

A tall, modern glass skyscraper with the 'BBVA COMPASS' logo at the top. The building is set against a cloudy sky. A large blue rectangular overlay covers the middle-left portion of the image, containing the report's title and other text. A teal square is positioned at the top right of this blue overlay.

**BBVA** Research

# United States Economic Outlook

First quarter 2019

United States Unit



Creating Opportunities

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Closing date: **8 February 2019**

# 1. Editorial

The fast pace of China's multidimensional and global ascendance over the last 20 years has spawned both admiration and fear. For some countries, it represented a unique opportunity to expand foreign trade, develop new industries and sustain higher economic growth. For other countries, it meant greater competition, industrial dislocation and, an increase in social, political and economic tensions. At first, most pressures occurred in low value-added sectors affecting countries with basic industries. Over time, however, developed countries experienced significant challenges in higher value-added industries that depend on sophisticated technologies and higher levels of human capital.

Although the U.S. maintains significant advantages such as the strongest military, the world's reserve currency, the largest economy and the highest ranked universities, there are growing concerns that the country is losing the technological race. For example, in 2016, China surpassed the U.S. as the largest producer of scientific articles. In 2018, China's e-commerce market was \$1.1tn or 42% of the world's value transactions, and could reach \$1.8tn by 2022, twice that of the U.S. In addition, China's mobile payments are around 11 times the transaction value of the U.S. In fact, 92% of consumers in China use mobile wallets and almost 80% of smartphone users make a mobile point-of-sale purchase, compared with 25% of American users. China also hosts one-third of the world's unicorns –start-ups with a market value above \$1bn- and accounts for 24% of the world's venture capital, up from 5% a decade ago.

These developments serve as a rude awakening for the U.S., similar to the space race in the 1950s & 1960s when the Soviet Union successfully launched the first satellite and had the first human orbit the Earth. Not surprisingly, policymakers have tried for more than a decade to respond to the changing landscape; however, it seems that none of the options have had a meaningful impact. In fact, the latest tactics like trade tariffs, blocking acquisition of high-tech firms, and formal complaints through the World Trade Organization seem like a short-term solution to a long-term problem and are thus unlikely to force a major shift in current trends.

In this sense, rather than finding external culprits, the U.S. should create a sense of urgency and take bold actions on the domestic front. In particular, the country should aim to maintain its leadership position in the knowledge economy. This would help reap the benefits of new and disruptive technologies and strengthen the sources of economic growth and prosperity. This requires an enormous effort by all actors, starting with reversing the declining trend in federal and state R&D spending, which is the basis for basic scientific research used to develop technologies that maximize "first mover" advantages with long-run payoffs. In addition, there needs to be an effective push for improving basic education with a strong focus on science, technology, engineering and math. Likewise, affordable higher-education, training and vocational programs combined with friendly immigration policies for skilled immigrants will stimulate a culture of innovation and entrepreneurship, and boost the ability to attract and retain top talent. Moreover, it is essential to update and reformulate the safety net and fiscal policy to effectively tackle some of the challenges emanating from the knowledge economy such as growing inequality and the shift away from labor to automation.

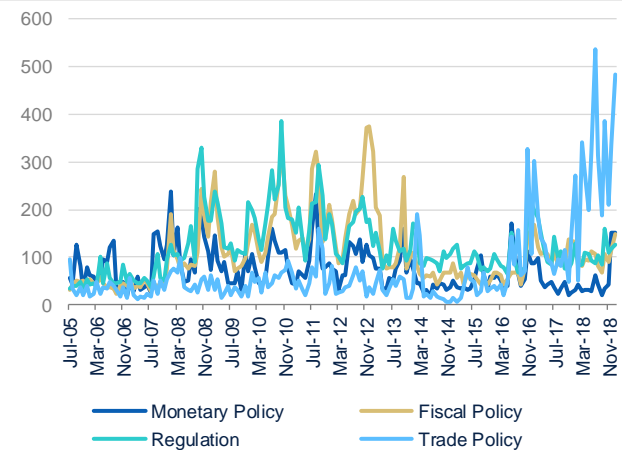
Last but not least, there needs to be a comprehensive strategy to modernize the pillars that support private investment. Encouraging start-ups and technology innovation, while reducing market barriers and boosting market competition are essential to develop emerging technologies. This will allow the U.S. private sector to attain a leadership position in new technologies such as artificial intelligence, big data, advanced manufacturing, nanotechnology, biotech, genomics, renewable energy, robotics, quantum computing and regenerative medicine. In essence, the changing landscape that is already taking place will only intensify over the next decades. This will have profound effects across the economy, labor markets, politics and global stability. Remaining complacent is not an option. If we want to take control of our own fate in the 21<sup>st</sup> century and enjoy the benefits from the gigabyte economy we must embrace a Technology New Deal.

## 2. Strong tailwinds of 2018 give way to rising uncertainty

With the turbulent end to 2018 and the headwinds accumulating abroad, our baseline now assumes economic conditions will cool faster than previously anticipated, pushing growth down to 2.5% in 2019 and closer to its trend rate of around 2.0% by 2020. In 2018, the convergence of stronger global growth, stimulative fiscal policy, high business and consumer confidence and accommodative financial conditions combined to produce one of the best years for growth since prior to the global financial crisis. With job growth averaging close to 200K per month, the unemployment rate dropped below 3.9% for the first time in 50 years. Inflation remained somewhat subdued in spite of the auspicious economic conditions, tighter labor markets, risks of input cost pressures from the rising trade frictions and potential for increased demand-pull.

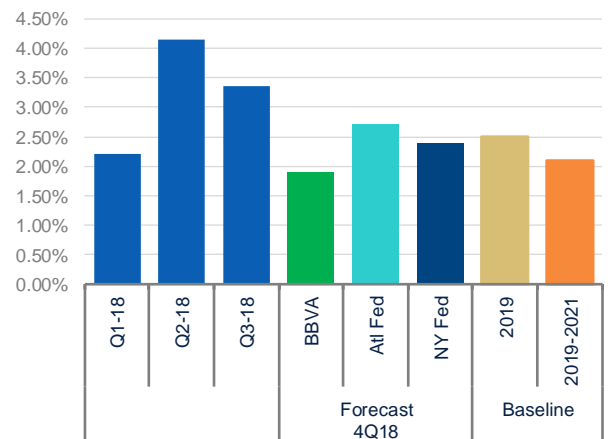
However, uncertainty in the developed world (Brexit, U.S. government shutdown, ECB and Fed uncertainty & Italian fiscal crisis), tighter financial conditions, a significant slowdown in China's economy and weaker domestic confidence suggests risks to the downside have grown. While underlying imbalances remain modest, leading recession indicators suggest that the risk of a U.S. downturn is rising. With this in mind, the Fed is signaling that they will pause for at least the 1H19 in order to recalibrate its monetary policy stance to reconcile the strong macroeconomic fundamentals and growing “crosscurrents”, thus effectively engineering the soft-landing.

Figure 2.1 Policy uncertainty, Index 1985-10 = 100



Source: BBVA Research & Bloom et al

Figure 2.2 U.S. GDP QoQ annualized % change



Source: BBVA Research, BEA & Haver Analytics

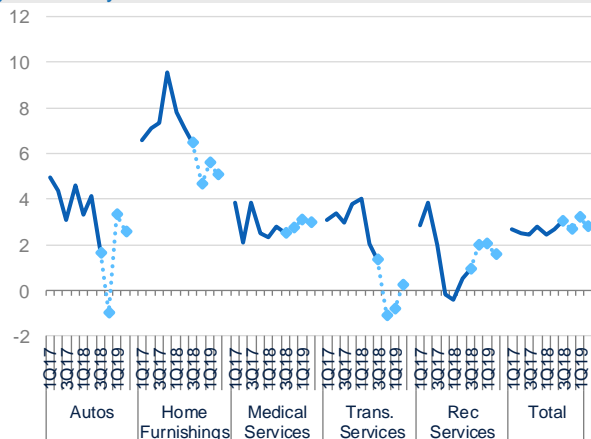
While the 35-day shutdown that started in December 2018, has delayed our glimpse at GDP growth in the fourth quarter, available data suggests growth at the end of the year continued at a moderate pace. In terms of the impact that the government shutdown will have on economic performance in 1Q19, we believe the cost will be around 0.4pp, which would suggest GDP growth could drop below 2.0% on an annualized basis. On net, however, the short-duration and the fact that furloughed workers and those working without pay will receive back pay implies minimal long-term effects. Nonetheless, if policy uncertainty intensifies, the second-round effects could be larger.

Strong labor market conditions, the ongoing boost from the personal income tax cuts and positive outlook from consumers about the state of the economy led to a sharp acceleration in consumption in 2018. A surge in demand for food services and accommodation, nondurable goods such as clothing and shoes, and food and beverages purchased for off-premise explain part of the sharp rise in consumption. In addition, other services that include categories such as personal care, professional services and net foreign travel grew at a well above average pace, contributing nearly 20bp per quarter to quarterly annualized growth rate. In addition, after a tepid first quarter, auto demand held steady despite signs of a more lasting slowdown. While we expected headwinds to strengthen domestically, our baseline assumes personal consumption will growth 2.7%, and 1.9% in 2019 and 2020, respectively.

Meanwhile, private investment remained solid, as more favorable corporate tax policy, a rebound in energy prices in the first three quarters, stronger growth abroad and solid business confidence offset headwinds in the residential sector and trade uncertainty. In fact, on a year-over-year basis, real nonresidential private fixed investment increased 6.8% despite permanent residential structures declining 3.6%. In terms of contributions, real investment in intellectual property contributed 43bp per quarter, which was 2.4 times higher than average.

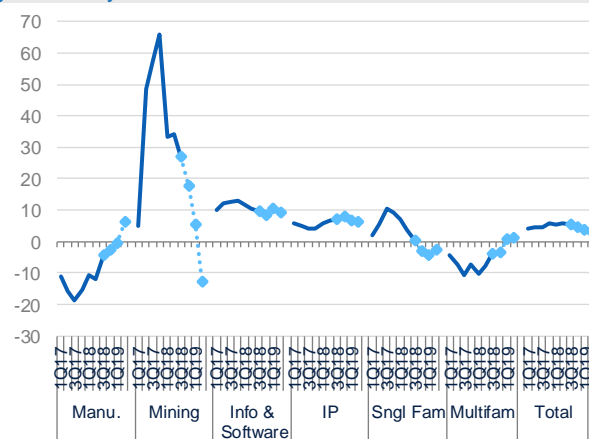
For residential investment, headwinds continue in both the single family and multifamily space. In the multifamily sector, overcapacity and falling cap rates have led to a major downshift in investment, which has persisted since 2016. With respect to the residential sector, demand-side pressures associated with lower affordability and tight supply conditions have weighed on builder confidence and aggregate residential investment.

Figure 2.3 Personal consumption expenditures, year-over-year %



Source: BBVA Research

Figure 2.4 Real fixed private investment, year-over-year %

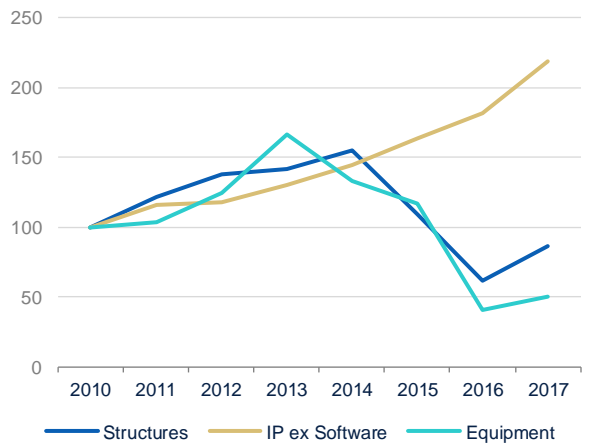


Source: BBVA Research

The Oil & Gas sector has become an increasingly important source of investment in the U.S. At the peak of the shale boom, real investment in exploration, shafts and wells accounted for about 30% of total investment in structures. Today that number has declined to 18.3%. The tepid rebound is partially explained by the shift in the mining sector to a more tech-centric production model. In fact, since 2010, investment in non-software related intellectual property has increased 88.9% whereas over the same period, structures and equipment have declined 28.8% and 51.8%, respectively.

