United States Economic Outlook

2nd Quarter 2017 | United States Unit

BBVA | Research

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Closing date: **4 May 2017**

1. Editorial

Theoretically, hard and soft economic indicators should converge in due course. All things equal, a rise in consumer confidence or business expectation (soft indicator) should also lead to a rise in consumption or investment (hard indicators). However, following the election, survey expectations began to climb at a fast pace while consumption slowed and investment remained flat. This gap widened despite limited progress on tax reform, healthcare, infrastructure, immigration and trade policy. This begs the questions as to what forces will narrow this divergence? And how long will it take?

Looking at some soft indicators reveals that consumer expectations stand at their highest level in 17 years while optimism in the small business sector reached its highest level in 12 years. Financial market indicators exhibit a similar behavior. The S&P 500 is 20% higher than a year earlier, its price to earnings ratio adjusted for economic cycles stands at its highest since 2002, and volatility indexes, a proxy for financial risk, are 40% lower than the historical average.

If these trends are auspicious signs of future performance, the economy is bound to experience higher growth. However, hard indicators are providing little evidence that an economic boom is about to occur. Year-over-year GDP growth has remained below 2% for the past five quarters, one percentage point lower than 1994-2007. Auto sales have declined. Nondefense durable goods orders excluding aircraft have remained flat since early 2017. Finally, private sector nonfarm payroll experienced the slowest year-over-year gain since 2011 in March.

One potential explanation behind the divergence is that some businesses and individuals attached a high probability to tax cuts and deregulation. If these factors have a large influence on their outlook, the indexes would tend to increase as the data has shown. In addition, if markets anticipated a friendlier environment for corporate businesses — for similar reasons— it would be reasonable to see stock prices edging higher. An alternative explanation is that the swing in expectations relates more to political preferences, which have become more polarized.

Neither the lukewarm hard indicators nor potentially surreptitious signs from soft indicators invalidate an assumption of high economic growth. Nevertheless high levels of optimism and asset prices could produce a positive feedback loop if growth and profits align with a glass-half-full policy outlook. This could produce conditions that help bring the economy out of its perceived doldrums. However, expectations alone will not support long-run growth. Altering the course of long-run growth will require structural reforms, hard choices and compromises in a growingly partisan environment.

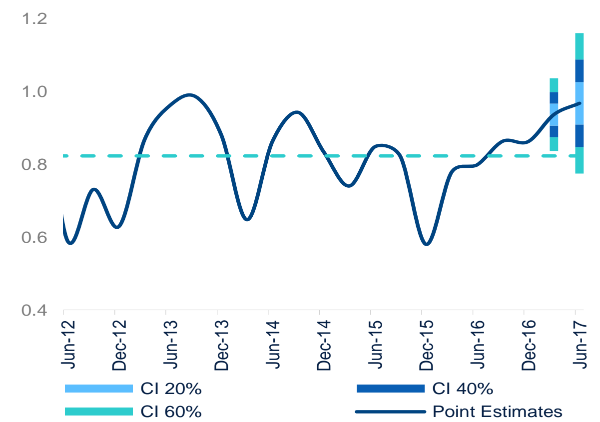
Moreover, it is unlikely that all the promises made during the campaign trail will fully materialize. The Trump administration faces opposition from Democrats in Congress, divisions within the Republican Party, as well as lack experience and manpower to design, negotiate and promote these reforms. Therefore, a more likely outcome is one of watered down changes with lower effects on growth. Nonetheless, even without meaningful policy changes, similar to previous administrations, we could have an extended period of misalignment between expectations and asset prices with economic growth, at least until players have to show their hands.

2. Global growth consolidates but risks remain

On balance, growth forecasts for 2017-18 are largely unchanged. There is a slight positive bias for the Eurozone and especially China, where we expect 6.0%-6.5% GDP growth by year-end. Latin America will emerge from recession this year, but with only moderate growth. As a result, our baseline is for global growth of 3.3% for 2017 and 3.4% for 2018, which, in both cases, is 0.1pp higher than our previous forecasts.

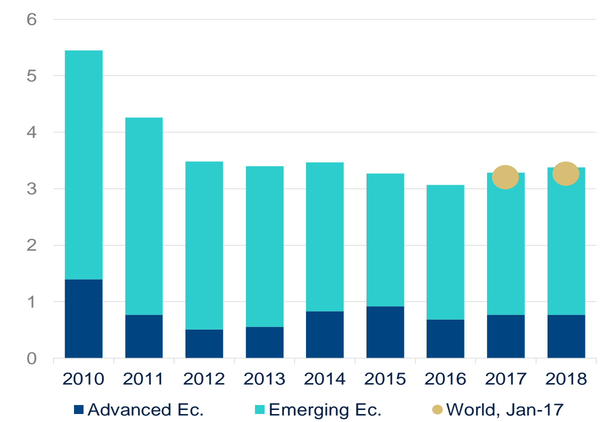
The overall improvement in confidence indicators and the advance of trade underlie the acceleration global in activity, consistent with a 0.9% quarterly growth rate. The performance of advanced economies continues to be particularly positive supported by the U.S. recovery and Europe's above average expansion. Financial markets have remained calm in recent months, recording low volatility in spite of high political uncertainty. Financial tensions have eased, especially in emerging economies, which were more negatively affected at the end of last year due to the uncertainty after the U.S. elections. Europe was an exception, as the uncertainty on the Dutch and French elections caused bond spreads to widen. However, after the results in the Netherlands and the first round in France, risk perception improved.

Figure 2.1 Global GDP Growth Forecasts Based on BBVA-GAIN (Quarter-over-quarter %)



Source: Haver and BBVA Research

Figure 2.2 Global Growth by Region (Year-over-year %)



Source: BBVA Research

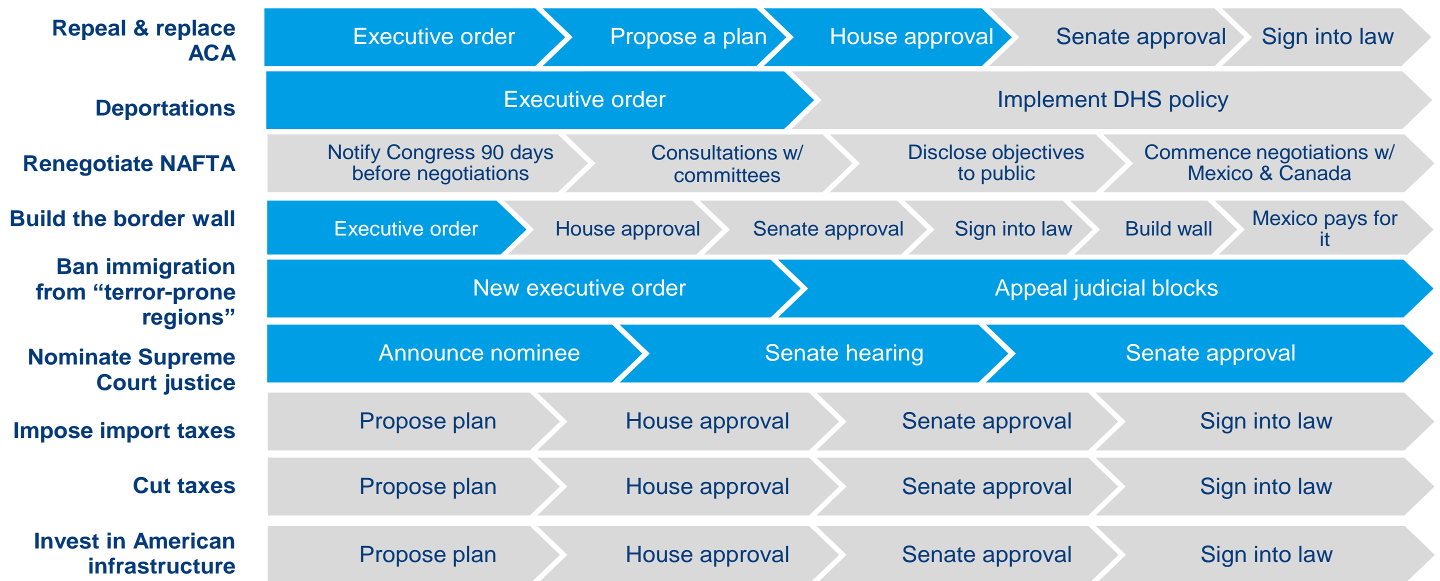
The combination of a cyclical upturn and reflation allow central banks to start shifting to a less expansionary monetary policy stance. The Fed, which leads the process, increased rates for a third time in March. The impact on markets was smoothly absorbed as the increases were priced in. The ECB is also more optimistic about growth, but still not confident about inflation reaching its medium term target. An increase in financing costs can be expected at the global level on the projected horizon as monetary policy accommodation in the developed world is removed. The tightening of financial conditions will also depend on non-monetary factors such as policy uncertainty, inflation expectations and risk perception.

There are underlying risks that could moderate growth. In particular, the election cycle in Europe could destabilize the Eurozone if anti-EU candidates prevail while the Brexit negotiations could sour. In China, headwinds have not vanished: expectations of steeper RMB depreciation, mounting levels of corporate debt and a potential correction in housing prices. Finally, the impact of higher interest rates on emerging markets, geopolitical tensions and the rising tide of populism will continue to receive attention.

3. U.S. investment doing the heavy lifting

While risks remain balanced, the lack of progress on fiscal reform and the fact that the administration has little to hang their hat on in the first 100 days could test market's patience, increasing the risk of vulnerability to external imbalances—geopolitical surprises, commodity price shock or emerging market weakness. Failing to roll back the ACA in a timely manner and deliver a comprehensive tax and regulatory reform has not changed our outlook for 2017, as we expected the administration to experience nontrivial frictions at the beginning. That being said, it seems that the administration is falling short of the lofty expectations of markets which could begin to erode market confidence. In addition, the Fed is signaling an increased willingness to remove accommodation as pressures from an aging cycle build. It also seems clear that consensus has moved away from advocating for fiscal stimulus at a time when economic slack is minimal. With financial vulnerabilities low, despite equity markets likely overpricing the Trump effect, there are growing signs that headwinds to this expansion cycle are growing. A strong profit outlook and a rebound in investment in equipment and housing should alleviate some of these pressures in the short-run.

Figure 3.1 Administration Timeline



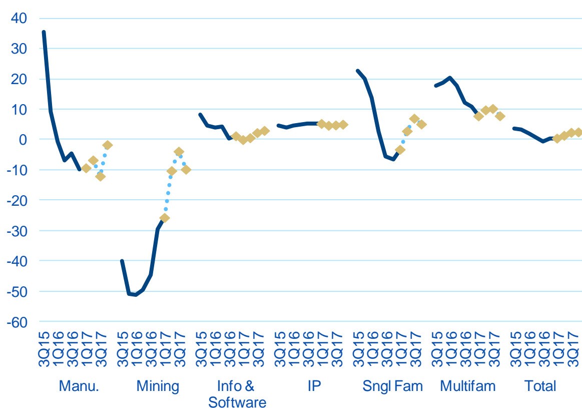
Source: BBVA Research

Investment to take up the torch in post-crisis cycle

With tailwinds from firmer global growth expectation and moderate and stable oil prices the mining and manufacturing sectors are expanding for the first time since 2015. At current price levels, domestic producers have increased drilling activity in the most profitable and productive areas, particularly in Texas with over 150 wells being added in the Permian and Eagle Ford through March. That being said, utilities have suffered from warm weather conditions in the first quarter, leaving the energy sector on balance unchanged for the year. Manufacturing, machinery, computer electronics and petroleum and coal products have benefited from the cyclical recovery in investment and profits, growing strongly to start the year. The high-tech sector has also recovered to growth rates consistent with those prior to the slowdown, with the rebirth in investment in equipment and software. For autos, the downward surprise in sales in March could be a sign of a broader trend if tighter credit conditions and cooling labor markets continue to dampen demand.

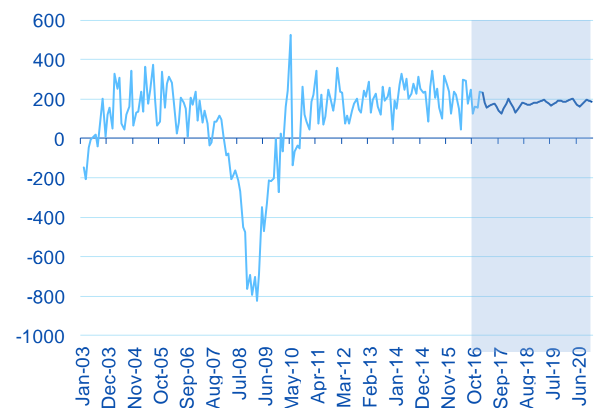
For the labor market, signals have been mixed. In January and February nonfarm payrolls grew by 200K per month, which was above consensus estimates for job gains of around 150-175K jobs. Despite nontrivial deceleration in payroll growth in March to a pace of 98K per month, employment growth for the first quarter remains consistent with our forecast for a moderation in employment gains. In addition, the rate of job openings has remained flat over the last six-months while average weekly hours worked have stagnated, suggesting that despite firms communicating a greater willingness to hire domestically, the commitments are failing to move the needle, as the cycle gets long in the tooth. The aging cycle and headwinds from structural changes in the composition of the labor force underlie the deceleration.

