Global Economics Analyst

A Catalyst for Tighter Fed Policy

- Although 2016 has been a disappointing year overall, global growth is now accelerating to the top of the 3%-3½% range that has prevailed throughout the past five years. The main reason is the swing in the financial conditions impulse from sharply negative to modestly positive, both in the US and in parts of the emerging world.
- US President-elect Donald Trump and the Republican-led Congress are likely to pass a fiscal stimulus package, which could provide a further temporary growth boost starting in mid-2017. However, aggressive implementation of Trump's trade and immigration policies would likely weigh on growth.
- While Trump's proposed policies have ambiguous effects on growth, they are likely to reinforce the gradual upward move in inflation that is already underway, as output and employment are now close to potential. Moreover, we remain skeptical that the equilibrium interest rate has fallen as much as widely believed. We therefore still expect the Federal Reserve to raise the funds rate substantially more than implied by market pricing.
- Tighter Fed policy is likely to put further upward pressure on global long-term rates. Faced with significant slack and low core inflation, the ECB will try to insulate itself from the resulting tightening in financial conditions with an extension of its asset purchase program. The BoJ meanwhile will focus on the implementation of its yield control policy. Greater interest rate divergence should put continued upward pressure on the dollar.
- The risks to our baseline forecast are skewed to the downside. First, much remains unclear about the economic policies of the incoming Trump administration, and the positive initial market reaction could reverse if the policy mix looks more unfavorable than now widely assumed. Second, Europe could re-emerge as a source of political risk, with the French election at the top of the list of concerns. Third, a stronger dollar could lead to renewed pressure on emerging markets, especially China.

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Once again, global growth disappointed expectations in 2016. We currently estimate that real GDP rose 3.0%, below the 3.5% we and the consensus predicted a year ago and toward the bottom end of the 3% to 3½% range seen over the past five years. And the weakness was quite widespread. Among the major economies shown in Exhibit 1, only Spain and China beat the consensus forecast. Meanwhile, many of the biggest DM and EM economies—including the United States, Japan, Italy, the United Kingdom, Italy, and Brazil—fell significantly short.

Exhibit 1: Global Growth Disappointed Expectations in 2016...

2016 Real GDP Growth Percent Change yoy	2011-2015 Avg	Forecast As of Nov. 2015 Cons*	GS	Actual**	Surprise
US	2.1	2.6	2.2	1.6	-1.0
Japan	0.6	1.3	1.0	0.8	-0.5
Euro Area	0.7	1.7	1.7	1.6	-0.1
Germany	1.6	1.9	1.8	1.7	-0.2
France	1.0	1.5	1.4	1.3	-0.2
Italy	-0.7	1.3	1.6	0.8	-0.5
Spain	-0.1	2.7	2.5	3.2	0.5
UK	2.0	2.4	2.7	2.1	-0.3
China	7.8	6.5	6.4	6.7	0.2
India***	6.6	7.8	7.8	6.8	-1.0
Russia	1.2	-0.1	1.5	-0.2	-0.1
Brazil	1.0	-1.0	-1.6	-3.5	-2.5
Developed Markets	1.6	2.2	2.0	1.6	-0.6
Emerging Markets	5.3	4.8	4.9	4.3	-0.5
World	3.4	3.5	3.5	3.0	-0.5

* Consensus Economics forecast as of November 2015.
** Goldman Sachs forecast as of November 2016.
*** Fiscal year basis, 2016 is India FY17 (Q2 2016 - Q1 2017).

Source: Consensus Economics, Goldman Sachs Global Investment Research

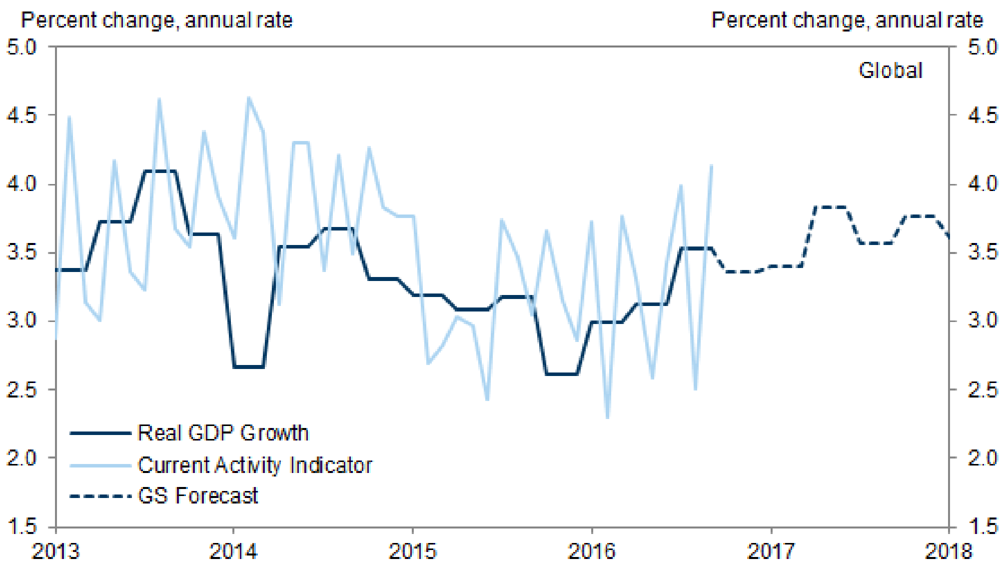
Acceleration Already in Train

But the disappointing numbers in Exhibit 1 are somewhat stale because the weakness was due to statistical carryover from late 2015 and very slow growth early in 2016. By contrast, the more recent sequential global growth pace—as measured either by global real GDP or our top-down current activity indicator—is already notably better, as shown in Exhibit 2.

