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APRIL 2019

## Implications of a U.S.-China Trade Deal: Who Wins? Who Loses?

As the United States and China work toward a resolution of the ongoing trade war, an important question is whether the agreement will achieve any appreciable further opening of the Chinese economy and, if so, how such gains will be distributed across China's trading partners. The U.S. Administration will take pains to ensure that the deal brings benefits to the United States, but what about the implications for the rest of the world?<sup>1</sup>

In this paper, we provide some perspectives on these important questions. Drawing on a range of data, we look closely at the behavior of the U.S.-China trade imbalance and how a trade agreement might affect the imbalance going forward. We conclude that Chinese commitments to increase purchases of specific U.S. products are likely to successfully push up U.S. exports to China. However, even under ambitious assumptions, the narrowing of the trade imbalance is unlikely to exceed \$100 billion a year. This is a significant number, but substantially lower than figures in excess of \$200 billion that have been banded about in the press.<sup>2</sup> And achieving even this quantum of adjustment may require interventions by the Chinese government that are more reminiscent of centrally-planned than market-based economies. We also find that this opening of Chinese markets to the United States may have adverse implications for other economies, especially Brazil, the European Union, Japan, Korea, Russia, Saudi Arabia, and Taiwan, which may be crowded out in the Chinese market. Given the diffuse nature of China's imports, however, our sense is that the shock to these countries will be manageable.

### FRAMING THE DISCUSSION: SOME CONSIDERATIONS

Just as the trade war has influenced global activity through an array of channels, any deal is also likely to generate many competing effects. The global economy as a whole will benefit from a reduction of uncertainty as the world's two largest national economies call a halt to the tensions. This should be good for everyone. Similarly, to the extent that U.S. negotiators are successful in convincing their Chinese counterparts to strengthen intellectual property standards, improve the business climate for foreign firms operating in China, and reduce tariff and non-tariff barriers to trade, such benefits are also likely to also be enjoyed by firms beyond the United States.<sup>3</sup> Administration officials have been categorical that addressing structural impediments to trade is one of their principal objectives.

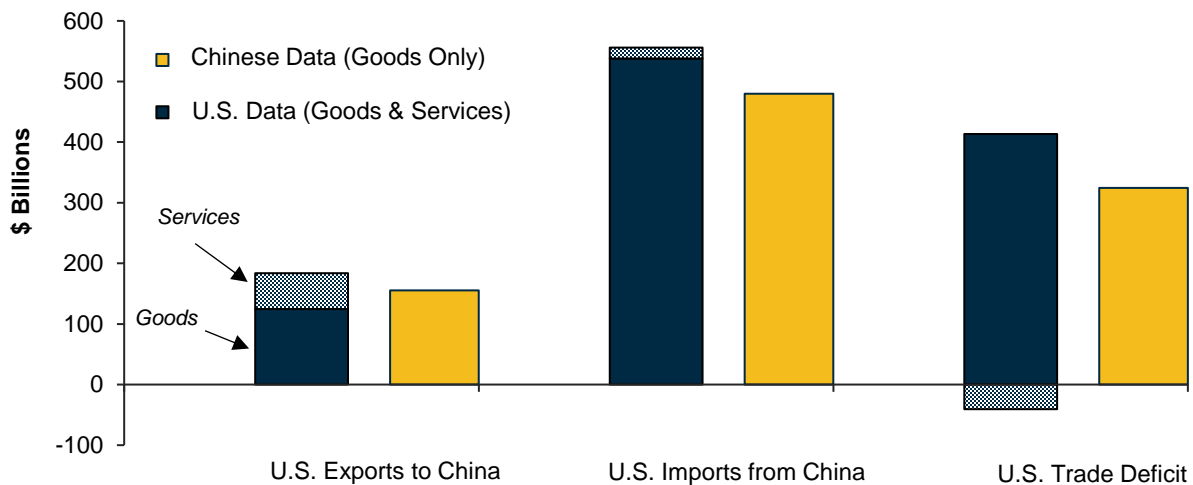
<sup>1</sup> Our views regarding these negotiations, including possible outcomes more generally, are outlined in "The Outlook for the Trade War: Assessing President Trump's Next Move," January 2019.

<sup>2</sup> See, for example, "China Offers a Path to Eliminate US Trade Imbalance, Sources Say," Bloomberg, January 18, 2019.

<sup>3</sup> For such structural issues, the United States typically frames its negotiation "asks" in terms of the treatment of foreign firms in general, rather than just the treatment of US firms. Accordingly, progress on these issues should generate positive spillovers for other countries. A subset of Chinese firms should benefit as well. For example, improved intellectual property protocols are likely to be helpful for some high-tech Chinese firms.

A thornier issue is the Administration’s emphasis on reducing the bilateral trade imbalance between the United States and China. This U.S. objective has more of a zero-sum flavor. Figure 1 helps frame this issue. According to U.S. data, China exported nearly \$540 billion of goods to the United States in 2018, while U.S. exports to China totaled just \$120 billion. The result was a bilateral U.S. goods deficit of over \$420 billion. The goods and services balance was somewhat more narrow, near \$380 billion, with the United States enjoying a surplus in services trade. According to Chinese data, the goods imbalance was nearly \$100 billion smaller, at \$325 billion. (China doesn’t publish data on bilateral services trade.) This contrasting assessment of the size of the trade imbalance is a longstanding feature of the two countries’ data and has been studied by a range of authors.<sup>4</sup> In any event, the imbalance looms large relative to total trade and has drawn attention over the years.

**FIGURE 1: U.S.-CHINA BILATERAL TRADE (2018)**



Source: Census Bureau, China General Administration of Customs, PGIM Fixed Income.