Figure 3.2 Real Private Fixed Investment (Year-over-year %)



Source: BBVA Research & BEA

Figure 3.3 Monthly Change in Nonfarm Payroll (K per month)



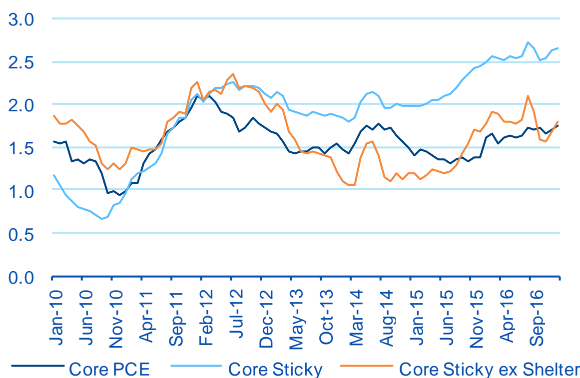
Source: BBVA Research & BLS

Nevertheless, with the unemployment rate at 4.5% and the participation rate edging up in spite of the strong outflows of the retirees, it seems that the labor market is at or even trending below long-term projections of the unemployment rate; this lends significant support to the argument that the labor market is at full employment. If the labor markets continue to grow at its current pace, the estimated 750K-1.2M individuals out of the labor force looking for jobs would be absorbed by the

end of the year. As the remaining slack is absorbed, we expect the pace of job growth to slow to levels more consistent with the growth in the labor force (100-150K) and for the unemployment to remain at levels close to 4.4% over the medium-term. Although there could be some moderate undershooting in the short-run, it appears the Fed is ready to respond to with more aggressive removal of policy accommodation (rates and ceasing principal reinvestment), particularly if inflation surprises to the upside.

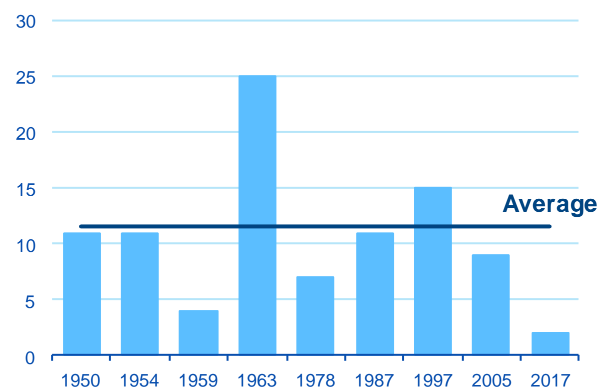
However, the Fed does have some flexibility on how quickly it wants to remove accommodation given that real wages, in spite of the tight labor market, have remained flat over the year. In fact, wages in seven industries — Retail, Education and Health Services, Wholesale Trade and Transportation, Mining, Durable Goods Manufacturing, Wholesale Trade, Finance, Utilities— failed to keep pace with inflation, with wages in the retail sector contracting 1.3% from a year-ago. While tighter labor markets in more technical sectors such as professional and business services and information have led positive real wage growth, these sectors remain only a small fraction of the broader labor market suggesting wages pressures could remain muted despite overall labor market conditions remaining somewhat tight.

Figure 3.4 Consumer Prices (year-over-year, %)



Source: BBVA Research, FRB & FRB Atlanta

Figure 3.5 Proximity to next cycle & Output Gap (# of Quarters)



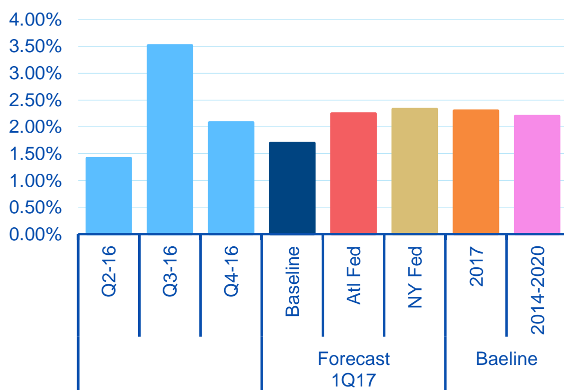
Source: BBVA Research

Furthermore, the pass-through from higher energy prices is eliminating some of the purchasing power gains delivered by the drop in crude oil prices in 2015-1H16. Pressures from rising energy prices will fade over the 2Q17, but the negative contributions from declining auto prices could dampen the inflation outlook and suggests broader weakness. That being said, high inventory levels and weak demand in the auto sector could continue to add to the downside pressures to consumer prices. With little progress on fiscal reform, and moderate inflationary pressures outside of energy and housing, market-based inflation expectations have eased; survey-based measures are also trending lower. Lower import prices from the strong dollar should also add to the downside pressures.

With this in mind, the outlook for the consumers and consumption in 2017 remains strong, although it is likely to disappoint relative to 2016, in which it had been the saving grace in the face of an investment, profits and productivity slump. Although car manufacturers could sacrifice margins by discounting existing inventories to attract customers, lenders are shifting away from the auto sector as delinquencies continue to rise and lenders try to limit their exposure to riskier sub-prime borrowers. Outside of autos, consumption should remain solid, as confidence remains high.

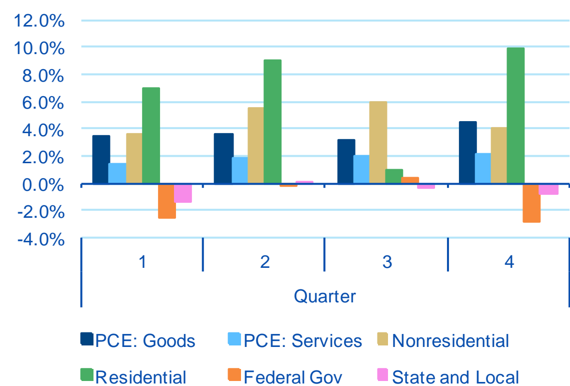
Growth in the first quarter disappointed markets, with consumption falling briskly. While more immediate than expected, the transition from consumption to investment is in line with our baseline. Despite a drawdown in inventories, nonresidential private fixed investment was strong, residential investment improved despite rising interest rates and exports grew due to stronger global growth and trade. Although the slow start to the year may raise concerns over the prospects of reaching 2% by year end there appears to be sufficient capacity left for investment following the slowdown in 2016. In fact, a positive surprise from the mining sector, which grew 19.3% year-over-year suggests that if consumption rebounds in the remaining three quarters growth exceed our baseline of 2.3%.

Figure 3.6 Real GDP (SAAR, quarter-over-quarter %)



Source: BBVA Research, BEA, FRB ATL & NY

Figure 3.7 Average Quarterly Growth (%)



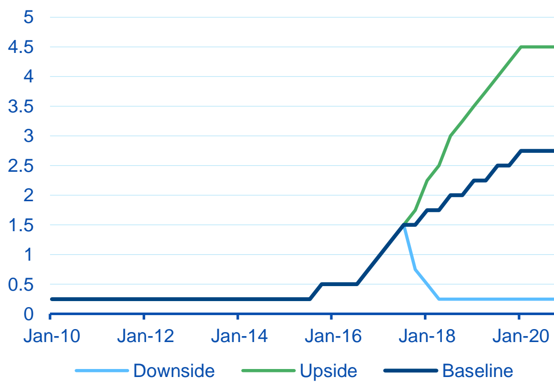
Source: BBVA Research & BEA

Fed accelerates removal of accommodation with plans to shrink balance sheet

With conditions ripe for the removal of monetary policy accommodation, the Fed, after resuming policy normalization in December and increasing rates again in March, will continue on a gradual tightening path in 2017 with two additional 25bp rate increases in June and September. The uncertainty around this path is high, as communication in March struck a deliberately more hawkish tone. At the same time, the Fed is steadfast in its commitment to measured normalization. After the series of speeches leading up to the March meeting, along with the statement, the committee's economic outlook and press conference, it seems that with no change to their outlook gradual normalization could imply 3-4 rate increases per year. With this in mind, our bias is to the upside for the remainder of the year, with the possibility of three additional rates hikes this year —June, September and December.

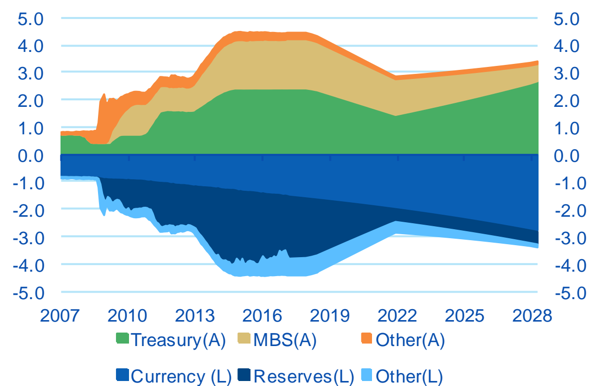
However, the Fed seems ready to deal with the other side of the normalization coin: balance sheet normalization. Today, the Fed's balance has grown to $4.5Tr in the post-crisis period from less than a trillion prior to the crisis. The bulk of the Fed's assets are treasury securities ($2.5Trn) —most which have a tenor of longer than 10 years after Maturity Extension Program— and Mortgage Backed Securities ($1.7tr). On the liabilities side, currency in circulation amounts to $1.5Tr –twice as large as in 2007- while excess reserves sum $2.2Tr. Although normalization could take many forms, it will likely imply a gradual ceasing of principal reinvestment that will begin at the end of the year. The rush to wind down the balance sheet is likely a function of the amount of securities maturing over the next two years, which could be as large as $1.2Trn if pay downs on the Mortgage Backed Securities (MBS) portfolio proceed as expected¬—around 18bn per month. In addition, purchases of MBS excluding the Federal Reserve, which totaled $374bn in 2016, have returned to pre-crisis levels. For the Fed to begin the process of normalization risks will have to remain balanced, which is consistent with our baseline scenario of moderate growth and inflation.

Figure 3.8 Fed Funds Rate Scenarios (%)



Source: BBVA Research

Figure 3.9 Fed Assets and Liabilities ($, Trillion)



Source: BBVA Research & FRB

While the minutes seem to close the book on when the reinvestment policy will end, there remains a considerable amount of uncertainty as to the pace, composition and whether the committee would concurrently normalize the balance sheet and increase interest rates. Fears of a rebirth of the Taper Tantrum[1] also reinforced our view that the committee will communicate "to the public well in advance of an actual change", meaning that the topic will be a focal point of upcoming meetings. Furthermore, a handful of participants will advocate for announcing the FOMC's "expectations for the size and composition of the Federal Reserve's assets and liabilities in the longer run."

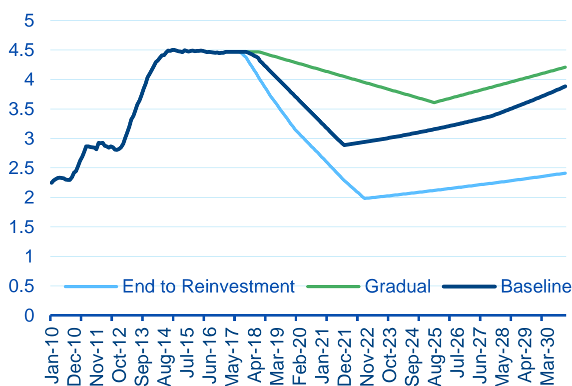
In terms of pace, the trade-off will be between clear communication and financial disruptions. A phased-out approach will likely reduce "the risks of triggering financial market volatility", but ending the reinvestment policy altogether was viewed "as

1: For more information see https://research.stlouisfed.org/publications/economic-synopses/2014/01/28/lessons-from-the-taper-tantrum/

easier to communicate while allowing for somewhat swifter normalization of the size of the balance sheet." A complete end to the reinvestment policy of Treasury holdings –assuming no changes to the duration of the portfolio, no sales of securities, and no changes to the MBS portfolio- would imply reducing the balance sheet by around $420 billion by the end of 2018 and an additional $1.5 trillion by 2022. A phase-out approach combining both Treasuries and MBS securities would result in a reduction of almost $1.5 trillion by year end 2022. Obviously, the Fed could accelerate the pace as markets adjust or change the duration of the portfolio, which in turn would speed up the normalization process.

