OUTLOOK

ECONOMIC DATA AND COMMENTARY

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What's Ahead for China – and How Will That Affect the Global Economy?

China's faltering economic expansion has been an ongoing concern for economists and world financial markets since at least 2010, the last time its annual growth rate – real GDP – hit double digits. Yet in recent months, amid a persistent trade dispute with the United States, and as Germany and other global economic powers with close connections to China seem perilously close to recession, questions about the outlook for China have taken on increasing urgency. How much is the trade war affecting the economies of China and its trading partners? Will the Chinese government take further steps to push the growth rate higher? And what can U.S. importers and exporters expect from China in the months ahead?

Mary E. Lovely, professor of economics at Syracuse University's Maxwell School of Citizenship and Public Affairs and a senior fellow at the Peterson Institute for International Economics, says that China's slower expansion today is an inevitable result of the nation's more explosive growth in years past, which made its economy too large to continue growing at such a breakneck pace. Yet the Chinese economy continues to grow, she says, and the country's middle class continues to do well, attracting the attention of companies around the world. "International firms still very much want to be there, selling to that market," says Lovely, who shared her thoughts with OUTLOOK about China's challenges and opportunities and about how what happens there resonates globally.

OUTLOOK: Where does the Chinese economy stand right now?

Mary Lovely: Putting precise numbers on the Chinese economy is a challenge, but the economy is likely growing somewhere between 5% and 6%, which is considerably slower than in recent years. This is something we've expected for a long time, and there are fundamental reasons. China is now an upper-middle-income country. When you're at that level, you can't get the 10% growth China had become used to. For years China's economy was growing by double digits, and it was one of the most extraordinary growth periods in the history of the world.

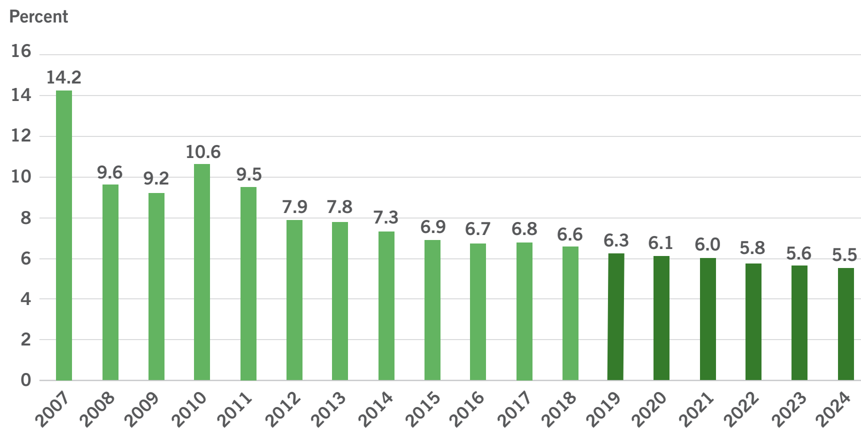
This Month's Expert

Mary E. Lovely is a senior fellow at the Peterson Institute for International Economics, an independent, nonpartisan research organization in Washington, D.C., and is a professor of economics and the Melvin A. Eggers Faculty Scholar at Syracuse University's Maxwell School of Citizenship and Public Affairs, where she combines interests in international economics and China's development.

From 2011 to 2015, Lovely served as coeditor of the *China Economic Review*. Her current research projects investigate the effect of China's foreign direct investment policies on trade flows and entry mode, the relationship between proximity to export markets and cross-city wage variation and the influence of Chinese tariff reductions on labor shares of value in its manufacturing firms. She recently completed studies of American manufacturing employment and outsourcing to low-income countries, the role of intellectual returnees in the success of China's photovoltaic solar industry, and the structure of Chinese reforms of state-owned enterprises.

Lovely earned her doctorate in economics at the University of Michigan, Ann Arbor, and a master's degree in city and regional planning from Harvard University.

CHINA'S REAL ANNUAL GDP GROWTH: 2007-2018 AND PROJECTIONS THROUGH 2024



Source: IMF, World Economic Outlook Database, April 2019

OUTLOOK: What's behind that slowing growth?