Reports suggest that Chinese officials may be willing to commit to increase China’s purchases of U.S. goods with a goal of reducing the bilateral trade imbalance by 75% over the next six years. With U.S. data, this would imply total adjustment of up to \$275-\$300 billion, suggesting that the imbalance would shrink by roughly \$45-50 billion a year for six years. Under Chinese trade data, the implied adjustment would be \$240 billion over six years, or \$40 billion a year.

These commitments raise two types of questions. First, as a practical matter, are they likely to be successful? Can such massive adjustment actually be achieved? Second, these commitments are unlikely to result in a corresponding, one-for-one increase in total Chinese imports.<sup>5</sup> Thus, to what extent is an agreement likely to skew China’s spending to U.S. products and crowd out imports from other countries?

Our sense is that advocates of the U.S. Administration’s policies would acknowledge that other countries will be crowded out as a result of the deal. But they would emphasize that, for many years, China’s trade policies have had particularly hostile effects on U.S. trade. To wit, the trade imbalance between the United States and China has been wide and persistent through the past decade. At present, China’s trade with the rest of the world is roughly in balance, while it continues to record large trade surpluses with the United States. Similarly, for the United States, the imbalance with China accounts for about 60% of the overall goods and services deficit. In response to these arguments, Chinese officials would assert that China produces goods that are attractive to U.S. consumers and that the trade imbalance ultimately reflects that the U.S. saving rate remains too low. They would also note that China’s current account surplus, the broadest measures of external performance, narrowed to just 0.4% of GDP last year.

<sup>4</sup> For a recent treatment, see “What’s the Difference?—Comparing US and Chinese Trade Data,” Michael F. Martin, Congressional Research Service, April 23, 2018.

<sup>5</sup> The deep macro question is to what extent the saving-investment balance is invariant to trade policy. If a trade deal reduces Chinese saving or increases investment over the long run, it would have lasting effects in narrowing China’s trade balance. To be concrete, increased purchases of imports from the United States in such a scenario would raise China’s aggregate imports rather than crowd out purchases from other countries. This might occur by expanding the range and desirability of goods available to Chinese consumers, by improving the structural availability of credit (for example, by allowing increased competition in the financial sector), or by creating a more level playing field for foreign producers relative to domestic firms. While this is possible, our expectation is that the adjustment of the saving-investment balance would provide at most a partial offset—other countries are likely to be crowded out to some extent.

Sorting through these perspectives is challenging.<sup>6</sup> A threshold question is whether some aspect of China's trade policies have had adverse effects on U.S. trade, even compared with other countries. Such a case can be made. U.S. exports tend to be concentrated in intellectual-content rich goods and sophisticated services. The lack of adequate intellectual property and other legal protections in China may have hit U.S. exports particularly hard. U.S. producers are reluctant to expose their intellectual property to the Chinese market, and the availability of cheaper knock-offs likely reduces demand. In contrast, Germany's exports are intensive in capital goods and have nicely complemented the rise of Chinese manufacturing. All this said, it's also true that the voracious demand of the United States for Chinese-made goods remains the principal driver of the imbalance, and the scale of that demand largely reflects U.S. macro factors, rather than China's trade policies.

With this conceptual discussion in hand, we turn now to an empirical examination of how an agreement like that sketched out above—calling for several hundred billion dollars of adjustment—might actually be implemented. Media reports have framed this adjustment in terms of increased purchases of five key U.S. products—soybeans, liquefied natural gas (LNG), aircraft, autos (including parts), and semiconductors, which together account for 35% of U.S. exports to China.<sup>7</sup> We examine how far such purchases would go toward closing the bilateral imbalance and which countries would bear the brunt of this adjustment.

## THE CHANNELS OF ADJUSTMENT

To get disaggregated data on the country sources of China's imports, we work with the Chinese data as reported in the United Nations Comtrade Database. The data published by the United States are probably more reliable, but they don't provide the necessary granularity on other countries' exports to China.

For the sake of working with round numbers, we consider a scenario in which China agrees to increase its purchases of U.S. goods by \$240 billion over six years (i.e., 75% of the measured imbalance under Chinese data); in other words, as a result of the deal, U.S. exports to China increase by \$40 billion a year, on average. We take it as a given that the trade adjustment comes from increased Chinese purchases of U.S. goods, rather than from reduced U.S. purchases of Chinese goods.

As a first cut at the data, Figure 2 shows the overall geographical distribution of Chinese goods imports. We work with the data for 2017, the most recent available. These data also have the advantage of pre-dating the extraordinary (and likely temporary) shifts in trade flows associated with the tariffs. The EU-27 (i.e., excluding the United Kingdom) is in first place with exports to China of \$223 billion. The United States also ranks high on the list, with exports of \$154 billion, trailing the EU, South Korea, and Japan.<sup>8</sup> Clearly, if the adjustment in trade occurred entirely

**FIGURE 2: CHINA'S IMPORTS (2017)**

| Total                | Billions \$  | % of Total   |
|----------------------|--------------|--------------|
| <b>World</b>         | <b>1,844</b> | <b>100.0</b> |
| EU-27                | 223          | 12.1         |
| South Korea          | 178          | 9.6          |
| Japan                | 166          | 9.0          |
| Other Asia           | 156          | 8.5          |
| <b>United States</b> | <b>154</b>   | <b>8.4</b>   |
| China                | 132          | 7.2          |
| Australia            | 95           | 5.2          |
| Brazil               | 59           | 3.2          |
| Malaysia             | 54           | 3.0          |
| Vietnam              | 50           | 2.7          |
| Thailand             | 42           | 2.3          |
| Russia               | 41           | 2.2          |
| Singapore            | 34           | 1.9          |
| Switzerland          | 33           | 1.8          |
| Saudi Arabia         | 32           | 1.7          |
| Indonesia            | 29           | 1.5          |
| South Africa         | 24           | 1.3          |
| United Kingdom       | 22           | 1.2          |
| Others               | 319          | 17.3         |

Source: United Nations Comtrade Database, PGIM Fixed Income.

