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# United States Economic Outlook

3<sup>rd</sup> Quarter 2017 | United States Unit

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Closing date: **21 July 2017**

# 1. Editorial

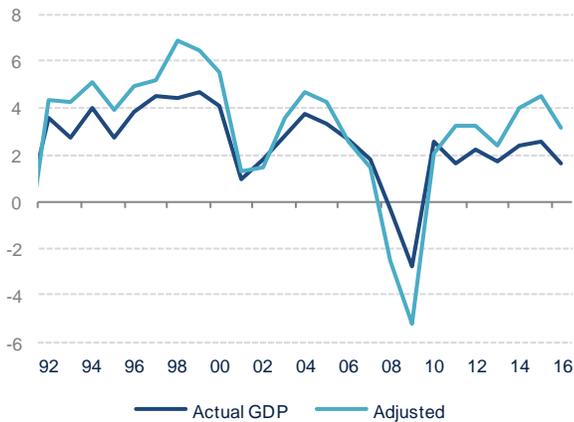
Most people would agree that the current expansion cycle has been anemic. Since 2010, average real GDP growth has been 2.1%, significantly lower than 3.2% between 1992 and 2007. Over time, the cumulative difference between the two paths could be quite dramatic. After 15 years, the average person would be 17% less wealthy and 38% poorer after 30 years. Since GDP growth can be broken down into labor, capital and productivity, most explanations focus on one or more of these categories. The persistent slowdown in labor force growth and the participation rate amid aging population are commonly used to explain a lower contribution from labor. The shift toward the digital economy is also advanced as a reason for weaker investment. With a growing number of people working from home, shopping online or relying on video conference calls, there is less need of large-scale structures like highways, shopping malls or airports. In addition, globalization, offshoring and a greater share of service sector output are blamed for stagnant real wages, a slowdown in the demand for low-skilled workers, worsening income inequality and diminishing working space. However, the biggest challenge is explaining the significant slowdown in productivity growth, which averaged 0.4% since 2011, one-fourth the rate between 1950 and 1979 and one-half the growth between 1980 and 2007. Perhaps, high productivity growth should be considered atypical, as extraordinary inventions like antibiotics, the combustion engine and the personal computer had gargantuan and long-lasting effects across the economy, something that text messages, smartphones and Wi-Fi may never accomplish. In addition, investment and innovation may be constrained by the lack of free markets and competition. A reduced number of large and powerful companies, mainly interested in maximizing quarterly financial results and obtaining benefits through rent seeking discourage new entrants and reduce the incentives to start a business or invest in R&D.

Since productivity is unobservable, its estimation is conditional on the quality of measures used for output, labor and capital. Estimating these variables is not always easy, particularly when the economy is more dependent on service sector output, endures one of the deepest financial crisis, experiences demographic changes, undergoes a profound technological transformation, and implements some of the most dramatic regulatory changes in modern history; all with spiraling political polarization and policy uncertainty. At first glance, the data would suggest that economic stagnation is happening. However, while demographics, digitalization and weaker institutions are having tremendous effects, the slowdown in productivity may be less dire than what it appears, particularly if output is underestimated. First, weaker GDP growth in the current cycle can be attributed almost entirely to the negative contribution from government spending and weaker growth in personal consumption of services. The former reflects the outcome of bitter political negotiations in the aftermath of the crisis aimed at avoiding a default on public debt and reducing real federal spending. While the latter can be explained by unusual weakness in personal spending on services not traded in the market place and thus are imputed, such as rental costs of owner-occupied housing, financial services furnished without payment and expenditures of nonprofit institutions serving households.

Since the calculation of these non-observable spending components is highly sensitive to financial variables and healthcare costs, the plunge in housing prices, sharp declines in bank loans and credit quality, ultra-low interest rates and the Affordable Care Act had an unprecedented effect on total spending and thus GDP. For example, between 2010 and 2015, nominal spending on financial services furnished without payment increased 27%, yet real spending declined 5%. In fact, the sum of these non-observable categories explain almost 60% of the drag to real GDP growth in 2010-2015, and

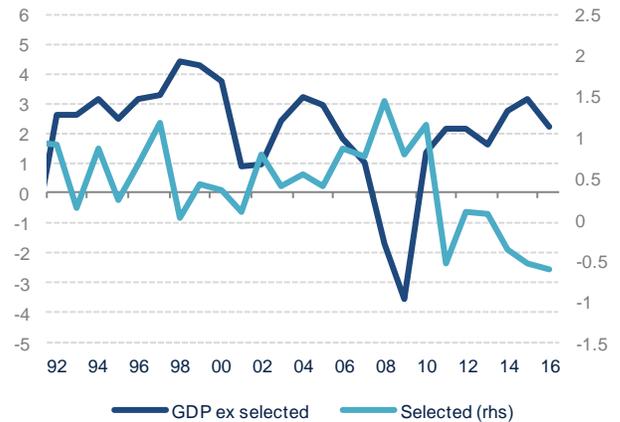
excluding them would yield annual average growth of 3.5% in the same period. This rate is similar to 1992-2007. Second, the post crisis period has exhibited sharp movements in commodity prices, the value of the U.S. dollar, miles driven and consumption of motor vehicle fuels. When commodity prices were high and the dollar weak, investment in mining exploration, railroad equipment, and agricultural and oilfield machinery skyrocketed, net exports grew faster and people drove less and bought more energy efficient cars. When commodity prices declined and the dollar strengthened, investment plummeted, the trade deficit widened and people increased fuel consumption and miles driven. For example, between 2009 and 2013, real investment on mining exploration, shafts and wells increased almost 70%, adding 0.1% to real GDP growth each year. However, between 2014 and 2016, it declined more than 60%, subtracting 0.3% to real GDP growth in both 2015 and 2016.

**Figure 1.1** Real GDP growth (YoY, %)



Source: BBVA Research and Haver

**Figure 1.2** Contribution to real GDP growth (pp)



Source: BBVA Research and Haver

For the most part, these trends do not reflect lack of innovation, competition or entrepreneurship, or the collapse of our institutions and business sector; quite the opposite. For example, between 2007 and 2016, motor vehicles fuel efficiency increased 24% while CO2 emissions declined 19%. Meanwhile, productivity per new oil well increased by a factor of 18 in 10 years and stands at record-high levels. Since autos and crude oil are major components of inventories, large fluctuations in stocks may not be unusual as companies implement better supply-management processes. Further adjusting GDP for these effects yields a growth rate of 3.2% in 2016, twice as much as the official figure. This does not mean that we should ignore the slowdown in GDP growth and low productivity, nor dismiss official statistics of GDP. However, it does suggest that concerns surrounding stagnation and the digital transformation may be overblown. Particularly since many of the components that explain weaker GDP growth are not traded in the market place and are subject to brinkmanship and commodity prices volatility. If an adjusted measure of output yields higher growth, productivity growth would also be higher, all else equal. Nevertheless, this should not deter policymakers from focusing on the pressing challenges of growing income inequality, deteriorating education quality and elevated healthcare costs while maintaining fiscal stability, supporting competitiveness and achieving sustainable high growth rates.

## 2. Global outlook

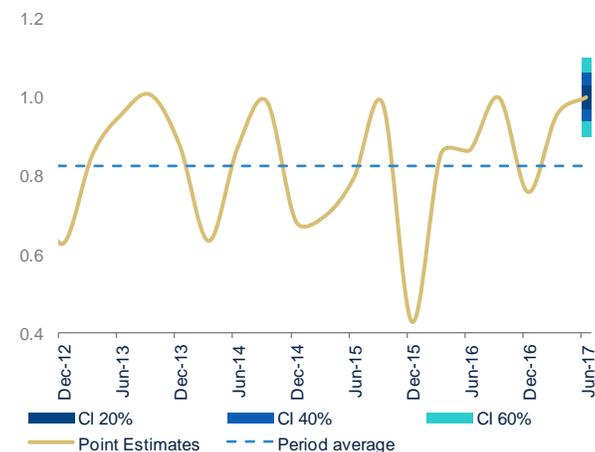
### Robust and steady global growth, with some rebalancing across major areas

After a pickup in global growth in 1Q17, the expansion has stabilized. As a result, our new forecasts are for global growth to stay at 3.3% for 2017 and 3.4% for 2018, based on an upward revision for both China (in both years) and Europe (in 2017) and a modest downward revision in the U.S. In Latam, deteriorating commodity prices and heightened uncertainty in several countries have delayed the exit from recession. Forecasts indicate that in the coming quarters emerging economies should make up ground on the advanced countries and China, which have led the recent upturn.

The drivers behind the recent pick-up will remain in place, albeit with slight variations: Monetary policy accommodation will ebb as the process of normalisation unfolds while oil prices are set to continue their upward trajectory albeit with greater volatility. The flurry of geopolitical events could impact economic confidence and markets, although these headwinds are expected to moderate throughout the year.

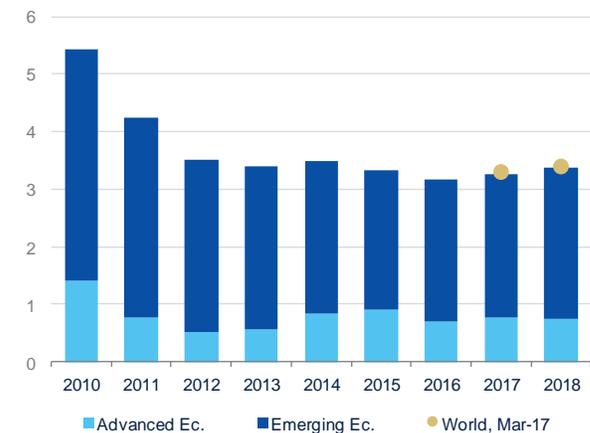
The tone in financial markets has been upbeat, with volatility at historic lows in spite of the persistent economic, political and geo-political uncertainty, as well as the correction to expectations of fiscal stimulus in the U.S. As a result, long-term interest rates have remained low, while pressures on the dollar have eased somewhat. This financial climate of low volatility and interest rates, combined with a weaker dollar and better economic conditions have boosted equities while benefiting emerging markets. European assets, including the euro, have also become more appealing, following the French elections and better economic performance in Europe, attracting capital inflows into the Eurozone.

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



Source: BBVA Research

**Figure 2.2** Regional GDP forecasts (YoY, %)



Source: IMF and BBVA Research

In Europe, economic growth has continued to pick up momentum in the first half of the year, with slightly better than expected GDP performance, standing above 2% in annualized terms. Moreover, the improvement has been broad-based, across both demand components and countries. Stronger global demand has underpinned the rebound in exports, which together with improved confidence, is spurring investment and employment. For this reason, we have revised upwards our growth forecasts in 2017 by three tenths to 2%, which means above-potential growth for the third year in a row. Inflation eased in the second quarter due to energy price base effects, while core inflation rose by two tenths and is hovering at around 1%. The smaller oil price rise, along with a stronger euro, lead us to revise our forecast slightly downwards for headline inflation by around two tenths to 1.6% in 2017 and 1.4% in 2018.

The European Central Bank (ECB) is holding interest rates unchanged and sticking to the asset purchasing programme. We expect that the ECB will take a further step by announcing a reduction in its purchasing of assets at the September meeting, which would be implemented from January 2018 onwards. Assuming that the central bank does not change the exit sequence, interest rate increases would take place by late 2018.

