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## *Special Report*

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# Central Banks

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### Your 2018 Outlook

Here's what's ahead for the world's biggest central banks.  
Plus, forecasts of rates and economies *p 12*

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**Bastion of Technocracy**  
Welcome to the elite  
private club of the world's  
central bankers *p 28*

**China, China, China**  
Let's talk about what  
happens the year *after* the  
PBOC's big year *p 26*

**It's Scorecard Time**  
Who's the world's best  
central bank forecaster?  
(And who's the worst?) *p 5*

**Here, Lie on This Couch**  
Lacking purpose? Feeling  
impotent? Enter central  
bank psychiatry *p 2*

## 2

### **Your Psychiatrist Will See You Now, Mr. Central Banker**

A visit to Dr. Honoris Causa reveals all

## 5

### **Forecasting, Reviewed**

Which central bank is the most accurate?

## 8

### **What to Talk About When You Talk About Brexit**

New flows functionality lets you see which U.K. stocks foreigners are holding

## 11

### **What Does a New Fed Head Mean for Rate Increases?**

The Fed Spectrometer allows you to monitor the history and tone of public comments from individual members of the Federal Open Market Committee

## 12

### **2018 Central Bank Outlook**

Here's what you should know about the world's most important central banks

## 24

### **A Plan Starts to Come Together**

Not since before the creation of Europe's monetary union have growth rates for northern and southern members been as close as they are now

## 26

### **Holding In a Sneeze**

China is trying to ward off the sniffles as it enters 2018. Its plan to curtail its massive buildup of credit will have ramifications for the world economy

## 28

### **The Little-Known Club at the Heart of the Financial World**

The Bank for International Settlements remains a bastion of global technocracy—even in an age of increasing transparency and growing disillusionment with elites

## 30

### **It's Trump's Fed Now**

The president's remaking of the Board of Governors is stripping it of decades of institutional experience

## 32

### **Cheat Sheet**

Consider these functions on the Bloomberg terminal your central bank toolkit

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# Your Psychiatrist Will See You Now, Mr. Central Banker

By RICH MILLER

ILLUSTRATION BY PATRICK LEGER



**GLOBAL CENTRAL BANK (GCB)** checks the hallway for pesky reporters, sees none, and slips into the finely furnished office of Dr. Honoris Causa (DHC), noted psychiatrist to the troubled rich and famous.

**GCB:** Thanks for seeing me, Doctor. Frankly, I'm not sure why I'm here. I should be jumping for joy. For the first time in years, everything is in sync. Growth is up everywhere. But I can't stop feeling anxious. Ever since I was a little boy growing up in Chicago, it was drummed into me that the one thing I was really good for was controlling inflation. It's always and everywhere a monetary phenomenon, as Uncle Milton never tired of telling me. But no matter what I do, I just can't seem to get it up. I've even gone a bit unconventional and bought buckets of bonds. But all that's done is end up tying my balance sheet in knots and leaving my hair with more shades of gray. Inflation is still soft.

**DHC:** That doesn't sound good.

**GCB:** It's even worse than that. Nobody thinks I can get prices up. I'm depressed. Inflation expectations are depressed. It's a vicious cycle.

**DHC:** Did you try opening up and talking about it more?

**GCB:** Talking about it more? I give hundreds of speeches a year, everywhere from the Rotary Club in Cleveland to Chatham House in London. It just seems to end up confusing everybody, including myself.

**DHC:** What do your colleagues say you should do?

**GCB:** Some say I should stop obsessing, adopt a target range for inflation—say, 1 percent to 2 percent—declare victory, and let Jeff Bezos have his way. I'm not so sure about that. Others say I should double down and raise the target. Jeez, I can't even hit the one I've got. Then

there are the pointy heads who want me to adopt a price-level target—or even worse, a nominal GDP target. Yeah, just try explaining that to Representative Maxine Waters. Sometimes, I just want to chuck it all and go back to academia, where everything is so P.C.

**DHC:** Politically correct?

**GCB:** No, no. Phillips curve. You know, you push unemployment down, wages start to rise, and—*voila!*—inflation goes up. If only it was so easy.

**DHC:** Is that what's really bothering you?

**GCB:** (*Breaks down and starts crying.*) Nobody loves me anymore! I used to be the maestro. They'd ask my opinion on everything from oil drilling to capital gains. Now the Republicans hate me. The Germans hate me. Even the Japanese, who are willing to put up with almost anything, got up in arms when interest rates went negative. Everybody seems to be Fed up. There's even talk of taking away my cherished independence. And I dread an early morning tweet exposing me as a fake. Don't they realize I saved the world from another Great Depression? Do they think that was easy?

**DHC:** I'm sure it will get better.

**GCB:** Get better? It's only going to get worse. The next recession comes, and they're all going to realize I'm just one big fat zero.

**DHC:** Zero?

**GCB:** Yeah, you know, the zero lower bound. I've got this tool, and it's useless. Short-term interest rates can't go much below zero. And everybody is going to know it. I could go cutesy and do some more QE. But then they'd just blame me for distorting financial markets and worsening income inequality. I just can't win.

**DHC:** Why do you insist on taking everything on yourself? Isn't there somebody who could help you?

**GCB:** Who? My brother, FSB [Fiscal Stimulus Brigade]? He's too busy getting his jollies cutting taxes. Great timing, that. Look, I'm not asking for much. All I want is for things to get back to normal, to get back to what they used to be before Larry Summers started yapping about secular stagnation. Sometimes I wish he'd just shut up.

**DHC:** Well, somebody loves you. The stock market is exuberant. I should know. I just sold some Facebook shares and bought my third Porsche.

**GCB:** Yeah, yeah, you're all alpha dogs as long as I'm pouring in liquidity. Wait until you see what happens when I start taking it away.

**DHC:** Wait a minute. You're not thinking of doing that, are you? I've got my eye on this Aston Martin.

**GCB:** Well, you know, the party seems to be getting a bit out of hand. Maybe it's time to take away the punch bowl.

**DHC:** Get out, get out of my office! What's the matter with you? Just because you're all boo-hoo-hoo doesn't mean that other people can't be happy. No wonder they call economics the dismal science. Maybe we should let a lawyer run the central bank.

*As GCB slinks out of DHC's office, he suffers one more indignity: The good doctor's assistant asks him to pay for the session in bitcoin. Then GCB spots someone in the anteroom he used to kibitz with but now steers clear of. It's just another sad sack nobody loves anymore, seeking DHC's help: Macro Hedge Fund.*

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Miller covers the Federal Reserve for Bloomberg News in Washington.

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**Bloomberg**

Bloomberg has ranked the biggest central banks on the accuracy of their outlooks

By LUCY MEAKIN, DAVID GOODMAN and ANDRE TARTAR

# Which central bank is the most accurate forecaster?

**NO CENTRAL BANK IS PERFECT**, but for forecasting its key metric, the Bank of England is at the bottom of the pile. The three-century-old institution has the worst record for predicting inflation in its home economy, according to the latest Bloomberg ranking of Group of Seven central banks. The Bank of Canada has the best.

Unlike its major peers, including the European Central Bank and the U.S. Federal Reserve, the BOE tends to undershoot on its consumer price forecasts, though that seems to be changing. Its prediction for inflation two years ahead was lower than the eventual outcome in each of the eight years through 2013, with an average undershoot of

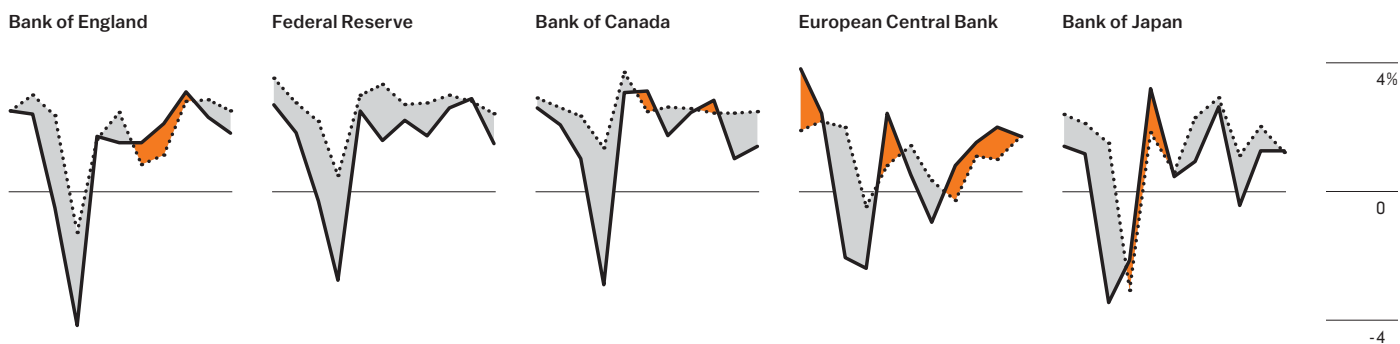
1.3 percentage points. Since then, it's gone the other way, with an overshoot of about 1.1 percentage points.

Forecasting is a critical concern for central bank credibility, because it provides the basis for monetary policy decisions that affect the companies and households of the real economy. At the BOE, Governor Mark Carney and his fellow policymakers have just raised their benchmark interest rate for the first time in more than a decade, citing the outlook for inflation.

Projections that don't come to pass are one more stick to use to beat central banks and the unelected technocrats who run them. Monetary institutions have come under increased fire since the financial crisis for measures like quantitative easing

#### ECONOMIC GROWTH FORECAST ACCURACY

— Year-over-year change in GDP from 2006-16 in central bank's home area    - - - Bank's forecast, one year earlier  
 □ Overestimated growth    ■ Underestimated growth



Sources: Central bank projections, national statistics agencies, Bloomberg calculations

and negative interest rates that some say have fueled inequality.

To compile its results, Bloomberg looked at inflation projections two years ahead and gross domestic product estimates one year ahead, and compared them with annual results from 2006-16. The overall score reflects a Taylor Rule approach that gives equal weight to growth and inflation.

On the overall measure, the Fed ranked first, despite being too bullish on growth for 10 of 11 years of the study, while the Bank of Japan was last.

On estimates for economic growth alone, the BOE shot to the top of the rankings even though it, too, has been consistently overly optimistic. That's ironic, given that Carney

has repeatedly been castigated by some British lawmakers and media for being too downbeat on the nation's prospects before and after 2016's vote to leave the European Union.