<sup>6</sup> Macroeconomists typically see little information in bilateral trade balances. Deep macro factors pin down the aggregate saving-investment balance, and then comparative advantage determines the patterns of trade across countries (and, thus, bilateral balances). Viewed from this perspective, the overall trade balance matters, due to its broad impact on the balance of payments, but the particular distribution of surpluses and deficits across partners is not material. Indeed, it would be natural to run deficits with some partners and surpluses with others.

<sup>7</sup> If soybeans are expanded to include all agriculture, LNG to include all energy, and semiconductors to include all electronics, the five categories represent nearly half of U.S. exports to China.

<sup>8</sup> The United States also trails "Other Asia," which includes Taiwan and many small Asian trading partners. In addition, the UN data report "China" as an important source of Chinese imports. This captures exports from China, principally to Hong Kong, that are imported back into China.

through increased Chinese purchases of U.S. goods, the United States would rocket to the top of the list and far surpass China's other trading partners. U.S. sales to China would rise to over \$390 billion, 150% above current levels.

In light of these data, we propose some channels through which the adjustment of the U.S.-China trade imbalance might occur:

**Channel 1. Crowding out within targeted categories.** For example, a commitment to buy more U.S. soybeans may mean reduced purchases of soybeans from other countries. The same is likely true for the other targeted products.

**Channel 2. Rapid growth of targeted categories.** As a result of a commitment to buy more U.S. LNG, for example, China could decide to boost its overall purchases of LNG, crowding out imports of other forms of energy, especially oil.

**Channel 3. Crowding out of closely related products.** A commitment to buy more U.S. soybeans might, as a practical matter, translate into more purchases of related U.S. agricultural products, like corn, wheat, and pork. Similarly, a commitment to buy more U.S. semiconductors might mean additional purchases of U.S. electronics exports more broadly.

In addition to these channels, the evolving macroeconomic baseline—including the underlying GDP growth rates of the two countries and movements in the exchange rate—will be important in determining the evolution of the trade imbalance over the next six years. Of course, these macro factors may ultimately impede, rather than support, the desired adjustment.

Notably, the adjustment of the trade balance through these mechanisms could reflect a reduction in Chinese trade barriers. This, in turn, could drive a market-based rebalancing toward U.S. goods. China's consumers and firms, now able to purchase U.S. goods on better terms, might choose to buy more of them. Alternatively, adjustment may be achieved through more administrative means. The Chinese government may simply decide to increase its purchases of U.S. goods (for example, through state-owned enterprises), or it may exert "moral suasion" on other Chinese entities to increase their purchases. In this paper, we are agnostic about what drives the adjustment. Rather, we focus on what might be plausibly achieved and what the distribution of benefits might be.

## CHANNEL 1: CROWDING OUT WITHIN TARGETED CATEGORIES

Figure 3 offers a more granular look at four of the categories that are reportedly targeted for adjustment—soybeans, LNG, autos, and aircraft (we consider semiconductors separately below). What's striking is that even if the entirety of China's imports in these four categories had come from the United States, it would have boosted U.S. sales to China by \$113 billion in 2017, a significant figure but only half the overall target. The principal losers in such a scenario would be Brazil (soybeans), Australia and Qatar (LNG), Japan and the United Kingdom (autos), and the EU-27 (autos and aircraft).

**FIGURE 3: CHINA'S IMPORTS (2017)**

| <b>Soybeans</b>           | <b>Billions \$</b> | <b>% of Total</b> | <b>LNG</b>                 | <b>Billions \$</b> | <b>% of Total</b> |
|---------------------------|--------------------|-------------------|----------------------------|--------------------|-------------------|
| <b>World</b>              | <b>39.6</b>        | <b>100.0</b>      | <b>World</b>               | <b>14.7</b>        | <b>100.0</b>      |
| Brazil                    | 20.9               | 52.8              | Australia                  | 6.2                | 42.1              |
| <i>United States</i>      | <i>13.9</i>        | <i>35.2</i>       | Qatar                      | 3.4                | 22.7              |
| Argentina                 | 2.7                | 6.8               | Malaysia                   | 1.5                | 9.9               |
| Uruguay                   | 1.0                | 2.6               | Indonesia                  | 1.2                | 8.1               |
| Canada                    | 0.9                | 2.2               | Papua New Guinea           | 0.9                | 6.1               |
| Russia                    | 0.2                | 0.4               | <i>United States</i>       | <i>0.6</i>         | <i>4.3</i>        |
| Memo: U.S. Global Exports | 21.5               | --                | Russia                     | 0.2                | 1.2               |
|                           |                    |                   | Others                     | 0.8                | 5.6               |
|                           |                    |                   | Memo: U.S. Global Exports  | 3.5                | --                |
|                           |                    |                   |                            |                    |                   |
| <b>Autos and Parts</b>    | <b>Billions \$</b> | <b>% of Total</b> | <b>Airplanes</b>           | <b>Billions \$</b> | <b>% of Total</b> |
| <b>World</b>              | <b>77.2</b>        | <b>100.0</b>      | <b>World</b>               | <b>24.7</b>        | <b>100.0</b>      |
| EU-27                     | 32.1               | 41.6              | <i>United States</i>       | <i>13.9</i>        | <i>56.5</i>       |
| Japan                     | 16.3               | 21.1              | EU-27                      | 9.7                | 39.3              |
| <i>United States</i>      | <i>14.7</i>        | <i>19.0</i>       | Canada                     | 0.2                | 0.7               |
| United Kingdom            | 7.4                | 9.6               | Brazil                     | 0.5                | 1.9               |
| South Korea               | 2.8                | 3.7               | Others                     | 0.4                | 1.6               |
| Thailand                  | 1.1                | 1.5               | Memo: U.S. Global Exports* | 131.0              | --                |
| Mexico                    | 1.0                | 1.3               |                            |                    |                   |
| Canada                    | 0.5                | 0.7               |                            |                    |                   |
| Others                    | 1.2                | 1.6               |                            |                    |                   |
| Memo: U.S. Global Exports | 99.8               | --                |                            |                    |                   |