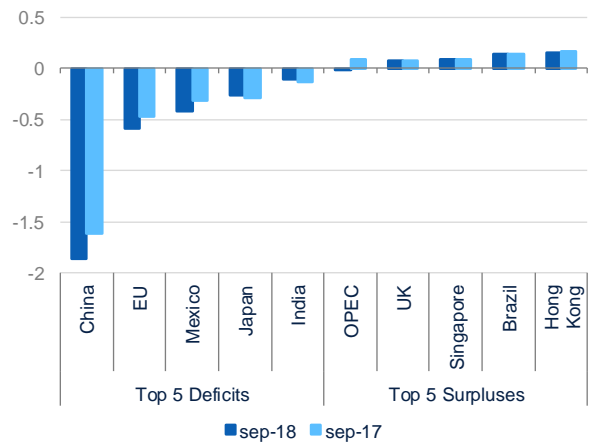
While we expect oil prices to remain below levels that would encourage a strong rebound in investment in structures or equipment, IP-related investment should continue grow at an above average rate, as breakeven prices continue to edge down. Likewise, investment in midstream capacity should remain solid given the pressing need for increased capacity and upgrades that could alleviate major supply bottlenecks in a handful of drilling basins.

Figure 2.5 Investment in mining industry, Index 2010=100



Source: BBVA Research, BEA & Haver Analytics

Figure 2.6 Bilateral trade balance, share of GDP %



Source: BBVA Research, BEA & Haver Analytics

For 2019, we do not anticipate a major shift in the composition of real private investment, and given that growth headwinds are building and uncertainty has increased, our baseline assumes investment growth will moderate to 5.3% in 2019, and 4.6% in 2020.

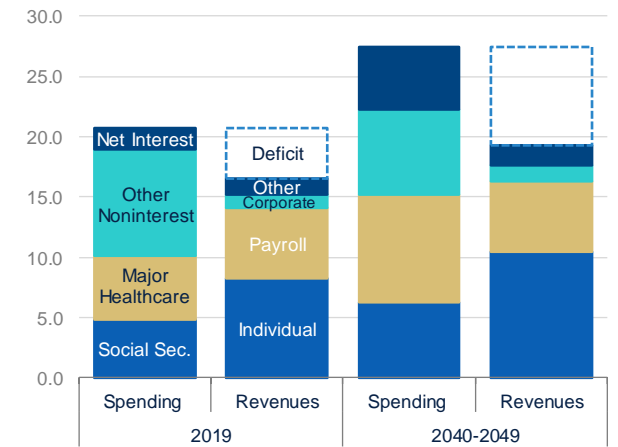
On foreign trade, as expected, the deficit widened in 3Q18, after shrinking dramatically in the first and second quarters, in response to the impending import tariffs. As a result, the trade deficit widened to 3.1% of GDP, which is the largest deficit since 2012. In terms of bilateral deficits, as of the 3Q18, these have increased with our most major trading partners—Canada, China, Mexico, UK, EU— while narrowing somewhat with South Korea, Japan, India and Brazil. Going forward, we expect the relative strength of the U.S. dollar, strong domestic growth and external financing needs will widen the trade deficit, although a more dovish monetary policy stance could moderate pressures on the current account balance. As a result, we anticipate net exports will shave off about 0.4pp from GDP in 2019, which is consistent with recent trends.

In terms of real federal consumption and investment, the 2018 bipartisan budget deal, ramped up contributions from the federal government to \$10bn per quarter, marking a dramatic shift from 2010-2016; during that period, quarterly federal expenditures dropped by \$4.7bn per quarter. The boost in federal consumption and slight uptick in demand at state and local level has contributed 0.4 percentage points (pp) to quarterly annualized quarterly growth rates in 2018.

While the surge in public spending and stronger private sector conditions pushed nominal GDP growth to its highest level since 2006, federal deficits continued to widen as a share of GDP. In fact, the federal deficit increased to 3.8% in FY 2018, and we anticipate an increase to 4.2% by 2020. At 78 percent of GDP, debt held by the public is the highest since after WWII, and based on current projections for interest and non-interest expenditures, and assuming no changes to current legislation, debt held by the public will rise to 93% by 2029. However, with the upside risks to long-

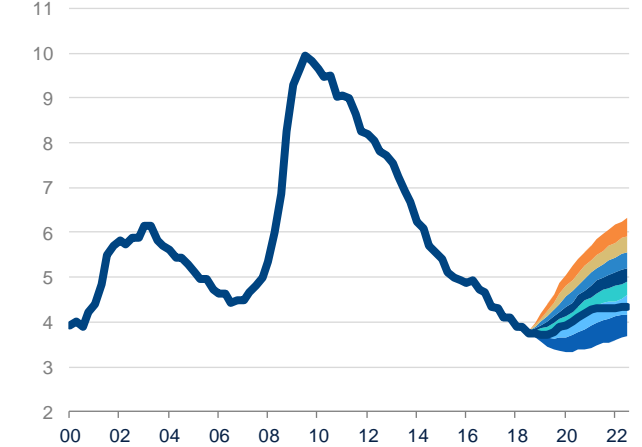
term interest rates fading, there is a possibility that the interest burden may be lower than current projections. That being said, under the current trajectory, the Federal deficit is likely to climb to worrisome levels, with interest payments nearly equal to all noninterest spending excluding social security and healthcare by 2048.

Figure 2.7 Federal deficits, share of GDP %



Source: BBVA Research & CBO

Figure 2.8 Unemployment rate, %



Source: BBVA Research, BLS & Haver Analytics

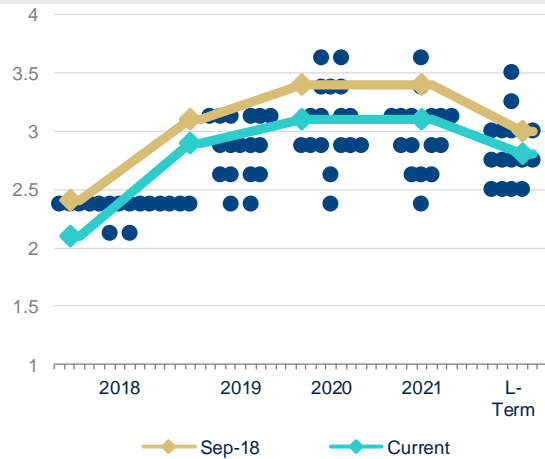
The labor market remained remarkably strong in 4Q18 with the unemployment rate (UR) dropping to 3.7%. While the UR ended the year slightly higher than we expected at the beginning of 2018, the uptick at the end of the year reflected a larger-than-anticipated number of labor market reentrants and job leavers, both of which reflect declining labor market slack. Moreover, labor utilization continued to improve with steady declines in the broadest measure of unemployment (U6) and with a nontrivial increase in the employment-to-population ratio and the participation rate. Going forward we expect job gains to decelerate throughout 2019, slowing to an average pace of around 150K per month in December 2019. Nevertheless, our baseline assumes that the UR will be 3.7% by 3Q19.

Inflation, as expected, accelerated in 2018 to an average rate of 2.4% year-over-year. In December, however, a drop in energy prices, slower growth in core services and commodities pushed headline CPI below 2.0% for the first time since August 2017. Not surprisingly, market-based inflation expectations also declined in 4Q18 below 1.5%, before recovering somewhat in January. With core prices stable and inflation expectations rebounding, we do not expect a worrisome disinflationary scenario to materialize. Instead, the baseline now assumes faster convergence to the Fed's 2% target, with risks slightly tilted to the downside. That said, pass-through from higher import tariffs, margin pressures and rising wages could present a counterbalance to the drop in energy prices and potential downside risks to the demand-side. As a result, our forecast is for core personal consumption expenditures to grow 1.9% in 2019 and 2.0% in 2020.

In terms of financial accommodation, conditions eased somewhat in January after tightening dramatically in 4Q18. Higher demand uncertainty in China and major developed economies, political polarization, trade tensions and concerns about the path of monetary policy led to a 5% drop in equity prices, pushed credit spreads such as the BBB up 25bp and strengthened the dollar marginally. However, Treasury yields continued to edge down with yield curve slope (10-year-2-year) narrowing to 0.11PP. More upbeat signs of growth in the developed world and an easing of global risk perception have led to a modest rebound in equity markets and U.S. Treasury yields. Nonetheless,

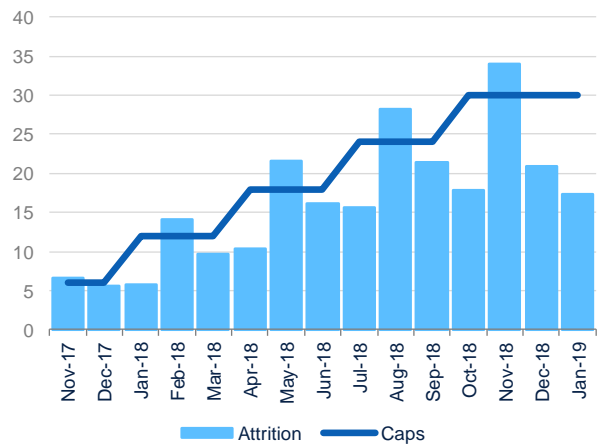
concerns of domestic corporate leverage continues to put upward pressure on credit spreads, although despite the increase, spreads remain in line with historical averages and below levels seen during the industrial-commodity slump in 2015-2016.

Figure 2.9 FOMC Dot plot, %



Source: BBVA Research & FRB

Figure 2.10 Balance sheet attrition & Caps, \$Bn per month



Source: BBVA Research & FRB

In terms of Fed policy, the FOMC left the target range of the Fed Funds rate unchanged at their January 29-30<sup>th</sup> meeting after concluding that pausing would be consistent with “sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee’s symmetric 2 percent objective.” Not surprisingly, the statement also included language about the committee’s desire to enter a more patient phase, adding that “[i]n light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.” This implies a greater likelihood of a prolonged pause, particularly if downside risks do not abate. However, if these risks fade away and inflation continues edging up, the Fed will probably conclude that further rate increases are appropriate.

With respect to the balance sheet, the committee updated its plan, stating that policy would operate “in a regime in which ample supply of reserves ensures that control over the level of the federal funds rate and other short-term interest rates is exercised primary through the setting of the Federal Reserve’s administered rates.” In other words, the balance sheet, while potentially more influential than in prior policy regimes, will not be the committee’s main tool. This suggests that the committee feels confident in administering rates using a “floor” system for the time being. In addition, the Fed is signaling that they are assuming that banks demand for reserves will remain high and elastic. However, if preferences at banks have changed dramatically since the crisis and the demand for liquid assets due to regulation, risk aversion and stigmatization has increased significantly, there is a risk that further reductions in the supply of reserves could complicate the Fed’s execution of its rates strategy and transmission to markets.

