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TOP_{Of} MIND

TRADE WARS 3.0



With US-China trade negotiations taking a sharp and unexpected turn for the worse over the last month, followed by President Trump's surprising recent threat to impose tariffs on Mexico, trade wars are (once again) Top of Mind. We speak with the Hudson Institute's Michael Pillsbury, who is closely aligned with the Trump Administration on his views towards China, as well as Dr. Wang Huiyao, founder of Beijing-based think-tank, the Center for China and Globalization, to assess where the current impasse goes from here. Our takeaway after hearing from both sides: although U-turns in the talks seem to be the norm, a US-China deal is unlikely anytime soon. Indeed, Susan Shirk, professor at UC San Diego, provides insight on

how policy choices and personal styles have led to the elevated tensions we have today, which aren't easily unwound. With growth worries already mounting, we assess what escalating tensions on multiple trade fronts could mean for growth, inflation and the markets, which look manageable for now.

I think the president and his staffers are concerned that if he gets a bad trade deal and the Democrats then accuse him of selling out to the Chinese because of his friends on Wall Street, that would be a nightmare... this may be a bigger danger to the President's 2020 race than no trade deal at all.

- Michael Pillsbury

Trump's actions have led to a more unified nationalist resentment of the US—and a view that not just Trump, but American society, is trying to contain China's rise.

- Susan Shirk

Asking for too much, too fast can backfire. It's not possible to solve every aspect of Sino-US relations in one agreement. But the US and China should aim to be healthy competitors... The US needs to think very hard if it really wants to make China an enemy of the US.

- Wang Huiyao

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Macro news and views

We provide a brief snapshot on the most important economies for the global markets

US

Latest GS proprietary datapoints/major changes in views

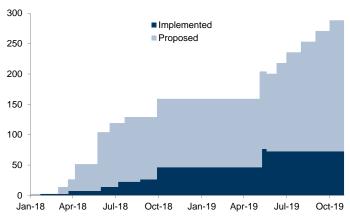
- We've raised our odds of across-the-board China tariffs to 60%, and expect the US to implement proposed tariffs on Mexico.
- We've lowered our 2H2019 GDP growth forecast by 0.5pp to 2.0% on trade tensions and tighter financial conditions.

Datapoints/trends we're focused on

- Increasing odds of a Fed rate cut this year, given increased trade tensions and comments from Fed leadership.
- The outlook for jobs growth following weak ADP private sector hiring in May; we still expect a 195K rise in non-farm payrolls.

On the rise

Value of US tariffs proposed and imposed, \$ bn



Source: Bloomberg, Goldman Sachs Global Investment Research.

Europe

Latest GS proprietary datapoints/major changes in views

- We pushed back our call for the first ECB rate hike by six months to end-2020 on weakness in actual/expected inflation.
- We slightly raised our odds of a "no deal" Brexit to 15%; despite the coming change in UK PM, we still expect a deal (45% odds), though most likely in late 2019 or early 2020.

Datapoints/trends we're focused on

The ECB's decision to extend forward guidance and offer more attractive TLTRO pricing; we do not expect further easing in our base case, though risks have increased around this view.

Drifting away



Source: Goldman Sachs Global Investment Research.

Japan

Latest GS proprietary datapoints/major changes in views

No major changes in views.

Datapoints/trends we're focused on

- · Increasing odds that the Japanese government delivers a later decision on whether or not to implement its planned VAT hike, given concerns over US-China trade tensions.
- This summer's crucial Upper House elections given PM Abe's desire to amend Japan's constitution, as well as the odds of an election in the Lower House, which we see as a risk scenario.
- Stronger April IP data despite waning consumer confidence.

Waning confidence

Japan consumer confidence, index; 1y inflation outlook, % yoy (rhs)



Source: Cabinet Office, Goldman Sachs Global Investment Research.

Emerging Markets (EM)

Latest GS proprietary datapoints/major changes in views

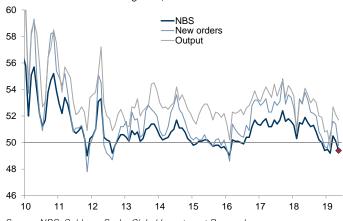
• No major changes in views.

Datapoints/trends we're focused on

- Softer PMIs in China amid rising trade tensions; we expect Beijing to ease as needed to achieve its 6-6.5% growth target.
- Prospects for growth-positive land and labor reforms following PM Modi's win in India's general election.
- Mexico's response to proposed US tariffs; we expect officials to adopt a cooperative (rather than confrontational) stance.
- A larger-than-expected 3.2% contraction in S. African Q1 GDP.

Into contraction

China NBS manufacturing PMI, index



Source: NBS, Goldman Sachs Global Investment Research

Trade wars 3.0

With US-China trade negotiations taking a sharp and unexpected turn for the worse over the last month, followed by President Trump's surprising recent threat to impose tariffs on Mexico, trade wars are (once again) Top of Mind. We <u>first wrote</u> about potential trade wars soon after Trump's inauguration given his long-held belief that America has gotten a raw deal on trade (see pg. 18), and then again in <u>March 2018</u> when US trade actions began to kick in.

Today, given the current impasse in US-China trade talks that will see a 25% tariff on all US imports of Chinese goods if no progress is made, as well as a looming series of deadlines for Mexico to rein in illegal migration to the US or suffer a similar fate—not to mention the potential imposition of auto tariffs later this year—the key question is: what comes next, and what economic and market implications will it have?

Alec Phillips, GS Chief US Political Economist, first lays out where the US-China trade war—as well as other brewing trade conflicts—may go from here. In his view, the best case scenario for US-China negotiations—reaching an agreement that eventually leads to de-escalation—is the least likely one for now. He believes the imposition of tariffs—albeit at a 10% rather than a 25% rate—on the remaining tranche of US imports from China soon after the June 28-29 G20 meeting is most likely. But he sees Trump's political incentives leading to an agreement prior to the 2020 presidential election. Phillips also expects the US to impose at least a couple of rounds of 5% tariffs on Mexico, which will probably delay—and potentially derail—ratification of the US-Mexico-Canada (USMCA) trade agreement. And he thinks that Trump's more aggressive actions in these areas raises the likelihood of auto tariffs, although that's not our base case.

On the US-China front, Michael Pillsbury, Director for Chinese Strategy at the Hudson Institute who is closely aligned with the Trump Administration on all things China, also sees a diminished likelihood of a US-China trade deal anytime soon. In his view, the US has underestimated the influence of Chinese hardliners who believe Americans aim to halt China's rise and object to Chinese concessions to secure a deal. In contrast to Phillips, Pillsbury sees Trump's political considerations as potentially reducing the odds for a deal. He explains that while prospects of a trade war harming the economy and markets ahead of the election is a concern for the White House, their bigger concern is a "bad deal" that leaves Trump vulnerable to attacks from Democrats, who generally support Trump's actions in China but have argued he hasn't gone far enough. (Note: we assess whether trade actions so far have met Trump's goals of reducing the deficit on pg. 20 and protecting US industry on pg. 21).

Huiyao Wang, President of the Center for China and Globalization in Beijing and a leading voice in global debates about China's role in the world, is cautiously optimistic about the likelihood of achieving a deal, but only if China's now well-articulated red lines are met. And he argues that while the influence of hardliners was generally contained as President Xi first embraced President Trump, Trump's recent aggressive actions have cultivated anti-American sentiment among hardliners and across China more broadly.

So what are the red lines? One area highlighted in a recent white paper released by the Chinese is infringement on China's domestic sovereignty as well as the US's hard line on enforcement mechanisms in the deal. While Trump is demanding that the reduction of tariffs must be earned in return for compliance—a view that Pillsbury advocates—the Chinese insist that withdrawal of existing tariffs must be part of a deal, with anything less implying a lack of trust and respect. More broadly, China must not feel bullied in the negotiations, which Wang notes is at odds with the US's current approach and Trump's confrontational negotiating style.

We ask Susan Shirk, Chair of the 21st Century China Program at UC San Diego, why saving face is so important for Chinese leaders—even one as powerful as Xi Jinping. She explains that Chinese leaders always feel insecure because they live with the constant fear that an economic or financial crisis could lead to a political challenge to Communist Party rule. And Xi—perhaps counter-intuitively—is even more insecure than past leaders because his consolidation of power has dismayed rivals that could challenge him. That said, she agrees with Wang that the recent turn of events has intensified a sense of nationalism in China, leading even elites that have secretly disapproved of Xi Jinping to stand behind him. (Note: Shirk also provides context on the longer evolution of the US-China relationship, emphasizing that current tensions actually began before the rise of Xi Jinping and certainly long before President Trump, with the global financial crisis marking a key turning point.)

With trade tensions already roiling global markets, we assess what the increased potential for escalation could mean for growth, inflation and markets from here. GS global economists Nicholas Fawcett and Jari Stehn conclude that global growth implications should remain manageable on our expectation of somewhat limited additional escalation. But they argue that growth effects are nevertheless likely to be larger than we had previously expected, and could rise sharply on more escalation.

We then drill down on implications for the US, China and beyond. On the US side, GS US economists David Choi and David Mericle review the upside risks to inflation and downside risks to growth that trade tensions pose—indeed, we recently revised our forecasts in those directions. And on the China side, Andrew Tilton, GS Chief Asia economist, anfpgswers perhaps the most pressing question for China today: can its growth recovery continue if trade tensions escalate? GS Senior European economist, Sören Radde also digs into the risk that auto tariffs pose for German growth, and thus European growth more broadly.

Finally, our strategists discuss asset-by asset implications on pg. 17, with our US equity strategists noting that a 25% tariff on all Chinese imports could reduce S&P 500 EPS estimates by 6%.

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Q&A on the outlook for US trade policy



Alec Phillips is GS Chief US Political Economist. Below, he discusses what lies ahead for US trade disputes.

Q: Where do we stand in terms of the US-China trade war?

A: The trade war began in 2017 when the White House initiated an investigation into China's intellectual property and technology transfer policies. That led to a first round of US tariffs on Chinese goods being imposed in July 2018 followed by two more rounds of tariffs in August and September that year. Each of these rounds was met with Chinese retaliation, although in later rounds their response was generally less than proportional owing in part to the simple fact that China imports less from the US than vice versa. Overall, by the end of 2018, the US had imposed a 25% tariff on \$50bn worth of Chinese goods as well as 10% tariff on an additional \$200bn in Chinese imports, ranging from semiconductors to machinery to textiles; and China had implemented tariffs ranging from 5-25% on about \$110bn of US goods (see pg. 5). The US had also initiated some technology-specific actions such as a components ban on ZTE, although those were ultimately lifted. Further escalation was then put on hold as the US and China tried to work out a formal deal with the expectation that an agreement could be reached by the G20 Summit in late June. Unfortunately, those talks became derailed in early May. Since then, the US increased the existing tariff rate on the \$200 billion of imports from China from 10% to 25%, proposed a 25% tariff on all of the roughly \$300 billion of remaining imports from China, and restricted the export of US technology to Huawei, albeit with some exemptions. In response, China has begun to take further retaliatory measures, increasing tariffs on \$60 billion of imports from the US and compiling a list of "unreliable" foreign entities, although it's unclear what restrictions entities on the list might face.