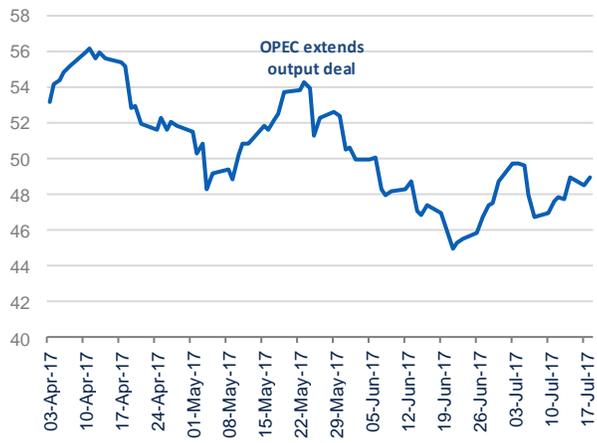
In China, after the rebound in growth observed earlier this year, the latest figures point to a more gradual slowdown than previously expected. Behind this performance lies the support from a prudent monetary policy and fiscal stimulus, which have boosted credit and investment. In addition, the improvement of the external environment and the depreciation of the real effective exchange rate have buoyed economic conditions. In this context, the authorities are still balancing growth, an orderly deleverage and fending off financial weaknesses. As such, we have revised upwards our GDP growth forecasts by 0.2pp in 2017-18, which would mean achieving the official target of 6.5% in 2017, although we continue to expect a slowdown to 6% in 2018.

This improving environment, which mainly affects advanced economies, is being accompanied by a rebalancing in the United States and in Europe, both in terms of activity and on the political front. In contrast, the emerging economies have performed poorly, with a slower than expected exit from the recession in Latam. The key question is whether markets are too complacent considering that policy uncertainty remains elevated. Still, the world has lived with elevated uncertainty for several years while avoiding another crisis, fundamentals appear stronger than in previous years, institutions in the developed world have managed to overcome ongoing attacks and markets have found new alternatives to hedge risks. This doesn't mean that we can rule out episodes of elevated volatility going forward, particularly as major central banks continue moving forward with an unprecedented normalisation process.

### 3. Oil prices outlook

The second quarter of 2017 was marked by growing scepticism on the effectiveness of OPEC strategy to stabilize the market. The extension of the deal to cut output for nine more months did little to boost confidence and prices went down further. As a result, we expect Brent crude oil prices to average \$51.7/b in 2017, \$6 less than our forecast at the beginning of the year. For 2H17 and beyond, our baseline scenario continues to discount a gradual adjustment of current imbalances and convergence to \$60/b, although this would be reached later than previously expected.

**Figure 3.1** Brent crude oil spot prices April-July (\$/b)



Source: BBVA Research with data from Haver Analytics

**Figure 3.2** Brent crude oil futures (\$/b)

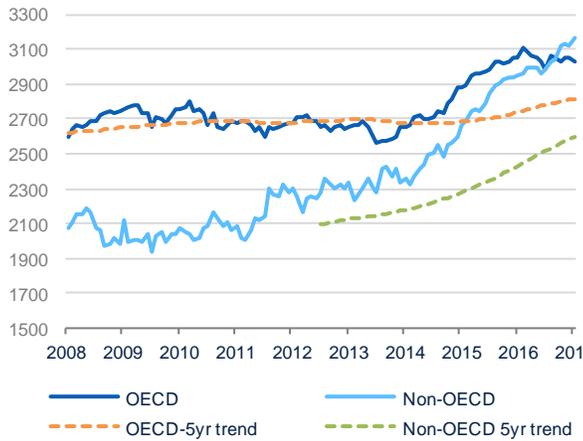


BBVA Research with data from Bloomberg

OPEC extension of production cuts is expected to have an impact on inventory accumulation, which in turn would exert upward pressures on prices. Inventories have already shown some signs of correction. In the U.S., stocks of crude oil excluding the Strategic Petroleum Reserves have declined for twelve out of the last fourteen weeks. Meanwhile, OECD oil inventories continue to expand, but at a lower pace. Although encouraging, these changes are still not enough to balance the market and trigger a sustained increase in prices mainly because inventories remain at historically high levels.

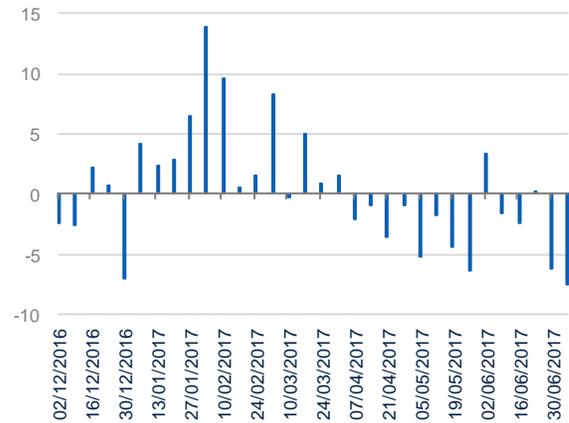
In our baseline, the expected increase in prices is contained by the rebound in U.S. production. After reaching a bottom in July 2016, U.S. production surged by 1 million b/d to 9.4 million b/d as of July 14, 2017. At this pace, production could surpass its previous peak of 9.6 million b/d later in the year. The U.S. Energy Information Administration expects production to reach 10 million barrels per day in 2018, which would be the highest level since 1970. U.S. shale oil producers continue to beat expectations due to their manufacturing-style processes and ongoing technological innovations (for a detailed analysis of the drivers of U.S. crude oil production see [The Permian basin and the rebound in U.S. crude oil production](#)).

**Figure 3.3** Crude oil inventories (eop, million barrels)



Source: BBVA Research with data from Haver Analytics

**Figure 3.4** U.S. stocks of crude oil excluding SPR (eop, 1-week difference, million barrels)

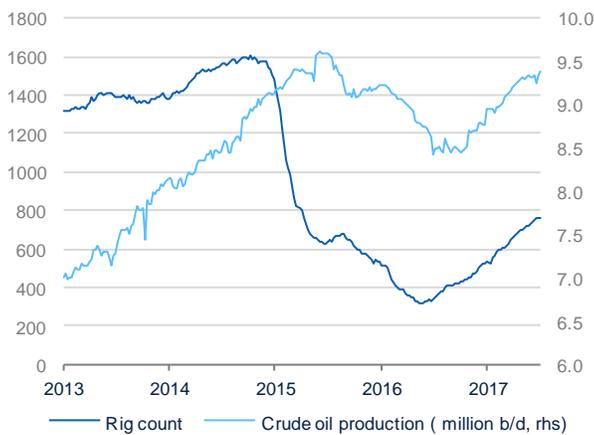


Source: BBVA Research with data from Haver Analytics

Meanwhile, production is still trending up in non-OPEC countries like Brazil and Canada, while Libya and Nigeria, currently exempted from the output deal, will most likely increase production through the remaining of the year, offsetting a portion of the OPEC's quota. Libya, for example, has plans to boost production beyond the 1 million b/d by the end of the year.

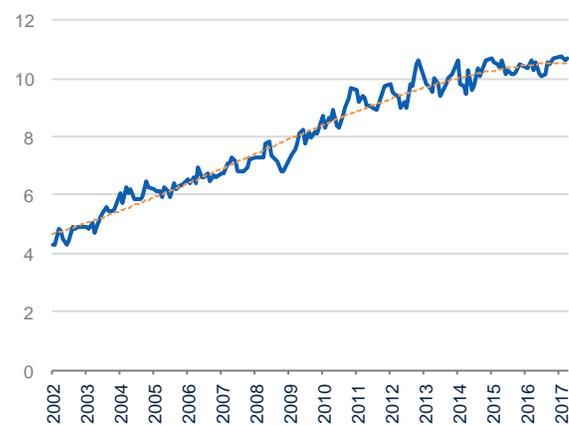
Demand remains supportive of prices, but with no apparent upside in the near future. Global demand of petroleum products expands at 1.3 million b/d per year. Meanwhile, China's apparent demand seems to be stabilizing in line with the ongoing rebalancing. Economic growth in OECD continues to be favorable too, but its impact is constrained by a declining relative importance driven by improving energy efficiency.

**Figure 3.5** U.S. crude oil production and active rig count



Source: BBVA Research with data from EIA

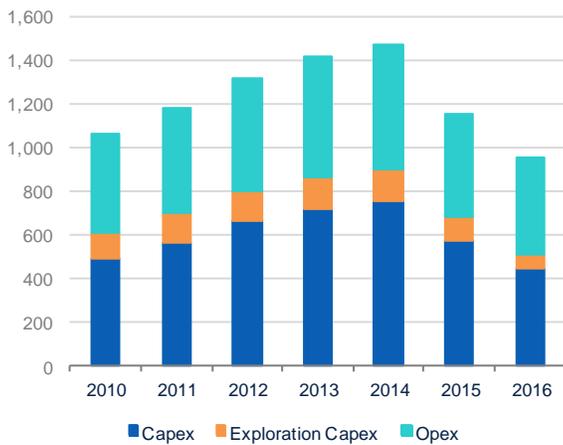
**Figure 3.6** China apparent oil demand (million b/d)



Source: BBVA Research with data from Bloomberg

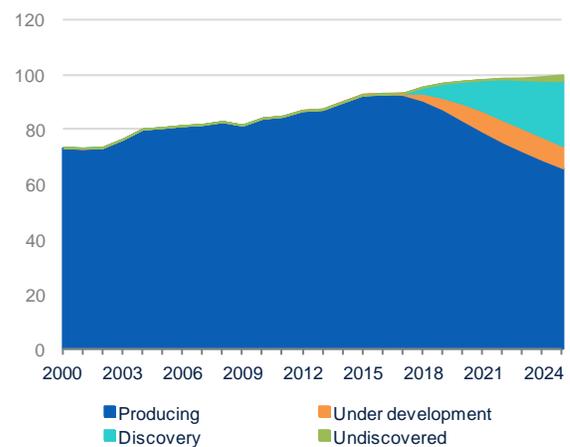
In the long-term portion of the forecasting period, global economic growth and the lagged effects of capital spending cuts in 2015 and 2016 are expected to bring prices up and close to \$60/b. Further investments are needed to replace a declining legacy production; however, exploration CAPEX in 2016 was 53% below the levels observed in 2014. At \$60/b several projects onshore and offshore would become profitable; however, the costlier ones would still be out of the market. Meanwhile, \$60/b would not damage demand growth.

**Figure 3.7** Oil & Gas capital expenditures (\$ million)



BBVA Research with data from Rystad Energy

**Figure 3.8** Crude oil and other liquids production by life cycle category (million b/d)



Source: BBVA Research with data and projections from Rystad Energy

The risks to our baseline are tilted to the downside. Although OPEC and its partners have shown considerable restraint, production in Libya and Nigeria could increase faster than expected, offsetting a big portion of the cuts. In addition, the probability of cheating or breaking the agreement has increased as countries will find it increasingly difficult to keep their quotas for a longer period of time, particularly if lower oil revenues have a larger-than-expected negative impact on public finances. In the U.S., higher oil prices could revive production in areas with greater breakevens, boosting total output and stocks even further, thereby limiting or even reversing potential increases in oil prices. On the demand side, a faster-than-expected deceleration in China, stricter import and re-exporting restrictions as well as tighter tax scrutiny on Chinese independent refineries “teapots” could affect the country’s demand of oil in the short-term (teapots account for 18% of the country’s total crude imports).

Some factors could cause prices to move above our baseline. For instance, OPEC could decide to increase the size of its current quota. Faster-than-expected economic growth in the U.S. due to expansionary fiscal policy (infrastructure spending and tax cuts to individuals and corporations) could have positive spillovers to the rest of the world that could result in a stronger-than-expected demand. Likewise, growth in other emerging markets could also gain speed, which would lift oil demand and accelerate the rebalancing process. Further volatility could come from current and potential geopolitical conflicts as well as exchange rate volatility.