However, with the committee now extending its data dependent approach to the balance sheet normalization, the committee is prepared to pare down the runoff if needed. Given that in 2018, the balance sheet wind down was around \$4bn per month less in terms of both Treasuries and mortgage-backed securities, there is no immediate need to lower the existing caps since they are not binding in most cases. One potential solution to smooth the volatility associated

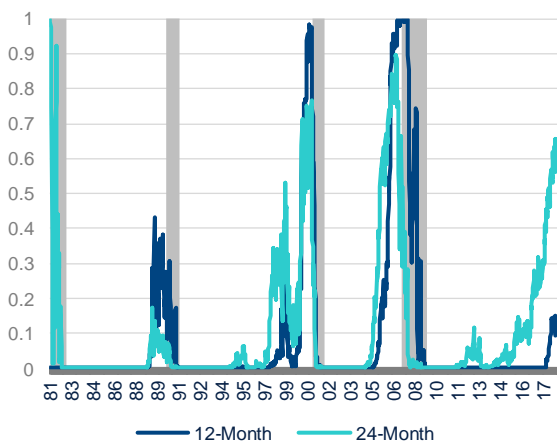


with the Treasury redemptions would be to target an annual or quarterly caps; although, this could present its own challenges if there was an unexpected spike in maturities at the end of the quarter or year. Regardless, the Fed is now in need of an updated framework to estimate the financial sector demand for reserves, which seems to be higher than previously anticipated

While the last FOMC statement stressed patience, the Chairman, at his press conference, struck a more dovish tone, prompting a positive reaction from market participants. Chair Powell noted crosscurrents such as weaker growth abroad, policy uncertainty in the UK (Brexit) and the U.S. (trade and government shutdown), tighter financial conditions, and weaker consumer and business sentiment. In fact, the committee now seems poised to use a “commonsense risk management” approach, which Powell believed served well in the past.

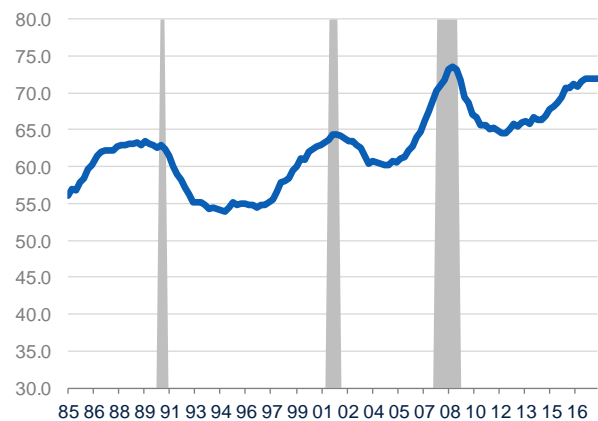
The fact that Powell alluded to insulating the baseline from external risks and that he suggested the current policy stance was appropriate means that the committee’s pause could be indefinite. To raise rates again in 2019, the committee would have to observe a decrease in uncertainty and financial market volatility while also seeing risks to the inflation outlook tilting to the upside. In a case where “crosscurrents” subside and the domestic growth outlook remains positive, it is possible that the FOMC could raise rates two more times in 2019, which is consistent with the committee’s current range of estimates of the neutral-level of the Fed Funds rate and median forecast for 2019 (Summary of Economic Projections).

Figure 2.11 Recession probability, %



Source: BBVA Research

Figure 2.12 Corporate debt, %



Source: BBVA Research & FRB

The move by the Fed to slow down its normalization plans does not seem to be a reaction to domestic concerns, particularly when considering that the concerns of an economic recession appear to be premature. While our model suggests that over the next 24-months the risk of a cyclical downturn is more than 60%, the same model predicts that over the next 12-months the probability is only 13.5%, implying the immediate risk of recession remains modest. Furthermore, the Fed’s dovish communication reversal implies financial conditions should remain moderately accommodative in 2019.

That being said, the U.S. economy has been expanding for the past 116 months, and is only three months short of being the longest modern economic expansion. There remains widespread consensus that recessions do not end due to their longevity, yet there are a number of growing imbalances that could increase the systemic risks to the economy.

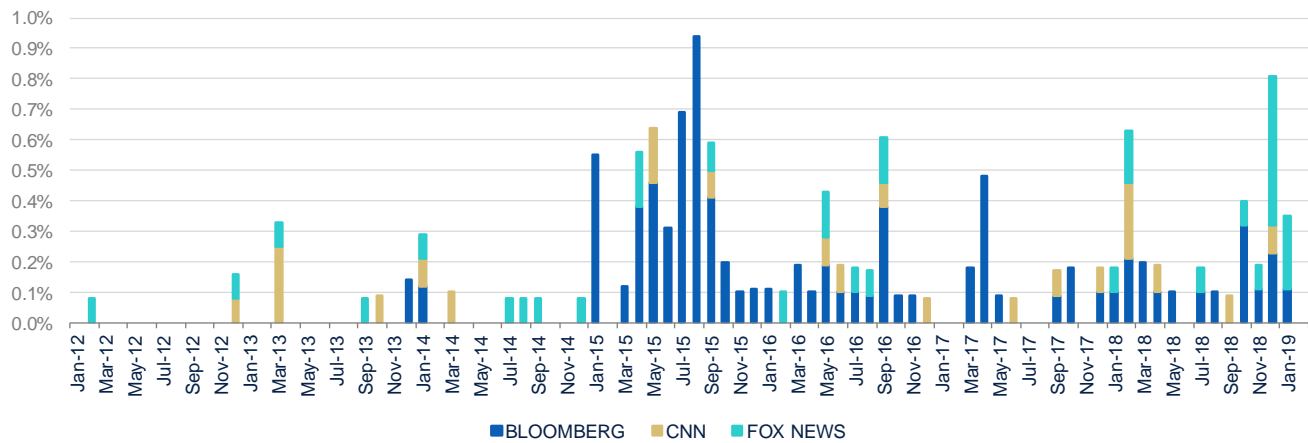
Short-term corporate liabilities continue to grow at an unsustainable pace, particularly when considering the rising rate environment and the fact that corporate debt has reached all-time highs as a share of GDP. On the consumer side, although balance sheets have improved significantly since the crisis, personal interest costs are beginning to rise more rapidly than disposable incomes in spite of the tax relief individuals received from the Tax Cuts and Jobs Act (TCJA).

Moreover, there are signs of sustained deceleration in the German economy and the lack of progress on Brexit, which increase the risks of potential “crosscurrents” from Europe. For China, new monetary and fiscal policy intervention should help to support a softer-landing in 2019; however, a reescalation of tensions with the U.S. on the trade front or a bleaker demand outlook could pose systemic risks to emerging markets, the profit outlook for U.S. companies and global growth. Furthermore, domestic uncertainty could rise if there is another budget showdown. Congress and the White House will also have to come to an agreement on the debt ceiling that, under current law, will be reinstated on March 2019. Ultimately, with the tailwinds of 2018 reversing, it appears 2019 will be a year in need of sound and responsive policymaking, as the cost of mismanagement could be the difference between growth and recession.

### 3. Tracking Fed sentiment with big data

The impact of the interest rate hikes in 2018 show that an orderly monetary policy normalization process has become one of the top priorities for the Fed. With profound effects of policy rates on liquidity, the monetary policy stance is playing a critical role in shaping expectations and asset prices. Not surprisingly, as we can see from Figure 3.1, the news coverage on the interaction of interest rates and the stock market has regained popularity since 2018. In addition, media channels, such as CNN and Fox News, show higher coverage than in 2015, when this was concentrated in business-oriented outlets such as Bloomberg.

Figure 3.1 Percentage of airtime when “interest rate” and “stock market” are simultaneously mentioned %



Source: Internet Archive Television News Archive, GDELT and BBVA Research

### BBVA Fed Sentiment Index

Although managing expectations is an essential part of monetary policymaking, the Fed’s communication to the public can be ambiguous, and interpreting them has been a major challenge for economists and business analysts. The current effort of quantitatively deciphering the “Fedspeak” mostly focuses on official documents, such as FOMC statements and speeches. While these documents certainly provide valuable information for market participants to understand monetary policy, their shortcomings are apparent. For example, statements are too short and lack variation. Meanwhile, FOMC minutes are released a few weeks after the actual meeting and therefore, could not provide us with central bankers’ insights in a timely manner.

To improve the explanatory power and push the frontier of quantitative analysis of Fed communication, we have developed a new model to capture the hawkish and dovish tones in four steps. First, we scrape speeches of Fed officials from the Internet, and clean them to make them readable for the computer. Speeches are much lengthier than FOMC statements and thus contain more information. Moreover, speeches are generally released promptly, and therefore, overcome the shortcomings of FOMC minutes.

Second, we use state-of-the-art text mining techniques to identify topics mentioned in each speech. For example, Figures 3.2 & 3.3 show two word clouds for topics "inflation" and "interest rate." As they illustrate, texts of different topics are nicely grouped and have their distinct sets of words.

Figure 3.2 FedSpeak: word cloud for inflation



Source: BBVA Research

Figure 3.3 FedSpeak: word cloud for interest rate



Source: BBVA Research

Third, we use a specific dictionary for central banks to build a mapping from words to positive and negative tones for each topic. After that, we conduct two probit regressions to estimate the relative importance of each topic in monetary policy. We specify the Hawkish and Dovish indicators as following:

$$I_{Hawk} = \begin{cases} 1, & \text{if policy rate increases,} \\ 0, & \text{otherwise} \end{cases}$$

$$I_{Dove} = \begin{cases} 1, & \text{if policy rate decreases} \\ 0, & \text{otherwise} \end{cases}$$

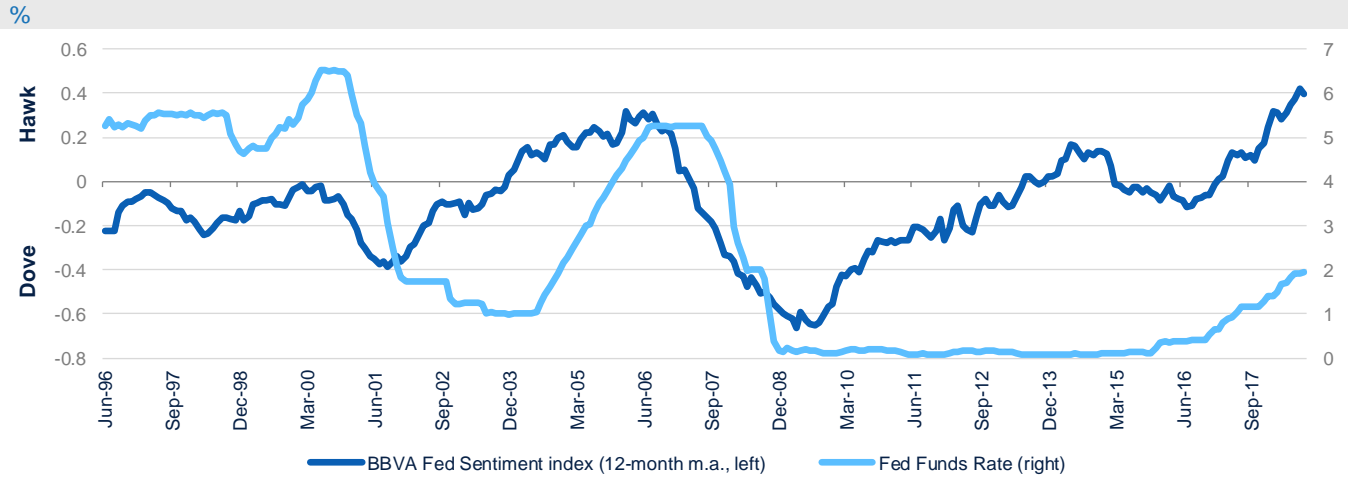
By running the two probit regressions, we can assign a weight to each topic that is consistent with their relative importance for monetary policy. By giving each topic a different weight, our methodology is more accurate than the old methodologies that treat all texts indiscriminately. For example, when Fed officials are talking about the importance of financial education, we know that this topic may not be relevant for monetary policymaking and thus should play a negligible role in the final index.