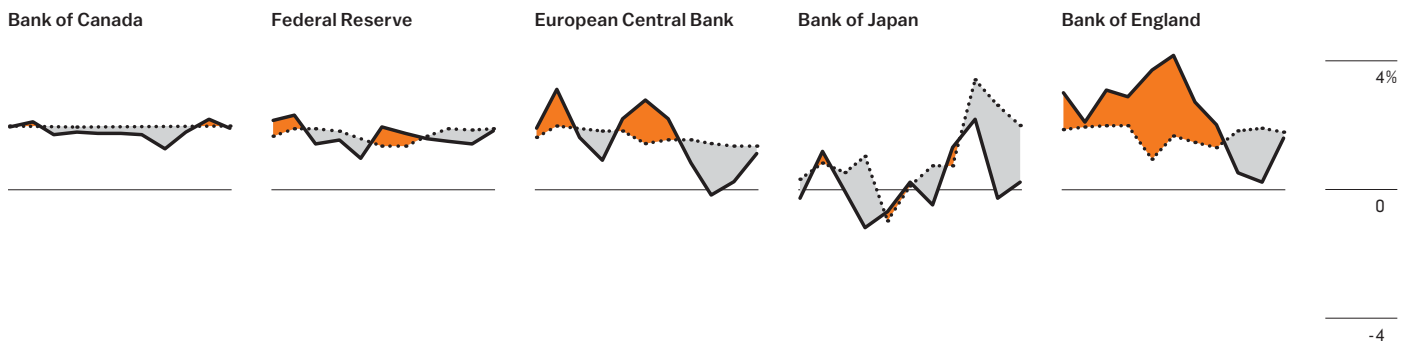
Andy Haldane, the BOE's chief economist, said in 2017 it was a "fair cop" that the bank—in common with almost all mainstream forecasters—expected a sharper slowdown than the U.K. has seen since the Brexit decision. He also said his profession has a lot of work to do if it's to recover from its failure to predict the global financial crisis and its aftermath. ●

Meakin, Goodman, and Tartar cover economics for Bloomberg News. With assistance from Catherine Bosley and Zoe Schneeweiss.

#### INFLATION FORECAST ACCURACY

— Year-over-year change in benchmark price index\* from 2006-16 in central bank's home area —\* Bank's forecast, two years earlier

■ Overestimated change in prices ■ Underestimated change in prices



\*December values used for all banks except the Bank of Japan (March); Sources: Central bank projections, national statistics agencies, Bloomberg calculations



# What to Talk About When You Talk About Brexit

By OWEN MINDE and STEPHEN JONATHAN

**FLOWS CAN PROVIDE** powerful insights into economic and market trends. Both long-term foreign direct investment and shorter-term portfolio flows can be viewed as the business and investing communities' judgment on policymakers' economic and regulatory decisions. Buying a stake in a company or shares of an exchange-traded fund, for instance, could imply a vote of confidence.

For insights into long- and short-term capital flows, you can use a couple of Bloomberg data analytics, which cover both cross-border M&A activity and portfolio flows.

**THE U.K.'S JUNE 2016** Brexit vote provides a perfect case study in how an unexpected political outcome can have a significant impact on perceptions by the global investor community. As Brexit nears its expected implementation of March 2019, one of the biggest fears is that multinational companies will no longer see the U.K. as a gateway to Europe and may prefer to invest on the Continent instead.

Start by running **{FLMA <GO>}** for the Cross Border Mergers and Acquisitions function. Select the United Kingdom in the top left amber box and change the Position to Inward. That shows in a selected period, such as last month, the total foreign direct investment—that is, M&A transactions in which buyers are acquiring stakes in the U.K., as reported by either the company or the adviser.

The chart at the bottom displays a history of these flows. It may be surprising to see the spike in inward investment in October 2016, after the vote to exit the European Union. However, that October data point reflects deals that happened to be completed that month. If you use the radio button in the upper left part of the screen to select Announced Deals and uncheck Include

Terminated Deals, you'll see that the deals completed that October were generally announced before the vote.

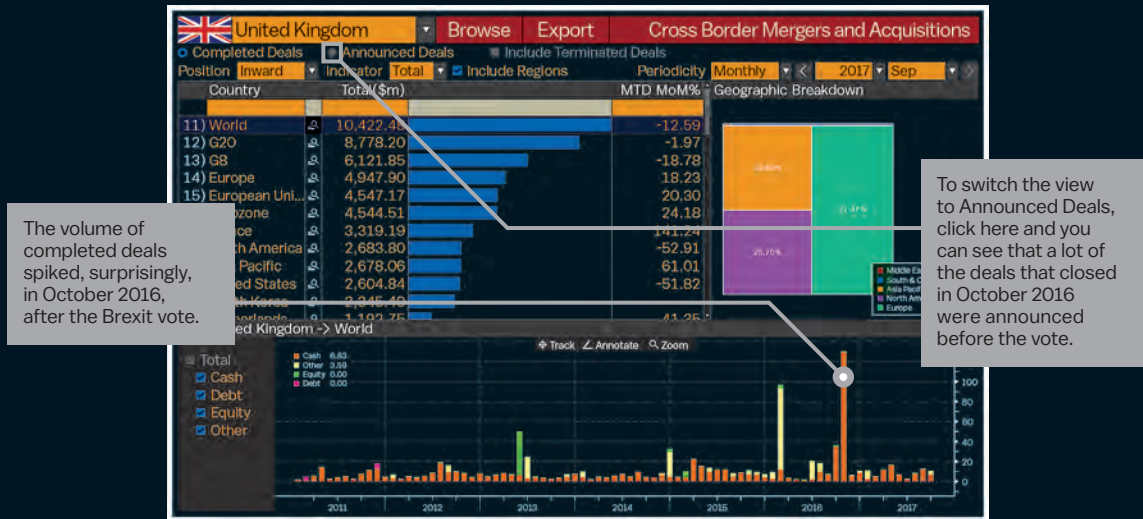
Change the periodicity in the top right to quarterly, and you'll see that the announced deal volume hasn't fallen off a cliff since the referendum. M&A deals involving U.K. companies continue to be announced. That's a bullish indicator for the U.K. economy and the British pound. The chart in the top-right corner displays the geographical breakdown of the origin of the investment: In the third quarter of 2017, 65 percent of total investment in the U.K. came from North America. To drill down further into the specific deals themselves, click on the magnifying glass icon next to North America, which will take you into the **{MA <GO>}** function. To see all the deals in the third quarter ranked by announced total value, sort the Deal List section accordingly; click into any deal to see its details.

**SHORT-TERM CAPITAL FLOWS** are a focus of both investors and regulators. Investors focus on trends in fixed-income, equity, or alternative portfolio flows to understand sentiment by the larger investor community, while regulators are increasingly looking to monitor those flows to get real-time data regarding trends that could affect local markets.

To analyze trends in cross-border capital flows and changes in investor holdings, check out Bloomberg's Flow of Fund Portfolio at **{FOFP <GO>}**. The function displays Bloomberg's in-house holdings database, which is updated on a quarterly basis, along with monthly estimates between official quarterly releases.

Select United Kingdom in the top left. Use the radio button to select Flow. To see investment flows into the U.K., change the Financial

To track foreign direct investment flows, go to **{FLMA <GO>}**.



To track trends in cross-border portfolio investment flows, run **{FOFP <GO>}**.



Position to Liabilities (money coming into the U.K. to buy assets, of course, creates a liability from the perspective of the country). Next, to see investment in U.K. bonds from abroad, select Debt as the Indicator. FOFP shows that the biggest inflow from the second quarter to the end of September came from China: \$2.2 billion.

Now, click on the red China bar to chart the history of this flow. Interestingly, China started withdrawing its investment in U.K. bonds in the third quarter of 2015, shortly before the Brexit referendum was announced. China then continued to pull money out of U.K. bonds until the second quarter of 2017, when flows turned positive.

Perhaps even more powerful in terms of current positioning,

you can now see the breakdown of the stock of equity investment in the U.K. in the Portfolio & Risk Analytics (PORT) function. Close the History window. Use the radio button to select Stock rather than Flow. Change the indicator to Equity. The table at the bottom right of the FOFP screen shows the total U.K. market value: \$3.6 trillion as of late October. Of that, Bloomberg had holdings data on 62 percent of the market. What's more, 45 percent of the total market was owned by foreigners: \$1.6 trillion. U.S. investors were the largest holders of U.K. stocks, followed by Canadians and Norwegians.

To display the entire portfolio of the world's equity investment in the U.K., click on the View in PORT button on the red toolbar. Click on the Holdings tab, and you can see that the Global ▶

Click on the View in PORT button in FOFP to display the portfolio of foreign holdings of U.K. stocks in PORT.



To track ETF flows, run `{FFLO <GO>}`.



Industry Classification Standard sector that has attracted the biggest share of the world's investment into the U.K. is financials. To drill down into the individual names that foreign investors hold, click on the plus sign to the left of financials and then sort by weighting. Among the companies with the most foreign ownership by value are HSBC Holdings, Prudential, and AON. This list of foreign-held U.K. stocks could be a place to start examining a company's exposure to a hard Brexit scenario in which financial passport rights to do business in Europe are denied.

**THE FLOOD OF MONEY** pouring into passive investments has led to increased interest in real-time analysis of these flows. To view ETF

flows on a country or regional basis, run `{FFLO <GO>}`.

To track ETF flows into and out of the U.K., use the drop-down menu to the right of View to select Countries. Select Netflow in the Show field. Net flow into U.K. ETFs has been \$1.5 billion this year through October, with inflows of \$7.4 billion and outflows of \$5.9 billion.

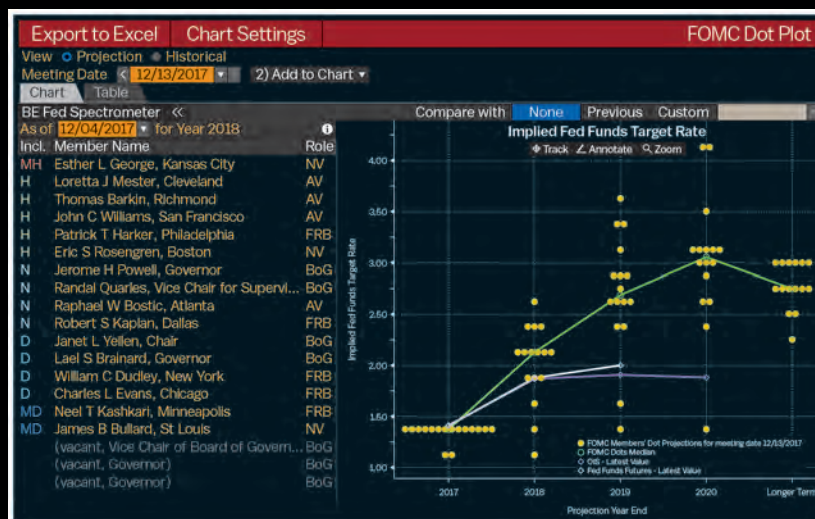
For a map of flows, click on the Map tab. For more detail on U.K. ETFs, click on United Kingdom. You can use the tabs to analyze flows, performance, and liquidity. ●

Minde and Jonathan are FX and economics market specialists at Bloomberg in New York.

# What Does Powell as Head of The Fed Mean for Rate Increases?

By MICHAEL McDONOUGH

Run `{DOTS SPEC <GO>}` to reveal where FOMC members think the Fed should set the target rate.



**UNPRECEDENTED TURNOVER ON THE** Federal Open Market Committee, combined with the roster of new voting members, may indicate that policymakers will support a more aggressive approach to interest rate hikes in 2018.

On the face of it, the selection of Jerome Powell as the next chair of the Federal Reserve Board largely signals continuity in the application of monetary policy from his predecessor, Janet Yellen, whose term ends in February, as well as Ben Bernanke before her.

Powell, a Fed governor since 2012, ascribes to a conventional policy approach and has been a centrist on the FOMC. While not a formally trained economist, he brings a wealth of private-sector expertise to the committee. This background may lead him to rely to a greater degree on Fed staff analysis.

Yet, new voting FOMC members are likely to take on a more hawkish tilt. The Bloomberg Economics Fed Spectrometer, which you can access on the Bloomberg terminal at `{DOTS SPEC <GO>}`, is a tool for monitoring the history and tone of public comments from individual FOMC members.