Why the improvement? In our view, the main reason for the acceleration lies in financial conditions. Since the spring, we have argued that US growth would soon pick up because the "financial conditions impulse"—the impact of lagged changes in financial conditions on growth—would soon go from sharply negative in 2015 and early 2016 to mildly positive in late 2016 and 2017.[1]

1. See, for example, Jan Hatzius and Chris Mischaikow, "Upside Risks from Financial Conditions," *US Daily*, April 19, 2016.

Exhibit 2: ... But Has Started to Accelerate

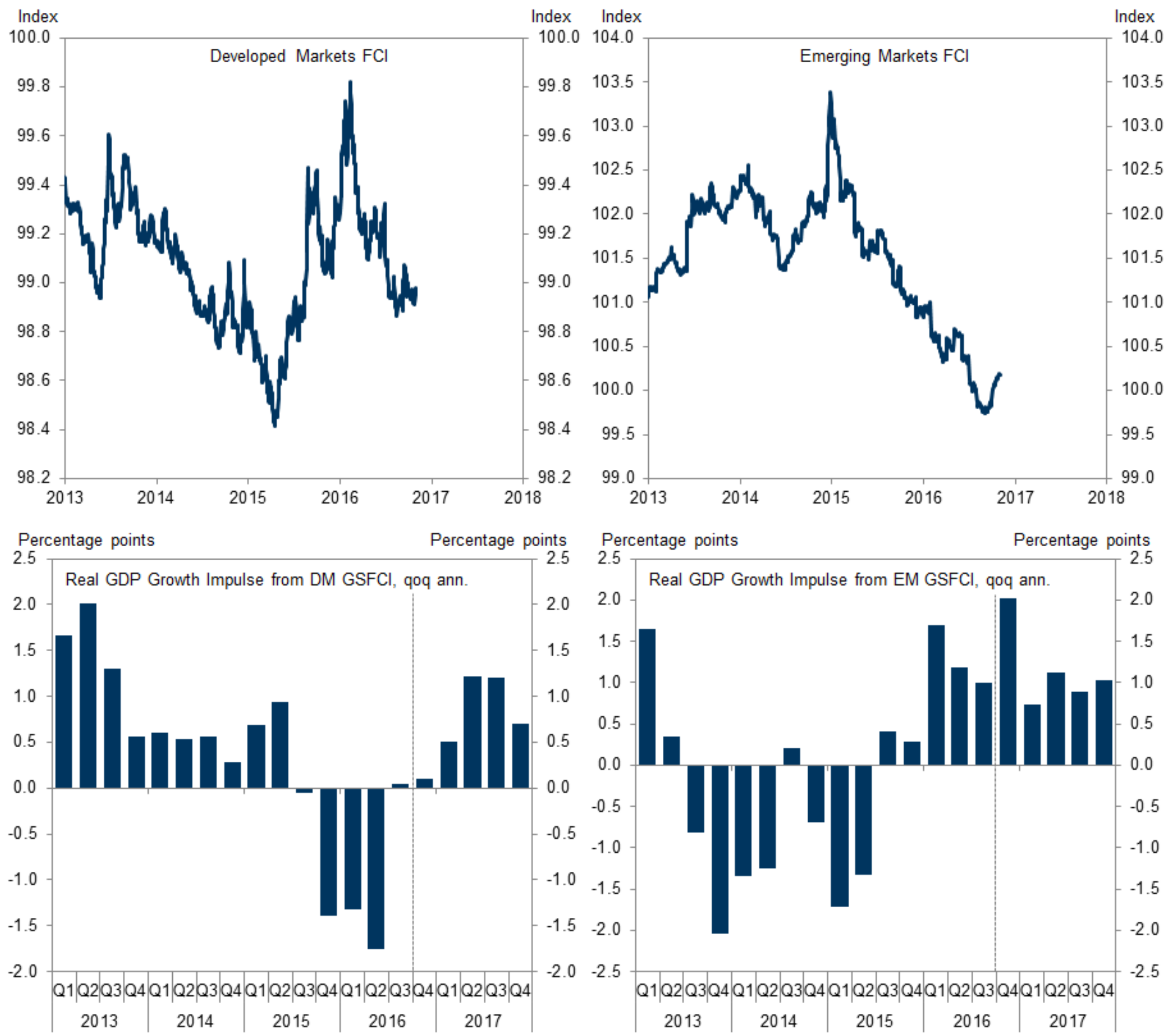


Source: Goldman Sachs Global Investment Research

We have now broadened this analysis to the global level, and the same basic logic applies. In the advanced economies, Exhibit 3 shows that financial conditions were a clear positive for growth in 2013, largely because of easier monetary policy. The impulse turned sharply negative in 2015 and early 2016, to the tune of about -1 percentage point (pp). The reasons were a steep trade-weighted appreciation of the US dollar and several episodes of weakening risk markets. With currencies and risk markets more stable now, the comparisons have improved markedly and this drag has turned into a boost. If financial conditions remain around current levels, this positive impulse should persist for most of 2017.