In any case, the expected evolution of prices will occur in a different type of market than the one prevailing until a few years ago. A new market in which OPEC oligopolistic power has diminished due to the ingenuity of multiple companies operating in the U.S. shale regions.

**Figure 3.9** Brent crude oil prices forecast (\$/b)



Source: BBVA Research

**Table 3.1** Brent crude oil prices forecast (\$/b)

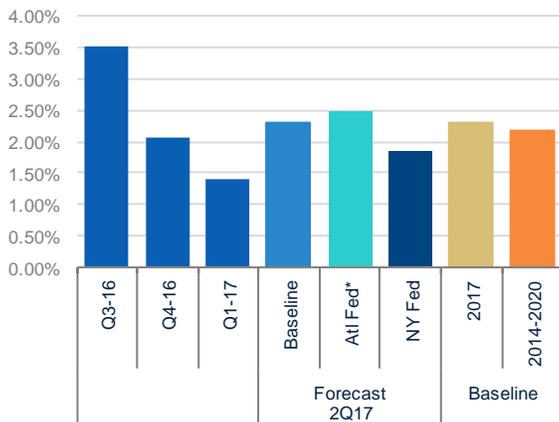
	New Baseline	Previous Baseline (March)	Upside	Downside
2015	52.8	52.8	52.8	52.8
2016	45.2	45.2	45.2	45.2
2017	51.7	56.6	57.9	44.1
2018	56.3	58.7	72.8	35.1
2019	59.6	59.6	79.3	34.1
2020	59.6	59.6	79.3	34.1

Source: BBVA Research

## 4. U.S. economic outlook

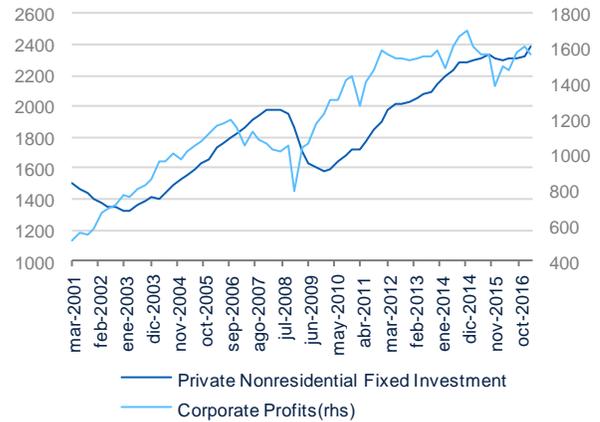
Given the weak first quarter and lack of progress on fiscal policy, we have revised down our baseline forecasts for U.S. GDP growth to 2.1% for 2017 and 2.2% in 2018 from 2.3% and 2.4%, respectively. This projection is consistent with our long-run estimates for potential GDP and a subtle rebalancing between consumption and investment this year. This year stronger global growth should support the recovery in exports while previous gains in oil prices are likely to continue to support increased investment in the Oil & Gas sector. Although there is still time for the GOP to deliver comprehensive tax and healthcare reform the lack of progress to date and inability to pass even partisan reforms suggests that the upside to growth is lower than it was heading into the year. As a result, market, consumer and business expectations, which have been historically high, will have to adjust to an environment characterized by moderate growth, tighter financial conditions and unresponsive policymakers.

**Figure 4.1** Real GDP forecasts (annualized, %)



Source BBVA Research, FRB NY & FRB Atlanta

**Figure 4.2** Corporate profits and private fixed nonresidential investment (\$bn)

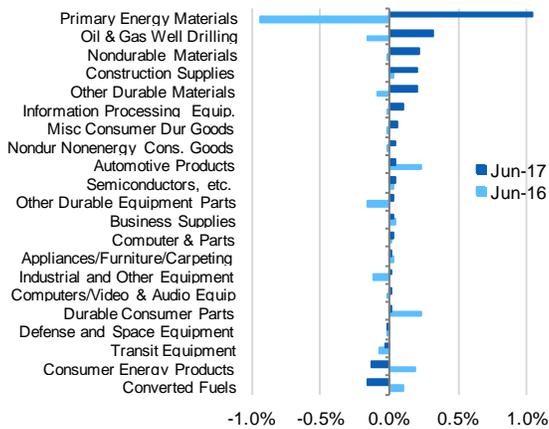


Source BBVA Research & BEA

In the first quarter 2017, private fixed investment posted the strongest year-on-year growth in six years. Although oil prices remain well below pre-2015 averages, at around \$45 per barrel current prices have recovered enough to reestablish investment in mining exploration equipment; first quarter estimates for investment in mining structures was 55% higher than the previous quarter. Moreover, transportation and other equipment posted positive year-on-year growth for the first time in six and eight quarters, respectively. There also appears that the sector will carry this momentum in the 2H17, as industrial production in the Oil & Gas sector increased 108% year-over-year in June. Stronger global demand and a recovering mining sector have offset weak domestic auto demand, leading to a rebound in manufacturing activity. While residential investment has slowed somewhat, we expect investment in single-family homes to continue to grow positively, in response to supply shortages, favorable credit conditions and affordability for most buyers.

While the pace of growth in retail sector has decelerated in 2Q17, conditions remain suitable for moderate consumption growth for the remainder of the year. A large portion of the drag on consumption has been slower auto demand. Rising interest rates and tighter credit standards have created headwinds for the auto sector that are likely to persist throughout the remainder of the year. That said, labor market conditions are strong and interest rates remain low by historical standards. Consumer credit excluding auto loans also continues to expand at a healthy pace, which will buoy household spending. As such, we expect real personal consumption to grow 2.1% year-over-year, down from 2.7% in 2016.

**Figure 4.3** Industrial production by sector (Contribution, pp)



Source BBVA Research & BEA

**Figure 4.4** Unemployment rate forecasts (%)



Source BBVA Research

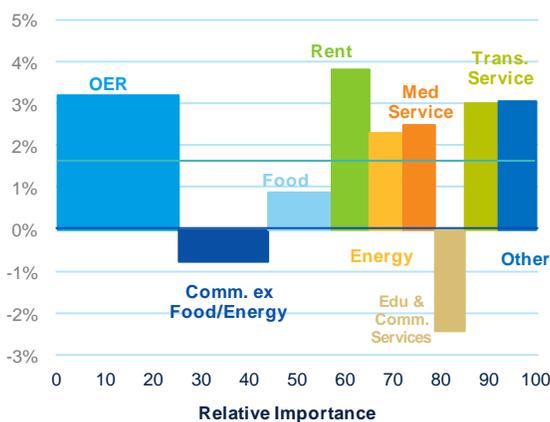
In terms of the labor market, there is evidence that cyclical recovery is nearing its end. In fact, in June, the unemployment stood at 4.4%, representing the lowest level since 2007. Moreover, an additional 60bp drop in the unemployment rate would bring the rate to its lowest level in nearly 50 years. Furthermore, nonfarm payrolls, despite growing faster than market expectations in June, are trending at a rate consistent with our baseline scenario of 180K jobs per month; this pace remains sufficient to bring down the unemployment rate when considering demographics changes and labor force participation. Other measures of labor market utilization such as the Beveridge Curve, persons marginally attached to the labor force, discouraged workers, and persons employed part-time for economic reasons also suggest conditions are normalizing. With this in mind, we expect employment growth to decelerate and the unemployment rate to steadily decline to 3.9% by mid-2018. This would represent a nontrivial undershooting of the unemployment gap.

Despite signs that the economy is at full employment wage pressures have been muted. In fact, this inconsistency has raised doubts that the relationship between the tightness of the labor market and wages is broken or has been altered by the crisis. While part of the low real wage regime is likely a reflection of low-levels of productivity growth in the post-crisis period, nominal wages should be growing at a faster pace. Notwithstanding an unexpected shock to productivity or return to a pre-crisis Phillips Curve implies that wage growth will remain low.

In addition to the lack of wage pressures, disinflationary trends in a handful core consumer prices categories and lower inflation expectations support our downward revision to inflation, which we expect to trend below the committees target of 2.0% over the medium-term. The reflationary sentiment that prevailed following President Trump’s election has faded as 5-yr forward inflation expectations have remained consistently below 2.0% since May. Diminishing pressures from previous gains in energy prices and the absence of increases in core prices excluding shelter and medical commodities has pushed headline CPI in June down to 1.7% year-over-year from 2.8% in February. Core consumer prices excluding shelter grew only 0.6% year-over-year, which is the slowest pace since 2003. Similarly, core PCE grew 1.4% year-over-year in May, which is down from 1.8% in January.

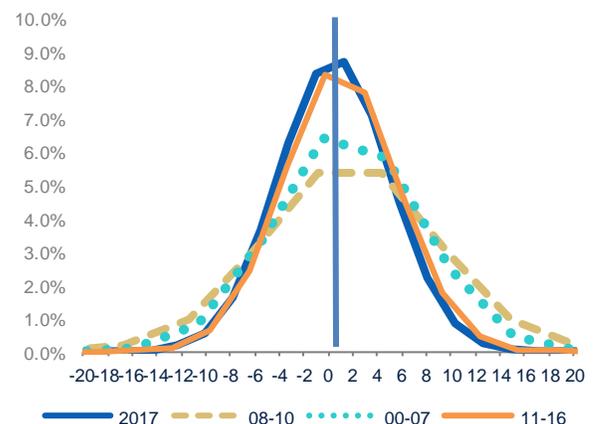
Idiosyncratic explanations for recent inflationary headwinds, which gained traction in 2Q17 after Fed’s Chairwoman Yellen highlighted the drop in mobile phone contract prices and physicians services as examples, fails to address the persistently low inflation that has prevailed since prior to 2011. In the last five years, two single items –rent of primary residence and owners’ equivalent rent- account for more than 50% of the increase in core CPI. In fact, the distribution of price changes for over 160 unique consumer price categories has shifted downward. Specifically, the average year-over-year change per category shifted from 1.5% in 2000-2007 to 0.9% in 2011-2016 to 0.5% in 2017. Inflationary pressures were also less volatile and more symmetric during this period. Moreover, 12-month inflation for education services has reached a record low and prices for electronic commodities such as televisions, wireless telephones, major household appliances, and computers have been declining for more than 15 years, so expecting a quick reversal of course is misguided. However, while there are no evidence of widespread deflationary pressures these persistent headwinds will create challenges for the Fed, as maintaining a symmetric goal of 2% may be difficult based on the current strategy, which has failed to lift prices above 2% for a prolonged period.

**Figure 4.5** Contribution to consumer prices



Source BBVA Research & BLS

**Figure 4.6** CPI inflation distribution\* (YoY, %)



\* 169 unique categories  
Source BBVA Research & BLS

In terms of monetary policy, we anticipate that the next major shift in policy accommodation will be the Fed's announcement of the start of its balance sheet normalization, which we expect to occur at the FOMC's September 19th-20th meeting; implementation will likely begin in October, followed by a 25bp rate increase in December. Our baseline also assumes two additional 25bp rate increases in 2018 and 2019. Currently, the biggest sources of uncertainty is inflation, which continues to trend well below the FOMC's target, and equilibrium real interest rates, which by some estimates are close to zero. If inflation continues to trend persistently below the committee's target and expectations on equilibrium real interest rates remain low there is a chance that the current tightening cycle could be put on pause sooner than implied by the committee's projections (Summary of Economic Projections) and thus allow labor market to undershoot full employment for a longer period.

