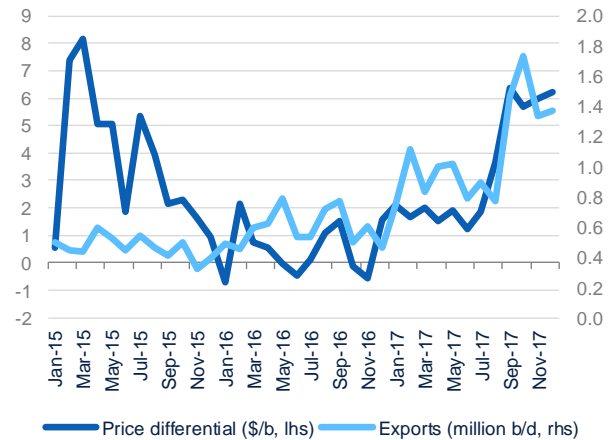
We expect exports of crude oil to expand further in 2018 and most of 2019. The global economy is expected to grow at a solid pace supporting demand for crude oil and petroleum products. In addition, U.S. production is expected to expand further, increasing the amount of crude to be traded overseas. Higher exports will continue to be favored by a backwardated forward curve, and a relatively high Brent-WTI differential. The continuation of the output deal through 2018 and the expectation of robust demand will keep a premium on the Brent, which tends to be more affected by global developments. Assuming that U.S. production surpasses the 10 million b/d threshold by 2018 and reaches 11 million b/d in 2019, and that refinery runs expand at the current pace, there could be between 300,000 and 700,000 additional b/d to be exported between 2018 and 2019.

**Figure 6.5** U.S. crude oil production and crude oil input to refineries (million barrels per day)



Source: BBVA Research and Haver Analytics

**Figure 6.6** Spot crude prices differential and U.S. exports of crude oil



Source: BBVA Research and Haver Analytics

In the mid-term, infrastructure will be critical to the future of exports. Experts tend to agree that existing infrastructure is enough to support the move of 3.5 million b/d abroad. Although exports are still far from these levels, figures show that they can grow pretty quickly, thus the need to expand investments in shipping, storing, and docking capacity. Between 2018 and 2019, around 2 million b/d of pipeline capacity will be added to connect the Permian Basin and the port of Corpus Christi, currently the most important export hub. The port's dredging projects, partially funded by the federal government, are projected to increase export capacity by 3 million b/d. As U.S. production continues to grow and appetite for U.S. crude intensifies, more pipelines connecting the production centers with the export terminals can be expected in the following years.

Burgeoning exports of crude oil will have geopolitical implications. Competition for market share between the U.S. and major crude oil exporters will intensify, effectively limiting the bargaining power of OPEC and other key players. In the not too distant future, the U.S. could use its vast amount of oil and gas resources to improve the energy security of its allies by making them less vulnerable to political unrest in countries like Nigeria, Libya or Venezuela. The country could also use exports to maintain the stability of oil markets when sanctions are imposed to other important exporters such as Iran or Russia or when hostilities between top producers emerge.

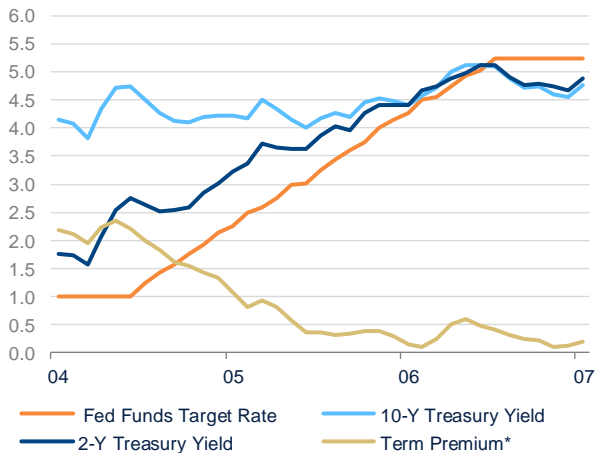
Nevertheless, the bonanza is not exempt from risks. In the mid- and long-term, exports of crude oil will be challenged by a trend towards the electrification of transportation, improvements in energy efficiency, and regulations to curb climate change. These trends are expected to accelerate in critical markets such as Europe and Asia, most notably in China. However, at the current stage of technology, none of these structural risks would imply the complete substitution of crude oil for other sources of energy. In the following years, population and economic growth will remain the fundamental drivers of crude oil exports.

## 7. New dynamics or an old predictor: implications of a flattening yield curve

The treasury yield curve - famed for predicting U.S. recessions - is in the spotlight. The end of 2017 was marked with a rapid flattening of the yield curve, where the spread between the 10-year and 2-year treasury yields declined by 30 basis points in the span of two months. The flattening of the yield curve has awakened a speculation of a nearing yield curve inversion in which short-term rates rise above long-term rates. Since the Second World War, yield curve inversions have preceded past economic downturns. Nevertheless, Federal Reserve Chair Yellen has advocated for a mellowed relationship between the yield curve and its predictive power of economic growth, citing the fact that structural factors - such as increased demand for treasuries, lower inflation risk, and lower term premium - have resulted in overall flatter yield curve dynamics.