Lovely: Until recently, China could get a lot of growth simply by moving labor and capital from industries such as agriculture, with a low or even negative rate of return, and where surplus labor was sitting around or even getting in the way, to industries such as manufacturing. This tremendous internal migration to manufacturing drove China's export push. It created enormous wealth simply by moving unproductive resources into productive uses.

Now, after 40 years of rapid economic expansion, opportunities for that earlier type of gain are smaller. China's labor force has stopped growing, and workers are more or less in the right places. So, they're not getting any GDP increase just from adding or shifting workers. Now, in order to grow, they have to raise overall productivity. That's been China's goal since the turn of the century. They have to create productivity by advancing their technology, but that's much harder.

OUTLOOK: What are some of China's main challenges to raising productivity?

Lovely: One of the most important is misallocation of capital. Nicholas Lardy, my colleague at the Peterson Institute, has written about this in his new book, "The State Strikes Back." He shows convincingly that investment flows flipped after 2013, before which most investment was heading to the private sector. Now it's going to the state-owned sector. The state sector, as a whole, earns much lower rates of return on assets. Nick estimates that this shift is taking about 2 percentage points away from Chinese growth. In other words, without that shift, China's growth would be 7% to 8%, not 5% to 6%.

> "Uncertainty makes business afraid to move forward, so the anti-corruption campaign has taken some of the wind out of the sails of the economy."

OUTLOOK: Why are private companies having trouble getting capital?

Lovely: In part, it's because of economic reforms such as the government's crackdown on shadow banking – in which state entities get loans and then repackage them through intermediaries for private companies. In China, it's easier for state enterprises to get loans from state banks, so shadow banking has been a vital source of financing for private businesses. But the Chinese government is concerned about rising debt in the economy, and they're trying to control credit growth, which is the reason they're clamping down. Their concerns are understandable, but the crackdown is having a negative effect on growth.

Another barrier for private businesses comes from the government's current anti-corruption campaign. Now, clearly, corruption is a bad thing for society. It erodes trust in government and creates all kinds of other distortions. But "greasing the wheel" was present throughout China's rapid growth, and companies had more or less gotten used to the rules. You might not get that business license without playing ball with the local government or bribing certain officials. The anti-corruption campaign has severely limited all of that, but the new rules aren't always clear. There's also concern that the crackdown is being used to reduce political opposition to President Xi and to Communist Party decisions. Uncertainty makes businesses afraid to move forward, so the anti-corruption campaign has taken some of the wind out of the sails of the economy.

OUTLOOK: What companies or industries tend to be dominated by state versus private control?

Lovely: More than half of the economy is now devoted to services such as education, health, airlines and railroads – many of which are dominated by the central or provincial governments. Other areas of government ownership include heavy industry and mining, steel and petroleum. That said, a lot of the country's growth and exports come from private firms, which are concentrated in areas such as manufacturing, and the state doesn't have that much direct impact. But from there things get a little murky. Giant state-owned companies such as China Telecom have minority stakes in lots of smaller firms with mixed public-private ownership. That's always a concern, when the state can exert influence on the behavior of companies, even when it doesn't own a majority. All told, about 25% of Chinese GDP comes from state firms, 65% from domestic private firms, and 10% from foreign firms.

OUTLOOK: How is slowing growth in China affecting other parts of Asia and the global economy?

Lovely: China's key suppliers are feeling it the most. South Korea, which sends cell phone components and other items for final assembly in China, saw its overall exports decline by 8.6% in the second quarter of 2019. And

> "Chinese consumers face two challenges. One is that despite little overall inflation, food prices are rising... The other concern is fear of unemployment, which is higher in areas such as manufacturing."

that's going to intensify if the U.S.-China trade war continues to escalate. For example, if the United States taxes Chinese-made cell phones, the price for U.S. consumers will rise. You would probably see supply chains moving away from China, which would in turn affect those Korean companies. That will take some time, but for now, the Koreans are suffering a bit.

The other place we're seeing a clear impact is in Germany. Germany has been a major beneficiary of China's growth through exports of capital equipment, as well as from German firms operating in China. Reports out of Germany are that its manufacturing sector is shrinking already. So that's a direct hit for the German economy.