For fiscal policy, although our less upbeat outlook at the start of the year remains fundamentally unchanged, for most market participants it continues to dampen, as the prolonged process of repealing and replacing healthcare has delayed and shifted attention away from policies that could boost growth such as tax reform and infrastructure spending. Moreover, Congress now has to increase the debt ceiling, which after exhausting all extraordinary measures, is projected to occur in mid-October and adopt a budget resolution prior to fiscal year 2018. Failing to increase the debt ceiling or prioritizing Treasury payments would put at risk the U.S. untarnished credit rating.

Meanwhile, since bi-partisan comprehensive tax reform is close to impossible, Republicans will try to approve a budget resolution in both the House and Senate to use reconciliation to pass tax reform with a simple majority in the Senate and bypass a filibuster. However, the first hurdle is having tax policy wonks, deficit hawks and defense hawks inside the GOP agreeing on where spending cuts will be implemented and the level of deficits that are acceptable. Through reconciliation, savings can only take place through mandatory spending, which includes Medicare, Medicaid and other welfare programs. If the president remains committed to keep Medicare untouched, tax cuts would probably be back-loaded with high economic growth expectations or financed through higher deficits.

While indications are that, the White House remains committed to infrastructure investment it at best ranks third in terms of priorities behind tax reform and healthcare. As a result, we are not incorporating fiscal expansion in 2017 outlook. In 2018, our baseline continues to assume a moderate impact from fiscal policy albeit at a reduced rate, particularly since tax reform will be mostly about cuts rather than a complete overhaul to the tax code.

Nevertheless, the uncertainties around our scenario are also growing and tilting to the downside given the lack of clear direction from the administration. To the upside, a quick turnaround in Congress and compromise from the White House on tax reform or infrastructure spending could have an immediate impact on expectations while also boosting demand over medium-run. This would likely imply moderately higher growth over the next four years. Furthermore, the downside risks from damaging restrictions on trade flows and immigration appear to have come down. Conversely, further delays on tax reform and infrastructure spending could erode the confidence of the private sector. This combined with cyclical headwinds and tighter financial conditions could push growth well below 2.0%. Given that the economy is nearing its cyclical peak and trending close to our estimates for potential GDP, means that notwithstanding an about-face from Congress and White House that leads to timely and effective policymaking, growth will continue at its current pace, at or slightly below 2.0%.

## 5. Economic impact of Trump's policies

During the presidential election, the then-president-candidate Donald Trump proposed various plans aiming to boost the U.S. economy to a state of high economic growth, high labor participation rate, low unemployment, and reduced trade deficits. Specifically, those plans asked for increasing infrastructure spending and protectionist trade policies. As outsiders to Washington politics, President Trump and his economic counselors view the U.S. economy in a perspective that seems extremely different from other veteran policymakers. Therefore, the interpretation of his policy proposals is often subject to remarkable uncertainty and ambiguity.

In this section, our goal regarding the analysis of today's economic policies is two-fold. First, we try to use dynamic stochastic general-equilibrium (DSGE) models as a tool to analyze the implications of the policies under the Trump government. The tractability of DSGE models is a desirable feature that enables us to eliminate as much ambiguity as possible. Second, based on the estimates from the DSGE model, we attempt to shed light on the consequences of certain economic proposals and provide an anchor to further policy discussions. For this purpose, our benchmark model is the Federal Reserve's Estimated Dynamic Optimization (EDO) Model, which features the latest parameterization and desirable specifications on economic structures and exogenous shocks. In the rest of this section, we will utilize the EDO model and discuss two economic policies that are frequently brought up by the Trump administration.

### Infrastructure spending

Using fiscal policy to stimulate the economy has a long history since Keynes's *General Theory* permanently changed the landscape of economics. However, mainstream opinions toward its effectiveness have swung significantly during the last six decades. In 1961, the Kennedy government managed to increase defense expenditure dramatically, and the subsequent strong economic growth convinced policymakers that discretionary fiscal policies combined with expansionary monetary policies were the key to a prosperous economy. However, upon repeated usage in the next two decades, this stimulative recipe, which is essentially an instrument to boost aggregate demand, reached its limit. A series of disastrous recessions with high inflation and unemployment in the 1970s put the discretionary fiscal policy under scrutiny (Lucas and Sargent, 1981). As thoughts on fiscal policies evolve, most macro economists tended to agree that "discretionary fiscal policy has not contributed to economic stability and may have actually been destabilizing at particular times in the past," and "monetary policy is the superior tool for macroeconomic stabilization." (Feldstein, 2002) In fact, Solow (2004) effectively summarized such change of political and intellectual landscape stating that "serious discussion of fiscal policy has almost disappeared."

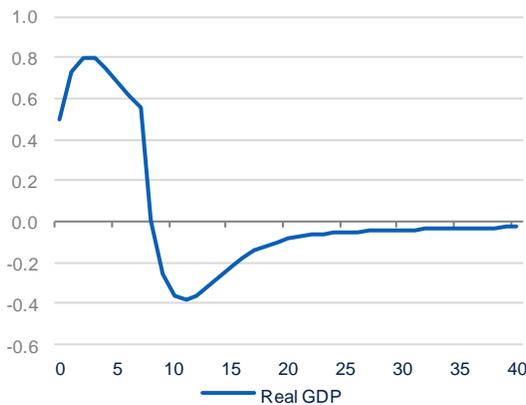
The slow recovery from the Great Recession, however, urges economists and policymakers to explore more options to jumpstart the economy and reconsider the role of the fiscal policy. As the "Make America Great Again" slogan and a series of speeches reveal, President Trump and his economic advisors have looked into the past, and shown strong interests in discretionary fiscal policies such as expanding the defense budget and infrastructure investment. According to the "Rebuild America's Infrastructure" plan released by the White House,<sup>1</sup> the President "has dedicated \$200 billion in his budget for infrastructure."

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1: <https://www.whitehouse.gov/blog/2017/06/08/president-trumps-plan-rebuild-americas-infrastructure>

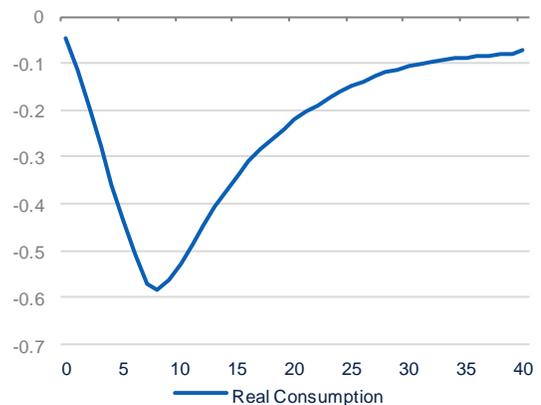
Although fiscal policy is still being negotiated, the proposed magnitude of the infrastructure plan should not be considered as completely irrelevant. Even if \$200bn in investment may seem overly aggressive, it can still help us to estimate the largest possible economic impact from the fiscal stimulus. Therefore, in this section, we assume that the President convinces lawmakers and Congress approves a budget with \$200bn dedicated to infrastructure. We further assume that the extra expenditure will be spent in eight quarters at steady growth rates. Figures 5.1 – 5.4 show the effects of such fiscal stimulus according to the EDO model.

**Figure 5.1** Impulse responses: government expenditure shock (%)



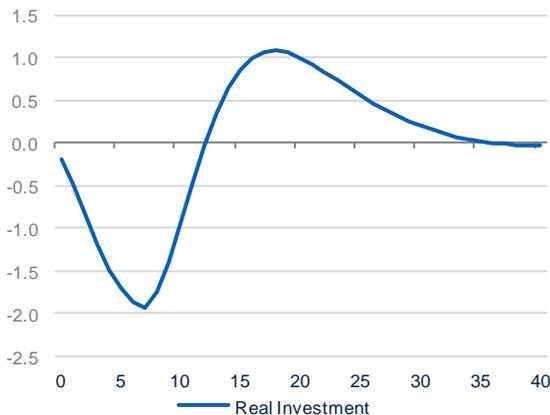
Source: BBVA Research

**Figure 5.2** Impulse responses: government expenditure shock (%)



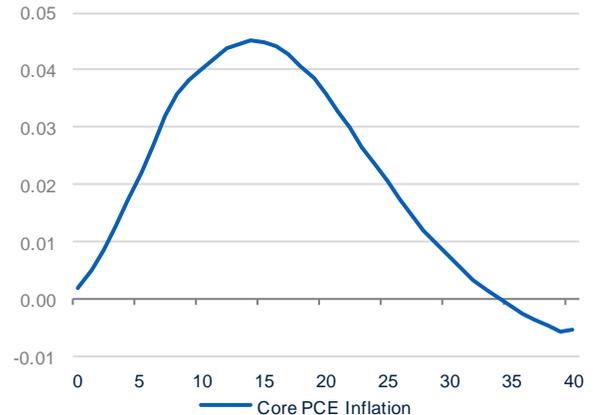
Source: BBVA Research

**Figure 5.3** Impulse responses: government expenditure shock (%)



Source: BBVA Research

**Figure 5.4** Impulse responses: government expenditure shock (%)



Source: BBVA Research

As we can see from the figures, the \$200bn infrastructure investment can boost real GDP growth by 0.8% at the peak. However, the positive effect will quickly converge to zero when the fiscal stimulus program ends at the eighth quarter. The temporary effect is consistent with the experience from the 1960's in which fiscal stimulus only has a short-term effect and should not be used as a cure for structural problems. Moreover, the EDO model also helps to estimate the "crowd out" effect on private consumption and investment. The negative impact on their short-term growth rates is significant. Additionally, the estimated effect on inflation is also consistent with existing literature. As Dupor and Li (2015) summarize, the fiscal stimulus will have little impact on the price level.

## Protectionist trade policies

International trade has been one of the key issues in President Trump's political agenda. In our previous discussions, we have examined the effect of Trump's speeches<sup>2</sup> and stylized facts of the trade balance.<sup>3</sup> In this section, we try to shed light on potential trade policies and how they would influence the economy.

Although the Trump government has had talks with leaders of other countries on trade issues, under the current rules on trade negotiations, the change of trade policies would require the collaboration of different bodies of the government. Given the highly complicated input-output structure of the U.S. economy and its sheer importance in the global economy, any trade reform would require a lengthy process of deliberation and negotiation. For example, the House Republicans' border-adjustment tax (BAT) plan has been widely criticized for generating "unintended consequences" and thus is not expected to pass the legislation.

On the other hand, even though the BAT plan could be axed, the President can still use other ways to impose trade barriers that increase the costs of foreign goods and protect domestic manufacturers. For example, the investigation on imported steels is widely expected to result in higher import tariffs. As the government also plans to investigate other imports such as sugar and lumber, higher costs of international trade seem inevitable for the U.S.

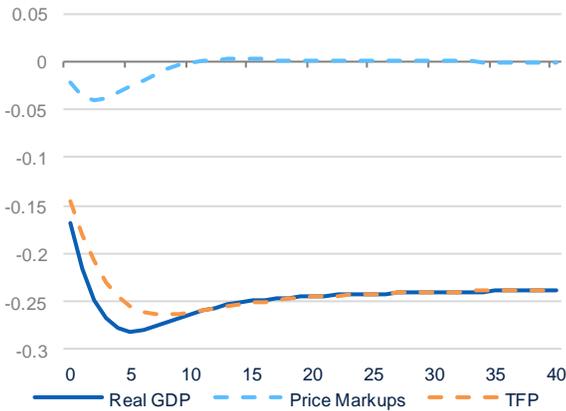
The rising cost of international trade will have adverse effects on the economy. First, trade barriers will introduce market frictions and thus increase price markups of affected goods. Second, higher costs of international trade will also cause structural changes in the globally integrated supply chain, which reduce productivity. Given the highly complex input-output structure of the U.S. economy, we assume that more trade barriers will increase the markups of capital goods and consumption goods by one tenth of their standard deviation, and decrease the economy-wide productivity by one tenth of their standard deviation. The results are in Figures 5.5 to 5.8.