Q: Where do negotiations go from here?

A: The immediate question is whether the two sides can reach an understanding at the G20 meeting on June 28-29, which Presidents Xi and Trump are both scheduled to attend. We see three potential scenarios. The first scenario, which we think is the most likely at this point, is that negotiators are unable to reach a deal, and the White House moves forward with additional tariffs sometime in July. We think this outcome is most likely given the increasingly confrontational rhetoric on both sides, and that neither side appears to be under much political pressure to reach an agreement at this point. That said, we expect only partial implementation of additional tariffs, meaning that a 10% rather than a 25% tariff would be imposed, or the higher tariffs would be phased in to soften the blow to US consumers. That's because the majority of these goods are consumer goods that can't be easily supplied from elsewhere. The second scenario, which is only slightly less likely than the first one, is that negotiators are unable to reach a formal deal ahead of or at the G20, but agree to postpone the implementation of additional tariffs and halt further retaliatory measures while negotiations resume. This scenario is certainly possible, but would require a big shift in a short amount of time given the recent escalation in tensions. And the third scenario—which is best, but also least likely given how far apart the two sides seem today—is that a deal is reached in the near term, which would avoid new tariffs and presumably eliminate at least some existing tariffs. But even if this doesn't happen around the G20, we think there's still a good chance of a deal in late 2019/early 2020, even if it is more limited in scope than first envisioned. That's because we think Trump has economic and political incentives to strike a deal prior to the 2020 presidential election.

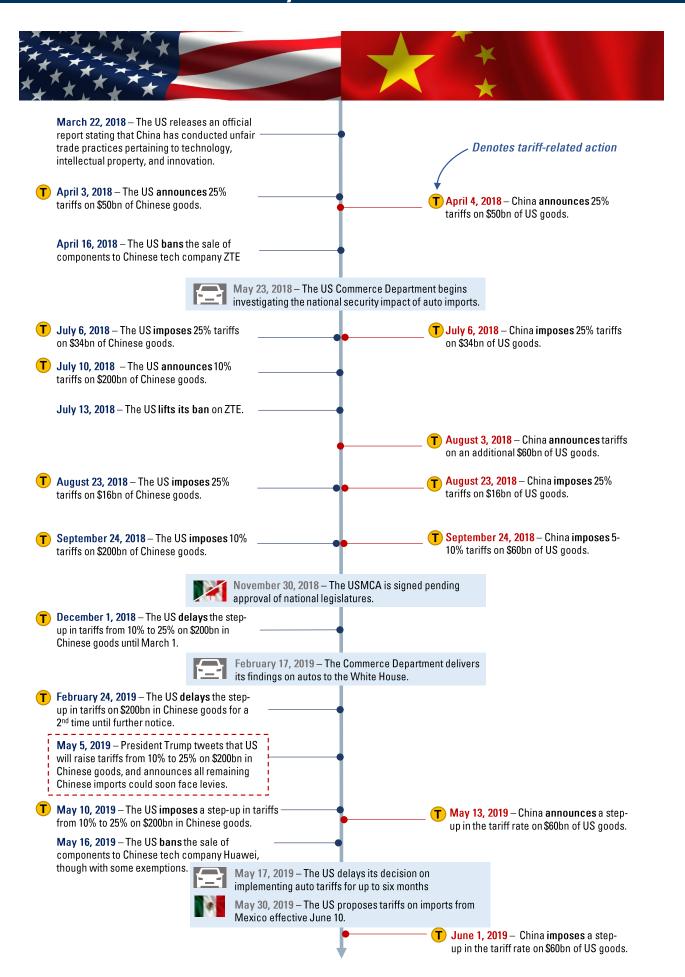
Q: The other major trade development has been Trump's intention to impose tariffs on goods imported from Mexico tied to migration. What does this say about Trump's trade agenda and how has it altered your views?

A: Indeed, President Trump has proposed a 5% tariff on all goods entering the US from Mexico effective June 10, which would increase by 5pp every month thereafter until it reaches 25% unless Mexico substantially stops illegal migration through its country. This action was certainly a surprise, and has forced us to reconsider our assumptions for the Administration's approach to trade policy. Until recently, we had assumed that President Trump's concern about financial markets and public opinion would keep him from escalating trade tensions too far; that the Administration would not want to fight a trade war on multiple fronts; and that the legislative agenda—specifically, a desire to pass the US-Mexico-Canada trade agreement—would further temper his trade ambitions. But these arguments now seem much weaker than they did a few weeks ago. At this point, given the short deadline before tariffs on Mexico are imposed, we think the most likely scenario is that tariffs on all US imports of Mexican goods will take effect and rise to 10% before a resolution is achieved and tariffs are removed. We don't think USMCA will be ratified while tariffs are in place. And if they remain in place into the autumn, we think the chances of USMCA enactment at all fall dramatically. We also see a greater risk of auto tariffs given all of the above, but we still don't think that's the most likely scenario at this point.

Q: What should investors be watching over the next few weeks?

A: The most imminent event will be the potential implementation of the first round of US tariffs on Mexican goods on June 10th. And the most important set of events around US-China trade issues will come toward the end of June. First, the comment period on the final list of tariffs the US plans to impose on Chinese goods will end on June 24; so any time after that, the White House will be free to publish the final tariff notice. Second, the G20 summit will take place June 28-29, which is setting up to be pivotal for the direction of the US-China negotiations. From there, the US will need to meet various regulatory deadlines on technology and telecom restrictions, including on Huawei, through the end of October. And, finally, after pushing off a decision on whether or not to impose auto tariffs, we think the White House won't be able to further delay this decision past November. So November will be an important month for that issue.

US-China (and beyond) trade war timeline



Interview with Michael Pillsbury

Michael Pillsbury is Senior Fellow and Director for Chinese Strategy at the Hudson Institute. Previously, he was Special Assistant for Asian Affairs under President George H. W. Bush and Assistant Under Secretary of Defense for Policy Planning under President Reagan, among other government posts. He has written extensively on China and most recently published *The Hundred-Year Marathon*. Below, he argues that the US is underestimating the influence of China's hardliners, and must adopt a tough approach to ensure lasting shifts in China's business practices.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.



Allison Nathan: Your recent book is titled *The Hundred-Year Marathon:* China's Secret Strategy to Replace America as the Global Superpower. How did that strategy evolve and what does it entail?

Michael Pillsbury: In the early 1980s, Chinese top leadership conducted a thorough review of the failings of the

prior thirty years of economic management. This included the "great leap forward" in the 1950s, which entailed close alignment with the Soviet Union and ultimately led to massive famine and likely tens of millions of deaths in the country—as well as the following period in which China turned entirely inward, halting all trade, recalling ambassadors and closing universities. With these failings in mind, they embarked on a whole new approach to their economy and enlisted the help of Nobel-prize winning economists as well as the World Bank to plot a strategy for 6% or better growth. This shift incited debate within China about whether it was going too far in the direction of capitalism, or not far enough; the dominant group argued for more socialist elements in the economic model, but reformers like Wu Jinglian—many of which I interviewed in my book—advocated for a greater role for free markets and foreign investment. The compromise was the so-called "socialist market economy" that we have today, in which the top half of the economy—or, in Marxist terminology, the "commanding heights"—would be controlled by the government/Communist Party, and only the bottom half would be open to the free market. That strategy has worked better than anyone could have imagined; China's economy has gone from 10% of US GDP to closing in on surpassing us.

I call the strategy secret because—while it's hard to argue they hid it—they certainly didn't volunteer it. And we in the US did not think it was happening, or even that it could happen. There was a false narrative in the US at that time, which I admit I believed along with everyone else, that the Chinese must want capitalism because that was the direction they appeared to be moving in under Deng Xiaoping; Time magazine featured three cover stories during that period on how China was taking the capitalist road. But, of course, with much of their economy remaining under Communist control, that was completely wrong. The Chinese tell me now that it's not their fault the US had this false perception; it was just wishful thinking.

More recently, Xi Jinping—somewhat controversially—has broken with China's past modus operandi of keeping their head down and not expressing ambition. Specifically, China unveiled its 2025 plan, which aims to *dominate*—a word the Chinese

don't use lightly—the top ten technology sectors of the world. And in a speech at Davos in January 2017 Xi used the wonderful phrase, "It's time for China to take the center stage." So he is no doubt changing the old strategy and becoming relatively more forthright about China's ambitions.

Allison Nathan: Given that context, were you surprised by the recent U-turn in trade negotiations?

Michael Pillsbury: No. The negotiations face great challenges. Cyber intrusions into US business networks have helped Chinese companies gain advantages in key high-tech areas, which they are loathe to give up. Anything that touches on state-owned enterprises (SOEs) is a non-starter for Beijing given their critical economic and political role in China, but unfair advantages for SOEs lie at the core of the West's complaints about China's business practices. And given China's long history of breaking promises to the West, strong enforcement mechanisms are a necessary precondition for any deal. But the Chinese balk at this given their view that such mechanisms imply a lack of respect.

Allison Nathan: What is the US most miscalculating about these negotiations and what is China most miscalculating?

Michael Pillsbury: The US is underestimating the influence of the hardliners, or hawks, in China and the degree to which Chinese nationalism and anti-American sentiment has grown since the early 1990s. This is the biggest mistake we have made over the last several decades, let alone in these negotiations. But as it relates to the latter, it's clear that the US has assumed that Chinese reformers—those who in the '80s argued for a truly free market—are still in charge; indeed, Ambassador Lighthizer testified before Congress that we are counting on the reformers in this negotiation.

Of course, one of China's lead negotiators in these talks, Liu He, is a well-known reformer who helped design the blueprint for a document put forth about 10 years ago called China 2030, which laid out a long-term strategy for economic reform. But almost none of those reforms have been implemented because they are opposed by the hardliners who believe that America's master plan is to block China's rise and overthrow the Communist Party. And, after trade talks broke down in early May, the American side was told by the Chinese side to no longer refer to Liu He as the Special Envoy of President Xi Jinping. That was a shocker, and puts into doubt who Liu He really represents now. But this just shows why America should not be underestimating the degree of influence the hardliners have today in general and in particular over Xi Jinping, who allied himself with them in order to become President. On the China side, I would also say that they have underestimated the

influence of American hawks judging by their apparent surprise to President Trump's recent actions. But I think they have also underestimated the American Doves in the sense that it's my belief that the Chinese Hawks have it wrong; America wants a strong, secure prosperous China, just one in which there is an even playing field for everybody.

