

China's Footprints on the Global Economy

Remarks by

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<sup>1</sup> The views expressed are my own and should not be interpreted as representing the views of the Board of Governors of the Federal Reserve System or any other person associated with the Federal Reserve System.

Good afternoon. It is a pleasure to be here. Thank you for inviting me to this second IMF–Atlanta Fed research conference on China’s economy and giving me the opportunity to present these lunchtime remarks. With all of the excellent papers we heard yesterday and this morning, and Maury Obstfeld’s insightful dinner remarks last evening, I carry the risk that perhaps you are getting an overdose of China. But my impression actually is that, even as Chinese tangible trade has slowed in recent years, there remains an infinite global appetite for the trading of ideas about all things Chinese. And, you also honor me by providing a rare opportunity to actually deliver myself a speech that I have written. I should note that these remarks represent my own views and should not be interpreted as those of others in the Federal Reserve System.<sup>2</sup>

China’s economy has made huge strides over the past several decades. These strides have had profound implications for its citizens and have left large footprints on the global economy. In my remarks today, I will explore some key aspects of China’s economic rise, the spillovers to the rest of the world that this rise has created, and the potential implications of these spillovers for the global economy going forward. I will first address three questions. One: How did China achieve its stellar rise? Two: How did this rise affect other economies, both in the region and beyond? Three: How has China’s influence on the global economy evolved in recent years? Then I will argue that China is now at a crossroads, facing both medium-term risks and longer-term challenges, and how China navigates these crossroads will have important implications for the global economy. In particular, were the Chinese economy to slow sharply, this outcome has the

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potential to roil the global economy. But Chinese authorities can take further preventive measures to reduce the country's vulnerabilities.

### **China's Rise and Spillovers**

China's economic performance has been remarkable. As you can see in slide 2, for about 30 years prior to the start of the current decade, Chinese real GDP growth averaged 10 percent. Lately, growth has slowed significantly to an average of about 7 percent, but that is still quite high relative to most economies. This strong performance over the decades led to a substantial acceleration of per capita consumption and helped to vastly improve standards of living and take many millions of Chinese people out of poverty.

How was this rise achieved? In short, China used its cheap and large labor supply to expand its manufacturing base and play an ever-increasing role in meeting the world's external demand. As can be seen in slide 4, strong export growth, supported by export-led investment, underpinned Chinese growth. Note the quite high correlation between growth of exports and investment, which only weakened after the Global Financial Crisis (GFC), when investment was used to support a massive stimulus package even as exports were slowing. China's export-led growth model was also based on export processing zones, industrial policies that gave preferential tax treatments to exporters and to foreign firms that chose to locate in China, and, to some extent, an undervalued currency (with accompanying massive foreign exchange reserves accumulation).

As can be seen in slide 5, exports far outpaced imports, which means that savings rose even faster than investment and a large current account surplus built up. As such,

even though consumption per capita grew rapidly, China's consumption share of GDP remains low compared with other emerging market economies (EMEs), two of which are shown here in slide 6. All that said, it bears noting that for most of the period, it was not the rise in net exports per se that contributed to China's growth rates; for example, even over the years 2003 to 2008, when China was fast gaining from its entry into the WTO, the arithmetic contribution of net exports to growth averaged only 1½ percent. Rather, trade propelled China's growth by providing the country with a market for manufactures and allowing it to exploit huge productivity gains by moving from agriculture to industry.

Turning to spillovers and how China's rise has affected other economies, a key channel has been China's role as a conduit—the end-point of a giant Asian supply chain—which has also boosted some other economies in the region. The conduit role, of course, ultimately depends on final demand that comes from other countries.