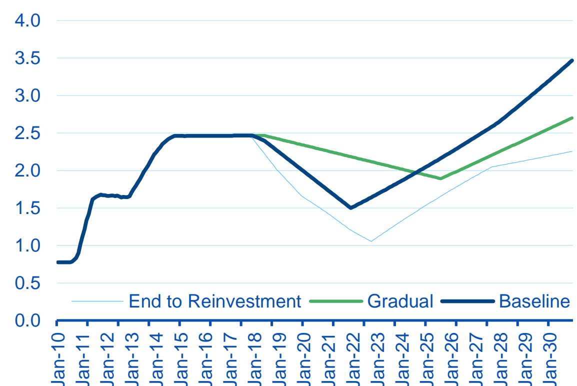
With respect to the composition and mix of reinvestment there seems to be disagreement on which portfolios — Treasuries vs. Mortgage Backed Securities (MBS)— to reduce; although in the long-run it appears that members will prefer a lean and clean portfolio of treasuries. In addition, reducing the size of the MBS portfolio will present additional risks to normalization given that pay-downs of the MBS portfolio are unknown and the factors underlying that pay-down such as home prices, pre-payment, government and fiscal policy, and interest rates can fluctuate, altering the timing and size of principal payments. Considerations of housing market stability could also complicate the process, as the Fed remains one of largest purchasers of MBS. In other words, the Fed will try to avoid destabilizing the MBS market so not to disrupt home prices and mortgage lending. Given that the MBS market is back to normal, the Fed can take action without generating these risks.

Figure 3.10 Balance Sheet: Asset Scenarios ($, Trillion)



Source: BBVA Research & FRB

Figure 3.11 Balance Sheet: Treasury Scenarios ($, Trillion)

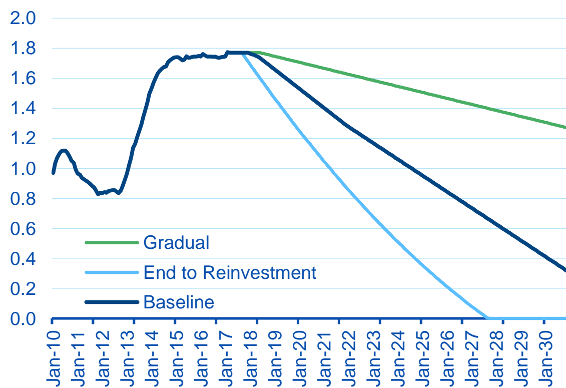


Source: BBVA Research & FRB

Given that a complete or gradual reduction in the balance sheet could push longer-term interest rates up 1-2pp, it is remains unclear whether the Fed would view balance sheet normalization and interest rate policy as mutually exclusive or would act concurrently. Ultimately, however, if economic conditions were deemed stable enough, there is a chance that the committee could increase rates and begin normalization this year, as the minutes stated that later this year that "gradual increases in the federal funds rate would continue and judged that a change to the Committee's reinvestment policy would likely be appropriate." If recent history is an indicator of how the committee will proceed, the approach will be staggered and slow to allow the committee to assess the impact of the adjustments in its reinvestment policy. This could imply that if the

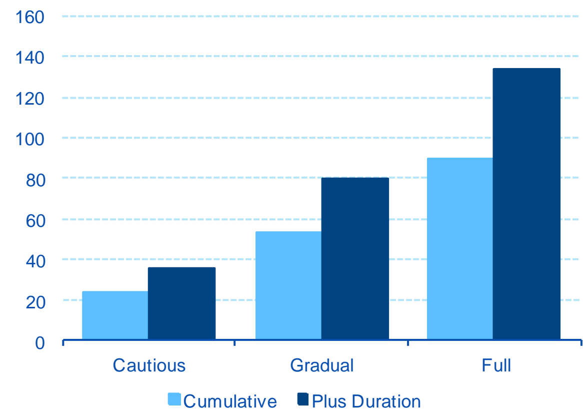
Fed stops reinvestments in December, after two additional rate hikes (June and September 2017), the next rate increase could be pushed back to the second half of 2018, to allow markets to absorb the effects of higher long-term interest rates.

Figure 3.12 Balance Sheet: MBS Scenarios ($, Trillion)



Source: BBVA Research & FRB

Figure 3.13 Balance Sheet: Impact on 10-year Treasury (bp)



Source: BBVA Research

Administration fails to set policy course in first 100 days

Although tax reform was the key Republican proposal during the election campaign, it now is less clear what type of fiscal package the administration will be able to accomplish. The Treasury, which will be charged with creating a comprehensive strategy, remains largely understaffed with 70% of the 28 political appointees yet to be announced. Even with fully staffed Treasury, it took 10-months to produce the comprehensive plan for the Tax Reform act of 1986, an additional 13 months for it to be proposed in Congress and another nine before its passage. In a best case scenario, this would imply major tax reform would come no sooner than November 2019. In addition, there are important differences between the White House and Congressional plans. The Trump administration has not explicitly endorsed the implementation of a border adjustment tax (BAT) and fiscal conservatives will likely stall any plans that lead to major increases in the debt levels. Taken together, the most likely outcome will be something akin to the Bush tax cuts that reduced rates but were sunset due to the need to be deficit neutral beyond the 10-year budget horizon in order to meet the requirements for reconciliation.

The Trump administration has not yet proposed what they have described as a $1 trillion infrastructure spending program involving the public and private sectors. Its challenge: to convince Congress to include this spending package as part of fiscal reform. However, details of the plan have yet to be revealed. Although popular among both parties there seems to be challenges remaining, Democrats are less willing to accept the participation of the private sector while budget-conscious Republicans worry about the country's mounting debt.

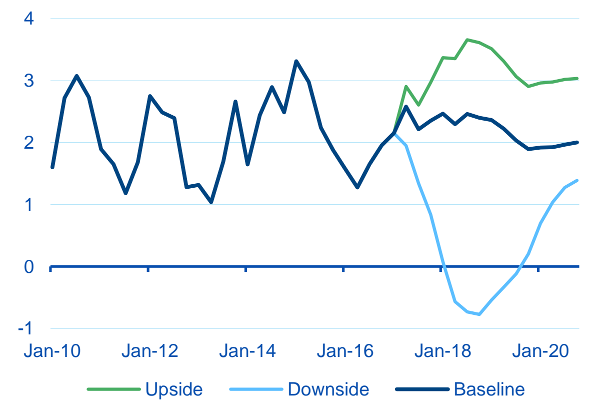
On trade, President Trump seems to have softened his stance regarding international trade. For instance, he decided not to label China a currency manipulator as he promised through his campaign. The administration actions now seem targeted to

specific sectors like steel and tit-for-tat tariffs. A re-negotiation of NAFTA is still on the table. However, increasing pressure from stakeholders (e.g. agricultural sectors and companies reliant on global value chains) would prevent the administration from taking radical steps, like a complete withdrawn from the treaty.

Too much optimism, not enough progress

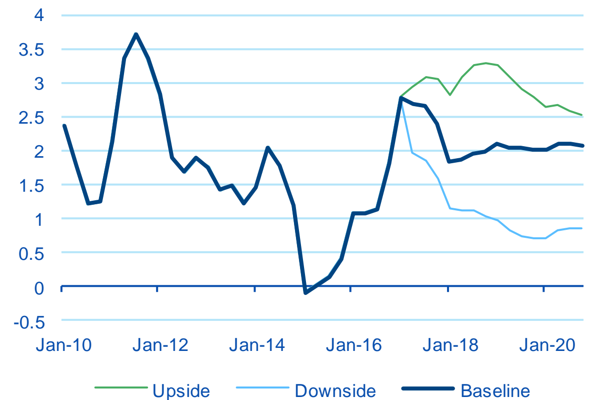
The possibility of Trump meeting market expectations and achieving comprehensive tax reform, or at worst lowering the corporate tax rate before the end of the fiscal year appear remote. With this in mind, the likelihood of reaching growth rates above 3% this year is equally unlikely given the headwinds from demographics, productivity and less accommodative monetary policy. Furthermore, the cyclical recovery in consumption is slowing, and while investment is growing following the commodity induced profit slump, the space for a major investment boom is small notwithstanding a major shift in regulation and policy.

Figure 3.14 Real GDP Growth (%)



Source: BBVA Research

Figure 3.15 Headline Consumer Price Index (year-over-year %)



Source: BBVA Research

Despite the post-election euphoria, we remain skeptical that Washington will be able to quickly and effectively deliver on its promises, and we assumed going into the year that the new administration would face growing pains. As such, we are maintaining our outlook for growth to recover to 2.3% in 2017. In 2018, we expect growth to be 2.4% as the cumulative effect of regulatory reform and piecemealed executive actions give a slight boost to expectations. Thereafter, the scenario assumes the demand-side pressures overtake any modest supply-side reforms of the administration bringing growth back to around 2%.

With only minor changes to the fiscal outlook and growth moderating, our expectations are for the inflationary pressures from energy prices and housing to fade throughout the year. This will bring inflation below the 2% target to 1.9% in 2018 from 2.6% in 2017. After the transitory pass-through from energy price gains fades and core prices stabilize we expect headline inflation to trend back to 2.0% over the medium-run.

There still remains a scenario, in which Trump achieves the breadth and magnitude of reforms that he promised heading into office, although the probability remains low due to the lack of tangible evidence that the administration is prepared and has enough political capital to tackle structural reforms. In this scenario, with expansionary fiscal policy and modest regulatory and supply-side reforms growth could surpass 3% in 2018-2020. This scenario would likely imply an unemployment rate that would trend close to historical lows at around 3.9%. Above potential growth and expansionary fiscal policy push inflation above 3.0%.

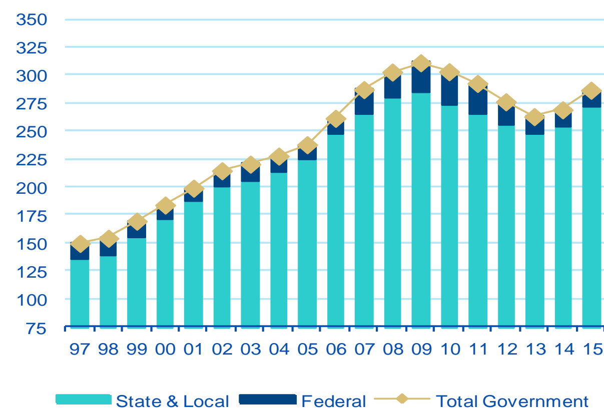
With little progress domestically and increased geopolitical tensions abroad, the probability of reaching our downside scenario has grown. Although the likelihood remains small, the impact would likely imply a moderate recession given that overall financial imbalances remain largely contained and leverage has declined since the crisis. In this scenario, stagnation-like conditions would produce a disinflationary environment with rising unemployment, reaching 7.0% in 2018.

4. Infrastructure spending: a need rather than an economic stimulus

Infrastructure projects are unique compared to other types of fiscal stimulus as they have the potential to enhance both short-term and long-term growth prospects. In that regard, economists' rationalizations for substantial public expenditures on infrastructure diverge depending on whether one believes in the supply-side or demand-side effect. Infrastructure spending is considered a useful tool to generate short-term growth when economic activity is in recession and unemployment is high. Publicly financed projects help ease unemployment, boost expenditures, and are shown to have a substantial multiplier effect on growth if implemented effectively. On the other hand, investment in infrastructure is necessary to sustain and increase the living standard by means of improving health, transportation, housing, and the overall quality of citizens' life. Thus, updating and repairing infrastructure can improve productivity, enhance long-term growth, and boost U.S. global competitiveness.

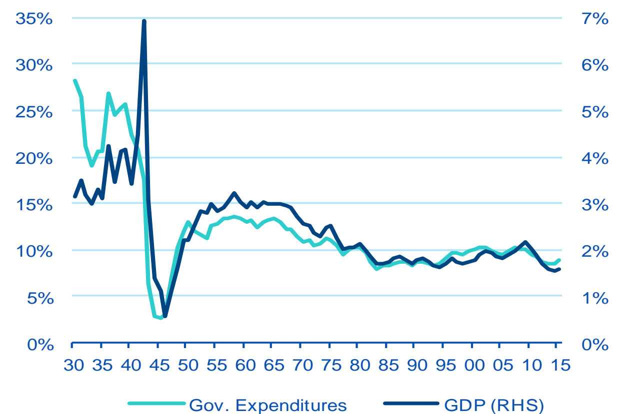
The long-term and short-term growth arguments for infrastructure spending are frequently merged with the assumption that infrastructure projects boost short-term economic growth yet also have a spillover effect on long-term productive potential. Additionally, in the current environment of persistently low long-term borrowing rates, allocation of public funds towards non-financial investments is assumed to be beneficial since the return on infrastructure investment would be higher than the interest rate on public debt.