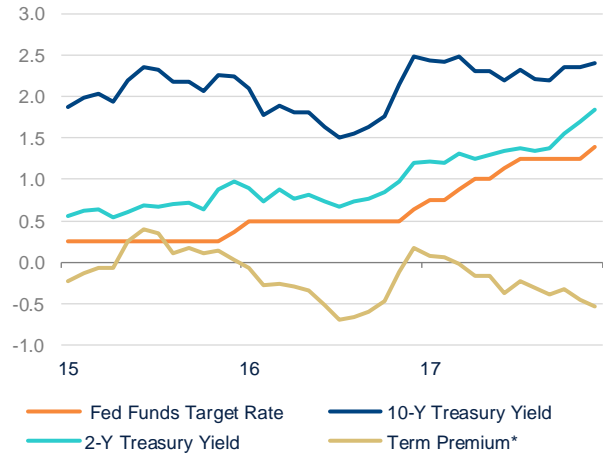
*“there is a strong correlation historically between yield curve inversions and recessions, but let me emphasize that correlation is not causation, and I think that there are good reasons to think that the relationship between the slope of the yield curve and the business cycle may have changed.” Chair Yellen’s Press Conference, December 13, 2017*

**Figure 7.1** 2004-2006 tightening cycle and Greenspan’s conundrum (%)



Source: BBVA Research & FRB  
 \*ACM (Adrian, Crump, and Moench) five-factor, no-arbitrage term structure model incorporating pricing factors

**Figure 7.2** 2015 – Present tightening cycle (%)



Source: BBVA Research & FRB  
 \*ACM (Adrian, Crump, and Moench) five-factor, no-arbitrage term structure model incorporating pricing factors

### Lesson from the Past Monetary Cycle

The 2004-2006 tightening cycle has become known for what Fed Chair Greenspan called a “conundrum” when long-term bond rates declined at the same time that the Federal Reserve was tightening Fed funds rates by 150 basis points.



During the June 2004 to June 2006 cycle, the FOMC embarked on 25 basis points rate increases at each meeting, raising the target rate by a total of 425 basis points. Short-term rates moved along with the fed funds rate while the 10-year Treasury rate increased by only 38 basis points. The lack of upward pressures in long-term rates was attributed to a sharp decline in term premium. The low term premium was overwhelmingly explained by downward pressures on inflation risk and by the Asian savings glut that led to increased demand for U.S. treasuries from central banks. The 2004-2006 tightening cycle was also accompanied by a rise in the equities market and a weakening of the dollar, which financial analysts found counter-intuitive.

Nevertheless, the predictive power of a flattening yield curve was dismissed prior to the financial crisis and Great Recession. In February 2006, 24 months before the start of the recession, the two-year rate surpassed the 10-year rate and the spread continued to fluctuate near zero and into negative territory for another 17 months. However, many economists, Fed Chair Bernanke among them, concluded at the time that the narrowed spread was not a warning of an economic slowdown since both nominal and real short- and long-term interest rates were relatively low by historical standards and that the implications of lower term premium on future economic activity would be “positive rather than negative.”<sup>14</sup>

## The Present Yield Curve Dynamics

Similar to the previous tightening cycle, the December 2015 Fed funds rate increase that marked the start of the current Fed cycle was accompanied by a decline in term premium. Since the start of the Fed funds rate hikes, the 125 basis points of total increase in the policy rate have resulted in a 70 basis point narrower Treasuries yield spread, as long-term rates have continued to move sideways – reminiscent of the “Greenspan conundrum.”

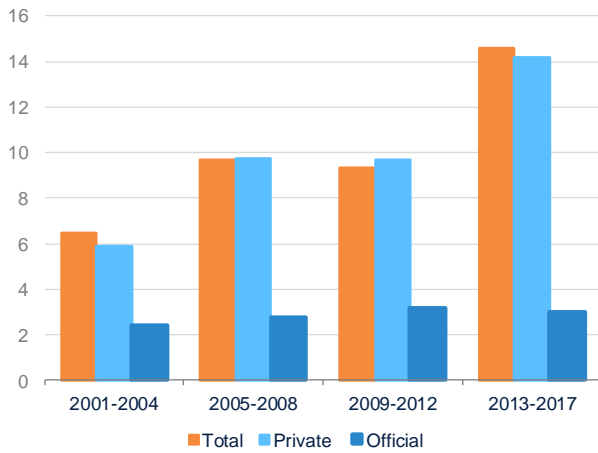
The downward pressure on the term premium of long-term yields has remained due to reduced inflation risk, reduced monetary policy uncertainty, lower long-term growth expectations, as well as the supply and demand imbalance and the amplified role of duration risk as a global shock absorber. Backed by post-Great Recession financial regulations on liquidity rules, the demand for Treasury Securities from pension funds, credit institutions, and retiring baby-boomers has remained elevated and steady. Central Banks, U.S. chartered institutions, and pension funds hold near 70% of the total outstanding Treasuries, leaving the rest to domestic and foreign private holdings.