As shown in the next slide, China's share of parts and components in its total manufactured imports (shown by the yellow bars on the left) rose between 1995 and 2005 and has been much higher than its share of parts and components in its total manufactured exports (shown to the right), consistent with China being an end-point of a large global value chain and shipping mostly final goods abroad. Moreover, the share of parts and components in China's imports from other Asian economies (the green bars on the left) is significantly higher than in imports from the rest of the world (the blue bars), pointing to the special role of the rest of Asia in partnering with China in the process of “production fragmentation.” Lately, the share of parts and components in China's imports has fallen substantially, which I will return to later.

China has also boosted commodity net-exporters around the world through its voracious demand for various commodities, which has been a key driver of world prices of these commodities. As can be seen in slide 8, China's share of global consumption of key commodities has risen dramatically over the years, with China now accounting for more than 10 percent of the global demand for oil and about half of the world's demand for steel, coal, and copper.

Through these specific channels, China helped lift many other EMEs, but its rise has had much broader ramifications. Increased production fragmentation, and China's special role in it given its low-cost labor, is a natural outgrowth of the principle of comparative advantage. This process efficiently makes available a larger variety of goods to consumers at lower prices all over the world, thus also benefiting the advanced economies, which are the biggest demanders of consumer goods.

Not all regions have necessarily benefited from China's rise, though. To some countries, China may have appeared to be more of a steamroller, driving them out of some areas of exports and taking their market shares. For example, after the multi-fibre agreement on textiles—which had imposed quotas on countries' exports of textile goods—expired in 2004, other textile exporters found it very difficult to compete with China. Similarly, analysis suggests that in the years following China joining the WTO, countries like Mexico had a period of painful adjustment.<sup>3</sup>

China's rise is reflected in it becoming a much greater player in the global economy. Two summary statistics are telling: First, China's share in global imports

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<sup>3</sup> Mexico over time seems to have restructured its exports to cope fairly well with this competition from China.

(slide 9) has trended up sharply since the early 2000s, reaching double-digit levels earlier in this decade, before falling back a bit recently.<sup>4</sup> Second, as shown in slide 10, over the past two decades, the share of China in world GDP (adjusted for purchasing power differences across countries) has risen markedly, along with the shares of other EMEs, some of which have been pulled up by the rise of China. China by itself, now accounts for almost 20 percent of world GDP while the EMEs together now account for over half.

Let's look now in more detail at how China's influence on the global economy has changed in recent years.

One clear trend over the past several years is the decline in the import content of Chinese exports. As can be seen in this next slide, "processing" exports—whereby parts components are imported and assembled or processed into final goods for export—have seen their share of total exports decline to just 35 percent from more than 50 percent prior to 2007, with the share of "non-processing" exports commensurately rising to 65 percent. Non-processing exports have a larger share of inputs that are domestically sourced.<sup>5</sup> Moreover, the gray bars in the slide show that "processing" exports now also have more domestic value-added and relatively less contribution from imported inputs than before.<sup>6</sup> To the extent that this development reflects China moving up the quality and technology ladder, it may now in some industries be becoming more of a competitor with its Asian neighbors than the end of the supply chain.

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<sup>4</sup> See Monarch (2016) and Powell (2016) for an analysis of the recent fall in global trade and China's role in that decrease.

<sup>5</sup> The division into "processing" and "non-processing" exports is based on categories in Chinese customs data. It is not a perfect delineation—while "processing" exports do have a relatively high content of imported inputs, "non-processing" exports do not have zero import content, just much less.

<sup>6</sup> This point was emphasized, for example, by Federal Reserve Governor Jerome Powell, in a speech on the global trade slowdown last November. See Powell (2016).

We can see the reduced role of processing trade on the imports side as well in this next slide, consistent with the parts and components imports chart I showed you earlier.<sup>7</sup> The much lower share of processing imports in total imports is consistent with two hypotheses—one, that more domestically-sourced inputs are being used in the export goods being produced (for which I showed you some evidence), and the other that goods are being increasingly imported for domestic use and consumption rather than largely just channeling final demand from other economies.