Figure 4.1 Gross Investment in Nonresidential Structures ($ billion, historic cost)



Source: BBVA Research & BEA

Figure 4.2 Government Gross Investment in Nonresidential Structures as Share of GDP and Gov. Expenditures (%)



Source: BBVA Research & BEA

President Obama asked Congress to pass a bill to “rebuild America” - to build a 21st century infrastructure. President Trump’s infrastructure spending pledge has been “we're going to start spending on infrastructure big. Not like we have a choice.” Yet Fed Chair Yellen has advocated a cautious approach of not spending much on infrastructure at a time when the economy has been expanding at a steady pace: “there is not a lot of fiscal space should a shock to the economy occur, an adverse shock, that should require fiscal stimulus."

However, empirical evidence illustrates that while long-term and short-term growth arguments are made in conjunction with one another, they contradict each other in practice and thus infrastructure projects implemented often pursue one or the other but not both. Furthermore, depending on the project, it is not a given that infrastructure spending will stimulate growth.[2]

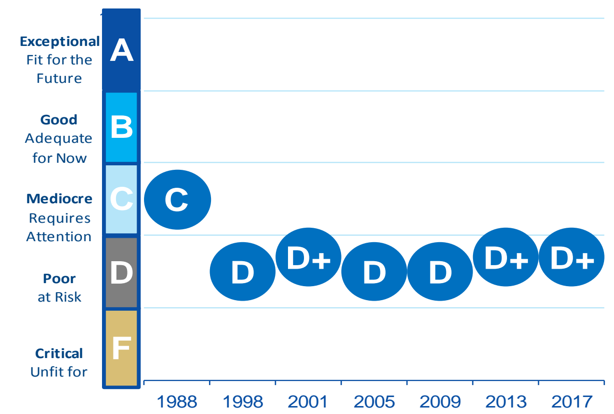
A common sense approach to shrinking unemployment via infrastructure projects would be to steer those projects to counties that have high unemployment rates. Many of those counties have systemically-high unemployment and are in long-term decline because of structural industry-shifts and experience declines in both the population and in the number of businesses in operation. Urban economists would claim that these projects often end up as “bridges to nowhere” because their primary goal is to ease unemployment while the cost-benefit analyses of the projects are often ignored. The positive economic effects of unemployment minimizing projects are short lived and multipliers are low.[3] “Detroit’s infrastructure was built for 1.85 million people; now, after decades of difficulty, the city has less than half that population. New construction there makes no sense and would just squander money.” (Glaeser, 2017)

In addition, information and communication technology (ICT) and digital infrastructure have enabled virtual connectivity through cyberspace. Cyberspace has reduced the importance of geographic proximity, affecting the efficiency measures of some of existing infrastructure and how much of it is beneficial to rebuild.

On the other hand, to have a long-term economic effect and hence a multiplier above one, public infrastructure funds should be directed to high-density regions that are expanding – to generate new businesses and jobs alongside transportation infrastructure expenditures. These are usually regions that recover faster than average during recessions and have lower than average unemployment rates during expansions. An argument has also been made that complex urban infrastructure projects require a skilled labor force, to engineer and to operate machinery, which are more likely to be already employed. Studies indicate that the Recovery Act highway spending was mostly spent in the regions with already low unemployment rates and likely resulted in shifting labor from one job to another rather than hiring the unemployed.[4]

2: Glaeser (2017)
3: Glaeser (2017), Bourne and Zuluaga (2016)
4: Glaeser (2017), Gardner (2017)

Figure 4.3 ASCE Report Card



Source: BBVA Research & ASCE

Figure 4.4 ASCE Grade History by sector and cost of improvement

Category	2001	2005	2009	2013	2017
Aviation	D	D+	D	D	D
Bridges	C	C	C	C+	C+
Dams	D	D+	D	D	D
Drinking Water	D	D-	D-	D	D
Energy	D+	D	D+	D+	D+
Hazardous Waste	D+	D	D	D	D+
Inland Waterways	D+	D-	D-	D-	D
Levees	–	–	D-	D-	D
Ports	–	–	–	C	C+
Public Parks & Rec	–	C-	C-	C-	D+
Rail	–	C-	C-	C+	B
Roads	D+	D	D-	D	D
Schools	D-	D	D	D	D+
Solid Waste	C+	C+	C+	B-	C+
Transit	C-	D+	D	D	D-
Wastewater	D	D-	D-	D	D+
Cost to Improvement	**$1.3T over 5Y**	**$1.6T over 5Y**	**$2.2T over 5Y**	**$3.6T over 8Y**	**$3.3T over 10Y**

Source: BBVA Research & ASCE

The reality is that many vital U.S. infrastructure sectors have been deteriorating and are a public safety issue – shifting the issue into a need rather than an economic stimulus argument. U.S. infrastructure spending has lagged behind the rising demand for it and has persistently earned an average grade of D since 1998 due to the persistent financing gap. The 2017 grade of D+ from the American Society of Civil Engineers (ASCE) means that the condition and capacity for many sectors of infrastructure are of serious concern and have a high risk of failure. For example, the number of aging dams and levees has been increasing and thus there is a fast growing number of high-hazard-potential structures, where high-hazard-potential defined as a failure of operation may result in significant economic losses and loss of life.

The ASCE released a report that estimates infrastructure funding gaps based on how much funds are needed to earn a B grade, which is a state of good repair. The report estimates an annual gap of $144 billion over the next 10-years in funding to maintain the B grade. The report also estimates a $3,400 per year cost to U.S. families and $7 billion of lost accumulated sales for businesses in 10-years due to poor infrastructures. However the report neither provides estimates of nor studies the modernization of existing infrastructure and investment into ICT or any other new technologies, which would bump the U.S. up to grade A.[5]

> "The studies do not presume new technologies beyond extension of existing trends in infrastructure utilization rates, and enhanced technologies that are already scheduled for implementation. Examples of such technologies not considered in these reports are high speed rail or maglev systems in surface transportation or radical expansion of renewable energy for electricity generation. In the water study, the cost of funding or developing new water supply resources was not considered. The electricity study assumed that technologies in place or planned for power generation by region would be in place through 2040." (ASCE, 2016)

5: The only exception is aviation sector, where the study considers the cost of NextGen air traffic control technologies. NextGen is a system long promised to improve the efficiency and safety of aviation and to enhance the capacity of existing airport infrastructure (ASCE, 2016).

The Administration is working on an infrastructure bill that is expected to be released in May. Infrastructure spending was one of President Trump's campaign promises, and while the amount of infrastructure expenditures proposed is expected to be $1 trillion over the next 10-years, matching Democrats' proposal on infrastructure, the mystery of what the proposal will contain is high. How much of the proposed infrastructure expenditures will be financed directly by government and how much will be financed by tax credits, which would incentivize public-private partnerships, is unknown. It is also unclear what type of infrastructure it will cover. What will the proposal's break-down be in terms of funding of new infrastructure versus renovating and updating the old one? And finally, will the bill incorporate projects addressing the needs of the new digital age, cyber security, and information and communication technology.

Based on a recent interview by President Trump and a speech by Secretary of Transportation Chao, the Administration's infrastructure spending proposal will seek investment of $1 trillion over 10-years and will address transportation infrastructure, water, and "potentially broadband and veterans hospitals." It will seek to incentivize public private partnerships by including "common-sense" regulatory, administrative, and policy changes that will accelerate the permitting processes.[6] The proposal will include refurbishment projects: "we have to refurbish to a large extent."[7] The President plans to establish a Commission that will overlook and appropriate the funds.

Yet the primary unknown – the financing of the infrastructure proposal - will determine the likelihood of the infrastructure proposal winning approval by Congress. Democrats support government financing and will be opposed to other measures of financing, such as tax credits or any newly imposed taxes. Conservative Republicans are not keen on approving spending measures that add to the federal budget deficit. At the same time, both Republicans and Democrats that represent rural constituencies oppose the idea of financing infrastructure projects through public-private partnerships, since investment will be allocated more to urban areas because those areas have a lower risk of failing to recoup the initial investment. Meanwhile, large metropolitan areas that have the greatest need for modernization of infrastructure could be denied federal funds if they are perceived as "sanctuary cities."

> "Nothing is accurate now because we haven't made a final determination. We haven't made a determination as to public/private. There are some things that work very nicely public/private. There are some things that don't. …We are borrowing very inexpensively. When you can borrow so inexpensively, you don't have to do the public/private thing." Partial Transcript: Trump's Interview with The Times, April 5, 2017

Funding infrastructure faces a bottleneck since the demand for infrastructure spending is growing faster than the U.S. economy and thus outpacing tax revenue necessary to finance it. The elevated U.S. government debt to GDP ratio, which increased from 62.1% in 2007 to 105.3% in 2017, remains a constraint for further expansionary federal spending policy implementation. In the case of industrialized economies with public debt levels of 60% of GDP and above, large scale macroeconomic models estimate that fiscal stimulus is counterproductive and has a negative effect on GDP growth.[8] An

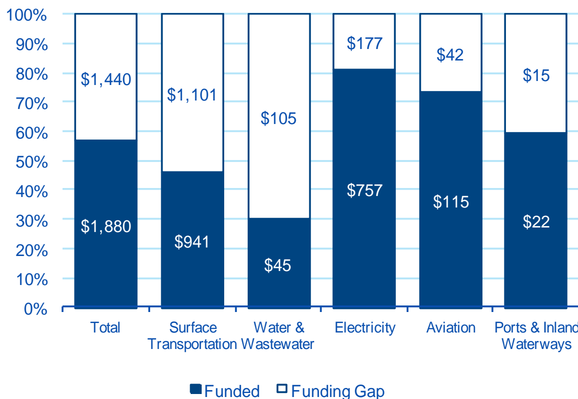
6: Chao, U.S. Secretary of Transportation speech (2017)
7: The New York Times (2017)
8: Ilzetzki, Mendoza and Végh (2013)

IMF study is positive on the short-term fiscal stimulus effect, concluding that productive infrastructure spending can yield a multiplier of up to 1.25. However, the study finds that constrained by fiscal sustainability, the spending will impose a drag over the medium-term on U.S. growth.[9]

Nevertheless, whether infrastructure spending is a need or is being done for stimulus purposes, public funds are the backbone of infrastructure financing for many sectors. More than 50% of projects for education, aviation, water transportation, mass transit, highways, and streets are funded by public sources, as well as 100% of passenger railroad and public safety projects. The traditional rationale for government financed infrastructure projects is that the government steps in when markets fail. Infrastructure assets have in many ways met the characteristics of a public good, namely being non-excludable and non-rivalrous, and have hard-to-monetize positive spillovers. Most public infrastructure sectors require economies of scale and, if not government owned, can lead to a natural monopoly and price control. At the same time, public financing has also drawn criticism that the projects funded have often ignored cost-benefit outcomes, have been implemented inefficiently, and were often prioritized based on electoral advantage areas rather than by actual need.

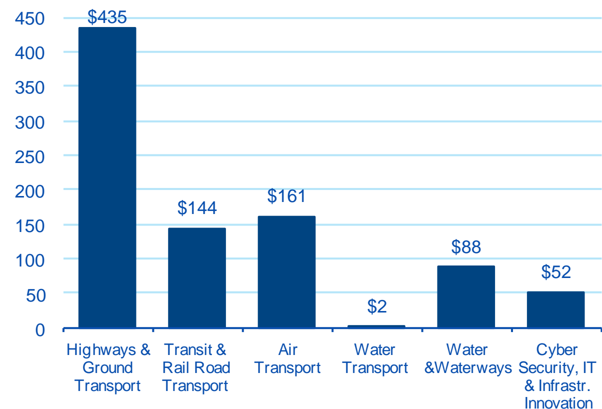
The infrastructure sectors that are dominated by private funding of 80% or greater are energy, health care, and amusement and recreation parks, while freight railroads and telecommunication have a 100% private share of funding. It is often argued that private involvement improves efficiency in both the execution and the financing of projects. The past administration, similar to the current one, has also supported Public Private Partnerships (PPPs) as they infuse private capital, provide expertise, and employ new means of efficiency to bolster infrastructure investment.

Figure 4.5 Investment Funding Gap through 2025 ($ 2005 billions)



Source: BBVA Research & ASCE

Figure 4.6 Federal Government Outlays Projections through 2025 ($ billions)



Source: BBVA Research & CBO

9: IMF (2017)

PPP arrangements are complex, involve large number of parties, and require lengthy and strenuous periods of negotiations on legal arrangements, the distribution of payoffs, and risk sharing. By default, infrastructure spending, like any other type of investment, yields a rate of return and will attract capital. However, infrastructure projects in the U.S. are presumed to be risky due to high upfront capital needs and lengthy timelines. Infrastructure investments are less liquid and often involve years of wait time after initial-stage planning before they start generating cash flow.