Finally, we construct the BBVA Fed Sentiment Index as the difference of the two estimated indicators. That is,

$$\text{BBVA Fed Sentiment Index} = \overline{I_{Hawk}} - \overline{I_{Dove}}$$

From a historical perspective, Figure 3.4 shows that the smoothed Fed Sentiment Index leads the movement of the federal funds rate, which demonstrates the effectiveness of the Fed's management of expectations, and makes our index a useful tool to predict the Fed's future interest rate decisions.

Figure 3.4 BBVA Fed Sentiment index vs Fed funds rate

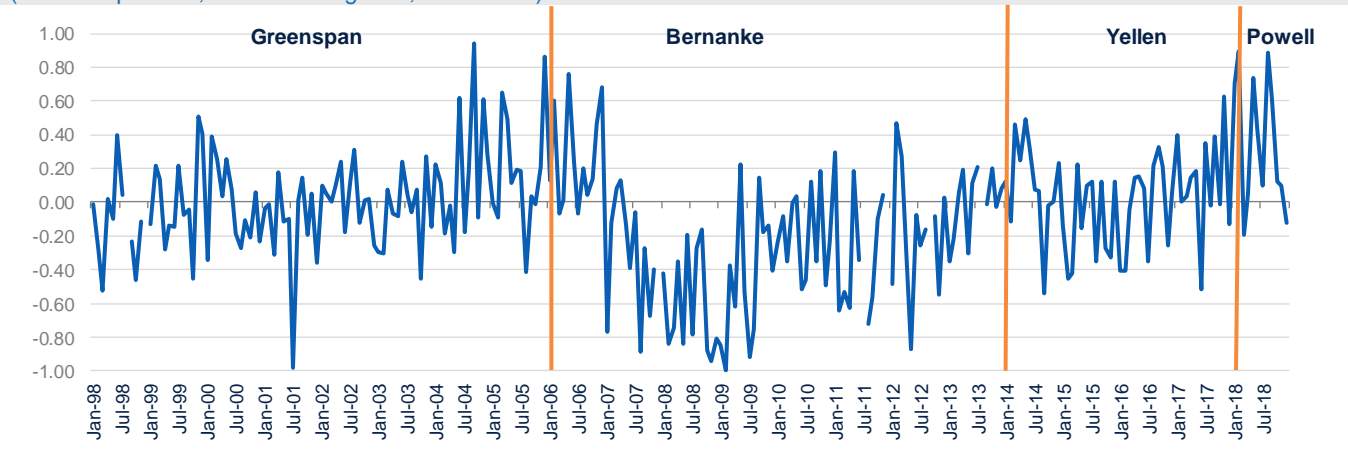


Source: BBVA Research

## Implications for policy analysis

Figure 3.5 shows how we can use the original (non-smoothed) BBVA Fed Sentiment Index as a policy explanation and forecasting tool. Apparently, Fed speeches in the Bernanke era have the most dovish tones in recent Fed history. This finding is consistent with the Zero-Interest-Rate policy in the aftermath of the Great Recession. In addition, Fed speeches became increasingly hawkish during the later years under Chair Yellen and the start of Chair Powell’s period. This confirms the hawkish bias that prevailed during 2017 and 2018, when the Fed raised rates 175 basis points. Likewise, it also shows that the tone became more dovish since November 2018.

Figure 3.5 BBVA Fed Sentiment Index  
(1 – Most positive; -1 – most negative; 0 – neutral)



Source: BBVA Research

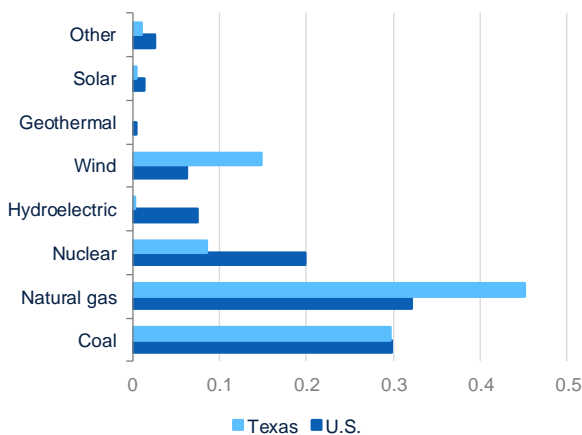
Considering that sudden shifts from hawkish to dovish tone tend to last for some time, it would not be surprising if the Fed maintains a dovish stance for the next few months. For example, at the end of 2015, the FOMC median projection for the federal funds rate for 2016 implied a 100bp increase. However, our index indicated that the Fed was not likely to raise rates until late in the year. Ultimately, the Fed only raised rates by 25bp in December 2016. Therefore, considering the sharp shift from hawkish to dovish tone in the last few weeks, it is very unlikely the Fed will raise rates in 1Q19, which is consistent with our baseline scenario.

## 4. Wind energy in Texas: right policies for a thriving industry

Texas is, without question, a global energy superpower. It produces more oil, gas and lignite coal than any other state in the country. If it were a country, Texas would be the fifth largest crude oil producer in the world with an output of 4.8 million barrels per day. Yet, Texas relevance to global energy markets is not circumscribed to fossil fuels. On the contrary, Texas has also become an ideal place for alternative energy. This is the case for wind energy.

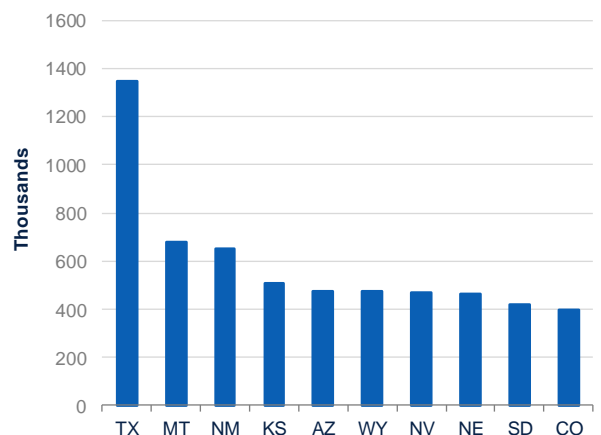
Texas is the largest producer of wind energy in the United States, accounting for 26% of net generation from wind energy and 2% of net generation from all sources. It also ranks first in terms of installed capacity with 24,899MW, nearly 3 times more than Iowa, the second largest producer with 8,422MW.<sup>1</sup> If it were a country, Texas would have the fifth largest amount of installed capacity in the world, ahead of Spain. The state's nearly 13,000 onshore turbines account for 15% of total electricity produced within its borders, making wind energy the third largest source of electricity after natural gas and coal.

Figure 4.1 Net generation of utility-scales electricity (% of total)



\*As of 2017.  
Source: Energy Information Administration

Figure 4.2 Potential wind capacity at 80 meters (MW)



\*As of 2017.  
Source: U.S. Department of Energy

The success of wind power in Texas can be attributed to the combination of three main factors. One of them is nature. West Texas has some of the best wind resources for the production of electricity, with average speeds that exceed 7 meters per second in many parts of the region.<sup>2</sup> Moreover, the state has a capacity potential of 1.3 million MW, the highest across the nation.<sup>3</sup>

A second factor is given by favorable public policy. Starting in the mid-nineties, utility monopolies were dismantled and divided into three groups: generation, transmission and retail. At the same time, changes were made to facilitate new

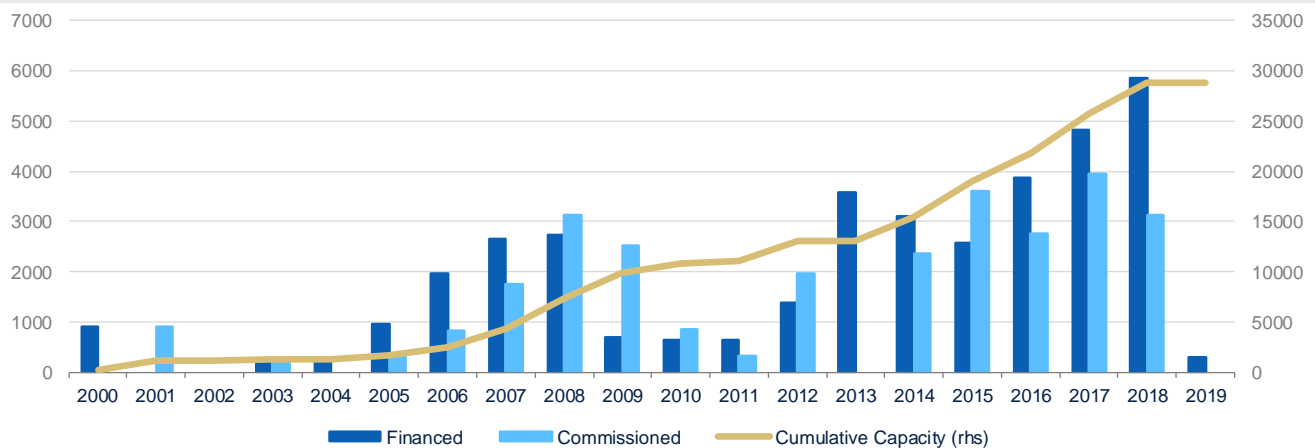
1: Source: American Wind Energy Association  
2: Wind speed at 100 m. Source: AWS Truepower and National Renewable Energy Laboratory (NREL)  
3: Source: U.S. Energy Department with data from AWS Truepower and NREL

entrants such as imposing price floors on the former monopolies. The state maintained these restrictions until 2007 when it was clear that a more sophisticated and competitive electricity market had consolidated. Thanks to these changes, Texas electricity retailers can purchase electricity from any wholesaler that offers the best prices. The deregulation of utilities set the stage for the entrance of new players, including wind energy.

Furthermore, in 1999, the government established the state’s first renewable energy mandate that required 5% of electricity to come from renewable sources by 2015. The legislature also set a goal of 10,000 MW of renewable capacity by 2025, from which 500 MW had to come from renewables other than wind. Moreover, in 2005, the legislature passed a law that commanded the Public Utility Commission of Texas to create Competitive Renewable Energy Zones across the state and design a plan to build necessary transmission infrastructure to connect the new centers of generation with urban areas. This move resulted in approximately \$7 billion investments in nearly 3,600 miles of transmission lines to connect generation facilities in West Texas to other parts of the state. State policies were complemented by significant federal incentives, mainly in the form of production and investment tax credits.

A third, and equally important factor, is that most of the Texas grid is not synchronously interconnected to the rest of the country. This implies that most of the electricity transmitted through the grid is not regulated by the Federal Energy Regulatory Commission. Around 90% of the state’s electric load is administered by a single entity, the Electric Reliability Council of Texas (ERCOT). Independence from the rest of the country facilitated the design, approval and execution of transmission and generation projects across the state.