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2: <https://www.bbvaerearch.com/en/publicaciones/u-s-big-data-analysis-trump-effect-on-trade-narratives/>

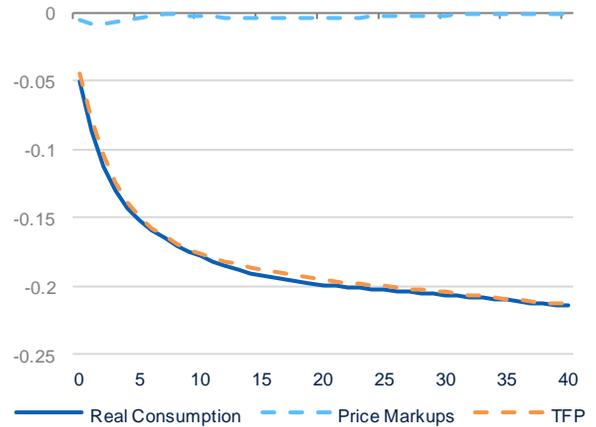
3: <https://www.bbvaerearch.com/en/publicaciones/u-s-the-trade-deficit-dont-fear-the-beast/>

**Figure 5.5** Impulse responses: trade policy shock (%)



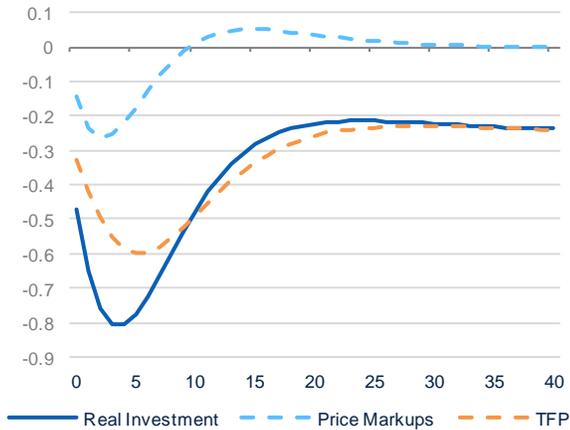
Source: BBVA Research

**Figure 5.6** Impulse responses: trade policy shock (%)



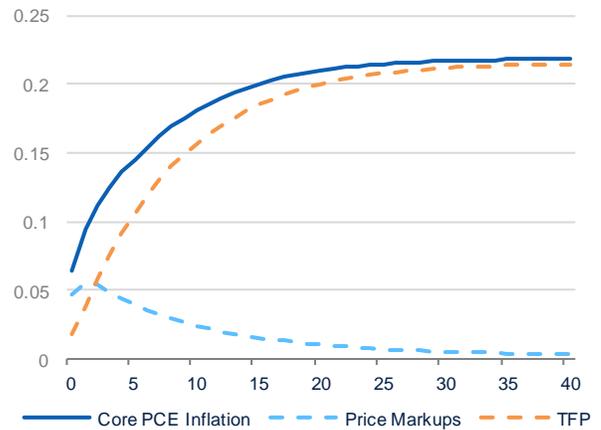
Source: BBVA Research

**Figure 5.7** Impulse responses: trade policy shock (%)



Source: BBVA Research

**Figure 5.8** Impulse responses: trade policy shock (%)



Source: BBVA Research

Based on estimates from EDO, protectionist trade policies will increase the price markups in the economy, and their effect will be transitory and mostly disappear after two years. On the other hand, the loss of productivity caused by trade barriers will have a dominant and permanent effect on economic variables. This estimate is consistent with the theoretical and empirical literature on openness and productivity growth. That is, when trade barriers increase, the productivity will fall either because the less competitive firms can remain in the market (Melitz, 2003), or because cheaper imported intermediate goods would become unavailable for domestic firms (Goldberg et al., 2010). Since productivity growth is incremental, the negative productivity shock will permanently damage the economy.

The mediocre economic growth since the end of the recession has been challenging economists and policymakers in both theory and practice. As many economists have suggested, headwinds are more likely to be secular than temporary. Moreover, the key to achieving the goal of 3% growth is to provide a strong boost to productivity, and such increase would require a policy package that aggressively incentivizes private investment (Cogan et al., 2017). According to our estimation, the implementation of the president's agenda will have mixed effects on the economy. Increasing infrastructure spending by itself can only provide short-run stimulus at the cost of crowding out private investment. On the other hand, a well-thought-out plan that includes higher infrastructure spending could boost long-term productivity, and generate larger benefits than what our model predicts. Furthermore, although renegotiating out-of-date trade agreements can eliminate frictions and make the market more competitive, using protectionist policies as leverage would risk weakening productivity growth and inflicting permanent damages to the economy.

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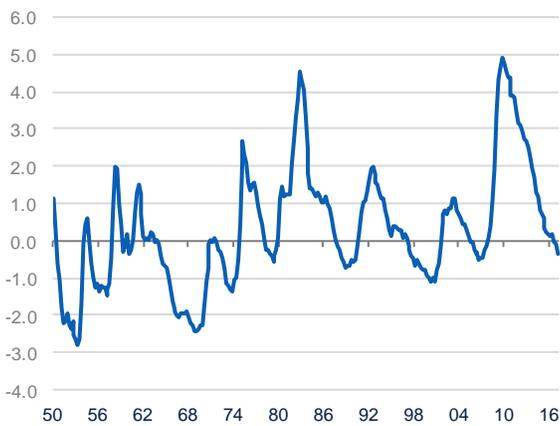
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## 6. Monetary policy normalization

After jumpstarting market expectations, which had been on life support after a prolonged pause in interest rate increases in 2016, the Fed seemed to set a course for predictable path of rate increases and the balance sheet normalization in the first quarter. With respect to the balance, the Fed has effectively communicated its strategy of foreseeable and passive balance sheet withdrawal coalescing market expectations around a September start date. The gradually increasing caps also allows for near perfect foresight over the first two years and minimal market disruption, as projected runoff will exceed the initial caps during the first five quarters of the process.

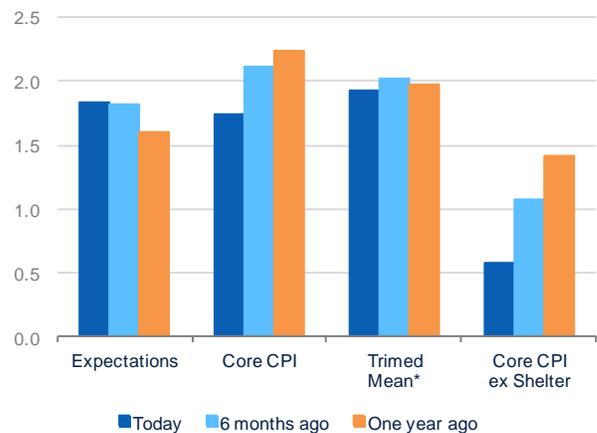
For rates, the Committee’s confidence in reaching their inflation target has diminished, as recent inflationary trends have bifurcated members into two schools of thought. One, in which the established relationships between labor market tightness and wages holds and current labor market conditions necessarily and sufficiently push wages and inflation up in the medium term. Two, a world where the structural headwinds in the labor market, low productivity growth, skills deficits and weak investment weaken the links between wages, inflation and labor market implying an ever widening inflation gap.

**Figure 6.1** Unemployment rate gap (%)



Source BBVA Research, CBO & BLS

**Figure 6.2** Inflation, year-over-year (%)



Source BBVA Research, FRB, Cleveland Fed & Haver Analytics

In the first case, the policy response remains in place, with ongoing interest rate increases at a pace determined by how fast or slow the dual mandate is met. A quick rebound in inflation would allow the Fed to lift rates faster but if inflation remains low for longer, interest rates increases will have to be delayed. The Fed leadership seems to be in this camp. In the second scenario, interest rates will be put on the side burner and the Fed will have to go back to the drawing board to rethink its overall policy strategy. This could mean lowering the inflation target level or something more aggressive such as switching the Fed’s strategy from inflation targeting to price-level targeting.

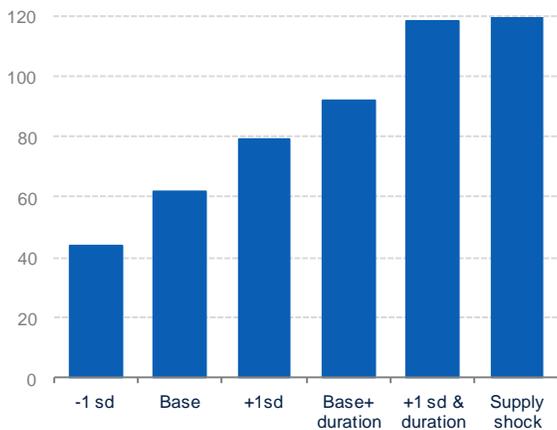
With respect to balance sheet normalization, the supplement and highlights from June’s minutes have solidified the Fed’s plans to use a system of gradually increasing caps over a 12-month period, likely beginning at the end of this year. The

caps initial values will be set at \$6 billion for Treasury securities and \$4 billion for agency and mortgage-backed securities (MBS). Every three months, the caps increase by \$6 billion and \$4 billion, respectively, until they reach \$30 billion and \$20 billion. With this, the Fed can ensure a predictable and passive exit. This would imply reducing the balance sheet by around \$300bn in the first 12 months and \$2 trillion over four years. In order to balance currency in circulation and Federal Reserve assets, we expect Treasury purchases to resume when the balance sheet is close to \$2.5Tr— around 2021.

As a result, the balance sheet composition will be primarily of shorter-term Treasury Bills and Notes, in line with the historic portfolio composition. Although the Fed expects reserves balances to be “appreciably” lower than current levels but higher than pre-crisis, the FOMC was not ready to commit to any particular target. Ultimately, the FOMC will allow reserves to adjust to a level that allows the Fed funds to become once again the primary monetary policy tool.

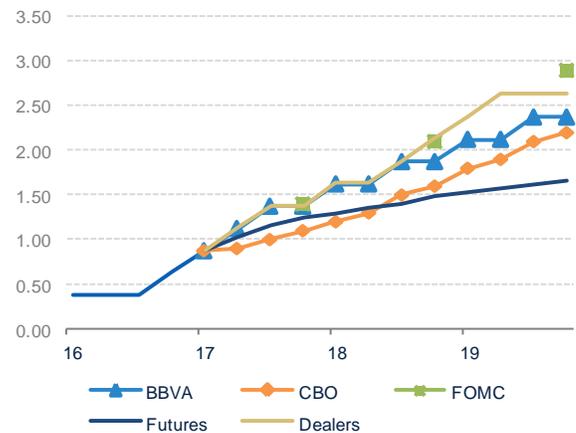
By way of signaling and portfolio rebalancing, we anticipate that the balance sheet normalization strategy should push the term premium and long-term rates up. Ultimately, although the timing and magnitude of the impact will be determined by the market for Treasuries and MBS, a clear communication strategy and a predictable and passive implementation reduce the risks of large swings in yields. Regulatory changes to money market funds and stricter capital requirements from commercial banks lower the probability of an immediate misalignment, as their need for safe-assets has increased. Similarly, while a sharp contraction in foreign U.S. Treasuries holdings is possible, recent indicators suggests that there has not been a fundamental shift following the FOMC’s announcement of Balance Sheet Normalization. For many central banks around the world, holding Treasuries is not dependent on their price or yields but on their intrinsic value as safe assets and the benefits to foreign exchange rate management. As a result, long-term rates should increase moderately. Our models suggest that the cumulative impact could be between 40 and 120bp in response to impact from portfolio rebalancing channel; with respect to the signal, investor were unmoved by the announcement of Balance Sheet Normalization. Nonetheless, some market participants, particularly nonfinancial private and foreign buyers could move in the same direction if a one-sided market is perceived as a “sure bet” much as was the case when the Fed implemented QE.