As the title of the tool implies, it attempts to classify each

governor or regional Federal Reserve Bank president along a spectrum spanning  $-2$  (dovish) to  $+2$  (hawkish) based on his or her policy inclination. (The rankings are the subjective assessment of the Bloomberg Economics team based solely upon public statements, and they will be updated on an ad hoc basis.) Current rankings are shown in the accompanying figures.

Based on a Bloomberg Economics analysis of the current FOMC voters' policy inclinations, the committee will have a more hawkish average voter score of  $-0.1$  this year, compared with  $-0.6$  in 2017. Yellen's departure shifts the scale further in a hawkish direction (0.0).

New York Fed President William Dudley announced he will be retiring this year, too. Bloomberg Economics rates Dudley as a  $-1$  (moderate dove) on the Fed Spectrometer. The impact of his departure on the voting score will depend on who replaces him. The Fed's vice chair position also remains open. ●

McDonough is chief economist for Bloomberg Economics in New York.

# Central Banks

## 2018 Outlook

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The global economy just had a banner year. How will this one compare? We'll see a new cast of characters, for one—not only at the Federal Reserve, but also at the People's Bank of China and a few others. Here's everything else you should know about what's going on at the world's most important central banks, from Brexit to China's deleveraging campaign. For more insights, go to [BI ECON <GO>](#) and [TOP ECO <GO>](#). ▶

# Mexico

	2017	2018
GDP	2.0%	2.6%
CPI, year over year	6.6	3.1
Unemployment	3.7	3.8
Policy rate	7.25	6.5

Source: Bloomberg economist forecast

## Banxico's Two-Front War: A Big Election Looms Just as the Economy Slows

BY NACHA CATTAN

New Governor Alejandro Díaz de León will have to steer Banco de México through one of the most contentious general elections in the nation's history this July. At the same time, the country will need to revamp the accord that shaped its modern economy: the North American Free Trade Agreement.

The risk that Nafta could be scrapped sent the peso falling in 2017 and helped trigger inflation of more than double the bank's 3 percent target. Add uncertainty over the future of Mexico's economic model—which has been called into question by leftist presidential front-runner Andrés Manuel López Obrador—and there's the recipe for greater volatility.

"Mexico will face rough waters," says Carlos Capistrán, Bank of America's chief Mexico economist. "Banxico needs to be ready to act quickly."

The central bank has already raised borrowing costs more than any other nation in the Group of 20 since December 2015, as spiking gasoline prices and concern over U.S. trade policies lifted inflation.

After interest rates more than doubled to 7.25 percent, economists surveyed by Bloomberg anticipate another hike.

The rate increases have taken a toll on economic activity, says Capistrán, but he forecasts more increases ahead to keep inflation anchored, even if the economy decelerates. Policymakers may have to switch gears completely, however, if the U.S. scraps Nafta.

The economy has been sputtering, even from its usual slow rate; it decelerated in the third quarter following two earthquakes, and the central bank cut its growth projection for 2018 to as low as 1.8 percent from an already low 2.0 percent.

In one of his first interviews after being appointed, Díaz de León said the central bank will be a factor of stability in the face of the 2018 elections.

### OUR ECONOMISTS SAY ...

■ Mexico's central bank expects inflation to fall in line with its 3 percent target and projects economic growth of 2 percent to 3 percent. The outlook implies that policymakers should loosen monetary conditions after tightening them over the past two years. But interest rates are unlikely to fall in the short term, because the central bank sees risks from Mexico's presidential elections, the renegotiation of Nafta, and changes in U.S. monetary policy. There's also little room to accommodate negative surprises, given the currently high inflation. —*Felipe Hernandez*

# Canada

	2017	2018
GDP	3.0%	2.0%
CPI, YoY	1.9	1.9
Unemployment	6.2	6.5
Policy rate	1.0	1.0

Source: Bloomberg economist forecast

## After Some Quick Rate Hikes, The Bank of Canada Slows Down

BY THEOPHILOS ARGITIS

The Bank of Canada is in fine-tuning mode as it tries to boost historically low interest rates to more normal levels without inadvertently triggering another downturn.

Governor Stephen Poloz and colleagues estimate their so-called neutral rate is a full 2 percentage points above their current 1 percent policy rate, and the G-7's fastest-growing economy in 2017 is quickly running up against capacity. But after last year's start to the tightening cycle jolted markets, all indications are that the plan is to move slowly.

"Whether it's about how aggressive or how cautious policy should be—getting the dosage right demands sound judgment about complex trade-offs," Bank of Canada Senior Deputy Governor Carolyn Wilkins said in a Nov. 15 speech in New York.

If anything, 2017 served as an early warning for policymakers of the dangers of moving too quickly. Two rate hikes in quick succession—in July and September—sent the Canadian dollar soaring by as much as 14 percent over a four-month period, the best performance of any major

currency during that period. Investors began anticipating a Bank of Canada that would move faster on interest rates than even the Federal Reserve.

The Bank of Canada's narrative since September has been about caution, literally. That word appeared nine times in Wilkins's November speech.

But while the change in tone has helped to stabilize the Canadian dollar, damage may have already been done. The nation's exports suffered through one of their biggest tumbles ever in recent months.

One lesson from the episode: Being a first mover on normalization can be costly. Which is why the Bank of Canada will be a lot more comfortable acting more in sync with the Fed in 2018.

### OUR ECONOMISTS SAY ...

■ A high-speed Canadian economy in the first half of 2017 caused the Bank of Canada to remove two "emergency cuts" it implemented in 2015. That led some economists to believe it was the start of a more robust tightening cycle. But slowing growth—sustaining Canada's output gap into 2018—and uncertainties about ongoing Nafta negotiations will challenge policymakers' abilities to continue tightening. Increased household indebtedness also makes the economy more sensitive to higher interest rates, which will challenge the central bank's ability to normalize rates without thwarting growth. —*Michael McDonough*

# U.S.

	2017	2018
GDP	2.3%	2.6%
CPI, YoY	2.0	2.3
Unemployment	4.1	3.8
Policy rate	1.5	2.0

Source: Bloomberg economist forecast

## Fed Hurtles Toward Rethink as Economy Booms and Leaders Change

BY JEANNA SMIALEK

For the Federal Reserve, 2018 will be a year of transition for both monetary policy and the people setting it as Jerome Powell becomes chairman.

The fresh blood may see an opportunity for the Fed to rethink how it operates. Chair Janet Yellen nursed the economy's wounds after recession. Powell's Fed may transform into a more forward-looking body seeking to sustain growth.

One challenge for Powell is inflation regularly undershot 2 percent in 2017, even as joblessness dipped below pre-crisis levels. That suggests a new wrinkle in a long-held relationship between the two.

Powell has options in interpreting such a quirk. It may just be taking a long time for low unemployment to feed through to higher prices. Another explanation is to disavow headline inflation as a pivotal gauge of tightness in the labor market after people dropped out of it in the recession.

The most worldview-altering interpretation, however, is that the relationship has truly broken down. Labor markets are global, the internet has neutralized companies' pricing power, and robots have

restrained workers' abilities to demand wage increases.

Then comes the practical dilemma: Should the Fed continue to hike rates gradually when joblessness is low and price gains are slow? Powell and his colleagues suggest that they plan on staying the course.

Finally, the Powell Fed will have to ponder its long-run policy playbook. If officials follow their expected path of rate increases in 2018, they'll be up above 2 percent by yearend. That's near the 2.5 percent level that some of them expect to mark as their end point in this hiking cycle.

If officials conclude that rates are poised to stay lower in this cycle than in the past, the Fed will have to think about its toolkit for responding to a crisis. Last time the Fed cut rates by 5 percentage points. It will have much less ammo this time around.

### OUR ECONOMISTS SAY ...

■ The Fed will plunge deeper into uncharted territory, with the balance-sheet unwind going full throttle as interest rates continue to normalize. A platitude of central banking is that "monetary policy acts with a long and variable lag." This variability is more mysterious now, as Fed officials grapple with the dual levers of interest rates and quantitative tightening, which may result in currency appreciation, the same way that QE resulted in dollar weakness. Despite the Fed's removal of policy accommodation so far, financial conditions continue to ease. Concerns about stability may motivate some officials to pursue faster normalization, but policymakers would be wise to use a light touch as the ramifications from tightening intensify. —*Carl Riccadonna and Yelena Shulyatyeva*

# A New Chairman Takes the Helm as the Crisis Era Fades

BY RICH MILLER



**SOON-TO-BE FEDERAL RESERVE** Chair Jerome Powell has a little-known talent that few, if any, of his fellow monetary policy makers probably possess: He's able to repeat people's sentences to them—backward.

That's not the only way Powell stands out from other central bankers. Unlike many of them, he's a lawyer by training, not an economist. His lack of a Ph.D. prompted some Fed watchers to wonder whether he has what it takes to run an organization tasked with managing the world's largest economy.

It's not the first time Powell has faced skepticism. When he joined the Fed as a governor in 2012, some staffers were dubious he'd be able to keep up. Armed with a huge binder full of materials he'd lug to meetings, Powell won them over with his readiness to dig deep into complexities.

Indeed, the 64-year-old—who goes by "Jay"—earned a reputation inside the Fed as a pragmatic central banker with a good strategic sense. A team player, he never dissented from a monetary policy decision, preferring to keep any reservations he had on that front and in the regulatory arena private. He also took on unglamorous-yet-essential tasks such as overseeing the financial payments system.

His experience in official Washington dates back to President George H.W. Bush's Department of the Treasury, where he helped avert a run on Salomon Brothers in 1991 after the investment bank had been caught submitting phony bids at a government debt auction.

Powell spent much of his career outside government in finance—first at investment bank Dillon Read & Co. and then at private equity firm Carlyle Group, where he set up an industrial unit. It helped make him a multimillionaire, with assets of as much as \$55 million, according to his 2016 financial disclosure form.

Married, with three children, Powell has a reputation as a bit of an athlete. At Carlyle, he was known to spend his lunch hour cycling, and he still regularly bikes the 8 miles to work at the Fed from his home in Chevy Chase, Md.

He seems unfazed by the pressure awaiting him. Asked at a Nov. 28 congressional hearing how he felt about becoming the world's most important economic policymaker, the Washington native replied, "I feel fine about it."

# Brazil

	2017	2018
GDP	1.0%	2.3%
CPI, YoY	3.0	4.7
Unemployment	12.0	10.2
Policy rate	7.0	8.5

Source: Bloomberg economist forecast

## Elections Will Test a Central Banker's Modest Success Story

BY RAYMOND COLITT

After spearheading one of the world's most aggressive easing cycles last year, Central Bank of Brazil chief Ilan Goldfajn faces the task of keeping the country's benchmark interest rate at a record low throughout 2018.

Markets are betting that he'll do it even in the year of a presidential election, which could spook investors. Three out of the past four election campaigns have initiated a tightening cycle as incumbents loosened purse strings.

Goldfajn has worked hard to re-establish the bank's credibility, battered by seven consecutive years of missed inflation targets. So far his reassurances are working, allowing the bank's board to cut interest rates to a record low without prompting price expectations to veer off track.

The MIT-trained economist won over investors not only by following prudent rate policies, but also by tackling long-standing distortions that reduced price pressures and enhanced the effectiveness of monetary policy.