The amplified role of duration risk as a global shock absorber has caused additional downward pressure on term premium and flattening of the yield curve to emerge. Since 2013, the dynamics of Treasuries private net capital inflows and outflows have changed significantly, marking an upsurge in both the volume and volatility of net monthly flows, which is attributable to heightened volumes of safe haven trades.

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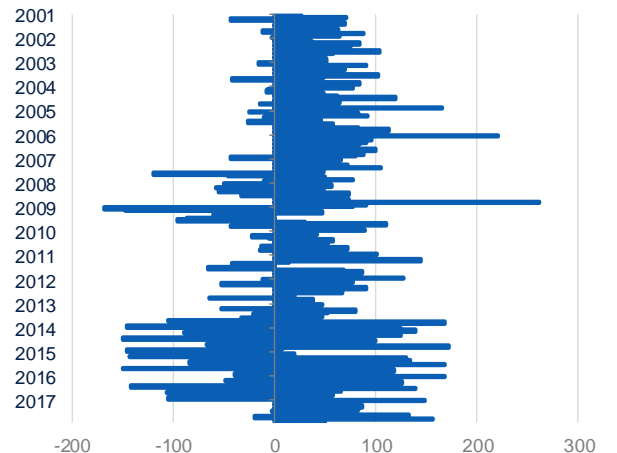
14: Chairman Bernanke, B. S. (March 20, 2006). Reflections on the Yield Curve and Monetary Policy, Speech Before the Economic Club of New York, New York, New York

**Figure 7.3** Treasury international capital net monthly inflows volatility (one standard deviation average)



Source: BBVA Research

**Figure 7.4** Treasury international capital net monthly inflows volatility (monthly \$bn)



Source: BBVA Research & Bloomberg

## What the Future Holds for Yield Curve and Its Mojo

Reducing the importance of the yield curve as a predictor of a decline in economic activity and recession is premature. Nevertheless, the curve yield curve flattening does not signal recession; the inversions of the term-spread does and with a likely two-year lead time.

Contrary to Greenspan’s pronouncement of a “conundrum,” the relationship between long-term and short-term rates decoupled earlier than was noted in the 2004-2006 monetary cycle. Structural change tests illustrate that the relationship between the Fed funds rate and 10-year treasury yield changed in the late 1980s, when the FOMC switched to targeting the Fed funds rate as a policy tool rather than the quantity of bank reserves held on deposit at the Fed.<sup>15</sup> Thus, long-term yields are bound to reflect structural shifts in both long-term growth<sup>16</sup> and in inflation expectations and have been trending downward. Meanwhile, short-term rates reflect expectations of fed funds rate movements. As a result, since the 1980s double-dip recession, the inversion of the yield curve at each monetary cycle has occurred at lower nominal and real interest rates than the preceding one. Further, the terminal Fed funds rate at each tightening cycle reflected the decline in the natural rate and has been lower than at the preceding cycle.

The inversion of the yield curve has continued to precede recessions despite the globalization of financial markets, structural shifts, and regulations that caused the demand for bonds to surge. Recent empirical studies provide evidence that the U.S. yield curve continues to possess forecasting power of real economic activity, with stronger evidence of its predictive power when using a complete sample period.<sup>17</sup> The ability of the yield curve spread to predict recessions is likely

15: Thornton, D. L. (2012). Greenspan’s conundrum and the Fed’s ability to affect long-term yields.

16: Earlier research by Diebold et al. (2006) and Ang et al. (2007) has estimated that within yield curve estimations that allow for bidirectional linkages between macro and yield curve factors, the model attributes over half of the variance of long-term yields to macro factors.

17: Chinn, M., & Kucko, K. (2015). The predictive power of the yield curve across countries and time. *International Finance*, 18(2), 129-156.

further strengthened by the role of financial intermediaries in the credit markets. Empirical studies illustrate that monetary tightening that is associated with a flattening of the term spread causes a reduction in both the net interest margin and in lending profitability, leading to a contraction in the supply of credit.<sup>18</sup> However, the lead from the time of inversion to recession grew to 24 months in 2007.