So, what evidence do we have of the rising role of Chinese consumers in global demand? Slide 13 plots on the left values of Chinese imports by broad categories. The red bars for consumption imports are barely visible until the turn of the decade. Nonetheless they have been rising since then (albeit from a very small base), and, as shown to the right, the share of consumption goods in total Chinese imports, while still quite low, has nearly doubled since 2010 to over 6 percent.

On the services side, particularly in Chinese spending on tourism (shown in slide 14), we see stronger evidence of demand for consumption imports. My colleague, Anna Wong, has quantified the amount of travel imports in China that are disguised-capital outflows. But even adjusting for this distortion, as you can see on this next slide, China's travel imports, shown to the left, were more than one and a half times those of the United States in 2015. And China's share of global tourism has increased sharply in recent years to about one-fifth.<sup>8</sup> All in all, on the rise of the Chinese consumer as an importer of

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<sup>7</sup> "Processing" imports are those that will mostly be used to produce goods for export and that carry some tax advantages. The remainder, "non-processing" imports, are largely those that will not be used as inputs in producing export goods. But, again, in the data the distinction is not perfect, and some of the so-called "non-processing" imports may be used in producing export goods.

<sup>8</sup> See Wong (2017, forthcoming).

global goods and services, I would say that this rise is still a work in progress, but there are some grounds to be optimistic.

I also examine how China's economic growth directly affects other countries in a vector autoregressive (VAR), model. To this end, the top of your next slide shows the effects of an exogenous shock to Chinese real GDP using a global VAR (GVAR) model consisting of 26 country or region blocks. In this work, each block of the GVAR consists of domestic variables as well as aggregates of foreign variables.<sup>9</sup> I earlier showed you that China's growth since the global financial crisis has averaged about 7 percent versus 10 percent for many years prior to the GFC. So what did an extra 3 percentage points of Chinese growth back then buy the other EMEs? According to the GVAR model, a shock of this size would raise the real GDP of other EMEs by about one-third of what the shock does to Chinese GDP itself.

It would be useful to know how these effects have changed in recent years. For example, even though Chinese growth has moderated from earlier years, because Chinese GDP is a larger share of the world economy its growth may still be contributing as much to global growth. To examine the effects over time, I estimated a simple three-variable VAR using a recursive contemporaneous causal ordering going from advanced-economy growth to Chinese growth to growth in EMEs excluding China. The impulse responses to the orthogonalized same-sized Chinese real GDP shock are then computed. The full-sample results for comparison with the GVAR estimates are presented in the bottom

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<sup>9</sup> See Ericsson, Husted, and Seymour (2014). The domestic variables are real GDP, CPI inflation, real equity prices, the real exchange rate, and short- and long-term nominal interest rates. The foreign variables include the international oil price and weighted aggregates of each previous variable minus the domestic country's corresponding variable.

panels. Note that the effects on the other EMEs of a China shock are broadly similar to the GVAR model.

Slide 16 shows the recent versus earlier effects on EME growth from the simple VAR. Over the period 1981 to 2005, shown in the top panel, an exogenous 3 percent shock to Chinese real GDP has very little effect on other EMEs. It is important to note that this exogenous shock is meant to capture the independent direct effect of China's growth on other EMEs, keeping fixed the indirect effects through China of advanced-economy demand. For the period since 2006, shown in the bottom panel, the results are vastly different, with a Chinese GDP shock affecting other EMEs close to one-to-one. Although the exact magnitudes obtained from this very simple model should certainly be taken with a grain of salt, the results are suggestive of a large increase in *direct* spillovers from China to other EMEs in recent years.

The world's financial markets also seem more sensitive to Chinese developments now. Hardly a day goes by when some analyst somewhere does not cite a development or two in the Chinese economy as affecting some global financial market. In particular, China's surprise exchange rate devaluation and "fixing" reforms in August 2015 seemed to trigger bouts of financial volatility in world markets, including many equity markets around the globe and Asian foreign exchange markets. We must also recognize these increased correlations in the analysis of the effects of China on the global economy.