Allison Nathan: Are these miscalculations behind the current impasse?

Michael Pillsbury: To a large extent, yes. The Chinese, and especially the hardliners, are not happy with the way Americans have implied that the US has bested China in this deal, that China has surrendered, and the terms are very much in favor of the Americans. Even if much of this impression came from US accounts of developments in the negotiations that were more unscrupulous "spin" than fact, it fed into the hardliners' conspiratorial view of American politics.

I also suspect that once the hardliners saw the 150-page agreement, they objected to it and demanded changes. The agreement has been a secret on both sides; only a few people have seen it including President Xi and President Trump, and it seems there was no Mandarin version of it until very recently, which potentially explains why these objections came so late in the game. But the result has been a strange phenomenon whereby the Chinese reneged on the agreement and attempted to renegotiate much of it. So the impasse likely had a lot to do with the Chinese hardliners' substantial influence, and the US's underestimation of that, among other factors.

Allison Nathan: So what do the hardliners want?

Michael Pillsbury: In his briefing after talks hit their current impasse, Liu He said a phrase in Mandarin to the Chinese press that essentially means "balance of dignity"; so if the US is going to intrude and draft State Council directives, and inspect us, and punish us if we don't comply to their satisfaction—all of which was apparently included in the 150-page agreement—we want the same privileges in Washington, DC. But of course there are US laws that prohibit that. More broadly, I am often hearing that the Chinese, and the hardliners in particular, don't want to have a "gun pointed at their head" during the negotiations. They want respect for the Chinese negotiating position and are concerned about being bullied, especially after President's Trump's recent actions on Huawei, which, again, fed into the conspiratorial theories of the hardliners.

Allison Nathan: Wouldn't one way to reduce the perception of bullying be to lift US tariffs in exchange for Chinese concessions?

Michael Pillsbury: Perhaps, but I believe it is imperative that China earn their way out of tariffs, as President Trump is insisting. This may be considered a tough line today, but it will reduce friction later. That's because tariffs here are not meant to be long-term punitive tariffs; they are meant to induce China to change its behavior. China is less likely to cheat on any future agreement if it needs to comply to earn a reduction of tariffs. Ultimately, rewarding China for compliance is consistent with reducing tariffs between the US and China to zero, or close to it, within the next few years, assuming that China does, in fact, comply. This would potentially end trade friction once and for all, and would be far preferable to the inevitable

trade friction that would likely occur year after year if America's tools for enforcement don't crack down on cheating. I believe that is President Trump's objective. He might call himself "tariff man" but I think he means that only in the short-term sense of getting negotiating leverage, and has no intention of maintaining tariffs over the longer term.

Allison Nathan: Will there be a trade deal this year, and how do US domestic politics—given the upcoming 2020 presidential election—factor into this?

Michael Pillsbury: I don't think anyone involved cares to make a prediction on that. It was such a surprise that the Chinese reneged and will not set a new date for the next round of talks. They have been ratcheting up the nationalistic rhetoric in recent weeks with President Xi making more than one speech that the Chinese people should prepare themselves for a long march. And in some sense they are demonizing not just President Trump, but the whole United States, by claiming that our goal is to block China's rise.

That said, the chances of a trade deal this year are really diminished but they're not impossible. But the politics on our side are quite important. Obviously, if the trade war is really bad for the stock market, for our farmers, for our trading companies, and if the Chinese start to punish us in retaliation, then that would cause negative press. And President Trump's campaign manager would have to hope this wouldn't affect the base, and especially voters in Pennsylvania, Michigan, and Wisconsin—the key electoral college states that President Trump is so proud of winning.

But, on the other side, I think the president and his staffers are concerned that if he gets a bad trade deal and the Democrats then accuse him of selling out to the Chinese because of his friends on Wall Street, that would be a nightmare. This is a president whose base is against the Wall Street banks, and who promised to "drain the swamp". In a way, this may be a bigger danger to the President's 2020 race than no trade deal at all. Remember, right now the Democrats, and Nancy Pelosi and Chuck Schumer in particular, are outspokenly supporting President Trump in the trade war with China. In fact, the Democrats feel President Trump stole this issue from them back in the 1980s. He first took out an ad in the New York Times in 1987 against the US being disadvantaged by other countries in the trade area. And he wrote about China and their mercantilism and predatory economics as the main challenge in a book in 2000, three pages of which essentially previewed the actions he's taking today.

But Democrats see this as their issue and some are even saying he is not being tough enough on China. Schumer tweeted in March that President Trump should not be lifting the tariffs; he should implement them all or he'd be betraying the American worker. And Bernie Sanders has criticized the President for not sticking to his promise to declare China a currency manipulator on day one—even though he had good reasons for this—and has promised to do so if he is elected. Many of Trump's supporters seem to be supporters of Sanders as well; they are looking for differences between them. So if I was President's Trump campaign manager I would be worried if I saw Democrats agreeing that President Trump didn't take on China in a serious way. That is the concern I hear.

Interview with Wang Huiyao

Dr. Wang Huiyao is the Founder and President of the Center for China and Globalization, a non-government think tank in China. He is a leading voice in global debates on the role of China in the world today, and currently serves as Counselor for the State Council of the People's Republic of China. Below, he argues that China does not pose a threat to the US, and that a trade deal remains possible, but China has articulated red lines that it can't easily back away from.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.



Allison Nathan: What is the biggest misperception that Americans have about China today?

Wang Huiyao: The biggest misperception is that China poses a threat to the United States. It is not unusual for a dominant power to feel threatened by a rising power, especially given the exceptional pace

of China's growth and its achievements; it now has the fastest train network, the biggest 5G network, and is set to overtake the US in terms of GDP over the next 10-15 years. These concerns are exacerbated by China's different system, which is not well understood. China is often viewed as a state-run economy that poses a risk to the liberal world order. But, in fact, 80% of the Chinese economy is private with 10% of that comprised of foreign multinationals in China. Without this mixed economy, China would not have been able to achieve the same level of innovation, or have lifted 800 million people out of poverty, which is unprecedented in the history of mankind.

In reality, China is a substantial contributor to the world. It contributes over 30% of global GDP growth, is the largest trading nation for over 130 countries, and is one of the largest donors to the United Nations. China has embraced the Paris accord, taking a global leadership role in combatting climate change. And it is on the way to becoming the largest consumer market in the world, with its middle class of about 400mn people set to double within the next couple of decades. In all of these ways, China is a supporter of the current world order. So my question is: why try to kill the goose that lays the golden eggs? The whole world will benefit from China's contributions and should not feel threatened by them.

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Allison Nathan: How is President Trump viewed in China?

Wang Huiyao: He is losing some credibility. He was initially viewed favorably; we welcomed the prospect of a pragmatic leader. But he has gone too far with his "art of the deal" negotiating tactics. These tactics may be effective in handling business relations, but less so in dealing with state relations. I understand that he is trying to deliver on a campaign promise. But completely changing the game at crucial moments—for example, by imposing tariffs on the eve of a final negotiation—

is difficult to handle, not only for China, but for the rest of the world. This behavior is unproductive and becoming truly destructive. So, today he is viewed by many as a bully.

In my view, the leader of the most powerful country in the world has a responsibility to stabilize the world economy. Whether we like it or not, the world is now bound together by global supply chains. So decoupling is basically impossible and would be catastrophic to the 70,000 US companies that generate \$700bn in revenues in China—far higher than even the mistakenly inflated trade deficit figures President Trump is so focused on. If President Trump continues on this path, we will end up not only in a trade war, but also in a technology war and ultimately a global recession.

If President Trump continues on this path, we will end up not only in a trade war, but also in a technology war and ultimately a global recession."

Allison Nathan: So actions on the US side are to blame for the current impasse?

Wang Huiyao: There are obviously different perceptions on both sides. But there is little doubt that the US side's taunts that the deal was shaping up to be more favorable to the US soured the negotiations. The mere fact that officials seemed to be unilaterally disclosing details of the deal was in itself viewed as a betrayal. And tensions intensified when the US accused China of backpedaling on the agreement, which made no sense because no deal had been signed; negotiations were ongoing. On the flip side, the white paper China recently released describes three occasions in which the US side changed its position. So distrust has grown on both sides. But, of course, President Trump's last-minute announcement of higher and new tariffs was viewed as unacceptable.

Allison Nathan: There is a narrative in the US that the influence of hardliners in China who harbor anti-American sentiment ultimately objected to the deal. Is there truth to that? How much influence do hardliners really have?

Wang Huiyao: As in any country, there are hardliners. But, despite this, China has attached great importance to the United States. When President Trump visited Beijing, President Xi opened the Forbidden City for him, which had never been done in the history of Chinese diplomatic exchanges. Even after President Trump initiated the trade war, China sent delegation after delegation to talk through the differences between the two countries. In many ways, China has tried to address US concerns. It halted overt discussions of the China 2025

program. And, even more importantly, in March it passed new foreign investment laws aimed directly at US concerns, forbidding forced technology transfers, protecting intellectual property, and demanding equal treatment between domestic and foreign telecom companies, among other measures. In all of these endeavors, hardliners were restrained.

As in any country, there are hardliners. But, despite this, China has shown that it attaches great importance to the US."

But President Trump's drastic actions on tariffs and on our technology companies have cultivated negative feelings from the hardliners as well as the Chinese people more broadly. China deserves to be treated differently than North Korea or Iran. Walmart is a major importer of goods from China, which supplies thousands of stores and reduces inflation in the US economy; GM and Ford sell more cars in China than in the US; I could go on. So it is hard to understand why the US is treating China so harshly.

Allison Nathan: What does the Chinese side need to see to make a deal?

Wang Huiyao: Chinese officials have publically outlined three red lines, which imply a hardened position that would be difficult to walk back at this point. First, tariffs must be lifted.

From the Chinese perspective, tariffs are the primary cause of the trade war, and lifting of them is the whole reason for negotiations. If China presumably makes concessions to achieve a deal, why should tariffs remain? That would amount to the unequal treaties of the 19th century. It's not possible for the US side to have its cake and eat it too. Second, that there should be no expectation of any material increase in Chinese purchases of US goods beyond the level that President Trump and President Xi agreed in principle at the G20 summit in Argentina. And, third, that any agreement must look balanced; so if the US makes demands of China, the US must agree to reciprocal demands from China. All of those requests seem reasonable.