\* Includes other aerospace products and parts

Source: United Nations Comtrade Database, PGIM Fixed Income.

Of course, for both practical and policy reasons, China will not agree to redirect all of its imports within these categories to the United States. But what are some possible benchmarks for rebalancing? The United States will insist on highly ambitious targets, but there are also practical limitations for China. Supplier relationships already exist and broadly reflect the economic interests of Chinese firms. Moreover, as enthusiastic as U.S. officials are about gaining market share in China, officials from other countries will be equally distraught about potentially losing market share.

Similarly, the United States will also face practical challenges. One key question is whether U.S. exporters are prepared to meet the envisioned Chinese demand. For example, for LNG to play an important role in the adjustment of overall trade, the United States will need to significantly ramp up its export capacity, most likely, even more sharply than is currently envisioned. For other industries, like soybeans and semiconductors, the benchmarks proposed below represent very large shares of U.S. global exports. This raises another key question—to what extent will an agreement with China actually generate increased exports globally, rather than just a redirection of sales from other markets? To the extent that the United States just redirects its existing exports from elsewhere, countries that are crowded out in the Chinese market might take up the slack in those markets. The result would be a reshuffling of global trade patterns, with limited net effects.

All this said, we put forward the following benchmarks for these categories. Of course, such assessments provide only a rough idea of possible magnitudes.

*For soybeans and LNG*, we somewhat arbitrarily set a U.S. import share of 50%, similar to the share that United States now enjoys in aircraft, as a possible target to be achieved over the next six years. This benchmark is highly ambitious, but these industries are likely to feature prominently in the adjustment envisioned in the deal. Had such shares prevailed in 2017, it would have meant \$6 billion more of soybean imports from the United States and \$7 billion more LNG imports.<sup>9</sup>

*For autos and parts*, a 50% U.S. market share seems implausible. Here we use a still-ambitious baseline that doubles the purchases of U.S. goods. This would have raised the U.S. share to 38% in 2017, holding China's total auto imports constant, and implied a nearly \$15 billion increase in purchases from the United States.

*For aircraft*, the United States already enjoys a market share exceeding 50%. Given this already dominant position, it may face practical ceilings in winning further gains. Boeing's recent problems underscore this observation. Nevertheless, in a very favorable scenario, perhaps the United States could push up its market share to two-thirds, which would have implied roughly \$2 billion more of Chinese purchases in 2017.

Taken together, these assumptions—which are very ambitious by design—point to increased Chinese purchases of \$30 billion relative to our 2017 baseline. As above, the main losers would be Brazil (soybeans), Australia and Qatar (both LNG), the EU (autos and aircraft), and Japan (autos).

China's imports of semiconductors, Figure 4, exceeded \$310 billion in 2017 with only \$11 billion from the United States. On the face of it, there could be significant scope for increased purchases. However, the vast majority of these come from elsewhere in Asia and are part of deeply integrated Asian supply chains. Moreover, all semiconductors are not created equal; much of this trade is in commoditized relatively low value-added products, rather than the sophisticated and intellectual-content rich semiconductors in which U.S. exporters specialize.

**FIGURE 4: CHINA'S SEMICONDUCTOR IMPORTS (2017)**

| Semiconductors                   | Billions \$ | % of Total   |
|----------------------------------|-------------|--------------|
| <b>World</b>                     | <b>312</b>  | <b>100.0</b> |
| Other Asia                       | 90          | 28.9         |
| South Korea                      | 71          | 22.8         |
| China                            | 47          | 15.2         |
| Malaysia                         | 27          | 8.8          |
| Japan                            | 23          | 7.2          |
| <i>United States</i>             | 11          | 3.6          |
| Philippines                      | 8           | 2.7          |
| EU-27                            | 8           | 2.5          |
| Singapore                        | 7           | 2.4          |
| Vietnam                          | 6           | 2.0          |
| Thailand                         | 5           | 1.7          |
| Mexico                           | 3           | 0.9          |
| Israel                           | 2           | 0.5          |
| Others                           | 2           | 0.8          |
| <b>Memo: U.S. Global Exports</b> | <b>50</b>   | <b>--</b>    |

Source: United Nations Comtrade Database, PGIM Fixed Income.

<sup>9</sup> This benchmark is just hypothetical, since the implied LNG exports to China would have exceeded total U.S. LNG exports to the world. This underscores that the United States will need to take further steps to boost its export capacity if LNG is to play a meaningful role in the overall adjustment. As another obstacle, existing LNG purchase contracts may be very long lived.