Still, the election in October threatens to be a particularly wild

ride, with candidates on opposite ends of the political spectrum leading voter intentions. The front-runner, leftist former President Luiz Inácio Lula da Silva, has pledged to reverse many of the measures President Michel Temer has taken to rein in public spending and improve the business environment.

Already, interest rate futures show investors pricing in at least 450 basis points in key rate increases beginning in September 2018, on the eve of the election.

The best that Goldfajn can do in such an uncertain environment, says former Central Bank of Brazil chief Gustavo Franco, is to wait and see.

### OUR ECONOMISTS SAY ...

■ The major challenge for Brazil's central bank will be to maintain the base rate at 7 percent. The economy could face two major price shocks in 2018: one, the persistent fiscal (primary) deficit of 2.5 percent to 3 percent of GDP; and two, the likely devaluation of the Brazilian real because of uncertainty stemming from the presidential election. These price shocks could take inflation close to 5 percent, above the 4.5 percent center of the target range, and drive the central bank to raise interest rates to 8.5 percent. —*Marco Maciel*

# Turkey

	2017	2018
GDP	6.2%	4.0%
CPI, YoY	12.3	11.8
Unemployment	10.9	10.3
Policy rate	8.0	8.0

Source: Bloomberg economist forecast

### OUR ECONOMISTS SAY ...

■ Resisting political pressure to cut rates will be the main challenge for the Central Bank of the Republic of Turkey. Growth will slow as the fiscal stimulus fades, possibly intensifying the government's criticism of tight monetary policy—which is exactly what's needed. Downward pressure on the lira, from higher global bond yields and continued above-target inflation, means there's no room to loosen. Further hikes are likely. —*Ziad Daoud*

# Saudi Arabia

	2017	2018
GDP	-0.5%	1.4%
CPI, YoY	-0.2	4.1
Unemployment	13.1	13.6
Policy rate	1.5	2.0

Source: Bloomberg economist forecast

### OUR ECONOMISTS SAY ...

■ The Saudi Arabian Monetary Authority is at the mercy of the government's policies. The currency peg to the U.S. dollar will force the central bank to follow the Federal Reserve's rate hikes in 2018, while fiscal deficits and potential capital flight after the recent corruption crackdown may drain reserves further. Without a change of course, the erosion of international reserves could threaten the peg in the next few years. —*Ziad Daoud*



# China

	2017	2018
GDP	6.8%	6.3%
CPI, YoY	1.5	1.5
Policy rate	4.35	4.35

Source: Bloomberg economist forecast

## The People's Bank of China Walks the Deleveraging Tightrope

BY BLOOMBERG NEWS

The People's Bank of China heads into 2018 needing to repeat the feat it pulled off in 2017—slowing the buildup of debt and reducing financial risks without derailing the economy.

It won't be easy, and it may have to be done without Governor Zhou Xiaochuan, who's hinted he will retire from the central bank after 15 years at the helm.

The PBOC's policy toolkit is likely to turn again to the tried-and-tested formula used in 2017, according to Tom Orlik, chief Asia economist at Bloomberg Economics in Beijing. Unwilling to allow growth to slip much below 6.5 percent, policymakers will lean more on regulatory tools than monetary tightening to curb debt and financial overheating, he says.

So-called macro-prudential policies, which seek to prevent financial shocks from damaging economies, have gained importance in China and been expanded to cover more sectors. The twice-a-decade National Financial Work Conference hosted by President Xi Jinping in July officially announced that the PBOC's policy framework should have two pillars: monetary policy

and macro-prudential rules.

So though market borrowing costs will likely be guided incrementally higher in 2018, the benchmark one-year lending rate is unlikely to budge, Orlik says. The median estimate of economists surveyed by Bloomberg sees the rate at 4.35 percent through 2018.

Inflation is estimated to edge up to 2.2 percent in 2018, according to the Bloomberg survey, beneath the government's usual 3 percent ceiling.

China's debt-to-output ratio is nonetheless poised to continue rising. It's forecast to reach 279 percent at the end of 2018 and 327 percent in 2022, putting China among the world's most indebted countries, estimates Bloomberg Economics. That trajectory reduces the chances China can in the longer run avoid a financial crisis.

# A Legend Prepares to Ride Into the Sunset, Leaving Risks in His Wake

BY BLOOMBERG NEWS



**CHINA IS CONTEMPLATING LIFE** after Zhou Xiaochuan. The PBOC governor—who served under four premiers and outlasted three Federal Reserve chiefs—signaled in October that he'll retire “soon.”

Over his 15 years in charge, Zhou helped open China to the world and steered it through the financial crisis. He overhauled its monetary policy tools and unpegged the yuan from the dollar. And he did all that while operating within the confines of a communist system where the State Council of the People's Republic of China calls the shots, leaving Zhou without the independence of his global peers.

After studying engineering, he held various government and bank positions through the 1980s and '90s, rising through the ranks under Premier Zhu Rongji and building a reputation as a reformist. As chairman of the nation's securities regulator from 2000 to 2002, Zhou controversially brought in foreign regulators to add expertise. It was Zhu who groomed the “liberal reformer” Zhou to head the central bank, according to a 2013 book, *The Rise of the People's Bank of China*, by Stephen Bell and Hui Feng.

Since taking the PBOC's reins in December 2002, Zhou has pushed a reform agenda. He eliminated the lower limit on lending rates offered by the nation's financial institutions and then abolished a cap on what banks could pay on deposits. His quest for a market-based interest rate system dates to at least 1993, when he described using rates as “indirect” tools of economic control.

President Xi Jinping kept Zhou in the job in 2013 even though he'd passed the typical retirement age of 65. Zhou was then appointed as a vice chairman of the country's top political advisory body, giving him added clout.

Not that there haven't been setbacks. Some of Zhou's liberalization goals have recently taken a back seat to the need to ensure stability. Foreign exchange controls were tightened to stem an exodus of capital, and authorities kept a tight rein on the yuan.

“Governor Zhou can already claim to be China's Paul Volcker—quelling the risk of inflation—and China's Ben Bernanke—holding the line against the great financial crisis,” says Bloomberg Economics' Tom Orlik. “The question is whether he will also turn out to be China's Alan Greenspan—presiding over the expansion of a major bubble, which bursts on the next governor's watch.”

### OUR ECONOMISTS SAY ...

■ A new policy direction and most likely a new governor add up to a significant challenge for the PBOC. Under Zhou, China's central bank has quietly assembled the tools required to manage an enormous credit bubble. Balance-sheet reviews are punishing banks that paint outside the lines, sweeping regulations are meant to tame shadow lenders, and the door to foreign ownership has been kicked open—a first step to greater efficiency. Even so, with debt at about 259 percent of GDP, whoever takes over after Zhou in the top job will find that deflating a bubble is harder than pumping one up. —*Tom Orlik and Fielding Chen*

# India

	2017	2018
GDP	6.6%	7.5%
CPI, YoY	3.5	3.5
Policy rate	6.0	5.5

2017 reflects data for fiscal 2018, ending March 2018. Source: Bloomberg economist forecast

## Nursing the Economy With an Eye on Inflation

BY ANIRBAN NAG

India's central bank glides into 2018 in neutral, as the economy recovers from botched government reforms and inflation quickens.

The Reserve Bank of India last cut its benchmark rate in August, to 6 percent. Economic growth was slowing, because of uncertainty generated by a new consumption tax and the withdrawal of 86 percent of currency in circulation.

The outlook for private investment has thoroughly improved after a plan to recapitalize state-run banks. Headline inflation is approaching the central bank's 4 percent medium-term target.

Inflationary fears have proved unfounded in the past, and the government's reform efforts—together with a recent sovereign upgrade by Moody's Investors Service—have created an environment conducive for accelerating growth, according to Abhishek Gupta of Bloomberg Economics. Yet according to the median estimate from a Bloomberg survey of economists, the benchmark repurchase rate will remain unchanged in 2018.

Inflation outside of food and energy prices is expected to remain stubbornly above the 4 percent medium-term target due to rising demand for household goods and services, as well as pay increases for millions of government workers that will boost their scope to spend. Elevated crude oil prices could also fuel inflation, given that India is a major importer, while rising vegetable prices could keep the cost of food high.

The RBI will also need to keep a keen eye on the U.S. and other countries as they begin to withdraw stimulus. India has managed to lure capital with its yield advantage, but that erodes with each Federal Reserve interest rate increase, shrinking the RBI's room to move.

# Switzerland

	2017	2018
GDP	0.9%	1.8%
CPI, YoY	0.8	0.7
Unemployment	3.1	3.1
Policy rate	-0.75	-0.75

Source: Bloomberg consensus forecast

## Holding Steady, Unless Demand For the Franc Rises

BY CATHERINE BOSLEY

The Swiss National Bank hopes a weak franc allows for smooth sailing. The currency softened against the euro in 2017, aiding exporters, who already had a tailwind from the euro zone's momentum, and feeding a domestic-demand revival. The government forecasts the strongest economic growth since 2014, when an exchange rate cap limited the franc's strength. Inflation remains weak, though; renewed geopolitical tensions could lead risk-averse investors back

to the franc. The SNB might have to intervene again—and foreign exchange reserves are already more than 700 billion francs (\$716 billion).

In the meantime, the SNB is expected to stick with its deposit rate of minus 0.75 percent (the lowest of major central banks) until 2019. It's using the charge on sight deposits to maintain an interest rate differential with the euro area, making franc-denominated assets less attractive.

# Sweden

	2017	2018
GDP	3.1%	2.4%
CPI, YoY	1.6	1.6
Unemployment	6.6	6.3

Source: International Monetary Fund

## Shifting Gears, From Quantitative Easing To Increasing Rates

BY JONAS BERGMAN

The Riksbank is certain to take a slow approach to tightening monetary policy in 2018, Governor Stefan Ingves emphasized at his last rate meeting of 2017 in December. Policymakers in Stockholm on Dec. 20 called an end to almost three years of quantitative easing and suggested a first interest rate increase will likely come around August 2018. The bank will reinvest proceeds from its bond portfolio to

retain a market presence. That plan, of course, depends on inflation staying near its 2 percent target—where it's hovering precariously—and the krona remaining weak even as the European Central Bank continues with its asset purchases.

### OUR ECONOMISTS SAY ...

■ In 2017 a hawkish Reserve Bank of India overdelivered on its inflation mandate and impeded growth. In 2018, with inflation poised to remain benign, the RBI will have to do a better job of managing the trade-off. Bloomberg Economics expects the RBI to commence a fresh round of rate cuts in June, by which time inflation is likely to undershoot the 4 percent target. Combined with the boost from other reforms, growth should revive just in time for the 2019 elections, allowing Prime Minister Narendra Modi to again campaign on a platform of growth and jobs. —*Abhishek Gupta*

# Euro Zone

	2017	2018
GDP	2.3%	2.1%
CPI, YoY	1.4	1.4
Unemployment	8.8	8.5
Policy rate	0.0	0.0

Source: Bloomberg economist forecast

## Quantitative Easing End in Sight Now That the Funk Is Over

BY PIOTR SKOLIMOWSKI AND CAROLYNN LOOK

Three years after it launched quantitative easing to jolt the euro area economy out of a funk, the European Central Bank could find 2018 is the year it stops expanding its balance sheet and starts thinking about raising interest rates. The 19-nation bloc is looking much sturdier, with synchronized economic growth and declining unemployment.