OUTLOOK: What is happening with the rising middle class, which has been such a big part of the Chinese growth story?

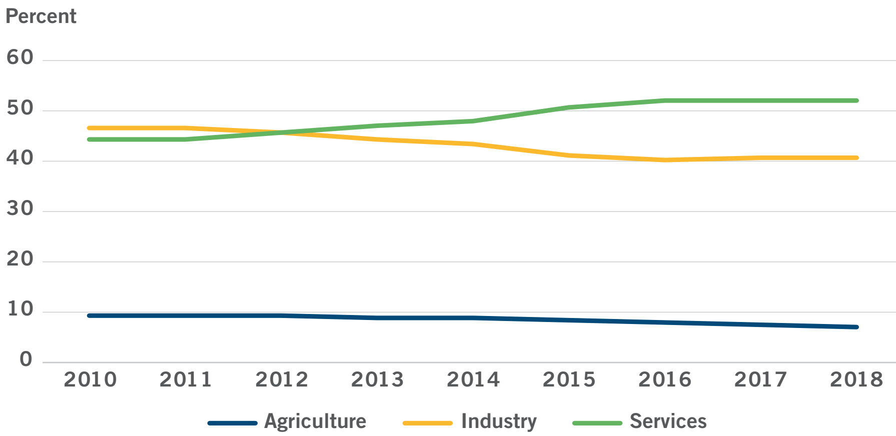
Lovely: Keep in mind that the Chinese economy is still growing between 5% and 6%, which is considerably higher than most developed countries. And inflation, for the most part, is tame, so people are still seeing real income growth. And China's low population growth means lower expenses for families, whose well-being continues to rise.

Chinese consumers face two challenges. One is that despite little overall inflation, food prices are rising. The price of pork, in particular, has gone up dramatically because of African Swine Fever, and pork is an important part of the Chinese diet. The other concern is fear of unemployment, which is higher in areas such as manufacturing. The services sector, which employs more than half of urban workers, has yet to feel the effects of the growth slowdown. So the risks faced by service sector workers in the cities aren't the same as, say, what factory workers in Shenzhen have to contend with, but the concern is there nonetheless. Overall, though, the Chinese middle class consumer still feels pretty good, and international firms still very much want to be there, selling to that market.

OUTLOOK: What long-term vision do Chinese leaders have for their economy and its place in the world?

Lovely: Their long-term strategic plan, "Made in China 2025," is a natural outgrowth of science and technology ambitions dating back 15 years. They are focusing on emerging areas such as biotechnology as well as those that advance high-quality manufacturing. They're spending a lot of money on robotics, artificial intelligence, advanced electronics, and chemicals used in electronics. What they'd like to do is replace Western companies currently in their supply chains with their own companies. For example, they've been trying to develop a domestic semiconductor industry, though not terribly successfully so far. These are places where they're spending money and focusing attention. So they're moving up the value chain.

CHINA, SHARE OF GDP



Source: World Bank

One problem they've had is in completely miscalculating how the West views these efforts. Quasi-government Chinese documents have targeted achieving specific market shares in certain industries, which calls into question how serious they are about market competition. You cannot have market competition and say, "Oh, by the way, I'm guaranteed to have 80% market share by the end of the process." That's just not how competition works.

OUTLOOK: How is the ongoing trade war with the United State affecting China's economy?