Even so, Japan's semiconductor exports to China—presumably also sophisticated—are twice those of the United States. With this in mind, we consider a very ambitious outcome in which the United States sees its exports grow over the six-year period to twice Japan's current level—ramping up to \$46 billion annually, an increase of \$35 billion from current levels. This target is broadly consistent with news reports that China is offering to markedly increase its purchases of U.S. semiconductors.<sup>10</sup> The losers would likely be other producers of sophisticated electronics, including Japan and to a lesser extent Korea, Taiwan, and Singapore.

Thus, we see the direct rebalancing of purchases within these five categories, typically highlighted in the press, as capable of contributing no more than \$65 billion to the overall adjustment, even under ambitious assumptions. Indeed, as a practical matter, we see this estimate as a ceiling on what might be expected. This discussion further suggests that the lion's share of the adjustment must come through other channels, including outsized growth of the targeted industries or increased purchases of U.S. goods more broadly.

## CHANNEL 2: RAPID GROWTH OF TARGETED CATEGORIES

As another channel of trade adjustment, China's total imports of these targeted products might rise sharply, crowding out closely related products. Such adjustment seems most plausible for LNG, a market which is growing rapidly in any event. China could decide to substantially boost its purchases of LNG relative to other forms of energy, particularly reducing demand for oil producers like Russia, Saudi Arabia, and Angola (see Figure 5). The other four targeted products strike us as more mature and less likely to enjoy outsized growth relative to their pace in recent years. We consider the natural growth of trade in response to evolving macroeconomic conditions and ongoing reforms in the section that follows Channel 3.

**FIGURE 5: CHINA'S FUEL IMPORTS (2017)**

| Energy                           | Billions \$ | % of Total   |
|----------------------------------|-------------|--------------|
| <b>World</b>                     | <b>250</b>  | <b>100.0</b> |
| Russia                           | 27          | 11.0         |
| Saudi Arabia                     | 21          | 8.6          |
| Angola                           | 21          | 8.2          |
| Australia                        | 17          | 6.8          |
| Iraq                             | 14          | 5.5          |
| Oman                             | 12          | 5.0          |
| Iran                             | 12          | 4.9          |
| Indonesia                        | 9           | 3.8          |
| Brazil                           | 9           | 3.7          |
| United Arab Emirates             | 9           | 3.5          |
| Malaysia                         | 8           | 3.3          |
| South Korea                      | 8           | 3.3          |
| Kuwait                           | 8           | 3.1          |
| United States                    | 7           | 2.9          |
| Venezuela                        | 7           | 2.7          |
| Others                           | 59          | 23.6         |
| <b>Memo: U.S. Global Exports</b> | <b>159</b>  | <b>--</b>    |

Source: United Nations Comtrade Database, PGIM Fixed Income.

There is considerable scope for China to ramp up its LNG imports, which currently total just \$14.7 billion. These imports have grown at a rapid 20% clip in recent years. Accordingly, we assume that total LNG imports rise to \$40 billion over the next six years. If the United States maintained the 50% market share assumed in our discussion above, this growth would suggest nearly \$13 billion of additional adjustment beyond that identified under Channel 1. Of course, this raises practical constraints as to how quickly the United States can ramp up its LNG export capacity, which is likely to require substantial new investment and time to put in place, as U.S. exports of LNG to the world amounted to only \$6 billion in 2018 (up from \$3.5 billion in 2017).<sup>11</sup> Substantial new capacity is being put in place, but even more will likely be necessary to achieve this ambitious objective for exports to China. There are also practical questions about whether shipping costs will allow U.S. LNG to be economically competitive against more proximate suppliers in Australia and emerging Asia.

Such rapid growth of LNG might be expected to reduce the share of other sources of energy, particularly oil, in China's import basket. Oil exporters like Russia, Saudi Arabia, and Angola would feel the squeeze. Even so, with China's energy imports totaling \$250 billion and spread diffusely across many suppliers, any pain associated with the growth in LNG would likely be manageable.

Also, along with the United States, other LNG exporters like Australia and Qatar would benefit from the increased LNG demand.

<sup>10</sup> See *Wall Street Journal*, "China Seeks to Woo US with Promise of Big Chip Purchase," February 14, 2019.

<sup>11</sup> The Energy Information Administration projects that U.S. LNG exports to the world will increase from 1.1 trillion cubic feet (tcf) in 2018 to 4.2 tcf in 2025. In dollar terms, this implies an increase from \$6 billion in 2018 to \$22 billion in 2025 under the assumption that LNG prices remain at their 2018 level.

### CHANNEL 3: CROWDING OUT IN RELATED PRODUCTS

As a third channel of adjustment, we consider the possibility that in the spirit of the agreement, China might also purchase an increased amount of U.S. goods that are closely related to the five categories. We see this as most likely to occur in agriculture and electronics. A commitment to buy more U.S. soybeans might translate into increased purchases of other U.S. products, like corn, wheat, and pork. Similarly, a commitment to buy more U.S. semiconductors could bring more purchases of other U.S. electronics. The relevant data are shown in Figure 6.