In the emerging world, the FCI impulse was almost continuously negative in 2014-2015, but started to turn more positive in early 2016, just as the concern about an emerging market crisis reached its crescendo. At this point, we estimate that past changes in financial conditions are contributing about +1pp to EM growth, up from around -1pp in 2014-2015. And if conditions stay near current levels, we project a continued boost through 2017.

Exhibit 3: Positive Impulse from Financial Conditions in 2017



Source: Goldman Sachs Global Investment Research

The FCI impulse analysis suggests that the recent improvement in global growth momentum will persist. Thus, our 2017 GDP forecasts in Exhibit 4 point to global growth at the top end of the 3%-3½% average pace of the past five years. Our baseline is for a moderate acceleration in the United States and the more beaten-down parts of the emerging world, coupled with broad stability in the Euro area, Japan, and China. We expect global growth to accelerate a bit further in 2018 as EM growth continues to normalize and DM growth moves broadly sideways.

Exhibit 4: The GS Global Growth Outlook

Real GDP Growth Percent Change yoy	2015	2016*	2017 (f) GS	2017 (f) Cons**
US	2.6	1.6	2.4	2.1
Japan	0.5	0.8	1.2	0.8
Euro Area	1.9	1.6	1.4	1.3
Germany	1.5	1.7	1.4	1.4
France	1.2	1.3	1.4	1.1
Italy	0.6	0.8	0.8	0.8
Spain	3.2	3.2	2.4	2.3
UK	2.2	2.1	1.4	0.9
China	6.9	6.7	6.5	6.4
India***	7.6	6.8	7.4	7.7
Russia	-3.7	-0.2	2.6	1.2
Brazil	-3.8	-3.5	1.1	1.0
Developed Markets	2.1	1.6	1.9	1.7
Emerging Markets	4.4	4.3	4.9	5.1
World	3.2	3.0	3.5	3.3

* GS forecast as of November 2016.
** Bloomberg consensus forecasts as of October 2016.
*** Fiscal year basis, 2016 is India FY17 (Q2 2016 - Q1 2017).

Source: Bloomberg, Goldman Sachs Global Investment Research

Trump Agenda Set to Lift Inflation and Rates

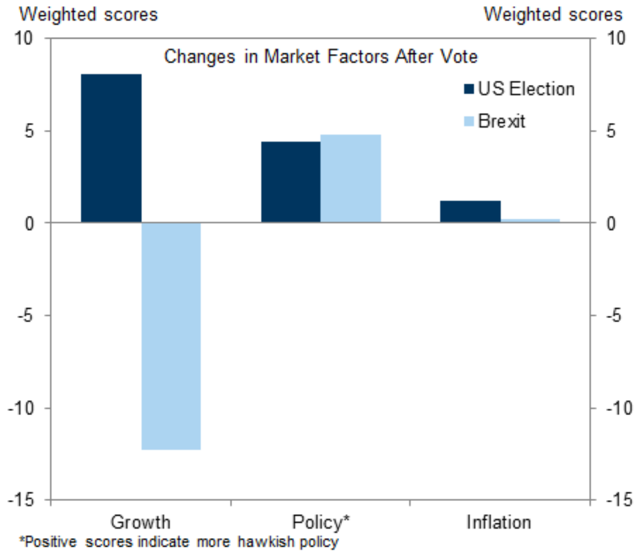
Our financial conditions analysis largely predates last week's election of Donald Trump as the 45th President of the United States. And contrary to many predictions that a Trump victory would be a risk-off event like Brexit, markets have so far reacted positively. Exhibit 5 shows the results of a model that extracts shifts in market views on growth, inflation, and policy from the correlation patterns across a large range of financial assets.[2] Markets have traded the Trump victory primarily as a sizable positive growth shock, a small higher inflation shock and a small adverse policy shock (which probably mainly reflects concerns about protectionism).

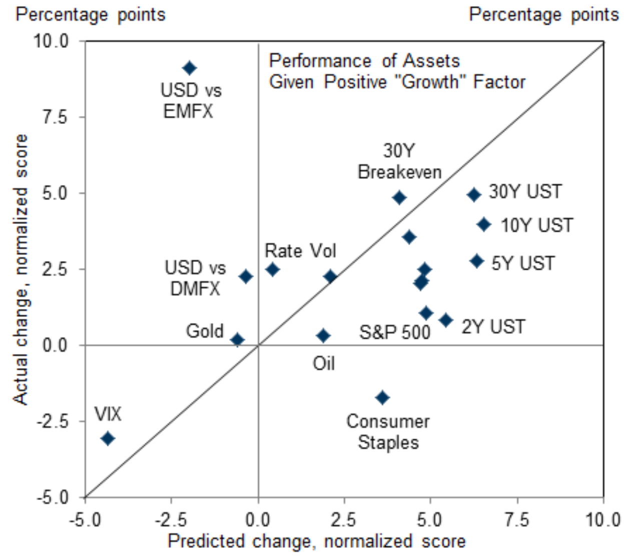
Is this positive response warranted? To get a feel for the answer, Exhibit 6 starts by summarizing some of the key economic policies that have been proposed by the Trump campaign, as well as our current expectations of what will ultimately be implemented. These are based on a combination of the proposals, our assessment of the new administration's likely priorities, and our sense of what Congress might be willing to pass in areas that require new legislation. Needless to say, our assumptions are subject to a great deal of uncertainty at this early stage and will likely change significantly over time.[3]

2. See Zach Pandl, "The Market Reaction to Trump," *US Daily*, November 10, 2016.

3. For more detail on the different proposals and our assumptions, see Sven Jari Stehn and Alec Phillips, "Economic Implications of the Trump Agenda," *US Economics Analyst*, November 12, 2016.