**Table 7.1** Federal Reserve tightening cycles

<b>Monetary Tightening Cycle</b>	<b>June 2004 - July 2006</b>	<b>June 1999 - May 2000</b>	<b>March 1988 - May 1989</b>	<b>February 1977 - April 1980</b>
<b>Inversion in 10-Y to 2-Y Treasury Spread Date</b>	February-2006	April-2001	August-1990	February-1980
<b>Recession NBER Date</b>	January-2008	June-2000	March-1989	April-1980
<b>Peak Fed Funds Rate</b>	5.25%	6.50%	9.75%	17.60%
<b>Term-Spread Inversion to Recession</b>	<b>24 Months</b>	<b>15 Months</b>	<b>20 Months</b>	<b>18 Months</b>

Source: BBVA Research & FRB

Long-term yield baseline scenario projections reflect the notion of moderate and steady economic growth, soft inflation, and clear communication of Fed funds rate increases. Bounded by the structural factors of the “new-normal” – low potential GDP, low productivity, soft inflation and demographic shifts – long-term Treasury bond yields are projected to move only moderately upward and to normalize around post-Great Recession 2010 rates. Thus, in line with the baseline projections of gradual monetary tightening, the long-term yield forecast implies an additional 19 basis point reduction in the 10-year to two-year yield spread by the end of 2019. The yield spread is projected to remain flat but positive for the remainder of the monetary tightening period.

However, given the length of the current expansion, the FOMC’s Fed funds rate trajectory, and the dynamism of negative term premium in long-term rates, the risk of yield curve inversion should not be taken lightly. To account for these factors, an alternative scenario is estimated where long-term Treasury yields exclude both the positive impact from GDP growth and the upward pressure from Fed funds rate increases and inflation. Nevertheless, in the current environment of subdued inflation and a low neutral interest rate, the potential inversion of the yield spread in the alternative scenario is seven to eight quarters in the future. The projected slope between the 10-year and two-year yields narrows to near zero in the last quarter of 2019 and inverts in the first quarter of 2020.

<sup>18</sup> Adrian, T., & Shin, H. S. (2008). Financial intermediaries, financial stability, and monetary policy.  
Adrian, T., Estrella, A., & Shin, H. S. (2010). Monetary cycles, financial cycles and the business cycle.

**Figure 7.5** Treasury yield curve slope (% 10Y-2Y)



Source: BBVA Research & FRB

Treasury baseline yield curve forecast is estimated with a three-factor no-arbitrage model linked to macroeconomic factors measuring growth, inflation and monetary policy. Estimates are based on BBVA research baseline forecast for GDP growth, inflation and Fed funds rate

The economic environment over the medium-term implies that the yield curve will flatten further but will avoid inverting. The current monetary tightening cycle is set apart from the previous cycles because of its caution and gradualism in fed funds rate increases by the FOMC. The downward pressure on the term premium of long-term yields from the supply and demand imbalance and from geopolitical shocks is expected to be counterbalanced by the upward pressure from the Fed's balance sheet normalization and from higher short-term growth and inflation expectations as a result of the tax reform.

## 8. Banking outlook

Faster economic growth and the lower corporate tax rate will be very favorable for commercial banks over the short to mid-term. Loan and deposit growth will increase, credit risk will remain favorable and profitability will improve. The increase in profits will be especially pronounced in 2018 due to the one-off effect of lower corporate tax rates.

### Loans and deposits

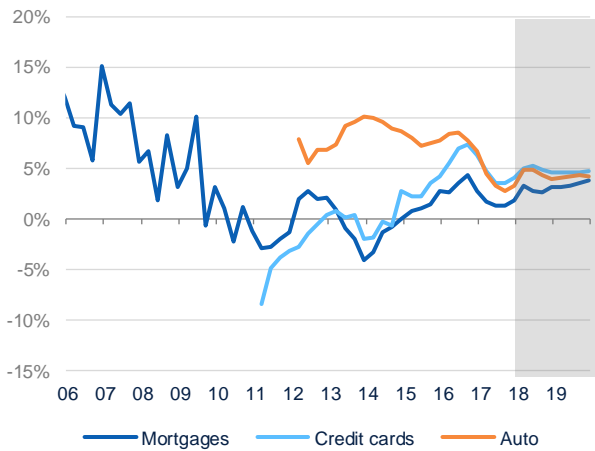
After average loan portfolio growth peaked at 6.7% YoY in 2016, it slowed considerably in 2017. Commercial banks' loan portfolio growth was only 3.7% YoY in the first three quarters of 2017 due to a combination of factors. First, the growth of the industry's mortgage portfolio slowed due to a lower rate of refinancing originations and a dip in purchase originations at the end of 2016 and the beginning of 2017, as mortgage interest rates rose. Second, C&I loan origination slowed based on two factors: the lagged effect of the slowdown in private investment in 2016 and the likely delay in some investments by businesses in 2017 in anticipation of more favorable corporate tax rates and allowances from the Tax Cuts and Jobs Act (TCJA). Third, commercial real estate (CRE) loan growth (including multifamily) slowed as investors postponed some new construction due to increasing vacancy rates and slowing rent growth; stricter credit standards also generated headwinds. Higher lending standards also slowed consumer loan growth, mostly in the case of auto lending. Deposit growth also slowed considerably throughout 2017 after growing by 6.7% YoY in 3Q16, the fastest rate of growth since 2014.