President Mario Draghi and his colleagues will halve monthly asset purchases to €30 billion (\$36 billion) in 2018 and will soon decide if the latest extension of QE, to September, will be the last. The process will be gradual. Bond holdings will surpass €2.5 trillion, providing plenty of stimulus even when they stop growing, and rates will stay low until well after that.

The chief reason for dovishness even in the face of economic strength is that the ECB is far from being able to say "mission accomplished." Inflation remains below its goal of just under 2 percent, and wages are stubbornly weak.

Political shocks are also still possible. After populist political parties gained support in national

elections in 2017, Italy goes to the polls in March and the Brexit negotiations trudge on.

The ECB's 25-member Governing Council has plenty of tools available to ensure the healing process continues, but it does need to work out how best to communicate. The year is likely to see decisions over forward guidance, which the central bank currently uses to manage expectations over the path of policy.

As the end of ultra-loose policy gradually comes into sight, Draghi and his colleagues can be expected to keep reminding everyone that the state of the economy would be vastly different if it hadn't been for ECB stimulus. That's aimed at countering the long-standing criticism from some nations, notably Germany, that its policies have robbed savers, boosted asset prices, and supported indebted governments.

### OUR ECONOMISTS SAY ...

■ Strong growth will make the ECB's job difficult in 2018. The pledge to buy bonds until inflation shows a sustained pickup will test the patience of hawks on the Governing Council. Still, cost pressure will take time to reflect improved conditions in the labor market, and this makes another small extension of the asset-purchase program likely. —*Maxime Sbahi and David Powell*

# Mr. 'Whatever It Takes' Keeps Giving It All He's Got

BY ALESSANDRO SPECIALE



**MARIO DRAGHI MADE** his name with three words, but his legacy hangs on just two letters.

The European Central Bank president's "whatever it takes" speech in 2012 stemmed a sovereign debt crisis that threatened the survival of the euro. Two and a half years later, he swatted aside German opposition to start the bond-buying strategy known as quantitative easing.

The full effect of the €2.5 trillion program won't be known until after he steps down in October 2019, but the 70-year-old Italian claims that it dispelled the threat of deflation and ignited an economic boom.

Draghi made his mark as an activist ECB chief early on by cutting interest rates at his first meeting, in November 2011, barely a week into the job, as the single currency started its plunge into crisis.

Previously head of Italy's central bank, he got a Ph.D. from MIT under the supervision of two future Nobel Prize winners, had a successful civil-service career, and did a stint in the private sector, at Goldman Sachs Group Inc.

Draghi's famous speech came in 2012, when he added some carefully chosen words to prepared remarks: "The ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough." Backed shortly afterward by a plan to buy the debt of stressed nations, those comments stopped investors in their tracks. The spread between borrowing costs for the strongest and weakest economies collapsed. Draghi's threatened policy tool, Outright Monetary Transactions, was never deployed.

That habit of making last-minute additions to speeches—to the frustration of some of his colleagues—was a hallmark of Draghi's fight to introduce QE. In August 2014, just two months after cutting a key ECB interest rate below zero, he unexpectedly warned that the threat of deflation was becoming dangerously real. QE was announced the following January.

Just two months later, the ECB became a lightning rod for public discontent. As Draghi inaugurated the ECB's new €1.3 billion headquarters in Frankfurt, protesters rioted outside.

Now euro-area economic growth is the strongest in a decade, yet inflation remains elusive. The final test of Draghi's tenure may be whether he can avoid becoming the only ECB chief so far to never raise interest rates.

# South Korea

	2017	2018
GDP	3.1%	3.0%
CPI, YoY	1.8	2.1
Unemployment	3.7	3.6
Policy rate	1.5	1.85

Source: Bloomberg consensus forecast

## A Leadership Handoff Approaches Amid Gradual Tightening

BY JIYEUN LEE

After kicking off Asia's interest rate tightening cycle, the Bank of Korea is expected to keep hiking rates in 2018, but at a moderate pace. In an effort to curb growth in household debt and prevent financial imbalances, the bank raised rates 25 basis points in November, from a record low to 1.5 percent. Governor Lee Ju-yeol has suggested the BOK is unlikely to move aggressively in 2018. It wants to keep monetary policy accommodative and make any additional adjustments

"carefully" after closely monitoring economic growth and inflation trends, he said in November. One reason for the softly-softly approach is that inflationary pressures are limited now. Another is the increased firepower of tightening given the level of household indebtedness. Lee also happens to be on his way out. His four-year term ends in March; a new chief will be appointed by the president.

# Russia

	2017	2018
GDP	1.7%	1.9%
CPI, YoY	2.6	5.2
Unemployment	5.2	5.2
Policy rate	7.75	7.5

Source: Bloomberg economist forecast

### OUR ECONOMISTS SAY ...

■ The Bank of Russia needs to anchor inflation expectations to its target without stifling the economy—no easy task. If wage growth proves especially swift, rates may stay higher for longer. The expansion is already sluggish, and a harder fight with inflation could cause it to stall. —*Scott Johnson*

# South Africa

	2017	2018
GDP	0.9%	1.2%
CPI, YoY	4.7	5.4
Unemployment	27.7	27.7
Policy rate	6.75	6.75

Source: Bloomberg economist forecast

### OUR ECONOMISTS SAY ...

■ The South African Reserve Bank will continue to tussle with inflation expectations. Even though growth will be meek and unemployment high, rates could still be kept at 6.75 percent. The key risk to inflation stems from the possible exclusion of South Africa from the World Government Bond Index. That could prompt a slump in the rand and a jump in import costs. —*Mark Bohlund*

# New Zealand

	2017	2018
GDP	3.5%	3.0%
CPI, YoY	2.2	2.0
Unemployment	4.9	4.6

Source: IMF

## An Incoming Governor Inherits a Sagging Economy and Weak Inflation

BY MATTHEW BROCKETT

As New Zealand's economy loses momentum, investors are lowering their bets that the country's central bank will raise interest rates from a record low in 2018. They now see a 72 percent chance of a hike by yearend, down from 100 percent in November, according to current implied probabilities. The Reserve Bank of New Zealand itself forecasts no change until mid-2019, citing a weak inflation outlook. Incoming

Governor Adrian Orr, who takes over in March, will also have to contend with reforms at the central bank planned by the new government. These include the introduction sometime in 2018 of a Fed-style dual mandate to maximize employment and stabilize prices.

# U.K.

	2017	2018
GDP	1.8%	1.4%
CPI, YoY	3.0	2.2
Unemployment	4.4	4.4
Policy rate	0.5	0.5

Source: Bloomberg economist forecast

## What's That Cloud Hanging Over The Economy? Oh, Right: Brexit

BY DAVID GOODMAN AND ANOOJA DEBNATH

After increasing interest rates for the first time in a decade, Bank of England officials are in no rush to make their next move.

The rhetoric of policymakers before and since November's rate shift has been littered with references to a limited and gradual upward path for borrowing costs. With varying degrees of explicitness, they've largely endorsed an outlook of two more increases in the next three years to lift the key rate to just 1 percent.

The wild card is Brexit.

The uncertainty surrounding the terms of the nation's departure from the European Union is weighing not only on economic growth but also on potential output as investment is delayed. That could mean a huffing-and-puffing economy that's squeezed even at a lower rate of expansion.

Amid such doubt, Governor Mark Carney and colleagues are preparing for a move in either direction—just in case—which gives them the wriggle room to respond if the negotiations deliver a better-than-expected outcome or collapse and leave the U.K. adrift without a deal.

According to Ben Broadbent, the

deputy governor for monetary policy, the economic effects are "certainly too complex to justify the simple assertion that Brexit necessarily implies low interest rates." Officials claim they have the right tools for either scenario and pledge to be "nimble."

The banking sector isn't quite sure what to make of the signals. While one rate hike late in the year is broadly priced in by investors, some bank economists are predicting wildly different paths in 2018. JPMorgan Chase & Co. says there will be as many as two hikes, while Capital Economics Ltd. expects three. Bloomberg Economics forecasts none at all.

### OUR ECONOMISTS SAY ...

■ Whether Brexit is hard or soft, the Bank of England's real struggle will be in communicating its strategy. If negotiations go well, it must explain why it plans to raise rates even as inflation wanes and growth is slow. If talks collapse, the smooth transition envisaged by policymakers will be in tatters, and the bank may need to reverse its latest rate hike. Speaking candidly about this scenario would help investors plan for and possibly prevent the worst market gyrations. —*Dan Hanson*

## In Interesting Times, Carney Becomes the Brexit Shock Absorber

BY JILL WARD



**MARK CARNEY CELEBRATES** five years at the Bank of England in 2018, and no one can say it hasn't been interesting.

Carney's original mission when he arrived from the Bank of Canada was to modernize the three-century-old institution. Instead, his focus has become safeguarding growth through a turbulent Brexit, while doing what he can to protect Britain's finance industry.

In the year and a half since the EU referendum, the 52-year-old has restarted bond purchases and both cut and raised interest rates.

Amid the drama, Carney tried a more upfront style of communication. He was already set apart from his predecessors as the first foreigner to run the venerable Old Lady of Threadneedle Street. He introduced forward guidance and used it—with varying degrees of success—to manage interest rate expectations.

It's proved a difficult tool. Messages needed to be finessed on several occasions when the economy didn't perform as expected. That's earned him a nickname: the unreliable boyfriend.

Carney has reorganized the bank, adding deputy governors, fusing departments, and integrating policy functions. He's been a much more public figure than his predecessors, running the London Marathon for charity, attending music festivals, and involving himself heavily in climate change initiatives.

The backdrop has been anything but simple. When he took over, the U.K. was the fastest-growing Group of Seven nation. But then politics got in the way. It's now the slowest.

Two general elections were big enough challenges, but there also was the referendum on Scottish independence and, of course, Brexit. The 2016 bombshell forced Carney to unleash the first loosening of monetary policy in four years.

The vote also tanked the pound, putting the BOE in a vise between accelerating inflation and weaker economic expansion. At the time, Carney's warnings put a target on his back as Brexit backers chided him for meddling in politics.

While the bank's gloomiest predictions didn't come to pass, the economy has lost momentum as well as some potential growth. That prompted the first rate hike in a decade on concern the economy could overheat, even expanding at a weaker pace than in the past.

The former Goldman Sachs banker is due to leave the BOE in June 2019. He extended his time to help with an "orderly transition" out of the EU. For now, he says he can't predict how Brexit will hit the economy next.

# Indonesia

	2017	2018
GDP	5.0%	5.4%
CPI, YoY	3.4	4.0
Unemployment	5.4	5.2
Policy rate	4.25	4.25

Source: Bloomberg economist forecast

## Juggling Growth and Stability While Contending With a Potential Leadership Change

BY MICHELLE JAMRISKO

Bank Indonesia is expected to continue navigating a puzzle of disappointing economic growth and market vulnerabilities in 2018, all the while bracing itself for a possible change in leadership.

After eight interest rate cuts since the start of 2016, policymakers switched to neutral in October. Economists expect they'll remain there through 2018, with the seven-day reverse repurchase rate staying at 4.25 percent.

A potential complication: the Fed's monetary tightening, which could prompt currency weakness as emerging-market assets lose their preferred status.