Exhibit 5: Market Views of Trump vs. Brexit





Source: Goldman Sachs Global Investment Research

Exhibit 6: Trump Proposals and Our Expectation

	Fiscal				Fed	Tariffs		Immigration	
	Infrastructure ($bn/yr)	Federal Spending	Individual Taxes ($bn/yr)	Corporate Taxes ($bn/yr)	View on r* (bp)	US (%)	Foreign (%)	Population Growth (pp/yr)	Labor Force (m)
Full Trump Proposal	86	0	250	174	50	11	11	-0.1	-2.5
GS Expectation	40	10	70	30	25	4	4	-0.1	
Start Date	2018Q1	2018Q1	2017Q3	2017Q3	2018Q1	2017Q1	2017Q3	2017Q3	2017Q3

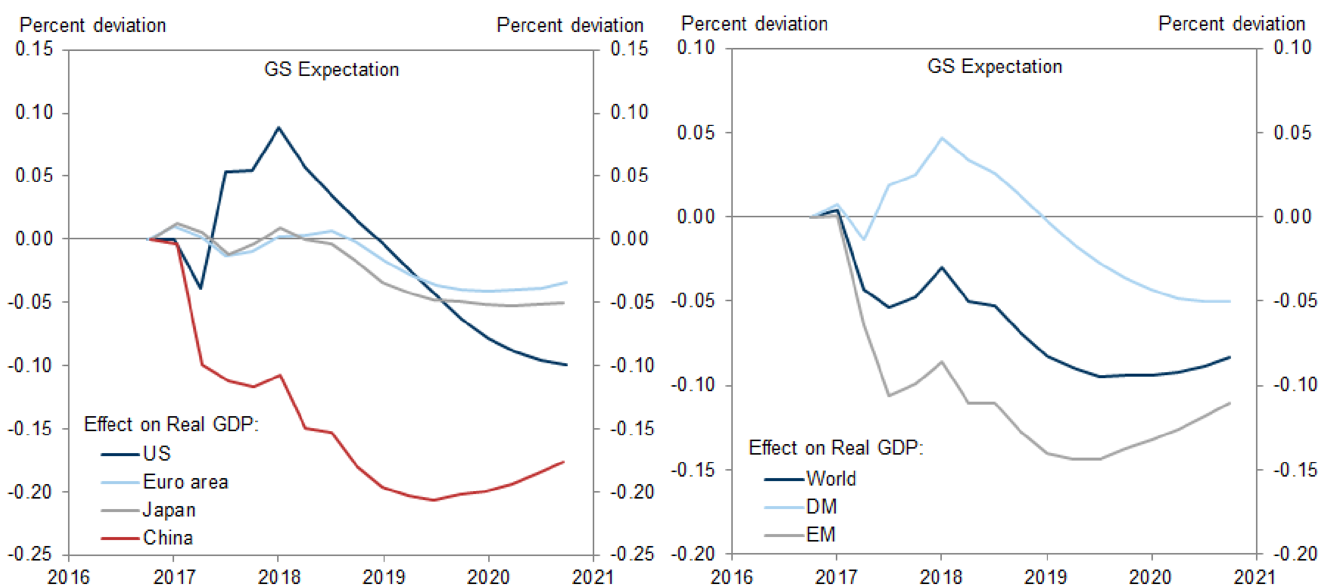
Source: Goldman Sachs Global Investment Research

In each of the four areas, our baseline expectation is that the new administration will implement a slimmed-down version of the more aggressive measures in Exhibit 6. On the fiscal side, we expect an easing of ¾% of GDP starting in the middle of 2017, skewed toward the tax side; the main reason why we assume less than the campaign has proposed is that we believe congressional Republicans—who only have a four-seat majority in the Senate—will be somewhat cautious about increasing the budget deficit. On trade, our working assumption is an increase in the average tariff rate by about 4pp, equivalent to roughly one-third of the overall impact of the tariff hikes on China and Mexico that Trump had proposed in the campaign. On immigration, we expect a reduction in the inflow of immigrants equivalent to a reduction in annual population growth of 0.1pp. And on the Fed, we expect a slightly more hawkish reaction function—summarized as a perceived equilibrium funds rate that is 25bp higher—as more conservative economists are appointed to the Board of Governors.

What are the potential implications of these policy packages for the global economy? To answer this question in a coherent way, we simulate different combinations of the proposed policies using the Federal Reserve's large-scale model FRB/US and our global macro model. We start with a baseline run benchmarked to the median forecast in the FOMC's Summary of Economic Projections in September. We then simulate the implications of our assumed package of measures for global GDP as well as US unemployment, inflation, and short-term interest rates.[4]

Exhibit 7 shows the impact on the level of global GDP in terms of deviations from the baseline. The near-term effects are positive because the fiscal stimulus package boosts US demand and this has positive spillover effects to other economies. However, the longer-term effects on US growth are negative because the fiscal boost peters out and the other policies—higher tariffs, reduced immigration, and tighter Fed policy—weigh on growth. This has negative spillover effects on other economies, especially in EM economies with partially fixed exchange rates or dollarized economies. The reason for the greater impact there is that the Trump agenda is likely to result in higher US interest rates and therefore a stronger dollar.