Allison Nathan: What is the likelihood of a deal this year?

Wang Huiyao: I'm still cautiously optimistic. The door is always open and China wants to close a deal. In my view, both countries should cool down and return to the negotiating table. If 90%+ of a deal is done, then they should at least agree on that and anything further can be addressed through the multilateral system, either the WTO, or ultimately perhaps the TPP, if China and the US re-consider joining. Asking for too much, too fast can backfire. It's not possible to solve every aspect of Sino-US relations in one agreement. But the US and China should aim to be healthy competitors rather than enemies. The US needs to think very hard if it really wants to make China an enemy of the US.

Top of Mind

Trade wars: bigger effects on global growth

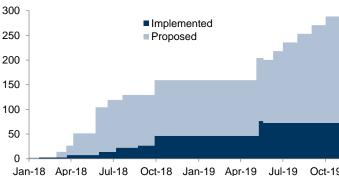
Nicholas Fawcett and Jari Stehn explain that trade could pose substantial risks to global growth should tensions escalate

The trade war has returned, with the Trump administration threatening more tariffs on China and new tariffs on Mexicoat least some of which we now assume will take effect. While our base case assumes that a deal will ultimately be struck to unwind these tariffs, the effects are likely to weigh on growth in the US and China in the meantime—and to spill over to the rest of the world, especially if broad autos tariffs are introduced later this year. Indeed, we now see a bigger impact of these trade actions than we had assumed previously.

Heating up

Value of US tariffs proposed and implemented, \$ bn

Source: Goldman Sachs Global Investment Research.



Economic repercussions are likely larger than we thought

In addition to larger tariff numbers, we see two reasons why the global economic repercussions of the trade tensions might be more sizable than previous estimates. First, tariffs imposed to date have had larger effects on US inflation than initially expected. This is because Chinese importers chose to pass on all of the tariffs to US consumers, rather than take a hit to their own profit margins; and US domestic producers also took the opportunity to raise their own prices alongside more expensive Chinese imports¹ (see pgs. 12-13).

Second, financial markets have responded notably to the recent trade war news. In the US, the escalation of trade rhetoric through May went hand in hand with a sharp tightening of financial conditions, led by lower equity prices. This was echoed in other countries, especially developed markets, pointing to spillover effects on global financial conditions arising from specific disputes between the US, China, and Mexico.

Growth impacts: manageable for now...

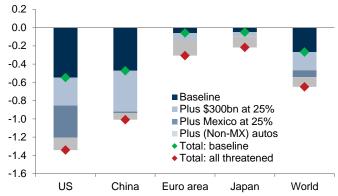
Taking these insights into consideration, we assess the growth implications of our baseline view on tariffs: a 10% tariff on the final tranche of \$300bn of Chinese imports and a 10% tariff on all imports from Mexico, both of which we expect to be enacted by mid-July.

¹ Fajgelbaum, Goldberg, Kennedy, and Khandelwal, "The Return to Protectionism," March 2019; Amiti, Redding, and Weinstein, "The Impact of the 2018 Trade War on U.S. Prices and Wolfare," March 2019 Prices and Welfare," March 2019.

We find that growth effects are sizable, but manageable. For example, US GDP would be 0.5-0.6% lower, with a slightly smaller hit to China of about 0.4-0.5%. Underpinning these numbers are effects of inflation, which erode US consumers' purchasing power, and tighter financial conditions, which weigh further on GDP. These drags more than offset the benefit to the US of cutting back on imports from China thanks to the tariffs. So even in our baseline, the US is worse off imposing any tariffs than it would have been without a trade war.

Large but manageable

Real GDP impact of various tariff scenarios after 3 years, %



Source: Goldman Sachs Global Investment Research.

...but escalation poses substantial downside risk

And as trade tensions rise, the effects start to build up. We consider three escalating scenarios:

- Raising the tariff rate on the remaining \$300bn of Chinese imports to 25% from 10% would weigh on US GDP by a further 0.3%, bringing the total hit to GDP up to over 0.8%, with a broadly similar drag on China. Together, these account for most of the drag on global GDP, which stands at around 0.5%.
- When raising the tariff rate on all imports from Mexico to 25%, the effect would grow even further in the US, bringing the total hit to US GDP to around 1.2%.
- Finally, introducing 25% tariffs on all auto imports raises the cost to the US to 1.3-1.4% of GDP. The fallout would be more broadly felt around the world, with the Euro area—especially Germany (see pg. 19)—and Japan suffering notably, in line with their importance in auto imports to the US.

Of course, these estimates are uncertain. If, ultimately, Chinese exports are simply re-routed through other countries to the US, then the effect on the world economy will be much smaller than feared. But a sharper tightening in financial conditions—together with worsening sentiment—could amplify the costs, so that they end up notably larger than we estimate. The FCI effect is the most uncertain but potentially the most important transmission channel, and the risk is probably tilted toward larger negative consequences.

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Q&A on China's growth, and beyond



Andrew Tilton is Chief Asia Economist at Goldman Sachs. Below, he makes the case that rising trade tensions mean further Chinese policy easing is likely.

Q: Is China's growth recovery sustainable should we see trade escalation continue?

A: Yes, assuming escalation doesn't lead to a much more dramatic global slowdown, and that Chinese policymakers react to the changing environment. At the end of 1Q2019, Chinese growth was tracking towards the top end of policymakers' 6-6.5% target GDP growth range for this year. April numbers were softer, although the fading of upward distortions due to the Chinese New Year holiday and VAT cut likely contributed to the strength in March and subsequent deceleration. So far May activity growth also appears to be on the weak side, and trade escalation clearly poses additional risks. Our global team's analysis suggests that an across-the-board 25% tariff on China with a limited amount of retaliation would reduce Chinese GDP by 0.8pp (see pg. 10). But we think the actual slowdown in growth will be smaller than this because policymakers are likely to take action to temper the impact. For now, we have slightly lowered our GDP forecasts for the remainder of 2019, and now forecast 2019 full year GDP growth of 6.4% yoy. That still leaves GDP growth comfortably in the target range. Our China Current Activity Indicator is tracking a little weaker, just below 6% at present.

Q: What actions would Chinese policymakers be mostly likely to take to mute the impact of escalation?

A: Policymakers are more focused on financial risk than in the past, so they're trying to calibrate the minimal level of stimulus needed to keep growth at an acceptable level. But should the US impose additional tariffs—and should Chinese growth data continue to slow—the RMB would likely to be allowed to weaken more, potentially moving through 7.00 to the US dollar; despite policymakers' clear preference for currency stability, depreciation would likely be the lesser evil at that point. We'd also expect short-term interest rates to return to their lows from earlier this year, and expect a further 50bp cut to the Reserve Requirement Ratio (RRR). Finally, fiscal policy is likely to step up further, with a particular focus on infrastructure spending.

Q: What could further escalation from the Chinese look like?

A: Signals in the state media, as well as a recent visit by President Xi to a rare earth minerals company, suggest policymakers may limit sales of these minerals to the US, which is heavily dependent on Chinese supplies. Another possibility would be actions against US companies operating in China. A recent survey by the American Chamber of Commerce in China suggested around 20% of US firms operating there felt that they had received slower regulatory approvals or other measures since the trade war began. Now that's not an especially high percentage, but the operating environment for these companies could certainly become more challenging. Both Korean and Japanese companies have suffered from consumer boycotts or regulatory actions in recent years, so that is certainly a big concern for US companies with exposure to China.

Q: The market always seems to be concerned about the possibility of China unloading US Treasuries when tensions between the countries rise. Is that concern warranted?

A: I think selling Treasuries is an unlikely retaliatory measure. Rapid Treasury sales that caused market volatility would likely have collateral damage well beyond US markets, tightening financial conditions globally; Chinese policymakers would presumably not want to be blamed for that volatility. And Treasuries are ultimately securities issued by the US and denominated in dollars which gives the US more leeway to deal with that situation. In an extreme case, you could even imagine the Fed purchasing Treasuries as a short-term stabilizer. So I think it's a playing field on which China has a disadvantage vis-à-vis the US, and I suspect the Chinese would choose to look for other ways to push back on US actions. That said, future Chinese reserve purchases could be less focused on Treasuries and more on other assets.

Q: What should investors be watching over the next few weeks?

A: In the short term, we'll be watching for potential retaliation for US actions on Huawei and other Chinese technology firms as well as the possible expansion of US tariffs. And, of course, the G20 meeting in Osaka will be key—assuming the two presidents meet at all, do we see a shift in tone and a pause in escalation measures following that encounter? Farther out, another event on the horizon is the 70th anniversary of the founding of the People's Republic of China, which occurs in October, and will likely be marked by a major celebration. To the extent that that is an important patriotic event, it could have some influence on how policymakers think about any potential trade deal with the US. The Chinese are insistent on having a balanced deal that is respectful of China's sovereignty, and that demand may become even more acute around that anniversary.

A larger scope for US trade war risks

David Choi and David Mericle argue that tariffs pose upside risks to inflation and downside risks to growth

The impact of tariffs so far on the US macro landscape has been larger than expected. This suggests that trade policy may have a potentially greater impact on inflation and growth over the next year should tensions continue to rise.

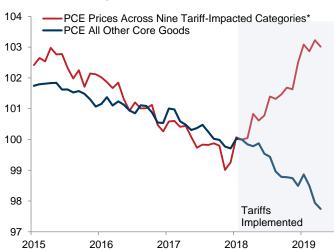
Inflation impacts: bigger than expected

The effects of tariffs on US inflation have been substantially greater than expected. In our view, tariffs in place so far are contributing a roughly 0.2pp boost to core PCE inflation, and Consumer prices in tariff-affected categories have risen by over 5pp more than other core goods prices since the tariffs were first implemented, and our estimates suggest that tariffs in place so far are contributing a roughly 0.2pp boost to core PCE inflation.

The bigger-than-expected inflationary impact seems to owe in large part to the behavior of Chinese exporters, who apparently did not decrease their prices in response to higher tariffs. This implies that the costs of the tariffs have fallen mostly on US businesses and households². In addition, the effects of tariffs have spilled over noticeably to prices charged by non-Chinese producers of tariffed goods, who appear to have opportunistically raised their prices in response to the protection from Chinese competition.

Opposite directions

US core PCE inflation, index



Source: Department of Labor, Department of Commerce, Goldman Sachs GIR.