### **China at a Crossroads: Medium-Term Risks and Longer-Term Challenges**

So, where do we stand? Let's quickly take stock. China's economic rise has been meteoric and, in many ways, has lifted other countries and improved global economic

welfare. But growth has slowed significantly in recent years, and the nature of Chinese trade has also changed.

More and more, these developments are being viewed as consistent with the idea that the export-cum-investment model used in the past is becoming increasingly unviable. While this model served China well for many years, it also led to serious imbalances that have created significant risks, and China stands at this juncture at a crossroads. I will now discuss these imbalances and risks briefly.

The first imbalance I would like to highlight is overinvestment and excess capacity in certain sectors. In the aftermath of the global financial crisis, a massive stimulus package led to a surge in investment, shown in slide 17, notably in infrastructure and manufacturing. This surge contributed to a subsequent property boom and resulted in excess capacity problems in segments of real estate markets and certain manufacturing sectors, such as steel.

As you can see in slide 18, the investment was largely financed by a massive credit boom, which created imbalances and vulnerabilities in the financial sector. Total credit as a percentage of GDP (the black line) climbed sharply from about 120 percent before the GFC to nearly 230 percent last year. It is especially concerning that this credit boom has been fueled increasingly by nontraditional lending (or “shadow banking”), the majority of which is still intermediated by banks but mostly through off-balance-sheet activities to avoid regulatory restrictions.<sup>10</sup>

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<sup>10</sup> Although shadow banking has now become an area of concern, it has played some positive role as well—for example, in the provision of credit to SMEs and alternative investments for diversification-constrained retail investors.

These developments leave banks highly exposed to the vulnerable property and non-financial corporate sectors, with concerns about asset quality, increased liquidity risk, and moral hazard—many investment products are still thought to carry implicit guarantees by the banks and, ultimately, the government. While financial-sector vulnerabilities are acute, several features of China mitigate the risks of a financial crisis. First, China’s credit boom has been funded largely by domestic savings. Second, a less market-oriented financial system, while the source of inefficiencies and distortions, also lessens the risk of a drying up of credit, as authorities can simply compel financial institutions to lend. Third, even as economic growth has slowed by Chinese historical standards, it is still quite robust. Finally, Chinese authorities have substantial resources to rescue troubled debtors and bail out banks, if necessary.

On top of the medium-term risks I just highlighted, China is also facing the longer-term challenge of a downward trend in its potential economic growth. To be sure, the slowing of economic growth to some extent is a natural result of the process of “convergence.” Economies tend to slow as they develop, and a slowing on that count should be viewed as a measure of success rather than of failure. For example, as can be seen in slide 19, in both Japan and South Korea as the level of per capita income increased over the decades, real GDP growth slowed. Both economies were nonetheless able to sustain significant increases in per capita income. According to the fitted relationship (the curve in black), there appears to be a sharp deceleration of an economy around a per capita GDP level of \$15,000, a figure that China is nearing.<sup>11</sup>

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<sup>11</sup> This result is broader than just for Japan and Korea. See, for example, Eichengreen, Park, and Shin (2012).

But there are also other reasons for the slowing of trend growth in China. In particular, as shown in the next slide, China faces headwinds from demographic changes, with its working-age population (the yellow bars) having peaked and with rapid growth of its elderly population projected (the green bars). As such, the dependency ratio—the share of the 65 and older population in the total adult population—is expected to rise steeply. This source of slowing growth has the potential to threaten social welfare.

China's mitigating factors I mentioned earlier, including the government's ample resources, decrease the likelihood of a financial crisis. But these factors, by themselves, do not address the inherent vulnerabilities and imbalances in its economy. Even with these mitigants, there is some possibility that certain types of shocks could snowball into something much bigger. Some of the more severe shocks or trigger events that could lead to a crisis situation include: a property sector bust, a run on some shadow banking products, and a particularly large and disruptive depreciation of the renminbi. While the probability of a crisis situation, especially in the near term, is fairly low and we do not view this outcome as the most likely, it remains a significant risk.