A critical factor in spurring demand would be an uptick in loans, which have been lackluster. Commercial banks' lending rates have been slow to keep pace with the central bank's cuts, Senior Deputy Governor Mirza Adityaswara told Bloomberg in a November interview.

Bank Indonesia has attempted to spur loan and credit growth through macro-prudential measures by relaxing bank reserve requirements.

"Growth should progressively

inch higher," especially with the central bank's reduction in reserve requirements planned for the second half of 2018, says Tamara Henderson of Bloomberg Economics.

She sees Bank Indonesia holding the reverse repo rate constant this year, with inflation slightly above the 3.5 percent target midpoint due in large part to oil prices.

Bank Indonesia may also need to contend with a leadership change. Governor Agus Martowardojo's five-year term ends in May, though a one-term extension is possible.

Agus, a former finance minister, has raised the bank's profile by enhancing communication with the market. That's been critical amid the eight rate cuts undertaken since the start of 2016.

### OUR ECONOMISTS SAY ...

■ Bank Indonesia's biggest challenge will be achieving liftoff for domestic demand. Since 2015 the bank has cut rates, improved monetary transmission, and loosened lending rules—yet consumption and investment have failed to ignite. A turning point could come in 2018. Credit growth should be less constrained by bad loans, and banks will have more funds to lend when reserve requirements are relaxed in the second half. —*Tamara Henderson*

# Australia

	2017	2018
GDP	2.3%	2.9%
CPI, YoY	1.8	2.4
Unemployment	5.6	5.3
Policy rate	1.5	1.5

Source: Bloomberg economist forecast

## Is It 2018—or 2000? This Economy Will Make You Wonder

BY MICHAEL HEATH

The Reserve Bank of Australia could be forgiven for wondering what year it is.

As its peers in developed countries gather steam, and technological change reshapes industries, Australia is lagging, reviving memories of the "Old Economy" tag from the start of the millennium.

The country's stock market is a tech-free zone, high immigration is propping up economic growth, inflation is below target, wages are flat, and consumers are tapped out. The rare bright spot? Commodity exports.

In another redux of the early 2000s, Australia's yield advantage is set to disappear as the U.S. rate climbs above the RBA's. The last time that happened, the Australian dollar ended up slumping below 50 U.S. cents. Commodity prices are stronger these days, keeping the currency well above those levels.

A 5 percent move in the Aussie has the same impact as a quarter-point move in the RBA's benchmark cash rate, according to Paul Bloxham, chief economist for Australia at HSBC Holdings Plc, who previously worked at the central bank.

The RBA is trying to make a virtue of its steady hand, arguing that it provides a degree of certainty for households and businesses. Governor Philip Lowe has resisted chasing inflation with ever lower rates. Instead, he's highlighted risks from excessive borrowing, looser lending standards, and surging asset prices.

Australian central bankers aren't "inflation nutters," Lowe has said. He's argued there's no need to rush inflation's return to its target of 2 percent to 3 percent, particularly if that might come at the expense of financial stability.

### OUR ECONOMISTS SAY ...

■ The Reserve Bank of Australia will wrestle with its robust dollar. Growth should strengthen as investment picks up, especially when the mining sector finds its footing. That could lead to a rally in the currency as traders anticipate rate hikes. For jobs and wages, that would bring stiffer headwinds—increasing the strain on stretched household balance sheets. —*Tamara Henderson*

# Japan

	2017	2018
GDP	1.7%	0.9%
CPI, YoY	0.5	0.9
Unemployment	2.8	2.7
Policy rate (overnight/10Y)	-0.1/0	0/0.25

Source: Bloomberg economist forecast

## The World's Most Daring Monetary Experiment, Continued

BY BRETT MILLER

After five years of unprecedented stimulus from the Bank of Japan, the economy is enjoying its longest run of uninterrupted growth in almost 17 years, the stock market is buoyant, and unemployment is the lowest in a generation.

The trouble, according to BOJ Governor Haruhiko Kuroda, is a "deflationary mindset" that's taken hold of consumers and businesses. After decades of economic malaise, the Japanese seem more comfortable with flat or falling prices.

Consumer price gains are still less than half the 2 percent target. So the BOJ continues to purchase massive amounts of Japanese government bonds—so much that the central bank's balance sheet has become almost as large as the nation's \$4.8 trillion economy.

This is entrenching a divide between the BOJ and its peers that's only going to get wider in 2018 as the Fed and European Central Bank winnow their reserves.

The gap in interest rates will probably grow. Any tweaking of the short- or long-term rates the BOJ uses to manage bond yields is

unlikely to shift borrowing costs far from zero.

"Current conditions aren't ripe for a withdrawal of stimulus," says Yuki Masujima of Bloomberg Economics. "Further out, conditions could fall into place for the BOJ to adjust its yield-curve settings."

Adding to the drama, central bank watchers are waiting to see if Abe will break with convention and reappoint Kuroda to a second term before his contract ends in April. Most observers in Tokyo think that's likely.

While Kuroda or his successor is tipped to keep the current framework in place, speculation is increasing that the BOJ could raise its long-term interest rate—the target of zero percent that it set for 10-year bond yields. The bank also may slow some of its bond purchases.

# A Monetary Maverick Considers His Next Act

BY BRETT MILLER



**HARUHIKO KURODA ARRIVED** on the monetary policy scene with a bang when he took over the Bank of Japan in 2013. Radically increasing monetary stimulus, he transformed the central bank from an institution often criticized for doing too little into one that scared some for doing too much.

A lot has changed since Kuroda, now 73, became governor, but his policies remain as important and controversial as ever. Supporters point to an economy in its longest growth spurt since 2001—one that's even showing signs of a pickup in inflation, however meager. Detractors point to the BOJ's balance sheet, which has swelled to almost the same size as the nation's gross domestic product and enabled the government to keep racking up debt.

Then there's Kuroda's uneasy relationship with investors. Buyers of Japanese stocks could hardly be happier with their gains in recent years, but the bond market is reeling from his purchases of government debt securities.

The key question for 2018 is whether Prime Minister Shinzo Abe will break with convention and reappoint Kuroda, whom he handpicked to spearhead efforts to reflate the economy. A majority of experts, including Yuki Masujima of Bloomberg Economics, expect Abe to keep the governor in place for another five years. This would make him the longest-serving Japanese central bank governor of the postwar era.

"Kuroda has done a good job leading a large and complicated organization, while avoiding too much intervention into monetary policy by the government," Masujima says. "Flexibility characterizes his style. When shock-and-awe lost its punch, Kuroda shifted to incremental easing before adopting yield-curve targeting."

Kuroda's keen understanding of financial markets and how they affect the real economy goes back to his days at the Ministry of Finance. He rose to become the nation's top foreign exchange official at the ministry during a period when Japan often intervened to address strength in the yen.

He may be the only central banker to go so far as invoking *Peter Pan*, once comparing the task of fostering inflation expectations to the magical boy's efforts to fly: The moment you doubt yourself, you can no longer do it.

### OUR ECONOMISTS SAY ...

■ The Bank of Japan needs more room to maneuver. Inflation far below its 2 percent target presents an argument for staying the course. But its ballooning balance sheet means risks are growing. The biggest challenge will be crafting an exit strategy without sinking prospects for reflation. Getting the right balance could require more flexibility. A government declaration that deflation has been vanquished could give the central bank a window to steepen the yield curve, relieving strain on the financial system while maintaining stimulus. The end of Kuroda's term in April adds near-term uncertainty. —*Yuki Masujima*

# Synchronicity

Mario Draghi is right: In Europe, the fortunes of rich and poor countries are converging

By ALESSANDRO SPECIALE

**AFTER A DECADE OF CRISES** almost broke apart the euro area, the bloc's economies have emerged on more common ground than ever.

Not since before the creation of the monetary union in 1999 have growth rates across the more prosperous Northern and weaker Southern European states been as close as they are. Even measurements of worker productivity are more in sync than they were before the global financial crisis.

## GROWING, CLOSER

Standard deviation of gross added value\* growth rates in the euro zone  
 / Across countries / Across sectors



\*A way of calculating GDP that excludes taxes but includes subsidies on products  
 Source: European Central Bank

This merging of fortunes means that, for now at least, existential questions about the euro zone can be put on hold. For the economic region to survive in the long run, though, convergence needs to deepen and spread long after European Central Bank President Mario Draghi pulls the plug on the easy money policies that helped turn things around.

“Countries have converged a lot, at least in terms of growth rates,” Draghi told a panel including Federal Reserve Chair Janet Yellen and Bank of England Governor Mark Carney in Frankfurt in November. “Probably the most important thing for a monetary union is convergence.”

Evidence that euro economies are no longer drifting apart is important because big divergences in Spain, Portugal, Ireland, Greece, and Cyprus took the monetary project to the brink of collapse.

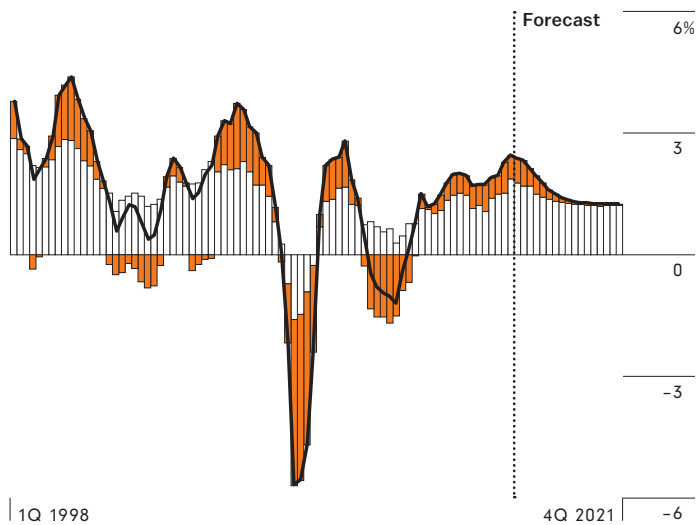
It also helps reinforce the French and German push for closer political coordination to foster unity as the U.K. prepares to leave the European Union and as the rise of nationalist parties poses a threat to deeper integration. Not to mention how much easier it would make Draghi's job—pushing one monetary policy on 19 countries of varying size, wealth, and strength has been messy.

The data suggest the progress isn't going to unravel as soon as the ECB winds down its €2.6 trillion (\$3.1 trillion) asset purchase program. For one, euro area economies are less reliant on exports for growth than they were a decade ago, making them less susceptible to external shocks. By driving down interest rates on bank loans, the ECB encouraged a broad revival in services and manufacturing. Falling unemployment is bolstering domestic demand.

## CYCLICAL RECOVERY CONTINUES

Euro zone GDP growth rate, year over year

□ Trend / Cyclical / Actual



Source: Bloomberg Economics

Investors are picking up on the growing synchronization. Faster growth and a narrower budget deficit in Portugal, for instance, drove down the premium investors demand to own the country's 10-year bonds over Germany's to a 2 ½-year low.