Going forward, we expect loan growth to increase at a faster pace, given that GDP growth is set to accelerate to its fastest pace since 2015, as the adverse effects of the slowdown in private investment in 2016 reverse, and as fiscal incentives kick in. As a result, average total loan growth is expected to reach 5.5% YoY in 2018 and increase to 6.4% in 2019. In terms of retail banking (Figure 1), mortgage loans are expected to increase at an average rate of 2.9% in 2018, compared to 1.5% in 2017, primarily due to higher purchase originations, driven by more new construction, higher prices, solid incomes and ageing millennials that start to live independently in larger numbers. We expect consumer loans to grow at an average rate of 4.8% in 2018, compared to 3.7% in 2017. This reflects strong job growth and higher real incomes, but also headwinds from tighter lending standards for auto loans. Moreover, with credit card delinquencies very low but on the rise, we also anticipate prudent credit card originations and vigilant risk management.

On the commercial side, C&I loans are expected to grow at an average rate of 8.0% YoY in 2018, compared to 3.0% in 2017. A rebound in the energy sector, greater risk appetite generally and more favorable tax treatment on new investments will drive C&I loan portfolio growth. Credit standards for C&I loans have also been easing throughout the first nine months of 2017, and the growth of the industry's C&I portfolio has historically lagged similar developments by around four to five quarters, confirming our model predictions that the growth pickup is forthcoming (Figure 3). In the case of CRE loans (including multifamily), the headwinds from tighter lending standards, increased vacancy rates and slower rent growth will slow the pace of growth to an average rate of 5.1%, compared to 6.3% in 2017.

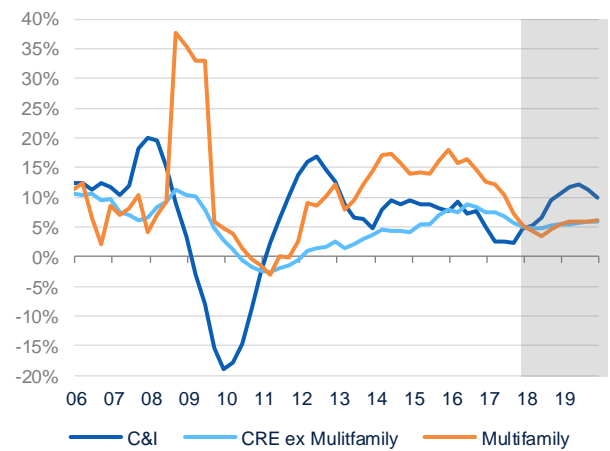
Deposit growth (Figure 4) in 2018 is expected to remain around 4% YoY, similar to the level achieved last year. Deposit growth will lag loan growth, but is expected to pick up as 2018 progresses; in 2019, it will reach 5.7%.

**Figure 8.1** Retail loans (%YoY)



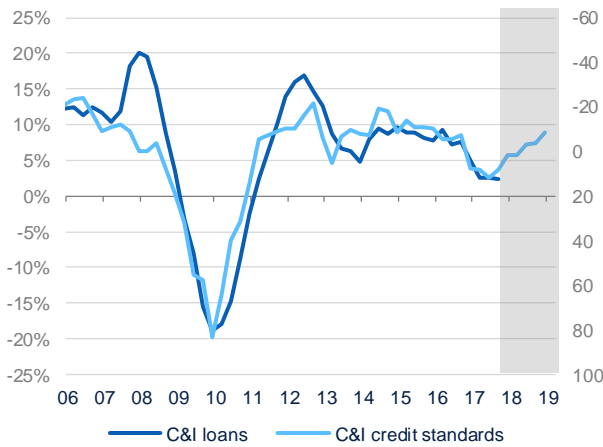
Source: BBVA Research and FDIC

**Figure 8.2** Commercial loans (% YoY)



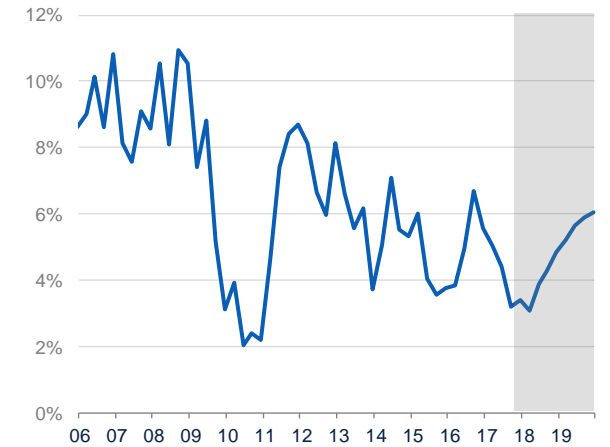
Source: BBVA Research and FDIC

**Figure 8.3** C&I loans and credit standards (%YoY and net p.p. respondents – tightened minus eased, moved forward by five quarters)