Figure 4.3 Texas renewable energy projects (MW)



Source: Bloomberg New Energy Finance

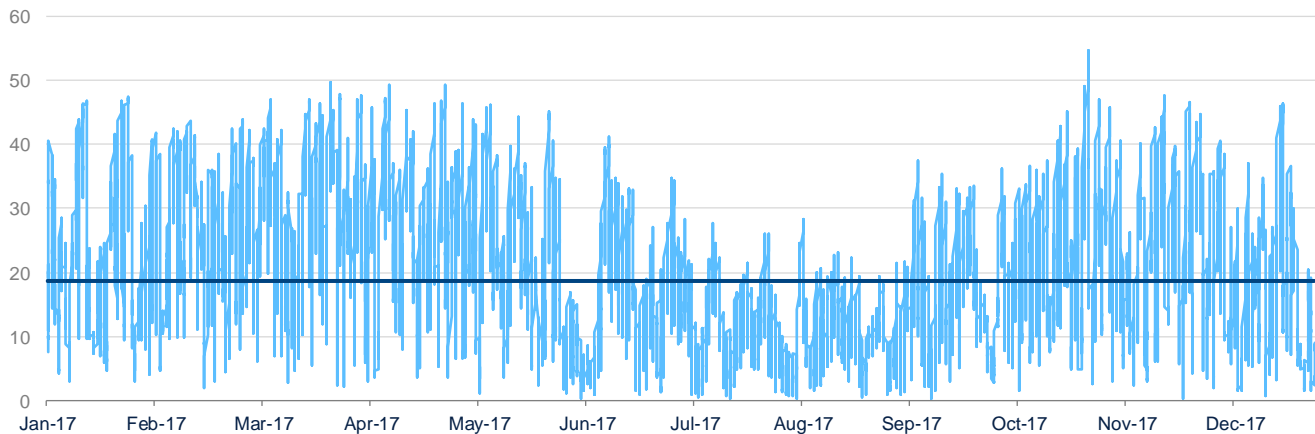
The results soon became evident. From 2000 to 2017, total cumulative wind energy generation capacity went from 210.8 MW in 2000 to 28,123MW as of 2019.<sup>4</sup> This represents a 28% compounded annual growth (CAGR). Over 200 projects were commissioned during the same period, with an average announced value of \$209 million. That is equivalent to accumulated investments of \$41.8 billion, or 2.5% of the state’s GDP.<sup>5</sup> Growth was so fast that by 2009, the state had met the 10,000 MW renewable energy target for 2025. Meanwhile, technological progress, brought down the levelized cost of electricity (LCOE), making wind competitive with coal and natural gas. In 2018, wind LCOE

4: Cumulative capacity of commissioned projects. Source: Bloomberg New Energy Finance  
 5: Source: BBVA Research with data from Bloomberg New Energy Finance and Haver Analytics



averaged approximately \$18/KWh, below the lower bound of the ERCOT price range. Today, wind energy covers 15% of total electricity demand in the state, on average. However, given the intermittency of the resource, wind farms have come to supply more than 50% of the state’s electricity load for short-periods of time.

Figure 4.4 ERCOT hourly wind output (% of load)



Source: ERCOT

The development of wind energy has benefited the economy. In 2017, the industry supported nearly 25,000 jobs, a quarter of the total amount of jobs backed by the industry across the nation.<sup>6</sup> Wind jobs spread across manufacturing, construction, maintenance and operations. Specifically, there were 1,020 people employed as wind turbine technicians. Although this figure pales in comparison to the 6,080 geological and petroleum technicians, it is closer to the 1,993 employees in coal mining. Given the structural decline of coal, jobs in wind and other renewables could surpass coal in the following years.

Another benefit to the state economy came in the form of payments for the use of land. Most wind farms are located in rural areas where landowners lease a portion of their properties for the installation of wind turbines. Lease payments generated approximately 60 million dollars per year<sup>7</sup> of extra revenues to landowners. For farmers, leasing a portion of their land to wind energy companies allows them to diversify their income, which is quite useful when their main activities are exposed to droughts, changes in preferences, automation or international trade disputes.

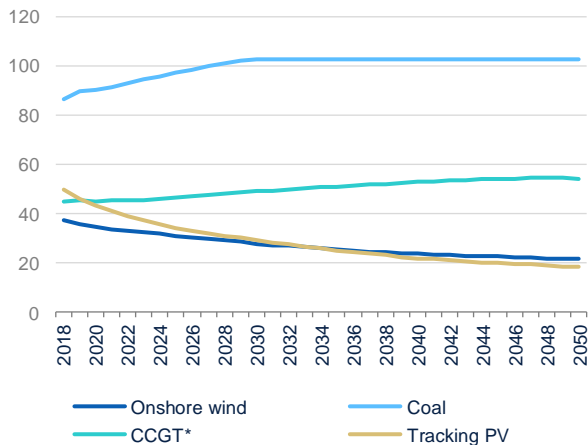
From an environmental perspective, however, the impact of wind energy has not been strong enough to bring down the state’s carbon emissions. In fact, while CO2 emissions in the U.S. peaked in 2004, and have declined ever since, in Texas carbon emissions followed a cyclical pattern -driven by activity in the oil and gas sector- and have reached new records.<sup>8</sup> Texas ranks first in energy-related carbon emissions and fourteenth per capita. The latter declined from 2000 to 2009, but stabilized thereafter. These trends highlight the need for more investments in clean energy if the state wants to lower its carbon footprint.

6: Source: American Wind Energy Association

7: Source: American Wind Energy Association

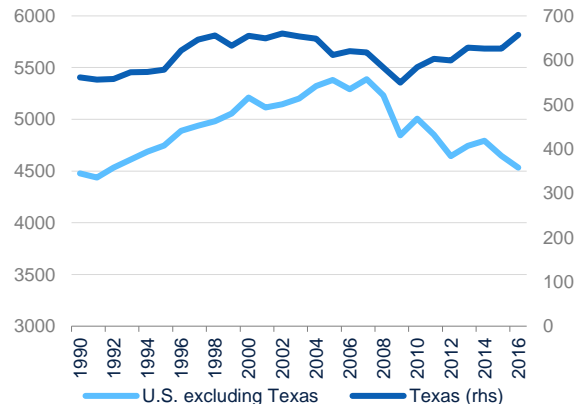
8: Source: Energy Information Administration with data as of 2016

Figure 4.5 Forecast leveled cost of electricity (2017\$/MWh, midpoint)



\*Combined cycle gas turbine.  
Source: Bloomberg New Energy Finance 2H18 LCOE Update

Figure 4.6 Carbon dioxide emissions by year (million metric tons)



Source: Energy Information Administration

## Winds are still favorable for the industry

Going forward, economic and population growth, the retirement of coal and natural gas plants, and potentially higher-than-expected average summer temperatures create the conditions for investments in renewables and connectivity. Further wind energy investments can be expected in 2019 as investors rush to benefit from the production tax credit (PTC), which is set to expire in 2019. Expected investments include building new capacity, repowering old plants, and corporate offtake agreements.

However, there may be some limitations for wind energy after 2019. The most important is the phasing out of the PTC. Projects starting construction in 2019 will only receive 40% of the original \$23/MWh credit, and by 2020 the credit will be eliminated. Another plausible limitation will come from within renewables. Utility-scale solar projects are likely to take off as the investment tax credit (ITC) would still be in place after 2019. Solar has also become cost competitive and Texas has unparalleled resources for the development of utility-scale projects. These trends do not mean that onshore wind energy investments will disappear altogether, but they could slowdown.

As the onshore wind energy market continues to evolve, it will eventually mature. This will be evident when most of the best assets have been taken and subsequent investments have to be done in areas where the quality of wind is less than optimal. After all, the regions with the best winds are fixed. When this happens, the next frontier for wind energy would be offshore. Although the U.S. is well behind offshore wind relative to other countries, the experience with the first offshore wind farm in Rhode Island has paved the way for more projects of its kind. In these sense, the Texas coast is particularly well suited for offshore wind energy with average wind speeds ranging from 7 to 9 meters per second at 90-meter height.<sup>9</sup> Offshore wind energy may prove to be a good alternative to power the new petrochemical and LNG export infrastructure that is being built in the state. It could also be a good alternative to power growing coastal urban areas.

9: Source: NREL

Technological advancements, resource availability, and pro-market initiatives have turned the Lone Star State into a point of reference for other states and countries looking to increase the share of renewables in their energy mix. This may seem like a paradox considering the overwhelming success of the oil and gas industry after the shale boom. However, what the Texas case shows, is that it is possible to successfully embrace an “all of the above” approach when it comes to energy production and the development of renewable alternatives without excessive regulation. By creating the conditions for wind energy to flourish, Texas diversified its energy mix, complied with its renewable portfolio standards, and created an additional source of jobs and income for thousands of residents while improving the quality of life of Texans and people around the world.

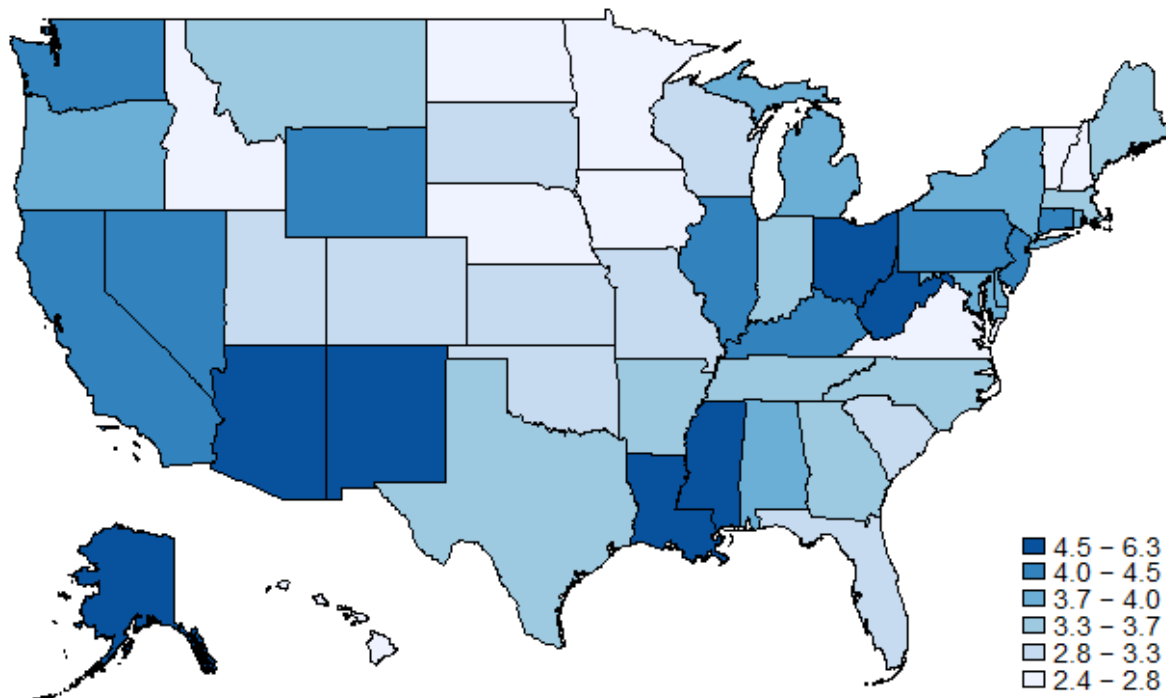
## 5. Regional outlook

As was the case in our previous U.S. Economic Outlook, most states continue to enjoy solid economic conditions. Despite market jitters at the end of 2018, short term recession risks remain low. That said, while the U.S. economy remains expanding at above trend level, global growth has decelerated and the risk of recession two years ahead has increased. This section takes stock of the economic conditions by state. In particular: labor market conditions, our baseline GDP growth forecasts for 2019, the relative exposure of different regions to the global economy, and trade with China. It also introduces indicators of states' relative exposure to downside risk in two hypothetical recessionary scenarios: a collapse of global growth and a domestic financial market shock.

### The state of employment and earnings

Labor market trends were strong throughout 2018 across the country: the unemployment rate declined and employment increased in most locations. In the last quarter of 2018, unemployment was highest in Alaska (6.3%) and lowest in Hawaii (2.4%) (Figure 5.1). Adult (18-64) labor force participation, which started increasing several years ago, reached 75.4% in 2018, 1.1 percentage points higher than in 2015. The gain in 2018 relative to 2017 of 0.3 percentage points translates to close to 600 thousand people entering the labor force, in addition to the labor force's organic growth.