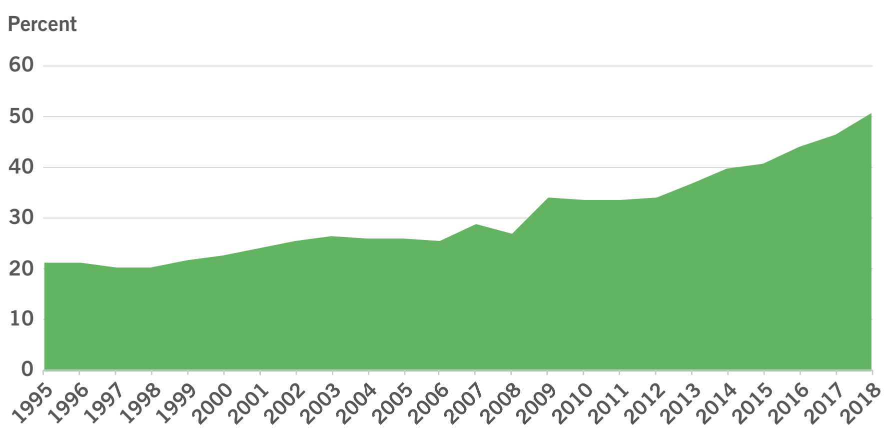
Lovely: Certainly, it's having some impact, though not as much as people may assume. China by now is a huge, highly-diversified economy, much like the United States. As I mentioned before, services now account for more than half the economy, and Americans don't tend to buy services from China. And given the complexities of global supply chains and the U.S. and Chinese economies, the effect of U.S. tariffs even on Chinese manufacturing exports is somewhat limited.

Last summer I wrote an op-ed for *The New York Times* about the difficulties of trying to "win" a trade war with China. Consider the Chinese electronics sector, which is a huge part of what they export to the United States. Above and beyond the foreign components that go into Chinese products, a large amount of the country's electronics exports are made in China by foreign-owned companies. All told, the total share of Chinese manufacturing revenue that comes directly from American purchases is about 3%. That's an important amount, but not enough to have a deep impact if it's reduced. The economic risks China really faces in its conflicts with the U.S. have less to do with tariffs and more to do with their ongoing access to Western technology.

OUTLOOK: What are those risks?

Lovely: China is increasing its ability to produce higher-value goods, but they are still very aware that they need access to foreign technology and foreign investment. They don't need that investment because they lack capital. They're swimming in capital. They need that investment for access to know-how.

CHINA'S GENERAL GOVERNMENT GROSS DEBT RELATIVE TO GDP



Source: St. Louis Federal Reserve

In the West we often paint this as China's long-term effort to destroy us or to replace our industries. Actually, they're doing this to save themselves. With no population growth, how do they keep the middle class growing? How do they meet the needs of an increasingly elderly population? We've seen other major economies move up and grow in much the same way – for example, Japan after World War II. So, there's a lot at stake for China and they understand that, which is why they've been somewhat pragmatic and moderate in their approach to the trade war. They have retaliated against the United States on products where they believe they can have an impact, such as soybeans. But they haven't really taken steps to harm our firms operating in China. And while intellectual property theft remains a big problem, by some measures that's actually getting better. They've set up courts to hear claims, and Western companies have gotten better at protecting their trade secrets.

OUTLOOK: What economic risks do the intensifying Hong Kong protests present?

Lovely: So far, the repercussions have been more political than economic. But, clearly, this is a highly-charged subject. Because Hong Kong is seen as having a rule of law, it has always served as an important bridge between China and the West, particularly in the area of finance and business services. So Hong Kong remains very important to China from an economic standpoint. And, as the recent controversy over the National Basketball Association and tweets supporting the protesters have showed, there are risks all the way around. For American corporations, that includes the risk of a backlash from Chinese consumers.

OUTLOOK: How would a global recession affect China?

Lovely: China was able to escape the worst of the global crisis in 2008 because it had little foreign-currency denominated debt and modest domestic debt. The former meant they could maintain a stable exchange rate while the later meant they had space for debt-fueled expansion. It's somewhat more constrained today because domestic debt levels are higher. A lot would depend, of course, on the nature of the recession. At this point, it's very hard to know where the global economy will go next. A lot of predictions suggest that even if there's a recession, it would be a mild one. Whatever happens, China will surely get through it.

Interest Rates and Economic Indicators

The interest rate and economic data on this page were updated as of 9/30/19. They are intended to provide rate or cost indications only and are for notional amounts in excess of $5 million except for forward fixed rates.

KEY ECONOMIC INDICATORS

Gross Domestic Product (GDP) measures the change in total output of the U.S. economy. The Consumer Price Index (CPI) is a measure of consumer inflation. The federal funds rate is the rate charged by banks to one another on overnight funds. The target federal funds rate is set by the Federal Reserve as one of the tools of monetary policy. The interest rate on the 10-year U.S. Treasury Note is considered a reflection of the market's view of longer-term macroeconomic performance; the 2-year projection provides a view of more near-term economic performance.