### **A Sharp Chinese Economic Slowdown: Potential Effects on the Global Economy**

If Chinese growth did slow abruptly, possibly accompanied by a financial crisis, what would the effect be on the rest of the world? I look at this question next, [but just to forewarn you, the flavor of the results will not quite be that of your dessert].

Essentially, my colleagues and I use the Federal Reserve Board staff's global model, SIGMA to quantify the effects of an adverse China shock. SIGMA is an open economy, general equilibrium model. Monetary policy typically follows a Taylor rule,

subject to a zero-lower-bound (ZLB) constraint. The model consists of three blocks, calibrated to the U.S. economy, the advanced foreign economies (or AFEs), and the EMEs.

To quantify the effects of a China slowdown through this model, we need to know its impact on other EMEs. This is where our VAR results come in. Recall in those results that over the full sample, a shock to Chinese GDP seemed to affect other EMEs on the order of a third of the Chinese response. But there was also evidence that the response of other EMEs has gone up in recent years. In light of that, we consider “standard” spillovers from China to other EMEs, mainly through trade channels, to be half the China response.

Different scenarios in SIGMA can be generated through shocks to exchange rate risk premiums, confidence, corporate spreads, and interest rates. We consider three scenarios: a moderate China slowdown with standard trade spillovers, a China crisis also with standard trade spillovers, and a China crisis with extra financial spillovers to the rest of the world. In this last scenario, financial turbulence in China is assumed to spread to other countries’ financial markets and make the GDP hit to other EMEs one-to-one, rather than half.

It is not obvious exactly how much Chinese growth would decline in a crisis. We assume a crisis situation to be one in which annualized growth falls by 4 to 5 percentage points below trend growth and this decline is sustained for some time. Based roughly on this, as depicted in panel A of this next slide, we see a crisis scenario as pushing real GDP in China to about 7 percent below baseline over a period of a year and a half (the

blue and red lines), before gradually returning to the baseline. We judge a moderate China economic slowdown to be about half of this decline (the green line).

Now consider the broader effects, shown in panels B through D. First, note, from the green lines, that a moderate slowdown in China, while adversely affecting aggregate EME real GDP to a significant extent, would not appear to be too problematic for the AFEs and the United States. But if China went into a crisis, even with just the standard trade spillovers (the blue lines), the effects around the globe would be substantial. With other EMEs hit hard, aggregate EME would drop 4 percent below the baseline, roughly equivalent to what transpired in the Mexican 1994-95 crisis. Note that the AFEs, with policy space constrained, would also suffer a sizeable real GDP drop of 3 percent. The United States appears relatively insulated but GDP still falls about 1 percent.

Things could even be worse if financial turmoil in China causes reverberations in other financial markets around the world. As can be seen by the red lines, aggregate EME GDP would drop 7 percent (about equivalent to the 1997-98 Asian crisis); AFE GDP would drop about 6 percent; and U.S. GDP by 2 percent. This third scenario is likely in the extreme tail of the probability distribution, but it should not be completely discounted, given the increased correlation between news from China and world financial markets.

The two panels at the top of the next slide show that inflation would also fall below the baseline in the advanced economies following a China slowdown, especially in the AFEs. The bottom panels shows a key channel of transmission, dollar appreciation, which pulls down U.S. GDP through a fall in net exports and also lowers inflation.