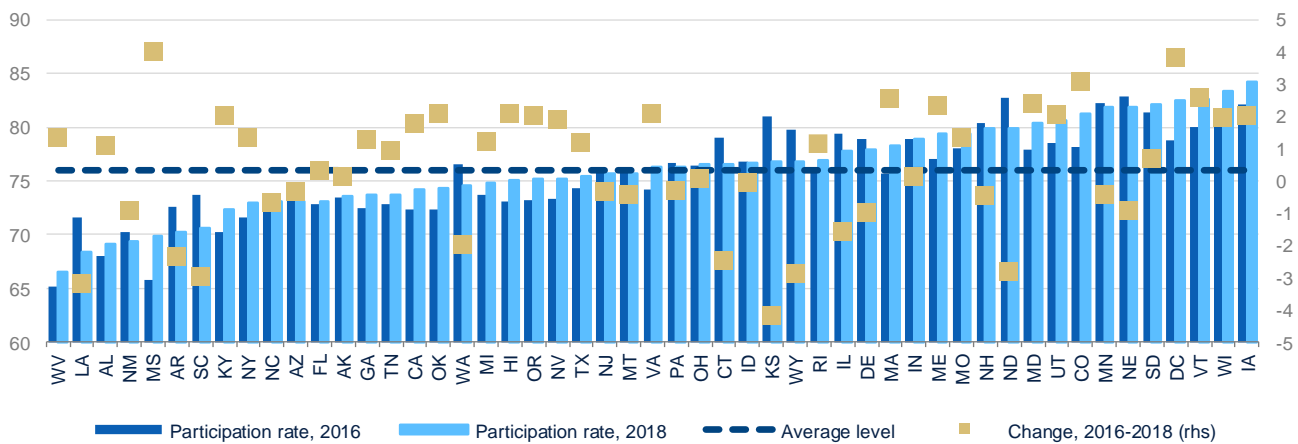
Figure 5.1 Unemployment rate (%)



Source: BBVA Research and BLS

While adult labor force participation is still below 1990s levels, this measure is a demonstration of the ongoing strength of the economy. That said, the gains that have occurred by state have not been spread out evenly and highlight a divergence in economic development. While the participation rate has increased in almost all of the states that had high labor force participation to start with (Figure 5.2), such as Iowa, Wisconsin, Vermont, Colorado, Utah and Maryland, the rate has declined in many of the states that have a relatively low labor force participation in general, such as Louisiana, New Mexico, Arkansas and South Carolina. Outside the two extremes, Kansas, Wyoming and North Dakota saw a relatively large decline in labor force participation as a result of the Oil and Gas bust that occurred in 2014-2015, and the slow recovery in hiring in this industry in the aftermath of the downturn.

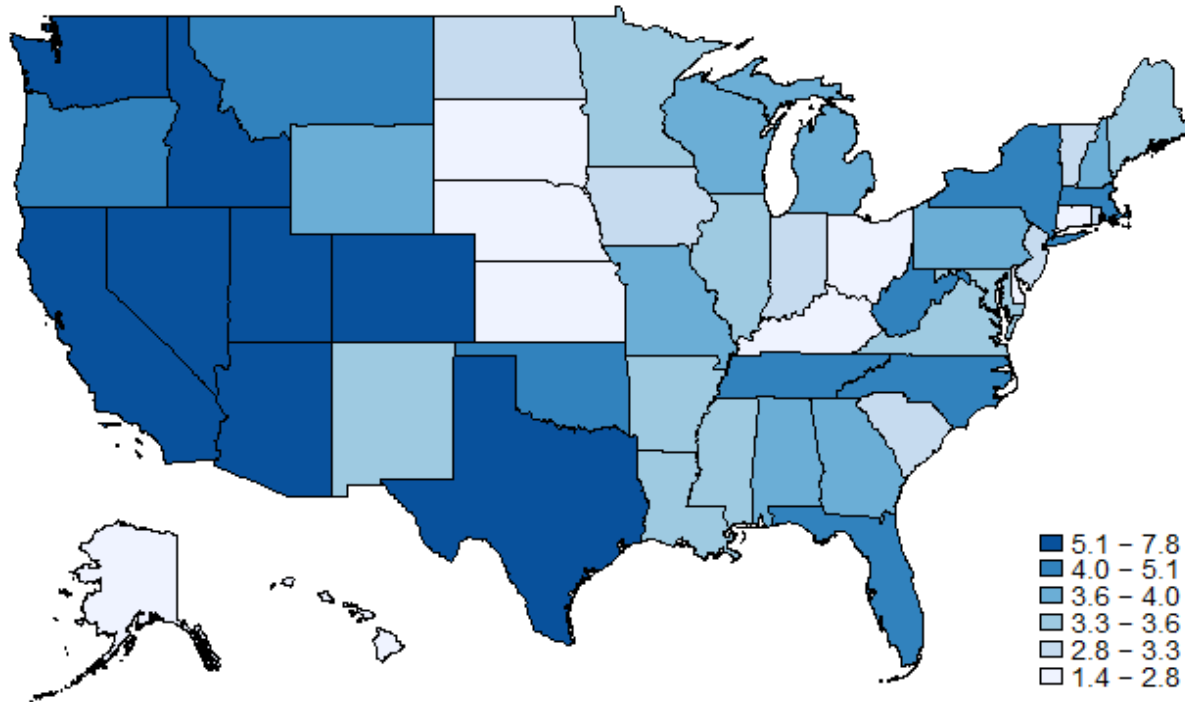
Figure 5.2 Adult (18-64) labor force participation rate (%)



Source: BBVA Research and Census Bureau

Earnings by place of work, the majority of which is represented by wages and salaries, increased in all states year-over-year in the first three quarters of 2018 (Figure 5.3), with the highest gains in Washington (7.9%), Utah (7.0%) and Nevada (6.0%). Many of the states that posted high earnings growth had relatively low unemployment and a high labor force participation rate. However, the earnings growth mainly reflects the economic performance of the primary industries and their business cycle stages, as well as the competitiveness of each state and the growth in employment and population. For example, while North Dakota, South Dakota, Nebraska and Kansas had low levels of unemployment, earnings still increased at a relatively slow pace. On the flip side, despite having above average rates of unemployment, Nevada and Arizona posted above average earnings growth. In general, the West and Southwest states performed better in this measure than the rest of the country.

Figure 5.3 Earnings by place of work (1-3Q18, %YoY)

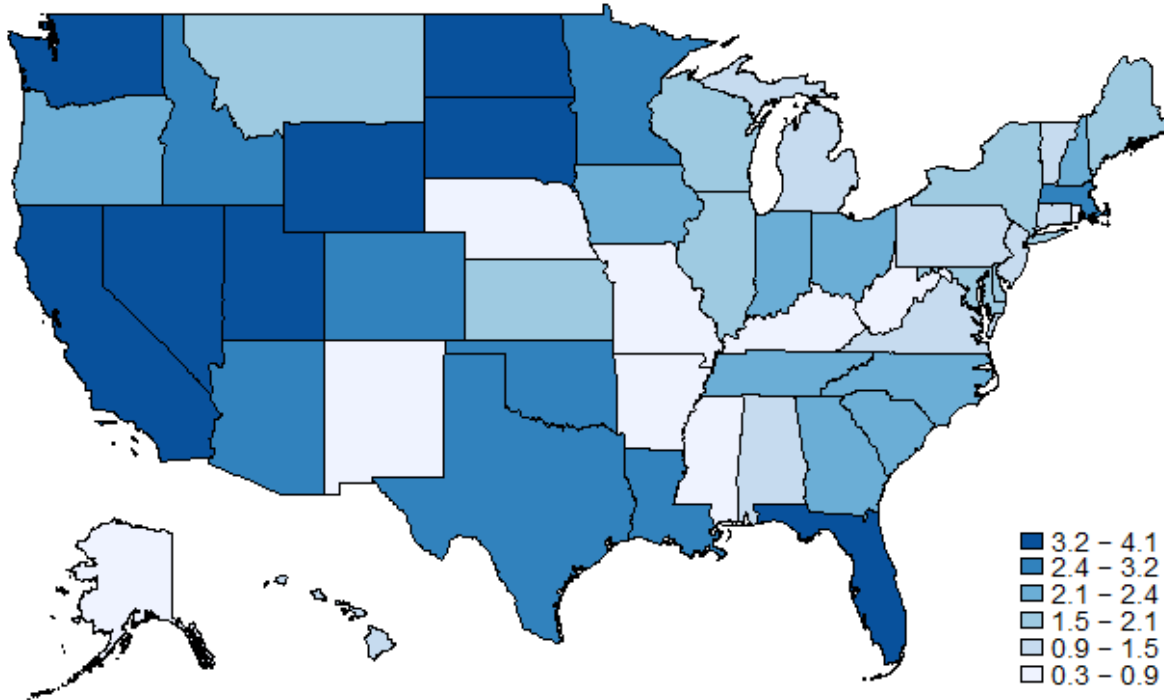


Source: BBVA Research and BEA

## GDP growth forecasts

We expect growth in 2019 to be positive in all states, but to range from 0.3% in Mississippi to 4.1% in North Dakota (Figure 5.4). The forecasts reflect multiple demographic and economic factors. Looking solely at the largest states, growth in California, Florida and Texas will be supported by the ongoing increase in population, as well as solid conditions in their main industries, like information in California, oil and gas in Texas, and real estate, construction and hospitality in Florida. Favorable energy prices will also be supportive of growth in North and South Dakota and Wyoming. Conversely, most of the states that are expected to record below-average growth in 2019 are struggling to increase their competitiveness and attract more residents and investment. This burden is particularly onerous in an environment that increasingly favors high global inter-connectedness, high value-added services, and attractive living amenities, especially for Millennials that are launching careers or forming families.

Figure 5.4 Real GDP growth forecast, 2019 (%)

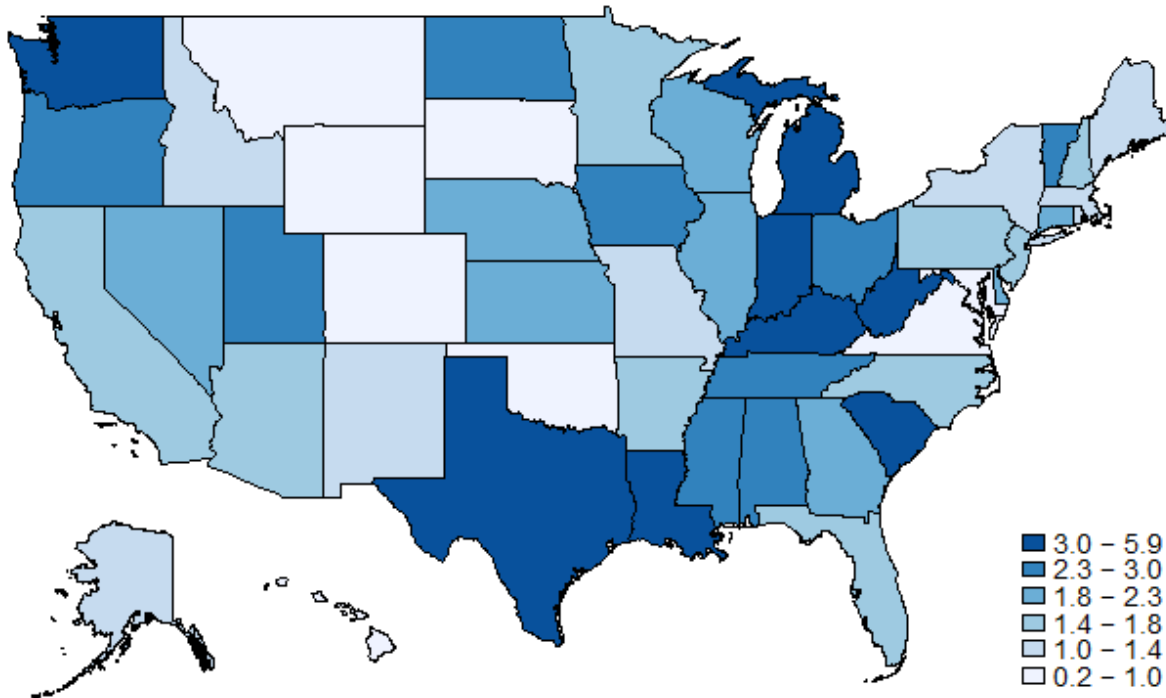


Source: BBVA Research

## Global exposure

After a period of solid growth over 2017 and the first half of 2018, global economic growth started slowing down toward the end of the year. Protectionism and concerns about emerging market weaknesses are likely to continue to weigh down on the outlook. Lower global demand for U.S. goods would affect some states more than others, depending on the degree of their trade exposure. The states with the highest ratio of exports to output are Louisiana, South Carolina, Kentucky, Texas and Washington (Figure 5.5). As such, the direct effects of the global slowdown will be more pronounced in these regions, with the ultimate impact depending on their ability to balance out the slowdown in exports with stronger growth in other sectors.