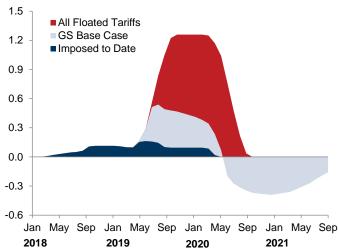
Going forward, the effects of earlier tariff rounds will begin to fade, but the recently imposed tariffs on China and our expectation of further tariffs on both the remaining \$300bn of goods imports from China and on all Mexican goods imports

suggest that tariffs should begin to provide a further boost to inflation beginning in June.

We now project a peak inflation impact of +0.5pp in September of this year, with the boost edging back down to 0.4pp by year-end 2019. This amounts to core inflation returning to the Fed's 2% target in August and temporarily overshooting to 2.3-2.4% in early 2020. From there, the path of inflation will depend crucially on the outcome of trade policy negotiations. Under our assumption of an eventual deal, the total impact would fade as tariffs begin to decline in a staggered off-ramp, swinging to a 0.4pp drag in early 2021.

Mounting pressures

Estimated tariff impact on core PCE inflation, pp yoy



Source: Goldman Sachs Global Investment Research.

If instead the trade war escalates further, the inflation impact could become quite large. Imposing 25% tariffs on roughly \$300bn of remaining Chinese imports would have a peak effect of 0.65pp on core PCE, while auto tariffs would have a roughly 0.2pp peak effect. These considerably larger effects reflect the much greater share of consumer goods that would be affected. In addition, imposing 25% tariffs on imports from Mexico would likely boost core inflation by around 0.3pp. If all proposed tariffs are implemented, we estimate a core inflation impact that peaks at an eye-popping +1.25pp early next year.

Growth impacts: bigger inflation impacts lead to bigger growth impacts

For a deficit country like the US, the overall net impact of a trade war on GDP growth is unclear. While higher tariffs siphon off real income, they may also shift demand toward domestically-produced goods. Although the larger estimated impact of tariffs on inflation implies a larger hit to real income and consequently a larger drag on growth, we estimate the net effects of these opposing forces should be relatively minor.

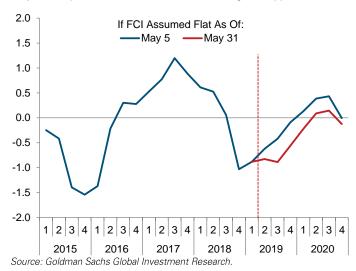
Potentially more important is how markets react to the trade war; a large tightening in financial conditions can lead to a large drag on growth. Indeed, the market reaction to trade news can be significant, as seen by the tightening in financial conditions since President Trump's tweets on May 5 that escalated the trade war. Incorporating the inflationary impact and the impact from tightening financial conditions, we now expect the drag on growth to peak at around 0.5% of the level of GDP by the end

² Several academic studies use detailed data on trade volumes, import prices, and US consumer and producer prices to study the impact of the tariffs on foreign exporters, US businesses, and US consumers. See, for example, <u>Amiti. Redding and Weinstein</u> and <u>Fajgelbaum, Goldberg. Kennedy, and Khandelwal</u>.

of 2019. This has recently led us to reduce our US growth forecasts for 2H2019 by about that amount to roughly 2.0% (qoq ar).

Feeling tighter

Projected impulse of financial conditions on US growth, pp



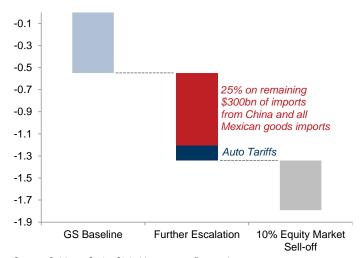
The growth impact would increase under further escalation. For example, adding 25% tariffs on all Chinese and Mexican imports—as well as broad auto tariffs—would knock off about 1.3-1.4% from the level of US GDP, with the hit to growth spread out over several quarters, depending on the timing of the escalation.

Another potential risk is an amplification of the direct economic impact by a major deterioration in risk sentiment. While our estimates incorporate the tightening of financial conditions from increases in tariffs, the risks are likely skewed to larger market impacts if non-tariff measures are implemented as well or if sentiment deteriorates dramatically. A further 10% decline

in equity prices, for example, would increase the hit to the level of GDP to about 1.7-1.8%.

Stacking up

Estimated peak GDP level effect from tariffs, pp



Source: Goldman Sachs Global Investment Research.

So while the direct growth effects of the trade war are <u>likely manageable</u>, our findings show that the impact of financial conditions poses significant downside risks to growth.

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Interview with Susan Shirk

Susan Shirk is the Chair of the 21st Century China Program and a research professor at UC San Diego. She is the author of numerous books and articles including *China: Fragile Superpower*. From 1997-2000, Shirk served as Deputy Assistant Secretary of State in the Bureau of East Asia and Pacific Affairs. Below, she explains the origins of US-China tensions that predated the current administrations, and warns about the dangers of US overreaction to the China threat.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.



Allison Nathan: How has the relationship between the US and China evolved over the last several decades to arrive at the current tensions today?

Susan Shirk: Nowadays people often say that the US can never cooperate with a country led by the Communist Party. But the reality is that for several

decades, starting with Deng Xiaoping's ascendancy as the ruler of China in the late 1970s, the US and China got along pretty well. That was the result of convincing Chinese reassurance that even as China grew more powerful, it was a responsible and friendly power. This was reinforced by Deng Xiaoping's introduction of economic and political reforms that moved the country in the direction of convergence with the United States, although there was never a naïve expectation that China was going to become a liberal democracy.

At the same time, the US maintained its own military, economic, and political capabilities in the Asia-Pacific alongside its allies based on international law and global norms, while encouraging China to take on a more active role in regional and global institutions. I like to say that the US even sponsored China's emergence as a global power by, for example, eagerly creating the G20 so that China would have a seat at the table in discussing major economic and political challenges. That generally cooperative relationship basically persisted until the onset of the global financial crisis, which was perceived as resulting from failures of the US system of financial regulation and led to a loss of respect for America inside of China. The liberals in China lost much of their influence because the US capitalist system was discredited, and there was a sense of premature triumphalism in China.

It's important to emphasize that this inflection point occurred during the second term of Hu Jintao's administration—before the ascendance of Xi Jinping. So the current contentious relationship cannot be blamed wholly on Xi Jinping, let alone on President Trump. But Xi Jinping's administration has certainly intensified tensions on several fronts. After decades of decentralization and market reform, China has taken a U-turn on economic and political strategies back to the dark days of the Mao era. Although Xi Jinping initially laid out a plan for further economic reforms in in 2013, nothing in that plan has been implemented. In fact, the state has strengthened its role over the economy and has effectively reverted to a form of state capitalism, which continues to leave international and Chinese private firms at a great disadvantage to state-run firms. China's leadership has also become more aggressive on foreign policy. Thanks to Xi Jinping's Belt and Road initiative,

China is now a major presence on every continent. This has raised alarm bells, as has China's more aggressive defense of its maritime sovereignty claims in the South China Sea in violation of international law and the legitimate rights of other coastal states. These actions have been important not just because of their implications for the region, but also because they have changed the narrative about China's intentions.

And finally, politically, China has become a much more ideological and autocratic system. Under Xi Jinping, the Communist Party has taken back the authority it had delegated to government technocrats and is trying to run everything itself. And within the party, Xi Jinping has embraced a much more concentrated system of personalistic dictatorship. Of course, the biggest blow to hopes that China was slowly evolving toward a better governed form of authoritarianism was the fact that Xi Jinping managed to persuade the Communist Party to abandon the practice of peaceful turnover of power at the top that China had achieved. This accomplishment should not be underestimated; China was the first communist country to achieve it. But Xi Jinping did not appoint a successor in training after five years as his two predecessors had, and even went so far as to change the Constitution to eliminate the two-term limit. And then he used an anticorruption campaign to eliminate rivals and shore up his dictatorial power. This has created great uncertainty about what comes next. So all of the above made China look more threatening, dangerous, and much harder to deal with. And that's only on the Chinese side; we haven't even gotten to Trump yet, whose actions have also clearly added to the current hostility.

Allison Nathan: To what extent has Trump's more confrontational approach to China contributed to the current tensions?

Susan Shirk: The reality is there is an intense underground criticism of Xi Jinping's policies inside of China among Chinese private companies, financial technocrats, journalists, academics and so forth, who up until recently have actually been rooting for pressure from the Trump Administration and from the West more broadly to force systemic changes that will get China back on the path of economic and political reform. They believe, as I do, that this will ultimately strengthen China. But I just came back from Shanghai. And my impression is that the attitude of even this group has changed substantially following Trump's recent actions, which include a new round of unilateral tariffs, accusations that China subverted the negotiations by backpedaling, which the Chinese side denies, and extreme measures against Huawei. One professor said to me that for the first time in memory everyone wants to stand together behind their government and their leader. So Trump's actions have led to a more unified nationalist resentment of the US---

and a view that not just Trump, but American society, is trying to contain China's rise and defeat China. Ironically, this has reinforced Xi's power; nobody—not even someone among the generally critical elite—is likely to challenge him at this point. Instead, the hawks have increased their influence.

Allison Nathan: What is China's explanation for the current impasse?

Susan Shirk: I have no inside information about what caused the impasse. But a recent white paper released by the Chinese and prior comments from Chinese negotiator Liu He mentioned the infringement of China's domestic sovereignty and the unwillingness of the US to withdraw tariffs even after the conclusion of negotiations. As much as I am in favor of the US pushing very hard for substantial changes in Chinese policies, an unwillingness to lift tariffs even after the Chinese makes concessions seems unreasonable to me.

Overall, it's hard to say what's accurate between the US and Chinese accounts. But having participated in the WTO negotiations with China when I was in the US government in the late '90s, these trade negotiations are so complicated and involve so many different sectors in the economy that you're only going to get agreement if the leadership basically imposes them over the opposition of different sectors. I think Xi Jinping has the capability of doing that, just as Zhu Rongji and Jiang Zemin did in the late '90s. But it has to be done in such a way that doesn't look like the unequal treaties that Western governments imposed on China in the 19th century. In other words, it can't humiliate Xi Jinping.

Allison Nathan: If Xi is such a powerful ruler, why is saving face so important?

Susan Shirk: Chinese leaders always feel insecure because they live with the constant fear that an economic or financial crisis could lead to a political challenge to Communist Party rule. I titled my book *Fragile Superpower* because this insecurity of the leadership is essentially built into the system. In that context, Xi Jinping has a lot at stake in this trade war; should these tensions lead to economic problems in China—not only owing to the direct effects of tariffs and other actions, but also to the potential for companies to start moving out of China—the loss of jobs and ultimately confidence inside of China could be very politically damaging for Xi and for the Communist Party overall. Remember, China is a very highly leveraged economy, so if things start to fall apart, there is no telling what the fallout might be.