ECONOMIC AND INTEREST RATE PROJECTIONS

Forecasts courtesy of Bloomberg and Blue Chip Economic Indicators

				U.S. Treasury Securities	
2019	**GDP**	**CPI**	**Funds**	**2-year**	**10-year**
Q3	1.80%	1.90%	2.04%	1.62%	1.67%
Q4	1.80%	2.10%	1.62%	1.55%	1.69%
2020	**GDP**	**CPI**	**Funds**	**2-year**	**10-year**
Q1	1.70%	2.20%	1.48%	1.56%	1.76%
Q2	1.70%	2.00%	1.40%	1.57%	1.82%
Q3	1.60%	2.10%	1.34%	1.62%	1.89%

PROJECTIONS OF FUTURE INTEREST RATES

The table below reflects current market expectations about interest rates at given points in the future. Implied forward rates are the most commonly used measure of the outlook for interest rates. The forward rates listed are derived from the current interest rate curve using a mathematical formula to project future interest rate levels.

IMPLIED FORWARD SWAP RATES

Years Forward	3-month LIBOR	1-year Swap	3-year Swap	5-year Swap	7-year Swap	10-year Swap
Today	2.15%	1.83%	1.55%	1.50%	1.51%	1.56%
0.25	1.90%	1.67%	1.47%	1.45%	1.47%	1.54%
0.50	1.65%	1.53%	1.44%	1.43%	1.46%	1.53%
0.75	1.57%	1.48%	1.42%	1.44%	1.48%	1.55%
1.00	1.48%	1.43%	1.39%	1.42%	1.46%	1.54%
1.50	1.39%	1.40%	1.40%	1.44%	1.49%	1.57%
2.00	1.40%	1.37%	1.40%	1.44%	1.50%	1.58%
2.50	1.38%	1.38%	1.42%	1.46%	1.52%	1.61%
3.00	1.37%	1.39%	1.44%	1.49%	1.55%	1.64%
4.00	1.41%	1.44%	1.49%	1.55%	1.61%	1.66%
5.00	1.47%	1.49%	1.54%	1.63%	1.66%	1.71%

HEDGING THE COST OF FUTURE LOANS

A forward fixed rate is a fixed loan rate on a specified balance that can be drawn on or before a predetermined future date. The table below lists the additional cost incurred today to fix a loan at a future date.

FORWARD FIXED RATES

Cost of Forward Funds

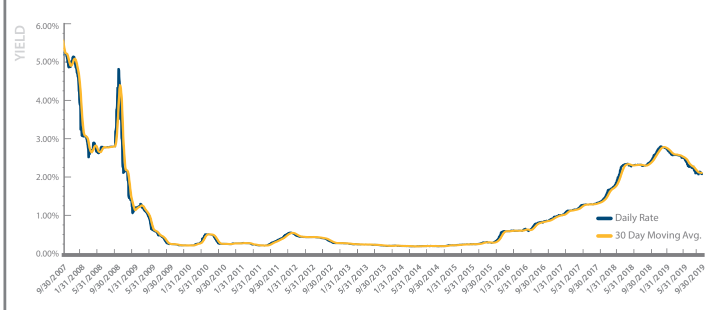
Forward Period (Days)	Average Life of Loan			
	2-yr	3-yr	5-yr	10-yr
30	5	5	5	5
90	5	5	5	5
180	5	5	5	5
365	5	5	8	7

Costs are stated in basis points per year.

SHORT-TERM INTEREST RATES

This graph depicts the recent history of the cost to fund floating rate loans. Three-month LIBOR is the most commonly used index for short-term financing.