Figure 5.5 Ratio of exports to state GDP (%)



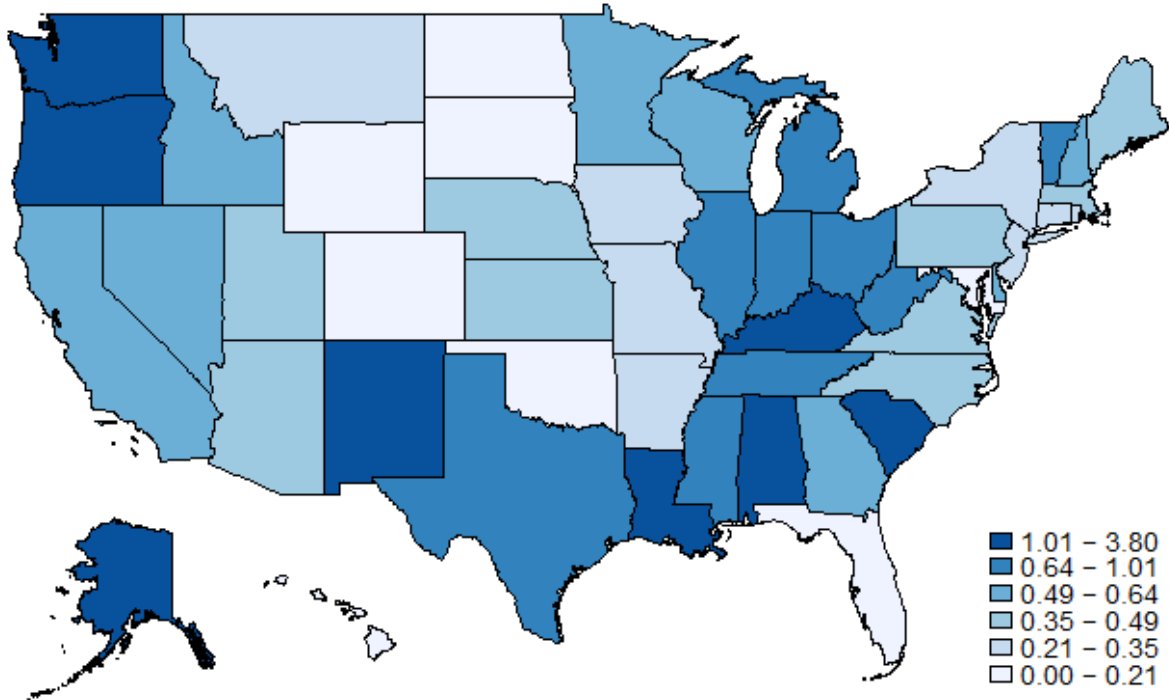
Source: BBVA Research, Census Bureau and BEA

The biggest risk in terms of global trade is escalating trade tensions with China, the second largest economy in the world. While a deal was reached in December 2018 to halt new trade tariffs until early March, and considerable progress has been made in the negotiations over the month of January –with China offering to dramatically increase imports from the U.S.- the outcome of the talks is highly uncertain. An added downside risk to the outlook is China’s financial risk containment policy, which has resulted in a slowdown in credit growth that could extend into 2019, and result in lower GDP growth in that country.

In terms of exposure to exports of goods to China, the states that stand to lose the most in relative terms from a sharp slowdown in this large market and an escalation of the trade war are Washington, Louisiana, South Carolina and Alaska (Figure 5.6). In all of these states, exports to China account for over 2% of GDP. In absolute terms, the states that export the most to China are Washington (\$18.3bn in 2017), California (\$16.4) and Texas (\$16.2bn). The industries that would be most affected from an adverse outcome in the trade relationship are aerospace, oilseeds and grains, oil and gas, and motor vehicles manufacturing. The exports of these products account for one third of all exports to China (Figure 5.7) and amounted to over \$28bn dollars in the first three quarters of 2018. However, if an agreement is reached, and China significantly increases imports of goods from the U.S., these industries and states will be the clear winners, as a large part of the increase in imports will have to occur in these categories to achieve a meaningful foreign trade deficit rebalancing.

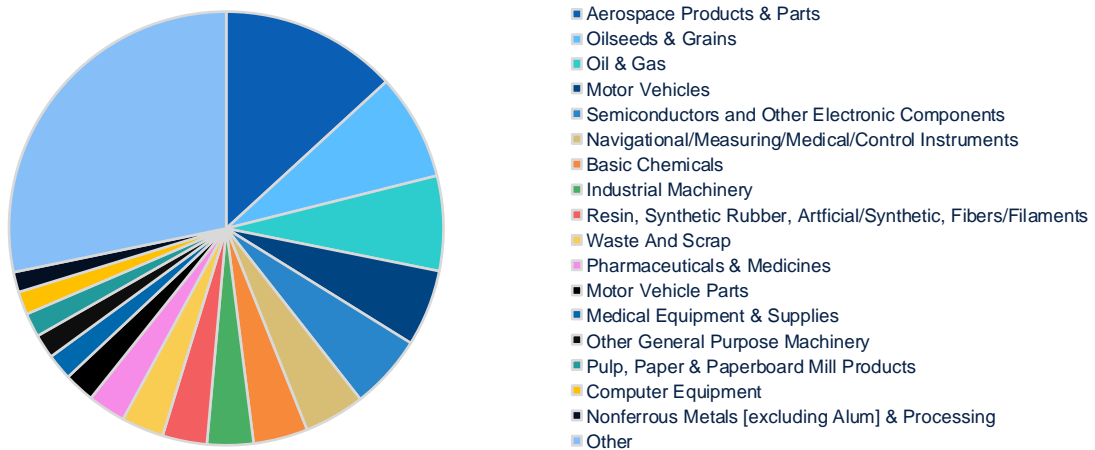


Figure 5.6 Ratio of exports to China to state GDP (%)



Source: BBVA Research, Census Bureau and BEA

Figure 5.7 U.S. Exports to China 1Q18-3Q18 (%)



Source: BBVA Research and BEA

In addition to goods, the U.S exports a variety of services to China. The largest single group is travel-related services, which could be adversely affected under a no-deal scenario. Total travel-related exports are worth over \$210bn, with China being the single largest market, accounting for 15% or over \$30bn<sup>10</sup>. The locations that stand to lose the most are the top cities visited by Chinese travelers: Los Angeles (30% of travelers), New York City (29%), San Francisco (19%) and Las Vegas (14%)<sup>11</sup>. The higher-end service providers are more likely to be adversely affected, as travel spending in the U.S. from residents in China is tilted to that market. Average spending per Chinese visitor in 2016 was the highest of all international visitors and stood at \$6,900. Average visitor spending takes into account travel receipts and passenger fares, but excludes education and other travel-related exports<sup>12</sup>.

## Withstanding a potential slowdown

Being in an advanced stage of the economic cycle brings about higher concerns about the remaining time before the cycle turns. While the economy could remain in expansion mode for a significant period of time, two scenarios of the progression of the downturn, once it occurs, look most possible at this point in time. The first one is a recession triggered by turmoil in global financial markets and a decline in global growth that would affect demand for U.S. exports and foreign profits. The second one is a recession triggered by a domestic financial market shock resulting in a decline in asset prices and tightening of financial conditions.

Assuming the first scenario –a decline in global growth, the states that are more likely to be adversely affected are the ones that are more exposed to the global economy, have a relatively weaker underlying growth trend, and lower baseline growth in 2019. The index that we developed suggests that the states that are at most risk in this scenario are Louisiana, Kentucky, Alaska, New Mexico, South Carolina, Michigan, Missouri and West Virginia (Figure 5.8). The result of the index correlates well with the performance of states in 1998 relative to 1997 (Figure 5.9), the most recent episode of an exogenous global economic slowdown, albeit much smaller than the one that could occur now due to the larger size of the Chinese economy and its greater interconnectedness with global supply chains. While the overall effect of the Asian Financial Crisis was negligible, U.S. real GDP growth did weaken in the middle of 1998, and the Federal Reserve responded with rate cuts in the second half of the year. According to research by the Federal Reserve Bank of San Francisco (FRBSF), “foreign real GDP growth during 1998 was about 3 percentage points weaker than had been assumed for the FRBSF forecast. Also, a weakening of worldwide demand for energy in the wake of the Asian crisis (along with mild winter weather in the U.S.) led to an unexpected drop in oil prices”<sup>13</sup>. In this sense, the developments in 1998 could serve as a prelude to what may occur if a sharp global slowdown takes place in 2019. The negative response in the U.S. economy is likely to be significantly more material this time around, considering the higher degree of integration of the U.S. with the global economy.

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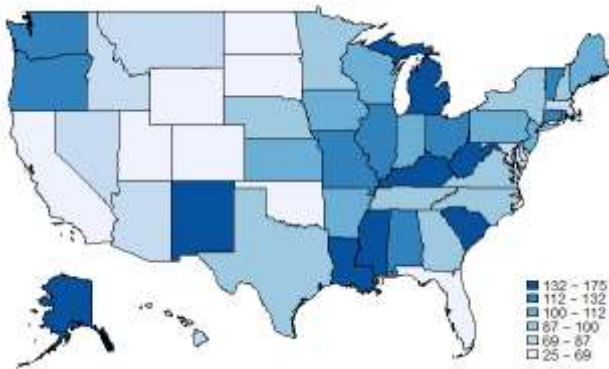
10: U.S. Travel Association. *International Inbound Travel Market Profile*. <https://goo.gl/CqtC5t>

11: U.S. Commercial Service. *China's Outbound Travel Market: Preparing for the Chinese Visitor to the United States A Resource Guide for the U.S. Travel & Tourism Industry*. <https://goo.gl/bxhtEg>

12: U.S. Travel Association. *International Inbound Travel Market Profile, China*. <https://goo.gl/CqtC5t>

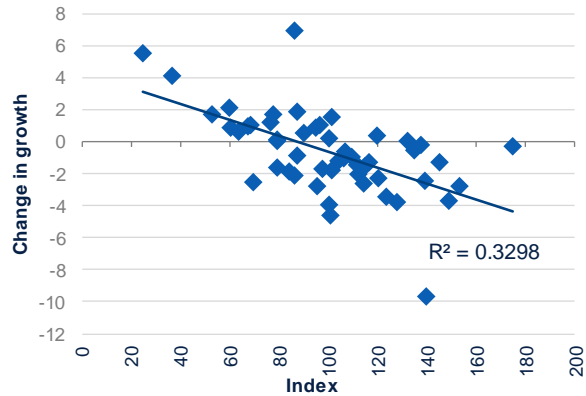
13: Rudebusch, G. (1999). *How Did the Economy Surprise Us in 1998?* FRBSF Economic Letter. <https://goo.gl/dapCJy>

Figure 5.8 Global growth slowdown relative sensitivity (Index, 100=average, higher meaning more sensitive)