And a leader like Xi Jinping, who has effectively consolidated power in his own hands, has—perhaps counter-intuitively— even more reasons to feel insecure because he is vulnerable to a challenge from other members of the elite who are not happy about the way that Xi Jinping has harmed their career security. So he faces the risk of widespread social protest if the economy deteriorates as well as a divided and arguably discontent elite. Given all of this, Trump's latest round of escalation, while motivating the Chinese side to resume negotiations soon, has definitely reduced the ability of the Chinese side to make concessions. As a result, Chinese official media is preparing the Chinese people for a long trade war, even if that is not what Xi Jinping ultimately wants.

Allison Nathan: How do recent US actions against Huawei factor in here?

Susan Shirk: The imposition of export restrictions on Huawei was also almost a nuclear option. Banning its purchases and use of American technology basically amounts to an embargo. Chinese officials always complain about our military activities in the South China Sea and have strengthened their navy because of fears that we would cut off their imports of oil from the Middle East. We accuse them of being paranoid, reassuring them that we would never blockade Chinese imports of oil; we say we would have to be at war before we would do that. But in effect, that's what these actions against Huawei—and before that, to ZTE—have done to China's telecom sector. Since banning use of American technology is also very costly to US firms it is a credible signal that the US is already viewing China as an enemy, not just a competitor.

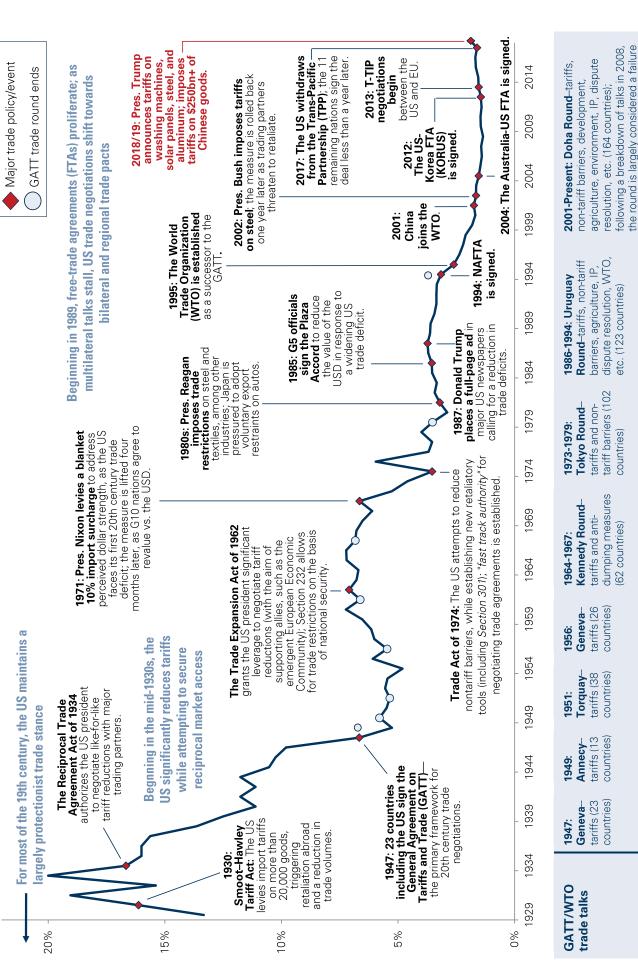
Of course, President Trump lifted the punishment of ZTE, so it's clear he viewed those actions as a bargaining chip to move negotiations forward. But it remains to be seen whether he does the same with Huawei. As for the Chinese side, they haven't said that unless you lift the ban on Huawei, we won't negotiate. But this is a very sensitive and dangerous strategy that would no doubt harm China in the short term, but ultimately be more threatening to the US over the longer term as Chinese companies accelerate their own technological self-reliance.

Allison Nathan: Is the US overreacting to the China threat?

Susan Shirk: Yes. Right now I see a big herding instinct in the face of a perceived security threat from China among Democrats and Republicans alike. And I think we could end up herding ourselves right off a cliff. That's because decoupling technologically in the name of national security will not only perpetuate ongoing hostilities between our countries, but will also ultimately weaken our own technological innovation. If we restrict all Chinese tech investment in the US, the loss won't be the money; there's plenty of venture capital in America. The loss will be in Chinese talent, which is critically important to innovation and not easily replaceable. For this reason, I am closely watching upcoming decisions on export controls, which will govern Chinese access to American R&D on university campuses, private firms, and research institutes, and whether or not Chinese scientists can work in labs together with scientists from other countries and the US. In general, I strongly believe the US should adopt former Defense Secretary Robert Gates' approach to these issues, which is a "small yardhigh fence" approach that only restricts technologies which directly impact national defense.

The other related danger is that we put Chinese Americans and Chinese citizens in America under a cloud of suspicion because of concerns that Chinese technological espionage is so prevalent on campuses and in companies that we have to investigate all people of Chinese decent. That is already beginning to turn into an anti-Chinese version of a red scare similar to the McCarthy era. Given all of these dangers, I worry that the way the US is reacting to the perceived threat from China is a race to the bottom of a more closed and restrictive economy, technological ecosystem, and society instead of leading us to a better version of our open market democracy.

Long history of US trade policy



Source: US International Trade Commission, US Department of Commerce, WTO, "Irwin Douglas A., Clashing Over Commerce," Goldman Sachs Global Investment Research.

US effective tariff rate (customs duties/imports), %

Snapshot of our views

How have rising trade tensions impacted your asset class, and what would you expect to see should things escalate from here?

RATES Praveen Korapaty & Team

• **US:** Market pricing for Fed cuts over the next 6 quarters <u>now resembles</u> periods preceding past recessions; further deterioration in risk sentiment via trade worries should pull forward cut pricing. <u>We think</u> near-dated inflation expectations (ex-energy) remain mispriced, as markets have not yet embedded the significant impact to core inflation from the latest rounds of tariffs.

• **Europe**: Trade tensions are weighing on European rates given exposures to external growth risks. Along with declining inflation expectations, the ECB has since responded with a dovish shift. We expect core yields to fall until trade tensions improve; and sovereign spreads should remain well-supported by generous TLTRO terms, but political risks remain in Italy.

FX

Zach Pandl, Kamakshya Trivedi & Team

- **China:** Although Chinese policymakers appear to prefer a stable currency, risks are skewed toward further depreciation if trade tensions continue to escalate, potentially beyond the psychologically-important 7.0.
- **EM:** A further escalation of US-China trade tensions would likely impact the currencies of commodity exporters (like the CLP) and the small, open economies of NJA. The threat of tariffs on Mexico has also driven USD/MXN significantly higher.
- **DM:** Since trade tensions re-escalated in early May, the broad dollar has strengthened nearly 1%. Now that we expect <u>further escalation</u>, <u>we think JPY</u> and DXY can strengthen, while the open economies of Asia (AUD, NZD) can weaken. But the USD could reverse course if trade tensions result in Fed rate cuts.

EQUITIES

David Kostin, Kathy Matsui, Peter Oppenheimer, Tim Moe, Caesar Maasry & Teams

- **US:** China-exposed stocks fared particularly poorly amid the recent 6% sell-off since record-highs in May, declining by more than 10%. Because China explicitly counts for just 2% of S&P 500 revenues, the primary risk to US corporate earnings posed by tariffs is through profit margins. We think that a 25% tariff on all Chinese imports could reduce S&P 500 EPS estimates by 6%, though risks are likely smaller given companies' ability to adjust supply chains and pass through costs via higher prices.
- **China:** Current valuations (10.8X) post a ~15% correction in Chinese stocks since their April peak have likely priced out a trade deal, but are not fully pricing a sustained trade escalation scenario. We estimate 7% and 13% earnings risks in a "latedeal" and "no-deal" outcome, implying 10% and 21% potential return downside from current levels respectively. For now, we remain overweight on China stocks within Asia ex-Japan.
- **Europe:** The EUROSTOXX 50 is down ~5% since its peak early May, with trade-sensitive stocks being hit particularly hard. Should across the board tariffs be implemented, we would expect the EPS of European autos and the DAX to be hit most (we estimate about a 10pp decline), followed by the SX5E and the SXXP (mid-single digit declines). Defensive stocks would likely outperform.
- **Japan:** Escalation of trade tensions has been a <u>key reason</u> behind the underperformance of Japanese equities vs. global markets YTD. Should the US levy a 25% tariff on all Chinese imports—as well as Japanese auto imports—the negative impact on TSE profit growth is around 4pp vs. our base case, with the auto sector remaining particularly vulnerable.
- **EM**: EM equities saw their strong YTD gains reverse with the re-escalation in trade tensions, owing in part to the Asia-heavy composition of key indices. We think EM equities are fairly valued given current levels of growth/core rates, leaving room for downside on negative trade news. We thus prefer in long/short pairings, such as long EM ex-China vs. Global Materials stocks.

CREDIT (US)

Lotfi Karoui & Team

- **US**: Escalation in trade tensions led us to <u>downgrade</u> HY spreads to underweight versus IG in the USD market. At the sector level, we've also downgraded Autos (in the USD and EUR markets) back to underweight (from neutral). Autos, Retail, and Technology are among the <u>most vulnerable</u> sectors to trade-related disruptions, although to varying degrees.
- **Asia:** Despite rising trade tensions, the Asia credit market has been fairly steady, likely on hopes of Chinese policy easing. We think additional US tariffs will have a limited direct impact on Chinese credit fundamentals, as most issuers with offshore bonds outstanding have little-to-no US revenue exposure; the indirect impact, however, could be substantial.

COMMODITIES Jeff Currie & Team

- Escalation in the trade war has caused investors to reduce exposure to industrial metals, and copper has retraced all of its gains from Q1. We now are cautiously constructive on copper valuation. Meanwhile, gold rose above \$1300/oz amid trade fears, consistent with our view that gold's safe haven status remains intact.
- Renewed trade tensions could threaten current and future US soybean prices, especially as China continues to source more
 of its oilseed from Brazil. US-Mexico trade frictions and the less-likely passage of USMCA also present risks in the agriculture
 space; Mexico is typically among the biggest buyers of US corn, wheat, beef and pork—and further retaliation looks possible.

Thirty years of Trump on trade

66 ... [W]e've fallen into the habit of mistaking the easy availability of cheap, sweatshop-produced product for solid and sustainable economic stability...What I would do if elected president would be to appoint myself U.S. trade representative ... Our trading partners would have to sit across the table from Donald Trump and I guarantee you the ripoff of the United States would end."