Source: BBVA Research and FDIC

**Figure 8.4** Deposits (% YoY)



Source: BBVA Research and FDIC

## Delinquencies

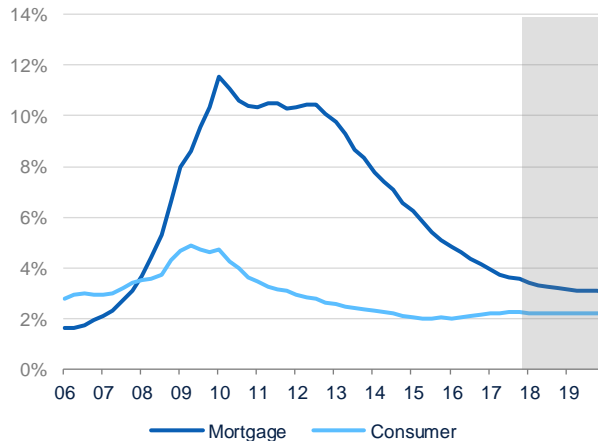
Solid underwriting standards and the lengthy economic expansion over the last 8.5 years have led to strong loan portfolio quality. In fact, the overall delinquency rate stood at 1.8% in 3Q17, compared to a median of 2.8% and average of 3.6% since 1985. The figure looks even better when taking into consideration the fact that mortgage delinquencies are still recovering from the effects of the Great Recession and are not yet back in line with their pre-crisis levels.

On the retail side of the business (Figure 5), mortgage delinquencies are expected to continue improving, as the number of “underwater” mortgages declines due to ongoing home price appreciation, and the share of newly underwritten loans increases. However, delinquency levels for consumer loans have started increasing slowly in 2Q16 as a result of the aggressive increase in originations in the preceding period, particularly for auto loans. Nevertheless, the level of consumer loan delinquencies is still below any point before the Great Recession – a result of tighter credit standards throughout the current credit cycle. Still, we expect consumer loan delinquencies to stabilize, as standards for auto loans continue to tighten, credit card origination remains prudent, but also as a result of stronger economic growth.

On the business side (Figure 6), C&I delinquencies declined in 2017 after stabilizing in 2016, as the shock from low oil prices abated and the oil and gas industry recovered. We expect C&I delinquencies to continue declining going forward, but at a slower pace. The positive economic backdrop will lower the potential for any negative surprises in the near future. While CRE delinquencies are likely bottoming out, they are not expected to increase significantly.

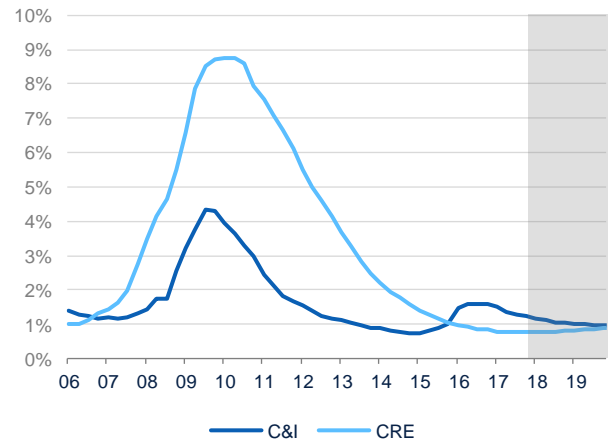
In sum, we anticipate an overall decline in delinquency rates. The solid loan portfolio quality will translate into low levels of loan loss provisions, contributing to the profitability of the industry.