Exhibit 7: Global Economic Implications of the Trump Agenda

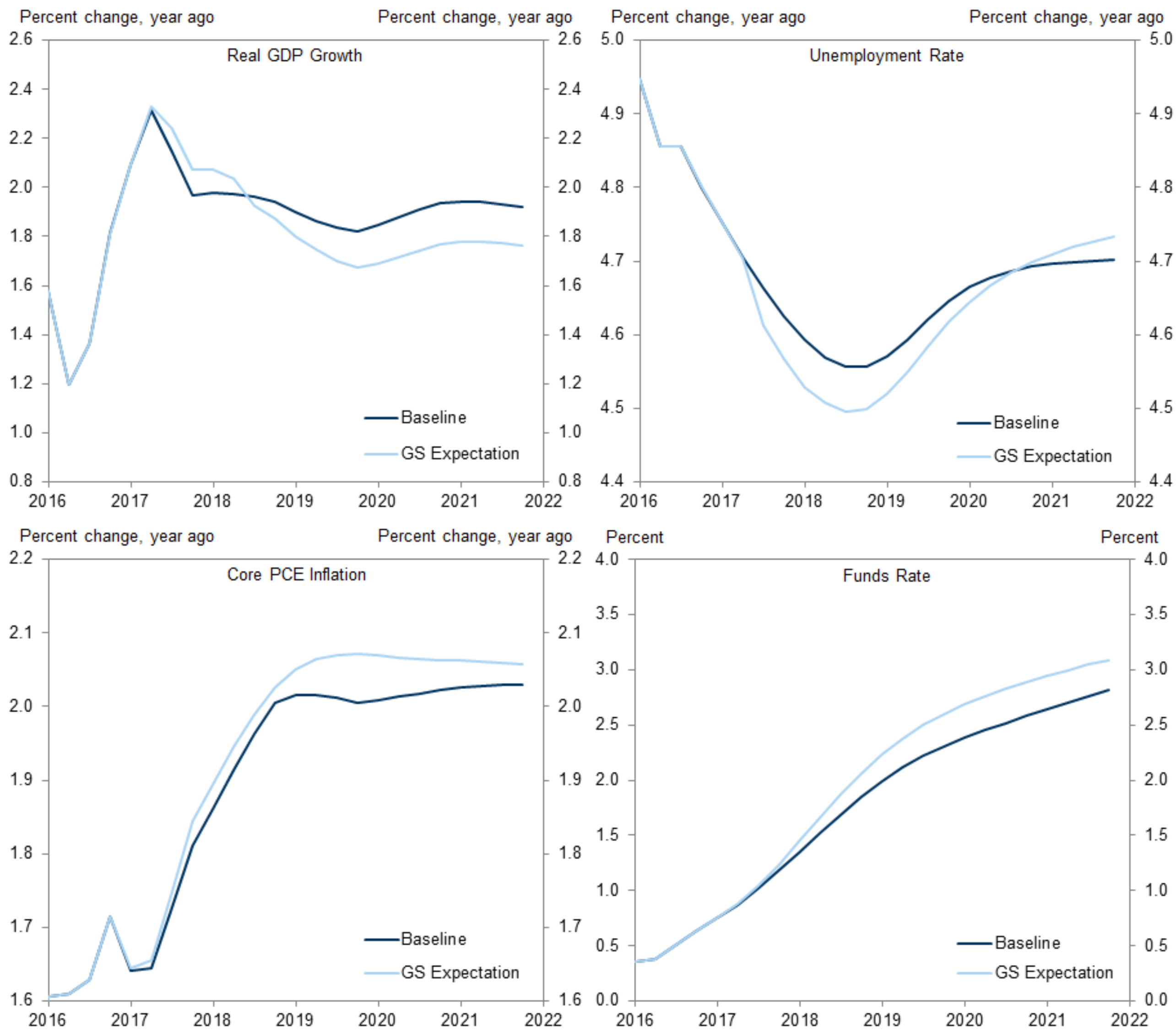


Source: Goldman Sachs Global Investment Research

[4] These simulations are described in much greater detail in Sven Jari Stehn and Alec Phillips, "Economic Implications of the Trump Agenda," *US Economics Analyst*, November 12, 2016, as well as Sven Jari Stehn and Nicholas Fawcett, "Global Economic Implications of the Trump Agenda," *Global Economics Analyst*, November 13, 2016.

Exhibit 8 shows the effects on the US economy in more detail, including GDP growth, the unemployment rate, core PCE inflation, and the funds rate. Growth is modestly above the baseline initially but falls below the baseline by late 2018. The unemployment rate falls below the baseline in the early years but then rises more sharply than in the baseline. And both inflation and interest rates are modestly above the baseline throughout the simulation. Consistent with these simulations, we raised US annualized real GDP growth by ¼pp in 2017H2, lifted year-over-year core PCE inflation to 2.2% in 2019 and lowered growth in 2019 and 2020 by ¼pp.