> - 2000 book, The America We Deserve by Donald J. Trump

- 66 Over the years, the Japanese, unimpeded by the huge costs of defending themselves built strong and vibrant economy with unprecedented surpluses ... Now that the tides are turning the yen is and becoming strong against the dollar, the Japanese are openly complaining and, in typical fashion, our politicians reacting these unjustified to complaints ... 'Tax' these wealthy nations, not America. End our huge deficits..."
 - 1987 ad placed by Donald J. Trump in US newspapers
- **66** What's unfortunate [about the Japanese] is that for decades now they have become wealthier in large measures by screwing the United States with a self-serving trade policy that our political leaders have never been able to fully understand or counteract." taro
 - 1987 book, The Art of the Deal by Donald J. Trump

66 I'm not an isolationist ... I think that you have to be treated fairly by other countries. If other countries aren't going to treat you fairly ... they should suffer the consequences."

> - 1999 interview with Larry King (CNN)

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- **66** We can no longer tolerate these chronic trade abuses and we will not tolerate them ... Despite years of broken promises, we were told that someday everybody would behave fairly and responsibly ... that is why I am here today..."
 - 2017 remarks at APEC summit
- 66 When a country (USA) is losing many billions of dollars on trade with virtually every country it does business with, trade wars are good, and easy to win."
 - March 2018 tweet
- 66 For 10 months, China has been paying Tariffs to the USA of 25% on 50 Billion Dollars of High Tech, and 10% on 200 Billion Dollars of other goods. payments In aremies upartially responsible for our great economic results. The 10% will go up to 25% on Friday. 325 Billions Dollars of additional goods sent to us by China remain untaxed, but will be shortly, at a rate of 25%. The Tariffs paid to the USA have had little impact on product cost, mostly borne by China. The Trade Deal with China continues, but too slowly, as they attempt to renegotiate. No!

May 5, 2019 tweet

or years, countless wiretaps and video surveillance turned

SIC

Goldman Sachs Global Investment Research

cel

US auto tariffs take aim at Germany

Sören Radde argues that auto tariffs pose a meaningful risk to Germany's alreadyuncertain economic outlook

The re-escalation of global trade tensions in past weeks has put the risk of US auto tariffs on imports from the EU back on the table. While we expect a less confrontational path to an agreement on US-EU trade, we think the probability of US auto tariffs has risen sharply to 40%. If implemented, Germany would stand to lose most within the European Union (EU).

The bane of deep integration

The direct effects of auto tariffs on GDP growth appear manageable. Even for Germany—by far the most exposed EU country—exports of finished cars and auto parts to the US only represent 0.8% of GDP. Assuming that a broad 25pp increase in tariffs on the German auto industry would lower exports by the same proportion, the hit would be 0.2% of GDP.

But the German auto industry does not only stand out in terms of its direct exposure to US exports. It is also a highly interconnected industry with deeply integrated production networks. The German auto industry has a production multiplier of around 1.8, meaning that for the production of €1bn worth of cars around €1.8bn inputs of goods and services are mobilized. The auto sector has the highest production multiplier across major German manufacturing sectors.

German autos touch (almost) everything Manufacturing production multipliers

Autos
Steel
Non-metallic mineral
Fabricated metal
Oth. transport equip.
Machinery
Chemicals
Rubber
Electrical equip.
Pharmaceutical
Electronics
Autos trade

Source: World Input Output Tables, Goldman Sachs Global Investment Research.

1.4

1.6

1.8

This production structure suggests that the spillover effects of declining demand for cars on other industries may be particularly pronounced in Germany. We pin down these effects by looking at an historical episode of a car-specific demand shock—the €5bn scrappage scheme introduced in Germany in January 2009—as well as the dynamic relationship of value added in the manufacturing and non-manufacturing sectors. Using these guides, we have found that growth spillovers deriving from the auto industry could amount to more

than 1.5x the size of the direct effects of auto tariffs on demand for German autos.

Spooking the market

Beyond direct and indirect production effects, the threat of tariffs instils uncertainty in markets and weighs on investor sentiment. Upon announcement of steel and aluminium tariffs on March 1, 2018, for example, our European Financial Conditions Indexes (FCIs) tightened by around 5bps on the day amid a broad sell-off in risk assets. We also found evidence that uncertainty around the trade outlook has weighed particularly on soft activity indicators, which capture sentiment.

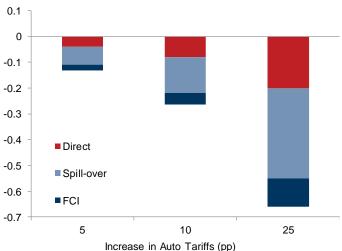
Using the reaction of European FCIs to the latest escalation of trade tensions as a playbook, we have simulated the real effects of US auto tariffs on the largest European jurisdictions through the FCI channel. We find broadly similar effects across countries, with a 25pp increase in auto tariffs knocking up to 0.1% off of GDP.

Germany in the cross-hairs

Even when putting direct, spillover, and FCI effects of US auto tariffs on German GDP together, a 5pp or even 10pp increase in tariffs still looks manageable. But a 25pp increase could inflict a GDP loss just shy of 0.7% on our estimates, which we would expect to build gradually over a period of two to three years. Given the current weakness of economic growth in Germany this number looks meaningful.

The economic blow from auto tariffs could be softened if German car exporters decided to absorb them at least partly through lower margins or if retaliatory measures by the EU were to reduce European imports from the US. That said, US auto tariffs and EU retaliation look more likely to be part of an escalation of current tensions into a global trade war scenario, which we believe Germany is particularly vulnerable to given its high degree of openness.

Taking losses Real GDP impact of various auto tariff scenarios, % of GDP



Note: GDP effects through spill-over and FCI channels are estimated to build over two to three years. Source: Goldman Sachs Global Investment Research.

Sören Radde, Senior Europe Economist

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Top of Mind

Has the trade war lowered the trade deficit?

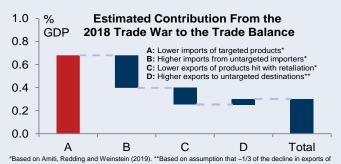
A stated goal of President Trump's trade policy is to reduce the US trade deficit. Indeed, the US trade deficit has declined by 0.5% of GDP since the US first imposed new tariffs in early 2018, with a large contribution from a shrinking deficit with China. Are tariffs the explanation, and could new tariffs sharply reduce the deficit further? Or will they have no impact because the trade deficit is ultimately determined as the gap between spending and investment? Based on a bottom-up and a top-down approach, we estimate that the 2018 tariffs have reduced the trade deficit by around 0.2% of GDP, but we also find that this hasn't resulted in a boost to growth.

Looking bottom-up...

Our bottom-up estimate implies that the trade war has reduced the trade deficit by around 0.3% of GDP.3 While the decline in imports of products hit with tariffs (e.g. leather products from China) has boosted the trade balance by 0.7% of GDP, we estimate that the decline in the trade deficit is only half as large for two reasons. First, the substantial rise imports in unaffected categories (e.g. leather products from Italy) has lowered the trade balance by 0.3% of GDP. Second, the fall in US exports affected by retaliatory tariffs has lowered the trade balance by 0.1-0.2% of GDP.



Source: Dept. of Commerce, Goldman Sachs Global Investment Research.



Source: Dept. of Commerce, Amiti, Redding, and Weinstein (2019), GS GIR.

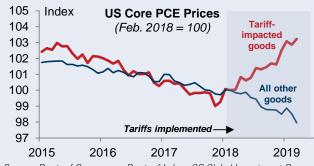
...and top-down

Our top-down estimate based on aggregate tariff revenue data implies that the trade war has reduced the trade deficit by 0.1-0.2%. We estimate a 0.3-0.4pp boost to the trade balance from a \$70bn decline in targeted imports by comparing the hypothetical rise in tariff revenues if targeted import volumes had been stable with the actual rise in tariff revenues, which reflects higher tariff rates as well as lower imports. Combined with our estimate that the decline in the trade deficit is about half the decline in targeted imports, our top-down approach suggests an impact on the trade balance of 0.1-0.2% of GDP.

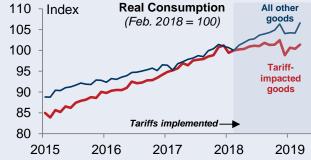
Averaging across our bottom-up and top-down approaches, we estimate a contribution of around 0.2pp from the 2018 tariff rounds to the 0.5pp decline in the trade deficit since early 2018.

The upshot: The trade war has lowered the deficit, but hasn't boosted growth

Does this positive effect on the trade balance imply a positive impact on overall GDP? We don't think so because a decline in domestic demand (due to lower real income or tighter financial conditions) could more than offset the rise in net exports. Consumer prices in tariff-affected categories have risen much more than other core goods prices in the PCE index). And consistent with negative effects on domestic demand, consumption categories hit by US tariffs have also seen substantially weaker real spending growth.



Source: Dept. of Commerce, Dept. of Labor, GS Global Investment Research.



Source: Dept. of Commerce, Dept. of Labor, GS Global Investment Research.

The upshot is that the 2018 tariffs have had an indeed positive but not particularly large effect on the trade balance, although the net impact on growth has not been positive. Barring any major escalation, this evidence of moderate effects through the positive trade channel but negative effects through the real income channel also suggests that any major hit to growth from trade actions would likely come from tighter financial conditions.

Daan Struyven, Senior US Economist

³ Estimate is based on an academic study: Mary Amiti, Stephen J. Redding, and David Weinstein, "The Impact of the 2018 Trade War on U.S. Prices and Welfare," Mar. 2019.

Have tariffs protected US industry?

A stated goal of President Trump's trade policy is to protect US industry from unfair practices abroad. With that goal in mind, in March 2018, the US placed a 25% tariff on steel imports and a 10% tariff on aluminum imports under Section 232 of the Trade Expansion Act of 1962. Over time, additional changes were made to these tariffs for different countries. For example, Canada and Mexico were originally granted temporary exemptions, which subsequently expired. Most recently, steel and aluminum tariffs were removed for Canada and Mexico as part of the US-Mexico-Canada Agreement (USMCA). A little over a year later, we assess whether the goal has been met, and other lessons learned.

Tariffs did their job...a little bit...

To a certain degree, tariffs did achieve the goal of higher domestic production and lower imports of these commodities. From 2017 to 2018, US production of steel increased 5.4mt, the largest increase since 2011, and US production of primary aluminum increased 149kt, the first increase since 2012. At the same time, imports of steel and aluminum fell and the import reliance ratio (net imports as a percentage of apparent consumption) edged down. However, it is worth emphasizing that the increase in domestic production nowhere near fully offsets the amount of imports needed. In the case of aluminum, for instance, the increase in domestic production in 2018 accounted for less than 3% of the US imports.