The largest portion of the responsibility to negotiate PPP arrangements often lies on the shoulders of state and local governments. Local governments carry the risks of the initial stages of the projects – negotiation and planning - which require raising money through alternative sources such as bonds and debt financing. PPPs can also cost government more than what is anticipated. For example, while under lease contracts, the local government has to compensate the private partner for lost revenue from parking meters when temporarily closing streets and from tolls that are waived while evacuating people quickly due to a natural disaster. On the other hand, while the estimates are not consistent for every PPP project, PPPs on average operate at a slightly lower cost and can deliver efficiency gains when bundling construction, maintenance, and operations.

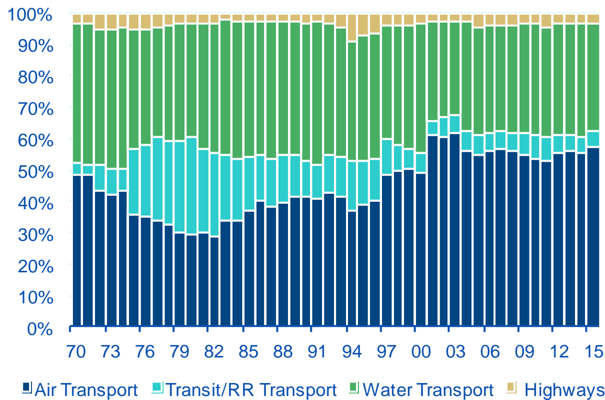
An increasingly higher number of states are exploring PPP opportunities. While predominantly in highways and ground transportation, PPPs in the U.S. currently are expanding to other sectors - power, waste and water, and social infrastructure projects. Furthermore, Pennsylvania has effectively bundled small infrastructure projects of 558 bridges into one big package and has successfully sealed PPP execution.

The reason to leverage PPP involvement is not as much about the initial financing of construction but rather is more about the efficiency gains over the whole life-cycle of the structures. When costs and benefits are measured correctly - accounting for the costs of alternatives, hidden costs, design, construction, long-term maintenance and life-cycle - PPPs can potentially deliver lower cost and higher efficiency. Additionally, since PPPs contain all three components – financial, operational, and assets - they typically incorporate innovative technologies and complete the projects within a shorter time-span.

However, there is much to be accomplished - to improve the efficiency of choosing projects appropriate for PPPs, to improve the quality of PPPs in the pipeline, as well as to address the risks and obstacles of the process. Getting involved does carry a risk of contracts being broken at the start or in the middle of projects, when the initial costs have been already incurred, due to shifts in political or popular support.

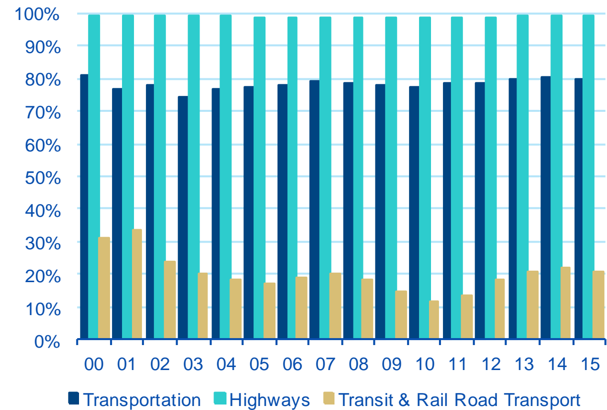
The establishment of an independent public agency, created with the mission of prioritizing infrastructure projects based on long-term growth and sustainability goal, and the development of procedures on PPPs involvement would minimize both political influence on the allocation of public funds and the political risk of entering into PPPs. Furthermore, robust and standardized procedures, early legislative approvals of projects, and establishments of break fees, would change the perception of long-term infrastructure investment as risky and would unlock untapped sources of capital from institutional investors such as pension funds, sovereign wealth funds, insurance companies, and mutual funds.

Figure 4.7 Federal Government Transportation Expenditures (%, share of total)



Source: BBVA Research & BEA

Figure 4.8 State & Local Government Expenditures Share of Government Expenditures (%)



Source: BBVA Research & BEA

Bottom Line: The need for 21st century infrastructure and the cost of it - a higher public debt to GDP ratio - have to be considered in conjunction with one another. Spending on infrastructure should remain a national priority at all times. However, project prioritizations have to include an emphasis on coupling the reduction of the number of high-risk infrastructure facilities with the modernization of it, investment into cyber security, building out of broadband infrastructure, and planning for the consequences of driverless cars, the sharing economy, and other digital advancements. Since current economic conditions are on a sustainable path, federal infrastructure investment should target projects that can boost long-term growth rather than ones that can ease short-term unemployment in regions with persistently high unemployment rates.

Infrastructure investment can produce large welfare benefits, but the payoffs to the owner may not cover its costs since the benefits also accrue to the public and are not easy to directly measure or price. This suggests the need for new financing arrangements and mechanisms. PPPs can alleviate this burden in some cases but are not a solution for all situations. State and local governments have been exploiting, however un-uniformly, other types of financial arrangements such as privatization, infrastructure investment funds, private and nonprofit philanthropic partners, and crowdfunding.

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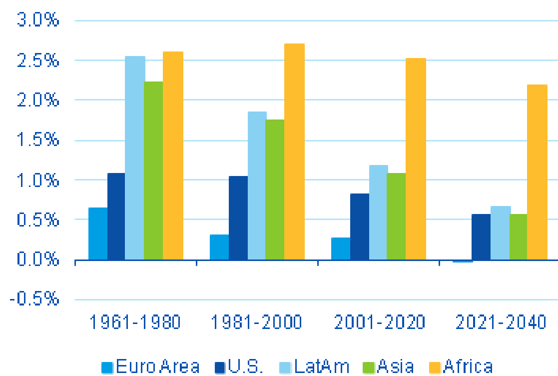
5. The changing face of U.S. demographics

In the next few decades, the U.S. demographic landscape will change dramatically. The slowdown of population growth and ageing will drive the U.S. economy to an unprecedented territory. In this chapter, we try to summarize demographic trends and the economic and policy implications.

Population growth

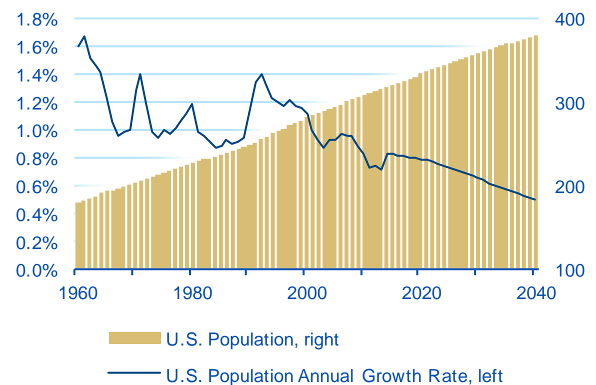
The slowdown of population growth is not a new development for other high-income countries. The three factors that drive population growth in any economy are fertility rate, life expectancy and migration. As many countries have made great economic progress in the last decades, the inverse correlation between income and fertility rate implies that their fertility rate will gradually drop. As Figure 5.1 shows, the slowdown of population growth happens to most regions in the world, with The Eurozone suffering from the world's lowest total fertility rate. Although Asia's population growth is sustained by emerging economies such as China and India, Japan and South Korea have been hit by rapidly aging populations, falling fertility rates and low immigration levels. In the future, the bulk of the world's population growth will come from Africa, which is expected to contribute 54% of growth in 2050 — driven by declining infant mortality rates and increasing life expectancy.

Figure 5.1 World Population Growth (%)



Source: BBVA Research & United Nations

Figure 5.2 U.S. Population (%, million)



Source: BBVA Research & Census Bureau

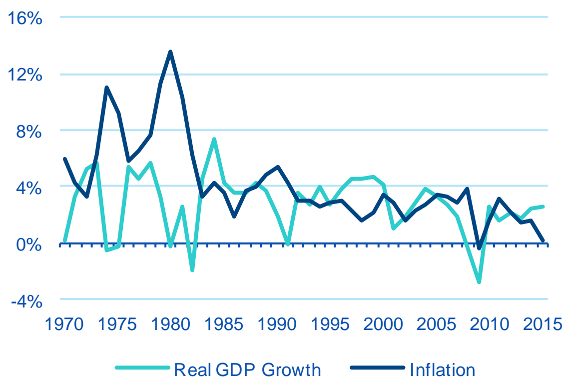
Comparing to other high income countries, the slowdown of the U.S. population growth is relatively mild. Nevertheless, according to the estimates from the Census Bureau, the decline of population growth is inevitable: The Census Bureau forecasts that the growth rate of the U.S. population will be slightly above 0.5% by 2040 (Figure 5.2). The change of demographics is reflected by the change of the three factors that drive population growth. In the U.S., the total fertility rate was 1.9 in 2012 compared to 3.7 in 1960; life expectancy is at 79 years compared to 71 years in 1960; and the share of foreign-born population has increased from 5.4% in 1960 to 13.1% in 2013.

Population Ageing

Baby boomers, born between 1946 and 1964, have played an important role in nearly every aspect of the U.S. society after WWII, and their economic activities undoubtedly influence the macroeconomy. For example, as Jaimovich and Siu (2009) estimate, the demographic change accounts for up to one-third of the business cycle volatility. Most notably, the Great Moderation (1985-2006), which is known for high economic growth and stable inflation (Figure 5.3), overlaps with the prime age of baby boomers and signals their economic success.

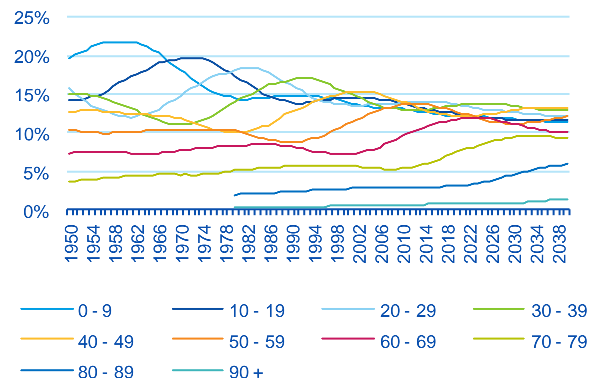
Like the slowdown of population growth, population ageing is hardly a unique phenomenon for the United States. For example, as one of the high-income countries, Japan began to experience population ageing as early as in 1990s. Similarly, in the U.S., the first boomers started to reach retirement age in 2011, and the wave of boomers' retirement will continue till around 2030. As Figure 5.4 shows, in 2015, the age group of 60-69 reached for the first time more than 10 percent of the population. And by 2035, the age group of 70-79 will consist about 10 percent of the population as well.

Figure 5.3 U.S. GDP Growth & Inflation since 1970 (%)



Source: BBVA Research & BEA

Figure 5.4 Age Groups as a % of Population (%)



Source: BBVA Research & Census Bureau

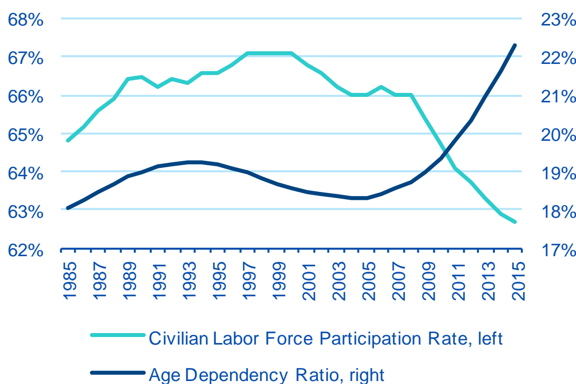
Economic Implications

The most significant impact from slow population growth and ageing is on the labor supply. As baby boomers approach or reach the retirement age, the labor force participation rate has been significantly declining. The labor force participation rate dropped from 67% in the 2000's to 63% in 2016. According to the CBO's Economic Outlook for 2017-2027, this rate will continue to fall, and by 2027, the labor force participation rate will be around 61%. The decline of the labor force participation ratio and the retirement of baby boomers will lift the dependency ratio and raise the demand for a more efficient pension system (Figure 5.5).