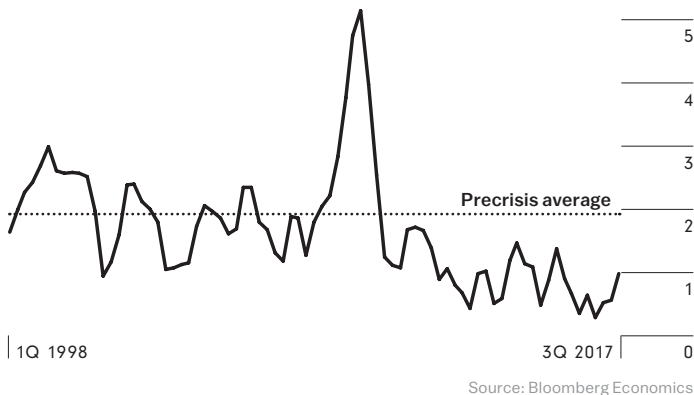
But to move toward the kind of prosperity promised when the currency union was first conceived requires more than



conformity in growth rates. The economy's productivity is also crucial because it bolsters economic resilience and ultimately creates the conditions for salaries to rise. Here, too, Bloomberg Economics data show an improvement taking root compared with the union's first years and the aftermath of the global financial crisis.

### TREND PRODUCTIVITY GROWTH CONVERGING

Standard deviation of trend productivity growth rates in the euro zone



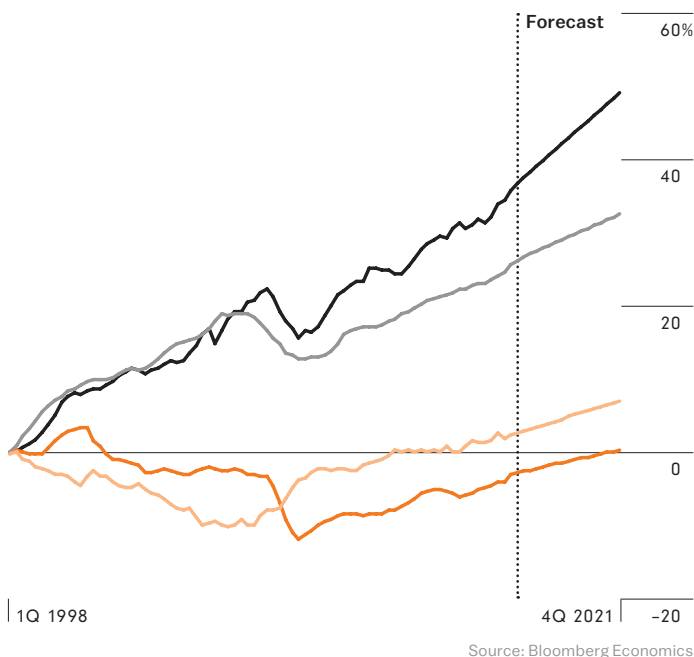
“Ultimately what matters for improving living standards is the trend of productivity growth, and here we do find some evidence of convergence,” says Jamie Murray, a European economist for Bloomberg Economics in London. “Partly that reflects slower productivity gains in Northern Europe. But it is also because Southern Europe has done better.”

Murray's projections show productivity gains will continue across the four biggest euro zone economies, but weaker members such as Italy and Spain need to advance even faster to catch up with Germany and France if genuine convergence is to become a reality.

### PRODUCTIVITY LEVEL GAP STILL WIDENING

Change in trend productivity since 1Q 1998

Germany France Spain Italy



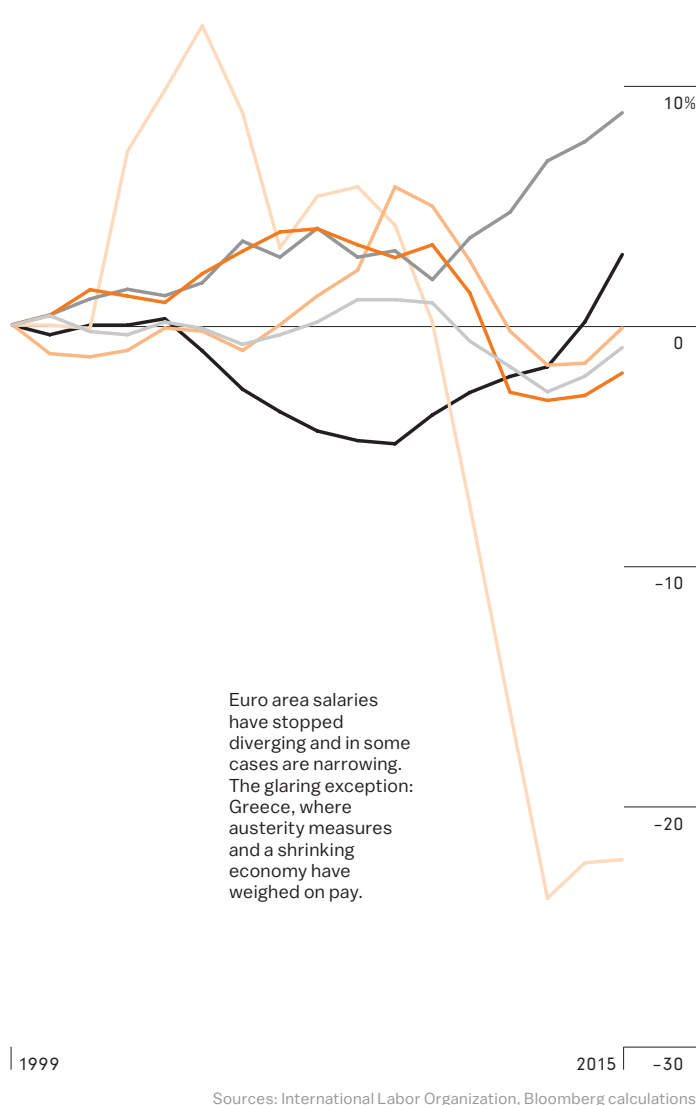
That requires initiatives from national governments to open up the labor market and increase competition in the economy. In Italy, in particular, the risk is that progress gets set back by elections this year in which anti-establishment parties are poised to make major inroads.

For now, the gaps between richer and poorer euro nations aren't getting wider, which is encouraging for the viability of the euro. The difference in real wages between most countries in the bloc has actually been narrowing.

### PAY GAP SHRINKING

Change in inflation-adjusted wages since 1999

Germany France Netherlands Greece Spain Italy



While ECB stimulus brought the monetary union back from the brink, the onus is on governments to “catch up,” according to Guntram Wolff, director at the Brussels-based think tank Bruegel. “This will require something that the central bank can't do—reforms at the national level and stronger safety nets in the euro area to repair long-term confidence,” he says. ●

Speciale is an ECB and euro area economy reporter in Frankfurt. With assistance from Anooja Debnath.

# China Tries To Fight Off A Case of the Sniffles

By KEVIN HAMLIN, ENDA CURRAN, and CHRISTOPHER ANSTEY

ILLUSTRATION BY JOAN WONG

**IT USED TO BE** that when America sneezed, the world economy caught a cold. These days, it's the risk of a sickly China that poses a bigger threat.

The world's second-largest economy enters 2018 trying to ward off the sniffles. While gross domestic product growth likely accelerated in 2017 for the first full year since 2010 and is advancing at a pace that sees it double every decade, much of the expansion is being fueled by a massive buildup of credit.

Debt surged to 259 percent of output in 2016 and is on track to reach 327 percent by 2022, reducing the country's ability to avoid financial turmoil, according to Bloomberg Economics.

People's Bank of China Governor Zhou Xiaochuan, who as we went to press had only hinted he's poised to retire from the central bank, is already warning that China must be wary of a potential "Minsky moment," a term used to describe a sudden plunge in asset values following unsustainable gains or the exhaustion of credit. Such a threat leaves Zhou or his successor under pressure when managing the PBOC, which left its key interest rate unchanged in 2017.

"Too loose monetary policy will induce further bubbles and debt escalation whereas too much tightening runs the risk of triggering a financial crisis," says Zhu Ning, deputy director of the National Institute of Financial Research at Tsinghua University in

Beijing. "It's going to be an increasingly challenging balancing act."

Given that China was forecast by the International Monetary Fund to contribute more than a third of global growth in 2017, how China deals with its debt matters far beyond its borders. In terms of raw contribution to global demand, China's credit expansion provided a bigger boost than quantitative easing, according to Tom Orlik of Bloomberg Economics. In the past eight years alone, the country took on 141 trillion yuan (\$21.7 trillion) in debt, helping the world out of recession and underpinning everything from the consumption of Australian iron ore to Starbucks Corp. opening its biggest store in the world in Shanghai. If the economy stumbled now, it could end up being as much of a challenge for incoming Federal Reserve Chair Jerome Powell as for Zhou.

"China's policymakers—facing growing financial risks and betting they're in a self-sustaining recovery—are planning to tighten the credit taps," Orlik says. "For China and the world, a lot is riding on them getting that right."

President Xi Jinping has already put the PBOC on guard by announcing in July that it will play a bigger role defending against risks and that financial security is part of national security. In December, Xi and China's economic policymakers agreed to a three-year plan to "fight the battle of preventing and resolving



major risks, with a focus on preventing and controlling financial risks.” Their aim is to foster a “virtuous circle” between finance and the real economy, they said in a statement. The PBOC and other regulators have also acted to reduce risky lending between banks, online financing, and shadow banking while ensuring the flow of credit to the real economy has continued.

Cover is being provided by signs that the rest of the world is enjoying its strongest period of growth since 2011. With Europe and the U.S. picking up, China can take stronger action to rein in risky lending, knowing that international drivers of demand are in the best shape in years.

There are two tests for China’s credit clampdown. First is wringing out bets on property prices. As Xi told the Communist Party leadership in October, housing is for living in, not for speculation. But recent data show that prices are still surging in many cities despite a raft of measures to make it harder for investors to buy real estate with borrowed money.

The second key challenge is making progress in aligning borrowing costs with borrowers’ ability to repay—rather than with their relationship with the state. China’s financial system has long let state-owned companies or those seen to be implementing state initiatives to get funding more cheaply than others on the assumption the government will step in if needed to back them up.

To help encourage more efficient deployment of capital—and to prevent continued funding of companies that are effectively insolvent—policymakers have begun to gradually take away implicit support. Complicating the ability to deal with the outlook is the immaturity of China’s monetary policy tools and regulatory system in an economy that’s increasingly complex and market-oriented, according to Eswar Prasad, a former chief of the IMF’s China division and now a professor at Cornell. Financial innovation is getting ahead of regulatory expertise, and big financial institutions are increasing their presence and activities in multiple financial markets, he says. Much may come down to the art of communication, and there are signs that the central bank wants to start better explaining its thinking to investors.

“The real decision-makers need to engage more with the international community and markets,” says David Loevinger, a former China specialist at the U.S. Department of the Treasury and now an analyst at TCW Group Inc. in Los Angeles. “While China’s made a lot of progress, it needs to get past the point where it sends out the barbarian handlers to deal with foreigners while the real decision-makers pull strings from behind the curtain.” ●

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Hamlin, Curran, and Anstey cover economics for Bloomberg News.

# Welcome to the Elite Private Club Of the World's Central Bankers

By CATHERINE BOSLEY and ALESSANDRO SPECIALE

PHOTOGRAPH BY SIMON DAWSON

**THERE'S BEEN A CHANGING** of the guard at the Bank for International Settlements, the little-known organization that sits at the heart of the world's financial system.

Agustín Carstens, former head of Mexico's central bank, succeeded Jaime Caruana as general manager on Dec. 1. He's taking charge of an institution that stands out as a bastion of global technocracy in an age of increasing transparency and growing disillusionment with elites.