**FIGURE 6: CHINA'S AGRICULTURE AND ELECTRONICS IMPORTS (2017)**

| Agriculture                      | Billions \$ | % of Total   | Electronics                      | Billions \$ | % of Total   |
|----------------------------------|-------------|--------------|----------------------------------|-------------|--------------|
| <b>World</b>                     | <b>105</b>  | <b>100.0</b> | <b>World</b>                     | <b>458</b>  | <b>100.0</b> |
| Brazil                           | 24          | 22.6         | Other Asia                       | 98          | 21.3         |
| United States                    | 21          | 20.1         | China                            | 89          | 19.4         |
| EU-27                            | 9           | 8.7          | South Korea                      | 87          | 19.0         |
| Canada                           | 6           | 5.7          | Japan                            | 42          | 9.2          |
| New Zealand                      | 6           | 5.3          | Malaysia                         | 31          | 6.7          |
| Australia                        | 5           | 4.9          | EU-27                            | 27          | 5.9          |
| Indonesia                        | 5           | 4.4          | Vietnam                          | 23          | 5.0          |
| Thailand                         | 4           | 4.1          | United States                    | 17          | 3.8          |
| Argentina                        | 3           | 3.3          | Philippines                      | 11          | 2.3          |
| Vietnam                          | 3           | 2.5          | Singapore                        | 9           | 2.1          |
| Malaysia                         | 2           | 2.1          | Thailand                         | 9           | 2.0          |
| Russia                           | 2           | 1.9          | Mexico                           | 4           | 1.0          |
| Uruguay                          | 2           | 1.7          | Israel                           | 2           | 0.4          |
| Chile                            | 2           | 1.6          | Indonesia                        | 1           | 0.3          |
| Ukraine                          | 1           | 1.1          | Switzerland                      | 1           | 0.2          |
| Others                           | 10          | 9.8          | Others                           | 6           | 1.3          |
| <b>Memo: U.S. Global Exports</b> | <b>123</b>  | <b>--</b>    | <b>Memo: U.S. Global Exports</b> | <b>174</b>  | <b>--</b>    |

Source: United Nations Comtrade Database, PGIM Fixed Income.

What might some numbers look like? Excluding soybeans, U.S. agriculture exports to China totaled just \$7 billion in 2017, or about 11% of China's total agricultural imports. If China punched that share up to 20%, the implied increase in annual U.S. exports would be \$6 billion. Similarly, the United States accounts for just 4% of China's electronics imports, once semiconductors are excluded. Raising this to 10%, still below Japan's 13%, would net about \$9 billion of increased imports. These strike us as ambitious but achievable numbers.

Notably, we see much less scope for this channel to operate in the other three categories. For autos and aircraft, it's not clear what the closely related products would be. And we are doubtful that a commitment to buy more U.S. LNG will spillover to other forms of energy as well, especially with LNG slated to grow so rapidly.

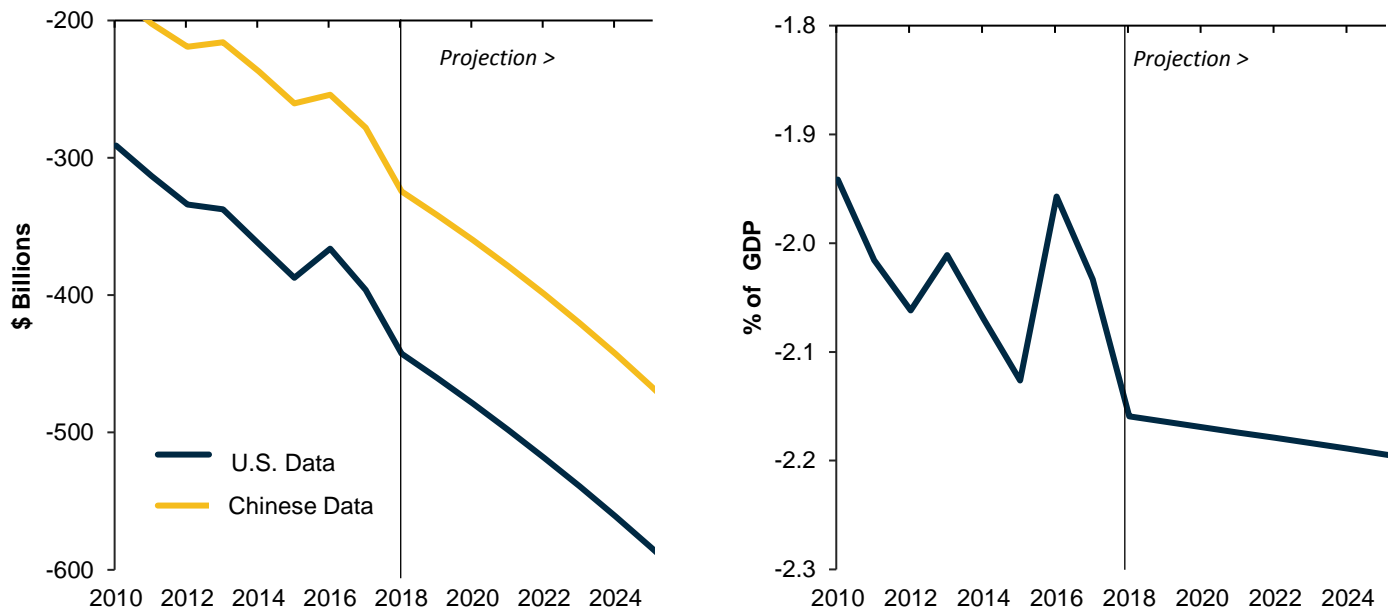
### THE EVOLVING MACROECONOMIC BASELINE

The path of the trade balance through coming years will also depend on macroeconomic variables, including the underlying growth rates of the two economies, the path of Chinese reforms, and the real exchange rate.

Regarding the first of these factors, the likelihood that Chinese GDP growth will continue to far exceed that of the United States should help fuel the growth of U.S. exports to China relative to imports. This factor, however, is offset by another important feature of the trading relationship. At present, U.S. imports from China are roughly four times larger than its exports to China. Thus, to keep the trade balance constant in dollar terms, U.S. exports will need to grow four times faster than its imports. This condition has been satisfied just once in the last 20 years (in 2001). In addition, while several of the categories that we are focusing on, like autos and airplanes, may see meaningful growth as the Chinese consumer further comes of age, it is also likely that China's domestic production of these products will expand in the years ahead. Thus, foreign producers may not enjoy further outsized growth.