**Figure 6.3** Impact of balance sheet normalization on 10-year Treasury (%)



Source: BBVA Research

**Figure 6.4** Fed funds rate (%)



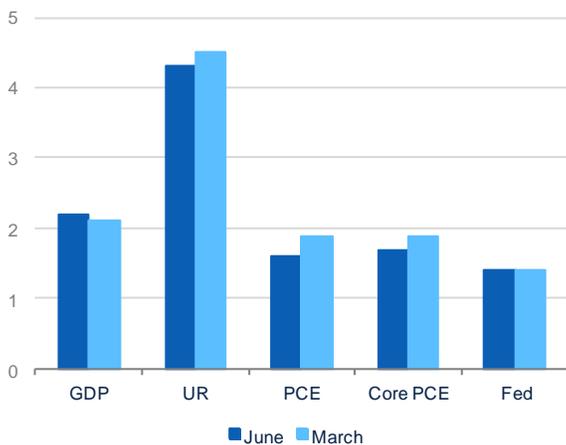
Source BBVA Research, CBO, FRB & Bloomberg

Going forward, officials will have to focus on their communication strategy in order to realign market expectations with their outlook, as Fed Fund Futures imply only 2 rate increases between now and the end of 2019. This means first lifting expectations of the December rate increase, which has an implied probability of less than 50% to achieve a smooth increase to 1.25-1.50% and then realigning markets with the committee’s long-term projections, which remain closer to 3.0%— seven additional rate hikes by 2019.

This can be done through Fed communication and in the upcoming meetings, as was the case leading up to the March increase. Particularly if we consider that real GDP growth will be higher in 2H17 than the first half, labor markets will continue to converge with full employment, and global risks abate. However, this will only happen if downward price pressures actually fade away, and inflation expectations realign with the Fed’s 2% target over the medium term. Past experiences suggest that inflation begins to edge up well after significant declines in the unemployment rates have taken place. Therefore, besides one-off price declines, the key uncertainty is if labor markets have tightened sufficiently or not.

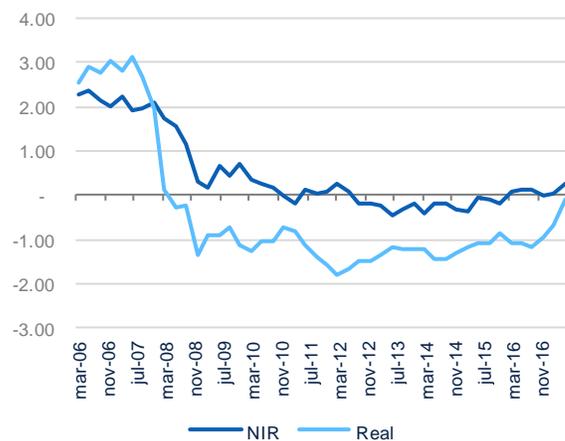
The FOMC seems convinced that the course of monetary policy normalization is appropriate in this environment. With the economy at or near full employment, benchmark interest rates need to move away from the zero-lower bound, so that the FOMC has space to respond to the next cycle. A noticeable downshift in the median of the dot plot or a wider distribution in September’s Summary of Economic Projections (SEP) would confirm a shallower path. This is consistent with our baseline for two additional rate increases in 2018 and 2019. However, failing to realize the implied path in the survey of economic projections for several years also puts the FOMC’s credibility at risk, which markets currently discount as having a low likelihood of occurring. Moreover, the task of convincing investors to have faith in the Phillips curve will be challenging, particularly since it’s unclear how much of the flattening is cyclical or structural.

**Figure 6.5** FOMC forecasts (%)



Source BBVA Research & FRB

**Figure 6.6** Natural interest rates & inflation-adjusted target Fed funds rate (%)



Source BBVA Research, Laubach & Williams, FRB

The Fed also has to balance expectations of unobserved factors such as  $R^*$  or the natural real interest rate. With estimates of the natural real interest rate at around 0% and with core PCE inflation at 1.8% in 2Q17, it would take only a couple of rate increase the bring monetary policy back to neutral levels. However, if the natural real interest rate begins to edge higher to around 1% as a result of stronger productivity growth and higher potential output, and inflation returns to the target of 2%, a neutral monetary policy would imply that fed funds fed would need to increase to 3%. That said, the evolving outlook on neutral interest rates and uncertainty over the outlook for inflation could leave members feeling confident that rates are not overly accommodative with 2-4 additional rate increases.

Meanwhile, financial conditions have eased over the year despite monetary accommodation being removed, suggesting that higher interest rates might be needed to prevent the likelihood of an asset price misalignment and contain the risks of the bubble bursting if one actually exists. Officials also have to contemplate the potential effects of fiscal stimulus and financial deregulation, which increase the potential of significantly undershooting their unemployment target and stoking inflationary pressure.

Early confidence in the new administration's ability to implement a moderately expansionary fiscal agenda has given way to a more measured view. In fact, there are signs that the White House is beginning to back away from its aggressive proposals to lower the corporate tax rate to 15% while also significantly reducing individual rates. Member, also, have to discount a lower probability of this happening given the lack of agreement within the GOP. In spite of the obstacles still faced by Congress and the White House, failing to prepare the economy for a fiscal shock could risk derailing the current course of policy normalization.

While the Fed has little to say when it comes to fiscal policy the fact remains that low interest rates has muted all discussions on the high levels of public debt and the burden to finance it. If interest rates edge up, the debate could return to the forefront of the political agenda and policymakers will have more pressures to deal with these issues.

With Yellen likely to step down or be replaced at the end of her tenure in January, three seats open and Stanley Fischer's term ending in June, consideration of the board composition and leadership in the near future will also factor into the decision making process. It is unclear how President Trump will balance the desires of some members within the GOP that advocate for a rules-based monetary policy with his own aspirations to grow the economy, which will benefit from lower interest. However, where Trump's objectives align most with the GOP is on deregulation, suggesting appointees will have an inclination towards reduced oversight and fewer capital requirements. Yellen has said that with the macroprudential tools the Fed has in place today and with enhanced capital buffers in the financial sector it was unlikely that we would see another financial crisis in her lifetime. Regardless, there is no doubt the risk posed by a potential dismantling the safeguards put in place after the financial crisis would be unpalatable for the current committee, jeopardizing their legacy that will boil down to the success of the normalization strategy and long-term stability of the financial sector.

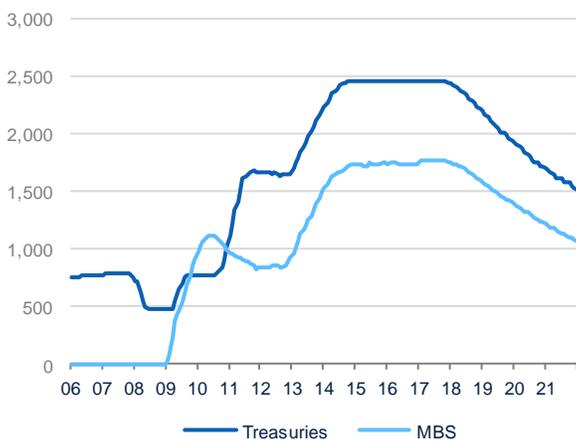
## 7. Effects of Fed’s balance sheet normalization on deposits

At the June 2017 meeting, the Federal Open Market Committee (FOMC) released the Addendum to the Policy Normalization Principles and Plans, which seeks to reduce the Fed’s Treasury securities and MBS holdings by decreasing the reinvestment of principal payments. We expect this process to start in 4Q17. The simulated effect on the level of securities held by the Fed is presented in Figure 7.1. The commitment is a sign that the Fed is confident that the economy will be able to absorb the unwinding of the balance sheet without major financial markets disruption. However, the adjustment will impact financial participants in different ways. In this article we analyze the potential effects on commercial banks’ balance sheets, which on the one hand hold \$2.2tn in reserves with the Fed, and on the other hand have experienced a \$5.1tn increase in deposits between 2007 and 2016.

### Quantitative easing and bank deposits

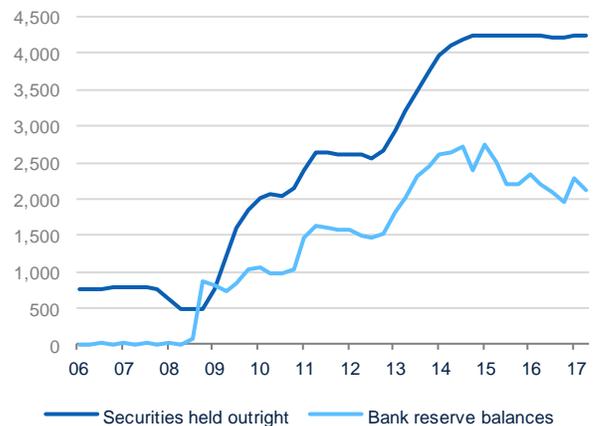
The increase in securities holdings by the Federal Reserve on the asset side of its balance sheet was funded by an increase in commercial banks’ reserve balances on the liabilities side (Figure 7.2). That is, the Fed paid for the security purchases by crediting banks’ accounts at the Fed with reserves. An exercise in the accounting changes in the balance sheets of the main participants in the QE process suggests that the level of deposits remains unchanged when banks are the sellers of the securities (Figure 7.3), as all that happens is a substitution of securities with reserves at the Fed on the assets side.

**Figure 7.1** Securities held outright by the Federal Reserve (\$bn)



Source: BBVA Research, Haver, FRB

**Figure 7.2** Securities held outright and bank reserve balances (\$bn)



Source: BBVA Research, Haver, FRB

However, banks were not major sellers. In fact, their role was mostly as intermediaries between the Fed and the sellers comprised of non-banks. These were primarily households, hedge funds, broker-dealers, and insurance companies, in the case of Treasuries, and households, hedge funds, investment companies, and pension funds, in the case of MBS.<sup>4</sup> Since a share of the proceeds of the sale was being deposited at the commercial banks (Figure 7.4), the Fed’s unwinding of its balance sheet could result in a decline in bank deposits.

**Figure 7.3** Fed purchases from banks. Balance sheet effects. Example

FEDERAL RESERVE		TREASURY	
Assets	Liabilities	Assets	Liabilities
Treasury securities +\$1	Reserves held by banks +\$1	Cash held at the Fed	Treasury securities
	Cash held by the Treasury		

BANKING SECTOR		PUBLIC	
Assets	Liabilities	Assets	Liabilities
Treasury securities -\$1	Deposits	Deposits	Wealth
Reserves at the Fed +\$1		Treasury securities	

Note: Linked effects are assigned the same color.

Source: Leonard, D., Martin, A., Potter S. (2017) How the Fed Changes the Size of Its Balance Sheet. <https://goo.gl/ap6xMw>

**Figure 7.4** Fed purchases from the public. Balance sheet effects. Example

FEDERAL RESERVE		TREASURY	
Assets	Liabilities	Assets	Liabilities
Treasury securities +\$1	Reserves held by banks +\$1	Cash held at the Fed	Treasury securities
	Cash held by the Treasury		

BANKING SECTOR		PUBLIC	
Assets	Liabilities	Assets	Liabilities
Treasury securities	Deposits +\$1	Deposits +\$1	Wealth
Reserves at the Fed +\$1		Treasury securities -\$1	

Note: Linked effects are assigned the same color.