**Figure 8.5** Retail loan delinquencies (%)



Source: BBVA Research and FRB

**Figure 8.6** Commercial loan delinquencies (%)

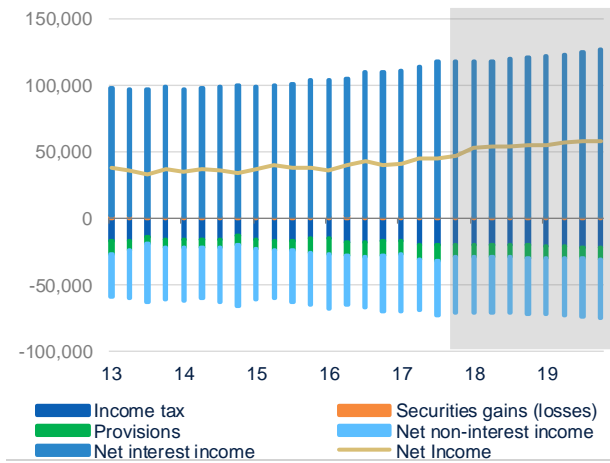


Source: BBVA Research and FRB

## Profitability

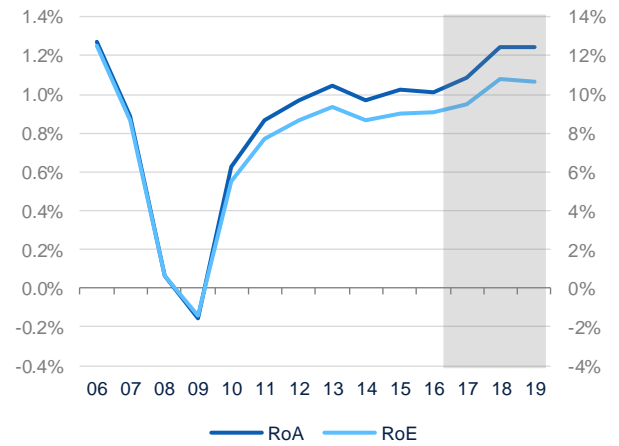
The solid loan portfolio quality, stronger loan growth, higher interest rates and lower corporate income tax will positively impact bank earnings in the short to mid-term (Figure 7). A change to an effective corporate tax rate of 21% is expected to boost banks’ net income by around \$24.5 billion in 2018, representing an increase of almost 13% relative to the a scenario with no changes to the corporate tax code. This will lead to a significant improvement in the industry’s returns on assets and equity (Figure 8). Regulatory changes that reduce the cost of compliance and open new profit pools for banks could add an additional upside to these projections.

**Figure 8.7 Industry income and expense (\$M)**



Source: BBVA Research and FRB

**Figure 8.8 Returns on assets and equity (%)**



Source: BBVA Research and FRB

## Bottom line

The outlook for the banking sector in the short- to mid-term is very positive. We expect solid loan growth and loan portfolio quality and rising interest rates to boost the industry's profitability. Moreover, the industry is likely to benefit from a more favorable regulatory environment, which could also lift bottom lines in the financial sector.



## 9. Forecasts

**Table 9.1 U.S. Macro Forecasts**

	2011	2012	2013	2014	2015	2016	2017	2018 (f)	2019 (f)	2020 (f)	2021 (f)
Real GDP (% SAAR)	1.6	2.2	1.7	2.6	2.9	1.5	2.3	2.6	2.5	2.3	2.2
Real GDP (Contribution, pp)											
PCE	1.5	1.0	1.0	1.9	2.5	1.9	1.9	1.9	1.7	1.6	1.6
Gross Investment	0.7	1.6	1.0	0.9	0.9	-0.3	0.6	0.8	0.9	0.7	0.6
Non Residential	0.9	1.1	0.4	0.9	0.3	-0.1	0.6	0.8	0.8	0.7	0.6
Residential	0.0	0.3	0.3	0.1	0.3	0.2	0.1	0.1	0.1	0.05	0.04
Exports	0.8	0.4	0.4	0.6	0.1	0.0	0.4	0.6	0.5	0.6	0.6
Imports	-0.8	-0.4	-0.2	-0.7	-0.8	-0.2	-0.6	-0.9	-0.7	-0.7	-0.7
Government	-0.6	-0.4	-0.5	-0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1
Unemployment Rate (% , average)	8.9	8.1	7.4	6.2	5.3	4.9	4.4	3.7	3.5	3.7	4.0
Avg. Monthly Nonfarm Payroll (K)	132	186	184	213	240	208	178	196	165	129	126
CPI (YoY %)	3.1	2.1	1.5	1.6	0.1	1.3	2.1	2.4	2.1	2.1	2.2
Core CPI (YoY %)	1.7	2.1	1.8	1.7	1.8	2.2	1.8	2.0	2.1	2.1	2.1
Fiscal Balance (% GDP)	-8.4	-6.8	-4.1	-2.8	-2.4	-3.2	-3.6	-3.4	-4.5	-4.7	-4.8
Current Account (bop, % GDP)	-2.9	-2.6	-2.1	-2.1	-2.4	-2.4	-2.4	-2.5	-2.6	-2.7	-2.8
Fed Target Rate (% , eop)	0.25	0.25	0.25	0.25	0.50	0.75	1.50	2.25	2.75	2.75	2.75
Core Logic National HPI (YoY %)	-2.9	4.0	9.8	6.8	5.4	5.4	6.0	6.0	4.4	4.0	3.1
10-Yr Treasury (% Yield, eop)	1.98	1.72	2.90	2.21	2.24	2.49	2.40	2.73	3.26	3.37	3.45
Brent Oil Prices (dpb, average)	111.3	111.7	108.7	99.0	52.4	43.6	54.3	65.9	64.1	62.1	61.5