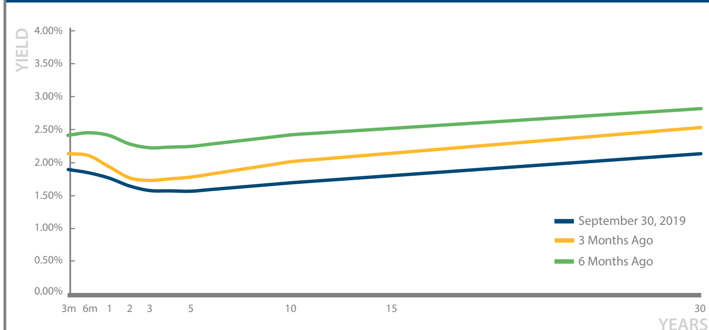
3-MONTH LIBOR



RELATION OF INTEREST RATE TO MATURITY

The yield curve depicts the relation between the cost of borrowing and the time to maturity of debt for a given borrower in a given currency. Typically, interest rates on long-term securities are higher than rates on short-term securities. Long-term securities generally require a risk premium for inflation uncertainty, for liquidity and for potential default risk.

TREASURY YIELD CURVE



COBANK UPDATE

CoBank Announces Board Election Results

CoBank recently announced the results of the stockholder elections for the bank's 2020 board of directors. A total of four board seats were on the ballot. Stockholders elected three candidates, including one incumbent and one candidate who had previously served on the CoBank board. In the Mid Plains Region, no candidate received a majority of votes cast for the modified equity seat. Pursuant to the bank's governance bylaws, a runoff election will be held between the two candidates who received the most votes, concluding on Nov. 6, 2019.

Region	Type of Seat	Name	Occupation	Residence	Term Expires
Mid Plains	One Stockholder One Vote	Stephen J. Epperson	CEO, Pioneer Electric Cooperative	Ulysses, Kansas	2020*
South	One Stockholder One Vote	Gary A. Miller	President & CEO, GreyStone Power Corporation	Douglasville, Georgia	2023
West	Modified Equity	Edgar A. Terry**	President, Terry Farms, Inc.	Ventura, California	2023

** Special election to fill the remaining term of a vacant seat.*
*** Incumbent board member.*

Mid Plains Region Runoff, Modified Equity Seat

Michael W. Marley, owner of Corrales Dairy, LLC in Roswell, New Mexico, and Chuck G. Tolle, owner of Tolle Farms in Deer Creek, Oklahoma, are the two candidates who received the most votes for the modified equity seat in the Mid Plains Region. Stockholders in the Mid Plains Region will receive a ballot by mail that must be returned to CoBank's independent vote tabulator by 5 p.m. Central time on Wednesday, Nov,. 6, 2019. Even if a Mid Plains Region stockholder voted in the recent election, a runoff ballot and signed authorization must be returned online or by mail in order for the vote to be counted in the runoff election. The candidate who receives the most votes in the runoff election will be elected to the CoBank board.

About CoBank

CoBank is a $138 billion cooperative bank serving vital industries across rural America. The bank provides loans, leases, export financing and other financial services to agribusinesses and rural power, water and communications providers in all 50 states. The bank also provides wholesale loans and other financial services to affiliated Farm Credit associations serving more than 70,000 farmers, ranchers and other rural borrowers in 23 states around the country.

CoBank is a member of the Farm Credit System, a nationwide network of banks and retail lending associations chartered to support the borrowing needs of U.S. agriculture, rural infrastructure and rural communities. Headquartered outside Denver, Colorado, CoBank serves customers from regional banking centers across the U.S. and also maintains an international representative office in Singapore.

For more information about CoBank, visit www.cobank.com.

Board Restructuring

This year's election completes the stockholder-approved downsizing of CoBank's board of directors. The 2020 board will have 14 elected directors from six regions. The bank's governance bylaws also require two outside, independent board members with no customer or Farm Credit System affiliation and allow up to four additional appointed directors to be appointed by the board.

2020-2021 Nominating Committee Slate

CoBank uses an independent Nominating Committee elected by its stockholders to develop a slate of qualified director candidates for each election. The Nominating Committee is composed of customer representatives and former board members who represent the bank's customer base. No current board member may serve as a member of the Nominating Committee.

Stockholders elected all 24 candidates presented on the 2020-2021 Nominating Committee slate for a two-year term. The full list of the 2020-2021 Nominating Committee members is available in the Governance section of cobank.com.