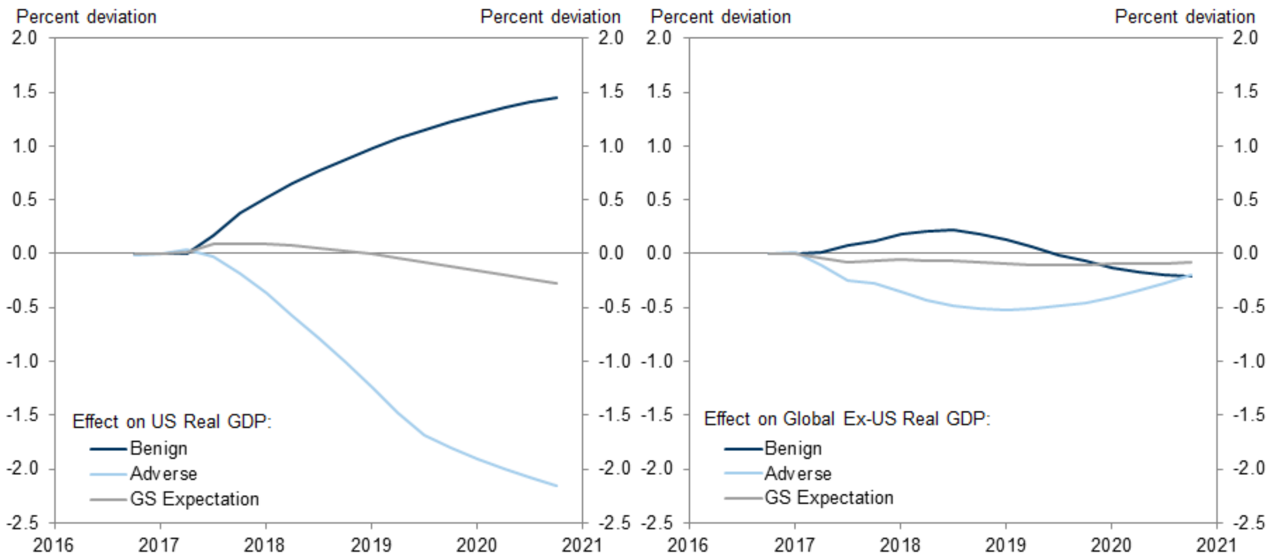
Exhibit 8: US Economic Implications of the Trump Agenda



Source: Goldman Sachs Global Investment Research

It is important to emphasize the uncertainty around these projections because we know so little about the package of policies that will ultimately be adopted. Moreover, our analysis suggests that the risks around our base case are asymmetric on the downside. Greater emphasis on fiscal easing could boost growth in the US and around the world moderately more in the near term (see "benign" scenario in Exhibit 9). But it would also lead to a higher risk of economic overheating, more aggressive Fed tightening, and therefore an ultimate slowdown or recession. Greater emphasis on the trade, immigration and/or Fed policy aspects of the agenda would likely lead to more adverse outcomes even in the shorter term. The "adverse" scenario in Exhibit 9 shows that US growth could be significantly lower in this case, with more meaningful negative spillovers into the rest of the world.

Exhibit 9: Downside Risks from the Trump Agenda



Source: Goldman Sachs Global Investment Research

Markets Still Too Low on the Funds Rate

The FCI-driven acceleration in US growth and the Trump-driven change in the growth and inflation outlook reinforce our forecast of tighter Fed policy. We have raised our subjective probability of a hike at the December FOMC meeting from 60% to 85%, and expect an additional 75bp of rate increases in 2017. This is above the FOMC's own 50bp projection because we have a higher core inflation forecast than the median FOMC participant, and also a slightly higher growth forecast.

Beyond the near term, we are struck by the extent to which most market participants have accepted the view that short-term rates will be far below their historical norm for many years to come. To see this, look no further than the federal funds futures curve, which is still pricing only about one hike per year and a terminal funds rate of around 2½% in nominal terms and ½% in real terms. This is despite widespread expectations among economic forecasters that growth will remain above trend and inflation will reach the Fed's target relatively soon.

Much of this view appears to be based on two main pillars: 1) the expectation of continued slow growth in potential GDP and 2) the belief that equilibrium interest rates are closely tied to potential growth.[5] To use some rough numbers, many forecasters and investors believe that potential GDP growth is 1.5-2pp below the 3½% postwar average and assume there is a one-for-one relationship between potential growth and the equilibrium funds rate. If so, the equilibrium real funds rate would be 1.5-2pp below the pre-crisis consensus view of about 2%, so current market pricing would be roughly appropriate. But if either of these pillars were to crumble, a large repricing of the funds rate path could occur.

The first pillar looks reasonably well supported. Underlying productivity growth is probably stronger than suggested by the exceptionally weak recent official figures, which probably partly reflect cyclical factors and growing measurement error. But the weakness in potential labor force growth is undeniable, and it may be exacerbated by the immigration measures in the Trump agenda. Overall, we think that potential growth—even correctly measured potential growth— is at least 1-1.5pp below the historical average.

But the second pillar looks more vulnerable. Although most theoretical models imply a close link between potential growth and equilibrium rates, this link is actually very weak in practice.[6] A simple illustration is shown in Exhibit 10, which plots the average real short-term interest rate against the average real GDP growth rate, for each US business cycle since 1873. There is essentially no empirical relationship between growth and rates. Studies that go beyond simple correlations and control for other factors typically do find some relationship, but it is often econometrically fragile.[7]