(f): forecast

Source: BBVA Research

**Table 9.2 U.S. State Real GDP Growth, %**

	2013	2014	2015	2016	2017 (e)	2018 (f)	2019 (f)	2020 (f)	2020 (f)
Alaska	-4.4	-3.6	0.3	-5.4	-1.0	0.5	0.5	-0.1	0.1
Alabama	0.9	-0.3	1.5	1.5	2.3	1.6	1.6	1.6	1.6
Arkansas	2.9	1.4	0.5	0.9	2.6	2.0	2.1	2.1	2.1
Arizona	0.5	1.8	2.0	2.6	2.4	1.6	1.5	1.8	1.7
California	2.5	4.2	4.4	3.3	3.3	3.4	3.2	3.0	2.9
Colorado	3.2	4.8	3.4	1.1	3.2	3.0	2.8	2.7	2.7
Connecticut	-1.4	-0.7	1.9	0.0	-1.2	0.8	0.9	0.7	0.6
Delaware	-1.4	5.4	2.8	0.1	2.6	2.2	2.4	2.5	2.4
Florida	2.1	2.8	3.9	2.4	2.5	3.8	3.5	3.2	2.9
Georgia	1.4	3.3	3.1	3.0	2.4	2.4	2.5	2.4	2.5
Hawaii	1.1	1.1	3.2	1.9	1.8	2.1	2.0	2.0	1.9
Iowa	0.5	3.8	4.0	1.6	-0.1	1.2	2.0	2.1	2.1
Idaho	2.9	2.4	3.0	2.7	3.1	4.3	2.1	3.6	3.8
Illinois	-0.3	1.8	1.2	1.0	0.6	1.6	1.7	1.7	1.7
Indiana	2.4	2.5	0.8	2.5	2.0	1.9	1.9	2.1	1.8
Kansas	0.2	2.0	1.1	-0.9	-0.1	1.9	1.2	1.3	1.2
Kentucky	0.9	0.5	1.0	1.2	1.8	0.9	1.4	1.5	1.4
Louisiana	-3.4	2.1	0.6	0.2	1.0	2.1	1.1	0.9	0.6
Massachusetts	-0.2	1.8	3.8	1.5	2.2	2.2	2.4	2.4	2.3
Maryland	0.2	1.3	1.9	2.5	1.2	1.1	1.1	1.0	1.0
Maine	-0.6	1.7	0.8	1.6	1.0	0.2	0.3	0.3	0.4
Michigan	1.4	1.6	2.9	2.2	2.8	1.1	1.2	1.1	1.4
Minnesota	2.1	2.8	1.5	2.1	2.6	2.0	2.0	2.1	2.1
Missouri	1.6	0.3	1.5	0.3	0.4	0.7	0.7	0.7	0.6
Mississippi	0.6	-0.9	0.2	1.2	1.3	0.8	0.4	0.4	0.4
Montana	0.7	2.7	2.3	1.1	0.9	2.1	2.3	2.3	2.3
North Carolina	1.7	2.1	2.7	1.9	2.2	1.8	1.6	1.6	1.8
North Dakota	2.4	7.2	-2.5	-5.0	0.3	4.1	4.1	4.1	4.2
Nebraska	2.5	3.7	2.1	0.9	0.0	2.1	2.1	2.1	2.1
New Hampshire	0.6	1.8	2.6	1.6	0.8	0.9	1.3	0.9	1.0
New Jersey	1.4	0.2	1.1	0.7	0.3	1.0	0.7	0.6	0.4
New Mexico	-1.0	2.8	1.6	0.2	1.7	1.0	1.2	1.1	0.6
Nevada	0.5	1.7	3.5	1.4	2.4	3.4	3.3	3.1	3.2
New York	-0.3	1.7	2.0	0.4	1.3	1.5	1.5	1.6	1.6
Ohio	1.0	3.3	1.1	1.1	1.8	1.4	1.3	1.4	1.5
Oklahoma	4.4	5.6	3.1	-4.1	1.5	2.5	2.6	2.6	2.6
Oregon	-2.0	1.9	4.8	3.8	1.9	1.9	2.2	2.1	2.0
Pennsylvania	1.6	2.0	2.3	0.6	1.4	1.3	1.5	1.5	1.5
Rhode Island	0.4	0.9	1.9	0.5	0.8	0.5	0.3	0.3	0.3
South Carolina	2.0	3.0	3.1	1.8	2.3	1.7	1.8	2.0	1.8
South Dakota	1.1	0.9	2.8	0.7	-0.9	2.6	2.5	2.4	2.3
Tennessee	1.6	1.7	3.0	2.9	2.0	1.9	1.6	1.8	1.8
Texas	5.1	3.5	4.2	-0.3	2.7	4.8	4.5	4.1	3.7
Utah	2.5	3.5	4.1	3.7	3.3	2.7	2.9	2.9	3.0
Virginia	0.0	0.2	2.2	0.5	1.5	0.6	0.4	0.4	0.4
Vermont	-0.2	0.5	0.9	0.7	0.9	1.9	1.7	1.5	1.4
Washington	2.4	3.2	3.7	4.2	3.8	2.9	2.9	2.9	2.9
Wisconsin	1.3	1.5	2.1	1.3	1.5	1.3	1.5	1.5	1.5
West Virginia	0.5	0.6	0.7	-1.1	2.3	1.2	0.8	0.9	0.9
Wyoming	1.0	0.4	0.6	-1.8	1.7	-0.8	0.4	1.7	2.4

(f): forecast  
Source: BBVA Research

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