Moreover, as long-run economic growth is driven by productivity, capital and labor the decline of labor force participation rate and slow population growth would imply a modest potential output growth compared with the growth rate in the Great

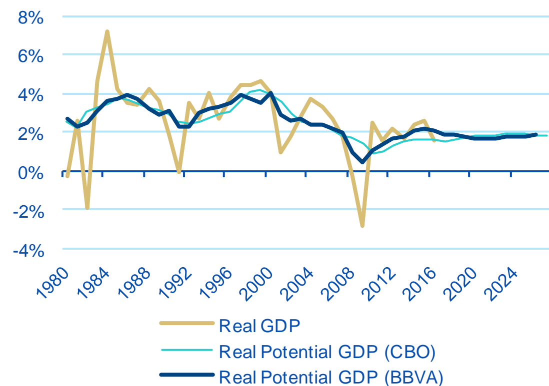
Moderation. For example, if the labor force participation rate's drop from 67% to 61% it would imply a 10% reduction of labor supply and result in a 6% loss of real output in a long run. As Figure 5.6 shows, before 2005, the growth rate of the potential output is always above 2 percent. Yet after 2020, both ours and CBO's projections of the potential output growth rate will be around 1.8 percent.

Figure 5.5 Participation Rate and Dependency Ratio (%, index 2009=100)



Source: BBVA Research & Census Bureau

Figure 5.6 U.S. Potential GDP Growth (%)



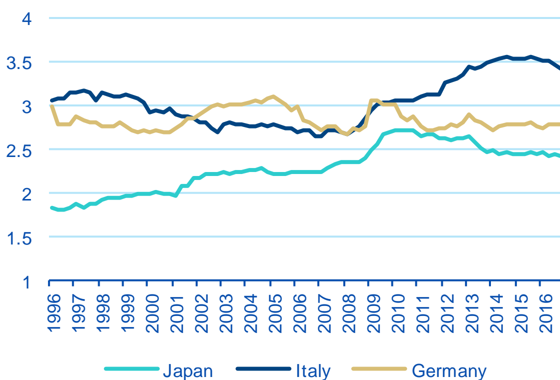
Source: BBVA Research, BEA & CBO

In theory, the older generation would use a larger portion of their income on consumption than the younger generation. And thus population ageing would imply a slowdown of investment in the economy and eventually lower the economic output growth. In fact, Figure 5.7 shows the ratio of consumption over investment for Japan and Italy, two high-income countries that are experiencing population ageing. We can see that this ratio steadily increases from 1.8 in 1996 to 2.4 in 2016 for Japan. And for Italy, this ratio only took 10 year to increase from 2.7 in 2006 to 3.4 in 2016. On the other hand, as Bloom et al. (2016) point out, consumption and investment can be affected by many factors, and thus the slowdown of investment can be offset by monetary and fiscal policies that encourage investment. For example, unlike Japan and Italy, the same consumption over investment ratio for Germany remains very stable during the last two decades, although Germany is experiencing similar population ageing.

Increased life expectancy in the U.S. has been driven by the shift in the leading cause of death from infection to chronic disease, which in turn will financially strain the nation's healthcare system. In fact, over years, healthcare expenditures per person have been rapidly increasing (Figure 5.8). National healthcare expenditures were estimated to exceed an average of $10,000 per person last year — a record high. Also, the growth rate of healthcare expenditures may continue to accelerate in the next decade as well. Driving forces behind this growth include the rising cost of prescription drugs and the aging population. The Congressional Budget Office estimates that Social Security, Medicare, and Medicaid spending for those 65 and older as a share of all federal non-interest spending will increase 10 percentage points to 40% by 2026. Out-of-pocket healthcare costs will also continue to grow as the number of people on high-deductible plans increases.

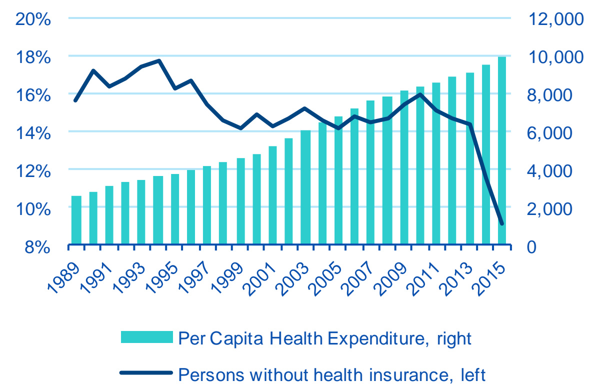
Overcoming challenges brought by demographic changes would require careful policymaking with awareness of the long-run impact. Investment on good health will be proven to be effective and worthwhile in the long run. Higher healthcare coverage will ensure that there are more healthy workers that could contribute the economy. And more importantly, higher healthcare coverage also means that more preventative measures can be applied so the expenses on expensive treatments can be reduced. We have seen that the percentage of Americans uninsured has dropped from 16% to 9% since 2010. Any future healthcare reform that aims to increase the coverage would be helpful to lessen the negative effect of ageing on the economic performance. There are other available measures to counter the challenges. For example, encouraging voluntarily delaying retirement and more flexible work hours would be helpful to life the labor force participation rate. And a more robust pension system would add financial security to pensioners and enable them to make better investment.

Figure 5.7 Consumption over Investment Ratio



Source: BBVA Research & Census Bureau

Figure 5.8 U.S. Healthcare Coverage & Expenditure (%, $)



Source: BBVA Research & BLS

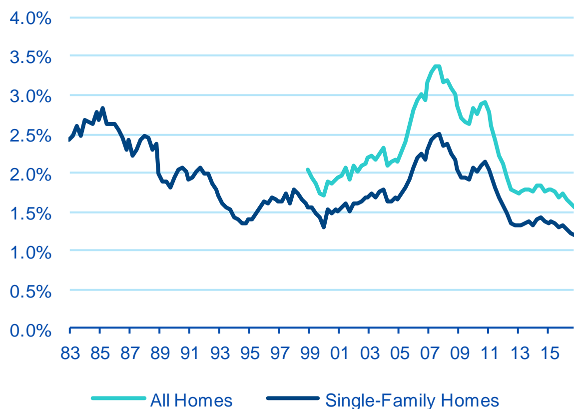
Bottom line

In the next decades, the U.S. population growth will slow down, and ageing will emerge as a challenge to the economy as baby boomers retire from the labor force. Such demographic changes will imply shifts of trends for labor and investment. Careful policymaking aiming on increasing labor supply and investment will help to lessen the potential negative effect from ageing. Also, increasing healthcare coverage will be effective to reduce medical expenses in the long run.

6. Regional Housing Trends

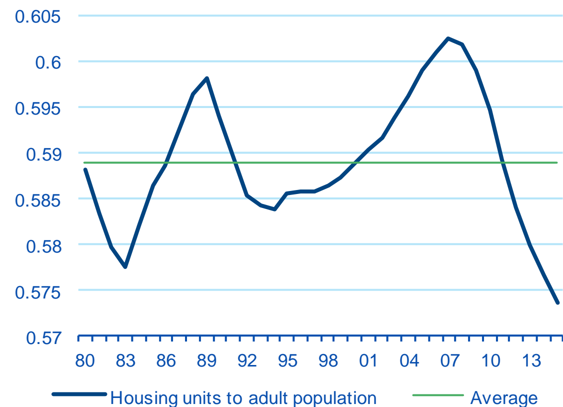
An important element of the recovery at the regional level has been the housing market. As such, the outcome of the housing sector will have implications not only for home prices in 2017 and beyond, but also for overall economic conditions at the state-level. The national median existing home sales price in 2016 increased 5.5% to $232K from $220K in 2015. Home price appreciation was particularly strong in the second half of the year, which together with the somewhat higher mortgage interest rates resulted in a decline in housing affordability. Home prices were driven by a lack of homes for sale in the existing homes market (Figure 1), which was a result of many homeowners having locked in low interest rates through purchases or refinancing since the financial crisis and not wanting to get out these beneficial contracts by selling, as well as by insufficient new construction. Housing starts have been low for such an extended period of time. The ratio of housing units to adult population in 2016 reached its lowest level since 1980 (Figure 2). The causes for the low rate of new construction are still not well documented, but lower availability of skilled construction labor and subcontractors, high regulatory burdens and higher land prices are among the possible culprits.

Figure 6.1 Existing Homes for Sale (Seasonally Adjusted) to Housing Stock, Ratio (%)



Source: BBVA Research, NAR and Census Bureau

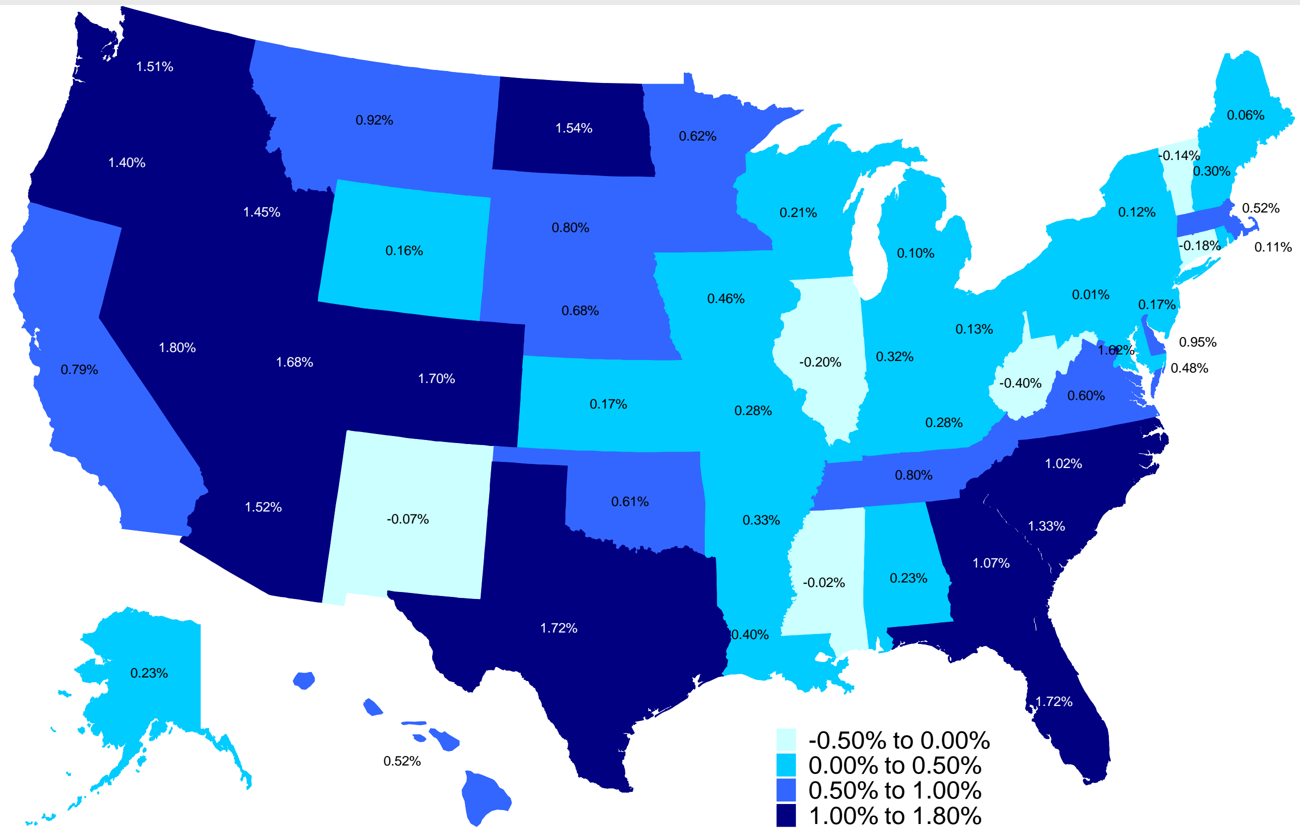
Figure 6.2 Housing Units to Adult Population, Ratio



Source: BBVA Research and Census Bureau

In the long-run, housing demand is determined by population growth, which varied significantly from state to state between 2014 and 2016 (Figure 3). During this period, several states such as West Virginia, Illinois, Vermont, New Mexico and Missouri lost population, while multiple states, predominantly in the South and West regions, posted solid gains.