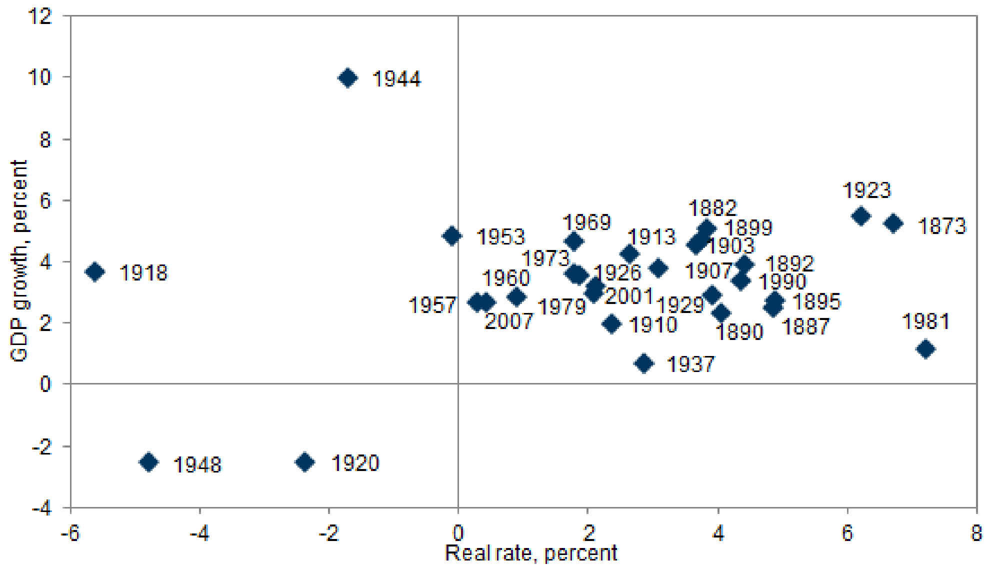
What should one do with a strong theoretical prediction that fares so poorly in practice? In our view, a reasonable approach is to build in a much weaker version of the relationship. Purely for illustration, suppose that potential growth has really declined by 2pp but that the impact of potential growth on the equilibrium funds rate is only 0.3, not 1. In that case, the equilibrium real funds rate might be 60bp below the pre-crisis conventional wisdom of 2%. This helps explain why we have kept our forecast for the terminal funds rate at 3¼%-3½%—well above the 2½% level implied by market pricing—and are now also above the Fed's own 2¾%-3% projection.

5. Of course, there are many other explanations for why equilibrium interest rates might have fallen (including the global savings glut, inequality, credit constraints, etc). These two, however, play a key role in prominent estimates of the equilibrium rate and are most frequently encountered in conversations with investors.

6. See James Hamilton, Ethan Harris, Jan Hatzius, and Kenneth West, "The Equilibrium Real Funds Rate: Past, Present, and Future," *NBER Working Paper No. 21476*, August 2015.

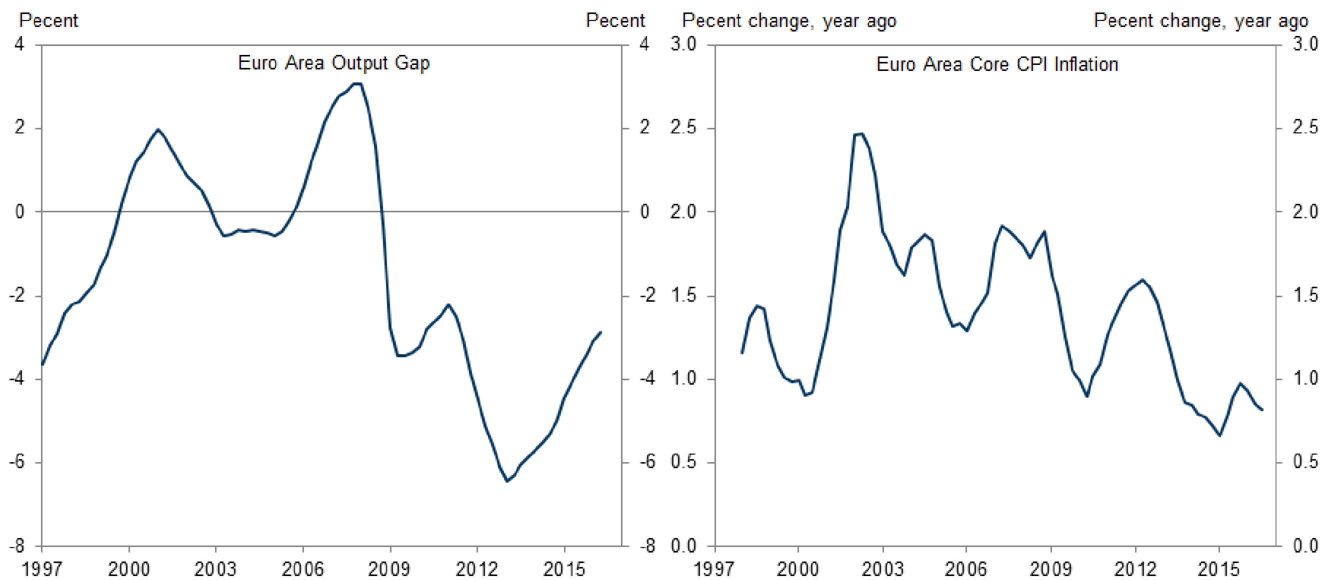
7. For example, the well-known Laubach-Williams model of equilibrium interest rates estimates roughly a 1-for-1 relationship between growth and rates, but the standard errors are large. In more recent work, Holston, Laubach and Williams impose a 1-for-1 relationship based on a priori reasoning. See Holston, Laubach and Williams (2016), "Measuring the Natural Rate of Interest: International Trends and Determinants," *FRB San Francisco working paper*.