The BIS headquarters, which towers over Basel like a 70-meter stack of copper coins, serves as a clubhouse for the world's central bankers and financial rulemakers. The likes of Mario Draghi, Janet Yellen, and Mark Carney routinely hold confidential gatherings there with colleagues from around the globe. "Maybe if it didn't exist you wouldn't invent it now, but it plays an important role in the central banking world," says Charlie Bean, former deputy governor of the Bank of England, who co-authored a report on the BIS's research in 2016. "It's the glue that helps keep the fraternity together."

That hasn't stopped the BIS, which was founded in 1930 and is owned by central banks, from challenging the economic orthodoxy of its own members. By 2003, William White, then economic adviser, and colleague Claudio Borio were pushing for preemptive monetary tightening to avoid dangerous asset bubbles, a contrarian view that looked prescient later, during the financial crisis. It's kept beating that drum even as central bankers in the U.S., Europe, and Japan slashed interest rates to record lows and launched unprecedented bond-buying programs to fend off deflation. Borio, now head of the monetary and economic department at the BIS, argued in a September speech that central bankers may be underestimating the "generally benign" effects of globalization and technology on inflation and should rethink their response to deflationary trends. He called out Larry Summers, former secretary of the U.S. Department of the

Carstens, the new general manager at the Bank for International Settlements



Treasury and a proponent of the "secular stagnation" theory, who argues weak U.S. growth and inflation result from a persistent shortfall in demand. Summers describes the BIS as "an important source of thinking on issues relating to financial stability and economic performance," while adding that he frequently disagrees with its conclusions. He's not alone in questioning the BIS's stance. A 2016 review of the bank's publications co-authored by Bean found the organization "doing a lot right" on the research front but expressed reservations about the BIS "generating results to support the 'house view.'"

**CARUANA, WHOSE TENURE** began during the dark days of the financial crisis in April 2009, defended the BIS. "You may agree with what we say or not, but I think there is a value to introducing these elements in the debate," he told Bloomberg in November, referring to the bank's preference for taking a medium-term, global perspective and highlighting financial stability risks. Research aside, the BIS has grown in prominence in the years of monetary policy experimentation and banking regulation that have followed the crisis. While some central banks made efforts to open up as their increasing powers drew scrutiny from voters and governments, in Basel they've rowed back. Jens Weidmann, president of Germany's Bundesbank and chairman of the BIS board of directors, says sometimes secrecy is necessary. "Informed decisions on domestic

monetary policy require a nuanced understanding of international developments," Weidmann says. "The privacy of the meetings facilitates a frank and open exchange of views."

The organization hosts the Financial Stability Board and the Basel Committee on Banking Supervision, which hash out the rules that govern the international financial system. There's also the Global Economy Meeting and its sister forum, the Economic Consultative Committee, dubbed "the world's most exclusive club" by Adam LeBor, author of a book on the BIS. These latter two groups convene once every two months, on a Sunday, for formal sessions followed by a dinner on a top floor of the BIS tower, which has 360-degree views of Basel and the mountains. They seldom open themselves to scrutiny from the press and the public.

The clubby, shrouded nature of the organization and the committees it hosts contrasts with efforts at greater transparency elsewhere. The European Central Bank bowed to public pressure in 2015 and began publishing the minutes of its meetings, while the Federal Reserve started holding quarterly press conferences in 2011.

**AS FOR THE BIS**, it has scrapped the press conference that used to accompany the publication of its annual report, while the Global Economy Meeting discontinued press briefings following its bimonthly gatherings. Transcripts or minutes of the meetings held in Basel aren't made available; actions are relayed through press statements, if at all. That approach doesn't sit well with everyone.

"You don't know what were the discussions in the room, or who got bullied into what," says Sharon Bowles, former chair of the Economic and Monetary Affairs Committee of the European Parliament. "You get a fait accompli at the end."

In his interview, Caruana insisted there's a lot of communication from the bank through papers and reports, and that improvements have been made in transparency and accountability. What's more, he added, rules set by the Basel Committee must be enacted by national legislatures, making them "subject to all the checks and balances."

Carstens, 59, is a long-standing member of the global financial elite. He earned a doctorate in economics from the University of Chicago and served as finance minister before taking up his role at the Bank of Mexico in 2010. In his new job, he says he'll focus on the BIS's traditional role of facilitating communication between central banks, while keeping a skeptical eye on cryptocurrencies such as bitcoin. "An area where the BIS will devote a lot of resources is to virtual assets, which traditionally are called cryptocurrencies. But we don't believe that they are currencies," Carstens says.

There's little sign the institution will raise the curtain on the secretive proceedings it hosts anytime soon. "There's a sense of exclusivity among the governors," says Stefan Gerlach, who worked there for two stints between 1992 and 2007 and later served as deputy governor of Ireland's central bank. "They like to be in Basel and talk among colleagues." — *With assistance from Eric Martin, Carlos Manuel Rodríguez, Zoe Schneeweiss, Jan Dahinten, and Donal Griffin*

Bosley covers economics from Zurich. Speciale covers the ECB in Frankfurt.

# *It's Trump's Fed Now*

By PETER COY and CHRISTOPHER CONDON

ILLUSTRATION BY GLUEKIT



**IT TOOK PRESIDENT FRANKLIN D. ROOSEVELT** a dozen years to turn over all the seats on the Federal Reserve's governing board. Donald Trump is in a position to name five governors in just two years, while elevating a sixth to the chairmanship.

Markets are betting that Trump won't seize on this chance to reshape the nation's central bank in his own defiant image. So far his picks have been mainstream, and he's refrained from berating the institution, which has been gradually raising interest rates to keep the U.S. economy from overheating.

Of course, Trump could get more provocative with his three remaining board nominations, particularly if he wants to placate the populist, anti-Fed wing of his own party. And if the Fed's rate-raising campaign seems to be thwarting his efforts to make the economy grow faster, he could pivot against the Fed's leadership the same way he went after Chair Janet Yellen during his run for the presidency.

Even if none of that happens, Trump's remaking of the Board of Governors is stripping it of decades of institutional experience. Danske Bank A/S economists recently calculated that after Yellen steps down in February, the governors will have just 10 years of collective board experience, the lowest number since Ronald Reagan's second term in 1988.

The rapid turnover could unsettle markets that have become accustomed to gradual, well-telegraphed changes of direction, says Diane Swonk, who runs an economic consulting firm, DS Economics, in Chicago. Even the more seasoned Fed of 2013 managed to freak out investors around the world when a casual mention of a change in asset purchase plans caused what was quickly dubbed a taper tantrum. "To assume the new people are going to learn from all their past mistakes when we're in uncharted territory is expecting too much from the institution, frankly," says Swonk. "It could all be benign. But it may not be."

A key indication that Trump is determined to put his stamp on the Fed is that he chose not to reappoint Yellen, a Democrat, to another four-year term as chair. In contrast, Reagan kept Paul Volcker as chairman for most of his time in office even though Volcker is a Democrat, and Bill Clinton stuck with Alan Greenspan, a Republican. Trump told Fox News anchor Lou Dobbs in October, before announcing his decision on the chairmanship, that he liked Yellen, but added, “In one way, I have to say, you like to make your own mark.”

Trump the businessman does appear to understand the need for an independent central bank. So does Treasury Secretary Steven Mnuchin, who’s a sounding board for Trump on the Fed. A board choice that undermined investors’ confidence in U.S. monetary policy could be disastrous for the president’s agenda. Trump “realized that these appointments matter,” says Mark Gertler, a New York University economist.

So far the president’s Fed picks have been considerably more centrist than his cabinet choices. Jerome Powell, who succeeds Yellen as chair on Feb. 3, was a visiting scholar at the Bipartisan Policy Center before joining the Fed board in 2012. He’s worked as a Wall Street lawyer, investment banker, and Treasury Department official. Randal Quarles, the new vice chair for supervision, is also a former Wall Streeter who put in time at Treasury. Both men were once partners at Carlyle Group, a private equity firm with connections to both political parties. Marvin Goodfriend, who’s awaiting confirmation, is a respected monetary economist at Carnegie Mellon University with deep knowledge of the Fed.

The next choices will be crucial. If Trump wants to assuage Hill Republicans who feel the Fed’s interest rate decisions have been arbitrary and unreliable, he could name John Taylor of the Hoover Institution as vice chair—assuming Taylor would take the job after having been passed over as chair. He’s the leading advocate for managing interest rates according to a published formula (known as the Taylor Rule).

Two Ph.D. economists who worked for President George W. Bush are also reported to be under consideration. Richard Clarida, a Columbia University professor who’s a strategic adviser to bond manager Pacific Investment Management Co., was cited

by the *Wall Street Journal* in December. Lawrence Lindsey, a Fed governor in the 1990s who later ran Bush’s National Economic Council, was first cited by CNBC. A centrist alternative would be Mohamed El-Erian, chief economic adviser at German insurance giant Allianz SE, who is a Bloomberg View columnist. Many other names are in the mix.

Trump also has an opportunity, albeit an indirect one, to reshape the leadership of the 12 regional Federal Reserve Banks. The presidents of those banks sit with the board governors on the rate-setting Federal Open Market Committee, though only five of the presidents can cast a vote at any one time. In recent years the Board of Governors has exerted more influence over whom the regional Feds pick as president, through the vetting process for candidates. This could eventually give Trump’s nominees to the board—and, by extension, Trump—more say over who heads the regional banks.

Centralization of power at the Fed increases the risk of groupthink. That danger would be exacerbated if Trump continues to lean away from Ph.D. economists in filling board openings. Academic economists aren’t always right, but they do tend to research their positions deeply and defend them tenaciously. Only one of Trump’s choices, Goodfriend, fits that mold. And only two of the latest six regional bank president appointees have economics Ph.D.s. On Dec. 4 the Federal Reserve Bank of Richmond named as president Thomas Barkin, a senior executive of the consulting firm McKinsey & Co. “You have to have professional diversity, but we’re getting dangerously close to going too far away from professional economists,” says Peter Conti-Brown, a Fed historian at the University of Pennsylvania’s Wharton School.

With inflation and unemployment low and the stock market hitting highs, everyone’s getting along fine. But will the Fed stand up to Trump if it needs to raise rates more than he wants? And if it does, how will he respond? That, says David Rosenberg, the chief economist of Canadian wealth manager Gluskin Sheff + Associates Inc., “is the elephant in the room.”

● — *With assistance from Craig Torres*

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Coy and Condon cover economics for Bloomberg News.

# Your Central Bank Toolkit

By RICHARD MARQUIT and MICHAEL MCDONOUGH

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## CONTENT

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**TOP ECO** Read Bloomberg News articles about global economic developments, monetary actions, and government and private data releases.

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## DATA/INDEXES/CHARTING

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## FEDERAL RESERVE

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**DEBT** See primary sovereign debt holders to identify their exposures to issuer liabilities. Visualize and rank primary holders of U.S. and non-U.S. debt to gain insight into investor strategies and market direction.

**FOMC** A reference guide for Federal Open Market Committee meetings, actions, and monetary policy leanings.

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## EUROPEAN CENTRAL BANK

**ECBB** Provides Bloomberg-estimated Public Sector Purchasing Program data for determining the amount and scope of sovereign bonds expected to be released, purchased, and redeemed.

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**WIRP** Track and analyze the probabilities of various interest rate level outcomes for 10 countries as implied by the futures, options, and OIS markets. Current and historical probabilities are presented in table and chart formats.

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