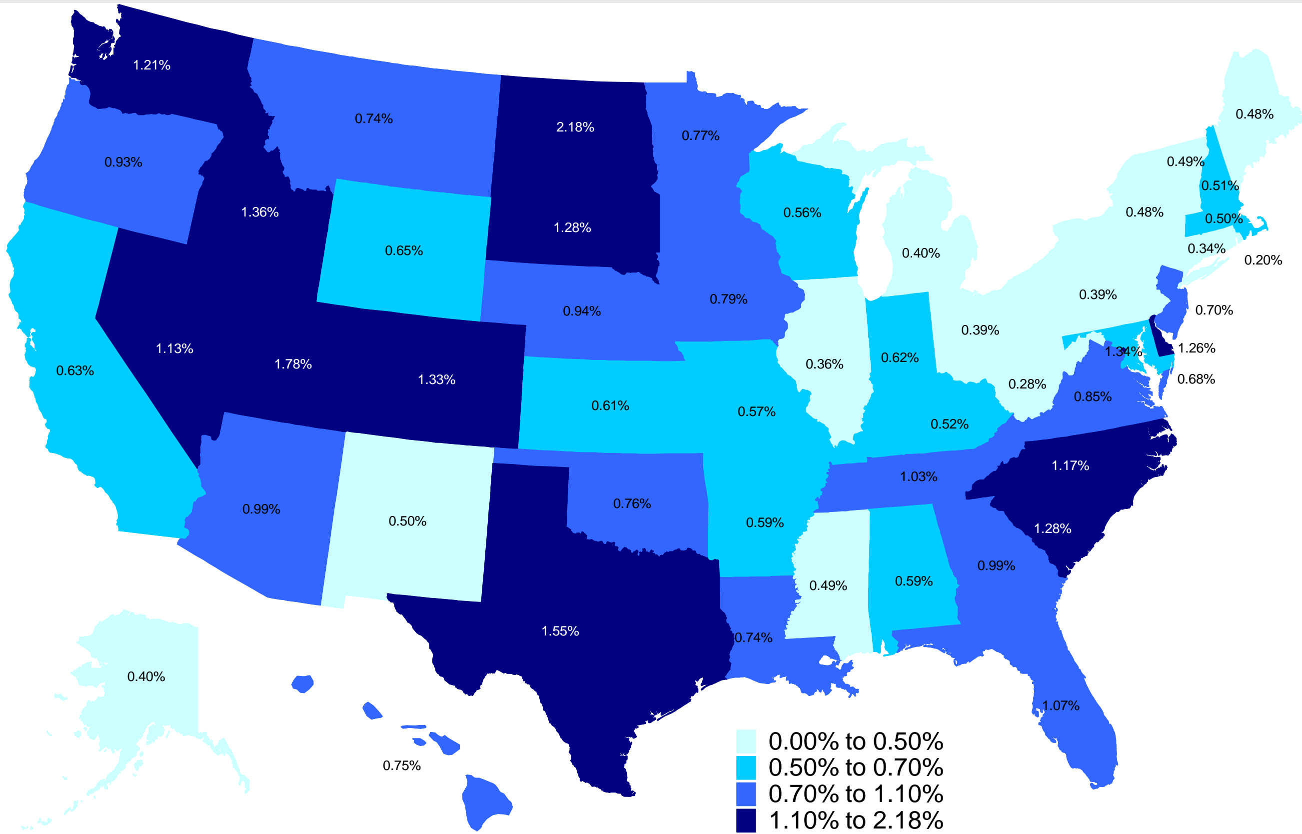
Figure 6.3 Demand: Average Annual Population Growth by State, 2014-2016 (%)



Source: BBVA Research and Census Bureau

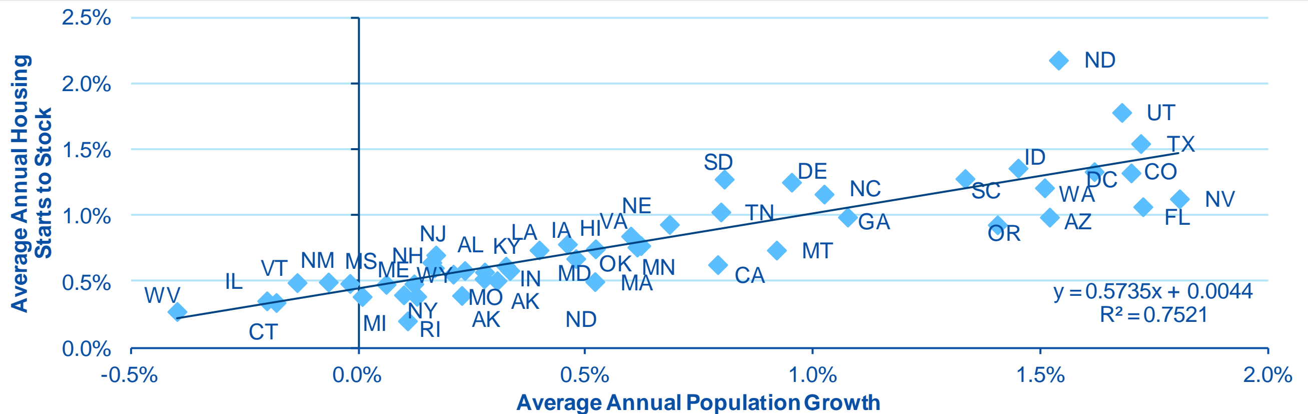
Construction by state did respond proportionately to the strength of the local demand (Figure 4 and Figure 5). This indicates that the factors causing the low housing stock to population ratio nationwide are likely present everywhere. North Dakota, South Dakota and Utah are among the states where housing starts were higher than what would have been expected based on population growth, while Nevada, Florida, Arizona, California, Oregon and Washington were among the ones where it was lower. Not surprisingly, the second group of states is the one where price appreciation in 2016 was the strongest (Figure 6).

Figure 6.4 Supply: Average Annual Housing Starts to Housing Stock by State, 2014-2016 (%)



Source: BBVA Research and Census Bureau

Figure 6.5 Demand vs. Supply, 2014-2016 (%)



Source: BBVA Research and Census Bureau

Figure 6.6 FHFA Home Price Index 2016 (year-over-year %)

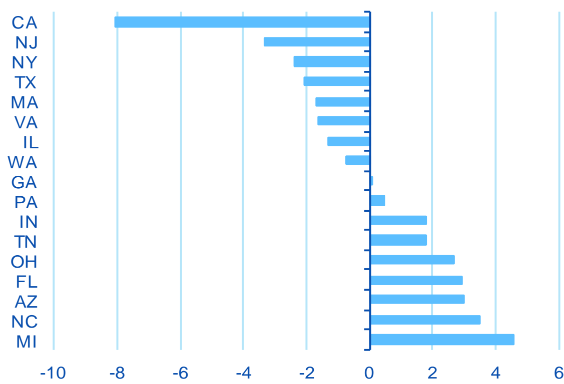
Source: BBVA Research and FHFA

Looking at the housing to population ratio, the shortage is clearly the strongest in California (Figure 7). The effect of suboptimal new construction in the 2014-2016 period in this state was not only higher prices, but also further aggravation of the structural housing problems, illustrated by the ratio of housing units to adult population, which has gone from 1.3 percentage points below the U.S. average in 1980, to 7.5 percentage points below it in 2010, and over 8 percentage points lower in 2013. The causes for the divergence between California and the U.S. average can be explained by California's more cumbersome regulations[10] compared to other states and geographic limitations[11] in coastal areas, which lead to higher prices and spill over into inland areas.[12] Population growth remains solid due to the state's economic attractiveness, especially for highly educated Millennials. With this in mind, if something doesn't change (regulation being the most likely

10: Kok, N. et al. (2014). Land Use Regulations and the Value of Land and Housing: An Intra-Metropolitan Analysis. Journal of Urban Economics http://doi.org/10.1016/j.jue.2014.03.004
11: Saiz, A. (2010). The Geographic Determinants of Housing Supply. The Quarterly Journal of Economics. https://mitcre.mit.edu/wp-content/uploads/2014/03/The-Quarterly-Journal-of-Economics-2010-Saiz-1253-96.pdf
12: Taylor, M. (2015). California's High Housing Costs. Legislative Analyst's Office (State of California). http://www.lao.ca.gov/reports/2015/finance/housing-costs/housing-costs.pdf

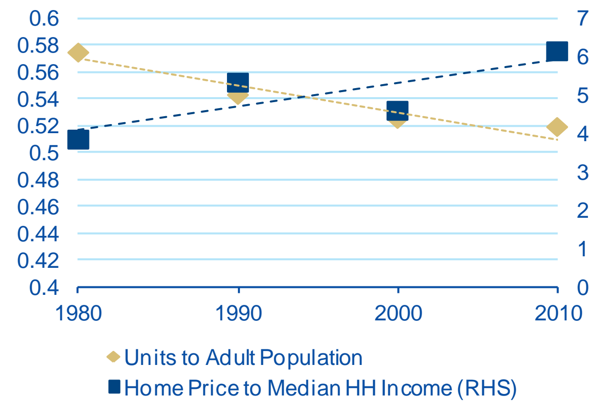
area where changes can be made), the housing to population ratio is likely going to continue declining further in the foreseeable future, making affordable housing ever scarcer (Figure 8) and eventually negatively affecting the long-term competitiveness of the state. Furthermore, constricted housing supply also exposes the state to higher risk of housing price bubbles, as markets with inelastic supply have been found to exhibit greater price volatility.[13]

Figure 6.7 Housing Units to Adult Population in Large States in 2013, Difference from U.S. Average (Percentage Points)



Source: BBVA Research, NAR and Census Bureau

Figure 6.8 Housing Units to Adult Population and Median Home Price to Median Household Income in California (Ratios)



Source: BBVA Research and Census Bureau

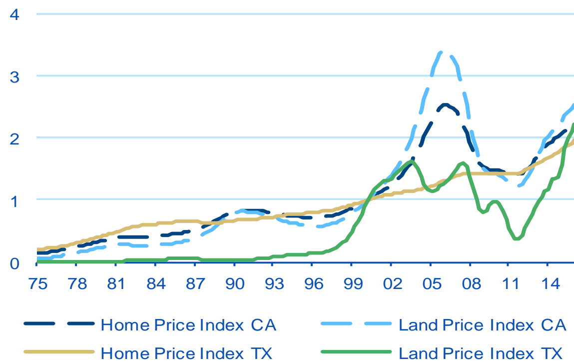
Looking at the housing to population ratios, what's interesting is that the ratio for Texas has also fallen below the national average. The ratio has gone from 2.5 percentage points above the national average in 1990, to a full 2.0 percentage points below it in 2013. If this situation continues, Texas' reputation for affordable housing will be at risk. The situation in Texas is likely related to higher residential land prices (Figure 9), which are a result of the high demand from the sustained strong population growth and possibly some metropolitan areas having reached a point where urban sprawl starts to incur high marginal costs such as long commute times. In the end, Texas is likely to experience sustained home price appreciation, at least over the mid-term, as long as population growth remains positive.

While the ratio of housing units to adult population in California and Texas has declined over the recent decades, the one for Florida has remained relatively stable since 1980, despite the construction boom experienced before the subprime crisis. By now, the excess housing inventory has been absorbed by the post-crisis population growth. The main challenge going forward will be the decrease in affordability, as indicated by the difference in the ratio of median home price and income per capita in 2013 and 2016 (Figure 10). Affordability is expected to continue to decline in 2017 as home price appreciation is expected to remain strong, amid higher mortgage interest rates.

13: Wheaton, W. et al. (2014). Error Correction Models of MSA Housing 'Supply' Elasticities: Implications for Price Recovery. MIT Department of Economics Working Paper No. 14-05. http://dx.doi.org/10.2139/ssrn.2382920

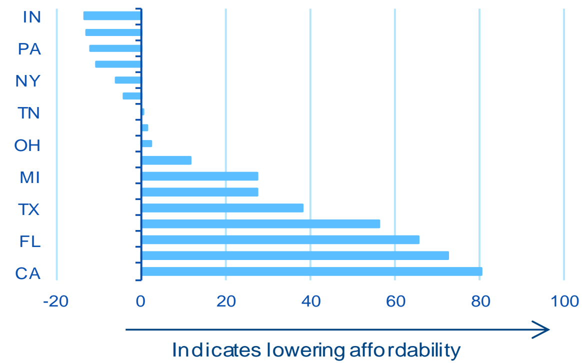
While California, Texas and Florida are experiencing strong population growth and price appreciation, a large group of states, primarily in the Northeast and Midwest are experiencing the opposite. Low population growth over the last three years, or even negative one in West Virginia, Illinois, Connecticut and Vermont, has resulted in low home price growth. As a result, the composite housing affordability index for the Northeast has increased in 2016 to an almost record level (Figure 11), and was 42% higher than the average for the region over the 1989-2004 period. In regards to the Midwest, while affordability has declined significantly since 2012, it still remains considerably higher than in the other regions. The reason affordability has not increased in 2015 and 2016 like in the Northeast is the stronger home price growth despite strong income growth (Figure 12). The solid housing affordability in both regions can be an asset over the long run, but only if the states in these regions find a way to improve their overall economic attractiveness and support population growth, especially by retaining and attracting educated Millennials.