Exhibit 10: Weak Relationship Between Growth and Rates in the US



Source: Balke and Gordon (1989), FRB St. Louis, Haver Analytics, Global Financial Data, Goldman Sachs Global Investment Research

Exhibit 11: Slack and Inflation in the Euro area



Source: Goldman Sachs Global Investment Research

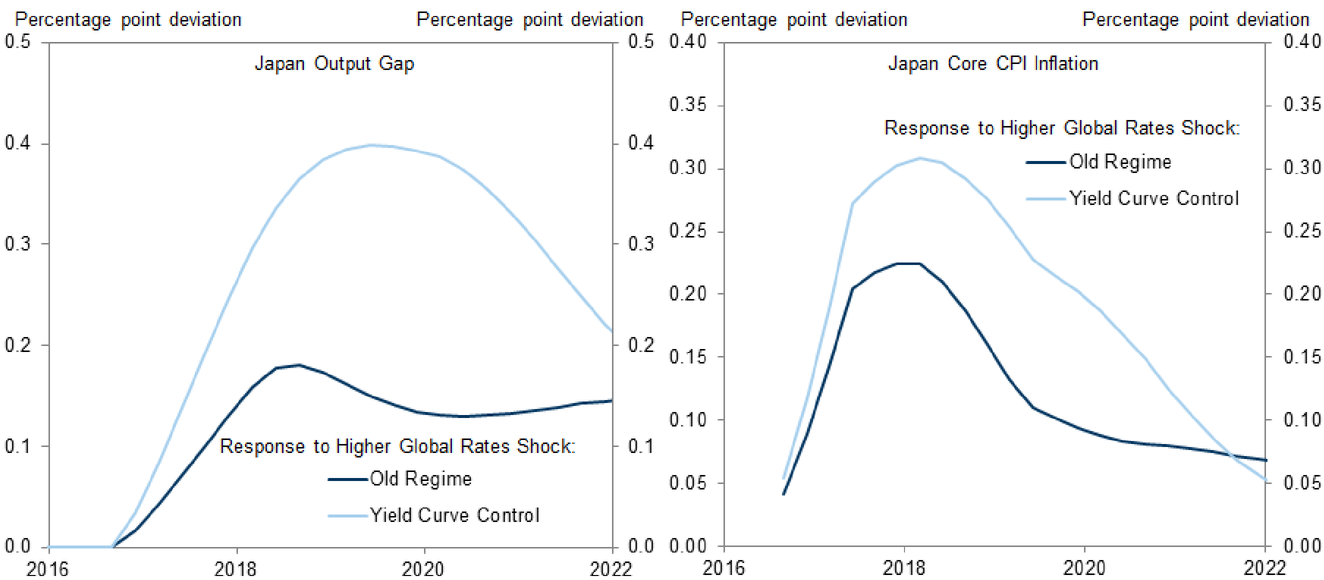
Renewed Policy Divergence

Tighter Fed policy is likely to put further upward pressure on global long-term rates. The other major central banks will, however, try to insulate themselves from any tightening in financial conditions by reinforcing their commitment to accommodative monetary policy. While the Euro area has been growing above trend, real GDP is still significantly below potential and core inflation remains stubbornly low (Exhibit 11). We therefore expect the ECB to extend its asset purchase program beyond March

2017 to keep financial conditions accommodative and continue to provide space for growth-supportive fiscal policies.

The BoJ will focus on the implementation of the yield curve control policy it adopted in September. As we showed recently, the new regime should allow Japan to benefit from an increase in global interest rates. Tighter Fed policy should result in greater interest rate divergence under the new regime than before, depreciate the Yen further, and generate a bigger boost to Japanese growth and inflation (Exhibit 12).[8] Greater interest rate divergence should therefore put continued upward pressure on the dollar.

Exhibit 12: Higher Global Rates in the BoJ's New Regime



Source: Goldman Sachs Global Investment Research

Risks, Political and Economic

While our baseline economic projections are fairly benign, the risks around them are substantial and are skewed to the downside. First, the Trump agenda and its effects on the economy are still very difficult to predict with confidence. In particular, greater emphasis on the trade or immigration aspects of the agenda would likely lead to more adverse outcomes even in the shorter term, and the harder-to-quantify effects on policy uncertainty is substantial. It is therefore not surprising that measures of economic policy uncertainty have risen sharply in the wake of the election.

Second, the US is not the only country where political risk is rife. Uncertainty continues to cloud the outlook for the Brexit negotiations and the Italian constitutional referendum. And, most importantly, fears have risen in the wake of Trump's election that Marine Le Pen, leader of France's far-right Front National party,

[8] See Sven Jari Stehn, "Economic Implications of the BoJ's New Regime," *Global Economics Analyst*, September 23, 2016.

will win the French presidency in the spring of 2017. Although Ms. Le Pen has toned down her rhetoric about leaving the Euro, her election could potentially trigger another major political crisis in Europe. Based on current opinion polling, our own view remains that she will probably be defeated in the second round by one of her center-right challengers, Alain Juppé or Nicolas Sarkozy. But the risk of an upset has risen.

Third, a stronger dollar poses risks to emerging markets, especially China. Countries with fixed exchange rates or imperfect exchange rate flexibility must effectively import tighter financial conditions from the US. If this is seen as inconsistent with their domestic economic goals, rising expectations for currency depreciation can lead to sizable reserve losses and financial turmoil, along the lines of what happened to China in late 2015 and early 2016. And even emerging economies with flexible exchange rates often suffer from dollar strength. Although their exporters benefit from a more competitive exchange rate, this may be offset by a balance sheet hit to firms with dollar-denominated debt. Thus, the recent renewed upward pressure on the dollar versus EM currencies bears close watching.

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