As a quick stab at assessing how these factors might net out, we present a simple simulation of the bilateral trade balance, shown in Figure 7. If we extrapolate U.S.-China trade through 2025 at the growth rates that prevailed from 2012-17 (around 4% for both U.S. exports and imports), the trade imbalances deteriorates by about \$140 billion. In other words, the “base effects” dominate. At a minimum, this highlights that macro forces, and the natural growth of trade, cannot be counted on to close the imbalance. As noted above, growth of Chinese imports must far exceed U.S. imports to just breakeven, a condition that has not been met in the historical data.

**FIGURE 7: U.S. GOODS TRADE BALANCE WITH CHINA**



Source: BEA, Census Bureau, PGIM Fixed Income.

Of course, the exchange rate is another potential dimension of macroeconomic adjustment. But given that multilateral trade is roughly in balance (e.g., China’s current account surplus last year came in at less than ½% of GDP), the case for substantial currency appreciation is weak. Indeed, the United States is reportedly pressing China for exchange rate stability, but not for a marked appreciation of the renminbi.



## TALLYING UP THE SOURCES OF ADJUSTMENT

Figure 8 tallies up the identified sources of adjustment. Under the ambitious assumptions we have put forward, the five targeted categories, broadly defined, account for roughly \$90-95 billion of adjustment. The biggest chunk comes from semiconductors, followed by LNG. In contrast, with the United States already enjoying a commanding share of Chinese aircraft purchases, we see limited scope for further gains—just defending this share will be challenging. In addition, we have shown that macroeconomic forces are more likely to widen, than to narrow, the imbalance.

**FIGURE 8: SOURCES OF CHINESE TRADE ADJUSTMENT (\$ BILLIONS)**

|                                     | Adjustment* | Losers  |
|-------------------------------------|-------------|---|
| <b>Soybeans</b>                     |             |   |
| Direct Crowding Out                 | 6           | Brazil  |
| Other Agriculture                   | 6           | Brazil  |
| Total                               | 12          |   |
| <b>LNG</b>                          |             |   |
| Direct Crowding Out                 | 7           | Australia, Qatar  |
| Growth of LNG (Crowding Out of Oil) | 13          | Russia, Saudi Arabia, Angola<br>(Australia & Qatar benefit) |
| Total                               | 20          |   |
| <b>Autos and Parts</b>              |             |   |
| Direct Crowding Out                 | 15          | EU, Japan, UK   |
| <b>Airplanes</b>                    |             |   |
| Direct Crowding Out                 | 2           | EU  |
| <b>Semiconductors</b>               |             |   |
| Direct Crowding Out                 | 35          | Japan, Korea, Taiwan  |
| Other Electronics                   | 9           | Japan, Korea, EU  |
| Total                               | 44          |   |
| <b>Grand Total</b>                  | <b>93</b>   |   |

\*Reduction in trade imbalance in 2025. Source: PGIM Fixed Income.

As such, we conclude that these five targeted categories which, broadly defined, account for just under half of U.S. exports to China are unlikely to contribute even 40% to the desired \$240 billion of trade adjustment. As highlighted in Figure 9, with these targeted goods representing nearly half of U.S. exports to China, this leaves an implausibly large burden of adjustment for the other half of exports. While some additional traction from these categories is possible, this adjustment is likely to fall far short of that in the targeted categories. We take it as given that trade negotiators have focused on the categories where they perceive the greatest potential gains and where China is most likely to make explicit commitments.

FIGURE 9: CHINA'S IMPORTS FROM THE UNITED STATES

|  | China's Imports |             | U.S. Global Exports |              |
|--|-----------------|-------------|---------------------|--------------|
|  | Billions USD    | % of Total  | Billions USD        | % of Total   |
| <b>Total</b>                             | <b>154.4</b>    | <b>100</b>  | <b>1,546</b>        | <b>100.0</b> |
| <b>Agriculture</b>                       | <b>21.1</b>     | <b>13.7</b> | <b>123</b>          | <b>8.0</b>   |
| <b>Energy</b>                            | <b>7.3</b>      | <b>4.7</b>  | <b>139</b>          | <b>9.0</b>   |
| <b>Cars and Car Parts</b>                | <b>14.7</b>     | <b>9.5</b>  | <b>100</b>          | <b>6.5</b>   |
| <b>Airplanes</b>                         | <b>13.9</b>     | <b>9.0</b>  | <b>131</b>          | <b>8.5</b>   |
| <b>Electronics</b>                       | <b>17.4</b>     | <b>11.3</b> | <b>174</b>          | <b>11.3</b>  |
| <b>Subtotal</b>                          | <b>74.3</b>     | <b>48.1</b> | <b>668</b>          | <b>43.2</b>  |
| <b>Metals</b>                            | <b>8.2</b>      | <b>5.3</b>  | <b>78</b>           | <b>5.1</b>   |
| Precious Metals/Stones                   | 5.3             | 3.4         | 60                  | 3.9          |
| Copper                                   | 1.7             | 1.1         | 7                   | 0.5          |
| Aluminum                                 | 1.2             | 0.8         | 12                  | 0.7          |
| <b>Chemicals/Pharmaceutical Products</b> | <b>11.6</b>     | <b>7.5</b>  | <b>121</b>          | <b>7.8</b>   |
| Inorganic Chemicals                      | 0.9             | 0.6         | 12                  | 0.8          |
| Organic Chemicals                        | 3.7             | 2.4         | 36                  | 2.3          |
| Other Chemicals                          | 3.3             | 2.1         | 28                  | 1.8          |
| Pharmaceuticals                          | 3.8             | 2.4         | 45                  | 2.9          |
| <b>Plastic/Rubber</b>                    | <b>8.1</b>      | <b>5.3</b>  | <b>75</b>           | <b>4.9</b>   |
| Plastic                                  | 7.0             | 4.5         | 62                  | 4.0          |
| Rubber                                   | 1.2             | 0.8         | 13                  | 0.9          |
| <b>Wood and Wood Products</b>            | <b>7.5</b>      | <b>4.8</b>  | <b>19</b>           | <b>1.2</b>   |
| <b>Instruments and Apparatus</b>         | <b>11.7</b>     | <b>7.6</b>  | <b>84</b>           | <b>5.4</b>   |
| Medical, Surgical, Dental                | 2.4             | 1.6         | 27                  | 1.7          |
| Physical/Chemical Analysis               | 2.1             | 1.3         | 9                   | 0.6          |
| Measuring/Checking Instruments           | 1.6             | 1.0         | 5                   | 0.4          |
| Orthopedic Appliances                    | 1.1             | 0.7         | 9                   | 0.6          |
| X-Rays, Alpha, Beta, Gamma Radiation     | 1.0             | 0.6         | 4                   | 0.3          |
| Others                                   | 3.5             | 2.3         | 29                  | 1.9          |
| <b>Other</b>                             | <b>32.9</b>     | <b>21.3</b> | <b>551</b>          | <b>32.4</b>  |