Figure 6.9 Housing Price and Residential Land Price Indices, California and Texas (2Q00=1)



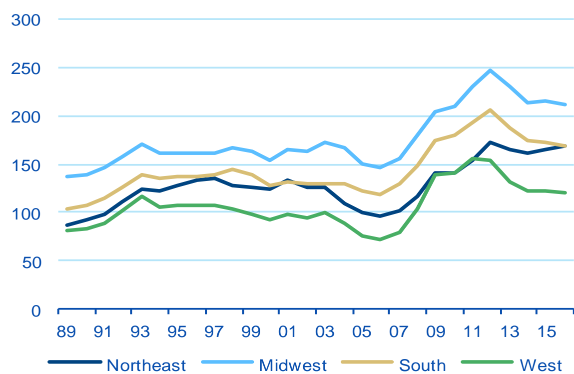
Source: BBVA Research and Lincoln Institute for Land Policy

Figure 6.10 Median Home Price to Income Per Capita Ratio, 2013-2016 Difference (Percentage Points)



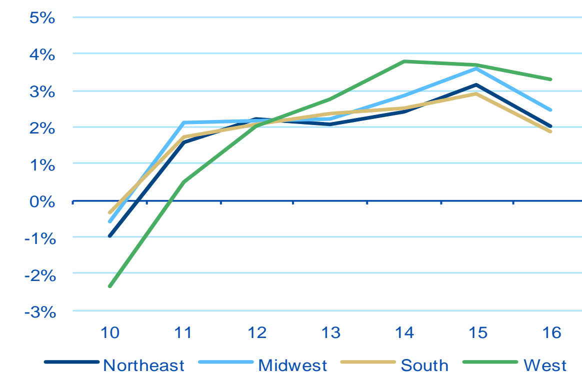
Source: BBVA Research calculations based on data from Zillow and BEA

Figure 6.11 Housing Affordability Index, (Index=100) when Median Family Income Qualifies for 80% Mortgage on a Median Priced Home



Source: BBVA Research and NAR

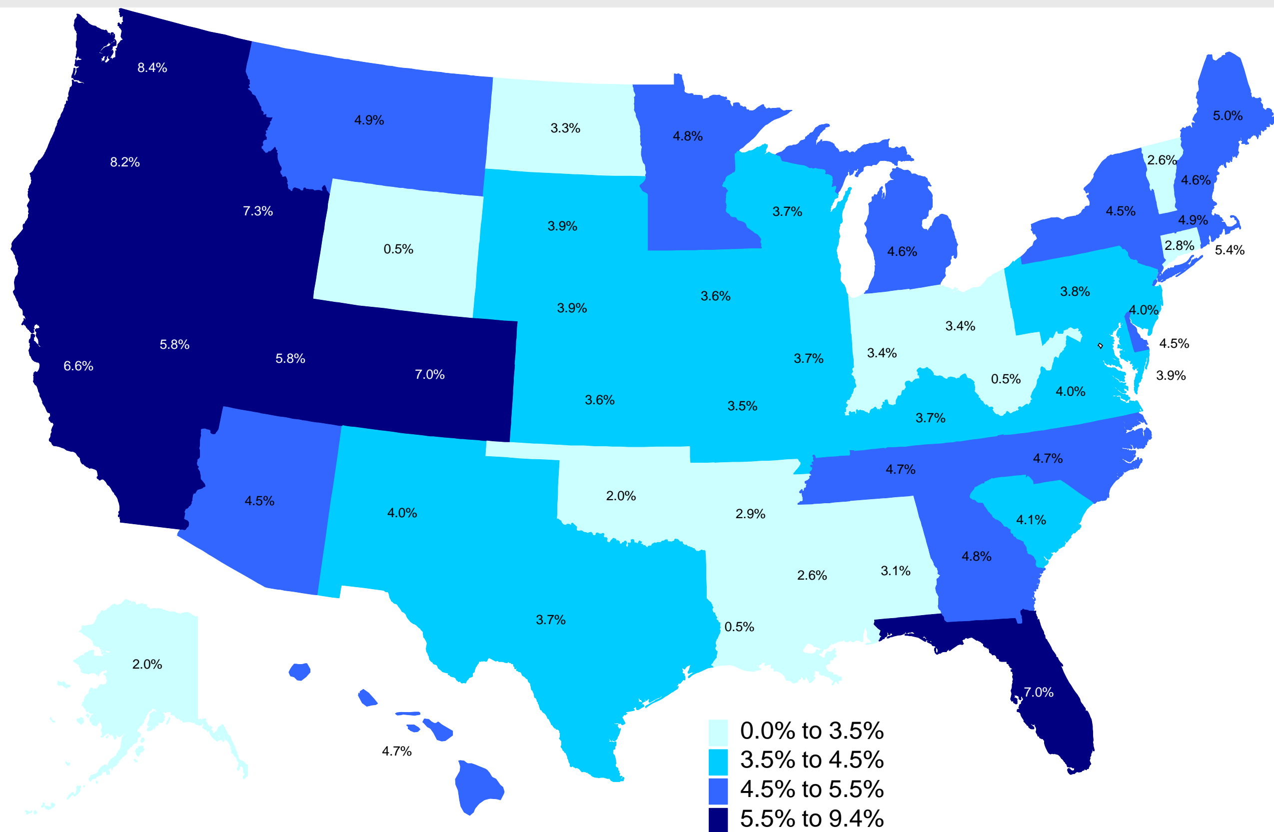
Figure 6.12 Median Family Income (year-over-year %)



Source: BBVA Research and NAR

In light of our baseline macroeconomic forecast, which implies moderate economic growth in the short-to mid-term, the tightness of the existing homes market, as well as the suboptimal supply of new housing units at the national level and in many large states, we expect solid home price appreciation to continue going forward. Home price growth will be strong in the West region, and will also remain strong in Florida, while it is expected to decelerate in Oil and Gas exposed states. In most parts of the Northeast and Midwest, home price appreciation should remain low to moderate. The strong pace of home price appreciation in the Southeast ex-Florida region should slow down to some degree, on the account of an anticipated slight slowdown in economic expansion in this part of the U.S.

Figure 6.13 FHFA Home Price Index 2017 Forecast (%, year-over-year)



Source: BBVA Research

Interest rates, an important factor for the housing market, are expected to remain low compared to historical figures. Under our baseline scenario, we see the 30 year fixed mortgage interest rate gradually increasing from an average of 4.3% in 2017 to 4.8% in 2020. The extended period of relatively low interest rates will support the sustained recovery of the housing market, which now relies on increased supply of new units, particularly entry-level single-family homes for Millennials that start forming families. Past 2017, home price growth should slow down, but very gradually. An upside scenario, where incomes increase at a fast rate would imply an extended period of strong home price growth, despite higher interest rates

and stronger impetus for new housing construction. A downside scenario, where economic headwinds push the country into recession, would imply home prices decelerating sharply or declining, depending on the severity of the downturn, with more than likely declines in prices in markets where they have decoupled significantly from fundamentals, primarily personal income. In any case, our analysis indicates that any misalignments in markets where they might exist are significantly lower than in the 2000s, and the dangers of an economic crisis emanating from or being reinforced by a downturn in the housing market are low this time around.

7. Tables

Table 7.1 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	2.3	2.4	2.1	2.0
Real GDP (Contribution, pp)										
PCE	1.5	1.0	1.0	1.9	2.2	1.9	1.5	1.4	1.3	1.3
Gross Investment	0.7	1.6	1.0	0.7	0.8	-0.3	0.5	0.5	0.5	0.6
Non Residential	0.9	1.1	0.4	0.8	0.3	-0.1	0.4	0.4	0.4	0.5
Residential	0.0	0.3	0.3	0.1	0.4	0.2	0.2	0.1	0.1	0.0
Exports	0.8	0.4	0.4	0.6	0.0	0.0	0.6	0.6	0.5	0.6
Imports	-0.8	-0.4	-0.2	-0.7	-0.7	-0.2	-0.6	-0.4	-0.6	-0.6
Government	-0.6	-0.4	-0.5	-0.2	0.3	0.1	0.2	0.3	0.2	0.3
Unemployment Rate (%, average)	8.9	8.1	7.4	6.2	5.3	4.9	4.5	4.2	4.3	4.3
Avg. Monthly Nonfarm Payroll (K)	132	186	184	213	240	208	185	171	167	181
CPI (YoY %)	3.1	2.1	1.5	1.6	0.1	1.3	2.6	1.9	2.0	2.1
Core CPI (YoY %)	3.2	2.1	1.5	1.6	0.1	1.3	2.2	1.9	2.0	2.0
Fiscal Balance (% GDP)	-7.9	-6.4	-3.3	-2.8	-2.8	-3.1	-3.2	-2.4	-2.9	-3.1
Current Account (bop, % GDP)	-3.0	-2.8	-2.2	-2.8	-2.4	-2.8	-3.0	-3.1	-3.1	-3.2
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	6.6	6.2	6.1	5.2
10-Yr Treasury (% Yield, eop)	1.98	1.72	2.90	2.21	2.24	2.49	2.70	2.96	3.25	3.35
Brent Oil Prices (dpb, average)	111.3	111.7	108.7	99.0	52.9	45.2	57.0	58.7	59.6	59.6

(f): forecast
Source: BBVA Research

Table 7.2 U.S. State Real GDP Growth, %

	2013	2014	2015	2016 (e)	2017 (f)	2018 (f)
Alaska	-4.5	-3.3	-0.6	-2.3	-1.0	0.3
Alabama	0.8	0.1	0.9	1.6	1.9	1.6
Arkansas	2.8	1.4	0.5	2.5	2.1	2.5
Arizona	0.5	1.5	1.4	1.8	1.7	1.6
California	2.5	3.8	3.8	2.6	3.3	3.7
Colorado	3.2	4.6	3.2	1.7	3.0	2.7
Connecticut	-1.5	-0.4	0.7	0.7	1.2	0.7
Delaware	-1.7	4.8	2.7	1.6	2.7	2.5
Florida	1.9	2.9	4.0	2.8	3.6	3.3
Georgia	1.1	2.5	2.6	4.0	2.3	2.4
Hawaii	1.1	0.3	2.3	2.1	1.7	1.9
Iowa	0.8	2.6	1.3	-0.9	2.2	1.4
Idaho	3.1	1.8	2.7	2.6	2.5	2.1
Illinois	-0.2	1.1	1.8	1.5	1.4	1.7
Indiana	2.4	2.1	1.4	1.9	2.4	1.9
Kansas	0.2	1.3	0.8	1.1	1.1	1.4
Kentucky	1.0	0.6	1.4	0.0	1.6	1.4
Louisiana	-2.8	1.4	1.0	-0.8	0.3	2.0
Massachusetts	-0.4	1.2	3.8	1.6	2.6	2.3
Maryland	0.0	1.0	2.0	0.4	1.2	0.9
Maine	-0.8	1.7	1.1	0.1	1.0	0.7
Michigan	1.6	1.9	1.6	2.2	1.9	1.1
Minnesota	2.2	2.4	1.9	-1.2	2.1	2.6
Missouri	1.9	0.2	1.7	2.0	1.3	1.0
Mississippi	-0.2	-0.9	0.5	2.5	0.9	0.3
Montana	0.7	1.4	2.0	1.0	2.2	2.3
North Carolina	1.5	1.9	2.0	2.4	1.9	1.8
North Dakota	2.5	6.7	-2.6	-7.7	0.9	4.1
Nebraska	2.5	3.0	0.9	1.5	2.4	2.2
New Hampshire	0.5	1.8	1.4	3.0	0.8	0.4
New Jersey	1.5	0.2	2.0	1.8	2.1	1.0
New Mexico	-0.6	2.5	1.7	-1.4	0.8	1.1
Nevada	0.6	2.1	1.6	1.9	3.6	3.8
New York	0.1	0.8	0.9	1.6	1.7	1.7
Ohio	1.1	2.6	1.8	1.1	1.5	1.8
Oklahoma	3.9	3.9	2.2	-2.7	1.6	1.7
Oregon	-1.5	1.3	4.9	4.5	2.7	2.4
Pennsylvania	1.9	1.8	2.8	0.1	1.2	1.2
Rhode Island	0.5	1.0	1.4	0.5	1.1	0.5
South Carolina	1.9	2.8	2.5	2.8	1.9	1.5
South Dakota	1.3	0.7	2.6	-0.6	3.1	1.6
Tennessee	1.6	1.7	2.7	2.2	2.3	2.1
Texas	4.8	4.8	4.8	0.5	3.5	3.8
Utah	2.5	3.1	3.4	3.7	4.0	3.3
Virginia	0.1	0.2	2.0	0.9	0.9	0.6
Vermont	-0.5	0.2	0.4	2.1	2.2	1.8
Washington	2.2	2.8	3.0	3.7	2.6	2.7
Wisconsin	0.7	2.2	1.1	1.2	1.2	1.3
West Virginia	0.6	1.0	1.4	-2.2	1.1	0.2
Wyoming	1.0	1.7	-0.1	-6.0	-2.4	0.5

(e): estimated
(f): forecast
Source: BBVA Research

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