Source: Leonard, D., Martin, A., Potter S. (2017) How the Fed Changes the Size of Its Balance Sheet. <https://goo.gl/ap6xMw>

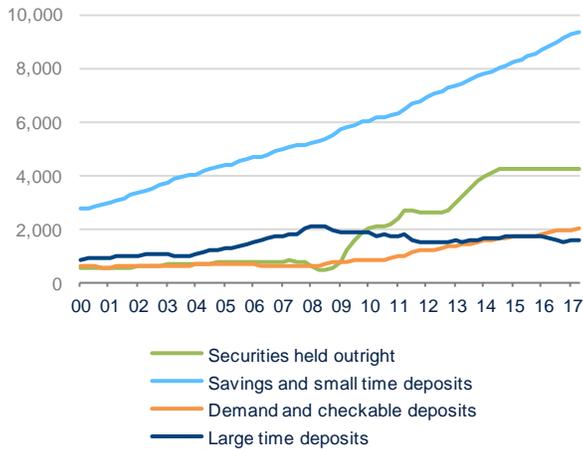
A close look at the data confirms that the effect of the three rounds of QE on demand and checkable deposits was strong and positive. The impact on time deposits was also strong but negative. Meanwhile, the effects on savings and small time deposits seem negligible. After aggregating all the deposits, the effects of QE on deposits lose their significance (Figure 7.5). This suggests that the impact of QE may have boosted some deposits but at the same time depressed other, with a net impact close to zero.

A review of the cross-corelograms of the QoQ percent changes in the levels of securities held by the Fed and bank deposits confirms that there is significant correlation only in the cases of demand/checkable deposits and large time deposits (Figure 7.6). These categories represent around 1/3 of total deposits, and with their disparate response to the changes in the Fed balance sheet have a small aggregate impact. Interestingly, the change in deposits leads the change in Fed securities holdings. This could reflect the other developments that occurred over the last decade in addition to QE, such as the Fed lowering interest rates close to 0%, inflation and inflation expectations reaching historically low levels, a very slow economic recovery, and increased appetite for safe assets both in the U.S. and abroad. In this sense, these other factors may have had a greater influence on bank deposits than the level of the Fed’s securities portfolio.

4: Carpenter, S., Demiralp, S., Ihrig, J., Klee E. (2015). Analyzing Federal Reserve asset purchases: From whom does the Fed buy? Journal of Banking & Finance, Volume 52, March 2015, Pages 230-244

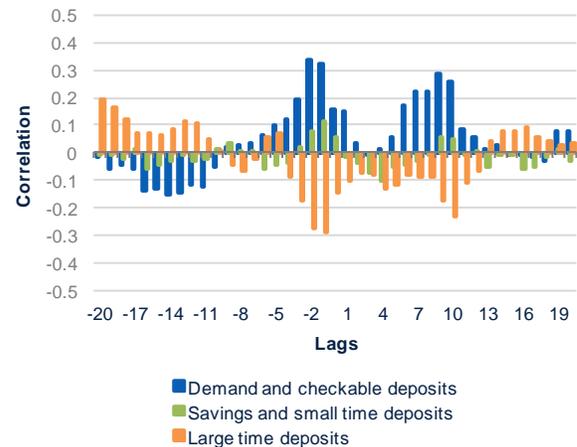
Going forward, banks could become major buyers of Treasuries. The reason for this are the new regulations related to the liquidity coverage ratio and the amount of high-quality liquid assets. If the amount of reserves that banks hold edge down and these institutions want to maintain the same amount of safe assets, they will need to purchase Treasuries.

**Figure 7.5** Securities held by the Fed and deposits (\$bn)



Source: BBVA Research and Federal Reserve

**Figure 7.6** Cross-corelograms between QoQ changes in the levels of Fed security holdings and deposits



Source: BBVA Research

## Effects from Fed’s balance sheet normalization on bank deposits

To further investigate the statistical importance and the strength of the relationship between the changes in the Fed’s securities portfolio and bank deposits, we developed VAR models and performed linear regressions for demand and checkable, savings and small time, large time, as well as total deposits. The independent variables include Fed’s security holdings, GDP, risk premiums and interest rates. Based on the VAR models, we also conducted Granger causality tests.

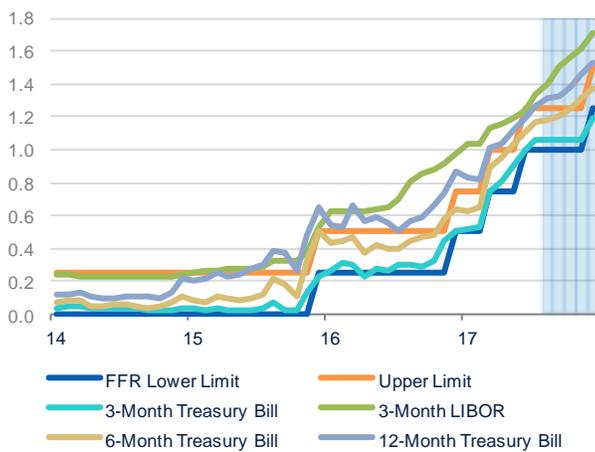
Our results suggest that first, the relationship between the changes in the Fed’s security holdings and deposit growth rates are in most cases not significant when other macroeconomic variables are taken into consideration. Second, the changes in total deposits are mainly driven by macroeconomic factors such as economic growth and inflation. On the basis of these findings, we can conclude that the balance sheet normalization itself should not have significant, if any, direct effect on overall deposit growth, as long as the economy continues expanding and inflation remains positive. However, by type of deposits, we should expect banks’ balance sheets to experience some substitution between demand/checkable and large time deposits.

Conditional on our baseline macroeconomic scenario and expectations for the Fed’s balance sheet normalization, we expect commercial bank deposits to grow slightly below 5% in 2017 and between 5% and 6% per year in the 2018-2020 period.

## 8. What happens to the yield curve when the system goes into reverse?

In the diverging global monetary policy landscape, what is the expected shape of the U.S. yield curve? The pass-through of four Fed funds rate increases by the FOMC to short-term rates has been in line with past tightening cycles. The relationship between Treasury bill yields and other money market interest rates has on average remained stable with the exception of 2016, the period in which U.S. money market reform was implemented and during which spreads widened. The projected path of short term rates continues to reflect this steady relationship between short-term rates and the Fed funds rate with expectations of an increase in short term rates slightly ahead of each rate hike, and the three-month Treasury bill yield fluctuating near the lower end of the Fed funds target rate. Consistent with the documented research, retail interest rates are stickier and there is a lower Fed funds rate increase pass-through in this early stage of the monetary policy tightening cycle.<sup>5</sup>

**Figure 8.1** Short-term rates baseline forecast (%)



Source: BBVA Research & FRB

**Figure 8.2** 10-Year Treasury yield baseline forecast (%)



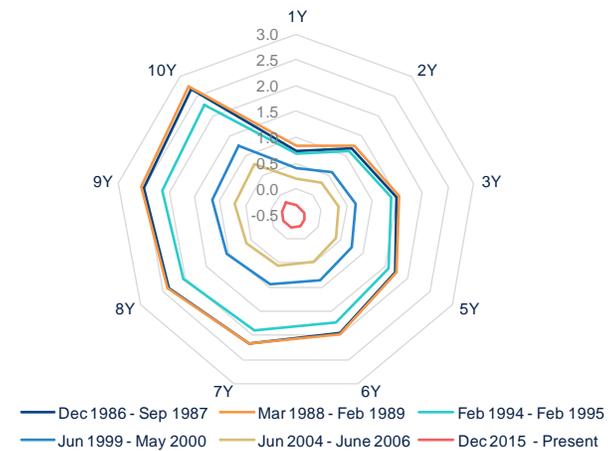
Source: BBVA Research & FRB

Long-term yields are expected to rise only moderately in the medium term, supported by robust growth expectations, a tightening labor market, and upward pressure from term premium given the FOMC's indication to trigger balance sheet normalization. The ongoing downward pressure on long-term yields has been determined to be primarily driven by lower term premium. Indeed, the 2015-2017 term-premium curve is unprecedentedly low when compared to any previous Fed tightening cycle. The period is also significant due to the flattening of term premium across maturities. For example, in 2016 the average estimate of the 10-year Treasury term-premium was negative and on par with the 1-year to 7-year Treasuries' term premium.

5: Hannan and Berger (1991), Neumark and Sharpe (1992), Driscoll and Judson (2013), Craig and Dinger (2014), and Yankov (2014).

Thus, the effect of the Fed’s depleting balance sheet on long-term yields has been in the spotlight, specifically the effect of the reversal of the Large Scale Asset Purchases (LSAP) program on the term premium of long-term yields.

**Figure 8.3** Treasury yield curve term premium (% , Fed tightening cycle averages)



Source: BBVA Research & FRBNY

**Figure 8.4** Fed balance sheet: long-term holdings as percentage of U.S. nominal GDP (%)



Source: BBVA Research & FRB

A series of empirical analyses on the effect of LSAP on long-term premiums has yielded a wide variety of outcomes for each Quantitative Easing program and for the Maturity Extension Program (MEP). While estimates vary, the Federal Reserve Board estimates suggest that the combined effect of LSAP on the 10-Year Treasury term premium is as high as 100 basis points.<sup>6</sup> The first asset purchases and the MEP have overall yielded the strongest negative effect on the 10-Year Treasury’s term premium with the Board’s estimates of 40 and 20 basis points respectively.<sup>7</sup>

The effect on the term premium of long term yields resulting from the ceasing of the FOMC reinvestments varies depending on the methodologies used and the type of term premium estimated.<sup>8</sup> The Board of Governors’ estimate suggests a roughly 10 to 15 basis point increase in term premium for the first several years of balance sheet normalization.<sup>9</sup> Another study estimates only a 4.4 basis point increase in term premium for a \$190 billion decrease in balance sheet – equivalent to 1% of the U.S. GDP.<sup>10</sup> Overall, the size and swiftness of the increase in the long-term yields’ term-premium is not expected to match the decline that had been attributed to the initiation of LSAP because the scale of expansion of the balance sheet was much larger than the scale of reduction and because, the reinvestment will be phased out gradually and in line with the FOMC published path. Additionally, the Fed balance sheet is expected to remain permanently larger than it was before the Great Recession due to higher demand for liquidity.

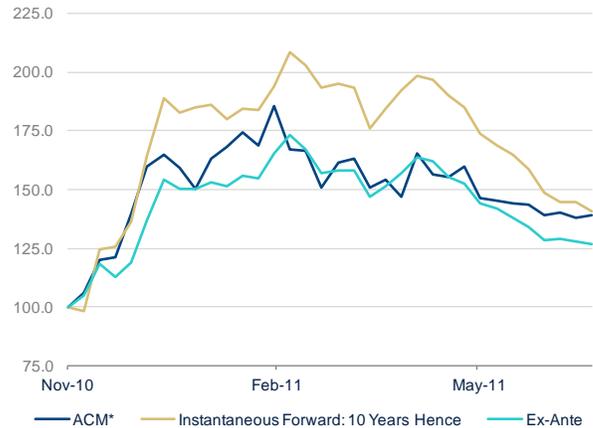
6: Bonis, Brian, Ihrig, and Wei (2017).  
 7: Ihrig, Klee, Li, Schulte, and Wei (2012).  
 8: Durham (2014).  
 9: Ihrig, Klee, Li, Schulte, and Wei (2012).  
 10: Davig and Smith (2017).