Steel (Mt)				
Year	Production	Imports	Exports	Apparent Demand
2017	81.6	34.6	9.6	106.6
2018	87.0	32.0	8.0	111.0
Change	5.4	-2.6		
Aluminum (Kt)				
Year	Production	Imports	Exports	Apparent Demand
2017	741	6,200	1,330	5,611
2018	890	5,500	1,400	4,990
Change	149	-700		

Source: USGS, Goldman Sachs Global Investment Research.



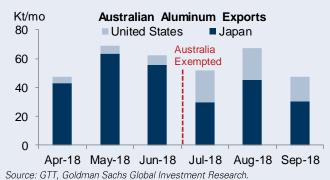
Source: Bloomberg, Goldman Sachs Global Investment Research.

...but also led to a sharp increase in US prices...

Before 2018, the price of primary aluminum in the US was about 2% higher than that in Europe, mostly reflecting transportation cost as the US does not produce enough aluminum for its own consumption and must rely on imports from other countries. After the Section 232 tariffs went into effect in early 2018, however, the US vs. Europe primary aluminum price ratio jumped to 1.12. The 10% increase is consistent with the 10% aluminum tariff imposed by the US, suggesting that the cost is almost entirely being paid by US consumers.

...and re-directed trade flows

There is also clear evidence of tariff-induced trade flow re-directing, which reinforces the notion that tariffs mostly led to a re-distribution of global supplies. For example, following the June 2018 granting of a permanent tariff exemption to Australia, Australian aluminum exports to the US rose while its shipments to Japan fell. During this period, Australia's total aluminum exports remained unchanged. Another case of trade flow re-directing last year was Russia. In April 2018, the US Department of Treasury sanctioned UC Rusal—the largest aluminum producer outside of China. Russian aluminum exports to the US plummeted but its exports to Switzerland jumped.



Kt/mo
150

Russian Aluminum Exports

US Switzerland

100

50

Jan-15 Jan-16 Jan-17 Jan-18 Jan-19

Source: GTT, Goldman Sachs Global Investment Research.

The upshot: Tariffs have boosted US prices more than US production

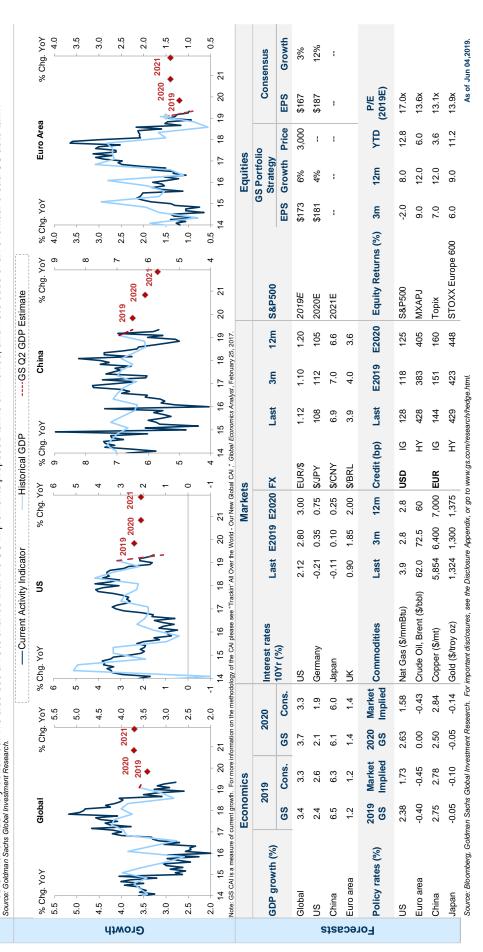
Overall, lessons from the Section 232 tariffs during the past year suggest that tariffs do more to inflate US prices than to increase domestic production and reduce imports. By cutting US demand for foreign output, tariffs raise US prices and lower ex-US prices. These price changes essentially lead to a redistribution from US consumers toward US producers, and from ex-US producers toward ex-US consumers. Unless tariffs apply to all countries, trade flows can often be redirected, muting the impact on aggregate production and consumption. In addition to trade flow re-directing, evidence has emerged for the gradual re-direction of industrial supply chains in response to trade restrictions. For example, the Chinese ban of category 7 copper scrap imports and its retaliatory tariffs on all copper scrap imports from the US have led to growing scrap processing facilities in Southeast Asian countries despite higher labor and logistic costs.

Hui Shan, Senior Commodities Strategist

Summary of our key forecasts

GS GIR: Macro at a glance Despite rising risks, we still expect solid global growth in 2019 of 3.4% (vs. 3.3% consensus)

- In the US, we now see moderately slower growth in 2H given trade tensions and tighter financial conditions; but we're still forecasting an above-trend growth pace of 2.0%. Potential trade escalation skews risks to growth to the downside, and to inflation to the upside.
- We still expect the Fed to remain on hold this year, though recent weak data and Fed Chair Powell's dovish comments have substantially increased the likelihood of cuts, and this is now an extremely close call.
 - in the Euro area, we think more expansionary fiscal policy will help support growth at an above-consensus pace, but global trade tensions, Italian budget frictions, and the threat a no-deal Brexit present downside risk to this view. Despite the coming change in the UK PM, we expect an orderly Brexit, most likely in late 2019/early 2020. Watching
 - We expect the ECB to further pursue a dovish tilt by easing slightly in June (via unconventional means) to lean against still-sluggish growth and inflation; we forecast the
- WATCH TRADE. We do not expect the US and China to reach deal at the G20 summit later this June, and now see 60% odds that the White House moves ahead with a 10% tariff on the remaining \$300bn on Chinese imports starting next month. Trade war developments reinforce our view that acceleration in China is probably behind us and that US core inflation has likely bottomed. We also see a 70% chance that the US implements proposed tariffs on Mexico, and 40% odds of an eventual broad US auto tariff. In Emerging Markets (EM), we believe activity probably bottomed out in Q1, and expect a modest reacceleration in 2H, but trade tensions pose downside risks. ECB's first hike only in 4Q2020



Glossary of GS proprietary indices

Current Activity Indicator (CAI)

GS CAIs measure the growth signal in a broad range of weekly and monthly indicators, offering an alternative to Gross Domestic Product (GDP). GDP is an imperfect guide to current activity: In most countries, it is only available quarterly and is released with a substantial delay, and its initial estimates are often heavily revised. GDP also ignores important measures of real activity, such as employment and the purchasing managers' indexes (PMIs). All of these problems reduce the effectiveness of GDP for investment and policy decisions. Our CAIs aim to address GDP's shortcomings and provide a timelier read on the pace of growth.

For more, see our CAI page and Global Economics Analyst: Trackin' All Over the World - Our New Global CAI, 25 February 2017.

Dynamic Equilibrium Exchange Rates (DEER)

The GSDEER framework establishes an equilibrium (or "fair") value of the real exchange rate based on relative productivity and terms-of-trade differentials.

For more, see our <u>GSDEER</u> page, <u>Global Economics Paper No. 227: Finding Fair Value in EM FX, 26 January 2016</u>, and <u>Global Markets Analyst: A Look at Valuation Across G10 FX, 29 June 2017</u>.

Financial Conditions Index (FCI)

GS FCIs gauge the "looseness" or "tightness" of financial conditions across the world's major economies, incorporating variables that directly affect spending on domestically produced goods and services. FCIs can provide valuable information about the economic growth outlook and the direct and indirect effects of monetary policy on real economic activity.

FCIs for the G10 economies are calculated as a weighted average of a policy rate, a long-term risk-free bond yield, a corporate credit spread, an equity price variable, and a trade-weighted exchange rate; the Euro area FCI also includes a sovereign credit spread. The weights mirror the effects of the financial variables on real GDP growth in our models over a one-year horizon. FCIs for emerging markets are calculated as a weighted average of a short-term interest rate, a long-term swap rate, a CDS spread, an equity price variable, a trade-weighted exchange rate, and—in economies with large foreign-currency-denominated debt stocks—a debt-weighted exchange rate index.

For more, see our <u>FCl page</u>, <u>Global Economics Analyst: Our New G10 Financial Conditions Indices, 20 April 2017</u>, and <u>Global Economics Analyst: Tracking EM Financial Conditions – Our New FCls, 6 October 2017</u>.

Global Leading Indicator (GLI)

The GS GLI was designed to provide a timelier reading on the state of the global industrial cycle than existing alternatives did, and in a way that is largely independent of market variables. The GLI has historically provided early signals on global cyclical swings that matter to a wide range of asset classes. The GLI currently includes the following components: a consumer confidence aggregate, the Japan IP inventory/sales ratio, Korean exports, the S&P GS Industrial Metals Index, US initial jobless claims, Belgian and Netherlands manufacturing surveys, the Global PMI, the GS AUD and CAD trade-weighted index aggregate, global new orders less inventories, and the Baltic Dry Index.

For more, see our GLI page and Global Economics Paper No. 199: An Even More Global GLI, 29 June 2010.

Goldman Sachs Analyst Index (GSAI)

The US GSAI is based on a monthly survey of GS equity analysts to obtain their assessments of business conditions in the industries they follow. The results provide timely "bottom-up" information about US economic activity to supplement and cross-check our analysis of "top-down" data. Based on analysts' responses, we create a diffusion index for economic activity comparable to the ISM's indexes for activity in the manufacturing and nonmanufacturing sectors.

Macro-Data Assessment Platform (MAP)

GS MAP scores facilitate rapid interpretation of new data releases for economic indicators worldwide. MAP summarizes the importance of a specific data release (i.e., its historical correlation with GDP) and the degree of surprise relative to the consensus forecast. The sign on the degree of surprise characterizes underperformance with a negative number and outperformance with a positive number. Each of these two components is ranked on a scale from 0 to 5, with the MAP score being the product of the two, i.e., from -25 to +25. For example, a MAP score of +20 (5;+4) would indicate that the data has a very high correlation to GDP (5) and that it came out well above consensus expectations (+4), for a total MAP value of +20.

Real-Time Indicator of Activity (RETINA)

GS RETINA uses a comprehensive econometric methodology to filter incoming information from the most up-to-date high-frequency variables in order to track real GDP growth in the Euro area and the UK.

For more, see <u>European Economics Analyst: RETINA Redux, 14 July 2016</u> and <u>European Economics Analyst: Introducing RETINA-UK, 2 August 2017</u>.

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We Mark Delaney, Alexander Duval, and Rod Hall, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

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