Source: BBVA Research

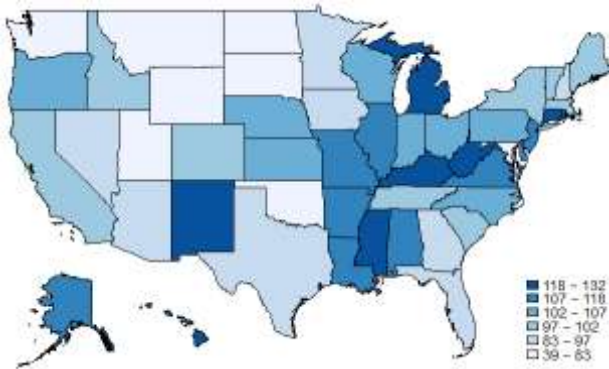
Figure 5.9 Global growth relative sensitivity index vs. GDP growth change 1998 vs. 1997 (Index, 100=average and percentage points)



Source: BBVA Research and BEA

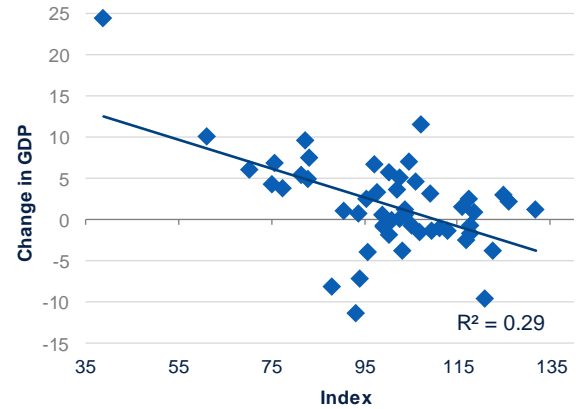
Assuming the second scenario - a recession triggered by a domestic financial market shock, the states that will be relatively more exposed are the ones that have a higher proportion of home prices to income, a below average share of recession resilient industries<sup>14</sup>, as well as a weaker underlying growth trend and a lower baseline growth rate. The index that we developed suggests that the states most at risk in this scenario are New Mexico, Mississippi, West Virginia, Rhode Island and Michigan (Figure 5.10). The index values compare well with the performance of states in the Great Recession (Figure 5.11).

Figure 5.10 Financial shock relative sensitivity (Index, 100=average, higher meaning more sensitive)



Source: BBVA Research

Figure 5.11 Financial shock relative sensitivity index vs. GDP level change 2010 vs. 2006 (Index, 100=average and %)



Source: BBVA Research and BEA

14: We find these industries to be information, government, healthcare and education, based on the deviation in output over time

## Bottom line

The economic expansion remains robust in most states, with the exception of the states disproportionately affected by the slowdown in the Oil and Gas industry, such as North Dakota, Alaska and Wyoming, as well as Nebraska and Iowa, which have large agricultural sectors affected by low agricultural commodity prices and retaliatory import tariffs from China. We expect growth to improve in oil-dependent states in 2019, and improve somewhat in the agricultural Midwest. The West and Florida are expected to outperform in terms of growth in the short-term, with Texas also expanding at a solid rate. If the slowdown in global growth intensifies, the states that are most likely to be adversely affected are in the industrial Midwest, the Appalachia and the Southeast. Meanwhile, the states that are most likely to benefit from increased imports of U.S. products in China, in case that is part of the resolution of the current trade tensions, are Washington, Texas, the industrial Midwest and the Southeast. In case of a recession precipitated by a financial shock, the states that are likely to perform better in relative terms are generally situated in the Northwest, as well as Colorado, Oklahoma, Texas, Maryland and Florida. Still, notwithstanding increasing downside risks, most states appear to post solid growth in 2019.

## 6. Forecasts

Table 6.1 U.S. macro forecasts

	2012	2013	2014	2015	2016	2017	2018 (e)	2019 (f)	2020 (f)	2021 (f)	2022 (f)
Real GDP (% SAAR)	2.2	1.8	2.5	2.9	1.6	2.2	2.9	2.5	2.0	1.9	1.8
Real GDP (Contribution, pp)											
PCE	1.0	1.0	2.0	2.5	1.9	1.8	1.9	1.9	1.3	1.3	1.3
Gross Investment	1.6	1.1	0.9	0.8	-0.2	0.8	1.0	1.0	0.9	0.8	0.8
Non Residential	1.2	0.5	0.9	0.3	0.1	0.7	1.0	0.8	0.8	0.7	0.8
Residential	0.3	0.3	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Exports	0.5	0.5	0.6	0.1	0.0	0.4	0.6	0.5	0.6	0.7	0.7
Imports	-0.5	-0.3	-0.9	-1.0	-0.3	-0.8	-0.9	-1.0	-0.9	-0.9	-1.0
Government	-0.4	-0.5	-0.2	0.3	0.3	0.0	0.3	0.3	0.1	0.0	0.0
Unemployment Rate (% average)	8.1	7.4	6.2	5.3	4.9	4.4	3.9	3.8	4.1	4.2	4.5
Avg. Monthly Nonfarm Payroll (K)	179	192	250	226	195	182	220	185	158	124	106
CPI (YoY %)	2.1	1.5	1.6	0.1	1.3	2.1	2.4	2.2	2.1	2.1	2.1
Core CPI (YoY %)	2.1	1.8	1.7	1.8	2.2	1.8	2.1	2.1	2.1	2.0	2.0
Fiscal Balance (% GDP, FY)	-6.8	-4.1	-2.8	-2.4	-3.2	-3.5	-3.9	-4.2	-4.1	-4.2	-4.7
Current Account (bop, % GDP)	-2.6	-2.1	-2.1	-2.2	-2.3	-2.3	-2.4	-2.8	-2.9	-3.0	-3.1
Fed Target Rate (% eop)	0.25	0.25	0.25	0.50	0.75	1.50	2.50	3.00	3.00	3.00	3.00
Core Logic National HPI (YoY %)	4.0	9.7	6.8	5.3	5.5	5.9	5.8	4.9	4.2	3.9	3.6
10-Yr Treasury (% Yield, eop)	1.72	2.90	2.21	2.24	2.49	2.40	2.83	3.31	3.53	3.64	3.70
Brent Oil Prices (dpb, average)	111.7	108.7	99.0	52.4	43.6	54.3	71.1	63.2	55.8	60.8	60.0

e: estimated

(f): forecast

Source: BBVA Research

Table 6.2 U.S. state real GDP growth, %

	2014	2015	2016	2017	2018 (e)	2019 (f)	2020 (f)	2021 (f)	2022 (f)
Alaska	-2.8	0.7	-2.0	-0.5	0.0	0.5	-0.4	-0.3	-0.2
Alabama	-1.0	1.2	0.5	1.6	2.5	1.3	1.0	0.6	1.1
Arkansas	0.8	0.3	0.5	0.3	2.0	0.8	0.3	0.2	0.0
Arizona	1.2	2.2	3.2	3.1	3.9	2.4	0.8	0.3	0.1
California	4.0	5.0	3.1	3.0	2.7	3.7	3.3	3.5	3.4
Colorado	4.4	4.3	2.3	2.7	3.3	3.2	2.0	1.5	1.4
Connecticut	-1.5	1.9	-0.1	-1.1	1.2	1.1	0.5	0.3	0.1
Delaware	7.7	3.1	-2.8	0.1	0.1	1.9	1.7	1.4	1.1
Florida	2.6	4.0	3.2	2.2	3.9	3.3	2.7	2.5	2.2
Georgia	2.9	3.4	3.3	3.1	2.5	2.3	1.7	1.6	1.4
Hawaii	0.3	3.4	2.0	1.2	1.0	1.5	1.1	0.9	0.8
Iowa	5.2	2.1	0.4	0.3	0.8	2.2	1.6	1.4	1.2
Idaho	2.6	2.9	3.7	2.4	3.8	2.6	1.8	1.5	1.3
Illinois	1.3	0.9	0.2	0.4	2.2	1.8	1.6	1.4	1.3
Indiana	3.0	-0.9	1.7	1.8	2.9	2.4	1.0	1.2	1.0
Kansas	1.9	1.3	2.2	0.2	1.2	1.9	1.1	0.8	0.6
Kentucky	0.2	0.5	0.6	1.7	1.2	0.8	0.8	0.6	0.4
Louisiana	2.3	-0.2	-1.3	-0.8	2.5	2.4	1.4	0.8	0.3
Massachusetts	1.9	3.6	1.7	2.6	3.3	2.8	2.0	1.7	1.6
Maryland	1.1	1.7	3.1	2.2	2.0	1.6	1.0	0.8	0.6
Maine	1.7	0.4	1.7	1.9	2.2	1.6	1.1	0.9	0.7
Michigan	1.5	2.2	2.0	2.2	2.8	1.3	0.9	0.9	0.8
Minnesota	2.5	0.9	2.0	1.6	2.0	2.8	1.2	1.1	0.9
Missouri	0.3	1.1	-1.0	0.9	2.0	0.5	-0.2	-0.3	-0.4
Mississippi	-0.2	0.3	0.4	0.1	1.4	0.3	-0.4	-0.5	-0.6
Montana	1.6	3.6	-0.9	0.3	2.7	2.0	1.1	0.9	0.7
North Carolina	1.9	3.1	1.1	2.4	2.7	2.1	1.4	1.2	1.0
North Dakota	7.2	-3.0	-6.5	-0.6	4.1	4.1	3.5	3.6	3.5
Nebraska	2.0	2.6	0.5	0.9	0.7	0.8	0.4	0.4	0.5
New Hampshire	1.0	2.5	1.9	2.5	3.2	2.2	1.0	0.7	0.5
New Jersey	0.3	1.6	0.8	1.6	2.3	1.3	0.6	0.4	0.3
New Mexico	3.1	1.9	0.0	0.1	1.1	0.9	0.3	0.2	0.1
Nevada	1.1	4.3	1.8	3.8	4.4	3.7	2.3	1.9	1.8
New York	2.2	1.6	1.3	1.9	2.1	2.0	1.7	1.6	1.4
Ohio	3.6	1.2	0.7	1.6	2.0	2.1	1.5	1.4	1.2
Oklahoma	5.9	3.6	-2.7	0.7	1.9	2.7	2.3	2.3	2.2
Oregon	3.5	5.2	4.7	3.6	3.5	2.1	2.3	2.3	2.0
Pennsylvania	2.1	2.0	1.2	2.2	2.1	1.1	1.0	1.1	1.0
Rhode Island	0.2	1.6	0.1	0.7	1.1	0.4	-0.2	-0.3	-0.4
South Carolina	2.4	3.3	2.6	2.6	2.2	2.2	1.8	1.7	1.5
South Dakota	1.1	2.8	0.2	0.0	2.1	3.8	2.7	2.4	2.0
Tennessee	1.6	3.2	1.9	2.8	2.7	2.2	1.9	1.9	1.8
Texas	2.7	5.2	0.3	1.3	3.4	3.2	3.2	3.2	3.1
Utah	3.0	4.1	3.6	2.5	4.7	3.3	2.4	2.2	2.0
Virginia	-0.2	1.9	0.2	1.8	2.5	1.0	0.1	0.0	-0.1
Vermont	0.0	1.0	1.4	1.3	1.1	1.2	0.6	0.5	0.4
Washington	3.5	4.1	3.8	4.7	5.6	3.6	3.4	3.4	3.3
Wisconsin	1.8	1.4	1.2	1.3	2.5	1.6	1.4	1.4	1.3
West Virginia	-0.4	-0.4	-0.8	2.2	1.3	0.4	0.0	-0.1	-0.2
Wyoming	0.1	2.7	-3.6	1.4	2.1	3.6	3.4	2.5	1.9

(f): forecast

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