**Figure 8.5 QE1:** 10-Year Treasury term premium cumulative change from the start of the program (bp, normalized to the announcement date=100)



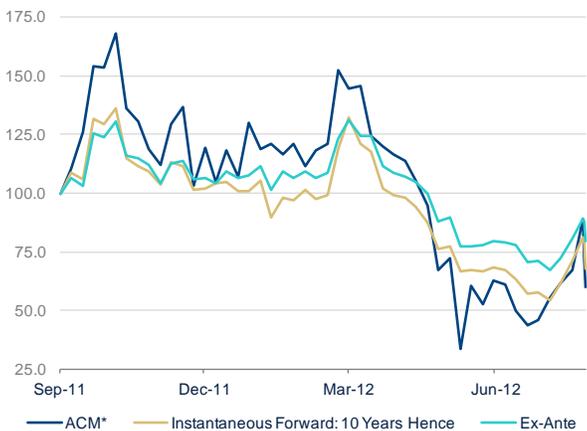
\*Adrian, Crump, and Moench (2013) five-factor model  
Source: BBVA Research, FRBNY & FRB

**Figure 8.6 QE2:** 10-Year Treasury term premium cumulative change from the start of the program (bp, normalized to the announcement date=100)



\*Adrian, Crump, and Moench (2013) five-factor model  
Source: BBVA Research, FRBNY & FRB

**Figure 8.7 MEP:** 10-Year Treasury term premium cumulative change from the start of the program (bp, normalized to the announcement date=100)



\*Adrian, Crump, and Moench (2013) five-factor model  
Source: BBVA Research, FRBNY & FRB

**Figure 8.8 QE3:** 10-Year Treasury term premium cumulative change from the start of the program (bp, normalized to the announcement date=100)



\*Adrian, Crump, and Moench (2013) five-factor model  
Source: BBVA Research, FRBNY & FRB

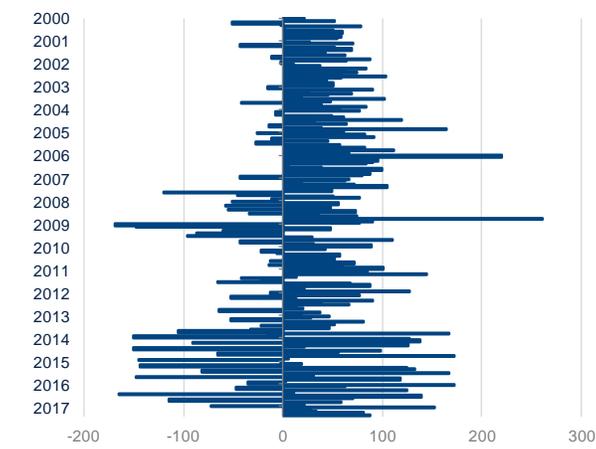
Moreover, downward pressure on term premium is expected to remain, since the Fed's large balance sheet and maturity composition are only part of the dynamics keeping term-premium low. Two years of negative term premium in the back-end of the curve have been a function of several additional factors highlighted below.

**Net flight-to-quality flows and the amplified role of duration risk as a global shock absorber:** Treasury Security net capital inflows and outflows dynamics have changed significantly since 2013, marking an increase in both the monthly volatility of net flows and in the volume of monthly flows, which is likely attributable to heightened volumes of safe haven

trades. The amplified role of duration risk as a global shock absorber has resulted in further downward pressure on term premium and flattened duration risk across maturities.

**Divergence in monetary policy stances:** As many central banks continue to embark on highly accommodative policies and hold downward pressure on global term premium, our estimates suggest that as much as 20% of the 10-Year Treasury yield term premium variation is attributable to the common term-premium of six developed countries – Germany, Japan, Australia, Canada, UK, and the U.S.

**Figure 8.9** Treasury international capital net monthly inflows volatility (\$bn)



Source: BBVA Research & Bloomberg

**Figure 8.10** International term premium (1995=100)



Source: BBVA Research

Under the baseline projections, the yield curve is expected to flatten due to upward pressure on short-term rates from projected Fed funds rate hikes while long-term yields will remain under downward pressure from low term-premium, a decline in inflation expectations, and from continued risk-off sentiment. Long-term yields have adjusted to reflect expectations of constancy and predictability of market fundamentals and reduced uncertainty around the path of monetary policy in light of explicit forward guidance. The volatility in long-term yields has remained contained.

However upside and downside risks to the baseline scenario can arise if the status quo perceived by markets is challenged. Upside risks can arise if expansionary fiscal policy materializes and/or a boost in domestic and global demand results in solid positive momentum for inflation expectations, which would cause yields to be projected on a steeper upward path. Further upside pressure on long-term yields can arise from loosening of the domestic supply of long-term treasuries if the effect of Fed balance sheet normalization on term premium and duration risk were to be higher than anticipated. Downside risks can arise due to maturity of the U.S economic cycle, the intensification of geopolitical risks and decline in global growth. In that economic environment, the sustained downward pressure would resume on both short-term and long-term rates.

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## 9. Forecasts

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

	2011	2012	2013	2014	2015	2016	2017 (f)	2018 (f)	2019 (f)	2020 (f)
Real GDP (% SAAR)	1.6	2.2	1.7	2.4	2.6	1.6	2.1	2.2	2.1	2.0
Real GDP (Contribution, pp)										
PCE	1.5	1.0	1.0	1.9	2.2	1.9	1.5	1.3	1.3	1.3
Gross Investment	0.7	1.6	1.0	0.7	0.8	-0.3	0.7	0.7	0.5	0.6
Non Residential	0.9	1.1	0.4	0.8	0.3	-0.1	0.6	0.6	0.5	0.5
Residential	0.0	0.3	0.3	0.1	0.4	0.2	0.2	0.1	0.0	0.0
Exports	0.8	0.4	0.4	0.6	0.0	0.0	0.5	0.6	0.5	0.5
Imports	-0.8	-0.4	-0.2	-0.7	-0.7	-0.2	-0.7	-0.6	-0.6	-0.6
Government	-0.6	-0.4	-0.5	-0.2	0.3	0.1	0.0	0.2	0.2	0.3
Unemployment Rate (% , average)	8.9	8.1	7.4	6.2	5.3	4.9	4.3	4.0	4.0	4.2
Avg. Monthly Nonfarm Payroll (K)	132	186	184	213	240	208	182	163	140	140
CPI (YoY %)	3.1	2.1	1.5	1.6	0.1	1.3	2.0	1.7	1.9	2.0
Core CPI (YoY %)	1.7	2.1	1.8	1.7	1.8	2.2	1.8	1.6	1.7	1.8
Fiscal Balance (% GDP)	-8.4	-6.7	-4.1	-2.8	-2.4	-3.2	-2.7	-2.4	-2.9	-3.2
Current Account (bop, % GDP)	-3.0	-2.8	-2.2	-2.3	-2.6	-2.6	-2.6	-2.6	-2.6	-2.6
Fed Target Rate (% , eop)	0.25	0.25	0.25	0.25	0.50	0.75	1.50	2.00	2.50	2.75
Core Logic National HPI (YoY %)	-2.9	4.0	9.8	6.9	5.4	5.4	6.1	4.8	4.1	3.6
10-Yr Treasury (% Yield, eop)	1.98	1.72	2.90	2.21	2.24	2.49	2.48	2.73	3.26	3.37
Brent Oil Prices (dpb, average)	111.3	111.7	108.5	99.0	52.6	44.8	51.7	56.3	59.6	59.6

(f): forecast

Source: BBVA Research

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

	2013	2014	2015	2016	2017 (f)	2018 (f)	2019 (f)
Alaska	-4.4	-3.3	0.6	-5.0	-1.3	0.3	0.5
Alabama	0.9	-0.1	1.1	1.3	1.1	1.2	1.2
Arkansas	2.9	1.4	0.2	0.8	0.5	1.0	0.8
Arizona	0.5	1.8	1.4	2.1	1.7	1.6	1.5
California	2.5	3.7	4.4	2.9	3.3	3.1	3.0
Colorado	3.2	4.7	3.0	2.0	3.1	2.7	2.3
Connecticut	-1.4	-0.6	2.2	1.0	1.2	0.7	0.6
Delaware	-1.4	5.3	2.2	0.3	2.7	3.3	3.0
Florida	2.1	2.6	3.6	3.0	3.6	3.3	2.9
Georgia	1.4	3.0	2.5	3.0	2.3	2.4	2.0
Hawaii	1.1	0.6	2.3	2.1	1.3	1.3	1.2
Iowa	0.5	3.1	2.2	0.9	1.6	1.7	2.0
Idaho	2.9	2.4	2.2	1.8	2.5	2.1	1.9
Illinois	-0.3	1.5	1.0	0.9	1.1	1.8	1.6
Indiana	2.4	2.0	0.8	1.5	2.3	2.1	1.9
Kansas	0.2	1.4	2.2	0.2	1.1	1.1	1.2
Kentucky	0.9	0.4	1.1	1.3	1.5	0.9	1.0
Louisiana	-3.4	1.7	0.5	-0.6	0.3	1.7	1.1
Massachusetts	-0.2	1.7	3.7	2.0	2.5	2.1	2.1
Maryland	0.2	1.1	2.1	1.3	1.7	1.3	1.3
Maine	-0.6	1.6	1.1	1.4	1.3	1.3	1.3
Michigan	1.4	1.4	2.7	1.8	1.1	1.1	1.2
Minnesota	2.1	2.6	1.3	1.3	2.1	1.8	1.5
Missouri	1.6	0.2	1.4	1.1	1.2	1.3	1.1
Mississippi	0.6	-1.2	0.3	0.8	0.1	0.2	0.3
Montana	0.7	2.8	2.1	0.2	1.7	1.9	1.8
North Carolina	1.7	1.9	2.7	1.6	2.0	1.8	1.6
North Dakota	2.4	7.3	-3.1	-6.5	-2.3	4.1	4.1
Nebraska	2.5	3.7	0.3	1.2	2.3	2.3	2.1
New Hampshire	0.6	1.7	2.1	3.0	2.3	1.5	1.1
New Jersey	1.4	0.1	1.6	1.2	1.3	1.0	1.0
New Mexico	-1.0	2.9	1.7	-0.5	1.0	1.1	1.0
Nevada	0.5	1.3	3.5	2.4	3.9	3.4	3.1
New York	-0.3	1.8	1.2	0.8	1.2	1.7	1.6
Ohio	1.0	2.7	1.0	1.7	2.1	1.7	1.7
Oklahoma	4.4	4.6	2.7	-2.3	1.0	1.6	2.8
Oregon	-2.0	1.6	4.5	3.3	2.6	2.5	2.8
Pennsylvania	1.6	1.9	2.6	1.1	1.7	1.5	1.6
Rhode Island	0.4	0.8	1.1	1.2	2.1	0.8	0.6
South Carolina	2.0	3.0	2.8	2.1	1.9	1.7	2.0
South Dakota	1.1	0.7	2.6	1.7	2.4	2.1	2.2
Tennessee	1.6	1.6	3.1	2.0	2.1	2.4	2.4
Texas	5.1	3.7	4.5	0.4	4.3	3.8	4.2
Utah	2.5	3.3	4.3	3.0	3.7	2.7	2.5
Virginia	0.0	0.1	2.4	0.6	1.0	0.8	0.7
Vermont	-0.2	0.3	0.9	0.8	1.3	1.1	0.9
Washington	2.4	2.8	2.9	3.7	2.4	3.0	2.9
Wisconsin	1.3	1.4	1.3	1.1	2.1	2.0	1.9
West Virginia	0.5	0.9	0.4	-0.9	1.0	0.6	0.9
Wyoming	1.0	1.2	-0.3	-3.6	0.5	1.1	1.5

(f): forecast  
Source: BBVA Research

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