Source: United Nations Comtrade Database, PGIM Fixed Income.

Thus, our bottom line is that while some meaningful increase in U.S. exports to China is likely to occur as the result of a trade deal, pushing those gains much beyond \$100 billion over six years will require significant—and perhaps extraordinary—interventions by the Chinese government in favor of U.S. imports. Indeed, achieving even \$100 billion of adjustment will be no small feat. The trade deal may help open Chinese markets to U.S. exporters, but probably not to the extent envisioned.

As also shown in Figure 8, this opening of Chinese markets to the United States is likely to have adverse effects on other countries, including Brazil (agriculture), Russia and Saudi Arabia (oil), the EU (autos and aircraft), Japan (autos and electronics), and Taiwan and Korea (electronics). To the extent that meaningful adjustment is achieved in the non-targeted categories, the EU, Japan, and Australia would be the big losers, as roughly 70% of their exports are in these categories. Even so, these countries would be manageable, given the generally diffuse patterns of China's imports.

## CONCLUDING THOUGHTS

We find that the envisioned trade deal between the United States and China will narrow the bilateral imbalance, but the extent of this adjustment will probably be smaller than advertised. The Chinese government—likely working through the state-owned enterprises (SOEs)—can get some traction by redirecting purchases from other countries and otherwise ramping up demand for U.S. goods. In addition, to the extent that the trade deal contains structural elements that level the playing field for U.S. firms in China and enhance market access, these measures could drive a market-based rebalancing toward U.S. goods. China's consumers and firms should be able to purchase U.S. goods on better terms and might choose to buy larger quantities of them. In tandem, stronger intellectual property provisions could increase the attractiveness of the Chinese market for U.S. producers.

Even so, there are a number of powerful economic factors that are likely to limit the pace and scope of adjustment. These include: the persistence of China's existing supplier relationships with other countries, the capacity of U.S. producers to sufficiently ramp up their exports, the geographical distance between the two countries and resulting transportation costs, and the reluctance of China to source its key imports disproportionately from a single partner. As further headwinds, China's economic development means that U.S. exporters will likely face intensifying competition from domestic firms in the Chinese market (e.g., autos and aircraft), and the macroeconomic baseline, if anything, points to a widening of the imbalance.

These observations hint at some deeper questions regarding the trade deal. Specifically, to what extent will the agreement actually raise total U.S. exports or total Chinese imports? If U.S. producers just divert their exports from other markets to China, while foreign producers—crowded out of Chinese markets—pick up the slack in countries where U.S. producers have exited, the result would be an inefficient reshuffling of global trade patterns. Firms would bear the costs of establishing new supplier relationships and rebuilding supply chains. These observations highlight the value of multilateral, or at least broad-based, approaches to trade liberalization. As trade barriers are torn down simultaneously in many countries, it creates new opportunities for trade to occur, rather than just a diversion of existing trade from one destination to another.

As an additional point, it is surprising that the U.S. Administration is apparently not prioritizing a further opening of China's services market. The United States has comparative advantage in services and runs a surplus with China. The Administration has instead focused mainly on goods. But, clearly, enhanced access for U.S. firms providing information technology services, consulting, entertainment, advertising, and financial services would provide a meaningful lift to overall exports. Similarly, the Chinese government could create incentives for its citizens to study in the United States or to visit as tourists. Of course, the United States would have to be willing to accept the increased flow of Chinese students and tourists. The implications of such measures for U.S. services exports would be significant.

Finally, the contemplated agreement also raises some concerns regarding the future trajectory of the Chinese reform effort. For decades, the United States has urged China to pursue market-based economic reforms. In contrast, the structure of the expected trade deal—with China committing to increase its purchases of certain goods by negotiated amounts—has the distinct flavor of central planning. And, as we have described, implementing these commitments is likely to increase the role of the Chinese government and SOEs in orchestrating the details of the country's trading relationships. As a systemic matter, this strikes us as a concerning development, even if it ultimately results in a somewhat reduced trade imbalance.

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2019-1907

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