According to these results, the spillovers to advanced economies as a whole for a China crisis would be bigger than those observed in previous EME crises. One obvious reason for this is a higher share of China and other EMEs now in global GDP and trade. But another less obvious, but important, reason is the limited scope for monetary policy to respond appropriately to negative shocks in many advanced economies. In the model, this limited scope is captured as a strict zero-lower-bound constraint on the policy rate. This constraint, as shown in your next slide, makes the responses of real GDP in AFEs to a China crisis with standard trade spillovers (the solid line in panel C) much bigger than what they would be without the ZLB (the dashed line). If the ZLB was not binding in the model, the adverse impact of a China slowdown on the AFEs would be much closer to the U.S. effect (panel D). In practice, we do see negative policy rates in some AFEs, and the larger effect negative effect on AFEs due to policy limits shown in the slide is probably overstated. But I would argue that it is probably not too much overstated, as it is generally believed that the scope for additional monetary stimulus in many AFEs at this time is fairly limited.<sup>12</sup>

### **China's path to reducing financial vulnerabilities**

All in all, the risk of a financial crisis in China is relatively low but significant, and such an outcome would be highly consequential for the global economy. Therefore, it is in everyone's interest to try and prevent a sharp slowdown in China that could trigger such a crisis. But it is also imperative that the key sources of financial stability risks are

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<sup>12</sup> The model also does not take into account that policymakers can react with unconventional monetary policies as well.

addressed over the medium term, so as not to risk a bigger crisis down the road. So what can China do to address its vulnerabilities?

Policies should focus on further reducing structural imbalances in the economy. In particular, there remains a need to shift GDP from investment to consumption and for growth to become more domestically-driven and less export-led. I will discuss some specific, but mostly familiar, policy areas that could help further these objectives.

First, policies to reduce the economy's high savings rate need to be accelerated. Increased government spending on health and social security would reduce the need for precautionary household savings and increase consumer demand. And, an acceleration in the reform of the household registration system and rural land system would allow rural migrant workers to share the gains from rising property values in the urban areas and access social services in the cities. Moreover, increasing dividend payouts by state-owned enterprises and using them to finance social security expenditures would help reduce business savings. Absent such reforms, China's high savings will lead to either credit or investment bubbles or larger capital surpluses that have to be somehow absorbed by the rest of the world.

Second, fiscal policies need to become less oriented toward stimulating investment. The excessive investment orientation of Chinese stabilization policies owes partly to China's reliance on the banking system to provide stimulus. Accelerating the liberalization of the financial sector would be helpful. It is also desirable to reform state and local government finances. Currently, a combination of limited taxing authority, rigid expenditure mandates, and balanced budget requirements forces local governments

to rely on extra budgetary financing. While the long-term direction is clear, the transition needs to be managed carefully.

Third, more can be done to reinvigorate the private sector as an engine of growth. Although the private sector had been advancing in recent years, its advance slowed after the 2009 stimulus. Private firms face significant barriers to entry and to entrepreneurship. It is crucial that authorities hasten the pace and broaden the scope of SOE reforms, not just by merging SOEs but by clearing the way for non-viable firms, particularly in excess-capacity sectors, to shut down. This would require removing implicit public guarantees and subsidies, as well as applying appropriate bankruptcy procedures. [Removing implicit guarantees carries potential systemic risks, but one way forward could be to gradually increase the number of controlled bankruptcies of SOEs of low systemic importance while at the same time making clear that new debts will not benefit from any such guarantees.] SOEs are also held back by poor governance, which needs reform; for example, the way in which top executives are appointed and rewarded does not lead to a separation of business interests from political priorities.

Finally, Chinese authorities should continue to take steps to move toward a more flexible exchange rate system. With recent downward pressures on the renminbi in the short run, the risks stemming from a sharp, disruptive fall in the Chinese currency need to be well-managed. But over the longer term China would benefit from the role of the exchange rate as an equilibrating mechanism, and exchange rate flexibility would also remove grounds for criticisms about “beggar-thy-neighbor” policies, which have been made in the past.

In closing, since my time is about up, let me just say the following: We have all heard some variant of the saying, “when the U.S. sneezes, the rest of the world catches a cold.” Well, the analysis I have presented here suggests that in the case of China, it will still take more than just a sneeze to send the rest of the world rushing to the medicine cabinet. But it would be in China’s own interest and that of the global economy to take more forceful preventive measures to avoid catching pneumonia.

(Thank you, I would be happy to take a few questions.)